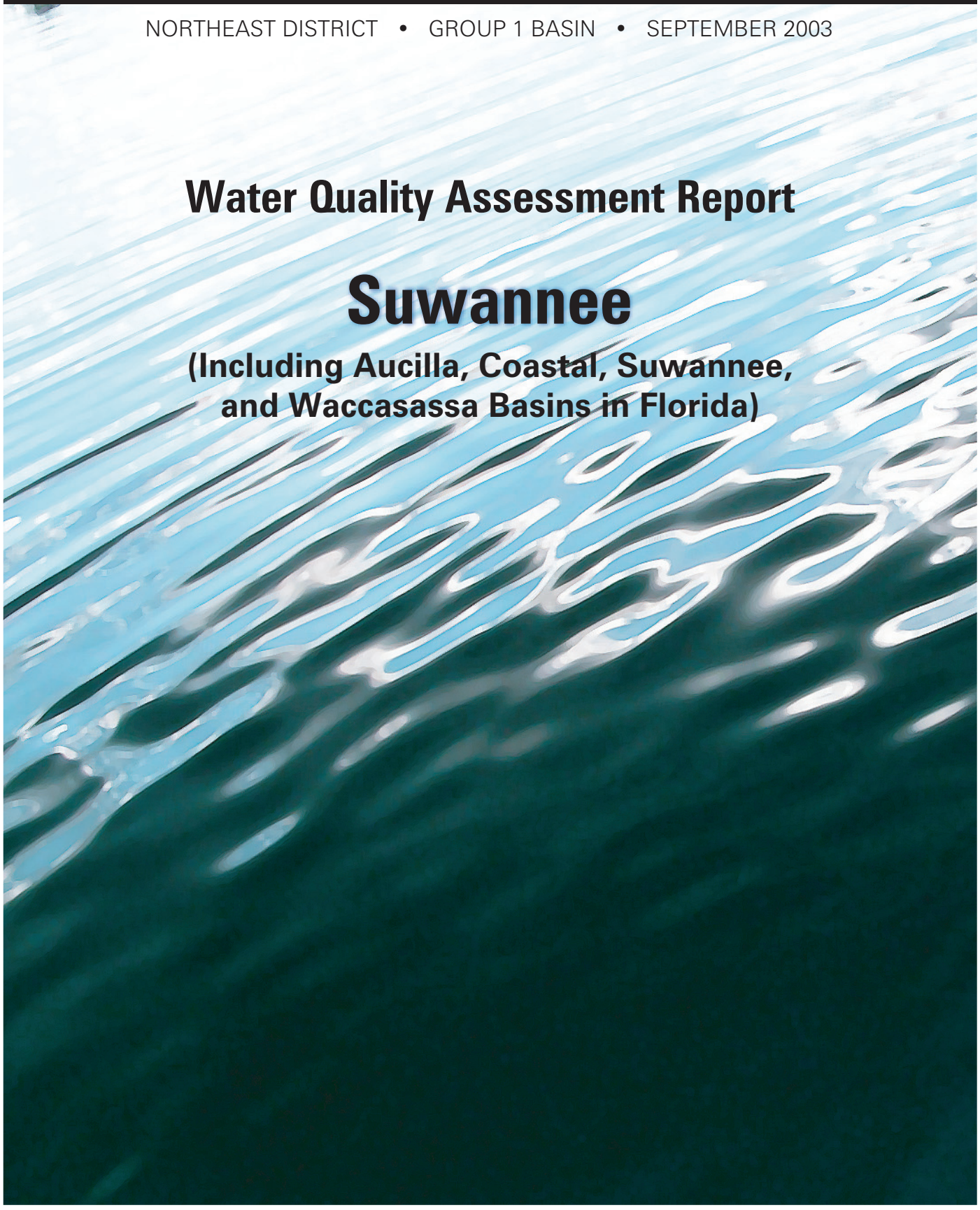
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Water Resource Management | Bureau of Watershed Management

NORTHEAST DISTRICT • GROUP 1 BASIN • SEPTEMBER 2003

# Water Quality Assessment Report

# Suwannee

## (Including Aucilla, Coastal, Suwannee, and Waccasassa Basins in Florida)





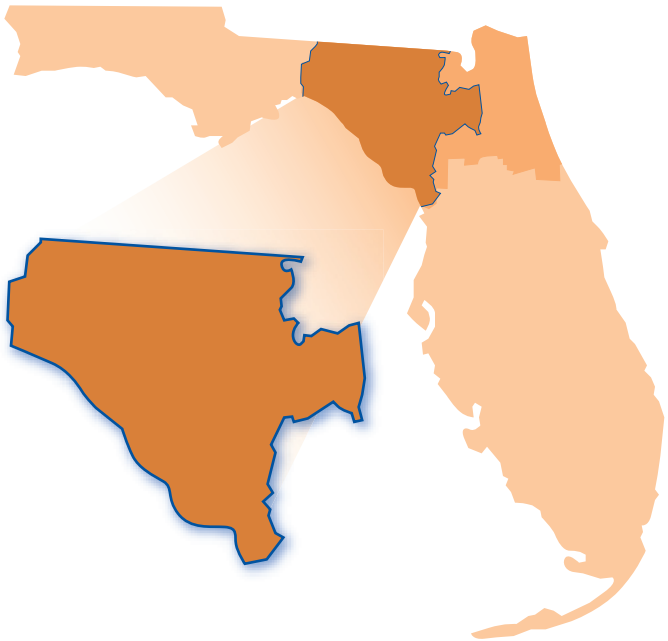
**FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION**
**Division of Water Resource Management**

September 2003

# Water Quality Assessment Report

# Suwannee

## (Including Aucilla, Coastal, Suwannee, and Waccasassa Basins in Florida)





# Acknowledgments

*Suwannee Water Quality Assessment Report* was prepared by the Suwannee Basin Team, Florida Department of Environmental Protection, as part of a five-year cycle to restore and protect Florida's water quality. Team members include the following:

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## Web Sites

**Florida Department of Environmental Protection, Bureau of Watershed Management**

**TMDL Program**
http://www.dep.state.fl.us/water/tmdl/index.htm

**Identification of Impaired Surface Waters Rule**
http://www.dep.state.fl.us/water/tmdl/docs/AmendedIWR.pdf

**STORET Program**
http://www.dep.state.fl.us/water/storet/index.htm

**2000 305(b) Report**
http://www.dep.state.fl.us/water/305b/index.htm

**Criteria for Surface Water Quality Classifications**
http://www.dep.state.fl.us/legal/legaldocuments/rules/ruleslistnum.htm

**Status Reports**
http://www.dep.state.fl.us/water/tmdl/stat_rep.htm

**Allocation Technical Advisory Committee (ATAC) Report**
http://www.dep.state.fl.us/water/tmdl/docs/Allocation.pdf

**U.S. Environmental Protection Agency's National STORET Program**
http://www.epa.gov/storet/

# Preface

## Content Features

- **Executive Summary**: Appears at the beginning of every report and provides an overarching view of the watershed management approach, its implementation, and how this approach will be used to identify impaired waters. A summary of impaired waters in this basin is also included.
- **Noteworthy**: Appears on pages near text that needs additional information but is too lengthy to fit in a sidebar.
- **Definitions**: Appear at the side of pages where scientific terms occur that may not be familiar to all readers. The word being defined is bold-faced in the text.
- **References**: Appear at the end of Chapter 5 and provide a complete listing of all sources used within the text.
- **Appendices**: Appear at the end of each report and provide additional information on subjects, such as bioassessment methodology, rainfall and stream flow, types of natural communities, STORET stations, water quality statistics, land use, and permitted facilities. Also included is a master list that summarizes the water quality in all the basins addressed in this report.



# Executive Summary

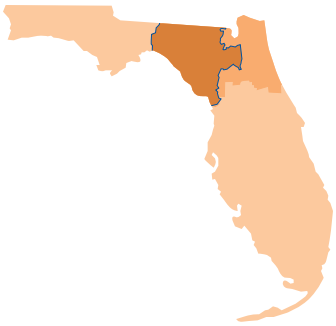
## Suwannee

The Water Quality Assessment Report for the Suwannee Basin is part of the implementation of the Florida Department of Environmental Protection's (Department) watershed management approach for restoring and protecting water resource problems and addressing Total Maximum Daily Load (TMDL) Program requirements. A TMDL represents the maximum amount of a given pollutant that a waterbody can assimilate and still meet the waterbody's designated use. A waterbody that does not meet its designated beneficial uses is defined as impaired. The watershed approach, which is implemented using a cyclical management process, provides a framework for implementing the requirements of the federal Clean Water Act and the 1999 Florida Watershed Restoration Act (FWRA) (Chapter 99-223, Laws of Florida).

A Status Report, published during Phase 1 of the watershed management cycle, provided a *Planning List,* or preliminary identification, of potentially impaired waterbodies in the Suwannee Basin. This Assessment Report presents the results of additional data gathered during Phase 2 of the cycle. The report contains a *Verified List* of impaired waters (**Table 4.3A** in Chapter 4) that has been adopted by Secretarial Order and approved by the U.S. Environmental Protection Agency (EPA). TMDLs must be developed and implemented for these waters, unless the impairment is documented to be a naturally occurring condition that cannot be abated by a TMDL or unless a management plan already in place is expected to correct the problem. The Verified List also constitutes the Group 1 basin-specific 303(d) list of impaired waters, so called because it is required under Section 303(d) of the Clean Water Act. The **Noteworthy** in Chapter 1 describes the contents of this report by chapter.

For the purposes of this report, the area identified as the Suwannee Basin or the Suwannee Group 1 Basin encompasses most but not all of the area within the Suwannee River Water Management District (SRWMD). The Suwannee Group 1 Basin includes the watersheds of the following river basins, as identified by their eight-digit hydrologic unit code: Aucilla, Econfina–Steinhatchee, Alapaha, Withlacoochee, Upper Suwannee, Lower Suwannee, Santa Fe, and Waccasassa.

In the Suwannee Basin, state, federal, regional, and local agencies and organizations are making progress towards identifying problems and improving water quality. Throughout its watershed management activities, the Department works with these entities to support programs that are improving water quality and restoring and protecting ecological resources. The Department's TMDL Program objectives will be carried out in the basin through close coordination with key stakeholders and initiatives such as the SRWMD's Surface Water Improvement and Management (SWIM) Program, the Suwannee River Partnership, local county officials, the EPA, other state agencies, conservation groups, and the general public.



Not only do stakeholders in the basin share responsibilities in achieving water quality improvement objectives, they also play a crucial role in providing the Department with important monitoring data and information on management activities. Significant data providers in the basin include the SRWMD, U.S. Geological Survey (USGS), and Florida LakeWatch.

During the next few years, considerable data analysis will be done to establish TMDLs for impaired waters in the Suwannee Basin, establish the initial allocations of pollutant load reductions needed to meet those TMDLs, and produce a Basin Management Action Plan, or B-MAP, to reduce the amount of pollutants that cause impairments. These activities depend heavily on the active participation of the water management district, local governments, businesses, and other stakeholders. The Department will work with these organizations and individuals to undertake or continue reductions in the discharge of pollutants and achieve the established TMDLs for impaired waterbodies.

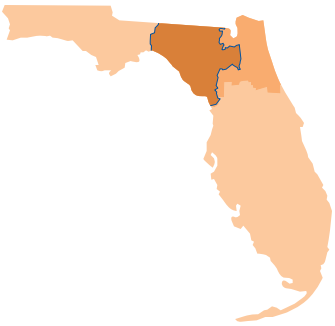
## U.S. Environmental Protection Agency Review of Florida's Amended Section 303(d) List

On June 11, 2003, the EPA released a Decision Document based on its review of the Department's amendments to Florida's 1998 Section 303(d) list. The EPA found that the Department's Group 1 update substantially met the intent of Section 303(d) of the Clean Water Act and partially approved the submission.

Applying its own evaluation methodology, the EPA proposed listing 80 additional waterbody segments/pollutants for public comment by July 18, 2003. Under this methodology, approximately half of the added waters failed to meet water quality criteria for dissolved oxygen (DO), but no causative pollutant could be identified. Florida law precludes the Department from including such waters on its Verified List of impaired waters until the causative pollutant is known. The majority of the remaining waters were added to the list based on a different interpretation of the methodology for assessing potential impairment for bacteria. The Department agreed to apply this alternative methodology when assessing the next group (Group 2) of waterbodies for bacteria.

The consequence of having the EPA add waters to Florida's Section 303(d) list is that the EPA would be obligated to propose TMDLs for these waters. However, the EPA has proposed assigning a "low" priority for TMDL development for these waterbodies, thus providing the Department an opportunity to investigate them further. Information on the status of Florida's amended Section 303(d) list can be found on the EPA's Web site at http://www.epa.gov/region4/water/tmdl/florida/.

## Summary of Findings by Planning Unit



The Department's assessment shows that 27 waterbodies or waterbody segments in the Suwannee Basin are impaired and require the development of TMDLs. The following summarizes, by planning unit, verified impairments by waterbody types and the parameters of impairment. Planning units are smaller areas within the basin that provide a more detailed geographic basis for identifying and assessing water quality improvement activities.

### *Upper Suwannee*

There are three verified impaired parameters in three waterbodies in the planning unit. All three impairments are for DO. Most of the waterbodies in the planning unit are classified as streams, a few are lakes, and the rest are springs; but all are Class III, fresh water.

### *Middle Suwannee*

There are seven verified impaired waterbodies in the planning unit. Six of the impairments are for DO, and all are springs. The last, a segment of the Suwannee River, is impaired based on fish consumption advisories for mercury. The dominant waterbody types are streams and springs, with a few lakes. This planning unit has more springs than any other in the basin. All are Class III, fresh water.

### *Lower Suwannee*

There are five verified impaired parameters in three waterbodies in the planning unit. Two segments are impaired for nutrients, two are impaired based on fish consumption advisories for mercury, and the last is for coliforms/shellfish advisories. The planning unit is dominated by waters in the springs category, a few are streams, and one is estuarine. All are Class III, fresh water except for the estuary, which is Class II, marine.

### *Alapaha*

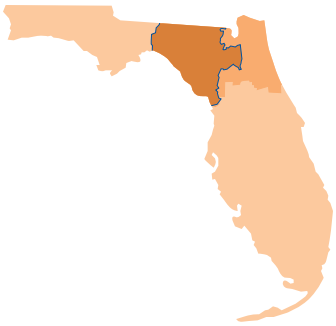
There are no verified impaired waters in the planning unit. All waterbodies are classified as stream and are Class III, fresh water.

### *Withlacoochee*

There are no verified impaired waters in the planning unit. There is a mix of waterbodies—streams, lakes, and springs—and all are Class III, fresh water.

### *Santa Fe*

There are eight verified impaired parameters in seven waterbodies in the planning unit. Two impairments are for DO, four are nutrient related, and two are for coliforms. The planning unit is dominated by waters in the stream waterbody type; however, it also contains some lakes and springs. All segments are Class III, fresh water.



### *Aucilla/Wacissa*

There are no verified impaired parameters in the planning unit. The planning unit is dominated by segments in the stream category, with a few in the spring and lake categories as well. All waters are Class III, fresh water.

### *Econfina*

There are no verified impaired parameters in the planning unit. All except one segment are in the stream category and are Class III, fresh water. The other is estuarine and is Class III, marine.

### *Fenholloway*

There are seven verified impaired parameters in two waterbodies in the planning unit. Parameters include DO, coliforms, biological oxygen demand (BOD), conductivity, and unionized ammonia. Most of the waterbodies are in the stream category. There is one estuary and two lake segments. All are Class III, fresh water, except for the estuarine segment, which is Class III, marine.

### *Steinhatchee*

There are no verified impaired parameters in the planning unit. All segments are in the stream category and are Class III, fresh water, except for four segments. Three of those are springs and are Class III, fresh water; the last is estuarine and is Class III, marine.

### *Waccasassa*

There are five verified impaired parameters in three waterbodies in the planning unit. One segment of the Waccasassa River is impaired for coliforms; two gulf segments are impaired for both fish consumption advisories for mercury and coliforms/shellfish harvesting areas. The planning unit contains a mix of Class II and Class III, fresh water as well as Class III, marine.

### *Other Coastal Basins*

There are 11 parameters in 10 waterbodies that are verified to be impaired. All are coastal segments and are impaired for either fish consumption advisories for mercury or coliforms/shellfish harvesting area downgrades. This planning unit has a good number of estuarine segments that are Class III, marine, as well as stream segments that are Class III, fresh water.

## TMDL Priority Areas

The only waterbody segment that the Department, in cooperation with the EPA, will be producing a TMDL for at this time is the Fenholloway River near its mouth (WBID 3473A). This segment has been verified as impaired for total coliforms. A draft TMDL has been developed. A copy of this document can be found on the Department's TMDL Web site (http://www.dep.state.fl.us/water/tmdl/index.htm).

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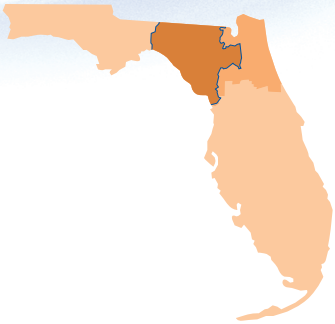
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# Chapter 1: Introduction

## Purposes and Content of the Assessment Report

The Florida Department of Environmental Protection (Department) is implementing a statewide watershed management approach for restoring and protecting water quality and addressing **Total Maximum Daily Load** (TMDL) Program requirements. Under Section 303(d) of the federal Clean Water Act and the 1999 Florida Watershed Restoration Act (FWRA) (Chapter 99-223, Laws of Florida), TMDLs must be developed for all waters that do not meet their designated uses (such as drinking water, recreation, and shellfish harvesting) and are thus defined as impaired. A TMDL is the maximum amount of a given pollutant that a waterbody can assimilate and remain healthy, such that all of its designated uses are met.



***Total Maximum Daily Load***

*The maximum amount of a given pollutant that a waterbody can assimilate without exceeding applicable water quality standards.*

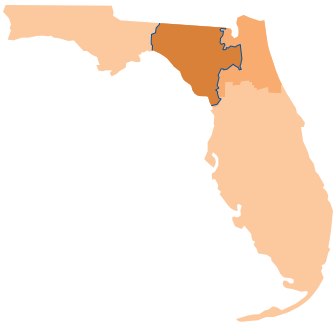
TMDLs will be developed, and the corresponding reductions in pollutant loads allocated, as part of the watershed management approach, which rotates through the state's 52 river basins over a 5-year cycle. Extensive public participation from diverse stakeholders in each of these basins is crucial in all phases of the cycle.

A Status Report published during Phase 1 of the watershed management cycle provided a *Planning List,* or preliminary identification, of potentially impaired waterbodies in the Suwannee Basin. A copy of the report can be found at http://www.dep.state.fl.us/water/tmdl/stat_rep.htm.

This Assessment Report, which updates the information in the Status Report, incorporates data collected from the Department's strategic monitoring and gathered from other agencies and groups during Phase 2 of the watershed cycle. The report contains a *Verified List* of impaired waters required by the FWRA and Section 303(d) of the federal Clean Water Act, for which TMDLs must be developed and implemented (see **Noteworthy** for a description of the Assessment Report's contents by chapter). Based on the assessment results, 27 waterbodies or waterbody segments in the Suwannee Basin are verified impaired for one or more parameters. TMDLs must be developed for these waters, unless the impairment is documented to be a naturally occurring condition that a TMDL cannot abate, or unless a management plan is already in place to correct the problem.

This report is intended for distribution to a broad range of potential stakeholders, including decision makers in federal, state, regional, tribal, and local governments; public and private interests; and citizens.

The Verified List is required by Subsection 403.067(4), Florida Statutes (F.S.), and Section 303(d) of the federal Clean Water Act. The Department has adopted the Verified List of impaired waters in accordance with the FWRA and the Identification of Impaired Surface Waters Rule (IWR) (Rule 62-303, Florida Administrative Code [F.A.C.]). The EPA



also approved this list as the current 2002 303(d) list of impaired waters for the basin, so called because it is required under Section 303(d) of the Clean Water Act.

The first 303(d) list, which was required by the EPA in 1998, is to be amended annually to include basin updates. Florida's 1998 303(d) list included a number of waterbodies in the Suwannee Basin. **Tables 3.5 through 3.16** in Chapter 3 list these waters by planning unit.

This Assessment Report follows the EPA's guidance for meshing Clean Water Act requirements for Section 305(b) water quality reports and Section 303(d) lists of impaired waters. This integrated water quality assessment is used to identify the status of data sufficiency, the potential for impairment, and the need for TMDL development for each waterbody or waterbody segment in the basin.

A description of the legislative and regulatory background for TMDL development and implementation through the watershed management approach, and a brief explanation of the TMDL Program, are available in **Appendix A**. Background information on the Department's TMDL Program, the process of TMDL development and implementation, lists of impaired and potentially impaired waters, and assessments for other parts of the state are available at http://www.dep.state.fl.us/water/tmdl/index.htm.

## Stakeholder Involvement

The FWRA requires the Department to work closely with stakeholders to develop and implement TMDLs. In addition, the Department's Allocation Technical Advisory Committee (ATAC) report, submitted to the legislature, recommends relying on stakeholder involvement. Stakeholder involvement in the TMDL process will vary with each phase of implementation to achieve different purposes **(Table 1.1)**. The ATAC report is available at http://www.dep.state.fl.us/water/tmdl/docs/Allocation.pdf.

The Department will work cooperatively with a number of key stakeholders to develop, allocate, and implement TMDLs in the Suwannee Basin. These include the following:

- Suwannee River Water Management District (SRWMD),
- Local county officials,
- EPA,
- Other state and federal agencies,
- Conservation groups, and
- General public.

**Table 1.1: Stakeholder Involvement in the TMDL Program**

| Watershed Management Cycle | Nature of Stakeholder Involvement |
|---|---|
| **Phase 1:** Preliminary Evaluation | Close coordination with local stakeholders to conduct a preliminary basin water quality assessment; inventory existing and proposed management activities; identify management objectives and issues of concern; develop a Strategic Monitoring Plan; and produce a preliminary Status Report that includes a Planning List of potentially impaired waters |
| **Phase 2:** Strategic Monitoring and Assessment | Cooperative efforts between the Department and local stakeholders to collect additional data; get data into STORET (the EPA's national water quality database); complete water quality assessment; produce a final Assessment Report that includes a Verified List of impaired waters for Secretarial adoption; and provide an opportunity for stakeholders to document reasonable assurance (for Department review) that existing or proposed management plans and projects are adequate to restore water quality without the establishment of a TMDL |
| **Phase 3:** Development and Adoption of TMDLs | Coordination with stakeholders to discuss TMDL model framework, including model requirements, parameters to be modeled, model endpoints, design run scenarios and preliminary allocations; communication of science used in the process; and public workshops for rule adoption of TMDLs |
| **Phase 4:** Development of Basin Management Action Plan | Broad stakeholder participation in developing a Basin Management Action Plan (B-MAP) (including detailed allocations and implementation strategies), incorporating it into existing management plans where feasible; and public meetings during the planning process |
| **Phase 5:** Implementation of Basin Management Action Plan | Emphasis on implementing the B-MAP, other voluntary stakeholder actions, and local watershed management structures; Department will continue to provide technical assistance, fulfill oversight responsibilities, and administer National Pollutant Discharge Elimination System (NPDES) point and nonpoint source permits |

## The Watershed Management Cycle in the Florida Department of Environmental Protection's Northeast District

**Figure 1.1** shows the order in which the Department's Northeast District basins will be evaluated under the watershed management cycle. These groups are identified on the figure according to a U.S. Geological Survey (USGS) classification system using hydrologic unit codes.

Suwannee, a Group 1 basin, was the first basin in the district to undergo a preliminary assessment in 2000 and is the subject of this Assessment Report. A preliminary assessment for the Group 2 basin, the Lower St. Johns River, was initiated in 2001. There is no Group 3 basin in the Department's Northeast District. Similarly, preliminary assessments for the Group 4 and Group 5 basins, the Nassau–St. Mary's River and the East Coast Indian River, will be initiated in 2003 and 2004, respectively. In 2005, the cycle will resume with the Group 1 basin, Suwannee.




*Figure 1.1: Schedule for Implementing the Watershed Management Cycle in the Department's Northeast District, Basin Groups 1 through 5*

# Noteworthy

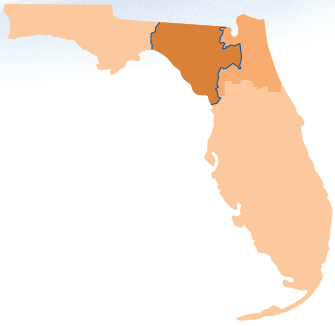
## Contents of This Report

- **Chapter 1: Introduction** briefly characterizes the purposes and content of the Assessment Report, discusses stakeholder involvement, and describes how the watershed management cycle will be implemented in the Department's Northeast District.
- **Chapter 2: Basin Overview** characterizes the basin's general setting, water resources, major water quality trends, and watershed management issues and activities.
- **Chapter 3: Surface Water Quality Assessment** discusses basinwide water quality trends and provides, by basin planning unit, an evaluation of water quality, a discussion of permitted discharges and land uses, a summary of ecological priorities and problems, and an overview of water quality improvement plans and projects.
- **Chapter 4: The Verified List of Impaired Waters** contains the Verified List of impaired waters, discusses public participation, describes documentation of reasonable assurance, lists the pollutants causing impairments, provides listings based on other information indicating a nutrient imbalance, and describes the adoption process for the Verified List.
- **Chapter 5: Monitoring Priorities and TMDL Development, Allocation, and Implementation** discusses the prioritization of listed waters, ambient monitoring priorities, TMDL development, TMDL allocation and implementation, and the development of a Basin Management Action Plan (B-MAP).



# Chapter 2: Basin Overview

## Basin Setting



The Suwannee Group 1 Basin covers 7,702 square miles in north central Florida within all or part of 14 counties. Portions of the basin in several watersheds also extend into southern Georgia. The basin area discussed in this report encompasses most, but not all, of the area within the Suwannee River Water Management District (SRWMD). The Suwannee Group 1 Basin includes the watersheds of the following river basins, as identified by their eight-digit hydrologic unit codes (HUCs)—Upper Suwannee, Lower Suwannee, Alapaha, Withlacoochee, Aucilla, Econfina–Steinhatchee, Santa Fe, and Waccasassa.

The basin is one of the least populated areas in the state of Florida, helping to keep the region's natural resources healthy. In 1990, the population was about 410,000, mainly concentrated in the higher, drier counties east of the Suwannee River, around Lake City and Live Oak and along the northern and western edge of Gainesville. Other population centers are Starke, Alachua, and Chiefland east of the river, and Madison and Perry west of the river. Along the Suwannee River, the largest incorporated towns are White Springs, Branford, and Fanning Springs. Growth and development along the basin's rivers, especially the Suwannee, has been limited, largely because of floodplain management ordinances, land use plans, and land acquisition programs at state, regional, and local levels.

The Santa Fe watershed is more developed than most of the basin and is the fastest growing because of its proximity to Gainesville and several other incorporated areas. The Waccasassa River watershed is relatively undeveloped, and its developed areas are few and far between, consisting primarily of Bronson, Cedar Key, Newberry, and Otter Creek.

The basin contains a rich assortment of surface waters—rivers and streams, springs, cypress ponds, swamps, and estuaries. A major feature of the basin is its many protected natural areas, which include 3 national wildlife refuges, 10 state parks or preserves, other public lands, and the Big Bend Seagrasses Aquatic Preserve. This report will focus solely on the Florida portion of the basin.

To the west of the Suwannee River, the dominant land uses are tree plantations and agriculture. To the east of the river, these continue to dominate, but the amount of urbanized land is markedly greater than west of the river. The region still has small farms that combine row crops with livestock, as well as large corporate dairies and irrigated row crop and forage operations.

### Sources of Information

*A substantial portion of the information in this chapter has been adapted from the SRWMD's Surface Water Improvement and Management (SWIM) Plans for the Suwannee River, Aucilla River, Coastal Rivers, Santa Fe River, Waccasassa River, and Alligator Lake; the SRWMD Web site; and the* Water Resources Atlas of Florida. *The References section lists all the sources used in creating this report.*

Timber companies hold most of the coastal lowlands in large tracts of intensively managed, planted pine. Vast tracts of timber are also found in the wet flatwoods to the east of the Alapaha River and uppermost Suwannee River.

Phosphate mining in southeastern Hamilton County has altered a large part of the original landscape. Aquaculture is increasing along the coast, particularly in Levy County (the Cedar Key area), following a reduction in other fisheries resulting from the constitutional net ban amendment passed in 1994. Historically, oystering was an important fishery, but its future is uncertain because many harvesting areas have closed. Submerged leases offshore from Cedar Key are used to raise littleneck clams for local, national, and international markets.

Approximately 18 percent of the total land area in the Suwannee Basin is publicly or privately owned as conservation lands. The remaining 82 percent is privately owned.

**Figure 2.1** shows the principal geopolitical features in the Suwannee Basin. **Appendix B** contains supplementary information on the basin's ecology. Additional ecological information can be found in the Status Report at http://www.dep.state.fl.us/water/tmdl/stat_rep.htm.

## Surface Water Resources

The SRWMD contains two major physiographic regions, the Northern Highlands and the Gulf Coastal Lowlands. Separating the two is the Cody Scarp, a steep face that constitutes the most prominent topographic feature in the state. Much of the lowlands make up a karst plain where sinkholes form and natural limestone springs occur. Although the highlands contain some springs, most of the basin's more than 250 springs are in the lowlands. Springs are especially abundant along the Suwannee River where the river has cut into the upper portion of the limestone bedrock. Marshes and swamps are typically found along the Gulf Coast.

The Suwannee Group 1 Basin contains abundant surface water resources, including nine rivers, hundreds of springs, lakes, and extensive wetlands and estuaries (**Figure 2.2** shows the largest waterbodies). This section delineates the basin's hydrology, describes the movement and management of water in the basin, briefly describes the major characteristics of surface waters that influence water quality in the basin, and describes surface water classifications and special designations. A more detailed discussion in Chapter 3 provides information on each planning unit.

### *Rivers*

The Suwannee River and its tributaries—the Alapaha, Withlacoochee, and Santa Fe Rivers—drain approximately half of the land area in the basin and an equally large area in Georgia. The other five river systems—the Aucilla, Econfina, Fenholloway, Steinhatchee, and Waccasassa—drain the rest of the Group 1 basin, except for some coastal areas that drain directly to the Gulf of Mexico via a network of tidal and nontidal creeks.




*Figure 2.1: Geopolitical Map of the Suwannee Basin*

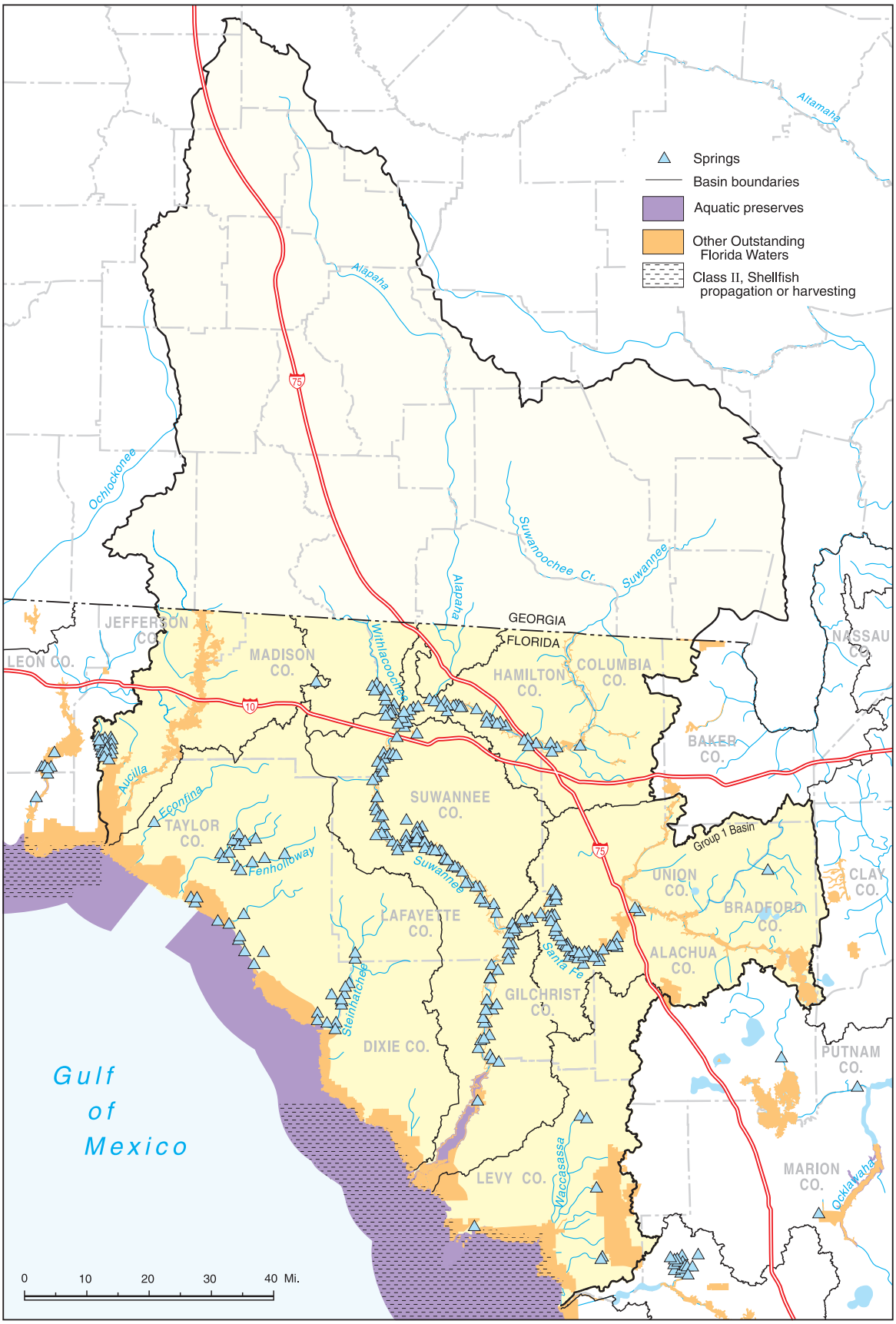
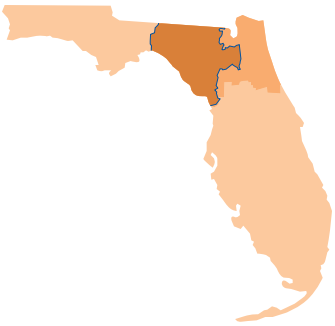



*Figure 2.2: Surface Water Resources of the Suwannee Basin*



## Suwannee River

The Suwannee Basin drains approximately 10,000 square miles of south Georgia and north Florida, discharging an annual average of approximately 10,000 cubic feet per second (cfs). The Suwannee River is the second largest river in the state in terms of flow. Within the Suwannee Basin, the Alapaha, Withlacoochee, and Upper Suwannee watersheds lie almost entirely in Georgia. These are dominated by surface water runoff, as are the Florida portions of the basin in the Northern Highlands region. After crossing the Cody Scarp, ground water discharges from springs and diffuse seepage strongly influences the Suwannee River and makes up the baseflow of the river.

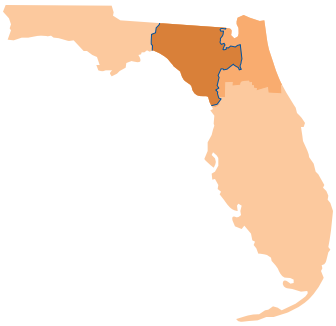
Most of the streams in the Upper Suwannee and Santa Fe watersheds are blackwater. With their low dissolved oxygen (DO) concentrations and acidic, highly colored water, these streams are less biologically productive than downstream stretches of the river. In the lower third of the basin, surface waterbodies are relatively absent because recharge flows directly to the aquifer through karst features. Along the coast, there are extensive tidal salt marshes, with hardwood swamps lying at slightly higher elevations just inland. Although the coastline has no barrier islands, much of this stretch is estuarine in nature, due to the low-energy wave action, shallow water, and fresh water inflows. Seagrass beds are healthy and abundant, except at the mouths of the rivers where seagrasses are sparse or absent due to the dark color of the river discharges that limit light in the area.

## Alapaha and Withlacoochee Rivers

The Alapaha River drains approximately 1,800 square miles in Georgia and Florida and joins the Suwannee southwest of Jasper, Florida. The Alapaha River flows through karst terrain with numerous sinkholes, stream sinks, and springs. At times, sinkholes in the streambed capture the river's entire flow. Once underground, the river flows through solution channels in the limestone for approximately 19 miles and is presumed to emerge at two springs: Alapaha Rise and Holton Creek. The Withlacoochee River, which drains approximately 1,500 square miles in Georgia and Florida, originates near Tifton, Georgia, and flows south past Valdosta, Georgia, to join the Suwannee River at Ellaville. The flow in the Withlacoochee River is highly variable, reflecting the river's response to rainfall in the watershed. The river is affected by wastewater treatment plant discharges in Tifton and Valdosta and pulp mill discharge in Jumping Gully Creek at the state line.

## Santa Fe River

The Santa Fe River, a tributary to the Suwannee River, is in some respects a smaller version of the Suwannee. This river system drains about 1,400 square miles of north Florida, discharging an annual average of more than 1,600 cfs. The Santa Fe River flows west from its headwaters in the Santa Fe Lakes area, in the easternmost portion of the watershed, joining the Suwannee near Branford. Its two important tributaries, New River and Olustee Creek, have their headwaters in southern Baker County. A third



tributary, the Ichetucknee River, is a clear, spring-fed stream and a very popular recreational site.

The Upper Santa Fe watershed, in the Northern Highlands, is dominated by surface water runoff. At the Cody Scarp, the river goes underground and reemerges supplemented by ground water flow. As the Santa Fe flows across the Gulf Coastal Lowlands, it gains significant flow from numerous springs, including the Ichetucknee River. Because ground water dominates its flow, the Lower Santa Fe is for the most part a spring-fed river.

The eastern two-thirds of the Santa Fe watershed has surface drainage features, including lakes, streams, and wetlands. The western third lacks surface drainage, except for the Santa Fe and Ichetucknee Rivers and Cow Creek. The upper watershed is characterized by nearly level pine flatwoods with gently rolling hills. Tributary streams are fairly well incised into the landscape, which occasionally opens into broad, forested floodplains. In the middle portion of the watershed, moderate to gently rolling hills with areas of prominent karstic features, such as sink depressions and captured streams, create surface relief. The lower watershed is primarily a broad, slightly undulating karst plain with interspersed wetlands.

### Waccasassa River

The Waccasassa River and its small tributary system form the major drainage system in a 936-square-mile area along the Big Bend Coast in Levy, Gilchrist, and Alachua Counties, discharging an annual average of 293 cfs to the Gulf of Mexico. The Waccasassa begins as a poorly defined watercourse connecting swamps and ponds along the border of Gilchrist and Levy Counties. Moving southward through Levy County, the river is augmented by discharge from Blue and Wekiva Springs, which help maintain flow during the drier times of the year. The upper reaches of the river and its tributaries are tannin stained and acidic—typical of swamp drainage. Ground water input from springs and seepage buffer the acidic swamp water in the middle reaches, creating many different ecological communities in and around the river. The lower reaches are tidally influenced and estuarine, with salinity levels increasing farther into the bay. Because the upper half of the watershed drains to the Floridan aquifer system and the lower half is surface drained, the interaction of surface water and ground water plays a large role in defining the ecology and health of aquatic resources throughout the watershed.

### Aucilla and Wacissa Rivers

The Aucilla River, the westernmost river system in the basin, drains approximately 850 square miles in south Georgia and north Florida (about 731 square miles in Florida), discharging an annual average of more than 550 cfs to the Gulf. The spring-fed Wacissa River, its primary tributary, joins the Aucilla in the lower coastal plain. The two rivers exhibit quite different characteristics. The Aucilla is a blackwater river, except during periods of drought when it becomes clear from ground water baseflow. The Wacissa, which is entirely spring fed, has clear water. Near the coast, the Aucilla goes underground and can be viewed in a series of sinkholes before

it reemerges in the vicinity of Nutall Rise. The Wacissa enters the Aucilla at two places—at Half Mile Rise and just above U.S. Highway 98.

### Coastal Rivers

Southeast of the Aucilla watershed lies the Coastal Rivers watershed, a generally poorly drained region in Taylor, Dixie, and Lafayette Counties with numerous lakes, ponds, swamps, and creeks. The Econfina, Fenholloway, and Steinhatchee Rivers provide the principal drainage from this area to the Gulf of Mexico.

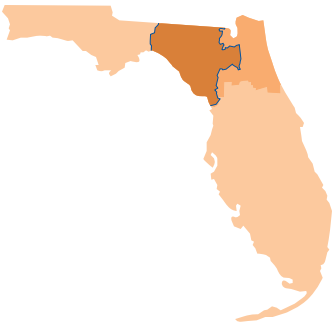
The Econfina, a blackwater river, drains about 250 square miles in the southwest portion of the Suwannee Group 1 Basin, discharging an annual average of approximately 80 cfs. Because of its proximity to the coast, the Econfina is referred to as a coastal river. It drains a portion of a wetland called San Pedro Bay in the Gulf Coastal Lowlands. Like the Aucilla, during periods of drought, the Econfina receives ground water baseflow, becoming clear.

The Fenholloway River drains about 300 square miles adjacent to the Econfina River, discharging an annual average of about 250 cfs. Like the Econfina, the Fenholloway is a coastal river whose headwaters begin in San Pedro Bay. Historically, the Fenholloway was a spring-fed river with additional inputs from San Pedro Bay Swamp. The upper portion of the river is a small, winding, blackwater stream with little or no flow during dry periods due to the extensive drainage of the wetlands. The lower portion receives spring discharge as well as treated effluent from the pulp mill at Foley (Buckeye Cellulose) and the Perry Wastewater Treatment Plant. At times, the river's entire flow at the discharge point is effluent from the mill.

The Steinhatchee River drains approximately 560 square miles of the Suwannee Basin near the coast and discharges an annual average of about 300 cfs. This coastal river derives its flow from wetlands. During droughts, it receives ground water baseflow, becoming clear. Like the Aucilla River, the Steinhatchee goes underground above U.S. Highway 98 and reemerges below U.S. Highway 98.

### *Springs*

The Suwannee Basin has the highest density of springs in the world, with 253 springs currently cataloged by SWRMD staff. In the Suwannee River system alone, 197 springs have been located and identified. In the remainder of the basin, 56 springs have been located and identified in the Aucilla/Wacissa, Econfina, Fenholloway, Steinhatchee, and Waccasassa watersheds or in areas of coastal drainage. An accurate survey and count of all the springs would be difficult, since some are in the streambeds and visible only during very low flows. Twenty-one first magnitude springs (with discharges greater than 100 cfs) are located in the basin. The combined discharge of all of the springs is more than 7,200 cfs, or more than 4.65 billion gallons a day. The Suwannee and the Santa Fe Basins (which include the Ichetucknee River Basin) contain the bulk of the springs as well as the largest amount of ground water discharge.

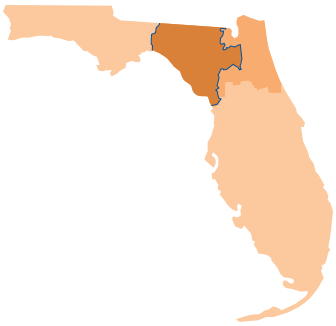


### *Blackwater Rivers*

*Originating in acidic swamps and flatwoods, blackwater rivers are named for their dark brown waters, which are stained by tannic and humic acids and are highly acidic (low pH) from decaying plant materials. These rivers are typically slow and meandering and exist as their own distinctive ecosystem, characterized by low biological diversity.*

### *Spring-run Rivers and Streams*

*Spring-run rivers and streams, found throughout the Suwannee Basin, are fed primarily by Floridan aquifer springs. Typically, their channels follow fracture patterns in the limestone, and may disappear back underground. The water is clear and similar to ground water in chemical composition, with a neutral pH because it is highly buffered by the limestone. In areas near spring vents, DO levels may be low because of ground water contributions.*



Besides supplementing flow to the rivers, lakes, and wetlands of the district, the springs are internationally famous recreational sites for swimming, snorkeling, and cave diving. The area is considered the "Cave Diving Capital of the World" by the underwater explorers of caves and caverns. Well-known springs include the Ichetucknee Springs Group, Peacock Springs, Troy Spring, Ginnie Springs, Fanning Springs, and Manatee Spring.

### Lakes

Although lakes are scattered throughout the Suwannee Basin, the region contains fewer lakes than other areas of the state. **Figure 2.2** shows the basin's larger lakes. Lake types range from landlocked to those with streams running in and out of them. Most are shallow and small in surface area, although a few are large, such as the Santa Fe Lakes (5,856 acres) and Lake Sampson (2,042 acres). Madison County has the most lakes and ponds in the region, although most are small, shallow, and ephemeral. Numerous small lakes and ponds are present in the Waccasassa Flats area and to the west of the Suwannee River in Lafayette and Dixie Counties.

**Perched**
*A system above the water table.*

The basin's lakes occur either as **perched** systems underlain by less permeable soils and rock, or as depressions that extend below the surface of the surficial and upper Floridan aquifers—i.e., water table lakes. Lakes in the Northern Highlands—such as Santa Fe, Hampton, Butler, and Sampala—are generally perched lakes maintained by runoff and seepage from the surficial or intermediate aquifers. Lakes in the Gulf Coastal Lowlands—such as Waters, Governor Hill, Pickett, and Andrews—generally occur where water has dissolved the limestone, creating depressions that are lower than the **potentiometric surface** of the surficial or upper Floridan aquifers.

**Potentiometric Surface**
*The level in confined aquifers to which water will rise in a cased well.*

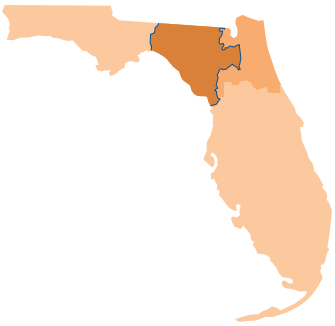
Alligator Lake in Columbia County is an important habitat for fish and wildlife as well as a resource for the residents of Lake City and Columbia County. The lake periodically drains to the Floridan aquifer system through a series of sinkholes.

### Wetlands

Extensive wetlands occur in all quadrants of the SRWMD. Wetlands comprise approximately 19 percent of the basin's land area, and extensive wetlands are found in all quadrants of the basin. Like the basin's lakes, some of its wetlands are perched on less permeable soils, while others occur because the surface of the water table is at or near the land surface. During wet weather, these wetlands become vast, shallow waterbodies.

In the northeastern portion of the basin, the large Okefenokee–Pinhook Swamp occurs on the less permeable soils of the Northern Highlands. South and west of the Suwannee River are several large wetlands, including San Pedro Bay, Everett Pond, and Mallory Swamp. Hixtown Swamp, a mixture of marsh grasses and cypress domes in Madison County, is one of the largest remaining transitional cypress/marsh wetlands in the Southeast. It includes northern wetland species and more tropical species found farther south. Waccasassa Flats—a large complex of flatwoods, lakes, ponds, and sandhill communities—covers portions of Gilchrist and Levy Counties. Santa Fe Swamp, to the east, is a large,

densely forested wetland at the headwaters of the Santa Fe River. Along the coast, the upper Floridan aquifer intersects the land surface, resulting in diffuse discharge over broad areas that generally contain very wet hardwood and sabal palm hammocks interspersed with pine flatwoods. Representative wetlands in this area include California, Pumpkin, and Tide Swamps.



### *Estuaries/Seagrass Beds*

The Gulf of Mexico lies along the southwestern edge of the basin. Because of the region's flat topography, the entire low-energy shoreline is one large estuarine complex composed of river and tidal systems. Extensive seagrass beds extend from these estuaries for miles into the open Gulf. The estuaries and seagrass beds provide important nursery areas for sea life and are one of the largest expanses of healthy, relatively undisturbed coastline in the state. The Big Bend Seagrasses Aquatic Preserve, the largest aquatic preserve in Florida, includes about 450,000 acres of seagrass beds and salt marsh that extends southward and eastward from the St. Marks River to the South Withlacoochee River.

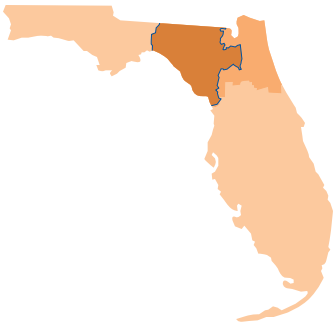
The Suwannee River Estuary is a complex of diverse natural communities and a major nursery for commercially important fish and invertebrates. It is an important area for several rare and endangered species, including the manatee, bald eagle, and Gulf sturgeon.

### *Surface Water Quality Classifications*

All of the Suwannee Basin's waters are designated as Class III, except for most tidal creeks and coastal waters, which are Class II. There are no Class I waters in the basin. Until 1997, the Fenholloway River was the only waterbody in the state designated as Class V. The river was redesignated as a Class III water in 1997. To meet Class III standards for conductivity in the river, the Buckeye Cellulose pulp mill's effluent will have to be modified, and the EPA is currently working with the Department and Buckeye Cellulose to address this issue.

Florida's water quality standards, the foundation of the state's program of water quality management, designate the "present and future most beneficial uses" of the waters of the state (Subsection 403.061[10], Florida Statutes [F.S.]). Water quality criteria for surface water and ground water, expressed as numeric or narrative limits for specific parameters, describe the water quality necessary to maintain these uses. Florida's surface water is classified using the following five designated use categories:

| | |
|---|---|
| Class I | Potable water supplies |
| Class II | Shellfish propagation or harvesting |
| Class III | Recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife |
| Class IV | Agricultural water supplies |
| Class V | Navigation, utility, and industrial use (there are no state waters currently in this class) |



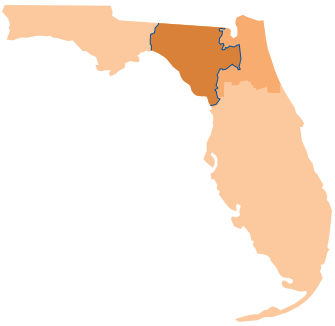
## *Special Designations*

### Outstanding Florida Waters

**Table 2.1** lists waterbodies in the basin that have been given additional protection through designation as Outstanding Florida Waters (OFWs). OFWs are designated for "special protection due to their natural attributes" (Section 403.061, F.S.). These waters are listed in Rule 62-302.700, Florida Administrative Code (F.A.C.). The intent of an OFW designation is to maintain ambient water quality, even if these designations are more protective than those required under the waterbody's surface water classification. Most OFWs are associated with managed areas in the state or federal park system, such as aquatic preserves, national seashores, or wildlife refuges. Other OFWs may also be designated as "Special Waters" based on a finding that the waters are of exceptional recreational or ecological significance, and are identified as such in Rule 62-302, F.A.C.

**Table 2.1: Outstanding Florida Waters in the Suwannee Basin**

| | |
|---|---|
| **National Wildlife Refuges (NWR)** | St. Marks National Wildlife Refuge |
| | Lower Suwannee National Wildlife Refuge |
| | Cedar Keys National Wildlife Refuge |
| **State Parks or State Recreation Areas** | Fanning Springs State Park |
| | Ichetucknee Springs State Park |
| | Manatee Springs State Park |
| | O'Leno State Park |
| | Peacock Springs State Recreation Area |
| | Suwannee River State Park |
| **State Preserves or State Reserves** | Cedar Key Scrub State Reserve |
| | River Rise State Preserve |
| | San Felasco Hammock State Preserve |
| | Waccasassa Bay State Preserve |
| **Waters in Areas Acquired through Donation, Trade, or Purchase** | Andrews Tract |
| | Big Bend Coastal Tract |
| | Big Shoals |
| | Econfina River |
| | Florida's first magnitude springs (Levy County) |
| | Levy County forest/sandhills |
| | Wacissa/Aucilla Rivers |
| **Aquatic Preserves** | Big Bend Seagrasses Aquatic Preserve except some selected areas |
| **Special Waters** | Aucilla River |
| | Santa Fe River system, consisting of the Santa Fe River, Lake Santa Fe, Little Lake Santa Fe, Santa Fe Swamp, Olustee Creek, and the Ichetucknee River below S.R. 27, but excluding all other tributaries |
| | Suwannee River |
| | Wacissa River |
| **National Forests** | Certain waters in the Osceola National Forest |



### Surface Water Improvement and Management Priority Waters

The SRWMD has identified the following six waterbodies in the basin as Surface Water Improvement and Management (SWIM) priority waters for restoration:

- Suwannee River, including its two major tributaries, the Withlacoochee and Alapaha Rivers, and all of its minor tributary creeks;
- Santa Fe River, the third major tributary of the Suwannee River;
- Coastal Rivers Basin, including the Steinhatchee, Fenholloway, and Econfina Rivers and numerous smaller coastal creeks;
- Alligator Lake;
- Waccasassa River; and
- Aucilla River, including its tributary, the Wacissa River.

In 1987, the Florida legislature created the SWIM Program to restore waterbodies. The initial legislation identified 6 priority waterbodies—Lake Apopka, Tampa Bay, Indian River Lagoon, Biscayne Bay, Lower St. Johns River, and Lake Okeechobee. Today, SWIM plans have been developed for 30 waterbodies statewide. The SWIM Program addresses a waterbody's needs as a system of connected resources, rather than isolated wetlands or waterbodies. The state's 5 water management districts work with federal, state, and local governments and the private sector to develop and implement SWIM plans to restore damaged ecosystems, prevent pollution from runoff and other sources, and educate the public.

### Minimum Flows and Levels

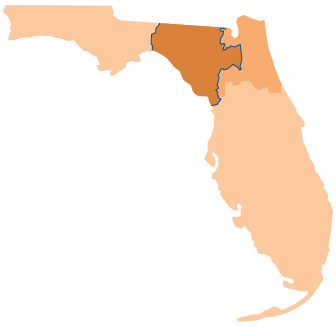
Under the SRWMD's District Water Management Plan (DWMP), the Lower Suwannee River was designated as a priority for the development of minimum flows and levels (MFLs). The designation includes the Lower Suwannee from its confluence with the Santa Fe River to the Gulf of Mexico, including that portion of the Gulf where the river's fresh water mixes with the salt water of the Gulf. Rule adoption is scheduled to begin in 2003. This area is a priority because consumptive use and alterations to the watershed have reduced or have the potential to reduce the amount and timing of surface water being delivered. Projected increases in withdrawals also could reduce future flows and levels.

Under the FWRA (Chapter 373, F.S.), an MFL is the limit at which further water withdrawals will cause significant harm to the water resources of the area and related natural systems. Lakes and aquifers have minimum levels. Minimum flows are set for rivers and streams.

## Ground Water Resources

### *Aquifers*

The basin contains three different aquifers: the Floridan system, the intermediate system and confining unit, and the surficial system. The Floridan system underlies the entire Suwannee Basin. The top of the upper Floridan ranges from more than 100 feet above sea level in Jefferson



County to more than 300 feet below sea level in Bradford County (Scott, 1991). It ranges in thickness from approximately 100 to 2,200 feet. Where overlaid by the intermediate system, the Floridan contains water under confined conditions. Where the surficial aquifer directly overlies the Floridan, water in the Floridan is under semiconfined conditions. Where the Floridan is either at the land surface or only covered by a veneer of sand, its ground water is under unconfined or water table conditions.

The intermediate aquifer system, which contains water under confined conditions, includes all rocks that lie between, and collectively retard the exchange of water between, the overlying surficial system and the underlying Floridan. The intermediate system is generally restricted to the Northern Highlands portion of the basin. The surficial aquifer system, which ranges from 10 to 60 feet in thickness, is a permeable hydrologic unit present in several areas of the basin.

### *Ground Water–Surface Water Interactions*

Most aquifer recharge occurs in an area running from northwest to southeast throughout the central portion of the basin, with ground water flowing from areas of high ground water potential to areas of low potential.

The basin's two major discharge regions are along the Suwannee River and along the coast. Most of the time, ground water discharges from the upper Floridan into the Suwannee River. In fact, during dry periods, the water in the river is supplied exclusively from ground water (baseflow). Most of the ground water discharge is via springs in or adjacent to the river.

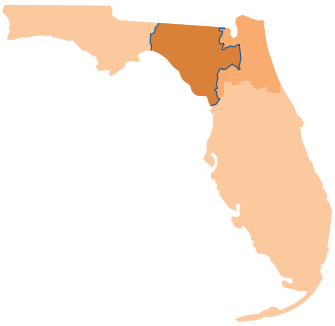
During wet periods when the river level is high, however, the river reverses flow of springs or ground water and actually recharges local ground water for a few miles on each side of the river corridor. These interactions between ground water and surface water can be significant. In fact, in the basin, ground water and surface water are so intimately connected that it is best to view them as a continuum.

The Suwannee Basin has the highest density of springs in the world. Throughout the basin, the upper Floridan aquifer is the source of the spring discharge. This aquifer is extremely vulnerable to contamination because it is unconfined, shallow (less than 30 feet below the land surface), and exists in well-developed, karstic limestone mantled by a thin layer of silica sand. Contaminants from land use activities enter the aquifer directly through runoff into karst features (e.g., sinkholes) or rapidly through recharge that percolates through the porous silica sand.

### *Ground Water Usage*

The Floridan aquifer system is the major source of ground water supplies in the Suwannee Basin, and at present is considered adequate for existing and future water needs in the basin (SRWMD, 2000 District Water Management Plan).

## Major Water Quality Trends



Excess nitrate-nitrogen leached primarily from agricultural activities such as row and forage crops and dairy and poultry production continues to contaminate ground water in the basin. In the past 20 years, the potential load from these and other nitrate-nitrogen sources in the basin has increased (Katz et al., 1999). Concurrently, levels of nitrate-nitrogen several times the maximum contaminant level (MCL) of 10 milligrams per liter (mg/L) have been detected in drinking water wells adjacent to agricultural sites, as well as in some of the area's springs.

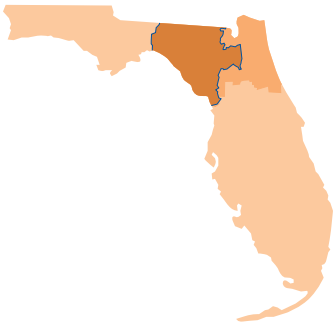
Springs and diffused flow transfer the ground water nitrate load to the Suwannee River and its tributaries. Other sources include permitted facilities in the basin that discharge treated effluent to surface waters. The nitrate-nitrogen concentration in the river has shown a statistically significant increasing trend over the past 20 years (Ham and Hatzell, 1996). The increased load is causing changes in periphyton in the Suwannee River and the Santa Fe River (a tributary), as well as extensive and frequent algal blooms (rapid growth of algae facilitated by excessive nutrient levels and other physical and chemical conditions) in the Suwannee River estuary (Phlips and Bledsoe, 1999; Bledsoe and Phlips, 2000).

A study in the basin conducted from 1999 through 2001 indicates that total phosphorus levels in the system aren't necessarily high, but are highest in the Suwannee River and less so in the offshore and nearshore areas (Phlips and Bledsoe, 2002, and **Appendix O**). The same study also reports that nitrate + nitrite concentrations and total nitrogen concentrations are highest in the Suwannee River and Santa Fe Rivers (Phlips and Bledsoe, 2002, and **Appendix M**).

Utilizing the Impaired Surface Waters Rule (IWR), none of the Suwannee Basin's 197 springs was potentially impaired because of nutrients. However, to provide some perspective on the magnitude of the nutrient problem, consider that nitrate-nitrogen concentrations in unimpacted portions of the upper Floridan aquifer are less than 0.01 mg/L. Thus, a concentration of 10 mg/L potentially represents contamination in excess of 1,000 times greater than natural background.

In water year 2000, SRWMD staff calculated that 78 percent of the nitrate-nitrogen load carried by the Suwannee River to the Gulf of Mexico was introduced into the river from the Middle Suwannee watershed and the bottom section of the Santa Fe watershed. Together, these represent less than 19 percent of the Suwannee Basin's land area. Virtually all the load comes from ground water discharge via springs.

Plots with trend lines for some parameters are attached as **Figure E.3** in **Appendix E**. The plots are broken down by Waterbody Identification numbers (WBID) for the Suwannee and Santa Fe Rivers. Parameters presented include unionized ammonia, nitrite + nitrate, total nitrogen, and total phosphorus. The plots were compiled from the data used in the assessment and cover data collected from 1989 through 2002. The data represent annual medians; the trend line was created using a fourth order



polynomial equation through the medians. Not all WBIDs had enough data to determine trends.

Trends for the Upper Suwannee River WBIDs (3341, 3341A, and 3341B) show that total phosphorus concentrations decreased from 1989 to approximately 1996, and then begin to increase again. Trends for some of the Lower Suwannee River WBIDs (3422, 3422A, and 3422B) indicate the same—that total phosphorus concentrations generally decreased from the late 1980s through the mid- to late 1990s before increasing again in the past several years. Total nitrogen trends for both the upper (WBIDs 3341, 3341A, and 3341B) as well as the lower Suwannee segments (3422, 3422A, and 3422B) show that concentrations declined from the late 1980s into the early 1990s, before leveling off or increasing very slightly again. The nitrite + nitrate concentrations for Upper Suwannee WBIDs (3341, 3341A, and 3341B) show that concentrations again declined from the late 1980s into the mid-1990s before increasing again slightly. The Lower Suwannee WBIDs (3422, 3422A, and 3422B) show the same trend; however, the upward trend from the mid-1990s was stronger.

Also included in **Figure E.3** of **Appendix E** are plots with trend lines for some of the WBIDs in the Santa Fe River Basin. They show that total phosphorus concentrations for WBIDs 3605A, 3605C, and 3605D decreased from the late 1980s to the late 1990s, when WBIDs 3605C and 3605D indicated slight upward trends again; WBID 3605A continued to decrease in total phosphorus. Total nitrogen concentrations for WBIDs 3605A and 3605C show a slight decrease over the period.

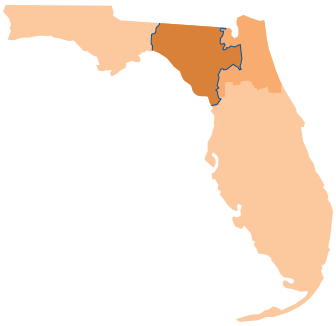
The trends, however, may not necessarily represent a long-term decline or improvement in water quality for a given parameter. Many factors could influence these trends. For example, some years may be drier (or wetter) than others, allowing potentially large variations in flow (see **Figure E.4** in **Appendix E**). Variations in flow could easily cause concentrations of parameters to fluctuate from year to year as relative contributions from different types of sources (point and nonpoint) vary. Another factor not taken into account is ground water inputs. Again, this is easily influenced from year to year by climatic weather patterns. Springs in the Suwannee River, especially in its middle portion, as well as those in the Santa Fe River, seemingly contribute a larger fraction of some parameters to the receiving water than in most other areas. This is mostly a result of agricultural practices within the basin.

## Watershed Management Activities and Processes

Over the years, management plans and activities in the basin have been implemented to eliminate wastewater discharges; reduce discharges of polluted stormwater from urban and agricultural areas; and protect, preserve, and restore special areas. The following section describes historical, current, and ongoing activities and processes to address water quality problems. **Table 2.2** provides a summary.

**Table 2.2: Historical Summary of Planning Issues and Management Activities in the Suwannee Basin**

| Year | Planning/Management Activity |
|---|---|
| 1929 | Cedar Keys National Wildlife Refuge established. |
| 1931 | St. Marks National Wildlife Refuge established. |
| 1937 | Okefenokee National Wildlife Refuge established. |
| 1957 | Suwannee River Authority (SRA) organized by state legislature. |
| Early 1960s | Suwannee River proposed for federal National River designation. |
| Late 1960s | Suwannee River proposed for federal Wild and Scenic Rivers designation. |
| 1979 | Lower Suwannee River National Wildlife Refuge established. |
| 1980 | Suwannee River Resource Planning and Management Committee formed by Governor Bob Graham—committee adopts Suwannee River Management Plan in 1981. |
| 1985 | Big Bend Seagrasses Aquatic Preserve established. |
| 1987 | Surface Water Improvement and Management (SWIM) Act enacted by Florida legislature. |
| 1988 | SWIM plans developed for Suwannee River, Santa Fe River, Alligator Lake, Coastal Rivers, Aucilla River, and Waccasassa River. |
| 1988 | Suwannee River Task Force created by Governor Bob Martinez. |
| 1989 | Ambient surface water quality monitoring network is established to determine water quality status of SWIM priority waterbodies and to provide early warning system for identifying water quality changes. A report is prepared annually. |
| 1990 | Suwannee River Coordination Committee (SRCC) established by SWRMD. |
| 1991 | Suwannee River, Aucilla River, Waccasassa River, and Coastal Rivers SWIM Plans revised. |
| 1991 | USGS initiates National Water Quality Assessment (NAWQA) Program in the Georgia-Florida Coastal Plain. |
| 1994 | SRWMD District Water Management Plan adopted. |
| 1995 | Ichetucknee Springs Water Quality Working Group formed. |
| 1996 | Suwannee Basin Interagency Alliance formed. |
| 1996 | Cost-sharing agreement is implemented between SRWMD and Natural Resources Conservation Service to establish PL-566 Small Watershed Program for Middle Suwannee area. |
| 1997 | Fenholloway River reclassified from Class V waterbody (Navigation, Utility, and Industrial Use) to Class III waterbody (Recreation, Propagation, and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife). |
| 1997 | Suwannee River Basin Nutrient Management Working Group forms in response to increased awareness of nitrate concentration in ground water, springs, and drinking wells in the basin. The group was formalized with a multiagency agreement in 1999. |
| 1998 | Santa Fe Springs Water Quality Working Group formed. This group is not currently active. |
| 1999 | Florida Springs Task Force formed. |
| 1999–2001 | U.S. Fish and Wildlife Service begins effort to develop comprehensive conservation plan for Lower Suwannee River, Cedar Keys, St. Marks, and Okefenokee National Wildlife Refuges. |



Much of the progress in the Suwannee Basin for developing water quality restoration plans and implementing watershed and water quality improvements is attributable to coordinated local, state, and regional efforts. Many plans share common goals, and their implementation is based on various groups playing critical roles in planning, funding, managing, and executing projects. The Department continues to coordinate its efforts with these entities to obtain data, strengthen monitoring activities, and exchange information through periodic meetings. The local organizations and initiatives described in **Table 2.3** provide leadership in waterbody restoration and preservation efforts.

**Table 2.3: Summary of Organizations Implementing Waterbody Restoration and Preservation Plans and Projects in the Suwannee Basin**

| Organization | Role |
|---|---|
| **Federal, State, or Regional Agencies** | |
| Department, Springs Task Force | Provides direction and recommendations for research, monitoring, land owner assistance, and restoration activities related to Florida's springs |
| Suwannee River Water Management District | Surface Water Improvement and Management Program, Quality Communities Program |
| U.S. Fish and Wildlife Service | Comprehensive conservation plans for the Lower Suwannee River, Cedar Keys, St. Marks, and Okefenokee National Wildlife Refuges |
| **Suwannee Basin Organizations and Local Governments** | |
| Suwannee River Partnership | Provides assistance to agricultural interests in the Middle Suwannee and Santa Fe subbasins to develop conservation plans to implement best management practices |

## *Major Programs and Projects*

A number of major restoration initiatives, if continued, will have significant positive effects on the basin's water quality.

### Suwannee River Water Management District Programs

The SWIM Program, discussed in the section on **"Special Designations"** earlier in this chapter, focuses on issues of water quality and water resource preservation. In the Suwannee Basin, the SRWMD implements SWIM in cooperation with the Department and with assistance from several other state agencies and local governments. The water management district has identified six SWIM waterbodies, which include essentially all of the land area within the district's boundaries.

SWIM management plans have been developed for each of the six watersheds on the SWIM priority list (Suwannee River, Santa Fe River, Coastal Rivers Basin, Alligator Lake, Waccasassa River, and Aucilla River), outlining a wide range of scientific and planning programs. Preservation is emphasized for most of these waterbodies, so that water quality problems can be anticipated and prevented. Alligator Lake, the only SWIM waterbody for which restoration is an emphasis, already suffers from degraded water quality and habitat.

The SRWMD's DWMP, adopted by the governing board in 1994 and revised in 2000, identifies water management issues and suggested actions. The 2000 update includes a preliminary identification of issues and actions

for individual watersheds and will be further amended to include more detailed watershed planning information.

The water management district has actively acquired lands for water management purposes under the Save Our Rivers (SOR) program since 1983, focusing on acquiring the most environmentally sensitive areas in the Suwannee River's hundred-year floodplain.

The water management district provides technical and financial assistance to minimize urban stormwater pollution through several programs, including the Quality Communities Program, which helps communities identify and solve their stormwater drainage, wastewater, and potable water needs. It includes techniques to minimize nonpoint sources. In July 1998, the district completed a report that identified and prioritized community needs and estimated the costs of implementing and maintaining these improvements. The district also will help municipalities identify possible sources of funding and assistance and will aid local, regional, and state planners in their budgeting and planning processes.

### Suwannee Basin Interagency Alliance

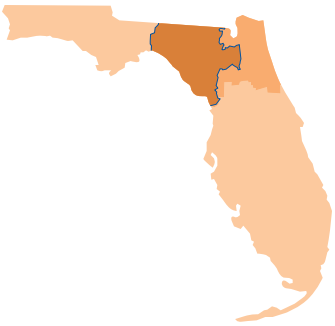
The Suwannee River Basin stretches from Cordele, Georgia, south to the Gulf of Mexico near Cedar Key, Florida. The Suwannee Basin Interagency Alliance promotes communication and cooperation between Georgia and Florida in protecting the water resources of the basin. The Interagency Alliance consists of a coalition of representatives from regional, state, and federal agencies. Leading the effort are the SRWMD, Georgia Environmental Protection Division, U.S. Fish and Wildlife Service (Okefenokee National Wildlife Refuge), and the Department. The Interagency Alliance does not have the authority to formulate policy or form interstate compacts, but operates in a planning and advisory capacity. It provides a forum to share information and resources, reducing duplicated effort and costs.

### Suwannee River Partnership (Suwannee River Basin Nutrient Management Working Group)

In recent years, nitrate levels in the Middle Suwannee Basin have been increasing. Elevated nitrate levels can cause a variety of health problems in humans and also affect water resources.

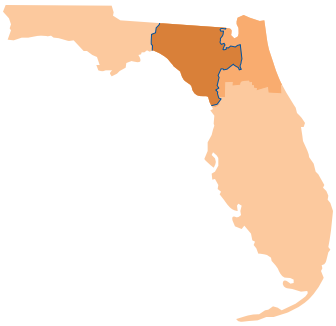
In 1997, the Suwannee River Partnership (Suwannee River Basin Nutrient Management Working Group) was established in response to the increased awareness of nitrate concentrations in ground water, springs, and drinking wells in the basin (see sidebar for a list of Suwannee River Partnership signatories). The partnership is a coalition of state, federal, and regional agencies; local governments; and private industry representatives working together to reduce nitrate levels in surface waters and ground water.

The group's primary goal is to determine the sources of the nutrient loads to the basin and to work with local land users to minimize future nutrient loading through an emphasis on voluntary, incentive-based programs. Technical committees address specific issues, including the



### *Suwannee River Partnership Signatories*

*Florida Department of Agriculture and Consumer Services, Florida Department of Environmental Protection; Florida Department of Health; Florida Department of Community Affairs; U.S. Environmental Protection Agency; U.S. Department of Agriculture, Natural Resources Conservation Service; U.S. Geological Survey; Suwannee River Water Management District; Suwannee River Resource Conservation and Development Council, Inc.; Lafayette and Suwannee River Soil and Water Conservation Districts; Lafayette and Suwannee County commissions; University of Florida Institute of Food and Agricultural Sciences, Extension and Research; Florida A&M University, College of Engineering Sciences, Technology and Agriculture; Florida Rural Water Association; Florida Cattlemen's Association; Florida Poultry Federation; Florida Farm Bureau; Florida Forestry Association; Florida Fertilizer and Agrichemical Association; Florida Septic Tank Association; Gold Kist; and Sunshine State Milk Producers.*



management of fertilizers, animal waste, and human waste; monitoring; and education and outreach.

The partnership's accomplishments include continued technical assistance and incentives for farmers to implement best management practices (BMPs) through the U.S. Department of Agriculture Natural Resource Conservation Service (NRCS) PL-566 Small Watershed Program and Environmental Quality Incentive Program (EQIP). The partnership also developed a BMP Quality Assurance Program that includes tracking, quality assurance checks, and technical assistance associated with implementation of dairy and poultry BMPs.

As part of the PL-566 Small Watershed Program, 34 of the 44 dairies in the Middle Suwannee Basin now have conservation plans that are in some phase of implementation. The plans provide for collection of waste, waste storage, water transfer, and waste utilization. Approximately 115 of 140 poultry farms in the Middle Suwannee area have a conservation plan. These plans outline practices providing for composting or incineration of dead birds, waste storage, waste utilization, and nutrient management.

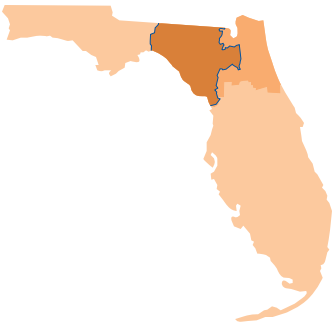
The EQIP has provided funds for assistance to all farmers, with special emphasis on row crop and hay farmers, for implementing mostly nutrient and irrigation water management practices. Around 75 farmers have received approval for funding in the program.

The Suwannee River Partnership has recently expanded its area of interest to include the Santa Fe Basin.

### Florida Springs Task Force

In 1999, the Secretary of the Department formed a multiagency Florida Springs Task Force to recommend strategies for protecting and restoring Florida's springs. The task force consisted of a group of 16 individuals that included scientists, planners, and other citizens. Its recommendations included action steps for research and monitoring, education, and assistance with BMPs for landowners. In November 2002, the Departments of Community Affairs and Environmental Protection published *Protecting Florida's Springs: Land Use Planning Strategies and Best Management Practices*. This manual was based on the recommendations developed by the Florida Springs Task Force.

In 2001, the Florida legislature first approved funding for the Florida Springs Initiative, a group whose aim is an effort to understand more about the water quality and quantity of over 30 first-magnitude springs throughout north and central Florida. The Department requested the assistance of the Northwest Florida, Suwannee River, and Southwest Florida Water Management Districts to help collect and interpret water quality and discharge data from first-magnitude springs within district boundaries. This effort includes activities such as sample collection and analysis, the delineation of spring recharge areas, the development of a ground water monitoring network, and projects to help landowners reduce nutrient loading in spring recharge areas. Funding for this initiative was continued in 2002, and a request for a third year of funding is included in the Governor's proposed budget for 2003.



Springs restoration projects under way in the Suwannee Basin include the following:

1. Troy Spring Erosion Control—construction of boardwalks and docks to protect the spring from trampling and boats;
2. Fanning Spring Restoration—removal of eroded sediments from the spring to open spring vents; and
3. Ichetucknee Headspring Restoration—removal of sediments from the spring to restore flow.

### Ichetucknee Springs Water Quality Working Group

The Ichetucknee Springs Water Quality Working Group is composed of geologists, hydrologists, cave divers, water quality specialists, and land use planners from federal, state, and local agencies. Its function is to enhance interagency communication, coordination, and cooperation to increase the protection of water flowing to the springs of Ichetucknee Springs State Park. The group has supported a number of activities in the watershed related to education, research, monitoring, land use planning and development, land acquisition, regulation, mapping, and restoration and protection.

### National Wildlife Refuges

Four national wildlife refuges are wholly or partially within the Suwannee Basin: St. Marks, Lower Suwannee, and Cedar Keys National Wildlife Refuges in Florida and Okefenokee National Wildlife Refuge in Georgia. All of these have completed or are in the process of developing comprehensive conservation plans to define their management objectives.

### Georgia River Basin Planning

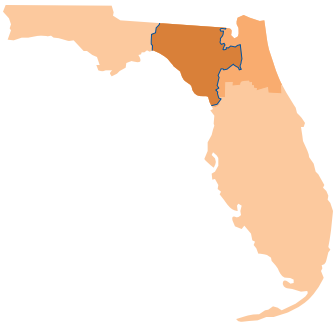
Like Florida, the state of Georgia has also adopted a rotating river basin management planning approach to watershed protection. The plan for the Georgia portion of the Suwannee River was completed in 2002.

### Upper Suwannee River Watershed Initiative

The National Wildlife Federation and U.S. Department of Agriculture's Natural Resources Conservation Service started the Upper Suwannee River Watershed Initiative in 1999. The initiative, a citizen-led coalition in partnership with public and private agencies, brings together residents of the basin to identify and solve problems that affect their water, soil, and forests, as well as their quality of life.

### Agricultural Best Management Practices

The FWRA authorizes the Florida Department of Agriculture and Consumer Services (DACS) to develop interim measures and agricultural best management practices (BMPs). Additional authority for BMPs is provided in legislation on nitrates and ground water (Section 576.045, F.S.), the Lake Okeechobee Protection Program (Section 373.4595, F.S.), Agricultural Water Conservation (Section 570.085, F.S.), and Florida Right to Farm Act Amendments (Section 823.14, F.S.). While BMPs are often adopted by rule, they are voluntary if not covered by regulatory programs.



If they are adopted by rule and the Department verifies their effectiveness, then implementation provides a presumption of compliance with water quality standards.

Over the last several years, DACS has worked with agriculturists, soil and water conservation entities, the University of Florida's Institute of Food and Agricultural Sciences (IFAS), and other major interests to improve product marketability and operational efficiency by implementing agricultural BMPs, while at the same time promoting water quality and water conservation objectives. In addition, programs have been established and are being developed to create a network of state, local, federal, and private sources of funds for developing and implementing BMPs.

In 1996, the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service and the SRWMD agreed to a cost-sharing arrangement to help dairy farmers in Suwannee and Lafayette Counties design and implement farm-specific BMPs to improve animal waste management. This led to the development of the Suwannee River Partnership in 1997, which was discussed earlier. Animal waste is a potential source of the nitrates detected around dairies in ground water and in a number of springs in the Middle Suwannee Basin. Other nitrate sources include inadequate or leaking septic tanks and leaching from fertilizers applied to crops, gardens, and yards. When properly installed and maintained, BMPs should significantly reduce the potential for contamination of surface water and ground water.

The PL-566 Small Watershed Program for both dairies and poultry farms has been highly successful based on the level of participation. The program will be fully implemented by 2008.

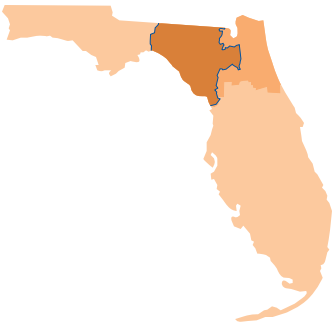
Primary BMPs for dairies include waste collection, transport, storage, and use (such as using lined storage structures and waste irrigation systems, and eliminating high-intensity areas). For poultry farmers, these primary practices include proper disposal of dead birds and waste storage and use.

The USDA also administers the EQIP, which works primarily in locally identified priority areas with significant natural resource concerns. Priority is given to areas where state or local governments offer financial, technical, or educational assistance, and to areas where agricultural improvements will help meet water quality objectives. EQIP provides cost sharing to farmers implementing whole farm conservation plans that address nutrient management in row and forage crops. The Suwannee River Basin Priority Area has been established for several years.

To encourage growers to use BMPs, a number of industry-specific agricultural BMP manuals have been published, and others are being developed. Many of these manuals can be downloaded at http://www.dep.state.fl.us/water. The use of a BMP manual alone, however, does not presume compliance with the Department's water quality standards.

BMP manuals applicable to the Suwannee Basin include the following:

- **Florida's Silviculture BMPs:** BMPs for silviculture activities in Florida were first established in the mid-1970s in response to the Federal Clean Water Act of 1972. In 1992, DACS established a BMP Technical Advisory Committee to review the existing BMP



manual and revise the practices where necessary to reflect the scientific, social, and economic changes that had taken place since the original BMP development. The manual was revised in 1993 and updated in 2000.

- **Guide for Producing Container Grown Plants:** This manual, published in 1995 by the Southern Nurserymen's Association, includes irrigation and fertilization BMPs for the container cultivation of nursery plants. It was produced through a cooperative effort between the University of Florida, Auburn University, Tennessee Tech University, and Virginia Tech. Since the manual is not Florida-specific, an effort is currently under way to use the document in developing a Florida-specific manual.

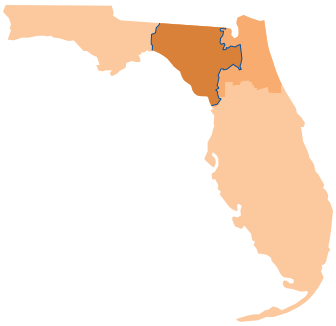
- **BMPs for Blended Fertilizer Plants in Florida:** The manual for blended fertilizer industrial operations, published in October 1997, was cooperatively produced by the Florida Fertilizer and Agrichemical Association, DACS, and the Department.

- **BMPs for Agrichemical Handling and Farm Equipment Maintenance:** Recently revised and reprinted, this manual gives producers guidance on hazardous materials, proper pesticide handling, and the proper disposal of waste products. It was cooperatively produced in 1998 by DACS, the Department, and several industry associations.

- **Water Quality BMPs for Cow/Calf Operations:** Many cattle operators statewide have been trained in using this manual and applying BMPs. The Florida Cattlemen's Association and several state, federal, and local agencies developed the manual, which was published in 1999. Copies were printed and distributed in 2000 using EPA Section 391 grant funds.

- **Aquaculture BMPs:** As directed by the 1998 Florida legislature, DACS worked cooperatively with industry, state agencies, and the environmental community to develop a comprehensive BMP manual for aquaculture. Florida law requires that the Department adopt the manual by rule and provides regulatory exemptions under Sections 373 and 403, F.S., for growers who implement BMPs **and** are certified by DACS' Division of Aquaculture. The manual, which was printed and distributed in 2000, has been adopted by rule.

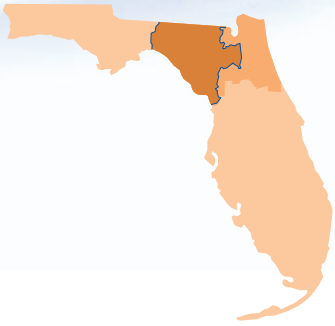
- **Florida Green Industries BMPs for Protection of Water Resources in Florida:** This manual provides BMPs for professional turfgrass and landscape managers. Published in 2002, it was developed through a cooperative effort by Florida Green Industries (an industry association); the Department; DACS; the Florida Department of Community Affairs; and the St. Johns, South Florida, and Southwest Florida Water Management Districts.



**Ongoing BMP Initiatives:** DACS's Office of Agricultural Water Policy expects to produce in the next year draft manuals on row crops (generally applicable statewide), equine or horse farms (applicable to both small landowner operations and concentrated facilities), and ornamental nurseries.

# Chapter 3: Surface Water Quality Assessment

## Scope of the Assessment

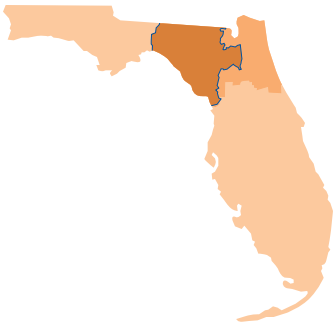


This chapter presents the results of an updated assessment of surface water quality in the Suwannee Basin. The primary purpose of the assessment is to determine if waterbodies or waterbody segments are to be placed on the Verified List of impaired waterbodies. The listing will be in accordance with evaluation thresholds and data sufficiency and data quality requirements in the Identification of Impaired Surface Waters Rule (IWR) (Rule 62-303, Florida Administrative Code [F.A.C.]). The results of the assessment will be used to identify waters in the basin for which Total Maximum Daily Loads (TMDLs) will be developed.

The chapter describes the planning units in the basin used as a basis for the assessment. A section on each planning unit contains a general description and summary of key water quality indicators (such as nutrients, chlorophyll *a*, dissolved oxygen (DO), and microbiological parameters). Permitted discharges, land uses, ecological status, and water quality improvement plans and projects are summarized for each planning unit. The discussion notes where applicable surface water quality criteria have been exceeded and summarizes the report's findings in maps, noting potentially impaired waterbodies in each planning unit. The chapter also contains background information on sources of data and on designated use attainment, and explains the state's integrated water quality assessment process.

While potentially impaired waters and their causative pollutants are identified, it is not within the scope of this report to identify discrete sources of potential impairments. Information on the sources of impairment will be developed in subsequent phases of the watershed management cycle, including TMDL development and implementation.

**Appendix A** contains a discussion of the legislative and regulatory background for TMDL development and implementation. **Appendix C** provides additional information on reasonable assurance. **Appendix D** provides the methodology used to develop the Planning and Verified Lists. **Appendix E** contains the integrated water quality assessment summary **(Table E.1)**, the water quality monitoring stations used in the assessment **(Table E.2)**, and data on water quality trends **(Figure E.3)**. **Appendix F** lists permitted wastewater treatment facilities in the basin that discharge to surface water and ground water, **Appendix G** lists Level 1 land use by planning unit, and **Appendix H** provides pollutant loading estimates. The complete text of the IWR is available at http://www.dep.state.fl.us/water/tmdl/docs/AmendedIWR.pdf.



## Update on Strategic Monitoring and Data-Gathering Activities During Phase 2

During Phase 2 of the watershed management cycle, strategic monitoring and data-gathering activities focused first on waters on the 1998 303(d) list, followed by waters that were placed on the Planning List through the IWR assessment alone.

There were 38 parameters that needed further sampling within 19 waterbodies. Data were collected by the Department, and the sampling and analysis were a joint effort between the Tallahassee office and the Jacksonville District office. In order to be used for further analysis, data needed to be collected prior to July 1, 2002, which was the end of the 7.5-year verification period specified in the IWR. Once samples were collected, they were analyzed at the Department's Central Laboratory in Tallahassee or the District laboratory in Jacksonville. The data were then compiled and put into a database, where they were used for further analysis in determining the status of the waterbody.

It was not the intent of the sampling done during this time to determine the sources causing impairment(s). This procedure and determination will be further explored during Phase 3 of the TMDL process, when TMDLs will be developed.

## Sources of Data

The assessment of water quality in the Suwannee Basin includes an analysis of quantitative data from various sources, some of which are readily available to the public. These sources include the U.S. Environmental Protection Agency's (EPA) Legacy and "new" **STO**rage and **RET**rieval (STORET) databases, the U.S. Geological Survey (USGS), and the Florida Department of Health. The STORET databases contain water quality data from a variety of sources, including the Department, water management districts, local governments, and volunteer monitoring groups. **Appendix D** contains a detailed description of STORET and the methodology used to develop the Planning and Verified Lists, based on the IWR.

**Table 3.1** summarizes the individual data providers who contributed to the IWR 2002 Database for the Suwannee Basin for the period of record used in this assessment and shows the amount of data provided by each source as of January 22, 2003.

More than 14 data providers (some organizations were combined in Legacy STORET; in new STORET, each organization was given its own organization code) collected data in the basin from 1989 through 2002 that was used in the assessment process (see **Table 3.1**). A total of 699,384 samples from this period was collected in the Suwannee River Basin and used in the assessment. The majority of the data was provided by the Suwannee River Water Management District (SRWMD) (433,160 samples). The SRWMD collects data under the Water Assessment

Regional Network (WARN) program. As of 2001, SRWMD was collecting data at 67 surface water sites. Of the 67 sites, 20 are springs. Data are collected monthly, bimonthly, or quarterly, depending on the waterbody. Sites are sampled for physical and field parameters, nutrients, and major ions. In addition, biological data is collected at several of these sites (Hornsby et al., 2002).

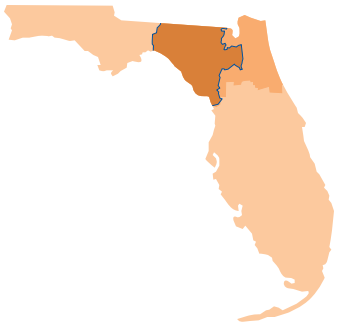
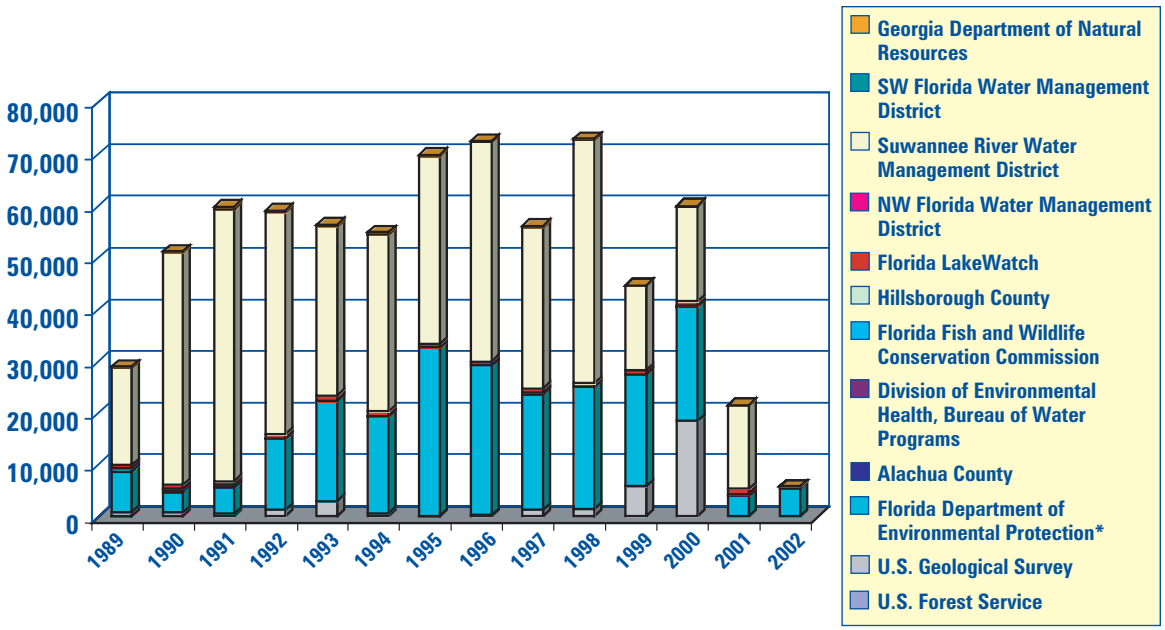
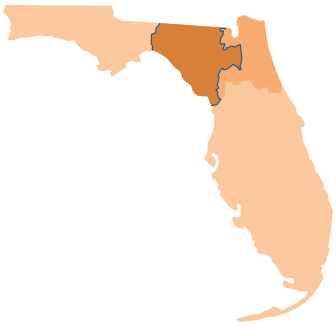


**Table 3.1: Summary of Data Providers in the Suwannee Basin**

| Agency | Planning Period (1989–1998) | Verification Period (1995–June 2002) | Total |
|---|---|---|---|
| U.S. Forest Service | 128 | 0 | 128 |
| U.S. Geological Survey | 10,050 | 27,316 | 34,174 |
| Florida Department of Environmental Protection* | 175,905 | 160,366 | 215,095 |
| Alachua County | 1,462 | 258 | 1,462 |
| Division of Environmental Health, Bureau of Water Programs | 0 | 743 | 743 |
| Florida Fish and Wildlife Conservation Commission | 915 | 0 | 915 |
| Hillsborough County | 0 | 50 | 50 |
| Florida LakeWatch | 7,295 | 5,875 | 10,190 |
| Northwest Florida Water Management District | 52 | 52 | 52 |
| Suwannee River Water Management District | 382,617 | 207,230 | 433,160 |
| Southwest Florida Water Management District | 300 | 409 | 568 |
| Georgia Department of Natural Resources | 2,847 | 917 | 2,847 |
| **Totals** | **581,571** | **403,216** | **699,384** |




*Note: In Legacy STORET, numerous agencies used the 21FLA organization code. As a result, through 1998 the "Florida Department of Environmental Protection" designation includes data from other providers/ agencies, including SEAS data.



The majority of the reported samples were taken in 1998, followed very closely by 1996, 1995, and 2000. The fewest number of samples reported was in 2002, and may very well be due to collected data not yet being uploaded into STORET.

The Department created the Impaired Surface Waters Rule 2002 Database to evaluate data in accordance with the methodology prescribed in the Identification of Impaired Surface Waters Rule (Rule 62-303, F.A.C.). For the Verified List assessment, the data evaluation period of record is 7 years, and for the Planning List, 10 years. **Table D.1** in **Appendix D** shows the periods of record for the Verified and Planning Lists in the first basin rotation cycle. Data collected between January 1, 1995, and June 30, 2002, were evaluated to establish the Verified List for the Suwannee Basin (IWR 2002, Run 6.01).

To support listing decisions, the evaluation of water quality in this basin also includes qualitative information drawn from data in technical reports and documents that are not yet included in the database. Some of these sources include historical water quality or ecological information that was not uploaded to the database because of its qualitative treatment of issues.

## Attainment of Designated Use

While the designated uses of a given waterbody are established using the surface water quality classification system described in Chapter 2, it is important to note that the EPA uses slightly different terminology in its description of designated uses. Because the Department is required to provide use attainment status for both the state's 305(b) report and the state's 303(d) list of impaired waters, the Department uses EPA terminology when assessing waters for use attainment. The water quality evaluations and decision processes that are defined in Florida's IWR for listing impaired waters are based on the following designated use attainment categories:

**Aquatic Life Use Support-Based Attainment**
**Primary Contact and Recreation Attainment**
**Fish and Shellfish Consumption Attainment**
**Drinking Water Use Attainment**
**Protection of Human Health**

**Table 3.2** summarizes the designated uses assigned to the various surface water classes.

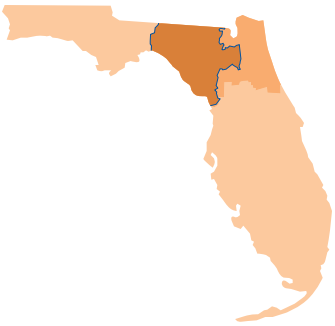


**Table 3.2: Designated Use Attainment Categories for Surface Waters in Florida**

| Designated Use Attainment Category Used in Impaired Surface Waters Rule Evaluation | Applicable Florida Surface Water Classification |
|---|---|
| Aquatic Life Use Support-Based Attainment | Class I, II, and III |
| Primary Contact and Recreation Attainment | Class I, II, and III |
| Fish and Shellfish Consumption Attainment | Class II |
| Drinking Water Use Attainment | Class I |
| Protection of Human Health | Class I, II, and III |

## Integrated Report Categories and Assessment Overview

The EPA has requested that the states merge their reporting requirements under the Clean Water Act for Section 305(b) surface water quality reports and Section 303(d) lists of impaired waters into an *Integrated Water Quality Monitoring and Assessment Report* (Wayland, 2001). This Assessment Report integrates the 303(d) list and the 305(b) reports for the Suwannee Basin.

Following the EPA's guidance, the Department delineated waterbodies or waterbody segments in each of the state's river basins, assessed them for impairment based on individual parameters, and then placed them into one of five major assessment categories and subcategories. These categories provide information on a waterbody's status based on water quality, sufficiency of data, and the need for TMDL development **(Table 3.3)**. This Assessment Report contains a comprehensive evaluation of waterbodies that fall into Integrated Report Categories 1 through 5 in the table.

Because not enough recent data on chemistry, biology, and fish consumption advisories have been collected, currently only a few waterbodies or waterbody segments statewide fall into Category 1 (attaining all uses). In particular, fish tissues in many waterbodies statewide have not been tested for mercury. Out of 576 waterbodies or waterbody segments in the Suwannee Basin, zero are in Category 1. More waterbodies and segments statewide fall into Category 2 (attaining some uses but with insufficient data to assess completely) than Category 1 (attaining all uses), because monitoring programs can sometimes provide sufficient data for partially determining whether a designated use in a particular waterbody is attained. A total of 23 waterbody segments in the basin fall into Category 2.

However, most waterbodies in the state fall into Category 3 (having insufficient data). In the Suwannee Basin, the breakdown of waterbodies or segments in Category 3 is as follows:

- Category 3a—378 segments for which no data are available to determine their water quality status;

**Table 3.3: Categories for Waterbodies or Waterbody Segments in the 2002 Integrated Report**

| Category | Description | Comments |
|---|---|---|
| 1 | Attaining all designated uses | If use attainment is verified for a waterbody or segment that was previously listed as impaired, the Department will propose that it be delisted. |
| 2 | Attaining some designated uses and insufficient or no information or data are present to determine if remaining uses are attained | If attainment is verified for some designated uses of a waterbody or segment, the Department will propose partial delisting for the uses attained. Future monitoring will be recommended to determine if remaining uses are attained. |
| 3a | No data and information are present to determine if any designated use is attained | Future monitoring will be recommended to determine if designated uses are attained. |
| 3b | Some data and information are present but not enough to determine if any designated use is attained | Future monitoring will be recommended to gather sufficient information and data to determine if designated uses are attained. |
| 3c | Enough data and information are present to determine that one or more designated uses may not be attained according to the Planning List methodology | This indicates a waterbody or segment is potentially impaired for one or more designated uses. These waters will be prioritized for future monitoring to verify use attainment or impaired status. |
| 3d | Enough data and information are present to determine that one or more designated uses are not attained according to the Verified List methodology | This indicates that a waterbody or segment exceeds Verified List evaluation criteria and may be listed as impaired at the end of Phase 2 of the watershed management cycle. However, the data have not yet been fully evaluated and the waters have not been formally verified as impaired. Further monitoring and analysis may be necessary. This category is applicable only to the Assessment Report. Waters that pass the Verified List criteria at this stage of the process are placed in Category 5. |
| 4a | Impaired for one or more designated uses but does not require TMDL development because a TMDL has already been completed | After a TMDL for the impaired waterbody or segment is approved by EPA, it will be included in a Basin Management Action Plan to reduce pollutant loading toward attainment of designated use(s). |
| 4b | Impaired for one or more criteria or designated uses but does not require TMDL development because impairment is not caused by a pollutant | This category includes waterbodies or segments that are impaired because of naturally occurring conditions or pollution. The impairment is not caused by specific pollutants. (See **sidebar** on next page for a discussion of the difference between pollution and pollutant.) |
| 4c | Impaired for one or more designated uses but does not require TMDL development because the water will attain water quality standards due to existing or proposed pollution control measures | Pollutant control mechanisms designed to attain applicable water quality standards within a reasonable time frame are either proposed or in place. |
| 5 | One or more designated uses are not attained and a TMDL is required | Waterbodies or segments in this category are impaired for one or more designated uses by a pollutant or pollutants. Waters in this category are included on the basin-specific Verified List adopted by the Department's Secretary as Florida's impaired waters list and submitted to the EPA as Florida's 303(d) list of impaired waters at the end of Phase 2. |

- Category 3b—48 segments with some data, but not sufficient data for making any determinations;
- Category 3c—89 segments that are potentially impaired based on the Planning List criteria; and
- Category 3d—0 segments that may be impaired based on the Verified List criteria but that require further evaluation. As noted earlier, this category is not applicable to the Assessment Report.

Several potentially impaired (Category 3c or 3d) waters either fail to meet water quality standards for DO, or show signs of biological stress or nutrient impairment. According to the IWR, specific pollutants causing DO exceedances or biological stress, or an underlying nutrient imbalance creating an imbalance in flora or fauna, must be documented for a waterbody or segment to be listed as impaired. Sometimes these conditions cannot be linked to a causative pollutant, and sometimes they may reflect natural background conditions.

Currently, 13 waterbodies in the basin are designated as being in Category 4. This category includes those waterbodies/segments that are impaired but do not require a TMDL for one of three reasons, as follows:

Category 4a—A TMDL has already been developed;

Category 4b—The impairment is not attributable to a pollutant or pollutants but is due to other alterations to the waterbody; or

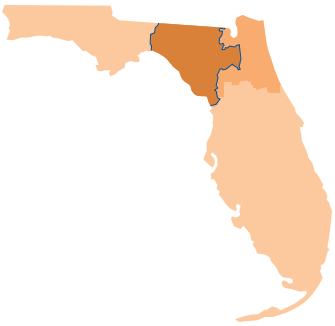
Category 4c—There is reasonable assurance that the designated use of an impaired waterbody will be attained by an existing or proposed pollutant control measure.

Finally, 27 waterbodies in the basin are in Category 5. These impaired waterbodies are on the Verified List of impaired waters adopted by the Department's Secretary and will require TMDLs. Chapter 5 of this report discusses in detail the waters in this category.

## Planning Units

The Suwannee Basin encompasses approximately 7,700 square miles and a complex hydrologic system. To provide a more detailed geographic basis for identifying and assessing water quality improvement activities, the basin was subdivided into smaller areas called planning units. A planning unit is either an individual large tributary basin or a group of smaller adjacent tributary basins with similar characteristics. Planning units help organize information and management strategies around prominent watershed characteristics.

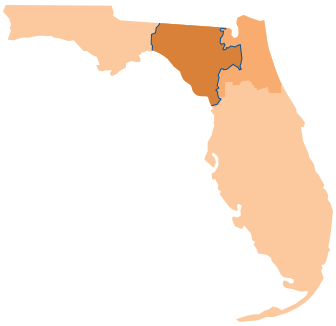
Water quality assessments were conducted on waterbody segments within planning units. Each of these smaller, hydrologically based drainage areas within a planning unit is assigned a unique waterbody identification



### *Understanding the Terms "Pollutant" and "Pollution"*

*For purposes of the TMDL Program, pollutants are chemical and biological constituents, introduced by humans into a waterbody, that may result in pollution (water quality impairment). There are other causes of pollution, such as physical alteration of a waterbody (for example, canals, dams, and ditches). However, TMDLs are established only for impairments caused by pollutants (a TMDL quantifies how much of a given pollutant a waterbody can receive and still meet its designated uses).*

*Waterbodies that are verified impaired due to specified pollutants, and therefore require a TMDL, are listed under Category 5 in the Integrated Assessment Report; waterbodies with water quality impairments due to other causes, or unknown causes, are listed under Category 4b. Although TMDLs are not established for Category 4b waterbodies, these waterbodies still may be addressed through a watershed management program (for example, the Kissimmee River restoration).*



number (WBID). Waterbody segments are the assessment units (or geographic information system [GIS] polygons) that the Department used to define waterbodies when it biennially inventoried and reported on water quality to the EPA under Section 305(b) of the federal Clean Water Act. These WBIDs are the assessment units identified in the Department's lists of impaired waters submitted to the EPA in reports under Section 303(d) of the Clean Water Act.

The Suwannee Basin contains 12 planning units: Upper Suwannee, Middle Suwannee, Lower Suwannee, Alapaha, Withlacoochee, Santa Fe, Aucilla/Wacissa, Econfina, Fenholloway, Steinhatchee, Waccasassa, and Other Coastal Basins. **Table 3.4** describes these planning units, and **Figure 3.1** shows their locations and boundaries. The remainder of this chapter provides a general description of each planning unit, information on land use and potential point sources of pollution, water quality assessments for individual waterbody segments, and summaries of ecological issues and watershed quality improvement plans and projects.

**Appendix E** of this report provides a water quality summary by planning unit, a list of water quality monitoring stations, the integrated assessment summary, parameter specific basinwide assessment maps, and trend data. **Appendix F** includes summary information, by planning unit, for permitted wastewater treatment facilities, Superfund sites, and permitted landfill facilities in the basin. **Appendix G** lists Level 1 land uses, by planning unit.

## Assessment by Planning Unit

### • Upper Suwannee, Alapaha, and Withlacoochee Planning Units

#### General Description

The Upper Suwannee River watershed drains about 2,643 square miles in south Georgia and north Florida. Sixty-five percent of the watershed lies in Georgia. The Florida portion of the watershed, the Upper Suwannee River, drains 922 square miles in Hamilton, Columbia, and Suwannee Counties.

The Alapaha River watershed drains about 1,806 square miles in south Georgia and north Florida. The Florida portion, the Alapaha Planning Unit, drains 108 square miles in Hamilton County.

The Withlacoochee River watershed drains about 2,384 square miles in south Georgia and north Florida. The Florida portion of the Withlacoochee River watershed drains 272 square miles in Hamilton and Madison Counties.

