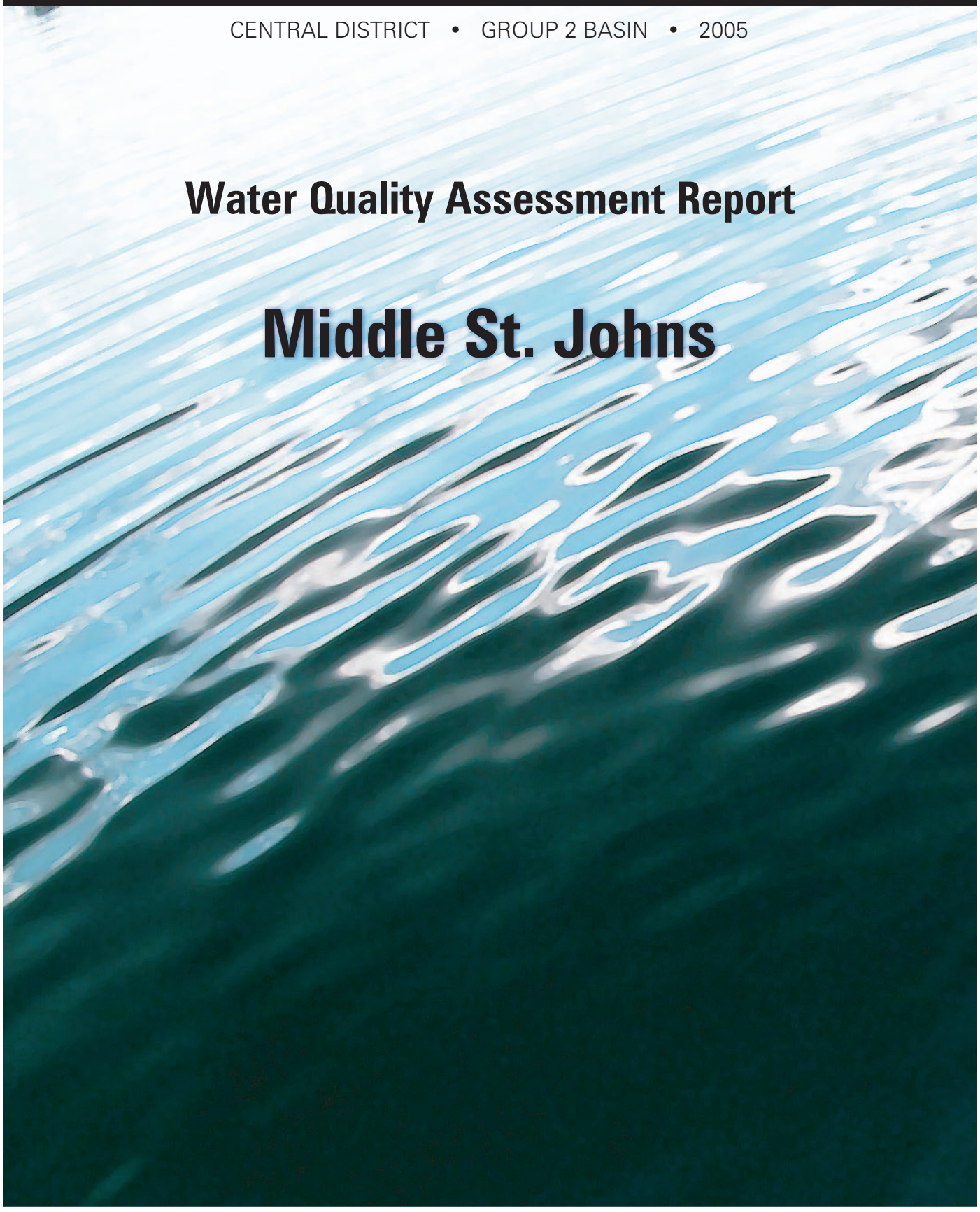
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Water Resource Management | Bureau of Watershed Management

CENTRAL DISTRICT • GROUP 2 BASIN • 2005

Water Quality Assessment Report

Middle St. Johns





FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Water Resource Management

2005

Water Quality Assessment Report

Middle St. Johns





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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

2002 305(b) Report
http://www.dep.state.fl.us/water/docs/2002_305b.pdf

Criteria for Surface Water Quality Classifications
http://www/dep.state.fl.us/water/wqssp/classes.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, National STORET Program
http://www.epa.gov/STORET/

Preface

Content Features

- **Executive Summary:** Appears at the beginning of every report and provides an overview of the watershed management, its implementation, and how this approach will be used to identify impaired waters.
- **Sidebar:** Appears throughout the report and provides additional information pertinent to the text on that page.
- **Noteworthy:** Appears on pages near text that needs additional information but is too lengthy to fit in a sidebar.
- **Definitions:** Appear 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 in the text.
- **Appendices:** Appear at the end of the report and provide additional information on a range of subjects such as bioassessment methodology, rainfall and stream flow, types of natural communities, STORET stations, water quality statistics, land use, and permitted facilities.



Executive Summary

Middle St. Johns

The Water Quality Assessment Report for the Middle St. Johns 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 uses. A waterbody that does not meet its designated 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 Middle St. Johns 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 4.3** in Chapter 4) that has been adopted by Secretarial Order and reviewed 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 2 basin-specific 303(d) list of impaired waters, so called because it is required under Section 303(d) of the Clean Water Act. See **Noteworthy** in Chapter 1 for a description of the contents of this report, by chapter.

In the Middle St. Johns 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 St. Johns River Water Management District (SJRWMD); Middle St. Johns River Surface Water Improvement and Management (SWIM) Plan; Seminole, Volusia, Orange, and Lake Counties; and Florida Fish and Wildlife Conservation Commission (FWC).

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 SJRWMD and Orange, Seminole, and Lake Counties.



During the next few years, considerable data analysis will be done to establish TMDLs for impaired waters in the Middle St. Johns Basin, establish the initial allocations of pollutant load reductions needed to meet those TMDLs, and produce a Basin Management Action Plan (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.

Summary of Findings

The Middle St. Johns Basin is delineated into 428 waterbodies or segments. Of the total, 104 segments met at least 1 of their designated uses, but another 208 segments either had no data or insufficient data to make a determination of impairment. Overall, the Department's assessment shows that 58 waterbodies or waterbody segments in the Middle St. Johns Basin are impaired and require the development of TMDLs. Another 58 segments are potentially impaired, but a causative pollutant was not identified or there was insufficient data to meet the verification threshold. Five waterbodies meet the impairment threshold for dissolved oxygen (DO), but not because of a specific pollutant (Category 4b). The following summarizes, by planning unit, impairments by waterbody types and the primary pollutants. Planning units are smaller areas in the basin that provide a more detailed geographic basis for identifying and assessing water quality improvement activities.

Alexander Springs Creek Planning Unit

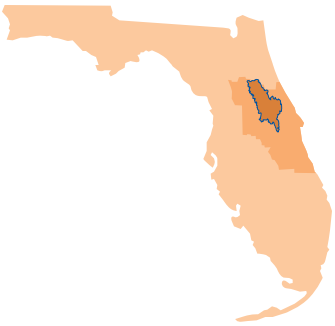
Of the 16 waterbody segments in the Alexander Springs Creek planning unit, 5 segments have sufficient data for assessment. Of the assessed segments, none are verified impaired for at least 1 parameter assessed, 1 remains on the Planning List, and 4 meet standards.

Waterbodies listed on the Planning List have potential impairments, but need further evaluation. A waterbody listed on the Verified List as impaired for a specific parameter may also be listed on the Planning List for a different parameter(s). The waterbody listed on the Planning List is

Buck Lake	Fecal and total coliforms

Deep Creek Planning Unit

Out of the 25 waterbody segments in the Deep Creek planning unit, 8 segments have sufficient data for assessment. Of these, 4 are verified impaired for at least 1 parameter assessed, 2 remain on the Planning List, and 2 meet standards.



The four verified impaired segments in the planning unit and the parameters of impairment are as follows:

St. Johns River above Lake Jesup	DO, nutrients
Deep Creek-Lake Ashby Canal	Cadmium, iron, lead, selenium
Lake Winnemissett	Lead
Lake Harney	DO, mercury in fish, nutrients

Waterbodies listed on the Planning List have potential impairments, but need further evaluation. A waterbody listed on the Verified List as impaired for a specific parameter may also be listed on the Planning List for a different parameter(s). They include

Deep Creek-Lake Ashby Canal	Fecal coliforms, silver, total coliforms
Lake Ashby	Copper
Lake Harney	Silver

DO values for the St. Johns River above Lake Harney and Deep Creek–Lake Ashby Canal are below criterion (Category 4b), but may be the result of natural causes or pollution.

Econlockhatchee Planning Unit

Of the 58 waterbody segments in the Econlockhatchee planning unit, 33 segments have sufficient data for assessment. Of these, 7 are verified impaired for at least 1 parameter assessed, 9 remain on the Planning List, and 14 meet standards.

The seven verified impaired segments in the planning unit and the parameters of impairment are as follows:

Econlockhatchee River	Fecal coliforms
Little Econlockhatchee River	Fecal coliforms
Crane Strand Drain	DO, biological oxygen demand (BOD), fecal coliforms, total coliforms
Crane Strand	Fecal coliforms, total coliforms
Lake Baldwin Outlet	Fecal coliforms, nutrients, total coliforms
Trib. to Little Econ River	DO, fecal coliforms, total coliforms
Long Branch	BOD, DO, fecal coliforms, iron, total coliforms

Waterbodies listed on the Planning List have potential impairments, but need further evaluation. A waterbody listed on the Verified List as impaired for a specific parameter may also be listed on the Planning List for a different parameter(s). They include

Econlockhatchee River	Mercury in fish



Econlockhatchee River	Lead, silver, mercury in fish
Lake Mills	Biology
Lake Downey	Nutrients
Lake Tanner	DO
Unnamed Branch	DO
Lake Barton	Nutrients
Lake Corrine	Nutrients
Lake Drawdy	DO
Lake Barber	Nutrients
Unnamed Drain	DO

Lake George Planning Unit

Of the 29 waterbody segments in the Lake George planning unit, 13 segments have sufficient data for assessment. Of these, 6 are verified impaired for at least 1 parameter assessed, none remain on the Planning List, and 7 meet standards.

The six verified impaired segments in the planning unit and the parameters of impairment are as follows:

St. Johns River above Ocklawaha River	Nutrients
Lake Margaret	Mercury in fish
Lake George	Nutrients, selenium
St. Johns River below Lake George	Nutrients
St. Johns River below Lake George	DO, nutrients,
Grasshopper Lake	Mercury in fish

Lake Jesup Planning Unit

Of the 100 waterbody segments in the Lake Jesup planning unit, 70 segments have sufficient data for assessment. Of these, 16 are verified impaired for at least 1 parameter assessed, 17 remain on the Planning List, and 34 meet standards. The 16 verified impaired segments in the planning unit and the parameters of impairment are as follows:

Lake Jesup	Nutrients, unionized ammonia
Chub Creek	DO, iron, nutrients
Lake Alma	Nutrients
Lake Searcy	Nutrients
Salt Creek	DO, iron, nutrients
Sweetwater Creek	DO
Island Lake	Nutrients
Fruitwood Lake	Nutrients
Howell Creek	Fecal coliform bacteria, total coliform bacteria
Howell Lake	Nutrients
Lake Minnehaha	Nutrients
Lake Winyah	Nutrients
Lake Concord	Nutrients
Lake Adair	Nutrients



Lake Spring	Nutrients
Bear Gulley Lake	Nutrients

Waterbodies listed on the Planning List have potential impairments, but need further evaluation. A waterbody listed as impaired for a specific parameter may also be listed on the Planning List for a different parameter(s). They include

Lake Jesup	Silver
Soldier Creek Reach	Fecal coliforms, lead, silver, total coliforms
Salt Creek	Biology
Sweetwater Creek	Biology
Gee Creek	Fecal coliforms, lead, total coliforms
Island Lake	DO
Lake Griffin	Nutrients
Lake Sybella	Nutrients
Lake Ivanhoe	Nutrients
Lake Virginia	Nutrients
Lake Sue	Nutrients
Lake Rowena	Nutrients
Lake Estelle	Nutrients
Lake Formosa	Nutrients
Lake Dot	Fecal coliforms
Lake Adair	Unionized ammonia
Lake Park	Nutrients
Lake Killarney	Nutrients
Lake Mizell	Nutrients
Waunatta Lake	Nutrients
Lake Burkett	Nutrients
Lake George	DO, turbidity

DO values for Howell Creek do not meet state criterion but may be the result of natural causes or pollution (Category 4b).

Lake Kerr Planning Unit

Of the 13 waterbody segments in the Lake Kerr planning unit, 5 segments have sufficient data for assessment. Of these, 1 is verified impaired for at least 1 parameter assessed, 3 remain on the Planning List, and 2 meet standards. The verified impaired segment in the planning unit and the parameters of impairment is as follows:

Wildcat Lake	Mercury in fish

Waterbodies listed on the Planning List have potential impairments, but need further evaluation. A waterbody listed as impaired for a specific parameter may also be listed on the Planning List for a different parameter(s). They include



Little Lake Kerr Outlet	Mercury in fish
Hopkins Prairie	Cadmium, copper, DO, lead
Lake Kerr	Cadmium, copper, lead, mercury in fish, selenium, silver

Lake Monroe Planning Unit

Of the 52 waterbody segments in the Lake Monroe planning unit, 20 segments have sufficient data for assessment. Of these, 8 are verified impaired for at least 1 parameter assessed, 4 are on the Planning List, and 12 meet standards.

The eight verified impaired segments in the planning unit and the parameters of impairment are as follows:

St. Johns River above Wekiva River	Nutrients
Lake Monroe	DO, Nutrients
St. Johns River above Lake Monroe	DO, Nutrients
Lake Marie	Nutrients
Smith Canal	DO, fecal coliforms, iron
DeForest Lake Outlet	DO
DeForest Lake	Nutrients
Lake Jesup near St. Johns River	Nutrients

Waterbodies that remain on the Planning List have potential impairments, but need further evaluation. A waterbody listed on the Verified List as impaired for a specific parameter may also be listed on the Planning List for a different parameter(s). They include

St. Johns River above Wekiva River	Biology, BOD
St. Johns River above Lake Monroe	Mercury in fish
Smith Canal	Biology, turbidity
Deforest Lake Outlet	Iron, lead

Lake Woodruff Planning Unit

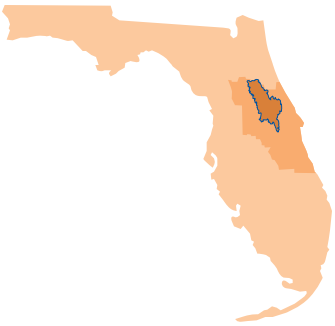
Of the 34 waterbody segments in the Lake Woodruff planning unit, 5 segments have sufficient data for assessment. Of these, 1 is verified impaired for at least 1 parameter assessed, 5 remain on the Planning List, and 1 meets standards.

The verified impaired segment in the planning unit and the parameters of impairment is as follows:

Lake Beresford	Nutrients

Waterbodies that remain on the Planning List have potential impairments, but need further evaluation. A waterbody listed on the Verified List as impaired for a specific parameter may also be listed on the Planning List for a different parameter(s). They include

St. Johns River above Lake Woodruff	Biology, selenium



Deep Creek	Biology
St. Johns River above Lake George	Biology

DO values for Lake Woodruff, Blue Springs, and the St. Johns River above Lake Woodruff were below the threshold for impairment, but may be the result of natural causes or pollution (Category 4b).

Wekiva River Planning Unit

Of the 100 waterbody segments in the Wekiva River planning unit, 57 segments have sufficient data for assessment. Of these, 15 are verified impaired for at least 1 parameter assessed, 21 are on the Planning List, and 23 meet standards.

The 15 verified impaired segments in the planning unit and the parameters of impairment are as follows:

Cowpen Pond	Mercury in fish
Little Wekiva River	Fecal coliforms, total coliforms
Spring Lake	Nutrients
Lake Florida	Nutrients
Lake Orienta	Nutrients
Lake Adelaide	Nutrients
Starke Lake	Nutrients
Lake Primavista	Nutrients
Lake Lotta	Nutrients
Prairie Lake	Nutrients
Little Wekiva Canal	DO, BOD, fecal coliforms, nutrients
Lake Lawne	Nutrients
Silver Lake	Nutrients
Bay Lake	Nutrients
Lake Lucien	Mercury in fish

Waterbodies that remain on the Planning List have potential impairments, but need further evaluation. A waterbody listed on the Verified List as impaired for a specific parameter may also be listed on the Planning List for a different parameter(s). They include

Blackwater Creek	Silver
Blackwater Swamp	DO
Lake Dorr	Mercury in fish
Wekiva River	DO
Wekiva Spring	DO, fecal coliforms
Rock Springs Run	BOD, fecal coliforms, total coliforms, biology
Little Wekiva River NW Avenue T	Biology
Lake Prevatt	DO
Lake Sherwood	DO
Lake Rose	Nutrients
Lake Olivia	Nutrients



Lake Fairview	Nutrients
Lake Lawne	Mercury in fish
Lake Daniel	Nutrients
Little Lake Fairview	Nutrients
Lake Rose	Nutrients
Lake Gandy	DO
Lake Wekiva/Orlando	Nutrients
Lake Fairview Lake	Nutrients
Asher Lake	DO
Lake Weston	Nutrients

DO values for Rock Springs Run do not meet state criteron but may be the result of natural causes or pollution (Category 4b).

Total Maximum Daily Load Priority Areas

There are three TMDL priority areas in this basin. The first priority area for TMDL development is Lake Jesup, waterbody identification numbers (WBID) 2981 and 2981A. Lake Jesup was verified impaired for nutrients and unionized ammonia. The TMDL for this lake must be adopted by September 30, 2005. Because of the complexity of the biological and physical features of the lake and the number of stakeholders with interests relevant to TMDL development, the Department has established a Lake Jesup TMDL Development Working Group. Participation on the work group includes local governments, Florida Department of Transportation, U.S. Geological Survey, SJRWMD, FWC, local government private consultants, and community interests.

Crane Strand and Crane Strand Drain (WBID 3014 and 3023) and Long Branch (3030) are the other two TMDL priority areas. Crane Strand, Crane Strand Drain, and Long Branch are located in the Econlockhatchee watershed. TMDLs for these waterbodies must be adopted by September 30, 2005.

The remaining TMDLs in this basin have been assigned a medium or low priority for development with development dates of either 2008 or 2011.

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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.

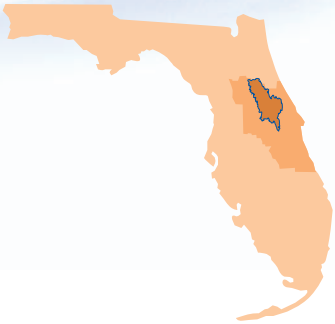
TMDLs will be developed, and the corresponding reductions in pollutant loads allocated, as part of the watershed management approach, which rotates through the state's 52 river basins over a 5-year cycle. Extensive public participation from diverse stakeholders in each of these basins is crucial in all 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 Middle St. Johns 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, in the Middle St. Johns Basin 58 waterbodies or waterbody segments 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(40), 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 U.S. Environmental Protection Agency (EPA) has reviewed 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.



Total Maximum Daily Load

The maximum amount of a given pollutant that a waterbody can assimilate and remain healthy, such that all of its designated uses are met.



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 Middle St. Johns Basin. **Tables 3.5 through 3.13** 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 Middle St. Johns Basin. Among these are St. Johns River Water Management District (SJRWMD); Seminole, Volusia, and Orange Counties; city of Orlando; Florida Fish and Wildlife Conservation Commission; and Florida Department of Transportation.

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

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

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 **STO**rage and **RET**rieval 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; 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; 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 point and nonpoint source permits

Ocklawaha, a Group 1 basin, was the first basin in the district to undergo a preliminary evaluation with a Status Report published in 2001; an Assessment Report was published in 2003. A preliminary evaluation with a Status Report published for the Group 2 basin, Middle St. Johns, was completed in 2003, and the basin is the subject of this Assessment Report. A Status Report for the Group 3 basin, Upper St. Johns, was published in 2003. Preliminary evaluations for the Group 4 and Group 5 basins, the Kissimmee River and Indian River Lagoon, were initiated in 2003 and 2004, respectively. In 2005, the cycle will resume with the Group 1 basin, Ocklawaha.

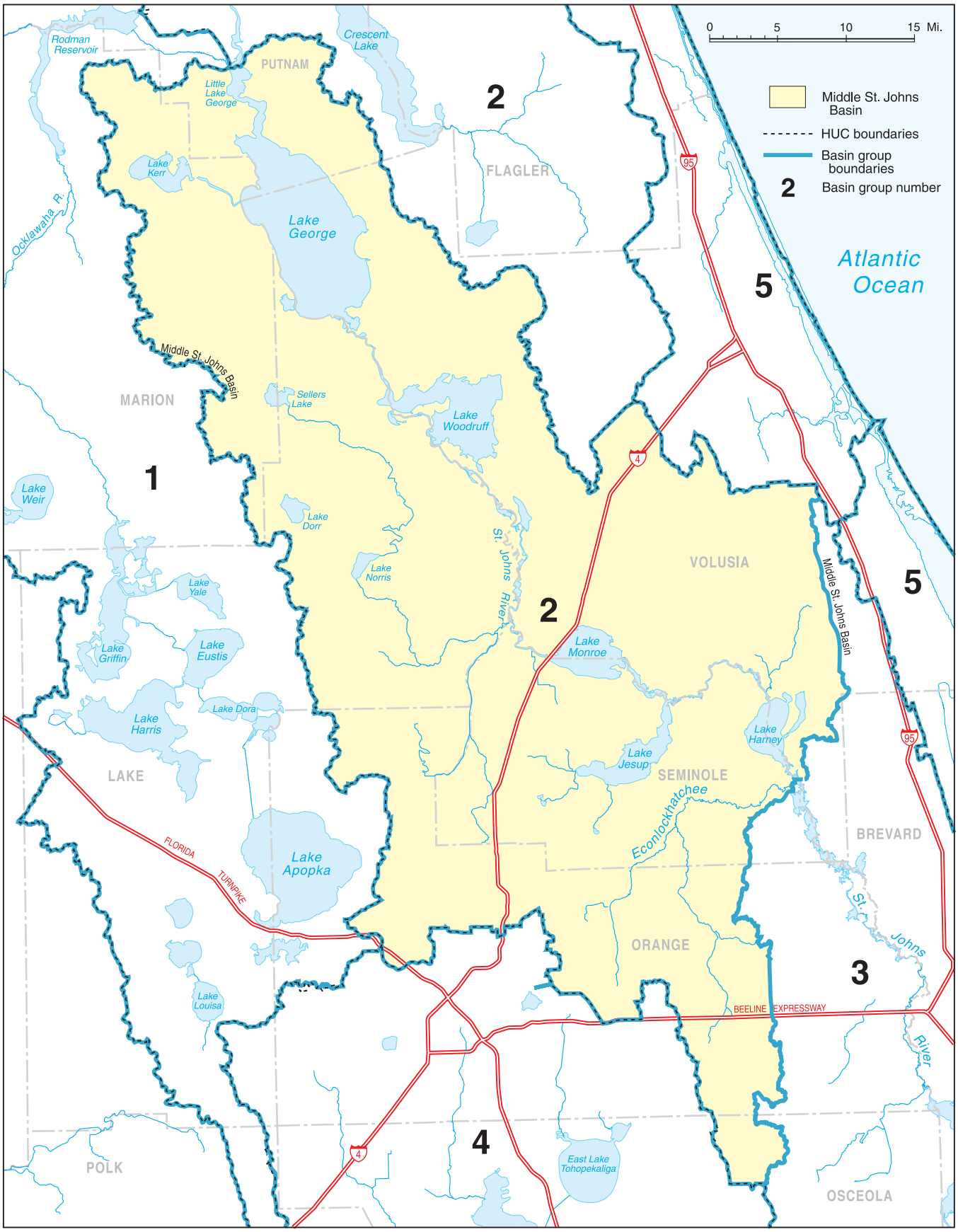


Figure 1.1: Schedule for Implementing the Watershed Management Cycle in the Department's Central District, Basin Groups 1 through 5

Noteworthy

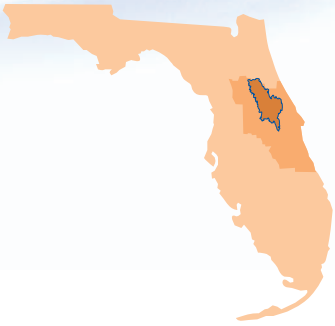
Contents of This Report

- **Chapter 1: Introduction** briefly characterizes the purpose and content of the Assessment Report, discusses stakeholder involvement, and describes how the watershed management cycle will be implemented in the Department's Central 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: TMDL Development, Allocation, Implementation, and Monitoring Priorities** 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 St. Johns River lies in a low-gradient river valley inland from and parallel to Florida's east coast. Including its tributaries, it drains about 9,168 square miles (Foose, 1981) and flows north for about 300 miles from marshes in St. Lucie County to the Atlantic Ocean in Jacksonville. The Middle St. Johns Basin portion encompasses about 2,037 square miles of central Florida, including the St. Johns River and the land that drains to it from the confluence of the Ocklawaha River near Welaka south and through Lake Harney.

Moving from south to north, the basin includes all or portions of the following counties: Seminole, Osceola, Orange, Lake, Marion, Volusia, and Putnam. Major cities are metropolitan Orlando, DeLand, Altamonte Springs, Maitland, Sanford, Casselberry, Oviedo, and Winter Park. Of these, Orlando is the largest city. **Figure 2.1** shows the major geopolitical features of the Middle St. Johns Basin.

Orlando and the Interstate 4 corridor in the southern half of the basin are largely developed land uses. In contrast, large areas of the northern basin around Lake George are forested (the Ocala National Forest) and rural. Multiple entities are involved in the management of water resources and planning efforts in the basin **(Figure 2.1)**. Water resource management is the primary responsibility of the St. Johns River Water Management District (SJRWMD) and the Florida Department of Environmental Protection's (Department) Central District. Comprehensive planning activities involve the Florida Department of Community Affairs, the East Central Florida Regional Planning Council, and the Withlacoochee Regional Planning Council for Marion County, along with local governments.

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.

Population and Land Use

Table 2.1 lists historical, current, and projected population figures for the basin's counties and major cities. Orange County is the most densely populated county in the basin. Relatively small portions of Putnam and Marion Counties are included in the basin, and those portions are largely rural or contained within the Ocala National Forest.

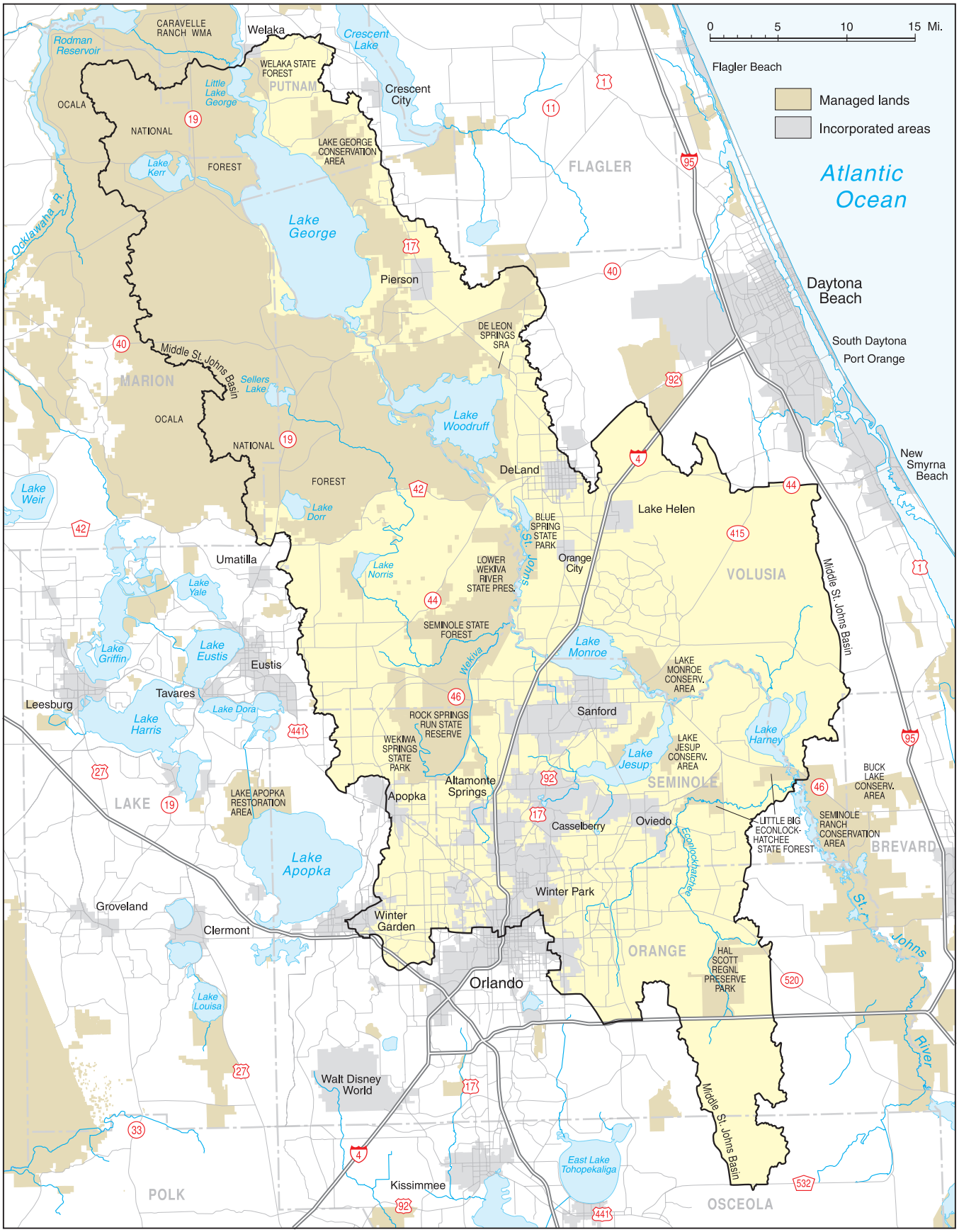


Figure 2.1: Geopolitical Map of the Middle St. Johns Basin

Table 2.1: Population Statistics for the Counties and Major Cities in the Middle St. Johns Basin

County or City	1950 Census Population[1]	1990 Census Population[2,3]	2000 Census Population[2,3]	2020 Projected Population[2,3]
Marion County	38,187	194,833	258,916	379,642
Lake County	36,340	152,104	210,528	321,900
Putnam County	23,615	65,070	70,423	80,614
Volusia County	74,229	370,712	443,343	583,837
Orange County	114,950	677,491	896,344	1,338,300
Seminole County	26,883	287,529	365,196	514,800
Casselberry		18,849	22,629	
Oviedo		11,114	26,316	
Orlando		164,674	185,951	
Maitland		8,932	12,019	
DeLand		16,622	20,904	
Altamonte Springs		35,167	41,200	
Sanford		32,387	38,291	
Winter Park		22,623	24,090	
Winter Springs		22,151	31,666	

[1]Forstall, R., March 27, 1995.
[2]Smith and Nogle, October 2001.
[3]East Central Florida Regional Planning Council, 2002.

Table 2.2 shows breakouts for basinwide land uses. Prominent types of land use in the basin are upland forests, wetlands, urban and built-up, and water. **Silviculture** is also an important land use. Pine plantation and forest regeneration land uses occupy about 15.3 percent of the basin. Most upland forest is located in the northern part of the basin, approximately from Lake Woodruff north and including the eastern corner of the basin east of Lakes Jesup and Monroe. A large part of this forest type is in the Ocala National Forest. Large wetland systems can be found around Lakes Woodruff, Jesup, and Monroe, and the stretches of the St. Johns River between lakes.

Silviculture
The care and cultivation of forest trees.

Table 2.2: Basinwide Land Use Breakouts

Category	Square Miles of Basin	Percentage of Basin Area
Urban and Built-up	388.1	19.05
Agriculture	180.2	8.84
Rangeland	93.8	4.61
Upland Forest (includes Pine Plantation)	655.86	32.19
Water	200.69	9.85
Wetlands	489.1	24.01
Transportation, Communication, Barren Land, Other	29.5	1.44



The intensity and type of anthropogenic land uses vary by area of the basin. Urban land use is concentrated around Orlando and along the northeastern Interstate 4 corridor. Primary agricultural activities are improved pasture and field crops, with some citrus. Ferneries are an important horticultural activity in the basin. Leatherleaf fern is the most common commercial fern grown for use in the floral industry. Reports from the early 1990s indicated that there were 4,282 acres of commercially grown leatherleaf fern in Volusia County, 832 acres in Putnam County, and 438 acres in Lake County (Singleton, 1996). About half the acreage for Lake and Putnam Counties is in other river basins.

Future growth is expected in and around DeLand, and continued development pressure from the growth of Orlando may affect lands along the Wekiva and Econlockhatchee Rivers and around Lake Jesup (SJRWMD, 2000a). An increase in commercial and industrial development is anticipated along the Interstate 4 corridor (SJRWMD, 2000a).

Publicly owned lands in the basin include state parks, preserves/reserves, wildlife management areas, and state and national forests **(Figure 2.2)**. The larger and better known public lands include the Ocala National Forest, Wekiwa Springs State Park, Rock Springs Run State Reserve, Seminole State Forest, Blue Spring State Park, and Lake George State Forest and Conservation Area.

Ecological Resources

Natural Communities

The Florida Fish and Wildlife Conservation Commission (FWC) used land cover maps to identify major natural communities in the basin. The maps identified 22 different land cover classifications: 17 classes of natural vegetation, 1 aquatic class, and 4 classes of disturbed land. The mapping is not intended to accurately portray current land use. Rather, it provides a relative picture of the type and spatial importance of natural communities in the Middle St. Johns Basin, and overall appears to have an accuracy of 80 to 90 percent (Cox et al., 1994).

Table 2.3 lists the estimated acreage and percentage of basin area occupied by each natural community type. **Table B.1** in **Appendix B** contains more complete descriptions of each type. **Table B.2** contains a summary for each planning unit. Disturbed community types occupy the greatest acreage, covering about 414,842 acres, or almost 32 percent, of the basin. Of these, shrub and brushland (about 181,869 acres) occupy the greatest acreage of disturbed land. This category includes lands that are disturbed as part of the harvesting of commercial pine plantations. Pinelands occupy 13 percent of the basin. Commercial pine plantations (silviculture) are included in pinelands acreage.

A number of different natural communities occupy the remaining acres of the basin. Predominant upland types are sand pine scrub, dry prairie, and hardwood hammock. Three **xeric** community types—sand pine scrub, sandhill, and xeric oak scrub—combined occupy a little more than 14 percent of the basin. All 3 of these communities occur on sandy soils and are generally associated with areas of high to moderate aquifer

Land Cover and Land Use Mapping

The land cover used to identify natural communities was mapped by the FWC from LandSat imagery taken from 1985 to 1989. In contrast, the land use data in this report were mapped by the SJRWMD from color infrared photography taken between late 1993 and 1995. The total acreage and percentage of different land covers obtained from LandSat imagery differs from the values obtained for land use interpreted from aerial photography for a number of reasons. Besides the difference in dates of mapping, different land cover classification schemes were used, and the LandSat imagery had less resolution than the aerial photography.

Xeric

Adapted to extremely dry conditions.

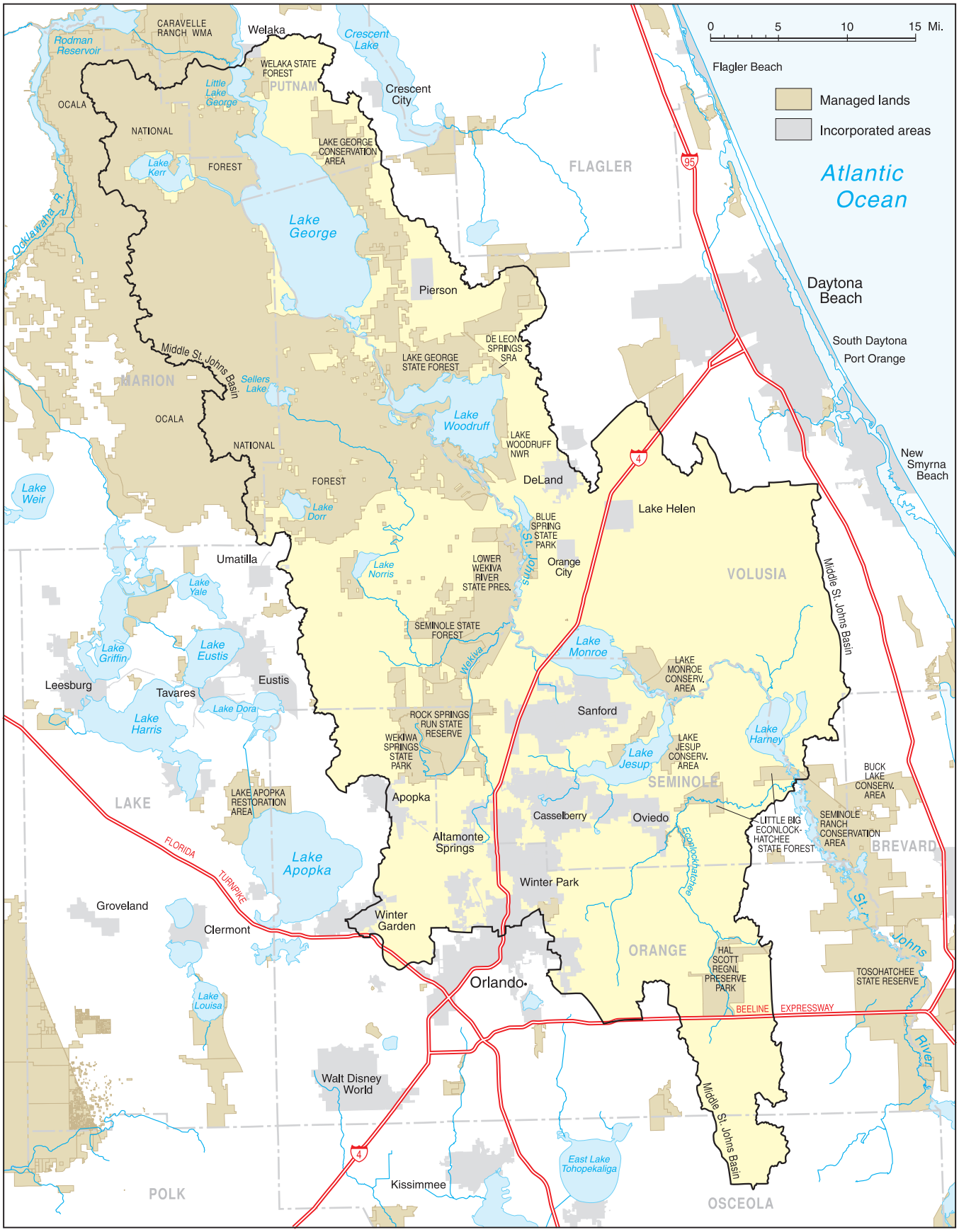


Figure 2.2: Managed Lands in the Middle St. Johns Basin



Table 2.3: Acreage and Percentage of Basin Area of Natural Communities

Community Type	Acres	Percentage of Basin Area
Upland Community Types		
Dry Prairie	54,089	4.15
Pinelands	170,035	13.08
Sand Pine Scrub	103,371	7.94
Sandhill	40,360	3.10
Xeric Oak Scrub	41,526	3.19
Mixed Pine Hardwood Forest	23,944	1.84
Hardwood Hammock and Forest	81,815	6.28
Wetland and Aquatic Community Types		
Freshwater Marsh and Wet Prairie	42,942	3.3
Cypress Swamp	51,169	3.93
Mixed Hardwood Swamp	121,399	9.32
Bay Swamp	17,028	1.31
Shrub Swamp	21,620	1.66
Disturbed Land		
Grassland/Agricultural Land	114,963	8.83
Shrub and Brushland	181,869	13.96
Barren Land	118,010	9.06

recharge. They are most prominent in the Alexander Springs and Lake Kerr planning units and are largely part of the Ocala National Forest.