The major waterbody among these planning units is the upper portion of the Suwannee River. The Alapaha and Withlacoochee Rivers are the two largest tributaries to the Upper Suwannee River. There are numerous smaller tributaries that flow into this portion of the Suwannee as well as numerous springs and other ground water inputs.

The headwaters for the Suwannee River are the Okefenokee Swamp located in Georgia. In general, this part of the Suwannee is slow moving,

**Table 3.4: Planning Units in the Suwannee Basin**

| Planning Unit | Description |
|---|---|
| **Upper Suwannee** | This planning unit encompasses 118 WBIDs. The main waterbody is the upper portion of the Suwannee River. Approximately 80 miles of the Suwannee River are included in this planning unit. This includes the area from the Florida/Georgia border to the area near where U.S. 90 crosses the river. The planning unit is in the upper northeast area of the basin. |
| **Middle Suwannee** | This planning unit encompasses 53 WBIDs. The main waterbody is the middle portion of the Suwannee River. Almost 62 miles of the Suwannee River are included in this planning unit, covering the area from near where U.S. 90 crosses the river to just south of the confluence with the Santa Fe River. The planning unit is centrally located within the basin. |
| **Lower Suwannee** | This planning unit encompasses 32 WBIDs. The main waterbody in the planning unit is the lower portion of the Suwannee River. Approximately 71 miles of the Suwannee River are included in this planning unit, from the area near its confluence with the Santa Fe River to where it meets the Gulf of Mexico, and also includes Suwannee Estuary. The planning unit is in the southwest part of the basin. |
| **Alapaha** | This planning unit encompasses 14 WBIDs. The main waterbody is the Alapaha River. The headwaters for the Alapaha River are in Georgia, but approximately 23 miles are in this planning unit and it is a major tributary to the Upper Suwannee River. The planning unit is located in the north central part of the basin. |
| **Withlacoochee** | This planning unit encompasses 15 WBIDs. The main waterbody in the planning unit is the Withlacoochee River. The headwaters for the Withlacoochee River are in Georgia, but approximately 27 miles are in this planning unit. It contains the portion of the river from the Florida/Georgia border to its confluence with the Suwannee River. The Withlacoochee River is a major tributary to the Suwannee River. The planning unit is in the north central portion of the basin. |
| **Santa Fe** | This planning unit encompasses 140 WBIDs. The main watebody is the Santa Fe River, which is approximately 75 miles in length. The river goes under ground for a few miles, before re-emerging. The entire length of the Santa Fe River is within the planning unit. The planning unit is located in the east central part of the basin. |
| **Aucilla/ Wacissa** | This planning unit encompasses 53 WBIDs. The Aucilla River is the dominant waterbody in the planning unit. The headwaters for the Aucilla River are in Georgia, but approximately 67 miles of the river is within the planning unit. The river segment contained in the planning unit runs from the Florida/Georgia border to the Gulf of Mexico. The planning unit is located in the northwest part of the basin. |
| **Econfina** | This planning unit encompasses 9 WBIDs. The main waterbody in the planning unit is the Econfina River. The river is entirely located in the planning unit and is approximately 18 miles in length. The planning unit is located in the northwest part of the basin. |
| **Fenholloway** | This planning unit encompasses 18 WBIDs. The main waterbody in the planning unit is the Fenholloway River, which is entirely located within the planning unit and is approximately 38 miles in length. The planning unit is located in the northwest part of the basin. |
| **Steinhatchee** | This planning unit encompasses 23 WBIDs. The main waterbody in the planning unit is the Steinhatchee River, which is entirely located within the planning unit and is approximately 41 miles in length. The planning unit is located in the western central part of the basin. |
| **Waccasassa** | This planning unit encompasses 43 WBIDs. The main waterbody in the planning unit is the Waccasassa River, which is entirely located within the planning unit, and is approximately 28 miles in length. The planning unit is located in the southern part of the basin. |
| **Other Coastal Basins** | This planning unit encompasses 58 WBIDs. This planning unit is comprised of a number of small creeks and streams that are located along the Gulf coast and empty directly into the Gulf of Mexico. Also included in this planning unit are the Gulf Coastal WBIDs. |

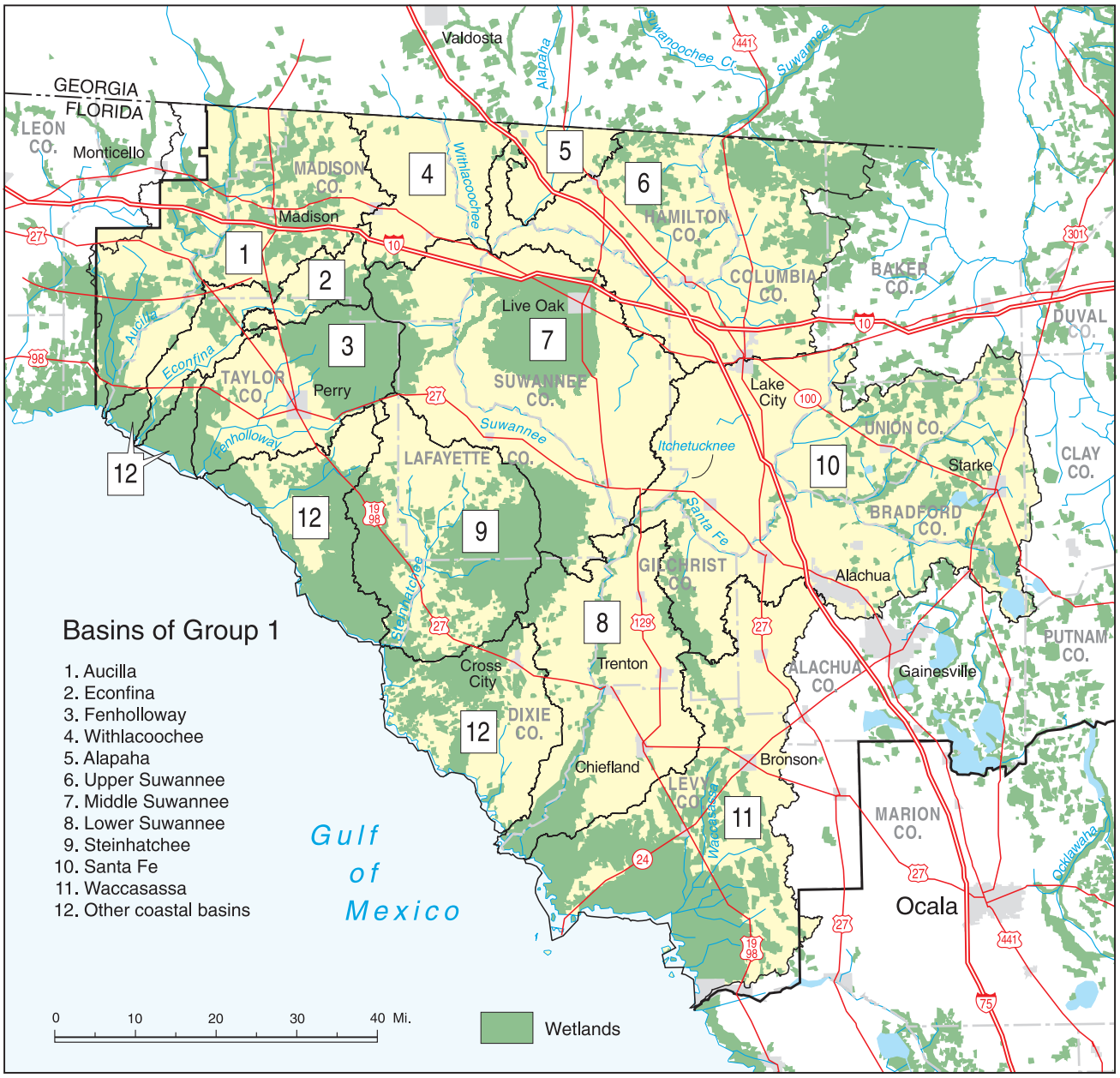
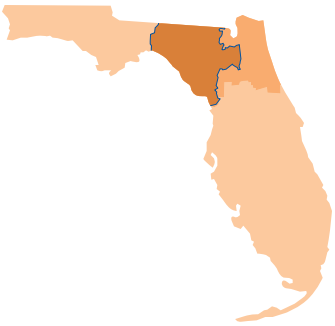



*Figure 3.1: Locations and Boundaries of Planning Units in the Suwannee Basin*



and generally exhibits blackwater qualities—low flow, low DO, low pH, low conductivity, and a dark color. This is not surprising, considering the headwater source. Relatively speaking, little data have been collected on this part of the Suwannee.

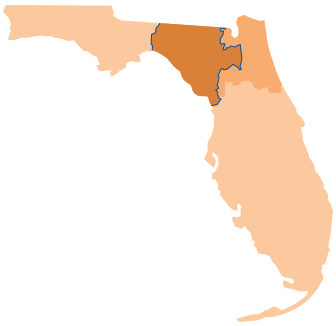
Flow appears to increase by 1,500 to 2,000 cubic feet per second (cfs) in this stretch of the river. In the year 2000, the average annual flow at the USGS gage near Fargo, Georgia, was 54.7 cfs. At the USGS gage near Ellaville, Florida, the annual average flow was 1,817 cfs (USGS, 2002). Much of the increase in flow can be attributed to the Alapaha and Withlacoochee Rivers. Ground water and spring inputs are another large contributor of flow in the river. There are at least 30 known springs that discharge into this part of the Suwannee River (Hornsby and Raulston, 2000). Most of the springs in the Upper Suwannee River are located between White Springs and Ellaville.

When land use is compared with the rest of the Suwannee planning units (Middle and Lower), there are relatively few urban and built-up areas, and little agriculture. Most of the basin is still in a natural condition (forested) or managed pine plantation. Therefore, there are little impacts from such land uses. There is a phosphate mining area in the central part of the basin. The mining company has a permit to discharge into waters that are tributaries to the Suwannee River. The area is naturally rich in phosphate, and neither the mine nor the naturally occurring phosphate in the area appear to be adversely affecting water quality, as evident by the eight WBIDs in the planning unit that meet the designated use for chlorophyll *a*. There are no verified impaired waters for chlorophyll *a* in the planning unit, and only one on the Planning List.

The Alapaha River is the one of two large tributaries to the Upper Suwannee River. In 2000, the average annual discharge was 572 cfs (USGS Gage 02317620—Alapaha River near Jennings, Florida) (USGS, 2002). The headwaters are near Cordele, Georgia, and the river flows southward before emptying into the Suwannee River. Major land uses in the basin include agriculture and silviculture. There are few urban or built-up areas in the basin to affect water quality. The Alapaha River, under normal and low flow conditions, flows into a series of sinkholes and "disappears." The river reemerges via Holton Creek and the Alapaha River Rise before emptying into the Suwannee River.

The Withlacoochee River is the other large tributary to the Upper Suwannee River. In 2000, the average annual discharge was 593 cfs (USGS Gage 02319000—Withlacoochee River near Pinetta, Florida) (USGS, 2002), equivalent in discharge to the Alapaha River. The river originates near Tifton, Georgia, and flows southward to its confluence with the Suwannee River near Ellaville, Florida. Major tributaries include Little River, New River, and Okapilco Creek (Hornsby and Raulston, 2000).

Overall, the waters in these planning units generally exhibit good water quality. They often exhibit qualities characteristic of blackwater streams by being slow moving, low in DO, low in conductivity, and low in pH. This part of the Suwannee Basin is relatively unimpacted by development, with the majority of the land use being agriculture and silviculture. The



waters in this part of the basin tend to be rainfall dependent (Hornsby and Raulston, 2000).

Since October 2002, when the Secretary signed the Verified List of impaired waters, the listings of two waters within the Upper Suwannee River planning unit have been challenged. Both listings are for DO in Swift Creek (WBID 3375) and a segment of the Upper Suwannee River (WBID 3341). Both segments are verified impaired for DO under the IWR. The challenge was initiated by the PCS Phosphate Chemical Complex and Mines, located in White Springs, Florida. PCS contended that the low DO levels in both segments are a natural condition, and therefore cannot be listed as impaired under the IWR. Currently, the state has insufficient data and information to fully support this and cannot completely delist them for DO. However, the state proposed to the EPA that both segments be removed from the verified impaired list and placed on the Planning List. In the interim, more data will be collected on these two segments so that during the next rotation basin cycle a better determination can be made as to whether the low DO levels in these two segments are a natural condition or are being caused by a pollutant. The changes in the status of these two waters are reflected in the amended delist list **(Appendix Q)**.

**Figure 3.2**, a composite map of the Upper Suwannee, Alapaha, and Withlacoochee planning units, shows waters on the 1998 303(d) list, Planning List, and Verified List.

### Water Quality Summary—Upper Suwannee

For the verification period (January 1, 1995–June 30, 2002), there were 50 sites at which data were collected and used in the assessment process. A total of 36,899 samples was collected, and the primary data collector was the SRWMD. Although there weren't enough data to fully assess DO in the uppermost WBID (3341C) of the Suwannee River, there were no violations of the state standards of 5.0 mg/L within the data that were collected during the planning period. However, in the most downstream WBID (3341) of the segment, there were enough samples and violations to place this segment on the Verified List for DO. There are six WBIDs (Deep Creek [3388], Roaring Creek [3392], Camp Branch [3401], Falling Creek [3477], Robinson Creek [3448], and Rocky Creek [3351]) with low DO concentrations that were verified based on the IWR. The Department believes that the low DO levels in these waters are natural, a finding supported by biological assessments. As a result, all six have been removed from the Verified List and placed in the EPA Category 4B. Documentation supporting the low DO in these waters has been supplied to the EPA and is attached as **Appendix P**. In the middle and lower segments of the Suwannee River, nutrients, especially nitrates, are of major concern and have increased significantly in the past two decades (Pittman et al., 1997). In the upper segment of the Suwannee, all segments, except WBID 3341C (not enough data to assess fully), meet standards as set forth in the IWR and are not considered impaired.

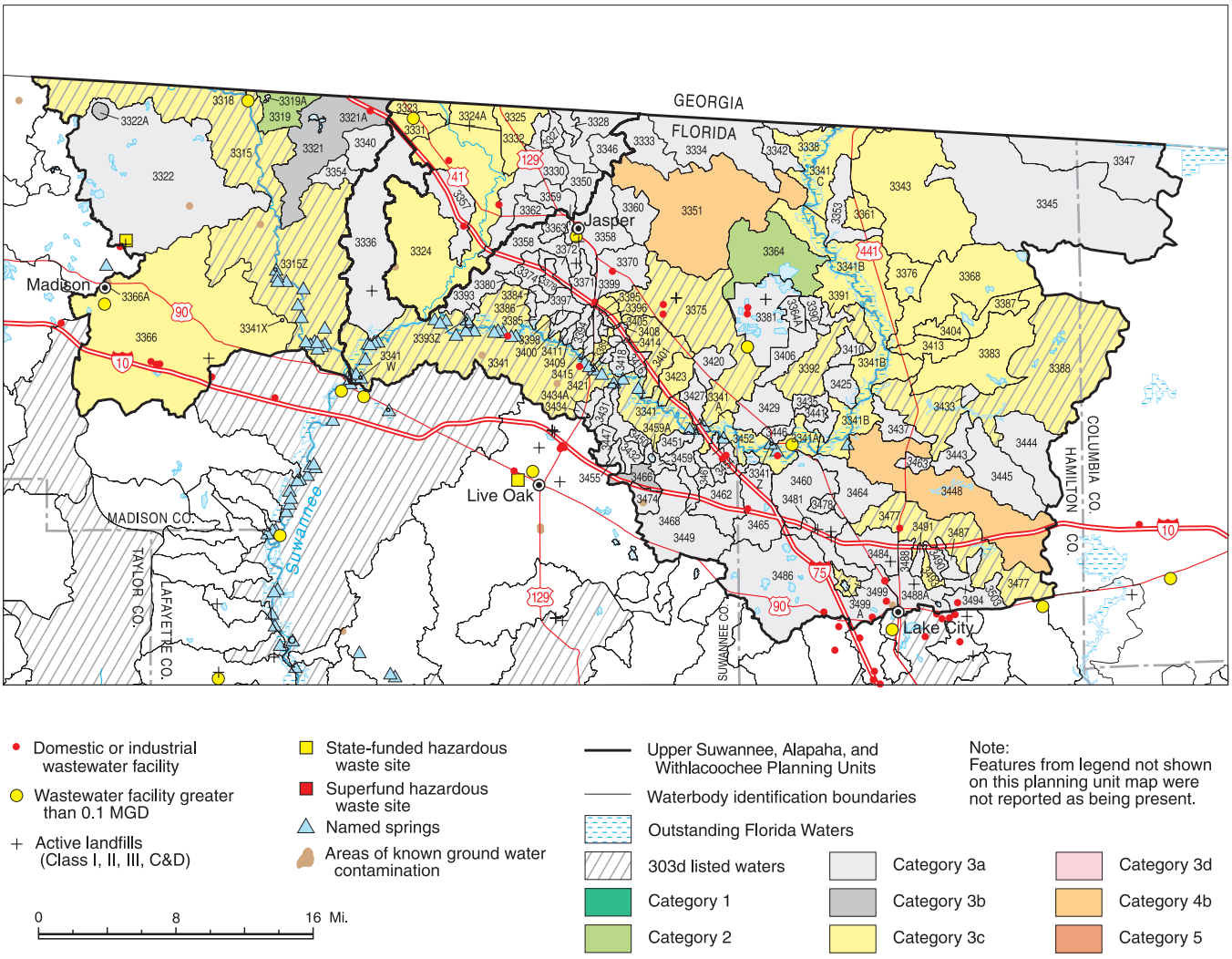
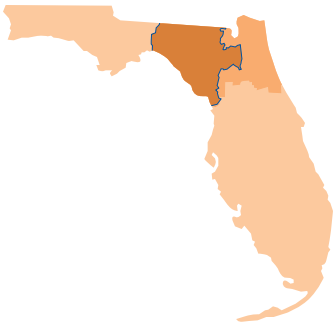



*Figure 3.2: Composite Map of the Upper Suwannee, Alapaha, and Withlacoochee Planning Units, Including the 1998 303(d) List, Planning List, and Verified List Waters*



All four segments of the Suwannee River in the planning unit are on the Planning List for mercury/fish consumption advisories. There are nine additional WBIDs within the planning unit listed as well. Listing is based on Florida Department of Health (DOH) fish consumption advisories. Mercury will be further assessed when more recent data are obtained.

**Table 3.5** summarizes the water quality assessment status of all waterbody segments in the planning unit. **Table 3.5** and **Figure 3.2** show that three waterbody segments in this planning unit are impaired. All three segments are impaired for DO and include Swift Creek (WBID 3375), a segment of the Suwannee River (WBID 3341), and Falling Creek (WBID 3477).

### Water Quality Summary—Alapaha

For the verification period (January 1, 1995–June 30, 2002), there were three sites at which data were collected and used in the assessment process. A total of 4,160 samples was collected, with the primary data collector being the SRWMD.

There are no verified impaired WBIDs in the Alapaha planning unit. However, four WBIDs are on the Planning List for mercury in fish tissue, and one WBID is on the Planning List for biology. Other parameters in the planning unit either meet standards, have no data that were used in the assessment, or have no data at all.

In comparison to state medians for streams (Friedman and Hand, 1989), the Alapaha River has higher DO, high color, low pH, low conductivity, low chlorophyll *a*, slightly low total nitrogen, and higher total phosphate.

**Table 3.6** summarizes the water quality assessment status of all waterbody segments in the planning unit. **Table 3.6** and **Figure 3.2** show that no waterbody segments in this planning unit are impaired.

### Water Quality Summary—Withlacoochee

A total of 12 sites in the planning unit had data collected during the verification period (January 1, 1995–June 30, 2002) and used in the assessment report, with 9,542 samples being collected. The primary data-collecting agency was the SRWMD.

There are no verified impaired waters in the Withlacoochee planning unit. There are some parameters on the Planning List. There are 7 parameters in the planning unit in 4 WBIDs; 15 parameters that meet standards in 3 WBIDs; 23 parameters in 6 WBIDs with insufficient data to assess; and 4 WBIDs with no data.

In comparison to state medians for streams (Friedman and Hand, 1989), the Withlacoochee River is slightly low in color, low in pH, slightly low in DO, slightly high in turbidity, and very low in conductivity. Nitrate levels in the river are relatively low; total phosphorus levels are at the state median. Seasonal site-specific alternative criteria (SSAC) for the portion of the river from river miles 19 to 25 (from the mouth) apply from June 1 to October 31 for DO. When taking this into account, the river is not impaired for DO.

**Table 3.5: Integrated Water Quality Assessment Summary for the Upper Suwannee Planning Unit***

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3333 | Bell Creek Swamp | Stream | IIIF | | | | | 3a |
| 3334 | Cypress Creek | Stream | IIIF | | | | | 3a |
| 3336 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3338 | Toms Creek | Stream | IIIF | | | | | 3a |
| 3341 | Suwannee River (Upper) | Stream | IIIF | Nutrients, DO | Mercury-Fish, DO | | Chlorophyll *a*, Conductivity, Fluoride, Total Coliforms, Fecal Coliforms, Turbidity, Unionized Ammonia | 3c |
| 3342 | Unnamed Creek | Stream | IIIF | | | | | 3a |
| 3343 | Sandlin Bay Drain | Stream | IIIF | | Mercury-Fish | | | 3c |
| 3345 | Little Suwannee Creek | Stream | IIIF | | | | | 3a |
| 3347 | Double Run Swamp | Stream | IIIF | | | | | 3a |
| 3351 | Rocky Creek Nr Benton | Stream | IIIF | | | DO | Chlorophyll *a*, Unionized Ammonia, Turbidity, Total Coliforms, Fluoride, Fecal Coliforms, Conductivity | 4b |
| 3353 | Bay Creek | Stream | IIIF | | | | | 3a |
| 3358 | Tiger Creek | Stream | IIIF | | | | | 3a |
| 3360 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3361 | Unnamed Ditch | Stream | IIIF | | Mercury-Fish | | | 3c |

**Table 3.5 (continued)**

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3363 | Unnamed Run | Stream | IIIF | | | | | 3a |
| 3364 | Hunter Creek | Stream | IIIF | | | | Conductivity, Unionized Ammonia, Turbidity, Total Coliforms, Fluoride, Fecal Coliforms, DO | 2 |
| 3365 | Lee Run | Stream | IIIF | | | | | 3a |
| 3368 | Little Creek | Stream | IIIF | | Mercury-Fish | | Conductivity, Fecal Coliforms, DO | 3c |
| 3370 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3371 | Cat Creek | Stream | IIIF | | | | | 3a |
| 3372 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3374 | Unnamed Sink | Stream | IIIF | | | | | 3a |
| 3375 | Swift Creek | Stream | IIIF | Nutrients, DO, TSS | Nutrients, TSS, DO | | Fecal Coliforms, Unionized Ammonia, Total Coliforms, Fluoride | 3c |
| 3376 | Unnamed Drain | Stream | IIIF | | Mercury-Fish | | | 3c |
| 3378 | Unnamed Run | Stream | IIIF | | | | | 3a |
| 3380 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3381 | Mined Area | Stream | IIIF | | | | | 3a |
| 3383 | Cowhouse Bay Drain | Stream | IIIF | | Mercury-Fish | | | 3c |
| 3384 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3385 | Mitchell Creek | Stream | IIIF | | | | | 3a |
| 3386 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3387 | Unnamed Slough | Stream | IIIF | | Mercury-Fish | | | 3c |

**Table 3.5 (continued)**

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3388 | Deep Creek | Stream | IIIF | Nutrients, Total Coliforms, Fecal Coliforms, DO | Fecal Coliforms, Total Coliforms, Mercury-Fish | DO | Chlorophyll *a*, Unionized Ammonia, Turbidity, Nutrients, Fluoride, Conductivity, DO | 3c |
| 3389 | Suger Creek | Stream | IIIF | | Fecal Coliforms | | | 3c |
| 3390 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3391 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3392 | Roaring Creek | Stream | IIIF | TSS, Nutrients, DO, Turbidity | Nutrients | DO | Chlorophyll *a*, Unionized Ammonia, Turbidity, TSS, Total Coliforms, Fluoride, Fecal Coliforms, Conductivity, DO | 3c |
| 3393 | Holton Creek | Stream | IIIF | | | | | 3a |
| 3393Z | Holton Creek Rise | Spring | IIIF | | | | | 3b |
| 3394 | Ratliff Creek | Stream | IIIF | | | | | 3a |
| 3395 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3396 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3397 | Unnamed Stream | Stream | IIIF | | | | | 3a |
| 3398 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3399 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3400 | Mill Creek | Stream | IIIF | | | | | 3a |
| 3401 | Camp Branch | Stream | IIIF | Nutrients, Fecal Coliforms, DO, Total Coliforms | Fecal Coliforms, Total Coliforms | DO | Conductivity, Unionized Ammonia, Turbidity, Nutrients | 3c |
| 3404 | Unnamed Slough | Stream | IIIF | | Mercury-Fish | | | 3c |

**Table 3.5 (continued)**

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3405 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3406 | Unnamed Ditch | Stream | IIIF | | | | | 3a |
| 3408 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3409 | Unnamed Stream | Stream | IIIF | | | | | 3a |
| 3410 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3411 | Unnamed Creek | Stream | IIIF | | | | | 3a |
| 3413 | Unnamed Branch | Stream | IIIF | | Mercury-Fish | | | 3c |
| 3414 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3415 | Unnamed Creek | Stream | IIIF | | | | | 3a |
| 3416 | Unnamed Creek | Stream | IIIF | | | | | 3a |
| 3418 | Unnamed Creek | Stream | IIIF | | | | | 3a |
| 3420 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3421 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3423 | Jerry Branch | Stream | IIIF | | DO | | | 3c |
| 3425 | Long Branch | Stream | IIIF | | | | | 3a |
| 3427 | Poucher Branch | Stream | IIIF | | | | | 3a |
| 3429 | Sal Marie Branch | Stream | IIIF | | | | | 3a |
| 3431 | Unnamed Creek | Stream | IIIF | | | | | 3a |
| 3432 | Dexter Lake Outlet | Stream | IIIF | | | | | 3a |
| 3433 | Little Branch | Stream | IIIF | | | | | 3a |

**Table 3.5 (continued)**

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3434 | Hare Lake Outlet | Lake | IIIF | | | | | 3a |
| 3434A | Hare Lake | Lake | IIIF | | | | | 3a |
| 3435 | Four Mile Branch | Stream | IIIF | | | | | 3a |
| 3437 | Browns Branch | Stream | IIIF | | | | | 3a |
| 3441 | Onemile Bay Drain | Stream | IIIF | | | | | 3a |
| 3443 | Sandy Drain | Stream | IIIF | | | | | 3a |
| 3444 | Camp Branch | Stream | IIIF | | | | | 3a |
| 3445 | Caney Flat Branch | Stream | IIIF | | | | | 3a |
| 3446 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3447 | Workman Lake Outlet | Stream | IIIF | | | | | 3a |
| 3448 | Robinson Creek | Stream | IIIF | | | DO | Chlorophyll *a*, Unionized Ammonia, Turbidity, Fluoride, Fecal Coliforms, Conductivity | 3c |
| 3449 | Rocky Crk Nr Wellborn | Stream | IIIF | | | | | 3a |
| 3450 | Unnamed Stream | Stream | IIIF | | | | | 3a |
| 3451 | Unnamed Creek | Stream | IIIF | | | | | 3a |
| 3452 | Greens Prairie Drain | Stream | IIIF | | | | | 3a |
| 3454 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3455 | Unnamed Stream | Stream | IIIF | | | | | 3a |
| 3459 | Lake Louise Outlet | Lake | IIIF | | | | | 3a |
| 3459A | Lake Louise | Lake | IIIF | | | | | 3a |
| 3460 | Unnamed Drain | Stream | IIIF | | | | | 3a |

**Table 3.5 (continued)**

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3461 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3462 | Tiger Branch | Stream | IIIF | | | | | 3a |
| 3463 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3464 | Falling Creek | Stream | IIIF | | | | | 3a |
| 3465 | Turkey Prairie Drain | Stream | IIIF | | | | | 3a |
| 3466 | Old Bulb Farm Drain | Stream | IIIF | | | | | 3b |
| 3468 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3474 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3477 | Falling Creek | Stream | IIIF | Fecal Coliforms, Nutrients, DO, Total Coliforms | Nutrients | DO | Chlorophyll *a*, Unionized Ammonia, Turbidity, Total Coliforms, Fluoride, Fecal Coliforms, Conductivity | 3c |
| 3478 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3481 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3484 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3486 | Lake Lona Sink | Lake | IIIF | | | | | 3a |
| 3487 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3488 | Watertown Lake Outlet | Lake | IIIF | | | | | 3a |
| 3488A | Watertown Lake | Lake | IIIF | | | | | 3b |
| 3490 | Unnamed Run | Stream | IIIF | | | | | 3a |
| 3491 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3493 | Borrow Pits | Lake | IIIF | | Lead | | | 3c |
| 3494 | Unnamed Slough | Stream | IIIF | | | | | 3c |

**Table 3.5 (continued)**

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3499 | Lake Jeffery Outlet | Lake | IIIF | Biology | Biology | | | 3c |
| 3499A | Lake Jeffery | Lake | IIIF | | | | | 3b |
| 3503 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3341A | Suwannee River (Upper) | Stream | IIIF | | Mercury-Fish | | Chlorophyll *a*, Conductivity, Fluoride, Total Coliforms, Fecal Coliforms, Turbidity, Unionized Ammonia, DO | 3c |
| 3341B | Suwannee River (Upper) | Stream | IIIF | | Mercury-Fish | | Chlorophyll *a*, Conductivity, Fluoride, Total Coliforms, Fecal Coliforms, Turbidity, Unionized Ammonia | 3c |
| 3341C | Suwannee River (Upper) | Stream | IIIF | | Mercury-Fish | | | 3c |
| 3341W | Lime Run Sink | Spring | IIIF | | | | | 3b |
| 3341Y | Suwannee Springs | Spring | IIIF | | | | Conductivity, Unionized Ammonia, Turbidity, Total Coliforms, Fluoride, Fecal Coliforms, DO | 2 |
| 3341Z | White Springs (Hamilton) | Spring | IIIF | | DO | | | 3c |
| 3364A | Tailings Pond | Lake | IIIF | | | | | 3a |

Notes:

* Information presented in this table is from the master list presented for Secretarial adoption in October 2002.
[1]The designation "stream" includes canals, rivers, and sloughs. The designation "lake" includes some marshes.
[2]The state's surface water classifications are as follows:

**Class I:** **Potable water supplies**
**Class II:** **Shellfish propagation or harvesting**
**Class III:** **Recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife**
**Class IV:** **Agricultural water supplies**
**Class V:** **Navigation, utility, and industrial use (there are no state waters currently in this class)**

[3]Parameters in **bold** meet the Verified List evaluation criteria, Rule 62-303.400, F.A.C.
[4]The EPA's 305(b)/303(d) Integrated Report categories are as follows:

**1**—Attains all designated uses;
**2**—Attains some designated uses;

**Table 3.5 (continued)**

**3a**—No data and information are available to determine if any designated use is attained;
**3b**—Some data and information are available, but they are insufficient for determining if any designated use is attained;
**3c**—Meets Planning List criteria and is potentially impaired for one or more designated uses;
**4a**—Impaired for one or more designated uses and the TMDL is complete;
**4b**—Impaired for one or more designated uses but no TMDL is required because the impairment is not caused by a pollutant;
**4c**—Impaired for one or more designated uses, but no TMDL is required because a proposed pollution control measure provides reasonable assurance that the water will attain standards in the future; and
**5**—Water quality standards are not attained and a TMDL is required.

[5]The assessment categories listed in this column represent the status of each WBID as a whole, **based on multiple parameters**. The hierarchy for assigning these categories is Category 5, then 4, then 3c, then 2, and then 3b, i.e., each WBID is assigned a category based on the highest category assigned to an individual parameter. For example, if WBID 9999 has total coliforms as Category 5, fecal coliforms as Category 3c, and coliforms-shellfish as Category 2, the single assessment call for the WBID is Category 5.

F = Fresh water
M = Marine
N/A = Not applicable, i.e., there are no parameters listed.

**Table 3.6: Integrated Water Quality Assessment Summary for the Alapaha Planning Unit***

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3323 | Alapahoochee River | Stream | IIIF | | Mercury-Fish | | | 3c |
| 3324 | Alapaha River | Stream | IIIF | | Mercury-Fish | | Conductivity, DO, Unionized Ammonia, Turbidity, Fluoride, Total Coliforms, Fecal Coliforms | 3c |
| 3325 | Alligator Creek | Stream | IIIF | | Biology | | | 3c |
| 3327 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3328 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3330 | Little Alapaha River | Stream | IIIF | | | | | 3a |
| 3331 | Turket Creek | Stream | IIIF | | Mercury-Fish | | | 3c |
| 3332 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3346 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3350 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3357 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3359 | Unnamed Branch | Stream | IIIF | | | | | 3a |

**Table 3.6 (continued)**

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3362 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3324A | Alapaha River | Stream | IIIF | | Mercury-Fish | | | 3c |

Notes:

* Information presented in this table is from the master list presented for Secretarial adoption in October 2002.
[1]The designation "stream" includes canals, rivers, and sloughs. The designation "lake" includes some marshes.
[2]The state's surface water classifications are as follows:

**Class I:** **Potable water supplies**
**Class II:** **Shellfish propagation or harvesting**
**Class III:** **Recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife**
**Class IV:** **Agricultural water supplies**
**Class V:** **Navigation, utility, and industrial use (there are no state waters currently in this class)**

[3]Parameters in **bold** meet the Verified List evaluation criteria, Rule 62-303.400, F.A.C.
[4]The EPA's 305(b)/303(d) Integrated Report categories are as follows:

**1**—Attains all designated uses;
**2**—Attains some designated uses;
**3a**—No data and information are available to determine if any designated use is attained;
**3b**—Some data and information are available, but they are insufficient for determining if any designated use is attained;
**3c**—Meets Planning List criteria and is potentially impaired for one or more designated uses;
**4a**—Impaired for one or more designated uses and the TMDL is complete;
**4b**—Impaired for one or more designated uses but no TMDL is required because the impairment is not caused by a pollutant;
**4c**—Impaired for one or more designated uses, but no TMDL is required because a proposed pollution control measure provides reasonable assurance that the water will attain standards in the future; and
**5**—Water quality standards are not attained and a TMDL is required.

[5]The assessment categories listed in this column represent the status of each WBID as a whole, **based on multiple parameters**. The hierarchy for assigning these categories is Category 5, then 4, then 3c, then 2, and then 3b, i.e., each WBID is assigned a category based on the highest category assigned to an individual parameter. For example, if WBID 9999 has total coliforms as Category 5, fecal coliforms as Category 3c, and coliforms-shellfish as Category 2, the single assessment call for the WBID is Category 5.

F = Fresh water
M = Marine
N/A = Not applicable, i.e., there are no parameters listed.

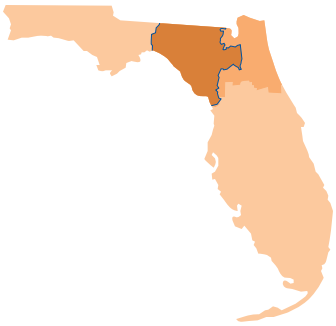


**Table 3.7** summarizes the water quality assessment status of all waterbody segments in the planning unit. **Table 3.7** and **Figure 3.2** show that no waterbody segments in this planning unit are impaired.

### Permitted Discharges and Land Uses

**Point Sources**. PCS Phosphate, a large phosphate strip mining and fertilizer manufacturing complex in Hamilton County, is the only major surface water discharger in the Upper Suwannee planning unit. PCS produces liquid and granular fertilizers (diammonium phosphate, mono-ammonium phosphate, and triple superphosphate) and animal feeds (polyphos and discal phosphate). The complex has a permitted capacity of 226.9 million gallons per day (mgd), which discharges into Swift and Hunter Creeks. It also discharges stormwater to Camp Branch. All of these discharges flow into the Suwannee River. (See **Noteworthy** for a definition of point sources.)

**Appendix F** lists the basin's domestic and industrial surface discharge facilities, along with their permitted flows, by planning unit. It also lists landfills or solid waste facilities by planning unit.

**Nonpoint Sources**. Based on Level I and II land use summary information, forested areas cover almost 53 percent and wetlands nearly 26 percent of the Upper Suwannee planning unit. The large area designated as urban and built-up in the center of the planning unit is actually an open-pit phosphate mine, owned and operated by PCS Phosphate, formerly known as Occidental. Agricultural lands bordering the river occupy slightly more than 10 percent of the watershed. These land uses can be associated with nonpoint discharges of pollutants and eroded sediments (see **Noteworthy** for a definition of nonpoint sources).

Based on Level I and II land use summary information, forests cover almost 65 percent of the Alapaha River watershed. Agricultural lands are prominent in the southwestern part of the watershed, occupying slightly more than 20 percent of the land area. Agriculture can be associated with nonpoint discharges of pollutants and eroded sediments.

Based on Level I and II land use summary information, forests cover nearly 57 percent of the Withlacoochee planning unit, primarily along the river corridor. Agricultural lands are prominent in the western part of the watershed, occupying approximately 28 percent of the land area. Agriculture can be associated with nonpoint discharges of pollutants and eroded sediments.

### Ecological Summary

**Ecological Priorities**. The entire Suwannee River, comprising the Upper, Middle, and Lower Suwannee planning units, is designated as an OFW. The Middle Suwannee contains Peacock Springs State Recreation Area and Troy Spring. Fanning Springs State Park and Manatee Springs State Park are in the Lower Suwannee. Parts of the Lower Suwannee have also been designated as a National Wildlife Refuge. Coastal areas bordering the basin are part of the Big Bend Seagrasses Aquatic Preserve.

Of the 196 individual waterbodies and segments in the Upper, Middle, and Lower Suwannee planning units, 65 have documented ecological

**Table 3.7: Integrated Water Quality Assessment Summary for the Withlacoochee Planning Unit***

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3315 | Withlacoochee River | Stream | IIIF | Mercury-Fish, Nutrients | Mercury-Fish, Nutrients | | Turbidity, DO, Total Coliforms, Unionized Ammonia, Fluoride, Fecal Coliforms | 3c |
| 3318 | Jumping Gully Creek | Stream | IIIF | DO, Nutrients, Turbidity | DO, Turbidity, Nutrients | | | 3c |
| 3319 | Lake Alcyon Outlet | Lake | IIIF | | | | | 3b |
| 3319A | Lake Alcyon | Lake | IIIF | | | | | 2 |
| 3322 | Lake Cherry Outlet | Lake | IIIF | | | | | 3a |
| 3322A | Lake Cherry | Lake | IIIF | | | | | 2 |
| 3321 | Lake Octahatchee Outlet | Lake | IIIF | | | | | 3b |
| 3321A | Lake Octahatchee | Lake | IIIF | | | | | 3b |
| 3340 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3354 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3366 | Lake Francis Outlet | Lake | IIIF | | Biology | | | 3c |
| 3366A | Lake Francis | Lake | IIIF | | | | | 3b |
| 3315A | Suwanacoochee Spring | Spring | IIIF | | | | | 3b |
| 3315Z | Blue Springs | Spring | IIIF | | DO | | | 3c |
| 3341X | Alapaha Rise | Spring | IIIF | | | | | 3a |

Notes:

* Information presented in this table is from the master list presented for Secretarial adoption in October 2002.
[1]The designation "stream" includes canals, rivers, and sloughs. The designation "lake" includes some marshes.
[2]The state's surface water classifications are as follows:

**Class I:** **Potable water supplies**
**Class II:** **Shellfish propagation or harvesting**
**Class III:** **Recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife**
**Class IV:** **Agricultural water supplies**
**Class V:** **Navigation, utility, and industrial use (there are no state waters currently in this class)**

[3]Parameters in **bold** meet the Verified List evaluation criteria, Rule 62-303.400, F.A.C.
[4]The EPA's 305(b)/303(d) Integrated Report categories are as follows:

**1**—Attains all designated uses;
**2**—Attains some designated uses;

**Table 3.7 (continued)**

**3a**—No data and information are available to determine if any designated use is attained;
**3b**—Some data and information are available, but they are insufficient for determining if any designated use is attained;
**3c**—Meets Planning List criteria and is potentially impaired for one or more designated uses;
**4a**—Impaired for one or more designated uses and the TMDL is complete;
**4b**—Impaired for one or more designated uses but no TMDL is required because the impairment is not caused by a pollutant;
**4c**—Impaired for one or more designated uses, but no TMDL is required because a proposed pollution control measure provides reasonable assurance that the water will attain standards in the future; and
**5**—Water quality standards are not attained and a TMDL is required.

[5]The assessment categories listed in this column represent the status of each WBID as a whole, **based on multiple parameters**. The hierarchy for assigning these categories is Category 5, then 4, then 3c, then 2, and then 3b, i.e., each WBID is assigned a category based on the highest category assigned to an individual parameter. For example, if WBID 9999 has total coliforms as Category 5, fecal coliforms as Category 3c, and coliforms-shellfish as Category 2, the single assessment call for the WBID is Category 5.

F = Fresh water
M = Marine
N/A = Not applicable, i.e., there are no parameters listed.

protection needs. Cumulatively, this group of planning units contains a variety of listed animal and plant species, rare and imperiled fish and mollusks, eagle nests, and wading bird rookeries. A number of the basin's living resources serve as indicators of surface water quality. These include the following species.

***Manatee***. The endangered manatee *(Trichechus manatus latirostris)* lives in both fresh and estuarine waters of the Gulf Coast, including the Lower Suwannee planning unit and the Suwannee Estuary. It is ranked by the Florida Natural Areas Inventory (FNAI) as rare or imperiled. The animals in the Lower Suwannee may be a peripheral expansion from the Crystal River population. The current manatee population numbers around 3,500 statewide. These large, warm-blooded herbivores, whose closest relative is the elephant, live between 50 and 70 years. They are adapted to both fresh water and salt water. Manatees require abundant vegetation, water that is at least six to seven feet deep, and a source of fresh water. Seagrass beds provide important habitat for feeding and resting. Because manatees are air-breathing mammals, they must come to the surface to breathe. Their reproductive rate is low, with females giving birth only every three years.

Florida lies at the northern limit of the species' range. Because they cannot tolerate temperatures lower than 20°C. (68°F.), manatees aggregate at the warm-water discharges of power plants and springs during cold fronts. They are vulnerable to cold weather, injuries from boat propellers, entrapment and crushing in locks and dams, surface water pollution, and coastal development. Some manatees in the Lower Suwannee were recently found to have papilloma virus infections that appear to have originated as a bovine strain. It is not known how they became infected, whether the virus has mutated into a manatee-specific type, how readily the virus is transmitted, whether the infections can be spread at manatee aggregation sites, or how the species will be affected over the long term.

***Gulf Sturgeon***. The Suwannee River appears to support the largest population of Gulf sturgeon *(Acipenser oxyrinchus desotoi),* as well as the

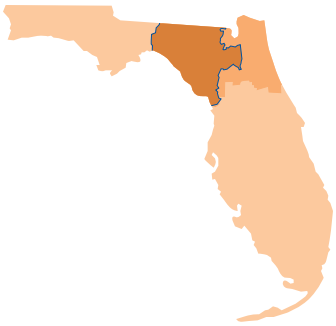
## Information on Point Sources in Planning Units

Point sources discharging pollutants to surface water or ground water originate from discrete, well-defined areas such as a facility discharge from the end of a pipe, a disposal well, or a wastewater sprayfield. Point sources generally fall into two major types: domestic wastewater sources (which consist of sewage from homes, businesses, and institutions) and industrial wastewater sources (which include wastewater, runoff, and leachate from industrial or commercial storage, handling, or processing facilities). Landfills, hazardous waste sites, dry cleaning solvent cleanup program (DSCP) sites, and petroleum facility discharges are also considered point sources. These sites have the potential to leach contaminants into ground water and surface water.

Identifying the source of waterbody impairment is an important part of assessing water quality and developing TMDLs. As part of this report, information is presented on point sources, including permitted facilities that discharge wastewater and landfills.

## Nonpoint Sources and Land Uses

Rainfall generates stormwater runoff. As it flows over the land and through the ground, runoff may carry nonpoint source pollutants from many different sources to lakes, rivers, and estuaries in a watershed, and into ground water supplies. Nonpoint sources also include atmospheric deposition and leaching from agricultural lands, urban areas, and unvegetated lands. The pollutants in runoff often include fertilizers, bacteria, metals, sediments, and petroleum compounds.



most stable in terms of total numbers, among the coastal rivers of the Gulf of Mexico. The sturgeon is federally listed as threatened and state-listed as a species of special concern, and it is ranked by the FNAI as rare or imperiled. In March 2003, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service announced the designation of waterways from Florida to Louisiana, including the Suwannee River, as critical habitat for the Gulf sturgeon. Hatchlings are born in fresh water and develop in the river, eventually moving into estuarine areas and, at about 20 pounds, into open marine waters. From the sea, mature adults return periodically to the Suwannee, swimming upstream to spawn. Females usually spawn only one to four times in their lives although they release millions of eggs each time. Individual fish may live as long as 20 years.

Estuaries provide especially valuable feeding habitat for juveniles and subadults, as well as for mature adults before and after spawning. Since the fish do not eat when they migrate upstream, they feed intensively beforehand to gain strength, and afterwards to regain the weight and length that they have lost. The riverbed must meet a number of requirements for them to spawn successfully, including gravel substrate of a particular size, a high surface velocity with **benthic** eddies, and a particular water chemistry and temperature.

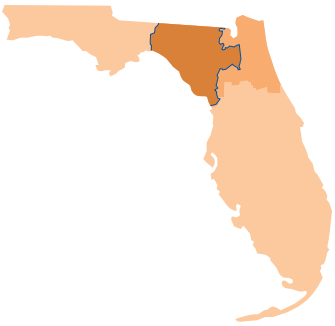
***Benthic***
*Bottom terrain.*

The current population is estimated to be about 7,650 fish. Although the population size is stable, it is extremely dynamic in structure, changing from year to year based on river levels. During a wet spring and summer, more eggs, larvae, and young fish survive. These larger year classes, which occur every 5 to 7 years, dominate the population. Annually, natural mortality is about 16 percent.

Population and mortality estimates are important because they can determine the success of future conservation and management approaches. For example, adding 6-month-old hatchery fish would do little to increase population size. First-year mortality is 99.99 percent, and a natural mortality rate of 16 percent after the first year means that few fish would survive to about 12 years, the age at which they begin to reproduce (Sulak, 2001).

The Suwannee used to support a small commercial sturgeon fishery from 1899 to 1984, when the state banned fishing and placed the species under state protection. In 1995, the U.S. Fish and Wildlife Service and the Gulf State Marine Fisheries Commission issued a recovery plan. Primary threats to the sturgeon's survival include habitat loss, conflicts with human activities in nearshore waters where the fish feed intensively, and chronic toxicity from organochlorines and heavy metals. They require adequate water flows and good water quality to spawn successfully. The protection of adult females is especially critical to the species' recovery, since only about 80 females spawn in the Suwannee River each year (Daigle, 2000).

***Fresh Water Mussels.*** Historically, the Suwannee River system contained abundant, healthy populations of large fresh water mussels in the Unionidae family. The Florida Department of Regulation recorded 13 species of Unionid mussels. The endangered oval pigtoe *(Pleurobema pyriforme)*, which is also ranked by the FNAI as rare or imperiled, was commonly found at 15 sites on the Suwannee River. The surveys from



1991 through 1993 by the U.S. Fish and Wildlife Service and USGS found the species only at one site on the New River, a tributary to the Santa Fe. Between 1995 and 2000, USGS staff found a few live specimens at the New River site but nowhere else in the Suwannee Basin. The Department's water quality surveys also have not found specimens of either species. In 1999, the U.S. Fish and Wildlife Service issued a draft recovery plan for seven endangered and threatened fresh water mussels found in north Florida, including the oval pigtoe. Primary threats to the species' survival include the loss of habitat from erosional sedimentation, excess nutrients, and chronic toxicity effects on breeding and reproduction from organochlorines and heavy metals.

One very rare species, the unlisted Suwannee River moccasinshell *(Medionidus walkeri),* is endemic to the Suwannee River system, meaning that it is found nowhere else in the world. It has not received endangered species status because the U.S. Fish and Wildlife Service had no survey data on its status at the time of the listing process. The species is ranked by the FNAI as rare or imperiled. The last live specimen was seen in 1988. Between 1995 and 2000, USGS staff found only one relict shell in the New River (Daigle, 2000).

**Other Aquatic Species**. Other long-term biological indicators recently observed at sampling sites in the Suwannee River were fish—mostly darters, shiners, and sunfish—and large dragonflies, which live three to five years in the aquatic larval stage. The black-banded darter *(Percina nigrofasciata),* a clean-water species, was seen below several flowing spring runs and in shallow areas of the Suwannee.

A few pollution-intolerant dragonflies, mostly blackwater clubtail *(Gomphus dilatatus),* the dragonhunter *(Hagenius brevistylus),* Illinois river cruiser *(Macromia illinoensis),* and royal river cruiser *(M. taeniolata)* were recently seen at several sites on the Suwannee River. Their aquatic life cycle runs from three to five years.

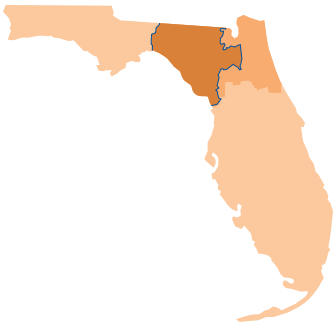
**Alapaha Planning Unit**. Of the 14 individual waterbodies and segments in the Alapaha planning unit, 3 have documented ecological protection needs in the form of listed animal and plant species.

A limited consumption advisory has been issued in the Alapaha River and its tributaries for gar, largemouth bass, and bowfin because of elevated mercury levels between 0.5 and 1.5 parts per million in fish tissues.

**Withlacoochee Planning Unit**. Out of 15 individual waterbodies and segments in the Withlacoochee planning unit, 5 have documented ecological protection needs, including listed animal and plant species, rare and imperiled fish or mollusks, eagle nests, and manatee warm water habitats.

A limited consumption advisory has been issued in the Withlacoochee River and its tributaries for gar, largemouth bass, and bowfin because of elevated mercury levels between 0.5 and 1.5 parts per million in fish tissues.

**Ecological Problems**. Increased nitrate-nitrogen concentrations have been measured in a number of Middle Suwannee springs, the Middle Suwannee River itself, and the Suwannee Estuary. Tributaries to the Suwannee contribute some of this contamination. Elevated nitrate-nitrogen concentrations have been found in springs in the Lower Santa Fe



River. The Santa Fe River contributes about 1,000 tons of nitrate-nitrogen annually to the Gulf, with smaller amounts coming from the Withlacoochee and Alapaha Rivers. The main source is contaminated ground water flowing to surface waters through the basin's numerous springs. Levels appear to be highest in springs with low flow rates and "younger" water that has been underground for 10 years or less.

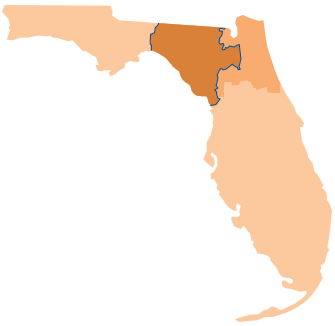
High levels of nitrate-nitrogen have the potential to affect human health and the environment. In drinking water, the chemical can be harmful at levels greater than the standard of 10 mg/L, especially for infants. It can also promote the excessive growth of phytoplankton or macroalgae in springs, rivers, and lakes. In lakes, phytoplankton turn the water green; in rivers and springs, larger, filamentous algae cover rocks and other hard surfaces.

Recent studies (SRWMD, 1999) show a statistically significant positive correlation between nitrate-nitrogen and the biomass of periphyton, a larger type of algae. Excessive growth of the algae causes biological effects by altering the structure or abundance of natural communities. Thick periphyton mats have been found in springs along the Suwannee and in the river and estuary. In 1999, an estimated 4,745 tons of nitrate-nitrogen were carried to the estuary. Levels in the estuary have been measured as high as 1.4 mg/L of nitrate-nitrogen.

Algal blooms occur in the estuary about 60 percent of the time. The dominant species at the mouth of the Suwannee are usually the green algae (Chlorophyta) Spirogyra, Rhizoclonium, and Cladophora, and the blue-green algae (Cyanobacteria) Lyngbya. Within the estuary itself, the genus Enteromorpha predominates. During the dry season or periods of drought, the blooms remain in the immediate estuary and move somewhat up into the mouth of the Suwannee. During the rainy season, more tannin-stained water enters the estuary, pushing the blooms farther offshore. Over the past five years, algal biomass has increased and levels have fluctuated from high to very low, which may indicate increased pollution stress.

A recent study supports the hypothesis that the abundance of phytoplankton is related to spatial and temporal patterns of nutrients. Major weather events such as El Niño and La Niña may play a role in algal community structure because they influence factors such as color, rate of water flow, water depth, and the length of time that water resides in the river and estuary (Bledsoe, 1998).

Although gross changes in seagrass distribution have not been observed, the nitrate-nitrogen contamination has the potential to cause seagrass beds in the estuary to decline. Seagrasses, which are extremely sensitive to pollution, are important indicators of overall surface water quality and ecosystem health. These grass flats, which require light to grow, are found in shallow waters off Florida's Gulf Coast, usually no deeper than six to eight feet. They support an interlinked community of diverse marine organisms, including grasses, algae, worms, mollusks, benthic organisms, sea turtles, and waterbirds. Seagrasses are an important feeding ground for the endangered Florida manatee, while also providing valuable shelter and nursery and juvenile habitat for many commercial and recreational fish and shellfish species. The grasses help to stabilize



shifting sands on the bottom, increase water clarity by trapping fine bottom sediments, and reduce nutrient levels in the water.

### Water Quality Improvement Plans and Projects

Waters will not be placed on the Verified List if the Department receives reasonable assurance that existing or proposed projects and/or programs are expected to result in the attainment of water quality standards or consistently improve water quality over time. Chapter 4 and **Appendix C** contain additional information on the requirements for reasonable assurance.

For this basin, no management plans or projects complying with the Department's guidance for reasonable assurance have been provided for the 2002 list of impaired waters.

## • Middle Suwannee Planning Unit

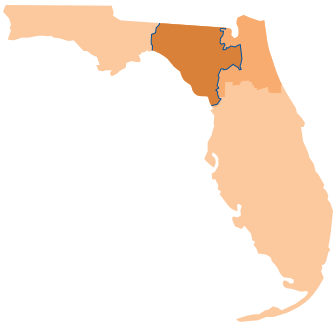
### General Description

The Middle Suwannee planning unit drains 963 square miles of Suwannee, Lafayette, and Madison Counties and fractions of Taylor and Columbia Counties.

The major waterbody in the planning unit is the middle segment of the Suwannee River. There is only one significant tributary—the Santa Fe River (discussed as a separate planning unit); however, this segment contains numerous springs. Many springs are located in the streambed, while others have spring runs that flow into the river.

This segment of the Suwannee River covers the area from just south of its confluence with the Alapaha River near Ellaville to just south of the Santa Fe River confluence. The annual average flow at the USGS gage in Ellaville for the year 2000 was 1,817 cfs (USGS, 2002). The annual average flow for 2000 at Branford (above the Santa Fe River) was 2,351 cfs (USGS, 2002). The annual average for the Santa Fe River near Fort White, Florida, in 2000 was 709 cfs (USGS, 2002). In addition, a study done by the SRWMD in July 1995 when the Suwannee River was at record low flow reports that, at that time, it was estimated that the springs and other ground water inputs in that part of the river (Dowling Park to Branford) discharged no less than 950 cfs. It was estimated that at the time of the study, the measured springs contributed 41 percent of the flow in the study area, while other ground water inputs contributed the other 59 percent (Pittman et al., 1997).

The most significant land use in the basin is agriculture, especially from row crops, dairies, and poultry production. While the majority of the basin (52 percent) is forested, agriculture accounts for 29 percent of the land use in the basin. In Suwannee County alone in 2002, the Florida Department of Agriculture and Consumer Services (DACS) reports that there were 9,800 head of dairy cattle, 17,000 head of beef cattle, and in 1997 over 27.5 million chickens were sold, valued at more than 54 million dollars (DACS, 2002). Suwannee County is the leading poultry-producing county in the state, followed by Holmes County, which produced 13.7 million in 1997 (DACS Web site at http://www.fl-



ag.com/agfacts/poultry.htm). DACS also reports that in 1998 there were 840 farms in Suwannee County covering 158,406 acres, including 86,524 acres of cropland and 57,529 acres of pastureland (DACS Web site at http://www.fl-ag.com/agfacts/farmland.htm).

**Figure 3.3**, a composite map of the Middle Suwannee planning unit, shows waters on the 1998 303(d) list, Planning List, and Verified List.

### Water Quality Summary—Middle Suwannee

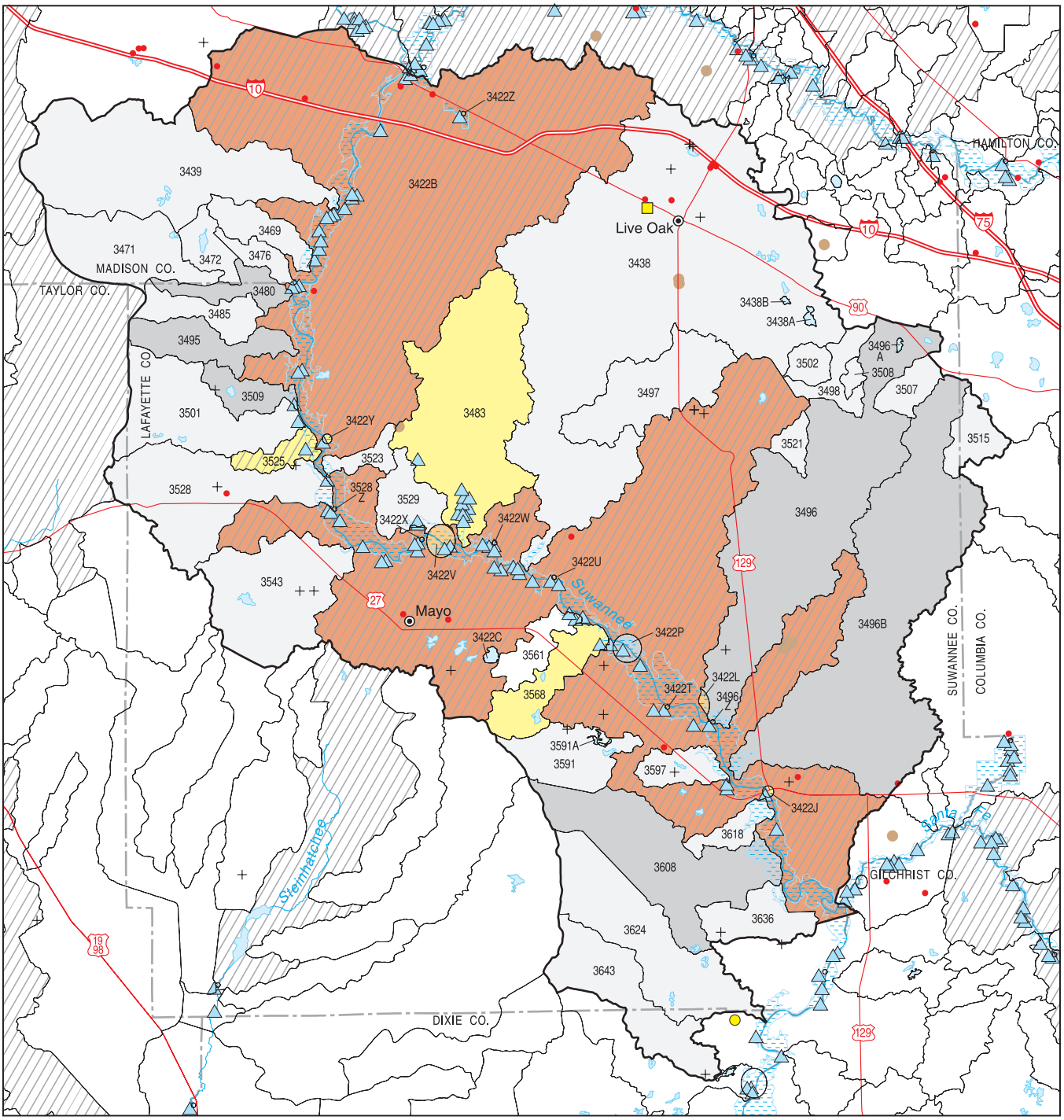
**Table 3.8** summarizes the water quality assessment status of all waterbody segments in the planning unit.

By far the biggest water quality concern in the basin is the concentration of nitrates being reported in the river. The Suwannee River was designated an Outstanding Florida Water (OFW) in 1979. At that time, the reported nitrate concentration was 0.68 mg/L at Branford. In November 2000 it was reported to be 1.26 mg/L at Branford (Suwannee River Partnership [SRP], 2002). While the state has no criterion for nutrients, these concentrations have led to excessive algal growth and chlorophyll *a* values. This in turn can depress DO levels. Waterbodies can be listed through the IWR for historical chlorophyll values, the presence of algal mats, or too many DO violations, among other things.

The Suwannee River in this planning unit is encompassed by one WBID—3422B. Despite chlorophyll *a* values not being in exceedance, this segment is verified for nutrients due to the large amount of algal mats present in the river. It is not uncommon for excess algae to depress DO levels. DO has also been verified as not meeting the DO criteria. Fish tissue data collected from 1995 to 2000 by the USGS and Florida Fish and Wildlife Conservation Commission (FWC) has put this segment on the Verified List for mercury/fish consumption advisories.

When compared to the state medians for streams (Friedman and Hand, 1989), the color is high, conductivity is low, pH is slightly low (but still circumneutral), and turbidity is low. As discussed previously, nitrates are of significant concern in this portion of the river. It is believed that current agricultural practices for crops, cattle, and poultry are the main source of the nitrates. It is also believed that these nitrates, which come from fertilizers, manure, and other waste products, are introduced to the river mainly through surface runoff and ground water. Nitrates seep into the ground water, are transported, and reemerge through springs and other ground water flows, especially during periods of low flow. This has been documented in several published reports (Pittman et al., 1997; Florida Springs Task Force, 2000; Berndt et al., 1998, to name a few). One report, published by the SRWMD from a study in July 1995, found that 3,700 kilograms per day of nitrates were being introduced into the river from springs in the 33-mile stretch of river from Dowling Park to Branford. This equated to a 160 percent increase in the nitrate load in the study area (Pittman et al., 1997).

**Table 3.8** and **Figure 3.3** show that two waterbody segments in this planning unit are impaired. A segment of the Suwannee River is impaired for mercury/fish consumption. The other six segments, which are impaired for DO, are Troy Spring (WBID 3422T), Royal Spring (WBID 3422U),




- Domestic and industrial wastewater facility
- Wastewater facility greater than 0.1 MGD
- Active landfills (Class I, II, III, C&D)
- State-funded hazardous waste site
- Superfund hazardous waste site
- Named springs
- Areas of known ground water contamination

0 8 16 Mi.

- Middle Suwannee Planning Unit
- Waterbody identification boundaries
- Outstanding Florida Waters
- 303d listed waters
- Category 1
- Category 2
- Category 3a
- Category 3b
- Category 3c
- Category 3d
- Category 4b
- Category 5

Note:
Features from legend not shown on this planning unit map were not reported as being present.

*Figure 3.3: Composite Map of the Middle Suwannee Planning Unit, Including the 1998 303(d) List, Planning List, and Verified List Waters*

**Table 3.8: Integrated Water Quality Assessment Summary for the Middle Suwannee Planning Unit***

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3438 | Tenmile Hollow | Stream | IIIF | | | | | 3a |
| 3469 | Springhead Creek | Stream | IIIF | | | | | 3a |
| 3471 | Unnamed Ditch | Stream | IIIF | | | | | 3a |
| 3472 | Bethel Creek | Stream | IIIF | | | | | 3a |
| 3476 | William Water-hole Dr | Stream | IIIF | | | | | 3a |
| 3480 | Bethel Creek | Stream | IIIF | | | | | 3b |
| 3483 | Peacock Slough | Spring | IIIF | | DO | | Conductivity, Unionized Ammonia | 3c |
| 3485 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3495 | Fourmile Creek | Stream | IIIF | | | | | 3b |
| 3496 | Little River | Stream | IIIF | | | | | 3b |
| 3497 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3498 | Crab Creek | Stream | IIIF | | | | | 3a |
| 3501 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3502 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3507 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3508 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3509 | Unnamed Drain | Stream | IIIF | | | | | 3b |
| 3515 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3521 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3523 | Thomas Spring | Spring | IIIF | | | | | 3a |
| 3525 | Allen Mill Pond | Spring | IIIF | DO, Nutrients | DO, Nutrients | | | 3c |
| 3528 | Lafayette Blue Spring | Spring | IIIF | | | | | 3a |
| 3529 | Irving Slough | Stream | IIIF | | | | | 3a |

**Table 3.8 (continued)**

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3543 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3568 | Owens Spring | Spring | IIIF | | DO | | Conductivity, Unionized Ammonia | 3c |
| 3568 | Owens Spring | Spring | IIIF | | | | Unionized Ammonia | 2 |
| 3591 | Picket Lake Outlet | Lake | IIIF | | | | | 3a |
| 3591A | Picket Lake | Lake | IIIF | | | | | 3b |
| 3597 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3608 | Unnamed Ditch | Stream | IIIF | | | | | 3b |
| 3618 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3624 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3636 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3643 | Unnamed Ditch | Stream | IIIF | | | | | 3a |
| 3422B | Suwannee River (Lower) | Stream | IIIF | Nutrients, DO | | **Mercury–Fish, DO, Nutrients** | Chlorophyll *a*, Unionized Ammonia, Total Coliforms, Nickel, Fluoride, Fecal Coliforms, Copper, Conductivity | 5 |
| 3422C | Townsend Pond Near May | Lake | IIIF | | | | | 3b |
| 3422J | Branford Spring | Spring | IIIF | | DO | | | 3c |
| 3422L | Ruth Spring | Spring | IIIF | | | DO | Fluoride, Turbidity | 3c |
| 3422P | Mearson Spring | Spring | IIIF | | | | | 3b |
| 3422Q | Ellaville Spring | Spring | IIIF | | DO | | | 3c |

**Table 3.8 (continued)**

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3422T | Troy Spring | Spring | IIIF | | | DO | Conductivity, Turbidity, Fluoride, Unionized Ammonia | 5 |
| 3422U | Royal Spring | Spring | IIIF | | | DO | Conductivity, Unionized Ammonia, Turbidity, Fluoride | 5 |
| 3422V | Convict Spring | Spring | IIIF | | | DO | Conductivity, Unionized Ammonia, Turbidity, Fluoride | 5 |
| 3422W | Running Spring | Spring | IIIF | | DO | | Conductivity, Unionized Ammonia | 3c |
| 3422X | Telford Spring | Spring | IIIF | | | DO | Conductivity, Unionized Ammonia, Turbidity, Fluoride | 5 |
| 3422Y | Charles Spring | Spring | IIIF | | DO | | Conductivity, Unionized Ammonia, Turbidity, Fluoride, Fecal Coliforms | 3c |
| 3422Z | Falmouth Spring | Spring | IIIF | | | DO | Conductivity, Unionized Ammonia, Turbidity, Fluoride | 3c |
| 3438A | Peacock Lake | Lake | IIIF | | | | | 3b |
| 3438B | White Lake | Lake | IIIF | | | | | 3b |
| 3496A | Low Lake | Lake | IIIF | | | | | 3b |
| 3496B | Unnamed Slough | Stream | IIIF | | | | | 3b |
| 3496Z | Little River Springs | Spring | IIIF | | | DO | Conductivity, Unionized Ammonia, Turbidity, Fluoride | 5 |
| 3528Z | Lafayette Blue Spring | Spring | IIIF | | | DO | Conductivity | 5 |

Notes:

* Information presented in this table is from the master list presented for Secretarial adoption in October 2002.
[1]The designation "stream" includes canals, rivers, and sloughs. The designation "lake" includes some marshes.

**Table 3.8 (continued)**

[2]The state's surface water classifications are as follows:

**Class I:** **Potable water supplies**
**Class II:** **Shellfish propagation or harvesting**
**Class III:** **Recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife**
**Class IV:** **Agricultural water supplies**
**Class V:** **Navigation, utility, and industrial use (there are no state waters currently in this class)**

[3]Parameters in **bold** meet the Verified List evaluation criteria, Rule 62-303.400, F.A.C.

[4]The EPA's 305(b)/303(d) Integrated Report categories are as follows:

**1**—Attains all designated uses;
**2**—Attains some designated uses;
**3a**—No data and information are available to determine if any designated use is attained;
**3b**—Some data and information are available, but they are insufficient for determining if any designated use is attained;
**3c**—Meets Planning List criteria and is potentially impaired for one or more designated uses;
**4a**—Impaired for one or more designated uses and the TMDL is complete;
**4b**—Impaired for one or more designated uses but no TMDL is required because the impairment is not caused by a pollutant;
**4c**—Impaired for one or more designated uses, but no TMDL is required because a proposed pollution control measure provides reasonable assurance that the water will attain standards in the future; and
**5**—Water quality standards are not attained and a TMDL is required.

[5]The assessment categories listed in this column represent the status of each WBID as a whole, **based on multiple parameters**. The hierarchy for assigning these categories is Category 5, then 4, then 3c, then 2, and then 3b, i.e., each WBID is assigned a category based on the highest category assigned to an individual parameter. For example, if WBID 9999 has total coliforms as Category 5, fecal coliforms as Category 3c, and coliforms-shellfish as Category 2, the single assessment call for the WBID is Category 5.

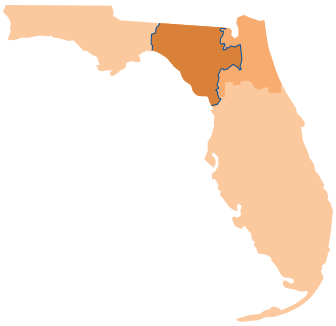
F = Fresh water
M = Marine
N/A = Not applicable, i.e., there are no parameters listed.

Convict Spring (WBID 3422V), Telford Spring (WBID 3422X), Little River Springs (WBID 3496Z), and Lafayette Blue Springs (WBID 3528Z).

A total of 100 sites in the planning unit had data collected during the verification period (January 1, 1995–June 30, 2002) and used in the assessment report, with 29,211 samples being collected. The primary data-collecting agency was the SRWMD.

Within the planning unit, there are three verified impaired parameters; all are in WBID 3422B (Suwannee River Lower). They are DO, algal mats, and mercury/fish consumption advisories. With the Department's acceptance of the Suwannee River Reasonable Assurance Document, the listings for DO and algal mats have been moved to EPA Category 4c (one or more designated uses is impaired). Therefore, no TMDL will be developed because proposed pollution control measure(s) provide reasonable assurance that designated uses will be restored in the future. In this instance, agricultural BMPs have been proposed that will restore the waterbody to where designated uses will be met.

There are eight parameters currently on the Planning List, falling within seven WBIDs. All seven WBIDs are springs, and seven of the eight parameters are DO. The eighth parameter is nutrients. Additionally, eight springs in the planning unit were verified for DO; however, due to the nature of springs and the proximity of the sampling site to the vent, it is believed that low DO in these springs is a natural occurrence. The DO in these WBIDs was placed in EPA Category 4b (one or more designated uses is impaired but no TMDL will be developed because the impairment is not caused by a pollutant).



There are 54 parameters that meet standards within 13 WBIDs. Ninety-two parameters in 23 WBIDs had insufficient data to assess; 26 WBIDs had no data at all.

### Permitted Discharges and Land Uses

**Point Sources.** Two permitted industrial facilities discharge wastewater into the Middle Suwannee planning unit. Florida Power Corporation's Suwannee River Generation Plant is a steam electric-generating plant that uses the river for once-through cooling water. The plant's permitted capacity is 342 mgd. The other wastewater discharger, Goldkist Poultry Processing Facility, processes chickens from its grower operations in the surrounding counties. Its permitted capacity is 1.5 mgd. Gold Kist Inc., has reached a voluntary agreement with the Department whereby the discharger will reduce the total nitrogen in its effluent by about half by June 2004 (Gandhi, 2003).

**Appendix F** lists the basin's domestic and industrial surface discharge facilities, along with their permitted flows by planning unit. It also lists landfills or solid waste facilities by planning unit.

**Nonpoint Sources.** Based on Level I and II land use summary information, forested areas cover nearly 52 percent of the planning unit. Agricultural lands occupy 29 percent of the watershed and are well distributed in Suwannee County and concentrated adjacent to the river in Lafayette County. These land uses can be associated with nonpoint discharges of pollutants and eroded sediments.

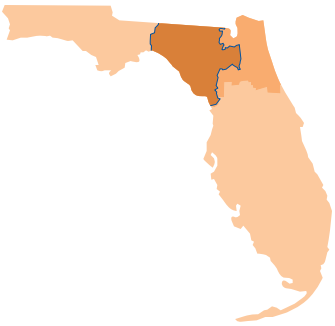
### Ecological Summary

(See the **"Ecological Summary"** for the **Upper Suwannee Planning Unit**.)

### Water Quality Improvement Plans and Projects

Waters will not be placed on the Verified List if the Department receives reasonable assurance that existing or proposed projects and/or programs are expected to result in the attainment of water quality standards or consistently improve water quality over time. Chapter 4 and **Appendix C** contain more detailed documentation of the requirements for reasonable assurance.

In the fall of 2002, the SRP's Reasonable Assurance Document was submitted to the Department. The SRP consists of members from federal, state, regional, and local governments; universities; and industry. The group was created in 1998 to ". . . assess sources of nutrient loadings to the Suwannee River Basin and optimize reductions in loadings to the basin emphasizing voluntary, incentive-based programs for protecting the environment and public health" (SRP, Executive Summary). The goal is to reduce nitrogen loading in the basin by implementing voluntary agricultural BMPs. It is hoped that the nitrate loading will be reduced by no less than 30 percent of its current levels. It is estimated that this would approximate loads prior to the designation of the Suwannee River as an OFW in 1979. Due to the estimated residency time of ground water in the basin, it is estimated that it will take until at least 2028 for



these reductions to be realized and reported through ambient monitoring activities (SRP, Reasonable Assurance Documentation). The Reasonable Assurance Document was accepted by the Department; however, it was not approved by EPA Region IV personnel. As a result, the Department will not be responsible for any TMDLs for parameters covered under the document. The EPA, however, did not feel that the reasonable assurance provided by the SRP was sufficient. The EPA added these waters to the list of impaired waters, but no due date was assigned, allowing a reasonable time to resubmit a reasonable assurance document that is satisfactory.

## • Lower Suwannee Planning Unit

### General Description

The Lower Suwannee River watershed drains 614 square miles of Gilchrist, Levy, and Dixie Counties and a fraction of Lafayette County. The major waterbody in the planning unit is the lower portion of the Suwannee River and the Suwannee Estuary. There are no major tributaries to the Suwannee in the planning unit; most of the other WBIDs are springs, sloughs, or lakes/ponds. This planning unit encompasses the portion of the Suwannee River from just below its confluence with the Santa Fe River to where it meets the Gulf of Mexico, including the estuary portion.

Flow continues to increase relatively well in this part of the Suwannee River. For the year 2000, the flow at the USGS gage near Wilcox, Florida, was 3,613 cfs, while the flow at the USGS gage near Suwannee, Florida, was 4,535 cfs. The USGS reports that even as far upriver as the gage near Wilcox (33 miles upstream from the mouth), the Suwannee is tidally affected at low flows (USGS, 2002). There are 6 WBIDs in the spring category of waterbody types.

As with the rest of the basin, the largest category of land use is forest (41 percent), followed by agricultural lands (26 percent), and wetlands (17 percent).

**Figure 3.4,** a composite map of the Lower Suwannee planning unit, shows waters on the 1998 303(d) list, Planning List, and Verified List.

### Water Quality Summary

A total of 96 sites in the planning unit had data collected during the verification period (January 1, 1995–June 30, 2002) that were used in the assessment report with 71,364 samples being collected. The primary data collector was the SRWMD.

As with the Middle Suwannee River, nutrients, especially nitrates, are of major concern. In addition to what is being introduced into the river from practices within the planning unit, excess nutrients are being flushed into the Lower Suwannee River and estuary from the Middle Suwannee segment. The effects of the excess nitrates in the system are perhaps best seen in the Suwannee Estuary. Chlorophyll *a* values in the estuary can be quite high. A study conducted for the SRWMD from 1999 to 2001 in the estuary had a very wide range of chlorophyll *a* values. Samples were collected monthly at 21 nearshore sites and 11 offshore sites. The values

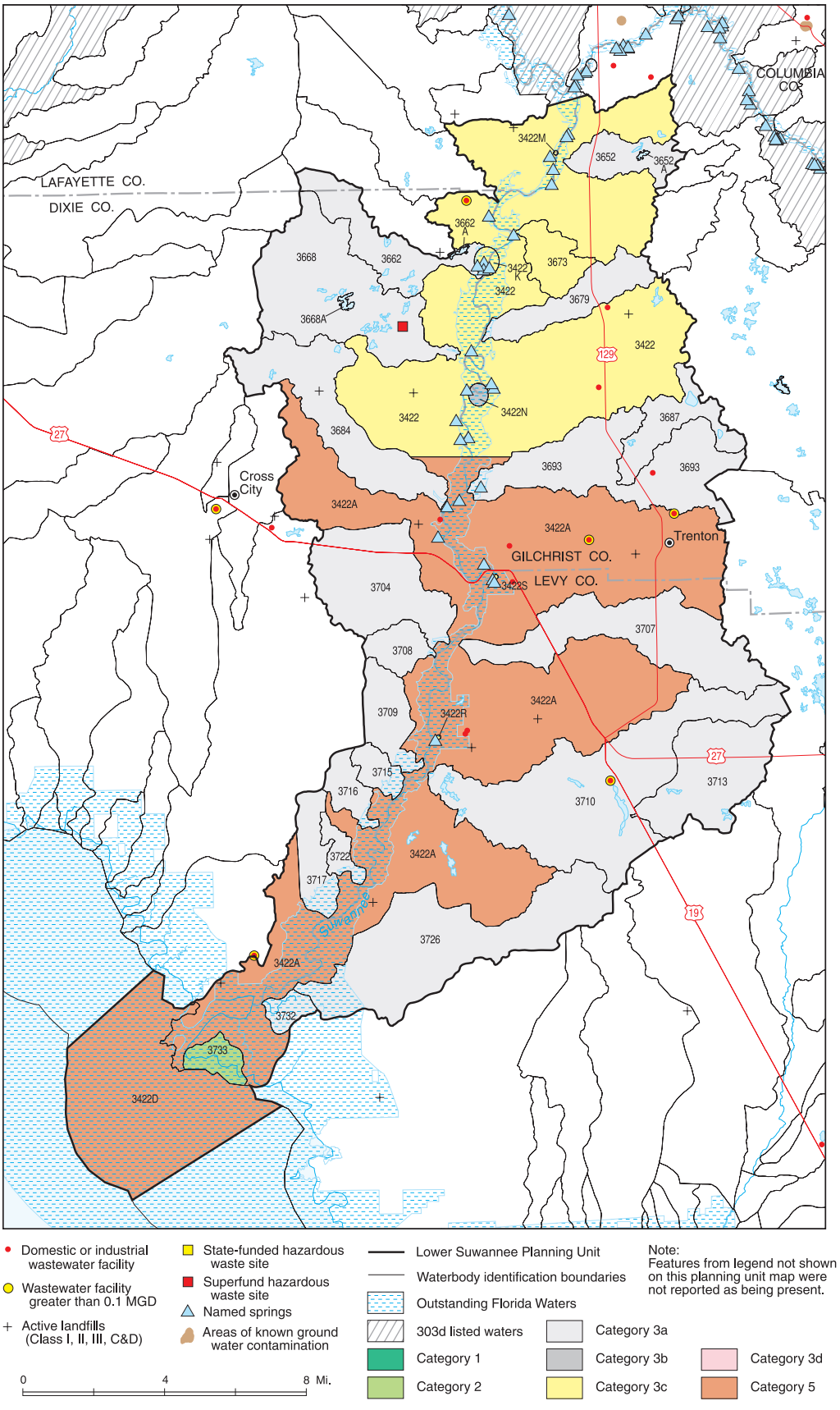
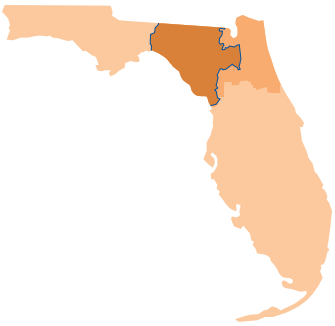



*Figure 3.4: Composite Map of the Lower Suwannee Planning Unit, Including the 1998 303(d) List, Planning List, and Verified List Waters*



ranged from 0.10 micrograms per liter (µg/L) to 81.33 µg/L chlorophyll (Phlips and Bledsoe, 2002).

Six parameters in the planning unit are verified. Of the six, three have been removed from the Verified List due to the Department's acceptance of the SRP's Reasonable Assurance Document. As a result, these three parameters, all nutrient listings, have been moved to EPA Category 4c (one or more designated uses is impaired, but no TMDL will be developed because a proposed pollution control measure[s] provide reasonable assurance that the designated uses will be restored in the future). There are two WBIDs verified for mercury/fish consumption advisories. This includes the estuary, which is impaired based on a 1997 FWC mackerel advisory. A segment of the Suwannee River (WBID 3422A) is listed based on fish tissue data collected from 1995 to 2000 by the USGS and FWC. The last verified parameter is due to a downgrade in the shellfish harvesting area and applies to the estuary (WBID 3422D).

There are 8 parameters on the Planning List. Five of the listings are for DO and fall within the spring waterbody type category. Two are for mercury/fish consumption advisories, and the last is for biology. There are 36 parameters in the planning unit that meet standards in 8 waterbodies. Twenty-one parameters have insufficient data to assess under the IWR. They occupy 5 WBIDs. Twenty-two WBIDs have no data at all.

Generally speaking, when compared with state averages (Friedman and Hand, 1989), as with other segments of the Suwannee River, the Lower Suwannee River has high color. The conductivity in the segments is considerably higher than the rest of the streams in Florida, but this is not surprising considering that this area is tidally influenced. The pH is almost that of the state average, being slightly basic.

**Table 3.9** summarizes the water quality assessment status of all waterbody segments in the planning unit. **Table 3.9** and **Figure 3.4** show that three waterbody segments in this planning unit are impaired. A segment of the Suwannee River (WBID 3422) is impaired for nutrients (historical chlorophyll). Another segment of the Suwannee River (WBID 3422A) is impaired for mercury/fish consumption advisories. The Suwannee Estuary (WBID 3422D) is impaired for nutrients, mercury/fish consumption advisories, and coliforms/downgrade in shellfish harvesting area.

### Permitted Discharges and Land Uses

**Point Sources**. There are no permitted wastewater facilities with surface water discharges in the planning unit.

**Nonpoint Sources**. Based on Level I and II land use summary information, forests cover slightly more than 41 percent of the planning unit. Agricultural lands, which occupy a little more than 26 percent, are concentrated adjacent to the river in Gilchrist and Levy Counties. These land uses can be associated with nonpoint discharges of pollutants and eroded sediments. Wetlands occupy slightly more than 17 percent of the planning unit's land area.

**Table 3.9: Integrated Water Quality Assessment Summary for the Lower Suwannee Planning Unit***

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3422 | Suwannee River (Lower) | Stream | IIIF | | Mercury-Fish | Nutrients (Historical Chlorophyll) | Conductivity, Unionized Ammonia, Total Coliforms, Fluoride, Turbidity, Fecal Coliforms | 3c |
| 3652 | Sevenmile Lake Outlet | Lake | IIIF | | | | | 3a |
| 3662 | Cow Pond Outlet | Lake | IIIF | | | | | 3a |
| 3662 | Cow Pond | Lake | IIIF | | | | | 3a |
| 3668A | Govenor Hill Lake | Lake | IIIF | | | | | 3a |
| 3668 | Beason Prairie Drain | Stream | IIIF | | | | | 3a |
| 3673 | Rock Bluff Spring | Spring | IIIF | | DO | | Turbidity, Unionized Ammonia, Conductivity | 3c |
| 3679 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3684 | Old Town Hammock Drain | Stream | IIIF | | | | | 3a |
| 3687 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3693 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3704 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3707 | Unnamed Drain | Estuary | IIIM | | | | | 3a |
| 3708 | Unnamed Drain | Estuary | IIIM | | | | | 3a |
| 3709 | Unnamed Drain | Estuary | IIIM | | | | | 3a |
| 3710 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3713 | Drummond Pond Outlet | Lake | IIIF | | | | | 3a |
| 3715 | Yellow Jacket Slough | Stream | IIIF | | | | | 3a |

**Table 3.9 (continued)**

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3716 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3717 | Unnamed Drain | Estuary | IIIM | | | | | 3a |
| 3722 | Week Creek | Stream | IIIF | | | | | 3a |
| 3726 | Sandfly Creek | Stream | IIIF | | | | | 3a |
| 3732 | Gopher River | Stream | IIIF | | | | | 3a |
| 3733 | Direct Runoff To Gulf | Stream | IIIF | | | | Turbidity, Fecal Coliforms, DO | 2 |
| 3422A | Suwannee River (Lower) | Stream | IIIF | | | **Mercury-Fish**, Nutrients | Conductivity, Unionized Ammonia, Turbidity, Total Coliforms, Fluoride, Fecal Coliforms | 5 |
| 3422D | Lower Suwannee Estuary | Estuary | IIM | | | Nutrients, **Coliforms/ Shellfish, Mercury-Fish** | Chlorophyll *a*, Turbidity, Total Coliforms, Fecal Coliforms, DO, Conductivity | 5 |
| 3422K | Guaranto Spring | Spring | IIIF | | DO | | | 3c |
| 3422M | Turtle Spring | Spring | IIIF | | DO | | | 3c |
| 3422N | Hart Springs | Spring | IIIF | | | DO | | 3c |
| 3422R | Manatee Springs | Spring | IIIF | | Biology | DO | DO, Turbidity, Fluoride, Conductivity | 3c |
| 3422S | Fanning Springs | Spring | IIIF | | Mercury-Fish, Biology | DO | Unionized Ammonia, Turbidity, Fluoride, Conductivity | 3c |
| 3668A | Govenor Hill Lake | Lake | IIIF | | | | | 3a |

Notes:

* Information presented in this table is from the master list presented for Secretarial adoption in October 2002.
[1]The designation "stream" includes canals, rivers, and sloughs. The designation "lake" includes some marshes.
[2]The state's surface water classifications are as follows:

**Class I:** **Potable water supplies**
**Class II:** **Shellfish propagation or harvesting**
**Class III:** **Recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife**
**Class IV:** **Agricultural water supplies**
**Class V:** **Navigation, utility, and industrial use (there are no state waters currently in this class)**

[3]Parameters in **bold** meet the Verified List evaluation criteria, Rule 62-303.400, F.A.C.

**Table 3.9 (continued)**

[4]The EPA's 305(b)/303(d) Integrated Report categories are as follows:

**1**—Attains all designated uses;
**2**—Attains some designated uses;
**3a**—No data and information are available to determine if any designated use is attained;
**3b**—Some data and information are available, but they are insufficient for determining if any designated use is attained;
**3c**—Meets Planning List criteria and is potentially impaired for one or more designated uses;
**4a**—Impaired for one or more designated uses and the TMDL is complete;
**4b**—Impaired for one or more designated uses but no TMDL is required because the impairment is not caused by a pollutant;
**4c**—Impaired for one or more designated uses, but no TMDL is required because a proposed pollution control measure provides reasonable assurance that the water will attain standards in the future; and
**5**—Water quality standards are not attained and a TMDL is required.

[5]The assessment categories listed in this column represent the status of each WBID as a whole, **based on multiple parameters**. The hierarchy for assigning these categories is Category 5, then 4, then 3c, then 2, and then 3b, i.e., each WBID is assigned a category based on the highest category assigned to an individual parameter. For example, if WBID 9999 has total coliforms as Category 5, fecal coliforms as Category 3c, and coliforms-shellfish as Category 2, the single assessment call for the WBID is Category 5.

F = Fresh water
M = Marine
N/A = Not applicable, i.e., there are no parameters listed.

### Ecological Summary

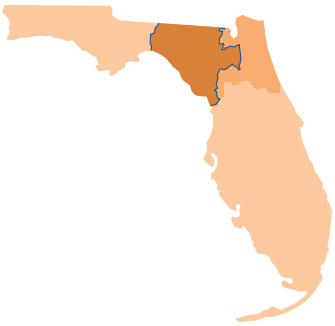
The Suwannee River in Dixie County is infested with water lettuce and water hyacinth. A limited consumption advisory has also been issued in the Lower Suwannee National Wildlife Refuge for gar, largemouth bass, and bowfin because of elevated mercury levels between 0.5 and 1.5 parts per million in fish tissues.

For additional information, see the **"Ecological Summary"** for the **Upper Suwannee Planning Unit**.

### Water Quality Improvement Plans and Projects

Waters will not be placed on the Verified List if the Department receives reasonable assurance that existing or proposed projects and/or programs are expected to result in the attainment of water quality standards or consistently improve water quality over time. Chapter 4 and **Appendix C** contain more detailed documentation of the requirements for reasonable assurance.

In the fall of 2002, the Department accepted the SRP Reasonable Assurance Document. The SRP consists of members from federal, state, regional, and local governments; universities; and industry. The group was created in 1998 to ". . . assess sources of nutrient loadings to the Suwannee River Basin and optimize reductions in loadings to the basin emphasizing voluntary, incentive-based programs for protecting the environment and public health." The goal is to reduce nitrogen loading in the basin by implementing voluntary agricultural BMPs. It is hoped that the nitrate loading will be reduced by no less than 30 percent of its current levels. This would approximate loads prior to the designation of the Suwannee River as an OFW in 1979. Due to the estimated residency time of ground water in the basin, it is estimated that it will take until at least 2028 for these reductions to be realized and reported through ambient monitoring activities.



## • Santa Fe Planning Unit

### General Description

The Santa Fe River watershed drains 1,384 square miles of Bradford, Union, Alachua, Columbia, and Gilchrist Counties. The main waterbody in this planning unit is the Santa Fe River. The headwaters for the river are located at Santa Fe Lake. Numerous springs and other ground water seeps empty into the river and make up the majority of the flow. The largest tributary to the Santa Fe River is the Ichetucknee River. The headwaters for the Ichetucknee River are at the Ichetucknee Spring; however, there are many other springs along the river. Many smaller creeks, streams, and lakes empty into the river as well. In turn, the Santa Fe River is the largest tributary to the Middle Suwannee River. The Santa Fe River goes into a sink near O'Leno State Park and disappears. It reemerges approximately three miles to the south at Santa Fe River Rise.

According to the USGS, the flow for 2000 at the Santa Fe gage near Fort White, Florida, was 709 cfs. Flow at Santa Fe River Rise, where the river reemerges, is estimated to be approximately 442 cfs (Hornsby and Ceryak, 1998). The USGS does not maintain any gages in the Ichetucknee River Basin; however, flow from Ichetucknee Springs is estimated to be approximately 42 cfs (Hornsby and Ceryak, 1998).

Just over 50 percent of the land in the planning unit is forested; 22 percent is dedicated to agriculture. As in the Suwannee planning units, runoff from agriculture is of big concern in the basin, especially runoff in the form of nitrates.

**Figure 3.5**, a composite map of the Santa Fe planning unit, shows waters on the 1998 303(d) list, Planning List, and Verified List.

### Water Quality Summary

For the verification period (January 1, 1995–June 30, 2002), there were 144 sites at which data were collected and used in the assessment process. A total of 58,998 samples was collected; the primary data collector was the SRWMD.

There are 8 verified impaired parameters in the planning unit within 7 WBIDs. Of those, 4 are nutrient or chlorophyll related, 2 are DO, and 2 are coliforms. There are 48 parameters on the Planning List in 31 WBIDs, 84 parameters with insufficient data to assess in 30 WBIDs, 169 parameters that meet standards in 31 WBIDs, and 90 WBIDs with no data. There are 8 waters on the Planning List based on mercury/fish consumption advisories. These listings will be further assessed when more recent data are obtained.

In general terms, when compared with state medians (Friedman and Hand, 1989), the Santa Fe River has low chlorophyll *a*, low conductivity, higher DO, and very low turbidity.

**Table 3.10** summarizes the water quality assessment status of all waterbody segments in the planning unit. The table and figure show that seven waterbody segments in this planning unit are impaired. Two segments, Pareners Branch (WBID 3626) and Cannon Creek (WBID 3520), are impaired for fecal coliforms. Lake Butler (WBID 3566) is impaired for Trophic State Index (TSI). Alligator Lake (WBID 3516) and

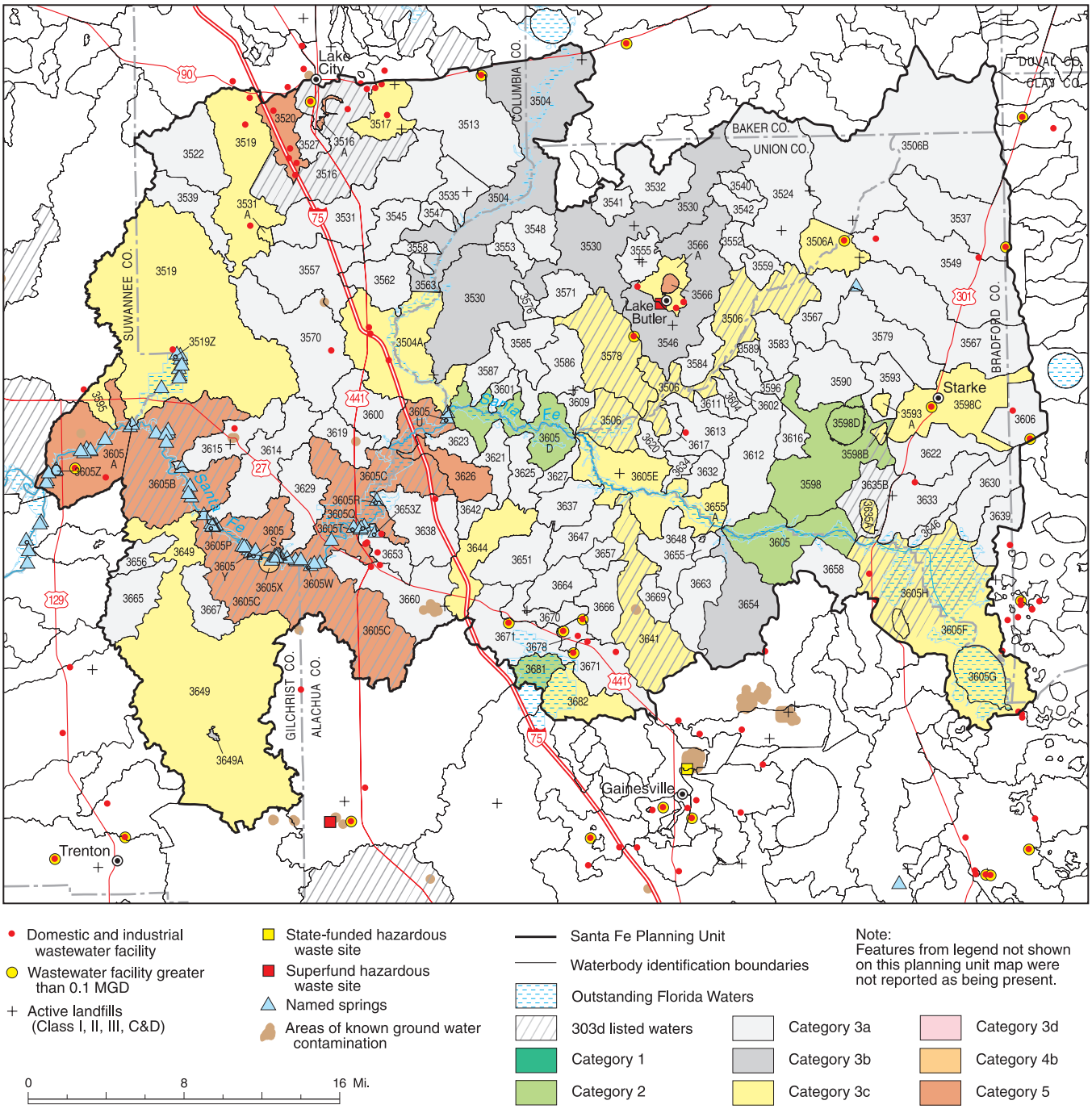



*Figure 3.5: Composite Map of the Santa Fe Planning Unit, Including the 1998 303(d) List, Planning List, and Verified List Waters*

**Table 3.10: Integrated Water Quality Assessment Summary for the Santa Fe Planning Unit***

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3506 | New River | Stream | IIIF | DO, Coliforms, Nutrients | DO | | Conductivity, Nutrients, Unionized Ammonia, Turbidity, Total Coliforms, Fluoride, Fecal Coliforms | 3c |
| 3513 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3516A | Alligator Lake | Lake | IIIF | Nutrients, Coliforms | | **Nutrients (TSI), DO** | Total Coliforms, Turbidity, Fluoride, Conductivity, Unionized Ammonia, Fecal Coliforms | 5 |
| 3516 | Alligator Lake Outlet | Lake | IIIF | | | | Turbidity, Fluoride, Conductivity, Unionized Ammonia | 3a |
| 3517 | Price Creek | Stream | IIIF | | DO | | Fluoride, Turbidity | 3c |
| 3519 | Ichetucknee River | Stream | IIIF | | | DO | Conductivity, Unionized Ammonia, Turbidity, Total Coliforms, Fluoride, Fecal Coliforms | 3c |
| 3520 | Cannon Creek | Stream | IIIF | | Total Coliforms | **Fecal Coliforms** | Conductivity, Unionized Ammonia, Turbidity, Fluoride | 5 |
| 3522 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3524 | Turkey Creek | Stream | IIIF | | | | | 3a |
| 3527 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3531 | Rose Creek | Stream | IIIF | | | | | 3a |
| 3535 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3537 | Unnamed Creek | Stream | IIIF | | | | | 3a |
| 3539 | Unnamed Slough | Stream | IIIF | | | | | 3a |

**Table 3.10 (continued)**

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3540 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3541 | Center Bay Drain | Stream | IIIF | | | | | 3a |
| 3542 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3545 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3547 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3548 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3549 | Alligator Creek | Stream | IIIF | | | | | 3a |
| 3552 | Piney Bay Drain | Stream | IIIF | | | | | 3a |
| 3553 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3555 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3557 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3558 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3559 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3562 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3563 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3566 | Lake Butler | Lake | IIIF | | Mercury-Fish | TSI | | 5 |
| 3567 | Wateroak Creek | Stream | IIIF | | | | | 3a |
| 3570 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3571 | Cedar Hammock Drain | Stream | IIIF | | | | | 3a |
| 3576 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3578 | Fivemile Creek | Stream | IIIF | DO, Coliforms, Nutrients | DO, Nutrients, Total Coliforms, Fecal Coliforms | | | 3c |
| 3579 | Gum Creek | Stream | IIIF | | | | | 3a |

**Table 3.10 (continued)**

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3583 | Mckinney Branch | Stream | IIIF | | | | | 3a |
| 3584 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3585 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3586 | Fern Pond Drain | Stream | IIIF | | | | | 3a |
| 3587 | Browns Still Run | Stream | IIIF | | | | | 3a |
| 3589 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3590 | Cypress Run | Stream | IIIF | | | | | 3a |
| 3593A | Lake Crosby | Lake | IIIF | | TSI, Mercury-Fish | | Conductivity, Unionized Ammonia, Turbidity, Total Coliforms, Fecal Coliforms, DO | 3c |
| 3593 | Lake Crosby Outlet | Lake | IIIF | | | | | 3a |
| 3595 | Unnamed Slough | Stream | IIIF | | Mercury-Fish | | | 3c |
| 3596 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3598 | Sampson River | Stream | IIIF | | | | Conductivity, Unionized Ammonia, Turbidity, Total Coliforms, Fluoride, Fecal Coliforms, DO | 2 |
| 3600 | Hammock Branch | Stream | IIIF | | | | | 3a |
| 3601 | Unnamed Creek | Stream | IIIF | | | | | 3a |
| 3602 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3604 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3605 | Santa Fe River | Stream | IIIF | | | | Conductivity, Unionized Ammonia, Turbidity, Total Coliforms, Fecal Coliforms, DO | 2 |

**Table 3.10 (continued)**

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3606 | Mined Area | Stream | IIIF | | | | | 3a |
| 3609 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3611 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3612 | Unnamed Creek | Stream | IIIF | | | | | 3a |
| 3613 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3614 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3615 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3616 | Unnamed Ditch | Stream | IIIF | | | | | 3a |
| 3617 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3619 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3620 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3621 | Unnamed Creek | Stream | IIIF | | | | | 3a |
| 3622 | Prevatt Creek | Stream | IIIF | | | | | 3a |
| 3623 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3625 | Unnamed Creek | Stream | IIIF | | | | | 3a |
| 3626 | Pareners Branch | Stream | IIIF | | Total Coliforms | **Fecal Coliforms** | Conductivity, Unionized Ammonia, Turbidity, Fluoride, DO | 5 |
| 3627 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3629 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3630 | Double Run Creek | Stream | IIIF | | | | | 3a |
| 3632 | Braggs Branch | Stream | IIIF | | | | | 3a |
| 3633 | Hampton Ditch | Stream | IIIF | | | | | 3a |

**Table 3.10 (continued)**

| | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3634 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3637 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3638 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3639 | Theressa Slough | Stream | IIIF | | | | | 3a |
| 3641 | Rocky Creek | Stream | IIIF | DO, Fecal Coliforms, Total Coliforms, Nutrients, BOD | DO, BOD, Nutrients, Total Coli-forms, Fecal Coliforms | | | 3c |
| 3642 | Townsend Branch | Stream | IIIF | | | | | 3a |
| 3644 | Mill Creek Sink | Stream | IIIF | | DO, Unionized Ammonia, Turbidity | | Conductivity | 3c |
| 3646 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3647 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3648 | Rhuda Branch | Stream | IIIF | | | | | 3a |
| 3649 | Cow Creek | Stream | IIIF | | DO | | Conductivity, Unionized Ammo-nia, Turbidity, Total Coliforms, Fluoride, Fecal Coliforms | 3c |
| 3651 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3653 | Hornsby Spring Run | Spring | IIIF | | | | | 3a |
| 3655 | Trout Pond Outlet | Lake | IIIF | | | | | 3a |
| 3655A | Trout Pond | Lake | IIIF | | | | | 3a |
| 3656 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3657 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3658 | Unnamed Creek | Stream | IIIF | | | | | 3a |

**Table 3.10 (continued)**

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3660 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3663 | Little Monteocha Creek | Stream | IIIF | | | | | 3a |
| 3664 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3665 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3666 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3667 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3669 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3670 | Burnetts Lake Drain | Stream | IIIF | | | | | 3a |
| 3671 | Alachua Slough | Stream | IIIF | | | | | 3a |
| 3678 | Hague Branch | Stream | IIIF | | | | | 3a |
| 3681 | Turkey Creek | Stream | IIIF | | | | Conductivity, Unionized Ammonia, Turbidity, Fecal Coliforms, DO | 2 |
| 3682 | Blue Creek | Stream | IIIF | | DO, Fecal Coliforms | | Conductivity, Unionized Ammonia, Turbidity, Fluoride, Conductivity, DO | 3c |
| 3504A | Olustee Creek | Stream | IIIF | | DO | | Chlorophyll *a*, Unionized Ammonia, Turbidity, Total Coliforms, Fecal Coliforms, Conductivity | 3c |
| 3506A | New River | Stream | IIIF | | DO | | Chlorophyll, Unionized Ammonia, Turbidity, Total Coliforms, Fecal Coliforms, Conductivity | 3c |

**Table 3.10 (continued)**

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3506B | New River | Stream | IIIF | | | | | 3a |
| 3519Z | Ichetucknee Head Spring | Spring | IIIF | DO, Nutrients | DO, Nutrients | | Conductivity, Unionized Ammonia, Turbidity, Total Coliforms | 3c |
| 3531A | Rose Creek Sink | Stream | IIIF | | DO | | | 3c |
| 3532 | Grannybay Drain | Stream | IIIF | | | | | 3a |
| 3566A | Lake Butler Outlet | Lake | IIIF | | Biology | | | 3c |
| 3598B | Lake Rowell | Lake | IIIF | Nutrients | Mercury-Fish, TSI, DO | | Conductivity, Iron, Unionized Ammonia, Turbidity, Total Coliforms, Fluoride, Fecal Coliforms | 3c |
| 3598C | Alligator Creek | Stream | IIIF | | DO, Total Coliforms | | Conductivity, Unionized Ammonia, Turbidity, Fluoride, Fecal Coliforms | 3c |
| 3598D | Lake Sampson | Lake | IIIF | | | | TSI, Unionized Ammonia, Turbidity, Total Coliforms, Fluoride, Mercury-Fish, Fecal Coliforms, DO | 2 |
| 3605A | Santa Fe River | Stream | IIIF | Mercury-Fish, DO, Nutrients | Mercury-Fish | **Nutrients (Historical Chlorophyl a)** | DO, Unionized Ammonia, TSI, Turbidity, Total Coliforms, Fecal Coliforms, Conductivity | 5 |
| 3605B | Santa Fe River | Stream | IIIF | Nutrients | DO, Nutrients, Mercury-Fish | | Mercury-Fish | 3c |
| 3605C | Santa Fe River | Stream | IIIF | DO, Nutrients | Nutrients (Algal Mats), Mercury-Fish | **DO** | Conductivity, Chlorophyll *a*, Unionized Ammonia, Turbidity, Total Coliforms, Fluoride, Fecal Coliforms | 5 |

**Table 3.10 (continued)**

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3605D | Santa Fe River | Stream | IIIF | | | | Conductivity, Unionized Ammonia, Turbidity, Total Coliforms, Fluoride, Fecal Coliforms, DO | 2 |
| 3605E | Santa Fe River | Stream | IIIF | | DO | | Chlorophyll, Unionized Ammonia, Turbidity, Total Coliforms, Fluoride, Fecal Coliforms, Conductivity | 3c |
| 3605F | Altho Drainage | Lake | IIIF | Mercury-Fish, DO | Mercury-Fish, DO | | Conductivity, TSI, Unionized Ammonia, Turbidity, Total Coliforms, Fecal Coliforms | 3c |
| 3605G | Santa Fe Lake | Lake | IIIF | | Mercury-Fish | | Conductivity, TSI, Unionized Ammonia, Turbidity, Total Coliforms, Fecal Coliforms, DO | 3c |
| 3605H | Lake Altho | Lake | IIIF | | DO | | | 3c |
| 3605T | Columbia Springs | Spring | IIIF | | DO | | | 3c |
| 3605W | Poe Spring | Spring | IIIF | | | DO | | 4b |
| 3605X | Blue Spring | Spring | IIIF | | | DO | Unionized Ammonia, Turbidity, Fluoride, Conductivity | 4b |
| 3605Z | Trail Springs | Spring | IIIF | | DO | | Conductivity, Unionized Ammonia, Fecal Coliforms, Fluoride | 3c |
| 3635A | Hampton Lake | Lake | IIIF | DO | DO, Mercury-Fish | | Conductivity, TSI, Total Coliforms, Fecal Coliforms, Unionized Ammonia, Turbidity | 3c |
| 3635B | Hampton Lake Outlet | Lake | IIIF | | | | | 3a |

**Table 3.10 (continued)**

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3653Z | Hornsby Spring | Spring | IIIF | | | DO | Unionized Ammonia, Turbidity, Conductivity, Fluoride | 4b |
| 3504 | Olustee Creek | Stream | IIIF | | | | | 3b |
| 3530 | Swift Creek | Stream | IIIF | | | | | 3b |
| 3546 | Richard Creek | Stream | IIIF | | | | | 3b |
| 3654 | Monteocha Creek | Stream | IIIF | | | | | 3b |
| 3605P | Siphon Creek Rise (Gil | Spring | IIIF | | | | | 3b |
| 3605Q | Ala 112971 | Spring | IIIF | | | | | 3b |
| 3605R | Santa Fe Rise | Spring | IIIF | | | | | 3b |
| 3605S | Devils Ear | Spring | IIIF | | | | | 3b |
| 3605U | Col 61981 (Spring) | Spring | IIIF | | | | | 3b |
| 3605Y | Ginnie Spring | Spring | IIIF | | | | | 3b |
| 3649A | Waters Lake | Lake | IIIF | | | | | 3b |

Notes:

* Information presented in this table is from the master list presented for Secretarial adoption in October 2002.
[1]The designation "stream" includes canals, rivers, and sloughs. The designation "lake" includes some marshes.
[2]The state's surface water classifications are as follows:

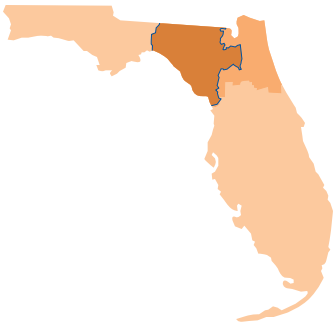
**Class I:** **Potable water supplies**
**Class II:** **Shellfish propagation or harvesting**
**Class III:** **Recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife**
**Class IV:** **Agricultural water supplies**
**Class V:** **Navigation, utility, and industrial use (there are no state waters currently in this class)**

[3]Parameters in **bold** meet the Verified List evaluation criteria, Rule 62-303.400, F.A.C.
[4]The EPA's 305(b)/303(d) Integrated Report categories are as follows:

**1**—Attains all designated uses;
**2**—Attains some designated uses;
**3a**—No data and information are available to determine if any designated use is attained;
**3b**—Some data and information are available, but they are insufficient for determining if any designated use is attained;
**3c**—Meets Planning List criteria and is potentially impaired for one or more designated uses;
**4a**—Impaired for one or more designated uses and the TMDL is complete;
**4b**—Impaired for one or more designated uses but no TMDL is required because the impairment is not caused by a pollutant;
**4c**—Impaired for one or more designated uses, but no TMDL is required because a proposed pollution control measure provides reasonable assurance that the water will attain standards in the future; and
**5**—Water quality standards are not attained and a TMDL is required.

[5]The assessment categories listed in this column represent the status of each WBID as a whole, **based on multiple parameters**. The hierarchy for assigning these categories is Category 5, then 4, then 3c, then 2, and then 3b, i.e., each WBID is assigned a category based on the highest category assigned to an individual parameter. For example, if WBID 9999 has total coliforms as Category 5, fecal coliforms as Category 3c, and coliforms-shellfish as Category 2, the single assessment call for the WBID is Category 5.

F = Fresh water
M = Marine
N/A = Not applicable, i.e., there are no parameters listed.



a segment of the Santa Fe River (WBID 3605A) are impaired for nutrients; another segment of the Santa Fe River (WBID 3605A) is impaired for algal mats. Alligator Lake (WBID 3516) and a segment of the Santa Fe River (WBID 3605C) are impaired for DO.

### Permitted Discharges and Land Uses

**Point Sources**. There are a number of permitted dischargers in the planning unit. The largest is DuPont's Trail Ridge Mine, a sand and heavy minerals mine, which discharges to Alligator Creek. The city of Starke's wastewater treatment plant, the other significant permitted facility, discharges both to a spray irrigation site south of the city and intermittently to a ditch that flows to Alligator Creek.

**Appendix F** lists the basin's domestic and industrial surface discharge facilities, along with their permitted flows by planning unit. It also lists landfills or solid waste facilities by planning unit.

**Nonpoint Sources**. Based on Level I and II land use summary information, forests cover slightly more than 50 percent of the planning unit. Agricultural lands occupy slightly more than 22 percent and are well distributed in Alachua, Columbia, and Gilchrist Counties. Agriculture can be associated with nonpoint discharges of pollutants and eroded sediments.

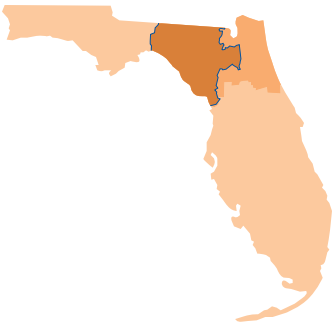
### Ecological Summary

**Ecological Priorities**. The Santa Fe River system—consisting of the Santa Fe River, Lake Santa Fe, Little Lake Santa Fe, Santa Fe Swamp, Olustee Creek, the Ichetucknee River below S.R. 27, and certain waters in the Osceola National Forest, but excluding all other tributaries—is designated as an OFW. This planning unit also contains Ichetucknee Springs State Park, O'Leno State Park, River Rise State Preserve, and San Felasco Hammock State Preserve.

In the Santa Fe planning unit, 48 of 129 individual waterbodies and segments have documented ecological protection needs, including listed animal and plant species, eagle nests, wading bird rookeries, and manatee warmwater habitats.

The manatee population in the Santa Fe River may be a peripheral expansion from the Crystal River population. The Ichetucknee siltsnail *(Cincinnatia mica),* which is ranked by the FNAI as rare and imperiled, is found only in a small spring along the bank of the Ichetucknee River. The redeye chub *(Notropis harperi)* has only been collected in springs and spring runs in the Lower Santa Fe.

**Ecological Problems**. In the Santa Fe planning unit, water lettuce covers portions of the Ichetucknee River, and the Santa Fe River in Alachua, Columbia, and Gilchrist Counties has problems with hydrilla and floating aquatic plants. Hydrilla has become established in Lake Sampson. It also covers large areas in Lake Rowell, which in addition has problems with floating aquatic vegetation. Studies by the FWC show that excessive levels of hydrilla reduce the productiveness of Lake Rowell's bass fishery and cause problems such as hypoxia, muck accumulations, and impeded navigation. The lake, which receives nutrient-enriched wastewater from



the city of Starke's sewage treatment plant as well as urban and agricultural stormwater runoff, has increased levels of green and blue-green algae.

Excessive hydrilla growth is a problem in the southern part of Alligator Lake. The lake, which receives stormwater from residential and commercial development in Lake City as well as wastewater from a ground water decontamination project, is eutrophic to hypereutrophic. Until recently, the lake also received treated discharges from a sewage treatment plant. Green and blue-green algae are present in high levels, and blue-green algae blooms occur periodically. Hypoxic conditions are present in summer.

A limited consumption advisory has been issued in the Santa Fe River and its tributaries, as well as Lake Altho, for gar, largemouth bass, and bowfin because of elevated mercury levels between 0.5 and 1.5 parts per million (ppm) in fish tissues.

### Water Quality Improvement Plans and Projects

Waters will not be placed on the Verified List if the Department receives reasonable assurance that existing or proposed projects and/or programs are expected to result in the attainment of water quality standards or consistently improve water quality over time. Chapter 4 and **Appendix C** contain additional information on the requirements for reasonable assurance.

For this basin, no management plans or projects complying with the Department's guidance for reasonable assurance have been provided for the 2002 list of impaired waters.

## • Waccasassa Planning Unit

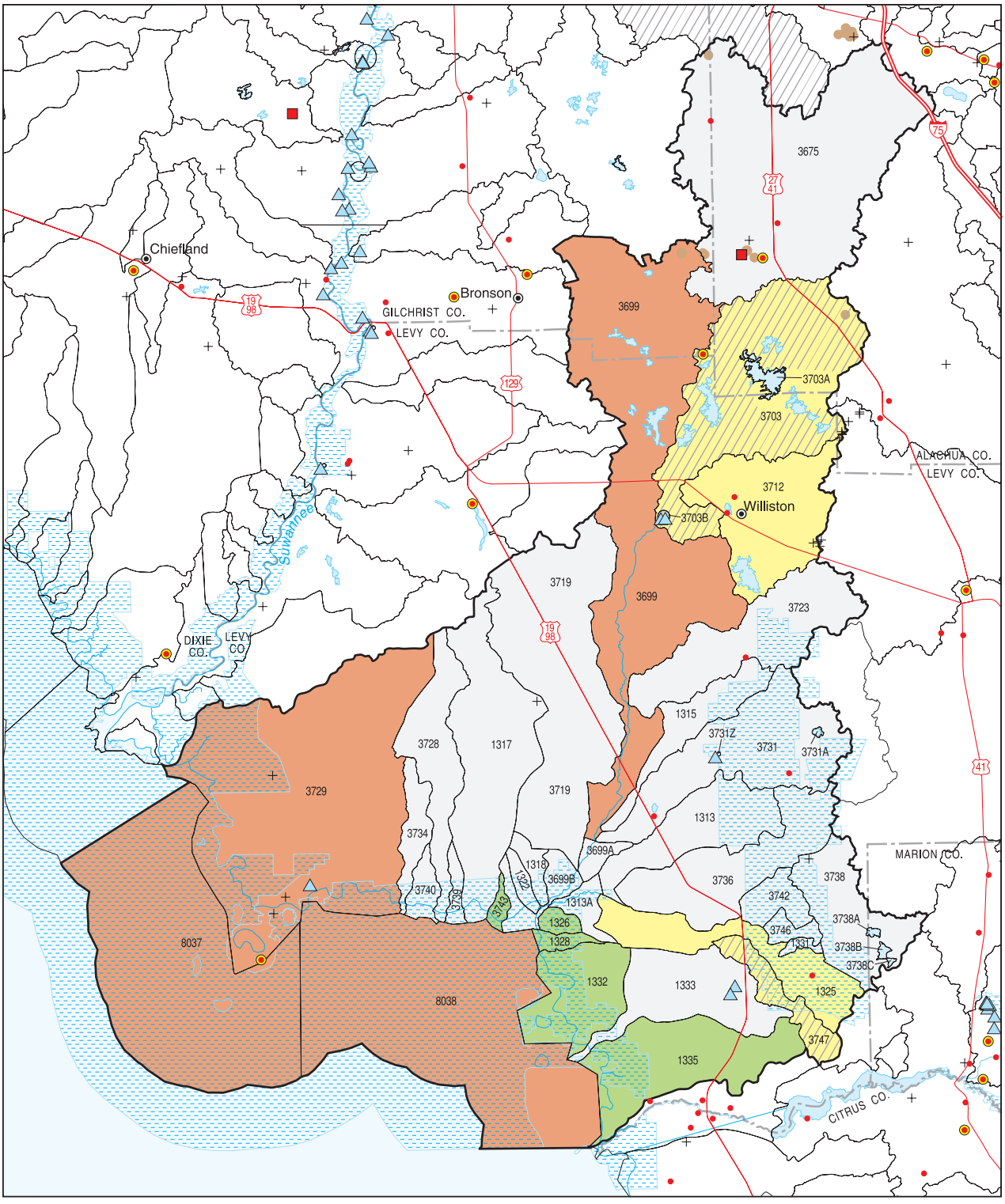
### General Description

The Waccasassa planning unit drains 901 square miles in Alachua, Gilchrist, and Levy Counties. The major waterbody in the planning unit is the Waccasassa River. Also included in the planning unit are the estuarine portions of the river. There are no major tributaries to the Waccasassa River; however, there are numerous small tributaries that contribute to the flow, and some that flow directly into the Gulf of Mexico. The planning unit contains three springs. Two springs, Blue Spring and LEV19991, are the headwaters of the Waccasassa River and are second- and third-magnitude springs, respectively. The river flows directly into the Gulf of Mexico, and as a result the lower portion is tidally influenced. In 2000, the average annual flow for the Waccasassa River at the USGS gage near Gulf Hammock, Florida, was 146 cfs (USGS, 2002).

**Figure 3.6**, a composite map of the Waccasassa planning unit, shows waters on the 1998 303(d) list, Planning List, and Verified List.

### Water Quality Summary

For the verification period (January 1, 1995–June 30, 2002), there were 134 sites at which data were collected and used in the assessment process. A total of 82,243 samples was collected, the primary data collector being the Department's Northeast District (Jacksonville).



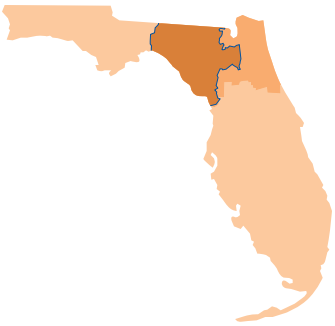

- Domestic or industrial wastewater facility
- Wastewater facility greater than 0.1 MGD
- Active landfills (Class I, II, III, C&D)
- State-funded hazardous waste site
- Superfund hazardous waste site
- Named springs
- Areas of known ground water contamination

0 8 16 Mi.

- Waccasassa Planning Unit
- Waterbody identification boundaries
- Outstanding Florida Waters
- 303d listed waters
- Category 1
- Category 2
- Category 3a
- Category 3b
- Category 3c
- Category 3d
- Category 5

Note:
Features from legend not shown on this planning unit map were not reported as being present.

*Figure 3.6: Composite Map of the Waccasassa Planning Unit, Including the 1998 303(d) List, Planning List, and Verified List Waters*



There are six verified impaired waters in the planning unit within four WBIDs. One is for nutrients and three are for coliforms (two of these are for downgrades in shellfish harvesting areas). The remaining two are for mercury/fish consumption advisories resulting from FWC mackerel advisories issued in 1997.

There are 7 parameters on the Planning List in 6 WBIDs. Three of these are for mercury/fish consumption advisories resulting from fish tissue data collected from 1995 to 2000 by the USGS and FWC. These listings will be assessed further when newer data becomes available. In addition, 3 listings are for DO; another is for coliforms. There are 26 parameters in 8 WBIDs with insufficient data to assess. Twenty WBIDs had no data at all.

In general terms, when compared with state medians (Friedman and Hand, 1989), the Waccasassa River has low chlorophyll *a*, low conductivity, slightly higher DO, average pH, and low turbidity.

**Table 3.11** summarizes the water quality assessment status of all waterbody segments in the planning unit. **Table 3.11** and **Figure 3.6** show that three waterbody segments in the planning unit are impaired. Two segments, Waccasassa River Gulf 1 (WBID 8037) and Waccasassa River Gulf 2 (WBID 8038), are impaired for mercury/fish consumption advisories, as well as for coliforms/downgrade in shellfish harvesting areas. The Waccasassa River (WBID 3699) is impaired for total coliforms.

### Permitted Discharges and Land Uses

**Point Sources**. The city of Cedar Key is the only permitted domestic wastewater discharger in the Waccasassa River watershed. Its facility discharges to a drip sprayfield. **Appendix F** lists the basin's domestic and industrial surface discharge facilities, along with their permitted flows by planning unit. It also lists landfills or solid waste facilities by planning unit.

**Nonpoint Sources**. Based on Level I and II land use summary information, forested areas occupy more than 55 percent and wetlands over 18 percent of the planning unit. Agricultural lands occupy more than 15 percent, predominantly in the upper portion of the watershed. Agriculture can be associated with nonpoint discharges of pollutants and eroded sediments.

### Ecological Summary

Portions of the Waccasassa planning unit are designated as OFWs, including the Lower Suwannee National Wildlife Refuge, Cedar Key National Wildlife Refuge, Cedar Key Scrub State Reserve, Waccasassa Bay State Preserve, and Big Bend Seagrasses Aquatic Preserve.

The planning unit contains 41 individual waterbodies and segments, 26 of which have documented ecological protection needs in the form of listed animal and plant species, eagle nests, wading bird rookeries, and manatee warmwater habitats. Goethe State Forest, south of Bronson, has a healthy population of red-cockaded woodpeckers.

A limited consumption advisory has been issued in the Waccasassa River and its tributaries for gar, largemouth bass, and bowfin because of elevated mercury levels between 0.5 and 1.5 parts per million in fish tissues.

**Table 3.11: Integrated Water Quality Assessment Summary for the Waccasassa Planning Unit***

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 1313 | Cow Creek | Stream | IIIF | | | | | 3a |
| 1313A | Cow Creek | Stream | IIIF | | | | | 3a |
| 1315 | Mule Creek | Stream | IIIF | | | | | 3a |
| 1317 | Rocky Run | Stream | IIIF | | | | | 3a |
| 1318 | Double Barrel Creek | Stream | IIIF | | | | | 3a |
| 1322 | Bird Creek | Stream | IIIF | | | | | 3a |
| 1325 | Tenmile Creek | Stream | IIF | | DO, Total Coliforms | | Chlorophyll *a*, Turbidity | 3c |
| 1326 | Sheephead Creek | Estuary | IIM | | | | DO, Turbidity, Fecal Coliforms | 2 |
| 1328 | Direct Runoff to Gulf | Estuary | IIIM | | | | DO, Turbidity, Fecal Coliforms | 2 |
| 1331 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 1332 | Direct Runoff to Gulf | Estuary | IIIM | | | | DO, Turbidity, Fecal Coliforms | 2 |
| 1333 | Spring Run | Stream | IIF | | | | | 3a |
| 1335 | Direct Runoff to Gulf | Stream | IIF | | | | DO, Turbidity, Fecal Coliforms | 2 |
| 3675 | Noncontributing Area | Stream | IIIF | | | | | 3a |
| 3699 | Waccasassa River | Stream | IIIF | | Mercury-Fish | **Total Coliforms** | Fecal Coliforms, Unionized Ammonia, Turbidity, Fluoride, DO, Conductivity, Chlorophyll *a* | 5 |
| 3699A | Waccasassa River | Stream | IIF | | | | | 3a |
| 3699B | Waccasassa River | Estuary | IIIM | | | | | 3a |
| 3703 | Little Waccasassa River | Stream | IIIF | DO | DO, Mercury-Fish | | | 3c |
| 3703A | Watermellon Pond | Lake | IIIF | | | | TSI | 2 |
| 3703B | Blue Spring Nr Bronson | Spring | IIIF | | | | | 3b |

**Table 3.11 (continued)**

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3712 | Unnamed Slough | Lake | IIIF | | Mercury-Fish | | | 3c |
| 3719 | Otter Creek | Stream | IIIF | | | | | 3a |
| 3723 | Magee Branch | Stream | IIIF | | | | | 3a |
| 3728 | Kelly Creek | Stream | IIIF | | | | | 3a |
| 3729 | Black Point Swamp | Stream | IIIF | | Conductivity | **Nutrients**, Conductivity | Chlorophyll *a*, Unionized Ammonia, Turbidity, Fecal Coliforms, DO | 5 |
| 3731 | Wekiva River | Stream | IIF | | | | | 3a |
| 3731A | Lake Marion-Open Wat | Lake | IIIF | | | | | 3b |
| 3731Z | Wekiva Spring | Spring | IIIF | | | | | 3a |
| 3734 | Jacks Creek | Stream | IIIF | | | | | 3a |
| 3736 | Bullfrog Slough | Stream | IIIF | | | | | 3a |
| 3738 | Sand Slough | Stream | IIF | | | | | 3a |
| 3738A | Little Bonable Lake | Lake | IIIF | | | | | 3b |
| 3738B | Bonable Lake–Open Water | Lake | IIIF | | | | | 3b |
| 3738C | Tiger Lake–Open Water | Lake | IIIF | | | | | 3b |
| 3739 | Direct Runoff to Gulf | Estuary | IIM | | | | | 3a |
| 3740 | Direct Runoff to Gulf | Stream | IIIF | | | | | 3a |
| 3742 | N Prong Ten-mile Creek | Stream | IIF | | | | | 3a |
| 3743 | Direct Runoff to Gulf | Stream | IIF | | | | DO, Turbidity, Fecal Coliforms | 2 |
| 3746 | Sapling Branch | Stream | IIF | | | | | 3a |
| 3747 | Horsehole Creek | Stream | IIIF | DO | DO | | | 3c |
| 8037 | Waccasassa River Gulf 1 | Estuary | IIIM | | | **Mercury-Fish, Coliforms/ Shellfish** | DO, Fecal Coliforms | 5 |

**Table 3.11 (continued)**

| | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 8037A | Cedar Key Park | Estuary | IIIM | | | | DO, Fecal Coliforms, Total Coliforms, Turbidity, Unionized Ammonia | 2 |
| 8038 | Waccasassa River Gulf 2 | Estuary | IIIM | | | **Mercury-Fish, Coliforms/ Shellfish** | Turbidity, Turbidity, Fecal Coliforms, DO | 5 |

Notes:

* Information presented in this table is from the master list presented for Secretarial adoption in October 2002.
[1]The designation "stream" includes canals, rivers, and sloughs. The designation "lake" includes some marshes.
[2]The state's surface water classifications are as follows:

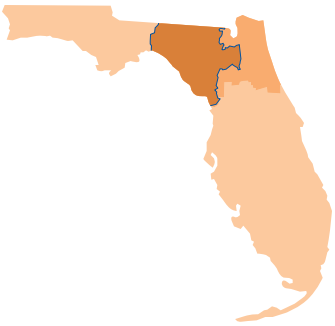
**Class I:** **Potable water supplies**
**Class II:** **Shellfish propagation or harvesting**
**Class III:** **Recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife**
**Class IV:** **Agricultural water supplies**
**Class V:** **Navigation, utility, and industrial use (there are no state waters currently in this class)**

[3]Parameters in **bold** meet the Verified List evaluation criteria, Rule 62-303.400, F.A.C.
[4]The EPA's 305(b)/303(d) Integrated Report categories are as follows:

**1**—Attains all designated uses;
**2**—Attains some designated uses;
**3a**—No data and information are available to determine if any designated use is attained;
**3b**—Some data and information are available, but they are insufficient for determining if any designated use is attained;
**3c**—Meets Planning List criteria and is potentially impaired for one or more designated uses;
**4a**—Impaired for one or more designated uses and the TMDL is complete;
**4b**—Impaired for one or more designated uses but no TMDL is required because the impairment is not caused by a pollutant;
**4c**—Impaired for one or more designated uses, but no TMDL is required because a proposed pollution control measure provides reasonable assurance that the water will attain standards in the future; and
**5**—Water quality standards are not attained and a TMDL is required.

[5]The assessment categories listed in this column represent the status of each WBID as a whole, **based on multiple parameters**. The hierarchy for assigning these categories is Category 5, then 4, then 3c, then 2, and then 3b, i.e., each WBID is assigned a category based on the highest category assigned to an individual parameter. For example, if WBID 9999 has total coliforms as Category 5, fecal coliforms as Category 3c, and coliforms-shellfish as Category 2, the single assessment call for the WBID is Category 5.

F = Fresh water
M = Marine
N/A = Not applicable, i.e., there are no parameters listed.



### Water Quality Improvement Plans and Projects

Waters will not be placed on the Verified List if the Department receives reasonable assurance that existing or proposed projects and/or programs are expected to result in the attainment of water quality standards or consistently improve water quality over time. Chapter 4 and **Appendix C** contain additional information on the requirements for reasonable assurance.

For this basin, no management plans or projects complying with the Department's guidance for reasonable assurance have been provided for the 2002 list of impaired waters.

## • Aucilla/Wacissa, Econfina, Fenholloway, Steinhatchee, and Other Coastal Basins Planning Units

### General Description

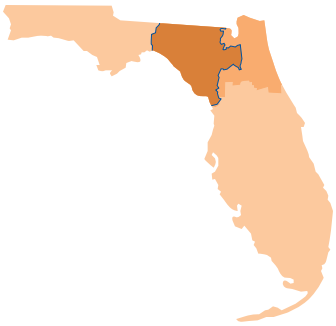
The Aucilla/Wacissa River watershed drains 954 square miles in an area extending from Florida's Gulf Coast up into southern Georgia. In Florida's Jefferson and Madison Counties, the watershed drains 734 square miles. The remaining 220 square miles lie in Brooks and Thomas Counties in Georgia.

The Econfina River planning unit drains 202 square miles of Madison and Taylor Counties. The Fenholloway River planning Unit drains 380 square miles, almost all of them in Taylor County. The Steinhatchee River watershed drains 562 square miles of southern Lafayette, southeastern Taylor, and western Dixie Counties.

The Other Coastal Basins planning unit includes the areas between the four river systems—the Econfina, Fenholloway, Steinhatchee, and Suwannee Rivers—that drain directly into the Gulf of Mexico. The Aucilla/Econfina Coastal watershed drains about 23 square miles of forested wetland and coastal marsh in western Taylor County. The Econfina/Fenholloway Coastal watershed drains about 50 square miles of forested wetland and coastal marsh in western Taylor County. The Fenholloway/Steinhatchee Coastal watershed drains about 286 square miles in south-central Taylor County. The Steinhatchee/Lower Suwannee Coastal watershed drains about 356 square miles of Dixie County.

The major waterbody in the Aucilla/Wacissa planning unit is the Aucilla River. The largest tributary to the Aucilla River is the Wacissa River. In addition, several small tributaries contribute flow to the Aucilla River. The Aucilla River goes underground approximately 0.75 miles northeast of where U.S. 98 crosses the river. The river reemerges at Nutall Rise, approximately 0.15 miles southwest of where it disappears. The Wacissa River is primarily a spring-fed river, with its origin being the Wacissa Spring. In addition to Wacissa Spring, 15 other known springs flow into the Wacissa River (Hornsby and Raulston, 2000). Both Nutall Rise and Wacissa Spring are first-magnitude springs. Above Nutall Rise, the river is very slow-moving. The USGS gage at Lamont, Florida, reported that the annual average flow for 2000 was 27 cfs. The SRWMD estimated the flow at Nutall Rise to be 400 cfs (USGS, 2002).

The Econfina River is the major waterbody in the Econfina planning unit. Few tributaries exist, and only one third-magnitude spring is



catalogued. The headwaters for the Econfina River is swamp drainage from San Pedro Bay. As a result, the Econfina River exhibits blackwater characteristics—low flow, low DO, and very dark color. Despite this, the water quality of the river tends to be very good. The USGS gage near Perry indicated that the average annual flow for 2000 was 21.5 cfs. The Econfina River flows directly into the Gulf of Mexico, and the lower portion is tidally affected (Hornsby and Ceryak, 1998).

The Fenholloway River is the major waterbody in the Fenholloway planning unit. There are some tributaries that flow into the river, and there are eight springs in the planning unit, four of which flow into the Fenholloway River. The river empties directly into the Gulf of Mexico. The Fenholloway River used to be the state's only Class V waterbody (navigational, utility, and industrial use); however, it was reclassified on December 31, 1997, and is now a Class III water.

Perhaps the biggest impact to the river is the discharge from the Buckeye Cellulose Corporation, a paper manufacturing plant near Perry. Large amounts of water are required in the process of manufacturing paper. Most often, this water is pumped from the ground, and this plant is no exception. On average, the mill pumps around 47 mgd from ground water resources. As a result, the Fenholloway River above the paper mill quite often has very little or no water flow. The mill currently has a permit to discharge effluent into the Fenholloway River, which most times constitutes the vast majority of the flow below the mill. The Department records show that for 2002, the average daily flow was 43.6 mgd. The USGS gage above the paper mill, near Foley, Florida, reported the annual average flow for 2000 as 5.01 cfs. The USGS gage near Perry, Florida, below the mill, reported 90.2 cfs for the same period (USGS, 2002).

The Steinhatchee River is the major waterbody in the Steinhatchee planning unit. Some tributaries and 12 known springs contribute to the flow. The headwaters for the river is swamp drainage that originates in the Still Bay area of Mallory Swamp. The river discharges into the Gulf of Mexico, and the estuary WBIDs are included in this planning unit. The river disappears underground approximately 0.60 miles east of Tennille, and reemerges approximately 0.50 miles south of Tennille.

USGS maintains a gage on the Steinhatchee River near Cross City, above where the river goes underground. In 2002, the annual average flow at that station was 50.4 cfs. The SRWMD estimated the flow at Steinhatchee Rise, where the river reemerges, to be 350 cfs (Hornsby and Ceryak, 1998). The river discharges directly into the Gulf of Mexico, and as a result the lower portion of the river is tidally affected (USGS, 2002).

The Other Coastal Basins planning unit consists of a number of waterbodies that discharge directly into the Gulf of Mexico, any associated tributaries, and some WBIDs that extend out into the Gulf of Mexico. Fourteen of the WBIDs are assessed as estuaries.

**Figure 3.7**, a composite map of the Aucilla/Wacissa, Econfina, Fenholloway, Steinhatchee, and Other Coastal Basins planning units, shows waters on the 1998 303(d) list, Planning List, and Verified List.

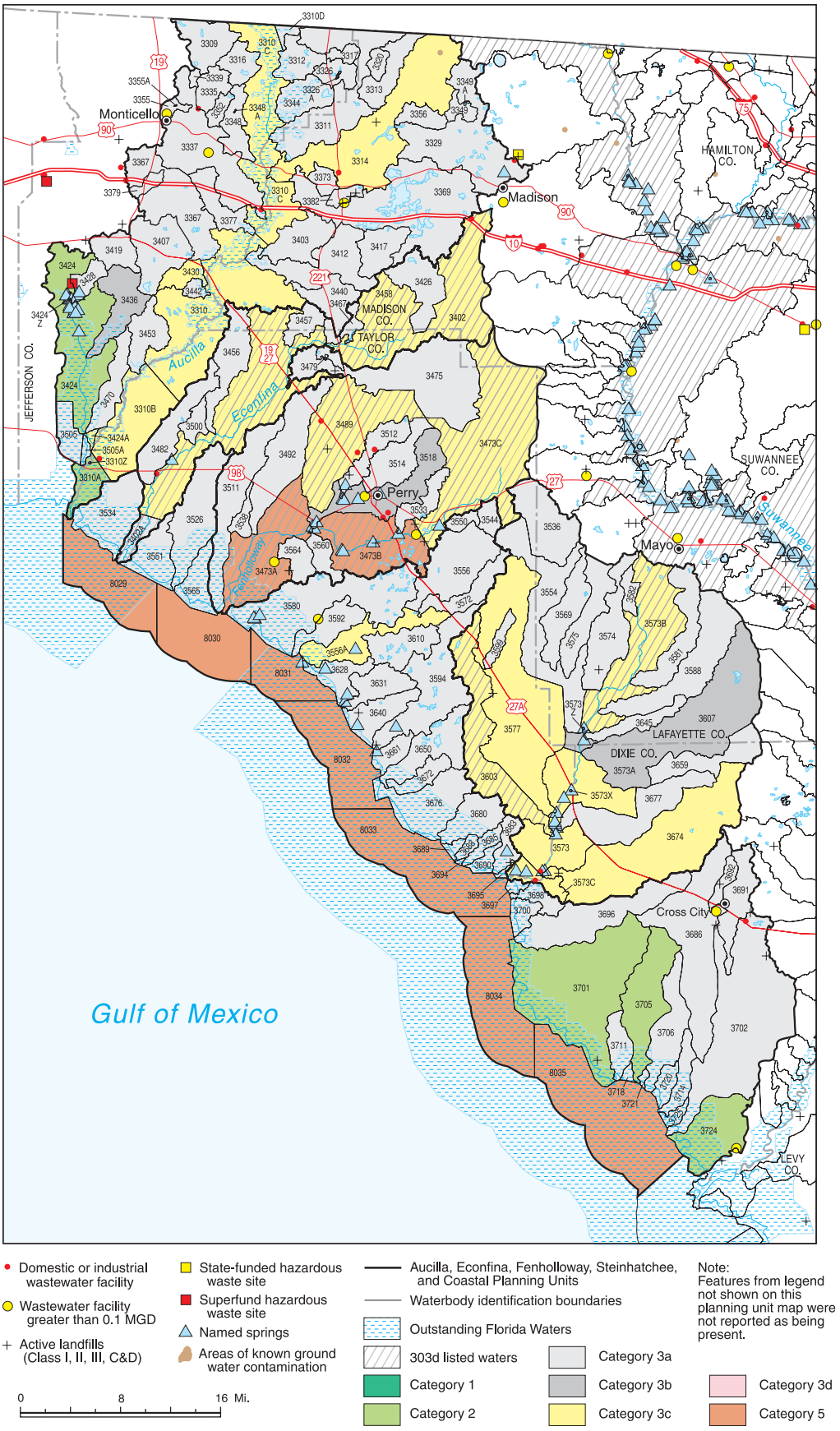
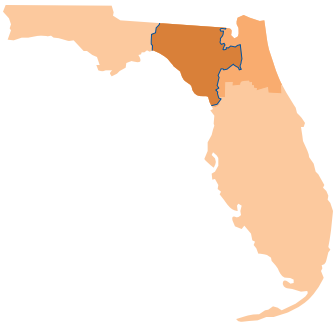



*Figure 3.7: Composite Map of the Aucilla/Wacissa, Econfina, Fenholloway, Steinhatchee, and Other Coastal Basins Planning Units, Including the 1998 303(d) List, Planning List, and Verified List Waters*



### Water Quality Summary—Aucilla/Wacissa

For the verification period (January 1, 1995–June 30, 2002), there were 16 sites at which data were collected and used in the assessment process. A total of 4,590 samples was collected; the primary data collector was the SRWMD.

There are no verified impaired parameters in the planning unit. There are 5 parameters in 5 WBIDs that are on the Planning List, all are for DO. Eighteen parameters had insufficient data to fully assess in 6 WBIDs. Thirty-one parameters in 9 WBIDs meet standards; 42 WBIDs had no data at all. Four segments of the Aucilla River meet standards for mercury/fish consumption.

Compared with state medians for streams (Friedman and Hand, 1989), the Aucilla River has low chlorophyll *a*, low conductivity, low pH, and very low turbidity.

**Table 3.12** summarizes the water quality assessment status of all waterbody segments in the planning unit. **Table 3.12** and **Figure 3.7** show that no waterbody segments in the planning unit are impaired.

### Water Quality Summary—Econfina

For the verification period (January 1, 1995–June 30, 2002), there were 10 sites at which data were collected and used in the assessment process. A total of 3,884 samples was collected; the primary data collector was the SRWMD.

There are no verified impaired waters in the planning unit. DO has enough violations to be placed on the Verified List based on the IWR; however, the Department feels that the low DO levels are a natural condition and the parameter is proposed for delisting. The Econfina River contains sites that are bioassessment reference sites. The river is also the control waterbody for the Fenholloway River seasonal SSAC, and there appear to be no anthropogenic sources of pollution in the basin.

Cadmium is the only parameter on the Planning List, but recently collected data suggest that the waterbody may not be impaired for this parameter. There are seven parameters in one WBID that meet standards; eight WBIDs have no data.

There are no mercury/fish consumption advisories in the planning unit.

In general terms, when comparing the Econfina River with state medians (Friedman and Hand, 1989), chlorophyll *a* values are very low, conductivity is low, DO is average, pH is slightly below the average, and turbidity is very low.

**Table 3.13** summarizes the water quality assessment status of all waterbody segments in the planning unit. **Table 3.13** and **Figure 3.7** show that no waterbody segments in the planning unit are impaired.

### Water Quality Summary—Fenholloway

For the verification period (January 1, 1995–June 30, 2002), there were 23 sites at which data were collected and used in the assessment process. A total of 5,294 samples was collected; the primary data collector was the SRWMD.

**Table 3.12: Integrated Water Quality Assessment Summary for the Aucilla/Wacissa Planning Unit***

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3309 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3310 | Aucilla River | Stream | IIIF | | DO | | Conductivity, Fecal Coliforms, Mercury-Fish, Total Coliforms, Turbidity | 3c |
| 3310A | Aucilla River | Stream | IIIF | | | | Mercury-Fish | 2 |
| 3310B | Aucilla River | Stream | IIIF | | | | Mercury-Fish | 3c |
| 3310C | Aucilla River | Stream | IIIF | | DO | | Conductivity, Turbidity, Mercury-Fish, Fecal Coliforms, Total Coliforms | 3c |
| 3310D | Mcmullen Bay | Stream | IIIF | | | | | 3a |
| 3310E | Drainage Basin of Ga | Stream | IIIF | | | | | 3a |
| 3310Z | Nutall Rise | Spring | IIIF | | | | Conductivity, Unionized Ammonia, Turbidity, Fluoride, DO | 2 |
| 3311 | Gum Creek | Stream | IIIF | | | | | 3a |
| 3312 | Blue Pond Drain | Stream | IIIF | | | | | 3a |
| 3313 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3314 | Little Aucilla River | Stream | IIIF | | DO | | Conductivity, Turbidity, Total Coliforms, Fecal Coliforms | 3c |
| 3316 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3317 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3320 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3326 | Shehee Lake Outlet | Lake | IIIF | | | | | 3a |
| 3326A | Shehee Lake | Lake | IIIF | | | | | 3a |
| 3329 | Devils Woodyard Slough | Lake | IIIF | | | | | 3a |
| 3335 | Unnamed Branch | Stream | IIIF | | | | | 3a |

**Table 3.12 (continued)**

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3337 | Wolf Creek | Stream | IIIF | | | | | 3a |
| 3339 | Unnamed Outlet | Stream | IIIF | | | | | 3a |
| 3344 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3348 | June Pond Outlet | Lake | IIIF | | | | | 3a |
| 3348A | June Pond | Lake | IIIF | | | | | 3a |
| 3349 | Mile Pond Outlet | Lake | IIIF | | | | | 3a |
| 3349A | Mile Pond | Lake | IIIF | | | | | 3a |
| 3352 | Silver Lake Outlet | Stream | IIIF | | | | | 3a |
| 3355 | Simpson Lake Outlet | Lake | IIIF | | | | | 3a |
| 3355A | Simpson Lake | Lake | IIIF | | | | | 3a |
| 3356 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3367 | Beasley Creek | Stream | IIIF | | | | | 3a |
| 3369 | Hixtown Swamp | Stream | IIIF | | | | | 3a |
| 3373 | Unnamed Ditch | Stream | IIIF | | | | | 3a |
| 3377 | Raysor Creek | Stream | IIIF | | | | | 3a |
| 3379 | Mill Pond Creek | Stream | IIIF | | | | | 3a |
| 3382 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3403 | Rocky Creek | Stream | IIIF | | | | | 3a |
| 3407 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3412 | Alligator Creek | Stream | IIIF | | | | | 3a |
| 3417 | Sundown Creek | Stream | IIIF | | | | | 3a |
| 3419 | Bailey Mill Creek | Stream | IIIF | | | | | 3a |
| 3424 | Wacissa River | Stream | IIIF | | | | Fluoride, Chlorophyll | 2 |
| 3424A | Aucilla River | Stream | IIIF | | DO | | Conductivity, Turbidity, Total Coliforms, Fecal Coliforms | 3c |

**Table 3.12 (continued)**

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3428 | Little River | Stream | IIIF | | | | | 3a |
| 3424Z | Wacissa Spring | Spring | IIIF | | | | | 3b |
| 3430 | Anderson Bay Drain | Stream | IIIF | | DO | | Conductivity, Unionized Ammonia, Turbidity, Fluoride | 3c |
| 3436 | Welaunee Creek | Stream | IIIF | | | | | 3b |
| 3440 | Unnamed Branch | Stream | IIIF | | | | | 3a |
| 3442 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3453 | Jones Mill Creek | Stream | IIIF | | | | | 3a |
| 3470 | Cow Creek | Stream | IIIF | | | | | 3a |
| 3505 | The Slave Canal | Stream | IIIF | | | | | 3a |
| 3505A | Aucilla River | Stream | IIIF | | | | | 3a |

Notes:

* Information presented in this table is from the master list presented for Secretarial adoption in October 2002.
[1]The designation "stream" includes canals, rivers, and sloughs. The designation "lake" includes some marshes.
[2]The state's surface water classifications are as follows:

**Class I:** **Potable water supplies**
**Class II:** **Shellfish propagation or harvesting**
**Class III:** **Recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife**
**Class IV:** **Agricultural water supplies**
**Class V:** **Navigation, utility, and industrial use (there are no state waters currently in this class)**

[3]Parameters in **bold** meet the Verified List evaluation criteria, Rule 62-303.400, F.A.C.
[4]The EPA's 305(b)/303(d) Integrated Report categories are as follows:

**1**—Attains all designated uses;
**2**—Attains some designated uses;
**3a**—No data and information are available to determine if any designated use is attained;
**3b**—Some data and information are available, but they are insufficient for determining if any designated use is attained;
**3c**—Meets Planning List criteria and is potentially impaired for one or more designated uses;
**4a**—Impaired for one or more designated uses and the TMDL is complete;
**4b**—Impaired for one or more designated uses but no TMDL is required because the impairment is not caused by a pollutant;
**4c**—Impaired for one or more designated uses, but no TMDL is required because a proposed pollution control measure provides reasonable assurance that the water will attain standards in the future; and
**5**—Water quality standards are not attained and a TMDL is required.

[5]The assessment categories listed in this column represent the status of each WBID as a whole, **based on multiple parameters**. The hierarchy for assigning these categories is Category 5, then 4, then 3c, then 2, and then 3b, i.e., each WBID is assigned a category based on the highest category assigned to an individual parameter. For example, if WBID 9999 has total coliforms as Category 5, fecal coliforms as Category 3c, and coliforms-shellfish as Category 2, the single assessment call for the WBID is Category 5.

F = Fresh water
M = Marine
N/A = Not applicable, i.e., there are no parameters listed.

**Table 3.13: Integrated Water Quality Assessment Summary for the Econfina Planning Unit***

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3402 | Econfina River | Stream | IIIF | DO, Coliforms, Cadmium | Cadmium | | DO, Total Coliforms, Fecal Coliforms, Conductivity, Turbidity, Unionized Ammonia, Chlorophyll *a* | 3c |
| 3402A | Econfina River At Mouth | Estuary | IIIM | | | | | 3a |
| 3426 | Sampala Swamp Drain | Stream | IIIF | | | | | 3a |
| 3456 | Natural Well Branch | Stream | IIIF | | | | | 3a |
| 3457 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3458 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3467 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3482 | Rose Creek | Stream | IIIF | | | | | 3a |
| 3500 | Rose Creek Overflow | Stream | IIIF | | | | | 3a |

Notes:

* Information presented in this table is from the master list presented for Secretarial adoption in October 2002.
[1]The designation "stream" includes canals, rivers, and sloughs. The designation "lake" includes some marshes.
[2]The state's surface water classifications are as follows:
**Class I:** **Potable water supplies**
**Class II:** **Shellfish propagation or harvesting**
**Class III:** **Recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife**
**Class IV:** **Agricultural water supplies**
**Class V:** **Navigation, utility, and industrial use (there are no state waters currently in this class)**
[3]Parameters in **bold** meet the Verified List evaluation criteria, Rule 62-303.400, F.A.C.
[4]The EPA's 305(b)/303(d) Integrated Report categories are as follows:
**1**—Attains all designated uses;
**2**—Attains some designated uses;
**3a**—No data and information are available to determine if any designated use is attained;
**3b**—Some data and information are available, but they are insufficient for determining if any designated use is attained;
**3c**—Meets Planning List criteria and is potentially impaired for one or more designated uses;
**4a**—Impaired for one or more designated uses and the TMDL is complete;
**4b**—Impaired for one or more designated uses but no TMDL is required because the impairment is not caused by a pollutant;
**4c**—Impaired for one or more designated uses, but no TMDL is required because a proposed pollution control measure provides reasonable assurance that the water will attain standards in the future; and
**5**—Water quality standards are not attained and a TMDL is required.
[5]The assessment categories listed in this column represent the status of each WBID as a whole, **based on multiple parameters**. The hierarchy for assigning these categories is Category 5, then 4, then 3c, then 2, and then 3b, i.e., each WBID is

**Table 3.13 (continued)**

assigned a category based on the highest category assigned to an individual parameter. For example, if WBID 9999 has total coliforms as Category 5, fecal coliforms as Category 3c, and coliforms-shellfish as Category 2, the single assessment call for the WBID is Category 5.

F = Fresh water
M = Marine
N/A = Not applicable, i.e., there are no parameters listed.

There are 7 parameters on the Verified List in 2 WBIDs; both are Fenholloway segments below the pulp mill. The Fenholloway River below the Pulp Mill (WBID 3473B) segment is impaired for unionized ammonia, DO, and conductivity. The Fenholloway River at the Mouth segment (WBID 3473A) is verified impaired for BOD, DO, and total coliforms. Four parameters are on the Planning List in 3 WBIDs; 21 parameters have insufficient data in 5 WBIDs; 12 parameters had insufficient data to assess in 3 WBIDs; and 12 WBIDs had no data at all.

There was a verified listing for dioxin in the Fenholloway at the Mouth segment. Recently collected data indicate that this listing is no longer appropriate; therefore, it has been proposed for delisting.

Traditionally, the water quality in the Fenholloway River has not been good. This is primarily due to pulp mill activities. As previously mentioned, the mill withdraws large quantities of ground water. As a result, most of the time there is very little recharge for the segment of the river above the mill. Segments below the mill are dominated by mill effluent. A Fenholloway River work group has been formed in an attempt to find better ways to alleviate some of the concerns and impacts to the river from the mill's effluent. However, at this time the Department feels that the work group has not provided sufficient reasonable assurance to remove the parameters of concern from the Verified List.

The total coliform impairment in WBID 3473A will not be addressed through the Fenholloway River work group. A draft TMDL has been submitted to the EPA (Region IV), and a public meeting was held in Perry, Florida, on July 8, 2003. The TMDL establishes that a 54.3 percent reduction in current loading is needed for the Lower Fenholloway River to meet the current state criterion for total coliforms. The TMDL was established using a loading curve approach (or "Kansas Approach"). A draft of the TMDL can be downloaded from the Department's TMDL Web site at http://www.dep.state.fl.us/water/tmdl/index.htm.

In general terms, when comparing the Fenholloway River with state medians (Friedman and Hand, 1989), the DO is slightly low, with the pH low below the pulp mill. Turbidity is slightly higher just below the pulp mill, but is slightly lower at the river's mouth.

**Table 3.14** summarizes the water quality assessment status of all waterbody segments in the planning unit. **Table 3.14** and **Figure 3.7** show that two waterbody segments in the planning unit are impaired. The Fenholloway River at the Mouth segment (WBID 3473A) is impaired for total coliforms. The Fenholloway River below the Pulp Mill segment (WBID 3473B) is impaired for BOD, unionized ammonia, DO, and conductivity.

**Table 3.14: Integrated Water Quality Assessment Summary for the Fenholloway Planning Unit***

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3473A | Fenholloway at Mouth | Stream | IIIM | | Dioxin | **BOD, Total Coliforms, DO** | Fecal Coliforms | 5 |
| 3473B | Fenholloway below Pulp Mill | Stream | IIIF | | Mercury-Fish, Total Coliforms | **BOD, Unionized Ammonia, DO, Conductivity** | Turbidity | 5 |
| 3473C | Fenholloway Ab Pulp | Stream | IIIF | | DO | | Chlorophyll *a*, Unionized Ammonia, Turbidity, Total Coliforms, Nutrients, Fluoride, Fecal Coliforms, Conductivity | 3c |
| 3475 | Unnamed Ditch | Stream | IIIF | | | | | 3a |
| 3479 | Mud Lake Outlet | Lake | IIIF | | | | | 3a |
| 3479B | Mud Lake | Lake | IIIF | | | | | 3a |
| 3479A | Andrews Lake | Lake | IIIF | | | | | 3a |
| 3489 | Rocky Creek | Stream | IIIF | Coliforms, Turbidity | Turbidity, Coliforms | | | 3c |
| 3492 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3511 | Regular Creek | Stream | IIIF | | | | | 3a |
| 3512 | Woods Creek | Stream | IIIF | | | | | 3a |
| 3514 | Pimple Creek | Stream | IIIF | | | | | 3a |
| 3518 | Spring Creek | Stream | IIIF | | | | | 3b |
| 3518Z | Hampton Springs | Spring | IIIF | | | | | 3a |
| 3533 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3538 | Smokehouse Creek | Stream | IIIF | | | | | 3a |
| 3560 | Unnamed Ditch | Stream | IIIF | | | | | 3a |
| 3564 | Unnamed Slough | Stream | IIIF | | | | | 3a |

**Table 3.14 (continued)**

Notes:

* Information presented in this table is from the master list presented for Secretarial adoption in October 2002.
[1]The designation "stream" includes canals, rivers, and sloughs. The designation "lake" includes some marshes.
[2]The state's surface water classifications are as follows:

**Class I:** **Potable water supplies**
**Class II:** **Shellfish propagation or harvesting**
**Class III:** **Recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife**
**Class IV:** **Agricultural water supplies**
**Class V:** **Navigation, utility, and industrial use (there are no state waters currently in this class)**

[3]Parameters in **bold** meet the Verified List evaluation criteria, Rule 62-303.400, F.A.C.
[4]The EPA's 305(b)/303(d) Integrated Report categories are as follows:

**1**—Attains all designated uses;
**2**—Attains some designated uses;
**3a**—No data and information are available to determine if any designated use is attained;
**3b**—Some data and information are available, but they are insufficient for determining if any designated use is attained;
**3c**—Meets Planning List criteria and is potentially impaired for one or more designated uses;
**4a**—Impaired for one or more designated uses and the TMDL is complete;
**4b**—Impaired for one or more designated uses but no TMDL is required because the impairment is not caused by a pollutant;
**4c**—Impaired for one or more designated uses, but no TMDL is required because a proposed pollution control measure provides reasonable assurance that the water will attain standards in the future; and
**5**—Water quality standards are not attained and a TMDL is required.

[5]The assessment categories listed in this column represent the status of each WBID as a whole, **based on multiple parameters**. The hierarchy for assigning these categories is Category 5, then 4, then 3c, then 2, and then 3b, i.e., each WBID is assigned a category based on the highest category assigned to an individual parameter. For example, if WBID 9999 has total coliforms as Category 5, fecal coliforms as Category 3c, and coliforms-shellfish as Category 2, the single assessment call for the WBID is Category 5.

F = Fresh water
M = Marine
N/A = Not applicable, i.e., there are no parameters listed.

### Water Quality Summary—Steinhatchee

For the verification period (January 1, 1995–June 30, 2002), there were 17 sites at which data were collected and used in the assessment process. A total of 8,554 samples was collected; the primary data collector was the SRWMD.

There are no verified impaired parameters in the planning unit. There are 11 parameters on the Planning List in 7 WBIDs and 47 parameters in 6 WBIDs with insufficient data to assess. Thirty-two parameters meet standards in 4 WBIDs; 14 WBIDs have no data at all.

**Table 3.15** summarizes the water quality assessment status of all waterbody segments in the planning unit. **Table 3.15** and **Figure 3.7** show that no waterbody segments in this planning unit are impaired.

### Water Quality Summary—Other Coastal Basins

For the verification period (January 1, 1995–June 30, 2002), there were 76 sites at which data were collected and used in the assessment process. A total of 49,741 samples was collected; the primary data collector was the Department's Northeast District (Jacksonville).

There are 11 verified impaired parameters in the planning unit. All seven of the Suwannee Gulf WBIDs (WBIDs 8029–8035) are verified impaired for mercury/fish consumption advisories. The mercury/fish consumption advisories are a result of a FWC fish consumption advisory issued in 1997 for mackerel. In addition, the Suwannee Gulf 7 (WBID

**Table 3.15: Integrated Water Quality Assessment Summary for the Steinhatchee Planning Unit***

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3536 | San Pedro Bay | Stream | IIIF | | | | | 3a |
| 3554 | Kettle Creek | Stream | IIIF | | | | | 3a |
| 3569 | Reedy Creek | Stream | IIIF | | | | | 3a |
| 3573A | Steinhatchee River | Stream | IIIF | | | | Conductivity, Unionized Ammonia, Turbidity, Total Coliforms, Iron, Fluoride, Fecal Coliforms, DO | 2 |
| 3573B | Steinhatchee River | Stream | IIIF | DO | DO, Iron | | Chlorophyll *a*, Unionized Ammonia, Turbidity, Total Coliforms, Fluoride, Fecal Coliforms, Conductivity | 3c |
| 3573C | Steinhatchee River | Estuary | IIIF | | DO | | Chlorophyll *a*, Zinc, Nickel, Iron, Copper, Unionized Ammonia, Turbidity, Fluoride, Conductivity, Total Coliforms, Fecal Coliforms | 3c |
| 3573X | Steinhatchee Rise | Spring | IIIF | | | | | 3a |
| 3573Y | Hampton Springs | Spring | IIIF | | | | | 3a |
| 3573Z | Steinhatchee Spring | Spring | IIIF | | DO | | Conductivity, Unionized Ammonia, Turbidity, Fluoride | 3c |
| 3573 | Steinhatchee River | Stream | | | DO | | | 3c |
| 3574 | Owl Creek | Stream | IIIF | | | | | 3a |
| 3575 | Britt Creek | Stream | IIIF | | | | | 3a |
| 3577 | Californina (Rocky) Cr | Stream | IIIF | | DO | | | 3c |
| 3581 | Bear Bay Drain | Stream | IIIF | | | | | 3a |
| 3582 | Calf Creek | Stream | IIIF | | | | | 3a |

**Table 3.15 (continued)**

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3588 | Mud Creek | Stream | IIIF | | | | | 3a |
| 3599 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3603 | Bevins (Boggy) Creek | Stream | IIIF | Coliforms | Total Coliforms, DO, Fecal Coliforms, BOD | | | 3c |
| 3607 | Eightmile Creek | Stream | IIIF | | | | | 3b |
| 3645 | Wolf Creek | Stream | IIIF | | | | | 3a |
| 3659 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3674 | Sand Hill Creek | Stream | IIIF | | DO | | | 3b |
| 3677 | Unnamed Drain | Stream | IIIF | | | | | 3a |

Notes:

* Information presented in this table is from the master list presented for Secretarial adoption in October 2002.
[1]The designation "stream" includes canals, rivers, and sloughs. The designation "lake" includes some marshes.
[2]The state's surface water classifications are as follows:

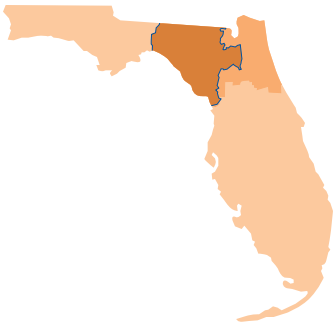
**Class I:** **Potable water supplies**
**Class II:** **Shellfish propagation or harvesting**
**Class III:** **Recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife**
**Class IV:** **Agricultural water supplies**
**Class V:** **Navigation, utility, and industrial use (there are no state waters currently in this class)**

[3]Parameters in **bold** meet the Verified List evaluation criteria, Rule 62-303.400, F.A.C.
[4]The EPA's 305(b)/303(d) Integrated Report categories are as follows:

**1**—Attains all designated uses;
**2**—Attains some designated uses;
**3a**—No data and information are available to determine if any designated use is attained;
**3b**—Some data and information are available, but they are insufficient for determining if any designated use is attained;
**3c**—Meets Planning List criteria and is potentially impaired for one or more designated uses;
**4a**—Impaired for one or more designated uses and the TMDL is complete;
**4b**—Impaired for one or more designated uses but no TMDL is required because the impairment is not caused by a pollutant;
**4c**—Impaired for one or more designated uses, but no TMDL is required because a proposed pollution control measure provides reasonable assurance that the water will attain standards in the future; and
**5**—Water quality standards are not attained and a TMDL is required.

[5]The assessment categories listed in this column represent the status of each WBID as a whole, **based on multiple parameters**. The hierarchy for assigning these categories is Category 5, then 4, then 3c, then 2, and then 3b, i.e., each WBID is assigned a category based on the highest category assigned to an individual parameter. For example, if WBID 9999 has total coliforms as Category 5, fecal coliforms as Category 3c, and coliforms-shellfish as Category 2, the single assessment call for the WBID is Category 5.

F = Fresh water
M = Marine
N/A = Not applicable, i.e., there are no parameters listed.



8035) is impaired for coliforms/shellfish advisories. The coliform/shellfish advisories are due to several downgrades in the shellfish harvesting areas issued by DACS. The latest downgrades occurred in 2002.

Three WBIDs containing beaches are verified for coliforms due to beach closures. The three beaches are Dekle Beach (WBID 8032A), Cedar Beach (WBID 8032C), and Keaton Beach (WBID 8032B). Beaches are considered impaired for coliforms if the beach had warnings, advisories, or was closed by the local health department or local government for more than 21 days in a calendar year.

There is 1 parameter on the Planning List in 1 WBID. Four parameters in 2 WBIDs have insufficient data to assess; 25 parameters meet standards in 10 WBIDs; and 42 WBIDs have no data.

**Table 3.16** summarizes the water quality assessment status of all waterbody segments in the planning unit. **Table 3.16** and **Figure 3.7** show that 10 waterbody segments in the planning unit are impaired. Seven segments—Suwannee Gulf 1, Suwannee Gulf 2, Suwannee Gulf 3, Suwannee Gulf 4, Suwannee Gulf 5, Suwannee Gulf 6, and Suwannee Gulf 7 (WBIDs 8029–8035, respectively) are impaired for mercury/fish consumption advisories. Suwannee Gulf 7 (WBID 8035) is also impaired for coliforms/downgrade in shellfish harvesting areas. The last three impairments, which apply to Dekle Beach (WBID 8032A), Cedar Beach (WBID 8032C), and Keaton Beach (WBID 8032B), are for coliforms/beach advisories.

### Permitted Discharges and Land Uses

**Point Sources**. None of the permitted dischargers in the Aucilla/Wacissa planning unit is major. There are no permitted dischargers in the Econfina or Steinhatchee planning units.

Buckeye Florida, L.P., a pulp and paper mill in Taylor County, discharges to the Fenholloway River and has been granted a mixing zone for chronic toxicity from point of discharge to the Gulf of Mexico. Ongoing discussions with Buckeye, the EPA, and the Department are focused on alternative discharge scenarios that will remove the discharge from the Upper Fenholloway River and comply with applicable water quality standards. The Perry Domestic Wastewater Treatment Plant discharges to Spring Creek.

In the Steinhatchee/Lower Suwannee Coastal watershed within the Other Coastal Basins planning unit, two small domestic wastewater plants discharge to surface waterbodies. The Cross City plant discharges to a ditch that flows into California Swamp, and the Nature Coast plant discharges to a ditch that flows into the Steinhatchee River.

**Appendix F** lists the basin's domestic and industrial surface discharge facilities, along with their permitted flows by planning unit. It also lists landfills or solid waste facilities by planning unit.

**Nonpoint Sources**. Based on Level I and II land use summary information, in the Florida portion of the Aucilla/Wacissa watershed 79 percent of the land area is in forested wetlands, and 16 percent of the land is used for agricultural purposes. Based on Level I and II land use summary information, wetlands are the dominant feature of the Econfina

**Table 3.16: Integrated Water Quality Assessment Summary for the Other Coastal Basins Planning Unit***

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3526 | Smith-McCul-lah Creek | Stream | IIIF | | | | | 3a |
| 3534 | Direct Runoff to Gulf | Stream | IIIF | | | | | 3a |
| 3544 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3550 | Unnamed Slough | Stream | IIIF | | | | | 3a |
| 3551 | Direct Runoff to Gulf | Stream | IIIF | | | | | 3a |
| 3556 | Weaver War-rior Creek | Stream | IIIF | | | | | 3a |
| 3556A | Spring Warrior Creek | Stream | IIIF | | DO | | Conductivity, Turbidity, Total Coliforms, Fecal Coliforms, | 3c |
| 3565 | Direct Runoff to Gulf | Stream | IIIF | | | | | 3a |
| 3572 | Athena Warrior Creek | Stream | IIIF | | | | | 3a |
| 3580 | Direct Runoff to Gulf | Stream | IIIF | | | | | 3a |
| 3592 | Okefenokee Slough | Stream | IIIF | | | | | 3a |
| 3594 | Blue(Salt) Creek | Stream | IIIF | | | | | 3a |
| 3610 | Melvina Pond Outlet | Lake | IIIF | | | | | 3a |
| 3628 | Direct Runoff to Gulf | Stream | IIIF | | | | | 3a |
| 3631 | Clearwater Creek | Stream | IIIF | | | | | 3a |
| 3640 | Direct Runoff to Gulf | Stream | IIIF | | | | | 3a |
| 3650 | Fish Creek | Stream | IIIF | | | | | 3a |
| 3661 | Direct Runoff to Gulf | Stream | IIIF | | | | | 3a |
| 3672 | Unnamed Drain | Stream | IIIF | | | | | 3a |
| 3676 | Direct Runoff to Gulf | Stream | IIIF | | | | | 3a |
| 3680 | Dallus Creek | Stream | IIIF | | | | | 3a |

**Table 3.16 (continued)**

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 3683 | Bivens Creek | Stream | IIIF | | | | | 3a |
| 3685 | Salt Creek | Stream | IIIF | | | | | 3a |
| 3686 | Fishbone Creek | Stream | IIIF | | | | | 3a |
| 3688 | Jack Creek | Stream | IIIF | | | | | 3a |
| 3689 | Direct Runoff to Gulf | Stream | IIIF | | | | | 3a |
| 3690 | Direct Runoff to Gulf | Lake | IIIF | | | | | 3a |
| 3691 | Airport Canal | Stream | IIIF | | | | | 3a |
| 3692 | Unnamed Ditch | Stream | IIIF | | | | | 3a |
| 3694 | Direct Runoff to Gulf | Stream | IIIF | | | | | 3a |
| 3695 | Direct Runoff to Gulf | Stream | IIIF | | | | | 3a |
| 3696 | Rocky Creek | Stream | IIIF | | | | | 3a |
| 3697 | Direct Runoff to Gulf | Stream | IIIF | | | | | 3a |
| 3698 | Pine Log Creek | Stream | IIIF | | | | | 3a |
| 3700 | Direct Runoff to Gulf | Stream | IIIF | | | | | 3a |
| 3701 | Direct Runoff to Gulf | Stream | IIIF | | | | DO, Turbidity, Fecal Coliforms | 2 |
| 3702 | Sanders Creek | Stream | IIIF | | | | | 3a |
| 3705 | Butler (Lilly) Creek | Stream | IIIF | | | | DO, Turbidity, Fecal Coliforms | 2 |
| 3706 | Amason Creek | Stream | IIIF | | | | | 3a |
| 3711 | Lotly Creek | Stream | IIIF | | | | | 3a |
| 3714 | Shired Creek | Stream | IIIF | | | | | 3a |
| 3718 | Direct Runoff to Gulf | Estuary | III M | | | | | 3a |
| 3720 | Direct Runoff to Gulf | Stream | IIIF | | | | | 3a |
| 3721 | Direct Runoff to Gulf | Stream | IIIF | | | | | 3a |
| 3724 | Direct Runoff to Gulf | Stream | IIIF | | | | DO, Turbidity | 2 |
| 3725 | Direct Runoff to Gulf | Stream | IIIF | | | | | 3a |

**Table 3.16 (continued)**

| | | | | | Data Evaluation per 2001 Impaired Surface Waters Rule Criteria[3, 4] | | | |
|---|---|---|---|---|---|---|---|---|
| WBID | Waterbody Segment | Waterbody Type[1] | Class[2] | 1998 303(d) List Parameters of Concern | Potentially Impaired (Cat. 3c) for Listed Parameters | Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters | Parameters Not Impaired | Integrated Assessment Category of WBID[5] |
| 8029 | Suwannee Gulf 1 | Estuary | IIIM | | | **Mercury-Fish** | Conductivity, Turbidity, Total Coliforms, Fecal Coliforms | 5 |
| 8030 | Suwannee Gulf 2 | Estuary | IIIM | | | **Mercury-Fish** | | 5 |
| 8031 | Suwannee Gulf 3 | Estuary | IIIM | | | **Mercury-Fish** | | 5 |
| 8032 | Suwannee Gulf 4 | Estuary | IIIM | | | **Mercury-Fish** | | 5 |
| 8032A | Dekle Beach | Estuary | IIIM | | | **Coliforms (Beach Advisory)** | Fecal Coliforms | 5 |
| 8032B | Keaton Beach | Estuary | IIIM | | | **Coliforms (Beach Advisory)** | Fecal Coliforms | 5 |
| 8032C | Cedar Beach | Estuary | IIIM | | | **Coliforms (Beach Advisory)** | Fecal Coliforms | 5 |
| 8032D | Dark Island | Estuary | IIIM | | | | Fecal Coliforms | 2 |
| 8033 | Suwannee Gulf 5 | Estuary | IIIM | | | **Mercury-Fish** | | 5 |
| 8034 | Suwannee Gulf 6 | Estuary | IIIM | | | **Mercury-Fish** | | 5 |
| 8035 | Suwannee Gulf 7 | Estuary | IIIM | | | **Coliforms/ shellfish, Mercury-Fish** | Fecal Coliforms, Turbidity, DO | 5 |
| 8035A | Shired Island Park | Estuary | IIIM | | | | Fecal Coliforms | 2 |

Notes:

* Information presented in this table is from the master list presented for Secretarial adoption in October 2002.
[1]The designation "stream" includes canals, rivers, and sloughs. The designation "lake" includes some marshes.
[2]The state's surface water classifications are as follows:

**Class I:** **Potable water supplies**
**Class II:** **Shellfish propagation or harvesting**
**Class III:** **Recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife**
**Class IV:** **Agricultural water supplies**
**Class V:** **Navigation, utility, and industrial use (there are no state waters currently in this class)**

[3]Parameters in **bold** meet the Verified List evaluation criteria, Rule 62-303.400, F.A.C.
[4]The EPA's 305(b)/303(d) Integrated Report categories are as follows:

**1**—Attains all designated uses;
**2**—Attains some designated uses;
**3a**—No data and information are available to determine if any designated use is attained;
**3b**—Some data and information are available, but they are insufficient for determining if any designated use is attained;

**Table 3.16 (continued)**

**3c**—Meets Planning List criteria and is potentially impaired for one or more designated uses;
**4a**—Impaired for one or more designated uses and the TMDL is complete;
**4b**—Impaired for one or more designated uses but no TMDL is required because the impairment is not caused by a pollutant;
**4c**—Impaired for one or more designated uses, but no TMDL is required because a proposed pollution control measure provides reasonable assurance that the water will attain standards in the future; and
**5**—Water quality standards are not attained and a TMDL is required.

[5]The assessment categories listed in this column represent the status of each WBID as a whole, **based on multiple parameters**. The hierarchy for assigning these categories is Category 5, then 4, then 3c, then 2, and then 3b, i.e., each WBID is assigned a category based on the highest category assigned to an individual parameter. For example, if WBID 9999 has total coliforms as Category 5, fecal coliforms as Category 3c, and coliforms-shellfish as Category 2, the single assessment call for the WBID is Category 5.

F = Fresh water
M = Marine
N/A = Not applicable, i.e., there are no parameters listed.

planning unit, occupying slightly more than 46 percent of the land area. Forests cover slightly more than 44 percent of the land area. Agricultural lands, which are concentrated in Madison County, occupy a little more than 6 percent. Agriculture can be associated with nonpoint discharges of pollutants and eroded sediments.

Based on Level I and II land use summary information, forests occupy nearly 51 percent and wetlands almost 38 percent of the land area in the Fenholloway planning unit. Urban and agricultural lands, concentrated around the city of Perry, occupy nearly 9 percent of the watershed. Urban and agricultural land uses can be associated with nonpoint discharges of pollutants and eroded sediments.

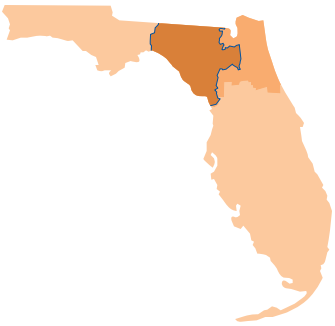
Based on Level I and II land use summary information, 98 percent of the Steinhatchee watershed is pine flatwoods and wetlands, most of which is used for commercial timber production.

Based on Level I and II land use summary information, forested areas cover almost 59 percent of the Econfina/Fenholloway Coastal watershed, and wetlands about 40 percent. All other land uses occupy less than 1 percent each. Wetlands occupy 94 percent of the Fenholloway/Steinhatchee Coastal watershed, and forested areas cover 6 percent. Wetlands occupy slightly more than 84 percent of the Steinhatchee/Lower Suwannee Coastal watershed. Nearly 15 percent is forested, and almost 1 percent is used for transportation, communications, and utilities.

### Ecological Summary

**Aucilla/Wacissa**. The Aucilla/Wacissa planning unit contains 48 individual waterbodies and segments. Of these, 14 have documented ecological protection needs, including numerous listed animal and plant species, eagle nests, a wading bird rookery in Welaunee Creek, manatee warmwater habitats, and rare and imperiled mollusk species. Protected species include the American alligator, alligator snapping turtle, swallow-tailed kite, Florida mouse, black bear, and numerous wading birds such as the snowy egret, tricolor heron, reddish egret, little blue heron, limpkin, sandhill crane, wood stork, and brown pelican.

**Econfina**. The Econfina River, which is designated as an OFW, contains Econfina River State Park. Portions of the Econfina, Fenholloway, and Steinhatchee planning units along the Gulf Coast, as well as the Other



Coastal Basins planning unit, are also a part of the Big Bend Seagrasses Preserve.

Of nine individual waterbodies and segments in the Econfina planning unit, one has documented ecological protection needs, including listed animal and plant species, rare and imperiled fish or mollusks, eagle nests, and wading bird rookeries.

**Fenholloway**. Of 18 individual waterbodies and segments in the Fenholloway planning unit, 6 have documented ecological protection needs, including listed animal and plant species and eagle nests.

The Fenholloway River has a no-consumption advisory for all fish species because of dioxin contamination.

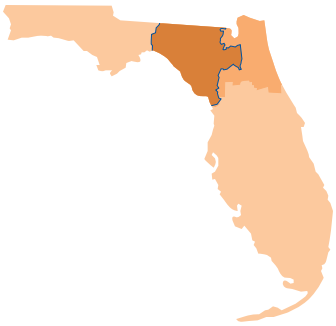
**Steinhatchee**. Of 23 individual waterbodies and segments in the Steinhatchee planning unit, 7 have documented ecological protection needs, including listed animal and plant species and eagle nests.

**Other Coastal Basins**. Of 18 individual waterbodies and segments between the Steinhatchee and Lower Suwannee Rivers, 8 have listed animal and plant species, eagle nests, and wading bird rookeries. The single waterbody segment between the Aucilla and Econfina Rivers has federally listed plant species and eagle nests. Of 3 individual waterbodies and segments between the Econfina and Fenholloway Rivers, 2 have listed animal and plant species, eagle nests, and wading bird rookeries. Finally, of the 24 individual waterbodies and segments between the Fenholloway and Steinhatchee Rivers, 10 have listed animal and plant species, eagle nests, and wading bird rookeries.

The 1991 SWIM Plan developed for the Coastal Rivers area—including the Econfina, Fenholloway, and Steinhatchee Rivers—identified at least 16 wading bird rookeries, with several more rookeries along the fringes of the basin. Species found include the snowy egret, tricolor heron, reddish egret, little blue heron, wood stork, and brown pelican. Wading bird species that nest in groups (called "colonies") are among the most visible, beautiful, and popular wildlife species in Florida. Because of their large size and gregarious habits, their numbers are fairly easily counted, and populations of these birds are widely regarded as useful indicators of the health of coastal and wetland ecosystems. Certain sites (and species) are vulnerable to disturbance by humans and pets, as well as depredations by raccoons, which eat the eggs and hatchlings. Discarded fishing line continues to entangle and kill colonial waterbirds; this is the single most significant cause of mortality of adult brown pelicans.

Protection of the birds' food supply and foraging and nesting habitat, including small wetlands, is crucial. Colonial birds feed in marshes, wet prairies, and sloughs, and their numbers decline if they cannot find enough small fish and other species such as crustaceans. On a larger scale, watershed issues remain extremely important to the long-term welfare of many colonial species, which are highly mobile and may move throughout the watershed during the nesting season seeking food.

A limited consumption advisory because of mercury has been issued for king mackerel and sharks harvested in all coastal waters within the planning unit.



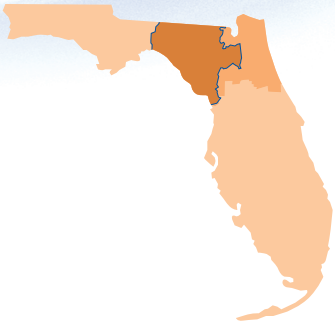
## Water Quality Improvement Plans and Projects

Waters will not be placed on the Verified List if the Department receives reasonable assurance that existing or proposed projects and/or programs are expected to result in the attainment of water quality standards or consistently improve water quality over time. Chapter 4 and **Appendix C** contain additional information on the requirements for reasonable assurance.

For this basin, no management plans or projects complying with the Department's guidance for reasonable assurance have been provided for the 2002 list of impaired waters.

# Chapter 4: The Verified List of Impaired Waters

## Public Participation



The Florida Department of Environmental Protection (Department) has worked with a variety of stakeholders and held public meetings on developing and adopting the Verified Lists of impaired waters for the six Group 1 basins across the state. **Table 4.1** lists the statewide schedule for the development and adoption of the Group 1 Verified Lists, including the public meetings. The schedule for the Suwannee Basin is highlighted in boldface type. **Appendix I** contains documentation provided during the public comment period.

Basin-specific draft Verified Lists of waters that met the requirements of the Impaired Surface Waters Rule (IWR) were made available to the public on July 12, 2002. The lists were placed on the Department's Total Maximum Daily Load (TMDL) Web site at http://www.dep.state.fl.us/water/tmdl, and were also sent on request to interested parties by mail or via e-mail.

Citizens were given the opportunity to comment on the draft lists both in person and/or in writing. Eight public meetings were held across the state to encourage public participation on a basin-by-basin basis. The Department also accepted written comments for 45 days beginning July 12, 2002, and ending August 26, 2002.

Following the public meetings for the Group 1 basins, which took place between July 19 and July 25, 2002, revised draft lists were made available to the public on August 7, 2002. The public had the opportunity to comment on these revised lists either in writing and/or at a final public meeting in Tallahassee. Comments received by August 2, 2002, were considered in preparing the revised draft lists. Comments on any of the lists were accepted and considered throughout the full comment period.

The final basin-specific Verified Lists developed through the public participation process were adopted by Secretarial Order during the week of August 26–30, 2002, and were submitted to the U.S. Environmental Protection Agency (EPA) on October 1, 2002, as the state's current 303(d) list of impaired waters.

A TMDL was developed to address the total coliform impairment in the Fenholloway River waterbody identification number (WBID 3473A). A draft of the proposed TMDL was posted on the Department's Web site (http://www.dep.state.fl.us/water/tmdl/index.htm) on July 2, 2003. A public meeting presenting the proposed TMDL and its development was held in Perry, Florida, on July 8, 2003. A notice was printed in the local paper with the largest distribution, and posted on the Department's TMDL Web site on July 2, 2003. The presentation began a 21-day public comment and review period of the proposed TMDL.

**Table 4.1: Schedule for Development and Adoption of the Group 1 Verified Lists**

| Date | Scheduled Activity |
|---|---|
| **July 12, 2002** | **Publication of Draft Verified List and Beginning of Public Comment Period** |
| **July 19, 2002** | **Public Meeting at Marco Island on the Statewide Verified List for All Group 1 Basins** |
| July 22, 2002 | Public Meeting in Tallahassee on the Ocklockonee and St. Marks Basins |
| **July 22, 2002** | **Public Meeting in Live Oak on the Suwannee River Basin (Including the Aucilla, Coastal, Suwannee, Waccasassa, and Orange Creek Basins)** |
| July 23, 2002 | Public Meeting in Leesburg on the Ocklawaha River and Orange Creek Basins |
| July 24, 2002 | Public Meeting in St. Petersburg on the Tampa Bay Basin |
| July 24, 2002 | Public Meeting in Belle Glade on the Lake Okeechobee Basin |
| July 25, 2002 | Public Meeting in Fort Myers on the Everglades West Coast Basin |
| **August 7, 2002** | **Publication of Revised Draft List** |
| **August 14, 2002** | **Public Meeting in Tallahassee on Revised Draft List for All Basins, and Public Comments and Input from Prior Public Meetings** |
| **August 26, 2002** | **Final Deadline for Receiving Public Comments** |
| **August 26–30, 2002** | **Adoption of Verified List by Secretarial Order** |
| **October 1, 2002** | **Submittal to EPA as State's 303(d) List of Impaired Waters** |

## Identification of Impaired Waters

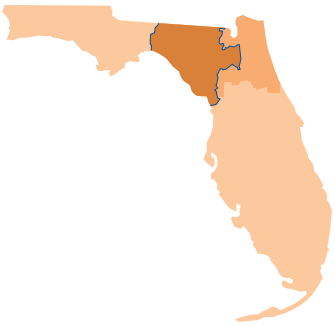
As discussed in Chapter 2, waters on the Verified and Planning Lists must meet specific thresholds, data sufficiency, and data quality requirements in the IWR (Rule 62-303, F.A.C.). **Appendix A** describes the legislative and regulatory background for the development of the Planning and Verified Lists. **Appendix D** contains a methodology that describes the criteria and thresholds required for both lists under the IWR.

Any waters that do not have sufficient data to be analyzed in accordance with the requirements of the IWR will remain on the 1998 303(d) list of impaired waters maintained by the EPA. These waters are not delisted, and they will be sampled during the next phases of the watershed management cycle so that their impairment status can be verified.

### *U.S. Environmental Protection Agency Review of Florida's Amended Section 303(d) List*

On June 11, 2003, the EPA released a Decision Document based on its review of the Department's amendments to Florida's 1998 Section 303(d) list. The EPA found that the Department's Group 1 update substantially met the intent of Section 303(d) of the Clean Water Act and partially approved the submission.

Applying its own evaluation methodology, the EPA proposed listing 80 additional waterbody segments/pollutants for public comment by July 18, 2003. Under this methodology, approximately half of the added waters failed to meet water quality criteria for dissolved oxygen (DO), but no causative pollutant could be identified. Florida law precludes the



Department from including such waters on its Verified List of impaired waters until the causative pollutant is known. The majority of the remaining waters were added to the list based on a different interpretation of the methodology for assessing potential impairment for bacteria. The Department agreed to apply this alternative methodology when assessing the next group (Group 2) of waterbodies for bacteria.

The consequence of having the EPA add waters to Florida's Section 303(d) list is that the EPA would be obligated to propose TMDLs for these waters. However, the EPA has proposed assigning a "low" priority to these waterbodies, thus providing the Department an opportunity to investigate them further. The section on **"Prioritization of Listed Waters"** in Chapter 5 provides additional details on the criteria for high-, low-, and medium-priority waters. Information on the status of Florida's amended Section 303(d) list can be found on the EPA's Web site at http://www.epa.gov/region4/water/tmdl/florida/.

## Documentation of Reasonable Assurance

Under the Florida Watershed Restoration Act (FWRA), the Department will not place impaired waters on the Verified List if reasonable assurance is provided that these waters will attain water quality standards in the future and will make reasonable progress towards attaining water quality standards by the time the next 303(d) list of impaired waters is scheduled to be submitted to the EPA. Reasonable assurance can be provided if existing or proposed technology-based effluent limitations and other pollution control programs under local, state, or federal authority are expected to result in the attainment of water quality standards. Examples include Surface Water Improvement and Management (SWIM) Program restoration projects that provide ongoing monitoring, and permitted facilities that upgrade to advanced treatment or remove discharges to surface waters. **Table 4.2** lists the major elements of reasonable assurance, and **Appendix C** provides additional information.

In February 1998, a work group was formed to address the increasing nitrate trends in the middle and lower portion of the Suwannee River, as well as in the estuary. The group consisted of members from 24 different federal, state, regional, and local governments, universities, and industry. They became known as the Suwannee River Partnership (SRP). Their goals are to ". . . assess sources of nutrient loadings to the Suwannee River Basin and optimize reductions in loadings to the basin emphasizing voluntary, incentive-based programs for protecting the environment and public health." The group is divided into five technical work groups—animal waste management, fertilizer management, human waste management, monitoring and research, and educational and outreach.

The overall goal is to reduce nitrogen loading in the basin by implementing voluntary agricultural best management practices (BMPs). It is hoped that the nitrate loading will be reduced by no less than 30 percent of what is presently reaching the estuary. This would approximate

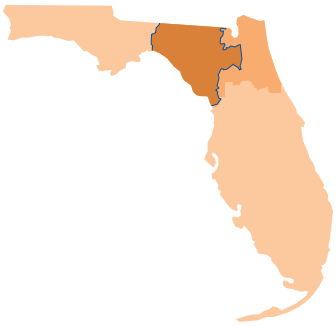
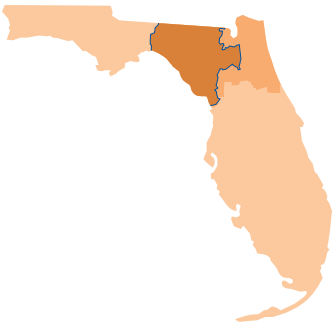


**Table 4.2: Elements of Reasonable Assurance**

| |
|---|
| **Descriptive** |
| • 303(d) listed waterbody |
| • Water quality standards being violated or other criteria not met |
| • Pollutant(s) of concern |
| • Designated use classification |
| • Length (mi) or area (acres) of impairment or potential impairment |
| • Watershed/8-digit cataloging unit code |
| • EPA Reach File Number |
| • Description of waterbody and watershed location |
| • Suspected or documented source(s) of impairment |
| **Management Strategy** |
| • Responsible entity |
| • Participating entities (government, agency, private, others) |
| • Summary of management strategy |
| • Supporting document(s) |
| • Pollutant(s) reduction goals/targets |
| • Assurance of participation (such as written agreements) |
| • Strategy for future growth and new sources |
| • Funding sources |
| • Implementation schedule |
| • Enforcement program if management strategy is not voluntary |
| **Monitoring and Reporting Results** |
| • Water quality monitoring program design and brief description |
| • Quality assurance/quality control elements |
| • Supporting document(s) |
| • Monitoring of implementation |
| • Reporting of monitoring and implementation results |
| • Expected response (time frame and degree of improvement) |
| • Responsible entity for reporting |
| • Frequency of reporting results |
| • Evaluating progress towards goals (water quality and implementation) |
| **Corrective Actions/Strategy (if water quality does not improve after implementation)** |
| • Description of strategy |
| • Supporting document(s) |

loads prior to the designation of the Suwannee River as an Outstanding Florida Water (OFW) in 1979. The SRP reports that an estimated 60 to 70 percent of the entire river's nitrate load originates in the Middle and Lower Suwannee River and the Santa Fe River Basins. The SRP hopes this can be accomplished by reducing the nitrate, and other nutrient loadings, to the ground water and surface waters in the basin.

Segments of concern are listed on the Verified List based on either historical chlorophyll *a* values or the presence of visible algal mats, which pose a nuisance or hinder the reproduction of endangered or threatened



species. WBIDs that are covered under the Reasonable Assurance Document are as follows:

Suwannee River (Lower)—WBID 3422B
Suwannee River (Lower)—WBID 3422
Suwannee River (Lower)—WBID 3422A
Lower Suwannee Estuary—WBID 3422D

As a result of the supplied documentation, any Verified Listings for nutrients (chlorophyll *a*) and DO in these WBIDs have been moved to EPA Category 4c (one or more designated uses is impaired, but no TMDL will be developed because a proposed pollution control measure[s] provides reasonable assurance that designated uses will restored in the future), have been removed from the Verified List, and are proposed for delisting.

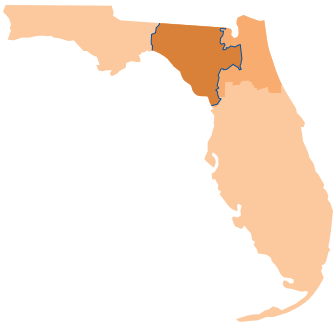
The SRP anticipates that the majority of farms in the Middle Suwannee Basin will have implemented National Resources Conservation Service (NRCS) plans by 2008. The estimated residency time of ground water in the areas of concern is 20 to 40 years. Therefore, it is estimated that it will take until at least 2028 for these reductions to be realized and any benefits to be seen.

The Suwannee River Water Management District (SRWMD) has routine sampling sites established in these basins, and will continue to monitor them on a routine basis. Nitrate and nutrient concentrations, along with several other parameters, will continue to be monitored on a monthly basis. This will help determine what effect implemented practices are having on nutrient concentrations in the river. The SRWMD will continue to be the lead data-collecting agency for this project. The stated interim goal for the SRP is a 6 percent reduction in nitrate concentrations for every 5-year period. Data will be collected and compiled and a progress update will be presented to the SRP Steering Committee, as well as the Department, annually.

The proposed BMPs are strictly voluntary. Nonetheless, there appears to be significant support for the proposed measures. SRP is expecting 100 percent participation for animal producers (dairy and poultry) and 80 percent participation for row crop farmers. Many have already implemented approved BMPs.

The SRP hopes to include the Santa Fe River Basin in the reduction goals. However, at this time the Department does not feel that the documentation supplied meets the requirements for reasonable assurance.

While the Reasonable Assurance Document was accepted by the Department, it was not approved by EPA Region IV personnel. As a result, the Department will not be responsible for any TMDLs for parameters covered under the document. The EPA, however, did not feel that the reasonable assurance provided by the SRP was sufficient. EPA added these waters to the list of impaired waters, but no due date was assigned, in order to allow a reasonable length of time to re-submit a satisfactory Reasonable Assurance Document.



## The Verified List of Impaired Waters

**Table 4.3A** contains the Verified List of Impaired Waters for the Suwannee Basin, as adopted by the Department's Secretary in October 2002. **Table 4.3B** contains the updated Verified List; it includes changes made since Secretarial adoption. **Figure 4.1** shows waters on the Verified List for the entire basin as of March 2003 and the projected year for TMDL development. For presentation purposes, the entire watershed for the listed water is highlighted. However, only the main waterbody in the assessment unit has been assessed, and other waters in the watershed may not be impaired.

Since the October 2002 update of the 303(d) list, further data became available for assessment of the basin, and these data were used to update the listing status of waters. **Table E.1** in **Appendix E** contains the listing status of all assessed waters in the basin as of January 2003. On March 18, 2003, the Department's Secretary signed an order amending the October 2002 Verified List for the basin with the January 2003 listing status. The order was officially noticed in the March 28, 2003, edition of the *Florida Administrative Weekly*, which started a 21-day period to file a petition challenging the order and a 30-day period to appeal the order.

### *Pollutants Causing Impairments*

#### Upper Suwannee Planning Unit

There are no verified impaired parameters in the planning unit. However, six waterbodies have enough samples and violations to place DO on the Verified List. It is believed that the low DO within these WBIDs is naturally low and not due to anthropogenic sources. For this reason, these WBIDs were moved to EPA Category 4b (one or more designated uses is impaired, but no TMDL will be developed because the impairment is not caused by a pollutant). Supporting documentation that includes biological, chemical, and land use data has been submitted to EPA and is attached as **Appendix P**.

#### Alapaha Planning Unit

There are no verified impaired parameters in the planning unit.

#### Withlacoochee Planning Unit

There are no verified impaired parameters in the planning unit.

#### Middle Suwannee Planning Unit

There is only one verified impaired parameter in the planning unit. The Suwannee River (WBID 3422B) is impaired for mercury/fish consumption advisory. Fish tissue samples collected by the U.S. Geological Survey (USGS) and Florida Fish and Wildlife Commission (FWC) from 1995 to 2000 exceeded 0.5 mg/kg mercury.

The Suwannee River segment in this planning unit (WBID 3422B) is verified under the IWR for nutrients and DO; however, these parameters are covered under the SRP Reasonable Assurance Document. As a result, they have been removed from the Verified List.

**Table 4.3A: The Verified List of Impaired Waters as Adopted by the Secretary in October 2002**

| WBID | Waterbody Segment | Water-body Type | 1998 303(D) Parameters of Concern | Parameters Identified Using the 2002 Impaired Surface Waters Rule | Status | EPA's Integrated Report Category[1] | Priority for TMDL Develop-ment[2] | Projected Year for TMDL Develop-ment[2] | Comments |
|---|---|---|---|---|---|---|---|---|---|
| **Fenholloway** | | | | | | | | | |
| 3473A | Fenholloway at Mouth | Stream | Total Coliforms | Total Coliforms | Verified | 5 | High | 2002 | |
| 3473A | Fenholloway at Mouth | Stream | DO | DO | Verified | 5 | High | 2002 | Will be addressed by Buckeye NPDES permit, but currently insufficient certainty to provide reason-able assurance given ongoing delib-erations. Linked to BOD and nitrogen. |
| 3473A | Fenholloway at Mouth | Stream | BOD | BOD | Verified | 5 | High | 2002 | Impairment linked to DO. |
| 3473B | Fenholloway below Pulp Mill | Stream | DO | DO | Verified | 5 | High | 2002 | Given ongoing delib-erations, currently insufficient certainty to provide reason-able assurance. Linked to BOD and nitrogen. |
| 3473B | Fenholloway below Pulp Mill | Stream | Unionized Ammonia | Unionized Ammonia | Verified | 5 | High | 2002 | Given ongoing delib-erations, currently insufficient certainty to provide reason-able assurance. |
| 3473B | Fenholloway below Pulp Mill | Stream | BOD | BOD | Verified | 5 | High | 2002 | Linked to DO. |
| 3473B | Fenholloway below Pulp Mill | Stream | Conductivity | Conductivity | Verified | 5 | Medium | 2007 | Background based on Econfina data. |

**Table 4.3A (continued)**

| WBID | Waterbody Segment | Water-body Type | 1998 303(D) Parameters of Concern | Parameters Identified Using the 2002 Impaired Surface Waters Rule | Status | EPA's Integrated Report Category[1] | Priority for TMDL Develop-ment[2] | Projected Year for TMDL Develop-ment[2] | Comments |
|---|---|---|---|---|---|---|---|---|---|
| **Lower Suwannee** | | | | | | | | | |
| 3422A | Suwannee River (Lower) | Stream | Mercury-Fish | Mercury-Fish | Verified | 5 | Low | 2011 | Mercury concentrations for 1995, 1996, 1998, 1999, 2000, 2001, 2002 exceeded 0.5 mg/kg. Age of data verified to be within last 7.5 years. Numeric criterion is inadequate because mercury is accumulating in the food chain such that fish tissue mercury levels exceed recommended levels for consumption. |
| 3422D | Suwannee Estuary | Estuary | Coliforms (Shellfish) | Coliforms (Shellfish) | Verified | 5 | Medium | 2007 | Listed due to downgrade in shellfish harvesting classification. |
| 3422B | Suwannee River (Lower) | Stream | Mercury-Fish | Mercury-Fish | Verified | 5 | Low | 2011 | Mercury concentrations for 1995–2002. exceeded 0.5mg/kg. Age of data verified to be within last 7.5 years. Numeric criterion is inadequate because mercury is accumulating in the food chain such that fish tissue mercury levels exceed recommended levels for consumption. |
| **Other Coastal** | | | | | | | | | |
| 8032A | Dekle Beach | Estuary | Coliforms (Beach Advisory) | Coliforms (Beach Advisory) | Verified | 5 | Medium | 2007 | Has advisories for more than 21 days in 2001. Verification pending review of DOH data. |
| 8032B | Keaton Beach | Estuary | Coliforms (Beach Advisory) | Coliforms (Beach Advisory) | Verified | 5 | Medium | 2007 | Has advisories for more than 21 days in 2001. Verification pending review of DOH data. |

**Table 4.3A (continued)**

| WBID | Waterbody Segment | Water-body Type | 1998 303(D) Parameters of Concern | Parameters Identified Using the 2002 Impaired Surface Waters Rule | Status | EPA's Integrated Report Category[1] | Priority for TMDL Develop-ment[2] | Projected Year for TMDL Develop-ment[2] | Comments |
|---|---|---|---|---|---|---|---|---|---|
| **Other Coastal, continued** | | | | | | | | | |
| 8032C | Cedar Beach | Estuary | Coliforms (Beach Advisory) | Coliforms (Beach Advisory) | Verified | 5 | Medium | 2007 | Has advisories for more than 21 days in 2001. Verification pending review of DOH data. |
| 8035 | Suwannee Gulf 7 | Estuary | Coliforms (Shellfish) | Coliforms (Shellfish) | Verified | 5 | Medium | 2007 | Listed based on change in shellfish harvesting classifi-cation (downgraded from approved to conditional). |
| 8999 | Florida Gulf Coast | Estuary | Mercury-Fish | Mercury-Fish | Verified | 5 | Low | 2011 | Confirmed recent data for coastal fish advisory for Mackerel. Includes nearshore areas In WBIDs 3422d, 8029, 8030, 8031, 8032, 8033, 8034, 8035, 8037, and 8038 Series. |
| **Santa Fe** | | | | | | | | | |
| 3516 | Alligator Lake Outlet | Lake | Nutrients (TSI) | Nutrients (TSI) | Verified | 5 | Medium | 2007 | Linked to nutrients and BOD. Nitrogen limited. |
| 3516 | Alligator Lake Outlet | Lake | DO | DO | Verified | 5 | Medium | 2007 | Linked to nutrients. Nitrogen limited. |
| 3516A | Alligator Lake | Lake | Nutrients (TSI) | Nutrients (TSI) | Verified | 5 | Medium | 2007 | Linked to nutrients and BOD. Nitrogen limited. |
| 3516A | Alligator Lake | Lake | DO | DO | Verified | 5 | Medium | 2007 | Linked to nutrients. Nitrogen limited. |
| 3605A | Santa Fe River | Stream | Nutrients (Algal Mats and Historical Chlorophyll) | Nutrients (Algal Mats and His-torical Chloro-phyll) | Verified | 5 | Medium | 2007 | TN is limiting nutrient. |
| 3605C | Santa Fe River | Stream | DO | DO | Verified | 5 | Medium | 2007 | Linked to nutrients. |
| 3520 | Cannon Creek | Stream | Fecal Coliforms | Fecal Coliforms | Verified | 5 | Medium | 2007 | |
| 3626 | Pareners Branch | Stream | Fecal Coliforms | Fecal Coliforms | Verified | 5 | Medium | 2007 | |

**Table 4.3A (continued)**

| WBID | Waterbody Segment | Water-body Type | 1998 303(D) Parameters of Concern | Parameters Identified Using the 2002 Impaired Surface Waters Rule | Status | EPA's Integrated Report Category[1] | Priority for TMDL Develop-ment[2] | Projected Year for TMDL Develop-ment[2] | Comments |
|---|---|---|---|---|---|---|---|---|---|
| **Upper Suwannee** | | | | | | | | | |
| 3341 | Suwannee River (Upper) | Stream | DO | DO | Verified | 5 | High | 2002 | Linked to nutrients. |
| 3375 | Swift Creek | Stream | DO | DO | Verified | 5 | High | 2002 | Linked to nutrients. |
| 3477 | Falling Creek | Stream | DO | DO | Verified | 5 | High | 2002 | Linked to nutrients. |
| **Waccasassa** | | | | | | | | | |
| 3699 | Waccasassa River | Stream | Total Coliforms | Total Coliforms | Verified | 5 | Medium | 2007 | |
| 3729 | Black Point Swamp (Estuary) | Stream | Nutrients (Chlorophyll *a*) | Nutrients (Chlo-rophyll *a*) | Verified | 5 | Medium | 2007 | Nitrogen limitation, with some co-limitation. |
| 8037 | Waccasassa River Gulf 1 | Estuary | Coliforms (Shellfish) | Coliforms (Shellfish) | Verified | 5 | Medium | 2007 | Listed based on change in shellfish harvesting classifi-cation (downgraded from approved to conditional). |
| 8038 | Waccasassa River Gulf 2 | Estuary | Coliforms (Shellfish) | Coliforms (Shellfish) | Verified | 5 | Medium | 2007 | Listed based on change in shellfish harvesting classifi-cation (downgraded from approved to conditional). |

Notes:

[1]The EPA's 305(b)/303(d) Integrated Report categories are as follows:

**1**—Attains all designated uses;
**2**—Attains some designated uses;
**3a**—No data and information are available to determine if any designated use is attained;
**3b**—Some data and information are available, but they are insufficient for determining if any designated use is attained;
**3c**—Meets Planning List criteria and is potentially impaired for one or more designated uses;
**4a**—Impaired for one or more designated uses and the TMDL is complete;
**4b**—Impaired for one or more designated uses but no TMDL is required because the impairment is not caused by a pollutant;
**4c**—Impaired for one or more designated uses, but no TMDL is required because a proposed pollution control measure provides reasonable assurance that the water will attain standards in the future; and
**5**—Water quality standards are not attained and a TMDL is required.

[2] Where a parameter was 1998 303(d) listed, the priority shown for that parameter in the 1998 303(d) list was retained (high or low). Where a parameter was only identified as impaired under the IWR, priorities of high, medium, or low were used. Dates and priorities in parentheses indicate a TMDL is scheduled under the terms of the consent decree between EPA and Earthjustice, but there are insufficient data available to assess the water according to the specifications of the IWR.