Scrub habitat is found on sand dunes or sandbars that were once part of ancient shorelines. Scrub communities are largely endemic, or unique, to Florida and, along with sandhill communities, provide habitat for some of the basin's rarest species. Sandhill and scrub uplands along the east edge of Lake George comprise a Strategic Habitat Conservation Area for the Florida black bear *(Ursus americanus floridanus)* and bald eagle *(Haliaeetus leucocephalus)* (Cox et al., 1994). Farther south around Deltona and extending northeast and east to Blue Spring State Park, patches of sand pine scrub, sandhill, and xeric oak scrub provide important habitat for the Florida scrub jay *(Aphelocoma coerulescens)* (Cox et al., 1994).

Freshwater wetland communities occupy 19.5 percent of the basin. Major community types include mixed hardwood swamp, freshwater marsh, and cypress swamp. The greatest concentration of wetlands is in the Lake Woodruff planning unit. Hardwood swamps constitute a prominent wetland type in the Lake Woodruff and Wekiva River planning units, while cypress swamps are a common wetland type in the Deep Creek and Econlockhatchee planning units. Portions of the forested wetlands along the St. Johns River and Wekiva River comprise a Strategic Habitat Conservation Area for the Florida black bear, bald eagle, and American swallow-tailed kite *(Elanoides forficatus)*.

Plant and Animal Species

The Middle St. Johns Basin supports a large and diverse number of plant and animal species. Wetlands around the large lakes provide habitat for nesting by wading birds and eagles. The density of active eagle nests around Lake George is one of the highest in the state. Lake George is 1 of 13 critical areas statewide needed to preserve the state's bald eagle population. The Ocala National Forest provides important habitat and conservation lands needed by the Florida black bear. The federally listed **anadromous** shortnose sturgeon *(Acipenser brevirostrum)*, if still present, is now limited to the St. Johns River, but historically may have used the Ocklawaha River for spawning before the construction of the Kirkpatrick Dam. The collection of this fish has been rare in recent years (Hoehn, 1998). Parts of the Middle St. Johns River are salty enough to support a blue crab fishery.

The basin contains 22 animal species and 33 plant species with either federal or state protected status. Of these, 7 animal and 8 plant species are federally protected. The U.S. Fish and Wildlife Service has identified 10 other plant species of management concern. **Tables B.3 through B.11** in **Appendix B** contain species lists. Information for these tables was obtained from the Florida Natural Areas Inventory (FNAI) database dated October 2001.

A large number of endemic aquatic invertebrate species are associated with springs in the basin. There are four siltsnail species associated with springs in the Wekiva River planning unit (Hupalo et al., 1994). The Silver Glen Springs crayfish *(Procambarus attiguus)* is found only in Silver Glen Springs and the Blue Spring siltsnail *(Cincinnatia parva)* only in Blue Spring (Deyrup and Franz, 1994).

Several freshwater and one anadromous fish species found in the basin are rare or imperiled (Hoehn, 1998). These are fish species that are vulnerable because of restricted range or habitat preference or whose populations are declining and in need of management actions. The bluenose shiner *(Pteronotropis welaka)*, shortnose sturgeon, and blueback herring *(Alosa aestivalis)* have been recorded from the St. Johns River or its large lakes. The blackbanded sunfish *(Enneacanthus chaetodon)* has been collected from the Wekiva River. FWC also classifies the bluenose shiner and shortnose sturgeon as species of special concern and endangered, respectively. The St. Johns population of bluenose shiners is disjunct from Panhandle populations (Gilbert, 1992).

The basin contains many unique and rare botanical specimens as well. The federally endangered beautiful pawpaw *(Derringothamnus pulchellus)*, scrub lupine *(Lupinus westianus var. aridorum)*, and federally threatened scrub buckwheat *(Eriogonum longifolium var. gnaphalifolium)* have been recorded. The state endangered Chapman's sedge *(Carex chapmanii)* and state threatened giant orchid *(Pteroglossaspis ecristata)* are also found in many parts of the basin.



Anadromous

Fish that return from the sea to upstream spawning areas.

Florida Natural Areas Inventory Rankings

In addition to the rankings established by state and federal governments, the Florida Natural Areas Inventory (FNAI) determines the global and state rank of a species based on its status. Status is based on factors such as estimated abundance, range, adequacy of protection, ecological fragility (vulnerability), and threat of extinction. Several animal species in the basin are not protected species but have FNAI rankings indicating that they are imperiled or rare in Florida or very local in range (rankings of S2 and S3). These include the Florida scrub lizard (Sceloporus woodi)*, Sherman's fox squirrel* (Sciurus niger shermani)*, snail bullhead* (Ameiurus brunneus)*, and striped newt* (Notophthalmus perstriatus)*.*



Benthic
Occurring at the bottom of a body of water.

Ecoregions

In general, ecoregions are delineated by patterns of homogeneity in a combination of factors such as climate, physiography, geology, soils, and vegetation. They were refined in Florida for application to aquatic ecosystems for use as an assessment and management tool. The Middle St. Johns Basin lies in the Southern Coastal Plain Ecoregion, also referred to as Ecoregion 75 (Griffith et al., August 11, 1994). Ecoregions are further delineated into smaller subecoregions, with specific delineation schemes for both lakes and streams. Stream and lake subecoregions are not intended to characterize the water quality of a specific lake, but rather define the expected biological potential of **benthic** macroinvertebrate communities for a given set of environmental characteristics.

Stream Subecoregions

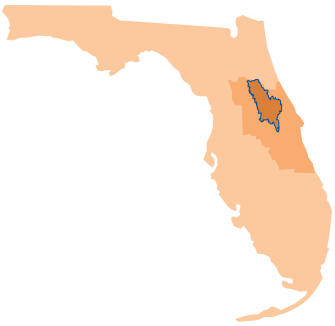
Streams in the Middle St. Johns Basin occupy 2 of the 13 subecoregions delineated for Florida based on physical, chemical, and biological characteristics (Griffith et al., 1994). The basin lies within the Eastern Florida Flatwoods Subregion and the Central Florida Ridges and Uplands. The Eastern Florida Flatwoods are flat plains with 10 to 50 percent coverage by standing water. The expected natural vegetation is pine flatwoods and grassland and freshwater marsh and swamp associations. The Central Florida Ridges and Uplands are generally characterized by typically flat plains with sandy highlands and ridges and are commonly vegetated by longleaf pine and xerophytic oaks. Acidic and well-drained soil types underlie this subregion.

Lake Regions

Florida's lakes are divided into 47 lake regions according to differences in land cover, physiography or land surface form, soils, geology, natural aquatic vegetation, and water quality. A lake region exhibits homogeneity as a grouping of lakes based on location and common chemical, biological, and landscape characteristics (Griffith et al., 1997). The Middle St. Johns Basin contains portions of 8 of the 47 lake regions (Griffith et al., 1997): Ocala Scrub, Eastern Flatlands, Crescent City/DeLand Ridges, Mt. Dora Ridge, Apopka Upland, Doctor Phillips Ridge, Orlando Ridge, and Osceola Slope. **Table B.13** in **Appendix B** provides descriptions of lake ecoregions in the basin.

The composition of benthic macroinvertebrate species in lakes is most strongly affected by water color and somewhat less by pH and geographic ecoregion (Gerritsen et al., 2000). Using this information, five distinct lake types were identified statewide that help to distinguish further the expected biological condition of a lake. Four of these types are found in the Middle St. Johns Basin: acid/colored, alkaline/colored, alkaline/clear, and acid/clear in Ecoregion 75. Acid/colored lakes are generally low in nutrients and biological productivity. By comparison, alkaline/colored lakes have higher nutrient levels and biological productivity. The lakes with the highest levels of nutrients and biological productivity are alkaline/clear. Lakes with the lowest levels of nutrients and lowest biological

productivity are acid/clear lakes on sandy soils in Ecoregion 75. Many of these are found on ridges and uplands.



Surface Water Resources

The Middle St. Johns Basin contains numerous surface waterbodies. Surface waters, including lakes, streams, wetlands, and springs, occupy almost 690 square miles, or about 34 percent of the total basin area. 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.

Figure 2.3 shows the locations of the largest waterbodies. A more detailed discussion in Chapter 3 provides information on each planning unit.

Basin Climate and Hydraulics

Climate in the basin is characterized as warm temperate to subtropical. The basinwide average annual temperature is 70.2º F, and annual rainfall averages 56.51 inches based on climate records from 1971 to 2000 for DeLand. Rainfall patterns vary spatially and temporally. About half the annual average amount of rain falls from June through September (the wet season). Maritime tropical masses dominate the weather during the wet season and continental frontal systems during the rest of the year. Prevailing winds are northeasterlies in the fall and winter and southeasterlies in the spring and summer.

On average, 14 inches of the average 56.51 inches of rainfall each year appear as runoff in streams and lakes (Rumenik, 1988). Runoff includes water from rainfall that falls directly onto surface waters, flows off land, or infiltrates into ground water and later emerges in surface waters. Surface runoff peaks in late summer and autumn.

Streams

Streams occupy 13.3 square miles, or about 0.65 percent, of the basin. The dominant stream feature is the St. Johns River. A variety of stream types, ranging from blackwater to spring-fed runs, are found in the basin.

St. Johns River Main Stem

The Middle St. Johns River comprises a series of elongated lakes connected by river segments. It is classified among Florida rivers as a large river (Nordlie, 1990).

Water moves from south to north downstream through Lake Harney, Lake Monroe, Lake Woodruff, and Lake George, to the confluence of the St. Johns with the Ocklawaha River. Lakes Harney, Monroe, and George are wide spots in the St. Johns River that, because of their width, have the hydraulic characteristics of lakes. As the river moves downstream from Lake Harney, its channel becomes more defined with elevated banks (DeMort, 1991).

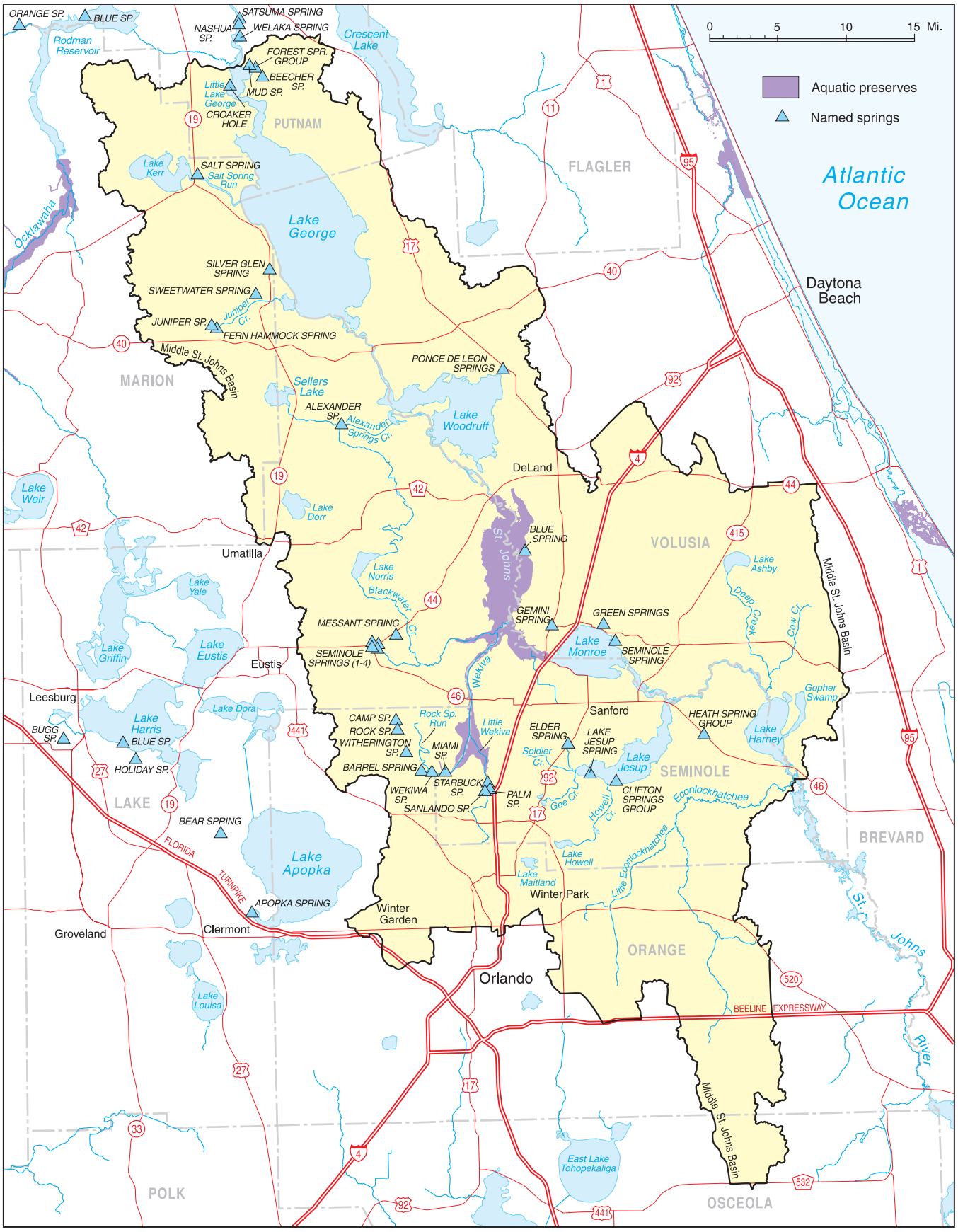
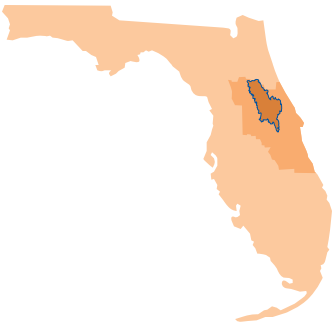


Figure 2.3: Surface Water Resources of the Middle St. Johns Basin



The St. Johns River throughout its length has a low gradient, averaging about 0.1 foot per mile (Campbell et al., 1993). Because of the low stream gradient, tidal reversal may occur as far upstream as Lake Monroe (DeMort, 1991), although this lake is well over 100 miles from the Atlantic Ocean. It is more typical for daily tidal reversals to occur as far up from the river mouth as Lake George (DeMort, 1991).

The river receives ground water flow from several springs or spring-fed rivers. The most notable spring-fed river is the Wekiva River, which starts as a discharge from Wekiwa Springs and enters the St. Johns just north of Lake Monroe. Between Lake Monroe and Lake George, the St. Johns River receives flow from Blue, DeLeon, and Alexander Springs. Alexander Springs enters the St. Johns River at Lake Woodruff. Juniper, Silver Glen, and Salt Springs discharge to creeks along the western shore of Lake George. Croaker Hole Spring discharges through the riverbed into Little Lake George. Lake Monroe also receives flow from its tributaries, Bethel Creek and DeBary Drain.

Between Lake Harney and Lake Monroe, the river is somewhat saline because of shallow marine salt deposits (DeMort, 1991). The discharge from many of the springs also contains a fairly high concentration of salts, producing a measurable salinity. The source of this salt is trapped relict seawater or deeper brackish water released by upwelling through fractures or faults in the aquifer (Toth, 1999). Salt is trapped in the aquifer most probably from incomplete flushing of saline water that entered the Florida aquifer during the last rise of sea level that covered Florida (Knochenmus and Hughes, 1976). Springs with high salt concentrations are Croaker Hole in the riverbed within Lake George; Salt, Silver Glen, Sweetwater, and Alexander Springs near Lake George; Gemini and Blue Springs north of Lake Monroe; and Ponce de Leon Spring near Lake Woodruff (Toth, 1999). Salinity in these areas is high enough to support blue crabs.

Tributary Watersheds

There are nine major tributary watersheds, including three drainage basins for the large lakes that are part of and include the main stem of the St. Johns River. These are the planning units for this basin. Tributary watersheds that are not part of the river's main stem are, from south to north, the Econlockhatchee River, Lake Jesup, Deep Creek, Wekiva River, Lake Kerr, and Alexander Springs. Descriptions of the tributary watersheds were taken from the Middle St. Johns River Surface Water Improvement and Management (SWIM) Plan (SJRWMD, 2002) unless otherwise noted.

The Alexander Springs watershed drains almost 100 square miles of largely undeveloped land. Other than isolated lakes, Alexander Springs Creek is the major stream in this watershed. It receives its discharge from Alexander Springs and several small tributaries that, along with the spring, form the headwaters. Alexander Springs Creek enters wetlands along the St. Johns River at Lake Woodruff.

The Deep Creek watershed, which includes Lake Harney, is an aggregate of several smaller tributary watersheds that drain to the St. Johns River. The watershed drains 274 square miles.

Karst
A type of topography that is characterized by caves, sinkholes, springs, and other types of openings caused by dissolution of limestone.

The Econlockhatchee River watershed drains 280 square miles of the western edge of the watershed between Orlando and Bithlo and is 35.8 miles long. The second largest tributary of the St. Johns River, it enters the St. Johns River south of Lake Harney. The headwaters for this river include a large swamp drainage known as the Econlockhatchee Swamp and a **karst** area with internal drainage. The channel in the lower portion of this tributary is cut into the shallow water aquifer, which provides baseflow at all times. The major tributary is the Little Econlockhatchee River, which drains 71 square miles and is 14.8 miles long.

The Lake Jesup watershed drains 145 square miles. It has only 1 discharge point from Lake Jesup to the St. Johns River, consisting of a narrow outlet channel by the State Road (S.R.) 46 bridge upstream of Lake Monroe. Historically, the lake connected to the St. Johns by both river channel and floodplain marshes. Eleven streams flow into Lake Jesup, of which 4 are major tributary streams: Gee Creek, Howell Creek, Soldier Creek, and Sixmile Creek. The largest by drainage area is Howell Creek, which originates in Lake Maitland in Orlando and drains 52 square miles. Lake Maitland receives the discharge from numerous lakes, which are connected by channels or underground pipes. A fixed elevation control structure controls Lake Maitland's water level. Howell Creek then continues northeasterly through Lake Howell. Most of the Howell Creek watershed is highly urbanized, with extensive loss of wetlands and floods during major storm events (Rao et al., 1994).

The Lake Kerr watershed drains about 188 square miles (Adamus et al., 1997). The major waterbody, Lake Kerr, discharges to Lake George through Salt Springs Run.

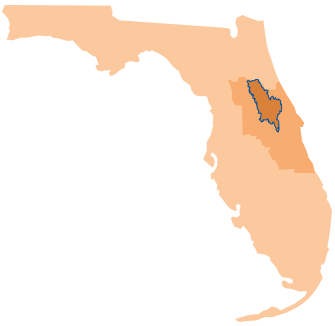
The Wekiva River watershed drains more than 376 square miles. The river forms from the confluence of Wekiwa Springs Run and Rock Springs Run and flows for approximately 14.2 miles before joining the St. Johns River north of Lake Monroe. A large part of the river's discharge is from springs, on average 64 percent of the total measured flow. Its major tributary is the Little Wekiva River. This urbanized tributary drains 42 square miles of largely high-density development. Part of the Little Wekiva River channel has been replaced by an underground pipe.

Lakes

The total surface area of lakes is 174.3 square miles, or about 9.17 percent, of the basin. Reservoirs occupy 12.53 square miles, or about 0.62 percent.

The largest lakes are the chains of lakes that comprise the St. Johns River. Lake George, the second largest lake in the state, has a surface area of 46,000 acres. It receives spring flow from Croaker Hole within the Little Lake George and via spring runs from Salt Springs, Silver Glen Springs, Juniper Springs, and Fern Hammock Springs. Lake Monroe covers 9,406 acres, Lake Jesup, 10,011 acres, and Lake Harney, 6,058 acres; these are the seventeenth, fifteenth, and twenty-sixth largest lakes, respectively, by area within the state (Dickinson et al., 1982).

The chain of lakes (Harney, Monroe, and George) that forms the St. Johns River is believed to have initially developed from natural



depressions in an ancient seafloor (Schiffer, 1998). These depressions were formed from the repeated scouring and redepositing of material by wave action and water currents. When sea level fell, the depressions filled with fresh water. Riverine processes have continued to enlarge the lakes.

Many of the other lakes in the basin formed from solution processes (Schiffer, 1998). Water moving downward from the land surface carries carbon dioxide, which forms carbonic acid when dissolved in water. This weak acid dissolves the limestone underlying Florida and eventually forms caves and caverns, which may cause the ground above to collapse, forming a sinkhole and ultimately a lake. Lakes formed by solution processes typically have a strong link with ground water (Schiffer, 1998).

Development in the basin has changed natural lake function (Schiffer, 1998). Canals and channels dug between the lakes have altered natural drainage systems. Extensive urbanization in the Orlando area and Interstate 4 corridor increases the amount of impervious surface, which in turn increases the volume of water delivered as runoff to lakes and delivers pollutants to the lakes.

Wetlands

Wetlands cover about 489 square miles, or about 24 percent, of the basin **(Figure 2.4)**. They make up the littoral zones of lakes and streams; large expanses of wetlands are also found around Lakes George, Woodruff, and Dexter; the Wekiva River and upstream tributaries; and the St. Johns River south from Lake Monroe to the confluence with the Wekiva River. Named wetland systems include Blackwater Swamp, Wekiva Swamp, Seminole Swamp, and Gopher Swamp.

Wetland habitats in the Middle St. Johns Basin largely comprise mixed hardwood swamps, freshwater marshes, and cypress swamps.

Springs

Springs in Florida are important as surface water source waters, habitat for aquatic life, and recreation. Springs are an important component of the Middle St. Johns Basin, with an estimated thirty or more springs present. Alexander Springs, Silver Glen Springs, and Blue Spring are classified as first-magnitude springs, which have an average flow of 100 cubic feet per second or greater. Croaker Hole Spring, in the bed of Little Lake George within the St. Johns River, provides a thermal refuge for striped bass. Other springs along the St. Johns River provide warm water refuges for manatees during the winter; Blue Spring, Salt Springs, Silver Glen Springs, and Ponce DeLeon Springs receive particularly heavy usage by manatees.

Springs in the basin generally discharge from the Floridan aquifer and have water quality similar to ground water from the Floridan. Springs occur at places where the potentiometric surface of the Floridan aquifer is above the land surface and confining beds above the aquifer have been breached. **Table 2.4** lists the basin's springs and their discharges (see **Noteworthy** on classification of spring discharge).

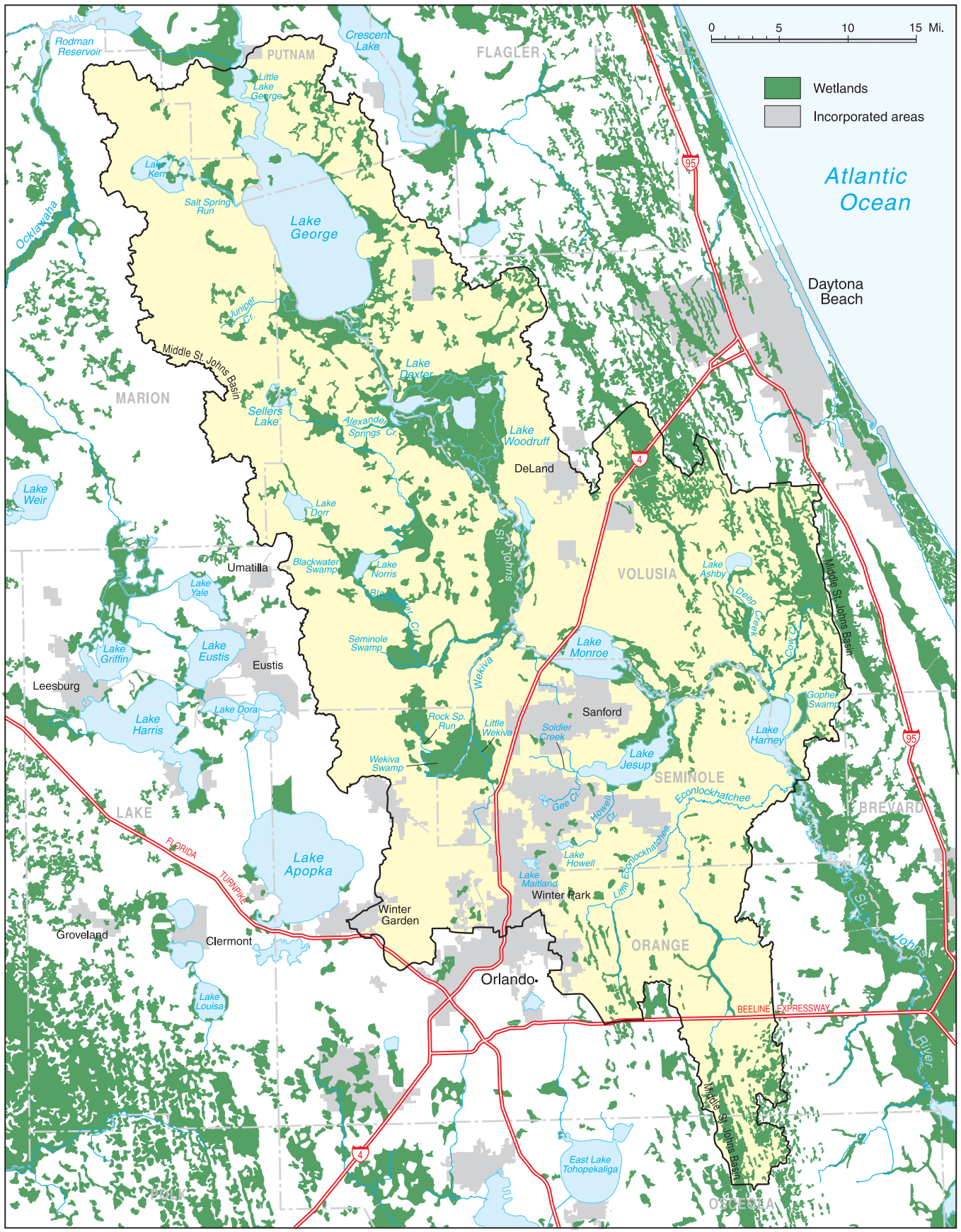


Figure 2.4: Wetlands in the Middle St. Johns Basin

Table 2.4: Springs in the Middle St. Johns Basin

Spring Name	Discharges to	Mean Discharge (cubic feet per second)		Period of Discharge Measurement	
		A	B	A	B
Wekiwa Springs	Wekiva River	74.2	68.51	1932–1975	1932–2000
Ponce de Leon Springs	Spring Garden, Woodruff, and Dexter Lakes	30.8	27.2	1929–1975	1929–2000
Rock Springs	Rock Springs Run to Wekiva River	64.6	59.6	1931–1975	1931–2000
Croaker Hole Spring	Little Lake George–St. Johns River		82.5		1981–2000
Alexander Springs	Alexander Springs Creek to St. Johns River	120	101	1931–1972	1931–2000
Seminole Spring	Seminole Creek	24.8	35.3	1931–1972	1931–1995
Messant Spring	Blackwater Creek	20.5	14.7	1946–1972	1946–1995
Sanlando Springs	Little Wekiva River	19.0	19.82	1942–1975	1941–2000
Palm Springs	Little Wekiva River	9.48	7.17	1942–1975	1941–2000
Starbuck Spring	Little Wekiva River	16.6	14.50	1944–1975	1944–2000
Silver Glen Springs	Lake George	112	104.36	1931–1972	1931–2000
Juniper Springs	Juniper Creek to Lake George	12.8	10.49	1935–1972	1908–2000
Salt Springs	Lake George	83.2	80.46	1929–1972	1929–2000
Fern Hammock Springs	Juniper Creek to Lake George		12.20	1972 (1 value)	1972–2000
Blue Spring	St. Johns River	162	157.0		1932–2000
Sweetwater Springs	Juniper Creek		12.7		1980–2000
Camp Lo No Chee Spring	Lake Norris	0.88	0.75	1954, 1972	1954–1997
Beecher Spring	St. Johns River	10.71	9.09	1960, 1972	1972–2000
Forest Springs Group	Little Lake George	0.304	0.29	1972	1972–2000
Mud Spring	Little Lake George	2.26	1.22	1972	1995–2000
Barrel Spring	Wekiva River		0.26		1995–1997
Mill Creek Springs		4.7		1945	
Witherington Spring	Mill Creek	6.83	2.28	1945–1972	1972–1995
Sulphur Spring	Wekiva River				
Seminole Spring (Volusia Co)	Lake Monroe	0.045		1972	Plugged
Camp Spring					
Green Springs	Lake Monroe	0.88	1.1	1932–1972	1932–2000
Clifton Springs	Lake Jesup	1.7	1.55	1972	1972–1995
Elder Spring		8 gal/min		1972	
Heath Spring		12 gal/min		1972	
Lake Jesup Spring	Lake Jesup	1.04	0.72	1952, 1972	1972 (1 value)
Miami Springs	Wekiva River	5.84	4.93	1945–1972	1945–2000

Table 2.4 (continued)

Spring Name	Discharges to	Mean Discharge (cubic feet per second)		Period of Discharge Measurement	
Gemini Springs	Lake Monroe	7.67	10.1	1972	1966–2000
Blackwater Springs nr Cassia			1.40		1981 (1 value)
BlueberrySpring, Seminole State Forest			0.07		1997 (1 value)
Island Spring	Wekiva River (in river bed)		6.40		1982–1997
Moccasin Springs Seminole State Forest			0.29		1 value
Mosquito Springs Run			1.32		
Shark's Tooth Spring, Seminole State Forest			0.13		1997?

Source A: Rosenau et al., 1977.
Source B: Osburn et al., 2003.

Surface Water Quality Classifications

All surface waters, including wetlands, in the Middle St. Johns Basin are designated as Class III in accordance with Section 62-302.400, Florida Administrative Code (F.A.C.).

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)

Outstanding Florida Waters

Table 2.5 lists by county the Outstanding Florida Waters (OFW) or portions of OFWs in the Middle St. Johns Basin. A portion of the Wekiva River was designated as a Florida Scenic and Wild River Segment in 1982.

OFWs are designated for "special protection due to their natural attributes" (Section 403.061, F.S.). These waters are listed in Section 62-302.700, 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

Classification of Spring Discharge

Springs are classified by magnitude, or volume, of their flow or discharge. Eight different classifications are used (as modified by Rosenau, 1977).

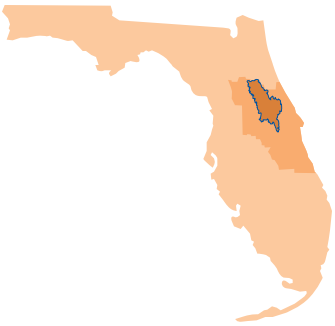
- Magnitude 1: ≥ 100 cubic feet per second
- Magnitude 2: 10 to 100 cubic feet per second
- Magnitude 3: 1 to 10 cubic feet per second
- Magnitude 4: 100 to 448 gallons per minute
- Magnitude 5: 10 to 100 gallons per minute
- Magnitude 6: 1 to 10 gallons per minute
- Magnitude 7: 1 pint to 1 gallon per minute
- Magnitude 8: < 1 pint per minute

Table 2.5: Outstanding Florida Waters in the Middle St. Johns Basin

County	Outstanding Florida Water	Effective Date
	Waters within Ocala National Forest	
Marion	1. Juniper Springs	9/1/82
	2. Juniper Creek	9/1/82
	3. Salt Springs	9/1/82
	4. Salt Springs Run	9/1/82
	5. Lake Kerr	9/1/82
	6. Little Lake Kerr	9/1/82
Lake	7. Alexander Springs	9/1/82
	8. Alexander Springs Creek	9/1/82
	9. Lake Dorr	9/1/82
	Land Acquisitions under EEL, CARL, LATF, and SOC Programs[1]	
Lake	1. Seminole Springs/Woods	8/8/94
Lake and Orange	2. B.M.K. Ranch	8/8/94
Volusia and Lake	Waters within Lake Woodruff National Wildlife Refuge	3/1/79
	Hontoon Island State Park	
Volusia	Blue Spring State Park	3/1/79
	DeLeon Springs State Recreation Area	5/14/86
	Land Acquisitions under EEL, CARL, LATF, and SOC Programs[1]	
Volusia	1. Stark Tract	10/4/90
	2. Volusia Water Recharge Area	3/1/79
Lake, Seminole, and Volusia	Wekiva River State Preserve Addition—except portion of St. Johns River between Interstate 4 and the Wekiva River confluence	12/28/88
Lake, Orange, and Seminole	Wekiva River Aquatic Preserve	12/1/82
	Wekiva River Aquatic System—includes Wekiva River, Rock Springs Run and its tributary Sulphur Spring, Little Wekiva River south to its confluence with the southernmost run of Sanlando Springs, Blackwater Creek and Swamp (up to Lake Dorr), Lake Norris, Seminole Springs and Creek, Seminole Swamp, Sulphur Spring and Run, and Messant Spring and Creek.	12/28/88
Lake and Seminole	Wekiva Florida Scenic and Wild River Segment	12/1/82
	Lower Wekiva River State Reserve	12/1/82
Orange and Seminole	Wekiwa Springs State Park	3/1/79
Orange, Osceola, and Seminole	Econlockhatchee River System—including Econlockhatchee River and portions of tributaries[2]	6/18/92
	Land Acquisitions under EEL, CARL, LATF, and SOC Programs[1]	
Seminole	1. Lower Econlockhatchee	8/8/94
	2. Spring Hammock	4/19/88
	3. Wekiva River Buffers	8/8/94

[1]Definitions: Environmentally Endangered Lands (EEL), Conservation and Recreation Lands (CARL), Land Acquisition Trust Fund (LATF), and Save Our Coast (SOC).
[2]Tributaries defined in Section 62-302.700, F.A.C.

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.



Physiography, Soils, and Geologic Framework

The land surface of the St. Johns River has been shaped predominantly by marine processes, with later modification by solution of the underlying carbonate material. The St. Johns River Valley was formed during the Pleistocene Epoch, during a period of barrier island formation. It is believed to have formed as part of a regressional or progradational beach ridge plain. Fluctuating sea levels created marine terraces at approximately 10, 30, 100, and 150 feet above the present sea level. Terraces are relatively flat areas separated by bluffs. They tend to parallel the modern-day coastline and are often associated with wind-built sand dunes. The course of the river was probably determined in part by the location of swales between **relict** beach ridges.

Relict
Ancient shorelines.

The St. Johns River in the middle portion of the basin, for the most part, lies in what is called the St. Johns Offset. It is called an offset because this part of the river has changed course from the valley of its origin to an older, narrower, westerly course (Scott, 1979). East of the St. Johns Offset and bounding it are the DeLand and Crescent City Ridges. Soils on these ridges comprise medium-fine sand and silt and clayey sand (Scott, 1979). To the west of the St. Johns Offset are the Marion Uplands and Mount Dora Ridge. Clayey sand and medium-fine sand and silt underlie the upland and ridge, respectively (Scott, 1979). Common characteristics of the ridges are deep lakes, closed lake basins, low water tables, and subsurface drainage (Knochenmus and Hughes, 1976). The uplands are generally moderate in relief, with numerous closed lakes that may become connected during high water, shallow lakes, and moderate depths to the water table (Knochenmus and Hughes, 1976). About at the latitude of Sanford, the St. Johns River returns to its course in the Eastern Valley. Soil types under the St. Johns Offset and Eastern Valley are generally shelly sands and clay (Scott, 1979).

Ground Water Resources

Aquifers

Aquifers in the Middle St. Johns Basin ground water flow system include the upper and lower Floridan aquifer system (Floridan) and the surficial aquifer system (Snell and Anderson, 1970; Spechler and Halford, 2001). The Floridan is the deepest aquifer system. The lower Floridan includes the upper part of the Cedar Keys Formation of Paleocene age, along with the Oldsmar Formation and the lower part of the Avon Park Formation, both of Eocene age. The upper Floridan includes units of the Hawthorn Group of Miocene age and some undifferentiated overlying

Potentiometric
The potentiometric surface of an aquifer is defined as the level to which water will rise in atightly cased well that penetrates the aquifer. The potentiometric surface fluctuates because of variations in recharge and discharge from the aquifer.

units of late Pliocene age. The lower Floridan, which is frequently highly mineralized, is seldom used as a water source. The upper Floridan is the primary source for public water systems in this area. The surficial aquifer system consists of unconfined deposits near the surface of variable lithology, including sand, clays, and shell fragments. These produce small amounts of water serving mainly private wells and water systems serving small populations **(Table 2.6)**.

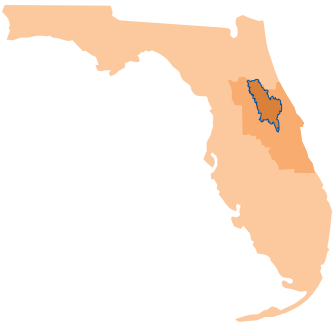
Ground Water–Surface Water Interactions

Each aquifer system has a different influence on the St. Johns River and other surface waterbodies in the basin. The Floridan contributes to surface water flow directly through spring discharge and indirectly through diffuse upward leakage. The surficial aquifer system is in direct contact with surface water, and it can discharge directly into lakes and streams. Discharge can also occur from wells when the **potentiometric** surface is above the land surface, unless the wells are capped or the well flow

Table 2.6: Stratigraphy and Hydrostratigraphy of the Middle St. Johns River Basin

Series		Stratigraphic Unit	Thickness (feet)	Lithology	Hydrostratigraphic Unit	Hydrogeologic Properties
Holocene		Undifferentiated Deposits	0–150	Alluvium, clays, sands	Surficial Aquifer	Limited local supplies
Pleistocene				Sands, some shell and thin clay beds		
Pliocene			0–100	Interbedded sand, silt and clay, and limestone		
Miocene		Hawthorn Group	0–200	Interbedded sand, silt and clay, and limestone	Intermediate Confining Unit	Principal confining unit for upper Floridan aquifer
Eocene	Upper	Ocala Limestone	0–200	Limestone	Upper Floridan Aquifer	Principal source of ground water
	Middle	Avon Park Formation	600–1,600	Limestone dolomite	Middle Sub-confining Unit	Low permeability
	Lower	Oldsmar Formation	300–1,350		Lower Floridan Aquifer	Highly permeable; increases in salinity
Paleocene		Cedar Keys Formation	500–2,200	Dolomite with anhydrite gypsum and limestone	Sub-Floridan Confining Unit	Highly mineralized water; very low permeability

Modified after Spechler and Halford, 2001; Blandford and Birdie, 1992; and Snell and Anderson, 1970.



restricted. Ground water levels vary seasonally and generally are higher in October to November (after the wet season) and lower in May to June.

Within the basin, the patterns of ground water flow among the aquifer systems are complex. When the potentiometric surface of each of the artesian systems is below the water table in the surficial aquifer system, recharge can occur through semipermeable confining units. This is greatest in upland areas. Flow between aquifers depends on the relationship of the potentiometric surfaces of each of the systems, which varies over time and location. Ground water can potentially flow from any aquifer system to either of the other two, depending on these relationships. **Figure 2.5** shows the potentiometric surface of the Floridan during 1995.

Recharge to the Floridan is from the overlying surficial aquifer system, and more directly from rainfall in areas where the surficial aquifer is either thin or absent and the limestones of the Floridan are at or near the surface. Recharge comes from surface waterbodies, irrigation, septic tank systems, land application of domestic wastewater, and stormwater holding ponds. **Figure 2.6** shows recharge and discharge areas in the basin. Areas of highest recharge rate are the ridges to the east and west of the St. Johns River. Twelve or more inches of recharge per year can occur along the ridges.

Several major springs are present along the St. Johns River. About 59 million gallons per day (mgd) of Floridan aquifer water discharge into the river through these springs (Toth, 1993). Most direct ground water discharge, however, occurs along the course of the St. Johns River.

The surficial aquifer system is recharged by local rainfall, irrigation, surface waterbodies, and to a lesser extent by septic tank effluent and sewage or stormwater holding pond effluent (Toth, 1993). Recharge can also occur from the Floridan and intermediate systems, depending on potentiometry. Discharge from the surficial system occurs by seepage to surface waterbodies, by evapotranspiration where the water table is at or near the land surface, by well withdrawals, and by downward leakage to the underlying aquifer systems. Ground water in the surficial system generally flows toward and discharges into surface waterbodies. The St. Johns River receives a significant portion of the discharge. Currently, however, quantitative estimates have not been completed.

Water Usage

The Middle St. Johns Basin encompasses a significant portion of Volusia, Lake, Seminole, and Orange Counties. **Table 2.7** indicates that the total freshwater use in 1999 for these 4 counties was about 400.17 mgd. This figure represents about 34.2 percent of the total use of the SJRWMD (1,169.4 mgd) for that year. Most of the water derives from the upper Floridan. Although not broken down by county, the proportion of fresh surface water used for the entire SJRWMD is about 16 percent (189.9 mgd) of total fresh water used throughout the district in 1999. Most surface water comes from the St. Johns River in the Upper St. Johns Basin. **Table 2.7** breaks down water use by county into the following categories: commercial/industrial self-supplied, agricultural irrigation, recreational irrigation, domestic self-supplied, public supply, power generation, and abandoned flowing artesian wells.

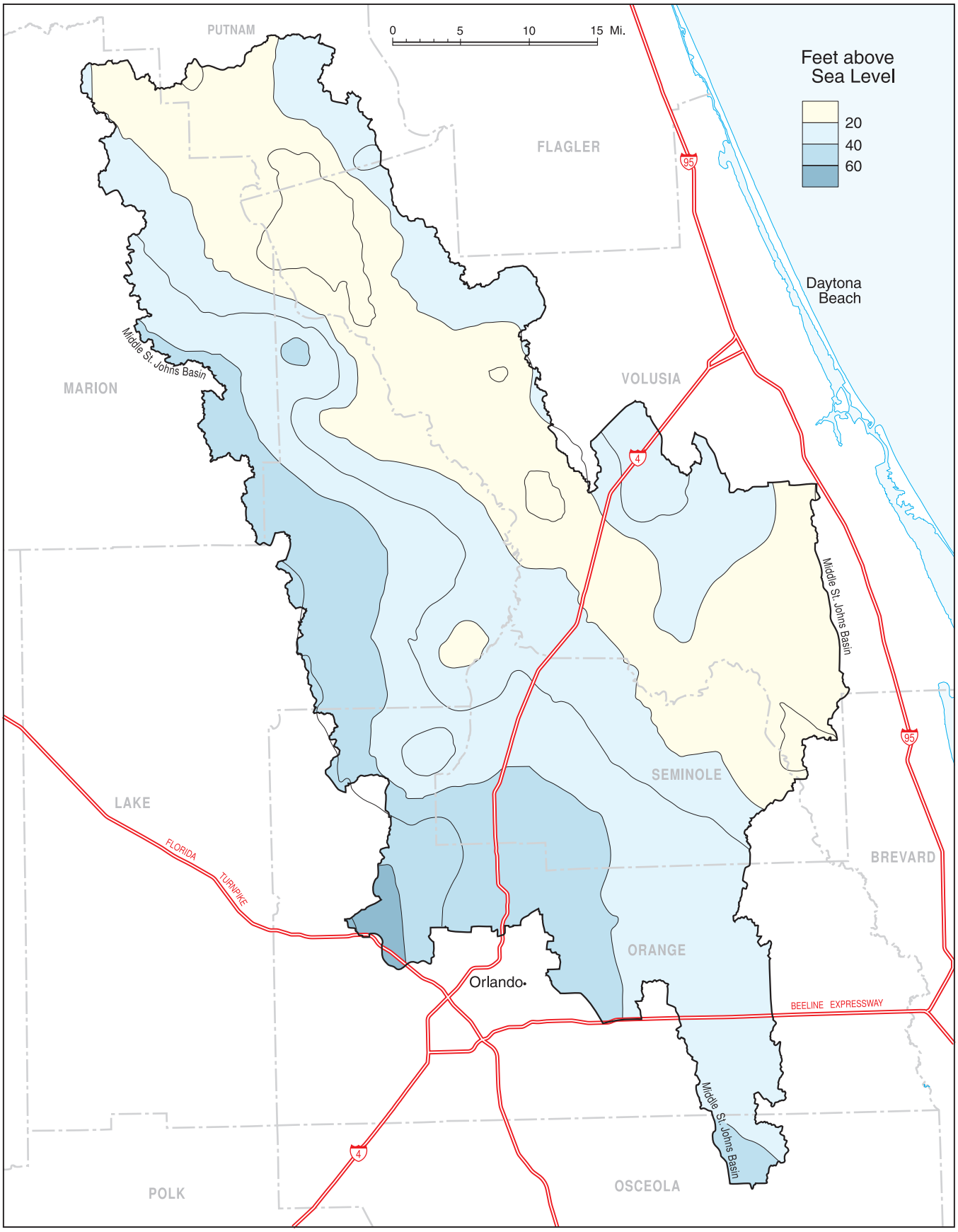


Figure 2.5: Potentiometric Surface of the Floridan Aquifer during 1995, Indicating the Direction of Ground Water Flow in the Middle St. Johns Basin

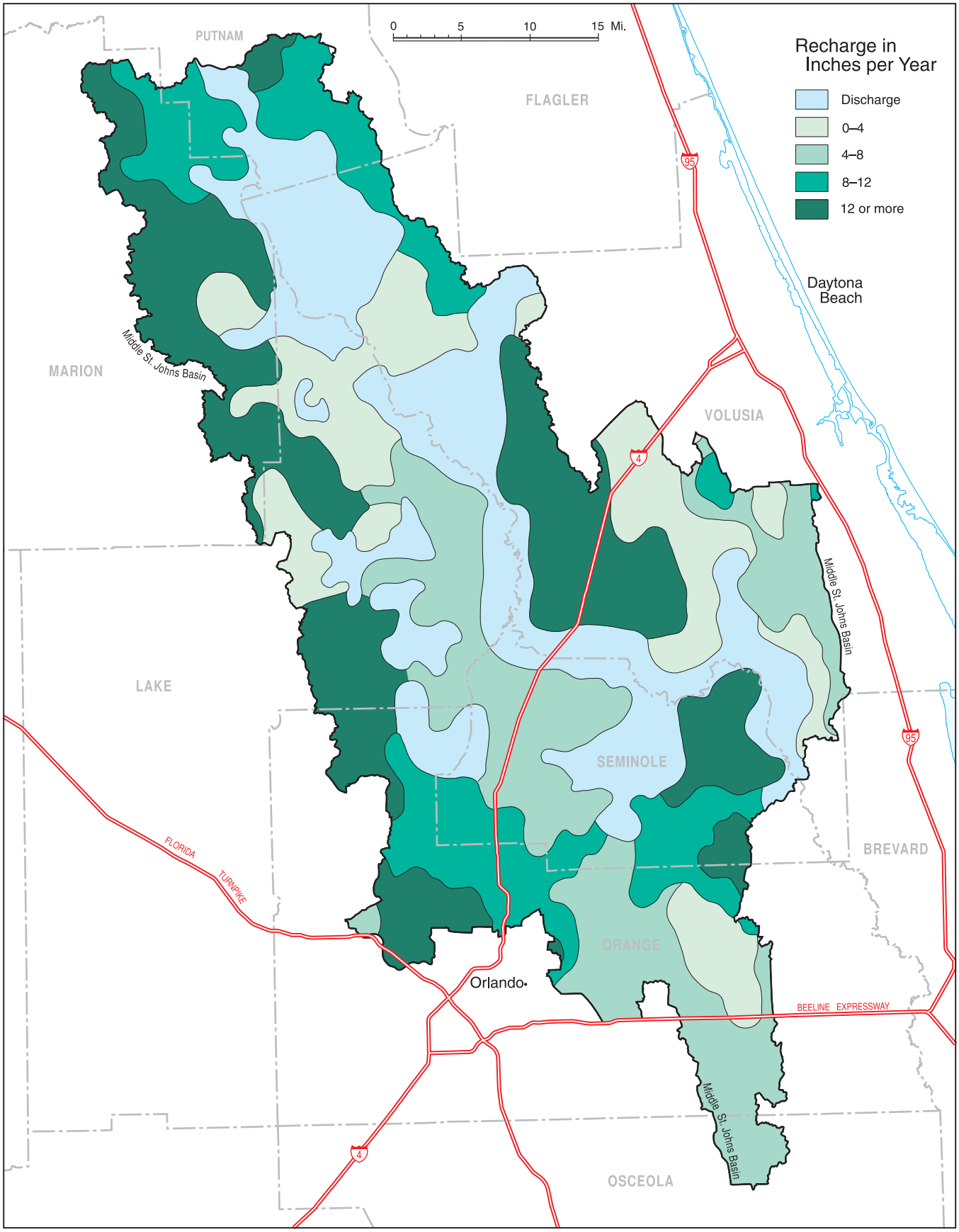


Figure 2.6: Recharge to the Floridan Aquifer in the Middle St. Johns Basin during 1995

Table 2.7: Freshwater Use in the Middle St. Johns Basin in 1999 (mgd)

County	Public Supply	Domestic Self-Supply	Comm./ Industrial Self-Supply	Agricultural Irrigation	Recreational Irrigation	Power Gen.	Abandoned Flowing Artesian Well	Total
Volusia	55.5	2.74	0.58	25.63	4.78	3.90	0.10	93.23
Lake	36.5	2.71	10.59	32.42	1.94	0.00	0.08	84.24
Seminole	60.08	3.89	0.09	4.53	3.80	0.00	0.16	72.55
Orange	124.37	11.87	2.83	7.90	2.46	0.64	0.08	150.15
Total for Basin								400.17
Total for SJRWMD	543.2	92.0	127.8	344.6	32.5	25.8	3.5	1,169.4

Source: M. Dillon, 2002, SJRWMD.

Water Supply Plan

The SJRWMD's District Water Supply Plan was adopted by the district's Governing Board in April 2000 and finalized in June 2000. A large part of the basin is identified as a Priority Water Resource Caution Area (PWRCA) **(Figure 2.7)**. The SJRWMD (Vergara, 2000a) defines PWRCAs as areas in the district where existing and reasonably anticipated sources of water and conservation efforts may not be adequate to supply water for all existing legal uses, to reasonably anticipate future needs, and to sustain water resources and related natural systems.

The five constraints established for identifying PWRCAs are as follows:

- Impacts to native vegetation, primarily wetlands;
- Impacts to minimum flows and levels, primarily spring flows;
- Impacts to ground water quality due to increased saltwater intrusion;
- Impacts to existing legal users; and
- Failure to identify a source of supply for future development.

Saltwater intrusion is probably the most significant threat to ground water quality in the basin. Overpumping of ground water can potentially have an adverse affect on the local ground water supplies and also cause unacceptable impacts to wetlands, surface water levels, and spring flows.

Anywhere from 158 to 241 mgd of additional potable water supplies will need to be developed from sources other than ground water to meet projected 2020 demands in east-central Florida (Vergara, 2000a). Investigations are under way to evaluate the use of the St. Johns River north of Lake Monroe as a water supply, through the East–Central Florida Water Supply Initiative. The St. Johns River may supply as much as 350 mgd of potable water (SJRWMD, October 7, 1999). Minimum flows and levels will also need to be developed to ensure that proposed water withdrawals will not harm the natural function of the St. Johns River. The SJRWMD has established an advisory group to solicit input from the public and experts (SJRWMD, 2001d).

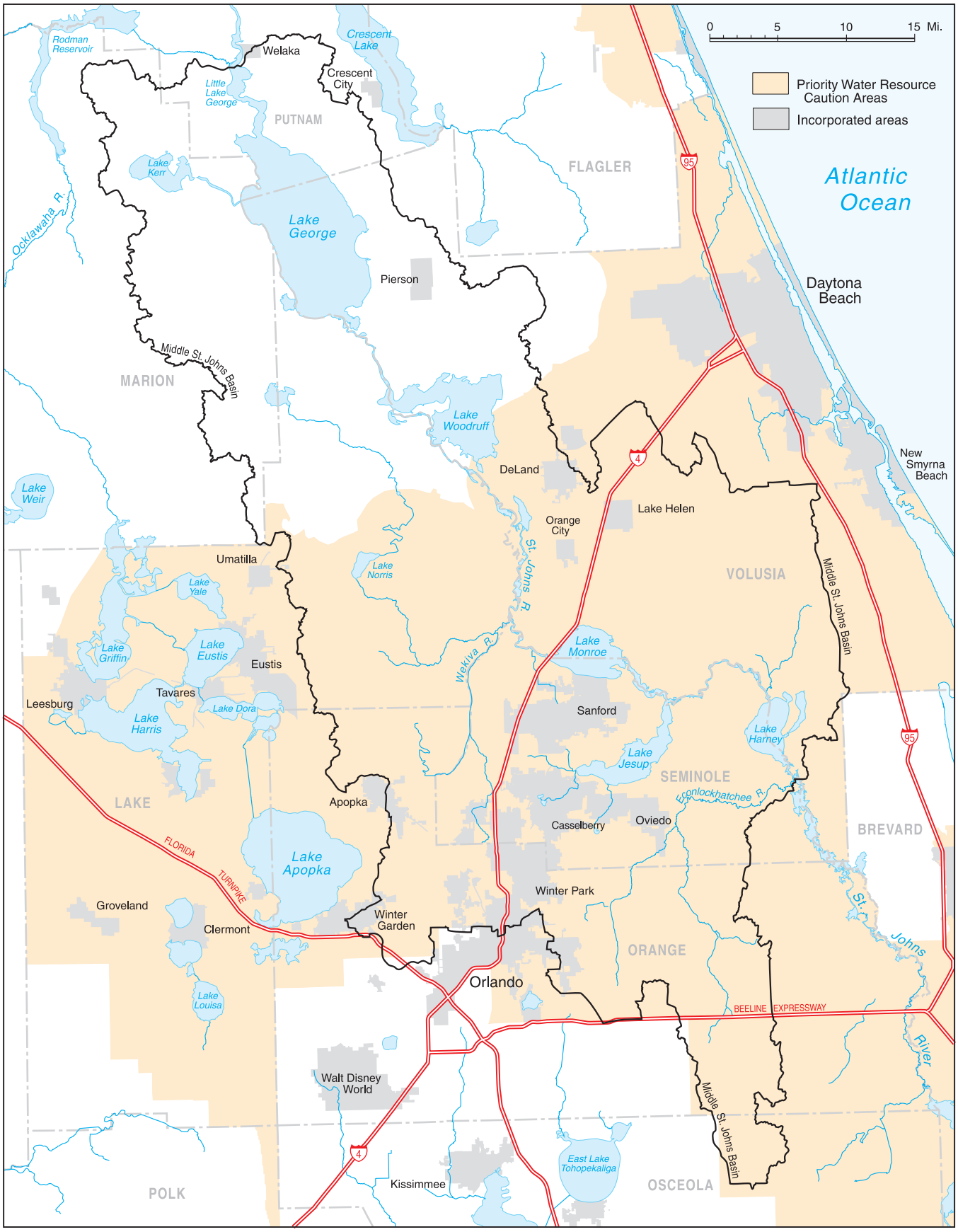


Figure 2.7: Portion of the Middle St. Johns Basin Included in the 1998 Priority Water Resource Caution Area

Source: St. Johns River Water Management District.



Watershed Management Issues

Nonpoint Source Pollution and Management

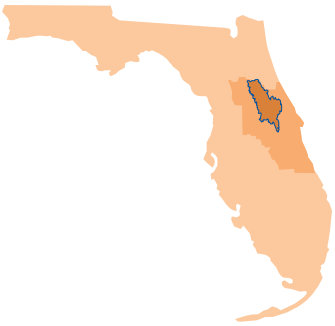
Improperly designed on-site sewage treatment and disposal systems (OSTDS) are a potential source of impairment for both ground water and surface water in the Middle St. Johns Basin. The Florida Department of Health (DOH) tracks OSTDS counts through county health departments. While new systems are entered into the tracking system, there currently is no way to track their abandonment efficiently, such as when sewering occurs in an area. An anticipated new DOH computer system is expected to track this additional information in the future.

Four counties—Osceola, Marion, Lake, and Putnam—were not included in this evaluation of the numbers of OSTDS present. These counties have comparatively small land areas and limited development in the Middle St. Johns Basin. The Osceola area, at the southern tip of the basin, consists of wetlands. Most of the Marion County area is in the Ocala National Forest, as is about a third of the Lake County area. The remainder of the Lake County area comprises rural and small, developed areas. Very little of Putnam County is in the basin, with Welaka being the largest developed area.

Most of Seminole County is in the Middle St. Johns Basin. The OSTDS count reported by DOH headquarters is 37,943. The Seminole County Health Department confirms that this figure is very close to the actual numbers. The total number of systems in the county is increasing each year, although not rapidly. The increase is relatively slow because the number of new installations per year (approximately 400 to 500) is almost cancelled out by the abandonment of systems (approximately 300). Most of the developed areas in the county, including all or portions of Sanford, Oviedo, Lake Mary, Longwood, Altamonte Springs, Casselberry, and Winter Springs, are sewered. Failure rates in Seminole County are around 1 to 2 percent. The failures are not centered in any particular location in the county. Many of the currently reported failures are for systems that are about 20 years old, not at all an unusual or unexpected situation (Cochrane, April 2002).

The portions of Volusia County that are in the Middle St. Johns Basin do not include the "metropolitan" area of Daytona Beach, New Smyrna, Port Orange, and Edgewater. The basin does, however, include the developed areas of DeLand, Pierson, Orange City, Lake Helen, Deltona, and DeBary. The Volusia County Health Department estimates that the middle basin contains 38,000 OSTDS. To put that number into perspective, the DOH headquarters' figure for the entire county is 87,302 OSTDS. According to county health department information, Volusia County was in the top 10 Florida counties in terms of systems installed each year through the 1990s (Volusia County Health Department, 1999).

The Volusia County Health Department's Environmental Health Division prepared an objective report for the county on the issue of central sewers versus on-site systems (Volusia County Health Department, 1999). It used a set of indexes to come up with numeric ratings for more than 100 subcommunities in the county. The indexes included



permeability, type of nearby surface waters, age, water table, type of water supply, and density. Because each subcommunity has unique characteristics and histories, these factors also were considered when evaluating wastewater management options. Virtually the entire county was surveyed and assessed. The report addressed nearly 90 subcommunities. With the publication of the report, there was no intention on the part of the health department to imply the development of any sewering plan for the county. The report is for reference purposes only, and is to be viewed as one of the tools to be used in making informed decisions about providing services to citizens and protecting public health. The report's recommendations were as follows:

- The Volusia Bar Fish Camp on Lake George was a high priority for sewers due to environmental concerns. Continuation of the septic system was considered unacceptable. Because it would have been too costly to extend a sewer line from Astor, it was thought that an on-site central package treatment plant would be the best solution.
- The Spring Hill area is one of DeLand's older neighborhoods. Some parcels were platted in the 1920s. While a portion of this area is connected to the city's municipal sewer system, a substantial area of densely populated, smaller lots is not connected. Most of this area is developed and contains single-family residences on central city water. Because most of the areas surrounding Spring Hill had been served by sewers, this area has become a service "island" without central sewers. The health department recommended sewering.
- Daytona Park Estates is a relatively large subdivision on the east side of DeLand with lots platted between 1955 and 1958. Though not all lots were built on at the time of the evaluation, those that were supported a large population already, all on private wells. Though soils vary, because much of the area is wet with a high water table, mounded septic tank systems were being installed. Central sewering for the area was recommended.
- To the west of DeLand are the Hontoon and North Shell Road areas (S.R. 44 crosses the northernmost of the two areas). Developed in the 1950s, they are mostly served by DeLand community water. Most of the soils in these areas have a high water table, and some land has been declared wetlands. The relatively large lots support high-density development due to their proximity to Lake Beresford and the St. Johns River. Many parcels are waterfront lots adjacent to the lake, the river, or canals that empty into the river. Within these areas, sanitary sewers served only a small portion, known as Quail's Roost. The health department recommended sewering the remainder of the areas.
- On DeLand's west side, sewering extended only to Boundary Avenue at the time of the survey and assessment. City water was provided to the community west of Boundary Avenue, but not sewer service. A large number of the urban parcels are small and densely populated.



Plats date back as far as the mid-1920s. Beyond this area, development is less extensive and has remained mostly agricultural. The urbanized older area was recommended for sewering.

- DeBary is a city with quarter-acre lots and private wells. Septic system repairs require mounded and/or filled systems to improve functioning. If the area were served with central water, the assessment index number would improve, but the strong recommendation for sewers probably would not change because hookups to central water cannot be mandated.
- Similarly, Deltona has quarter-acre lots, but with central water. Repairs also require mounds and/or filling because of a high water table, particularly in the area around the intersection of Saxon and Providence Boulevards. The health department strongly recommended sewering for this community. In Deltona south of Osteen Road, lots are typically a half-acre or larger. Houses here are also served by city water. Because flooding is common in the Stone Island area, the health department strongly recommended central sewering. This would be complicated by the fact that the Stone Island sewerage system is already at capacity.

Much of Orange County's development is served by sewer systems. About half of the county is in the Middle St. Johns Basin. Most of the basin's development is in the Orlando, Winter Park, and Maitland areas, all primarily served by sewers. Other large developments in the county, but outside the basin, include the remainder of the city of Orlando, Edgewood, Belle Isle, Windermere, Apopka, Ocoee, Winter Garden, Lake Buena Vista, and the Walt Disney World properties. The number of OSTDS installations estimated for the entire county is 99,851 (DOH, 2002).

Sediment Quality

Sediment quality at sites along the main stem of the St. Johns River including Lakes Monroe and George was evaluated (Durell et al., 1998) as part of a larger, districtwide evaluation of metals and organic contaminants by the SJRWMD. Data were collected during 1996 and 1997. Additional detailed sediment studies were conducted on Lakes Monroe and George during 1998 (Durell and Fredriksson, 2000). Durell and Fredriksson found that relative to other sampling locations in the SJRWMD, the sum of **polychlorinated biphenyl (PCB)** cogeners concentrations and PCB concentrations normalized to total organic carbon were the lowest for samples collected from Lake George.

In contrast, sediments from five of seven Lake Monroe sites exceeded the effects range low level (ERL) for dichloro-diphenyl-trichlorethane (DDT). ERLs were developed for marine sediments to indicate threshold concentrations above which contaminants could have possible occasional ecological and toxicological effects on aquatic life (Long et al., 1995). Canadian regulatory agencies developed the threshold effect level (TEL)

Polychlorinated biphenyl (PCB)

PCBs are a group of chlorinated aromatic hydrocarbon chemicals. Their structure is based on a 12-carbon compound composed of 2 joined 6-carbon rings (biphenyl ring) where hydrogen atoms are replaced by 1 to 10 chlorine atoms within the ring structure. There are as many as 200 possible combinations or cogeners of the biphenyl rings with chlorine (M. A. Ottoboni, 1991).

for freshwater sediments that are comparable in value to the marine ERLs (Durell and Fredriksson, 2000). Several sediment samples from Lake Monroe were also found to have metals concentrations above the TEL.



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. **Appendix C** contains a list of current and proposed projects and more detailed information about stakeholder groups in the basin.

The southern half of the Middle St. Johns Basin is urbanized while the northern half of the basin is largely rural. The management of stormwater is an important management issue.

Much of the progress in the Middle St. Johns Basin for developing water quality restoration plans and implementing watershed and water quality improvements is attributable to coordinated local, state, and regional efforts. The designation of the Middle St. Johns Basin as a SWIM waterbody has enhanced intergovernmental coordination and provided funds to address stormwater and other water quality problems. The Department continues to coordinate its efforts with the SJRWMD, state agencies, and local governments to obtain data, strengthen monitoring activities, and exchange information through periodic meetings. The local organizations and initiatives listed in **Table 2.8** provide leadership in waterbody restoration and preservation efforts. Descriptions of these organizations and programs are contained in the **"Major Programs and Projects"** section.

Table 2.8: Summary of Organizations Implementing Waterbody Restoration and Preservation Plans and Projects in the Middle St. Johns Basin

Organization	Role
Federal, State, or Regional Agencies	
St. Johns River Water Management District	SWIM Plan, Pollutant Load Reduction Goals for the basin
Florida Department of Transportation	MS4 Phase I and II; Stormwater management for new road construction
Ocala National Forest	Conservation land management
Middle St. Johns Basin Organizations and Local Governments	
St. Johns River Alliance	Alliance of government and public; St. Johns River Restoration Plan
Orange County	Stormwater Master Plans; MS4 Phase I; Capital Improvement Plans
Seminole County	Stormwater Master Plans; MS4 Phase I; Capital Improvement Plans
Volusia County	MS4 Phase II; Capital Improvement Plans
Lake County	MS4 Phase II; Capital Improvement Plans
Orlando	MS4 Phase I; Stormwater Master Plans; Capital Improvement Plans



Major Programs and Projects

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

Middle St. Johns River Surface Water Improvement and Management Plan

A SWIM Plan for the Middle St. Johns Basin was first completed and approved by SJRWMD in 2002. The plan includes the Econlockhatchee River, Deep Creek, Lake Jesup, Lake Monroe, and Wekiva River planning units. It includes the portion of the St. Johns River from about Interstate 4 south through Lake Harney. A primary issue for the basin is the management of stormwater. The source for material in this section is the Middle St. Johns River Basin SWIM Plan (SJRWMD, 2002a).

When the Florida legislature created SWIM in 1987, it directed the state's water management districts to design and implement plans and programs for the improvement and management of surface water (Section 373.451, F.S.). The purpose of the Middle St. Johns SWIM Plan is to set forth a realistic course of action, identifying the projects and the effort needed to accomplish them, consistent with levels of SWIM funding.

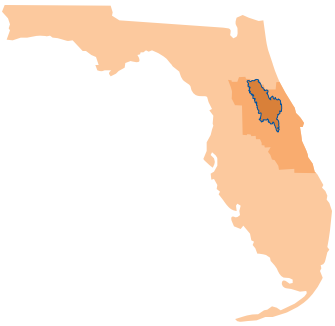
SWIM goals specific to the Middle St. Johns Basin are as follows:

- To preserve natural and functional components of the ecosystem while restoring, where feasible, such conditions to the degraded portions of the system.
- To preserve, or where necessary restore, the quantity and quality of water necessary to support thriving biological communities that contain appropriate diversities of native species in the riverine and **lacustrine** systems of the Middle St. Johns Basin.
- To pursue the development and implementation of stormwater management plans for each of the tributaries in the middle basin.

Lacustrine
A lake or pertaining to lakes; living or occurring on or in lakes.

SWIM goals can be met in the basin with the implementation of the following four initiatives:

- Water quality enhancement emphasizing nutrient loading reduction and lake protection.
- Watershed master planning emphasizing the completion of subbasin hydrologic models. Strategies for implementation include partnering with local governments to implement existing plans or to assist in the design and development of master plans where none exist.
- Stormwater retrofitting of areas built before 1983. The strategy is to design and implement a basinwide stormwater retrofit plan for the middle basin. The SJRWMD initiated this strategy with the prioritization of stormwater retrofits needs in the Lake Jesup watershed.
- Compliance and rule enforcement of existing permitted stormwater systems.



An important complementary activity to this SWIM Plan is the acquisition of environmentally sensitive land through either existing land purchasing programs or the development of a program targeted to meeting stormwater retrofit needs. The middle basin is a rapidly urbanizing area. Land acquisition provides a mechanism to meet SWIM goals and implement the four SWIM initiatives. In particular, land acquisition is a necessary component of stormwater retrofit and watershed master planning.

Numerous stormwater retrofit activities have been initiated and funded by special legislative appropriations over the past few years. Additionally, local governments have proposed a 5-year plan for over $150 million in capital improvements that will aid in stormwater management. **Appendix C** lists water quality improvement projects in the basin.

Master Stormwater Management Plans

Phase 1 of the federal National Pollutant Discharge Elimination System (NPDES) stormwater program required municipalities with populations over 100,000 to obtain an NPDES stormwater permit, called a municipal separate storm sewer system (MS4) permit. A requirement of the MS4 permit is the development of a Master Stormwater Management Plan. Key elements that must be addressed by a stormwater management plan are as follows: using structural, nonstructural, or source controls to reduce pollutants in runoff; identifying and removing illicit connections; monitoring and controlling pollutants in stormwater discharges from municipal industrial activities; and implementing and maintaining best management practices (BMPs) to reduce pollutant loads from construction sites.

Currently, Seminole and Orange Counties and the city of Orlando have been issued MS4 permits in the basin. Copermittees included under the Orange County MS4 issued in April 1996 are the Florida Department of Transportation (DOT), Valencia Water Control District, and the cities of Apopka, Winter Park, Winter Garden, Ocoee, Maitland, Edgewood, Eatonville, and Belle Isle. The city of Orlando's MS4 permit was issued on August 1, 1997. Copermittees included under the Seminole County MS4 permit are the cities of Winter Springs, Sanford, Oviedo, Lake Mary, Longwood, and Altamonte Springs, and the DOT, District 5.

Many of the water quality improvement and restoration projects proposed for this basin are expected to address stormwater management issues as identified in the respective Master Stormwater Management Plans.

Local Government Capital Improvement Plans

Capital Improvement Plans provide a means by which local governments can plan projects to meet expected service needs and budget resources to meet those needs. Usually, capital projects are relatively large-scale projects that may require multi-year funding. Plans are typically developed to reflect funding needs over the next five years. A portion of the local government's capital improvement budget is directed to activities that will have a water quality benefit such as stormwater retrofits, drainage easements, catch basins, and sedimentation controls. A list of capital improvement projects is contained in **Appendix C**.



Clean Marina Program

Developed by the Department, Marine Industries Association of Florida, and Florida SeaGrant, the Clean Marina Program (CMP) has the goal of prevention. Marinas and boaters may not be aware of the environmental laws, rules, and jurisdictions with which they must comply. Participating facilities voluntarily agree to implement Marina Environmental Measures (MEMs), which are simple, innovative solutions to day-to-day marina operations that protect the environment. These MEMs have been developed through an examination of BMPs around the country and the partnership of Florida's marinas, boatyards, boaters, and government.

The CMP's Clean Marina Designation lets boaters who use marinas know that these businesses adhere to—or exceed—current regulatory requirements and want their activities to be environmentally conscious. The Department's Central District supports the CMP with a coordinator who provides participating facilities with technical support, compliance assistance, and training. Currently, there are no marinas designated as clean marinas in the Middle St. Johns Basin.

St. Johns River Alliance (formerly American Heritage River Program)

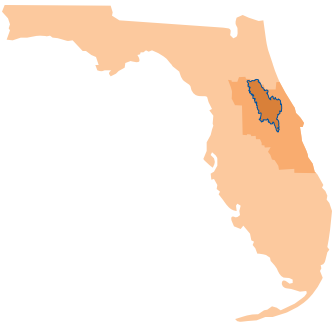
The St. Johns River along with its watershed, except for the portion of the basin in Representative Cliff Stearns' district, was designated an American Heritage River on July 30, 1998. The American Heritage Program is not a separately funded federal initiative, but rather a focusing of federal resources to identified priority areas. A major project focus has been the establishment of a St. Johns River Ecoheritage Corridor and the encouragement of ecotourism in the basin.

The management structure comprised local advisory and steering committees. The Steering Committee's membership included the SJRWMD's executive director, the directors of the Department's Northeast and Central District Offices, the mayor of the city of Jacksonville, a representative from each Advisory Committee, and local community members. An employee of the U.S. Environmental Protection Agency (EPA), the River Navigator, serves as a liaison between federal agencies and the Steering Committee. Three advisory committees supported the Steering Committee: one each for the Lower, Middle, and Upper St. Johns River. Membership on the Advisory Committee is determined through locally led processes and includes local government officials, the business community, the recreational community, historical/cultural interests, environmental organizations, and citizen representatives.

The St. Johns River Alliance was launched in 2003. The River Alliance is a nonprofit organization headed by a Board of Directors that replaces the American Heritage Steering Committee

Minimum Flows and Levels

Minimum Flows and Levels (MFL) have been established for the Wekiva River, its headwater springs, and Black Creek. Headwater springs include Messant, Seminole, Rock, Wekiva, Miami, Sanlando, Starbuck, and Palm Springs (Vergara, 2000b). MFLs for a waterbody are defined as "the limit at which further withdrawals would be significantly harmful to



the water resources or ecology of the area" (Subsection 373.042[1], F.S.). Lakes and aquifers have minimum levels. Minimum flows are set for rivers and streams. MFLs were needed to protect the discharge of the headwater springs in an effort to preserve the natural Wekiva system, including several endemic aquatic species (Hupalo et al., 1994).

Nongovernmental Stakeholder Groups

Numerous citizen or citizen-government groups with a primary interest in protecting or enhancing water quality are active in the basin. Most organizations have a specific geographic focus at either the watershed or waterbody level. These groups and their activities are as follows (Bess, 2002):

- **Watershed Action Volunteers:** The SJRWMD and local governments sponsor the Watershed Action Volunteers Program to enlist volunteers to help monitor and protect north and central Florida's water resources. Volunteers have assisted local governments in the basin with water quality and stormwater monitoring and river cleanups.
- **Clean Lakes Coalition of Central Florida:** The coalition's mission is to educate homeowners about lake ecology. There are approximately 500 members in the coalition, which has been effective in convincing Orange County of the importance of formulating stormwater solutions.
- **Econlockhatchee River Basin Working Group:** This group, formed in late 1997 by the Department, has functioned largely as a forum for disseminating information in a nonadversarial atmosphere. Several environmental organizations, as well as local governments, the SJRWMD, and the Department, are represented.
- **Friends of Lake Jesup:** The group was created in the early 1990s to advance the restoration of the lake's water quality, habitat, and navigation values. With support from local citizens' groups, the Friends were formally recognized by the legislature in 1994 with the passage of the Lake Jesup Act. The act created the Friends of Lake Jesup Restoration and Basin Management Task Force, with a designated membership and responsibilities, and provided funding to initiate projects. The act also directed the SJRWMD to begin a specific set of projects to assess and restore Lake Jesup, along with the Department, FWC, DOT, environmental interests, local governments, and local homeowner associations. The Lake Jesup Act expired in 1998. Though its legislative directive has been completed, a nonlegislative mandated advisory group continues to meet.
- **Friends of Maitland's Waterways:** The group's mission is to inform Maitland/Winter Park citizens of the BMPs that will improve water quality in their lakes. Its goal is to educate citizens by disseminating educational literature.



- **Friends of the Econ:** The group comprises local residents with an interest in maintaining the health of the Econlockhatchee River and encouraging land acquisition.
- **Friends of the Wekiva River:** This nonprofit organization works to preserve the beauty and natural functions of the Wekiva River ecosystem. The group identifies potential impacts to the river and works to minimize or eliminate them.
- **Little Wekiva River Technical Subcommittee:** The subcommittee, formed by the SJRWMD in 1995, has a legislative mandate to direct state funding for projects in the Little Wekiva watershed. Membership comprises representatives from environmental organizations, the Department, SJRWMD, local governments, and private citizens. The group has secured funding for riverbank stabilization projects, sediment removal, and stormwater retrofits.
- **Sweetwater Cove Tributary Surface Water Restoration Project Advisory Group:** Sweetwater Cove is a tributary to the Wekiva River that historically received wastewater. Excess sediment, nuisance vegetation, and poor esthetics are concerns. Sweetwater Cove received legislative funding in 2000 to address concerns, and the Sweetwater Cove Tributary Surface Water Restoration Project was initiated. An advisory group was formed to allow participation by stakeholders in the process. The advisory group comprises representation from local residents; the Department; Friends of the Wekiva; Orange County Utilities, Inc.; SJRWMD; and Seminole County.
- **Wekiva River Basin Working Group:** The Wekiva River Basin Working Group was initiated by the Department and has been meeting since 1994. Membership in the group is composed of the Department, the SJRWMD, Lake County, Seminole County, Orange County, Altamonte Springs, the Division of Forestry, the FWC, and the U.S. Army Corps of Engineers (USACOE). A major accomplishment of the group was the development of a master mitigation list for use by permitting agencies and local governments.
- **Volusia County Environmental and Natural Resources Advisory Committee:** The committee's membership includes Volusia County staff and members of the community.

Summary of Active Projects

This section summarizes current and proposed major projects to improve and restore water quality in the Middle St. Johns Basin. Most of these projects are directed toward stormwater retrofits. **Appendix C** provides details of active projects in the basin.

- Deep Creek Planning Unit
  - Through Volusia Forever, land acquisition for water resource protection and recreation, including source water (drinking) protection.



- Through the Volusia County Environmental, Cultural, Historic, Outdoor (ECHO) Program, environmental, cultural, historic, and recreational capital projects are funded.
- Through the Volusia County Conservation Corridor Program and cooperation of large landowners, the creation of a north-south conservation corridor through the center of the county.
- A small lot acquisition program in Volusia County targeted for platted flood-prone areas.

- Econlockhatchee River Planning Unit
  - Comprehensive master planning by Orange and Seminole Counties in the Little Econlockhatchee watershed.
  - Comprehensive master planning for the Econlockhatchee River and its watershed.
  - The construction of a regional stormwater facility for the East Orlando and Azalea Park Canals.
  - The construction of a pollution abatement and flow attenuation facility in the Crane Strand watershed in Orange and Seminole Counties.

- Lake George Planning Unit
  - Through Volusia Forever, land acquisition for water resource protection and recreation, including source water (drinking) protection.
  - Through Volusia County ECHO, environmental, cultural, historic, and outdoor recreation capital projects.