**Table 4.3B: The Updated Verified List of Impaired Waters (Includes Changes Made Since Secretarial Adoption in October 2002)**

| WBID | Waterbody Segment | Water-body Type | 1998 303(d) Parameters of Concern | Parameters Identified Using the 2002 Impaired Surface Waters Rule | Current Status | EPA's Integrated Report Category[1] | Priority for TMDL Devel-opment[2] | Projected Year for TMDL Devel-opment[2] | Comments |
|---|---|---|---|---|---|---|---|---|---|
| **Fenholloway** | | | | | | | | | |
| 3473A | Fenholloway at Mouth | Stream | Total Coliforms | Total Coliforms | Verified | 5 | High | 2002 | |
| 3473A | Fenholloway at Mouth | Stream | DO | DO | Verified | 5 | High | 2002 | Will be addressed by Buckeye NPDES permit, but currently insufficient certainty to provide reason-able assurance given ongoing deliberations. Linked to BOD and nitrogen. |
| 3473A | Fenholloway at Mouth | Stream | BOD | BOD | Verified | 5 | High | 2002 | Impairment linked to DO. |
| 3473B | Fenholloway below Pulp Mill | Stream | DO | DO | Verified | 5 | High | 2002 | Given ongoing delib-erations, currently insufficient certainty to provide reasonable assurance. Linked to BOD and nitrogen. |
| 3473B | Fenholloway below Pulp Mill | Stream | Unionized Ammonia | Unionized Ammonium | Verified | 5 | High | 2002 | Given ongoing delib-erations, currently insufficient certainty to provide reasonable assurance. |
| 3473B | Fenholloway below Pulp Mill | Stream | BOD | BOD | Verified | 5 | High | 2002 | Linked to DO. |
| 3473B | Fenholloway below Pulp Mill | Stream | Conductivity | Conductivity | Verified | 5 | Medium | 2007 | Background based on Econfina data. |

**Table 4.3B (continued)**

| WBID | Waterbody Segment | Water-body Type | 1998 303(d) Parameters of Concern | Parameters Identified Using the 2002 Impaired Surface Waters Rule | Current Status | EPA's Integrated Report Category[1] | Priority for TMDL Devel-opment[2] | Projected Year for TMDL Devel-opment[2] | Comments |
|---|---|---|---|---|---|---|---|---|---|
| **Lower Suwannee** | | | | | | | | | |
| 3422A | Suwannee River (Lower) | Estuary | Mercury-Fish | Mercury-Fish | Verified | 5 | Low | 2011 | Mercury concentrations for 1995, 1996, 1998, 1999, 2000, 2001, and 2002 exceed 0.5 mg/kg. Age of data verified to be within last 7.5 years. Numeric criterion is inadequate because mercury is accumulating in the food chain such that fish tissue mercury levels exceed recommended levels for consumption. |
| 3422D | Suwannee Estuary | Estuary | Coliforms (Shellfish) | Coliforms (Shellfish) | Verified | 5 | Medium | 2007 | Listed due to downgrade in shellfish harvesting classification. |
| 3422B | Suwannee River (Lower) | Stream | Mercury-Fish | Mercury-Fish | Verified | 5 | Low | 2011 | Mercury concentrations for 1995–2002 exceeded 0.5mg/kg. Age of data verified to be within last 7.5 years. Numeric criterion is inadequate because mercury is accumulating in the food chain such that fish tissue mercury levels exceed recommended levels for consumption. |
| **Other Coastal** | | | | | | | | | |
| 8032A | Dekle Beach | Estuary | Coliforms (Beach Advisory) | Coliforms (Beach Advisory) | Verified | 5 | Medium | 2007 | Has advisories for more than 21 days in 2001. Verification pending review of DOH data. |
| 8032B | Keaton Beach | Estuary | Coliforms (Beach Advisory) | Coliforms (Beach Advisory) | Verified | 5 | Medium | 2007 | Has advisories for more than 21 days in 2001. Verification pending review of DOH data. |
| 8032C | Cedar Beach | Estuary | Coliforms (Beach Advisory) | Coliforms (Beach Advisory) | Verified | 5 | Medium | 2007 | Has advisories for more than 21 days in 2001. Verification pending review of DOH data. |

**Table 4.3B (continued)**

| WBID | Waterbody Segment | Water-body Type | 1998 303(d) Parameters of Concern | Parameters Identified Using the 2002 Impaired Surface Waters Rule | Current Status | EPA's Integrated Report Category[1] | Priority for TMDL Devel-opment[2] | Projected Year for TMDL Devel-opment[2] | Comments |
|---|---|---|---|---|---|---|---|---|---|
| **Other Coastal, continued** | | | | | | | | | |
| 8035 | Suwannee Gulf 7 | Estuary | Coliforms (Shellfish) | Coliforms (Shellfish) | Verified | 5 | Medium | 2007 | Listed based on change in shellfish harvesting classification (down-graded from approved to conditional). |
| 8999 | Florida Gulf Coast | Estuary | Mercury-Fish | Mercury-Fish | Verified | 5 | Low | 2011 | Confirmed recent data for coastal fish advisory for mackerel. Includes nearshore areas in WBIDs 3422d, 8029, 8030, 8031, 8032, 8033, 8034, 8035, 8037, and 8038 series. |
| **Santa Fe** | | | | | | | | | |
| 3516 | Alligator Lake Outlet | Lake | Nutrients (TSI) | Nutrients (TSI) | Verified | 5 | Medium | 2007 | Linked to nutrients and BOD. Nitrogen limited. |
| 3516 | Alligator Lake Outlet | Lake | DO | DO | Verified | 5 | Medium | 2007 | Linked to nutrients. Nitrogen limited |
| 3516A | Alligator Lake | Lake | Nutrients (TSI) | Nutrients (TSI) | Verified | 5 | Medium | 2007 | Linked to nutrients and BOD. Nitrogen limited. |
| 3516A | Alligator Lake | Lake | DO | DO | Verified | 5 | Medium | 2007 | Linked to nutrients. Nitrogen limited. |
| 3605A | Santa Fe River | Stream | Nutrients (Algal Mats and Histori-cal Chloro-phyll) | Nutrients (Algal Matsa and Histori-cal Chloro-phyll) | Verified | 5 | Medium | 2007 | TN is limiting nutrient. |
| 3605C | Santa Fe River | Stream | DO | DO | Verified | 5 | Medium | 2007 | Linked to nutrients. |
| 3520 | Cannon Creek | Stream | Fecal Coliforms | Fecal Coliforms | Verified | 5 | Medium | 2007 | |
| 3626 | Pareners Branch | Stream | Fecal Coliforms | Fecal Coliforms | Verified | 5 | Medium | 2007 | |
| **Waccasassa** | | | | | | | | | |
| 3699 | Waccasassa River | Stream | Total Coliforms | Total Coliforms | Verified | 5 | Medium | 2007 | |
| 3729 | Black Point Swamp (Estuary) | Stream | Nutrients (Chlorophyll *a*) | Nutrients (Chlorophyll *a*) | Verified | 5 | Medium | 2007 | Nitrogen limitation, with some co-limitation. |

**Table 4.3B (continued)**

| WBID | Waterbody Segment | Water-body Type | 1998 303(d) Parameters of Concern | Parameters Identified Using the 2002 Impaired Surface Waters Rule | Current Status | EPA's Integrated Report Category[1] | Priority for TMDL Devel-opment[2] | Projected Year for TMDL Devel-opment[2] | Comments |
|---|---|---|---|---|---|---|---|---|---|
| **Wacasassa, continued** | | | | | | | | | |
| 8037 | Waccasassa River Gulf 1 | Estuary | Coliforms (Shellfish) | Coliforms (Shellfish) | Verified | 5 | Medium | 2007 | Listed based on change in shellfish harvesting classification (down-graded from approved to conditional). |
| 8038 | Waccasassa River Gulf 2 | Estuary | Coliforms (Shellfish) | Coliforms (Shellfish) | Verified | 5 | Medium | 2007 | Listed based on change in shellfish harvesting classification (down-graded from approved to conditional). |

Notes:

[1]The EPA's 305(b)/303(d) Integrated Report categories are as follows:
**1**—Attains all designated uses;
**2**—Attains some designated uses;
**3a**—No data and information are available to determine if any designated use is attained;
**3b**—Some data and information are available, but they are insufficient for determining if any designated use is attained;
**3c**—Meets Planning List criteria and is potentially impaired for one or more designated uses;
**4a**—Impaired for one or more designated uses and the TMDL is complete;
**4b**—Impaired for one or more designated uses but no TMDL is required because the impairment is not caused by a pollutant;
**4c**—Impaired for one or more designated uses, but no TMDL is required because a proposed pollution control measure provides reasonable assurance that the water will attain standards in the future; and
**5**—Water quality standards are not attained and a TMDL is required.

[2] Where a parameter was 1998 303(d) listed, the priority shown for that parameter in the 1998 303(d) list was retained (high or low). Where a parameter was only identified as impaired under the IWR, priorities of high, medium, or low were used. Dates and priorities in parentheses indicate a TMDL is scheduled under the terms of the consent decree between EPA and Earthjustice, but there are insufficient data available to assess the water according to the specifications of the IWR.

### Lower Suwannee Planning Unit

One segment of the Suwannee River (WBID 3422A) is verified impaired for mercury/fish consumption advisory. Fish tissue samples collected by the USGS and FWC from 1995 to 2000 exceeded 0.5 mg/kg mercury. The Suwannee Estuary (WBID 3422D) is also verified impaired for mercury/fish advisories, due to a FWC fish consumption advisory issued in 1997 for mackerel. The Suwannee Estuary (WBID 3422D) is also verified impaired for coliforms/shellfish advisory. This is a result of a downgrade in the shellfish harvesting classification in 1990 by Department of Agriculture and Consumer Services (DACS).

### Santa Fe Planning Unit

There are eight verified impaired parameters in the planning unit. Four of the listings are nutrient related. This includes two segments of the Santa Fe River (WBIDs 3605A and 3605B). The SRWMD, among others, has documented that a large loading of nutrients, especially nitrates, in the Suwannee River are discharged from springs. As with the upper and

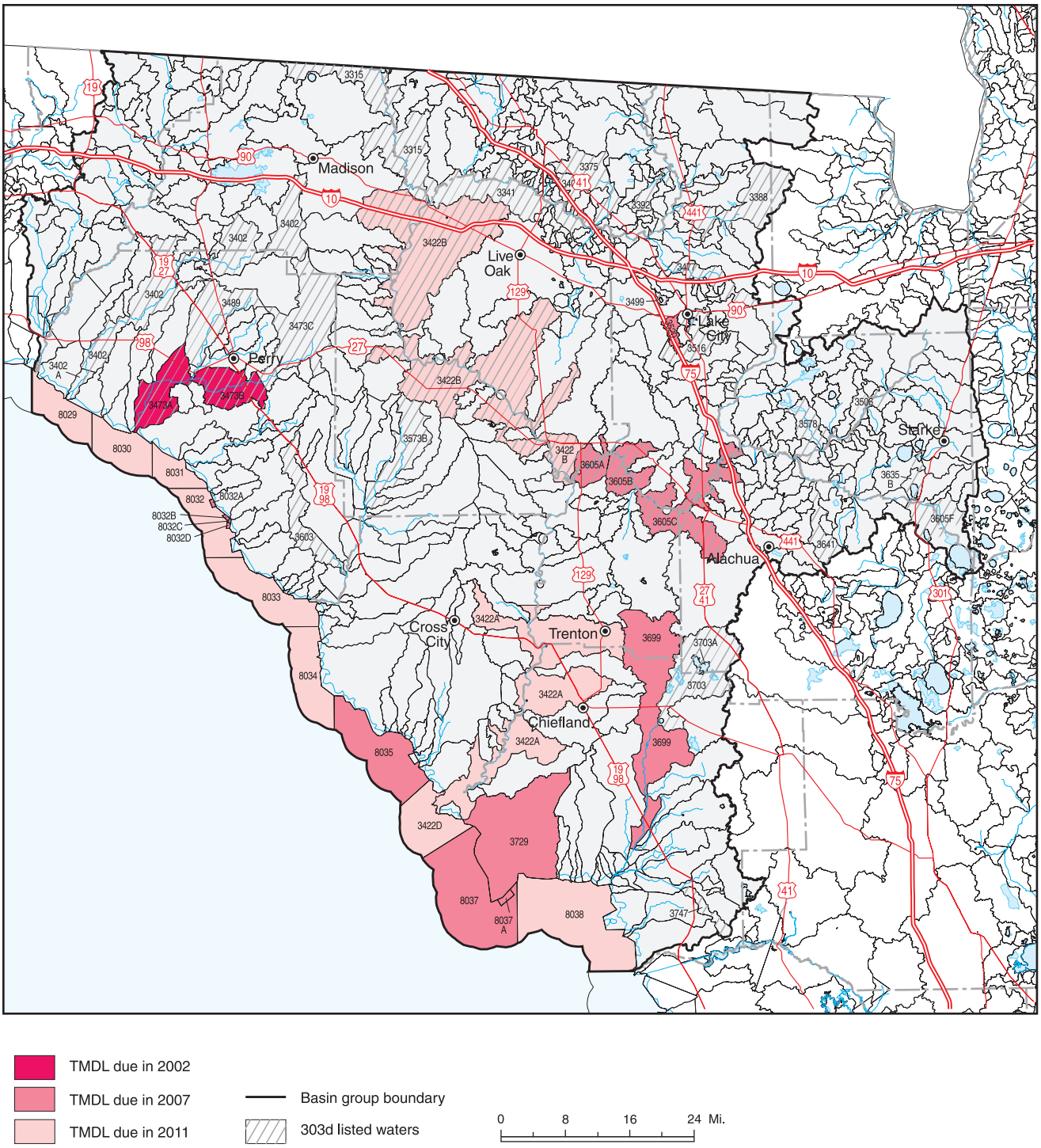
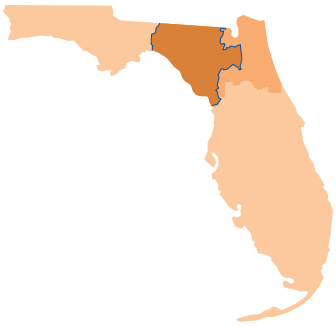



*Figure 4.1: Waters on the Verified List by TMDL Priority, with Projected Year for TMDL Development*



middle portions of the Suwannee River, the Santa Fe River is laden with inputs from springs and is suffering the same fate as the Middle and Lower Suwannee. The SRP wants to develop a Reasonable Assurance Plan that would also address the nutrient problems in the Santa Fe Basin, but has yet to provide a document that meets the Department's reasonable assurance guidelines. The other two nutrient listings are for lakes—Lake Butler (WBID 3566) and Alligator Lake (WBID 3516A).

Another segment of the Santa Fe River (WBID 3605C) is verified for DO. It is linked to nutrients; the system is nitrogen limited. Alligator Lake is also verified for DO and is tied to nutrients; the system is nitrogen limited, with some co-limitation.

Two segments in the basin are verified impaired for fecal coliforms—Pareners Branch (WBID 3626) and Cannon Creek (WBID 3520).

### Waccasassa Planning Unit

There are six verified impaired waters in the planning unit. This includes two estuarine segments (WBIDs 8037 and 8038—Waccasassa River Gulf 1 and 2) that are verified impaired for both mercury/fish consumption advisories and coliforms/shellfish. The mercury/fish consumption advisories are a result of a FWC fish consumption advisory issued in 1997 for mackerel. The coliform/shellfish advisories are due to a downgrade in the shellfish harvesting area in 1994 issued by DACS.

A segment of the Waccasassa River, WBID 3699, is impaired for total coliforms. No sources have been identified yet.

The final Verified Listing in the planning unit applies to Black Point Swamp (WBID 3729) and is for nutrients. The system is nitrogen limited part of the time, and co-limited the rest.

### Aucilla/Wacissa Planning Unit

There are no verified impaired parameters in the planning unit.

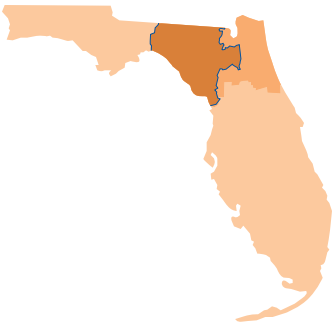
### Econfina Planning Unit

There are no verified impaired waters in the planning unit.

### Fenholloway Planning Unit

There are seven verified impaired parameters in the planning unit. All seven parameters are within the two lower segments of the Fenholloway River. The Fenholloway River below the Pulp Mill segment (WBID 3473B) and the Fenholloway River at the Mouth segment (WBID 3473A) are both verified for BOD and DO. The Fenholloway River below the Pulp Mill segment (WBID 3473B) is also impaired for conductivity and unionized ammonia. All six of these parameters are believed to be linked to the Buckeye Cellulose Pulp Mill's effluent.

A Fenholloway River work group has been formed in an attempt to find better ways to alleviate some of the concerns and impacts to the river from the mill's effluent. At this time, however, the Department feels that the work group has not provided sufficient reasonable assurance to remove the parameters of concern from the Verified List. Reasonable assurance must be provided to the Department not later than September 30, 2003.



The last verified parameter in the planning unit is for total coliforms, and it applies to the Fenholloway River at the Mouth segment (WBID 3473A). Presently, no definitive source(s) of total coliforms has been identified. It is believed that elevated total coliforms may be due to natural sources. The Department will continue to monitor the Fenholloway River in an attempt to better identify the source(s) of the impairment. Nonetheless, a TMDL for total coliforms has been developed. A copy of the document can be found on the Department's TMDL Web site (http://www.dep.state.fl.us/water/tmdl/index.htm).

There was a Verified Listing for dioxin in the Fenholloway At the Mouth segment (WBID 3473A). Buckeye Cellulose has provided more recent data to the Florida Department of Health in support of lifting the advisory. As a result, dioxin has been proposed for delisting.

### Steinhatchee Planning Unit

There are no verified impaired parameters in the planning unit.

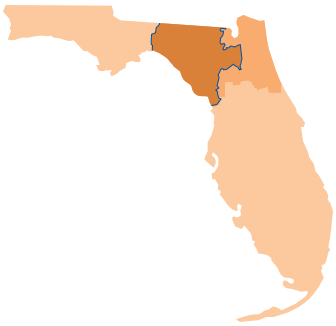
### Other Coastal Basins Planning Unit

There are 11 verified impaired parameters in the planning unit. All 7 of the Suwannee Gulf WBIDs (WBIDs 8029-8035) are verified impaired for mercury/fish consumption advisories. The mercury/fish consumption advisories are a result of a FWC fish consumption advisory issued in 1997 for mackerel. In addition, Suwannee Gulf 7 (WBID 8035) is impaired for coliforms/shellfish advisories. The coliform/shellfish advisories are due to several downgrades in the shellfish harvesting areas issued by DACS. The latest downgrades occurred in 2002.

Three WBIDs containing beaches are verified for coliforms due to beach closures: Dekle Beach (WBID 8032A), Cedar Beach (WBID 8032C), and Keaton Beach (WBID 8032B). Beaches are considered impaired for coliforms if the beach had warnings, advisories, or was closed by the local health department or local government for more than 21 days in a calendar year. All advisories for these beaches were a result of advisories issued in 2001—Keaton Beach had 63; Dekle Beach had 75; and Cedar Beach had 61. TMDLs will be developed for these areas.

## *Listings Based on Other Information Indicating Nutrient Imbalance*

In segments of the Middle and Lower Suwannee River, along with the estuary portion, the nutrients being introduced to the river are causing nutrient imbalances. This is mostly due to the nitrates from agricultural activities. These excess nutrients, introduced through various ground water inputs and runoff, have caused algae to grow in excess. Visible algal mats can be seen all along the middle and lower portions of the river. Algal concentrations have also increased in the past several years as a result of the nutrients. This is evident by the number of WBIDs that are listed for both historical chlorophyll *a* values (WBIDs 3422 and 3422A) and visible algal mats (WBID 3422B). In effect, all segments of the middle and lower portions of the Suwannee River are listed indirectly for nutrients via historical algae or visible algal mats.



Although the Suwannee Estuary is not listed for visible algal mats or historical chlorophyll, and the chlorophyll meets standards, the effects of excess nutrients can still be seen. A study done for the SRWMD from 1999 to 2001 (Phlips and Bledsoe, 2002) compares nitrate + nitrite **(Appendix M)**, total nitrogen **(Appendix N)**, and total phosphorus **(Appendix O)** at various stations in the Suwannee River, Santa Fe River, and various sites in the estuary. The study shows that for all three parameters, the highest concentrations were found in the Suwannee River, followed by the Santa Fe River. The lowest concentrations were found at the offshore sites. A Florida Department of Environmental Regulation report (FDER, 1985) also suggests the concentration of nitrate and nitrite increases in concentration as one moves downstream **(Appendix L)**.

There were not enough data to assess any of the springs in the basin for chlorophyll *a,* and consequently for nutrient imbalance. However, a 1995 study (Berndt *et al.,* 1998) found that the concentrations of nitrates being discharged in the Middle Suwannee River are significant (**Appendices J** and **K**). Along the 33-mile study area in the Middle Suwannee, it was estimated that 46 percent of the nitrate load was being discharged from springs.

### *Adoption Process for the Verified List of Impaired Waters*

The Verified List must be submitted in a specific format (Rule 62-303.710, F.A.C.) before being approved by order of the Department's Secretary. The list must specify the pollutant and concentration causing the impairment. If a waterbody segment is listed based on water quality criteria exceedances, then the list must provide the applicable criteria. However, if the listing is based on narrative or biological criteria, or impairment of other designated uses, and the water quality criteria are met, the Verified List is required to specify the concentration of the pollutant relative to the water quality criteria and explain why the numeric criterion is not adequate.

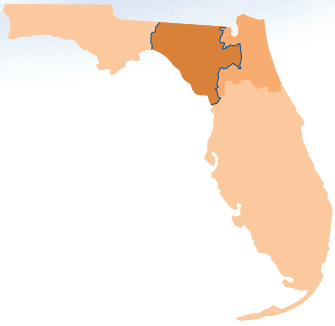
For waters with exceedances of the DO criteria, the Department must identify the pollutants causing or contributing to the exceedances and list both the pollutant and DO in the Verified List.

For waters impaired by nutrients, the Department is required to identify whether nitrogen or phosphorus, or both, are the limiting nutrients, and specify the limiting nutrient(s) in the Verified List.

The Verified List must also include the priority and schedule for TMDL development established for a waterbody segment and note any waters that are being removed from the current Planning List. In future watershed management cycles, the list must also note waters that are being removed from any previous Verified List for the basin.

# Chapter 5: Monitoring Priorities and TMDL Development, Allocation, and Implementation

## Ambient Monitoring Priorities



In the Suwannee River Basin, 121 parameters in 82 waterbody identification numbers (WBIDs) are on the Planning List. Of these, 22 are scheduled to be due in 2007; most are low priority. A few more, mostly those listings for mercury-fish consumption advisories, are scheduled for 2011. The rest are not associated with a due date. The 22 are on the 1998 303(d) list, due in 2007, and will have priority in sampling, followed by those WBIDs with insufficient data to assess. It is the goal to have enough samples during the next rotation, when potential Total Maximum Daily Loads (TMDLs) will be due for these waters, that enough samples have been collected to assess these WBIDs fully for these parameters.

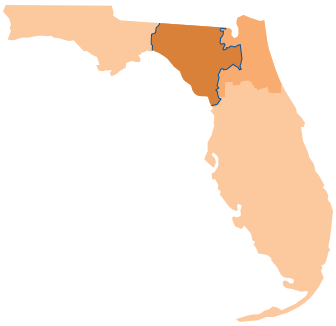
Even though a TMDL has been developed for the Fenholloway River (WBID 3473A) for total coliforms, no definitive source(s) has been identified. Additional monitoring will be needed in order to try and identify a source.

For those waters where reasonable assurance has been accepted, monitoring efforts will need to continue to determine the effectiveness of the program. This may apply to the Fenholloway River below the Pulp Mill (including WBIDs 3473B and 3473C), where a work group has been formed to address some of the issues surrounding the pulp mill effluent. If the Florida Department of Environmental Protection (Department) and the EPA approve the work group's efforts, then continued monitoring will be needed to make sure that the efforts are effective.

## Prioritization of Listed Waters

Following the identification of impaired waters on the 303(d) list, the Department determines priorities for developing TMDLs in Phase 3 of the watershed management cycle. When TMDLs are established, general allocations of pollutant load reductions are identified, at least to the level of point and nonpoint source categories.

Because TMDLs cannot be developed for all listed waters during a single watershed management cycle, waterbodies will be prioritized using the criteria in the Impaired Surface Waters Rule (IWR) (Rule 62-303.500, Florida Administrative Code [F.A.C.]). The rule states that when establishing the TMDL development schedule for waters on the Verified List, the Department will prioritize impaired waterbody segments



according to the severity of the impairment and its designated uses, taking into account the most serious water quality problems, most valuable and threatened resources, and risk to human health and aquatic life. Impaired waters are prioritized as high, medium, or low priority.

Under the IWR, the determination of high-, low-, and medium-priority waters is based on the following criteria.

High-priority waters are

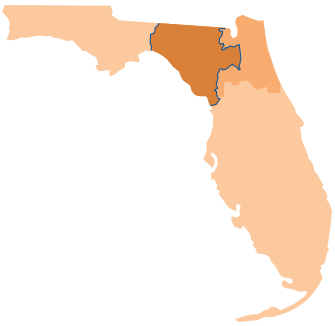
- Waterbody segments in which the impairment poses a threat to potable water supplies or human health; or
- Waterbody segments in which the impairment is due to a pollutant regulated by the Clean Water Act and the pollutant has contributed to the decline or extirpation of a federally listed threatened or endangered species, as indicated in the Federal Register listing the species.

Low-priority waters are

- Waterbody segments that are listed before 2010 because of fish consumption advisories for mercury (due to the current insufficient understanding of how mercury cycles in the environment);
- Human-made canals, urban drainage ditches, and other artificial waterbody segments that are listed only due to exceedances of the dissolved oxygen (DO) criteria; or
- Waterbody segments that were not on the Planning List but were identified as impaired during Phase 2 of the watershed management approach and were included on the Verified List, unless the segment meets the second high-priority criterion.
- The EPA has also proposed assigning to this category the list of additional waterbody segments that the agency developed using its own evaluation methodology, until the Department has had the opportunity to investigate these waterbodies further.

All segments not designated high or low priority are medium priority, and are prioritized based on the following factors:

- The presence of Outstanding Florida Waters (OFWs);
- The presence of waterbody segments that fail to meet more than one designated use, aquatic life, primary contact and recreation, fish and shellfish consumption, and drinking water and protection of human health;
- The presence of waterbody segments that exceed an applicable water quality criterion or alternative threshold with a frequency of greater than 25 percent at a minimum confidence level of 90 percent;
- The presence of waterbody segments that exceed more than one applicable water quality criterion; or



- Administrative needs of the TMDL program, including meeting a TMDL development schedule agreed to with the EPA, basin priorities related to the Department's watershed management approach, and the number of administratively continued permits in the basin.

The Department is adhering to the TMDL schedule established in the Consent Decree between the EPA and Earthjustice for waters on the 1998 303(d) list that are also identified as impaired under the IWR.

**Table 5.1** lists priorities for TMDL development for waterbody segments in the Suwannee Basin. The Department, in cooperation with the EPA, will be producing a TMDL for only one segment in the basin: the Fenholloway River at the Mouth (WBID 3473A). The segment is verified as impaired, based on too many violations of the state standard for total coliform counts. The segment has a high priority, as coliforms have the potential to pose a threat to human health through ingestion or contact with water with high coliform counts. This segment of the river is designated as a Class III marine water, with designated uses for recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife. **Figure 5.1** identifies the TMDL priority area.

## TMDL Development

During Phase 3 of the watershed management cycle, TMDLs will be developed for both point and nonpoint sources of pollutants in impaired waterbodies and will be adopted by rule at the end of this phase.

TMDL development involves determining the maximum amount of a given pollutant that a waterbody can assimilate and still meet the applicable numeric or narrative water quality criterion for the pollutant. In most cases, this "assimilative" capacity will be determined using computer modeling (both hydrodynamic and water quality models) that predicts the fate and transport of pollutants in the receiving waters. Modeling for the typical TMDL will include model setup, calibration, and verification, followed by a variety of model runs that determine the assimilative capacity of the water under worst-case conditions. In situations where modeling may not be appropriate or is impractical (i.e., due to lack of data or other information needed to set the model up), other methods may be employed. For example, a loading curve approach was used to develop the total coliform TMDL (for more information on this approach, see the TMDL for total coliforms for the Fenholloway River on the Department's TMDL Web site, http://www.dep.state.fl.us/water/tmdl/index.htm).

State law and federal regulations require that TMDLs include a margin of safety (MOS) that takes into account "any lack of knowledge concerning the relationship between effluent limitations and water quality." The EPA has allowed states to establish either a specific MOS (typically some percentage of the assimilative capacity) or an implicit MOS based on conservative assumptions in the modeling. To date, the Department has elected to establish an implicit MOS based on predictive model runs that

**Table 5.1: Priorities for TMDL Development in the Suwannee Basin in 2002**

| Basin | WBID | Waterbody | Group | State 305(b) Category | 1998 303(d) List Pollutant | Status | State Activities | EPA Activities |
|---|---|---|---|---|---|---|---|---|
| Econfina–Fenholloway | 3603 | Bevins (Boggy) Creek | 1 | 3c | **DO** | EPA will develop TMDL. | Routine monitoring. Potentially impaired—5/8 violations. Recent sampling not included in database yet. | EPA will develop TMDL. |
| | | | | 3c | **BOD** | EPA will develop TMDL. | Routine monitoring. Potentially impaired—See DO. Recent sampling not included in database yet. | No TMDL needed. |
| HUC #03110102 | | | | 3c | **Coliforms** | EPA will develop TMDL. | Routine monitoring. Potentially impaired—Fecal coliforms = 1/4; TC = 1/4 violations. Recent sampling not included in database yet. | Added review/data required. |
| | 3402 | Econfina River | 1 | 2 | **DO** | To be delisted. | Delist—Reference site | No TMDL needed. |
| | | | | 2 | **Coliforms** | To be delisted. | Delist—Meets standards based on IWR<br>FC = 2/47<br>TC = 4/46 | No TMDL needed. |
| | | | | 2 | **Cadmium** | EPA will develop TMDL. | New data—Delist. | No TMDL needed. |
| | 3473C | Fenhollo-way above Pulp Mill | 1 | 3c | **DO** | EPA will develop TMDL. | Impaired under (IWR)—12/24 violations, need to identify pollutant. | Added review/data required. |
| | | | | 2 | **Nutrients** | To be delisted. | Delist based on available data. Meets standards under IWR.<br>MIN=0.12 µg/L<br>MAX=5.3 µg/L<br>MED=0.65 µg/L | No TMDL needed. |

**Table 5.1 (continued)**

| Basin | WBID | Waterbody | Group | State 305(b) Category | 1998 303(d) List Pollutant | Status | State Activities | EPA Activities |
|---|---|---|---|---|---|---|---|---|
| HUC #03110102 (continued) | 3473A | Fenholloway at Mouth | 1 | 5 | **DO** | On Verified List. EPA will develop TMDL. | Impaired under IWR—43/49 violations. Assessed as marine. | Joint TMDL with EPA. |
| | | | | 2 | **Fecal Coliforms** | To be delisted. | Delist—Meets standards under IWR 4/31 violations. | No TMDL needed. |
| | | | | 5 | **Total Coliforms** | On Verified List. State will develop TMDL (per meeting on 8/14/02). | Verified under IWR—10/29 violations. | Joint TMDL with EPA. |
| | | | | 5 | **BOD** | On Verified List. EPA will develop TMDL. | Impaired under IWR—See DO. | Joint TMDL with EPA. |
| | | | | 3c | **Nutrients** | EPA will develop TMDL. | Insufficient data to assess under IWR—Moved to Planning List per IWR language. | Joint TMDL with EPA. |
| | | | | 2 | **Unionized Ammonia** | To be delisted. | Propose to delist—Inappropriate criteria. | No TMDL needed. |
| **Econfina–Fenholloway** | 3473A | Fenholloway at Mouth | 1 | 2 | **Dioxin-Fish Advisory** | To be delisted. | Delist based on recent data. | Added review/data required. |
| | 3473B | Fenholloway below Pulp Mill | 1 | 5 | **DO** | On Verified List. EPA will develop TMDL. | To be addressed through Fenholloway work group. | Joint TMDL with EPA. |
| HUC #03110102 | | | | 5 | **Unionized Ammonia** | On Verified List. EPA will develop TMDL. | Impaired under IWR—10/20 violations. To be addressed through Fenholloway work group. | Joint TMDL with EPA. |
| | | | | 5 | **BOD** | On Verified List. EPA will develop TMDL. | To be addressed through Fenholloway workgroup. | Joint TMDL with EPA. |

**Table 5.1 (continued)**

| Basin | WBID | Waterbody | Group | State 305(b) Category | 1998 303(d) List Pollutant | Status | State Activities | EPA Activities |
|---|---|---|---|---|---|---|---|---|
| HUC #03110102 | | | | | **Nutrients** | EPA will develop TMDL. | To be addressed through Fenholloway work group. | Joint TMDL with EPA. |
| | | | | 2 | **TSS** | To be delisted. | Propose to delist—Turbidity is not impaired under IWR. | No TMDL needed. |
| | 3489 | Rocky Creek | 1 | 3C | **Turbidity** | EPA will develop TMDL. | Routine monitoring has added more data. Propose to delist based on IWR—0/30 violations. | No TMDL needed. |
| | | | | 3c | **Coliforms** | EPA will develop TMDL. | Insufficient data to assess under IWR. FC = 0/18 violations; TC = 1/12 violations. Presently, data covers three seasons. | No TMDL needed. |
| | 3573B | Steinhatchee River | 1 | 3c | DO | EPA will develop TMDL. | Insufficient data to assess under IWR. Added monitoring has been done and may not be in database yet. 1/24 violations. Presently, data covers three seasons. | No TMDL needed. |

- Department TMDL
- EPA TMDL Delist
- Department to provide more info
- Possible conflict in methods

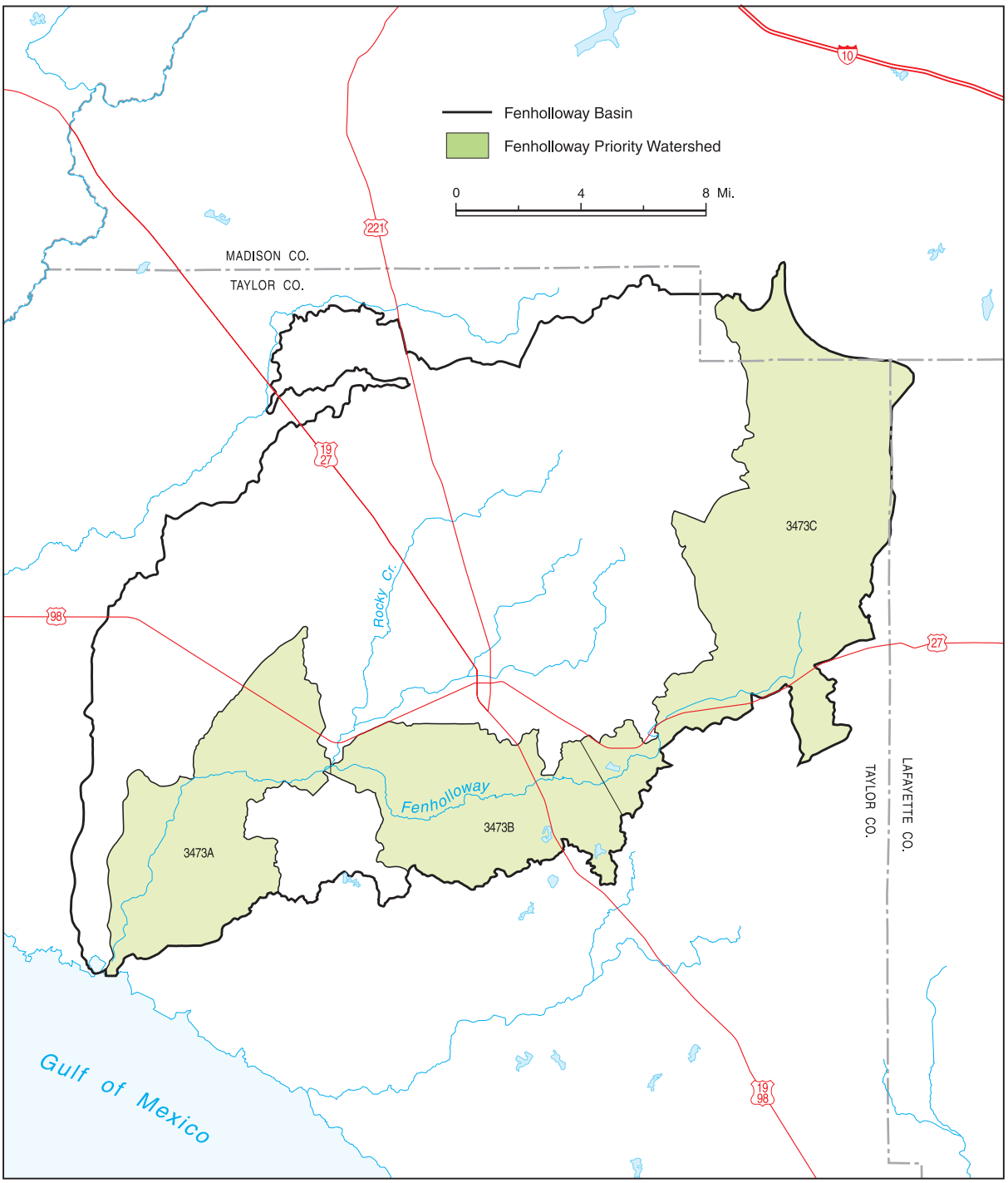
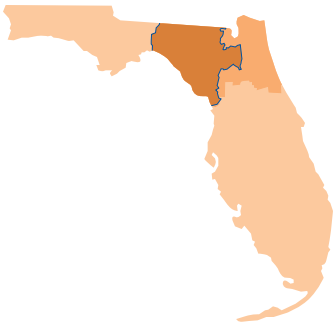



*Figure 5.1: TMDL Priority Area for 2002—Fenholloway River Planning Unit*



incorporate a variety of conservative assumptions (they examine worst-case ambient flow conditions and worst-case temperature, and assume that all permitted point sources discharge at their maximum permitted amount).

It is important to note that TMDLs will be developed only for the actual pollutants causing the impairment in the listed waterbody. These are called the "pollutants of concern." In Florida, the most commonly listed pollutants of concern are nutrients, sediments, and coliforms. TMDLs will not be developed for impairments that aren't due to pollutant discharges—for example, those due to natural conditions, physical alterations such as dams and channelization, or changes in the flow of the water. In other cases, a waterbody may be deemed potentially impaired based on bioassessment data or toxicity data. In these cases, the Department must determine the actual pollutant causing the impairment before a TMDL can be developed.

## TMDL Allocation and Implementation

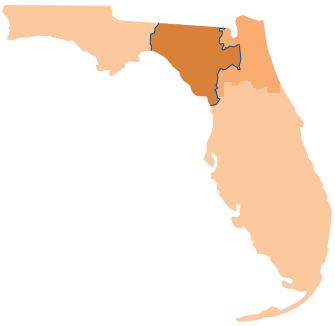
### *Initial Allocation of Pollutant Loadings*

The Florida Watershed Restoration Act requires that a TMDL include the "establishment of reasonable and equitable allocations . . . among point and nonpoint sources . . . ." The Department refers to this as the "initial allocation," which is adopted by rule. For the purposes of allocating the required pollutant loadings, the term "point sources" primarily includes traditional sources such as domestic and industrial wastewater discharges.

Recent EPA guidance requires states to include as point sources those stormwater systems that are covered by a National Pollutant Discharge Elimination System (NPDES) stormwater permit. However, NPDES-permitted stormwater discharges are not subject to the same types of effluent limitations, cannot be centrally collected and treated, and typically have not invested in treatment controls to the same degree as traditional point sources. Nonpoint sources include intermittent, rainfall-driven, diffuse sources of pollutants associated with everyday human activities, including runoff from urban land uses, agriculture, silviculture, and mining; discharges from failing septic systems; and atmospheric deposition.

These point and nonpoint definitions do not directly relate to whether a source is regulated. Some nonpoint sources such as stormwater systems are permitted under the regulatory programs of the Department or water management districts, while others, such as agricultural stormwater discharges, are not. This distinction is important because the implementation of the allocations to nonpoint sources outside the authority of regulatory programs will require cooperation from dischargers to implement BMPs voluntarily.

While a "detailed allocation" will ultimately be necessary to implement a TMDL fully, a key goal of the initial allocation is to assign responsibility for pollutant load reductions between point and nonpoint sources. For point sources, allocations will be implemented through the Department's NPDES wastewater and stormwater permitting programs. The



implementation of nonpoint source load reductions will be done through a combination of regulatory and nonregulatory processes.

Initial allocations of pollutant loadings will also be made to historical sources (e.g., the phosphorus-laden sediments at the bottom of a lake) and upstream sources (those entering into an impaired waterbody). Upstream sources include sources outside Florida, and these sources will receive reduced allocations similar to in-state sources.

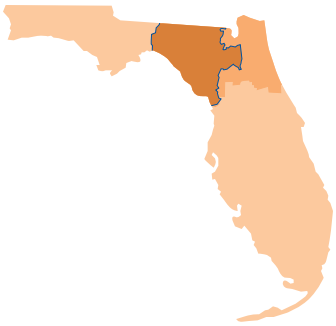
The Florida Watershed Restoration Act (FWRA) provided direction for the allocation of TMDLs and directed the Department to provide guidance on the allocation process by establishing an Allocation Technical Advisory Committee (ATAC), consisting of representatives of key stakeholder groups. The committee's report recommended a three-step process for developing initial allocations and addressed detailed allocations for nonpoint sources, stakeholder involvement, the use of best management practices (BMPs), and other TMDL implementation issues (Department, 2001). A copy of the ATAC report can be found at http://www.dep.state.fl.us/water/tmdl/docs/Allocation.pdf.

### *Implementation Programs and Approaches*

The FWRA designates the Department as the lead agency in coordinating the implementation of TMDLs. Existing programs and approaches through which TMDLs may be carried out include the following:

1. Permitting and other existing regulatory programs, such as NPDES permits, domestic and industrial wastewater permits, and stormwater/environmental resource permits. There are no municipal NPDES stormwater permittees in the Suwannee Basin.
2. Local land development codes;
3. Nonregulatory and incentive-based programs, including BMPs, cost sharing, waste minimization, pollution prevention, new approaches to land use design and development, and public education;
4. Basin Management Action Plans (B-MAPs) developed under the FWRA;
5. Other water quality management and restoration activities, for example, Surface Water Improvement and Management (SWIM) plans approved under Section 373.456, Florida Statutes (F.S.);
6. Pollutant trading or other equitable economically based agreements;
7. Public works including capital facilities; or
8. Land acquisition.

These programs and approaches will be carried out at local, regional, state, and possibly federal levels. TMDL implementation will require extensive stakeholder involvement throughout the state, and, in some cases,



between Florida and other states. **Appendix A** provides additional details on the implementation programs and approaches listed here.

### *Schedule and/or Milestones for TMDL Implementation or Reasonable Assurance*

The Suwannee River Partnership (SRP), in conjunction with the Suwannee River Water Management District (SRWMD), will continue to collect water quality samples within the area of concern. Due to the length of time required to enact all proposed BMPs, as well as the estimated residence time of the ground water, it is estimated that the earliest established targets for nitrate-nitrogen reduction can be reached is 2028. The interim target is a 6 percent reduction in loading every 5 years. The SRWMD will continue monitoring in the area of concern to determine potential trends in concentrations. Also, the Department of Agriculture and Consumer Services (DACS) will conduct farm-scale research to determine if initial agricultural BMPs are effective as designed. DACS will have the opportunity to take corrective actions if BMPs are found not to be producing the desired results. The SRP and SRWMD will report annually to the Department as to the results of sampling, and whether the desired results are being met.

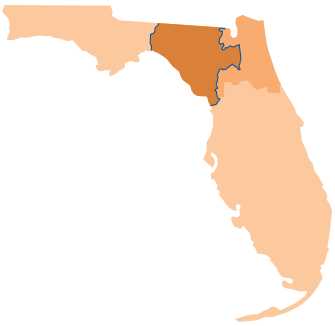
## Development of Basin Management Action Plans

The FWRA authorizes the Department to develop B-MAPs for implementing TMDLs. These plans will be developed with extensive stakeholder input to build consensus on detailed allocations based on the initial general allocations to categories of discharges.

The B-MAPs would contain final allocations, strategies for meeting the allocations, schedules for implementation, funding mechanisms, applicable local ordinances, and other elements. In cases where stakeholder consensus could not be reached on detailed allocations and/or a B-MAP within a reasonable time, the Department would develop the allocations.

Once a B-MAP is developed, the Department will make it available for public review and comment. Guidance for the content and format of the B-MAPs is being developed; the plans are likely to include a description of both regulatory and nonregulatory approaches to meeting specific TMDLs.

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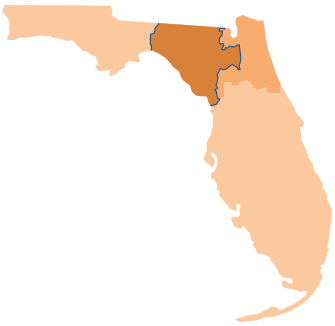
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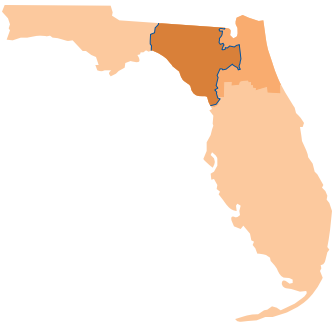
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# *Appendix A: Legislative and Regulatory Background on the Watershed Management Approach and the Implementation of TMDLs*

## Federal and State Legislation on Surface Water Quality and TMDLs

### *Clean Water Act*

Congress enacted the Clean Water Act in 1972 with the goal of restoring and maintaining the "chemical, physical, and biological integrity of the nation's waters" (33 U.S.C. § 1251[a]). The ultimate goal of the act is to eliminate the "discharge of [all] pollutants into navigable waters" (33 U.S.C. § 1251[a][1]).

Section 305(b) of the Clean Water Act requires states to report biennially to the U.S. Environmental Protection Agency (EPA) on their water quality. The 305(b) assessment report provides information on the physical, chemical, biological, and cultural features of each river basin in Florida. This initial assessment provides a common factual basis for identifying information sources and major issues, and for determining the future changes, strategies, and actions needed to preserve, protect, and/or restore water quality. Understanding the physical framework of each basin allows the development of a science-based methodology for assessing water quality and an accurate picture of the waters that are most impaired or vulnerable to contamination.

Section 303(d) of the Clean Water Act requires states to submit to the EPA lists of surface waters that do not meet applicable water quality standards and establish total maximum daily loads (TMDLs) for each of these waters on a schedule. A pollution limit is then allocated to each pollutant source in an individual river basin.

A TMDL represents the maximum amount of a given pollutant that a waterbody can assimilate and meet all of its designated uses (see the sidebar on Florida's surface water quality classifications for a listing of these classifications). A waterbody that does not meet its designated use is defined as *impaired*.

---

*SIDEBAR: FLORIDA'S SURFACE WATER QUALITY CLASSIFICATIONS*

*Florida's water quality standards program, the foundation of the state's program of water quality management, designates the "present and future most beneficial uses" of the waters of the state (Subsection 403.061[10], F.S.). Water quality criteria, expressed as numeric or narrative limits for specific parameters, describe the water quality necessary to maintain these uses for surface water and ground water. Florida's surface water is protected for five designated use classifications, as follows:*

| | |
|---|---|
| ***Class I*** | ***Potable water supplies*** |
| ***Class II*** | ***Shellfish propagation or harvesting*** |
| ***Class III*** | ***Recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife*** |
| ***Class IV*** | ***Agricultural water supplies*** |
| ***Class V*** | ***Navigation, utility, and industrial use (there are no state waters currently in this class)*** |

### *Florida Watershed Restoration Act*

In 1998, the EPA settled a lawsuit with the environmental group Earthjustice over Florida's TMDL Program. The Consent Decree resulting from the lawsuit requires all TMDLs on the state's 1998 Section 303(d) list of impaired waters to be developed in thirteen years. If the state fails to develop the TMDLs, the EPA is required to do so.

In response to concerns about the TMDL lawsuit and in recognition of the important role that TMDLs play in restoring state waters, the 1999 Florida legislature enacted the Florida Watershed Restoration Act (Chapter 99-223, Laws of Florida). The act clarified the Department's statutory authority to establish TMDLs, required the Department to develop a methodology for identifying impaired waters, specified that the Department could develop TMDLs only for waters on a future state list of impaired waters developed using this new methodology, and directed the Department to establish an Allocation Technical Advisory Committee to address the allocation process for TMDLs. The act also declared Lake Okeechobee impaired and, as required under the TMDL Consent Decree, allowed the state to develop a TMDL for the lake (see the sidebar for a description of the legislation's major provisions).

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## *SIDEBAR: THE FLORIDA WATERSHED RESTORATION ACT*

*The Florida Watershed Restoration Act contains the following major provisions:*

- *Establishes that the 303(d) list submitted to the EPA in 1998 is for planning purposes only.*
- *Requires the Department to adopt 303(d) listing criteria (that is, the methodology used to define impaired waters) by rule.*
- *Requires the Department to verify impairment and then establish a Verified List for each basin. The Department must also evaluate whether proposed pollution control programs are sufficient to meet water quality standards, list the specific pollutant(s) and concentration(s) causing impairment, and adopt the basin-specific 303(d) list by Secretarial Order.*
- *Requires the Department's Secretary to adopt TMDL allocations by rule. The legislation requires the Department to establish "reasonable and equitable" allocations of TMDLs, but does not mandate how allocations will be made among individual sources.*
- *Requires that TMDL allocations consider existing treatment levels and management practices; the differing impacts that pollutant sources may have; the availability of treatment technologies, best management practices (BMPs), or other pollutant reduction measures; the feasibility, costs, and benefits of achieving the allocation; reasonable time frames for implementation; the potential applicability of moderating provisions; and the extent that nonattainment is caused by pollutants from outside Florida, discharges that have ceased, or alteration to a waterbody.*
- *Required a report to the legislature by February 2001 addressing the allocation process.*

- *Authorizes the Department to develop basin plans to implement TMDLs, coordinating with the water management districts, the Florida Department of Agriculture and Consumer Services (DACS), the Soil and Water Conservation Districts, regulated parties, and environmental groups in assessing waterbodies for impairment, collecting data for TMDLs, developing TMDLs, and conducting at least one public meeting in the watershed. Implementation is voluntary if not covered by regulatory programs.*

- *Authorizes the Department and DACS to develop interim measures and BMPs to address nonpoint sources. While BMPs would be adopted by rule, they will be voluntary if not covered by regulatory programs. If they are adopted by rule and the Department verifies their effectiveness, then implementation will provide a presumption of compliance with water quality standards.*

- *Directs the Department to document the effectiveness of the combined regulatory/voluntary approach and report to the legislature by January 1, 2005. The report will include participation rates and recommendations for statutory changes.*

## Determining Impairment Based on the State's Impaired Surface Waters Rule

Section 303(d) of the federal Clean Water Act and the Florida Watershed Restoration Act describe impaired waters as those waterbodies or waterbody segments that do not meet applicable water quality standards. "Impairment" is a broad term that includes designated uses, water quality criteria, the Florida antidegradation policy, and moderating provisions (see the sidebar for explanations of these terms).

The state's Identification of Impaired Surface Waters Rule (Rule 62-303, F.A.C.) was developed in cooperation with a Technical Advisory Committee and adopted by the Florida Environmental Regulation Commission on April 26, 2001. It provides a science-based methodology for evaluating water quality data in order to identify impaired waters, and it establishes specific criteria for impairment based on chemical parameters, the interpretation of narrative nutrient criteria, biological impairment, fish consumption advisories, and ecological impairment. The rule is available at http://www.dep.state.fl.us/water/tmdl/docs/AmendedIWR.pdf.

The Impaired Surface Waters Rule also establishes thresholds for data sufficiency and data quality, including the minimum sample size required and the number of exceedances of the applicable water quality standard for a given sample size that identify a waterbody as impaired. The number of exceedances is based on a statistical approach designed to provide greater confidence that the outcome of the water quality assessment is correct. **Waters that are identified as impaired through the Impaired Surface Waters Rule are prioritized for TMDL development and implementation**.

*SIDEBAR: EXPLANATION OF TERMS*

- ***Designated uses,*** *discussed in an earlier sidebar, comprise the five classifications applied to each of the state's surface waterbodies.*

- ***Water quality criteria*** *comprise numeric or narrative limits of pollutants.*

- ***The Florida Antidegradation Policy*** *(Rules 62-302.300 and 62-4.242, F.A.C.) recognizes that pollution that causes or contributes to new violations of water quality standards or to the continuation of existing violations is harmful to the waters of the state. Under this policy, the permitting of new or previously unpermitted existing discharges is prohibited where the discharge is expected to reduce the quality of a receiving water below the* ***classification*** *established for it. Any lowering of water quality caused by a new or expanded discharge to surface waters must be in the public interest (that is, the benefits of the discharge to public health, safety, and welfare must outweigh any adverse impacts on fish and wildlife or recreation). Further, the permittee must demonstrate that other disposal alternatives (for example, reuse) or pollution prevention are not economically and technologically reasonable alternatives to the surface water discharge.*

- ***Moderating provisions*** *(provided in Rules 62-302.300[10], 62-4 and 62-6, F.A.C., and described in Rules 62-302.300, 62-4.244, 62-302.800, 62-4.243, F.A.C., and Sections 403.201 and 373.414, F.S.) include mixing zones, zones of discharge, site-specific alternative criteria, exemptions, and variances. These provisions are intended to moderate the* ***applicability*** *of water quality standards where it has been determined that, under certain special circumstances, the social, economic, and environmental costs of such* ***applicability*** *outweigh the benefits.*

Determining impairment in individual waterbodies takes place in two phases. First, in each river basin the Department evaluates the existing water quality data, using the methodology prescribed in the Impaired Surface Waters Rule, to determine whether waters are potentially impaired. Waters found to be potentially impaired are included on a *Planning List* for further assessment under Subsections 403.067(2) and (3), F.S. As required by Subsection 403.067(2), F.S., the Planning List is not used to administer or implement any regulatory program. It is submitted to the EPA for informational purposes only.

The second step is to assess waters on the Planning List under Subsection 403.067(3), F.S., as part of the Department's watershed management approach (described in the following section). The Department carries out additional data gathering and strategic monitoring, focusing on these potentially impaired waters, and determines—using the methodology in Part III, Rule 62-303.400, F.A.C.—if a waterbody is, in fact, impaired and if the impairment is caused by pollutant discharges.

An Assessment Report is produced containing the results of this updated evaluation and a *Verified List* of impaired waters. The criteria for the Verified List are more stringent than those for the Planning List. The Department is required to develop TMDLs for waters on the Verified List under Subsection 403.067(4), F.S. A watershed management plan (called a Basin Management Action Plan) to reduce the amount of pollutants that cause impairments must also be produced and implemented.

The Verified List is adopted by Secretarial Order in accordance with the Florida Watershed Restoration Act. Once adopted, the list is submitted to the EPA for approval as the state's Section 303(d) list of impaired waters for the basin.

## Implementing TMDLs

### *The Watershed Management Approach*

The Department's statewide approach to water resource management, called the watershed management approach, is the framework for implementing TMDLs as required by the federal and state governments. The approach does not focus on individual causes of pollution. Instead, each basin is assessed as an entire functioning system, and aquatic resources are evaluated from a basinwide perspective that considers the cumulative effects of human activities. Water resources are managed on the basis of natural boundaries, such as river basins, rather than political or regulatory boundaries. Federal, state, regional, tribal, and local governments identify watersheds not meeting clean water or other natural resource goals and work cooperatively to focus resources and implement effective strategies to restore water quality. Extensive public participation in the decision-making process is crucial.

The watershed management approach is not new, nor does it compete with or replace existing programs. Rather than relying on single solutions to water resource issues, it is intended to improve the health of surface water and ground water resources by strengthening coordination among such activities as monitoring, stormwater management, wastewater treatment, wetland restoration, land acquisition, and public involvement.

By promoting the management of entire natural systems and addressing the cumulative effects of human activities on a watershed basis, this approach is intended to protect and enhance the ecological structure, function, and integrity of Florida's watersheds. It provides a framework for setting priorities and focusing the Department's resources on protecting and restoring water quality, and aims to increase cooperation among state, regional, local, and federal interests. By emphasizing public involvement, the approach encourages stewardship by all Floridians to preserve water resources for future generations.

The watershed approach is intended to speed up projects by focusing funding and other resources on priority water quality problems, strengthening public support, establishing agreements, and funding multiagency projects. It avoids duplication by building on existing assessments and restoration activities and promotes cooperative monitoring programs. It encourages accountability for achieving water quality improvements through improved monitoring and the establishment of TMDLs.

### *The Watershed Management Cycle*

As part of the Department's watershed management approach, TMDLs will be developed, and the corresponding pollutant loadings allocated, as part of a watershed management cycle that rotates through the state's fifty-two river basins over a nine-year period. The cycle's five phases are as follows:

- ***Phase 1: Preliminary Watershed Evaluation.*** For each river basin, a **Status Report** is developed, containing a *Planning List* of potentially impaired waters that may require the establishment of TMDLs. The report characterizes each basin's hydrologic, ecological, and socioeconomic setting as well as historical, current, and proposed watershed management issues and activities. It also contains a preliminary evaluation of major water quality parameters, water quality issues by planning unit, an evaluation of ecological resources, and basinwide pollutant loading trends related to land uses. At the end of Phase 1, a **Strategic Monitoring Plan** is developed.

- ***Phase 2: Strategic Monitoring and Assessment.*** Additional data are collected through strategic monitoring and uploaded to STORET. The data are used to verify whether potentially impaired waters in each basin are impaired and to calibrate and verify models for TMDL development. At the end of Phase 2, an **Assessment Report** is produced for each basin that contains a Verified List of impaired waters. The report also provides an updated and more thorough evaluation of water quality, associated biological resources, and current management plans. The Department will adopt the *Verified List* through a Secretarial Order and submit it to the EPA as the state's Section 303(d) list of impaired waters.

- ***Phase 3: Development and Adoption of TMDLs.*** TMDLs for priority impaired waters in the basin will be developed and adopted by rule. Because TMDLs cannot be developed for all listed waters during a single watershed management cycle due to fiscal and technical limitations, waterbodies will be prioritized using the criteria in the Identification of Impaired Surface Waters Rule (Rule 62-303, F.A.C.).

- ***Phase 4: Development of a Basin Management Action Plan (B-MAP).*** A B-MAP will be developed for each basin to specify how pollutant loadings from point and nonpoint sources will be allocated and reduced in order to meet TMDL requirements. The plans will include regulatory and nonregulatory (i.e., voluntary) and structural and nonstructural strategies, and existing management plans will be used where feasible. The involvement and support of affected stakeholders in this phase will be especially critical.

- ***Phase 5: Implementation of a Basin Management Action Plan.*** Implementation of the activities specified in the B-MAP will begin. This includes carrying out rule development as needed, securing funding, informing stakeholders and the public, and monitoring and evaluating the implementation of the plan.

To implement the watershed cycle, the state's river basins have been divided into five groups within each of the Department's six districts statewide, and each district will assess one basin each year. **Table A.1** shows the basin groups for implementing the cycle in the Department's districts, and **Figure A.1** shows these groups and the rotating cycle in the districts. **Table A.2,** which lists the basin rotation schedule for TMDL development and implementation, shows that it will take nine years to complete one full cycle of the state.

The watershed management cycle is an iterative, or repeated, process. One of its key components is that the effectiveness of management activities (TMDL implementation)

will be monitored in successive cycles. Monitoring conducted in Phase 2 of subsequent cycles will be targeted at evaluating whether water quality objectives are being met and whether individual waters are no longer impaired. The Department also will track the implementation of scheduled restoration activities, whether required or voluntary, to ensure continued progress towards meeting the TMDLs.

**Table A.1: Basin Groups for Implementing the Watershed Management Cycle, by Department District Office**

| District | Group 1 Basins | Group 2 Basins | Group 3 Basins | Group 4 Basins | Group 5 Basins |
|---|---|---|---|---|---|
| **Northwest** | Ochlockonee–St. Marks Rivers | Apalachicola–Chipola Rivers | Choctawhatchee River and Bay and St. Andrews Bay | Pensacola Bay | Perdido River and Bay |
| **Northeast** | Suwannee River | Lower St. Johns River | Upper St. Johns River | St. Marys–Nassau Rivers | Northeast Coast Lagoons |
| **Central** | Ocklawaha River | Middle St. Johns River | | Kissimmee River | Indian River Lagoon |
| **Southwest** | Tampa Bay | Tampa Bay Tributaries | Sarasota Bay and Peace–Myakka Rivers | Withlacoochee River | Springs Coast |
| **South** | Everglades West Coast | Charlotte Harbor | Caloosahatchee River | Fisheating Creek | Florida Keys |
| **Southeast** | Lake Okeechobee | St.Lucie–Loxahatchee Rivers | Lake Worth Lagoon/Palm Beach Coast | Southeast Urban Coast | Everglades |

**Table A.2: Basin Rotation Schedule for TMDL Development and Implementation**

| YEAR | 00 01 | 01 02 | 02 03 | 03 04 | 04 05 | 05 06 | 06 07 | 07 08 | 08 09 | 09 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Group 1 | **PHASE 1** | PHASE 2 | **PHASE 3** | **PHASE 4** | **PHASE 5** | **PHASE 1** | **PHASE 2** | **PHASE 3** | **PHASE 4** | **PHASE 5** |
| Group 2 | | **PHASE 1** | **PHASE 2** | **PHASE 3** | **PHASE 4** | **PHASE 5** | **PHASE 1** | **PHASE 2** | **PHASE 3** | **PHASE 4** |
| Group 3 | | | **PHASE 1** | **PHASE 2** | **PHASE 3** | **PHASE 4** | **PHASE 5** | **PHASE 1** | **PHASE 2** | **PHASE 3** |
| Group 4 | | | | **PHASE 1** | **PHASE 2** | **PHASE 3** | **PHASE 4** | **PHASE 5** | **PHASE 1** | **PHASE 2** |
| Group 5 | | | | | **PHASE 1** | **PHASE 2** | **PHASE 3** | **PHASE 4** | **PHASE 5** | **PHASE 1** |
| | **1st Five-year Cycle – High-priority Waters** | | | | | **2nd Five-year Cycle – Medium-Priority Waters** | | | | |

***Projected years for phases 3, 4, and 5 may change due to accelerated local activities, length of plan development, legal challenges, etc***

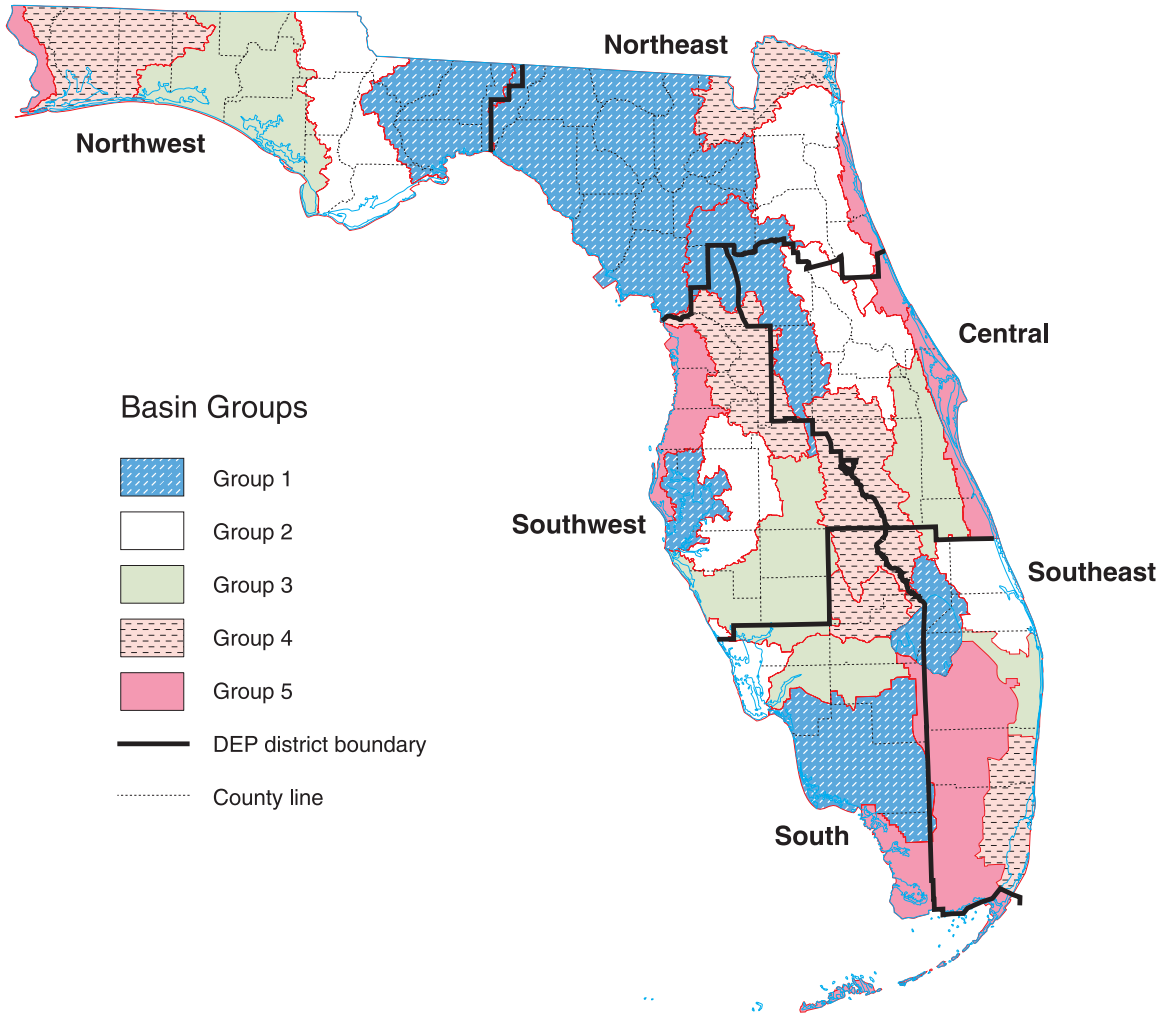



**Figure A.1: Five-Year Rotating Basin Cycle in the Department's Six Districts**

Pollutants can enter a waterbody through point source discharges (generally from a specific facility) or nonpoint discharges (e.g., stormwater runoff, septic tanks). Government agencies, businesses, organizations, and individuals who contribute to these discharges will be asked to share the responsibility of attaining TMDLs through load allocations (the amount of a specified pollutant allotted for discharge) that are based on an established TMDL. **Table A.3** summarizes these potentially affected stakeholders, and the actions they may be asked to take to help achieve a TMDL.

**Table A.3: Potentially Affected Stakeholders and Actions To Achieve TMDLs**

| Potentially Affected Stakeholders | Actions To Achieve TMDL |
|---|---|
| Municipal stormwater/wastewater programs | Reduce and treat urban stormwater runoff through stormwater retrofits, replacement of septic tanks |
| Commercial developers, homebuilders, individual homeowners | Improve development design and construction, enhance BMPs, replace septic tanks |
| Municipal and industrial wastewater treatment facilities, National Pollutant Discharge Elimination System (NPDES) permitted facilities | Reduce pollutant loadings from permitted discharges |
| Farming and silviculture operations | Reduce and treat runoff through BMPs |
| Federal, regional, state agencies; regional and local water quality coalitions | Carry out waterbody restoration projects |

### *Permitting and Other Approaches*

#### NPDES Permits

All point sources that discharge to surface waterbodies require a NPDES permit. These permits can be classified into two types: domestic or industrial wastewater discharge permits, and stormwater permits. NPDES-permitted point sources may be affected by the development and implementation of a TMDL. All NPDES permits include "reopener clauses" that allow the Department to incorporate new discharge limits when a TMDL is established. These new limitations may be incorporated into a permit when a TMDL is implemented or at the next permit renewal, depending on the timing of permit renewal and workload. For NPDES municipal stormwater permits, the department intends to insert the following statement once a B-MAP is completed:

*"The permittee shall undertake those activities specified in the (Name of Waterbody) Basin Management Action Plan in accordance with the approved schedule set forth in the B-MAP."*

#### Domestic and Industrial Wastewater Permits

In addition to NPDES-permitted facilities, all of which discharge to surface waters, Florida also regulates domestic and industrial wastewater discharges to ground water via land application. Since ground and surface water are so intimately linked in much of the state, reductions in loadings from these facilities may be needed to meet TMDL

limitations for pollutants in surface waters. If such reductions are identified in the B-MAP, they would be implemented through modifications of the existing state permits.

#### Florida Stormwater/Environmental Resource Permits

Florida was the first state to require the treatment of stormwater from all new development with the implementation of the state's stormwater treatment rule in 1982. Today, except in the area served by the Northwest Florida Water Management District, new development projects receive an environmental resource permit that combines stormwater flood protection, stormwater treatment, and wetland protection/mitigation into a single permit. These permits are designed to obtain 80 percent average annual load reduction of total suspended solids. This level of treatment may need to be increased, depending on the allocation of load reductions, especially for nutrients. For example, the St. Johns River Water Management District recently adopted basin-specific criteria for the Lake Apopka Basin that require the phosphorus loading from new development not to exceed predevelopment phosphorus loading.

#### Local Land Development Codes

Since structural stormwater treatment practices can only achieve certain levels of load reductions, and because the hydrologic changes accompanying urban development often cause ecological impacts to aquatic systems, local land development codes that promote "low-impact development" are an important component of restoring impaired waters. Local codes may need to be reviewed to determine how to promote developments that minimize impervious surfaces (such as reduced street widths or the use of pervious pavements), promote the protection of vegetation, promote the protection and restoration of riparian buffers along streams and lakes, and adopt the principles of the Florida Yards and Neighborhoods Program in local landscaping codes.

#### Best Management Practices (BMPs)

Typically, BMPs refer to a practice or combination of practices that, based on sound science and best professional judgment, are determined to be the most effective and practicable means of reducing nonpoint source pollutant discharges and improving water quality. Both economic and technological considerations are included in the evaluation of what is practicable. BMPs may include structural controls (such as retention areas or detention ponds) or nonstructural controls (such as street sweeping or public education). Many BMPs have been developed for urban stormwater to reduce pollutant loadings and peak flows. These BMPs accommodate site-specific conditions, including soil type, slope, depth to ground water, and the designation of receiving waters.

The passage of the Florida Watershed Restoration Act increased the emphasis on implementing BMPs to reduce nonpoint source pollutant discharges from agricultural operations. Recognizing that the development and adoption of BMPs might take several years, the legislature authorized the use of Interim Measures (IMs) during the BMP development process for agricultural operations. In essence, IMs are a set of logical conservation practices designed to reduce agricultural nonpoint pollutant discharges based on current knowledge and best professional judgment. These practices will evolve into more formal BMPs as better scientific data on their effectiveness is obtained.

Once the Florida Department of Agriculture and Consumer Services adopts BMPs, the Department is charged with verifying their effectiveness in reducing agricultural nonpoint sources. Once verified, agricultural operations that have implemented BMPs will receive a waiver of liability and presumption of compliance similar to that granted a developer who obtains an environmental resource permit.

*Nonregulatory*

An excellent example of a nonregulatory partnership is the Suwannee River Partnership. This program is discussed in detail in Chapter 2 of this report.

#### Other Strategies

The success of implementing nonpoint source TMDL load allocations will require variety, creativity, and stakeholder commitment to watershed management and personal stewardship. In addition to BMPs, other possible strategies for meeting TMDLs, restoring water quality, and preventing the further degradation of Florida's watersheds include cost sharing, waste minimization, pollution prevention, new approaches to land use design and development, and pollutant trading. The Department will assemble a Technical Advisory Committee to help develop a pollutant-trading rule, which must be reviewed by the legislature prior to its adoption. The Department will also continue to work with local stakeholders on TMDL allocation issues and implementation plans.

### *Sources of Information*

For additional information on the Department's Watershed Management Program and TMDLs, please contact the following basin coordinators:

- Southwest Florida and Lake Okeechobee, Pat Fricano (850) 245-8559
- Southeast Florida and Ochlockonee-St. Marks Basins, Rick Hicks (850) 245-8558
- Northwest and Central Florida, Mary Paulic, (850) 245-8560
- Northeast Florida and Suwannee Basin, John Abendroth (850) 245-8557
- West Central Florida and Tampa Bay Region, Tom Singleton (850) 245-8561

For information on establishing and implementing TMDLs, contact Jan Mandrup-Poulsen at (850) 245-8448. Additional information is available on the Department's Web site at www.dep.state.fl.us/water/watersheds/index.htm.

# *Appendix B: Supplementary Ecological Information in the Suwannee Basin*

**Table B.1: Types of Natural Communities**

| Category | Community Type | Area in Acres | Percent of Total Area | Characteristics |
|---|---|---|---|---|
| **Uplands** | | | | |
| 1 | Coastal strand | 1 | 0.00001 | Occurs on well-drained sandy coastlines and includes typically zoned vegetation of upper beach, nearby dunes, or coastal rock formations. |
| 2 | Dry prairie | 91 | 0 | Large treeless grasslands and shrublands on very flat terrain interspersed with scattered cypress domes, cypress strands, isolated freshwater marshes, and hammocks. |
| 3 | Pinelands | 1,542,056 | 31.16 | Includes north and south Florida pine flatwoods, south Florida pine rocklands, scrubby flatwoods, and commercial pine plantations. Cypress domes, bayheads, titi swamps, and freshwater marshes are commonly interspersed in isolated depressions. |
| 4 | Sand pine scrub | 96 | 0.00 | Xeric plant community dominated by overstory of sand pine. Occurs in well-drained sands deposited along former shorelines and islands of ancient seas. |
| 5 | Sandhill | 60,614 | 1.22 | Xeric plant community dominated by overstory of scattered longleaf pine, along with understory of turkey oak and bluejack oak. Occurs in areas of rolling terrain on deep, well-drained sands. |
| 6 | Xeric oak scrub | 1,931 | 0.04 | Hardwood community consisting of clumps of low-growing oaks interspersed with white sand. Occurs in areas of deep, well-washed sterile sand. |
| 7 | Mixed hardwood pine | 42,631 | 0.86 | Southern extension of the Piedmont southern mixed hardwoods, occurring mainly on clay soils of the northern Panhandle. Also includes upland forests in which a mixture of conifers and hardwoods dominate overstory. |
| 8 | Hardwood hammock | 480,135 | 9.70 | Includes major upland hardwood associations that occur statewide on fairly rich sandy soils. |
| 9 | Tropical hammock | N/A | N/A | Cold-intolerant hardwood community with very high plant diversity that occurs on coastal uplands in extreme south Florida. It is characterized by tropical trees and shrubs at the northern edge of their range, which extends into the Caribbean. |
| 10 | Coastal salt marsh | 81,633 | 1.65 | Herbaceous and shrubby wetland communities that include cordgrass, needlerush, and transitional or high salt marshes, occurring statewide in brackish waters along protected low energy estuarine shorelines. |
| **Wetlands** | | | | |
| 11 | Freshwater marsh | 65,479 | 1.32 | Wetland communities dominated by wide assortment of herbaceous plant species growing on sand, clay, marl, and organic soils in areas where water depths and inundation regimes vary. |
| 12 | Cypress swamp | 304,077 | 6.14 | Regularly inundated communities that form forested buffer along large rivers, creeks, and lakes, or occur in depressions as circular domes or linear strands. Strongly dominated by bald cypress or pond cypress. |
| 13 | Hardwood swamp | 445,995 | 9.01 | Association of wetland adapted trees, composed either of pure stands of hardwoods or hardwood-cypress mixture. Occurs on organic soils and forms forested floodplain of nonalluvial rivers, creeks, and broad lake basins. |
| 14 | Bay swamp | 20,352 | 0.41 | Hardwood swamps often found in shallow depressions in pinelands or at base of sandy ridges where seepage maintains constantly wet soils. Broadleaf evergreen trees such as sweetbay, swamp bay, and loblolly bay dominate overstory. |
| 15 | Shrub swamp | 32,305 | 0.65 | Dominated by low-growing, woody shrubs or small trees, usually found in wetlands changed by natural or human perturbations such as altered hydroperiod, fire, clear-cutting or land clearing, and siltation. |

| Category | Community Type | Area in Acres | Percent of Total Area | Characteristics |
|---|---|---|---|---|
| 16 | Mangrove swamp | N/A | N/A | Dense, brackish water swamps, usually dominated by red, black, and white mangroves that occur along low-energy shorelines and in protected, tidally influenced bays of southern Florida. Comprises freeze-intolerant tree species that are distributed south of a line from Cedar Key on the Gulf Coast to St. Augustine on the Atlantic coast. |
| 16 | Mangrove swamp | N/A | N/A | Dense, brackish water swamps, usually dominated by red, black, and white mangroves that occur along low-energy shorelines and in protected, tidally influenced bays of southern Florida. Comprises freeze-intolerant tree species that are distributed south of a line from Cedar Key on the Gulf Coast to St. Augustine on the Atlantic coast. |
| 17 | Bottomland hardwood | N/A | N/A | Wetland-adapted forests composed of pure stands of hardwoods or a mixture of hardwoods and cypress. They occur throughout the state on organic soils and form the forested floodplains of nonalluvial rivers, creeks, and broad lake basins. Tree species include a mixed overstory containing black gum, water tupelo, bald cypress, blue beech, and swamp ash. |
| **Open Water** | | | | |
| 18 | Water | 57,381 | 1.16 | Commonly comprises open water areas of inland lakes, ponds, rivers, and streams and brackish and saline waters of estuaries, bays, and tidal creeks. |
| **Disturbed** | | | | |
| 19 | Grass and agricultural land | 483,473 | 9.77 | Upland communities with very low-growing grasses and forbs. Intensively managed sites such as improved pastures, lawns, golf courses, road shoulders, cemeteries, or weedy fallow agricultural fields. |
| 20 | Shrub and brush | 969,634 | 19.59 | Includes different situations where natural upland communities have recently been disturbed and are recovering through natural successional processes. |
| 21 | Exotic plant communities | N/A | N/A | Upland and wetland areas dominated by invasive non-native species that outgrow and outcompete native plant communities. |
| 22 | Barren land | 361,006 | 7.29 | Developed areas such as roads, parking lots, and buildings. |
| **TOTAL** | | **4,948,890** | | |

N/A—This community type is not present in the basin.

**Source:** Cox, James, Randy Kautz, Maureen MacLaughlin, and Terry Gilbert. 1994. *Closing the Gaps in Florida's Wildlife Habitat Conservation System.* Tallahassee, Florida: Florida Game and Fresh Water Fish Commission.

**Table B.2: Protected Plant and Animal Species**

| Scientific Name | Common Name | Federal Protection Status | State Protection Status | FNAI Global Rank | FNAI State Rank |
|---|---|---|---|---|---|
| **FISH** | | | | | |
| Acipenser oxyrinchus desotoi | Gulf sturgeon | LT | LS | G3T2 | S2 |
| Micropterus notius | Suwannee bass | N | LS | G3 | S3 |
| Amphibians and Reptiles | | | | | |
| Alligator mississippiensis | American alligator | T(S/A) | LS | G5 | S4 |
| Ambystoma cingulatum | Flatwoods salamander | LT | PS | G2G3 | S2S3 |
| Gopherus polyphemus | Gopher tortoise | N | LS | G3 | S3 |
| Drymarchon corais couperi | Eastern indigo snake | LT | LT | G4T3 | S3 |
| Macroclemys temminckii | Alligator snapping turtle | N | LS | G3G4 | S3 |
| Pituophis melanoleucus mugitus | Florida pine snake | N | LS | G4T3? | S3 |
| Pseudemys concinna suwanniensis | Suwannee cooter | N | LS | G5T3 | S3 |
| Rana capito | Gopher frog | N | LS | G3G4 | S3 |
| Stilosoma extenuatum | Short-tailed snake | N | LT | G3 | S3 |
| **BIRDS** | | | | | |
| Ammodramus maritimus peninsulae | Scott's seaside sparrow | N | LS | G4T2 | S2 |
| Aphelocoma coerulescens | Florida scrub jay | LT | LT | G3 | S3 |
| Aramus guarauna | Limpkin | N | LS | G5 | S3 |
| Athene cunicularia floridana | Florida burrowing owl | N | LS | G4T3 | S3 |
| Charadrius melodus | Piping plover | LT | LT | G3 | S2 |
| Cistothorus palustris marianae | Marian's marsh wren | N | LS | G5T3 | S3? |
| Egretta caerulea | Little blue heron | N | LS | G5 | S4 |
| Egretta rufescens | Reddish egret | N | LS | G4 | S2 |
| Egretta thula | Snowy egret | N | LS | G5 | S4 |
| Egretta tricolor | Tricolored heron | N | LS | G5 | S4 |
| Eudocimus albus | White ibis | N | LS | G5 | S4 |
| Falco sparverius paulus | Southeastern American | N | LT | G5T3T4 | S3? |
| Grus canadensis pratensis | Florida sandhill crane | N | LT | G5T2T3 | S2S3 |
| Haematopus palliatus | American oystercatcher | N | LS | G5 | S3 |
| Haliaeetus leucocephalus** | Bald eagle | LT | LT | G4 | S3 |
| Mycteria americana | Wood stork | N | LT | G4 | S2 |
| Picoides borealis | Red-cockaded | LE | LT | G3 | S2 |
| Rynchops niger | Black skimmer | N | LS | G5 | S3 |
| Sterna antillarum | Least tern | N | LT | G4 | S3 |
| **MAMMALS** | | | | | |
| Microtus pennsylvanicus dukecampbelli | Salt marsh vole | LE | LE | G5T1 | S1 |
| Podomys floridanus | Florida mouse | N | LS | G3 | S3 |
| Sciurus niger shermani | Sherman's fox squirrel | N | LS | G5T2 | S2 |
| Ursus americanus floridanus[#] | Florida black bear | N | LT | G5T2 | S2 |
| **Invertebrates** | | | | | |
| Pleurobema pyriforme | Oval pigtoe | LE | N | G2 | S? |
| Procambarus erythrops | Santa Fe cave crayfish | N | LS | G1 | S1 |

[#] The Florida black bear is a listed species everywhere in Florida but Columbia and Baker counties and the Apalachicola National Forest.

| Scientific Name | Common Name | Federal Protection Status | State Protection Status | FNAI Global Rank | FNAI State Rank |
|---|---|---|---|---|---|
| **PLANTS** | | | | | |
| Agrimonia incisa | Incised groove-bur | N | LE | G3 | S2 |
| Arnoglossum diversifolium | Variable-leaved Indian-plantain | N | LT | G2 | S2 |
| Asplenium monanthes | Single-sorus spleenwort | N | LE | G4 | S1 |
| Blechnum occidentale | Sinkhole fern | N | LE | G5 | S1 |
| Brickellia cordifolia | Flyr's brickell-bush | N | LE | G2G3 | S1 |
| Callirhoe papaver | Poppy mallow | N | LE | G5 | S2 |
| Calycanthus floridus | Sweetshrub | N | LE | G5 | S2 |
| Calydorea caelestina | Bartram's ixia | N | LE | G2 | S2 |
| Carex chapmanii | Chapman's sedge | N | LE | G3 | S2 |
| Cheilanthes microphylla | Southern lip fern | N | LE | G5 | S3 |
| Coelorachis tuberculosa | Piedmont jointgrass | N | LT | G3 | S3 |
| Corallorrhiza odontorhiza | Autumn coralroot | N | LE | G5 | SH |
| Ctenium floridanum | Florida toothache grass | N | LE | G2 | S2 |
| Drosera intermedia | Spoon-leaved sundew | N | LT | G5 | S3 |
| Eleocharis rostellata | Beaked spikerush | N | LE | G5 | S1 |
| Forestiera godfreyi | Godfrey's privet | N | LE | G2 | S2 |
| Hasteola robertiorum | Florida hasteola | N | LE | G1 | S1 |
| Hexastylis arifolia | Heartleaf | N | LT | G5 | S3 |
| Leitneria floridana | Corkwood | N | LT | G3 | S2 |
| Litsea aestivalis | Pondspice | N | LE | G3 | S2 |
| Matelea floridana | Florida spiny-pod | N | LE | G2 | S2 |
| Minuartia godfreyi | Godfrey's sandwort | N | LE | G1 | S1 |
| Najas filifolia | Narrowleaf naiad | N | LT | G1 | S1 |
| Phyllanthus leibmannianus spp. platylepsis | Pinewood dainties | N | LE | G3G5T2 | S2 |
| Pteroglossaspis ecristata | Giant orchid | N | LT | G2 | S2 |
| Pycnanthemum floridanum | Florida mountain-mint | N | LT | G3 | S3 |
| Salix floridana | Florida willow | N | LE | G2 | S2 |
| Spigelia loganioides | Pinkroot | N | LE | G1G2Q | S1S2 |

**Note:** The Federal Protection Status column indicates the official federal endangerment status or level of legal protection, under the U.S. Endangered Species Act Classification, for the plant or animal species, subspecies, or variety as proposed or determined by the U.S. Fish and Wildlife Service or the National Oceanic and Atmospheric Administration (marine species). If the species has no published status under the Endangered Species Act, this space is left blank. The federal classifications are as follows:

LE = Listed as Endangered.
LT = Listed as Threatened.
T(S/A) = Threatened due to similarity in appearance.
N = Not currently listed, nor currently being considered for listing.

The State Protection Status column shows the official state endangerment status or level of legal protection for animals listed by the Florida Fish and Wildlife Conservation Commission and plants listed by the Florida Department of Agriculture and Consumer Services (FDACS). The state classifications are as follows:

**Animals listed by Florida Fish and Wildlife Conservation Commission**
LE = Listed as Endangered.
LT = Listed as Threatened.
LS = Listed as Species of Special Concern.
PS = Proposed as Species of Special Concern.
N = Not currently listed, nor currently being considered for listing.

**Plants listed by Florida Department of Agriculture and Consumer Services**
LE = Listed as Endangered.
LT = Listed as Threatened.
N = Not currently listed, nor currently being considered for listing.

The Florida Natural Areas Inventory (FNAI) Global Rank characterizes relative rarity or endangerment worldwide, with G1 being critically imperiled globally because of extreme rarity or because of extreme vulnerability to extinction, and G5 being demonstrably secure globally. Similarly, the FNAI State Rank of S1 through S5 characterizes relative rarity or endangerment in Florida. The rankings are based on many factors, the most important being the estimated number of occurrences, estimated abundance (number of individuals), range, estimated adequately protected occurrences, relative threat of destruction, and ecological fragility.

**Sources:** Florida Fish and Wildlife Conservation Commission, *Florida's Endangered Species, Threatened Species, and Species of Special Concern, Official Lists,* http://www.state.fl.us/fwc/pubs; Marois, Katherine C., *Tracking List of Rare, Threatened, and Endangered Plants and Animals and Natural Communities of Florida* (Tallahassee: Florida Natural Areas Inventory, June 1999); Ashton, Ray E., Ed.; *Rare and Endangered Biota of Florida* (Gainesville: University Press of Florida, 1992); Wunderlin, Richard P*., Guide to the Vascular Plants of Florida* (Gainesville: University Press of Florida, 1998).

**Table B.3: Nonlisted Animal and Plant Species**

| Scientific Name | Common Name | FNAI Global Rank | FNAI State Rank |
|---|---|---|---|
| **FISH** | | | |
| Acantharchus pomotis | Mud sunfish | G5 | S3 |
| Agonostomus monticola | Mountain mullet | G5 | S3 |
| Ameiurus serracanthus | Spotted bullhead | G3 | S3 |
| Cyprinella leedsi | Bannerfin shiner | G3G4 | S3 |
| Enneacanthus chaetodon | Blackbanded sunfish | G4 | S3 |
| Notropis cummingsae | Dusky shiner | G5 | S4 |
| Umbra pygmaea | Eastern mudminnow | G5 | S3 |
| **AMPHIBIANS AND REPTILES** | | | |
| Ambystoma tigrinum | Tiger salamander | G5 | S3 |
| Amphiuma pholeter | One-toed amphiuma | G3 | S3 |
| Clemmys guttata | Spotted turtle | G5 | S3? |
| Crotalus adamanteus | Eastern diamondback rattlesnake | G4 | S3 |
| Crotalus horridus | Timber rattlesnake | G4 | S3 |
| Eumeces egregius insularis | Cedar key mole skink | G4T1 | S1 |
| Heterodon simus | Southern hognose snake | G2 | S2 |
| Nerodia clarkii clarkii | Gulf salt marsh snake | G4T3 | S3? |
| Notophthalmus perstriatus | Striped newt | G2G3 | S2S3 |
| Pseudobranchus striatus lustricolus | Gulf hammock dwarf siren | G5T1 | S1 |
| Rana virgatipes | Carpenter frog | G5 | S2 |
| Stereochilus marginatus | Many-lined salamander | G5 | S1 |
| **BIRDS** | | | |
| Accipiter cooperii | Cooper's hawk | G5 | S3? |
| Aimophila aestivalis | Bachman's sparrow | G3 | S3 |
| Ardea alba | Great egret | G5 | S4 |
| Buteo brachyurus | Short-tailed hawk | G4G5 | S1 |
| Elanoides forficatus | Swallow-tailed kite | G5 | S2S3 |
| Laterallus jamaicensis | Black rail | G4 | S3? |
| Nyctanassa violacea | Yellow-crowned night-heron | G5 | S3? |
| Nycticorax nycticorax | Black-crowned night-heron | G5 | S3? |
| Picoides villosus | Hairy woodpecker | G5 | S3? |
| Plegadis falcinellus | Glossy ibis | G5 | S2 |
| Seiurus motacilla | Louisiana waterthrush | G5 | S3 |
| **MAMMALS** | | | |
| Eptesicus fuscus | Big brown bat | G5 | S3 |
| Mustela frenata olivacea | Southeastern weasel | G5T4 | S3? |
| Mustela vison halilimnetes | Gulf salt marsh mink | G5T3 | S3 |
| Myotis austroriparius | Southeastern bat | G3G4 | S3 |
| Neofiber alleni | Round-tailed muskrat | G3 | S3 |

| Scientific Name | Common Name | FNAI Global Rank | FNAI State Rank |
|---|---|---|---|
| **INVERTEBRATES** | | | |
| Caecidotea hobbsi | Florida cave isopod | G2G3 | S2 |
| Cicindela hirtilabris | Peninsular tiger beetle | G4 | S4 |
| Cicindela scabrosa | Scrub tiger beetle | G3 | S3 |
| Cincinnatia mica | Ichetucknee siltsnail | G1 | S1 |
| Crangonyx grandimanus | Florida cave amphipod | G2G3 | S2 |
| Crangonyx hobbsi | Hobbs cave amphipod | G2G3 | S2S3 |
| Medionidus walkeri | Suwannee moccasinshell | G1 | S? |
| Nemopalpus nearcticus | Sugarfoot moth fly | G? | S? |
| Procambarus horsti | Big Blue Spring cave crayfish | G1G2 | S1 |
| Procambarus lucifugus | Light-fleeing cave crayfish | G2G3 | S2S3 |
| Procambarus pallidus | Pallid cave crayfish | G2G3 | S2S3 |
| Remasellus parvus | Swimming little Florida cave isopod | G1G2 | S1 |
| Troglocambarus maclanei | North Florida spider cave crayfish | G2G3 | S2 |
| Utterbackia peninsularis | Peninsular floater | G3 | S2 |
| **PLANTS** | | | |
| Anemone berlandieri | Texas anemone | G4? | S2 |
| Aristida rhizomophora | Florida three-awned grass | G2 | S2 |
| Asplenium x heteroresiliens | Wagner's spleenwort | HYB | S1S2 |
| Gymnopogon chapmanianus | Chapman's skeletongrass | G3 | S3 |
| Helianthus debilis spp. tardiflorus | Late flowering beach sunflower | G5T3 | S3 |
| Rhynchospora culixa | Georgia beakrush | G1 | SH |
| Rhynchospora decurrens | Decurrent beakrush | G3G4 | S3S4 |
| Sium floridanum | Florida water parsnip | G1Q | S1 |
| Ulmus crassifolia | Cedar elm | G5 | S1 |

**Note:** The Florida Natural Areas Inventory (FNAI) Global Rank characterizes relative rarity or endangerment worldwide, with G1 being critically imperiled globally because of extreme rarity or because of extreme vulnerability to extinction, and G5 being demonstrably secure globally. Similarly, the FNAI State Rank of S1 through S5 characterizes relative rarity or endangerment in Florida. The rankings are based on many factors, the most important being the estimated number of occurrences, estimated abundance (number of individuals), range, estimated adequately protected occurrences, relative threat of destruction, and ecological fragility.

**Sources:** Florida Fish and Wildlife Conservation Commission, *Florida's Endangered Species, Threatened Species, and Species of Special Concern, Official Lists,* http://www.state.fl.us/fwc/pubs; Marois, Katherine C., *Tracking List of Rare, Threatened, and Endangered Plants and Animals and Natural Communities of Florida* (Tallahassee: Florida Natural Areas Inventory, June 1999); Ashton, Ray E., Ed.; *Rare and Endangered Biota of Florida* (Gainesville: University Press of Florida, 1992); Wunderlin, Richard P.*, Guide to the Vascular Plants of Florida* (Gainesville: University Press of Florida, 1998).

# *Appendix C: Information on Reasonable Assurance*

**TO:** **Interested Parties**

**FROM:** **Mimi Drew, Director**
**Division of Water Facilities**

**DATE:** **September, 2002**

**SUBJECT:** **Guidance for Development of Documentation To Provide Reasonable Assurance that Proposed Pollution Control Mechanisms Will Result in the Restoration of Designated Uses in Impaired Waters**

The purpose of this memo is to describe the types of information that should be considered, and subsequently documented, when evaluating whether there is sufficient reasonable assurance that:

- Proposed pollution control mechanisms (typically described in watershed management or restoration plans) addressing impaired waters will result in the attainment of applicable water quality standards (designated uses) at a clearly defined point in the future, and

- Reasonable progress towards restoration of designated uses will be made by the time the next 303(d) list of impaired waters is due to be submitted to the U.S. Environmental Protection Agency (EPA).

There are many site-specific issues related to determining whether reasonable assurance has been provided. Accordingly, this document describes the elements or issues that should be considered when evaluating a submittal or when documenting the basis for the Department's decision, rather than attempting to establish specific criteria on what constitutes reasonable assurance.

It should be noted that the term "reasonable assurance" is used throughout many Department programs and rules, and this guidance specifically addresses the issues related to the "reasonable assurance" provided by proposed pollution control mechanisms. This guidance should not be used to evaluate the meaning of reasonable assurance in other contexts, particularly in permitting decisions.

## Background

The Impaired Surface Waters Rule (IWR), Rule 62-303, F.A.C. (Identification of Impaired Surface Waters), establishes a formal mechanism for identifying surface waters in Florida that are impaired (do not meet applicable water quality standards) by pollutants. Most waters that are verified as being impaired by a pollutant will be listed on the state's 303(d) list pursuant to the Florida Watershed Restoration Act (FWRA) and Section 303(d) of the Clean Water Act. Once listed, Total Maximum Daily Loads (TMDLs) will be developed for the pollutants causing the impairment of the listed

waters. However, as required by the FWRA, the Department will evaluate whether existing or proposed pollution control mechanisms will effectively address the impairment before placing a water on the state's Verified List. If the Department can document there is reasonable assurance that the impairment will be effectively addressed by the control measure, then the water will not be listed on the final Verified List (other impaired waters that will not be listed include waters with TMDLs and waters impaired by pollution).

## Current Rule Text Relating to Evaluation of Pollution Control Mechanisms

The rule text addressing the evaluation of proposed pollution control mechanisms is as follows:

*Rule 62-303.600, Evaluation of Pollution Control Mechanisms*

- Upon determining that a waterbody is impaired, the Department shall evaluate whether existing or proposed technology-based effluent limitations and other pollution control programs under local, state, or federal authority are sufficient to result in the attainment of applicable water quality standards.

- If, as a result of the factors set forth in (1), the waterbody segment is expected to attain water quality standards in the future and is expected to make reasonable progress towards attainment of water quality standards by the time the next 303(d) list is scheduled to be submitted to EPA, the segment shall not be listed on the Verified List. The Department shall document the basis for its decision, noting any proposed pollution control mechanisms and expected improvements in water quality that provide reasonable assurance that the waterbody segment will attain applicable water quality standards.

## Responsible Parties for Reasonable Assurance Demonstration

It is ultimately the Department's responsibility to assure adequate documentation in the administrative record whenever the Department decides to not list an impaired waterbody segment for a given pollutant. This documentation will be very important because the Verified Lists will be adopted by Order of the Secretary and third parties will be provided an opportunity to challenge, via an administrative hearing, all listing decisions (both those listing a water and those to not list a water for a given pollutant). However, the Department expects that local stakeholders will often offer to prepare the necessary documentation to demonstrate reasonable assurance that proposed control mechanisms will restore a given waterbody. The Department will provide guidance to stakeholders on what information is needed and how it should be submitted.

## Time Frame for Development of Documentation

The Department plans to prepare basin-specific Verified Lists as part of its watershed management cycle, which rotates through all of the state's basins over a five-year, five-

phased cycle[1]. During the first phase of the cycle, the Department will assess water quality in the basin and prepare a draft Planning List of potentially impaired waters. The Department and interested parties will then have approximately one year (Phase 2) to monitor waters on the planning list and prepare documentation, as appropriate, to provide reasonable assurance that impaired waters will be restored. The Department will review submittals from interested parties during Phase 2, before adopting the Verified List for the basin containing the waterbody segment in question.

## What It Means To Be Under Local, State, or Federal Authority

**Both the FWRA and the IWR require that the pollution control programs under consideration be "under local, state, or federal authority." A pollution control program will be considered "under local, state, or federal authority" if the program is subject to or required by a local ordinance, state statute or rule, or federal statute or regulation.**

**Programs will also be considered under local, state, or federal authority if they are subject to a written agreement, signed by both local stakeholders and at least one governmental entity, that includes measurable goals, performance criteria, benchmarks, and back-up corrective actions to assure the further progress of the program.** It is important to note that these written agreements do not need to be enforceable for nonregulated nonpoint sources.

Many nonpoint sources are currently outside of the regulatory programs of EPA, the Department, and the water management districts, and reductions at these nonpoint sources will be voluntary. In fact, pollution control mechanisms for these nonpoint sources would be voluntary even if a TMDL were developed. As such, these agreements may provide the same level of reasonable assurance that can be provided for a TMDL implementation plan as long as they maintain the Department's enforcement capability over all point sources involved.

## Time Frame for Attaining Water Quality Standards

The FWRA and the IWR do not establish a specific time limit by which waters must attain applicable water quality standards or designated uses. However, the pollution control mechanisms or watershed restoration plan must provide reasonable assurance that designated uses will be met at some time **in the future**. As such, the documentation submitted to the Department must provide a specific date by which time designated uses are expected to be restored. In cases where designated uses will not be met for many years, the documentation should also provide justification as to why the specified time is needed to restore designated uses.

## Parameter-specific Nature of Demonstration

For the Department not to place an impaired waterbody segment on the Verified List, reasonable assurance must be provided for each pollutant that has been documented to be causing impairment of the waterbody segment. However, some entities, including the

[1] Federal regulations currently call for state 303(d) lists every two years, but Florida plans to submit annual updates based on the basin-specific Verified Lists.

Department, may want to provide reasonable assurance addressing only selected pollutants, which could result in the Department not listing the waterbody segment for those pollutants, but still listing it for others. In this event, TMDLs will only be developed for the remaining listed pollutants.

## Information to Consider and Document when Assessing Reasonable Assurance in the IWR

To provide reasonable assurance that existing or proposed pollution control mechanisms will restore designated uses, the following information should be evaluated and documented for the Administrative Record:

- **A Description of the Impaired Water**—name of the water listed on the Verified List, the location of the waterbody and watershed, the watershed/8-digit cataloging unit code, the NHD identifier (when they become available), the type (lake, stream, or estuary) of water, the water use classification, the designated use not being attained, the length (miles) or area (acres) of impaired area, the pollutant(s) of concern (those identified as causing or contributing to the impairment), and the suspected or documented source(s) of the pollutant(s) of concern.

- **A Description of the Water Quality or Aquatic Ecological Goals—**a description of the water quality–based targets or aquatic ecological goals (both interim and final) that have been established for the pollutant(s) of concern, the averaging period for any numeric water quality goals, a discussion of how these goals will result in the restoration of the waterbody's impaired designated uses, a schedule indicating when interim and final targets are expected to be met, and a description of procedures (with thresholds) to determine whether additional (backup) corrective actions are needed.

- **A Description of the Proposed Management Actions To Be Undertaken**—names of the responsible participating entities (government, private, others), a summary and list of existing or proposed management activities designed to restore water quality, the geographic scope of any proposed management activities, documentation of the estimated pollutant load reduction and other benefits anticipated from implementation of individual management actions, copies of written agreements committing participants to the management actions, a discussion on how future growth and new sources will be addressed, confirmed sources of funding, an implementation schedule (including interim milestones and the date by which designated uses will be restored), and any enforcement programs or local ordinances, if the management strategy is not voluntary.

- **A Description of Procedures for Monitoring and Reporting Results**—a description of the water quality monitoring program to be implemented (including station locations, parameters sampled, and sampling frequencies) to demonstrate reasonable progress; quality assurance/quality control elements that demonstrate the monitoring will comply with Rule 62-160, F.A.C.; procedures for entering all appropriate data into STORET; the responsible monitoring and reporting entity; the frequency and format for reporting results; the frequency and format for reporting on

the implementation of all proposed management activities; and methods for evaluating progress towards goals.

- **A Description of Proposed Corrective Actions**—a description of proposed corrective actions (and any supporting document[s]) that will be undertaken if water quality does not improve after implementation of the management actions or if management actions are not completed on schedule, and a process for notifying the Department that these corrective actions are being implemented.

## Water Quality–Based Targets and Aquatic Ecological Goals

Some of the most important elements listed above are the requirements to provide water quality–based targets or aquatic ecological goals and a discussion on how resultant pollutant(s) reduction targets/goals will result in restoration of designated uses. Some people have expressed concern about these targets because they equate a water quality–based restoration target with a TMDL (thus assuming a "Catch 22" that a TMDL is needed to make a demonstration that a TMDL is not needed). However, as is also the case for TMDLs, water quality–based targets can take many forms, and need not be a result of a complex hydrodynamic/water quality model.

In some cases, there may be sufficient historical data (paleolimnological data, loadings from periods predating the impairment, or baseline data for Outstanding Florida Waters[2], for example) that could be used to determine an appropriate water quality target. In other cases, simplified modeling (including regression analysis) may allow for conservative estimates of the assimilative capacity that could then be used as the basis for restoration goals. And, finally, a water quality target may have been developed that would be scientifically equivalent to (or act as the basis for) a TMDL, but the target has not been administratively adopted as a TMDL. In each of these cases, a sound water quality target could be used to evaluate whether the proposed pollution control mechanisms will sufficiently reduce loadings to meet the assimilative capacity of the water in question and result in attainment of designated uses.

## Interim Targets

Because it will usually take many years to restore fully the designated uses of an impaired water, interim water quality targets will often be needed to measure whether reasonable progress is being made towards the restoration of designated uses. Examples of such interim targets are provided in the last section of this document, but site-specific measures are also encouraged.

## Averaging Periods for Water Quality Targets

While the averaging period for water quality–based targets should be consistent with how the underlying standard is expressed, they can often be expressed in a variety of ways and need not be expressed as "daily loads." Annual averages or medians are often appropriate for some parameters, but shorter-term (seasonal, for example) averages may

[2] Baseline data would be data for the year prior to designation of the OFW.

be necessary if the impairment is limited to specific seasons or parts of the year. Multi-year averages may be appropriate in limited circumstances where there is naturally high variation of the water quality target.

## Estimates of Pollutant Reductions from Restoration Actions

It will often be difficult to estimate precisely the pollutant reductions that will result from specific restoration activities. This is particularly true for the implementation of best management practices (BMPs). However, to provide reasonable assurance that a BMP or other restoration action will reduce loadings of the pollutant of concern to a level that will restore the water's designated uses, documentation should address how the reductions were calculated, including providing documented values from the scientific literature for reductions attributed to similar management actions. If the expected reductions are expressed as a range, the midpoint of the range should be used as the basis for estimating reductions, unless documentation is provided supporting the use of different removal efficiencies in this specific application.

## New Sources/Growth

Another key element is the discussion on how future growth and new sources will be addressed. Restoration goals must address possible increased loadings of the pollutant of concern that are anticipated due to population growth or land use changes in contributing watersheds, both from point and nonpoint sources. This will be particularly important for waters impaired by nutrients,given that so many Florida watersheds are faced with continuing urban, residential, and agricultural development that results in increased nutrient loading from stormwater, septic tanks, and wastewater discharges.

## Examples of Reasonable Progress

The determination of whether there will be reasonable progress towards attainment of water quality standards will be very site- and pollutant-specific. Documentation should be provided supporting specific progress towards restoration of the designated uses of the impaired water. Possible examples of reasonable progress include, but are not limited to the following:

- A written commitment to implement controls reducing loadings within a specified time frame from watershed stakeholders representing at least 50 percent of the anthropogenic load of the pollutant(s) of concern;

- Evidence of at least a 10 percent reduction (or alternatively, a percent reduction consistent with meeting the water quality target by the specified date) in annual anthropogenic loading of the pollutant(s) of concern;

- Evidence of at least a 10 percent decrease (or alternatively, a percent decrease consistent with meeting the water quality target by the specified date) in the annual average concentration of the pollutant(s) of concern in the water;

- Bioassessment results showing there has been an improvement in the health of the biological community of the water, as measured by bioassessment procedures similar to those used to determine impairment and conducted in similar conditions; or

- Adoption of a local ordinance that specifically provides water quality goals, restricts growth or loads tied to the pollutant(s) of concern, and provides an enforcement option if the proposed management measure(s) are not implemented as required.

Reasonable progress must be made by the time the next 303(d) list is due to be submitted to EPA, which is currently every two years. EPA has contemplated changing the listing cycle to every four or five years, and the IWR was specifically worded to allow a longer time frame for requiring reasonable progress in the event that the listing cycle changes.

## Long-Term Requirements

If at any time the Department determines that reasonable assurance and reasonable progress are not being met, the order adopting the Verified List will be amended to include the waterbody on the Verified List for the pollutant(s) in question. Additional reasonable progress must be made each time a waterbody is considered for listing under Rule 62-303, F.A.C. (every five years)**.**

If you have any questions about this guidance memo, contact Daryll Joyner of the Department's Bureau of Watershed Management in Tallahassee at 850-245-8431.

# *Appendix D: Methodology for Determining Impairment Based on the Impaired Surface Waters Rule*

## The Impaired Surface Waters Rule

To identify impaired waters in each of the state's river basins, the Department evaluates water quality data using the science-based methodology in the Identification of Impaired Surface Waters Rule (Rule 62-303, F.A.C.). The rule establishes specific criteria and thresholds for impairment, in addition to data sufficiency and data quality requirements. The methodology described in the rule is based on a statistical approach designed to provide greater confidence that the outcome of the water quality assessment is correct. The complete text of the Impaired Surface Waters Rule is available at http://www.dep.state.fl.us/water/tmdl/docs/AmendedIWR.pdf.

As part of the watershed management approach, for each river basin in the state the Department will follow the methodology in Rule 62-303.300, F.A.C., to develop a Planning List of potentially impaired waters to be assessed under Subsections 403.067(2) and (3), F.S. The methodology for developing the Planning List includes an evaluation of aquatic life use support, primary contact and recreational use support, fish shellfish consumption use support, drinking water use support, and protection of human health. Data older than ten years cannot be used to evaluate water quality criteria exceedances for the Planning List. As required by Subsection 403.067(2), F.S., the Planning List will not be used to administer or implement any regulatory program, and is submitted to the EPA for informational purposes only.