- Lake Jesup Planning Unit
  - Demonstration and implementation projects that include assessing the lake's circulation patterns, establishing nutrient goals or pollutant load reduction goals (PLRG), and reducing stormwater nutrient loads.
  - The mapping and analyzing of lake sediments.
  - A 1,300-acre wetland restoration project.
  - Sediment dredging and removal.
  - Nutrient load reductions in water discharged from Lake Nina.
  - Improved stormwater storage in Lake Waunatta.
  - An aquatic plant revegetation planting plan in Lake Jesup.
  - The construction of a box culvert along S.R. 46 and Lake Jesup to reconnect the lake's floodplain and provide a crossing for wildlife.
  - The removal of levees at the Lake Jesup Conservation Area and the North Lake Jesup Conservation Area to reconnect 3,682 acres of wetlands to the lake.
  - A subdivision stormwater retrofit program for Seminole County.

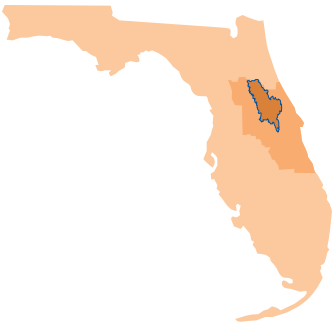


- The removal of the S.R. 46 causeway over Lake Jesup and the elevation of a new bridge.
- The construction of a 6.4-acre wet detention pond with associated control structures north of Sand Dollar and the regrading of a segment of the Navy Canal.
- The construction of a 4-acre wet detention facility for Cameron Ditch.

- Lake Monroe Planning Unit
  - The development of minimum flows and levels for the Middle St. Johns River near S.R. 44 in Volusia County.
  - Master plans for several watersheds, including the Midway, Sanford, and Lake Monroe watersheds.
  - The development of a Watershed Management Plan for the city of Deltona.
  - The development and implementation of a flood forecast system for the southern portion of the Middle St. Johns Basin, especially the Lake Monroe watershed.
  - Remediation projects to improve surface water quality and quantity and solve flooding problems.
  - The installation of a water quality baffle box and improvements to the secondary drainage system at Cameron Avenue.
  - The design and construction of a retention pond, the replacement and upsizing of several culverts and cross-drains, and regrading and sodding of some of the ditches in the Brisson Avenue drainage area.
  - In the First Drive area, the design and construction of a retention pond/sedimentation basin, the upsizing of several cross-drains, and regrading and sodding some of the ditches.
  - The construction of a 20-acre regional stormwater retention pond serving the Celery Avenue area.

- Lake Woodruff Planning Unit
  - Through Volusia Forever, land acquisition for water resource protection and recreation, including source water (drinking) protection.
  - Through Volusia County ECHO, environmental, cultural, historic, and outdoor recreation capital improvement and restoration projects.

- Wekiva River Planning Unit
  - In the Little Wekiva watershed, the development of a master plan for erosion control and projects to address bed and bank stabilization and sediment removal.
  - The restoration of part of the Little Wekiva River's stream channel and the removal of 1,700 linear feet of pipe used to channel the river during the 1970s.



- The development of master plans, including stormwater retrofit projects, for the portions of the Wekiva River watershed in Orange and Seminole Counties.
- The purchase of environmentally sensitive lands or restoration lands in the Wekiva River watershed.
- A number of ecosystem/water quality improvement projects in the Wekiva watershed, including the restoration of the STS site on the Wekiva River, an erosion control project in Wekiwa Springs State Park, Tram Road removal in the Wekiva Basin GEOpark, and possibly some additional land acquisition.
- The retrofit of a stormwater treatment system known as the Votaw Road Pond that drains into the Wekiva Basin GEOpark.
- Restoration work in the Sweetwater Oaks/Cover Lake tributary to the Wekiva River.
- The design and construction of surface water restoration projects listed in the Little Wekiva River Watershed Management Plan.

Agricultural Best Management Practices

The Florida Watershed Restoration Act (FWRA) authorizes the Florida Department of Agriculture and Consumer Services (DACS) to develop interim measures and agricultural BMPs. Additional authority for agricultural BMPs is provided in legislation on nitrates and groundwater (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.

Best Management Practices Manuals

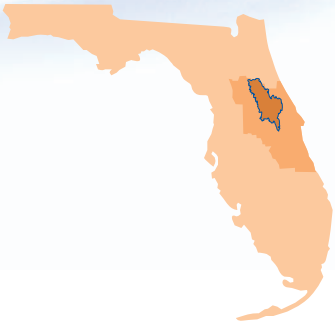
To encourage growers to use BMPs, BMP manuals have been published for a number of agricultural industries, including container-grown plants, blended fertilizer plants, agrichemical handling and farm equipment maintenance, cow/calf operations, aquaculture, and landscaping. Many of these manuals can be downloaded at http://www.dep.state.fl.us/water. Manuals for row crops, equine or horse farms, and ornamental nurseries are currently being developed. The use of a BMP manual alone, however, does not presume compliance with the Department's water quality standards.



- **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.
- **Irrigation and Nutrient BMPs for Commercial Leatherleaf Fern Production in Florida:** Published in 1995 by the University of Florida/IFAS Extension, this manual offers advice on improved irrigation and nutrient management practices for use during the commercial production of leatherleaf fern used by the floral industry. The presented management practices are designed to reduce production costs and improve crop quality while protecting ground water quality. DACS in 1996 adopted these BMPs by rule for leatherleaf fern production areas in and around Volusia County.
- **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 319 grant funds.
- **Water Quality/Quantity BMPs for Indian River Area Citrus Groves:** The regional BMPs in this manual apply to all or parts of 7 east coast (Volusia to Martin) counties. The Indian River Citrus League led a cooperative effort involving 15 agencies and industry associations in developing these BMPs. Beginning in 2000, the BMP manual and guidance booklets were published using EPA Section 319 and industry funds.
- **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.

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 Middle St. Johns 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 (TMDL) 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 D** provides additional information on reasonable assurance. **Appendix E** provides the methodology used to develop the Planning and Verified Lists. **Appendix F** contains the integrated water quality assessment summary **(Table F.1)**, the water quality monitoring stations used in the assessment **(Table F.2)**, and data on water quality trends **(Figures F.1 through F.5)**. **Appendix G** lists permitted wastewater treatment facilities in the basin that discharge to surface water and ground water, and **Appendix H** lists Level 1 land use by planning unit. 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. The majority of the strategic monitoring work was conducted by the Florida Department of Environmental Protection's (Department) Central District staff and included both chemical and biological monitoring and data upload to **STO**rage and **RET**rieval (STORET) databases. Data-gathering activities included working with environmental monitoring staff in the St. Johns River Water Management District (SJRWMD) and local and county governments to obtain applicable monitoring data from their routine monitoring programs and special water quality projects in the basin.

Twenty-three waterbody segments on the Planning List and the 1998 303(d) list needed further data to verify impairment. Parameters included silver, cadmium, iron, lead and selenium. Also included were biology (based on bioassessments), biological oxygen demand (BOD), DO, fecal and total coliforms, unionized ammonia, nutrients and their indicators (nitrogen, phosphorus, and chlorophyll *a*), turbidity, and total suspended solids (TSS).

Fifty-eight waterbody segments were verified impaired for at least 1 parameter in the Middle St. Johns Basin as the result of strategic monitoring and data-gathering activities in Phase 2. **Table F.1** in **Appendix F** provides the updated impairment status of the basin through April 2004.

Sources of Data

The assessment of water quality in the Middle St. Johns 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" STORET databases, the U.S. Geological Survey (USGS), and the Florida Department of Health (DOH). The STORET databases contain water quality data from a number of sources, including the Department, water management districts, local governments, and volunteer monitoring groups. **Appendix E** 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 Middle St. Johns Basin for the period of record used in this assessment. **Figure 3.1** shows the contribution of each provider by year. Data providers that contributed the largest amount of data for this assessment are SJRWMD (34 percent), Orange County (22 percent), and Florida LakeWatch (16 percent).

The Department created the IWR 2002 Database to evaluate data in accordance with the methodology prescribed in the Identification of IWR

Table 3.1: Summary of Data Providers in the Middle St. Johns Basin

Agency	Number of Samples Collected		
	Planning Period 1991–2000	Verification Period 1996–June 2003	Total 1991–2003
St. Johns River Water Management District	175,928	146,499	202,633
Orange County	125,227	66,409	132,604
Florida LakeWatch	78,483	63,797	97,419
Volusia County	81,221	39,087	83,158
Seminole County	15,830	29,028	29,028
City of Orlando	18,700	11,297	20,944
Florida Department of Environmental Protection	10,813	13,149	18,878
U.S. Geological Survey	8,556	8,104	11,575
Florida Fish and Wildlife Conservation Commission	3,895	790	4,022
Lake County	994	2,142	2,142
U.S. Forest Service	427	196	427
TOTAL:	**520,074**	**380,498**	**602,830**

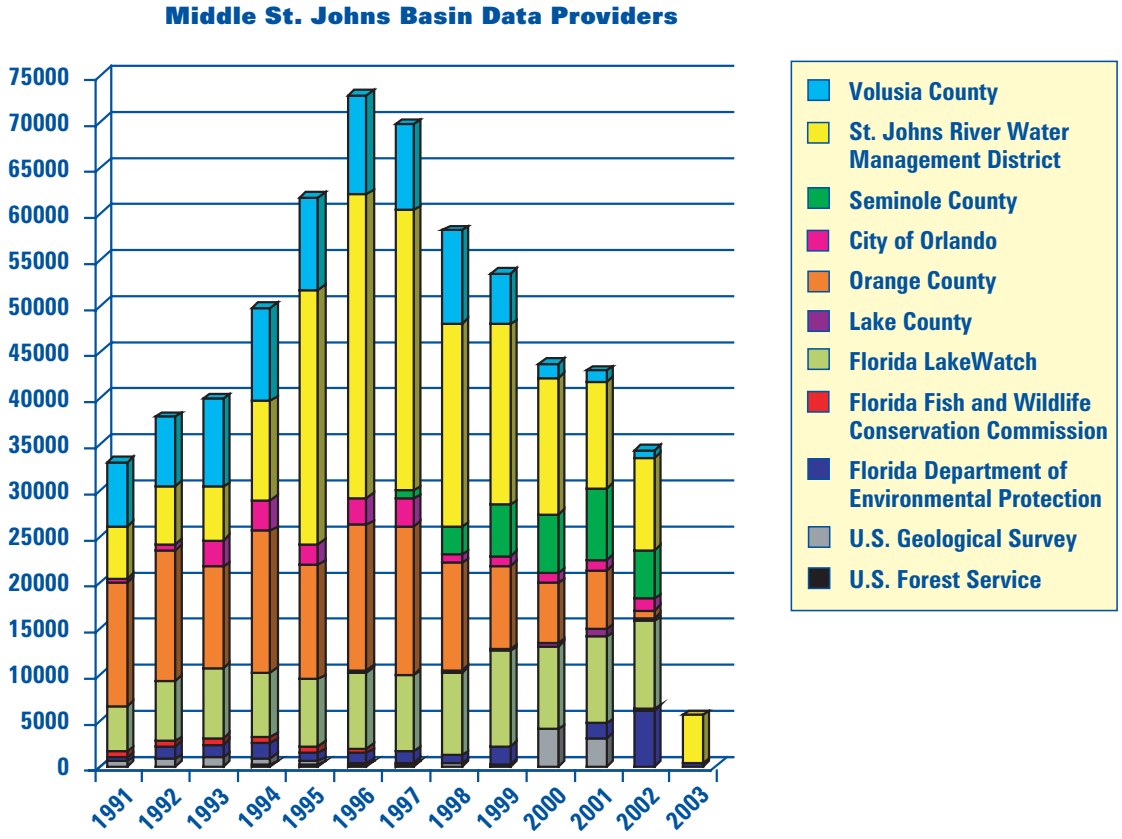


Figure 3.1: Sources of Data for the Middle St. Johns Basin



(Rule 62-303, Florida Administrative Code [F.A.C.]). For the Verified List assessment, the data evaluation period of record is 7.5 years, and for the Planning List, 10 years. **Table E.2** in **Appendix E** shows the periods of record for the Verified and Planning Lists in the first basin rotation cycle. Data collected between January 1, 1996, and June 30, 2003, were evaluated to establish the Verified List for the Middle St. Johns Basin (IWR 2003, Run 14.2 with updates from Run 16.2).

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:

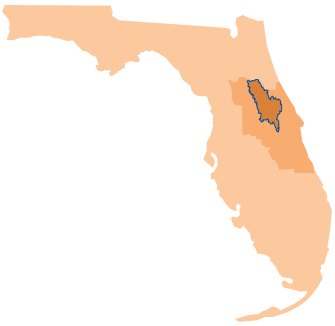
Aquatic Life Use Support-Based Attainment
Primary Contact and Recreation Attainment
Fish and Shellfish Consumption Attainment
Drinking Water Use Attainment
Protection of Human Health

Table 3.2 summarizes the designated uses assigned to Florida's 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) report for the Middle St. Johns 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. None of the waterbodies in this basin are classified as Category 1.

More waterbodies and segments statewide fall into Category 2 (attaining some uses but with insufficient data to assess completely) than Category 1 because monitoring programs can sometimes provide sufficient data for partially determining whether a designated use in a particular waterbody is attained. A total of 104 waterbody segments in the basin fall into Category 2.

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

- Category 3a—174 segments for which no data are available to determine their water quality status;
- Category 3b—34 segments with some data but not sufficient data for making any determinations;
- Category 3c—53 segments that are potentially impaired based on the Planning List criteria; and
- Category 3d—No segments that may be impaired based on the Verified List criteria but 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

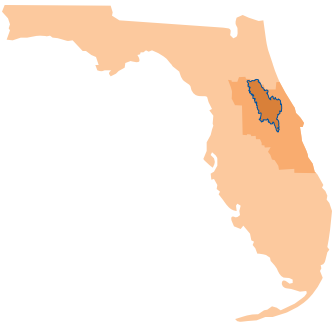
Understanding the Terms "Pollutant" and "Pollution"

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).

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. **NOTE:** 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 previous page for a discussion of the difference between the terms “pollutant” and “pollution.”)
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 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 is 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.



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, there are no waterbodies in the basin designated as Category 4. This category includes those waterbodies/segments that are impaired but do not require a TMDL for one of three reasons:

- Category 4a—No segments for which a TMDL has already been developed,
- Category 4b—5 segments for which the impairment is not attributable to a pollutant or pollutants but is due to other alterations to the waterbody, and
- Category 4c—No segments for which there is reasonable assurance that the designated use of an impaired waterbody will be attained by an existing or proposed pollutant control measure.

Finally, 58 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 Middle St. Johns Basin encompasses approximately 2,037 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 for waterbody segments within planning units. Each of these smaller, hydrologically based drainage areas within a planning unit is assigned a unique waterbody identification number (WBID). Waterbody segments are 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 Middle St. Johns Basin contains nine planning units: Alexander Springs Creek, Deep Creek, Econlockhatchee River, Lake George, Lake Jesup, Lake Kerr, Lake Monroe, Lake Woodruff, and Wekiva River. **Table 3.4** describes these planning units, and **Figure 3.2** shows their locations and boundaries. The remainder of this chapter provides a general

Table 3.4: Planning Units in the Middle St. Johns Basin

Planning Unit	Description
Alexander Springs Creek	Located in the Ocala National Forest in Lake and Marion Counties, this planning unit's main waterbody types comprise streams, lakes, and springs. The unit covers about 63,953 acres (100 square miles). Alexander Springs is a first-order-magnitude spring. Alexander Springs Creek, which is west of the St. Johns River, flows east until meeting the river.
Deep Creek	Covering 175,454 acres (274 square miles), the planning unit lies within Volusia, Brevard, and Seminole Counties. Lakes and streams are the predominant waterbody types, with blackwater systems also present. Major waterbodies include Lake Ashby and Lake Harney. The Deep Creek and Lake Ashby tributaries connect to the St. Johns River in the southern portion of the unit.
Econlockhatchee River	Streams and lakes make up the planning unit, with the Little Econlockhatchee River, Mills Creek, Cowpen Branch, and Fourmile Creek comprising some of its main tributaries. Lying within Seminole, Orange, and Osceola Counties, it covers 173,142 acres (270 square miles) and is contained mostly within the west slope of the St. Johns River Valley.
Lake George	Lying within portions of Lake, Marion, Volusia, and Putnam Counties, the planning unit covers about 161,139 acres (252 square miles) and contains the state's second largest lake. Its principal waterbody types comprise lakes, streams, and springs. The St. Johns River flows through Lake George and exits the planning unit as the Ocklawaha River meets the St. Johns River. Major waterbodies include Price Creek and Jumping Gully Creek.
Lake Jesup	Comprising 92,808 acres (145 square miles) within Seminole and Orange Counties, Lake Jesup itself takes up 16,000 acres (including the lake's floodplain), covering about 20 percent of the total planning unit. Lake Jesup feeds the St. Johns River by an outlet channel located by the S.R. 46 bridge and causeway (SJRWMD, 2002). The planning unit includes both lake and stream waterbody types.
Lake Kerr	This planning unit contains lakes, stream, and springs as the main waterbody types. Its total area is about 120,498 acres (188 square miles). Lake Kerr, an Outstanding Florida Water (OFW), lies within the Ocala National Forest.
Lake Monroe	The planning unit, which includes lake and stream (many of the smaller features are ditches) waterbody types, covers 88,937 acres (139 square miles) and lies within Volusia and Seminole Counties. Major waterbodies include the Bethel Creek tributary and Konamac Lake.
Lake Woodruff	Lying within Volusia and Lake Counties, the planning unit covers about 176,782 acres (276 square miles). The St. Johns River flows through Beresford Lake, Lake Woodruff, and then to Lake Dexter before exiting the planning unit. The principal waterbody types are lakes, streams and springs.
Wekiva River	The dominant planning unit in the basin, its total area is 240,123 acres (376 square miles). Both the Wekiva and Little Wekiva Rivers are OFWs. Made up of blackwater, spring, lake, and stream waterbody types, this unit is protected by the 1988 Water Resources Protection Act. Major waterbodies include Lake Dorr, Little Wekiva River, Rock Springs Run, and Blackwater Creek.

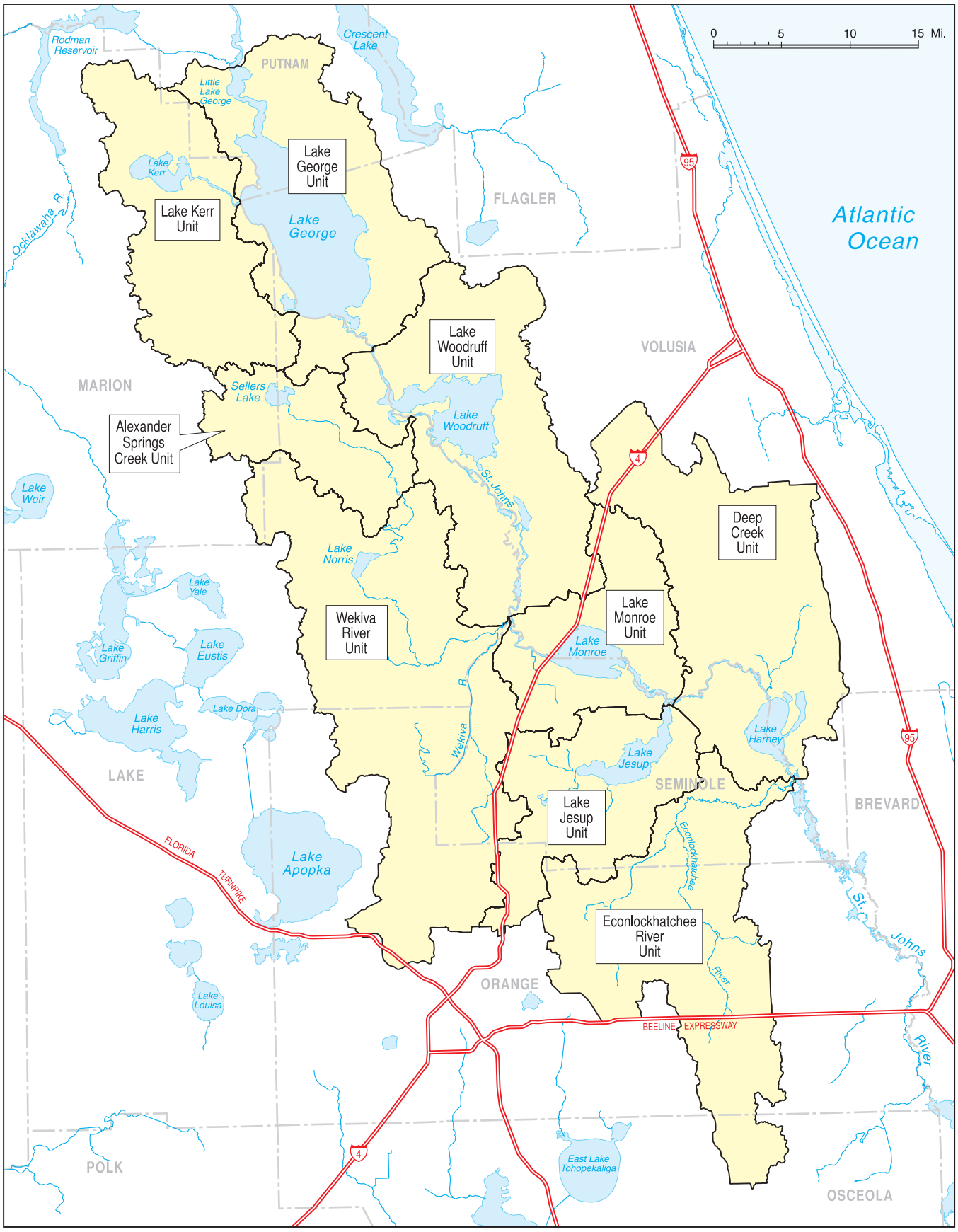


Figure 3.2: Locations and Boundaries of Planning Units in the Middle St. Johns Basin



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 F of this report provides the integrated assessment summary, a list of water quality monitoring stations, and trend data. **Appendix G** includes summary information, by planning unit, for permitted wastewater treatment facilities, Superfund sites, and permitted landfill facilities in the basin. **Appendix H** lists Level I land uses by planning unit. **Appendix I** contains maps showing integration by parameter group for the Middle St. Johns Basin as a whole.

Assessment by Planning Unit

- Alexander Springs Creek Planning Unit

General Description

The Alexander Springs Creek planning unit, in the Ocala National Forest, covers about 63,953 acres (100 square miles) and lies within portions of Lake and Marion Counties. Alexander Springs, for which the planning unit is named, is a first-magnitude spring discharging 94.2 cubic feet per second as of September 2001 (Scott et al., 2002). Alexander Springs Creek flows east for approximately 8 miles until it meets the St. Johns River just south of Lake Dexter (Scott et al., 2002). Other major waterbodies include Buck Lake (for which the Buck Lake Wildlife Area is named), Akron Lake, and Sellers Lake.

Water Quality Summary

Figure 3.3, a composite map of the planning unit, shows waters on the 1998 303(d) list, the Planning List and Verified List, and potential pollution sources. There are 23 water quality monitoring stations used for analysis **(Appendix F)**. **Table 3.5** summarizes the water quality assessment status of all waterbody segments in the planning unit.

Of the 16 waterbody segments in the Alexander Springs Creek planning unit, 9 have at least some type of data in the planning and/or verification periods, but in many cases, the data are insufficient for assessment of segments under the IWR. Five segments have sufficient data for assessment, and of these, none are verified impaired for at least 1 parameter assessed, 1 remains on the Planning List as only potentially impaired, and 4 meet standards for all parameters assessed.

Buck Lake, the site of a national forest campground, is potentially impaired for fecal and total coliform bacteria and remains on the Planning List.

Permitted Discharges and Land Uses

Point Sources. There are four permitted point source discharges in the Alexander Springs Creek planning unit (see sidebar for a definition of point sources). All of these are domestic wastewater facilities permitted

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.

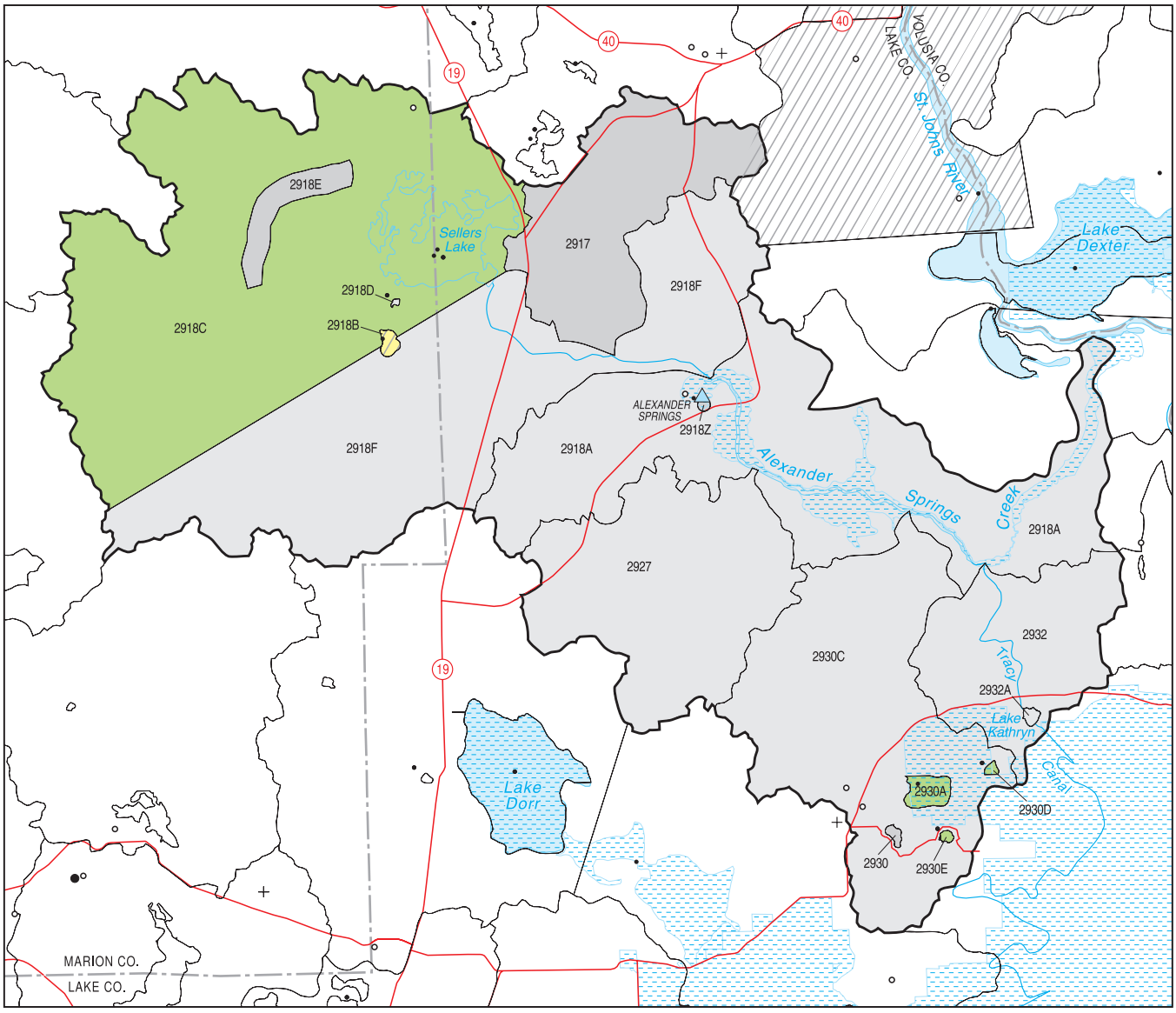


Figure 3.3: Composite Map of the Alexander Springs Creek Planning Unit, Including the 1998 303(d) List, Planning List and Verified List Waters, and Potential Pollution Sources

Table 3.5: Integrated Water Quality Assessment Summary for the Alexander Springs Creek Planning Unit

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2917	South Grasshopper Lake	Lake	IIIF					3b
2918A	Alexander Springs Drain	Stream	IIIF					3a
2918B	Buck Lake	Lake	IIIF	Coliform Bacteria	Fecal Coliform Bacteria, Total Coliform Bacteria		DO	3c
2918C	Sellers Lake Drain	Lake	IIIF				DO, Nutrients (TSI), Turbidity	2
2918D	Echo Lake	Lake	IIIF					3a
2918E	Farles Prairie	Lake	IIIF					3b
2918F	Buck Lake Drain	Lake	IIIF					3a
2918Z	Alexander Springs	Stream	IIIF					3b
2927	Alexander Spring Creek	Stream	IIIF					3a
2930	Lulu Lake	Lake	IIIF					3b
2930A	Akron Lake	Lake	IIIF				DO, Nutrients (TSI), Turbidity	2
2930C	Glenn Branch	Stream	IIIF					3a
2930D	Blue Lake	Lake	IIIF				Nutrients (TSI)	2
2930E	Silver Paisley Lake	Lake	IIIF				Nutrients (TSI)	2
2932	Lake Kathryn Canal	Lake	IIIF					3a
2932A	Lake Kathryn	Lake	IIIF					3a

Notes:

[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)**

Table 3.5 (continued)

[3]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 an existing or proposed pollutant control mechanism 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.

[4]Parameters in **bold** meet the Verified List evaluation criteria, Section 62-303.400, F.A.C.
[5]Parameters in *italics* are in Category 4 (a, b, or c) waters that do not require TMDL development.
[6]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
DO = Dissolved oxygen
TSI = Trophic State Index

for less than 0.100 million gallons per day (mgd), and none discharges to surface waters (not National Pollutant Discharge Elimination System [NPDES] permitted). Permitted discharges range from 0.055 to 0.0900 mgd. The Country Squire Motor Home Vehicle is allowed the largest discharge, 0.055 mgd, into percolation ponds. The smallest allowed discharges are at Spring Creek Elementary School and the U.S. Naval Tracking Station. Each is allowed 0.0090 mgd and discharges into a drainage field and percolation pond, respectively. The only other facility is Alexander Springs Recreational Center, which discharges 0.0300 mgd into a drainfield. **Appendix G** lists, by planning unit, the permitted dischargers in the basin.

There are no other point source discharges in the planning unit.

Nonpoint Sources. Most of the Alexander Springs Creek planning unit is relatively undeveloped. Major land uses are upland forest (78 percent), wetlands (14 percent), and water (4 percent). Much of the planning unit's land area lies within the boundaries of the Ocala National Forest. Urban and built-up land accounts for less than 3 percent of the land area, and agricultural land use covers about 1 percent of the planning unit. These developed land uses can be associated with nonpoint discharges of pollutants and eroded sediments (see sidebar for a description of nonpoint sources of pollution related to land uses and **Noteworthy** for an atmospheric deposition). **Appendix H** provides a detailed analysis of land use in the basin, by planning unit.

Ecological Summary

Two rare and imperiled aquatic species occur in the planning unit. The dense hydrobe snail (*Aphaostracon pyncus*, Thompson) is found in Alexander Springs Run in the Ocala National Forest. The bluenose shiner *(Pteronotropis welaka)* has also been observed in Alexander Springs.

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.



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 D** contain additional information on the requirements for reasonable assurance.

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

• Deep Creek Planning Unit

General Description

Covering 175,454 acres (274 square miles), the Deep Creek planning unit lies within portions of south Volusia, northwestern Brevard, and northeastern Seminole Counties. Major waterbodies include Lake Ashby and Lake Harney. Lake Ashby lies north of Lake Harney, and the Lake Ashby Canal connects the 2 lakes. The Deep Creek and Lake Ashby tributaries connect to the St. Johns River to the south. Volusia County operates a park on Lake Ashby that includes camping facilities, picnic areas, and a boardwalk. The planning unit is largely undeveloped (SJRWMD, 2002a).

Water Quality Summary

Figure 3.4, a composite map of the planning unit, shows waters on the 1998 303(d) list, the Planning List and Verified List, and potential pollution sources. Water quality data from 30 monitoring stations were used for assessment **(Appendix F)**. **Table 3.6** summarizes the water quality assessment status of all waterbody segments in the planning unit.

Of the 25 waterbody segments in the Deep Creek planning unit, 14 have at least some type of data in the planning and/or verification periods, but in many cases, the data are insufficient for assessment of segments under the IWR. Eight segments have sufficient data for assessment, and of these, 4 are verified impaired for at least 1 parameter assessed, 1 remains on the Planning List, 1 meets the threshold for impairment for DO but not by a specific pollutant, and 2 meet standards for all parameters assessed.

Listed below are the verified impaired segments in the planning unit with the parameters for which they are impaired.

St. Johns River Above Lake Jesup	DO, nutrients (chlorophyll *a*)
Deep Creek–Lake Ashby Canal	Cadmium, iron, lead, selenium
Lake Winnemissett	Lead
Lake Harney	DO, mercury in fish, nutrients (trophic state index [TSI])

Other potential impairments in the planning unit include low DO levels and metals in a couple waterbody segments, coliform bacteria in Deep Creek–Lake Ashby Canal and mercury in fish tissue as indicated by fish consumption advisories in the St. Johns River above Lake Jesup.

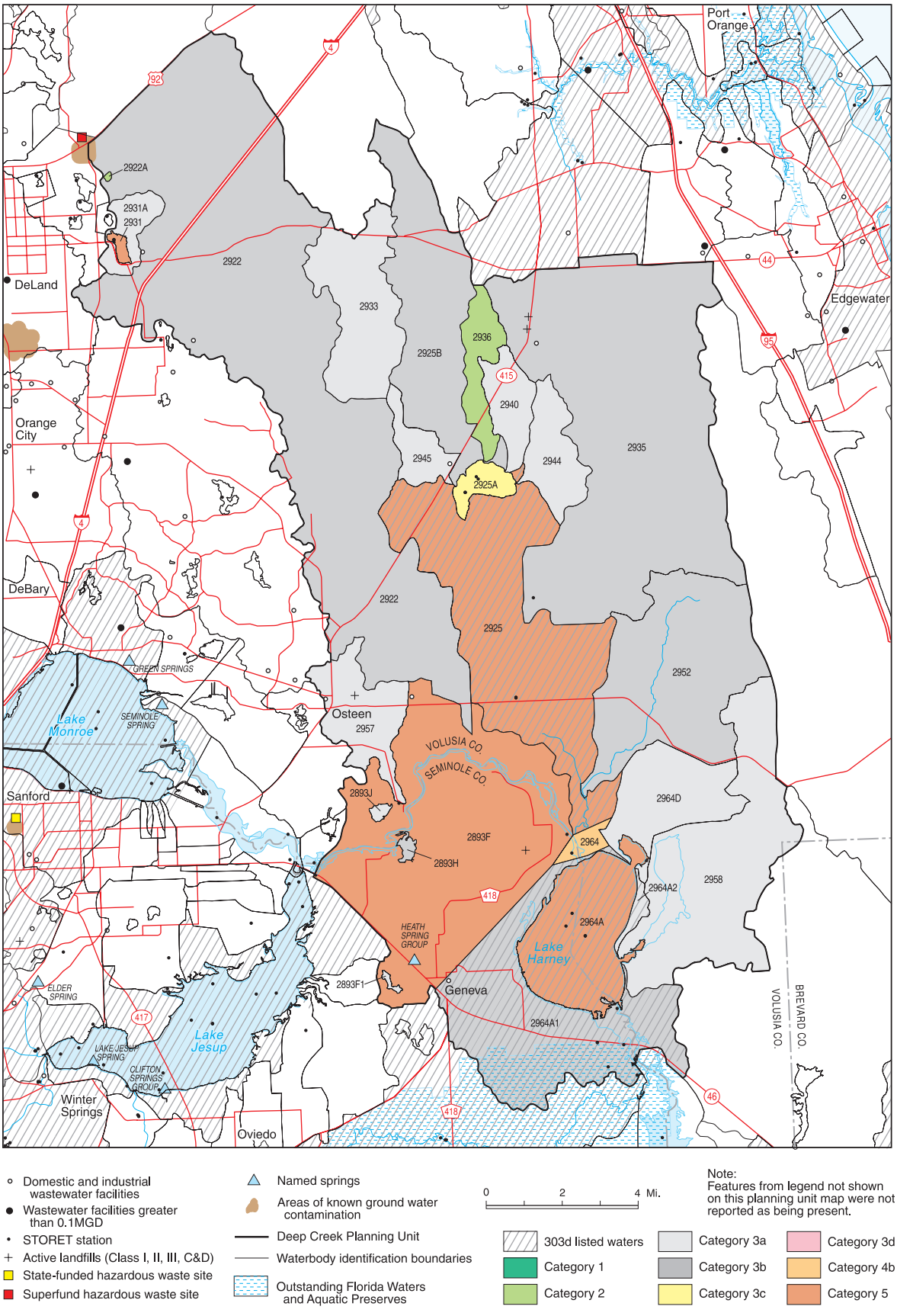


Figure 3.4: Composite Map of the Deep Creek Planning Unit, Including the 1998 303(d) List, Planning List and Verified List Waters, and Potential Pollution Sources

Table 3.6: Integrated Water Quality Assessment Summary for the Deep Creek Planning Unit

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2893F	St. Johns River Above Lake Jesup	Stream	IIIF		Mercury in Fish	**DO, Nutrients (Current and Historical Chlorophyll)**	Fecal Coliform Bacteria, Iron, Total Coliform Bacteria, Turbidity, Unionized Ammonia	5
2893F1	Lake Cockran	Lake	IIIF					3a
2893H	Mullet Lake	Lake	IIIF					3b
2893J	Mud Lake	Lake	IIIF					3a
2922	Deep Creek Diversion	Stream	IIIF					3b
2922A	Daytona Lake	Lake	IIIF				Nutrients (TSI)	2
2925	Deep Creek–Lake Ashby Canal	Stream	IIIF	Cadmium, Coliform Bacteria, Iron, Lead, Silver	Fecal Coliform Bacteria, Silver, Total Coliform Bacteria	**Cadmium, Iron, Lead, DO**	Arsenic, Biology, Chromium 3, Copper, Nickel, Nutrients (Chlorophyll *a*), Turbidity, Unionized Ammonia, Zinc	5
2925A	Lake Ashby	Lake	IIIF		Copper		DO, Fecal Coliform Bacteria, Fluoride, Iron, Lead, Nutrients (TSI), Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	3c
2925B	Lake Ashby Drain	Lake	IIIF					3b

Table 3.6 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2931	Lake Winnemissett	Lake	IIIF			**Lead**	Arsenic, Cadmium, Chromium 3, Copper, DO, Iron, Nickel, Nutrients (TSI), Selenium, Turbidity, Unionized Ammonia, Zinc	5
2931A	Lake Winnemissett Outlet	Lake	IIIF					3a
2933	Akins Bay Slough	Stream	IIIF					3a
2935	Samsula Canal– Sandy Dr	Stream	IIIF					3b
2936	Lake Ashby Creek	Stream	IIIF				Biology	2
2940	Unnamed Ditches	Stream	IIIF					3a
2944	Unnamed Ditches	Stream	IIIF					3a
2945	Unnamed Ditches	Stream	IIIF					3a
2952	Cow Creek	Stream	IIIF					3b
2957	Lemon Bluff Ditch	Stream	IIIF					3a
2958	Gopher Slough	Stream	IIIF					3a
2964	St. Johns Above Lake Harney (Underhill Slough)	Stream	IIIF			**DO**	Fecal Coliform Bacteria, Nutrients (Chlorophyll *a*), Total Coliform Bacteria, Turbidity, Unionized Ammonia	4b

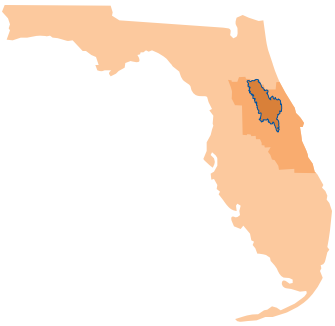
Table 3.6 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2964A	Lake Harney	Lake	IIIF	Cadmium, DO, Nutrients, Silver	Silver	**DO, Mercury in Fish, Nutrients (TSI)**	Cadmium, Chromium 3, Copper, Fecal Coliform Bacteria, Iron, Lead, Nickel, Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	5
2964A1	Lake Harney Outlet	Lake	IIIF					3b
2964A2	Stone Island	Lake	IIIF					3a
2964D	Underhill Slough	Stream	IIIF					3a

Notes:

[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]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 an existing or proposed pollutant control mechanism 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.
[4]Parameters in **bold** meet the Verified List evaluation criteria, Section 62-303.400, F.A.C.
[5]Parameters in *italics* are in Category 4 (a, b, or c) waters that do not require TMDL development.
[6]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
DO = Dissolved oxygen
TSI = Trophic State Index



Elevated nutrient levels and a decrease in DO in the St. Johns River above Lake Jesup denote a decrease in water quality. Lake Harney has a lake water quality TSI rating of 60.0 (considered fair) and is listed as impaired for nutrients and DO. The DOH has issued a health advisory recommending limited consumption of largemouth bass, bowfin, and gar from Lake Harney because of elevated levels of mercury.