After further assessment, using the methodology in Part III, Rule 62-303.400, F.A.C., the Department will determine if waters on the Planning List are, in fact, impaired and if the impairment is caused by pollutant discharges. These waters are placed on a Verified List. The criteria for the Verified List are more stringent than those for the Planning List. Data older than five years should not be used to verify impairment. The Verified List will be adopted by Secretarial Order and forwarded to the EPA for approval as Florida's Section 303(d) list of impaired waters. The Department will develop TMDLs for these waters under Subsection 403.067(4), F.S.

## Attainment of Designated Use(s)

While the designated uses of a given waterbody are established using the surface water quality classification system described previously, it is important to note that the EPA uses slightly different terminology in its description of designated uses. Because the Department is required to provide use attainment status for both the state's 305(b) report and the state's 303(d) list of impaired waters, the Department uses EPA terminology when assessing waters for use attainment. The water quality evaluations and decision processes for listing impaired waters that are defined in Florida's Impaired Surface Waters Rule are based on the following designated use attainment categories:

**Aquatic Life Use Support-Based Attainment**
**Primary Contact and Recreation Attainment**
**Fish and Shellfish Consumption Attainment**
**Drinking Water Use Attainment and Protection of Human Health**

**Table D.1** summarizes the designated uses assigned to Florida's various surface water classifications.

**Table D.1: Designated Use Attainment Categories for Surface Waters in Florida**

| Designated Use Attainment Category Used in Impaired Surface Waters Rule Evaluation | Applicable Florida Surface Water Classification |
|---|---|
| Aquatic Life Use Support-Based Attainment | Class I, II, and III |
| Primary Contact and Recreation Attainment | Class I, II, and III |
| Fish and Shellfish Consumption Attainment | Class II |
| Drinking Water Use Attainment | Class I |
| Protection of Human Health | Class I, II, and III |

## Sources of Data

The Department's assessment of water quality for each basin statewide includes an analysis of quantitative data from a variety of sources, many of which are readily available to the public. These sources include the EPA's Legacy and modernized **STO**rage and **RET**rieval (STORET) databases, the U.S. Geological Survey (USGS), the Department, the Florida Department of Health (DOH), the water management districts, local governments, and volunteer monitoring groups.

Historically, the Department carried out statewide water quality assessments using data available in the EPA's Legacy STORET Database; STORET makes up approximately 60 percent of the statewide data used in the 2002 Impaired Surface Waters Rule assessment. The Legacy STORET dataset is a repository of data collected and uploaded by numerous organizations through 1999. The Legacy STORET Database can be accessed at http://www.dep.state.fl.us/water/storet/index.htm.

In 2000, the EPA created a modernized version of STORET that included new features designed to address data quality assurance/quality control concerns (see the new STORET Web site at www.epa.gov/storet/). However, because of software difficulties associated with batch uploading of data to the modernized STORET, the data being uploaded to the national repository decreased dramatically, and lingering problems have temporarily reduced STORET's importance as a statewide data source. It houses only about 5 percent of the statewide Impaired Surface Waters Rule 2002 Database.

Approximately 35 percent of the data used in the 2002 Impaired Surface Waters Rule assessment was provided by individual organizations that for various reasons, such as time constraints or resource limitations, were not able to enter their data into the national database. The organizations providing the largest datasets include the South Florida, Southwest Florida, and St. Johns River water management districts; the USGS; and the University of Florida LakeWatch volunteer monitoring group. Several of these databases are readily available to the public via the Internet: the South Florida Water Management District at http://www.envirobase.usgs.gov/, the USGS at http://water.usgs.gov/, and LakeWatch at http://lakewatch.ifas.ufl.edu/.

The Impaired Surface Waters Rule 2002 Database was created to evaluate data simultaneously in accordance with the Impaired Surface Waters Rule methodology for every basin in the state, based on the appropriate data "window." For the Verified List assessment, the window is 7.5 years (for the Impaired Surface Waters Rule 2002 Database), and the Planning List assessment window is 10 years. **Table D.2** shows the periods of record for the Verified and Planning Lists for the five basin groups.

The evaluation of water quality in the state's basins also includes some qualitative information. These sources are described in the Status Reports and Assessment Reports for each basin.

**Table D.2: Data Used in Developing the Planning and Verified Lists, First Basin Rotation Cycle**

| Basin Group | Reporting | Period of Data Record Used in Impaired Surface Waters Rule Evaluation |
|---|---|---|
| Group 1 | Planning List | January 1, 1989 – December 31, 1998 |
| | Verified List | January 1, 1995 – June 30, 2002 |
| Group 2 | Planning List | January 1, 1991 – December 31, 2000 |
| | Verified List | January 1, 1996 – December 31 2002 |
| Group 3 | Planning List | January 1, 1992 – December 31, 2001 |
| | Verified List | January 1, 1997 – December 31, 2003 |
| Group 4 | Planning List | January 1, 1993 – December 31, 2002 |
| | Verified List | January 1, 1998 – December 31 2004 |
| Group 5 | Planning List | January 1, 1994 – December 31, 2003 |
| | Verified List | January 1, 1999 – December 31, 2005 |

Notes: Typically, a 10-year data record is used for the development of the Planning Lists, and a 7-year record is used for the Verified Lists. If necessary, however, the data record for the Verified listing can be extended by up to 6 months to complete a monitoring period that will provide sufficient information to make a listing determination. This 6-month extension applies to the development of the Impaired Surface Waters Rule 2002 Database.

## Methodology

To determine the status of surface water quality in individual river basins in Florida, three categories of data—chemistry data, biological data, and fish consumption advisories—were evaluated to determine potential impairments for the four attainment of designated use categories discussed earlier: aquatic life, primary contact and recreation, fish and shellfish consumption, and drinking water use and protection of human health.

### *Aquatic Life Based Attainment*

The Impaired Surface Waters Rule follows the principle of independent applicability. A waterbody is listed for potential impairment of aquatic life use support based on exceedances of any one of four types of water quality indicators (numeric water quality criteria, nutrient thresholds, biological thresholds, and toxicity data).

#### Exceedances of Numeric Water Quality Criteria

The chemistry data from STORET used in evaluating impairment were also used for preparing the state's 2000 305(b) report. Only ambient surface water quality stations were included in the assessment of impairment. Water quality information from point sources or wells was excluded. Monitoring stations were classified as one of five waterbody types—spring, stream, lake, estuary, or blackwater—based on criteria described in the latest 305(b) report. The assessments included the following parameters:

| | |
|---|---|
| **Metals** | Arsenic, aluminum, cadmium, chromium VI, chromium III, copper, iron, lead, mercury, nickel, selenium, silver, thallium, and zinc |
| **Nutrients** | Chlorophyll *a* for streams and estuaries, and Trophic State Index (TSI) (chlorophyll *a,* total nitrogen, and total phosphorus) for lakes |
| **Conventionals** | Dissolved oxygen (DO), fecal coliforms, total coliforms, pH, unionized ammonia |

The requirements for placing waters on the Planning List included a minimum of 10 temporally independent samples from the ten-year period of record shown in **Table D.2,** unless there were 3 exceedances of water quality or 1 exceedance of an acute toxicity criterion in a three-year period. The screening methodology for the Verified List requires at least 20 samples from the last five years preceding the Planning List assessment. For most parameters, an exceedance is recorded any time the measured value is higher than the applicable water quality criterion by any amount. However, for the DO criterion, which is expressed as a minimum numeric value, an "exceedance" is recorded whenever the measured value is lower than the applicable DO criterion.

To determine if a water should be placed on the Planning List for each parameter, the chemical data were analyzed using a computer program written to assess the data, based on criteria established in the Impaired Surface Waters Rule, with two exceptions. First, unionized ammonia data were not analyzed by the program, but rather with an Excel spreadsheet. Second, because the full complexity of the pH criterion could not be programmed, the incomplete listings for pH are not included. They will be further examined while additional data are collected during Phase 2 of the watershed management cycle. Data analysis and statistical summaries of WBIDs, waterbody types, and parameters obtained from the STORET Database were conducted using Access, SAS statistical software, and ArcView GIS applications

The data for metals and conventional parameters were compared with the state surface water quality criteria in Rule 62-302.530, F.A.C. (Identification of Impaired Surface Waters Rule). The rule contains a table of sample numbers versus exceedances. A waterbody was placed on the Planning List if there was at least 80 percent confidence that the actual criteria exceedance rate was greater than or equal to 10 percent. To be placed on the Verified List, at least a 90 percent confidence rate was required.

#### Exceedances of Nutrient Thresholds

The state currently has a narrative nutrient criterion instead of a numeric value for nutrient thresholds. The narrative criterion states, “In no case shall nutrient concentrations of a body of water be altered so as to cause an imbalance in natural populations of aquatic flora or fauna.” The Impaired Surface Waters Rule provides an interpretation of the narrative nutrient criterion. In general, the Trophic State Index (TSI) and the annual mean chlorophyll *a* values are the primary means for assessing whether a waterbody should be assessed further for nutrient impairment.

The rule also considers other information that might indicate an imbalance in flora or fauna due to nutrient enrichment, such as algal blooms, excessive macrophyte growth, a decrease in the distribution (either in density or aerial coverage) of seagrasses or other

submerged aquatic vegetation, changes in algal species richness, and excessive diel oxygen swings.

Potential nutrient impairment was evaluated by calculating annual mean chlorophyll *a* values for estuaries and streams and the TSI for lakes. For lakes, the TSI was calculated using chlorophyll *a*, total phosphorus, and total nitrogen measurements. Direct evidence of imbalances of flora and fauna in waterbodies was also considered in the evaluation of nutrient impairments.

In estuarine areas, a water was considered nutrient enriched if the annual mean chlorophyll *a* values were greater than 11 micrograms per liter (μg/L) or if annual mean chlorophyll *a* values increased by more than 50 percent over historical values for at least two consecutive years. For streams, a water was considered nutrient enriched if the annual mean chlorophyll *a* values were greater than 20 μg/L or if the annual mean increased by more than 50 percent over historical values for at least two consecutive years.

A lake with a mean color greater than 40 platinum cobalt units (PCUs) was considered nutrient enriched if the annual mean TSI exceeded 60. A lake with a mean color less than or equal to 40 PCUs was considered nutrient enriched if the annual mean TSI exceeded 40. In addition, a lake was considered nutrient enriched if there was an increase in TSI over the 1989 to 2000 period or if TSI measurements were 10 units higher than historical values.

#### Exceedance sof Biological Thresholds

Bioassessments were carried out for streams, lakes, canals, and rivers using the Impaired Surface Waters Rule as guidance and following the Department's standard operating procedures, which provide definitions and specific methods for the generation and analysis of bioassessment data. These are referenced in the individual bioassessment data tables contained in the Status Reports. The purpose behind using a bioassessment methodology in surface water characterizations is that biological components of the environment manifest long-term water quality conditions and thus provide a better indication of a waterbody's true health than discrete chemical or physical measurements alone. Similar to water quality criteria, bioassessment methods involve the identification of a biological reference condition, based on data from unimpaired or least impacted waters in a given region.

For the Planning and Verified List assessments, the reference condition data were used to establish expected scores, ranging from best to worst, for various measures of community structure and function, such as numbers or percentages of particular species or feeding groups. Data on community structure and function from waters of unknown quality in the same region as reference waters were compared with the expected scores of metrics to evaluate their biological integrity.

Metrics (e.g., number of taxa, percent Diptera, percent filter feeders) were used independently and as an aggregated group called an index. Indices have advantages over individual metrics in that they can integrate several related metrics into one score that reflects a wider range of biological variables. A number of bioassessment metrics and indices exist for assessing populations of plant and animal life, including fish, diatoms (e.g., microscopic algae and unicellular plankton), and macroinvertebrates (e.g., insects, crayfish, snails, and mussels).

Only macroinvertebrate data from ambient sites in state surface waters were used in the bioassessments analyzed for the Planning and Verified Lists. The data included sites designated as test and background sites for National Pollutant Discharge Elimination System (NPDES) fifth-year inspections, but excluded data from effluent outfalls from discharging facilities or data from monitoring sites not clearly established to collect ambient water quality data. Because site-specific habitat and physicochemical assessment information (e.g., percent suitable macroinvertebrate habitat, water velocities, extent of sand or silt smothering, and riparian (see the sidebar definition) buffer zone widths) was not available at the time of reporting, it was not included. However, this information is instrumental in pinpointing the causes for failed bioassessment metrics and will be included in future reporting.

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*SIDEBAR DEFINITION: RIPARIAN*

*Of, on, or relating to the banks of a natural course of water.*

The data used to develop the Planning and Verified Lists were obtained from the Department's Biological Database (SBIO) and the EPA's STORET Water Quality Database, where it could be substantiated that the data were generated in compliance with the bioassessment standard operating procedures referenced in the Impaired Surface Waters Rule (Rule 62-303.330, F.A.C.).

The data from these databases are used without regard to the randomness of sample site selection. The general period of record for data used in the analysis of lotic (moving) waters was January 1, 1991, through December 31, 1998. The period of record for data used in the analysis of lentic (still) waters was June 21, 1995, through December 31, 1998. The June 21st date corresponds to the inception of the Department's current standard operating procedures for sampling lakes (FS-7640). For the purposes of the Status Reports, the seasons are defined as follows: winter (1/1–3/31), spring (4/1–6/30), summer (7/1–9/30), and fall (10/1–12/31). Wet seasons are generally spring and summer, and dry seasons are fall and winter, although conditions can vary in the state as a whole.

#### Lake Condition Index

The scoring of the individual metrics of the Lake Condition Index (LCI), except percent Diptera, was performed according to the following formula:

*100(B/A) where A = the 95 percentile of the reference population and B = observed value*

For percent Diptera, the following formula was used:

*100 (100-B)/(100-A) where A = the 95 percentile of the reference population and B = observed value*

An average LCI score was calculated by averaging the scores of the six metrics in the method: total number of taxa; total number of taxa belonging to the orders Ephemeroptera, Odonata, and Trichoptera (EOT taxa); percent EOT taxa; Shannon-Wiener Diversity Index score; Hulbert Index score; and percent Dipteran individuals.

LCI calculations were only provided for clear lakes (≤ 20 platinum cobalt units [PCUs]). As macroinvertebrate-based indices have not been shown to assess colored lakes in Florida accurately (> 20 PCUs), they have been excluded from bioassessments. A poor or very poor rating based on the average score constituted a failed bioassessment, based on the Impaired Surface Waters Rule.

#### Stream Condition Index

A total Stream Condition Index (SCI) score was calculated by adding the scores of the seven metrics in the method, i.e., total number of taxa; total number of taxa belonging to the orders Ephemeroptera, Plecoptera, and Trichoptera (EPT taxa); percent Chironomid taxa; percent dominant taxa; percent Diptera; percent filter feeders; and Florida Index. A poor or very poor rating based on the total score constituted a failed bioassessment, based on the Impaired Surface Waters Rule. The Status Reports contain definitions and specific methods for the generation and analysis of bioassessment data.

#### BioRecon

To establish an impairment rating based on BioRecon data, three metrics were used: the Florida Index score, total number of taxa, and total number of EPT taxa. If all three metrics failed to meet thresholds, the water was deemed "impaired" based on the Impaired Surface Waters Rule.

#### Biological Integrity Standard

Quantitative data, generated through the use of Hester-Dendy artificial substrate samplers, were used to calculate Shannon-Wiener Diversity Index scores for paired background and test sites, as specified in the Biological Integrity Standard of Rule 62-302.530(11), F.A.C. One failure of the standard meant that a waterbody segment was listed as potentially impaired.

#### Evaluation of Toxicity Data

Although the Impaired Surface Waters Rule describes the use of toxicity data for the assessment of aquatic life-based attainment, no ambient toxicity data are available for assessment and this metric was not used.

### *Primary Contact and Recreation Attainment*

For Class I, II, or III waters, a waterbody was potentially impaired if the following criteria were met:

- The waterbody segment did not meet the applicable water quality criteria for bacteriological quality,
- The waterbody segment included a bathing area that was closed by a local health department or county government for more than one week or more than once during a calendar year based on bacteriological data,
- The waterbody segment included a bathing area for which a local health department or county government issued closures, advisories, or warnings totaling twenty-one days or more during a calendar year based on bacteriological data,

- The waterbody segment included a bathing area that was closed or had advisories or warnings for more than twelve weeks during a calendar year based on previous bacteriological data or on derived relationships between bacteria levels and rainfall or flow.

  Bathing area closures were also considered in determining attainment of use.

### *Fish and Shellfish Consumption Attainment*

For Class I, II, or III waters, a waterbody was potentially impaired if it did not meet the applicable Class II water quality criteria for bacteriological quality, or if a fish consumption advisory had been issued. Fish consumption advisories were based on the Florida Department of Health's "limited consumption" or "no consumption" advisories for surface waters because of high levels of mercury in fish tissue. In addition, for Class II waters, waterbody segments that had been approved for shellfish harvesting but were downgraded to a more restrictive classification were listed as potentially impaired.

### *Drinking Water Attainment and Protection of Human Health*

For Class I waters, a waterbody was potentially impaired if it did not meet the applicable Class I water quality criteria.

# *Appendix E: Integrated Assessment (Master List) for the Suwannee Basin*

Data collected since the October 2002 update of the 303(d) list were used to update the listing status of waters. **Table E.1** contains the listing status of all assessed waters in the basin as of January 2003. All of the waters in the table are Class III fresh water. It should be noted that subsequent to the October 2002 update of the 303(d) list, some waterbody segments were further subdivided to produce separate segments for lakes versus their surrounding watersheds. Therefore, **Table E.1** shows the WBIDs under which these segments were designated in the 1998 303(d) list, as well as the new or currently recognized WBIDs for them.

Information in this appendix was obtained from an inventory of the Legacy and modernized STORET databases, as well as data contributed directly to the Department by individual data providers. **Table E.2** includes only stations with data from the Planning and Verified assessment periods.

**Table E.1: Integrated Water Quality Assessment Summary, by Planning Unit**

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| **Alapaha River** | | | | | | | | | |
| 3323 | ALAPAHOOCHEE RIVER | STREAM | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |
| 3324 | ALAPAHA RIVER | STREAM | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3325 | ALLIGATOR CREEK | STREAM | | BIOLOGY | PL | 3C | | | |
| 3327 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3328 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3330 | LITTLE ALAPAHA RIVER | STREAM | | | ND | 3A | | | |
| 3331 | TURKET CREEK | STREAM | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |
| 3332 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3346 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3350 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3357 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3359 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3362 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3324A | ALAPAHA RIVER | STREAM | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |
| **Aucilla River** | | | | | | | | | |
| 3309 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3310 | AUCILLA RIVER | STREAM | | DISSOLVED OXYGEN | PL | 3C | | | |
| | | | | CONDUCTIVITY | MS | 2 | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | MERCURY-FISH | MS | 2 | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3311 | GUM CREEK | STREAM | | | ND | 3A | | | |
| 3312 | BLUE POND DRAIN | STREAM | | | ND | 3A | | | |
| 3313 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3314 | LITTLE AUCILLA RIVER | STREAM | | DISSOLVED OXYGEN | PL | 3C | | | BLACKWATER |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| 3316 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3317 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3320 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3326 | SHEHEE LAKE OUTLET | LAKE | | | ND | 3A | | | |
| 3326A | SHEHEE LAKE | LAKE | | | ND | 3A | | | |
| 3329 | DEVILS WOODYARD SLOUGH | LAKE | | | ND | 3A | | | |
| 3335 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3337 | WOLF CREEK | STREAM | | | ND | 3A | | | |
| 3339 | UNNAMED OUTLET | STREAM | | | ND | 3A | | | |
| 3344 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3348 | JUNE POND OUTLET | LAKE | | | ND | 3A | | | |
| 3348A | JUNE POND | LAKE | | | ND | 3A | | | |
| 3349A | MILE POND | LAKE | | | ND | 3A | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3349 | MILE POND OUTLET | LAKE | | | ND | 3A | | | |
| 3352 | SILVER LAKE OUTLET | STREAM | | | ND | 3A | | | |
| 3355 | SIMPSON LAKE OUTLET | LAKE | | | ND | 3A | | | |
| 3355A | SIMPSON LAKE | LAKE | | | ND | 3A | | | |
| 3356 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3367 | BEASLEY CREEK | STREAM | | | ND | 3A | | | |
| 3369 | HIXTOWN SWAMP | STREAM | | | ND | 3A | | | |
| 3373 | UNNAMED DITCH | STREAM | | | ND | 3A | | | |
| 3377 | RAYSOR CREEK | STREAM | | | ND | 3A | | | BLACKWATER |
| 3379 | MILL POND CREEK | STREAM | | | ND | 3A | | | |
| 3382 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3403 | ROCKY CREEK | STREAM | | | ND | 3A | | | |
| 3407 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3412 | ALLIGATOR CREEK | STREAM | | | ND | 3A | | | |
| 3417 | SUNDOWN CREEK | STREAM | | | ND | 3A | | | |
| 3419 | BAILEY MILL CREEK | STREAM | | | ND | 3A | | | |
| 3424 | WACISSA RIVER | STREAM | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | CHLOROPHYLL | MS | 2 | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| 3428 | LITTLE RIVER | STREAM | | | ND | 3A | | | |
| 3430 | ANDERSON BAY DRAIN | STREAM | | DISSOLVED OXYGEN | † PL | 3C | MEDIUM | 2007 | UNLESS ADDITIONAL INFORMATION IS PROVIDED, THIS PARAMETER MAY BE MOVED TO THE PLANNING LIST |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3436 | WELAUNEE CREEK | STREAM | | CONDUCTIVITY | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3440 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3442 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3453 | JONES MILL CREEK | STREAM | | | ND | 3A | | | |
| 3470 | COW CREEK | STREAM | | | ND | 3A | | | |
| 3505 | THE SLAVE CANAL | STREAM | | | ND | 3A | | | |
| 3310A | AUCILLA RIVER | STREAM | | MERCURY-FISH | MS | 2 | | | |
| 3310B | AUCILLA RIVER | STREAM | | CONDUCTIVITY | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | MERCURY-FISH | MS | 2 | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |
| 3310C | AUCILLA RIVER | STREAM | | DISSOLVED OXYGEN | PL | 3C | | | BLACKWATER |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | MERCURY-FISH | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| 3310D | MCMULLEN BAY | STREAM | | | ND | 3A | | | |
| 3310E | DRAINAGE BASIN OF GA | STREAM | | | ND | 3A | | | |
| 3310Z | NUTALL RISE | SPRING | | CONDUCTIVITY | MS | 2 | | | |
| | | | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3424A | AUCILLA RIVER | STREAM | | CONDUCTIVITY | MS | 2 | | | |
| | | | | DISSOLVED OXYGEN | PL | 3C | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3424Z | WACISSA SPRING | SPRING | | CONDUCTIVITY | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3505A | AUCILLA RIVER | STREAM | | | ND | 3A | | | |
| **Econfina** | | | | | | | | | |
| 3402 | ECONFINA RIVER | STREAM | DISSOLVED OXYGEN | DISSOLVED OXYGEN | MS | 2 | | | ECONFINA RIVER IS A REFERENCE SITE FOR THE BIOASSESSMENT PROGRAM AND WAS THE CONTROL SITE FOR THE FENHOLLOWAY SSAC. LOW D.O. IS A NATURAL CONDITION, AS THERE ARE NO ANTHROPOGENIC SOURCES OF POLLUTANTS. |
| | | | TOTAL COLIFORMS | TOTAL COLIFORMS | MS | 2 | | | DELIST, MEETS STANDARDS |
| | | | FECAL COLIFORMS | FECAL COLIFORMS | MS | 2 | | | DELIST, MEETS STANDARDS |
| | | | CADMIUM | CADMIUM | PL | 3C | | | MOVED TO PL BY USING LANGUAGE IN IWR |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | CHLOROPHYLL | MS | 2 | | | |
| 3402A | ECONFINA RIVER AT MOUTH | ESTUARY | | | ND | 3A | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3426 | SAMPALA SWAMP DRAIN | STREAM | | | ND | 3A | | | |
| 3456 | NATURAL WELL BRANCH | STREAM | | | ND | 3A | | | |
| 3457 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3458 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3467 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3482 | ROSE CREEK | STREAM | | | ND | 3A | | | |
| 3500 | ROSE CREEK OVERFLOW | STREAM | | | ND | 3A | | | |
| **Fenholloway** | | | | | | | | | |
| 3475 | UNNAMED DITCH | STREAM | | | ND | 3A | | | |
| 3479B | MUD LAKE | LAKE | | | ND | 3A | | | |
| 3479 | MUD LAKE OUTLET | LAKE | | | ND | 3A | | | |
| 3489 | ROCKY CREEK | STREAM | TURBIDITY | | PL | 3C | (LOW) | (2002) | ONGOING ROUTINE MONITORING |
| | | | COLIFORMS | | PL | 3C | (LOW) | (2002) | ONGOING ROUTINE MONITORING |
| | | | | CHLOROPHYLL | ID | 3B | | | |
| | | | | CONDUCTIVITY | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| 3492 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3511 | REGULAR CREEK | STREAM | | | ND | 3A | | | |
| 3512 | WOODS CREEK | STREAM | | | ND | 3A | | | |
| 3514 | PIMPLE CREEK | STREAM | | | ND | 3A | | | |
| 3518 | SPRING CREEK | STREAM | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| 3518Z | HAMPTON SPRINGS | SPRING | | | ND | 3A | | | |
| 3533 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3538 | SMOKEHOUSE CREEK | STREAM | | | ND | 3A | | | |
| 3560 | UNNAMED DITCH | STREAM | | | ND | 3A | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3564 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3473A | FENHOLLOWAY AT MOUTH | STREAM | TOTAL COLIFORMS | TOTAL COLIFORMS | VL | 5 | HIGH | 2002 | |
| | | | FECAL COLIFORMS | FECAL COLIFORMS | MS | 2 | | | PROPOSE TO DELIST, MEETS STANDARDS |
| | | | DISSOLVED OXYGEN | DISSOLVED OXYGEN | VL | 5 | HIGH | 2002 | GIVEN ONGOING DELIBERATIONS, CURRENTLY INSUFFICIENT CERTAINTY TO PROVIDE REASONABLE ASSURANCE. LINKED TO BOD AND NITROGEN. |
| | | | BOD | BOD | VL | 5 | HIGH | 2002 | IMPAIRMENT LINKED TO DISSOLVED OXYGEN |
| | | | NUTRIENTS | NUTRIENTS | ID | 3C | | | MOVED TO PL BY USING LANGUAGE IN IWR |
| | | | UN-IONIZED NH3 | UN-IONIZED NH3 | (NOT APPLICABLE) | 2 | | | DELIST; CRITERION ONLY APPLIES TO FRESHWATER. |
| | | | DIOXIN | DIOXIN | MS | 2 | | | RECENT DATA SUPPORTS DELISTING |
| 3473B | FENHOLLOWAY BELOW PULP MILL | STREAM | NUTRIENTS | NUTRIENTS | ID | 3C | LOW | 2002 | WILL BE ADDRESSED BY BUCKEYE NPDES PERMIT |
| | | | DISSOLVED OXYGEN | DISSOLVED OXYGEN | VL | 5 | MEDIUM | 2002 | GIVEN ONGOING DELIBERATIONS, CURRENTLY INSUFFICIENT CERTAINTY TO PROVIDE REASONABLE ASSURANCE. LINKED TO BOD AND NITROGEN. |
| | | | UN-IONIZED NH3 | UN-IONIZED NH3 | VL | 5 | MEDIUM | 2002 | GIVEN ONGOING DELIBERATIONS, CURRENTLY INSUFFICIENT CERTAINTY TO PROVIDE REASONABLE ASSURANCE. |
| | | | MERCURY-FISH | MERCURY-FISH | PL | 3C | LOW | 2011 | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |
| | | | TSS | TSS | NO CRITERION | 2 | | | DELIST. TURBIDITY MEETS STANDARDS. |
| | | | BOD | BOD | VL | 5 | MEDIUM | 2002 | LINKED TO DISSOLVED OXYGEN |
| | | | | CONDUCTIVITY | VL | 5 | MEDIUM | 2007 | BACKGROUNDD BASED ON ECONFINA DATA |
| | | | | COPPER | ID | 3B | | | |
| | | | | IRON | ID | 3B | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | LEAD | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | ZINC | ID | 3B | | | VERIFICATION PENDING DETERMINATION OF CAUSATIVE POLLUTANT. |
| 3473C | FENHOLLOWAY AB PULP | STREAM | DISSOLVED OXYGEN | DISSOLVED OXYGEN | PL | 3C | (HIGH) | 2002 | MOVED TO PLANNING LIST PER IWR LANGUAGE |
| | | | NUTRIENTS | NUTRIENTS | MS | 2 | | | DELIST |
| | | | | ANTIMONY | ID | 3B | | | |
| | | | | ARSENIC | ID | 3B | | | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | COPPER | ID | 3B | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | IRON | ID | 3B | | | |
| | | | | LEAD | ID | 3B | | | |
| | | | | NICKEL | ID | 3B | | | |
| | | | | SELENIUM | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | ZINC | ID | 3B | | | |
| | | | | CHLOROPHYLL | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3479A | ANDREWS LAKE | LAKE | | | ND | 3A | | | |
| **Lower Suwannee** | | | | | | | | | |
| 3422 | SUWANNEE RIVER (LOWER) | STREAM | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | DISSOLVED OXYGEN | MS | 2 | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | NUTRIENTS (HIST CHLA) | VL | 4C | MEDIUM | 2002 | FINAL LISTING DETERMINATION PENDING REVIEW OF REASONABLE ASSURANCE DOCUMENTATION SUBMITTED BY SUWANNEE PARTNERSHIP. NITROGEN AND PHOSPHORUS CO-LIMITED. |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3652A | SEVENMILE LAKE | LAKE | | | ND | 3A | | | |
| 3652 | SEVENMILE LAKE OUTLET | LAKE | | | ND | 3A | | | |
| 3662A | COW POND | LAKE | | | ND | 3A | | | |
| 3662 | COW POND OUTLET | LAKE | | | ND | 3A | | | |
| 3668 | BEASON PRAIRIE DRAIN | STREAM | | | ND | 3A | | | |
| 3673 | ROCK BLUFF SPRING | SPRING | | DISSOLVED OXYGEN | PL | 3C | | | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3679 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3684 | OLD TOWN HAMMOCK DRAIN | STREAM | | | ND | 3A | | | |
| 3687 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3693 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3704 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3707 | UNNAMED DRAIN | ESTUARY | | | ND | 3A | | | |
| 3708 | UNNAMED DRAIN | ESTUARY | | | ND | 3A | | | |
| 3709 | UNNAMED DRAIN | ESTUARY | | | ND | 3A | | | |
| 3710 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3713 | DRUMMOND POND OUTLET | LAKE | | | ND | 3A | | | |
| 3715 | YELLOW JACKET SLOUGH | STREAM | | | ND | 3A | | | |
| 3716 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3717 | UNNAMED DRAIN | ESTUARY | | | ND | 3A | | | |
| 3722 | WEEK CREEK | STREAM | | | ND | 3A | | | |
| 3726 | SANDFLY CREEK | STREAM | | | ND | 3A | | | |
| 3732 | GOPHER RIVER | STREAM | | | ND | 3A | | | |
| 3733 | DIRECT RUNOFF TO GULF | STREAM | | TURBIDITY | MS | 2 | | | |
| | | | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| 3422A | SUWANNEE RIVER (LOWER) | STREAM | | MERCURY-FISH | VL | 5 | MEDIUM | 2011 | MERCURY CONCENTRATIONS FOR 1995, 1996, 1998, 1999, 2000, 2001, 2002 EXCEEDED 0.5µg/L |
| | | | | NUTRIENTS (HIST CHLA) | VL | 4C | MEDIUM | 2002 | FINAL LISTING DETERMINATION PENDING REVIEW OF REASONABLE ASSURANCE DOCUMENTATION SUBMITTED BY SUWANNEE PARTNERSHIP.NITROGEN AND PHOSPOROUS CO-LIMITED. |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | IRON | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3422D | LOWER SUWANNEE ESTUARY | ESTUARY | | CHLOROPHYLL | MS | 2 | | | STILL NEED TO ASSESS RECENTLY PROVIDED DATA. |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | DISSOLVED OXYGEN | MS | 2 | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | NUTRIENTS | VL | 4C | MEDIUM | 2007 | FINAL LISTING DETERMINATION PENDING REVIEW OF REASONABLE ASSURANCE DOCUMENTATION SUBMITTED BY SUWANNEE PARTNERSHIP. VERIFIED BASED ON OUTSIDE DATA NOT IN STORET |
| | | | | MERCURY-FISH | VL | 5 | LOW | 2011 | LISTED BASED ON 1997 FWCC MACKEREL ADVISORIES. |
| | | | | COLIFORMS/SHELLFISH | VL | 5 | MEDIUM | 2008 | LISTED DUE TO DOWNGRADE IN SHELLFISH HARVESTING CLASSIFICATION. |
| 3422K | GUARANTO SPRING | SPRING | | DISSOLVED OXYGEN | PL | 3C | | | NATURAL CONDITION |
| | | | | CONDUCTIVITY | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3422M | TURTLE SPRING | SPRING | | DISSOLVED OXYGEN | PL | 3C | | | NATURAL CONDITION |
| | | | | CONDUCTIVITY | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3422N | HART SPRINGS | SPRING | | DISSOLVED OXYGEN | VL | 4B | | | NATURAL CONDITION. SPRING RUN IS APPROXIMATELY 735'. SAMPLING SITE APPEARS TO BE VERY CLOSE TO THE SPRING VENT, THEREFORE REAREATION HAS NOT TIME TO OCCUR BEFORE SAMPLE POINT. |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | SUPPORTING DOCUMENTATION HAS BEEN PROVIDED TO EPA |
| | | | | CONDUCTIVITY | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3422R | MANATEE SPRINGS | SPRING | | DISSOLVED OXYGEN | MS | 4B | | | NATURAL CONDITION. SPRING RUN IS APPROXIMATELY 1200'. SAMPLING SITE APPEARS TO BE VERY CLOSE TO THE SPRING VENT, THEREFORE REAREATION HAS NOT TIME TO OCCUR BEFORE SAMPLE POINT. SUPPORTING DOCUMENTATION HAS BEEN PROVIDED TO EPA |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | BIOLOGY | † PL | 3C | | | MANATEE SPRINGS WAS VERIFIED AS IMPAIRED FOR BIOLOGY (BASED ON INFORMATION PROVIDED BY FDEP'S BIOLOGY DEPARTMENT), BUT WE COULD NOT DETERMINE THE CAUSATIVE POLLUTANT. AS A RESULT, WE PLACED THIS WBID ON THE PLANNING LIST FOR FURTHER STUDY TO DETERMINE THE CAUSATIVE POLLUTANT AND REVISED THE MASTER LIST ACCORDINGLY |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3422S | FANNING SPRINGS | SPRING | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |
| | | | | DISSOLVED OXYGEN | MS | 4B | | | NATURAL CONDITION. SPRING RUN IS APPROXIMATELY 385'. SAMPLING SITE APPEARS TO BE VERY CLOSE TO THE SPRING VENT AND SPRING HAS VERY SHORT RUN TO THE RIVER, THEREFORE REAREATION HAS NOT TIME TO OCCUR BEFORE BEING SAMPLED OR REACHING THE SUWANNEE RIVER.SUPPORTING DOCUMENTATION HAS BEEN PROVIDED TO EPA |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | BIOLOGY | PL | 3C | | | FANNING SPRINGS WAS VERIFIED AS IMPAIRED FOR BIOLOGY (BASED ON INFORMATION PROVIDED BY FDEP'S BIOLOGY DEPARTMENT), BUT WE COULD NOT DETERMINE THE CAUSATIVE POLLUTANT. AS A RESULT, WE PLACED THIS WBID ON THE PLANNING LIST FOR FURTHER STUDY TO DETERMINE THE CAUSATIVE POLLUTANT AND REVISED THE MASTER LIST ACCORDINGLY |
| 3668A | GOVENOR HILL LAKE | LAKE | | | ND | 3A | | | |
| **Middle Suwannee** | | | | | | | | | |
| 3438 | TEMNILE HOLLOW | STREAM | | | ND | 3A | | | |
| 3439 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3469 | SPRINGHEAD CREEK | STREAM | | | ND | 3A | | | |
| 3471 | UNNAMED DITCH | STREAM | | | ND | 3A | | | |
| 3472 | BETHEL CREEK | STREAM | | | ND | 3A | | | |
| 3476 | WILLIAM WATERHOLE DR | STREAM | | | ND | 3A | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3480 | BETHEL CREEK | STREAM | | CONDUCTIVITY | ND | 3A | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3483 | PEACOCK SLOUGH | SPRING | | DISSOLVED OXYGEN | PL | 3C | | | NATURAL CONDITION |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3485 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3495 | FOURMILE CREEK | STREAM | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| 3496 | LITTLE RIVER | STREAM | | CONDUCTIVITY | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3497 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3498 | CRAB CREEK | STREAM | | | ND | 3A | | | |
| 3501 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3502 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3507 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3508 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3509 | UNNAMED DRAIN | STREAM | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| 3515 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3521 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3523 | THOMAS SPRING | SPRING | | | ND | 3A | | | |
| 3525 | ALLEN MILL POND | SPRING | DISSOLVED OXYGEN | DISSOLVED OXYGEN | PL | 3C | LOW | 2007 | NATURAL CONDITION |
| | | | NUTRIENTS | NUTRIENTS | PL | 3C | LOW | 2007 | ADDED TO PL BY USING LANGUAGE IN IWR. |
| | | | | CONDUCTIVITY | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3528 | LAFAYETTE BLUE SPRING | SPRING | | | ND | 3A | | | |
| 3529 | IRVING SLOUGH | STREAM | | | ND | 3A | | | |
| 3543 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3568 | OWENS SPRING | SPRING | | DISSOLVED OXYGEN | PL | 3C | | | NATURAL CONDITION |
| | | | | ARSENIC | ID | 3B | | | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | COPPER | ID | 3B | | | |
| | | | | IRON | ID | 3B | | | |
| | | | | LEAD | ID | 3B | | | |
| | | | | NICKEL | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | ZINC | ID | 3B | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3591 | PICKET LAKE OUTLET | LAKE | | | ND | 3A | | | |
| 3591A | PICKET LAKE | LAKE | | CONDUCTIVITY | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| 3597 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3608 | UNNAMED DITCH | STREAM | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| 3618 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3624 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3636 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3643 | UNNAMED DITCH | STREAM | | | ND | 3A | | | |
| 3422B | SUWANNEE RIVER (LOWER) | STREAM | | MERCURY-FISH | VL | 5 | LOW | 2011 | MERCURY CONCENTRATIONS FOR 1995-2002 EXCEEDED 0.5µg/L |
| | | | DISSOLVED OXYGEN | DISSOLVED OXYGEN | VL | 4C | LOW | 2002 | FINAL LISTING DETERMINATION PENDING REVIEW OF REASONABLE ASSURANCE DOCUMENTATION SUBMITTED BY SUWANNEE PARTNERSHIP. MOSTLY NITROGEN LIMITED WITH SOME NITROGEN AND PHSOPHOROUS CO-LIMITATION |
| | | | NUTRIENTS | ALGAL MATS | VL | 4C | LOW | 2002 | FINAL LISTING DETERMINATION PENDING REVIEW OF REASONABLE ASSURANCE DOCUMENTATION SUBMITTED BY SUWANNEE PARTNERSHIP. MOSTLY NITROGEN LIMITED WITH SOME NITROGEN AND PHOSPHOROUS CO-LIMITATION |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | COPPER | MS | 2 | | | |
| | | | | NICKEL | MS | 2 | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | ZINC | ID | 3B | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | CHLOROPHYLL | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| 3422C | TOWNSEND POND NEAR MAY | LAKE | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| 3422J | BRANFORD SPRING | SPRING | | DISSOLVED OXYGEN | PL | 3C | | | NATURAL CONDITION |
| | | | | CONDUCTIVITY | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3422L | RUTH SPRING | SPRING | | DISSOLVED OXYGEN | MS | 4B | | | NATURAL CONDITITON. SPRING RUN IS APPROXIMATELY 425'. SAMPLING SITE APPEARS TO BE VERY CLOSE TO THE SPRING VENT AND SPRING HAS VERY SHORT RUN TO THE RIVER, THEREFORE REAREATION HAS NOT TIME TO OCCUR BEFORE BEING SAMPLED OR REACHING THE SUWANNEE RIVER. SUPPORTING DOCUMENTATION HAS BEEN PROVIDED TO EPA. |
| | | | | CONDUCTIVITY | ID | 3B | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3422P | MEARSON SPRING | SPRING | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | CONDUCTIVITY | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3422Q | ELLAVILLE SPRING | SPRING | | DISSOLVED OXYGEN | PL | 3C | | | NATURAL CONDITION |
| | | | | CONDUCTIVITY | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| 3422T | TROY SPRING | SPRING | | DISSOLVED OXYGEN | MS | 4B | | | NATURAL CONDITION. SPRING RUN IS APPROXIMATELY 325'. SAMPLING SITE APPEARS TO BE VERY CLOSE TO THE SPRING VENT AND SPRING HAS VERY SHORT RUN TO THE RIVER, THEREFORE REAREATION HAS NOT TIME TO OCCUR BEFORE BEING SAMPLED OR REACHING THE SUWANNEE RIVER. SUPPORTING DOCUMENTATION HAS BEEN PROVIDED TO EPA. |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3422U | ROYAL SPRING | SPRING | | DISSOLVED OXYGEN | MS | 4B | | | NATURAL CONDITION. SPRING RUN IS APPROXIMATELY 235'. SAMPLING SITE APPEARS TO BE VERY CLOSE TO THE SPRING VENT AND SPRING HAS VERY SHORT RUN TO THE RIVER, THEREFORE REAREATION HAS NOT TIME TO OCCUR BEFORE BEING SAMPLED OR REACHING THE SUWANNEE RIVER.SUPPORTING DOCUMENTATION HAS BEEN PROVIDED TO EPA. |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3422V | CONVICT SPRING | SPRING | | DISSOLVED OXYGEN | MS | 4B | | | NATURAL CONDITION. SPRING RUN IS APPROXIMATELY 130'. SAMPLING SITE APPEARS TO BE VERY CLOSE TO THE SPRING VENT AND SPRING HAS VERY SHORT RUN TO THE RIVER, THEREFORE REAREATION HAS NOT TIME TO OCCUR BEFORE BEING SAMPLED OR REACHING THE SUWANNEE RIVER.SUPPORTING DOCUMENTATION HAS BEEN PROVIDED TO EPA. |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| 3422W | RUNNING SPRING | SPRING | | DISSOLVED OXYGEN | PL | 3C | | | NATURAL CONDITION |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FLUORIDE | ID | 3B | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3422X | TELFORD SPRING | SPRING | | DISSOLVED OXYGEN | MS | 4B | | | NATRAL CONDITION. SPRING RUN IS APPROXIMATELY 100'. SAMPLING SITE APPEARS TO BE VERY CLOSE TO THE SPRING VENT AND SPRING HAS VERY SHORT RUN TO THE RIVER, THEREFORE REAREATION HAS NOT TIME TO OCCUR BEFORE BEING SAMPLED OR REACHING THE SUWANNEE RIVER.SUPPORTING DOCUMENTATION HAS BEEN PROVIDED TO EPA. |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| 3422Y | CHARLES SPRING | SPRING | | DISSOLVED OXYGEN | PL | 3C | | | NATURAL CONDITION |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| 3422Z | FALMOUTH SPRING | SPRING | | DISSOLVED OXYGEN | MS | 4B | | | NATURAL CONDITION. SPRING RUN IS APPROXIMATELY 450'. SAMPLING SITE APPEARS TO BE VERY CLOSE TO THE SPRING VENT AND SPRING HAS VERY SHORT RUN BEFORE GOING INTO THE SINKHOLE, THEREFORE REAREATION HAS NOT TIME TO OCCUR BEFORE BEING SAMPLED OR REACHING THE SINK.SUPPORTING DOCUMENTATION HAS BEEN PROVIDED TO EPA. |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| 3438A | PEACOCK LAKE | LAKE | | CONDUCTIVITY | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| 3438B | WHITE LAKE | LAKE | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| 3496A | LOW LAKE | LAKE | | CONDUCTIVITY | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| 3496B | UNNAMED SLOUGH | STREAM | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| 3496Z | LITTLE RIVER SPRINGS | SPRING | | DISSOLVED OXYGEN | MS | 4B | | | NATURAL CONDITION. SPRING RUN IS APPROXIMATELY 185'. SAMPLING SITE APPEARS TO BE VERY CLOSE TO THE SPRING VENT AND SPRING HAS VERY SHORT RUN TO THE RIVER, THEREFORE REAREATION HAS NOT TIME TO OCCUR BEFORE BEING SAMPLED OR REACHING THE SUWANNEE RIVER.SUPPORTING DOCUMENTATION PROVIDED TO EPA. |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3528Z | LAFAYETTE BLUE SPRING | SPRING | | DISSOLVED OXYGEN | MS | 4B | | | NATURAL CONDITION. SPRING RUN IS APPROXIMATELY 120'. SAMPLING SITE APPEARS TO BE VERY CLOSE TO THE SPRING VENT AND SPRING HAS VERY SHORT RUN TO THE RIVER, THEREFORE REAREATION HAS NOT TIME TO OCCUR BEFORE BEING SAMPLED OR REACHING THE SUWANNEE RIVER. SUPPORTING DOCUMENTATION HAS BEEN PROVIDED TO EPA. |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| **Other Coastal** | | | | | | | | | |
| 3526 | SMITH-MCCULLAH CREEK | STREAM | | | ND | 3A | | | |
| 3534 | DIRECT RUNOFF TO GULF | STREAM | | | ND | 3A | | | |
| 3544 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3550 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3551 | DIRECT RUNOFF TO GULF | STREAM | | | ND | 3A | | | |
| 3556 | WEAVER WARRIOR CREEK | STREAM | | | ND | 3A | | | |
| 3565 | DIRECT RUNOFF TO GULF | STREAM | | | ND | 3A | | | |
| 3572 | ATHENA WARRIOR CREEK | STREAM | | | ND | 3A | | | BLACKWATER |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3580 | DIRECT RUNOFF TO GULF | STREAM | | | ND | 3A | | | |
| 3592 | OKEFENOKEE SLOUGH | STREAM | | | ND | 3A | | | |
| 3594 | BLUE(SALT) CREEK | STREAM | | | ND | 3A | | | |
| 3610 | MELVINA POND OUTLET | LAKE | | | ND | 3A | | | |
| 3628 | DIRECT RUNOFF TO GULF | STREAM | | | ND | 3A | | | |
| 3631 | CLEARWATER CREEK | STREAM | | | ND | 3A | | | |
| 3640 | DIRECT RUNOFF TO GULF | STREAM | | BEACH CLOSURE (DELETE - SEE COMMENTS) | ND (SEE COMMENTS) | 3A | | | KEATON AND DEKLE BEACHES NOW BEING ASSESSED AS 8032A AND 8032B. |
| 8032A | DEKLE BEACH | ESTUARY | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | COLIFORMS (BEACH ADVISORY) | VL | 5 | MEDIUM | 2007 | HAS ADVISORIES FOR MORE THAN 21 DAYS IN 2001. VERIFICATION PENDING REVIEW OF DOH DATA. |
| 8032B | KEATON BEACH | ESTUARY | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | COLIFORMS (BEACH ADVISORY) | VL | 5 | MEDIUM | 2007 | HAS ADVISORIES FOR MORE THAN 21 DAYS IN 2001. VERIFICATION PENDING REVIEW OF DOH DATA. |
| 3650 | FISH CREEK | STREAM | | | ND | 3A | | | |
| 3661 | DIRECT RUNOFF TO GULF | STREAM | | BEACH CLOSURE (DELETE - SEE COMMENTS) | ND (SEE COMMENTS) | 3A | | | CEDAR BEACH NOW BEING ASSESSED AS 8032C. |
| 8032C | CEDAR BEACH | ESTUARY | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | COLIFORMS (BEACH ADVISORY) | VL | 5 | MEDIUM | 2007 | HAS ADVISORIES FOR MORE THAN 21 DAYS IN 2001. VERIFICATION PENDING REVIEW OF DOH DATA. |
| 8037A | CEDAR KEY PARK | ESTUARY | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| 3672 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3676 | DIRECT RUNOFF TO GULF | STREAM | | | ND | 3A | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3680 | DALLUS CREEK | STREAM | | | ND | 3A | | | |
| 3683 | BIVENS CREEK | STREAM | | | ND | 3A | | | |
| 3685 | SALT CREEK | STREAM | | | ND | 3A | | | |
| 3686 | FISHBONE CREEK | STREAM | | | ND | 3A | | | |
| 3688 | JACK CREEK | STREAM | | | ND | 3A | | | |
| 3689 | DIRECT RUNOFF TO GULF | STREAM | | | ND | 3A | | | |
| 3690 | DIRECT RUNOFF TO GULF | LAKE | | | ND | 3A | | | |
| 3691 | AIRPORT CANAL | STREAM | | | ND | 3A | | | |
| 3692 | UNNAMED DITCH | STREAM | | | ND | 3A | | | |
| 3694 | DIRECT RUNOFF TO GULF | STREAM | | | ND | 3A | | | |
| 3695 | DIRECT RUNOFF TO GULF | STREAM | | | ND | 3A | | | |
| 3696 | ROCKY CREEK | STREAM | | | ND | 3A | | | |
| 3697 | DIRECT RUNOFF TO GULF | STREAM | | | ND | 3A | | | |
| 3698 | PINE LOG CREEK | STREAM | | | ND | 3A | | | |
| 3700 | DIRECT RUNOFF TO GULF | STREAM | | | ND | 3A | | | |
| 3701 | DIRECT RUNOFF TO GULF | STREAM | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| 3702 | SANDERS CREEK | STREAM | | | ND | 3A | | | |
| 3705 | BUTLER (LILLY) CREEK | STREAM | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| 3706 | AMASON CREEK | STREAM | | | ND | 3A | | | |
| 3711 | LOTLY CREEK | STREAM | | | ND | 3A | | | |
| 3714 | SHIRED CREEK | STREAM | | | ND | 3A | | | |
| 3718 | DIRECT RUNOFF TO GULF | ESTUARY | | | ND | 3A | | | |
| 3720 | DIRECT RUNOFF TO GULF | STREAM | | | ND | 3A | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3721 | DIRECT RUNOFF TO GULF | STREAM | | | ND | 3A | | | |
| 3724 | DIRECT RUNOFF TO GULF | STREAM | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| 3725 | DIRECT RUNOFF TO GULF | STREAM | | | ND | 3A | | | |
| 3556A | SPRING WARRIOR CREEK | STREAM | | DISSOLVED OXYGEN | PL | 3C | | | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 8035A | SHIRED ISLAND PARK | ESTUARY | | FECAL COLIFORMS | MS | 2 | | | |
| 8032D | DARK ISLAND | ESTUARY | | FECAL COLIFORMS | MS | 2 | | | |
| 8029 | SUWANNEE GULF 1 | ESTUARY | | MERCURY-FISH | VL | 5 | LOW | 2011 | LISTED BASED ON 1997 FWCC MACKEREL ADVISORIES. |
| 8030 | SUWANNEE GULF 2 | ESTUARY | | MERCURY-FISH | VL | 5 | LOW | 2011 | LISTED BASED ON 1997 FWCC MACKEREL ADVISORIES. |
| 8031 | SUWANNEE GULF 3 | ESTUARY | | MERCURY-FISH | VL | 5 | LOW | 2011 | LISTED BASED ON 1997 FWCC MACKEREL ADVISORIES. |
| 8032 | SUWANNEE GULF 4 | ESTUARY | | MERCURY-FISH | VL | 5 | LOW | 2011 | LISTED BASED ON 1997 FWCC MACKEREL ADVISORIES. |
| 8033 | SUWANNEE GULF 5 | ESTUARY | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | MERCURY-FISH | VL | 5 | LOW | 2011 | LISTED BASED ON 1997 FWCC MACKEREL ADVISORIES. |
| 8034 | SUWANNEE GULF 6 | ESTUARY | | MERCURY-FISH | VL | 5 | LOW | 2011 | LISTED BASED ON 1997 FWCC MACKEREL ADVISORIES. |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 8035 | SUWANNEE GULF 7 | ESTUARY | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | MERCURY-FISH | VL | 5 | LOW | 2011 | LISTED BASED ON 1997 FWCC MACKEREL ADVISORIES. |
| | | | | COLIFORMS/SHELLFISH | VL | 5 | MEDIUM | 2008 | LISTED DUE TO DOWNGRADE IN SHELLFISH HARVESTING CLASSIFICATION. |
| **Santa Fe River** | | | | | | | | | |
| 3504 | OLUSTEE CREEK | STREAM | | CONDUCTIVITY | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| 3506 | NEW RIVER | STREAM | DISSOLVED OXYGEN | DISSOLVED OXYGEN | PL | 3C | LOW | 2007 | VERIFICATION PENDING DETERMINATION OF CAUSATIVE POLLUTANT. UNLESS ADDITONAL INFORMATION IS PROVIDED, PARAMETER WILL BE MOVED TO THE PLANNING LIST |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | FECAL COLIFORMS | FECAL COLIFORMS | MS | 2 | | | PROPOSE TO DELIST. |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | TOTAL COLIFORMS | TOTAL COLIFORMS | MS | 2 | | | PROPOSE TO DELIST. |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | NUTRIENTS | NUTRIENTS | MS | 2 | | | PROPOSE TO DELIST. |
| 3513 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3516A | ALLIGATOR LAKE | LAKE | TOTAL COLIFORMS | TOTAL COLIFORMS | MS | 2 | | | PROPOSE TO DELIST. |
| | | | FECAL COLIFORMS | FECAL COLIFORMS | MS | 2 | | | PROPOSE TO DELIST. |
| | | | NUTRIENTS | NUTRIENTS (TSI) | VL | 5 | LOW MEDIUM | 2007 | LINKED TO NUTRIENTS AND BOD. NITROGEN LIMITED. |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | DISSOLVED OXYGEN | VL | 5 | MEDIUM | 2007 | LINKED TO NUTRIENTS. NITROGEN LIMITED |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| 3516 | ALLIGATOR LAKE OUTLET | LAKE | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | NUTRIENTS (TSI) | VL | 5 | | | |
| | | | | DISSOLVED OXYGEN | VL | 5 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| 3517 | PRICE CREEK | STREAM | | CONDUCTIVITY | ID | 3B | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | † PL | 3C | | | VERIFICATION PENDING DETERMINATION OF CAUSITIVE POLLUTANT. UNLESS ADDITIONAL INFORMATION IS PROVIDED, PARAMETER WILL BE MOVED TO PLANNING LIST |
| 3519 | ICHETUCKNEE RIVER | STREAM | | DISSOLVED OXYGEN | MS | 4B | | | NATURAL CONDITION. RECEIVING WATER FOR ICHETUCKNEE SPRINGS (1st MAGNITUDE SPRING) AND OTHER NUMEROUS SPRINGS ALONG THE RIVER WHICH ARE SUPPRESSING DO. |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3520 | CANNON CREEK | STREAM | | FECAL COLIFORMS | VL | 5 | MEDIUM | 2007 | |
| | | | | TOTAL COLIFORMS | PL | 3C | | | MAY DELIST BASED ON ROUTINE SAMPLING |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3522 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3524 | TURKEY CREEK | STREAM | | | ND | 3A | | | |
| 3527 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3530 | SWIFT CREEK | STREAM | | CONDUCTIVITY | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | CHLOROPHYLL | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3531 | ROSE CREEK | STREAM | | | ND | 3A | | | |
| 3532 | GRANNYBAY DRAIN | STREAM | | | ND | 3A | | | |
| 3535 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3537 | UNNAMED CREEK | STREAM | | | ND | 3A | | | |
| 3539 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3540 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3541 | CENTER BAY DRAIN | STREAM | | | ND | 3A | | | |
| 3542 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3545 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3546 | RICHARD CREEK | STREAM | | IRON | ID | 3B | | | |
| | | | | CONDUCTIVITY | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| 3547 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3548 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3549 | ALLIGATOR CREEK | STREAM | | | ND | 3A | | | |
| 3552 | PINEY BAY DRAIN | STREAM | | | ND | 3A | | | |
| 3553 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3555 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3557 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3558 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3559 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3562 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3563 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3566 | LAKE BUTLER | LAKE | | MERCURY-FISH | PL | 3C | | | |
| | | | | CONDUCTIVITY | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | TSI | VL | 5 | | | MOSTLY CO-LIMITED WITH SOME PHOSPHOROUS LIMITATION |
| 3566A | LAKE BUTLER OUTLET | LAKE | | BIOLOGY | PL | 3C | | | |
| 3567 | WATEROAK CREEK | STREAM | | | ND | 3A | | | |
| 3570 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3571 | CEDAR HAMMOCK DRAIN | STREAM | | | ND | 3A | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3576 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3578 | FIVEMILE CREEK | STREAM | DISSOLVED OXYGEN | DISSOLVED OXYGEN | PL | 3C | LOW | 2007 | BLACKWATER |
| | | | FECAL COLIFORMS | FECAL COLIFORMS | PL | 3C | LOW | 2007 | |
| | | | TOTAL COLIFORMS | TOTAL COLIFORMS | PL | 3C | LOW | 2007 | |
| | | | NUTRIENTS | NUTRIENTS | PL | 3C | LOW | 2007 | |
| | | | | CONDUCTIVITY | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3579 | GUM CREEK | STREAM | | | ND | 3A | | | |
| 3583 | MCKINNEY BRANCH | STREAM | | | ND | 3A | | | |
| 3584 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3585 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3586 | FERN POND DRAIN | STREAM | | | ND | 3A | | | |
| 3587 | BROWNS STILL RUN | STREAM | | | ND | 3A | | | |
| 3589 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3590 | CYPRESS RUN | STREAM | | | ND | 3A | | | |
| 3593 A | LAKE CROSBY | LAKE | | MERCURY-FISH | PL | 3C | | | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TSI | PL | 3C | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3593 | LAKE CROSBY OUTLET | LAKE | | | ND | 3A | | | |
| 3595 | UNNAMED SLOUGH | STREAM | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3596 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3598 | SAMPSON RIVER | STREAM | | CONDUCTIVITY | MS | 2 | | | |
| | | | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3600 | HAMMOCK BRANCH | STREAM | | | ND | 3A | | | |
| 3601 | UNNAMED CREEK | STREAM | | | ND | 3A | | | |
| 3602 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3604 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3605 | SANTA FE RIVER | STREAM | | CONDUCTIVITY | MS | 2 | | | BLACKWATER |
| | | | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3606 | MINED AREA | STREAM | | | ND | 3A | | | |
| 3609 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3611 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3612 | UNNAMED CREEK | STREAM | | | ND | 3A | | | |
| 3613 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3614 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3615 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3616 | UNNAMED DITCH | STREAM | | | ND | 3A | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3617 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3619 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3620 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3621 | UNNAMED CREEK | STREAM | | | ND | 3A | | | |
| 3622 | PREVATT CREEK | STREAM | | | ND | 3A | | | |
| 3623 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3625 | UNNAMED CREEK | STREAM | | | ND | 3A | | | |
| 3626 | PARENERS BRANCH | STREAM | | FECAL COLIFORMS | VL | 5 | MEDIUM | 2007 | |
| | | | | TOTAL COLIFORMS | PL | 3C | | | MAY DELIST BASED ON ROUTINE MONITORING. |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3627 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3629 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3630 | DOUBLE RUN CREEK | STREAM | | | ND | 3A | | | |
| 3632 | BRAGGS BRANCH | STREAM | | | ND | 3A | | | |
| 3633 | HAMPTON DITCH | STREAM | | | ND | 3A | | | |
| 3634 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3637 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3638 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3639 | THERESSA SLOUGH | STREAM | | | ND | 3A | | | |
| 3641 | ROCKY CREEK | STREAM | DISSOLVED OXYGEN | DISSOLVED OXYGEN | PL | 3C | LOW | 2007 | |
| | | | FECAL COLIFORMS | FECAL COLIFORMS | PL | 3C | LOW | 2007 | PLACED ON PL BASED ON IWR. MAY DELIST BASED ON ROUTINE MONITORING |
| | | | TOTAL COLIFORMS | TOTAL COLIFORMS | PL | 3C | LOW | 2007 | PLACED ON PL BASED ON IWR. |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | NUTRIENTS | NUTRIENTS | PL | 3C | LOW | 2007 | PLACED ON PL BASED ON IWR. |
| | | | BOD | BOD | PL | 3C | LOW | 2007 | DELIST. NO CRITERION. WILL MONITOR DO. |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3642 | TOWNSEND BRANCH | STREAM | | | ND | 3A | | | |
| 3644 | MILL CREEK SINK | STREAM | | DISSOLVED OXYGEN | PL | 3C | | | MAY DELIST BASED ON ROUTINE MONITORING |
| | | | | TURBIDITY | PL | 3C | | | MAY DELIST BASED ON ROUTINE MONITORING |
| | | | | UN-IONIZED NH3 | PL | 3C | | | MAY DELIST BASED ON ROUTINE MONITORING |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| 3646 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3647 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3648 | RHUDA BRANCH | STREAM | | | ND | 3A | | | |
| 3649 | COW CREEK | STREAM | | DISSOLVED OXYGEN | † PL | 3C | | | VERIFICATION PENDING DETERMINATION OF CAUSATIVE POLLUTANT. UNLESS ADDITONAL INFORMATION IS PROVIDED, PARAMETER WILL BE MOVED TO THE PLANNING LIST |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3651 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3653 | HORNSBY SPRING RUN | SPRING | | | ND | 3A | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3654 | MONTEOCHA CREEK | STREAM | | CONDUCTIVITY | ID | 3B | | | |
| | | | | IRON | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| 3655A | TROUT POND | LAKE | | | ND | 3A | | | |
| 3655 | TROUT POND OUTLET | LAKE | | | ND | 3A | | | |
| 3656 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3657 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3658 | UNNAMED CREEK | STREAM | | | ND | 3A | | | |
| 3660 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3663 | LITTLE MONTEOCHA CREEK | STREAM | | | ND | 3A | | | |
| 3664 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3665 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3666 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3667 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3669 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3670 | BURNETTS LAKE DRAIN | STREAM | | | ND | 3A | | | |
| 3671 | ALACHUA SLOUGH | STREAM | | | ND | 3A | | | |
| 3678 | HAGUE BRANCH | STREAM | | | ND | 3A | | | |
| 3681 | TURKEY CREEK | STREAM | | CONDUCTIVITY | MS | 2 | | | |
| | | | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3682 | BLUE CREEK | STREAM | | DISSOLVED OXYGEN | PL | 3C | | | MAY DELIST BASED ON ROUTINE MONITORING |
| | | | | FECAL COLIFORMS | PL | 3C | | | MAY DELIST BASED ON ROUTINE MONITORING |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| 3504A | OLUSTEE CREEK | STREAM | | DISSOLVED OXYGEN | † PL | 3C | | | VERIFICATION PENDING DETERMINATION OF CAUSATIVE POLLUTANT. BLACKWATER. |
| | | | | CHLOROPHYLL | MS | 2 | | | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3506A | NEW RIVER | STREAM | | DISSOLVED OXYGEN | † PL | 3C | | | VERIFICATION PENDING DETERMINATION OF CAUSATIVE POLLUTANT. BLACKWATER. |
| | | | | CHLOROPHYLL | MS | 2 | | | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3506B | NEW RIVER | STREAM | | | ND | 3A | | | |
| 3519Z | ICHETUCKNEE HEAD SPRIN | SPRING | DISSOLVED OXYGEN | DISSOLVED OXYGEN | PL | 3C | LOW | 2007 | NATURAL CONDITION |
| | | | NUTRIENTS | NUTRIENTS | PL | 3C | | | PLACED ON PL BASED ON IWR. |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3531A | ROSE CREEK SINK | STREAM | | DISSOLVED OXYGEN | PL | 3C | | | |
| | | | | CONDUCTIVITY | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3598B | LAKE ROWELL | LAKE | | MERCURY-FISH | PL | 3C | | | |
| | | | NUTRIENTS | TSI | PL | 3C | LOW | 2007 | MAY DELIST BASED ON ROUTINE MONITORING |
| | | | | DISSOLVED OXYGEN | PL | 3C | | | MAY DELIST BASED ON ROUTINE MONITORING |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | IRON | MS | 2 | | | |
| 3598C | ALLIGATOR CREEK | STREAM | | DISSOLVED OXYGEN | PL | 3C | | | MAY DELIST BASED ON ROUTINE MONITORING |
| | | | | TOTAL COLIFORMS | PL | 3C | | | MAY DELIST BASED ON ROUTINE MONITORING |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | IRON | ID | 3B | | | |
| | | | | TURBIDITY | MS | 2 | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3598D | LAKE SAMPSON | LAKE | | CONDUCTIVITY | MS | 2 | | | |
| | | | | TSI | MS | 2 | | | |
| | | | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | MERCURY-FISH | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3605A | SANTA FE RIVER | STREAM | DISSOLVED OXYGEN | DISSOLVED OXYGEN | MS | 2 | | | DELISTED |
| | | | NUTRIENTS | NUTRIENTS (HISTCHLA) | VL | 5 | LOW | 2007 | NITROGEN AND PHOSPHOROUS CO-LIMITED. REASONABLE ASSURANCE PROVIDED BY SUWANNEE RIVER PARTNERSHIP DID NOT SATISFY FDEP REQUIREMENTS |
| | | | MERCURY-FISH | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | TSI | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3605B | SANTA FE RIVER | STREAM | DISSOLVED OXYGEN | DISSOLVED OXYGEN | PL | 3C | LOW | 2007 | MOVED TO PLANNING LIST PER IWR LANGUAGE |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | NUTRIENTS | NUTRIENTS (ALGAL MATS) | PL | 3C | LOW | 2007 | WHILE WE INITIALLY NOTED ON THE INTEGRATED REPORT THAT THIS WBID WAS "VERIFIED FOR ALGAL MATS," WE DID NOT HAVE SUFFICIENT INFORMATION TO CONCLUDE THAT THE ALGAL MATS WERE AN IMBALANCE IN FLORA OR FAUNA. AS WE ALSO DID NOT HAVE SUFFICIENT CHLOROPHYLL A DATA, WE SUBSEQUENTLY PLACED THE WBID ON THE PLANNING LIST BECAUSE IT WAS ON THE 1998 303(D) LIST FOR NUTRIENTS. |
| | | | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |
| 3605C | SANTA FE RIVER | STREAM | DISSOLVED OXYGEN | DISSOLVED OXYGEN | VL | 5 | MEDIUM | 2007 | VERIFICATION PENDING DETERMINATION OF CAUSATIVE POLLUTANT. LINKED TO NUTRIENTS |
| | | | NUTRIENTS | NUTRIENTS (ALGAL MATS) | PL | 3C | LOW | 2007 | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |
| | | | | CHLOROPHYLL | MS | 2 | | | |
| 3605D | SANTA FE RIVER | STREAM | | CONDUCTIVITY | MS | 2 | | | |
| | | | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3605E | SANTA FE RIVER | STREAM | | DISSOLVED OXYGEN | † PL | 3C | | | VERIFICATION PENDING DETERMINATION OF CAUSATIVE POLLUTANT |
| | | | | CHLOROPHYLL | MS | 2 | | | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3605F | ALTHO DRAINAGE | LAKE | MERCURY-FISH | MERCURY-FISH | PL | 3C | LOW | 2011 | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |
| | | | DISSOLVED OXYGEN | DISSOLVED OXYGEN | PL | 3C | LOW | 2007 | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | TSI | MS | 2 | | | |
| 3605H | LAKE ALTHO | LAKE | | CONDUCTANCE | MS | 2 | | | |
| | | | | DISSOLVED OXYGEN | PL | 3C | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TSI | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3605G | SANTA FE LAKE | LAKE | | CONDUCTIVITY | MS | 2 | | | |
| | | | | MERCURY-FISH | PL | 3C | | | FISH TISSUE SAMPLES TAKEN IN 2001 AVERAGE HIGHER THAN 0.5µg/L MERCURY |
| | | | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | TSI | MS | 2 | | | |
| 3605P | SIPHON CREEK RISE (GIL | SPRING | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | IRON | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| 3605Q | ALA 112971 | SPRING | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| 3605R | SANTA FE RISE | SPRING | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| 3605S | DEVILS EAR | SPRING | | DISSOLVED OXYGEN | ID | 3B | | | |
| 3605T | COLUMBIA SPRINGS | SPRING | | DISSOLVED OXYGEN | PL | 3C | | | |
| | | | | CONDUCTIVITY | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| 3605U | COL 61981 (Spring) | SPRING | | DISSOLVED OXYGEN | ID | 3B | | | |
| 3605W | POE SPRING | SPRING | | DISSOLVED OXYGEN | MS | 4B | | | NATURAL CONDITION. SPRING RUN IS APPROXIMATELY 200'. SAMPLING SITE APPEARS TO BE VERY CLOSE TO THE SPRING VENT AND SPRING HAS VERY SHORT RUN TO THE RIVER, THEREFORE REAREATION HAS NOT TIME TO OCCUR BEFORE BEING SAMPLED OR REACHING THE SUWANNEE RIVER.SUPPORTING DOCUMENTATON HAS BEEN PROVIDED TO EPA. |
| | | | | CONDUCTIVITY | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3605X | BLUE SPRING | SPRING | | DISSOLVED OXYGEN | MS | 4B | | | NATURAL ONDITION. SPRING RUN IS APPROXIMATELY 1050'. SAMPLING SITE APPEARS TO BE VERY CLOSE TO THE SPRING VENT AND THEREFORE REAREATION HAS NOT TIME TO OCCUR BEFORE BEING SAMPLED.SUPPORTING DOCUMENTATION HAS BEEN PROVIDED TO EPA. |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3605Y | GINNIE SPRING | SPRING | | CONDUCTIVITY | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| 3605Z | TRAIL SPRINGS | SPRING | | DISSOLVED OXYGEN | PL | 3C | | | NATURAL CONDITION |
| | | | | CONDUCTIVITY | MS | 2 | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| 3635A | HAMPTON LAKE | LAKE | | MERCURY-FISH | PL | 3C | | | |
| | | | DISSOLVED OXYGEN | DISSOLVED OXYGEN | PL | 3C | LOW | 2007 | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TSI | MS | 2 | | | |
| 3635B | HAMPTON LAKE OUTLET | LAKE | | | ND | 3A | | | |
| 3649A | WATERS LAKE | LAKE | | CONDUCTIVITY | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| 3653Z | HORNSBY SPRING | SPRING | | DISSOLVED OXYGEN | MS | 4B | | | NATURAL CONDITION. SPRING RUN IS APPROXIMATELY 3800'. SAMPLING SITE APPEARS TO BE VERY CLOSE TO THE SPRING VENT AND THEREFORE REAREATION HAS NOT TIME TO OCCUR BEFORE BEING SAMPLED.SUPPORTING DOCUMENTATION HAS BEEN PROVIDED TO EPA. |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| **Steinhatchee** | | | | | | | | | |
| 3536 | SAN PEDRO BAY | STREAM | | | ND | 3A | | | |
| 3554 | KETTLE CREEK | STREAM | | | ND | 3A | | | |
| 3569 | REEDY CREEK | STREAM | | | ND | 3A | | | |
| 3573 | STEINHATCHEE RIVER | STREAM | | DISSOLVED OXYGEN | † PL | 3C | | | VERIFICATION PENDING DETERMINATION OF CAUSATIVE POLLUTANT |
| 3573C | STEINHATCHEE RIVER | ESTUARY | | CHLOROPHYLL | MS | 2 | | | |
| | | | | DISSOLVED OXYGEN | † PL | 3C | | | VERIFICATION PENDING DETERMINATION OF CAUSATIVE POLLUTANT |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | COPPER | MS | 2 | | | |
| | | | | IRON | MS | 2 | | | |
| | | | | NICKEL | MS | 2 | | | |
| | | | | ZINC | MS | 2 | | | |
| 3573Y | HAMPTON SPRINGS | SPRING | | | ND | 3A | | | |
| 3574 | OWL CREEK | STREAM | | | ND | 3A | | | |
| 3575 | BRITT CREEK | STREAM | | | ND | 3A | | | |
| 3577 | CALIFORINA (ROCKY) CR | STREAM | | DISSOLVED OXYGEN | PL | 3C | | | |
| | | | | CHLOROPHYLL | ID | 3B | | | |
| | | | | CONDUCTIVITY | ID | 3B | | | |
| | | | | COPPER | ID | 3B | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | IRON | ID | 3B | | | |
| | | | | NICKEL | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| | | | | ZINC | ID | 3B | | | |
| 3581 | BEAR BAY DRAIN | STREAM | | | ND | 3A | | | |
| 3582 | CALF CREEK | STREAM | | | ND | 3A | | | |
| 3588 | MUD CREEK | STREAM | | | ND | 3A | | | |
| 3599 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3603 | BEVINS (BOGGY) CREEK | STREAM | COLIFORMS | TOTAL COLIFORMS | PL | 3C | (LOW) | (2002) | ONGOING MONITORING. MOVED TO PLANNING LIST PER IWR LANGUAGE |
| | | | COLIFORMS | FECAL COLIFORMS | PL | 3C | | | ONGOING MONITORING. MOVED TO PLANNING LIST PER IWR LANGUAGE |
| | | | DISSOLVED OXYGEN | DISSOLVED OXYGEN | PL | 3C | (LOW) | (2002) | ONGOING MONITORING |
| | | | BOD | BOD | PL | 3C | (LOW) | (2002) | ONGOING MONITORING |
| | | | | CHLOROPHYLL | ID | 3B | | | |
| | | | | CONDUCTIVITY | ID | 3B | | | |
| | | | | COPPER | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | IRON | ID | 3B | | | |
| | | | | NICKEL | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| | | | | ZINC | ID | 3B | | | |
| 3607 | EIGHTMILE CREEK | STREAM | | CHLOROPHYLL | ID | 3B | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | CONDUCTIVITY | ID | 3B | | | |
| | | | | COPPER | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | IRON | ID | 3B | | | |
| | | | | NICKEL | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3645 | WOLF CREEK | STREAM | | | ND | 3A | | | |
| 3659 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3674 | SAND HILL CREEK | STREAM | | DISSOLVED OXYGEN | PL | 3C | | | |
| | | | | CHLOROPHYLL | ID | 3B | | | |
| | | | | COPPER | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | IRON | ID | 3B | | | |
| | | | | NICKEL | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| | | | | ZINC | ID | 3B | | | |
| 3677 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3573A | STEINHATCHEE RIVER | STREAM | | CONDUCTIVITY | MS | 2 | | | |
| | | | | COPPER | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | MS | 2 | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | IRON | MS | 2 | | | |
| | | | | NICKEL | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | ZINC | ID | 3B | | | |
| 3573B | STEINHATCHEE RIVER | STREAM | DISSOLVED OXYGEN | DISSOLVED OXYGEN | PL | 3C | LOW | 2002 | NEEDS ADDITIONAL DATA. MAY BE NATURAL. IF NOT, NEED TO LINK TO POLLUTANT. |
| | | | | CHLOROPHYLL | MS | 2 | | | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | COPPER | ID | 3B | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | IRON | PL | 3C | | | |
| | | | | NICKEL | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | ZINC | ID | 3B | | | |
| 3573X | STEINHATCHEE RISE | SPRING | | DISSOLVED OXYGEN | ND | 3A | | | |
| 3573Z | STEINHATCHEE SPRING | SPRING | | DISSOLVED OXYGEN | PL | 3C | | | NATURAL CONDITION |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| **Upper Suwannee** | | | | | | | | | |
| 3333 | BELL CREEK SWAMP | STREAM | | | ND | 3A | | | |
| 3334 | CYPRESS CREEK | STREAM | | | ND | 3A | | | |
| 3336 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3338 | TOMS CREEK | STREAM | | | ND | 3A | | | |
| 3341 | SUWANNEE RIVER (UPPER) | STREAM | DISSOLVED OXYGEN | DISSOLVED OXYGEN | PL | 3C | LOW | 2002 | PARAMETER IS BELIEVED TO BE A NATURAL CONDITION. DOCUMENTATION IS BEING PROVIDED TO EPA IN SUPPORT OF THIS. |
| | | | NUTRIENTS | NUTRIENTS | MS | 2 | | | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | CHLOROPHYLL | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |
| 3342 | UNNAMED CREEK | STREAM | | | ND | 3A | | | |
| 3343 | SANDLIN BAY DRAIN | STREAM | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |
| 3345 | LITTLE SUWANNEE CREEK | STREAM | | | ND | 3A | | | |
| 3347 | DOUBLE RUN SWAMP | STREAM | | | ND | 3A | | | |
| 3351 | ROCKY CREEK NR BENTON | STREAM | | DISSOLVED OXYGEN | MS | 4B | | | PARAMETER IS BELIEVED TO BE A NATURAL CONDITION. DOCUMENTATION IS BEING PROVIDED TO EPA IN SUPPORT OF THIS. |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | CHLOROPHYLL | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| 3353 | BAY CREEK | STREAM | | | ND | 3A | | | |
| 3358 | TIGER CREEK | STREAM | | | ND | 3A | | | |
| 3360 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3361 | UNNAMED DITCH | STREAM | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |
| 3363 | UNNAMED RUN | STREAM | | | ND | 3A | | | |
| 3364 | HUNTER CREEK | STREAM | | CONDUCTIVITY | MS | 2 | | | |
| | | | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3365 | LEE RUN | STREAM | | | ND | 3A | | | |
| 3368 | LITTLE CREEK | STREAM | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. BLACKWATER. |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3370 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3371 | CAT CREEK | STREAM | | | ND | 3A | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3372 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3374 | UNNAMED SINK | STREAM | | | ND | 3A | | | |
| 3375 | SWIFT CREEK | STREAM | DISSOLVED OXYGEN | DISSOLVED OXYGEN | PL | 3C | LOW | 2002 | DUE TO ONGOING CHALLLENGE, THIS PARAMETER HAS BEEN MOVED TO THE PLANNING LIST. SUBJECT TO CHANGE PENDING OUTCOME OF CHALLENGE AND ANY LITIGATION. |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | NUTRIENTS | CHLOROPHYLL | PL | 3C | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | TSS | TSS | PL | 3C | | | WILL MONITOR FOR TURBIDITY. PLACED ON PLANNING LIST PER IWR LANGUAGE |
| 3376 | UNNAMED DRAIN | STREAM | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |
| 3378 | UNNAMED RUN | STREAM | | | ND | 3A | | | |
| 3380 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3381 | MINED AREA | STREAM | | | ND | 3A | | | |
| 3383 | COWHOUSE BAY DRAIN | STREAM | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |
| 3384 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3385 | MITCHELL CREEK | STREAM | | | ND | 3A | | | |
| 3386 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3387 | UNNAMED SLOUGH | STREAM | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |
| 3388 | DEEP CREEK | STREAM | FECAL COLIFORMS | FECAL COLIFORMS | PL | 3C | LOW | 2002 | BLACKWATER. |
| | | | TOTAL COLIFORMS | TOTAL COLIFORMS | PL | 3C | | | ADDED TO PL BASED ON IWR |
| | | | DISSOLVED OXYGEN | DISSOLVED OXYGEN | MS | 4B | | | PARAMETER IS BELIEVED TO BE A NATURAL CONDITION. DOCUMENTATION IS BEING PROVIDED TO EPA IN SUPPORT OF THIS. |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | NUTRIENTS | NUTRIENTS | MS | 2 | | | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WTHIN 7.5 YEARS FOR FISH. |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | CHLOROPHYLL | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| 3389 | SUGER CREEK | STREAM | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | FECAL COLIFORMS | PL | 3C | | | |
| | | | | CONDUCTIVITY | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3390 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3391 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3392 | ROARING CREEK | STREAM | TURBIDITY | TURBIDITY | MS | 2 | | | PROPOSE TO DELIST. BLACKWATER. |
| | | | DISSOLVED OXYGEN | DISSOLVED OXYGEN | MS | 4B | | | PARAMETER IS BELIEVED TO BE A NATURAL CONDITION. DOCUMENTATION IS BEING PROVIDED TO EPA IN SUPPORT OF THIS. |
| | | | NUTRIENTS | NUTRIENTS | PL | 3C | | | PLACED ON PL BASED ON IWR |
| | | | TSS | TSS | MS | 2 | | | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | CHLOROPHYLL | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3393 | HOLTON CREEK | STREAM | | | ND | 3A | | | |
| 3394 | RATLIFF CREEK | STREAM | | | ND | 3A | | | |
| 3395 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3396 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3397 | UNNAMED STREAM | STREAM | | | ND | 3A | | | |
| 3398 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3399 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3400 | MILL CREEK | STREAM | | | ND | 3A | | | |
| 3401 | CAMP BRANCH | STREAM | DISSOLVED OXYGEN | DISSOLVED OXYGEN | MS | 4B | LOW | 2002 | PARAMETER IS BELIEVED TO BE A NATURAL CONDITION. DOCUMENTATION IS BEING PROVIDED TO EPA IN SUPPORT OF THIS. |
| | | | NUTRIENTS | NUTRIENTS | MS | 2 | | | PROPOSE TO DELIST |
| | | | TOTAL COLIFORMS | TOTAL COLIFORMS | PL | 3C | (LOW) | (2002) | |
| | | | FECAL COLIFORMS | FECAL COLIFORMS | PL | 3C | (LOW) | (2002) | PLACED ON PL BASED ON IWR |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3404 | UNNAMED SLOUGH | STREAM | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |
| 3405 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3406 | UNNAMED DITCH | STREAM | | | ND | 3A | | | |
| 3408 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3409 | UNNAMED STREAM | STREAM | | | ND | 3A | | | |
| 3410 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3411 | UNNAMED CREEK | STREAM | | | ND | 3A | | | |
| 3413 | UNNAMED BRANCH | STREAM | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |
| 3414 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3415 | UNNAMED CREEK | STREAM | | | ND | 3A | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3416 | UNNAMED CREEK | STREAM | | | ND | 3A | | | |
| 3418 | UNNAMED CREEK | STREAM | | | ND | 3A | | | |
| 3420 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3421 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3423 | JERRY BRANCH | STREAM | | DISSOLVED OXYGEN | PL | 3C | | | BLACKWATER. ONGOING ROUTINE MONITORING. |
| | | | | CHLOROPHYLL | ID | 3B | | | |
| | | | | CONDUCTIVITY | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3425 | LONG BRANCH | STREAM | | | ND | 3A | | | |
| 3427 | POUCHER BRANCH | STREAM | | | ND | 3A | | | |
| 3429 | SAL MARIE BRANCH | STREAM | | | ND | 3A | | | |
| 3431 | UNNAMED CREEK | STREAM | | | ND | 3A | | | |
| 3432 | DEXTER LAKE OUTLET | STREAM | | | ND | 3A | | | |
| 3433 | LITTLE BRANCH | STREAM | | | ND | 3A | | | |
| 3434 | HARE LAKE OUTLET | LAKE | | | ND | 3A | | | |
| 3434A | HARE LAKE | LAKE | | | ND | 3A | | | |
| 3435 | FOUR MILE BRANCH | STREAM | | | ND | 3A | | | |
| 3437 | BROWNS BRANCH | STREAM | | | ND | 3A | | | |
| 3441 | ONEMILE BAY DRAIN | STREAM | | | ND | 3A | | | |
| 3443 | SANDY DRAIN | STREAM | | | ND | 3A | | | |
| 3444 | CAMP BRANCH | STREAM | | | ND | 3A | | | |
| 3445 | CANEY FLAT BRANCH | STREAM | | | ND | 3A | | | |
| 3446 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3447 | WORKMAN LAKE OUTLET | STREAM | | | ND | 3A | | | |
| 3448 | ROBINSON CREEK | STREAM | | DISSOLVED OXYGEN | MS | 4B | | | PARAMETER IS BELIEVED TO BE A NATURAL CONDITION. DOCUMENTATION IS BEING PROVIDED TO EPA IN SUPPORT OF THIS. |
| | | | | CHLOROPHYLL | MS | 2 | | | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3449 | ROCKY CRK NR WELLBORN | STREAM | | | ND | 3A | | | BLACKWATER. |
| 3450 | UNNAMED STREAM | STREAM | | | ND | 3A | | | |
| 3451 | UNNAMED CREEK | STREAM | | | ND | 3A | | | |
| 3452 | GREENS PRAIRIE DRAIN | STREAM | | | ND | 3A | | | |
| 3454 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3455 | UNNAMED STREAM | STREAM | | | ND | 3A | | | |
| 3459 | LAKE LOUISE OUTLET | LAKE | | | ND | 3A | | | |
| 3459A | LAKE LOUISE | LAKE | | CONDUCTANCE | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| 3460 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3461 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3462 | TIGER BRANCH | STREAM | | | ND | 3A | | | |
| 3463 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3464 | FALLING CREEK | STREAM | | | ND | 3A | | | |
| 3465 | TURKEY PRAIRIE DRAIN | STREAM | | | ND | 3A | | | |
| 3466 | OLD BULB FARM DRAIN | STREAM | | FECAL COLIFORMS | ND | 3B | | | |
| | | | | TOTAL COLIFORMS | ND | 3B | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | TURBIDITY | ND | 3B | | | |
| 3468 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3474 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3477 | FALLING CREEK | STREAM | FECAL COLIFORMS | FECAL COLIFORMS | MS | 2 | | | DELIST. BLACKWATER. |
| | | | TOTAL COLIFORMS | TOTAL COLIFORMS | MS | 2 | | | DELIST. |
| | | | DISSOLVED OXYGEN | DISSOLVED OXYGEN | MS | 4B | HIGH | 2002 | PARAMETER IS BELIEVED TO BE A NATURAL CONDITION. DOCUMENTATION IS BEING PROVIDED TO EPA IN SUPPORT OF THIS. |
| | | | NUTRIENTS | NUTRIENTS | PL | 3C | HIGH | 2002 | NITROGEN LIMITED. |
| | | | | CHLOROPHYLL | MS | 2 | | | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| 3478 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3481 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3484 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3486 | LAKE LONA SINK | LAKE | | | ND | 3A | | | |
| 3487 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3488 A | WATERTOWN LAKE | LAKE | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| 3488 | WATERTOWN LAKE OUTLET | LAKE | | | ND | 3A | | | |
| 3490 | UNNAMED RUN | STREAM | | | ND | 3A | | | |
| 3491 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3493 | BORROW PITS | LAKE | | CONDUCTIVITY | ID | 3B | | | |
| | | | | IRON | ID | 3B | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | LEAD | PL | 3C | | | |
| | | | | NUTRIENTS | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| | | | | ZINC | ID | 3B | | | |
| 3494 | UNNAMED SLOUGH | STREAM | | | ND | 3A | | | |
| 3499A | LAKE JEFFERY | LAKE | | CONDUCTIVITY | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| 3499 | LAKE JEFFERY OUTLET | LAKE | BIOLOGY | BIOLOGY | ID | 3C | | | SURVEYED BUT NO WATER - EPHEMERAL STREAM. |
| | | | | CONDUCTIVITY | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| 3503 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |
| 3341A | SUWANNEE RIVER (UPPER) | STREAM | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. BLACKWATER |
| | | | | CHLOROPHYLL | MS | 2 | | | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | DISSOLVED OXYGEN | MS | 2 | | | |
| 3341B | SUWANNEE RIVER (UPPER) | STREAM | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. BLACKWATER. |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | CHLOROPHYLL | MS | 2 | | | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3341C | SUWANNEE RIVER (UPPER) | STREAM | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. BLACKWATER. |
| | | | | CONDUCTIVITY | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3341W | LIME RUN SINK | SPRING | | DISSOLVED OXYGEN | ID | 3B | | | |
| 3341Y | SUWANNEE SPRINGS | SPRING | | CONDUCTIVITY | MS | 2 | | | |
| | | | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3341Z | WHITE SPRINGS (Hamilto | SPRING | | DISSOLVED OXYGEN | PL | 3C | | | |
| | | | | CONDUCTIVITY | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3364A | TAILINGS POND | LAKE | | | ND | 3A | | | |
| 3393Z | HOLTON CREEK RISE | SPRING | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| | | | | IRON | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| **Waccasassa River** | | | | | | | | | |
| 1313 | COW CREEK | STREAM | | | ND | 3A | | | |
| 1315 | MULE CREEK | STREAM | | | ND | 3A | | | |
| 1317 | ROCKY RUN | STREAM | | | ND | 3A | | | |
| 1318 | DOUBLE BARREL CREEK | STREAM | | | ND | 3A | | | |
| 1322 | BIRD CREEK | STREAM | | | ND | 3A | | | |
| 1325 | TENMILE CREEK | STREAM | | DISSOLVED OXYGEN | PL | 3C | | | MAY DELIST BASED ON ROUTINE MONITORING. |
| | | | | TOTAL COLIFORMS | PL | 3C | | | MAY DELIST BASED ON ROUTINE MONITORING. |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | CHLOROPHYLL | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | FLUORIDE | ID | 3B | | | |
| 1326 | SHEEPHEAD CREEK | ESTUARY | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| 1328 | DIRECT RUNOFF TO GULF | ESTUARY | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| 1331 | UNNAMED DRAIN | STREAM | | | ND | 3A | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 1332 | DIRECT RUNOFF TO GULF | ESTUARY | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| 1333 | SPRING RUN | STREAM | | | ND | 3A | | | |
| 1335 | DIRECT RUNOFF TO GULF | STREAM | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| 3675 | NONCONTRIBUTING AREA | STREAM | | | ND | 3A | | | |
| 3699 | WACCASASSA RIVER | STREAM | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |
| | | | | TOTAL COLIFORMS | VL | 5 | MEDIUM | 2007 | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | CHLOROPHYLL | MS | 2 | | | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3703 | LITTLE WACCASASSA RIVE | STREAM | DISSOLVED OXYGEN | DISSOLVED OXYGEN | PL | 3C | LOW | 2007 | PLACED ON PLANNING LIST BASED ON IWR LANGUAGE |
| | | | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |
| 3712 | UNNAMED SLOUGH | LAKE | | MERCURY-FISH | PL | 3C | | | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. |
| 3719 | OTTER CREEK | STREAM | | | ND | 3A | | | |
| 3723 | MAGEE BRANCH | STREAM | | | ND | 3A | | | |
| 3728 | KELLY CREEK | STREAM | | | ND | 3A | | | |
| 3729 | BLACK POINT SWAMP | STREAM | | CONDUCTIVITY | PL | 3C | | | |
| | | | | NUTRIENTS | VL | 5 | | | NITROGEN AND CO- LIMITED |
| | | | | CHLOROPHYLL | MS | 2 | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| 3731 | WEKIVA RIVER | STREAM | | | ND | 3A | | | |
| 3734 | JACKS CREEK | STREAM | | | ND | 3A | | | |
| 3736 | BULLFROG SLOUGH | STREAM | | | ND | 3A | | | |
| 3738 | SAND SLOUGH | STREAM | | | ND | 3A | | | |
| 3739 | DIRECT RUNOFF TO GULF | ESTUARY | | | ND | 3A | | | |
| 3740 | DIRECT RUNOFF TO GULF | STREAM | | | ND | 3A | | | |
| 3742 | N PRONG TENMILE CREEK | STREAM | | | ND | 3A | | | |
| 3743 | DIRECT RUNOFF TO GULF | STREAM | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TURBIDITY | MS | 2 | | | |
| 3746 | SAPLING BRANCH | STREAM | | | ND | 3A | | | |
| 3747 | HORSEHOLE CREEK | STREAM | DISSOLVED OXYGEN | DISSOLVED OXYGEN | PL | 3C | LOW | 2007 | PLACED ON PL BASED ON IWR. MAY DELIST BASED ON ROUTINE MONITORING |
| 1313A | COW CREEK | STREAM | | | ND | 3A | | | |
| 3699A | WACCASASSA RIVER | STREAM | | | ND | 3A | | | |
| 3699B | WACCASASSA RIVER | ESTUARY | | DISSOLVED OXYGEN | ND (SEE COMMENTS) | 3A | | | SEVERAL STATION IN THIS WBID ARE NOW BEING ASSESSED UNDER 8038 |
| | | | | FECAL COLIFORMS | ND (SEE COMMENTS) | 3A | | | SEVERAL STATION IN THIS WBID ARE NOW BEING ASSESSED UNDER 8038 |
| | | | | TURBIDITY | ND (SEE COMMENTS) | 3A | | | SEVERAL STATION IN THIS WBID ARE NOW BEING ASSESSED UNDER 8039 |
| 3703A | WATERMELLON POND | LAKE | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | TSI | MS | 2 | | | |
| | | | | TURBIDITY | ID | 3B | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3703B | BLUE SPRING NR BRONSON | SPRING | | DISSOLVED OXYGEN | ID | 3B | | | |
| 3731A | LAKE MARION - OPEN WAT | LAKE | | CONDUCTIVITY | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | IRON | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3731Z | WEKIVA SPRING | SPRING | | | ND | 3A | | | |
| 3738A | LITTLE BONABLE LAKE - | LAKE | | CONDUCTIVITY | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | IRON | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3738B | BONABLE LAKE - OPEN WA | LAKE | | CONDUCTIVITY | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | IRON | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3738C | TIGER LAKE - OPEN WATE | LAKE | | CONDUCTIVITY | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | IRON | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 8037 | WACCASASSARIVER GULF 1 | ESTUARY | | DISSOLVED OXYGEN | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | ID | 2 | | | |
| | | | | MERCURY-FISH | VL | 5 | LOW | 2011 | LISTED BASED ON 1997 FWCC MACKEREL ADVISORIES. |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | | COLIFORMS/SHELLFISH | VL | 5 | MEDIUM | 2008 | LISTED DUE TO DOWNGRADE IN SHELLFISH HARVESTING CLASSIFICATION. |
| 8038 | WACCASASSA RIVER GULF 2 | ESTUARY | | MERCURY-FISH | VL | 5 | LOW | 2011 | LISTED BASED ON 1997 FWCC MACKEREL ADVISORIES. |
| | | | | COLIFORMS/SHELLFISH | VL | 5 | MEDIUM | 2008 | LISTED DUE TO DOWNGRADE IN SHELLFISH HARVESTING CLASSIFICATION. |
| | | | | TURBIDITY | MS | 2 | | | |
| | | | | DISSOLVED OXYGEN | MS | 2 | | | INCLUDES STATIONS FORMERLY ASSESSED IN WBID 3699B |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| **Withlacoochee River** | | | | | | | | | |
| 3315 | WITHLACOOCHEE RIVER | STREAM | MERCURY-FISH | MERCURY-FISH | PL | 3C | LOW | 2011 | VERIFY DATA ARE WITHIN 7.5 YEARS FOR FISH. SEASONAL DO SSAC IN PLACE FOR PART OF RIVER |
| | | | DISSOLVED OXYGEN | DISSOLVED OXYGEN | MS (SEE COMMENTS) | 2 | | | SEASONAL SSAC IN PLACE FOR A SEGMENT OF THIS WBID, UPON TAKING THE SSAC INTO CONSIDERATION, THIS PARAMETER MEETS STANDARDS PER IWR. |
| | | | NUTRIENTS | NUTRIENTS | PL | 3C | LOW | 2007 | PLACED ON PL BY USING LANGUAGE IN IWR |
| | | | TURBIDITY | TURBIDITY | MS | 2 | | | DELIST |
| | | | | CHLOROPHYLL | MS | 2 | | | |
| | | | | CONDUCTIVITY | MS | 2 | | | |
| | | | | FECAL COLIFORMS | MS | 2 | | | |
| | | | | FLUORIDE | MS | 2 | | | |
| | | | | UN-IONIZED NH3 | MS | 2 | | | |
| | | | | TOTAL COLIFORMS | MS | 2 | | | |
| 3315A | SUWANACOOCHEE SPRING | SPRING | | CONDUCTIVITY | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| 3318 | JUMPING GULLY CREEK | STREAM | DISSOLVED OXYGEN | DISSOLVED OXYGEN | PL | 3C | LOW | 2007 | PLACED ON PLANNING LIST PER IWR LANGUAGE |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| | | | NUTRIENTS | NUTRIENTS | PL | 3C | LOW | 2007 | PLACED ON PLANNING LIST PER IWR LANGUAGE |
| | | | TURBIDITY | TURBIDITY | PL | 3C | LOW | 2007 | PLACED ON PLANNING LIST PER IWR LANGUAGE |
| 3319 A | LAKE ALCYON | LAKE | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| 3319 | LAKE ALCYON OUTLET | LAKE | | BIOLOGY | MS | 2 | | | |
| 3321A | LAKE OCTAHATCHEE | LAKE | | CONDUCTIVITY | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3321 | LAKE OCTAHATCHEE OUTLET | LAKE | | CONDUCTIVITY | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | UN-IONIZED NH3 | ID | 3B | | | |
| 3322 A | LAKE CHERRY | LAKE | | CONDUCTIVITY | ID | 3B | | | |
| | | | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | TOTAL COLIFORMS | ID | 3B | | | |
| | | | | TSI | MS | 2 | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| 3322 | LAKE CHERRY OUTLET | LAKE | | | ND | 3A | | | |
| 3340 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |

| WBID | Water Segment Name | Waterbody Type | 1998 303(d) Parameters of Concern | Parameters Assessed Using The Impaired Waters Rule | Proposed Status‡ | EPA's Integrated Report Category* | Priority For TMDL Development** | Projected Year For TMDL Development | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 3354 | UNNAMED BRANCH | STREAM | | | ND | 3A | | | |
| 3366 A | LAKE FRANCIS | LAKE | | DISSOLVED OXYGEN | ID | 3B | | | |
| | | | | FECAL COLIFORMS | ID | 3B | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| 3366A | LAKE FRANCIS OUTLET | LAKE | | BIOLOGY | PL | 3C | | | |
| 3315Z | BLUE SPRINGS | SPRING | | DISSOLVED OXYGEN | PL | 3C | | | |
| | | | | TURBIDITY | ID | 3B | | | |
| | | | | CONDUCTIVITY | ID | 3B | | | |
| 3341X | ALAPAHA RISE | SPRING | | | ND | 3A | | | |

†THIS PARAMETER IS IMPAIRED UNDER THE IWR, HOWEVER NO PULLUTANT HAS BEEN IDENTIFIED. AS A RESULT, THE PARAMETER HAS BEEN MOVED TO THE PLANNING LIST. MORE SAMPLING MAY BE NEEDED IN ORDER TO DETERMINE THE CAUSITIVE POLLUTANT.

***EPA's Integrated Report Category:**

1 - Attains all designated uses
2 - Attains some designated uses
3a - No data and information available to determine if any designated use is attained
3b - Some data and information available but they are insufficient for determining if any designated use is attained
3c - Meets planning list criteria and is potentially impaired for one or more designated uses
4a - Impaired for one or more designated uses and the TMDL is complete
4b - Impaired for one or more designated uses but no TMDL will be developed because theimpairment is not caused by a pollutant
4c - Impaired for one or more designated uses, but no TMDL is required because a proposed pollution control measure provides reasonable assurance that the water will attain standards in the future
5 - Water quality standards are not attained and a TMDL is required.

** Priorities were retained from the 1998 303(d) list (i.e., High or Low), but High, Medium, and Low are used for newly listed waters identified under the IWR.

Dates and priorities placed within parenthesis indicate a TMDL is scheduled under the terms of the Consent Decree between EPA and Earthjustice, but for which sufficient information is lacking to assess under the IWR.