Major parameters of concern in the Deep Creek/Lake Ashby Canal waters are cadmium, iron, lead, and selenium. Deep Creek has a Water Quality Index (WQI) rating of 45.7, considered fair (URS Corporation P.E. [URS], 2001).

Permitted Discharges and Land Uses

Point Sources. There are seven permitted point source dischargers in the Deep Creek planning unit. All but one are domestic wastewater facilities, and none is a surface discharge permitted under NPDES. All the facilities use percolation ponds, except for one, Geneva Elementary School, which uses absorption fields. The discharges range from 0.0500 to 0.0085 mgd. The domestic wastewater facility American Bioclean Residuals Management Facility, the largest discharger, currently discharges 0.500 mgd to the Samsula Canal–Sandy Drain watershed. The Lake Ashby Mobile Home Park discharges 0.0085 mgd of domestic wastewater into percolation ponds. The only industrial wastewater facility is Volusia County Utilities Department/Southwest Barn/Equipment and Truck Wash Recycle System, which discharges an unknown amount into the Lemon Bluff Ditch. **Appendix G** lists, by planning unit, the permitted dischargers in the basin.

There is one active Class I solid waste landfill in the planning unit, as well as three active, three inactive, and one closed construction and debris landfills (see **Noteworthy** on environmental remediation). There is also one delineated ground water contamination area, under Chapter 62-524, F.A.C., Potable Water Well Permitting in Delineated Areas (see **Noteworthy** on delineated ground water contamination areas). This area is delineated for a mixture of metals and volatile organic chemicals.

Nonpoint Sources. Upland forest (33.6 percent) and wetlands (36.3 percent) cover more than two-thirds of the Deep Creek planning unit, combined. Agriculture and rangeland occupy 8.9 percent and 6 percent of the total land area, respectively. Urban and built-up areas only comprise 7.7 percent of the planning unit. These developed land uses can be associated with nonpoint discharges of pollutants and eroded sediments. According to the Middle St. Johns River Reconnaissance Report (URS, 2001), the vast majority of the planning unit is undeveloped. **Appendix H** provides a detailed analysis of land use in the basin, by planning unit.

The Middle St. Johns River Reconnaissance Report (URS, 2001) summarizes some of the nonpoint source issues in the planning unit. Lake Harney currently assimilates much of the total nitrogen, phosphorus, and suspended solids carried by stormwater runoff from Orlando. Development pressures are evident, with the city of Deltona planning to annex several thousand acres for commercial and industrial land use. In addition, transportation improvement concepts are being evaluated that include paving Maytown Road and building new east-west roadways across Volusia

Noteworthy

Environmental Remediation

Environmental remediation activities cover a broad spectrum of cleanup programs. These include state-managed hazardous waste, dry cleaning, and petroleum cleanup programs; as well as the federal Superfund and Resource Conservation and Recovery Act (RCRA) programs. These programs are designed to remediate ground water and soil contamination that pose a threat to public health and the environment.

The National Priorities List (NPL) is a consolidated list of the uncontrolled hazardous waste sites that pose the greatest threat to public health or the environment. Sites are listed on the NPL upon the completion of a preliminary assessment, site inspection, and hazardous ranking system evaluation to determine their potential for adverse impacts and priority for corrective action. The EPA Superfund program administers the cleanup of NPL sites.

The Department's state-funded cleanup program administers the cleanup of contaminated hazardous waste sites when enforcement action taken against a responsible party is unsuccessful or when no responsible party is identified.

Atmospheric Deposition

Atmospheric deposition on land or water, through "wet" or "dry" processes, can be a significant nonpoint source of pollution in a watershed. Wet deposition occurs when pollutants are bound in water droplets and fall out in rain or fog. Dry deposition occurs as particles settle from the air onto land and water. Both forms of deposition contribute large quantities of nutrients, heavy metals, and other chemicals to surface waters. In Florida, most air pollutants are from fossil fuel combustion, mainly power plants and motor vehicles. Waste incineration, sulfuric acid production, cement manufacturing, pulp and paper production, and the combustion of plant and animal biomass are a few of the other significant sources of air pollutants. Natural sources of pollutants include lightning and emissions from vegetation.

The air pollutants of most concern in Florida are sulfur dioxide, nitrogen compounds, and mercury compounds. Sulfur dioxide has a role in forming acid rain, which contributes to the lowering of pH in waterbodies. Nitrogen compounds, which act as a nutrient, can cause eutrophication in nitrogen-limited waters and also contribute to acid rain. Eutrophication is a process by which a waterbody becomes rich in dissolved nutrients, often leading to algal blooms, low DO, and changes in community composition. Eutrophication occurs naturally, but can be accelerated by human activities that increase nutrient inputs to the waterbody.

Mercury compounds bioaccumulate up the food chain and contaminate fish tissue. Other air pollutants such as cadmium and lead, polycyclic organic compounds, polychlorinated biphenyls, and dioxins are also of concern. Because atmospheric pollutants can travel hundreds or thousands of miles before settling on land or water, their sources may be global as well as regional and local.

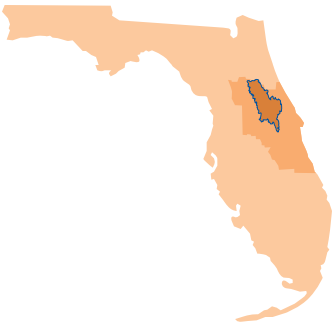
Delineated Ground Water Contamination Areas

The Department's Delineation Program was established in response to the discovery of ground water contaminated by ethylene dibromide (EDB), a soil fumigant that was historically used in thirty-eight Florida counties to control nematodes in citrus groves and row crops. The program currently includes ground water contaminated by other pesticides, industrial solvents, and nutrients. However, the coverage of delineated areas in this program is not intended to include all sources of contaminated ground water in Florida. The Delineation Program is designed to ensure the protection of public health when consuming potable ground water supplies and to minimize the potential for cross-contamination of adjacent ground water resources.

The Delineation Program's primary responsibilities are as follows:

- Delineate areas of ground water contamination,
- Implement a water well construction permitting/application process that requires stringent construction standards, and
- Require water testing after completion of the well to ensure the potable quality of the water source.

Any newly constructed water wells in delineated areas, and existing water wells found to be contaminated, are remediated by installing individual water treatment systems or by connecting the users to public water supply systems.



County. New and improved roads will add to development pressure and associated nonpoint source contamination.

Ecological Summary

The rare and imperiled blueback herring *(Alosa aestivalis)* has been observed in the Lake Harney portion of the St. Johns River (Hoehn, 1998).

Water Quality Improvement Plans and Projects

Several programs are under way to preserve and protect lands in the Deep Creek planning unit. These include Volusia Forever, Volusia County Conservation Corridor, Small Lot Acquisition Program, Scrub Jay Habitat Preservation Program, and the Environmental, Cultural, Historic, Outdoor (ECHO) Program. Volusia County is conducting surface water monitoring in its portion of the Deep Creek planning unit. EnviroNet, a program run by Volusia County, uses volunteers to carry out a number of activities that range from marking stormdrains to assisting in restoration efforts. **Appendix C** summarizes restoration and protection efforts in the basin, by planning unit

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 D** contain additional information on the requirements for reasonable assurance.

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

• Econlockhatchee River Planning Unit

General Description

The Econlockhatchee River planning unit lies within portions of Osceola, Orange, and east Seminole Counties. Totaling 173,142 acres (270 square miles), it is contained mostly in the west slope of the St. Johns River Valley. The planning unit is characteristic of blackwater systems in that it drains large areas of marsh, which color the water with organic compounds. The predominant waterbody is the Econlockhatchee River, which is approximately 36 miles long. Major tributaries to the Econlockhatchee River include the Little Econlockhatchee River, Mills Creek, Silcox Branch, Mills Branch, Long Branch, Hart Branch, Cowpen Branch, Green Branch, Turkey Creek, Little Creek, and Fourmile Creek. In 1992 the Environmental Regulation Commission designated the Econlockhatchee River as a "Special Waters" Outstanding Florida Water (OFW) in accordance with Subsection 62-302.700(5), F.A.C. The planning unit also contains numerous small, shallow lakes.

Water Quality Summary

Figure 3.5, a composite map of the planning unit, shows waters on the 1998 303(d) list, the Planning List and Verified List, and potential pollution sources. Water quality data from 78 monitoring stations were used for assessment **(Appendix F)**.

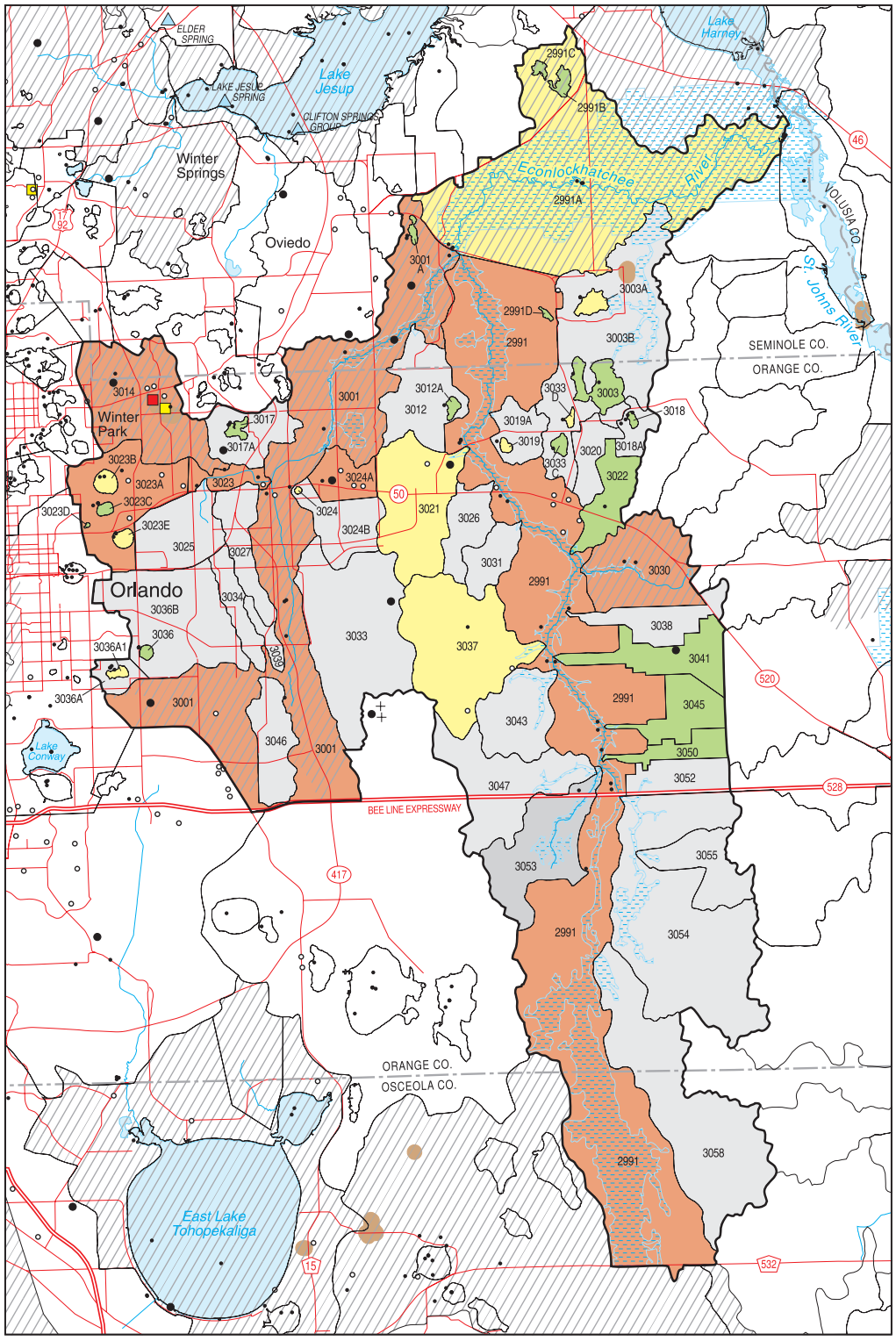


Figure 3.5: Composite Map of the Econlockhatchee River Planning Unit, Including the 1998 303(d) List, Planning List and Verified List Waters, and Potential Pollution Sources

Table 3.7: Integrated Water Quality Assessment Summary for the Econlockhatchee River Planning Unit

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2991	Econlockhatchee River	Stream	IIIF		Mercury in Fish	**Fecal Coliform Bacteria**	Biology, Chromium 3, DO, Iron, Nickel, Nutrients (Chlorophyll *a*), Turbidity, Unionized Ammonia, Zinc	5
2991A	Econlockhatchee River	Stream	IIIF	BOD, DO, Coliform Bacteria, Lead, Mercury in Fish, Nutrients	Lead, Mercury in Fish, Silver		Biology, BOD, Cadmium, Chromium 3, Copper, DO, Fecal Coliform Bacteria, Iron, Nickel, Nutrients (Chlorophyll *a*), Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	3c
2991B	Buck Lake	Lake	IIIF				Nutrients (TSI)	2
2991C	Island Pond	Lake	IIIF				Nutrients (TSI)	2
2991D	Horseshoe Lake	Lake	IIIF				Nutrients (TSI)	2
3001	Little Econlockhatchee River	Stream	IIIF	BOD, DO, Coliform Bacteria, Nutrients		**Fecal Coliform Bacteria**	Biology, BOD, Chromium 3, DO, Nickel, Nutrients (Chlorophyll *a*), Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	5

Table 3.7 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
3001A	Long Lake	Lake	IIIF				Nutrients (TSI)	2
3003	Lake Pickett	Lake	IIIF				Cadmium, Chromium 3, DO, Fecal Coliform Bacteria, Nutrients (TSI), Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	2
3003A	Lake Mills	Lake	IIIF		Biology		Nutrients (TSI)	3c
3003B	Lake Pickett Outlet	Lake	IIIF					3a
3012	Lake Price Outlet	Stream	IIIF					3a
3012A	Lake Price	Lake	IIIF				DO, Fecal Coliform Bacteria, Nutrients (TSI), Total Coliform Bacteria, Turbidity, Unionized Ammonia	2
3014	Crane Strand Drain	Stream	IIIF	DO, BOD, Nutrients	Biology	**DO, BOD, Fecal Coliform Bacteria, Total Coliform Bacteria**	Nutrients (Chlorophyll *a*), Turbidity	5
3017	Lake Irma	Lake	IIIF				DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity	2
3017A	Lake Irma Outlet	Lake	IIIF					3a

Table 3.7 (continued)

WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
					Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	
3018	Lake Louise	Lake	IIIF				DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia	2
3018A	Lake Louise Outlet	Lake	IIIF					3a
3019	Lake Tanner	Lake	IIIF		DO		Fecal Coliform Bacteria, Nutrients (TSI), Total Coliform Bacteria, Turbidity, Unionized Ammonia	3c
3019A	Lake Tanner Outlet	Lake	IIIF					3a
3020	Unnamed Drain	Stream	IIIF					3a
3021	Unnamed Branch	Stream	IIIF		DO		Fecal Coliform Bacteria, Nutrients (Chlorophyll *a*), Total Coliform Bacteria, Turbidity, Unionized Ammonia	3c
3022	Bithlo Branch	Stream	IIIF				Biology	2
3023	Crane Stand	Stream	IIIF			**Fecal Coliform Bacteria, Total Coliform Bacteria**	Cadmium, Chromium 3, DO, Nutrients (Chlorophyll *a*), Turbidity, Zinc	5

Table 3.7 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
3023A	Lake Baldwin Outfall	Stream	IIIF			**Fecal Coliform Bacteria, Nutrients (Chlorophyll *a*), Total Coliform Bacteria**	DO, Turbidity	5
3023B	Lake Barton	Lake	IIIF		Nutrients (TSI)		DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia	3c
3023C	Lake Susannah	Lake	IIIF				DO, Fecal Coliform Bacteria, Nutrients (TSI), Unionized Ammonia	2
3023D	Lake Gear	Lake	IIIF				DO, Fecal Coliform Bacteria, Nutrients (TSI), Unionized Ammonia	2
3023E	Lake Corrine	Lake	IIIF		Nutrients (TSI)		DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	3c
3024	Lake Downey	Lake	IIIF		Nutrients (TSI)		DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia	3c

Table 3.7 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
3024A	Trib. to Little Econ. River	Stream	IIIF			**DO, Fecal Coliform Bacteria, Total Coliform Bacteria**	Biology, Nutrients (Chlorophyll *a*), Turbidity	5
3024B	Lake Downey Outlet	Lake	IIIF					3a
3025	Azalea Park Canal	Stream	IIIF					3a
3026	Unnamed Drain	Stream	IIIF					3a
3027	Unnamed Drain	Stream	IIIF					3a
3030	Long Branch	Stream	IIIF	BOD, DO, Coliform Bacteria, Iron, Nutrients, Turbidity		**BOD, DO, Fecal Coliform Bacteria, Iron, Total Coliform Bacteria**	Biology, Nutrients (Chlorophyll *a*), Turbidity	5
3031	Unnamed Drain	Stream	IIIF					3a
3033	Unnamed Drain	Stream	IIIF					3a
3033C	Lake Corner	Lake	IIIF				DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia	2
3033D	Lake Drawdy	Lake	IIIF		DO		Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia	3c
3034	Unnamed Drain	Stream	IIIF					3a

Table 3.7 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
3036	Lake Frederica	Lake	IIIF				Cadmium, Chromium 3, Copper, DO, Fecal Coliform Bacteria, Nutrients (TSI), Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	2
3036A	Lake George	Lake	IIIF					3a
3036A1	Lake Barber	Lake	IIIF		Nutrients (TSI)		DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia	3c
3036B	Lake Frederica Drain	Lake	IIIF					3a
3037	Unnamed Drain	Stream	IIIF		DO		Turbidity, Unionized Ammonia	3c
3038	Unnamed Drain	Stream	IIIF					3a
3039	Unnamed Drain	Stream	IIIF					3a
3041	Unnamed Ditches	Stream	IIIF				Biology	2
3043	Cowpen Branch	Stream	IIIF					3a
3045	Ditches	Stream	IIIF				Biology	2
3046	Unnamed Drain	Stream	IIIF					3a
3047	Green Branch	Stream	IIIF					3a
3050	Ditches	Stream	IIIF				Biology	2
3052	Ditches	Stream	IIIF					3a
3053	Turkey Creek	Stream	IIIF					3b

Table 3.7 (continued)

WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Data Evaluation under the Impaired Surface Waters Rule Criteria[3]: Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/303(d) Integrated Report Assessment Category for WBID[6]
3054	Little Creek	Stream	IIIF					3a
3055	Unnamed Ditch	Stream	IIIF					3a
3058	Four Mile Creek	Stream	IIIF					3a

Notes:

[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]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 an existing or proposed pollutant control mechanism 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.

[4]Parameters in **bold** meet the Verified List evaluation criteria, Section 62-303.400, F.A.C.
[5]Parameters in *italics* are in Category 4 (a, b, or c) waters that do not require TMDL development.
[6]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
BOD = Biological oxygen demand
DO = Dissolved oxygen
TSI = Trophic State Index



Table 3.7 summarizes the water quality assessment status of all waterbody segments in the planning unit.

Of the 58 waterbody segments in the Econlockhatchee River planning unit, 34 have at least some type of data in the planning and/or verification periods, but in many cases the data are insufficient for assessment of segments under the IWR. Thirty-three segments have sufficient data for assessment, and of these, 7 are verified impaired for at least 1 parameter assessed, 10 remain on the planning list as potentially impaired, and 14 meet standards for all parameters assessed.

Listed below are the verified impaired segments in the planning unit, with the parameters for which they are impaired.

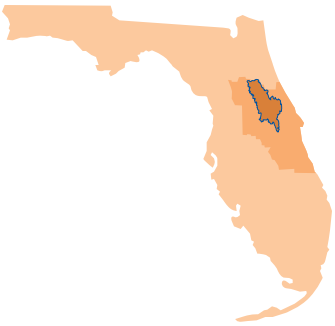
Econlockhatchee River	Fecal coliform bacteria
Little Econlockhatchee River	Fecal coliform bacteria
Crane Strand Drain	DO, BOD, fecal coliform bacteria, total coliform bacteria
Crane Strand	Fecal coliform bacteria, total coliform bacteria
Lake Baldwin Outfall	Fecal coliform bacteria, nutrients, total coliform bacteria
Trib. to Little Econ. River	DO, fecal coliform bacteria, total coliform bacteria
Long Branch	BOD, DO, fecal coliform bacteria, iron, total coliform bacteria

The upper portion of the Econlockhatchee River has largely remained undeveloped, with limited water quality problems. The Econlockhatchee River drains marshy areas with naturally occurring high organic and low pH and DO levels.

The Little Econlockhatchee River, in contrast, drains the highly developed urban areas of Orlando and its suburbs. Parts of the original watercourse have been extensively channelized, and for many years the Little Econlockhatchee was the receiving water for much of the sewage effluent from the Orlando metropolitan area (URS, 2001). The Little Econlockhatchee River was placed on the 1998 303(d) list of impaired waters for DO, coliform bacteria, nutrients, and BOD. It was also impaired for coliform bacteria by the IWR. In addition, the segment of the Econlockhatchee River below the confluence with the Little Econlockhatchee River is on the 1998 303(d) list for potential impairment for DO, coliforms bacteria, lead, BOD, and mercury (based on fish consumption advisories).

Another stream, Crane Strand Drain, is impaired for DO, BOD, and coliform bacteria. It is potentially impaired biology. Long Branch, which flows into the Econlockhatchee near Bithlo, is potentially impaired for coliform bacteria, DO, nutrients, iron, and BOD. For graphical information concerning water quality trends in Crane Strand, see **Figure F.1**, and in Long Branch, see **Figure F.2** in **Appendix F**.

Six lakes in the planning unit are potentially impaired, mostly for nutrients and/or DO. Mills Branch at Lake Mills failed a bioassesssment in 1999 and is potentially impaired for biology.



Permitted Discharges and Land Uses

Point Sources. In the Econlockhatchee River planning unit, there are 35 total known permitted point source dischargers. Of these, 21 are domestic wastewater facilities, 9 are industrial wastewater facilities, 3 are concrete batch plants, and 1 is a petroleum cleanup site. Nine are NPDES-permitted facilities, which may also supply part of their discharge for reuse. Nineteen facilities are permitted to discharge 0.100 mgd or less. The 2 largest dischargers are domestic wastewater treatment facilities. The Orlando/Iron Bridge Regional Wastewater Reclamation Facility is permitted to discharge 40 mgd: approximately 20 mgd to constructed wetlands and the remainder to the St. Johns River. The Orange County Utilities Division (OCUD)/Easterly Subregional Wastewater Treatment Plant is permitted to discharge 6.2 mgd of highly treated effluent into a combined natural and human-made wetlands system that provides further treatment before it flows into an unnamed tributary of the Econlockhatchee River. The remaining 12.8 mgd of effluent from the OCUD/Easterly plant goes to reuse systems, including cooling water for the Curtis H. Stanton Energy Plant.

Other significant domestic wastewater dischargers include Alafaya Utility (1.1 mgd), which discharges to percolation ponds, and OCUD/University Shores (1.275 mgd), which discharges to the Little Econlockhatchee River. Industrial facilities with permitted discharges include car and truck wash facilities, concrete batch plants, and 2 ground water contamination remediation systems. These are all small discharges, with the largest, the Rexam Groundwater Treatment Facility, permitted to discharge 72,000 gallons per day. **Appendix G** lists, by planning unit, the permitted dischargers in the basin.

Wastewater reuse is significant in the planning unit, with at least 31.15 mgd directed to reuse. The Orlando/Iron Bridge facility is the largest contributor, at 18.86 mgd.

Other contributors of point source discharges are two hazardous waste sites, which consist of one active Superfund site and one active state-funded site. There is also one closed Class I and one closed Class III solid waste landfill, as well as two closed construction and debris landfills. Under Chapter 62-524, F.A.C., Potable Water Well Permitting in Delineated Areas, four areas are delineated for ground water contamination, for a mixture of metals, volatile organic compounds, and pesticides.

Nonpoint Sources. Extensive urbanization has occurred on the banks and channels of the Econlockhatchee River system, often in the floodplain. Urban runoff and the continuing effects of sediment load from previous wastewater effluent discharges affect the Little Econlockhatchee River (SJRWMD, 2002a). Approximately 25 percent of the land area in the planning unit is classified as urban and built-up, with an additional 2.7 percent occupied by transportation, communications, and utilities. Wetlands account for 26 percent of the land area. Agricultural land uses are also significant, with almost a quarter of the land area devoted to agriculture (12.7 percent) and rangeland (10.4 percent). Past agricultural use included citrus groves, many of which were destroyed by freezes during the 1990s. These developed land uses can be associated with nonpoint discharges of



pollutants and eroded sediments. **Appendix H** provides a detailed analysis of land use in the basin, by planning unit.

Ecological Summary

The Econlockhatchee River is characterized by a narrow border of significant wetlands, with pine flatwoods adjacent to the river corridor. The headwater area contains wetlands that are more expansive and flatwoods that are interspersed with agriculture, with small patches of hardwood forest and longleaf pine. Urbanization has reduced wetland and upland habitats throughout the Econlockhatchee River watershed. In response, special basin criteria have been adopted for the river and its tributaries; these currently serve as a model in Florida for buffering development on private properties along river systems (SJRWMD, 2001b).

Water Quality Improvement Plans and Projects

Several projects have been initiated to address issues with the Econlockhatchee River. In partnership with the SJRWMD, Orange and Seminole Counties are finalizing their Little Econlockhatchee master plans. Efforts are already under way to begin the implementation of water quality and quantity retrofit systems. State, regional, and local governments are acquiring lands on the river to begin wetland restoration where possible. Local governments have identified stormwater retrofit programs to improve water quality and flood control in older developments constructed prior to state stormwater regulations. Plans for the Natural Resources Agricultural Learning Center on Long Branch Creek in Orange County are under way; the center will promote environmental preservation, reduction of development pressure, and educational outreach (URS, 2001). **Appendix C** summarizes restoration and protection efforts in the basin, by planning unit.

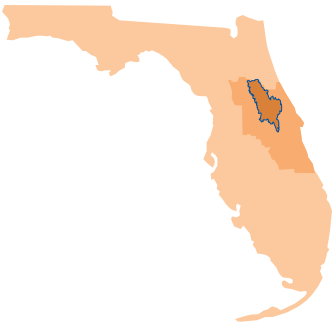
Waters will not be placed on the Verified List if the Department receives reasonable assurance that existing or proposed projects and/or programs are expected to result in the attainment of water quality standards or consistently improve water quality over time. Chapter 4 and **Appendix D** contain additional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

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

• Lake George Planning Unit

General Description

The Lake George planning unit, in portions of Lake, Marion, Volusia, and Putnam Counties, comprises 161,139 acres (252 square miles), with Lake George itself taking up 46,000 of these acres (72 square miles). Lake George is the state's second largest lake. The major waterbodies in the planning unit include Lake George, the St. Johns River above the Ocklawaha River**,** Price Creek, and Jumping Gully Creek. The U.S. Navy also used Lake George as a bombing range (Fitzgerald et al., 1988). The lands surrounding Lake George in Volusia County are now in the Lake George State Forest.



Water Quality Summary

Figure 3.6, a composite map of the planning unit, shows waters on the 1998 303(d) list, the Planning List and Verified List, and potential pollution sources. Water quality data from 61 monitoring stations were used for assessment **(Appendix F)**.

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

Of the 29 waterbody segments in the Lake George planning unit, 15 have at least some type of data in the planning and/or verification periods, but in may cases the data was insufficient for assessment of segments under the IWR. Thirteen segments have sufficient data for assessment, and of these 6 are verified impaired for at least 1 parameter assessed, none are on the Planning List as potentially impaired, and 7 meet standards for all parameters assessed.

Listed below are the verified impaired segments in the planning unit, and the parameters for which they impaired.

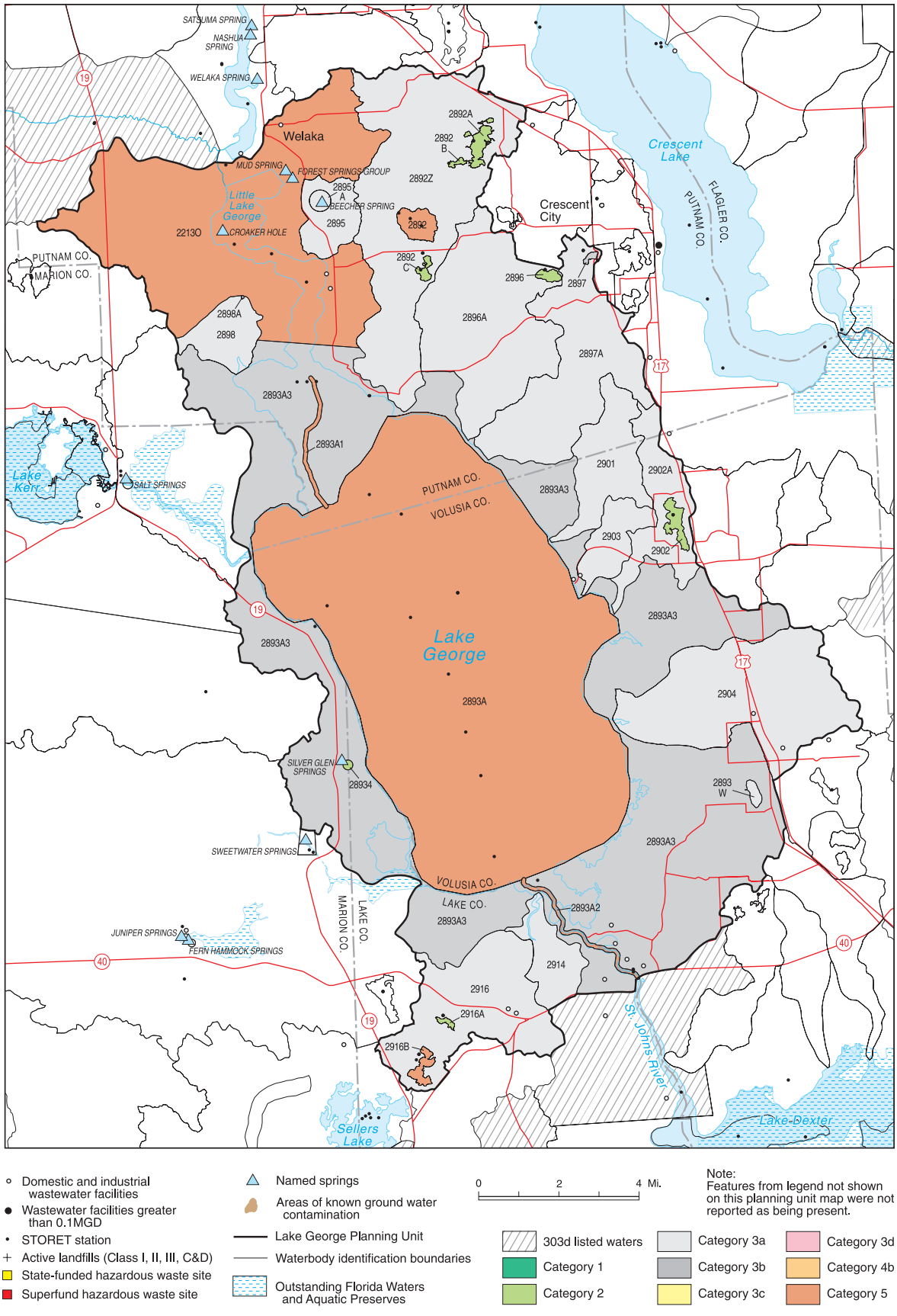
St. Johns River Above Ocklawaha River	Nutrients (chlorophyll *a*)
Lake Margaret	Mercury in fish
Lake George	Nutrients (TSI), selenium
St. Johns River Below Lake George (2893A1)	Nutrients (chlorophyll *a*)
St. Johns River Below Lake George (2893A2)	DO, nutrients (chlorophyll *a*)
Grasshopper Lake	Mercury in fish

Lake George is impaired for elevated levels of nutrients. Moderately eutrophic, the lake receives nutrient loading from both human-made and natural sources. Periodic algal blooms occur (Alvarez, Lehman, and Associates, 1991). This watershed is surrounded by metropolitan areas in the uplands of the west (Ocala) and to the south-southeast of the basin (Orlando and DeLand). Lake George is especially vulnerable to pollutants because the river water slows as it drains into the large, shallow lake, increasing the retention time of the water (Alvarez, Lehman, and Associates, 1991). Segments of the St. Johns River upstream and downstream of Lake George are also impaired for nutrients.

The DOH has issued a health advisory recommending limited consumption of largemouth bass, bowfin, gluegill sunfish and gar from Grasshopper Lake because of elevated levels of mercury.

Permitted Discharges and Land Uses

Point Sources. There are 14 total permitted point source dischargers in the Lake George planning unit. Of these, 12 are domestic wastewater facilities and 2 are industrial wastewater facilities. Discharges range from 0.0990 to 0.0043 mgd, and none is NPDES-permitted. The facilities discharge to percolation ponds, drainfields, or holding ponds. The facility with the largest discharge is the Welaka Wastewater Treatment Plant (0.0990 mgd), which discharges into the St. Johns Basin above



- Domestic and industrial wastewater facilities
- Wastewater facilities greater than 0.1MGD
- STORET station
- 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
- Lake George Planning Unit
- Waterbody identification boundaries
- Outstanding Florida Waters and Aquatic Preserves

0 2 4 Mi.

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

- 303d listed waters
- Category 1
- Category 2
- Category 3a
- Category 3b
- Category 3c
- Category 3d
- Category 4b
- Category 5

Figure 3.6: Composite Map of the Lake George Planning Unit, Including the 1998 303(d) List, Planning List and Verified List Waters, and Potential Pollution Sources

Table 3.8: Integrated Water Quality Assessment Summary for the Lake George Planning Unit

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2213O	St. Johns River Above Ocklawaha River	Stream	IIIF			**Nutrients (Chlorophyll *a*)**	DO, Fecal Coliform Bacteria, Fluoride, Mercury in Fish, Total Coliform Bacteria, Turbidity	5
2892	Lake Margaret	Lake	IIIF			Mercury in Fish		5
2892A	Lake Como	Lake	IIIF				Nutrients (TSI)	2
2892B	Banana Lake	Lake	IIIF				Nutrients (TSI)	2
2892C	Lake Estella	Lake	IIIF				Nutrients (TSI)	2
2892Z	Lake Margaret Drain	Lake	IIIF					3a
28934	Silver Glen Spring	Stream	IIIF				Nutrients (Chlorophyll *a*)	2
2893A	Lake George	Lake	IIIF			**Nutrients (TSI)**	Arsenic, Cadmium, Chromium 3, Copper, DO, Fecal Coliform Bacteria, Iron, Lead, Mercury in Fish, Nickel, Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	5
2893A1	St. Johns River Below Lake George	Stream	IIIF			**Nutrients (Chlorophyll *a*)**	Copper, DO, Fecal Coliform Bacteria, Iron, Lead, Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	5
2893A2	St. Johns River Above Lake George	Stream	IIIF			**DO, Nutrients (Chlorophyll *a*)**	Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity	5

Table 3.8 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2893A3	Lake George Leftover	Lake	IIIF					3b
2893W	Lake Pierson	Lake	IIIF					3a
2895	Beecher Run	Stream	IIIF					3a
2895A	Beecher Springs	Stream	IIIF					3a
2896	Clear Lake	Lake	IIIF				Nutrients (TSI)	2
2896A	Clear Lake Outlet	Lake	IIIF					3a
2897	Bell Lake	Lake	IIIF					3a
2897A	Bell Lake Outlet	Lake	IIIF					3a
2898	Lake Laura Outlet	Stream	IIIF					3a
2898A	Lake Laura	Lake	IIIF					3a
2901	Patty Wiggins Branch	Stream	IIIF					3a
2902	Lower Louise Lake	Lake	IIIF				Nutrients (TSI)	2
2902A	Lower Louise Lake Drain	Lake	IIIF					3a
2903	Unnamed Drain	Stream	IIIF					3a
2904	Price Creek	Stream	IIIF					3a
2914	Blue Creek	Stream	IIIF					3a
2916	Jumping Gulley Creek	Stream	IIIF					3a
2916A	Crooked Lake	Lake	IIIF				Nutrients (TSI)	2
2916B	Grasshopper Lake	Lake	IIIF			**Mercury in Fish**	Nutrients (TSI)	5

Notes:

[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]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 3.8 (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 an existing or proposed pollutant control mechanism 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.

[4]Parameters in **bold** meet the Verified List evaluation criteria, Section 62-303.400, F.A.C.
[5]Parameters in *italics* are in Category 4 (a, b, or c) waters that do not require TMDL development.
[6]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
DO = Dissolved oxygen
TSI = Trophic State Index

the Ocklawaha Basin. The facility discharging the smallest amount is the Pierson Laundromat (0.0043 mgd), an industrial wastewater source discharging into the Price Creek watershed. Another notable facility is River Park Utilities, discharging 0.025 mgd. This facility has its own reuse system. **Appendix G** lists, by planning unit, the permitted dischargers in the basin.