‡ Proposed Status:
MS = Meets Standards
PL = Planning List
VL = Verified List
ID = Insufficient Data
ND = No Data

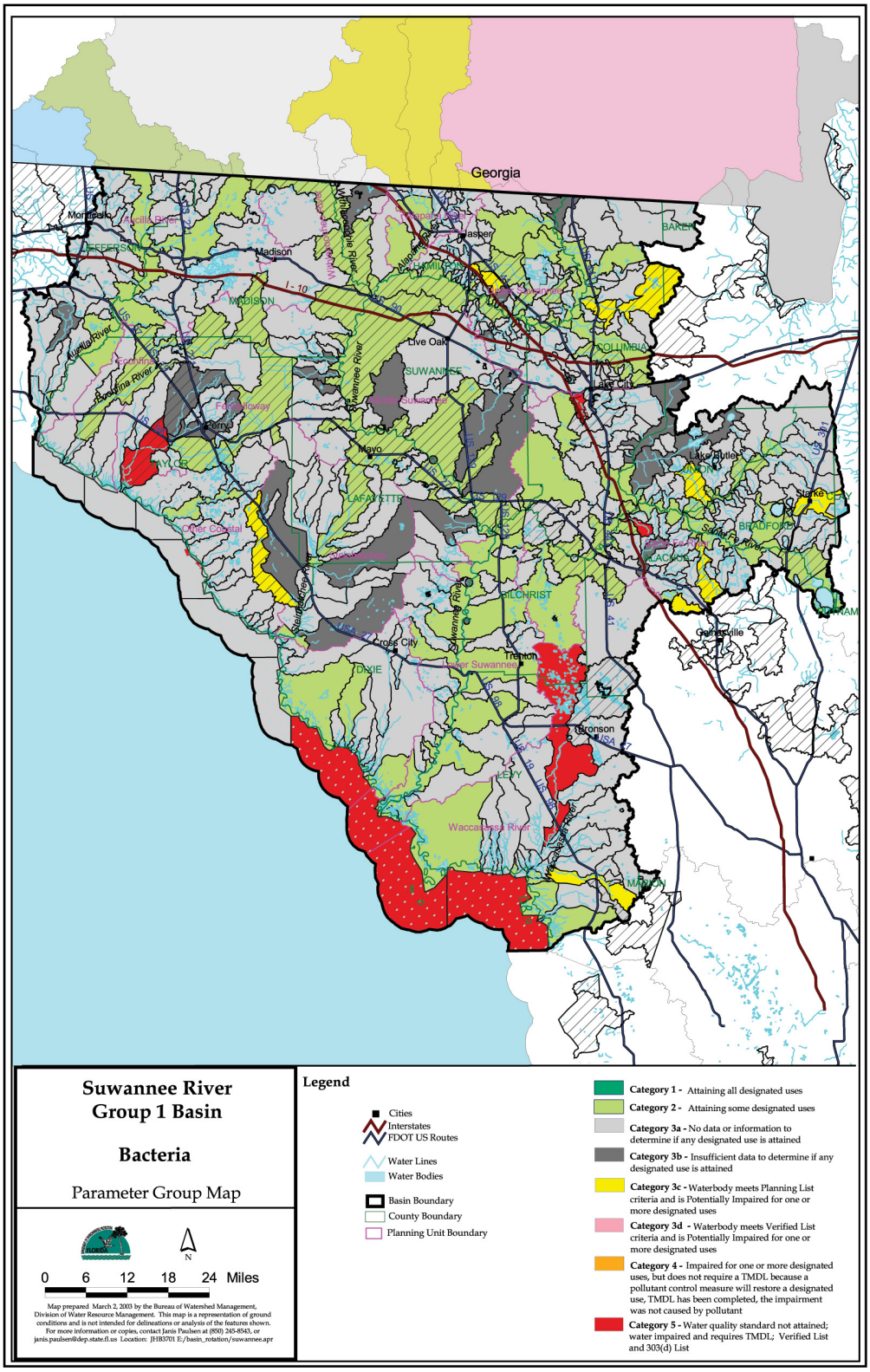



**Figure E.1 Basinwide Parameter Assessment for Bacteria**

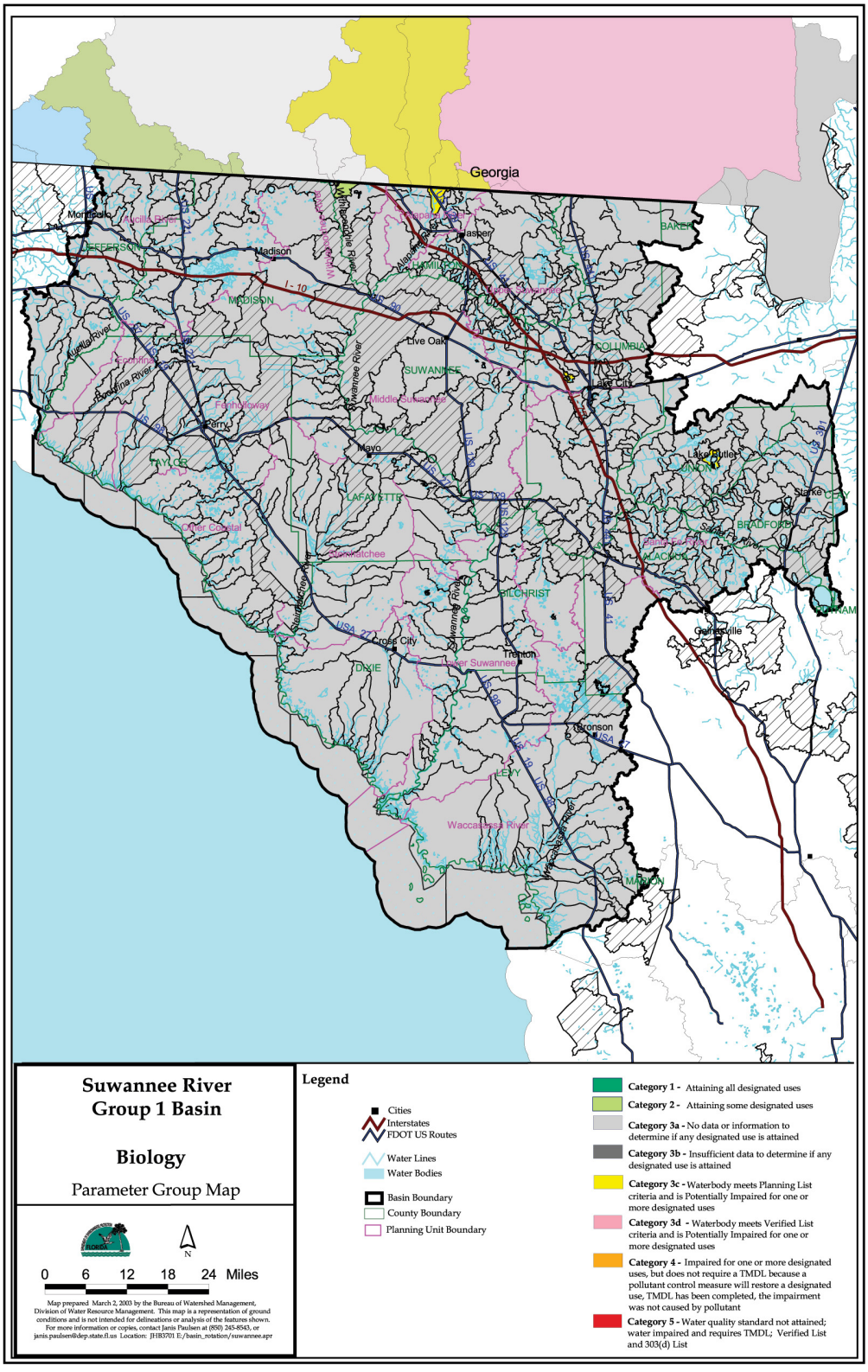



**Figure E.2 Basinwide Parameter Assessment for Biology**

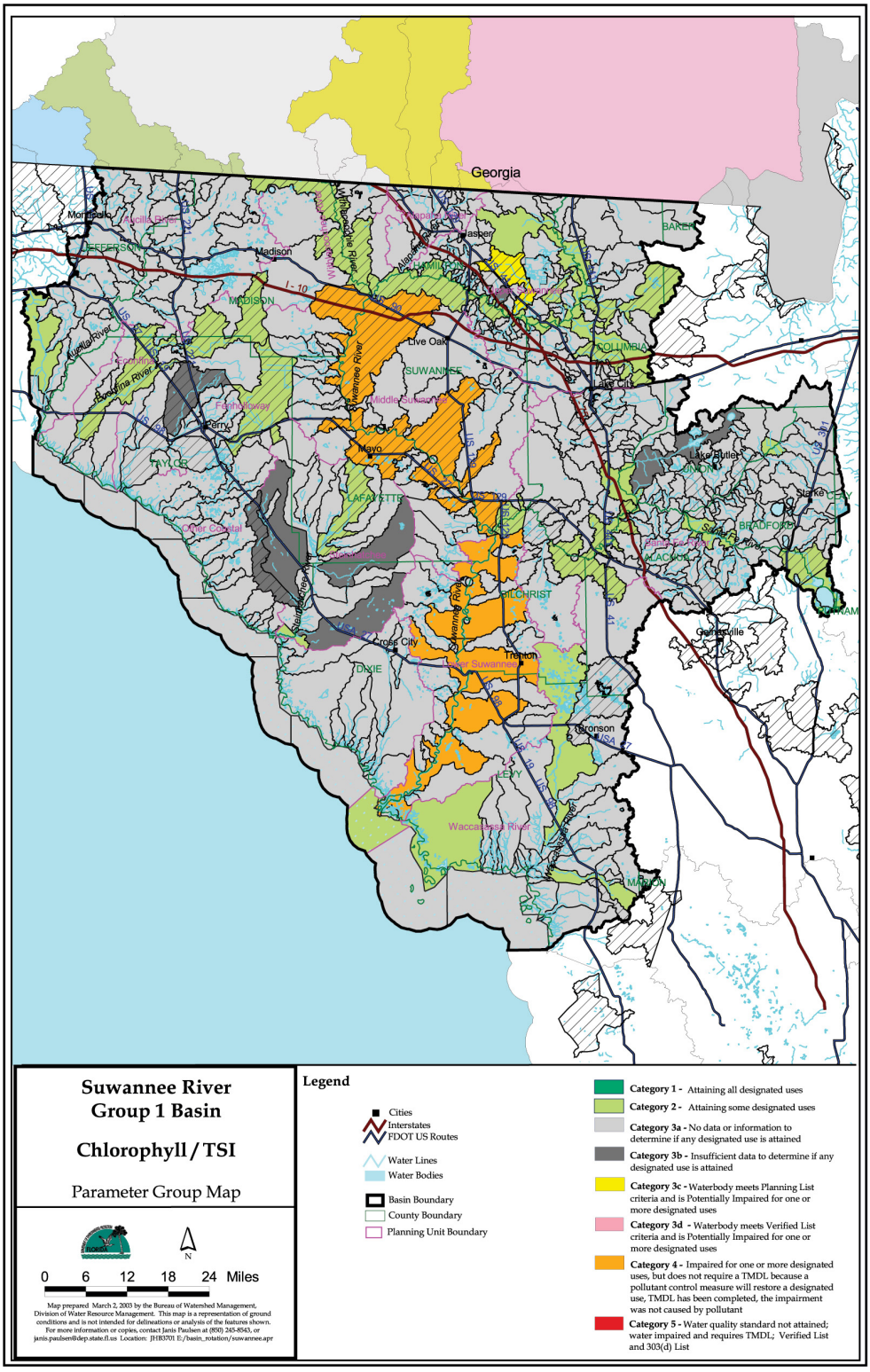



**Figure E.3 Basinwide Parameter Assessment for Chlorophyll/TSI**

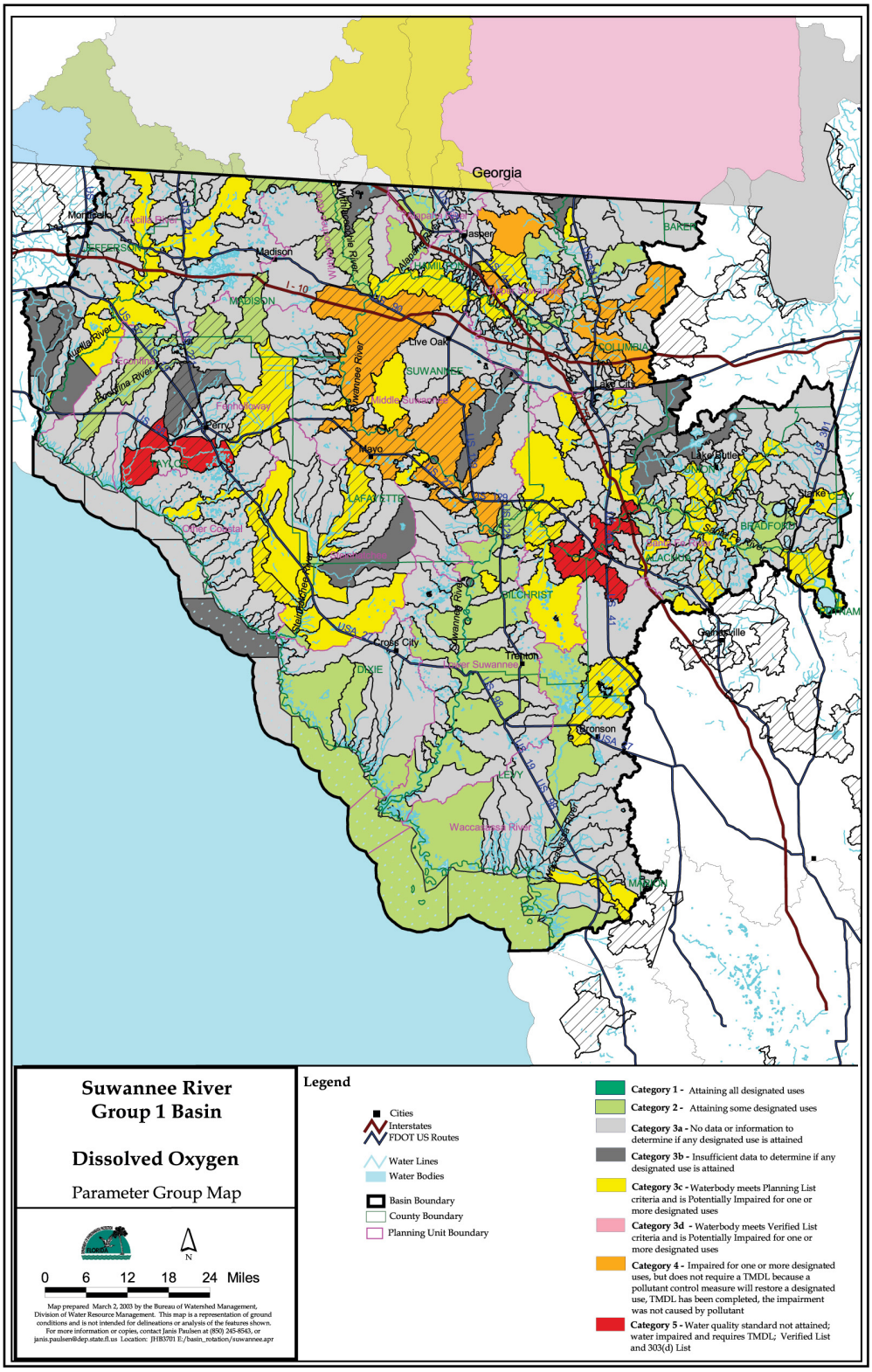



**Figure E.4 Basinwide Parameter Assessment for Dissolved Oxygen**

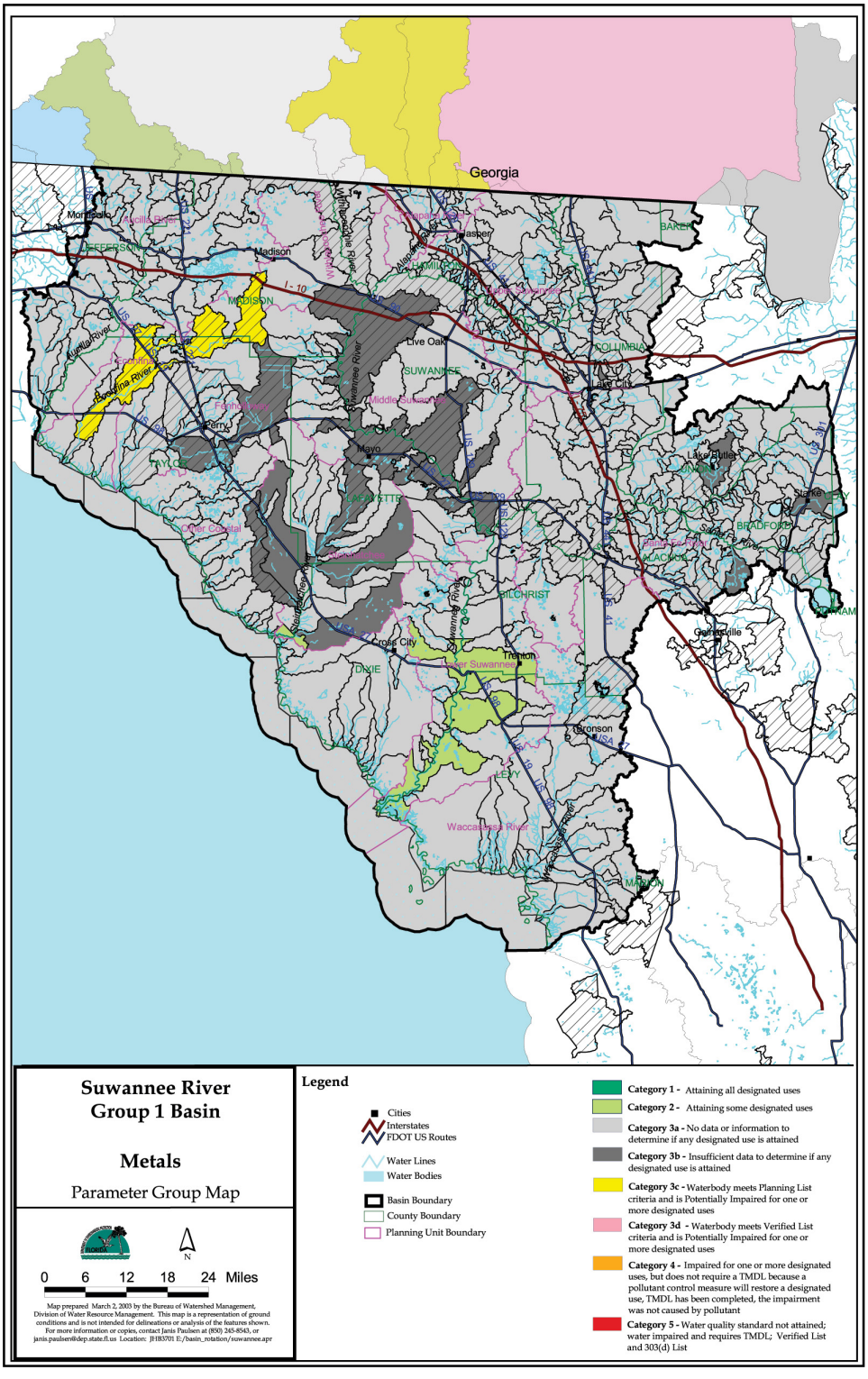



**Figure E.5 Basinwide Parameter Assessment for Metals**

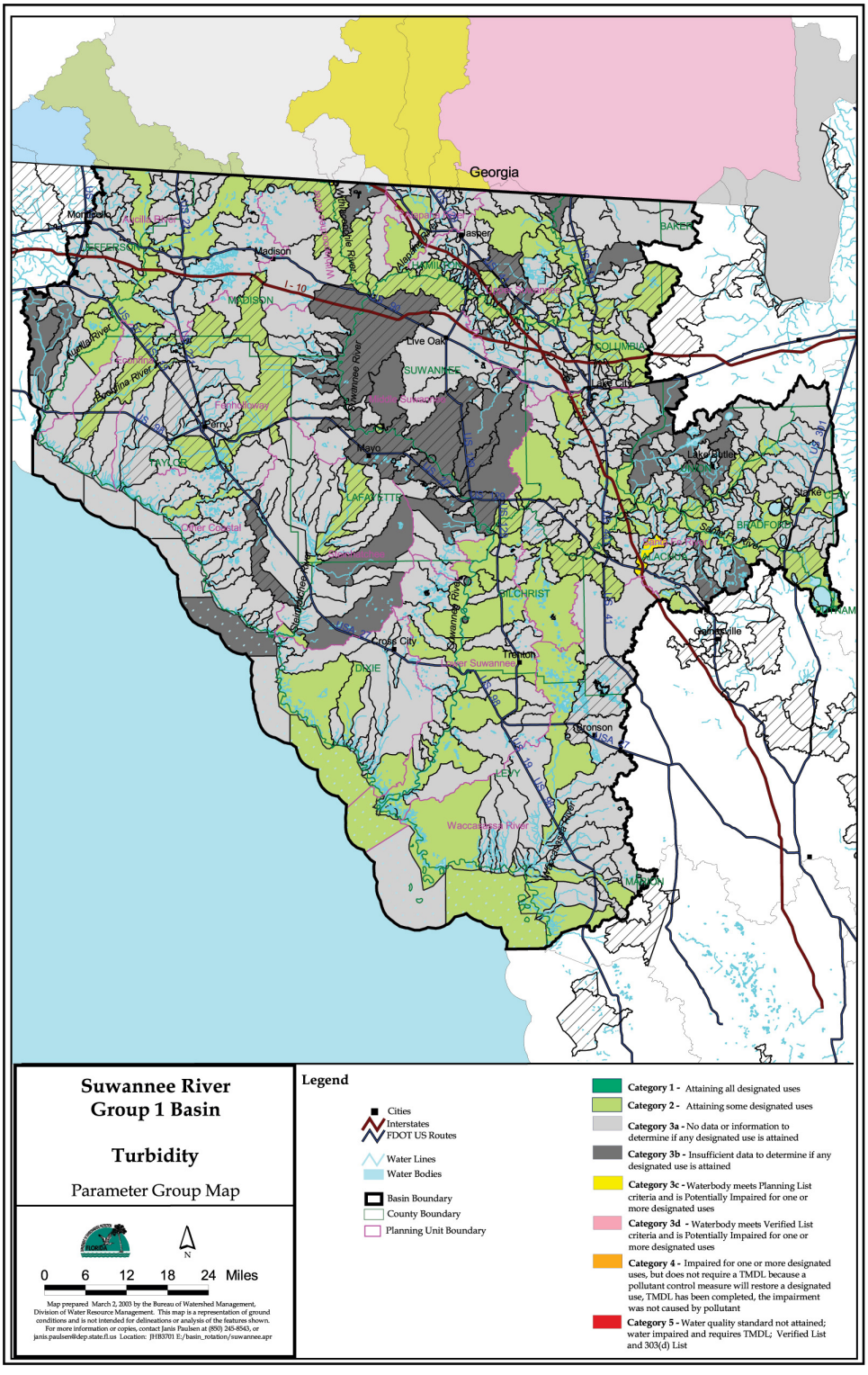



**Figure E.6 Basinwide Parameter Assessment for Turbidity**

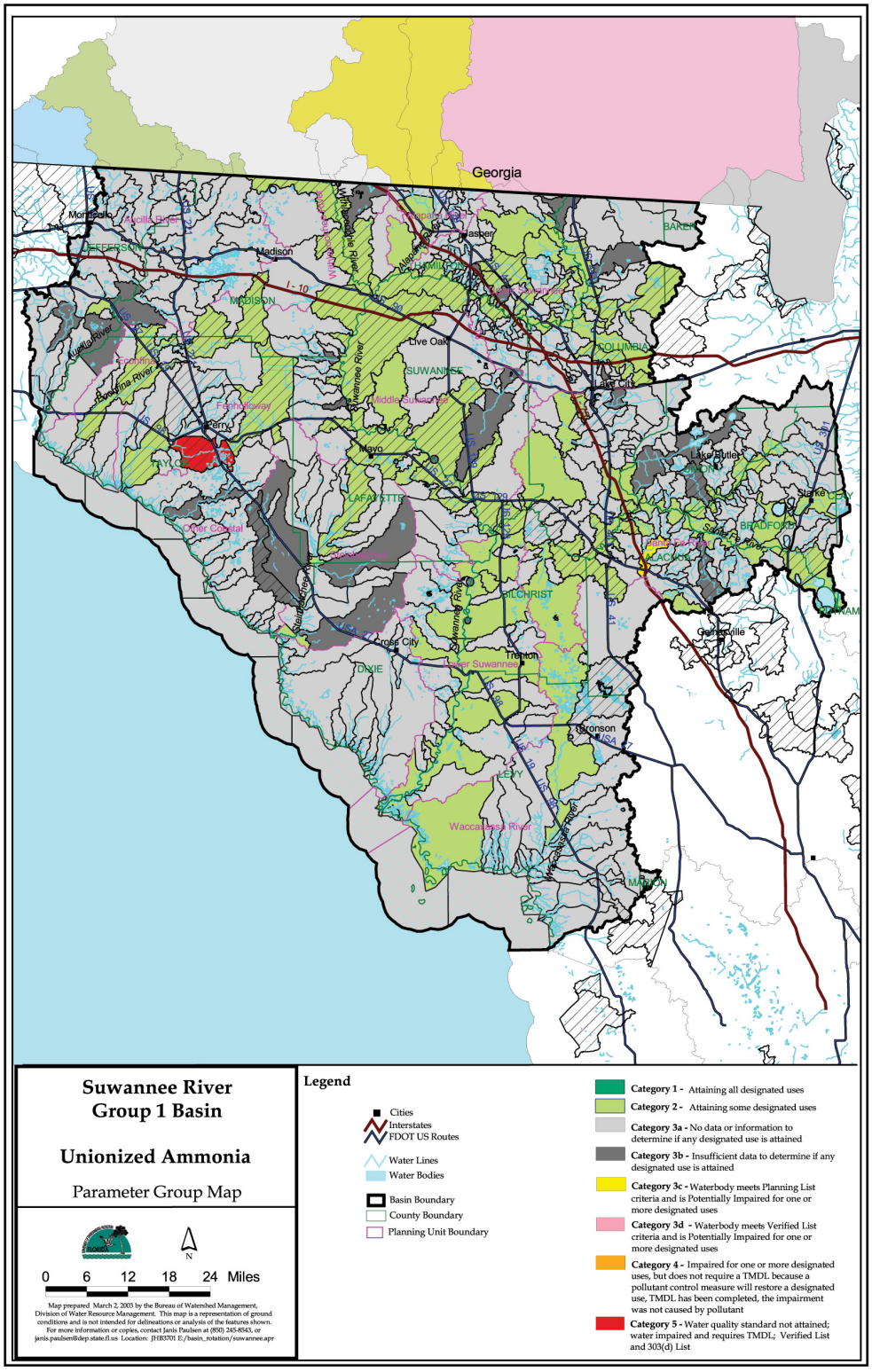



**Figure E.7 Basinwide Parameter Assessment for Unionized Ammonia**

**Table E.2: Water Quality Monitoring Stations Used in the Assessment, by Planning Unit**
**Upper Suwannee River Basin**

| WBID | STATION DESCRIPTION | BD | ED | NOBS |
|---|---|---|---|---|
| 3493 | BORROW PIT 1 - EAST SIDE STILL ROAD | 87 | 89 | 4 |
| 3493 | BORROW PIT 2 - WEST SIDE STILL ROAD | 87 | 89 | 4 |
| 3493 | BORROW PIT 4 - BETWEEN I-10 & FR 215A | 87 | 89 | 4 |
| 3493 | BORROW PIT 5 - ACROSS S-250 FROM WORK CENTER | 88 | 89 | 3 |
| 3449 | ROCKY CREEK NEAR GENOA FLORIDA | 0 | 0 | 0 |
| 3368 | LITTLE CREEK NEAR BENTON FLORIDA | 0 | 0 | 0 |
| 3341 | ALAPAHA RISE SPRING NR ADAMS FLA | 75 | 90 | 3 |
| 3388 | STA.DC01.DEEP CREEK UPS SUWANNEE RIVER CONFLNCE | 98 | 98 | 2 |
| 3388 | STA. DC02.DEEP CREEK AT OLD RIVER ROAD | 98 | 98 | 2 |
| 3388 | STA.DC03.DEEP CREEK 0.3 MILES UPS OLD RIVER ROAD | 98 | 98 | 2 |
| 3388 | STA. DC04.DEEP CREEK AT U.S. HWY. 441 | 98 | 98 | 2 |
| 3388 | STA. DC05.DEEP CREEK 1.1 MILE UPS U.S. HWY. 441 | 98 | 98 | 2 |
| 3388 | STA. DC06. DEEP CR AT CR 237 (DOUBLE RUN RD) | 98 | 98 | 2 |
| 3448 | ROBINSON CR. AT SR 426 | 92 | 98 | 20 |
| 3477 | FALLING CREEK @ CR 131, ABOVE FALLS | 94 | 97 | 11 |
| 3351 | ROCKY CREEK @ WOODPECKER ROAD | 94 | 97 | 9 |
| 3368 | LITTLE CREEK AT US 441 | 94 | 98 | 12 |
| 3388 | DEEP CREEK @ DOUBLE RUN ROAD | 92 | 93 | 9 |
| 3341 | SUWANNEE R FLA HWY #249 | 81 | 89 | 5 |
| 3341C | SUWANNEE R W US 441 | 75 | 90 | 91 |
| 3364 | HUNTERS CREEK AT SR 135 | 76 | 90 | 88 |
| 3364 | HUNTERS CREEK AT SR 135 | 76 | 90 | 88 |
| 3364 | HUNTERS CREEK AT SR 135 | 76 | 90 | 88 |
| 3364 | HUNTERS CREEK AT SR 135 | 76 | 90 | 88 |
| 3364 | HUNTERS CREEK AT SR 135 | 76 | 90 | 88 |
| 3499 | LAKE JEFFERY | 97 | 97 | 3 |
| 3499 | JEFFERY1_COLUMBIA_CO | 92 | 93 | 10 |
| 3499 | JEFFERY2_COLUMBIA_CO | 92 | 93 | 10 |
| 3499 | JEFFERY3_COLUMBIA_CO | 92 | 93 | 10 |
| 3401 | CAMP BRANCH | 89 | 98 | 90 |
| 3388 | DEEP CREEK AT US441 | 89 | 98 | 101 |
| 3368 | LITTLE CREEK AT US 441 NORTH OF DEEP CREEK | 92 | 93 | 6 |
| 3389 | SUGAR CREEK AT OLD US 129 | 92 | 93 | 6 |
| 3477 | FALLING CREEK AT C-250 | 89 | 92 | 33 |
| 3477 | FALLING CREEK BRANCH AT DOUBLE RUN ROAD | 92 | 98 | 36 |
| 3477 | FALLING CREEK AT C-131 | 89 | 98 | 69 |
| 3364 | HUNTER CREEK | 89 | 98 | 102 |
| 3364 | HUNTER CREEK | 89 | 98 | 102 |
| 3364 | HUNTER CREEK | 89 | 98 | 102 |
| 3364 | HUNTER CREEK | 89 | 98 | 102 |
| 3364 | HUNTER CREEK | 89 | 98 | 102 |
| 3423 | JERRY BRANCH | 89 | 90 | 6 |
| 3448 | ROBINSON BRANCH AT C-246 | 89 | 98 | 104 |
| 3351 | ROCKY CREEK AT WOODPECKER ROAD | 89 | 98 | 104 |
| 3392 | ROARING CREEK | 89 | 98 | 102 |
| 3341B | SUWANNEE RIVER AT STATE ROAD 6 | 89 | 98 | 115 |
| 3341B | SUWANNEE RIVER BELOW HUNTER CREEK | 89 | 92 | 37 |
| 3341A | SUWANNEE RIVER ABOVE WHITE SPRINGS | 89 | 92 | 37 |
| 3341A | SUWANNEE RIVER BELOW WHITE SPRINGS | 89 | 98 | 114 |

| | | | | |
|---|---|---|---|---|
| 3341A | SUWANNEE RIVER ABOVE SWIFT CREEK | 89 | 92 | 36 |
| 3341A | SUWANNEE RIVER BELOW SWIFT CREEK | 89 | 92 | 36 |
| 3341 | SUWANNEE RIVER AT SUWANNEE SPRINGS | 89 | 98 | 116 |
| 3341 | SUWANNEE RIVER ABOVE ALAPHAH RISE | 89 | 92 | 37 |
| 3341 | SUWANNEE RIVER BELOW ALAPAHA RIVER | 92 | 98 | 38 |
| 3341 | SUWANNEE RIVER ABOVE WITHLACOOCHEE RIVER | 89 | 98 | 111 |
| 3375 | SWIFT CREEK AT US 41 | 89 | 98 | 107 |
| 3341Z | WHITE SPRINGS | 95 | 95 | 2 |

**Middle Suwannee River Basin**

| WBID | STATION DESCRIPTION | BD | ED | NOBS |
|---|---|---|---|---|
| 3422Q | ELLAVILLE SPRING AT ELLAVILLE FLORIDA | 73 | 90 | 2 |
| 3422Z | FALMOUTH SPRING AT FALMOUTH FLA | 73 | 93 | 3 |
| 3422X | TELFORD SPRING AT LURAVILLE, FLA. | 60 | 93 | 8 |
| 3422T | TROY SPRING NEAR BRANFORD FLA | 60 | 93 | 5 |
| 3422B | SUWANNEE RIVER AT BRANFORD, FLA. | 1 | 96 | 440 |
| 3422J | BRANFORD SPRINGS AT BRANFORD FLA | 56 | 93 | 4 |
| 3496 | LITTLE RIVER SPRINGS NEAR BRANFORD FLORIDA | 73 | 93 | 2 |
| 3496 | LITTLE RIVER SPRINGS NEAR BRANFORD FLORIDA | 73 | 93 | 2 |
| 3561 | MORGAN LAGOON | 90 | 90 | 3 |
| 3422P | MEARSON SPRING NEAR MAYO FLORIDA | 75 | 93 | 2 |
| 3422V | CONVICT SPRING NEAR ALTON FLORIDA | 73 | 93 | 8 |
| 3528 | BLUE SPRING NEAR DELL FLORIDA | 73 | 93 | 10 |
| 3422B | SUWANNEE R AT DOWLING P BR | 81 | 83 | 46 |
| 3422B | SUWANNEE R ELLAVILLE US 90 | 77 | 95 | 54 |
| 3496A | LOW LAKE CENTER | 95 | 96 | 10 |
| 3438A | PEACOCK LAKE CENTER | 98 | 98 | 5 |
| 3568 | WMD SITE ID -051317003 | 90 | 94 | 2 |
| 3438A | PEACOCK IN SUWANNEE CO | 91 | 92 | 8 |
| 3438A | PEACOCK IN SUWANNEE CO | 91 | 92 | 8 |
| 3438A | PEACOCK IN SUWANNEE CO | 91 | 92 | 8 |
| 3525 | ALLEN MILL POND SPRING OFF C-251B | 92 | 98 | 8 |
| 3422J | BRANFORD SPRING | 96 | 98 | 6 |
| 3422Y | CHARLES SPRINGS | 95 | 98 | 11 |
| 3422V | CONVICT SPRING OFF C-334 IN LAFAYETTE COUNTY | 92 | 98 | 21 |
| 3480 | BETHEL CREEK AT STATE ROAD 53 | 92 | 93 | 6 |
| 3422Z | FALMOUTH SPRG OFF US 90 SUWANNEE CO | 94 | 98 | 17 |
| 3528 | LAFAYETTE BLUE SPRINGS NEAR MAYO FL | 95 | 98 | 10 |
| 3496 | LITTLE R AT C-137 | 94 | 94 | 3 |
| 3496 | LITTLE R AT C-137 | 94 | 94 | 3 |
| 3496 | LITTLE R AT C-252 | 94 | 94 | 3 |
| 3496 | LITTLE R AT C-252 | 94 | 94 | 3 |
| 3496 | LITTE R AT C-49 | 94 | 94 | 3 |
| 3496 | LITTE R AT C-49 | 94 | 94 | 3 |
| 3496 | LITTLE R AT 180 STREET | 94 | 94 | 2 |
| 3496 | LITTLE R AT 180 STREET | 94 | 94 | 2 |
| 3496 | LITTLE R AT 81ST ROAD | 94 | 94 | 3 |
| 3496 | LITTLE R AT 81ST ROAD | 94 | 94 | 3 |
| 3496Z | LITTLE R SPRG OFF C-249 SUWANNEE CO | 94 | 98 | 16 |
| 3422P | MEARSON SPRINGS | 96 | 98 | 9 |
| 3483 | ORANGE GROVE SPRING | 96 | 96 | 3 |
| 3568 | OWENS SPRING OFF C-251 IN LAFAYETTE COUNTY | 92 | 94 | 8 |
| 3483 | PEACOCK SPRING IN SUWANNEE COUNTY | 92 | 98 | 14 |

| | | | | |
|---|---|---|---|---|
| 3422L | RUTH/LITTLE SULFUR SPRINGS | 96 | 98 | 7 |
| 3422U | ROYAL SPRING IN SUWANNEE COUNTY | 92 | 98 | 23 |
| 3422W | RUNNING SPRING IN SUWANNEE COUNTY | 92 | 97 | 12 |
| 3422B | SUWANNEE RIVER AT ELLAVILLE BELOW US 90 | 89 | 98 | 111 |
| 3422B | SUWANNEE RIVER BELOW GOLDKIST DISCHARGE | 89 | 92 | 36 |
| 3422B | SUWANNEE RIVER AT DOWLING PARK | 89 | 98 | 111 |
| 3422B | SUWANNEE RIVER AT LURAVILLE | 89 | 98 | 110 |
| 3422B | SUWANNEE RIVER AT BRANFORD | 89 | 98 | 127 |
| 3422X | TELFORD SPRING IN SUWANNEE COUNTY | 92 | 98 | 22 |
| 3422T | TROY SPRING OFF C-425 IN LAFAYETTE COUNTY | 92 | 98 | 21 |
| 3422M | TURTLE SPRINGS ON SUWANNEE RIVER | 96 | 98 | 6 |
| 3483 | KARST WINDOW PEACOK S.P. | 96 | 96 | 3 |

**Lower Suwannee River Basin**

| WBID | STATION DESCRIPTION | BD | ED | NOBS |
|---|---|---|---|---|
| 3673 | ROCK BLUFF SPRINGS NR BELL FLA | 56 | 93 | 5 |
| 3422S | FANNIN SPRINGS NR WILCOX FLA | 56 | 90 | 7 |
| 3422R | MANATEE SPRING NR CHIEFLAND FLA | 56 | 90 | 6 |
| 3422A | SUWANNEE R @ US 19/98 | 70 | 90 | 167 |
| 3733 | Northern Pass Channel Marker #9 | 90 | 98 | 171 |
| 3422A | Southeast of Salt Creek CM # 2 | 90 | 98 | 158 |
| 3422A | Confluence of Suwannee River & E Pass | 90 | 98 | 155 |
| 3422A | E/SE of 239 on flat | 90 | 98 | 140 |
| 3422A | Su R @ mouth of Channel to Suwanne Shrs Marina | 90 | 98 | 164 |
| 3422A | SUWANNEE RIVR AT FOWLERS BLUFF | 88 | 89 | 4 |
| 3668A | GOVERNOR_HILL1_DIXIE_CO | 90 | 90 | 2 |
| 3668A | GOVERNOR_HILL2_DIXIE_CO | 90 | 90 | 2 |
| 3668A | GOVERNOR_HILL3_DIXIE_CO | 90 | 90 | 2 |
| 3422S | FANNING SPRINGS | 95 | 98 | 13 |
| 3422K | GUARANTO SPRINGS | 96 | 98 | 7 |
| 3422N | HART SPRINGS | 96 | 98 | 8 |
| 3422R | MANATEE SPRINGS | 95 | 98 | 10 |
| 3673 | ROCK BLUFF SPRING IN GILCHRIST COUNTY | 92 | 98 | 22 |
| 3422A | MID CHANNEL UPSTREAM OF BULL CREEK | 96 | 98 | 35 |
| 3422A | ALLIGATOR PASS MARKER 21 | 96 | 98 | 38 |
| 3422 | SUWANNEE RIVER AT ROCK BLUFF | 89 | 98 | 111 |
| 3422 | SUWANNEE RIVER AT ROCK BLUFF | 89 | 98 | 111 |
| 3422A | SUWANNEE RIVER NEAR WILCOX | 89 | 98 | 108 |
| 3422A | SUWANNEE RIVER AT FOWLER'S BLUFF | 89 | 98 | 111 |
| 3422A | SUWANNEE RIVER AT GOPHER RIVER | 89 | 98 | 120 |
| 3422A | SUWANNEE RIVER BELOW TOWN OF SUWANNEE | 90 | 92 | 31 |
| 3422A | SUWANNEE RIVER AT EAST PASS | 90 | 92 | 27 |

**Alapaha River Basin**

| WBID | STATION DESCRIPTION | BD | ED | NOBS |
|---|---|---|---|---|
| 3324 | ALAPAHA RIVER 1 SR 150 HAMILTON | 72 | 96 | 7 |
| 3324 | ALAPAHA RIVER NEAR JENNINGS AT C-150 | 89 | 98 | 112 |

**Withlacoochee River Basin**

| WBID | STATION DESCRIPTION | BD | ED | NOBS |
|---|---|---|---|---|
| 3315Z | BLUE SPRINGS NEAR MADISON FLA | 56 | 93 | 6 |
| 3315A | SUWANACOOCHEE SPRING AT ELLAVILLE FLORIDA | 60 | 93 | 3 |
| 3315 | WITHLACOOCHEE #1 MADISON COUNTY | 70 | 89 | 27 |

| | | | | |
|---|---|---|---|---|
| 3315 | WITHLACOOCHEE #2 HAMILTON COUNTY | 70 | 89 | 24 |
| 3315 | WITHLACOOCHEE #3 HAM-MAD COU | 70 | 89 | 26 |
| 3315 | WITHLACOOCHEE R. NEAR JUMPING GULLEY CREEK | 89 | 95 | 12 |
| 3315 | WITHLACOOCHEE R. NEAR JUMPING GULLEY CREEK | 89 | 95 | 12 |
| 3321 | LAKE OCTAHATCHEE N LOBE NEAR W SHORE | 94 | 94 | 4 |
| 3321 | LAKE OCTAHATCHEE NORTH LOBE CENTER | 94 | 94 | 5 |
| 3321 | LAKE OCTAHATCHEE SOUTH LOBE CENTER | 94 | 94 | 5 |
| 3322 | CHERRY LAKE CENTER | 95 | 98 | 48 |
| 3319 | LAKE ALCYON CENTER | 95 | 95 | 5 |
| 3315 | WITHLACOOCHEE RIVER AT C-145 | 89 | 98 | 109 |
| 3315 | WITHLACOOCHEE RIVER AT C-150 | 89 | 98 | 72 |
| 3315 | WITHLACOOCHEE RIVER AT SR6 | 89 | 92 | 37 |
| 3315 | WITHLACO UPSTM OF CONFLUENCE With SUW R | 92 | 98 | 72 |

**Santa Fe River Basin**

| WBID | STATION DESCRIPTION | BD | ED | NOBS |
|---|---|---|---|---|
| 3605D | SANTA FE RIVER AT WORTHINGTON SPRINGS, FLA. | 57 | 95 | 329 |
| 3519Z | ICHETUCKNEE SPRING NR HILDRETH, FLA. | 66 | 93 | 23 |
| 3605X | BLUE SPRING NEAR HIGH SPRINGS FL | 75 | 90 | 2 |
| 3605Y | GINNIE SPRING NEAR HIGH SPRINGS, FLA | 74 | 93 | 3 |
| 3653 | HORNSBY SPRING NR HIGH SPRINGS, FLA. | 72 | 90 | 4 |
| 3605E | SANTE FE R S OF BROOKER FLA 235 | 71 | 94 | 33 |
| 3605A | SANTA FE RIVER SR 129 | 70 | 90 | 218 |
| 3605F | LAKE ALTHO #2 SE QUANDRANT OF L | 71 | 94 | 8 |
| 3605F | LAKE ALTHO #3 NE QUANDRANT OF L | 71 | 94 | 7 |
| 3605F | LAKE ALTHO #4 W EDGE L MID N S | 71 | 94 | 9 |
| 3566 | LAKE BUTLER #4 CENTER OF LAKE | 71 | 97 | 6 |
| 3605G | SANTA FE L #5 NW CORNER OF LITTL | 71 | 98 | 53 |
| 3598D | LAKE SAMPSON #4 NEAR WESTERN SHO | 74 | 98 | 12 |
| 3635A | LAKE HAMPTON #1 NEAR NORTH SHORE | 73 | 94 | 8 |
| 3635A | LAKE HAMPTON #3 NEAR SOUTHERN SH | 73 | 94 | 8 |
| 3635A | LAKE HAMPTON #4 NEAR WESTERN SHO | 73 | 98 | 14 |
| 3593 | LAKE CROSBY #2 EAST SHORE | 73 | 94 | 12 |
| 3593 | LAKE CROSBY #4 WEST SHORE | 73 | 94 | 13 |
| 3598B | LAKE ROWELL # EAST SHORE | 73 | 94 | 7 |
| 3516 | ALLIGATOR LK EAST OF WATER WORKS | 76 | 94 | 34 |
| 3605G | LITTLE SANTA FE LAKE NORTHEAST SECTION | 95 | 95 | 4 |
| 3605G | LITTLE SANTA FE LAKE SOUTHEAST SECTION | 95 | 95 | 4 |
| 3605G | LITTLE SANTA FE LAKE EAST OF SANTA FE CANAL | 95 | 95 | 5 |
| 3593 | LAKE CROSBY NE OF CENTER | 94 | 98 | 13 |
| 3530 | SWIFT CREEK POND CENTER | 94 | 94 | 7 |
| 3530 | SWIFT CREEK POND SOUTH SECTOR | 94 | 94 | 6 |
| 3530 | SWIFT CREEK POND NORTH SECTOR | 94 | 94 | 6 |
| 3649A | WATERS LAKE WEST OF CENTER | 94 | 94 | 5 |
| 3649A | WATERS LAKE NORTH SHORE | 94 | 94 | 3 |
| 3649A | WATERS LAKE SOUTH SHORE | 94 | 94 | 3 |
| 3504 | OLUSTEE CREEK AT SR-100 | 79 | 96 | 16 |
| 3598C | ALLIGATOR CREEK BELOW THE STARKE WWTP | 98 | 98 | 2 |
| 3516 | ALLIGATOR LAKE | 92 | 95 | 25 |
| 3516 | ALLIGATOR LAKE SOUTH LOBE | 92 | 97 | 58 |
| 3598 | SAMPSON RIVER @ CR 225 | 98 | 98 | 2 |
| 3598B | LAKE ROWELL CENTER | 98 | 98 | 4 |
| 3641 | ROCKY CREEK AT ANTIOCH CHURCH ROAD | 92 | 93 | 8 |

| | | | | |
|---|---|---|---|---|
| 3578 | FIVE MILE CREEK @ CR 239A | 92 | 97 | 20 |
| 3598B | STREAM FROM LAKE ROWELL TO LAKE SAMPSON | 88 | 90 | 9 |
| 3598B | LAKE ROWELL BETWEEN NORTHERN TWO FISH ATTRACTORS | 88 | 90 | 9 |
| 3598B | LAKE ROWELL .5 MI. N. ALIGATOR C. 100 YDS OFFSHR | 88 | 90 | 9 |
| 3598C | ALLIGATOR CREEK APPX. 100 YDS UP FROM L. ROWELL | 88 | 90 | 9 |
| 3598B | LAKE ROWELL APPX. .25 MILE SOUTH OF ALLIGATOR CR | 88 | 90 | 9 |
| 3598B | LAKE ROWELL SOUTHERN END BY CATTAIL CLUMP | 88 | 90 | 9 |
| 3635A | HAMPTON1_BRADFORD_CO | 91 | 98 | 122 |
| 3635A | HAMPTON2_BRADFORD_CO | 91 | 98 | 122 |
| 3635A | HAMPTON3_BRADFORD_CO | 91 | 98 | 122 |
| 3598C | ALIGATOR CREEK @ U.S. 301 | 94 | 95 | 4 |
| 3598C | ALIGATOR CREEK NR LK ROWELL | 94 | 95 | 4 |
| 3598C | ALLIGATOR CREEK | 89 | 92 | 35 |
| 3516 | ALLIGATOR LAKE NORTH LOBE EAST | 89 | 98 | 60 |
| 3516 | ALLIGATOR LAKE NORTH LOBE WEST | 89 | 98 | 69 |
| 3516 | ALLIGATOR LAKE SOUTH LOBE | 89 | 98 | 65 |
| 3605F | LAKE ALTHO | 89 | 92 | 74 |
| 3605X | BLUE SPRING IN GILCHRIST COUNTY | 92 | 98 | 24 |
| 3520 | CANNON CREEK AT CANNON CREEK ROAD | 92 | 98 | 26 |
| 3593 | LAKE CROSBY NORTH | 94 | 95 | 4 |
| 3593 | LAKE CROSBY | 89 | 92 | 74 |
| 3593 | LAKE CROSBY SOUTHWEST | 94 | 95 | 4 |
| 3649 | COW CREEK NEAR FORT WHITE AT C-138 | 92 | 98 | 33 |
| 3626 | PARENERS BRANCH AT C-1491 IN ALACHUA COUNTY | 92 | 98 | 32 |
| 3641 | ROCKY CREEK NEAR LACROSSE AT C-235 | 92 | 93 | 6 |
| 3635A | LAKE HAMPTON | 89 | 92 | 74 |
| 3653 | HORNSBY SPRING IN ALACHUA COUNTY | 92 | 98 | 23 |
| 3519Z | ICHETUCKNEE SPRING HEAD ABOVE US 27 | 91 | 98 | 15 |
| 3519 | ICHETUCKNEE RIVER BLUE HOLE SPRING | 91 | 92 | 12 |
| 3519 | ICHETUCKNEE RIVER MISSION SPRINGS | 91 | 92 | 12 |
| 3519 | ICHETUCKNEE RIVER DEVIL'S EYE SPRING | 91 | 92 | 12 |
| 3519 | ICHETUCKNEE RIVER MILL POND SPRING | 91 | 92 | 12 |
| 3519 | ICHETUCKNEE RIVER ABOVE US 27 | 89 | 98 | 103 |
| 3605G | LITTLE LAKE SANTA FE | 89 | 92 | 74 |
| 3605G | LAKE SANTA FE | 89 | 92 | 74 |
| 3605G | LAKE SANTA FE AT MELROSE BAY | 91 | 92 | 14 |
| 3598D | LAKE SAMPSON NR ROWELL/SAMPSON CANAL | 94 | 95 | 4 |
| 3598D | LAKE SAMPSON | 89 | 92 | 74 |
| 3598D | LK SAMPSON SOUTH | 94 | 95 | 4 |
| 3598D | LAKE SAMPSON NR SAMPSON RIVER | 94 | 95 | 4 |
| 3598D | NORTH LAKE SAMPSON | 94 | 95 | 4 |
| 3605G | BETWEEN LAKE SANTA FE AND LITTLE LAKE SANTA FE | 91 | 92 | 14 |
| 3506A | NEW RIVER AT CR 125 | 90 | 98 | 67 |
| 3506 | NEW RIVER NEAR RAIFORD | 90 | 92 | 31 |
| 3506 | NEW RIVER NEAR RAIFORD | 90 | 92 | 31 |
| 3506 | NEW RIVER NEAR LAKE BUTLER | 90 | 98 | 66 |
| 3506 | NEW RIVER NEAR LAKE BUTLER | 90 | 98 | 66 |
| 3506 | NEW RIVER AT SR 18 | 89 | 98 | 104 |
| 3506 | NEW RIVER AT SR 18 | 89 | 98 | 104 |
| 3504A | OLUSTEE CREEK AT SR 18 | 89 | 98 | 109 |
| 3605W | POE SPRINGS IN ALACHUA COUNTY | 98 | 98 | 2 |
| 3517 | PRICE CREEK AT C-133 | 98 | 98 | 3 |

| | | | | |
|---|---|---|---|---|
| 3531A | ROSE CREEK SINK HOLE | 95 | 96 | 4 |
| 3598B | LAKE ROWELL NR ALIGATOR CRK | 94 | 95 | 4 |
| 3598B | LAKE ROWELL | 89 | 92 | 74 |
| 3598B | CANAL BETWEEN LAKE ROWELL AND LAKE SAMPSON | 90 | 92 | 16 |
| 3598B | LAKE ROWELL NR OUTFALL TO LK SAMPSON | 94 | 95 | 4 |
| 3605F | SANTA FE RIVER AT US 301 | 92 | 93 | 6 |
| 3605 | SANTA FE RIVER NEAR GRAHAM | 89 | 92 | 38 |
| 3605E | SANTA FE RIVER AT BROOKER | 89 | 98 | 110 |
| 3605D | SANTA FE RIVER AT WORTHINGTON SPRINGS | 89 | 98 | 109 |
| 3605C | SANTA FE RIVER AT O'LENO | 89 | 98 | 111 |
| 3605C | SANTA FE RIVER AT US 441 | 89 | 98 | 107 |
| 3605C | SANTA FE RIVER AT SR 47 NEAR FORT WHITE | 89 | 98 | 125 |
| 3605A | SANTA FE RIVER AT US 129 NEAR HILDRETH | 89 | 98 | 109 |
| 3598 | SAMPSON RIVER | 89 | 98 | 109 |
| 3605Z | TRAIL SPRING IN GILCHRIST COUNTY | 92 | 98 | 15 |
| 3682 | BLUES CR .25M. W OF BL CR SUB GATE S. SIDE OF RD | 90 | 95 | 12 |
| 3682 | BLUES CR 50 FT W OF BR @ ENT TO UF AQ. RSRCH | 87 | 95 | 17 |
| 3682 | BLUES CR @ BIG OTTER RAVINE | 87 | 90 | 2 |
| 3682 | BLUES CR STAFF GA APPR 1MI UPSTR BG OTTER RAVIN | 90 | 95 | 14 |
| 3682 | BLUES CR @ BIG OTTER RAVINE AT STAFF GAGE | 90 | 95 | 18 |
| 3644 | MILL CR DSCHRGE TO ALACHUA SINK NEAR 441&75 | 90 | 95 | 11 |
| 3681 | TURKEY CRS SIDE BR IN SAN FEL. ST PRSRV | 85 | 95 | 16 |
| 3605F | ALTO1_ALACHUA_CO | 87 | 98 | 127 |
| 3605F | ALTO2_ALACHUA_CO | 87 | 98 | 126 |
| 3605F | ALTO3_ALACHUA_CO | 87 | 98 | 127 |
| 3605G | LITTLESANTAFE1_ALACHUA_CO | 86 | 98 | 145 |
| 3605G | LITTLESANTAFE2_ALACHUA_CO | 86 | 98 | 146 |
| 3605G | LITTLESANTAFE3_ALACHUA_CO | 86 | 98 | 145 |
| 3605G | MELROSE_BAY1_ALACHUA_CO | 86 | 98 | 145 |
| 3605G | MELROSE_BAY2_ALACHUA_CO | 86 | 98 | 146 |
| 3605G | MELROSE_BAY3_ALACHUA_CO | 86 | 98 | 146 |
| 3605G | SANTAFE1_ALACHUA_CO | 86 | 98 | 145 |
| 3605G | SANTAFE2_ALACHUA_CO | 86 | 98 | 145 |
| 3605G | SANTAFE3_ALACHUA_CO | 86 | 98 | 145 |

**Aucilla River Basin**

| WBID | STATION DESCRIPTION | BD | ED | NOBS |
|---|---|---|---|---|
| 3310 | AUCILLA RIVER AT LAMONT, FLA. | 66 | 91 | 21 |
| 3310 | AUCILLA RIVER AT LAMONT, FLA. | 66 | 91 | 21 |
| 3310C | AUCILLA R AT FLA 146 | 71 | 91 | 26 |
| 3310 | AUCILLA R 5 SR 257 S LAMONT | 71 | 91 | 32 |
| 3310 | AUCILLA R 5 SR 257 S LAMONT | 71 | 91 | 32 |
| 3314 | LITTLE AUCILLA RIVER SR55 NFORK | 78 | 91 | 12 |
| 3314 | LITTLE AUCILLA RIV SO FORK SR-55 | 78 | 91 | 12 |
| 3314 | LITTLE AUCILLA RIV FLATWOOD CH R | 78 | 91 | 12 |
| 3310C | AUCILLA R AT US 90 | 71 | 94 | 60 |
| 3314 | LITTLE AUCILLA R US HWY 90 | 76 | 94 | 51 |
| 3424Z | WACISSA SPRING; NO.2; JEFFERSON CO. | 94 | 94 | 2 |
| 3436 | WELAUNEE CREEK JEFFERSON CO. W.OF IAMONIA LK. | 92 | 95 | 9 |
| 3424 | LAKE WACISSA1 JEFFERSON CO | 93 | 95 | 23 |
| 3424 | LAKE WACISSA2 JEFFERSON CO | 93 | 95 | 23 |
| 3424 | LAKE WACISSA3 JEFFERSON CO | 93 | 95 | 23 |
| 3424A | AUCILLA R US 98 | 71 | 98 | 99 |

| | | | | |
|---|---|---|---|---|
| 3310 | AUCILLA R AT US 19-27 | 71 | 98 | 188 |
| 3310 | AUCILLA R AT US 19-27 | 71 | 98 | 188 |
| 3430 | AUCILLA RIVER @ US-27 | 94 | 98 | 17 |
| 3310A | AUCILLA RIVER NR US-98 | 94 | 98 | 17 |

**Econfina River Basin**

| WBID | STATION DESCRIPTION | BD | ED | NOBS |
|---|---|---|---|---|
| 3402 | ECONFINA R AT US 98 | 72 | 98 | 100 |
| 3402 | ECONFINA R AT US 19 & 27 | 72 | 98 | 95 |
| 3402 | ECONFINA RIVER 3 3MI NW OF US98 | 72 | 93 | 26 |
| 3402 | ECONFINA RIVER 5 SR14 | 72 | 94 | 54 |
| 3402 | ECONFINA RIVER AT US-27 | 94 | 98 | 17 |
| 3402 | ECONFINA RIVER NEAR PERRY | 89 | 92 | 22 |
| 3402 | ECONFINA RIVER AT US-98 | 94 | 98 | 19 |

**Fenholloway River Basin**

| WBID | STATION DESCRIPTION | BD | ED | NOBS |
|---|---|---|---|---|
| 3489 | ROCKY CREEK NEAR STEINHATCHEE, FL (Name??) | 87 | 89 | 14 |
| 3473C | FENHOLLOWAY RIVER NEAR FOLEY, FLA. | 66 | 93 | 8 |
| 3473B | FENHOLLOWAY RIVER AT FOLEY, FLA. | 56 | 93 | 30 |
| 3473B | FENHOLLOWAY 5 FR BR ON SR 356 | 70 | 95 | 47 |
| 3473A | FENHOLLOWAY 6 AT OLD FISH CAMP | 70 | 98 | 72 |
| 3473C | FENHOLLOWAY RIVER NEAR FOLEY AT US 27 | 89 | 98 | 63 |
| 3473B | FENHOLLOWAY RIVER AT US 19 | 89 | 98 | 57 |
| 3473A | FENHOLLOWAY BELOW SPRING CREEK OFF C-136 | 92 | 98 | 37 |

**Fenholloway/Steinhatchee Coastal**

| WBID | STATION DESCRIPTION | BD | ED | NOBS |
|---|---|---|---|---|
| 3556A | SPRING WARRIOR CREEK OFF SR-361A | 81 | 98 | 49 |

**Steinhatchee/Lower Suwannee Coastal**

| WBID | STATION DESCRIPTION | BD | ED | NOBS |
|---|---|---|---|---|
| 3701 | mouth of Boggy Creek | 90 | 98 | 152 |
| 3701 | mouth of Main Canal | 90 | 98 | 200 |
| 3701 | canal by Horseshoe seafood | 90 | 98 | 160 |
| 3701 | dock on Cotton Is | 92 | 98 | 293 |
| 3702 | 1/2 mile up Sanders Ck | 90 | 98 | 148 |
| 3706 | back of Amazon Cr 1/2 mi near grassy Is | 93 | 98 | 140 |
| 3720 | mouth of Fishbone Creek | 90 | 98 | 279 |
| 3720 | back of Fishbone Creek 3/4 mi from mouth | 93 | 98 | 146 |
| 3705 | back of Butler Ck near grassy Is | 93 | 98 | 159 |
| 3725 | mouth of Johnson Creek | 90 | 98 | 278 |
| 3725 | up Johnson Creek 3/4 mi | 93 | 98 | 186 |
| 3724 | Mouth of S Double Barrel Creek | 90 | 98 | 151 |
| 3724 | 1/2 mile up S Double Barrel @ Palms on N shore | 90 | 98 | 122 |
| 3724 | Mouth unnamed creek S of S Double Barrel Creek | 90 | 98 | 141 |

**Steinhatchee River Basin**

| WBID | STATION DESCRIPTION | BD | ED | NOBS |
|---|---|---|---|---|
| 3607 | EIGHT MILE CREEK NEAR CROSS CITY, FL | 88 | 89 | 6 |
| 3573 | STEINHATCHEE RIVER NEAR CROSS CITY, FLA. | 66 | 94 | 109 |
| 3573 | STEINHATCHEE RIVER NEAR STEINHATCHEE, FL | 87 | 89 | 14 |
| 3603 | BOGGY CREEK NEAR STEINHATCHEE, FL | 87 | 89 | 14 |

| | | | | |
|---|---|---|---|---|
| 3674 | SAND HILL CREEK NEAR STEINHATCHEE, FL | 88 | 89 | 12 |
| 3573 | STEINHATCHEE RIVER AT STEINHATCHEE, FL | 87 | 89 | 14 |
| 3573B | STEINHATCHEE RIVER I SR357 | 71 | 89 | 30 |
| 3573 | STEINHATCHEE I RIVER SR358 | 72 | 89 | 29 |
| 3674 | SAND HILL CREEK @ SR 358 | 87 | 89 | 19 |
| 3573A | STEINHATCHEE R. OFF SR51 NEAR SPRINGS | 87 | 89 | 19 |
| 3573B | STEINHATCHEE R. AT SR51 NEAR COOKS HAMMOCK | 87 | 89 | 19 |
| 3674 | SAND HILL CREEK ON DIRT OFF SR 358 | 87 | 89 | 16 |
| 3603 | BOGGY CREEK AT SR 51 | 87 | 89 | 17 |
| 3577 | ROCKY CREEK AT SR 51 | 87 | 89 | 17 |
| 3573 | STEINHATCHEE RIVER BELOW FALLS | 87 | 89 | 18 |
| 3573 | STEINHATCHEE RIVER ABOVE FALLS | 87 | 89 | 17 |
| 3573 | STEINHATCHEE R @ USGS GUAGING STATION N US 19/98 | 87 | 89 | 18 |
| 3607 | EIGHT MILE CK. 1.8 MI. EAST SR 51 | 89 | 89 | 8 |
| 3573B | STEINHATCHEE RIVER NEAR MAYO | 90 | 92 | 31 |
| 3573Z | STEINHATCHEE SPRING OFF SR-51 IN LAFAYETTE CO. | 92 | 98 | 18 |
| 3573A | STEINHATCHEE RIVER NEAR STEINHATCHEE SPRINGS | 90 | 98 | 104 |
| 3573 | STEINHATCHEE RIVER AT US 19/98 | 90 | 91 | 11 |
| 3573 | STEINHATCHEE RIVER AT US 19/98 | 90 | 98 | 90 |
| 3573 | STEINHATCHEE RIVER AT STEINHATCHEE | 90 | 98 | 54 |

**Waccasassa River Basin**

| WBID | STATION DESCRIPTION | BD | ED | NOBS |
|---|---|---|---|---|
| 3699 | WACCASASSA RIVER/OTTER CREEK/FRESHWATER REF SITE | 75 | 97 | 55 |
| 3699 | WACCASASSA RIVER @ SR 326 | 87 | 94 | 39 |
| 3699 | WACCASASSA RIVER @ SR 24 | 87 | 98 | 80 |
| 3729 | Oyster rack @ E side of Lone Cabbage Reef | 90 | 98 | 160 |
| 3729 | 1/2 mile up Barnett Creek on N shore | 90 | 98 | 134 |
| 3729 | S tip of Lone Cabbage rf | 90 | 98 | 159 |
| 3729 | Mouth of Geiger Creek | 90 | 98 | 142 |
| 3729 | S/SE from 247 and S of channel | 90 | 98 | 153 |
| 3729 | Mouth of E Pass @ tidal gage | 90 | 98 | 146 |
| 3729 | Mouth of Little Trout Creek | 90 | 98 | 137 |
| 3729 | W side of Deer Is @ white sand beach | 90 | 98 | 144 |
| 3729 | In gap S of Deer Island | 90 | 98 | 130 |
| 3729 | At mouth of Clark Creek | 90 | 98 | 110 |
| 3729 | E of Deer Island | 90 | 98 | 104 |
| 3729 | North end of #4 Bridge | 90 | 98 | 173 |
| 3729 | Mouth of Sand Creek | 90 | 98 | 130 |
| 3729 | Mouth of Dennis Creek | 90 | 98 | 156 |
| 3729 | Back of Goose Creek | 90 | 98 | 71 |
| 3729 | Back of Seabreeze Creek | 92 | 98 | 90 |
| 3729 | Back of Dennis Creek | 92 | 98 | 63 |
| 3729 | Northwest Side of #4 Channel | 90 | 98 | 196 |
| 3729 | Mouth of Lukens Creek | 92 | 98 | 92 |
| 3729 | #3 Channel East of Rye Key | 90 | 98 | 215 |
| 3729 | N of #3 Channel West of Bridge | 90 | 98 | 34 |
| 3729 | Mouth of #3 Channel | 90 | 98 | 216 |
| 3729 | Northwest of Scale Key | 90 | 98 | 209 |
| 3729 | 1/2 Mile North of Scale Key | 90 | 98 | 84 |
| 3729 | #3 Channel East of Bridge | 90 | 98 | 80 |
| 3729 | #3 Channel West of #3 Bridge | 90 | 98 | 137 |

| | | | | |
|---|---|---|---|---|
| 3729 | Shell Mound | 90 | 98 | 126 |
| 3729 | Middle of Cove near Shell Mound | 90 | 98 | 99 |
| 3729 | Between Long Cabbage & Raleigh I | 92 | 98 | 151 |
| 3729 | Northeast of #3 Channel Mouth | 90 | 98 | 198 |
| 3729 | Cove west of Live Oak Pt. | 92 | 98 | 84 |
| 1326 | South end of Stafford Is. | 90 | 98 | 177 |
| 1326 | CM# 36 Waccasassa Channel | 90 | 98 | 180 |
| 1328 | CM# 34 Waccasassa Channel | 90 | 98 | 176 |
| 1332 | W Tip of Island at Trout Cr | 90 | 98 | 140 |
| 1332 | Between Trout Cr & Turtle Cr Bay | 91 | 98 | 129 |
| 1332 | Mouth of Turtle Creek Bay | 91 | 98 | 143 |
| 3743 | East of Live Oak Key | 90 | 98 | 145 |
| 3729 | South of Live Oak Key | 92 | 98 | 143 |
| 1335 | boat ramp at Hwy 40 and river | 90 | 98 | 167 |
| 1335 | west of Hwy 40 Bridge in Bird Ck | 91 | 98 | 138 |
| 1335 | mouth of Vassey Creek | 91 | 98 | 143 |
| 1335 | NE of Hodges Is S of burned out house | 92 | 98 | 114 |
| 1335 | mouth of Demory Ck | 93 | 98 | 105 |
| 1332 | north side Lows Bay near dead mangroves | 91 | 98 | 100 |
| 1332 | west of South Mangrove Point | 92 | 98 | 115 |
| 3703A | WATERMELON1_ALACHUA_CO | 88 | 94 | 23 |
| 3703A | WATERMELON2_ALACHUA_CO | 88 | 92 | 23 |
| 3703A | WATERMELON3_ALACHUA_CO | 88 | 92 | 23 |
| 3729 | CHANNEL 4 NEAR OLD BRIDGE | 97 | 98 | 14 |
| 1325 | TEN MILE CREEK AT LEBANON STATION AT US 19 | 89 | 92 | 22 |
| 3699 | WACCASASSA RIVER @ SR-24 | 94 | 95 | 4 |
| 3699 | WACCASASSA RIVER AT GULF HAMMOCK AT US 19 | 89 | 98 | 35 |
| 3731A | LAKE MARION - OPEN WATER | 94 | 95 | 2 |
| 3738A | LITTLE BONABLE LAKE - OPEN WATER | 94 | 95 | 4 |
| 3738C | TIGER LAKE - OPEN WATER | 94 | 95 | 6 |
| 3738B | BONABLE LAKE - OPEN WATER | 94 | 95 | 3 |
| 1335 | Back of Bumblebee Creek | 90 | 98 | 132 |

# *Appendix F: Permitted Facilities with Discharges to Surface Water in the Suwannee Basin*

**Upper Suwannee River Basin**

| WBID | FACILITY_ID | NAME | DESCRIPTION | PERM CAP (MGD) | DESIGN_CAP |
|---|---|---|---|---|---|
| 3381 | FL0000655 | PCS PHOSPHATE--SUWANNEE RIVER MINE | Industrial Wastewater | | 200 |
| 3341A | FL0031275 | WHITE SPRINGS WWTP, TOWN OF | Domestic WWTP | 0.15 | 0.15 |
| 3381 | FL0036226 | PCS PHOSPHATE--SWIFT CHEMICAL COMPLEX | Industrial Wastewater | 26.9 | 26.9 |
| 3503 | FL0043567 | COCHRAN FOREST PRODUCTS | Industrial Wastewater | | 0.05 |

**Middle Suwannee River Basin**

| WBID | FACILITY_ID | NAME | DESCRIPTION | PERM CAP (MGD) | DESIGN_CAP |
|---|---|---|---|---|---|
| 3422B | FL0000183 | FL POWER CORP.- SUWANNEE RIVER GENERATING PLANT | Industrial Wastewater | | 342 |
| 3422B | FL0001465 | GOLD KIST INC - LIVE OAK PROCESSING | Industrial Wastewater | 1.5 | 1.04 |
| 3438 | FLG910868 | B.P. INTERSTATE/S&S FOOD STORE #122 (CLUSTER) | Petroleum Cleanup GP (long term) | | |

**Withlacoochee River Basin**

| WBID | FACILITY_ID | NAME | DESCRIPTION | PERM CAP (MGD) | DESIGN_CAP |
|---|---|---|---|---|---|
| 3315 | FL0000281 | TENECO PACKAGING INC. | Industrial Wastewater | 55 | 55 |

**Santa Fe River Basin**

| WBID | FACILITY_ID | NAME | DESCRIPTION | PERM CAP (MGD) | DESIGN_CAP |
|---|---|---|---|---|---|
| 2501 | FL0000051 | EI DUPONT DE NEMOURS TRAILRIDGE MINE | Industrial Wastewater | 30 | 30 |
| 3548C | FL0028126 | STARKE, CITY OF | Domestic WWTP | 1.65 | 1.65 |
| 3516 | FL0038300 | WESTVACO CORP-ST JOHN'S DEPT | Industrial Wastewater | 0.0482 | 0.0482 |
| 3671 | FL0041114 | PROGRESS MOBILE HOME PARK | Domestic WWTP | 0.013 | 0.013 |
| 3516 | FL0176281 | RISSER SOUTH FIRST STREET | Industrial Wastewater | 0.036 | 0.036 |
| 3488 | FLG830117 | I-10 GULF/RICHARDSON OIL CO. | Petroleum Cleanup GP (long term) | | |
| 3488 | FLG830124 | FIKE'S AMOCO/KIRBY OIL CO. | Petroleum Cleanup GP (long term) | | |
| 3488 | FLG910357 | S&S FOOD STORE NO. 37 | Petroleum Cleanup GP (long term) | | 0.025 |

**Aucilla River Basin**

| WBID | FACILITY_ID | NAME | DESCRIPTION | PERM CAP (MGD) | DESIGN_CAP |
|---|---|---|---|---|---|
| 3367 | FL0016535 | UDDER DELITE DAIRY | Industrial Wastewater | | |
| 3373 | FL0039659 | FLORIDA PLYWOODS, INC | Industrial Wastewater | 0.0141 | 0.0131 |
| 3314 | FLG830249 | BOOTHE'S EXXON | Petroleum Cleanup GP (long term) | | |
| 3355 | FLG830450 | GRUBBS PETROLEUM SITES | Petroleum Cleanup GP (long term) | | |
| 3355 | FLG910360 | NORTHSIDE FINA | Petroleum Cleanup GP (long term) | | |

**Fenholloway River Basin**

| WBID | FACILITY_ID | NAME | DESCRIPTION | PERM CAP (MGD) | DESIGN_CAP |
|---|---|---|---|---|---|
| 3473B | FL0000876 | BUCKEYE FLORIDA | Industrial Wastewater | | 58 |
| 3518 | FL0026387 | PERRY, CITY OF | Domestic WWTP | 1.25 | 1.25 |

**Steinhatchee/Lower Suwannee Coastal Basin**

| WBID | FACILITY_ID | NAME | DESCRIPTION | PERM CAP (MGD) | DESIGN_CAP |
|---|---|---|---|---|---|
| 3686 | FL0027791 | CROSS CITY #1 & #2, CITY OF | Domestic WWTP | 0.4 | 0.4 |
| 3698 | FL0044326 | NATURE COAST PROPERTIES WWTF | Domestic WWTP | 0.005 | 0.005 |

**Waccasassa River Basin**

| WBID | FACILITY_ID | NAME | DESCRIPTION | PERM CAP (MGD) | DESIGN_CAP |
|---|---|---|---|---|---|
| 3729 | FL0031216 | CEDAR KEY, CITY OF WWTP | Domestic WWTP | 0.166 | 0.166 |

# *Appendix G: Level 1 Land Use by Planning Unit in the Suwannee Basin*

| Land Use | Upper Suwannee River | | | Alapaha River | | | Withlacoochee River | | |
|---|---|---|---|---|---|---|---|---|---|
| **Level 1** | **acres** | **mi$^2$** | **%** | **acres** | **mi$^2$** | **%** | **acres** | **mi$^2$** | **%** |
| 1000 - Urban and Built Up | 47,409 | 74 | 8.0 | 2,721 | 4 | 3.9 | 10,036 | 16 | 5.8 |
| 2000 - Agricultural | 61,457 | 96 | 10.4 | 13,874 | 22 | 20.1 | 48,389 | 76 | 27.8 |
| 3000 - Rangeland | 6,959 | 11 | 1.2 | 713 | 1 | 1 | 1,089 | 2 | 0.6 |
| 4000 - Forested | 312,040 | 488 | 52.9 | 44,886 | 70 | 65 | 98,546 | 154 | 56.6 |
| 5000 - Water | 4,996 | 8 | 0.8 | 476 | 1 | 0.7 | 3,247 | 5 | 1.9 |
| 6000 - Wetlands | 153,117 | 239 | 26.0 | 5,946 | 9 | 8.6 | 11,667 | 18 | 6.7 |
| 7000 - Barren Land | 110 | 0 | 0.0 | 17 | 0 | 0 | 51 | 0 | 0 |
| 8000 - Trans, Comm, and Utilities | 3,772 | 6 | 0.6 | 471 | 1 | 0.7 | 1,075 | 2 | 0.6 |
| **Total** | **589,860** | **922** | **99.9** | **69,104** | **108** | **100** | **174,100** | **273** | **100** |
| | | | | | | | | | |
| **Land Use** | **Middle Suwannee River** | | | **Santa Fe River** | | | **Lower Suwannee River** | | |
| **Level 1** | **acres** | **mi$^2$** | **%** | **acres** | **mi$^2$** | **%** | **acres** | **mi$^2$** | **%** |
| 1000 - Urban and Built Up | 45,975 | 72 | 7.5 | 76,463 | 119 | 8.6 | 46,285 | 72 | 11.8 |
| 2000 - Agricultural | 178,835 | 279 | 29.0 | 197,544 | 309 | 22.3 | 103,168 | 161 | 26.3 |
| 3000 - Rangeland | 5,978 | 9 | 1.0 | 12,071 | 19 | 1.4 | 4,955 | 8 | 1.3 |
| 4000 - Forested | 317,932 | 497 | 51.6 | 443,323 | 693 | 50.1 | 161,246 | 252 | 41.1 |
| 5000 - Water | 5,287 | 8 | 0.9 | 15,218 | 24 | 1.7 | 7,099 | 11 | 1.8 |
| 6000 - Wetlands | 57,438 | 90 | 9.3 | 131,703 | 206 | 14.9 | 68,108 | 106 | 17.4 |
| 7000 - Barren Land | 87 | 0 | 0.0 | 338 | 1 | 0 | 48 | 0 | 0 |
| 8000 - Trans, Comm, and Utilities | 4,874 | 8 | 0.8 | 9,067 | 14 | 1 | 1,574 | 2 | 0.4 |
| **Total** | **616,406** | **963** | **100.1** | **885,727** | **1,385** | **100** | **392,483** | **612** | **100.1** |
| | | | | | | | | | |
| **Land Use** | **Aucilla River** | | | **Econfina River** | | | **Fenholloway River** | | |
| **Level 1** | **acres** | **mi$^2$** | **%** | **acres** | **mi$^2$** | **%** | **acres** | **mi$^2$** | **%** |
| 1000 - Urban and Built Up | 12,761 | 20 | 2.7 | 1,771 | 3 | 1.4 | 12,906 | 20 | 5.3 |
| 2000 - Agricultural | 74,645 | 117 | 15.9 | 7,921 | 12 | 6.1 | 8,497 | 13 | 3.5 |
| 3000 - Rangeland | 3,921 | 6 | 0.8 | 1,102 | 2 | 0.9 | 887 | 1 | 0.4 |
| 4000 - Forested | 205,050 | 320 | 43.6 | 57,273 | 89 | 44.3 | 123,785 | 193 | 50.9 |
| 5000 - Water | 6,240 | 10 | 1.3 | 804 | 1 | 0.6 | 1,857 | 3 | 0.8 |
| 6000 - Wetlands | 164,339 | 257 | 35.0 | 59,555 | 93 | 46.1 | 92,014 | 144 | 37.9 |
| 7000 - Barren Land | 29 | 0 | 0.0 | 22 | 0 | 0.0 | | 0 | 0.0 |
| 8000 - Trans, Comm, and Utilities | 2,786 | 4 | 0.6 | 755 | 1 | 0.6 | 3,043 | 5 | 1.3 |
| **Total** | **469,771** | **734** | **99.9** | **129,203** | **201** | **100** | **242,989** | **379** | **100.1** |
| | | | | | | | | | |
| **Land Use** | **Steinhatchee River** | | | **Coastal** | | | **Waccasassa River** | | |
| **Level 1** | **acres** | **mi$^2$** | **%** | **acres** | **mi$^2$** | **%** | **acres** | **mi$^2$** | **%** |
| 1000 - Urban and Built Up | 2,929 | 5 | 0.8 | 8,503 | 13 | 1.9 | 42,904 | 67 | 8.1 |
| 2000 - Agricultural | 1,128 | 2 | 0.3 | 6,001 | 9 | 1.3 | 79,872 | 125 | 15.1 |
| 3000 - Rangeland | 692 | 1 | 0.2 | 1,492 | 2 | 0.3 | 11,587 | 18 | 2.2 |
| 4000 - Forested | 187,659 | 293 | 52.2 | 209,567 | 327 | 46.9 | 293,733 | 459 | 55.4 |
| 5000 - Water | 1,837 | 3 | 0.5 | 4,126 | 6 | 0.9 | 4,152 | 6 | 0.8 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6000 - Wetlands | 164,672 | 257 | 45.8 | 216,450 | 338 | 48.4 | 98,299 | 154 | 18.5 |
| 7000 - Barren Land | 15 | 0 | 0.0 | 6 | 0 | 0.0 | | 0 | 0.0 |
| 8000 - Trans, Comm, and Utilities | 698 | 1 | 0.2 | 979 | 2 | 0.2 | | 0 | 0.0 |
| **Total** | **359,630** | **562** | **100** | **447,124** | **697** | **99.9** | **530,547** | **829** | **100.1** |
| | | | | | | | | | |
| **Land Use** | **Entire Basin** | | | | | | | | |
| **Level 1** | **acres** | **$mi^2$** | **%** | | | | | | |
| 1000 - Urban and Built Up | 310,664 | 485 | 6.3 | | | | | | |
| 2000 - Agricultural | 781,330 | 1,221 | 15.9 | | | | | | |
| 3000 - Rangeland | 51,444 | 80 | 1.0 | | | | | | |
| 4000 - Forested | 2,455,039 | 3,836 | 50.0 | | | | | | |
| 5000 - Water | 55,337 | 86 | 1.1 | | | | | | |
| 6000 - Wetlands | 1,223,348 | 1,911 | 24.9 | | | | | | |
| 7000 - Barren Land | 723 | 1 | 0.0 | | | | | | |
| 8000 - Trans, Comm, and Utilities | 29,092 | 45 | 0.6 | | | | | | |
| **Total** | **4,906,977** | **7,667** | **100** | | | | | | |

# *Appendix H: Pollutant Loading Estimates for the Suwannee Basin*

**Total load = load sum (kg*1000), % = percentage of total District load**

**Sediment Nitrogen**

| Land Use | District | | Aucilla | | Coastal | | Lower | | SantaFe | | Withlacoochee | | Alapaha | | Upper | | Waccasassa | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) |
| Row Crops | 96 | 20.7 | 32 | 6.9 | 3 | 0.7 | 16 | 3.5 | 27 | 5.7 | 7 | 1.6 | 2 | 0.5 | 3 | 0.6 | 5 | 1.1 |
| Commercial and Services | 79 | 17.1 | 3 | 0.7 | 15 | 3.3 | 17 | 3.7 | 27 | 5.9 | 4 | 0.8 | 1 | 0.2 | 8 | 1.7 | 4 | 0.9 |
| Wetland Forested Mixed | 42 | 9.0 | 7 | 1.4 | 21 | 4.5 | 2 | 0.5 | 2 | 0.5 | 0 | 0.0 | 0 | 0.0 | 4 | 0.9 | 5 | 1.1 |
| Transportation Corridors | 33 | 7.2 | 4 | 0.9 | 5 | 1.1 | 6 | 1.4 | 7 | 1.5 | 1 | 0.2 | 1 | 0.1 | 6 | 1.2 | 4 | 0.8 |
| Multiple Dwelling Units | 32 | 7.0 | 1 | 0.2 | 3 | 0.6 | 6 | 1.2 | 13 | 2.9 | 2 | 0.5 | 1 | 0.1 | 5 | 1.2 | 1 | 0.3 |
| Industrial | 29 | 6.3 | 2 | 0.4 | 10 | 2.1 | 3 | 0.7 | 9 | 2.0 | 1 | 0.2 | 0 | 0.0 | 3 | 0.7 | 1 | 0.2 |
| Improved Pasture | 27 | 5.9 | 9 | 2.0 | 2 | 0.4 | 4 | 0.8 | 5 | 1.1 | 2 | 0.4 | 0 | 0.1 | 2 | 0.4 | 3 | 0.7 |
| Ranchettes | 24 | 5.3 | 2 | 0.4 | 3 | 0.6 | 7 | 1.6 | 6 | 1.3 | 1 | 0.3 | 0 | 0.1 | 1 | 0.3 | 3 | 0.7 |
| Coniferous Plantations | 16 | 3.4 | 2 | 0.4 | 7 | 1.5 | 2 | 0.3 | 2 | 0.4 | 0 | 0.1 | 0 | 0.0 | 2 | 0.3 | 1 | 0.3 |
| Medium Density Residential | 13 | 2.8 | 1 | 0.2 | 2 | 0.4 | 3 | 0.6 | 4 | 0.9 | 1 | 0.2 | 0 | 0.0 | 2 | 0.4 | 0 | 0.1 |
| Low Density Residential | 12 | 2.6 | 0 | 0.1 | 2 | 0.4 | 2 | 0.5 | 5 | 1.1 | 0 | 0.1 | 0 | 0.0 | 1 | 0.2 | 1 | 0.2 |
| Bay Swamps | 10 | 2.3 | 0 | 0.1 | 6 | 1.3 | 0 | 0.1 | 0 | 0.1 | 0 | 0.0 | 0 | 0.0 | 1 | 0.2 | 2 | 0.5 |
| Barren Land | 9 | 1.9 | 0 | 0.1 | 3 | 0.6 | 2 | 0.3 | 1 | 0.2 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 3 | 0.6 |
| Prisons | 7 | 1.5 | 0 | 0.1 | 1 | 0.1 | 1 | 0.3 | 3 | 0.7 | 0 | 0.1 | - | - | 1 | 0.1 | 0 | 0.1 |
| Poultry Feeding Operations | 5 | 1.1 | 0 | 0.0 | 0 | 0.1 | 2 | 0.4 | 2 | 0.4 | 1 | 0.1 | 0 | 0.0 | 0 | 0.1 | 0 | 0.0 |
| Undeveloped Residential | 5 | 1.0 | 0 | 0.0 | 0 | 0.0 | 3 | 0.6 | 0 | 0.1 | 0 | 0.0 | - | - | 0 | 0.0 | 1 | 0.3 |
| Cypress | 4 | 0.9 | 2 | 0.3 | 1 | 0.2 | 0 | 0.1 | 0 | 0.1 | 0 | 0.0 | 0 | 0.0 | 1 | 0.1 | 0 | 0.1 |
| Phosphate Processing | 3 | 0.7 | - | - | - | - | - | - | - | - | - | - | - | - | 3 | 0.7 | - | - |

**Runoff Nitrogen**

| Land Use | District | | Aucilla | | Coastal | | Lower | | SantaFe | | Withlacoochee | | Alapaha | | Upper | | Waccasassa | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) |
| Wetland Forested Mixed | 1335 | 57.0 | 208 | 8.9 | 665 | 28.4 | 78 | 3.3 | 79 | 3.4 | 7 | 0.3 | 3 | 0.1 | 132 | 5.6 | 164 | 7.0 |
| Bay Swamps | 167 | 7.1 | 6 | 0.2 | 94 | 4.0 | 8 | 0.3 | 4 | 0.2 | 0 | 0.0 | 0 | 0.0 | 16 | 0.7 | 39 | 1.7 |
| Coniferous Plantations | 156 | 6.7 | 15 | 0.6 | 67 | 2.9 | 15 | 0.6 | 21 | 0.9 | 2 | 0.1 | 1 | 0.0 | 15 | 0.6 | 20 | 0.8 |
| Row Crops | 103 | 4.4 | 20 | 0.9 | 3 | 0.1 | 16 | 0.7 | 45 | 1.9 | 7 | 0.3 | 2 | 0.1 | 4 | 0.2 | 6 | 0.3 |
| Commercial and Services | 74 | 3.1 | 3 | 0.1 | 14 | 0.6 | 16 | 0.7 | 26 | 1.1 | 4 | 0.2 | 1 | 0.0 | 7 | 0.3 | 4 | 0.2 |
| Cypress | 65 | 2.8 | 24 | 1.0 | 15 | 0.6 | 4 | 0.2 | 5 | 0.2 | 2 | 0.1 | 1 | 0.1 | 10 | 0.4 | 4 | 0.2 |
| Multiple Dwelling Units | 64 | 2.7 | 2 | 0.1 | 6 | 0.2 | 11 | 0.5 | 26 | 1.1 | 5 | 0.2 | 1 | 0.1 | 11 | 0.5 | 2 | 0.1 |
| Freshwater Marshes | 51 | 2.2 | 12 | 0.5 | 14 | 0.6 | 7 | 0.3 | 1 | 0.1 | 1 | 0.0 | 0 | 0.0 | 3 | 0.1 | 12 | 0.5 |
| Improved Pasture | 47 | 2.0 | 8 | 0.3 | 4 | 0.2 | 7 | 0.3 | 11 | 0.5 | 2 | 0.1 | 1 | 0.0 | 5 | 0.2 | 10 | 0.4 |
| Poultry Feeding Operations | 42 | 1.8 | 1 | 0.1 | 5 | 0.2 | 11 | 0.5 | 19 | 0.8 | 3 | 0.1 | 0 | 0.0 | 3 | 0.1 | 0 | 0.0 |
| Hardwoods | 29 | 1.2 | 7 | 0.3 | 7 | 0.3 | 5 | 0.2 | 3 | 0.1 | 1 | 0.1 | 1 | 0.0 | 4 | 0.1 | 2 | 0.1 |
| Industrial | 27 | 1.2 | 2 | 0.1 | 9 | 0.4 | 3 | 0.1 | 9 | 0.4 | 1 | 0.0 | 0 | 0.0 | 3 | 0.1 | 1 | 0.0 |
| Ranchettes | 21 | 0.9 | 2 | 0.1 | 4 | 0.2 | 4 | 0.2 | 6 | 0.2 | 1 | 0.0 | 0 | 0.0 | 1 | 0.1 | 3 | 0.1 |
| Transportation Corridors | 17 | 0.7 | 2 | 0.1 | 3 | 0.1 | 3 | 0.1 | 4 | 0.2 | 0 | 0.0 | 0 | 0.0 | 3 | 0.1 | 2 | 0.1 |
| Phosphate Mines | 15 | 0.6 | - | - | - | - | 0 | 0.0 | - | - | - | - | - | - | 14 | 0.6 | 1 | 0.0 |
| Prisons | 14 | 0.6 | 1 | 0.0 | 1 | 0.0 | 2 | 0.1 | 7 | 0.3 | 1 | 0.0 | - | - | 1 | 0.1 | 1 | 0.0 |
| Open Water | 12 | 0.5 | 2 | 0.1 | 4 | 0.2 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 4 | 0.2 |
| Mixed Wetland Hardwoods | 12 | 0.5 | 1 | 0.1 | 1 | 0.1 | 4 | 0.2 | 4 | 0.2 | 0 | 0.0 | - | - | 0 | 0.0 | 1 | 0.0 |

**Ground Water Nitrogen**

| Land Use | District | | Aucilla | | Coastal | | Lower | | SantaFe | | Withlacoochee | | Alapaha | | Upper | | Waccasassa | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) | ($kg*10^3$) | (%) |
| Row Crops | 2326 | 35.3 | 265 | 4.0 | 38 | 0.6 | 770 | 11.7 | 640 | 9.7 | 259 | 3.9 | 76 | 1.2 | 95 | 1.4 | 182 | 2.8 |
| Poultry Feeding Operations | 1370 | 20.8 | 22 | 0.3 | 48 | 0.7 | 877 | 13.3 | 148 | 2.2 | 162 | 2.5 | 5 | 0.1 | 105 | 1.6 | 5 | 0.1 |
| Dairies | 701 | 10.7 | 15 | 0.2 | - | - | 541 | 8.2 | 40 | 0.6 | - | - | - | - | 8 | 0.1 | 97 | 1.5 |
| Improved Pasture | 555 | 8.4 | 16 | 0.2 | 11 | 0.2 | 116 | 1.8 | 116 | 1.8 | 12 | 0.2 | 5 | 0.1 | 25 | 0.4 | 255 | 3.9 |
| Medium Density Residential | 403 | 6.1 | 20 | 0.3 | 56 | 0.9 | 92 | 1.4 | 141 | 2.1 | 24 | 0.4 | 5 | 0.1 | 58 | 0.9 | 7 | 0.1 |
| Low Density Residential | 258 | 3.9 | 7 | 0.1 | 38 | 0.6 | 50 | 0.8 | 114 | 1.7 | 7 | 0.1 | 2 | 0.0 | 17 | 0.3 | 23 | 0.4 |
| Ranchettes | 231 | 3.5 | 12 | 0.2 | 21 | 0.3 | 81 | 1.2 | 60 | 0.9 | 12 | 0.2 | 3 | 0.0 | 14 | 0.2 | 29 | 0.4 |
| Coniferous Plantations | 191 | 2.9 | 10 | 0.2 | 64 | 1.0 | 37 | 0.6 | 25 | 0.4 | 5 | 0.1 | 2 | 0.0 | 20 | 0.3 | 27 | 0.4 |
| Tree Nurseries | 132 | 2.0 | 9 | 0.1 | - | - | 94 | 1.4 | 11 | 0.2 | 0 | 0.0 | - | - | 0 | 0.0 | 18 | 0.3 |
| Peach and Pecan Orchards | 97 | 1.5 | 43 | 0.7 | - | - | 23 | 0.4 | 22 | 0.3 | 5 | 0.1 | - | - | 3 | 0.0 | 1 | 0.0 |
| Hardwoods | 72 | 1.1 | 10 | 0.1 | 8 | 0.1 | 18 | 0.3 | 8 | 0.1 | 5 | 0.1 | 2 | 0.0 | 12 | 0.2 | 9 | 0.1 |
| Ornamental Nurseries | 57 | 0.9 | 20 | 0.3 | - | - | 26 | 0.4 | 7 | 0.1 | 1 | 0.0 | 1 | 0.0 | 0 | 0.0 | 3 | 0.0 |
| Scrub and Brushland | 32 | 0.5 | 1 | 0.0 | 4 | 0.1 | 6 | 0.1 | 7 | 0.1 | 0 | 0.0 | 0 | 0.0 | 4 | 0.1 | 9 | 0.1 |
| Hardwood Conifer Mixed | 20 | 0.3 | 1 | 0.0 | 2 | 0.0 | 2 | 0.0 | 5 | 0.1 | 1 | 0.0 | 0 | 0.0 | 7 | 0.1 | 2 | 0.0 |
| Woodland Pasture | 19 | 0.3 | 0 | 0.0 | 2 | 0.0 | 5 | 0.1 | 6 | 0.1 | 1 | 0.0 | 0 | 0.0 | 1 | 0.0 | 4 | 0.1 |
| Barren Land | 18 | 0.3 | 1 | 0.0 | 6 | 0.1 | 3 | 0.1 | 1 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 0.0 | 7 | 0.1 |
| Kennels | 14 | 0.2 | - | - | - | - | 10 | 0.2 | - | - | 2 | 0.0 | - | - | - | - | 2 | 0.0 |
| Blueberries | 12 | 0.2 | 0 | 0.0 | - | - | 2 | 0.0 | 8 | 0.1 | - | - | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

*Appendix I: Documentation Provided during Public Comment Period*

# SUMMARY OF PUBLIC COMMENTS AND THE DEPARTMENT'S RESPONSES ON

# FLORIDA'S 2002 VERIFIED LIST OF IMPAIRED SURFACE WATERS

## (ATTACHMENT A)




Bureau of Watershed Management
Division of Water Resource Management

Florida Department of Environmental Protection

**EPA'S COMMENTS**

August 26, 2002

Daryll Joyner, Program Administrator
Total Maximum Daily Load Program
Department of Environmental Protection
Mail Station 3510
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Dear Mr. Joyner:

The Environmental Protection Agency, Region 4 (EPA) has reviewed the Florida Department of Environmental Protection's (FDEP) draft 2002 303(d) list and offers the comments listed below. It is our understanding that the 2002 list will be submitted as an amendment to the 1998 list for certain waterbodies in Group 1 basins and that all of the waterbodies in Groups 2 through 5 will stay on the 1998 list until FDEP submits the appropriate amendments. Furthermore, as agreed during our August 14, 2002 meeting in Tallahassee, the Group 1 waters on the 1998 list for which FDEP did not have sufficient water quality data to meet the verification requirements of the Impaired Waters Rule (IWR) will also stay on the list.

The following comments were developed using the verified and master lists that were made available for the public meeting held the morning of August 14, 2002. Specific comments are organized by the basins that FDEP now identifies as being in Group 1. It is our understanding that Group 1 no longer includes the Alafia, Hillsborough, and Manatee Rivers.

## GENERAL COMMENTS:

1. Because FDEP did not propose the draft 303(d) list in a manner subject to review and approval by EPA, the supporting information for the 303(d) list that is required by 40 CFR §130.7 has not been reviewed. While states are not required to include all of this information for public review, it is required for EPA approval. FDEP must include this information in the final submission in order for the 303(d) list amendment to be approvable**.** [Acknowledged. No response required.]

2. Based on the draft master lists, a significant number of waters in Group 1 basins will be delisted from the 1998 list. In order for EPA to approve these delistings, FDEP must provide good cause justification for each delisting (as described in 40 CFR §130.10(d)(7)(iv)). For example, any delistings based on natural conditions must include documentation of the scientific bases for determining that natural conditions existed when the waterbodies were originally listed. We hope that our agencies will work closely prior to the October 1 submittal deadline to reach agreement on what constitutes adequate supporting documentation for all of the delistings. [Acknowledged. The Department will provide supporting justifications, where applicable (see Attachment 1).]

3. For Group 1 basins, the coliforms listings on the 1998 list appear to have been replaced in most cases by both fecal and total coliforms listings on the draft 2002 master and verified lists. Explanations should be provided in the final 2002 list submission for cases where only a fecal or total coliforms listing was included instead of both. [Acknowledged. The Department will provide explanations in the Comment field, as applicable.]

4. For a number of waters, FDEP intends to use the allowance provided in 40 CFR §130.7(b)(1)(iii) in lieu of including them on the 303(d) list. Adequate documentation must be provided in the final submission demonstrating that any "other pollution control requirements (e.g., best management practices) required by local, State, or Federal authority" are stringent enough to meet water quality standards in the near future. [Acknowledged. Documentation is provided in Attachments 6 and 7.]

# SUWANNEE RIVER BASIN (INCLUDING THE AUCILLA, ECONFINA, FENHOLLOWAY, SANTA FE, STEINHATCHEE, WACCASASSA, AND WITHLACOOCHEE RIVERS)

1. The draft master list identified the 1998 DO listing for the Santa Fe River (WBID 3605B) as being in category 3c, but it was not identified as having been included on the planning list per the IWR. [Acknowledged. No response required.]

2. The draft master list identified the 1998 DO, coliforms (fecal and total), and nutrients listings for Fivemile Creek (WBID 3578) as being in category 3b, but these listings were not identified as having been included on the planning list per the IWR. [Acknowledged. Moved to category 3c.]

3. The draft master list identified the 1998 DO listing for the Little Waccasassa River (WBID 3747) as being in category 3c, but it was not identified as having been included on the planning list per the IWR. [Acknowledged. Please note, the Little Waccasassa River's WBID number is 3703, rather than 3747.]

4. The draft master list identified the 1998 DO, nutrients, and turbidity listings for Jumping Gully Creek (WBID 3318) as being in category 3a, but these listings were not identified as having been included on the planning list per the IWR. [Acknowledged. Moved to category 3c.]

5. The draft master list identified the 1998 fecal and total coliforms listings for Bevins (Boggy) Creek (WBID 3603) as being in category 3a, but these listings were not identified as having been included on the planning list per the language in the IWR. In addition, the BOD listing was identified as being in category 3a and it was not identified as having been included on the planning list. [Acknowledged. Moved to category 3c.]

6. It is not clear what category the 1998 DO listing for Fenholloway Above Pulp Mill falls in. The draft master list indicates both the 5 and 3c categories, but the listing was not included on the draft verified list nor was it identified as having been included on the planning list.

   **RESPONSE:** The available data do not meet the DO criterion for freshwater, but the low DO is believed to be a natural condition. We intend to provide EPA with the information needed to support delisting this parameter.

7. The draft master list identified the 1998 TSS listing for Swift Creek (WBID 3375) as being in category 3b, but it was not identified as having been included on the planning list per the language in the IWR. [Acknowledged. Moved to category 3c.]

8. The draft master list identified the 1998 DO listing for the Little Waccasassa River (WBID 3747) as being in category 3c, but it was not identified as having been included on the planning list per the language in the IWR. [This is a repeat of Comment #3, above. No response required.]

## Statewide Comments:

- EPA's comment letter states that the Group 2 - 5 waters will stay on the 1998 303(d) list until Florida assesses them under the Impaired Waters Rule. It is my understanding that previous lists cannot be carried over from one year to another and that when each new list is submitted, the previous list is then null. (If Florida has a different opinion about this legal requirement please cite the provision in federal law for amending a previous 303(d) list). So, if Florida is only submitting the Group 1 waters that met the criteria for being impaired under the new Impaired Waters Rule, then EPA will be required by law to add the Group 2 - 5 waters to the official 2002 303(d) list. Is that DEP's understanding of the procedure too and if not, then what is DEP's expectation in this regard? [LindaYoung, Florida Clean Water Network]

  **RESPONSE:** As stated in the August 26 letter from EPA, the Department's 2002 list will be submitted as an amendment to the 1998 list, with the amendments limited to certain water bodies in the Group 1 basins. As such, EPA will NOT be required to add the Group 2-5 waters to the EPA-approved 303(d) list for Florida – they will automatically stay on the list previously approved by EPA. While this approach (to limit the scope of the amendments to certain basins) is not specifically addressed in the federal TMDL regulations, it is consistent with the watershed management approach recommended by EPA. Other states that have

implemented a rotating basin approach limit the scope of their 303(d) list submittals to the basins that they have assessed since their last 303(d) submittal to EPA.

- At the final DEP workshop on the draft 2002 list in August, Jerry Brooks stated that it was the Department's position that the waters on the list have no regulatory significance. I have two questions about this statement. First was he talking about the Group 2 - 5 waters that have not yet been assessed under the new Impaired Waters Rule, but are officially on the current 303(d) list or is he talking about all impaired waters on any 303(d) list? Whatever category he was referring to, how does Florida legally consider any impaired waters list to have no regulatory significance when some regulatory authority would be required to enforce the provisions of section 303(d)? [L.Young, Florida Clean Water Network]

  **RESPONSE:** Your question seems to address the regulatory significance of the list AFTER a TMDL is developed, while Mr. Brooks' response was focusing on whether the list itself (pre-TMDL) has any regulatory significance. Clearly, once TMDLs are developed and adopted by rule, the TMDLs will be have great significance to regulated (and unregulated) sources. However, we believe the key issue is whether the lists themselves have regulatory significance in the period between listing and TMDL development.

  To address the issue of the regulatory significance of impaired waters lists, it is most appropriate to break out this topic into lists a) developed under 403.067(2), Florida Statutes (F.S.), which includes the current EPA-approved 303(d) list and any subsequent planning lists, and b) adopted under section 403.067(4), F.S. Regarding the former, paragraph (2) clearly states that there is no regulatory significance to these lists. As for any new lists adopted under paragraph (4), Mr. Brooks made the point that even these new lists currently have no regulatory significance because the ultimate permitting criteria (that permitted discharges must not cause or contribute to violations of water quality standards) is no different for discharges to listed waters than for non-listed waters.

- EPA says in paragraph one of their August 26 letter that the Group 1 waters for which DEP does not have sufficient data to assess under the Impaired Waters Rule, but which are on the current 1998 303(d) list, must remain on the "list". Does this mean these waters will be in Category 5 and on the verified list? If not, then legally they are not on the 303(d) list – which means they are being delisted. Please clarify the status of these waters thoroughly so that the public can take appropriate actions. [L.Young, Florida Clean Water Network]

  **RESPONSE:** Please note that you paraphrased the language in the August 26 letter and added the word "must" to imply that EPA was forcing the Department to leave these waters on the 1998 list. However, since the implementation of the watershed approach, the Department has always committed that it would evaluate all waters on the 1998 list using the IWR methodology. As such, the Department had unilaterally agreed to keep these waters on the list approved until the data could be collected and the analysis undertaken. The letter was meant to document the understanding reached between Department and EPA staff. As for

your specific question, these waters with insufficient data will be placed in category 3 because there are insufficient data to verify they are impaired pursuant to the IWR. While these waters will not be on the verified list adopted by the Secretary, they are not being "delisted" because they will remain on the 303(d) list approved by EPA. The Department and its monitoring partners will collect data on these waters so that they can be evaluated using the IWR methodology during the next watershed cycle. We are confident that this approach is consistent with the 1999 Florida Watershed Restoration Act, which clearly establishes two separate lists of impaired waters.

- How can the public get a copy of all the supporting data that EPA has requested? If it is available electronically, please send it to me. [L.Young, Florida Clean Water Network]

  **RESPONSE:** We will send you a CD containing the data used for the assessment. (CD provided.)

- Has DEP adopted an official policy regarding reasonable assurance requirements as related to 62-303.600 and if so how can the public get a copy of that policy? If it is available electronically, please send it to me. [L.Young, Florida Clean Water Network]

  **RESPONSE:** We have attached a WORD version of the current draft guidance memo titled "Guidance for Development of Documentation to Provide Reasonable Assurance that Proposed Pollution Control Mechanisms will Result in the Restoration of Designated Uses in Impaired Waters."

- How can the public get a copy of the documentation that has been provided to DEP by any entity that has requested a 62-303.600 exemption from listing an impaired water body? Please provide a complete list of all such applications. [L.Young, Florida Clean Water Network]

  **RESPONSE:** As mentioned at the August 14 public meeting, we have received submittals from the Tampa Bay Estuary Program and the Suwannee Partnership. We have attached WORD versions of the main document for each submittal, but both submittals include extensive attachments that were provided in hard copy form only. If you want copies of the attachments, we can arrange an opportunity for you to obtain copies (at cost, as set forth in Chapter 119, F.S.).

- I think that it's perposterous (sic) to revise any Acts that favor cleaning up our water for needless money saving measures, that we haven't any idea what it will be put towards. [Bethany Pritchett]
  [Acknowledged. No response required.]

## Suwannee River Basin Group 1 Comments:

**Formal Public Meeting Comments (Live Oak, FL, 7/22/02):**

- What computer models will we use? Will there be a list posted of models we will be using? [Larry Simon (Packaging Corporation of America)]

  **RESPONSE:** There are a variety of computer models that we will be using. Different models require different information to run them, and models vary on their limitations. The model(s) used for a particular parameter or water body will depend more on the information we have available for use in the model, what it is we are trying to model, and the water body type among other things. A list of models that will be used in the analysis will be made available in the TMDL website.

- Are the waters good for medical health? Concerned that some people in this area (Live Oak) can't use water because of pollution in the water. [Daryl Fite (Citizen)]

  **RESPONSE:** This question was not very clear as to it's intent. If the reference was to drinking water, then the drinking/groundwater have not been assessed under the TMDL process. Surface water quality will vary by waterbody. The quality of these waters will be assessed and if any threats to human health are identified, they will be given the highest priority for restoration.

- Question related to connecting our list to 303(e?) – related to implementation plans. [Alan Obaigbena (FDOT)]

  **RESPONSE:** EPA is currently considering an option to move the implementation portion of the TMDL program under Section 303(e) or the Clean Water Act. This will allow states time to work with stakeholders to develop meaningful implementation plans and make the development of specific allocations a part of each states' Continuing Planning Process.

- When will these waters be reevaluated again? [Bill Heartsfield (Foley Timber Co.)]

  **RESPONSE:** Waters that either did not have enough information to assess or were assessed will be re-evaluated again in five years based on the rotating watershed approach. Those that did not have enough data to evaluate will be assessed again five years after their first assessment year to see if more information is available to assess. Those that had enough data to assess in the first time around will be re-assessed to see if the number of violations has been reduced.

- What type of assessments are we doing? [Unidentified Commentor]

**RESPONSE:** Waters were assessed for those parameters in which we have enough data to assess them. Some of the most commonly assessed parameters included DO, chlorophyll, coliforms, unionized ammonia, BOD, turbidity, and various metals. For most parameters, a minimum of 10 samples are needed to make any kind of assessment at all. If less than 10 samples existed, then that parameter was unable to be assessed.

- How are we "raising the science" with our new rule? [Karen Garren (Sierra Club)]

  **RESPONSE:** The Department is "raising the science" in several ways. For example, the IWR requires that a minimum number of samples be collected. This will not allow impairment determinations to be made based on just a few samples. Also, new data takes precedence over older data. This helps take into account any advancements in technology or techniques. By first placing water on the planning list and then on the verified list, the Department is more closely scrutinizing the actual condition of the water body. This gives the Department more flexibility in determining impairment. Instead of waters either just being impaired or not, waters can be placed on the planning list, basically ensuring it will receive further investigation and not "fall through the cracks." All waters will be reassessed again in five years. By doing so, the Department can track TMDL waters and see whether implemented practices are working as designed or not. In addition, by requiring a minimum sample size and employing a statistical process that is better suited to assessing environmental data, the Department will improve the reliability of its decision-making process with regard to assessing the health of the state's water resources.

- Do other states do it (use binomial methodology)? Does this methodology take waters off the list? [Kathy Cantwell (Sierra Club)]

  **RESPONSE:** We believe Florida is the only state with a rule that adopts the use of the binomial methodology; however, other states have considered using such methodologies. A recent publication by the National Academy of Sciences supported the use of more advanced statistical procedures, including the binomial hypothesis test, particularly for the evaluation of environmental data. Chapter 62-303, Florida Administrative Code, which included the use of the binomial approach, has been challenged and the Administrative Law Judge issued a finding that supported the Department's assessment rule.

- Is DEP maintaining a master database? What about the QA process on data used outside of STORET? How do you handle biorecons and make the data available? [Unidentified commentor]

  **RESPONSE:** The primary database the Department has and will continue to rely on is EPA's STORET database. However, for various reasons, not all data from outside agencies has been uploaded into STORET. FDEP has made every effort to work with these groups and put their data into a usable form such that it could be used in the assessment process. Many of these data were assessed in the development of the proposed Verified List. The

STORET database can be accessed through the internet via the EPA sites. The department has made all of the data used in the assessment available in electronic format for those who have requested it. Data are also gathered from agencies such as the US Geological Survey, the Florida Department of Agriculture and Consumer Services, the Fish and Wildlife Conservation Commission, and the Department of Health. Data not supplied by the Department are also subject to review and may be rejected by the Department based on a failure to apply proper QA/QC procedures to obtain the data. Entities having submitted data to be used in the analysis are required to have written QA/QC plans, which will be reviewed by the Department. Upon satisfaction of the Department, the data could be used in the assessment. Biorecons are overseen by the Biology section of FDEP located in Tallahassee. Applicable FDEP staff and other persons who have successfully completed the training course offered through the Department may also perform Biorecons. Biological data are stored in a Department maintained database called SBIO. Biorecons performed by FDEP personnel are available through the Internet at: www.floridadep.org/labs/reports/ecosum.htm.