Other contributors of point source discharges include one closed Class I and two closed Class II solid waste landfills, as well as one closed construction and debris landfill. There are no delineated areas under Chapter 62-524, F.A.C., Potable Delineated Water Well Permitting in Delineated Areas, and no Superfund or state-funded hazardous waste sites.

Nonpoint Sources. Water (32.7 percent), upland forest (30.8 percent), and wetlands (21.6 percent) occupy most of the land area in the planning unit. Urban and built-up lands cover about 7 percent of the total land area, mostly concentrated around the town of Pierson**,** on the eastern side of the planning unit, or on the north shore of Lake George. Agriculture accounts for 5.4 percent of the total land area. These developed land uses can be associated with nonpoint discharges of pollutants and eroded sediments. **Appendix H** provides a detailed analysis of land use in the basin, by planning unit.

Major pollution in the planning unit comes from urban and agricultural runoff. Specifically, the SJRWMD estimated that 2.3 million pounds of pesticides were used in 1988, with an unknown amount entering the St. Johns River just upstream of Lake George. It also has been suggested that leakage of old sanitary sewers could be contributing to water quality degradation. The St. Johns River, however, is probably responsible for the highest pollution loading into the basin (Alvarez, Lehman, and Associates, 1991).

Ecological Summary

The Lake George State Forest is one of several publicly owned tracts of land encircling Lake George. The St. Johns River borders three and a half miles of the forest and provides a wealth of ecologically valuable



communities, as well as river-based recreation. The surrounding landscape of the forest contributes to water resource protection of the Lake George watershed and aquifer recharge.

The Lake George region is also part of an extensive wildlife corridor that provides habitat and roaming areas vital to the survival of the local black bear population *(Ursus americanus floridanus)*. Other wildlife that make their homes in the forest include the bald eagle *(Haliaeetus leucocephalus)*, sandhill crane *(Grus canadensis pratensis)*, white-tailed deer *(Odocoileus virginianus)*, wild turkey *(Meleagris gallopavo silvestris)*, bobcat *(Lynx rufus)*, and gopher tortoise *(Gopherus polyphemus)*. One of the largest concentrations of bald eagles statewide can be found around Lake George (Florida Fish and Wildlife Conservation Commission [FWC] Bald Eagle Nesting Survey Data Layer, 2000). This cluster of bald eagle nests is 1 of 13 clusters statewide needed to ensure the survival of the species within Florida.

Rare and imperiled or unique species of fish and aquatic invertebrates occur in the planning unit. The endangered shortnose sturgeon *(Acipenser brevirostrum)* is thought by fishery biologists to have used the St. Johns River upstream to Lake George. The collection of shortnose sturgeon in recent years has been rare (Hoehn, 1998). Other rare and imperiled fish observed in the Lake George watershed are blueback herring *(Alosa aestivalis)* and bluenose shiner *(Pteronotropis welaka)* (Hoehn, 1998). The Silver Glen Springs crayfish *(Procambarus attiguus)* is found in Silver Glen Springs. Croaker Hole, a spring in the bed of the St. Johns River, is the primary thermal refuge for striped bass (*Morone* spp.) on the St. Johns River, although stripers may occur as far upstream as Lake Jesup (Cross, 1994).

Water Quality Improvement Plans and Projects

The Lake George Restoration Project has been under way since 1997. Agencies involved include the U.S. Army Corps of Engineers (USACOE), the FWC, the SJRWMD, and the Department's Central District and its Bureau of Invasive Plant Management, as well as concerned residents and property owners. The project's goals include removing and preventing the accumulation of muck along the lake's shoreline and restoring and maintaining the health of the lake (Department, 1991). **Appendix C** summarizes restoration and protection efforts in the basin, by planning unit.

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 D** contain additional information on the requirements for reasonable assurance.

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



- Lake Jesup Planning Unit

General Description

The Lake Jesup planning unit is located in central Seminole County and extends into Orange County. It covers 92,808 acres (145 square miles), of which 16,000 acres comprise Lake Jesup (including the lake's open water and floodplain). Many communities, including the northern metropolitan area of Orlando, are partially or wholly contained in the planning unit.

An outlet channel by the State Road (S.R.) 46 bridge and causeway connects Lake Jesup to the St. Johns River. Other major waterbodies are Gee Creek, Soldier Creek, Howell Creek, and Sixmile Creek. The planning unit also contains many small, shallow ponds and lakes.

Water Quality Summary

Figure 3.7, a composite map of the planning unit, shows waters on the 1998 303(d) list, the Planning List and Verified List, and potential pollution sources. Water quality data collected from 241 sampling stations were used for assessment **(Appendix F)**.

Table 3.9 summarizes the water quality assessment status of all waterbody segments in the planning unit.

Of the 100 waterbody segments in the Lake Jesup planning unit, 74 have at least some type of data in the planning and/or verification periods, but in many cases the data are insufficient for assessment of segments under the IWR. Seventy segments have sufficient data for assessment, and of these, 16 are verified impaired for at least 1 parameter assessed, and 17 remain on the Planning List as only potentially impaired, and 34 meet standards in all parameters assessed.

Listed below are the verified impaired segments in the planning unit, with the parameters for which they are impaired.

Lake Jesup	Nutrients (TSI), unionized ammonia
Chub Creek	DO, iron, nutrients (chlorophyll *a*)
Lake Alma	Nutrients (TSI)
Lake Searcy	Nutrients (TSI)
Salt Creek	DO, iron, nutrients (chlorophyll *a*)
Sweetwater Creek	DO
Island Lake	Nutrients (TSI)
Fruitwood Lake	Nutrients (TSI)
Howell Creek	Fecal coliform bacteria, total coliform bacteria
Howell Lake	Nutrients (TSI)
Lake Minnehaha	Nutrients (TSI)
Lake Winyah	Nutrients (TSI)
Lake Concord	Nutrients (TSI)
Lake Adair	Nutrients (TSI)
Lake Spring	Nutrients (TSI)
Bear Gulley Lake	Nutrients (TSI)

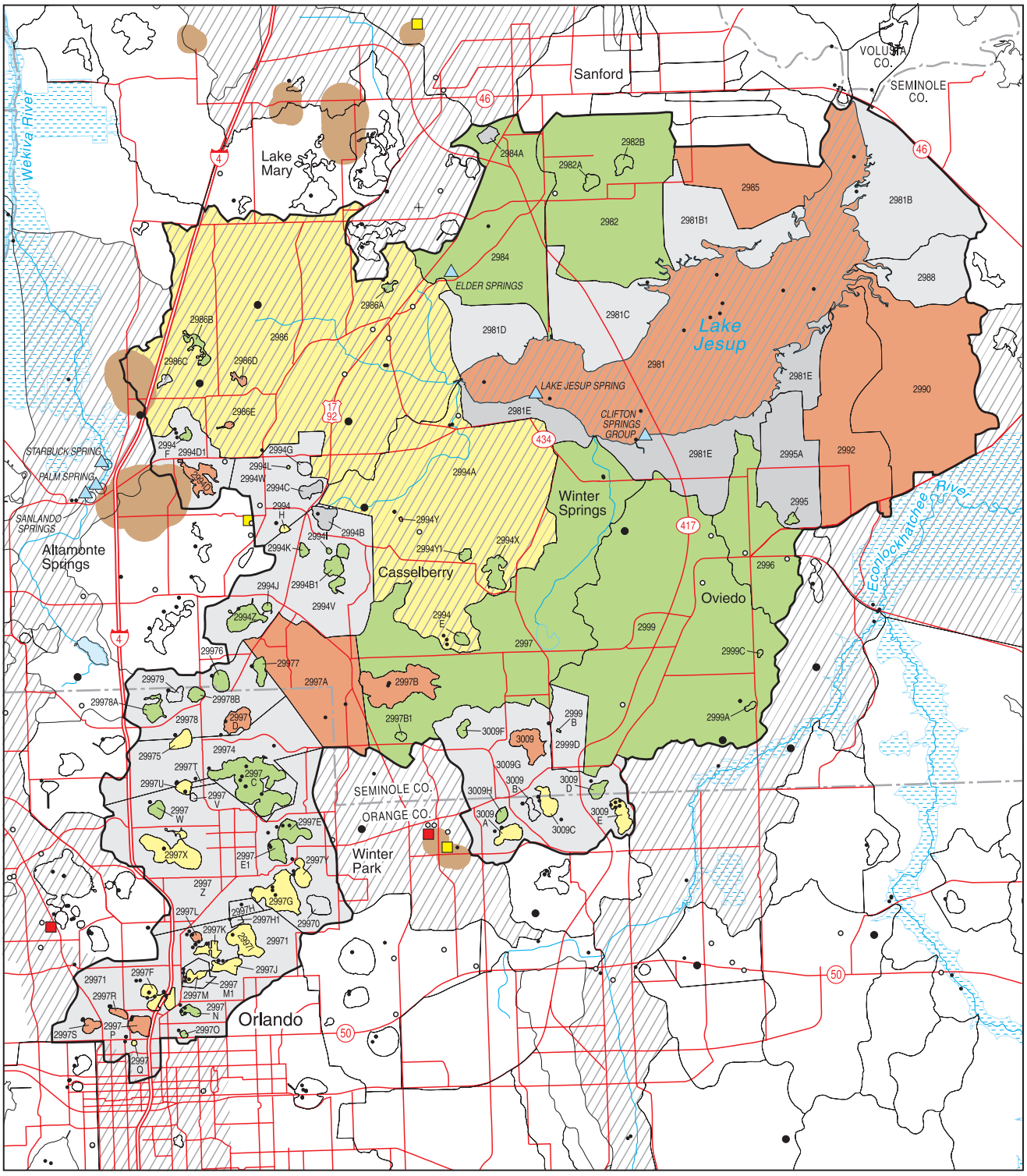


Figure 3.7: Composite Map of the Lake Jesup Planning Unit, Including the 1998 303(d) List, Planning List and Verified List Waters, and Potential Pollution Sources

Table 3.9: Integrated Water Quality Assessment Summary for the Lake Jesup Planning Unit

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2981	Lake Jesup	Lake	IIIF	Nutrients, Unionized Ammonia	Silver	**Nutrients (TSI), Unionized Ammonia**	Arsenic, Cadmium, Chromium 3, Copper, DO, Fecal Coliform Bacteria, Iron, Lead, Nickel, Total Coliform Bacteria, Turbidity, Zinc	5
2981B	Lake Jesup Drain	Lake	IIIF					3a
2981B1	Lake Jesup Drain	Lake	IIIF					3a
2981C	Lake Jesup Drain	Lake	IIIF					3a
2981D	Lake Jesup Drain	Lake	IIIF					3a
2981E	Lake Jesup Drain	Lake	IIIF					3b
2982	Phelps Creek	Stream	IIIF				Biology, DO, Iron, Nutrients (Chlorophyll *a*), Turbidity, Unionized Ammonia	2
2982A	Silver Lake	Lake	IIIF				Nutrients (TSI)	2
2982B	Golden Lake	Lake	IIIF				Nutrients (TSI)	2
2984	Six Mile Creek (formerly Lake Nan)	Stream	IIIF				Biology, DO, Fecal Coliform Bacteria, Nutrients (Chlorophyll *a*), Total Coliform Bacteria, Turbidity, Unionized Ammonia	2
2984A	Lake Jennie	Lake	IIIF					3b
2985	Chub Creek	Stream	IIIF			**DO, Iron, Nutrients (Chlorophyll *a*)**	Turbidity, Unionized Ammonia	5

Table 3.9 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2986	Soldier Creek Reach	Stream	IIIF	DO, Coliform Bacteria, Lead, Nutrients	Fecal Coliform Bacteria, Lead, Silver, Total Coliform Bacteria		Biology, Cadmium, Copper, DO, Iron, Nickel, Nutrients (Chlorophyll *a*), Turbidity, Unionized Ammonia, Zinc	3c
2986A	Lake Bingham	Lake	IIIF				Nutrients (TSI)	2
2986B	Lake Myrtle	Lake	IIIF				Copper, DO, Fecal Coliform Bacteria, Iron, Nutrients (TSI), Turbidity, Zinc	2
2986C	Grace Lake	Lake	IIIF					3a
2986D	Lake Alma	Lake	IIIF			Nutrients (TSI)		5
2986E	Lake Searcy	Lake	IIIF			Nutrients (TSI)		5
2988	Wharf Creek	Stream	IIIF					3a
2990	Salt Creek	Stream	IIIF		Biology	**DO, Iron, Nutrients (Chlorophyll *a*)**	Turbidity, Unionized Ammonia	5
2992	Sweetwater Creek	Stream	IIIF		Biology	**DO**	Iron, Nutrients (Chlorophyll *a*), Turbidity, Unionized Ammonia	5
2994A	Gee Creek	Stream	IIIF	Coliform Bacteria, Lead, Nutrients	Fecal Coliform Bacteria, Lead, Total Coliform Bacteria		Biology, Cadmium, Copper, DO, Iron, Nickel, Nutrients (Chlorophyll *a*), Turbidity, Unionized Ammonia, Zinc	3c
2994B	Lake Kathryn	Lake	IIIF					3b
2994B1	Triplet Lake	Lake	IIIF				Nutrients (TSI)	2
2994C	Fairy Lake	Lake	IIIF					3b

Table 3.9 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2994D	Island Lake	Lake	IIIF		DO	**Nutrients (TSI)**		5
2994D1	Island Lake Drain	Lake	IIIF					3a
2994E	Red Bug Lake	Lake	IIIF				Nutrients (TSI)	2
2994F	Rock Lake	Lake	IIIF				Nutrients (TSI)	2
2994G	Wildmere Lake	Lake	IIIF					3a
2994H	Lake Griffin	Lake	IIIF		Nutrients (TSI)			3c
2994I	Secret Lake	Lake	IIIF				Nutrients (TSI)	2
2994J	Pearl Lake	Lake	IIIF				Nutrients (TSI)	2
2994K	Lake Concord	Lake	IIIF				Nutrients (TSI)	2
2994L	Lake Jane	Lake	IIIF				Nutrients (TSI)	2
2994V	Lake Kathryn Outlet	Lake	IIIF					3a
2994W	Fairy Lake Outlet	Lake	IIIF					3a
2994X	Little Lake Howell	Lake	IIIF				Nutrients (TSI)	2
2994Y	Fruitwood Lake	Lake	IIIF			Nutrients (TSI)		5
2994Y1	Lake Tony	Lake	IIIF				Nutrients (TSI)	2
2994Z	Prairie Lake	Lake	IIIF				Nutrients (TSI)	2
2995	Lake Charm	Lake	IIIF				Biology	2
2995A	Lake Charm Shortcut C	Lake	IIIF					3b
2996	Sweetwater Creek	Stream	IIIF				Biology, DO, Iron, Nutrients (Chlorophyll *a*), Turbidity, Unionized Ammonia	2
2997	Howell Creek Below Lake Howell	Stream	IIIF				Biology, Copper, DO, Iron, Nutrients (Chlorophyll *a*), Turbidity, Unionized Ammonia, Zinc	2
29970	Lake X	Lake	IIIF					3a

Table 3.9 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
29971	Leftover Ivanhoe	Lake	IIIF					3a
29974	Leftover Maitland	Lake	IIIF					3a
29975	Lake Sybella	Lake	IIIF		Nutrients (TSI)		DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity	3c
29976	Lake Seminary	Lake	IIIF				Nutrients (TSI)	2
29977	Lake In The Woods	Lake	IIIF				DO, Fecal Coliform Bacteria, Nutrients (TSI), Turbidity	2
29978	Leftover Minnehaha	Lake	IIIF					3a
29978A	Left Charity	Lake	IIIF				DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity	2
29978B	Lake Faith	Lake	IIIF				DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity	2
29979	Lake Hope 1 In Orange County	Lake	IIIF					3a
2997A	Howell Creek	Stream	IIIF			**Fecal Coliform Bacteria, Total Coliform Bacteria, DO**	Nutrients (Chlorophyll *a*), Turbidity, Unionized Ammonia	5
2997B	Howell Lake	Lake	IIIF			**Nutrients (TSI)**	DO, Turbidity	5
2997B1	Lake Ann	Lake	IIIF				Nutrients (TSI)	2

Table 3.9 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2997C	Lake Maitland	Lake	IIIF				Cadmium, Chromium 3, Copper, DO, Fecal Coliform Bacteria, Nutrients (TSI), Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	2
2997D	Lake Minnehaha	Lake	IIIF			**Nutrients (TSI)**	Cadmium, Chromium 3, Copper, DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	5
2997E	Lake Osceola North	Lake	IIIF				Cadmium, Chromium 3, DO, Fecal Coliform Bacteria, Nutrients (TSI), Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	2
2997E1	Lake Osceola South	Lake	IIIF				DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia, Nutrients (TSI)	2
2997F	Lake Ivanhoe	Lake	IIIF		Nutrients (TSI)		Cadmium, Chromium 3, Copper, DO, Fecal Coliform Bacteria, Nickel, Total Coliform Bacteria, Turbidity, Unionized Ammonia	3c

Table 3.9 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2997G	Lake Virginia	Lake	IIIF		Nutrients (TSI)		Cadmium, Chromium 3, DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	3c
2997H	Lake Sue Outlet	Stream	IIIF					3a
2997H1	Lake Sue Outlet	Stream	IIIF					3a
2997I	Lake Sue	Lake	IIIF		Nutrients (TSI)		Cadmium, Chromium 3, DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	3c
2997J	Lake Rowena	Lake	IIIF		Nutrients (TSI)		DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia	3c
2997K	Lake Estelle	Lake	IIIF		Nutrients (TSI)		DO, Fecal Coliform Bacteria, Unionized Ammonia	3c
2997L	Lake Winyah	Lake	IIIF			**Nutrients (TSI)**	DO, Fecal Coliform Bacteria, Unionized Ammonia	5
2997M	Lake Formosa	Lake	IIIF		Nutrients (TSI)		DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia	3c
2997M1	Lake Formosa Outlet	Lake	IIIF					3a

Table 3.9 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2997N	Lake Highland	Lake	IIIF				DO, Fecal Coliform Bacteria, Nutrients (TSI), Unionized Ammonia	2
2997O	Park Lake	Lake	IIIF				DO, Fecal Coliform Bacteria, Nutrients (TSI), Unionized Ammonia	2
2997P	Lake Concord	Lake	IIIF			**Nutrients (TSI)**	DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia	5
2997Q	Lake Dot	Lake	IIIF		Fecal Coliform Bacteria		DO, Nutrients (TSI), Unionized Ammonia	3c
2997R	Lake Adair	Lake	IIIF		Unionized Ammonia	**Nutrients (TSI)**	DO, Fecal Coliform Bacteria	5
2997S	Lake Spring	Lake	IIIF			**Nutrients (TSI)**	DO, Fecal Coliform Bacteria, Unionized Ammonia	5
2997T	Park Lake Outlet	Lake	IIIF					3a
2997U	Lake Park	Lake	IIIF		Nutrients (TSI)		DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia	3c
2997V	Lake Gem	Lake	IIIF					3b
2997W	Lake Bell	Lake	IIIF				Nutrients (TSI)	2
2997X	Lake Killarney	Lake	IIIF		Nutrients (TSI)		Cadmium, Chromium 3, DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	3c

Table 3.9 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2997Y	Lake Mizell	Lake	IIIF		Nutrients (TSI)		DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	3c
2997Z	Lake Midget	Lake	IIIF					3a
2999	Bear Creek	Stream	IIIF				Biology	2
2999A	Lake Hayes	Lake	IIIF				Nutrients (TSI)	2
2999B	Noname Lake	Lake	IIIF				Nutrients (TSI)	2
2999C	Lake Gem	Lake	IIIF				Nutrients (TSI)	2
2999D	Noname Lake Outlet	Lake	IIIF					3a
3009	Bear Gulley Lake	Lake	IIIF			Nutrients (TSI)		5
3009A	Waunatta Lake	Lake	IIIF		Nutrients (TSI)		DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia	3c
3009B	Lake Martha	Lake	IIIF					3a
3009C	Lake Burkett	Lake	IIIF		Nutrients (TSI)		DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia	3c
3009D	Deep Lake	Lake	IIIF				Chromium 3, DO, Fecal Coliform Bacteria, Nutrients (TSI), Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	2

Table 3.9 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
3009E	Lake Georgia	Lake	IIIF		DO, Turbidity		Fecal Coliform Bacteria, Nutrients (TSI), Total Coliform Bacteria, Unionized Ammonia	3c
3009F	Lake Florence	Lake	IIIF				Nutrients (TSI)	2
3009G	Bear Gulley Lake Drain	Lake	IIIF					3a
3009H	Lake Nan	Lake	IIIF				Nutrients (TSI)	2

Notes:

[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]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 an existing or proposed pollutant control mechanism 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.
[4]Parameters in **bold** meet the Verified List evaluation criteria, Section 62-303.400, F.A.C.
[5]Parameters in *italics* are in Category 4 (a, b, or c) waters that do not require TMDL development.
[6]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
DO = Dissolved oxygen
TSI = Trophic State Index



Of these, 12 are lakes, including Lake Jesup. The other lakes are mostly small urban lakes that are potentially impaired primarily by nutrients.

With excessive amounts of phosphorus, nitrogen, organic "muck" deposits, and declining fish numbers, Lake Jesup is a hypereutrophic lake, deficient of submerged aquatic vegetation (SJRWMD, 2002a). Additional problems such as poor lake circulation and nutrient and sediment loading have degraded water quality (URS, 2001). The S.R. 46 bridge and causeway constrict the single outlet channel connecting the lake to the St. Johns River, limiting the lake's water circulation (SJRWMD, 2001a). Sediments have developed on the bottom of Lake Jesup due to years of discharged municipal wastewater and still may be a source of nutrient loading in the lake (URS, 2001). Overall, the lake's water quality is poor, partly due to the inhibited circulation (URS, 2001). For graphical information concerning water quality trends in Lake Jesup, see **Figure F.2** in **Appendix F**.

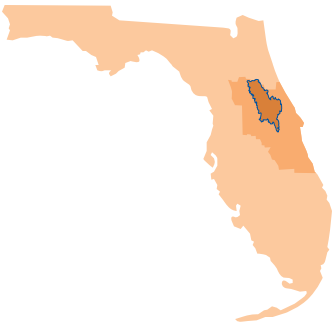
Other potential impairments in the planning unit include low DO levels, poor biological community structure, and high metals concentrations. Two creeks, Soldier Creek and Gee Creek, are potentially impaired for a variety of contaminants. Soldier Creek was placed on the 1998 303(d) list for coliforms, DO, nutrients, and lead, and under the IWR is potentially impaired for coliforms, silver and lead. Gee Creek was included on the 1998 303(d) list for coliforms, nutrients, and lead, but is potentially impaired for coliforms and lead under the IWR. Sweetwater Creek and Salt Creek, are potentially impaired for biology, while a segment of Howell Creek has low DO impairment. Many small, shallow lakes lie within the Lake Jesup planning unit. Twenty-eight of these lakes are potentially impaired or verified impaired, primarily for nutrients.

Permitted Discharges and Land Uses

Point Sources. There are 21 total permitted point source dischargers in the Lake Jesup planning unit. Of these, 11 are domestic wastewater facilities, 7 are industrial wastewater facilities, 2 are concrete batch plants, and 1 is a ground water treatment system at a petroleum contamination site. Four of the facilities are permitted under NPDES.

Five of the 21 facilities are permitted to discharge more than 0.100 mgd. The largest discharge is the Seminole County Environmental Services/Greenwood Lakes domestic wastewater facility, which is permitted to release 3.500 mgd into Soldier Creek. Other major dischargers include the Winter Springs East Wastewater Treatment Plant (WWTP) (2.01 mgd), Winter Springs West WWTP (1.55 mgd), and Casselberry WWTP (1.4 mgd). Three facilities are implementing a reuse plan, with at least 1.08 mgd being discharged for reuse. The 3 facilities with reuse programs are Florida Central Commerce Park, Winter Springs East WWTP, and Winter Springs West WWTP. **Appendix G** lists, by planning unit, the permitted dischargers in the basin.

Although there are no Superfund or state-funded hazardous waste sites in the planning unit, there is one closed Class I solid waste landfill. There are also two delineated ground water contamination areas under



Chapter 62-524, F.A.C., Potable Water Well Permitting in Delineated Areas. These areas are delineated for ethylene dibromide (EDB).

Nonpoint Sources. Land use in the planning unit is predominantly urban and built-up (45 percent). Other major land uses are wetlands (19 percent), water (14 percent), agriculture (8 percent), and upland forest (7 percent). Rangeland and transportation, communication, and utilities account for about 6 percent of land use, with less than 1 percent in barren land. These developed land uses can be associated with nonpoint discharges of pollutants and eroded sediments. **Appendix H** provides a detailed analysis of land use in the basin, by planning unit.

For decades, Lake Jesup has received direct discharges of wastewater effluent and stormwater discharges from its tributaries. The lake presently receives urban runoff from Orlando, Winter Park, Casselberry, and Maitland as well as agricultural runoff from adjacent farms (SJRWMD, 2001a). Current and past land uses, which threaten the lake's waters with many sources of pollution, need to be carefully monitored (URS, 2001).

Ecological Summary

The Lake Jesup area is a winter sanctuary for migratory birds such as sandhill cranes *(Grus canadensis pratensis)*. It also provides habitat for American alligators *(Alligator mississippiensis)*, bald eagles *(Haliaeetus leucocephalus)*, otters *(Lutra canadensis)*, and osprey *(Pandion haliaetus)*. It is an important nesting area for bald eagles (FWC Bald Eagle Nesting Survey Data Layer, 2000). Blue herons *(Ardea herodias)* use the lake's wetlands as rookeries (FWC Wading Bird Survey Data Layer, 1999).

The Clifton Springs hydrobe *(Aphaostracon theiocrenetum)*, a brown snail, is found only in the spring run of this spring. Clifton Springs discharges into the south side of Lake Jesup.

Water Quality Improvement Plans and Projects

The Lake Jesup Act, passed by the Florida legislature in 1994, expired in 1998. Its intent was to direct the SJRWMD, along with other state and local agencies and governments and private citizens, to begin a specific set of assessment and restoration projects for Lake Jesup. To further protect, preserve, remediate, and improve waters in the area, state, local, and regional agencies are implementing a number of restoration and management plans in the Lake Jesup planning unit. These plans include the Lake Jesup Basin Evaluation Plan, Howell Creek Discharge Dredging (dredging of the shore of Lake Jesup at Howell Creek), Lake Nina and Lake Waunatta Remediation for nutrient load reduction, Aquatic Vegetation Planting Plan, S.R. 46 Lake Jesup Box Culvert, Lake Circulation Analysis, Lake Sediment Analysis, Levee Removal on Lake Jesup to reconnect wetlands, Seminole County Stormwater Deficiency Correction Projects, Lake Estelle Interconnect Replacement (construction of open channel to replace culverts), and Seminole County Stormwater Retrofit Program (URS, 2001). **Appendix C** summarizes restoration and protection efforts in the basin, by planning unit.

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 D** contain additional information on the requirements for reasonable assurance.

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

• Lake Kerr Planning Unit

General Description

Located in portions of Lake, Marion, and Putnam Counties, the total area of the Lake Kerr planning unit is about 120,498 acres (188 square miles). Major waterbodies include Lake Kerr and Juniper Creek. Lake Kerr is an OFW. Predominantly undeveloped, the planning unit is within the Ocala National Forest.

Water Quality Summary

Figure 3.8, a composite map of the planning unit, shows waters on the 1998 303(d) list, the Planning List and Verified List, and potential pollution sources. Water quality data from thirteen sampling stations were used for assessment **(Appendix F)**.

Table 3.10 summarizes the water quality assessment status of all waterbody segments in the planning unit.

Of the 13 waterbody segments in the Lake Kerr planning unit, 10 have at least some type of data in the planning and/or verification periods, but in many cases the data are insufficient for assessment segments under the IWR. Six segments have sufficient data for assessment, and of these, 1 is verified impaired for at least 1 parameter assessed, 3 remain on the Planning List as only potentially impaired, and 2 meet standards for all parameters assessed.

Listed below is the verified impaired segment in the planning unit, with the parameter for which it is impaired.

Wildcat Lake	Mercury in fish

Other potential parameters of concern for the planning unit are cadmium, copper, DO and lead for Hopkins Prairie; cadmium, copper, lead, selenium, and silver for Lake Kerr. Little Lake Kerr also has a limited fish consumption advisory (for elevated levels of mercury) for largemouth bass, bowfin, and gar. The DOH has issued a health advisory recommending limited consumption of warmouth sunfish from Wildcat Lake because of elevated levels of mercury.

Permitted Discharges and Land Uses

Point Sources. The planning unit has three permitted point source dischargers. All are domestic wastewater discharges, and none is NPDES-permitted. The largest discharge is 0.0850 mgd from the Salt Springs wastewater treatment plant, which discharges into percolation ponds. The smallest discharge is 0.0028 mgd, from the Fountain Center wastewater

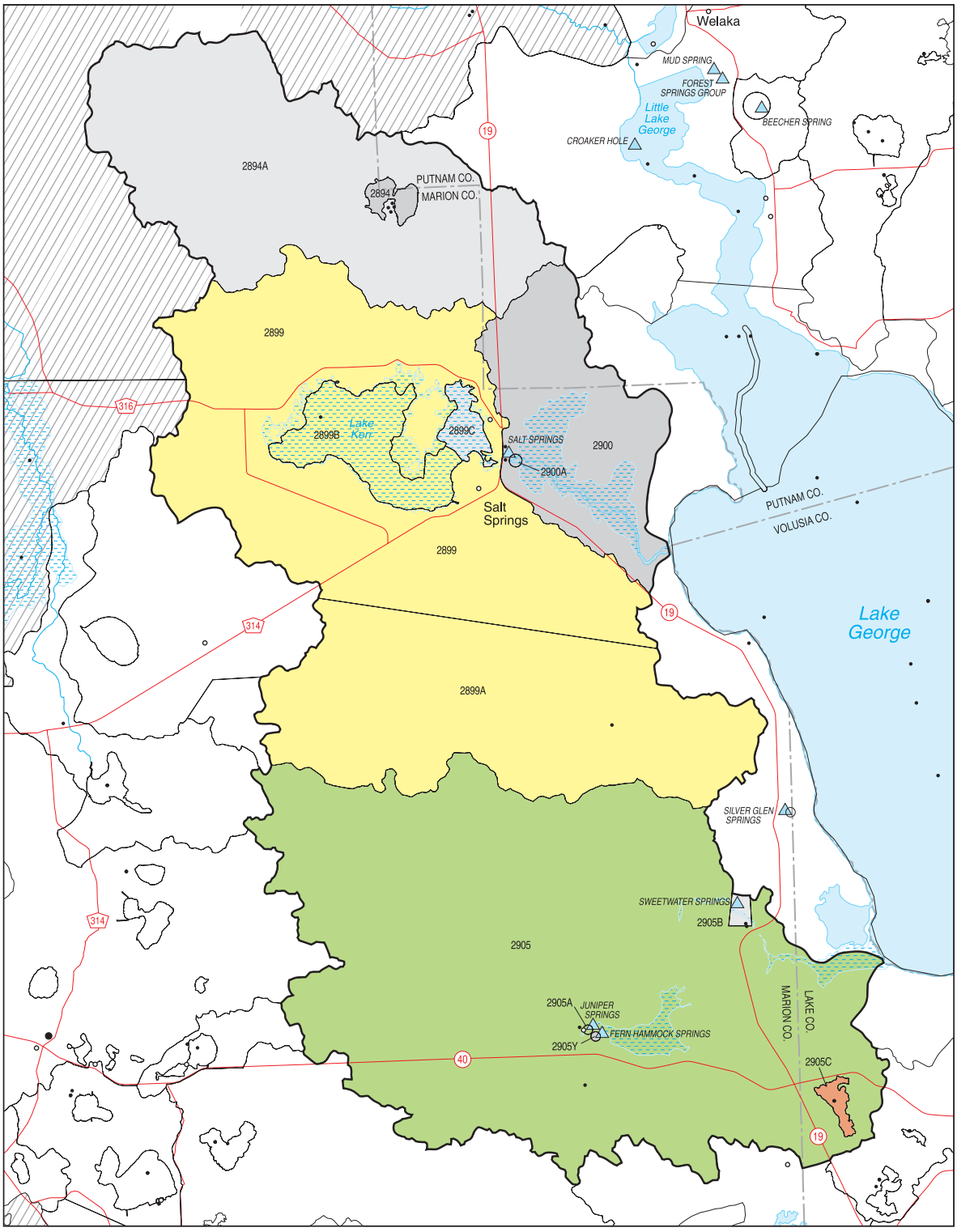


Figure 3.8: Composite Map of the Lake Kerr Planning Unit, Including the 1998 303(d) List, Planning List and Verified List Waters, and Potential Pollution Sources

Table 3.10: Integrated Water Quality Assessment Summary for the Lake Kerr Planning Unit

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2894	Lake Delancey	Lake	IIIF					3b
2894A	Lake Delancey Drain	Lake	IIIF					3a
2899	Little Lake Kerr Outlet	Stream	IIIF		Mercury in Fish			3c
2899A	Hopkins Prairie	Stream	IIIF		Cadmium, Copper, DO, Lead		Chromium 3, Iron, Nickel, Nutrients (Chlorophyll *a*), Turbidity, Unionized Ammonia, Zinc	3c
2899B	Lake Kerr	Lake	IIIF		Cadmium, Copper, Lead, Mercury in Fish, Selenium, Silver		DO, Iron, Nickel, Nutrients (TSI), Turbidity, Unionized Ammonia, Zinc	3c
2899C	Little Lake Kerr	Lake	IIIF					3a
2900	Salt Springs Run	Stream	IIIF					3b
2900A	Salt Springs	Stream	IIIF					3b
2905	Juniper Creek	Stream	IIIF				Biology, DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia	2
2905A	Juniper Spring	Stream	IIIF				Fluoride	2
2905B	Sweetwater Spring	Stream	IIIF					3b
2905C	Wildcat Lake	Lake	IIIF			**Mercury in Fish**	Nutrients (TSI)	5
2905Y	Fern Hammock Spring	Stream	IIIF					3b

Table 3.10 (continued)

Notes:

[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]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 an existing or proposed pollutant control mechanism 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.

[4]Parameters in **bold** meet the Verified List evaluation criteria, Section 62-303.400, F.A.C.
[5]Parameters in *italics* are in Category 4 (a, b, or c) waters that do not require TMDL development.
[6]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
DO = Dissolved oxygen
TSI = Trophic State Index

facility, which also discharges into percolation ponds. The Juniper Springs Recreational Area discharges 0.0190 mgd into the Juniper Springs watershed through drainfields. **Appendix G** lists, by planning unit, the permitted dischargers in the basin.

The planning unit has no Superfund or state-funded hazardous waste sites; no Class I, II, or III solid waste landfills and debris landfills; and no delineated areas under Chapter 62-524, F.A.C., Potable Water Well Permitting in Delineated Areas.

Nonpoint Sources. The planning unit is predominantly upland forest (86 percent), with wetlands making up another 9 percent of land use. Water comprises 4 percent, and less than 2 percent is urban and built-up. Rangeland, barren land, and communications, transportation, and utilities make up less than 1 percent of land use, combined. These developed land uses can be associated with nonpoint discharges of pollutants and eroded sediments. **Appendix H** provides a detailed analysis of land use in the basin, by planning unit.

Ecological Summary

Most of this planning unit is within the Ocala National Forest. Predominate land use within the forest is managed pineland and scrub.

Lake George, adjacent to this planning unit, provides good quality habitat that supports a high density of nesting eagles. The eastern border of the planning unit near Lake George provides nesting habitat for eagles utilizing the Lake George area.



Water Quality Improvement Plans and Projects

Appendix C summarizes restoration and protection efforts in the basin, by planning unit.

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 D** contain additional information on the requirements for reasonable assurance.

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

• Lake Monroe Planning Unit

General Description

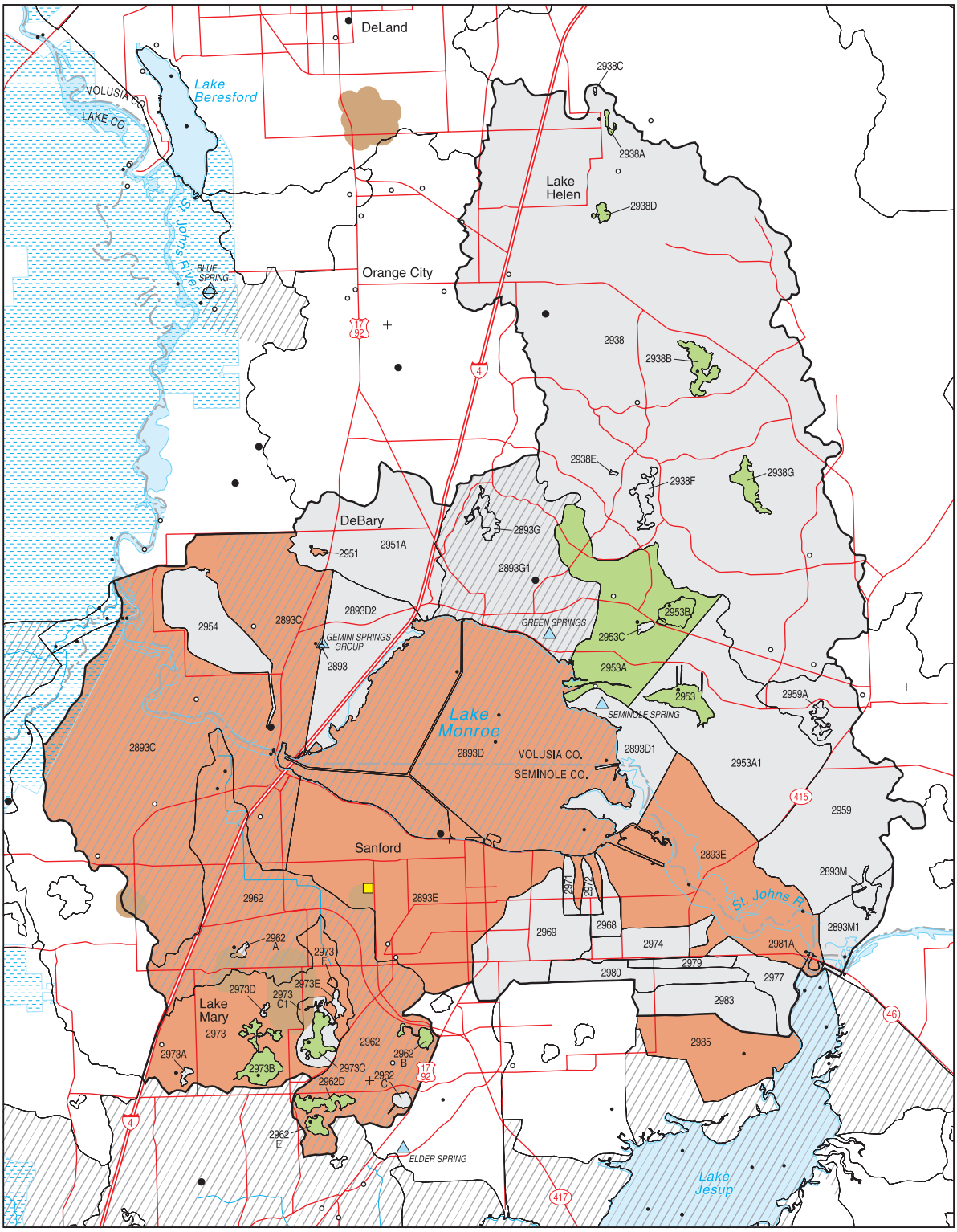
The Lake Monroe planning unit lies within northwestern Seminole and southwestern Volusia Counties. Its main waterbody is Lake Monroe. One of the 3 major lakes in the Middle St. Johns Basin, Lake Monroe is 6 miles long, 4 miles wide, and on average 7 feet deep. Covering approximately 11 percent of the planning unit's total area, the lake's total size is 9,406 acres (URS, 2001). Classified as a "river run" lake, Lake Monroe consists of an enlargement of the St. Johns River that the river runs through. Major tributaries include Bethel Creek and the DeBary Drain (SJRWMD, 2002a). Other waterbodies include various segments of the St. Johns River and the northernmost portion of Lake Jesup, which is separated from the main body of the lake by a built-up causeway. Its water quality is distinctly different from the rest of Lake Jesup.