- How will we have public input in this listing process? [Karen Garren (Sierra Club)]

  **RESPONSE:** The public has a 45 day period in which to submit comments on the listing of specific waters, whether they are deemed impaired or not. For these Group I waters, the 45-day public comment/input ends August 26, 2002.

- Are we developing criteria for fish kills or seagrass loss? [Tom Greenhalgh (Citizen)]

  **RESPONSE:** FDEP presently has no plans to create criteria for determining the loss of seagrass or fish kills for use in the TMDL program. Currently, while there are no numeric criteria for seagrass decline or fish kills used in the determination of impairment, the rule allows the Department to evaluate this type of information to list waters for further investigation. If additional information can be documented to support the reasons leading to the fish kills or the loss of seagrasses, these waters can be placed on the Verified List.

- What do we mean by “near future” with regard to reasonable assurance? [Tom Greenhalgh (Citizen)]

  **RESPONSE:** DEP’s reasonable assurance guidance does not establish a specific time limit by which water quality standards must be met. However, the documentation does maintain that designated uses will be met at some time in the future. Any reasonable assurance programs submitted to and being considered by the department must have a reasonable time line stating and outlining times at which applicable water quality standards will be achieved. Failure to achieve the stated milestones and water quality goals may result in placing the waterbody back on the list of waters needing TMDLs.

- Once DEP decides a water body is impaired and knows where it (pollutant[s])comes from, then what? So, a discharger can continue to pollute down to some limit? What about areas

where it may take a long time to quantify problems (like Georgia Pacific plant in LSJR basin)? [Linda Pollini (Sierra Club)]

**RESPONSE:** This is not a listing question. However, dischargers are required to renew their permits every five years. Once a TMDL has been established and if a discharger is considered to be contributing to the impairment of a water body, then no later than when the permit comes up for renewal, new limits will be set to comply with the TMDL. Some TMDL limits will take a while to be met, we realize this. We will be re-evaluating waters every five years to verify that progress has been made toward meeting standards and designated uses. The Department does not necessarily expect all water to meet designated uses within five years, however, we do expect to see reasonable progress made towards meeting standards. If this is not the case, then we will need to re-evaluate the limits set forth in the TMDL.

- Why are there no waters listed for mercury fish consumption advisories? [Kathy Cantwell (Sierra Club):

  **RESPONSE:** This comment was submitted in writing and response is below.

- Kathy Cantwell (Sierra Club): Why are using chlorophyll a when we have many dark water streams? Why not direct our efforts toward the pollutant? DEP springs report that .02 micrograms/l of nitrates is natural and if you get 1 microgram/l you begin having problems. Why isn't DEP using this information to say impaired? Doesn't believe we should wait to see a problem (probably downstream) before we address a nitrate issue.

  **RESPONSE:** The same basic idea was presented as written comments, and a response is listed below.

- Does EPA has guidelines on how much mercury can be in fish tissue? [Linda Pollini (Sierra Club)]

  **RESPONSE:** EPA does have numeric criteria for organism consumption. They recommend 0.051$\mu$g/L. Information on this can be found at: http://oaspub.epa.gov/pls/wqs/wqsi_epa_criteria.report

- Who is doing mercury testing in the Suwannee? She knows of a "Mr. Lang" with USGS who has been sampling every year for the last 12 years. [Kathy Cantwell (Sierra Club)]

  **RESPONSE:** At the time of the meeting, FDEP was unaware that USGS had been sampling fish tissue in the Suwannee basin for mercury. This comment was included as a written comment submitted by the Sierra Club. FDEP contacted Mr. Lang and obtained his data shortly after the meeting, and these data have been analyzed. A response to this comment/question is included below.

- If stakeholders have information and haven't gotten it to us by end of August must they wait 5 years before next listing? [Unidentified commentor]

  **RESPONSE:** Essentially, yes. FDEP has held several public meeting concerning the TMDL process; we have tried to maintain public involvement in the process. Last fall, FDEP announced and held public meeting in each of the basins in which the main objective was to make the public and basin stakeholders aware that FDEP was looking for any available data which could be used in the assessment of waters in the basin. FDEP feels that ample time was given to contact the department and work towards getting data in a usable format such that it could be assessed. FDEP will continue to take outside data for all waters, however the assessment period for group I waters ended near the end of August. Data obtained by the department after this time will be used in subsequent analysis of the basin. The best way to be sure that data gets used in the assessment is to put the data into STORET. Based on the rotating basin approach that Florida has under taken, waters will be re-assessed every five years.

- Are the dates listed on master list to set priorities? [Brett Goodman (Gainesville Regional Utilities)]

  **RESPONSE:** The dates listed on the master list under the priority column indicate the date which the TMDL will be developed. There is also a priority column as well. These two columns are based on the 1999 Consent Decree between EPA and the Clean Water Network. FDEP is the lead state agency for the TMDL program in Florida and obligated to meet these dates.

- Suwannee estuary was placed on planning list in status report. Why is it not on the list now? [Tom Greenhalgh (Citizen)]

  **RESPONSE:** The Suwannee estuary was originally placed on the planning list based upon data that was not in STORET. A study was undertaken from 1997-1999 and was funded by the Suwannee River Water Management. The initial results indicated that the estuary should be listed based on the information contained in the report. However, upon obtaining the raw data, it was determined that based on the IWR, the estuary was not impaired. Recently, the Suwannee River Partnership submitted a Reasonable Assurance document, which will reduce the nitrates in the Suwannee River and estuary to pre-OFW nitrate limitations through better BMP practices. The department has decided to accept the proposal that will provide many of the same activities and water quality goals as would a TMDL.

- Why do some low priority waters have a 2002 TMDL deadline? [Unidentified commentor]

  **RESPONSE:** The priorities and TMDL dates were established in the Consent Decree. When preparing the 1998 303(d) list, the Department established priorities based on the

severity of the pollution problem at that time. More severely polluted waters were assigned a "High" priority, which in turn made them appear on the first 5-year rotation of the Department's schedule for doing TMDLs. However, some less impaired waters that were located in proximity to more impaired waters were include in the first rotation as a way to more efficiently use the Department's resources.

- Regarding the waters that are listed in Category 4c (Reasonable Assurance), how will attainment in the near future be checked? [Karen Garren (Sierra Club)]

  **RESPONSE:** In order for a water to be deemed a category 4c, the Department will have approved reasonable assurance plan for a parameter(s) in a given water body. The Department has set forth guidelines, which include what constitutes reasonable assurance. Included in this document are the guidelines for reasonable progress. Obviously, reasonable progress is specific to each reasonable assurance plan. It is up to the group proposing the reasonable assurance plan to satisfy the Department that reasonable progress is being made.

- Reasonable assurance could be a permit, like with Buckeye. Why the listing of Econfina R. for DO? It is one of the least impacted streams in FL and has often been used as a reference site. Recommend removing it from list. Fenholloway above mill has naturally low DO. Recommend removing it from list. Listing of Fenholloway at mouth for total coliform. Disagrees with this based on sampling database – 5 exceedences out of 34 in 1998 during a 2 month period BUT there were no exceedences in the upper portion of the river at that time. Also doesn't want to see the mill insinuated as a source of a coliform problem. Also in WBIDs 3473A and 3473B in Fenholloway – Use Attainability Assessment was used to develop a pollution control plan that would have the plant meet class 3 standards. These findings were memorialized in a legal agreement in 1995. DEP was going to use this in a draft permit. May 2001 Buckeye initiated an Initiative w/ DEP, EPA & CWN. Buckeye expects to end up with an enhanced plan which would provide further reasonable assurance. Buckeye supports DEP's decision to list portions of the Fenholloway as Category 4. [Ray Andreu (Buckeye)]

  **RESPONSE:** This comment/concern was submitted in writing. Please see response below.

- How does Falling Creek (WBID 3477) in Upper Suwannee get on list? [Dan Roach (Rayonier)]

  **RESPONSE:** Similar comments were submitted in writing. Please see the response below.

- Where do septic tanks fit into all of this? [Larry Simon (PCA)]

  **RESPONSE:** Septic tanks can play a role in the impairment of waters for some pollutants, mostly coliforms and possibly nutrients. There are two factors that most likely play a role. The first is the concentration of septic tanks, the other being how well they work. A high

concentration of failing septic tanks could very well play a role in contributing to the pollutant of concern. Again, TMDL implementation is based mostly on voluntary action; it will have limited legal authority.

- The Withlacoochee River has area with DO listed as Category 5. She believes this falls within an area with a DO SSAC which was just approved by EPA this spring. [Ginny Holton (PCA)]

  **RESPONSE:** There is a seasonal SSAC in place for a portion of the Withlacoochee River. Upon calculating the DO by hand, taking the SSAC into account, the river met standards and will not be shown as impaired on the final list sent to EPA on October 1.

## Written Public Comments:

## Withacoochee River

- Packaging Corporation of America (PCA), was concerned with the Withlacoochee River (3315) being designated a Category 2 rather than Category 1. They were inquiring as to the difference between the categories. [Holland and Knight LLP (Susan L. Stephens, Attorney)]

  **RESPONSE:** Category 1 water bodies have enough data to determine if *all* beneficial uses for a given water body are being met. A Category 2 is assigned to those waters that meet some beneficial uses. In most instances, there was not enough data to analyze the water body for all of its beneficial uses, therefore these waters were given a Category 2 listing.

- Packaging Corporation of America (PCA), was concerned about the ultimate fate of a water body in Category 2. [Holland and Knight LLP (Susan L. Stephens, Attorney)]

  **RESPONSE:** A Category 2 designation means that the water body meets all standards for which we have enough data to assess. There are no regulatory consequences or implications associated with a Category 2. A water body will remain a Category 2 until there is enough data such that it can be re-categorized as a Category 1, or there are enough violations that under the Impaired Waters Rule (IWR) another designation would be more appropriate.

### WACCASSASSA RIVER BASIN/CEDAR KEY AREA

- There was a concern about the fish, crabs, and other wildlife in Waccassassa Bay and the Cedar Key area. The commenting party believes that wildlife have declined in the past 10 -

12 years as a result of herbicides used in silviculture, which leach into the waterways and ultimately into the Gulf of Mexico. [John W. Andrews, M.D.]

**RESPONSE:** The parameters for which we had enough data to assess indicate that the water quality in this area is good, with the exception of coliforms, which has resulted in shellfish harvesting areas being downgraded, and ultimately in them being listed. In the vast majority of water bodies there was not enough data, if any at all, to completely assess the water body for pesticides. If specific information could be provided regarding the decline of fish, crabs, sea grasses, and other wildlife, which can be linked to a causative pollutant, such as pesticides, a water could be listed and a TMDL could be developed.

## SUWANNEE RIVER AND SANTA FE RIVER BASINS

- Concerns expressed that the Suwannee River and Santa Fe Rivers are not listed for mercury. The Sierra Club included data, which they claim supports the listing of mercury. [The Sierra Club (Suwannee/St. Johns Group [Kathy Cantwell, M.D.]) and other members of the public (Matthew Hurst)]

  **RESPONSE:** The Department received additional information about the available mercury in fish tissue data for the Suwannee River and list the river for mercury (based on a fish consumption advisory). It should be noted that under Chapter 62-303, Florida Administrative Code, water segments that are verified for mercury based on fish tissue data must have data collected and analyzed within the past 7.5 years to support the listing. We have assessed all of the fish tissue and mercury data that have been presented to us, including the study referred to by the Sierra Club. Currently, there are few data for us to evaluate. We have also taken into account the Department of Health (DOH) and Florida Wildlife and Conservation Commission (FWCC) fish consumption advisories. Based on the data that have been analyzed, two segments of the Suwannee River (3422A and 3422B), Suwannee Estuary (3422D), and all coastal areas have been listed for mercury (based on a fish consumption advsiory). We are currently awaiting receipt of data from unanalyzed samples. When that data are received, those results will be taken into account as well. Mercury TMDLs are not due under the consent decree until 2011, so there is still plenty of time to analyze the samples that have been collected, as well as any more that may be collected in the next several years which may result in WBIDs being listed.

- Concerns expressed that the Suwannee River and Santa Fe Rivers are not listed for nitrates. Several concerns have been expressed over the concentrations of nitrates being discharged from the springs that feed the Suwannee and Santa Fe Rivers. [The Sierra Club (Suwannee/St. Johns Group [Kathy Cantwell, M.D.]) and other members of the public (Tom Greenhalgh, Matthew Hurst)]

**RESPONSE:** Florida does not have numeric surface water standards related directly to nitrogen and phosphorous. However, we realize that excess amounts of nutrients can be detrimental. Often when these nutrients are in excess, chlorophyll and algae will be present in such quantities as to cause problems. We analyzed chlorophyll in several different ways. If chlorophyll data indicated that levels were high enough over a given year, the water was listed. Also, if significant increases in chlorophyll were observed over a period of time, the water was listed for historical chlorophyll. In addition, waters could be listed for the presence of algal mats if the were deemed as posing a potential threat to wildlife or water quality. Based on this type of information, the Department determined that segments of the Suwannee River and the Suwannee Estuary were impaired for nutrients. However, the Department concluded that the Suwannee River Partnership has provided sufficient reasonable assurance that the nitrate levels in the Suwannee River will be returned to pre-OFW (Outstanding Florida Waters) concentrations under their proposed plan. The Department has decided to accept the plan and therefore did not include the Suwannee River on the verified list for nutrients (and will not be producing TMDLs related to nitrogen for the Suwannee River at this time). One segment of the Santa Fe River (3605A) has been listed for algal mats based/historical chlorophyll values. As a result, a TMDL will be developed for the Santa Fe River, which will incorporate upstream segments as well.

- Concerns expressed over several water bodies in the upper Suwannee River being listed for dissolved oxygen. These include Suwannee River (WBID 3341), Rocky Creek (3351), Swift Creek (3375), Deep Creek (3388), Roaring Creek (3392), Camp Branch (3401), Robinson Creek (3448), and Falling Creek (3477). They state that based on the data that they have collected, along with land use, water characteristics, natural conditions, and lack of point sources, they believe that the low dissolved oxygen levels in these streams are natural. [Rayonier (Dan Roach) and Environmental Services and Permitting (John Davis, Ph.D.)]

  **RESPONSE:** We realize that low levels of dissolved oxygen can quite often be a natural condition. However, in our efforts to clean up waters and create TMDLs, we don't want to let instances where such a condition is not natural slip through the analysis. It is not always easy to determine if low DO levels are natural or not. We make every attempt to make a fair decision based on the available data. We take such things as groundwater influences, headwater source, velocity, point and non point sources, and surrounding land uses into account when making these decisions. Several waters listed as verified in our initial analysis have been removed from the verified list because we ultimately concluded the low DO levels were natural. We are currently evaluating several more waters, including those listed above, in an attempt to determine if low DO may be natural. We will be discussing the results with the EPA. If the condition is determined to be natural, no TMDL will be developed.

**Santa Fe Lake**

- There was concern over a drainage canal that leads into Santa Fe Lake (3605G). The commentor mentions that there is little water in the canal, which is stagnant, and recognizes that it is probably due to natural drought conditions. Fish have been seen trying to swim in the water, and has noticed that there are fewer alligators present this year than in the past. It is also noted that "grass" is growing almost all the way across the canal and is believed to be attributed to high nutrient levels. Also mentioned is the run off from a nearby road introduced through drainage ditches that DOT has created. [(John Radziwon and neighbors)]

  **RESPONSE:** The drainage canal of concern does not have its own WBID. Therefore, the canal was not assessed as it's own entity, and was instead assessed within whatever WBID it lies in, probably Santa Fe Lake (3605G). Either way, there exists no data in the database for this canal that could be used to assess the waterbody. This means that some data will need to be collected before we can assess the water body and determine any impairment. However, as stated, there is no flowing water and the canal is stagnant. This creates less than ideal sampling conditions and any samples collected would not represent the true natural conditions of the water. Calculating a Stream Condition Index (SCI) could reveal any adverse effects that might be seen from the street drainage/siltation. Once again, this would not be done until more water is present and the canal returns to more normal conditions.

## FENHOLLOWAY RIVER

- Concern expressed about the listing of the Fenholloway River for dioxin. They contend that the original source of the dioxin has been eliminated. [Buckeye (Howard A. Drew)]

  **RESPONSE:** It has come to our attention that the original source of the Dioxin in the Fenholloway River has not existed for several years. Based on this, along with data that supports the decline of dioxin levels in fish tissue in the river, dioxin in the Fenholloway River has been removed from the verified list.

- Concern was expressed over the Fenholloway River at mouth (3473A) being listed for coliforms. They contend that the exceedances that resulted in the river being verified as impaired occurred within a relatively short period of time and that sampling stopped shortly after this time period. They believe that this segment should not be listed based on this. [Buckeye (Howard A. Drew)]

  **RESPONSE:** The mouth of the Fenholloway River is listed for coliforms because there were enough exceedances under the Impaired Waters Rule (IWR) for the water body to be listed as impaired. Upon further review of the data a significant number, but not all, exceedances occurred in a seven-month period. Neither state standards Chapter 62-302, Florida Administrative Code nor the IWR states that exceedances can be excluded based on a

number of violations occurring within a time frame. Therefore, all data must be taken into account when determining the status of impairment of a water body.

- Fenholloway below Pulp (3473B). This segment has been verified impaired for dissolved oxygen, un-ionized ammonia, and biochemical oxygen demand. Concerns expressed over listing this segment in light of a use attainability analysis (UAA) that had been completed and approved by the Department that identified improvements that would restore the Fenholloway River to a Class III water body. The comments stated that the UAA should provide the necessary reasonable assurance under Chapter 62-303, Florida Administrative Code to place the water in Category 4. [Buckeye (Howard A. Drew)]

  **RESPONSE:** Buckeye is well aware of the various administrative challenges since approval of the UAA that have precluded implementation of elements of the UAA and attainment of Class III water quality standards. It is unclear whether the UAA would satisfy all of the requirements of the reasonable assurance guidance document. In the past year Buckeye, EPA Region 4, DEP, and the Clean Water Network have worked cooperatively to evaluate the feasibility of a wetlands treatment alternative along with certain process and technology modifications that could also result in attainment of Class III water quality standards and offer some additional environmental benefits. The outcome of this cooperative effort may be a solution that was not considered in the 1994 UAA. The Department expects that the conclusion from this cooperative effort will address the water quality parameters identified on the verified list.

**Generic Comments on Delisting non-Group 1 Waters:**

- Several comments were received in response to a Palm Beach Post article published on August 14, 2002 titled *State Plays Dirty on Clean Water.* Several comments dealt with the removal of 600 waterbodies from the state's "impaired" list. ( Aracelis Jaffe, Marian Towles, Rose Tancredi)

  Several comments dealt with altering the Clean Water Act to change the definitions for "impaired" waters. (Leann Drury, Maresa Pryor-Luzier, Thorgurdur Sudar, Wilma Katz, Marian Towles)

  Comment regarding the removal of the Indian River Lagoon from the impaired list. (Joan Bixby)

  **RESPONSE:** Numerous erroneous statements were made in the article with regard to FDEP's listing process. Among the more notable was a statement that FDEP is in the process of removing 600 waterbody segments from the impaired list by changing the rules by which we assess waters. It should be noted that FDEP was not contacted by the author prior to publication of this article, which would have allow us to confirm facts and provide an explanation of the listing process. Each of the major points raised in the article will be addressed individually below.

- FDEP is not removing 600 water bodies from the state's 303(d) list of impaired waters. We are in the process of developing new lists of impaired waters for specific basins in the state (termed Group 1 Basins) as part of the Department's Watershed Management Approach. While only these new basin-specific lists will be verified as impaired under the state's new methodology to identify impaired waters (the IWR), we are not making any changes to the impaired waters list for other parts of the state at this time.

- We have made no statements that the Indian River Lagoon, or the other waters listed in the editorial, would be removed from the state's list of impaired waters. Further, we have never made any statements relating to any type of "miracle" leading to the improvement of the IRL, as implied by the editorial.

- Waters will not be taken off the impaired waters list unless we have clear evidence they are not impaired. As such, any waters on the 1998 303(d) list that are not in a Group 1 Basin will remain on the state's list and will continue to receive additional priority funding under several federal grant programs.

- The statement attributed to Linda Young of the Florida Clean Water Network about the significance of the list is simply not correct. There are no state or federal laws that prohibit additional discharges to impaired waters. We are required to develop TMDLs for listed waters and these TMDLs will likely lead to limitations on existing dischargers for specific pollutants, but there is no moratorium on discharges simply by listing the water. More importantly, all wastewater discharges are fully evaluated as part of the permitting process, regardless of whether the receiving water is listed as impaired. We only authorize discharges after we have determined that the discharge will not cause water quality problems.

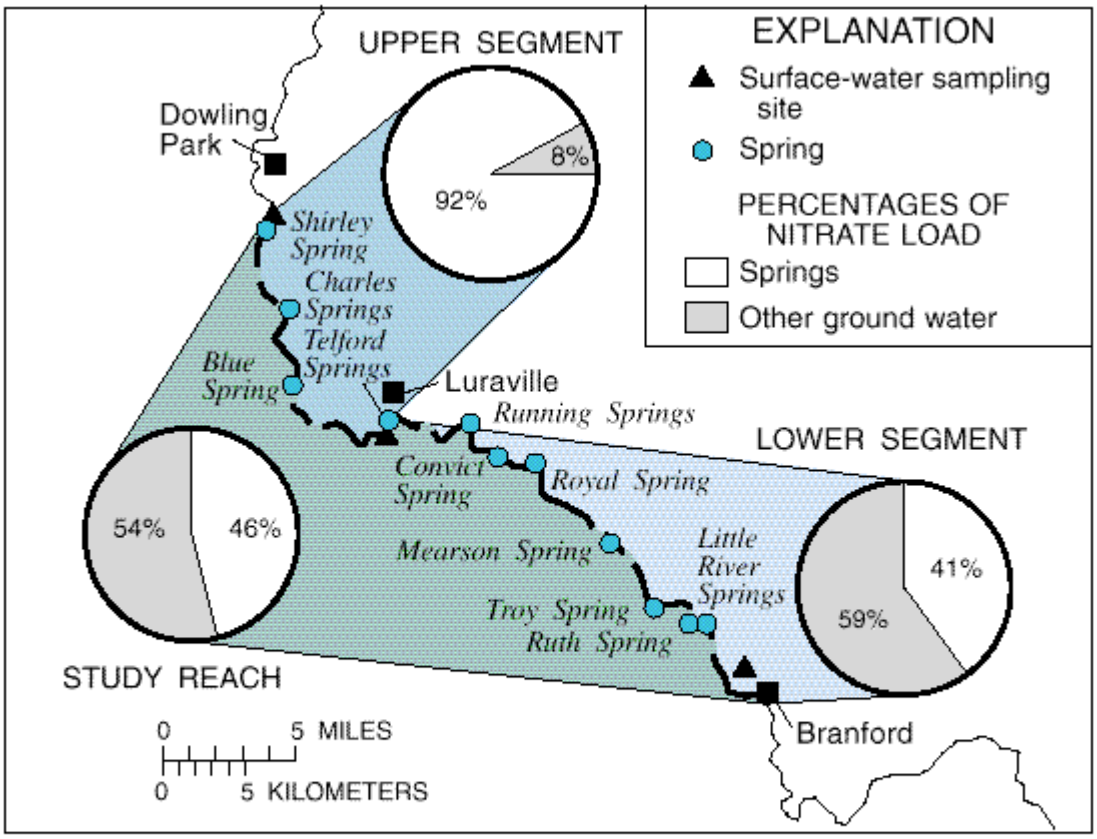
- No waters have been removed from the list "because plans exist to clean them up" as the article states. The IWR allows the Department to not list impaired waters if we have reasonable assurance that they will be restored because we want to encourage proactive restoration of state waters. The TMDL development process can take a long time, and there is no need to wait for a TMDL if local efforts are already addressing the source of the impairment without one. It is important to note that we have only received two such submittals statewide (from the Tampa Bay Estuary Program and the Suwannee Partnership). A presentation of reasonable assurance includes meeting many of the same requirements as would be required by a TMDL.

- Florida's TMDL Program is gaining national recognition because it has developed comprehensive TMDL legislation (the 1999 Florida Watershed Restoration Act) and a rule to identify impaired waters (the IWR). The FWRA established a clear administrative process for the TMDL Program that ensures that all citizens, whether representing regulated parties, environmental groups, or themselves, can actively participate in all phases of the TMDL Program, ranging from listing decisions to the implementation of TMDLs. The subsequent IWR has established a strong, science-based foundation for the program, and we are confident that this foundation will allow us to target resources to the

truly impaired waters, develop scientifically defensible TMDLs, and restore impaired waters in the most efficient manner possible.

- The IWR was developed through an extensive, open process with the assistance of a Technical Advisory Committee comprised of experts in various scientific fields. While public comments were encouraged throughout the rule development process, there were no changes made to the rule to allow industrial sources to avoid requirements to reduce pollution. Industrial representatives supported the rule because the vast majority of the impairment of state waters is caused by nonpoint sources (urban stormwater, agricultural runoff, septic tanks, and atmospheric deposition), and they support mechanisms that allow the state to appropriately expand restoration efforts on these other sources, rather than unfairly focusing all reductions on point sources.

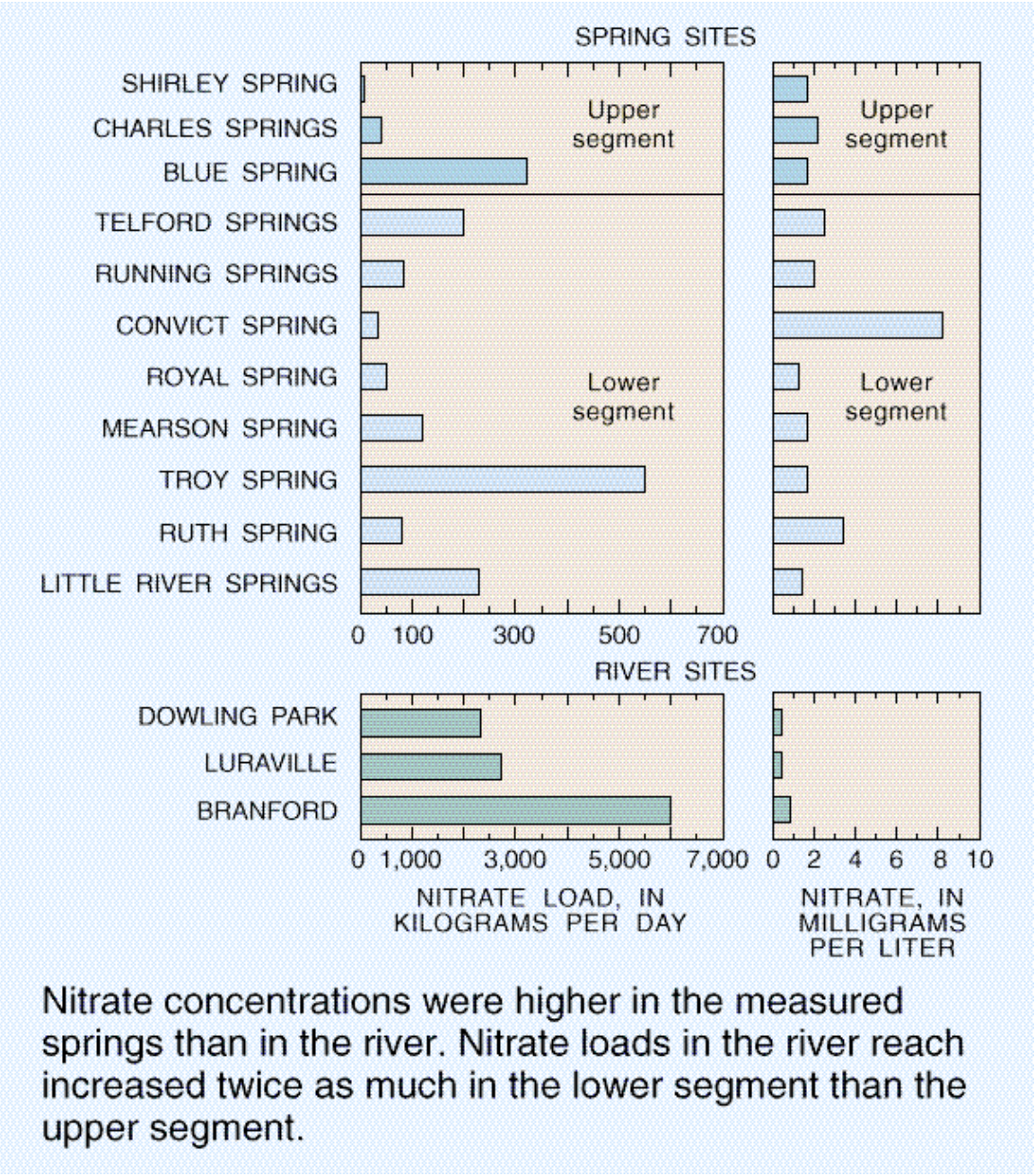
## *Appendix J: Nitrate Loading in the Middle Suwannee River*




Measured springs accounted for nearly half of the increase in nitrate load in the river reach.

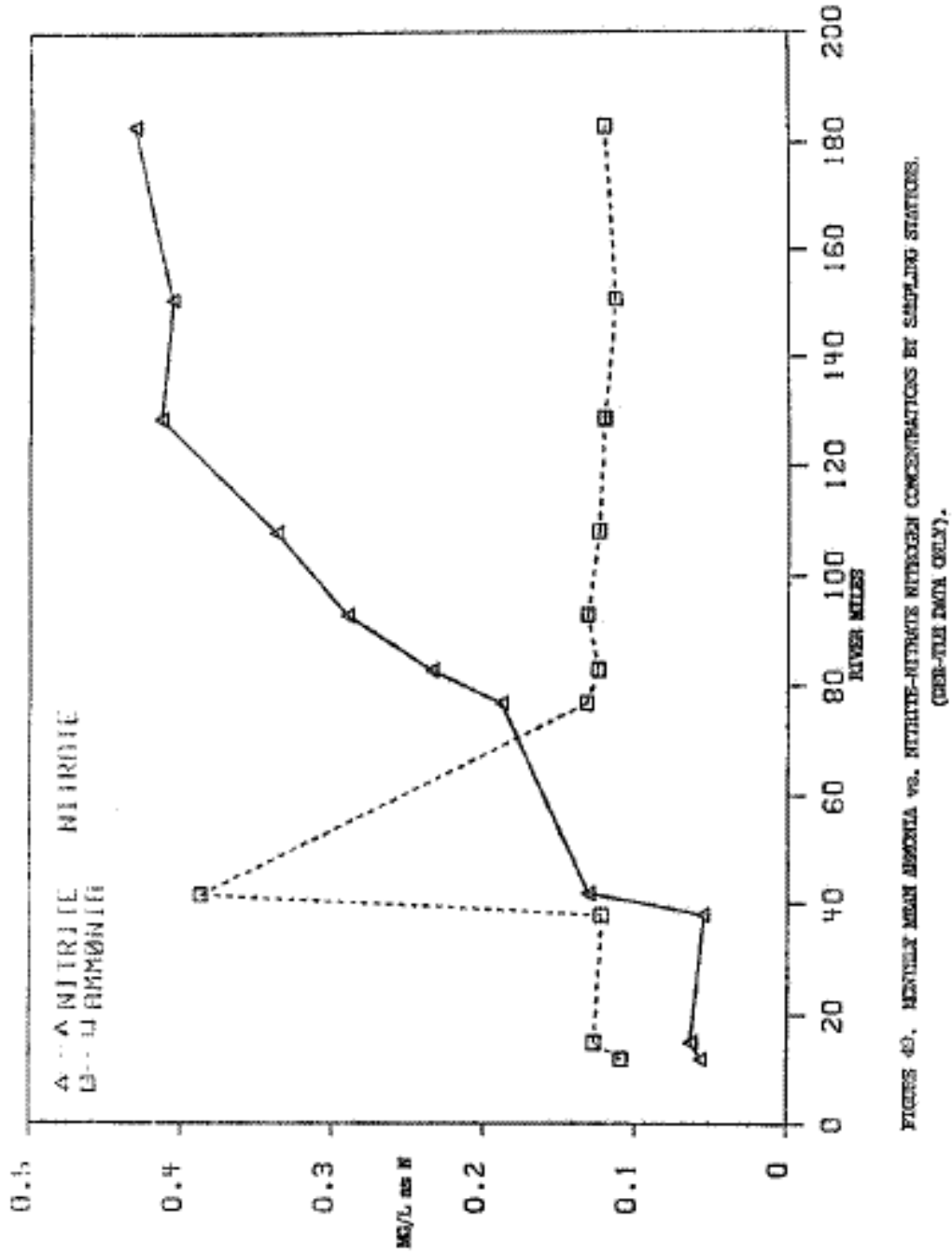
From Berndt et al., 1998

## *Appendix K: Nitrate Loading from Selected Springs in the Middle Suwannee River*




From Berndt et al., 1998

# *Appendix L: Nitrite+Nitrate and Ammonia Concentrations in the Suwannee River*




Taken from FDER, 1985

Collected data spans from S.R. 6 (near Fl./Ga. border to Manatee Springs. Data from 1982 - 1983 study.

# *Appendix M: Seasonal Mean Nitrate+Nitrite Concentrations for Portions of the Suwannee River and Estuary*

Seasonal mean nitrate + nitrite ($\mu g\ N\ l^{-1}$) for each region of the Suwannee River and estuary. Standard errors in parentheses.

| | Suwannee River | Santa Fe River | South Reef | North Reef | South Near shore | North Near shore | Offshore Gulf Sites | Cedar Key |
|---|---|---|---|---|---|---|---|---|
| Spring 99 | 790.9 (93.3) | . . | 38.8 (22.4) | 3.6 (2.9) | 0.1 (0.0) | 1.2 (0.5) | . . | 0.0 (0.0) |
| Summer 99 | 774.0 (53.3) | . . | (33.1) (25.6) | 69.7 (39.8) | (1.8) (0.5) | 3.0 (0.5) | 7.4 (2.8) | 3.1 (0.5) |
| Fall 99 | 894.5 (57.4) | . . | 84.6 (33.3) | 22.8 (9.0) | 6.7 (2.6) | 12.2 (6.4) | 3.2 (0.9) | 4.9 (2.3) |
| Winter 1999/2000 | 836.6 (33.3) | 749.4 . | 151.7 (30.3) | 39.8 (12.1) | 2.8 (0.5) | 5.8 (2.9) | 1.6 (0.4) | 4.6 (1.9) |
| Spring 2000 | 564.5 (36.8) | 589.3 (85.5) | 146.2 (32.4) | 19.2 (13.3) | 2.5 (0.9) | 2.7 (1.0) | 3.6 (0.7) | 3.9 (1.1) |
| Summer 2000 | 544.0 (68.4) | 576.7 (52.1) | 45.8 (14.3) | 54.3 (26.3) | 5.6 (1.1) | 8.8 (2.5) | 5.1 (0.8) | 7.3 (1.5) |
| Fall 2000 | 676.1 (110.7) | 469.5 (209.9) | 245.6 (44.8) | 54.7 (17.9) | 15.7 (5.2) | 8.9 (1.3) | 7.2 (0.2) | 7.0 (2.4) |
| Winter 2000/2001 | 651.2 (45.2) | 602.2 (44.5) | 114.6 (37.2) | 4.9 (0.8) | 2.0 (0.6) | 1.7 (0.6) | 1.4 (0.4) | 2.0 (0.4) |
| Spring 2001 | 251.0 (55.9) | 518.8 (2.6) | 45.0 (15.5) | 22.6 (4.4) | 4.1 (1.3) | 5.4 (1.3) | 1.5 (0.4) | 15.0 (10.9) |
| **Regional Means** | **666.9** (27.5) | **566.7** (44.1) | **108.1** (12.5) | **35.2** (7.1) | **4.8** (0.7) | **5.6** (1.0) | **4.0** (0.5) | **5.3** (1.1) |

From Phlips and Bledsoe, 2002

# *Appendix N: Seasonal Mean Total Nitrogen Concentrations for Portions of the Suwannee River and Estuary*

Seasonal mean total nitrogen ($\mu g\ N\ l^{-1}$) for each region of the Suwannee River and estuary. Standard errors in parentheses.

| | Suwannee River | Santa Fe River | South Reef | North Reef | South Near shore | North Near shore | Offshore Gulf Sites | Cedar Key |
|---|---|---|---|---|---|---|---|---|
| Spring 99 | 1016.8 (54.2) | . . | (450.2) (54.7) | 578.6 (67.8) | (217.4) (20.4) | 364.6 (44.8) | . . | 316.8 (41.5) |
| Summer 99 | 1181.24 (57.7) | . . | (511.2) (55.8) | 673.8 (93.2) | 273.8 (18.8) | 381.1 (34.1) | 192.6 (11.5) | 381.9 (36.4) |
| Fall 99 | 1308.8 (74.9) | . . | (393.0) (25.5) | 474.5 (69.7) | 231.3 (16.1) | 307.5 (30.4) | 132.9 (15.9) | 357.7 (32.2) |
| Winter 1999/2000 | 1058.5 (43.1) | 737.5 . | 440.0 (75.0) | 319.8 (61.0) | 184.6 (28.1) | 202.5 (29.1) | 96.0 (21.3) | 233.5 (44.9) |
| Spring 2000 | 993.8 (23.4) | 840.2 (58.3) | 578.8 (27.8) | 510.7 (33.7) | 238.1 (14.1) | 316.1 (21.5) | 193.5 (11.1) | 414.7 (45.5) |
| Summer 2000 | 963.2 (75.8) | 893.6 (58.8) | 551.7 (31.5) | 438.1 (44.6) | 252.1 (12.6) | 321.1 (26.3) | 171.8 (10.3) | 413.4 (45.2) |
| Fall 2000 | 1313.5 (49.6) | 933.9 (44.5) | 544.2 (40.3) | 393.9 (32.7) | 219.5 (18.2) | 227.7 (17.4) | 170.5 (11.2) | 287.3 (30.5) |
| Winter 2000/2001 | 847.9 (83.9) | 556.3 (278.2) | 383.9 (36.7) | 269.9 (28.1) | 184.6 (14.4) | 189.5 (16.0) | 129.3 (10.3) | 263.1 (22.5) |
| Spring 2001 | 977.0 (24.8) | 800.1 (91.3) | 514.3 (55.6) | 438.8 (27.9) | 313.1 (24.5) | 261.2 (17.2) | 205.2 (34.7) | 454.8 (59.5) |
| **Regional Means** | **1077.4** (160.8) | **800.6** (135.2) | **487.9** (70.9) | **445.8** (124.2) | **234.3** (41.2) | **278.0** (69.0) | **158.1** (38.2) | **348.2** (76.1) |

From Phlips and Bledsoe, 2002

# *Appendix O: Seasonal Mean Total Phosphorous Concentrations for Portions of the Suwannee River and Estuary*

Seasonal mean total phosphorus (µg P $l^{-1}$) for each region of the Suwannee River and estuary. Standard errors in parentheses.

| | Suwannee River | Santa Fe River | South Reef | North Reef | South Near shore | North Near shore | Offshore Gulf Sites | Cedar Key |
|---|---|---|---|---|---|---|---|---|
| Spring 99 | 70.7 (3.5) | . . | 62.3 (8.7) | 84.0 (8.0) | 20.2 (3.1) | 42.5 (7.9) | . . | 41.3 (7.8) |
| Summer 99 | 93.1 (8.5) | . . | 66.6 (6.5) | 75.7 (12.1) | 25.3 (3.4) | 32.1 (3.8) | 14.9 (3.0) | 45.3 (6.3) |
| Fall 99 | 121.0 (15.0) | . . | 63.1 (4.1) | 67.3 (16.1) | 59.4 (12.2) | 42.7 (3.1) | 30.9 (2.0) | 92.1 (16.9) |
| Winter 1999/2000 | 127.1 (10.3) | 72.0 . | 64.3 (14.0) | 28.7 (8.1) | 19.8 (1.4) | 20.5 (2.3) | 10.9 (0.8) | 38.0 (5.9) |
| Spring 2000 | 93.6 (3.3) | 64.0 (0.0) | 55.3 (4.5) | 40.3 (4.3) | 13.5 (1.4) | 18.9 (2.0) | 8.0 (1.5) | 52.8 (10.4) |
| Summer 2000 | 118.4 (12.1) | 75.3 (12.5) | 55.2 (7.8) | 38.0 (6.5) | 19.0 (6.4) | 18.6 (4.0) | 15.4 (4.6) | 33.5 (11.5) |
| Fall 2000 | 137.2 (23.8) | 95.0 (25.1) | 59.2 (13.0) | 28.0 (10.2) | 5.1 (1.0) | 7.4 (3.4) | 2.4 (1.1) | 19.1 (4.8) |
| Winter 2000/2001 | 78.8 (5.7) | 63.5 (13.5) | 31.7 (5.0) | 15.3 (2.1) | 7.1 (1.0) | 7.7 (0.8) | 2.8 (0.6) | 19.4 (2.4) |
| Spring 2001 | 116.4 (9.6) | 61.5 (24.5) | 56.4 (8.9) | 37.5 (7.5) | 15.3 (2.2) | 19.9 (5.4) | 14.7 (2.2) | 58.3 (14.1) |
| **Regional Means** | **110.0** (4.9) | **73.9** (7.3) | **56.6** (3.1) | **43.3** (4.3) | **20.2** (2.1) | **21.9** (1.5) | **11.9** (1.1) | **45.5** (4.1) |

From Phlips and Bledsoe, 2002

# *Appendix P: Documentation provided to EPA to support naturally low DO in Upper Suwannee WBIDs*

**PROPOSAL TO REMOVE THE LISTING OF DISSOLVED OXYGEN FOR DEEP CREEK, ROARING CREEK, CAMP BRANCH, FALLING CREEK, ROBINSON CREEK, AND ROCKY CREEK FROM FLORIDA'S LIST OF IMPAIRED WATERS**

**COMPILED BY:**

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BUREAU OF WATERSHED MANAGEMENT
WATERSHED ASSESSMENT SECTION
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APRIL 30, 2003

## INTRODUCTION

The Florida Department of Environmental Protection (FDEP) is currently implementing a Total Maximum Daily Load (TMDL) program based on the 1999 Florida Watershed Restoration Act. The ultimate goal of the program is to implement solutions that will bring impaired water bodies to a state that meets or exceeds state standards. In Florida, the initiation of the TMDL process starts with Chapter 62-303, Florida Administrative Code (F.A.C.), "Identification of Impaired Surface Waters." In brief, this rule sets forth a two step process to help assess and determine if water bodies are impaired for one or more parameters. The process involves a "planning list" and a "verified" list. Chapter 62-303, F.A.C., outlines a methodology in which a database of all available data from a wide variety of sources for a watershed is evaluated. Individual watersheds are delineated into areas known as Water Body Identities (WBIDs). The rule looks at how many samples in each WBID have been collected within a given period of time and how many exceedances of state standards have occurred. A parameter with too many exceedances may, depending on many factors, either be listed on the planning list or the verified list. TMDLs will be developed for those parameters found on the verified list.

Chapter 62-303, F.A.C., is designed to be used as an assessment tool with the intent to "…only list those waters on the verified list that are impaired due to point source or nonpoint source pollution discharges." The rule also states "…as recognized when the water quality standards were adopted, many water bodies naturally do not meet one or more established water quality criteria at all times, even though they meet their designated use…It is not the intent of this chapter to include waters that do not meet water quality criteria solely due to natural conditions or physical alterations of the water not related to pollutants."

It is often difficult to determine whether a parameter listed on the verified list is a natural condition or due to a point source or nonpoint source influence(s). However, the department is confident that six water bodies (see attachment 1) in the Suwannee River basin that were verified as having low dissolved oxygen are naturally low in DO and are not impaired by a pollutant. These include Deep Creek (WBID 3377), Roaring Creek (WBID 3392), Camp Branch (WBID 3401), Falling Creek (WBID 3477 [the Falling Creek watershed is divided into two WBIDs, but only the downstream segment is listed as there is not enough data to assess the upper segment.]), Robinson Creek (WBID 3448), and Rocky Creek (WBID 3351). It is felt that the verified listing of dissolved oxygen within these seven WBIDs do not meet the criteria set forth in Chapter 62-303, F.A.C., as discussed previously.

In this document we will examine several aspects of these WBIDs and compare them with basin wide and statewide data. Aspects include Biology data, land use, and a statistical analysis of data. The information provided indicates that the low dissolved oxygen in these WBIDs are a result of natural conditions and not man-induced factors.

### BIOLOGY

For purposes of analysis and comparison, wadeable streams in the state have been divided up into 13 Ecoregions/Sub-Ecoregions. The drainage areas of the six water bodies are

contained within two of these Ecoregions/Sub-Ecoregions – the Tifton Uplands and Tallahassee Hills, and the Okefenokee Swamp and Plains. Rocky Creek, Roaring Creek, and Deep Creek are contained within the Okefenokee Swamp and Plains Ecoregion/Sub-Ecoregion. Camp Branch is within the Tifton Uplands and Tallahassee Hills Ecoregion/Sub-Ecoregion. Parts of Falling Creek and Robinson Creek drainage areas fall within both Ecoregions/Sub-Ecoregions.

The Biology section of the Florida Department of Environmental Protection (FDEP) laboratories in Tallahassee is the main entity performing and reporting the biology results on streams in the Suwannee River basin. According to FDEP biologists, a BioRecon is "A rapid, cost effective screening mechanism for identification of biological impairment." The evaluation of the stream condition consists of three metrics – total taxa richness, total Florida index, and the EPT (Ephemeroptera, Plecoptera, and Trichoptera) Index. The scores from the three metrics are combined to give a total score, which is then used to determine the overall health of the stream. Of the seven water bodies, two (Rocky Creek and Camp Branch) have had BioRecons performed within the last five years and another, Deep Creek, has had three performed (different locations along the stream). For the most part, the data drew the same conclusion for all sampling events - that although the DO is low, the streams are able to maintain and support healthy aquatic populations. As a result, the streams were consistently placed in the "good" or "healthy" categories. The "Eco Summary BioRecon Reports" are included in the report as attachments 2A-2G.

Four of the WBIDs have stations in them that are reference stations. Reference streams include Deep Creek (WBID 3388), Falling Creek (WBID 3477), Rocky Creek (WBID 3351), and Robinson Creek (WBID 3448). Reference stations, as the name indicates, are sites that are used to gage the impacts to biological communities in other streams, and are used to develop the stream condition index for wadeable streams. Reference sites represent the "best attainable" biological community in the sub-ecoregion in which the stream is found. Impacts on other streams, from dischargers for example, are compared to the results of reference streams in an effort to determine to what extent streams are being impacted.

ROCKY CREEK

A BioRecon was performed on Rocky Creek at Woodpecker Road in Hamilton County on July 8, 1997 by district staff from Jacksonville. The stream passed all three metrics and yielded a score that "continues to support a healthy macroinvertabrate community." The pH (3.76 su) and the dissolved oxygen (4.0 mg/L) were below state standards; nonetheless the report concludes that the physical parameters "are typical for the black water streams in the area." It is also stated that "SCI values from previous samples have been in the very good category." A copy of the Biorecon is included as attachment 2G.

CAMP BRANCH

Camp Branch at County Road 25A was sampled on March 13, 2000 by Tallahassee staff. The stream was sampled as part of the fifth year sampling of Potash Corporation of Saskatchewan (PCS) Phosphate Chemical Complex. At the time of sampling, the stream had elevated nitrate-nitrite levels as well as elevated phosphorous levels, but the rest of the parameters seemed to be within their acceptable ranges. PCS does have a permit allowing the discharge of storm water into Camp Branch. The area surrounding the watershed is naturally rich in phosphate deposits, hence the mining activity. Between the natural amounts of phosphorous and the occasional storm water discharge into the stream, it is not a surprising that

the phosphorous levels were elevated. Even so, the report concludes that the habitat assessment score was in the “optimal range”; the SCI score placed it in the “excellent” category; the periphyton community was “represented by taxa indicative of both oligotrophic and eutrophic conditions.” A “healthy” score was given overall. A copy of the Biorecon is included as attachment 2A.

DEEP CREEK

Deep creek was sampled at two different locations on two different dates. It was first sampled at U.S. 441 on August 5, 1998. This report concludes that the “site definitely appears to be healthy since it met all of the three metrics for a healthy flowing stream.” The DO was low (3.61 mg/L) and the pH was slightly higher than neutral (7.22 su). In addition, several good indicator species were found at the site which “are good indicators of clean water in an undisturbed Florida stream ecosystem.”

Deep Creek was sampled a second time at Old River Road above the bridge on October 2, 2001. This sampling was done in conjunction with the TMDL program. The collected data indicate that at the time the total phosphorous and total Kjeldahl nitrogen levels were slightly elevated, but the ammonia concentration was relatively low. The report concludes that only the water velocity and substrate availability was suboptimal. The report goes on to say that “the low dissolved oxygen reported from this site may be a natural occurrence that has not adversely affected the biota.” As mentioned previously, Deep Creek is a reference site for the Biorecon sampling program. Copies of the BioRecons are included as attachments 2C – 2E.

LAND USE

Land use for all seven WBIDs was calculated using ArcView GIS and the Suwannee River Water Management District (SRWMD) 1994-1995 Land Use Survey coverage. Land use for each basin was clipped from the coverage and statistics for each basin were calculated accordingly. The results were then compared to basin wide land uses. Comparisons between the WBIDs and the basin were then calculated for level 1 and level 2 land use. Land use comparison tables are included as attachments 3A – 3B, and a land use map as attachment 4.

Using level 1 land use, 49.68% of the Suwannee River basin is included in the upland forest category. By comparison, three WBIDs (Rocky Creek, Robinson Creek, and Falling Creek) exceeded the 49.68% basin wide average for the upland forest category. One, Deep Creek, was very close at 49.20%. Camp Branch and Roaring Creek (46.48% and 44.08% respectively) were slightly below the basin wide total. However, a closer look of the land use data indicates that a significant portion of these basins (Camp Branch 34.99% and Roaring Creek 31.65%) is in level 3 “phosphate mine” category. Although PCS Phosphate Mining does own several acres within each of these two WBIDs, their discharge from the mining operation is controlled through a series of holding ponds and drainage ditches.

PCS does have a permit to discharge storm water into Camp Branch, but does not discharge wastewater from actual mining activities. As a condition of the permit, PCS is required to routinely collect water quality samples from Camp Branch. Personal observation has seen two PCS owned ISCO remote samplers located at C.R. 25A. The discharge permit requires PCS to monitor storm water discharges to Camp Branch and report monthly averages for flow and dissolved oxygen to FDEP. FDEP records show that PCS discharged stormwater to Camp

Branch for 20 months between 1995 – 2002. During this time, the lowest reported effluent dissolved oxygen value was 5.1 mg/L (see Attachment 6). These relatively high effluent DO values and increased flow tend to increase the DO levels in Camp Branch when stormwater is discharged. These increases are clearly seen in Attachment 7, which plots creek DO data collected by the Suwannee River Water Management District (SRWMD) and FDEP against time, with periods of stormwater discharge indicated on the plot. As such, we are confident that the stormwater discharge does not cause or contribute to the low DO levels in creek and that they are naturally low.

Since PCS has no permit to discharge in to Roaring Creek, no direct discharge should be reaching the creek. Also, a series of storm water ponds are located on the property and should be capturing storm water in such a manner that none is reaching any of the surrounding water bodies without first being properly treated and discharged under controlled conditions. In these ways, the phosphate mining activities in the area should exhibit very minimal effects on these WBIDs.

In most of the WBIDs, wetlands are another significant land use category. The basin wide level 1 total is 25.13%. Deep Creek and Rocky Creek have 47.34% and 44.66% wetlands respectively. Robinson Creek and Falling Creek contain a little less wetland with 21.90% and 18.19% respectively. Camp Branch has significantly less wetlands at 4.75% and Roaring Creek 15.72%. Again, a fair percentage of Camp Branch is taken by PCS, and probably had more wetlands before mining activities started. Wetlands tend to create conditions with low dissolved oxygen, high color, and low pH, especially if water is slow moving in the system.

The basin wide total for the “urban and built up” category in level 1 was 6.79%. Again, with exception to Roaring Creek and Camp Branch, all WBIDs were well below that total (see attached land use table; for most this category was less than 2% of total). As previously mentioned, a good portion of both Camp Branch and Roaring Creek are owned by PCS - this skews the percentages for this category in these two WBIDs. With the low land use percentages in this category, there should be very little impact from development or other anthropogenic sources.

Agriculture is another land use category which could impact water quality in surrounding watersheds. The level 1 total for agriculture is 15.41%. All WBIDs had totals of less than 9.5%.

The majority of the Osceola National Forest is within the Suwannee River basin, covering 187,554 acres. Watersheds of three of the streams being analyzed are partially located within the forest’s boundary. Approximately one-half of both the Deep Creek and Falling Creek watersheds (54% and 48% respectively) fall within the boundary, and about two-thirds (62%) of Robinson Creek does. The vast majority of land use in the forest is allocated to pine plantation. Due to the nature and purpose of the National Forest, there should be very little impact to these areas as a result of activities within the forest.

In addition to the low potential of non-point source pollutant discharges from area land There are very few point sources in the watersheds of these basins. As shown in attachment 5, there are no permitted landfills in any of the six basins and there is only one permitted facility that discharges into one of the basins – the upper segment of Falling Creek. This facility is shown in FDEP records as being the Lake City Campground (permit #FLA011408), and is permitted to

discharge 0.015 mgd. Records also indicate that the treatment process involves extended aeration activated sludge to clarification, followed by chlorine contact before being discharged into a percolation pond. Due to the percolation pond, no effluent should be reaching Falling Creek and therefore should be having no impact on water quality within the stream.

STATISTICS

Basic statistics were run on the WBIDs of concern using a statistical software package and compared to the statewide median where applicable (statewide medians were not available for every parameter for which the statistics were run). A set of box plots were constructed and a line representing the state median was added. See attached plots and corresponding quartile tables. Statewide median values come from “Typical Water Quality Values For Florida’s Lakes, Streams, and Estuaries”, Florida Department of Environmental Regulation, 1989. The document lists the statewide median values of numerous parameters for estuary, lake, and stream categories. For comparison purposes mean stream values are used. Box plots and quartile tables are included as attachment 8. Where applicable, a line representing the statewide median is included in the plot.

The box plots show that in most cases these WBIDs are at least comparable to, if not below, the state median for a given parameter. For example, DO percent saturation (which takes into account temperature differences) medians are below the state medians with the exception of Roaring Creek. Median values for the WBIDs ranged from 48.3% - 77.0%, as compared to the statewide median of 67.0%. For 5-day BOD, the medians (1.3 mg/L – 1.7 mg/L) for the WBIDs are similar to the statewide median of 1.5 mg/L. Another good example of this is pH. pH medians ranged from 3.90 su – 6.49 su, in some cases well below the statewide median of 7.20 su. Mean conductivity values for all six WBIDs (60 µmhos/cm -111 µmhos/cm) were significantly lower than the statewide median of 366 µmhos/cm.

These streams are also relatively high in color. The statewide median is 70 pcu. The medians for the water bodies ranged from 250 pcu – 500 pcu. Total alkalinity was below the state median (66.00 mg/L) for all seven WBIDs, ranging from 7 mg/L – 48.5 mg/L. Unfortunately, no flow data is available for these WBIDs.

Mean total phosphorous levels are higher than the statewide median. The statewide median is 0.11 mg/L. The means for the WBIDs ranged from 0.211 mg/L – 1.2 mg/L. It is not surprising that the phosphate levels are elevated. This area is naturally rich in phosphate as evident by the phosphate mining activity in the area. The mean chlorophyll *a* values for the six WBIDs are lower than that of the statewide median. This seems to indicate that the elevated phosphorous levels are not impacting the streams with respect to eutrophication from algal biomass.

Although the mean phosphorous levels in these basins are elevated, the box plots show that the median total nitrogen (calculated) levels, with exception of Rocky Creek (WBID 3351), are below the statewide medians. The statewide median is 1.20 mg/L, while medians values for the streams ranged from 0.9 – 2.07 mg/L. Although Rocky Creek has the highest concentration of total nitrogen, it was among the lowest in mean chlorophyll *a* (0.95 µg/L) concentration (and well below the state median of 5.50 µg/L), indicating that although total nitrogen is slightly elevated it is not affecting the stream.

CONCLUSION

Not all six streams have had BioRecons performed on them. However, for those that have, the biology shows that the streams, despite the low dissolved oxygen levels, are able to support and maintain healthy aquatic populations. The combined results of the three metrics used to determine health consistently put all streams in the “good” or “healthy” category. Also, the habitat assessment scores suggest that the streams share a common morphology, and have often been placed in the “optimal” category. The biologists consistently recognize that, though the dissolved oxygen levels are low, it appears to be natural and not adversely affecting the biology of the stream.

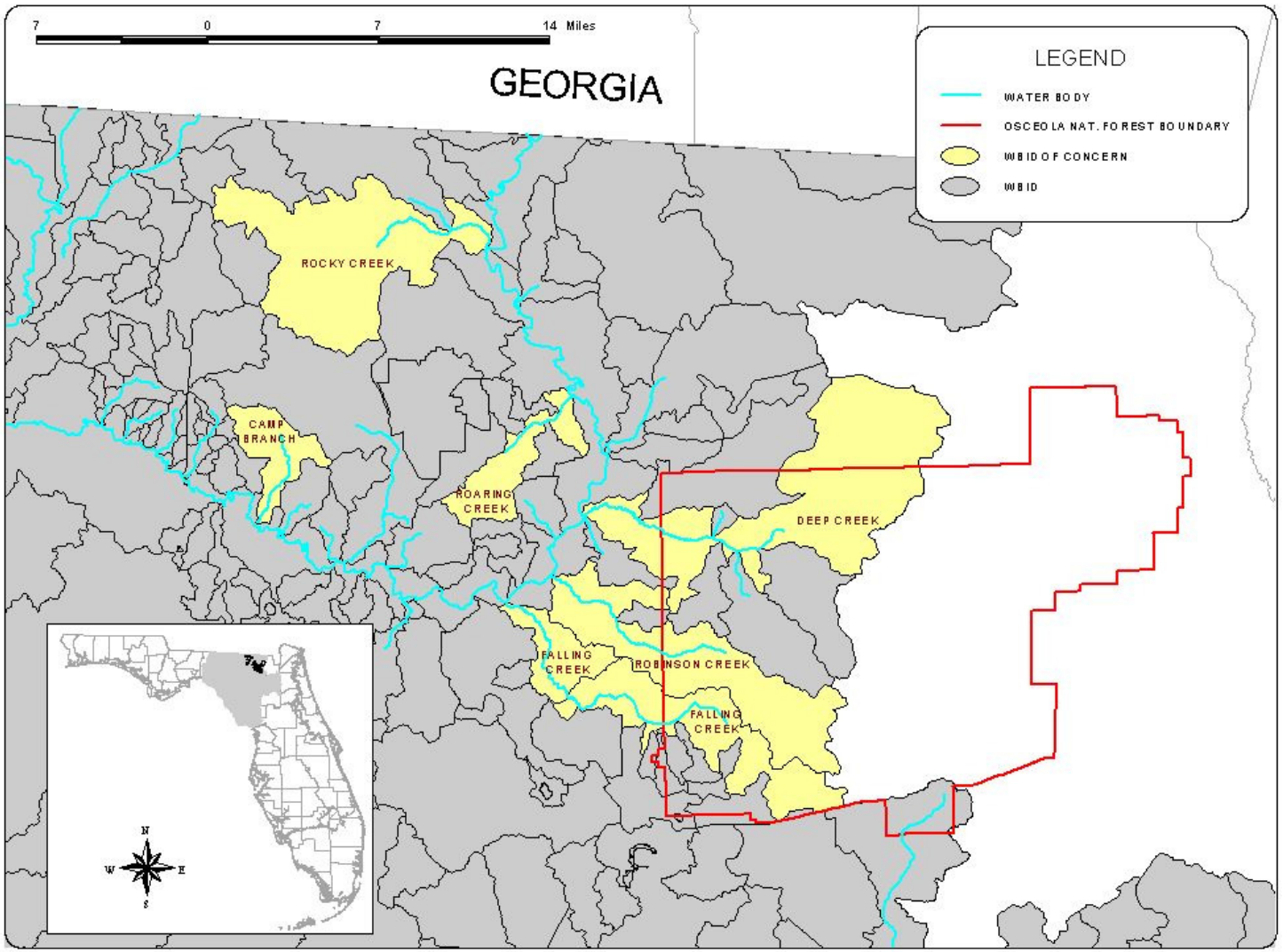
The statistical analysis indicates that the chemistry of these streams is, for the most part, similar. In addition, the stream medians for the parameters (including pH, alkalinity, and conductivity) are typically lower than the statewide median. Two exceptions are total phosphorous and color. Elevated phosphorous levels can be explained by the naturally occurring deposits found in the area and also a storm water discharge permit held by PCS, a phosphate mining company in the area. Nonetheless, the elevated levels appear to have minimal effects on these water bodies as evident by the low chlorophyll *a* concentrations (see attached box plots).

In most cases, the land use is dominated by forested categories, exceptions being Camp Branch and Roaring Creek. As discussed previously, part of the basin is on Potash Corporation of Saskatchewan’s (PCS) Suwannee River Chemical and Mining Complex property. For most of the WBIDs, land use is dominated by categories which are natural such as “upland forest” or “wetland”. Little of the land is in the “urban and built up” or “transportation, communication, and utilities” category – the types of land uses that would potentially exhibit man induced effects on the land. Therefore, there should be little anthropogenic effects in these basins.

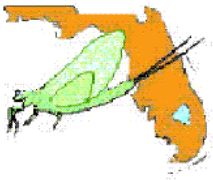
Streams with these naturally occurring characteristics – the high color, low pH, slow movement, shallow depth – are often referred to as “blackwater” streams. Another characteristic of blackwater streams is low dissolved oxygen levels, as is evident here. This, in conjunction with the other supporting information presented here, supports the idea that the verified impaired listing of dissolved oxygen in these WBIDs in inappropriate and the waters should be removed from the verified list.

# ATTACHMENTS

## ATTACHMENT 1 – MAP OF WBIDS

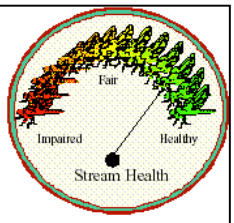


## ATTACHMENT 2A - ECOSUMMARY



# EcoSummary

**Camp Branch @ 25A**
**03/13/00**




## Background

Camp Branch is located in Hamilton County, northwest of Lake City, Florida (see Figure 1). Camp Branch is in the Tifton Upland/ Tallahassee Hills Subecoregion (65h). This area is characterized by heterogeneous hilly and upland areas. Irregular plains of both clay and sandy soils are marked with pine/hardwood forests, and the eastern end of the region gradually drifts into lower swampy areas. Some agriculture is present, as is evergreen forest and pasture.

The Florida DEP sampled Camp Branch as part of a Fifth Year Inspection of the PCS Phosphate Chemical Complex and Mines in March 2000. Camp Branch was selected as a site for the collection of biological and water quality monitoring parameters. Water chemistry samples were taken for ammonia, nitrate-nitrite, total Kjeldahl nitrogen, total phosphorus, fecal coliform, and total coliform analysis; see Figure 2. Habitat assessment, qualitative periphyton and phytoplankton sampling, and benthic invertebrate stream condition index (SCI) sampling were conducted.

## Results

The ammonia concentration (0.021 mg/L) was non-problematic, lower than values in roughly 90% of state streams (see Figure 2.) The nitrate-nitrite ($NO_x$) value (0.26 mg/L) was elevated, measured to be higher than the values found in 75% of Florida streams. Total Kjeldahl nitrogen measured in the good range (0.58 mg/L), lower than roughly 80% of state streams. Total phosphorus was quite elevated (1.3 mg/L), higher than roughly 95% of state streams. The overall habitat assessment score (129) was in the optimal range. Fecal and total coliform levels complied with the Class III water quality standard of 800 col/100ml and 2400 col/100ml, respectively. The macroinvertebrate stream condition index (SCI) score of 29 for Camp Branch was in the "excellent" range. The periphyton community was dominated by diatoms with some blue-green and green taxa. The dominant taxa represent a mixed community, with both oligotrophic and eutrophic taxa present.

In conclusion, nitrate-nitrite and total phosphorus levels were extremely elevated, while the remaining water chemistry was in the good category. The habitat assessment score for Camp Branch was in the optimal range, and the SCI scored in the excellent category. The periphyton community was represented by taxa indicative of both oligotrophic and eutrophic conditions.

Figure 1: Overview Map of the Camp Branch Area

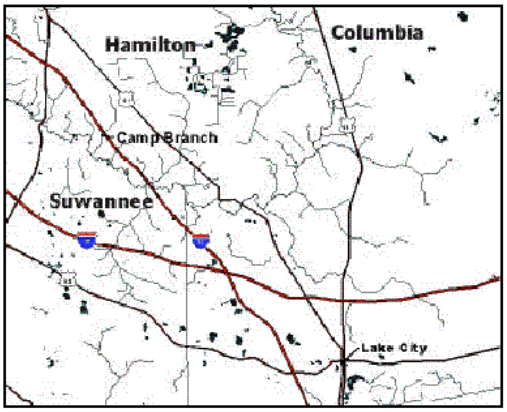



Figure 2: Data Table

| Camp Branch | | | |
|---|---|---|---|
| Station | | Camp Branch | |
| Station Nickname | | CAMPBR25A | |
| STORET | | 21010034 | |
| Sampling Date | | 3/13/00 | |
| **Macroinvertebrate Parameters** | | **Phytoplankton Parameters** | |
| SCI | 29 | Number of Taxa | 9 |
| SCI Evaluation | Excellent | % Bacillariophyceae | 62.91 |
| SCI Region | Northeast | % Chlorophyceae | 13.64 |
| Number of Taxa | 44 | % Cyanophyceae | 6.81 |
| Number of Ephemeroptera | 4 | % Dominant Taxon | 26.92 |
| Number of Plecoptera | 1 | Chlorophyll a (ug/L) | 1.0 U |
| Number of Trichoptera | 1 | **Periphyton Parameters** | |
| EPT Index | 6 | Number of Taxa | 28 |
| % Dominant Taxon | 9.76 | % Bacillariophyceae | 89.19 |
| Florida Index | 20 | % Chlorophyceae | 2.05 |
| % Diptera | 59.15 | % Cyanophyceae | 7.43 |
| Number of Chironomidae | 3 | % Dominant Taxon | 18.3 |
| Number of Orthocladiinae | 14 | Chlorophyll a (mg/m$^2$) | 9.2 |
| Total Number of Chironomidae | 17 | **Physical/Chemical Data** | |
| % Filter-Feeders | 19.21 | Habitat Assessment | 129 |
| **Chemistry Data** | | Sample Depth (m) | 0.3 |
| Ammonia (mg/L) | 0.021 | Specific Conductivity (um hs/cm) | 130 |
| Nitrate-Nitrate (mg/L) | 0.26 | Dissolved Oxygen (mg/L) | 9 |
| TKN (mg/L) | 0.58 | pH (SU) | 7.02 |
| Total Phosphorus (mg/L) | 1.3 | Temperature (deg. C) | 12.2 |
| Ortho-phosphate (mg/L) | 1.2 | **Bacteria Parameters** | |
| Color (PCU) | - | Fecal Coliforms (col/100 mL) | 530 |
| Turbidity (NTU) | - | Total Coliforms (col/100 mL) | 1090 E |

*"E" - Results based on colony counts outside the acceptable range*
*"U" - Below the detection limit*

FOR MORE INFORMATION, CONTACT:
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## ATTACHMENT 2B - ECOSUMMARY

# EcoSummary

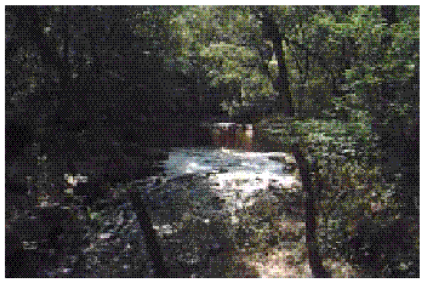
**BioRecon Report**

### Falling Creek @ CR131, Columbia County
### 15 July 1997

BioReconnaissance (BioRecon): A rapid, cost effective screening mechanism for identification of biological impairment.

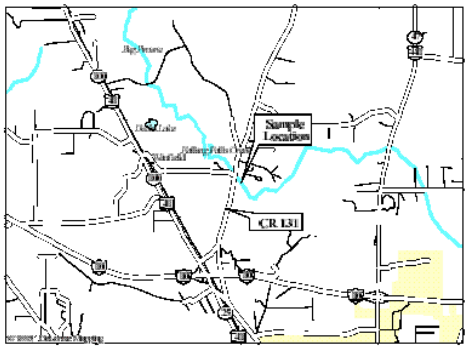
### Purpose
A Stream Condition Index (SCI) and a BioRecon were performed at this site. Results from this survey will be used two ways, to help with the calibration of the metrics for the two protocols and to determine the health of the macroinvertebrate community..

### Basin Characteristics
Falling Creek, a tributary to the Suwannee River, is located in the subecoregion Okefenokee Swamps and Plains (75e) in Columbia County north of Lake City. Streams in this area are naturally low in pH and dissolved oxygen (DO) and high in color. The drainage basin is approximately 35 square miles. Landuse consists of silviculture (50%), field/pasture (20%), forest/natural (15%), row crop (10%) and residential (5%). Most of the in stream habitat consist of algae covered rock (80%) with some undercut banks (10%). The riparian zone is wide and has a variety of native plants. Falling Creek is unusal for a Florida stream because of its 10 to 15 ft. waterfall. Sampling is done upstream from the falls.



### Results
Results from this survey showed a healthy macroinvertebrate community. The BioRecon passed all three thresholds. The values for the three metrics are as follows (threshold values are in parentheses): Total Taxa Richness 21 (c17) Total Florida Index 15 (c6) Total EPT 8 (c3) The physical/ chemical values were temperature 24.2 C, pH 4.63, DO 6.1 mg/L, conductivity 49 and secchi 0.3 M. These are typical for the black water streams in the area. The habitat assessment was in the optimal range. SCI values from previous samples have been in the good category.

### Significance
Falling Creek continues to support a healthy macroinvertebrate community. This is important because this creek discharges into Outstanding Florida Waters.




### Suggestions
Continued sampling at this site is needed to ensure that current and future land use practices in the basin do not impact the system.

For more information, contact E. Lee Banks, DEP South District, 7825 Baymeadows Way Suite B200, Jacksonville, FL 32256 (904)448-4330)

Published by the Florida Department of Environmental Protection, Tallahassee, FL, 1997

## ATTACHMENT 2C - ECOSUMMARY

# EcoSummary

### Deep Creek above bridge at Old River Road
### 10/02/01

**BioReconnaissance Report (BioRecon):** A rapid, cost effective screening mechanism for identification of biological impairment.

## Background

Florida DEP's Division of Resource Assessment and Management sampled Deep Creek for biological and water quality monitoring as part of a Total Maximum Daily Load (TMDL) study. Previous dissolved oxygen data placed Deep Creek on the TMDL Planning List. Data from this current sampling will be combined with past and future data to determine the TMDL status of the creek (*e.g.*, potential placement on the Verified List or removal from the Planning List). Deep creek is located in Columbia County in the Northeastern Bioregion of Florida; see Figure 1.

Water chemistry samples were taken for total suspended solids (TSS), ammonia, nitrate-nitrite, total Kjeldahl nitrogen (TKN), and total phosphorus, see Figure 2. Habitat assessment, and benthic invertebrate sampling were also conducted.

## Results

Physical/chemical parameters and nutrients were sampled in October 2001. The total phosphorus, and Total Kjeldahl Nitrogen (TKN) concentration (0.20 mg P/L and 1.2 mg/L, respectively) at the sampling site were slightly elevated, measured to be higher than the values found in 60% of Florida streams; see Figure 2. Nitrate-Nitrite concentrations were below detection limits. The ammonia concentration (0.023 mg N/L) was very low compared to other Florida streams.

Benthic invertebrate communities were sampled using the FDEP BioRecon methodology, consisting of 4 discrete dip net sweeps. The samples were field picked, then brought back to the laboratory for identification under a dissecting microscope. Three metrics; total taxa richness, Florida Index, and total EPT (larval Ephemeroptera, Plecoptera, and Trichoptera; mayfly, stonefly, and caddisfly respectively), were calculated and compared to existing Northeastern thresholds to determine the community's health. Deep Creek passed all three macro invertebrate parameters (26 total taxa, 17 Florida index, and 10 EPT taxa). The overall habitat assessment score (142) was in the "optimal" category; only water velocity, and substrate availability were found to be "suboptimal".

Deep Creek above bridge at Old River Road had slightly elevated levels of TKN (1.2 mg/L) and total phosphorus (0.20 mg P/L). However, the invertebrate community scored "Healthy" on the BioRecon, and "optimal" on the Habitat Assessment indicating good community health, and habitat. Because invertebrates integrate effects over time, these results suggest that the low dissolved oxygen reported from this site may be a natural occurrence that has not adversely affected the biota.

Figure 1: Overview Map of the Deep Creek Area

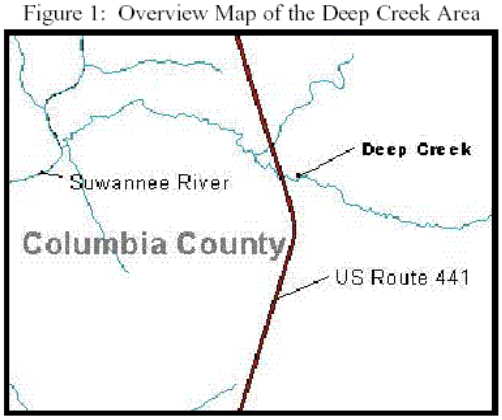



Figure 2: Data Table

| Deep Creek above bridge at Old River Road | | | |
|---|---|---|---|
| Station | | Deep Creek | |
| Station Nick Name | | PCSREF | |
| STORET | | 21010043 | |
| Sampling Date | | 10/2/01 | |
| Macroinvertebrate Parameters | | Chemistry Data | |
| Biorecon Results | Healthy | Total Phosphorus (mg P/L) | 0.2 |
| Bioregion | Northeast | Ammonia (mg N/L) | 0.023 |
| Number of Taxa | 26 | Nitrate-Nitrite (mg N/L) | 0.02 U |
| Number of Ephemeroptera | 3 | TKN (mg N/L) | 1.2 |
| Number of Plecoptera | 0 | Physical Chemical | |
| Number of Trichoptera | 7 | Habitat Assessment | 142 |
| EPT Index | 10 | Sample Depth (m) | 0.3 |
| Florida Index | 17 | Specific Condutivity (umhos/cm) | 49 |
| Number of Diptera taxa | 4 | Dissolved Oxygen (mg/L) | 8.4 |
| Number of Chironomidaetaxa | 1 | pH (SU) | 4.37 |
| Number of Orthocladinae taxa | 1 | TSS (mg/L) | 4 U |
| Total Number Chiropomidae | 2 | Temperature (deg C) | 16.68 |

*"U"- Material analyzed for but not detected; value reported is the minimum detection limit*

FOR MORE INFORMATION, CONTACT:
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2600 Blair Stone Road MS#6511 Tallahassee, FL 32399-2400 (850) 921-9732 thomas.deck@dep.state.fl.us

## ATTACHMENT 2D - ECOSUMMARY

# EcoSummary

BioRecon Report

**Deep Creek @ US441,**
**Station Dc04**
**5 August 1998**

**BioReconnaissance Report (BioRecon):** A rapid, cost effective screening mechanism for identification of biological impairment.

### Purpose

As part of an ongoing Deep Creek watershed TMDL test study, biorecons were conducted on Deep Creek which flows into the Suwannee River. Deep Creek at US Hwy. 441 was sampled to check its water quality and ecosystem health.

### Background

The upland drainage basin for Deep Creek includes upland pine forest, marshlands, and cypress swamps, mostly inside the Osceola Natural Forest Wildlife Management Area. Several pristine swamps such as Pinhook Swamp and Impassable Bay drain into Deep Creek.



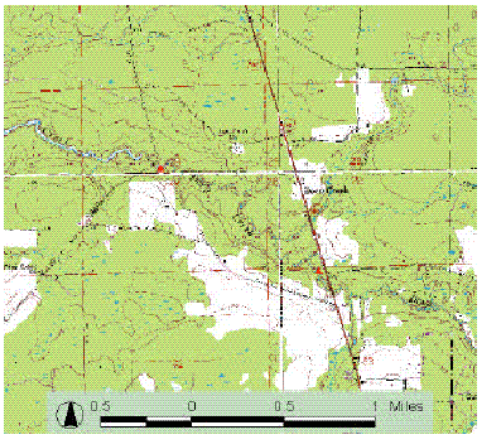
### Results

This site definitely appears to be healthy since it met all of the 3 metrics for a healthy flowing stream. There were 27 different taxa (minimum threshold = 17) with a Florida Index score of 16 (minimum threshold = 6). The EPT score was 3 (minimum threshold = 3) with no caddisflies or stoneflies found but 3 species of mayflies were collected.

Adults and larvae of the dragonflies, Hagenius brevistylus and Progomphus obscurus, were very common. So was the dobsonsonfly, Corydalus cornutus. These aquatic insects have a long aquatic life cycle and they are very good indicators of clean water in an undisturbed Florida stream ecosystem.

Conductivity (204 umhos/cm) and dissolved oxygen (3.61 mg/l) were low, typical of swamp runoff but the pH was slightly above neutral at 7.22. The average depth was 0.21 feet and the width was 7.6 feet. The average velocity was 0.39 feet/sec and the flow was measured at 0.615 cfs.

Another survey was conducted on October 20 after a receding flood. Conductivity (60.0 umhos/cm) and pH (3.97) were lower but the dissolved oxygen level was higher at 5.76 mg/l. The flow was measured at 77.9 cfs.




### Significance

Land in the immediate drainage area is not densely developed. Since most of the area is inside the Osceola National Forest, little potential exists for impacts from both residential and commercial

### Suggestions

Encourage good land management practices in the basin. Maintain a monitoring program to detect pollution impacts from changes in local land use, such as DOT highway improvement

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32399-2400 (850)921-9479 daigle_j@dep.state.fl.us

## ATTACHMENT 2E - ECOSUMMARY

# EcoSummary

BioRecon Report

**Deep Creek @ Old River Road,**
**Station Dc02**
**5 August 1998**




**BioReconnaissance Report (BioRecon):** A rapid, cost effective screening mechanism for identification of biological impairment.

### Purpose

As part of the ongoing Deep Creek watershed TMDL test study, biorecons were conducted on Deep Creek which flows into the Suwanee River. Deep Creek at Old River Road was sampled to check its water quality and ecosystem health.

### Background

The upland drainage basin for Deep Creek includes upland pine forest, marshlands, and cypress swamps, mostly inside the Osceola Natural Forest Wildlife Management Area. Several pristine swamps such as Pinhook Swamp and Impassable Bay drain into Deep Creek.



### Results

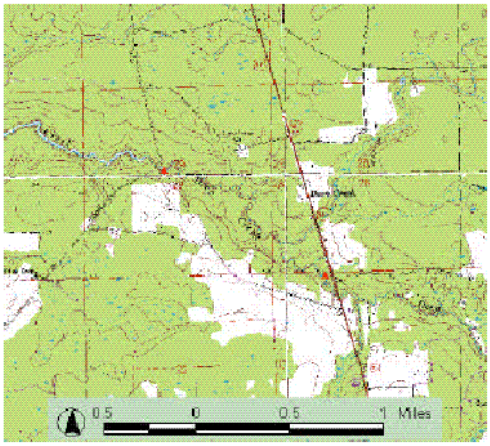
This site definitely appears to be healthy since it met all of the 3 metrics for a healthy flowing stream. There were 22 different taxa (minimum threshold = 17) with a Florida Index score of 12 (minimum threshold = 6). The EPT score was 5 (minimum threshold = 3) with no caddisflies or stoneflies found but 5 species of mayflies were collected.

Adults and larvae of the dragonflies, Hagenius brevistylus and Progomphus obscurus, were very common. So was the dobsonfly, Corydalus cornutus. These aquatic insects have a long aquatic life cycle and they are very good indicators of clean water in an undisturbed ecosytem.

Conductivity (140.3 umhos/cm) and dissolved oxygen (4.25 mg/l) were low, typical of swamp runoff but the pH was slightly above neutral at 7.15. The average depth was 0.48 feet and the width was 11.5 feet. The average velocity was 0.42 feet/sec.

The flow was measured at 2.332 cfs under ambient low flow conditions.

Another survey was conducted on October 20 after a receding flood. Conductivity (59.8 umhos/cm) and pH (3.8) were lower but the dissolved oxygen level was higher at 6.68 mg/l. The flow was measured at 89.5 cfs.




### Significance

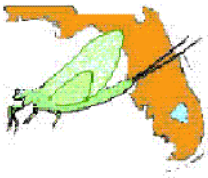
Land in the immediate drainage area is not densely developed. Since most of the area is inside the Osceola National Forest, little potential exists for impacts from residential and commercial development.

### Suggestions

Encourage good land management practices in the basin. Maintain a monitoring program to detect pollution impacts from changes in local land use, such as DOT highway improvement practices.

FOR MORE INFORMATION, CONTACT:
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## ATTACHMENT 2F - ECOSUMMARY



# EcoSummary

**Robinson Creek @ CR 131**
**03/13/00**




### Background

Robinson Creek is located in Columbia County, north of Lake City, Florida (see Figure 1). Robinson Creek is in the Okefenokee Plains and Swamps Subecoregion (75e). This area is characterized predominantly by flat plains, with over fifty percent of the land covered by standing water. The swamp forests lend themselves to poorly drained pine flatwoods. Land use is mainly silviculture, with agriculture, natural forest, and wetlands.

The Florida DEP sampled Robinson Creek as part of a Fifth Year Inspection of the PCS Phosphate Chemical Complex and Mines in March 2000. Robinson Creek was selected as a control site for the collection of biological and water quality monitoring parameters. Water chemistry samples were taken for ammonia, nitrate-nitrite, total Kjeldahl nitrogen, total phosphorus, fecal coliform, and total coliform analysis; see Figure 2. Habitat assessment, qualitative periphyton and phytoplankton sampling, and benthic invertebrate stream condition index (SCI) sampling were conducted.

### Results

Ammonia and nitrate-nitrite values for Robinson Creek were in the good range, defined as being at concentrations lower than those found in 70% of Florida streams. The ammonia concentration (0.026 mg/L) was lower than the values in roughly 90% of state streams; see Figure 2. The nitrate-nitrite ($NO_x$) value (0.04 mg/L) was less than the values found in 75% of Florida streams. Total phosphorus was slightly elevated (0.32 mg/L), measuring higher than 75% of state streams. The overall habitat assessment score (129) was in the optimal range (105-140). Fecal and total coliform levels complied with the Class III water quality standard of 800 CFU/100ml and 2400 CFU/100ml, respectively. The stream condition index (SCI) score of 31 for Robinson Creek was in the "excellent" range. The periphyton community was dominated by diatoms with some blue-green and green taxa, with the dominant taxa indicative of eutrophic conditions.

In conclusion, total phosphorus levels were slightly elevated in Camp Branch, measuring higher than 75% of state streams, while the remaining water chemistry scored in the good category. The habitat assessment score for Robinson Creek was in the optimal range, and the SCI scored in the excellent category. The periphyton community was dominated by taxa indicative of eutrophic conditions.

Figure 1: Overview Map of the Robinson Creek Area

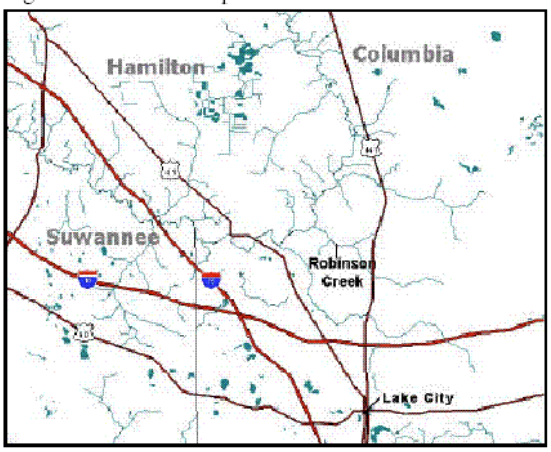



Figure 2: Data Table

| Robinson Creek | | | |
|---|---|---|---|
| Station | | Robinson Creek @ CR 131 | |
| Station Nickname | | ROBCKCR131 | |
| STORET | | 21010056 | |
| Sampling Date | | 3/15/00 | |
| **Macroinvertebrate Parameters** | | **Phytoplankton Parameters** | |
| SCI | 31 | Number of Taxa | 25 |
| SCI Evaluation | excellent | % Bacillariophyceae | 32.2 |
| SCI Region | Northeast | % Chlorophyceae | 36.1 |
| Number of Taxa | 36 | % Cyanophyceae | 12.9 |
| Number of Ephemeroptera | 4 | % Dominant Taxon | 22.08 |
| Number of Plecoptera | 2 | Chlorophyll a (ug/L) | 1.6 U |
| Number of Trichoptera | 2 | **Periphyton Parameters** | |
| EPT Index | 8 | Number of Taxa | 42 |
| % Dominant Taxon | 15.9 | % Bacillariophyceae | 85.36 |
| Florida Index | 19 | % Chlorophyceae | 4.5 |
| % Diptera | 53 | % Cyanophyceae | 2.7 |
| Number of Chironomidae | 5 | % Dominant Taxon | 23.87 |
| Number of Orthocladiinae | 8 | Chlorophylla (mg/m$^2$) | 9.1 |
| Total Number of Chironomidae | 13 | **Physical/Chemical Data** | |
| % Filter-Feeders | 37 | Habitat Assessment | 130 |
| **Chemistry Data** | | Sample Depth (m) | 0.3 |
| Ammonia (mg/L) | 0.026 | Specific Conductivity (umho/cm) | 153 |
| Nitrate-Nitrite (mg/L) | 0.04 | Dissolved Oxygen (mg/L) | 5.5 |
| TKN (mg/L) | 0.79 | pH (SU) | 6.87 |
| Total Phosphorus (mg/L) | 0.32 | Temperature (deg. C) | 13 |
| Ortho-phosphate (mg/L) | 0.24 | **Bacteria Parameters** | |
| Color (PCU) | - | Fecal Coliforms (col/100 mL) | 10 B |
| Turbidity (NTU) | - | Total Coliforms (col/100 mL) | 260 |

"B" - Results based on colony counts outside the acceptable range
"U" - Below the detection limit

FOR MORE INFORMATION, CONTACT:
Shannon Gerardi, FDEP Environmental Assessment Section,
2600 Blair Stone Road MS#6511 Tallahassee, FL 32399-2400
(850) 487-0897 Shannon.Gerardi@dep.state.fl.us

## ATTACHMENT 2G - ECOSUMMARY

# EcoSummary

BioRecon Report

### Rocky Creek At Woodpecker Rd., Hamilton Co.
### July 8, 1997

**BioReconnaissance (BioRecon):** A rapid, cost effective screening mechanism for identification of biological impairment.



### Purpose

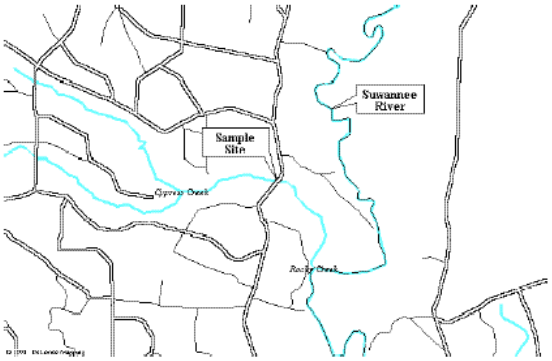
A Stream Condition Index (SCI) and a BioRecon were performed at this site. Results from this survey will be utilized two ways, to help with the calibration of the metrics for the two protocols and to determine the health of the macroinvertebrate community.

### Characteristics

Rocky Creek, a tributary to the Suwannee River, is located in the subecoregion Okefenokee Swamps and Plains (75e) in northeast Hamilton County. Streams in this area are naturally low in pH and dissolved oxygen (DO) and high in color. The drainage basin is approximately 15 square miles. Silviculture comprises about 80% of the landuse in the basin. The remaining landuse consists of natural forest, wetlands and a little row crop.

### Results

Results from this survey showed a healthy macroinvertebrate community. The BioRecon passed all three thresholds. The values for the three metrics are as follows (threshold values are in parentheses): Total Taxa Richness 21 (≥17), Total Florida Index 15 (≥6), Total EPT 7 (≥3). The physical/chemical values were temperature 24.0 C, pH 3.76, DO 4.0 mg/L, conductivity 86 and secchi 0.3 M. These are typical for the black water streams in the area. The habitat assessment was in the optimal range. SCI values from previous samples have been in the very good category.




### Significance

Rocky Creek continues to support a healthy macroinvertebrate community. This is important because this creek discharges into Outstanding Florida Waters.

### Suggestions

Continued sampling at this site is needed to ensure that current and future land use practices in the basin do not impact the system.

For more information, contact E. Lee Banks, FDEP Northeast District, 7825 Baymeadows Way, Suite B-200, Jacksonville, FL 32225 (904)448-4330

Published by the Florida Department of Environmental Protection, Tallahassee, FL. 1997.