Water Quality Summary

Figure 3.9, a composite map of the planning unit, shows waters on the 1998 303(d) list, the Planning List and Verified List, and potential pollution sources. Water quality data from 105 sampling stations were used for assessment **(Appendix F)**.

Table 3.11 summarizes the water quality assessment status of all waterbody segments in the planning unit.

Of the 52 waterbody segments in the Lake Monroe planning unit, 21 have at least some type of data in the planning and/or verification periods, but in many cases the data are insufficient for assessment of segments under the IWR. Twenty segments have sufficient data for assessment, and of these, 8 are verified impaired for at least 1 parameter assessed, none are on the Planning List as potentially impaired, and 12 meet standards for parameters assessed.



- Domestic and industrial wastewater facilities
- Wastewater facilities greater than 0.1MGD
- STORET station
- 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
- Lake Monroe Planning Unit
- Waterbody identification boundaries
- Outstanding Florida Waters and Aquatic Preserves

0 1 2 3 Mi.

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

- 303d listed waters
- Category 1
- Category 2
- Category 3a
- Category 3b
- Category 3c
- Category 3d
- Category 4b
- Category 5

Figure 3.9: Composite Map of the Lake Monroe Planning Unit, Including the 1998 303(d) List, Planning List and Verified List Waters, and Potential Pollution Sources

Table 3.11: Integrated Water Quality Assessment Summary for the Lake Monroe Planning Unit

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2893	Gemini Springs	Stream	IIIF					3b
2893C	St. Johns River Above Wekiva River	Stream	IIIF	BOD, DO, Lead, Nutrients, TSS	Biology, BOD	**Nutrients (Chlorophyll *a*)**	Arsenic, Cadmium, Chromium 3, Copper, DO, Fecal Coliform Bacteria, Iron, Lead, Mercury in Fish, Nickel, Selenium, Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	5
2893D (Called 2893D [and 2893C] on the 1998 303[d] List)	Lake Monroe	Lake	IIIF	DO, Lead, Nutrients, Selenium, Unionized Ammonia	Silver	**DO, Nutrients (TSI)**	Arsenic, Cadmium, Chromium 3, Copper, Fecal Coliform Bacteria, Iron, Lead, Mercury in Fish, Nickel, Selenium, Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	5
2893D1	Lake Monroe Drain	Lake	IIIF					3a
2893D2	Lake Monroe Drain	Lake	IIIF					3a
2893E	St. Johns River Above Lake Monroe	Stream	IIIF		Mercury in Fish	**DO, Nutrients (Chlorophyll *a*)**	Fecal Coliform Bacteria, Iron, Total Coliform Bacteria, Turbidity, Unionized Ammonia	5
2893G	Gleason Lake	Lake	IIIF					3a

Table 3.11 (continued)

WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
					Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2893G1	Gleason Drain	Lake	IIIF					3a
2893M	Thornhill Lake	Lake	IIIF					3a
2893M1	Thornhill Lake Drain	Lake	IIIF					3a
2938	Chain of Lakes	Lake	IIIF					3a
2938A	Lake Helen	Lake	IIIF				Nutrients (TSI)	2
2938B	Dupont Lake	Lake	IIIF				Nutrients (TSI)	2
2938C	Lake Clough	Lake	IIIF					3a
2938D	Lake Colby	Lake	IIIF				Nutrients (TSI)	2
2938E	Tivo Lake	Lake	IIIF					3a
2938F	McGarity Lake	Lake	IIIF					3a
2938G	Theresa Lake	Lake	IIIF				Nutrients (TSI)	2
2951	Lake Marie	Lake	IIIF			Nutrients (TSI)		5
2951A	Lake Marie Outlet	Lake	IIIF					3a
2953	Bethel Lake	Lake	IIIF				Nutrients (TSI)	2
2953A	Broken Arrow Lake	Lake	IIIF				Nutrients (TSI)	2
2953A1	Bethel Lake Outlet	Lake	IIIF					3a
2953B	Big Lake	Lake	IIIF				Nutrients (TSI)	2
2953C	Jenkins Pond	Lake	IIIF					3a
2954	Konomac Lake Reservoir	Lake	IIIF					3a
2959	Little Lake Outlet	Stream	IIIF					3a
2959A	Little Lake	Lake	IIIF					3a

Table 3.11 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2962	Smith Canal	Stream	IIIF	DO, Coliform Bacteria, Iron, Nutrients, Turbidity	Biology, Turbidity	**DO, Fecal Coliform Bacteria, Iron**	Nutrients (Chlorophyll *a*), Total Coliform Bacteria	5
2962A	East Twin Lake	Lake	IIIF					3a
2962B	Ada Lake	Lake	IIIF				Nutrients (TSI)	2
2962C	Lake Minnie	Lake	IIIF					3a
2962D	Lake Mary	Lake	IIIF				Nutrients (TSI)	2
2962E	Little Lake Mary	Lake	IIIF				Nutrients (TSI)	2
2968	Unnamed Ditch	Stream	IIIF					3a
2969	Unnamed Ditch	Stream	IIIF					3a
2971	Unnamed Ditch	Stream	IIIF					3a
2972	Brisson Ave Ditch	Stream	IIIF					3a
2973	DeForest Lake Outlet	Stream	IIIF		Iron, Lead	**DO**	Copper, Fecal Coliform Bacteria, Turbidity, Zinc	5
2973A	Lake Emma	Lake	IIIF					3a
2973B	West Crystal Lake	Lake	IIIF				Nutrients (TSI)	2
2973C	East Crystal Lake	Lake	IIIF				DO, Fecal Coliform Bacteria, Nutrients (TSI), Turbidity, Zinc	2
2973C1	East Crystal Lake Outlet	Lake	IIIF					3a
2973D	Jennie Lake	Lake	IIIF					3a
2973E	Bel-Air Lake	Lake	IIIF					3b

Table 3.11 (continued)

WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
					Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2973F	DeForest Lake	Lake	IIIF			**Nutrients (TSI)**	DO, Fecal Coliform Bacteria, Iron, Turbidity, Zinc	5
2974	Canaan Ditch	Stream	IIIF					3a
2977	Unnamed Ditch	Stream	IIIF					3a
2979	Beck Hammock Ditch	Stream	IIIF					3a
2980	Unnamed Ditch	Stream	IIIF					3a
2981A	Lake Jesup Near St. Johns River	Lake	IIIF	DO, Nutrients		**Nutrients (TSI)**	DO, Iron, Turbidity, Unionized Ammonia	5
2983	Unnamed Ditch	Stream	IIIF					3a

Notes:

[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]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 an existing or proposed pollutant control mechanism 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.
[4]Parameters in **bold** meet the Verified List evaluation criteria, Section 62-303.400, F.A.C.
[5]Parameters in *italics* are in Category 4 (a, b, or c) waters that do not require TMDL development.
[6]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 BOD = Biological oxygen demand DO = Dissolved oxygen TSI = Trophic State Index
TSS = Total suspended solids



Listed below are the verified impaired segments in the planning unit, with the parameters for which they are impaired.

St. Johns River Above Wekiva River	Nutrients (chlorophyll *a*)
Lake Monroe	DO, nutrients (TSI)
St. Johns River Above Lake Monroe	DO, nutrients (chlorophyll *a*)
Lake Marie	Nutrients (TSI)
Smith Canal	DO, fecal coliform bacteria, iron
DeForest Lake Outlet	DO
DeForest Lake	Nutrients (TSI)
Lake Jesup Near St. Johns River	Nutrients (TSI)

Lake Monroe is a eutrophic lake with fair water quality. Parameters of concern include DO, nutrients silver. Water quality in Lake Monroe has become more stable since 1997. Recent results have shown high levels of phosphorus and have produced fair to poor WQI and TSI ratings (URS, 2001).

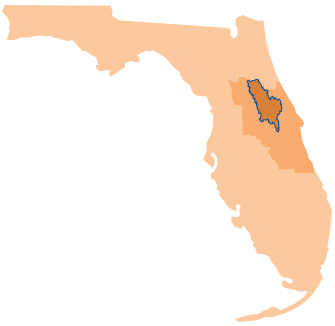
Two segments of the St. Johns River also show potential impairment. The St. Johns River above the Wekiva River is impaired for nutrients. The St. Johns River above Lake Monroe has low DO and elevated nutrients levels. The segment of Lake Jesup in the Lake Monroe planning unit is impaired for nutrients. Smith Canal is verified impaired for coliform bacteria, DO, and iron. It is potentially impaired for biology and turbidity based on two failed bioassessments in 1993 and 1997.

Permitted Discharges and Land Uses

Point Sources. There are 23 permitted point source dischargers in the planning unit. Of these, 15 are domestic wastewater facilities, 5 are industrial wastewater facilities, 2 are concrete batch plants, and 1 is a petroleum cleanup facility. Five are NPDES-permitted, and 3 are permitted to discharge more than 0.100 mgd. The Florida Power and Light (FPL) Sanford Power Plant is permitted for the largest discharge, at 180 mgd. **Appendix G** lists, by planning unit, the permitted dischargers in the basin.

Four of the wastewater treatment facilities in the planning unit implement wastewater reuse, with at least 5.59 mgd discharged for reuse purposes. The sites permitted for these types of reuse are Deltona Lakes (domestic wastewater, permitted to 1.4 mgd, irrigation reuse), Sanford/North (domestic wastewater, permitted to 7.3 mgd, flow mostly to public reuse, with an allowable annual average surface discharge of 1.0 mgd), Twelve Oaks RV Resort (permitted to .025 mgd, reuse to two percolation ponds), and Volusia County Utilities Department/Deltona North (domestic wastewater, permitted to 1.2 mgd, reuse for public irrigation and to percolation ponds).

The planning unit contains 1 active state-funded hazardous waste site, as well as 1 closed Class I, 1 closed Class II, and 1 active Class III solid waste landfills. There are also 11 delineated ground water contamination areas under Chapter 62-524, F.A.C., Potable Water Well Permitting in



Delineated Areas. These areas are delineated for EDB and volatile organic compounds.

Nonpoint Sources. While the majority of land use in the planning unit comprises wetlands (20 percent), water (17 percent), and upland forest (15 percent), another large portion consists of urban and built-up (35 percent). Agriculture accounts for 8 percent; rangeland, 3 percent; and barren land and transportation, communications, and utilities, 2 percent. These developed land uses can be associated with nonpoint discharges of pollutants and eroded sediments. **Appendix H** provides a detailed analysis of land use in the basin, by planning unit.

The large proportion of urban and built-up land in the planning unit creates the potential for nonpoint source contamination. Historically, Lake Monroe has received untreated stormwater discharges (URS, 2001). Located in the area with the highest growth potential in Seminole County (SJRWMD, 2001b), the Midway portion of the planning unit is under development pressure. Seminole County has completed a master plan for this area. Although agricultural runoff into Lake Monroe has diminished, other direct runoff (e.g., fertilizer and roadway pollutants) continues to affect water quality. Presently, there are no treatment areas for road runoff in this area (SJRWMD, 2001b).

Ecological Summary

The wetland environment of the Lake Monroe planning unit provides many habitats for surrounding wildlife. Major development has been taking place, and efforts are being designed to preserve and protect lands that are currently undeveloped.

The blueback herring *(Alosa aestivalis)*, a rare and imperiled fish, has been observed in Lake Monroe and the St. Johns River (Hoehn, 1998).

Water Quality Improvement Plans and Projects

Many plans are being implemented to monitor, correct, and ultimately improve water problems. Local, county, and state governments are carrying out these plans, which include the Lake Monroe Basin Watershed Management Plan, Deltona Watershed Management Plan, Wastewater Reuse, Volusia-to-DeBary Trunkline, Sanford and Midway Basin Studies, Water Quality Enhancement Capital Program, Basin Deficiency Correction Program, Middle Basin Forecasting Model, and Scrub Jay Habitat Preservation Program. **Appendix C** summarizes restoration and protection efforts in the basin, by planning unit.

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 D** contain additional information on the requirements for reasonable assurance.

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



- Lake Woodruff Planning Unit

General Description

Volusia and Lake Counties bisect the Lake Woodruff planning unit, which drains 176,782 acres (276 square miles). Major waterbodies include Lake Woodruff and Lake Dexter. In the planning unit, the St. Johns River extends through Beresford Lake, Lake Woodruff, and Lake Dexter (URS, 2001). The St. Johns River makes up the western border of the 21,500-acre (33.5-square-mile) Lake Woodruff National Wildlife Refuge (West Volusia Audubon Society, 2001), which is completely contained within the planning unit. The typical landscape comprises freshwater marshland and swamp bordering the St. Johns River (U.S. Fish and Wildlife Service, 1997).

Water Quality Summary

Figure 3.10, a composite map of the planning unit, shows waters on the 1998 303(d) list, the Planning List and Verified List, and potential pollution sources. Water quality data from 42 sampling stations were used for assessment **(Appendix F)**.

Table 3.12 summarizes the water quality assessment status of all waterbody segments in the planning unit.

Of the 34 waterbody segments in the Lake Woodruff planning unit, 11 have at least some type of data in the planning and/or verification periods, but in many cases the data are insufficient for assessment of segments under the IWR. Seven segments have sufficient data for assessment, and of these, 1 is verified impaired for at least 1 parameter assessed, 3 meet the threshold of impaired for DO but not by a specific pollutant, 2 remain on the Planning List as only potentially impaired, and 1 meets standards for all parameters assessed.

Listed below is the verified impaired segment in the planning unit, with the parameter for which it is impaired.

Lake Beresford	Nutrients (TSI)

Other potential impairments in the planning unit include 3 waterbodies are potentially impaired for DO, 3 are potentially impaired for Biology, and 1 for selenium. According to the data, the majority of impairments, by mileage, are in the planning unit's streams. However, Lake Beresford is impaired for nutrients, and Lake Woodruff is potentially impaired for DO. Volusia Blue Spring is listed as impaired for nutrients on the 1998 303(d) list (the only spring on the 303[d] list in the planning unit). The nitrate-nitrite concentrations increased from 0.11 milligrams per liter (mg/L) to 0.264 mg/L between October 2000 and March 2001. Volusia Blue Spring received a SCI rating of 15 in October 2000 and a rating of 17 in March 2001; both ratings are in the "poor" range (Department, 2000–2001).

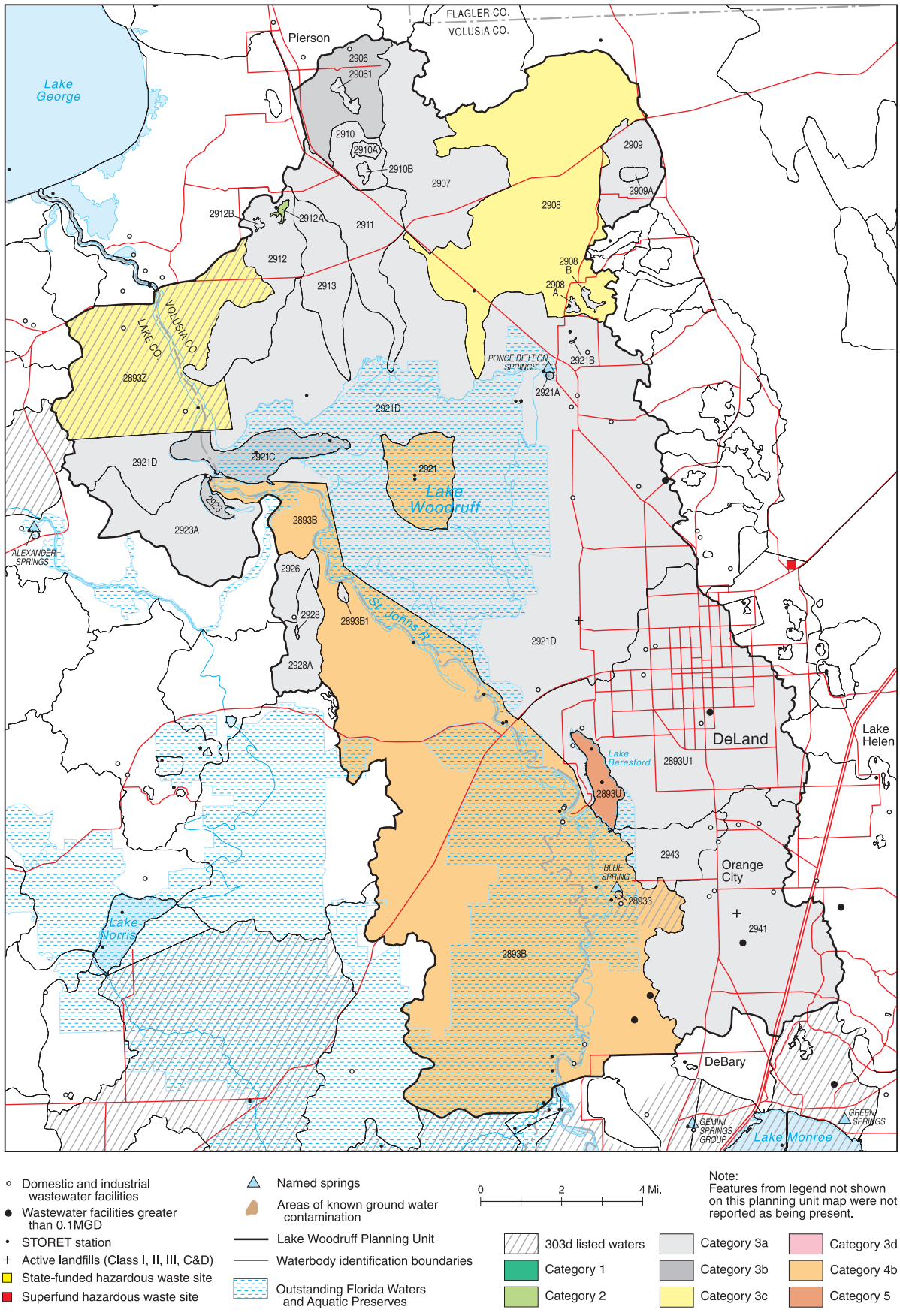


Figure 3.10: Composite Map of the Lake Woodruff Planning Unit, Including the 1998 303(d) List, Planning List and Verified List Waters, and Potential Pollution Sources

Table 3.12: Integrated Water Quality Assessment Summary for the Lake Woodruff Planning Unit

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
28933	Blue Springs (Volusia)	Stream	IIIF	Nutrients	Nutrients	DO		4b
2893B	St. Johns River Above Lake Woodruff	Stream	IIIF		Biology, Selenium	DO	Arsenic, Cadmium, Copper, Fecal Coliform Bacteria, Iron, Lead, Mercury in Fish, Nickel, Nutrients (Chlorophyll *a*), Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	4b
2893B1	Horseshoe Mud Lake	Lake	IIIF					3a
2893U	Lake Beresford	Lake	IIIF			**Nutrients (TSI)**	DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity	5
2893U1	Lake Beresford Drain	Lake	IIIF					3a
2893Z	St. Johns River Above Lake George	Stream	IIIF	DO, Nutrients, TSS	Biology		DO, Fecal Coliform Bacteria, Fluoride, Mercury in Fish, Nutrients (Chlorophyll *a*), Total Coliform Bacteria, Turbidity	3c
2906	Shaw Lake Outlet	Stream	IIIF					3b
29061	Shaw Lake	Lake	IIIF					3a
2907	Unnamed Slough	Stream	IIIF					3a
2908	Deep Creek	Lake	IIIF		Biology			3c
2908A	Lake Odum	Lake	IIIF					3a

Table 3.12 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2908B	Lake Clifton	Lake	IIIF					3a
2909	Dan George Lake Outlet	Stream	IIIF					3a
2909A	Dan George Lake	Lake	IIIF					3a
2910	Lake Emporia	Lake	IIIF					3a
2910A	Cain Lake	Lake	IIIF					3a
2910B	Lake Purdom	Lake	IIIF					3a
2911	Unnamed Slough	Stream	IIIF					3a
2912	Stone Pond Outlet	Stream	IIIF					3a
2912A	Lake Emporia	Lake	IIIF				Nutrients (TSI)	2
2912B	Stone Pond	Lake	IIIF					3a
2913C	Unnamed Ditch	Stream	IIIF					3a
2921	Lake Woodruff	Lake	IIIF			DO	Copper, Fecal Coliform Bacteria, Iron, Lead, Nutrients (TSI), Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	4b
2921A	Ponce De Leon Spring	Stream	IIIF					3b
2921B	Lake Tedder	Lake	IIIF					3a
2921C	Lake Dexter	Lake	IIIF					3b
2921D	Lake Woodruff Outlet	Lake	IIIF					3a
2923	Stagger Mud Lake	Lake	IIIF					3b
2923A	Stagger Mud Lake Dr	Lake	IIIF					3a
2926	Get Out Creek	Stream	IIIF					3a

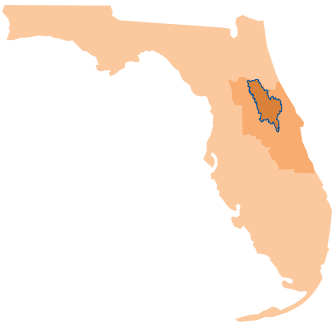
Table 3.12 (continued)

WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
					Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2928	Deer Haven Lake Outlet	Stream	IIIF					3a
2928A	Deer Haven Lake	Lake	IIIF					3a
2941	Noncontributing Area	Stream	IIIF					3a
2943	Spring Run	Stream	IIIF					3a

Notes:

[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]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 an existing or proposed pollutant control mechanism 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.
[4]Parameters in **bold** meet the Verified List evaluation criteria, Section 62-303.400, F.A.C.
[5]Parameters in *italics* are in Category 4 (a, b, or c) waters that do not require TMDL development.
[6]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
DO = Dissolved oxygen
TSI = Trophic State Index



Permitted Discharges and Land Uses

Point Sources. There are 34 permitted point source dischargers in the Lake Woodruff planning unit. Of these, 27 are domestic wastewater facilities, and 7 are industrial wastewater facilities. Only 1 is permitted under NPDES (Deland/Wiley Nash). The Deland/Wiley Nash facility (domestic wastewater) has a permitted capacity of 6.0 mgd, but may only discharge 4.0 mgd into the St. Johns River. Four facilities are allowed to discharge more than 0.100 mgd: Volusia County Utilities Department (VCUD)/ Southwest Regional (domestic wastewater, permitted to 0.544 mgd into a noncontributing area), Florida Power Corp DeBary (industrial wastewater permitted to 0.420 mgd), and VCUD/Four Townes (domestic wastewater, 0.300 mgd into a noncontributing area). **Appendix G** lists, by planning unit, the permitted dischargers in the basin.

Two facilities in the planning unit have implemented reuse plans. These are Deland/Wiley Nash (domestic wastewater, permitted to 6.0 mgd, reuse for irrigation) and VCUD/Southwest Regional (domestic wastewater, permitted to 0.544 mgd, public access reuse). The total volume discharged for reuse is 1.52 mgd, with Deland/Wiley Nash discharging 1.0 mgd and VCUD/Southwest Regional discharging the remaining 0.52 mgd.

The planning unit contains no Superfund or state-funded hazardous waste sites; however, there is one closed Class I solid waste landfill as well as two closed and one active Class III solid waste landfills, with one inactive and one active construction and debris landfill. One area is delineated for ground water contamination under Chapter 62-524, F.A.C., Potable Water Well Permitting in Delineated Areas, for EDB.

Nonpoint Sources. The majority of land use in the planning unit is a combination of wetlands (35 percent) and upland forest (30 percent). Other major land uses include urban and built-up (17 percent), agriculture (10 percent), water (5 percent), and rangeland (2 percent). Less than 1 percent of the total land area is made up of barren land and transportation, communications, and utilities. These developed land uses can be associated with nonpoint discharges of pollutants and eroded sediments. **Appendix H** provides a detailed analysis of land use in the basin, by planning unit.

Ecological Summary

The planning unit supports several unique or ecologically imperiled aquatic species. The rare and imperiled blueback herring *(Alosa aestivalis)* has been observed in this portion of the St. Johns River and Lake Woodruff (Hoehn, 1998). Unique aquatic invertebrate species that are sensitive to water quality are associated with Blue Spring. These are the Blue Spring siltsnail *(Cincinnatia parva)* and the Blue Spring hydrobe *(Aphaostracon asthenes)*.

Water Quality Improvement Plans and Projects

Two projects are currently under way in the south-central portion of the planning unit, west of DeLand, to retrofit existing stormwater management systems. The first, the West Minnesota Avenue Retention Pond Expansion, will expand the capacity of an existing pond constructed in



the 1970s. The pond's appearance will be improved by flattening its side slopes, eliminating fencing, and providing new landscape plantings (URS, 2001).

The second project is the Thompson–Mathis Retention Area Expansion. Additional land was acquired to expand the existing pond by approximately two acres to provide water quantity and water quality benefits. **Appendix C** summarizes restoration and protection efforts in the basin, by planning unit.

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 D** contain additional information on the requirements for reasonable assurance.

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

• Wekiva River Planning Unit

General Description

The Wekiva River planning unit, within portions of Orange, Seminole, Lake, and Marion Counties, drains 240,123 acres (more than 376 square miles) and contains both spring-fed and blackwater streams. Major tributaries include the Little Wekiva River, Rock Springs Run, and Blackwater Creek (SJRWMD, 2002a).

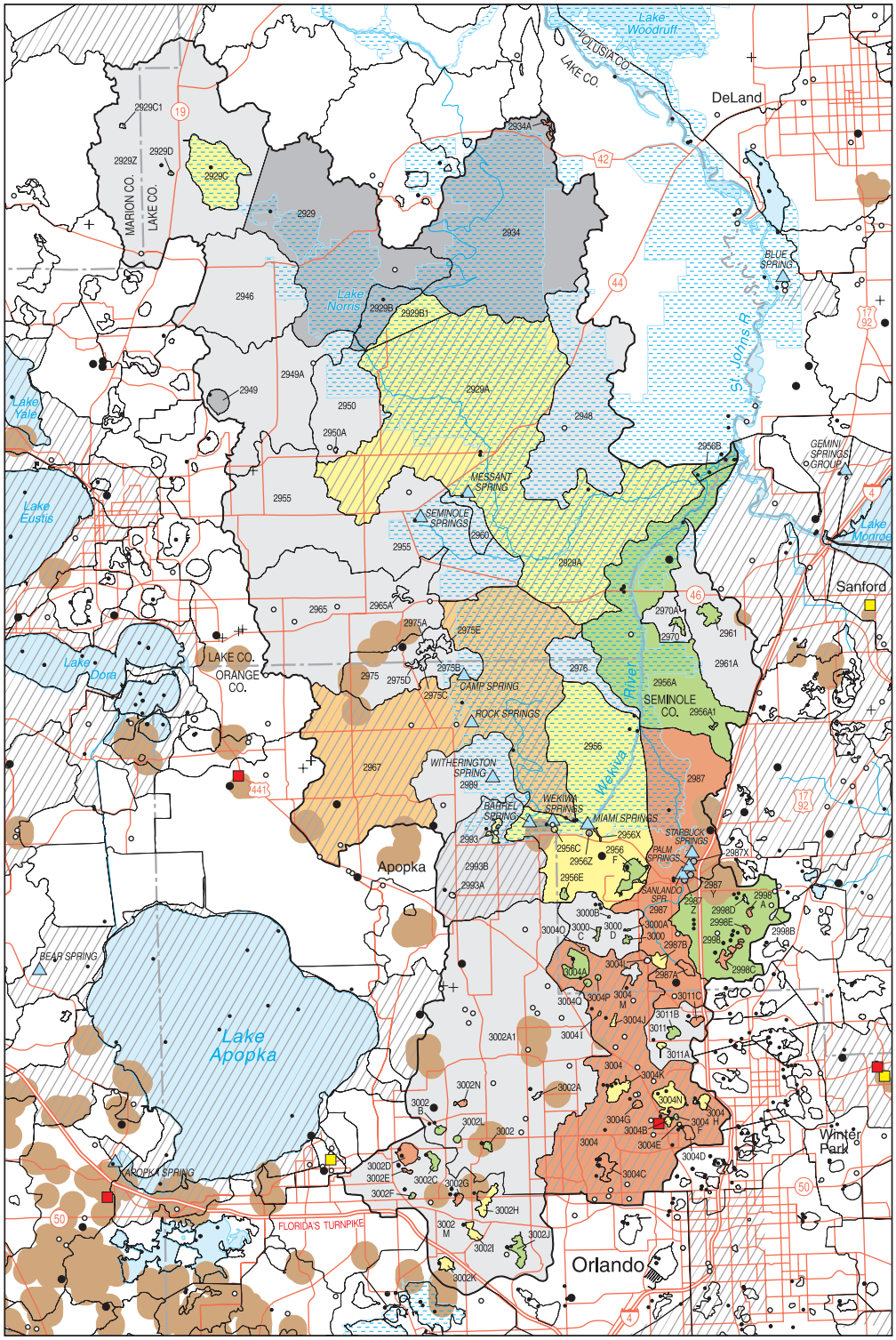
The Wekiva and Little Wekiva Rivers, upstream of S.R. 434, are designated as OFWs. The federal government has classified segments of the Wekiva River as a Wild and Scenic River and the state as a Scenic and Wild River. As specified by Florida's 1988 Wekiva River Protection Act, the Wekiva River also has special criteria for Environmental Resource Permits (ERP), which are regulated by the SJRWMD. The act also required local governments to amend comprehensive planning policy and land development regulations to protect habitat and prevent wetland losses.

Water Quality Summary

Figure 3.11, a composite map of the planning unit, shows waters on the 1998 303(d) list, the Planning List and Verified List, and potential pollution sources. Water quality data collected from 209 sampling stations were used for assessment **(Appendix F)**.

Table 3.13 summarizes the water quality assessment status of all waterbody segments in the planning unit.

Of the 100 waterbody segments in the Wekiva River planning unit, 67 have at least some type of data in the planning and/or verification periods, but in many cases the data are insufficient for assessment of segments under the IWR. Fifty-nine segments have sufficient data for assessment, and of these, 15 are verified impaired for at least 1 parameter assessed, 1 meets the impairment threshold for DO but not by a specific pollutant, 19 remain on the Planning List as only potentially impaired, and 23 meet standards for all parameters assessed.



- Domestic and industrial wastewater facilities
- Wastewater facilities greater than 0.1MGD
- STORET station
- 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
- Wekiva River Planning Unit
- Waterbody identification boundaries
- Outstanding Florida Waters and Aquatic Preserves

0 1 2 3 Mi.

- 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 3.11: Composite Map of the Wekiva River Planning Unit, Including the 1998 303(d) List, Planning List and Verified List Waters, and Potential Pollution Sources

Table 3.13: Integrated Water Quality Assessment Summary for the Wekiva River Planning Unit

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2929	Lake Noris Outlet	Lake	IIIF					3b
2929A	Blackwater Creek	Stream	IIIF	Cadmium, DO, Iron, Lead, Nutrients, Selenium, Zinc	Silver		Arsenic, Biology, Cadmium, Chromium 3, Copper, DO, Fecal Coliform Bacteria, Iron, Lead, Nickel, Nutrients (Chlorophyll *a*), Selenium, Turbidity, Unionized Ammonia, Zinc	3c
2929B	Lake Norris	Lake	IIIF					3b
2929B1	Blackwater Swamp	Lake	IIIF		DO		Turbidity	3c
2929C	Lake Dorr	Lake	IIIF		Mercury in Fish		Fecal Coliform Bacteria, Nutrients (TSI)	3c
2929C1	Baptist Lake	Lake	IIIF					3a
2929D	Little Lake Mary	Lake	IIIF				Nutrients (TSI)	2
2929Z	Lake Dorr Outlet	Lake	IIIF					3a
2934	Tracy Canal	Stream	IIIF					3b
2934A	Cowpen Pond	Lake	IIIF			Mercury in Fish		5
2946	Unnamed Slough	Stream	IIIF					3a
2948	Sulphur Run	Stream	IIIF					3a
2949	Lake Dalhouse	Lake	IIIF					3b
2949A	Lake Dalhouse Outlet	Lake	IIIF					3a
2950	Lake Tuttle Drain	Lake	IIIF					3a

Table 3.13 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2950A	Lake Tuttle	Lake	IIIF					3a
2955	Seminole Spring	Stream	IIIF					3a
2956	Wekiva River	Stream	IIIF		DO		Biology, Fecal Coliform Bacteria, Nutrients (Chlorophyll *a*), Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	3c
2956A	Wekiva River	Stream	IIIF				Biology, Cadmium, Chromium 3, Copper, DO, Fecal Coliform Bacteria, Iron, Lead, Nickel, Nutrients (Chlorophyll *a*), Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	2
2956A1	Linden Lake	Lake	IIIF				Nutrients (TSI)	2
2956B	Wekiva River Lower	Stream	IIIF				Biology, DO, Fecal Coliform Bacteria, Nutrients (Chlorophyll *a*), Total Coliform Bacteria, Turbidity, Unionized Ammonia	2

Table 3.13 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2956C	Wekiva Spring (Orange)	Stream	IIIF	Coliform Bacteria, Nutrients	DO, Fecal Coliform Bacteria		Nutrients (Chlorophyll *a*), Total Coliform Bacteria, Turbidity, Unionized Ammonia	3c
2956E	Sand Lake	Lake	IIIF				Nutrients (TSI)	2
2956F	Lake Brantley	Lake	IIIF				Nutrients (TSI)	2
2956X	Sweetwater Creek	Lake	IIIF				Biology	2
2956Z	Miami Spring	Stream	IIIF					3b
2960	Messant Spring	Stream	IIIF					3a
2961	Lake Sylvan	Lake	IIIF				Biology, Nutrients (TSI)	2
2961A	Lake Sylvan Outlet	Lake	IIIF					3a
2965	Bear Pond Outlet	Stream	IIIF					3a
2965A	Bear Pond	Lake	IIIF					3a
2967	Rock Springs Run	Stream	IIIF	BOD, DO, Coliform Bacteria, Nutrients	BOD, Fecal Coliform Bacteria, Total Coliform Bacteria	DO	Biology, Nutrients (Chlorophyll *a*), Turbidity, Unionized Ammonia	4b
2970	Lake Markham	Lake	IIIF				Nutrients (TSI)	2
2970A	Lake Markham Outlet	Lake	IIIF					3a
2975	Neighborhood Lakes Out	Stream	IIIF					3a
2975A	Neighborhood Lakes	Lake	IIIF					3a
2975B	Neighborhood Lakes	Lake	IIIF					3a

Table 3.13 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2975C	Neighborhood Lakes	Lake	IIIF					3a
2975D	Neighborhood Lakes	Lake	IIIF					3a
2975E	Neighborhood Lakes	Lake	IIIF					3a
2976	Unnamed Drain	Stream	IIIF					3a
2987	Little Wekiva River	Stream	IIIF	Coliform Bacteria, Nutrients		**Fecal Coliform Bacteria, Total Coliform Bacteria**	Arsenic, Biology, Cadmium, Chromium 3, Copper, DO, Iron, Lead, Nickel, Nutrients (Chlorophyll *a*), Selenium, Turbidity, Unionized Ammonia, Zinc	5
2987A	Spring Lake	Lake	IIIF			Nutrients (TSI)		5
2987B	Little Wekiva NW Ave T	Stream	IIIF		Biology			3c
2987X	Starbuck Spring	Stream	IIIF					3b
2987Y	Palm Springs	Stream	IIIF					3b
2987Z	Sanlando Spring	Stream	IIIF					3b
2989	Mill Creek	Stream	IIIF					3a
2993	Lake Prevatt	Lake	IIIF	DO, Coliform Bacteria, Nutrients	DO		Fecal Coliform Bacteria, Nutrients (TSI), Total Coliform Bacteria, Turbidity, Unionized Ammonia	3c
2993A	Dream Lake	Lake	IIIF					3a
2993B	Lake Prevatt Outlet	Lake	IIIF					3a

Table 3.13 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
2998	Cranes Roost Outlet	Lake	IIIF				Nutrients (TSI)	2
2998A	Lake Florida	Lake	IIIF			Nutrients (TSI)		5
2998B	Lake Mobile	Lake	IIIF					3a
2998C	Lake Orienta	Lake	IIIF			Nutrients (TSI)		5
2998D	Lake Marion	Lake	IIIF					3a
2998E	Lake Adalaide	Lake	IIIF			Nutrients (TSI)		5
3000	Lake Pearl	Lake	IIIF				DO, Fecal Coliform Bacteria, Nutrients (TSI), Total Coliform Bacteria, Turbidity, Unionized Ammonia	2
3000A	Lake Harriet	Lake	IIIF				Nutrients (TSI)	2
3000B	Lake Yvonne	Lake	IIIF					3a
3000C	Mirror Lake	Lake	IIIF				Nutrients (TSI)	2
3000D	Lake Pearl Outlet	Lake	IIIF					3a
3002	Lucy Lake	Lake	IIIF				Nutrients (TSI)	2
3002A	Horseshoe Lake	Lake	IIIF					3a
3002A1	Lucy Lake Outlet	Lake	IIIF					3a
3002B	Spring Lake	Lake	IIIF				Nutrients (TSI)	2
3002C	Lake Olympia	Lake	IIIF				Nutrients (TSI)	2

Table 3.13 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
3002D	Starke Lake	Lake	IIIF			**Nutrients (TSI)**	Chromium 3, DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	5
3002E	Lake Primavista	Lake	IIIF			**Nutrients (TSI)**	Cadmium, Chromium 3, Copper, DO, Fecal Coliform Bacteria, Nickel, Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	5
3002F	Lake Bennett	Lake	IIIF				Nutrients (TSI)	2
3002G	Lake Lotta	Lake	IIIF			Nutrients (TSI)		5
3002H	Lake Sherwood	Lake	IIIF		DO		Nutrients (TSI), Turbidity, Unionized Ammonia	3c
3002I	Lake Rose	Lake	IIIF		Nutrients (TSI)			3c
3002J	Lake Hiawassee	Lake	IIIF				DO, Fecal Coliform Bacteria, Nutrients (TSI), Total Coliform Bacteria, Turbidity, Unionized Ammonia	2
3002K	Lake Olivia	Lake	IIIF		Nutrients (TSI)		DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia	3c

Table 3.13 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
3002L	Lake Johio	Lake	IIIF				Nutrients (TSI)	2
3002M	Ocoee Drain	Stream	IIIF					3a
3002N	Prairie Lake	Lake	IIIF			Nutrients (TSI)		5
3004	Little Wekiva Canal	Stream	IIIF	DO, BOD, Coliform Bacteria, Nutrients		**DO, BOD, Fecal Coliform Bacteria, Nutrients (Chlorophyll *a*)**	Biology, Chromium 3, Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	5
3004A	Bear Lake	Lake	IIIF				Nutrients (TSI)	2
3004B	Lake Fairview	Lake	IIIF		Nutrients (TSI)		DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia	3c
3004C	Lake Lawne	Lake	IIIF		Mercury in Water	**Nutrients (TSI)**	Cadmium, Chromium 3, DO, Fecal Coliform Bacteria, Nickel, Total Coliform Bacteria, Turbidity, Unionized Ammonia, Zinc	5
3004D	Silver Lake	Lake	IIIF			**Nutrients (TSI)**	DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia	5
3004E	Lake Daniel	Lake	IIIF		Nutrients (TSI)		DO, Fecal Coliform Bacteria, Unionized Ammonia	3c

Table 3.13 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
3004F	Lake Sarah	Lake	IIIF				DO, Fecal Coliform Bacteria, Nutrients (TSI), Unionized Ammonia	2
3004G	Bay Lake	Lake	IIIF			**Nutrients (TSI)**	DO, Fecal Coliform Bacteria, Unionized Ammonia	5
3004H	Little Lake Fairview	Lake	IIIF		Nutrients (TSI)		DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia	3c
3004I	Lake Rose	Lake	IIIF		Nutrients (TSI)		DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia	3c
3004J	Lake Gandy	Lake	IIIF		DO		Fecal Coliform Bacteria, Nutrients (TSI), Total Coliform Bacteria, Turbidity, Unionized Ammonia	3c
3004K	Lake Wekiva/ Orlando	Lake	IIIF		Nutrients (TSI)		Fecal Coliform Bacteria	3c
3004L	Trout Lake	Lake	IIIF					3a
3004M	Lake Lotus	Lake	IIIF					3a

Table 3.13 (continued)

					Data Evaluation under the Impaired Surface Waters Rule Criteria[3]			
WBID	Waterbody Segment	Waterbody Type[1]	Class[2]	1998 303(d) List Parameters of Concern	Potentially Impaired (Cat. 3c) for Listed Parameters[4]	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters[5]	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/ 303(d) Integrated Report Assessment Category for WBID[6]
3004N	Lake Fairview Lake	Lake	IIIF		Nutrients (TSI)		DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia	3c
3004O	Asher Lake	Lake	IIIF		DO		Nutrients (TSI)	3c
3004P	Cub Lake	Lake	IIIF				Nutrients (TSI)	2
3004Q	Little Bear Lake	Lake	IIIF				Nutrients (TSI)	2
3011	Lake Lucien Outlet	Stream	IIIF					3a
3011A	Lake Weston	Lake	IIIF		Nutrients (TSI)		DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia	3c
3011B	Lake Shadow	Lake	IIIF				DO, Fecal Coliform Bacteria, Total Coliform Bacteria, Turbidity, Unionized Ammonia	2
3011C	Lake Lucien	Lake	IIIF			Mercury in Fish		5

Notes:

[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]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;

Table 3.13 (continued)

4c—Impaired for one or more designated uses, but no TMDL is required because an existing or proposed pollutant control mechanism 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.
[4]Parameters in **bold** meet the Verified List evaluation criteria, Section 62-303.400, F.A.C.
[5]Parameters in *italics* are in Category 4 (a, b, or c) waters that do not require TMDL development.
[6]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 BOD = Biological oxygen demand DO = Dissolved oxygen
TSI = Trophic State Index

Listed below are the verified impaired segments in the planning unit, with the parameters for which they are impaired.