## ATTACHMENT 3A – LEVEL 2 LAND USE TABLE

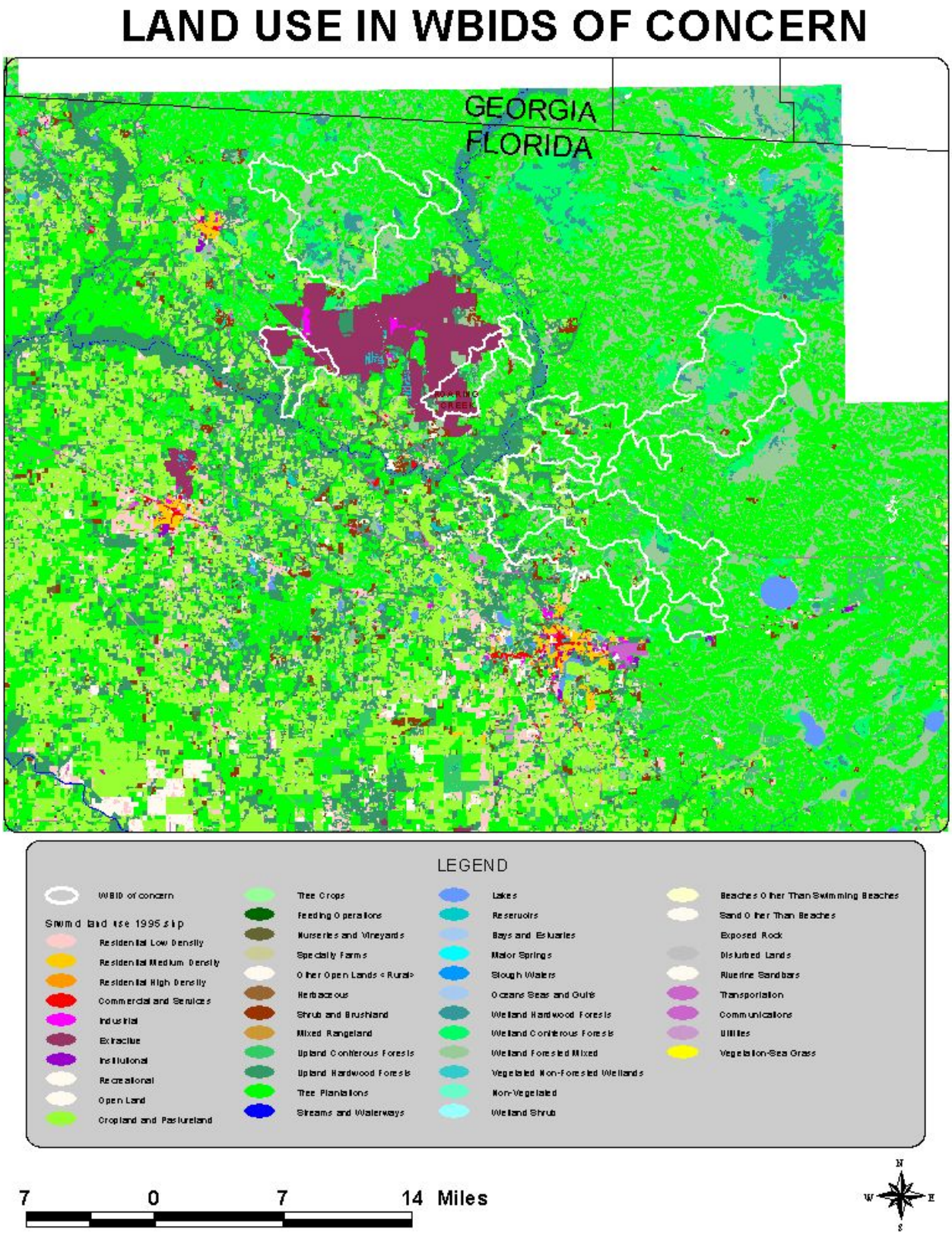
| | | BASIN WIDE | | ROCKY CREEK | | DEEP CREEK | | ROARING CREEK | | CAMP BRANCH | | ROBINSON BRANCH | | FALLING CREEK | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LEVEL2 | ATTRIBUTE | ACRES | PERC. | ACRES | PERC. | ACRES | PERC. | ACRES | PERC. | ACRES | PERC. | ACRES | PERC. | ACRES | PERC. |
| 1100 | RESID. LOW DENS. (<2 DU/AC) | 237,691.78 | 4.13% | 107.87 | 0.41% | 185.26 | 0.55% | 20.26 | 0.30% | 71.35 | 1.30% | 386.91 | 1.85% | 517.55 | 2.60% |
| 1200 | RESID. MED. DENS. (2-5 DU/AC) | 28,505.33 | 0.50% | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 12.63 | 0.06% |
| 1300 | RESID. HIGH DENSITY | 3,542.86 | 0.06% | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | ------ | ------ |
| 1400 | COMM. AND SERV. | 11,604.03 | 0.20% | 0.00 | ------ | 7.14 | 0.02% | 0.00 | ------ | 0.00 | ------ | 0.39 | 0.00% | 28.21 | 0.14% |
| 1500 | INDUSTRIAL | 6,324.83 | 0.11% | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | ------ | ------ |
| 1600 | EXTRACTIVE | 48,140.97 | 0.84% | 0.00 | ------ | 0.00 | ------ | 3,169.28 | 46.18% | 2,085.70 | 37.87% | 0.00 | ------ | ------ | ------ |
| 1700 | INSTITUTIONAL | 8,985.12 | 0.16% | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 10.34 | 0.05% | 2.09 | 0.01% |
| 1800 | RECREATIONAL | 4,812.08 | 0.08% | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 9.26 | 0.04% | ------ | ------ |
| 1900 | OPEN LAND | 40,896.68 | 0.71% | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | ------ | ------ |
| 2100 | CROPLAND AND PASTURELAND | 844,930.94 | 14.70% | 695.08 | 2.65% | 595.91 | 1.77% | 118.61 | 1.73% | 464.76 | 8.44% | 1,738.81 | 8.32% | 746.44 | 3.75% |
| 2200 | TREE CROPS | 9,385.75 | 0.16% | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 45.75 | 0.22% | 11.01 | 0.06% |
| 2400 | FEEDING OPERATIONS | 5,270.73 | 0.09% | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | ------ | ------ |
| 2500 | SPECIALTY FARMS | 3,602.70 | 0.06% | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | ------ | ------ |
| 2600 | OTHER OPEN LANDS RURAL | 20,633.91 | 0.36% | 0.00 | ------ | 24.16 | 0.07% | 0.00 | ------ | 34.59 | 0.63% | 24.06 | 0.12% | 44.77 | 0.23% |
| 3200 | SHRUBS AND BRUSHLAND | 56,126.46 | 0.98% | 23.24 | 0.09% | 283.52 | 0.84% | 49.96 | 0.73% | 46.26 | 0.84% | 218.58 | 1.05% | 240.52 | 1.21% |
| 4100 | UPLAND CONIFEROUS FORESTS | 111,600.91 | 1.94% | 0.00 | ------ | 520.30 | 1.55% | 0.00 | ------ | 0.00 | ------ | 515.39 | 2.47% | 819.74 | 4.12% |
| 4200 | UPLAND HARDWOOD FOREST | 459,959.22 | 8.00% | 757.54 | 2.89% | 420.40 | 1.25% | 646.48 | 9.42% | 1,133.42 | 20.58% | 773.18 | 3.70% | 950.59 | 4.78% |
| 4300 | UPLAND HARDWOOD FOREST | 137,994.47 | 2.40% | 109.51 | 0.42% | 434.98 | 1.29% | 4.73 | 0.07% | 0.00 | ------ | 1,078.98 | 5.17% | 1,579.71 | 7.94% |
| 4400 | TREE PLANTATIONS | 2,148,146.17 | 37.36% | 12,769.75 | 48.76% | 15,170.03 | 45.11% | 1,767.41 | 25.75% | 1,294.23 | 23.50% | 11,297.98 | 54.09% | 11,077.64 | 55.68% |

| | | BASIN WIDE | | ROCKY CREEK | | DEEP CREEK | | ROARING CREEK | | CAMP BRANCH | | ROBINSON BRANCH | | FALLING CREEK | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5100 | STREAMS AND WATERWAYS | 10,399.83 | 0.18% | 0.00 | ------ | 0.52 | 0.00% | 0.03 | 0.00% | 0.00 | ------ | 0.00 | ------ | ------ | ------ |
| 5200 | LAKES | 50,970.31 | 0.89% | 17.09 | 0.07% | 27.41 | 0.08% | 6.62 | 0.10% | 4.16 | 0.08% | 9.75 | 0.05% | 16.62 | 0.08% |
| 5300 | RESERVOIRS | 12,698.85 | 0.22% | 7.74 | 0.03% | 16.71 | 0.05% | 0.62 | 0.01% | 0.82 | 0.01% | 29.65 | 0.14% | 24.65 | 0.12% |
| 5400 | BAYS AND ESTUARIES | 252.08 | 0.00% | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | ------ | ------ |
| 5500 | MAJOR SPRINGS | 58.95 | 0.00% | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | ------ | ------ |
| 6100 | WETLAND HARDWOOD FORESTS | 103,244.26 | 1.80% | 1,693.95 | 6.47% | 598.28 | 1.78% | 0.00 | ------ | 2.38 | 0.04% | 281.53 | 1.35% | 72.03 | 0.36% |
| 6200 | WETLAND CONIFEROUS FORESTS | 243,806.46 | 4.24% | 3,420.15 | 13.06% | 7,818.33 | 23.25% | 284.38 | 4.14% | 98.75 | 1.79% | 1,146.74 | 5.49% | 599.60 | 3.01% |
| 6300 | WETLAND FORESTED MIXED | 950,969.24 | 16.54% | 6,379.27 | 24.36% | 7,445.05 | 22.14% | 794.23 | 11.57% | 140.18 | 2.55% | 3,105.76 | 14.87% | 2,940.03 | 14.78% |
| 6400 | VEG. NON-FORESTED WETLANDS | 115,097.86 | 2.00% | 130.40 | 0.50% | 59.81 | 0.18% | 0.00 | ------ | 20.30 | 0.37% | 0.00 | ------ | 5.67 | 0.03% |
| 6500 | NON-VEGETATED | 13,366.48 | 0.23% | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | ------ | ------ |
| 6600 | CUT OVER WETLANDS | 18,699.61 | 0.33% | 75.99 | 0.29% | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 40.25 | 0.19% | 3.02 | 0.02% |
| 7400 | DISTURBED LAND | 1,105.77 | 0.02% | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 29.05 | 0.14% | 30.56 | 0.15% |
| 8100 | TRANSPORTATION | 29,614.94 | 0.52% | 0.00 | ------ | 24.34 | 0.07% | 0.11 | 0.00% | 111.04 | 2.02% | 145.76 | 0.70% | 172.71 | 0.87% |
| 8300 | UTILITIES | 10,748.71 | 0.19% | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | ------ | ------ |
| | **TOTALS:** | **5,749,188.29** | **100.00%** | **26,187.57** | **100.00%** | **33,632.17** | **100.00%** | **6,862.72** | **100.00%** | **5,507.92** | **100.00%** | **20,888.13** | **100.00%** | **19,895.80** | **100.00%** |

***ATTACHMENT 3B – LEVEL 1 LAND USE TABLE***

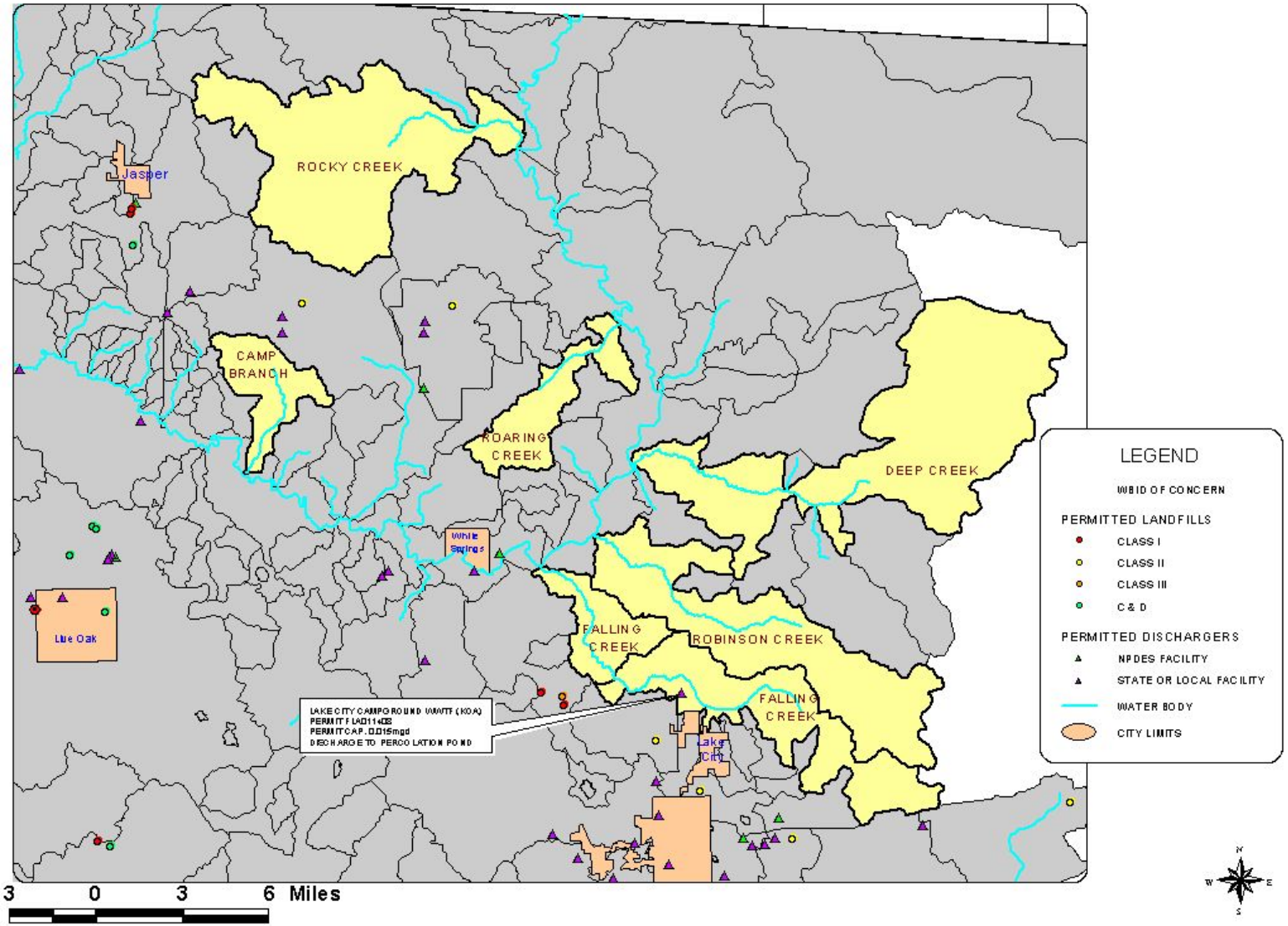
| | | BASIN WIDE | | ROCKY CREEK | | DEEP CREEK | | ROARING CREEK | | CAMP BRANCH | | ROBINSON CREEK | | FALLING CREEK | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **LEVEL1** | **ATTRIBUTE** | **ACRES** | **PER.** | **ACRES** | **PER.** | **ACRES** | **PER.** | **ACRES** | **PER.** | **ACRES** | **PER.** | **ACRES** | **PER.** | **ACRES** | **PER.** |
| 1000 | URBAN AND BUILT-UP | 390,503.68 | 6.79% | 107.87 | 0.41% | 192.39 | 0.57% | 3,189.54 | 46.48% | 2,157.04 | 39.16% | 406.90 | 1.95% | 560.49 | 2.82% |
| 2000 | AGRICULTURE | 886,419.57 | 15.41% | 704.42 | 2.69% | 620.07 | 1.84% | 118.61 | 1.73% | 499.34 | 9.07% | 1,808.62 | 8.66% | 805.12 | 4.05% |
| 3000 | RANGELAND | 56,126.46 | 0.98% | 23.24 | 0.09% | 283.52 | 0.84% | 49.96 | 0.73% | 46.26 | 0.84% | 218.58 | 1.05% | 240.52 | 1.21% |
| 4000 | UPLAND FORESTS | 2,857,700.77 | 49.68% | 13,636.80 | 52.05% | 16,545.71 | 49.20% | 2,418.62 | 35.24% | 2,427.65 | 44.08% | 13,665.53 | 65.42% | 14,427.69 | 72.51% |
| 5000 | WATER | 74,380.02 | 1.29% | 24.82 | 0.09% | 44.65 | 0.13% | 7.27 | 0.11% | 4.97 | 0.09% | 39.40 | 0.19% | 41.27 | 0.21% |
| 6000 | WETLANDS | 1,445,183.91 | 25.13% | 11,699.75 | 44.66% | 15,921.48 | 47.34% | 1,078.61 | 15.72% | 261.61 | 4.75% | 4,574.28 | 21.90% | 3,620.35 | 18.19% |
| 7000 | BARREN LAND | 1,105.77 | 0.02% | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 0.00 | ------ | 29.05 | 0.14% | 30.56 | 0.15% |
| 8000 | TRANSPORTATION, COMMUNICATION, AND UTILITIES | 40,363.65 | 0.70% | 0.00 | ------ | 24.34 | 0.07% | 0.11 | 0.00% | 111.04 | 2.02% | 145.76 | 0.70% | 172.71 | 0.87% |
| | **TOTALS:** | **5,751,783.83** | **100.00%** | **26,196.92** | **100.00%** | **33,632.17** | **100.00%** | **6,862.72** | **100.00%** | **5,507.92** | **100.00%** | **20,888.13** | **100.00%** | **19,898.72** | **100.00%** |

## ATTACHMENT 4 - LAND USE MAP

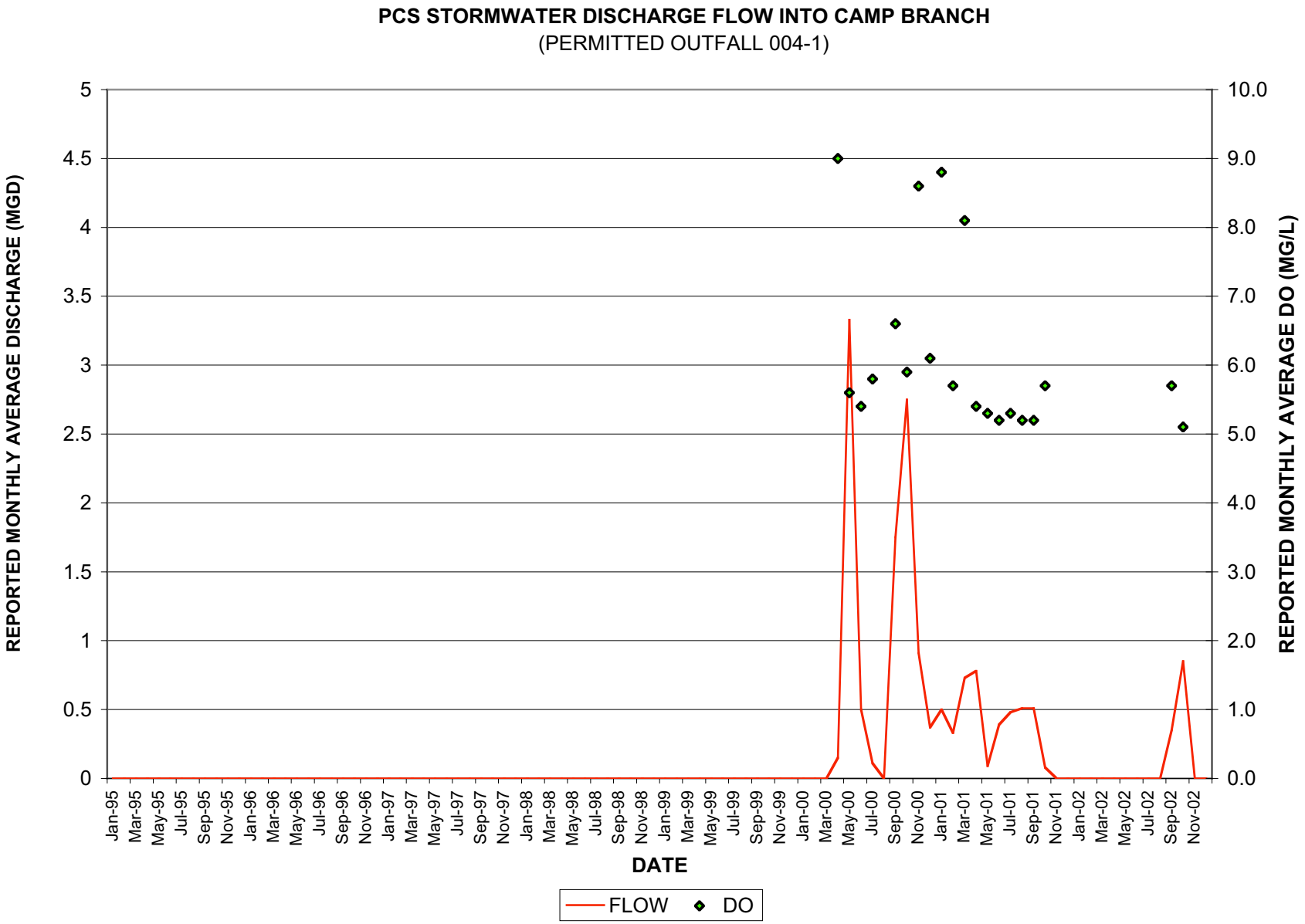


## ATTACHMENT 5 – PERMITTED LANDFILLS AND DISCHARGERS IN THE BASINS

### PERMITTED LANDFILLS AND DISCHARGERS IN WBIDS

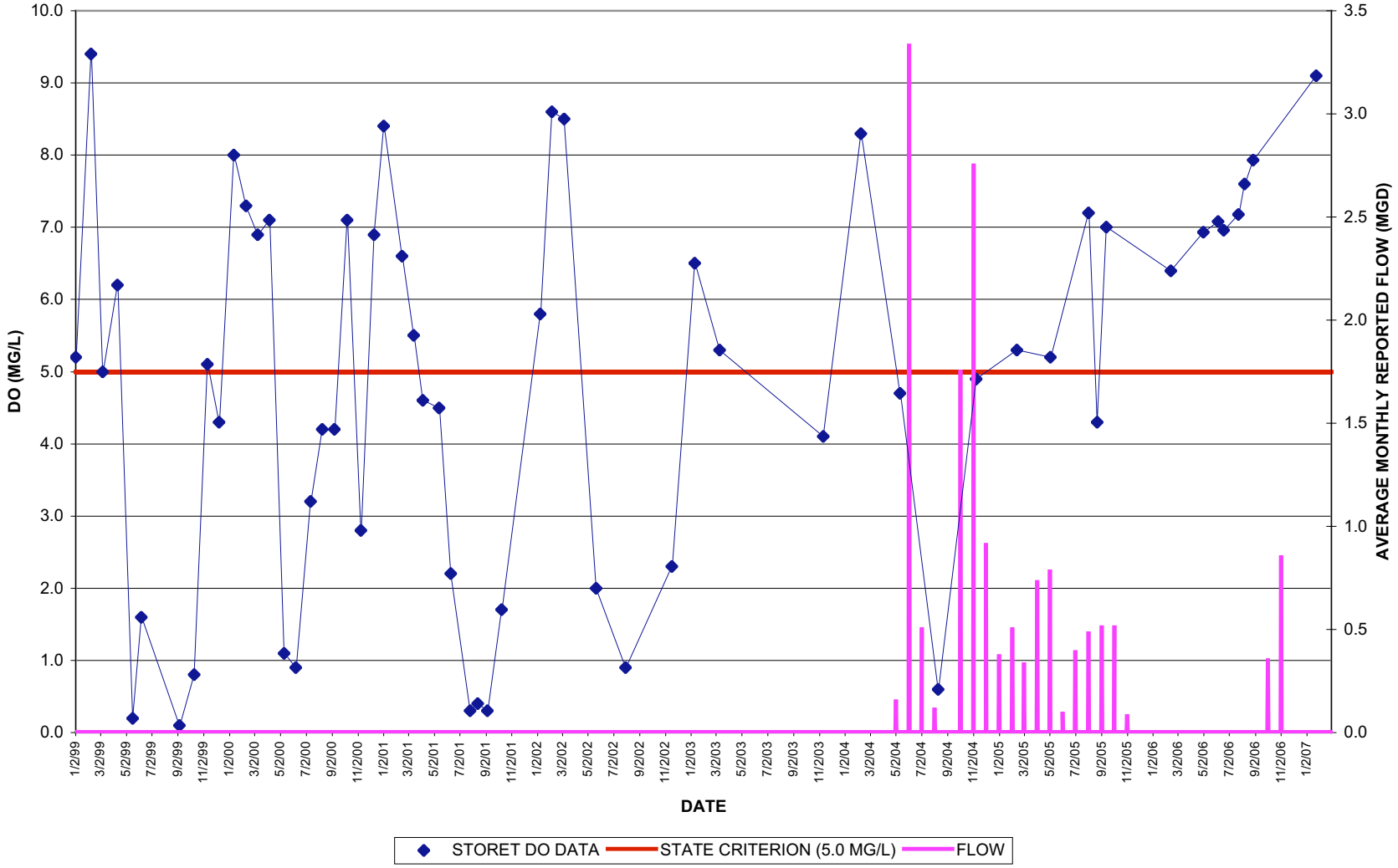


## ATTACHMENT 6 – CHART SHOWING REPORTED PCS FLOW AND DISSOLVED OXYGEN DATA



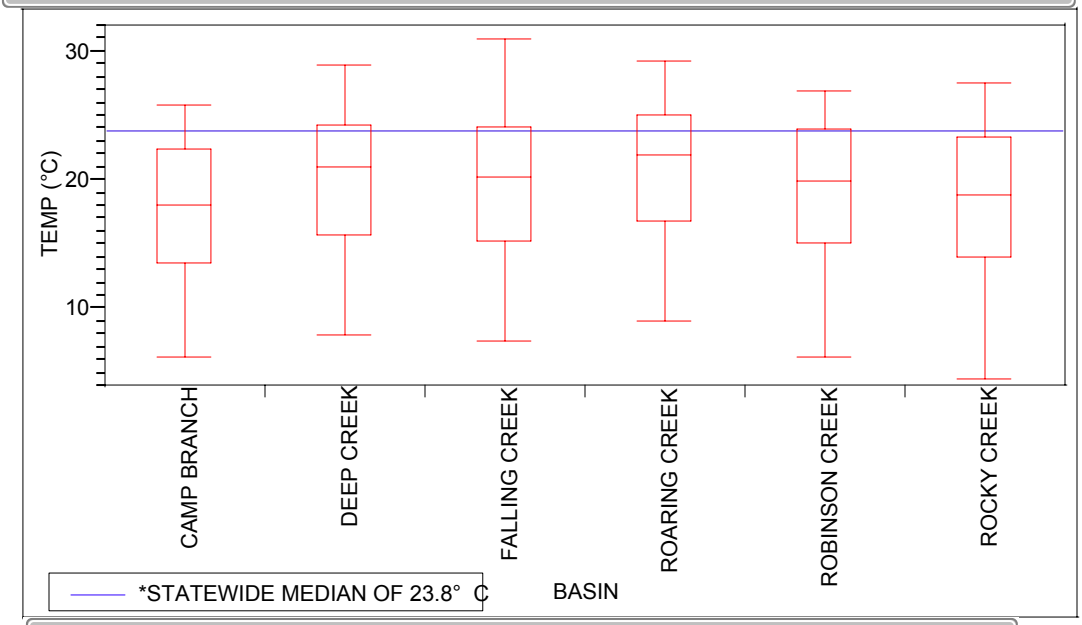
## ATTACHMENT 7 – CHART SHOWING OTHER DISSOLVED OXYGEN DATA AND REPORTED PCS FLOW

### CAMP BRANCH OTHER COLLECTED DO VALUES vs. PCS REPORTED FLOW



## *ATTACHMENT 8 – BOX PLOTS AND STATISTICAL ANALYSIS*

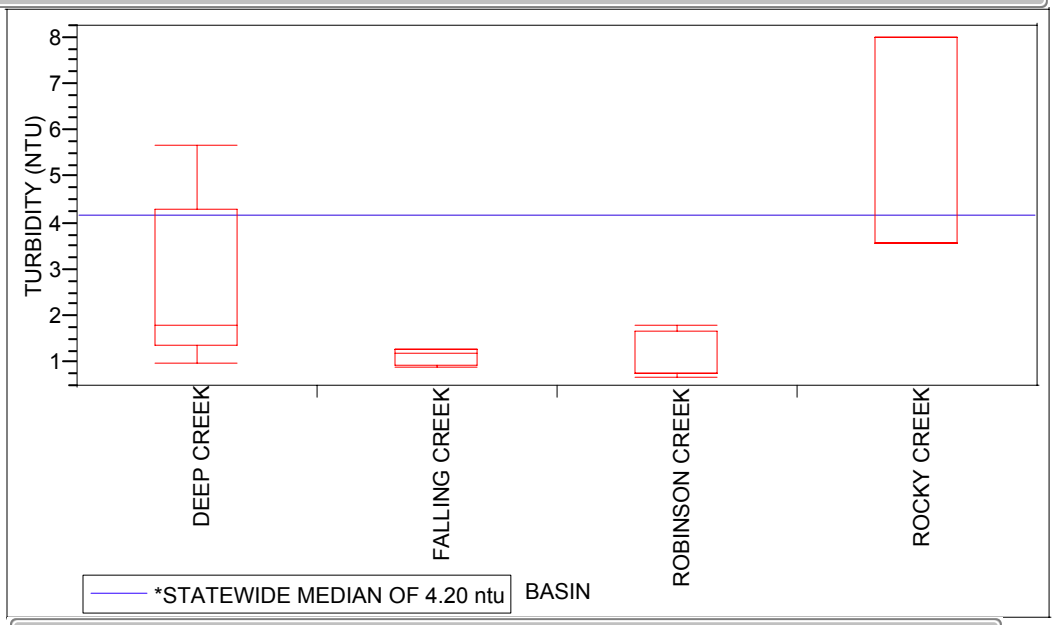
### TEMPERATURE ANALYSIS




### Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 6.3 | 9.96 | 13.55 | 18.1 | 22.5 | 24.34 | 25.8 |
| DEEP CREEK | 7.9 | 11.48 | 15.8 | 21.05 | 24.25 | 25.73 | 29 |
| FALLING CREEK | 7.5 | 11.33 | 15.3 | 20.3 | 24.2 | 26 | 31 |
| ROARING CREEK | 9.1 | 13.21 | 16.8 | 21.9 | 25.025 | 28 | 29.3 |
| ROBINSON CREEK | 6.3 | 11.99 | 15.1 | 20 | 24 | 25.5 | 27 |
| ROCKY CREEK | 4.6 | 10.4 | 14 | 18.9 | 23.4 | 25 | 27.5 |

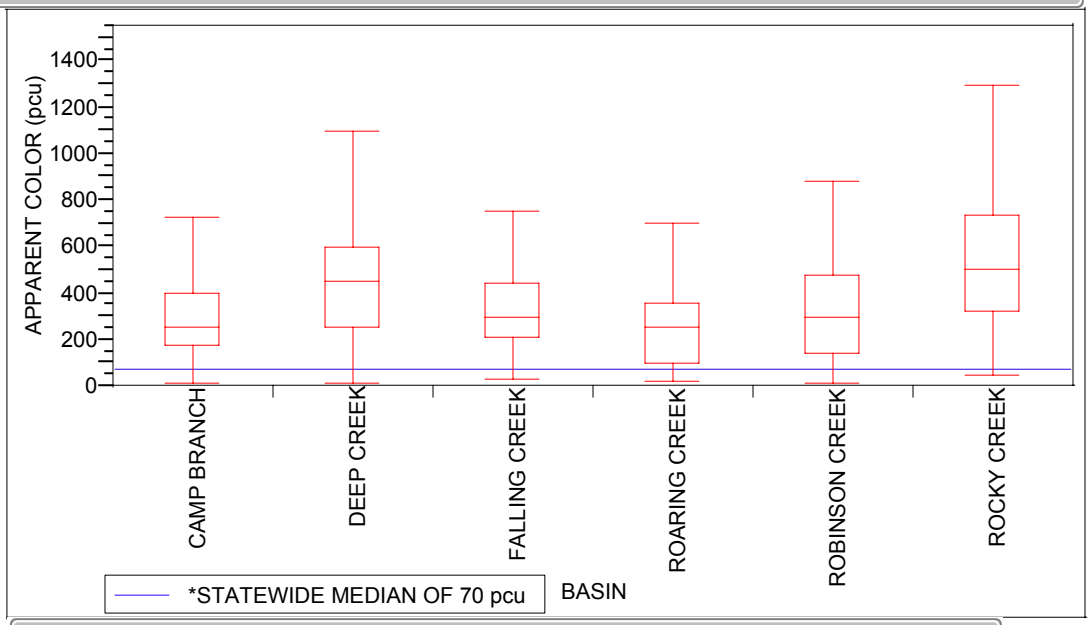
## TURBIDITY ANALYSIS




## Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| DEEP CREEK | 1 | 1.06 | 1.4 | 1.8 | 4.3 | 5.1 | 5.7 |
| FALLING CREEK | 0.9 | 0.9 | 0.95 | 1.2 | 1.3 | 1.3 | 1.3 |
| ROBINSON CREEK | 0.7 | 0.7 | 0.8 | 0.8 | 1.7 | 1.8 | 1.8 |
| ROCKY CREEK | 3.6 | 3.6 | 3.6 | 3.6 | 8 | 8 | 8 |

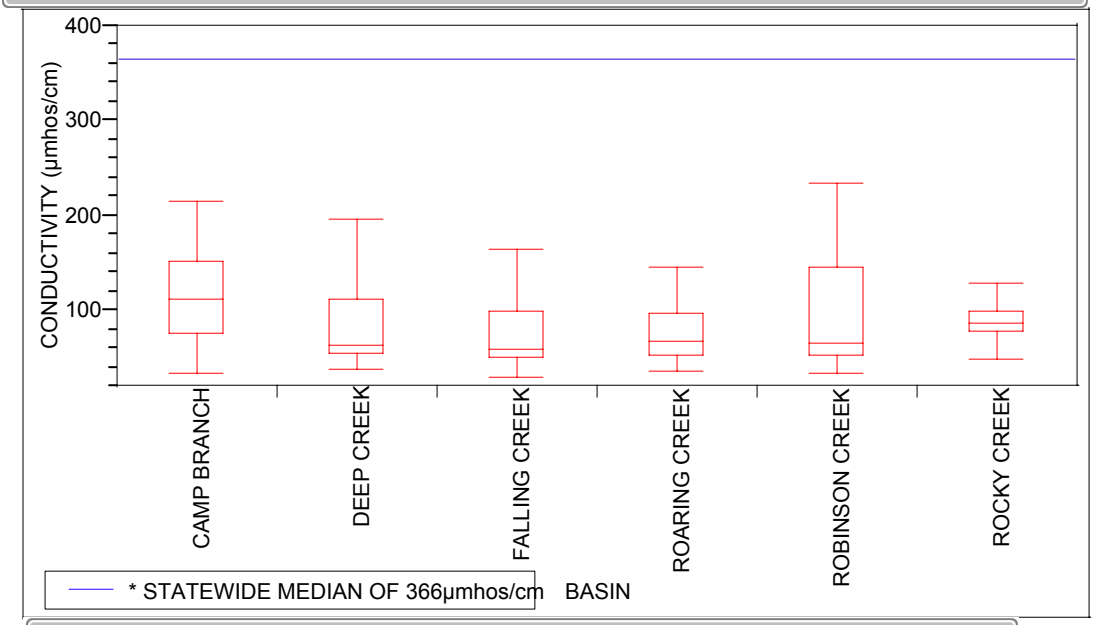
## APPARENT COLOR ANALYSIS




### Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 13 | 90 | 172.5 | 250 | 400 | 600 | 1500 |
| DEEP CREEK | 15 | 77 | 250 | 450 | 600 | 800 | 1500 |
| FALLING CREEK | 30 | 143 | 215 | 300 | 440.75 | 600 | 1200 |
| ROARING CREEK | 20 | 36.5 | 100 | 250 | 360 | 635 | 1500 |
| ROBINSON CREEK | 15 | 45 | 140 | 300 | 475 | 680 | 1200 |
| ROCKY CREEK | 50 | 179 | 325 | 500 | 740 | 1020 | 1500 |

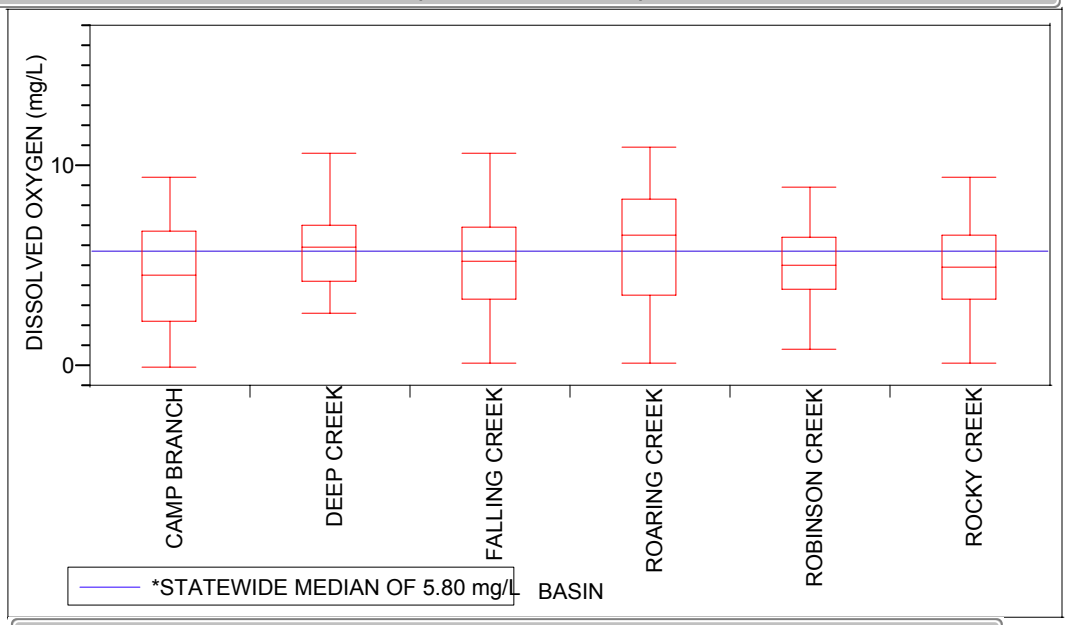
## CONDUCTIVITY ANALYSIS




## Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 33 | 51.6 | 75 | 111 | 151 | 184.2 | 215 |
| DEEP CREEK | 39 | 48.9 | 54.5 | 64 | 112.25 | 202.3 | 239 |
| FALLING CREEK | 29 | 45 | 50 | 60 | 100 | 142 | 330 |
| ROARING CREEK | 35 | 46 | 51.75 | 67.5 | 96.5 | 176.3 | 380 |
| ROBINSON CREEK | 33 | 49 | 52 | 65.5 | 146 | 201 | 235 |
| ROCKY CREEK | 49 | 60.9 | 78 | 87.5 | 99 | 112.3 | 178 |

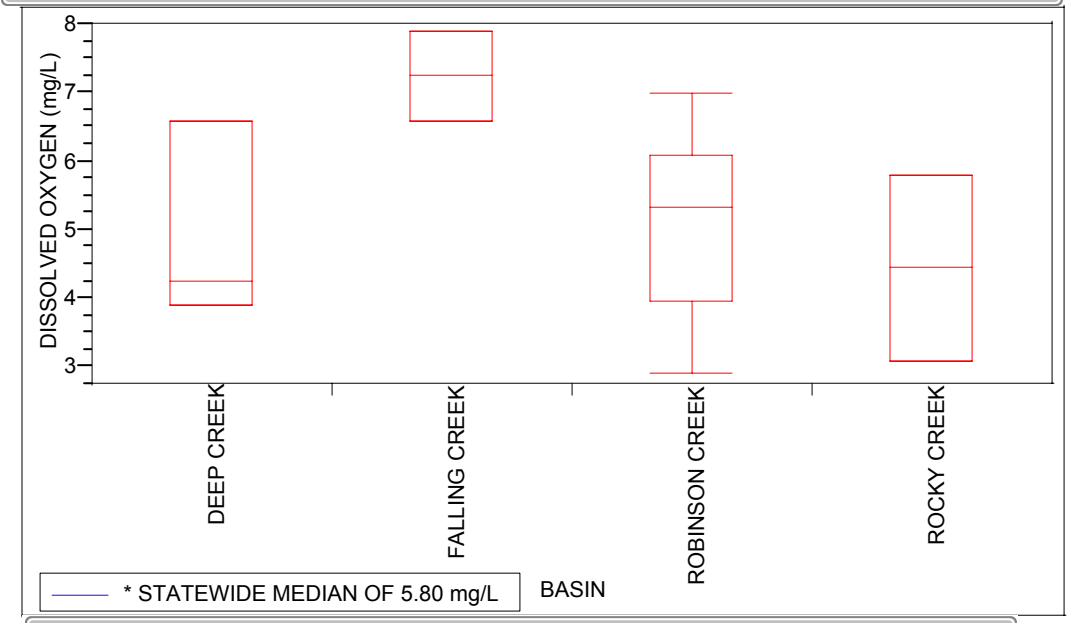
## DISSOLVED OXYGEN ANALYSIS (PARAMETER 299)




## Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 0 | 0.7 | 2.3 | 4.55 | 6.8 | 8.35 | 16 |
| DEEP CREEK | 2.7 | 3.5 | 4.275 | 6 | 7.1 | 8.39 | 10.7 |
| FALLING CREEK | 0.1 | 2.3 | 3.4 | 5.3 | 7 | 8.2 | 10.7 |
| ROARING CREEK | 0.1 | 1.41 | 3.525 | 6.6 | 8.325 | 9.29 | 10.9 |
| ROBINSON CREEK | 0.86 | 2.6 | 3.9 | 5.1 | 6.5 | 7.54 | 9 |
| ROCKY CREEK | 0.1 | 2 | 3.4 | 5 | 6.6 | 8.09 | 9.4 |

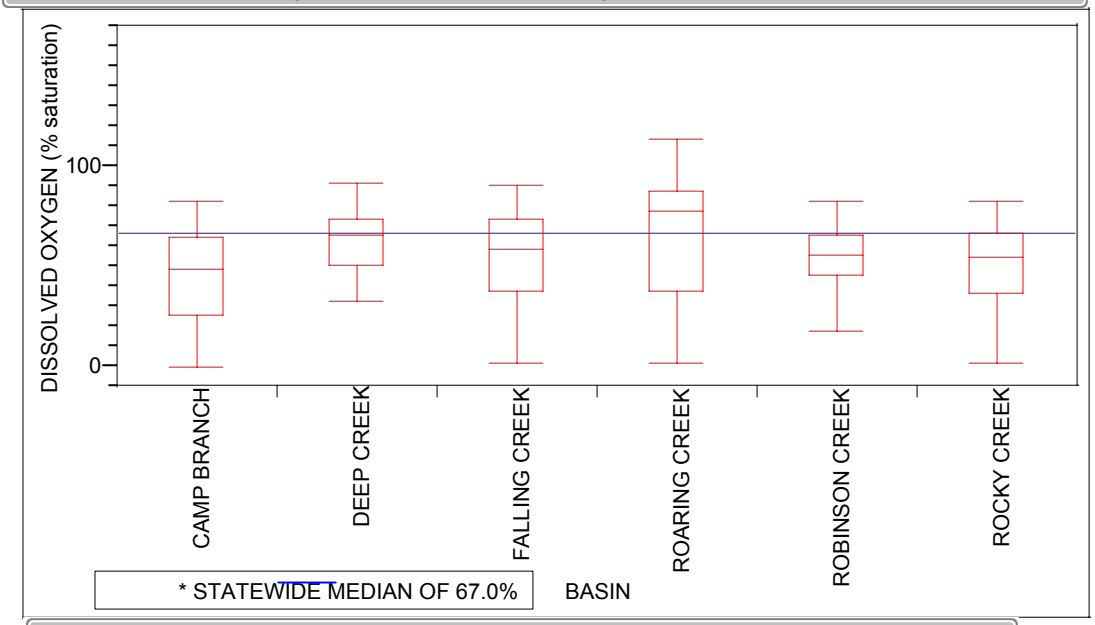
## DISSOLVED OXYGEN ANALYSIS (PARAMETER 300)




### Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| DEEP CREEK | 3.9 | 3.9 | 3.9 | 4.25 | 6.6 | 6.6 | 6.6 |
| FALLING CREEK | 6.6 | 6.6 | 6.6 | 7.25 | 7.9 | 7.9 | 7.9 |
| ROBINSON CREEK | 2.9 | 2.9 | 3.95 | 5.325 | 6.1 | 7 | 7 |
| ROCKY CREEK | 3.1 | 3.1 | 3.1 | 4.45 | 5.8 | 5.8 | 5.8 |

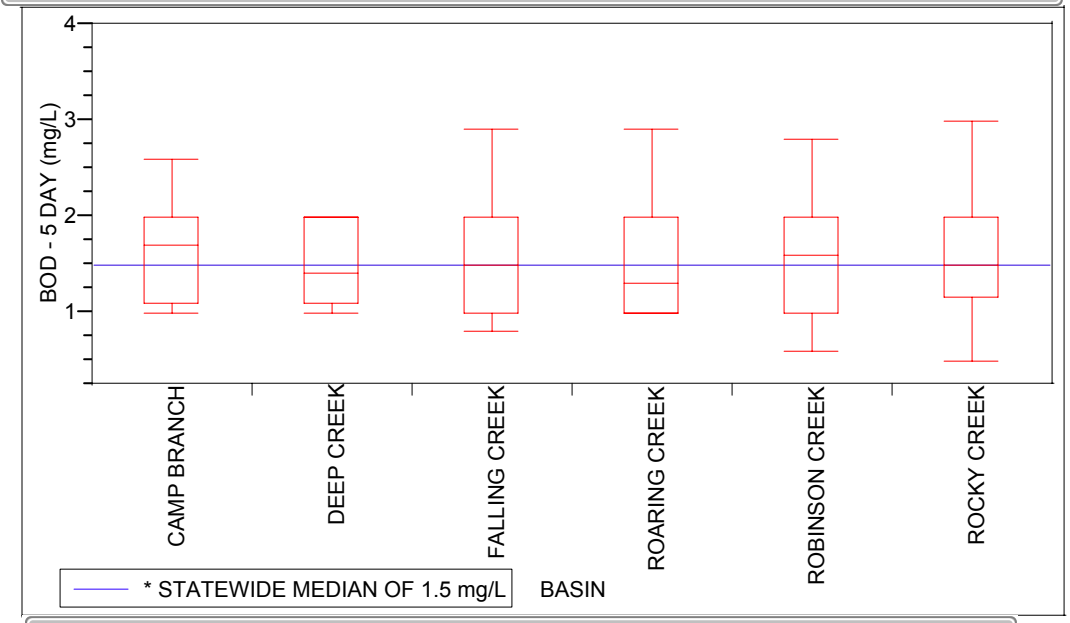
## DISSOLVED OXYGEN (PERCENT SATURATION) ANALYSIS




## Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 0 | 7.95493 | 25.2787 | 48.2794 | 64.93925 | 76.2218 | 160.002 |
| DEEP CREEK | 32.1443 | 41.30028 | 50.5 | 65.7657 | 73.408 | 79.11232 | 91.517 |
| FALLING CREEK | 1.23477 | 27.81328 | 37.93105 | 58.3393 | 73.15825 | 81.45472 | 90.7509 |
| ROARING CREEK | 1.13645 | 14.33101 | 37.1035 | 77.0173 | 87.7275 | 94.38 | 113.933 |
| ROBINSON CREEK | 10.2391 | 32.384 | 45.886 | 55.4404 | 65.9121 | 74.94702 | 107.149 |
| ROCKY CREEK | 1.17658 | 22.94574 | 36.542 | 54.3528 | 66.3531 | 73.21802 | 82.3096 |

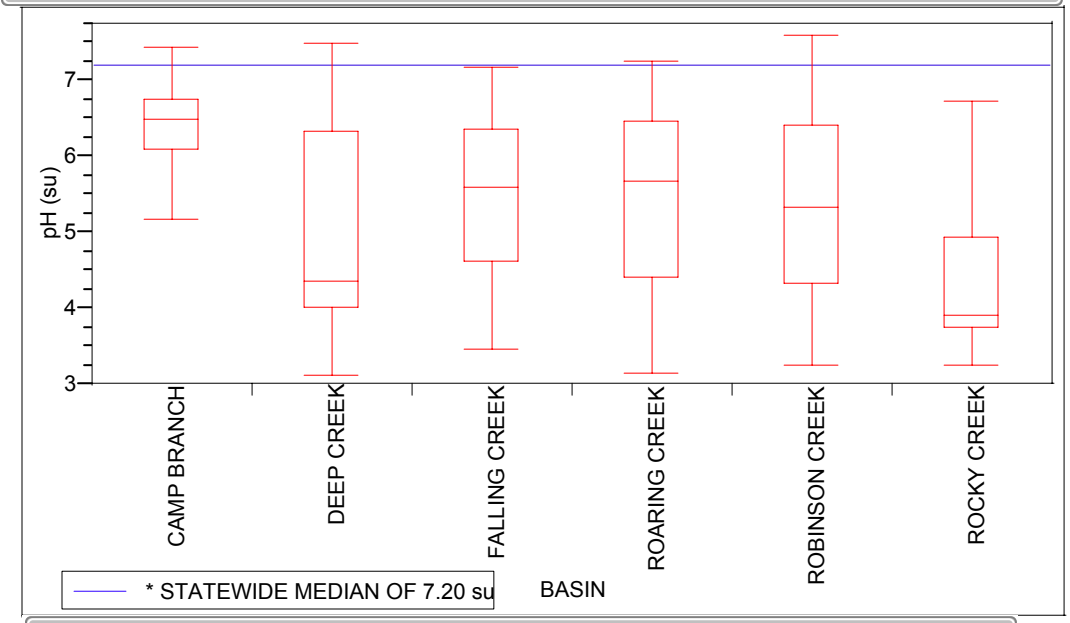
## BOD 5-DAY ANALYSIS




## Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 1 | 1 | 1.1 | 1.7 | 2 | 2 | 2.6 |
| DEEP CREEK | 1 | 1 | 1.1 | 1.4 | 2 | 2 | 2 |
| FALLING CREEK | 0.8 | 1 | 1 | 1.5 | 2 | 3.39 | 7.7 |
| ROARING CREEK | 1 | 1 | 1 | 1.3 | 2 | 3.12 | 4.5 |
| ROBINSON CREEK | 0.6 | 1 | 1 | 1.6 | 2 | 2.4 | 2.8 |
| ROCKY CREEK | 0.5 | 1 | 1.15 | 1.5 | 2 | 3 | 4.1 |

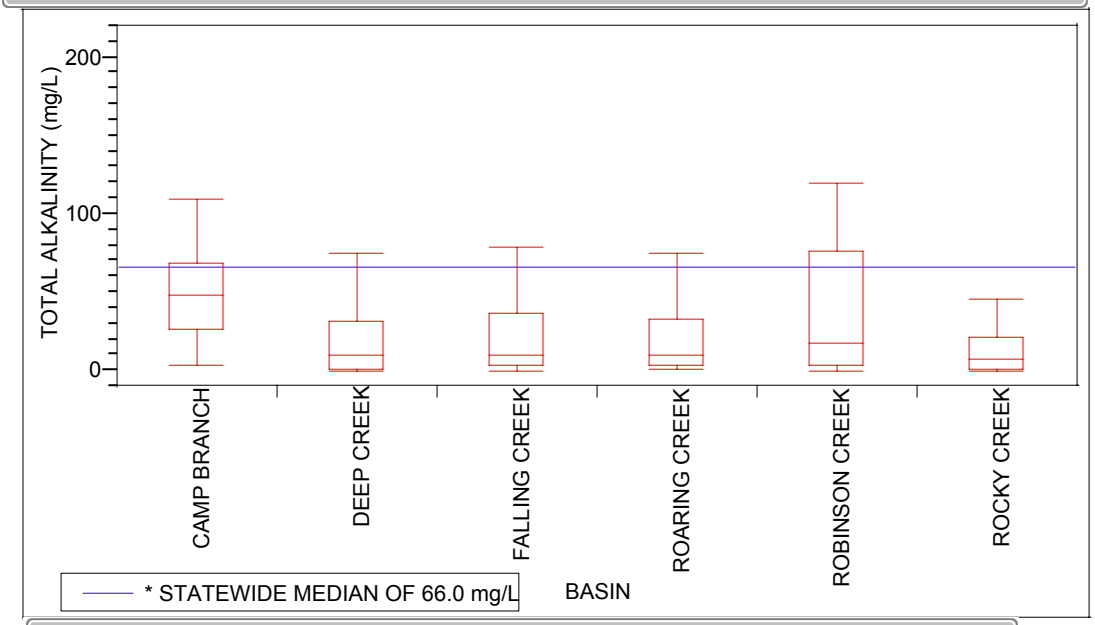
## pH ANALYSIS




## Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 4.65 | 5.792 | 6.1 | 6.49 | 6.77 | 6.92 | 7.44 |
| DEEP CREEK | 3.13 | 3.8 | 4.02 | 4.35 | 6.35 | 6.96 | 7.49 |
| FALLING CREEK | 3.47 | 4 | 4.6325 | 5.59 | 6.36 | 6.662 | 7.19 |
| ROARING CREEK | 3.14 | 4.073 | 4.415 | 5.69 | 6.4725 | 6.767 | 7.25 |
| ROBINSON CREEK | 3.26 | 4.05 | 4.3425 | 5.33 | 6.415 | 7.027 | 7.61 |
| ROCKY CREEK | 3.24 | 3.56 | 3.74 | 3.9 | 4.95 | 6.6 | 7.25 |

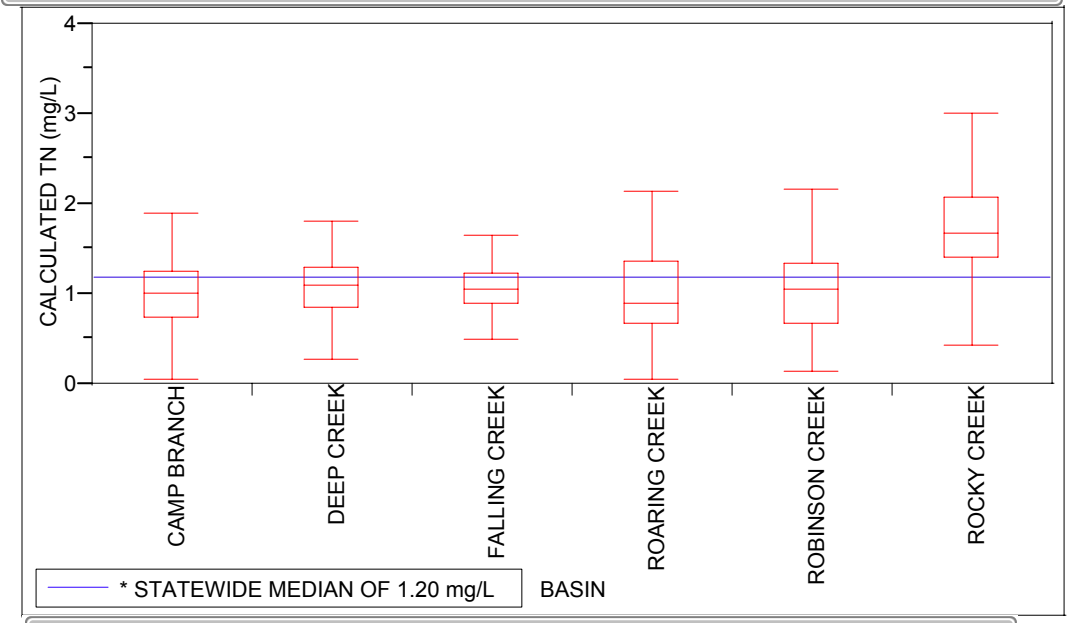
## TOTAL ALKALINITY ANALYSIS




### Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 3.1 | 12.1 | 26 | 48.5 | 68 | 83.9 | 110 |
| DEEP CREEK | 0 | 0.4 | 1 | 10 | 31 | 85.6 | 120 |
| FALLING CREEK | 0 | 1 | 3 | 10 | 36.05 | 46.2 | 79.2 |
| ROARING CREEK | 0.3 | 0.52 | 4 | 10 | 32.5 | 85.38 | 214 |
| ROBINSON CREEK | 0 | 0.4 | 4 | 18 | 76 | 98 | 120 |
| ROCKY CREEK | 0 | 0.3 | 0.4 | 7 | 21 | 36.4 | 75 |

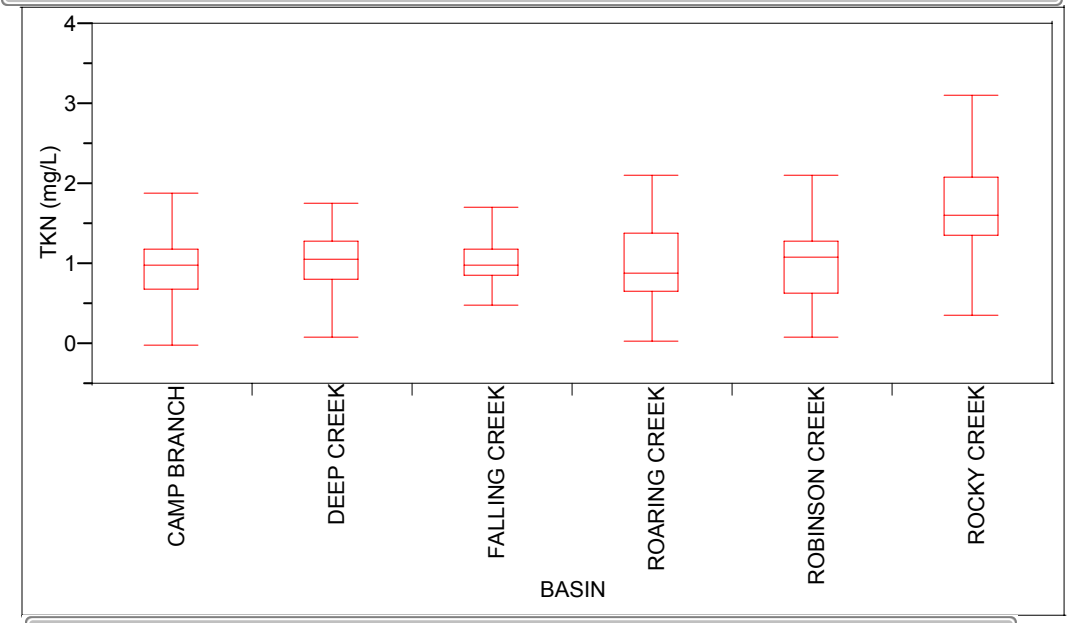
## TOTAL NITROGEN (CALCULATED) ANALYSIS




### Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 0.05 | 0.573 | 0.75 | 1.02 | 1.2525 | 1.626 | 7.99 |
| DEEP CREEK | 0.15 | 0.59 | 0.85 | 1.1 | 1.304 | 1.436 | 3.85 |
| FALLING CREEK | 0.37 | 0.77 | 0.9 | 1.06 | 1.24 | 1.47 | 4.96 |
| ROARING CREEK | 0.06 | 0.43 | 0.68 | 0.9 | 1.37 | 1.786 | 4.04 |
| ROBINSON CREEK | 0.15 | 0.412 | 0.68 | 1.05 | 1.34 | 1.56 | 2.6 |
| ROCKY CREEK | 0.42 | 1.095 | 1.41 | 1.687 | 2.0675 | 2.8 | 5.04 |

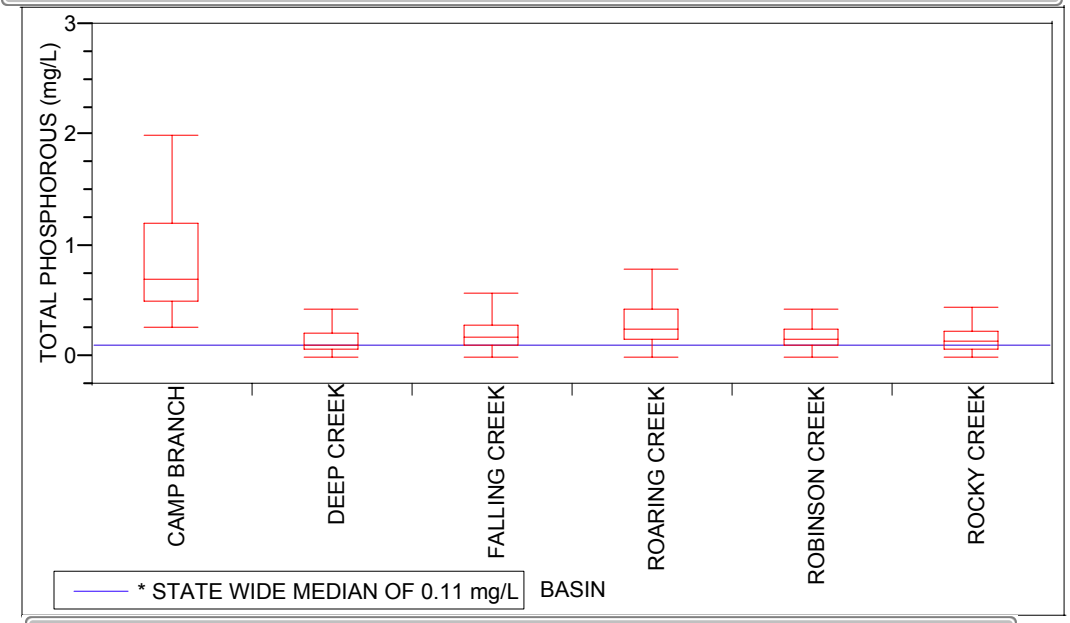
## TOTAL KJELDALH NITROGEN ANALYSIS




### Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 0 | 0.509 | 0.7 | 0.98 | 1.2 | 1.5 | 7.9 |
| DEEP CREEK | 0.1 | 0.469 | 0.8025 | 1.06 | 1.285 | 1.406 | 3.8 |
| FALLING CREEK | 0.32 | 0.71 | 0.86 | 1 | 1.2 | 1.44 | 4.9 |
| ROARING CREEK | 0.04 | 0.4 | 0.66 | 0.89 | 1.38 | 1.7 | 3.9 |
| ROBINSON CREEK | 0.1 | 0.344 | 0.63 | 1.08 | 1.3 | 1.5 | 2.4 |
| ROCKY CREEK | 0.37 | 1.012 | 1.37 | 1.62 | 2.09 | 2.61 | 5 |

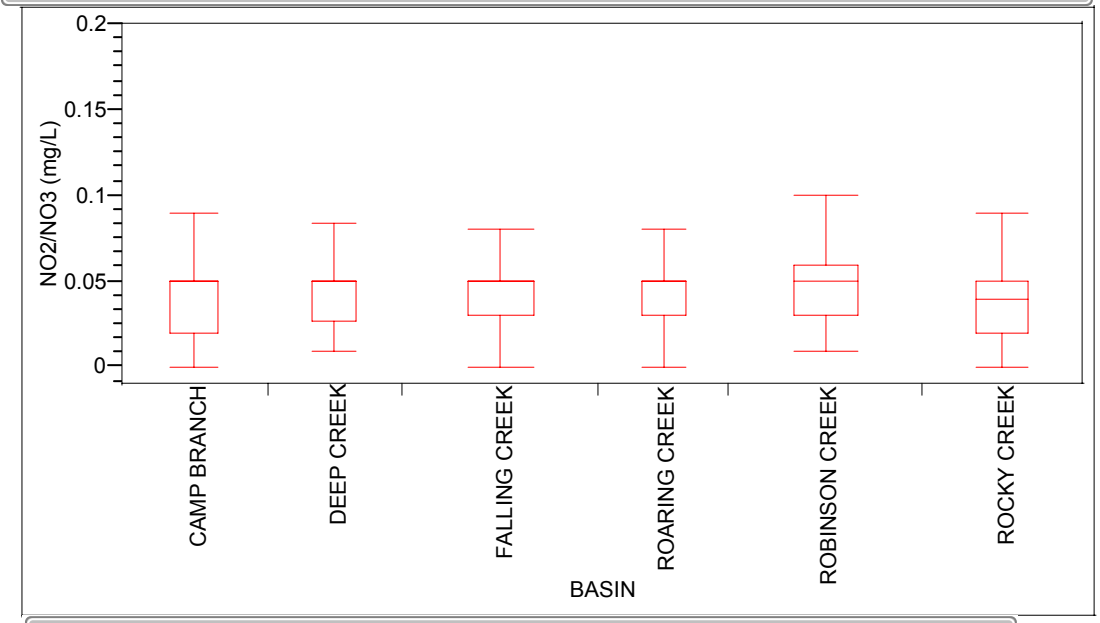
## TOTAL PHOSPHOROUS ANALYSIS




## Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 0.269 | 0.3635 | 0.49275 | 0.692 | 1.2 | 1.52 | 3.4 |
| DEEP CREEK | 0 | 0.049 | 0.06975 | 0.101 | 0.2105 | 0.3005 | 0.921 |
| FALLING CREEK | 0 | 0.06 | 0.1 | 0.166 | 0.29 | 0.518 | 1.2 |
| ROARING CREEK | 0 | 0.1018 | 0.162 | 0.249 | 0.428 | 0.898 | 4.5 |
| ROBINSON CREEK | 0 | 0.0824 | 0.11 | 0.157 | 0.247 | 0.332 | 0.71 |
| ROCKY CREEK | 0 | 0.043 | 0.066 | 0.132 | 0.232 | 0.414 | 0.94 |

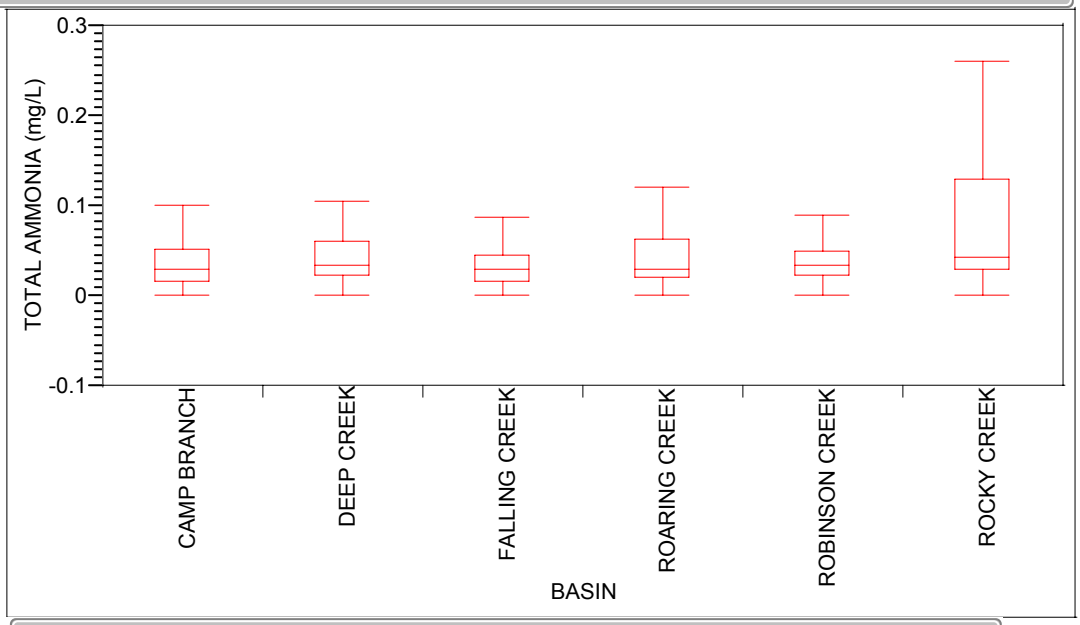
## NITRITE/NITRATE ANALYSIS




## Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 0 | 0.01 | 0.02 | 0.05 | 0.05 | 0.086 | 3.8 |
| DEEP CREEK | 0.009 | 0.0158 | 0.027 | 0.05 | 0.05 | 0.1 | 0.57 |
| FALLING CREEK | 0 | 0.02 | 0.03 | 0.05 | 0.05 | 0.086 | 0.22 |
| ROARING CREEK | 0 | 0.01 | 0.03 | 0.05 | 0.05 | 0.062 | 0.14 |
| ROBINSON CREEK | 0.009 | 0.0105 | 0.03 | 0.05 | 0.06 | 0.11 | 1.2 |
| ROCKY CREEK | 0 | 0.01 | 0.02 | 0.04 | 0.05 | 0.054 | 0.34 |

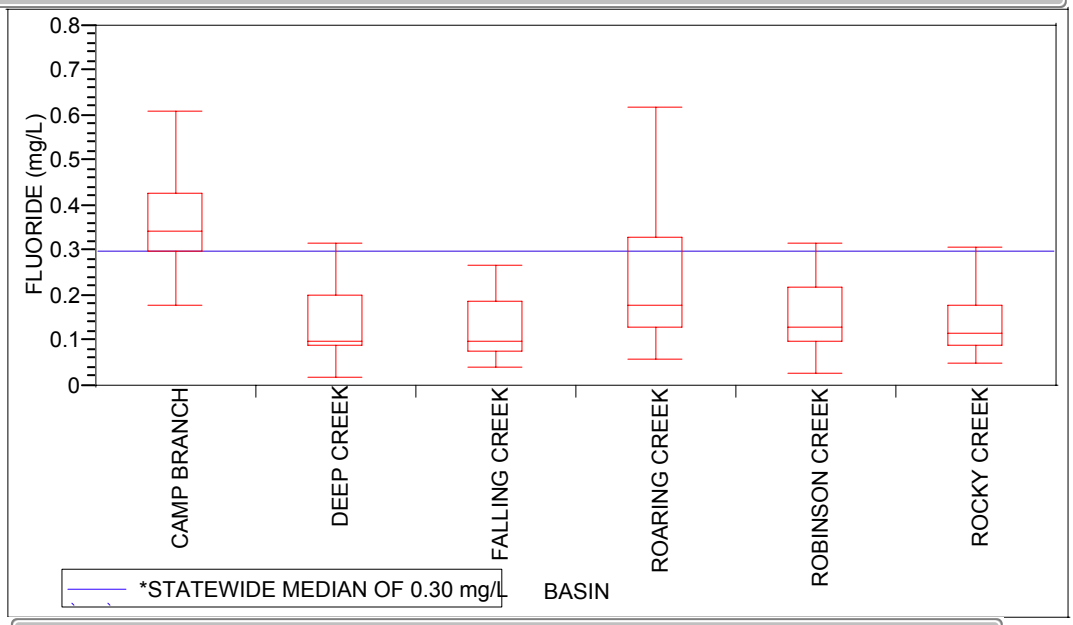
## TOTAL AMMONIA ANALYSIS




### Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 0 | 0.01 | 0.017 | 0.03 | 0.052 | 0.1 | 0.4 |
| DEEP CREEK | 0 | 0.0105 | 0.02275 | 0.034 | 0.06025 | 0.0905 | 0.26 |
| FALLING CREEK | 0 | 0.01 | 0.016 | 0.03 | 0.045 | 0.0692 | 1.8 |
| ROARING CREEK | 0 | 0.01 | 0.02 | 0.03 | 0.063 | 0.144 | 1.2 |
| ROBINSON CREEK | 0 | 0.0139 | 0.024 | 0.035 | 0.051 | 0.0953 | 0.16 |
| ROCKY CREEK | 0 | 0.0186 | 0.03 | 0.043 | 0.13 | 0.282 | 0.66 |

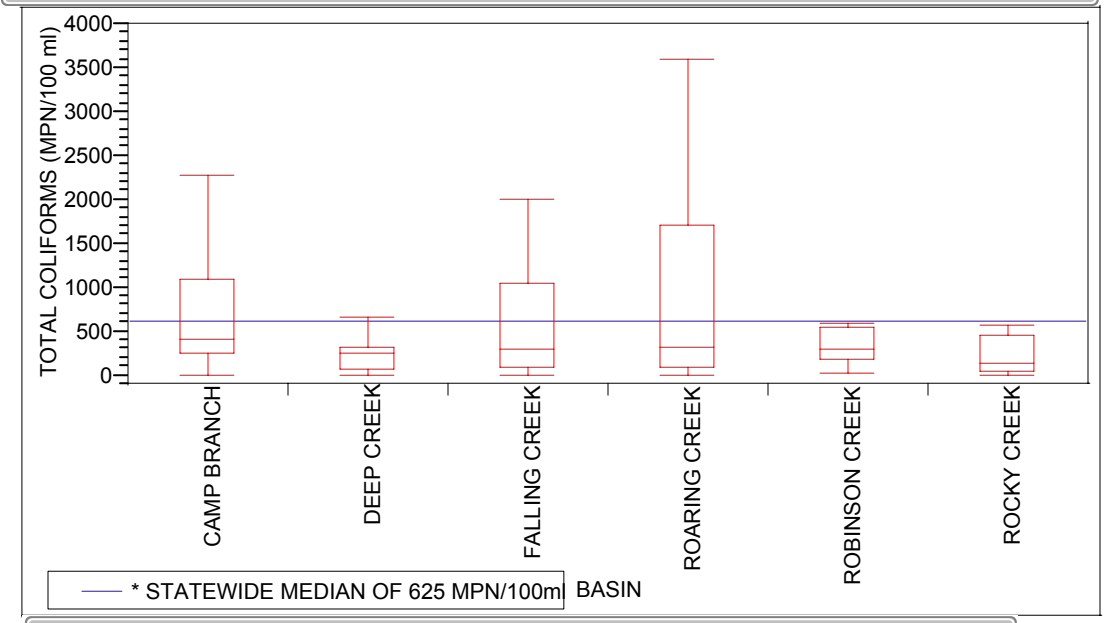
## FLUORIDE ANALYSIS




### Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 0.18 | 0.25 | 0.3 | 0.345 | 0.4275 | 0.6 | 1 |
| DEEP CREEK | 0.02 | 0.06 | 0.09 | 0.1 | 0.2 | 0.23 | 0.32 |
| FALLING CREEK | 0.04 | 0.07 | 0.08 | 0.1 | 0.19 | 0.2 | 0.27 |
| ROARING CREEK | 0.06 | 0.1 | 0.13 | 0.18 | 0.33 | 0.568 | 1.68 |
| ROBINSON CREEK | 0.03 | 0.07 | 0.1 | 0.13 | 0.22 | 0.25 | 0.32 |
| ROCKY CREEK | 0.05 | 0.07 | 0.09 | 0.12 | 0.18 | 0.241 | 0.42 |

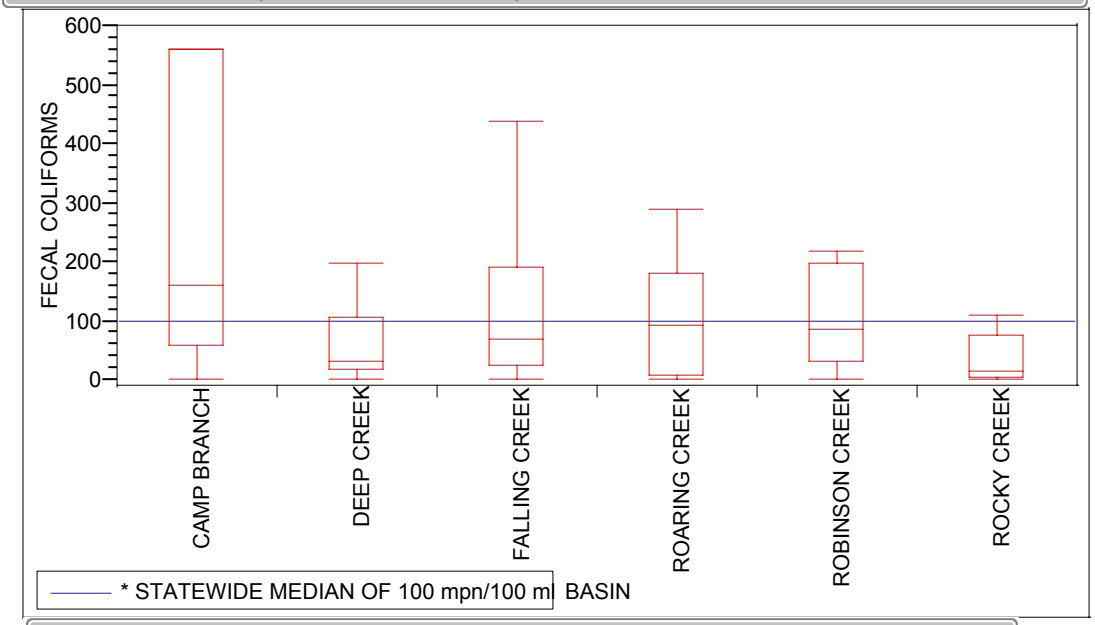
## TOTAL COLIFORM ANALYSIS




## Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 1 | 123.3 | 252.5 | 405 | 1092.5 | 3950 | 7400 |
| DEEP CREEK | 1 | 42 | 80 | 250 | 330 | 660 | 1500 |
| FALLING CREEK | 1 | 30 | 100 | 300 | 1050 | 4080 | 19000 |
| ROARING CREEK | 7 | 20 | 100 | 330 | 1700 | 2900 | 3600 |
| ROBINSON CREEK | 33 | 110 | 190 | 300 | 560 | 3500 | 8000 |
| ROCKY CREEK | 4 | 15 | 40 | 150 | 457.5 | 3290 | 6400 |

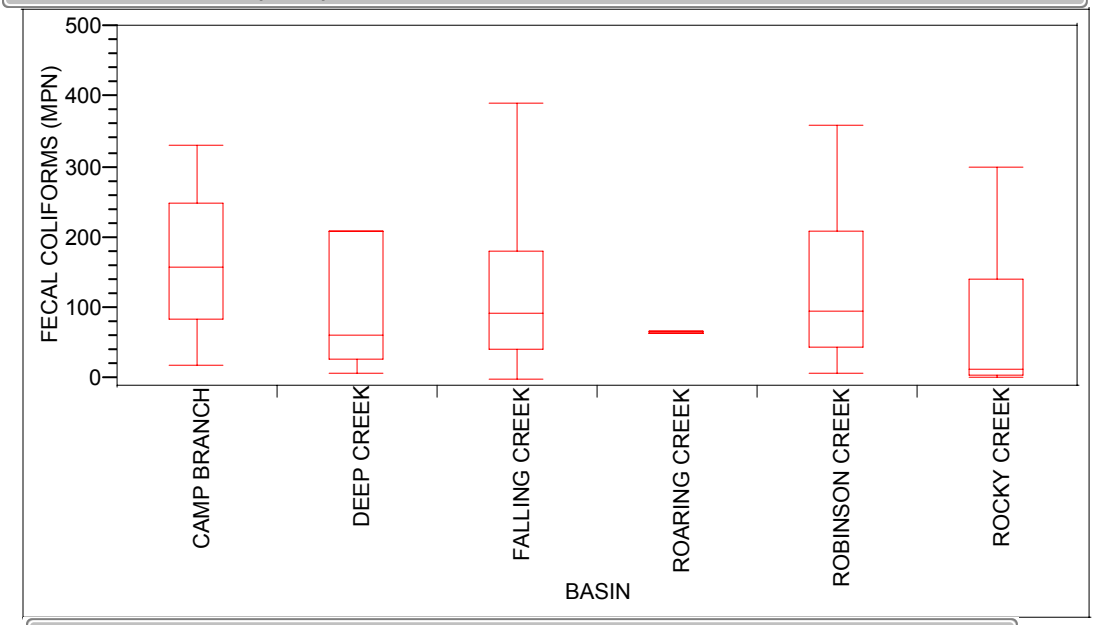
## FECAL COLIFORM (MEMBRANE FILTER) ANALYSIS




### Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 1 | 1 | 60 | 160 | 560 | 3360 | 3700 |
| DEEP CREEK | 1 | 8.4 | 18 | 31 | 106 | 248 | 600 |
| FALLING CREEK | 1 | 3.3 | 25.75 | 69.5 | 192.5 | 440 | 1850 |
| ROARING CREEK | 1 | 1 | 10 | 95 | 180 | 572 | 1700 |
| ROBINSON CREEK | 1 | 5.5 | 32.5 | 85.5 | 200 | 375 | 600 |
| ROCKY CREEK | 1 | 1.2 | 5.5 | 17 | 78 | 214 | 300 |

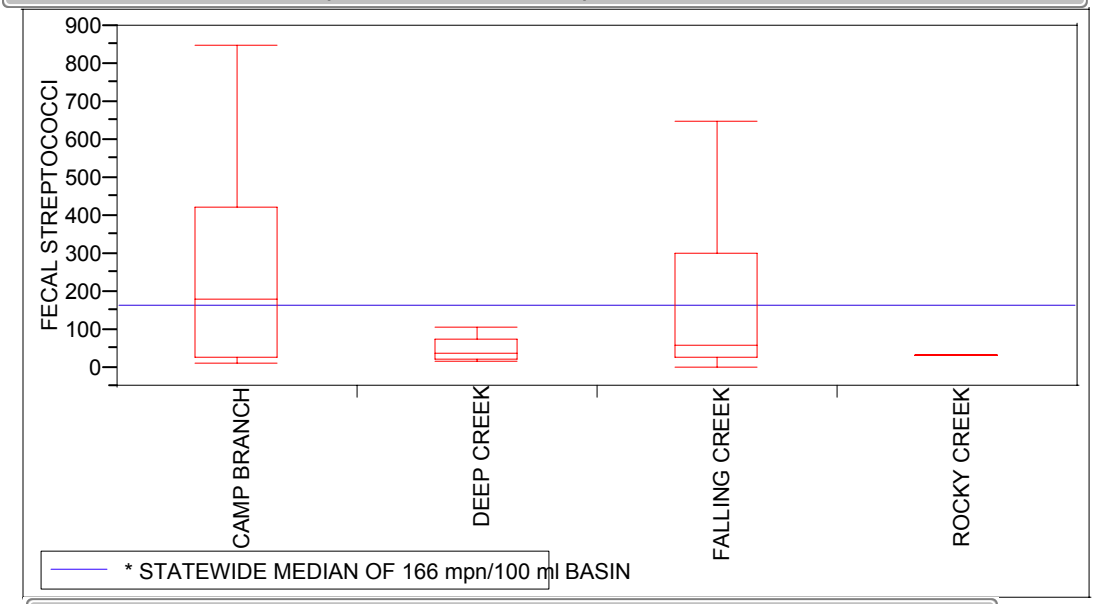
## FECAL COLIFORM (MPN) ANALYSIS




### Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 19 | 58 | 86 | 160 | 250 | 330 | 1000 |
| DEEP CREEK | 9 | 9 | 29 | 61 | 210 | 2100 | 2100 |
| FALLING CREEK | 1 | 8.2 | 42.25 | 94 | 182.5 | 501 | 1850 |
| ROARING CREEK | 64 | 64 | 64 | 66.5 | 69 | 69 | 69 |
| ROBINSON CREEK | 8 | 21.6 | 46 | 96 | 210 | 518 | 600 |
| ROCKY CREEK | 2 | 2.1 | 4.5 | 13 | 142.5 | 294 | 300 |

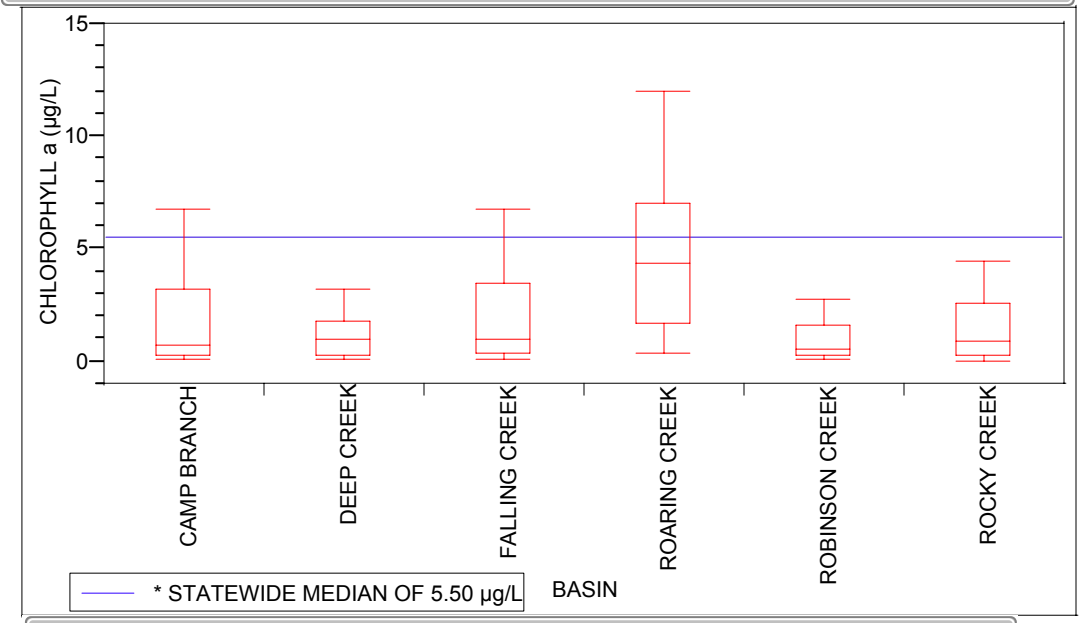
## FECAL STREPTOCOCCI (MEMBRANE FILTER) ANALYSIS




## Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 11 | 13.1 | 24.75 | 177.5 | 425 | 787 | 850 |
| DEEP CREEK | 16 | 16.6 | 19 | 39 | 74 | 105.4 | 106 |
| FALLING CREEK | 1 | 3 | 28 | 60 | 300 | 536 | 650 |
| ROCKY CREEK | 30 | 30 | 30 | 30 | 30 | 30 | 30 |

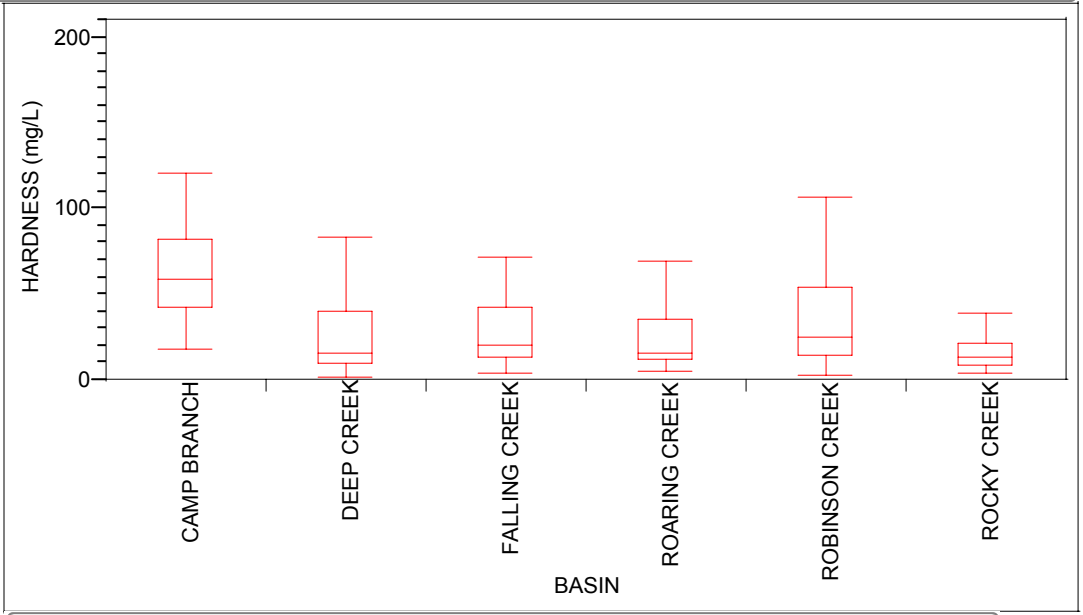
## CHLOROPHYLL a (SPEC.) ANALYSIS




## Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 0.1 | 0.118 | 0.3275 | 0.745 | 3.26 | 7.72 | 16 |
| DEEP CREEK | 0.1 | 0.167 | 0.2475 | 1 | 1.8 | 3.2 | 39 |
| FALLING CREEK | 0.12 | 0.186 | 0.38 | 1 | 3.5 | 6.692 | 13.6 |
| ROARING CREEK | 0.35 | 0.862 | 1.67 | 4.42 | 7.0425 | 21.65 | 34 |
| ROBINSON CREEK | 0.11 | 0.177 | 0.3125 | 0.6 | 1.6 | 2.53 | 2.8 |
| ROCKY CREEK | 0.03 | 0.127 | 0.2725 | 0.945 | 2.6225 | 5.07 | 9.05 |

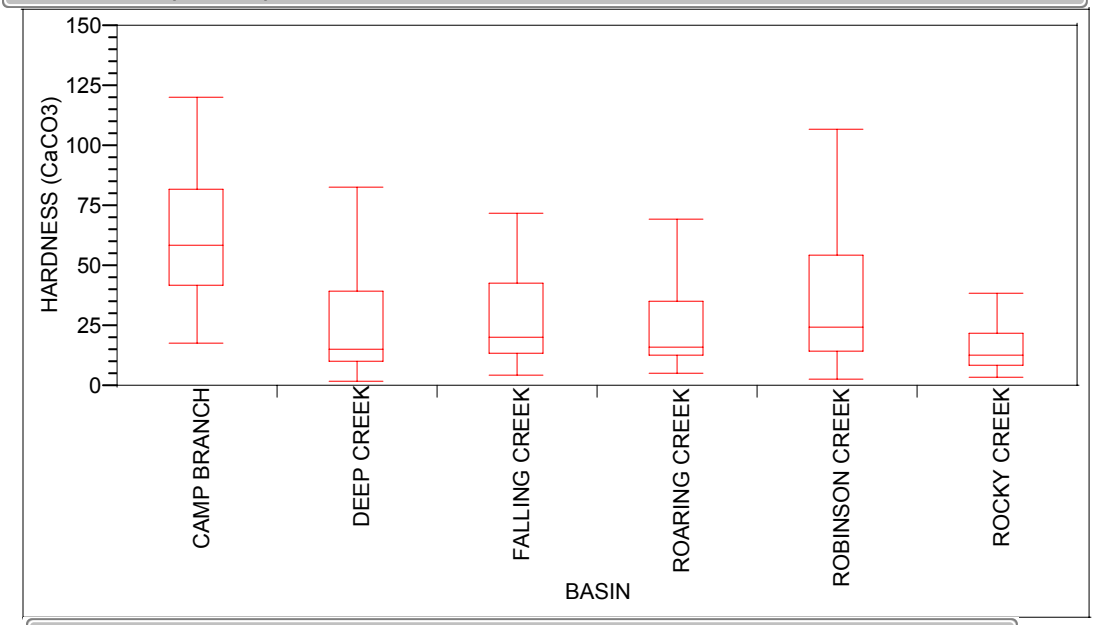
## CALCIUM HARDNESS ANALYSIS




### Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 18.0619 | 31.64795 | 42.08283 | 59.0176 | 82.00145 | 104.8668 | 148.289 |
| DEEP CREEK | 2.3218 | 7.9949 | 10.19318 | 15.27795 | 39.88363 | 83.78005 | 120.077 |
| FALLING CREEK | 4.556 | 7.56288 | 13.8563 | 20.5106 | 42.8567 | 55.1683 | 72.1068 |
| ROARING CREEK | 5.6293 | 9.729695 | 12.53228 | 15.90875 | 35.49075 | 66.5262 | 200.227 |
| ROBINSON CREEK | 2.8212 | 10.1546 | 14.28898 | 24.69 | 54.54285 | 90.07735 | 121.071 |
| ROCKY CREEK | 3.6448 | 7.40307 | 9.132275 | 13.04375 | 21.84915 | 39.7871 | 76.2387 |

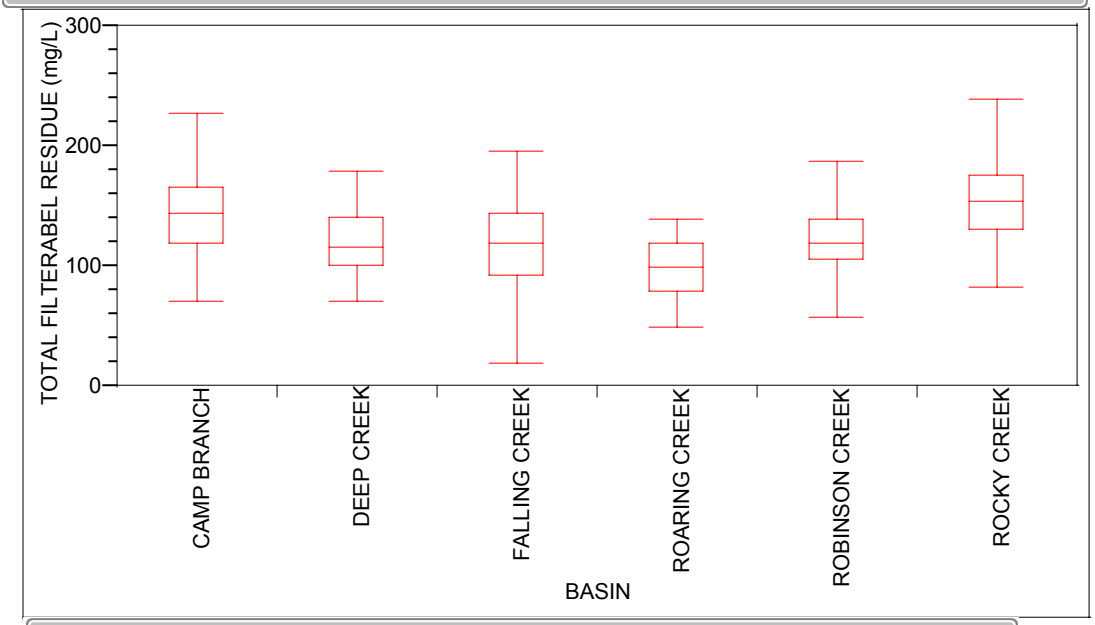
## HARDNESS (CaCO3) ANALYSIS




## Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 18.0619 | 31.64795 | 42.08283 | 59.0176 | 82.00145 | 104.8668 | 148.289 |
| DEEP CREEK | 2.3218 | 7.9949 | 10.19318 | 15.27795 | 39.88363 | 83.78005 | 120.077 |
| FALLING CREEK | 4.556 | 7.56288 | 13.8563 | 20.5106 | 42.8567 | 55.1683 | 72.1068 |
| ROARING CREEK | 5.6293 | 9.729695 | 12.53228 | 15.90875 | 35.49075 | 66.5262 | 200.227 |
| ROBINSON CREEK | 2.8212 | 10.1546 | 14.28898 | 24.69 | 54.54285 | 90.07735 | 121.071 |
| ROCKY CREEK | 3.6448 | 7.40307 | 9.132275 | 13.04375 | 21.84915 | 39.7871 | 76.2387 |

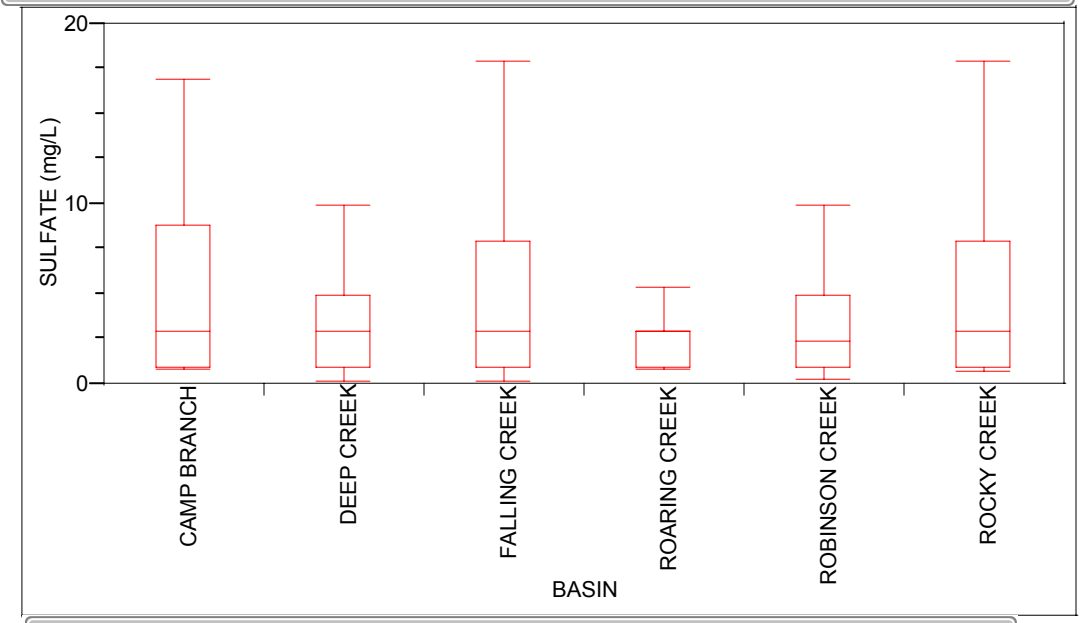
## TOTAL FILTERABLE RESIDUE ANALYSIS




### Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 18 | 100.8 | 120 | 144 | 166 | 193 | 256 |
| DEEP CREEK | 29 | 92.2 | 100.75 | 115.5 | 141.5 | 171.2 | 312 |
| FALLING CREEK | 19 | 80 | 93 | 120 | 144 | 161.2 | 196 |
| ROARING CREEK | 50 | 64.5 | 79.25 | 100 | 119.5 | 197.2 | 256 |
| ROBINSON CREEK | 40 | 89.4 | 106 | 120 | 140 | 150.6 | 212 |
| ROCKY CREEK | 83 | 105.8 | 130.5 | 155 | 176 | 207.4 | 1200 |

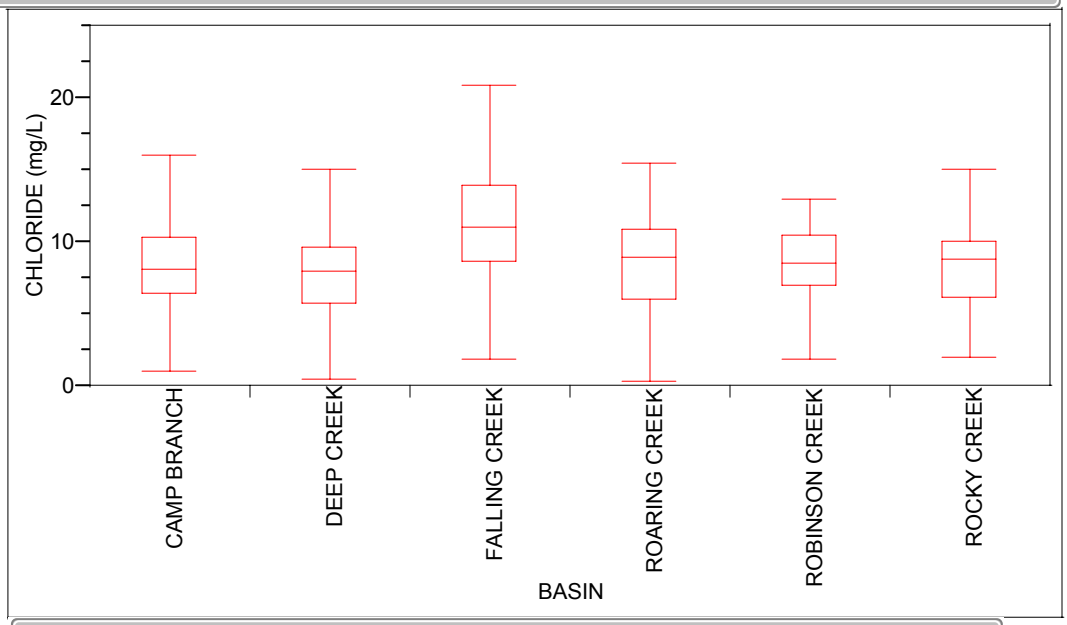
## SULFATE ANALYSIS




## Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 0.8 | 1 | 1 | 3 | 8.8 | 16 | 59 |
| DEEP CREEK | 0.2 | 0.9 | 1 | 3 | 5 | 13 | 18.8 |
| FALLING CREEK | 0.22 | 1 | 1 | 3 | 8 | 12 | 22 |
| ROARING CREEK | 0.8 | 0.8 | 1 | 3 | 3 | 11.6 | 18 |
| ROBINSON CREEK | 0.27 | 0.901 | 1 | 2.4 | 5 | 12.9 | 17 |
| ROCKY CREEK | 0.77 | 1 | 1 | 3 | 8 | 18 | 28.8 |

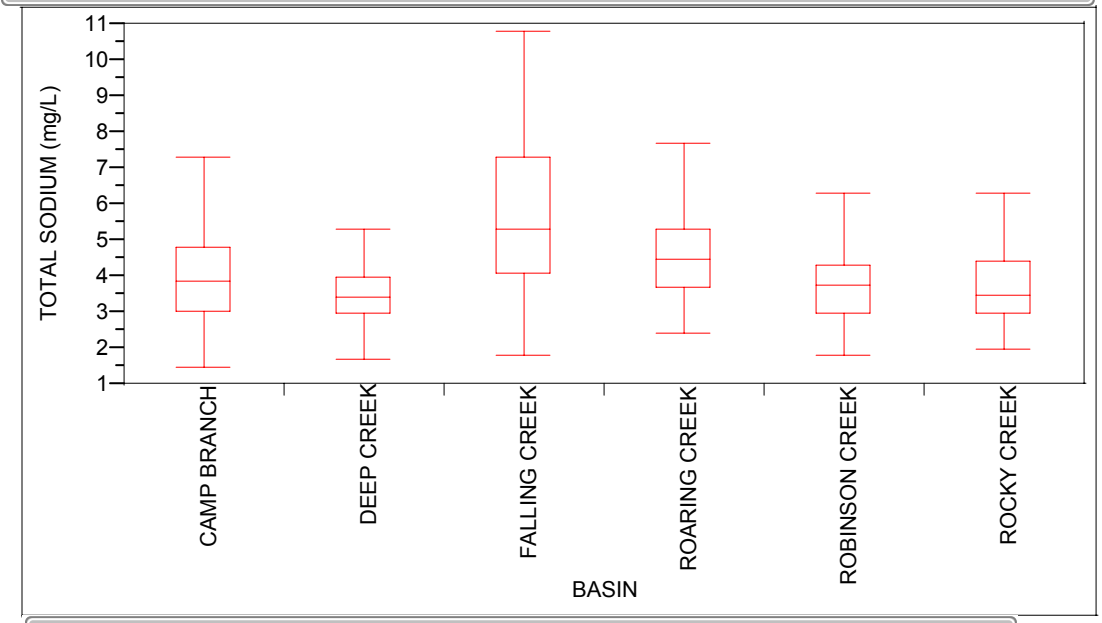
## TOTAL CHLORIDE ANALYSIS




## Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 1 | 4.2 | 6.45 | 8.1 | 10.3 | 13 | 20 |
| DEEP CREEK | 0.5 | 4.2 | 5.7 | 8 | 9.65 | 11 | 26 |
| FALLING CREEK | 1.9 | 7 | 8.7 | 11 | 14 | 16.38 | 20.9 |
| ROARING CREEK | 0.4 | 5 | 6 | 9 | 10.925 | 12.37 | 15.5 |
| ROBINSON CREEK | 1 | 6 | 7 | 8.6 | 10.5 | 12 | 15.8 |
| ROCKY CREEK | 2 | 5 | 6.225 | 8.8 | 10.1 | 11.09 | 41 |

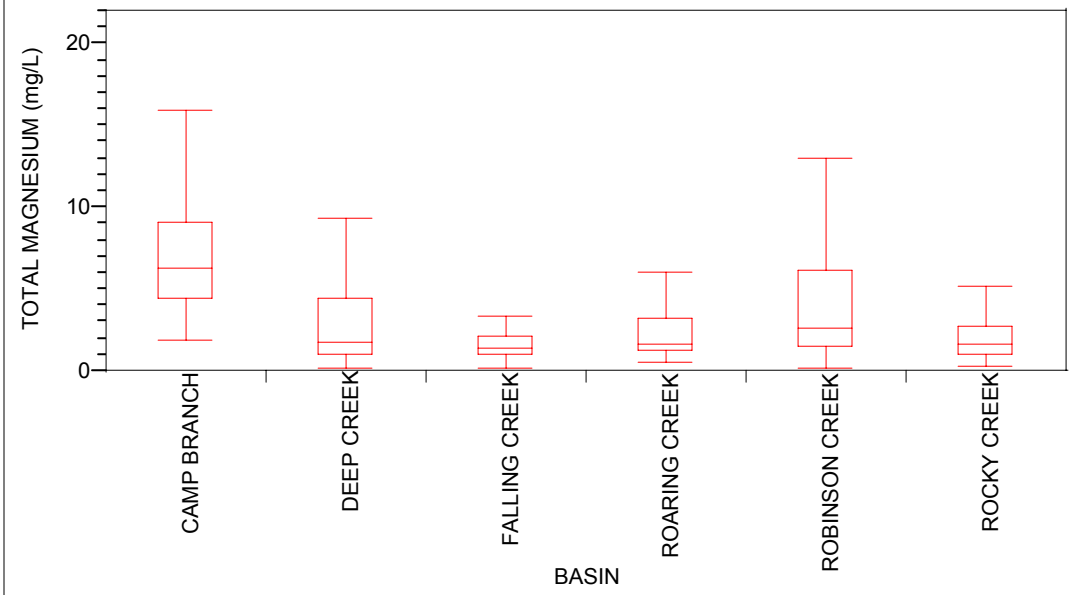
## TOTAL SODIUM ANALYSIS




### Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 1.5 | 2.49 | 3.025 | 3.85 | 4.8 | 6.12 | 9.6 |
| DEEP CREEK | 1.7 | 2.6 | 3 | 3.4 | 4 | 4.65 | 6.2 |
| FALLING CREEK | 1.8 | 3.58 | 4.1 | 5.3 | 7.3 | 9.52 | 10.8 |
| ROARING CREEK | 2.4 | 3.1 | 3.675 | 4.5 | 5.325 | 6.4 | 8.5 |
| ROBINSON CREEK | 1.8 | 2.55 | 3 | 3.755 | 4.325 | 5.4 | 8.7 |
| ROCKY CREEK | 2 | 2.5 | 3 | 3.5 | 4.4 | 5.2 | 7.6 |

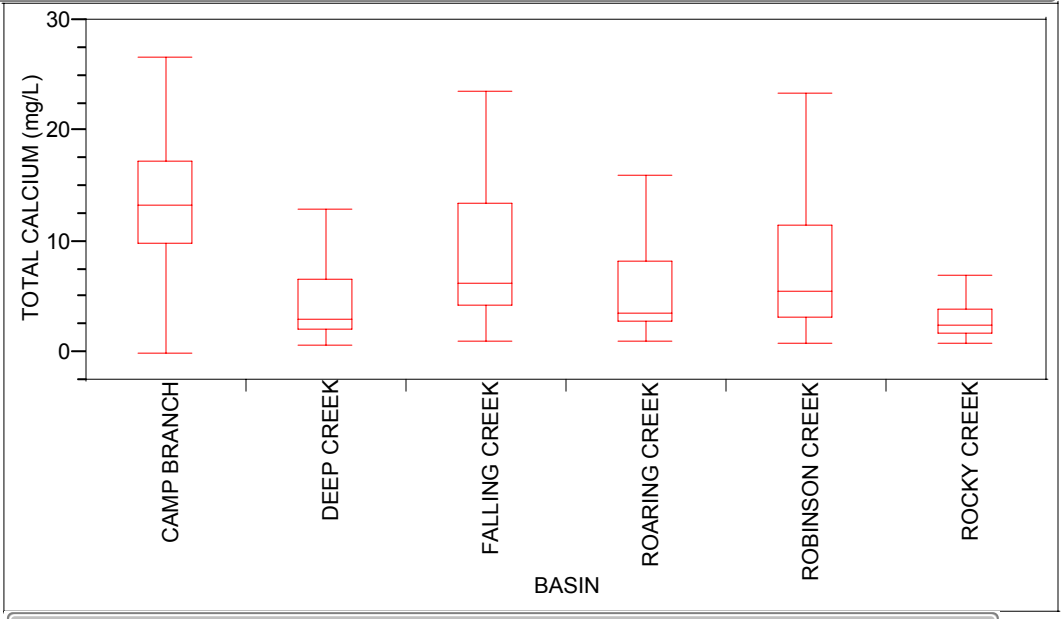
## TOTAL MAGNESIUM ANALYSIS




### Quantiles

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 1.9 | 2.99 | 4.45 | 6.3 | 9.075 | 12 | 16 |
| DEEP CREEK | 0.2 | 0.85 | 1.0625 | 1.75 | 4.475 | 9.25 | 14 |
| FALLING CREEK | 0.2 | 0.8 | 1 | 1.4 | 2.2 | 2.7 | 3.4 |
| ROARING CREEK | 0.5 | 0.95 | 1.3 | 1.7 | 3.275 | 6.25 | 21.7 |
| ROBINSON CREEK | 0.2 | 1.075 | 1.5 | 2.6 | 6.225 | 10.25 | 14 |
| ROCKY CREEK | 0.3 | 0.87 | 1.1 | 1.6 | 2.8 | 4.83 | 9.6 |

**TOTAL CALCIUM ANALYSIS**




**Quantiles**

| Level | Minimum | 10% | 25% | Median | 75% | 90% | Maximum |
|---|---|---|---|---|---|---|---|
| CAMP BRANCH | 0 | 6.8 | 9.8 | 13.3 | 17.3 | 22 | 52.3 |
| DEEP CREEK | 0.6 | 1.74 | 2.1 | 3 | 6.575 | 16.55 | 25 |
| FALLING CREEK | 1 | 1.963 | 4.2 | 6.2 | 13.475 | 17.53 | 23.6 |
| ROARING CREEK | 1.1 | 2.13 | 2.9 | 3.5 | 8.225 | 16.21 | 44.4 |
| ROBINSON CREEK | 0.8 | 2.4 | 3.25 | 5.6 | 11.5 | 19.8 | 31.5 |
| ROCKY CREEK | 0.8 | 1.5 | 1.8 | 2.55 | 4 | 7.53 | 14.7 |

*Statewide median values are from “Typical Water Quality Values For Florida’s Lakes, Streams, and Estuaries”; Florida Department of Environmental Regulation, 1989. Statewide values used for comparison are for streams. WBID values are computed from available data from January 1, 1995 – June 30, 2002 – the TMDL verification period for Florida group 1 waters.




WATERSHED ASSESSMENT SECTION

# *Appendix Q: The Delist List (Including Changes Made Since October 2002)*

| WBID | Water Segment Name | 1998 303(d) Parameters of Concern | Parameters Evaluated Using the IWR | EPA's Integrated Report Category* | COMMENTS (with # of Exceedences/# of Samples) |
|---|---|---|---|---|---|
| 3402 | ECONFINA RIVER | DISSOLVED OXYGEN | DISSOLVED OXYGEN | 2 | Econfina River is a reference site for the Bioassessment Program and was the control site for the Fenholloway SSAC. Low D.O. is a natural condition, as there are no anthropogenic sources of pollutants. |
| 3402 | ECONFINA RIVER | TOTAL COLIFORMS | TOTAL COLIFORMS | 2 | Meets standards. (4/44) |
| 3402 | ECONFINA RIVER | FECAL COLIFORMS | FECAL COLIFORMS | 2 | Meets standards. (2/45) |
| 3473A | FENHOLLOWAY AT MOUTH | FECAL COLIFORMS | FECAL COLIFORMS | 2 | Meets standards. (4/31) |
| 3473A | FENHOLLOWAY AT MOUTH | UN-IONIZED NH3 | UN-IONIZED NH3 | 2 | Criterion only applies to freshwater. |
| 3473A | FENHOLLOWAY AT MOUTH | DIOXIN (FISH TISSUE) | DIOXIN (FISH TISSUE) | 2 | Recent fish tissue data indicate that fish now below advisory thresholds. |
| 3473B | FENHOLLOWAY BELOW PULP MILL | TSS | TSS | 2 | No criterion for TSS. N=96, med=11 mg/L. Turbidity meets standards. |
| 3473C | FENHOLLOWAY ABOVE PULP MILL | NUTRIENTS | NUTRIENTS | 2 | Meets standards. Chl Range: 0.12-5.3 ug/L, med=0.65 ug/L |
| 3506 | NEW RIVER | FECAL COLIFORMS | FECAL COLIFORMS | 2 | Meets standards. (7/85) |
| 3506 | NEW RIVER | TOTAL COLIFORMS | TOTAL COLIFORMS | 2 | Meets standards. (9/76) |
| 3506 | NEW RIVER | NUTRIENTS | NUTRIENTS | 2 | Meets standards. Chl Range: 0.06-7.4 ug/L, med=0.65 ug/L |
| 3516 | ALLIGATOR LAKE | TOTAL COLIFORMS | TOTAL COLIFORMS | 2 | Meets standards. (2/24) |
| 3516 | ALLIGATOR LAKE | FECAL COLIFORMS | FECAL COLIFORMS | 2 | Meets standards. (2/28) |
| 3605A | SANTA FE RIVER | DISSOLVED OXYGEN | DISSOLVED OXYGEN | 2 | Meets standards. (6/83) |
| 3341 | SUWANNEE RIVER (UPPER) | NUTRIENTS | NUTRIENTS (HISTORICAL CHLOROPHYLL) | 2 | Meets standards. Other segments of the Suwannee are being delisted based in the Reasonable Assurance documentation provided by the Suwannee Partnership. Chl Range: 0.12-17 ug/L, med=0.54 ug/L |
| 3375 | SWIFT CREEK | TSS | TSS | 2 | No Criterion for TSS. N=218, med=7 mg/L. Turbidity meets standards. |
| 3392 | ROARING CREEK | TURBIDITY | TURBIDITY | 2 | Meets standards. (2/39) |
| 3392 | ROARING CREEK | TSS | TSS | 2 | No Criterion for TSS. N=190, med=8 mg/L. Turbidity meets standards. |
| 3401 | CAMP BRANCH | NUTRIENTS | NUTRIENTS | 2 | Meets standards. Chl Range: 0.10-16 ug/L, med=0.75 ug/L. |
| 3422 | SUWANNEE RIVER (LOWER) | NUTRIENTS | NUTRIENTS | 4C | Documentation provided by Suwannee Partnership provides Reasonable Assurance that nutrient impairment will be addressed. |
| 3422 | SUWANNEE RIVER (LOWER) | DISSOLVED OXYGEN | DISSOLVED OXYGEN | 4C | Documentation provided by Suwannee Partnership provides Reasonable Assurance that nutrient impairment will be addressed, which will also address DO impairment. |
| 3477 | FALLING CREEK | FECAL COLIFORMS | FECAL COLIFORMS | 2 | Meets standards. (2/62) |
| 3477 | FALLING CREEK | TOTAL COLIFORMS | TOTAL COLIFORMS | 2 | Meets standards. (5/39) |

| WBID | Water Segment Name | 1998 303(d) Parameters of Concern | Parameters Evaluated Using the IWR | EPA's Integrated Report Category* | COMMENTS (with # of Exceedences/# of Samples) |
|---|---|---|---|---|---|
| 3388 | DEEP CREEK | NUTRIENTS | NUTRIENTS | 2 | Meets standards. Chl Range: 0.10-39.0 ug/L, med=1.00 ug/L |
| 3315 | WITHLACOOCHEE RIVER | DISSOLVED OXYGEN | DISSOLVED OXYGEN | 2 | Meets standards when SSAC taken into consideration. |
| 3315 | WITHLACOOCHEE RIVER | TURBIDITY | TURBIDITY | 2 | Meets standards. (0/198) |
| 3341 | SUWANNEE RIVER (UPPER) | DISSOLVED OXYGEN | DISSOLVED OXYGEN | 3C | This WBID was incorrectly listed for DO on the verified list adopted on August 28, 2002. While DO levels are below the water quality criteria, there is insufficient information to determine whether the low DO values are due to a pollutant or are due to natural conditions. The WBID will be added to the planning list for potential DO impairment. |
| 3375 | SWIFT CREEK | DISSOLVED OXYGEN | DISSOLVED OXYGEN | 3C | This WBID was incorrectly listed for DO on the verified list adopted on August 28, 2002. While DO levels are below the water quality criteria, there is insufficient information to determine whether the low DO values are due to a pollutant or are due to natural conditions. The WBID will be added to the planning list for potential DO impairment. |
| 3477 | FALLING CREEK | DISSOLVED OXYGEN | DISSOLVED OXYGEN | 4B | The Department has subsequently determined that the low DO values are a natural condition. Documentation is available in the files and will be provided to EPA. |
| 3422B | SUWANNEE RIVER (LOWER) | DISSOLVED OXYGEN | DISSOLVED OXYGEN | 4C | This WBID was previously included on the list of waters to be delisted from the 1998 303(d) list, but was incorrectly listed as WBID 3422. Documentation provided by the Suwannee Partnership provides Reasonable Assurance that nutrient impairment will be addressed, which will also address DO impairment. |
| 3422B | SUWANNEE RIVER (LOWER) | NUTRIENTS | NUTRIENTS | 4C | This WBID was previously included on the list of waters to be delisted from the 1998 303(d) list, but was incorrectly listed as WBID 3422. Documentation provided by the Suwannee Partnership provides Reasonable Assurance that nutrient impairment will be addressed. |
| 3388 | DEEP CREEK | DISSOLVED OXYGEN | DISSOLVED OXYGEN | 4B | The Department has subsequently determined that the low DO values are a natural condition. Documentation is available in the files and will be provided to EPA. |
| 3392 | ROARING CREEK | DISSOLVED OXYGEN | DISSOLVED OXYGEN | 4B | The Department has subsequently determined that the low DO values are a natural condition. Documentation is available in the files and will be provided to EPA. |
| 3401 | CAMP BRANCH | DISSOLVED OXYGEN | DISSOLVED OXYGEN | 4B | The Department has subsequently determined that the low DO values are a natural condition. Documentation is available in the files and will be provided to EPA. |

***EPA's Integrated Report Category:**

1 - Attains all designated uses
2 - Attains some designated uses
3a - No data and information available to determine if any designated use is attained
3b - Some data and information available but they are insufficient for determining if any designated use is attained
3c - Meets planning list criteria and is potentially impaired for one or more designated uses
4a - Impaired for one or more designated uses and the TMDL is complete
4b - Impaired for one or more designated uses but no TMDL will be developed because theimpairment is not caused by a pollutant
4c - Impaired for one or more designated uses, but no TMDL is required because a proposed pollution control measure provides reasonable assurance that the water will attain standards in the future
5 - Water quality standards are not attained and a TMDL is required.






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**Division of Water Resource Management**
**Bureau of Watershed Management**
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