Cowpen Pond	Mercury in fish
Little Wekiva River	Fecal coliform bacteria, total coliform bacteria
Spring Lake	Nutrients (TSI)
Lake Florida	Nutrients (TSI)
Lake Orienta	Nutrients (TSI)
Lake Adalaide	Nutrients (TSI)
Starke Lake	Nutrients (TSI)
Lake Primavista	Nutrients (TSI)
Lake Lotta	Nutrients (TSI)
Prairie Lake	Nutrients (TSI)
Little Wekiva Canal	DO, BOD, fecal coliform bacteria, nutrients (chlorophyll *a*)
Lake Lawne	Nutrients (TSI)
Silver Lake	Nutrients (TSI)
Bay Lake	Nutrients (TSI)
Lake Lucien	Mercury in fish

Water quality ratings in the planning unit range from good to poor. An increase in flow rate due to urbanization is a major problem in the Little Wekiva River. The movement and deposition of sediments have also adversely affected water quality and the environment (SJRWMD, 2001c). The major parameters of concern for the planning unit are high levels of nutrients, and low DO levels. Additionally, the Little Wekiva watershed has impairment of coliform bacteria.

Two springs in the planning unit are potentially impaired: Wekiva Spring and Rock Springs Run. The parameters of concern in Wekiva Spring are low DO and high levels of coliform bacteria, while in Rock Springs Run they are DO, coliform bacteria, and BOD.

Thirteen lakes in the planning unit are verified impaired for at least 1 parameter assessed and 14 lakes are potentially impaired for at least 1 parameter assessed. The parameters of concern are mainly nutrients, DO, and coliform bacteria. In addition, the DOH has issued a health



advisory for Lake Dorr recommending limited consumption of largemouth bass, bowfin, and gar because of elevated levels of mercury.

Several of the headwater springs in the Wekiva system have recorded dissolved nitrate concentrations (expressed as nitrogen) above 1 mg/L. A recent study found that the nitrate levels in Wekiwa Springs were 1.92 mg/L; in Rock Springs, 1.620 mg/L; and in Seminole Springs, 1.41 mg/L (Toth, 1999).

Permitted Discharges and Land Uses

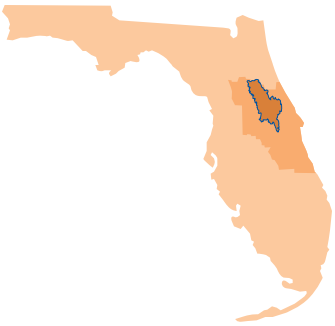
Point Sources. There are 60 permitted point source dischargers in the Wekiva River planning unit. Of these, 39 are domestic wastewater facilities, 18 are industrial wastewater facilities, 2 are concrete batch plants, and 1 is a petroleum contamination cleanup site. Six facilities are NPDES-permitted and discharge directly to surface waterbodies. Nine facilities are permitted to discharge more than 0.100 mgd. The Altamonte Springs/Swofford facility, permitted for the largest discharge at 12.50 mgd, is a domestic wastewater plant and is NPDES-permitted. The remaining 8 point sources, with discharges greater than 0.100 mgd, are all domestic wastewater facilities. Two of these, Wekiva Hunt Club (2.9 mgd) and Seminole County Environmental Services/Northwest Regional (2.5 mgd), are permitted under NPDES. **Appendix G** lists, by planning unit, the permitted dischargers in the basin.

Eleven sites in the planning unit implement reuse plans, including reuse for irrigation, reuse into percolation ponds, and public access reuse, with at least 3.68 mgd being discharged for these purposes. Altamonte Springs/Swofford provides treated wastewater effluent for irrigation, while the city of Ocoee (domestic wastewater, permitted to 3.0 mgd) has public access reuse plans. The Audubon Village Mobile Home Park (domestic wastewater, permitted to 0.049 mgd) is classified as a wastewater reuse facility, with discharge to 2 percolation ponds.

The planning unit contains 1 active Superfund site and 1 delisted state-funded hazardous waste site. There is 1 closed Class I solid waste landfill in the planning unit and no construction and debris landfills. Under Chapter 62-524, F.A.C., Potable Water Well Permitting in Delineated Areas, there are 21 delineated ground water contamination areas for benzene and EDB.

Nonpoint Sources. Predominant land uses in the planning unit are urban and built-up (29 percent), upland forest (22 percent), and wetlands (20 percent). Other major land uses include agriculture (15 percent), rangeland (17 percent), and water (5 percent). Barren land and transportation, communication, and utilities make up approximately 1.5 percent of total land use. These developed land uses can be associated with nonpoint discharges of pollutants and eroded sediments. **Appendix H** provides a detailed analysis of land use in the basin, by planning unit.

Much of the basin was developed prior to stormwater management requirements. Development has caused increases in stormwater flow rates and volumes, erosion of the riverbank and bed, sediment buildup, and increases in the amount of pollutants going into the river (SJRWMD, 2001c). A study in the early 1990s predicted rapid growth in this area and



therefore an increase in urban runoff (Alvarez, Lehman, and Associates, 1991).

The Middle St. Johns Basin Reconnaissance Report (URS, 2001) found that in the northern portion of the planning unit, nonpoint source pollution is occurring as a result of stormwater runoff and agricultural drainage, while the middle portion receives urban runoff from a development near the Lake McCoy chain of lakes. The report found that lack of adequate stormwater management infrastructure, along with rapid urbanization, have contributed to water quality problems in the southern end of the planning unit.

Ecological Summary

Intense development between 1944 and 1988 has resulted in the loss of wetlands and has had a negative effect on native plants and wildlife in parts of the planning unit. Parts of the Little Wekiva River watershed have undergone extensive urbanization and loss of native species.

A number of sensitive endemic aquatic species are found in springs and spring-fed streams in the planning unit. Spring-run ecological communities found in the Wekiva River, Little Wekiva River, Rock Springs Run, Seminole Creek, and Sulphur Run are ranked by the Nature Conservancy as globally imperiled (Hupalo et al., 1994). The rare and imperiled bluenose shiner *(Pteronotropis welaka)* has been observed in the Wekiva River (Hoehn, 1998). Several sensitive species of aquatic snails with narrow habitat requirements are endemic to watershed springs. The Wekiwa siltsnail *(Cincinnatia wekiwae)* is found in Wekiwa Springs; the Rock Springs siltsnail *(Cincinnatia petriphons)* is found at Rock Springs; the ponderous siltsnail *(Cincinnatia ponderosa)* occurs at Sanlando Springs; and the Seminole siltsnail *(Cincinnatia vanhyningi)* is found at Seminole Springs (Hupalo et al., 1994). Another aquatic species found in ground water habitats is the Orlando cave crayfish *(Procambarus acherontis)*, an endemic subterranean crayfish. This species has been observed in Palm Spring, on the Little Wekiva River, and in wells in the Orlando area, although rarely (Hupelo et al., 1994).

Water Quality Improvement Plans and Projects

Numerous plans and regulatory actions have been initiated to monitor, correct, and ultimately improve water quality and habitats in the planning unit. Minimum flows and levels have been established for the Wekiva River and associated springs. Water quality management plans include the Little Wekiva River Watershed Plan; Wekiva River Section 22 Studies; Stormwater Retrofit Programs; Sweetwater Cove Tributary to the Wekiva River Sediment Control Project; Lake Orienta; Lake Lotta/Lake Sherwood Artificial Recharge Demonstration Project and Starke Lake Drainwell Relocation Proposals; Blackwater Creek Study; a master plan to address water quality and flood protection issues; drainage basin studies; Lake County wastewater, water, and reuse master plan for the Sorrento and Mt. Plymouth areas; and the East-Central Florida Regional Planning Council's study of computer modeling of potential impacts to the Wekiva River protection area. **Appendix C** summarizes restoration and protection

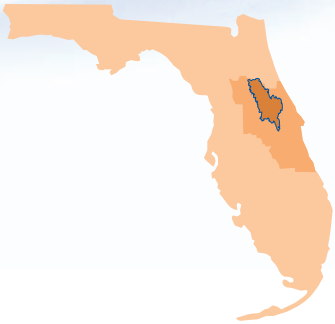


efforts in the basin, by planning unit. Waters will not be placed on the Verified List if the Department receives reasonable assurance that existing or proposed projects and/or programs are expected to result in the attainment of water quality standards or consistently improve water quality over time.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

For this planning unit, 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 2 basins across the state. **Table 4.1** lists the statewide schedule for the development and adoption of the Group 2 Verified Lists, including the public meetings. The schedule for the Middle St. Johns Basin is highlighted in boldface type. **Appendix J** 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 June 2, 2003. The lists were placed on the Department's Total Maximum Daily Loads (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 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 June 2, 2003, and ending July 17, 2003.

Following the public meetings for the Group 2 basins, which took place between June 9 and June 19, 2003, revised draft lists were made available to the public on September 5, 2003. 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 on or before October 2, 2003, 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 rule on May 27, 2004, and submitted to the U.S. Environmental Protection Agency (EPA) as the State's current 303(d) list of impaired waters.

Table 4.1: Schedule for Development and Adoption of the Group 2 Verified Lists

Date	Scheduled Activity
May 14, 2003	Public meeting at Jacksonville on Lower St. Johns Basin Draft Verified List
June 2, 2003	**Publication of Draft Verified Lists for the Other Group 2 Basins and Beginning of Public Comment Period**
June 13, 2003	Public Meeting at Apalachicola on the Apalachicola and Chipola Basins
June 11, 2003	**Public Meeting at Sanford on the Middle St. Johns Basin**
June 10, 2003	Public Meeting at St. Petersburg on the Tampa Bay Tributaries Basin
June 9, 2003	Public Meeting at Punta Gorda on the Charlotte Harbor Basin
June 19 2003	Public Meeting at Stuart and at Jupiter on the St. Lucie and Loxahatchee Basins
June 25, 2003	Public Meeting at Jacksonville on the Lower St. Johns Basin Revised Draft List
July 7, 2003	**Publication of Revised Draft Verified List for the Other Group 2 Basins**
September 5, 2003	**Publication of Revised Draft Verified List for Other Group 2 Basins**
September 17, 2003	**Public Meeting in Tallahassee on Revised Draft Verified Lists for All Basins, and Public Comments and Input from Prior Public Meetings**
October 2, 2003	**Final Deadline for Receiving Public Comments**
September 29, 2003	Adoption of Lower St. Johns Basin September 2003 TMDLs (main stem of river)
May 27, 2004	**Adoption of Verified List by Secretarial Order**
June 30, 2004	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 and data sufficiency and data quality requirements in the IWR (Rule 62-303, Florida Administrative Code [F.A.C.]). **Appendix A** describes the legislative and regulatory background for the development of the Planning and Verified Lists. **Appendix E** 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.

The Verified List of Impaired Waters

Table 4.2 contains the Verified List of impaired waters for the Middle St. Johns Basin, based on the water quality assessment performed for the October 2002 update to the 303(d) list. **Figure 4.1** shows waters on the Verified List for the entire basin as of May 27, 2004, as well as the projected year for TMDL development. For presentation purposes, the entire watershed for the listed water is highlighted. However, only the main

Table 4.2: The Verified List of Impaired Waters

Planning Unit	WBID	Waterbody Segment	Water-body Type	1998 303(d) Parameters of Concern	Parameters Identified Using the 2002 Impaired Surface Waters Rule	Priority for TMDL Development*	Projected Year for TMDL Development*	Comments
Deep Creek Unit	2893F	St. Johns River Above Lake Jesup	Stream		DO	Medium	2008	DO met verification threshold of IWR and nutrients are the causative pollutant. Planning period: 31/157 values below DO criterion; verified period: 24/129 values below DO criterion. 254 DO values, median 6.27 mg/L, mean 6.16 mg/L, range 0.93–11.71 mg/L.
Deep Creek Unit	2893F	St. Johns River Above Lake Jesup	Stream		Nutrients (Current and Historic Chlorophyll)	Medium	2008	Colimitation of N and P based on a TN/TP median of 22 (178 values) in the planning period and a median of 21 (149 values) in the verified period. Planning period: 1 Chlorophyll *a* annual mean exceeded 20 μg/L (2000), 181 TN values, median 1.328 mg/L. 182 TP values, median 0.06 mg/L; verified period: 2 Chlorophyll *a* annual means exceeded 20 μg/L (2000–2001), 152 TN values, median 1.364 mg/L. 152 TP values, median 0.07 mg/L. 4 consecutive years (1999–2002) in the verified period exceeded the historic value 4.98 μg/L (historic time block: 1992–1996) by more than 50%. This historic chlorophyll value is based on new information not present in IWR 2002, Run 14.2.
Deep Creek Unit	2925	Deep Creek–Lake Ashby Canal	Stream	Cadmium	Cadmium	Low	2008	Planning period: 7/40 values exceed criterion; verified period: 7/34 values exceed criterion.
Deep Creek Unit	2925	Deep Creek–Lake Ashby Canal	Stream	Iron	Iron	Low	2008	Planning period: 22/40 values exceed criterion; verified period: 21/43 values exceed criterion.
Deep Creek Unit	2925	Deep Creek–Lake Ashby Canal	Stream	Lead	Lead	Low	2008	Planning period: 12/27 values exceed criterion; verified period: 6/22 values exceed criterion.

Table 4.2 (contined)

Planning Unit	WBID	Waterbody Segment	Water-body Type	1998 303(d) Parameters of Concern	Parameters Identified Using the 2002 Impaired Surface Waters Rule	Priority for TMDL Development*	Projected Year for TMDL Development*	Comments
Deep Creek Unit	2931	Lake Winnemis-sett	Lake		Lead	Medium	2008	Planning period: 8/26 values exceed criterion; verified period: 6/21 values exceed criterion.
Deep Creek Unit	2964A	Lake Harney	Lake	DO	DO	Low	2008	Planning period: 90/306 values below DO criterion; verified period: 31/121 values below DO criterion. DO met verification thresh-old of IWR and nutrients are the causative pollutant. 509 DO values, median 6.27 mg/L, mean 6.32 mg/L, range 11.8–0.42 mg/L.
Deep Creek Unit	2964A	Lake Harney	Lake		Mercury in Fish	Medium	2011	Mercury in Fish met verifica-tion threshold of IWR. Fish tissue levels in 20 samples averaged 0.5420 ppm in 2000.
Deep Creek Unit	2964A	Lake Harney	Lake	Nutrients	Nutrients (TSI)	Low	2008	Colimitation of N and P based on a TN/TP median of 24 (541 values) during the plan-ning period and a median of 19 (242 values) during the verified period. Planning period: 1 TSI annual mean exceeded 60 (2000); verified period: 2 TSI annual means exceeded 60 (2000–2001). 548 TN values, median 1.28 mg/L. 554 TP values, median 0.052 mg/L.
Econlock-hatchee River	2991	Econlock-hatchee River	Stream		Fecal Coliform Bacteria	Medium	2008	Planning period: 16/116 values exceed criterion; verified period: 5/21 values exceed criterion. Coliform median 110 colonies/100 ml, range 10–2301 colonies/ 100 ml. No more than 3 values per month.

Table 4.2 (contined)

Planning Unit	WBID	Waterbody Segment	Water-body Type	1998 303(d) Parameters of Concern	Parameters Identified Using the 2002 Impaired Surface Waters Rule	Priority for TMDL Development*	Projected Year for TMDL Development*	Comments
Econlock-hatchee River	3001	Little Econlock-hatchee River	Stream	Coliform Bacteria	Fecal Coliform Bacteria	Low	2008	Planning period: 72/381 values exceed criterion; verified period: 41/248 values exceed criterion. Coliform median 108 colonies/100 ml, range 2–6,801 colonies/100 ml. No more than 6 values per month.
Econlock-hatchee River	3014	Crane Strand Drain	Stream	DO and BOD	DO and BOD	High	2004	Planning period: 1/4 values below DO criterion; verified period: 11/30 values below DO criterion. DO met verification threshold of IWR and BOD is causative pollutant. (BOD median = 2.25 mg/L). 30 DO values, median 5.95 mg/L, mean 6.11 mg/L, range 2.87–10.95 mg/L.
Econlock-hatchee River	3014	Crane Strand Drain	Stream		Fecal Coliform Bacteria	High	2004	Planning period: 0/3 values exceeded criterion; verified period: 7/28 values exceed criterion. Coliform median 182.5 colonies/100 ml, range 1.0–5,800 colonies/100 ml. No more than 4 values per month.
Econlock-hatchee River	3014	Crane Strand Drain	Stream		Total Coliform Bacteria	High	2004	Planning period: 0/1 values exceed criterion; verified period: 5/20 values exceed criterion. Coliform median 1,500 colonies/100 ml, range 1–21,000 colonies/100 ml. No more than 4 values per month.
Econlock-hatchee River	3023	Crane Strand	Stream		Fecal Coliform Bacteria	High	2004	Planning period: 14/40 values exceed criterion; verified period: 10/20 values exceed criterion. Coliform median 300 colonies/100 ml, range 10–6,000 colonies/100 ml. No more than 2 values per month.

Table 4.2 (contined)

Planning Unit	WBID	Waterbody Segment	Water-body Type	1998 303(d) Parameters of Concern	Parameters Identified Using the 2002 Impaired Surface Waters Rule	Priority for TMDL Development*	Projected Year for TMDL Development*	Comments
Econlock-hatchee River	3023	Crane Strand	Stream		Total Coliform Bacteria	High	2004	Planning period: 14/38 values exceed criterion; verified period: 10/20 values exceed criterion. Coliform median 810 colonies/100 ml, range 40–16,300 colonies/ 100 ml. No more than 2 values per month.
Econlock-hatchee River	3023A	Lake Baldwin Outfall	Stream		Fecal Coliform Bacteria	Medium	2008	Planning period: 19/36 values exceed criterion; verified period: 12/21 values exceed criterion. Coliform median 510 colonies/100 ml, range 30–4,100 colonies/ 100 ml. No more than 2 values per month.
Econlock-hatchee River	3023A	Lake Baldwin Outfall	Stream		Nutrients (Chlorophyll *a*)	Medium	2008	Colimitation of N and P based on a TN/TP median of 21 (63 values) during the planning and a median of 30 (37 values) during the verified period. Planning period: 1 Chlorophyll *a* annual mean exceeded 20 μg/L (1998); verified period: 1 Chlorophyll *a* annual mean exceeded 20 μg/L (1998). 38 TN values, median 1.12 mg/L. 38 TP values, median 0.04 mg/L.
Econlock-hatchee River	3023A	Lake Baldwin Outfall	Stream		Total Coliform Bacteria	Medium	2008	Planning period: 14/35 values exceed criterion; verified period: 9/21 values exceed criterion. Coliform median 1,480 colonies/ 100 ml, range 80–8,000 colonies/100 ml. No more than 2 values per month.
Econlock-hatchee River	3024A	Trib. to Little Econ. River	Stream		DO	Medium	2008	Planning period: 12/30 values below DO criterion; verified period: 7/20 values below DO criterion. DO met verification threshold of IWR, and N is the causative pollutant. TN median = 2.73 mg/L. 58 DO values, mean 5.63 mg/L, median 5.58 mg/L, range 3–12.9 mg/L.

Table 4.2 (contined)

Planning Unit	WBID	Waterbody Segment	Water-body Type	1998 303(d) Parameters of Concern	Parameters Identified Using the 2002 Impaired Surface Waters Rule	Priority for TMDL Development*	Projected Year for TMDL Development*	Comments
Econlock-hatchee River	3024A	Trib. to Little Econ. River	Stream		Fecal Coliform Bacteria	Medium	2008	Planning period: 18/32 values exceed criterion; verified period: 11/20 values exceed criterion. Coliform median 440 colonies/100 ml, range 8–3,100 colonies/ 100 ml.
Econlock-hatchee River	3024A	Trib. to Little Econ. River	Stream		Total Coliform Bacteria	Medium	2008	Planning period: 14/34 values exceed criterion; verified period: 10/20 values exceed criterion.
Econlock-hatchee River	3030	Long Branch	Stream	DO and BOD	DO and BOD	High	2004	Planning period: 3/5 values below DO criterion; verified period: 26/28 values below DO criterion. DO met verification threshold of IWR and BOD is causative pollutant. (BOD median = 2.6 mg/L). 31 DO values, median 3.6 mg/L, mean 3.43 mg/L, range 0.52–6.1 mg/L.
Econlock-hatchee River	3030	Long Branch	Stream	Coliform Bacteria	Fecal Coliform Bacteria	High	2004	Planning period: 1/1 values exceed criterion; verified period: 13/26 values exceed criterion. Coliform median 440 colonies/100 ml, range 8–3,100 colonies/100 ml. No more than 6 values per month.
Econlock-hatchee River	3030	Long Branch	Stream	Iron	Iron	High	2004	Planning period: 0/0 values exceed criterion; verified period: 12/26 values exceed criterion.
Econlock-hatchee River	3030	Long Branch	Stream	Coliform Bacteria	Total Coliform Bacteria	High	2004	Planning period: 0/0 values exceed criterion; verified period: 11/26 values exceed criterion. Coliform median 2,250 colonies/100 ml, range 434–27,000 colonies/100 ml. No more than 5 values per month.

Table 4.2 (contined)

Planning Unit	WBID	Waterbody Segment	Water-body Type	1998 303(d) Parameters of Concern	Parameters Identified Using the 2002 Impaired Surface Waters Rule	Priority for TMDL Development*	Projected Year for TMDL Development*	Comments
Lake George Unit	2213O	St. Johns River Above Ocklawaha River	Stream		Nutrients (Chlorophyll *a*)	Medium	2008	Colimitation of N and P based on a TN/TP median of 25 (77 values) during the planning period and a median of 25 (93 values) during the verified period. Planning period: 3 Chlorophyll *a* annual means exceeded 20 µg/L (1998–2000); verified period: 5 Chlorophyll *a* annual means exceeded 20 µg/L (1998–2002). 140 TN values, median 0.06 mg/L. 140 TP values, median 1.47 mg/L.
Lake George Unit	2892	Lake Margaret	Lake		Mercury in Fish	Medium	2011	Mercury in Fish met verification threshold of IWR. Fish tissue levels in 20 samples averaged 0.7830 ppm in 2002.
Lake George Unit	2893A	Lake George	Lake		Nutrients (TSI)	Medium	2008	Colimitation of N and P based on a TN/TP median of 20 (579 values) during the planning period and a median of 21 (551 values) during the verified period. Planning period: 9 TSI annual means exceeded 60 (1991–1992, 1994–2000); verified period: 7 TSI annual means exceeded 60 (1996–2002). 223 TN values, median 1.17 mg/L. 771 TP values, median 0.07 mg/L.
Lake George Unit	2893A1	St. Johns River Below Lake George	Stream		Nutrients (Chlorophyll *a*)	Medium	2008	Colimitation of N and P based on a TN/TP median 24 (235 values) during the planning period and a median of 24 (140 values) during the verified period. Planning period: 7 Chlorophyll *a* annual means exceeded 20 µg/L (1994–2000); verified period: 7 Chlorophyll *a* annual means exceeded 20 µg/L (1996–2002). 140 TN values, median 0.06 mg/L. 140 TP values, 1.47 mg/L.

Table 4.2 (contined)

Planning Unit	WBID	Waterbody Segment	Water-body Type	1998 303(d) Parameters of Concern	Parameters Identified Using the 2002 Impaired Surface Waters Rule	Priority for TMDL Development*	Projected Year for TMDL Development*	Comments
Lake George Unit	2893A2	St. Johns River Above Lake George	Stream		DO	Medium	2008	Planning period: 37/112 values below DO criterion; verified period: 21/73 values below DO criterion. DO met verification threshold of IWR and nutrients are the causative pollutant. 200 DO values, median 5.68 mg/L, mean 5.69 mg/L, range 0.28–9.23 mg/L.
Lake George Unit	2893A2	St. Johns River Above Lake George	Stream		Nutrients (Chlorophyll *a*)	Medium	2008	Colimitation of N and P based on a TN/TP median of 17 (120 values) in the planning period and a median of 16 (80 values) in the verified period. Planning period: 3 Chlorophyll *a* annual means exceeded 20 μg/L (1992, 1993, 1999), 123 TN values, median 1.19 mg/L, 124 TP values, median 0.07 mg/L; verified period: 1 Chlorophyll *a* annual mean exceeded 20 μg/L (1999), 83 TN values, median 1.132 mg/L, 80 TP values, median 0.07 mg/L.
Lake George Unit	2916B	Grasshop-per Lake	Lake		Mercury in Fish	Medium	2011	Mercury in Fish met verifica-tion threshold of IWR. Fish tissue levels in 20 samples averaged 1.55 ppm in 2000.
Lake Jesup	2981	Lake Jesup	Lake	Nutrients	Nutrients (TSI)	High	2004	Colimitation of N and P based on a TN/TP median of 16 (1077 values) in the planning period and a median of 18 (829 values) in the verified period. Planning period: 10 TSI annual means exceeded 60 (1991–2000); verified period: 7 TSI annual means exceeded 60 (1996–2002). 198 TN values, median 2.47 mg/L. 1279 TP values, median 0.15 mg/L.

Table 4.2 (contined)

Planning Unit	WBID	Waterbody Segment	Water-body Type	1998 303(d) Parameters of Concern	Parameters Identified Using the 2002 Impaired Surface Waters Rule	Priority for TMDL Development*	Projected Year for TMDL Development*	Comments
Lake Jesup	2981	Lake Jesup	Lake	Unionized Ammonia	Unionized Ammonia	High	2004	Planning period: 47/283 values exceed criterion; verified period: 27/154 values exceed criterion.
Lake Jesup	2985	Chub Creek	Stream		DO	Medium	2008	Planning period: 58/67 values below DO criterion; verified period: 40/47 values below DO criterion. DO met verification threshold of IWR, and N and P are causative pollutants (TN median = 2.3 mg/L, TP median = 0.37 mg/L). 68 DO values, median 1.99 mg/L, mean 2.61 mg/L, range 8.55–0.29 mg/L.
Lake Jesup	2985	Chub Creek	Stream		Iron	Medium	2008	Planning period: 15/44 values exceed criterion; verified period: 15/44 values exceed criterion.
Lake Jesup	2985	Chub Creek	Stream		Nutrients (Chlorophyll *a*)	Medium	2008	Colimitation of N and P based on a TN/TP median of 10 (67 values) during the planning period and a median of 10 (47 values). Planning period: 3 Chlorophyll *a* annual means exceeded 20 μg/L (1995–1997); verified period: 2 Chlorophyll *a* annual means exceeded 20 μg/L (1996–1997). 47 TN values, median 2.3 mg/L. 68 TP values, median 0.37 mg/L.
Lake Jesup	2986D	Lake Alma	Lake		Nutrients (TSI)	Medium	2008	Colimitation of N and P based on a TN/TP median of 14 (98 values) during the planning period and a median of 14 (98 values) during the verified period. Planning period: 4 TSI annual means exceeded 60 (1997–2000); verified period: 4 TSI annual means exceeded 60 (1997–2000). 99 TN values, median 2.2 mg/L, mean 2.28 mg/L. 98 TP values, median 0.16 mg/L, mean 0.18 mg/L.

Table 4.2 (contined)

Planning Unit	WBID	Waterbody Segment	Water-body Type	1998 303(d) Parameters of Concern	Parameters Identified Using the 2002 Impaired Surface Waters Rule	Priority for TMDL Development*	Projected Year for TMDL Development*	Comments
Lake Jesup	2986E	Lake Searcy	Lake		Nutrients (TSI)	Medium	2008	Colimitation of N and P based on a TN/TP median of 25 (105 values) in the planning period and a median of 22 (174 values) in the verified period. Planning period: 3 TSI annual means exceeded 60 (1998–2000); verified period: 5 TSI annual means exceeded 60 (1998–2002). 174 TN values, median 1.17 mg/L, mean 1.23 mg/L. 174 TP values, median 0.05 mg/L, mean 0.06 mg/L.
Lake Jesup	2990	Salt Creek	Stream		DO	Medium	2008	Planning period: 66/94 values below DO criterion; verified period: 44/72 values below DO criterion. DO met verification threshold of IWR and N is causative pollutant (TN median = 1.71 mg/L). 97 DO values, median 3.1 mg/L, mean 3.74 mg/L, range 0.17–10 mg/L.
Lake Jesup	2990	Salt Creek	Stream		Iron	Medium	2008	Planning period: 15/67 values exceed criterion; verified period: 15/67 values exceed criterion.
Lake Jesup	2990	Salt Creek	Stream		Nutrients (Chlorophyll *a*)	Medium	2008	N limited based on a TN/TP median of 8 (97 values) in the planning period and a median of 8 (75 values) in the verified period. Planning period: 1 Chlorophyll *a* annual mean exceeded 20 µg/L (1998); verified period: 1 Chlorophyll *a* annual mean exceeded 20 µg/L (1998). 75 TN values, median 1.71 mg/L. 97 TP values, median 0.21 mg/L.

Table 4.2 (contined)

Planning Unit	WBID	Waterbody Segment	Water-body Type	1998 303(d) Parameters of Concern	Parameters Identified Using the 2002 Impaired Surface Waters Rule	Priority for TMDL Development*	Projected Year for TMDL Development*	Comments
Lake Jesup	2992	Sweet-water Creek	Stream		DO	Medium	2008	Planning period: 88/100 values below DO criterion; verified period: 74/93 values below DO criterion. DO met verification threshold of IWR and P is causative pollutant (TP median = 0.31 mg/L). 158 DO values, median 3.2 mg/L, mean 3.47 mg/L, range 0.15–9.71 mg/L. One failed bioassessment in 1997.
Lake Jesup	2994D	Island Lake	Lake		Nutrients (TSI)	Medium	2008	P limited based on a TN/TP median of 36 (12 values) during the verified period. Planning period: 0 TSI annual means exceeded 60; verified period: 1 TSI annual mean exceeded 60 (2001). 12 TP values, median 0.05 mg/L, mean 0.28 mg/L.
Lake Jesup	2994Y	Fruitwood Lake	Lake		Nutrients (TSI)	Medium	2008	Colimitation of N and P based on a TN/TP median of 17 (224 values) during the planning period and a median of 17 (84 values) during the verified period. Planning period: 4 TSI annual means exceeded 60 (1993–1996); verified period: 1 TSI annual mean exceeded 60 (1996). 224 TN values, median 0.84 mg/L, mean 1.03 mg/L. 224 TP values, median 0.05 mg/L, mean 0.07 mg/L.
Lake Jesup	2997A	Howell Creek	Stream		Fecal Coliform Bacteria	Medium	2008	Planning period: 13/41 values exceed criterion; verified period: 9/22 values exceed criterion. Coliform median 200 colonies/100 ml, range 10–3400 colonies/ 100 ml. No more than 3 values per month.

Table 4.2 (contined)

Planning Unit	WBID	Waterbody Segment	Water-body Type	1998 303(d) Parameters of Concern	Parameters Identified Using the 2002 Impaired Surface Waters Rule	Priority for TMDL Development*	Projected Year for TMDL Development*	Comments
Lake Jesup	2997A	Howell Creek	Stream		Total Coliform Bacteria	Medium	2008	Planning period: 7/36 values exceed criterion; verified period: 6/22 values exceed criterion. Coliform median 680 colonies/100 ml, range 60–8900 colonies/100 ml. No more than 2 values per month.
Lake Jesup	2997B	Howell Lake	Lake		Nutrients (TSI)	Medium	2008	Colimitation of N and P based on a TN/TP median of 19 (197 values) during the planning period and a median of 19 (182 values) during the verified period. Planning period: 3 TSI annual means exceeded 60 (1997, 1999, 2000); verified period: 4 TSI annual means exceeded 60 (1997, 1999, 2000, 2002). 203 TN values, median 0.95 mg/L, mean 1.03 mg/L. 224 TP values, median 0.05 mg/L, mean 0.06 mg/L.
Lake Jesup	2997D	Lake Minnehaha	Lake		Nutrients (TSI)	Medium	2008	Colimitation by N and P based on a TN/TP median of 22 (321 values) during the planning period and a median of 24 (246 values) during the verified period. Planning period: 1 TSI annual means exceed threshold of 60 (1997); verified period: 2 TSI annual means exceed threshold of 60 (1997, 2001). 347 TN values, median 0.79 mg/L, mean 0.82 mg/L. 400 TP values, median 0.04 mg/L, mean 0.05 mg/L.

Table 4.2 (contined)

Planning Unit	WBID	Waterbody Segment	Water-body Type	1998 303(d) Parameters of Concern	Parameters Identified Using the 2002 Impaired Surface Waters Rule	Priority for TMDL Development*	Projected Year for TMDL Development*	Comments
Lake Jesup	2997L	Lake Winyah	Lake		Nutrients (TSI)	Medium	2008	Colimitation of N and P based on a TN/TP median of 13 (275 values) during the planning period and a median of 13 (191 values) during the verified period. Planning period: 7 TSI annual means exceeded 60 (1991–1998); verified period: 3 TSI annual means exceeded 60 (1996–1998, 2001). 269 TN values, median 0.81 mg/L, mean 0.85 mg/L. 269 TP values, median 0.061 mg/L, mean 0.06 mg/L.
Lake Jesup	2997P	Lake Concord	Lake		Nutrients (TSI)	Medium	2008	Colimitation of N and P based on a TN/TP median of 17 (284 values) during the planning period and a median of 17 (203 values) during the verified period. Planning period: 2 TSI annual means exceed threshold of 60 (1996, 2000); verified period: 2 TSI annual means exceed threshold of 60 (1996, 2000). 254 TN values, median 0.71 mg/L, mean 0.74 mg/L. 313 TP values, median 0.04 mg/L, mean 0.05 mg/L.
Lake Jesup	2997R	Lake Adair	Lake		Nutrients (TSI)	Medium	2008	Colimitation of N and P based on a TN/TP median of 13 (321 values) during the planning period and a median of 15 (231 values) during the verified period. Planning period: 9 TSI annual means exceeded 60 (1991–2000); verified period: 5 TSI annual means exceeded 60 (1996–2001) and 1 TSI annual mean exceeded 40 (2002). 337 TN values, median 1.02 mg/L, mean 1.10 mg/L. 333 TP values, median 0.08 mg/L, mean 0.10 mg/L.

Table 4.2 (contined)

Planning Unit	WBID	Waterbody Segment	Water-body Type	1998 303(d) Parameters of Concern	Parameters Identified Using the 2002 Impaired Surface Waters Rule	Priority for TMDL Development*	Projected Year for TMDL Development*	Comments
Lake Jesup	2997S	Lake Spring	Lake		Nutrients (TSI)	Medium	2008	Colimitation by N and P based on a TN/TP median of 16 (60 values) during the planning period and a median of 17 (31 values) during the verified period. Planning period: 4 TSI annual means exceeded 60 (1992–1994, 1996); verified period: 1 TSI annual mean exceeded 60 (1996). 14 TN values, median 0.01 mg/L, mean 0.01 mg/L. 80 TP values, median 0.07 mg/L, mean 0.07 mg/L.
Lake Jesup	3009	Bear Gulley Lake	Lake		Nutrients (TSI)	Medium	2008	P limited based on a TN/TP median of 30 (40 values) during the planning period and a median of 30 (66 values) during the verified period. Planning period: 1 TSI annual mean exceeded 60 (1999); verified period: 3 TSI annual means exceeded 60 (1999–2002). 51 TN values, median 1.12 mg/L, mean 1.15 mg/L. 66 TP values, median 0.038 mg/L, mean 0.04 mg/L.
Lake Kerr Unit	2905C	Wildcat Lake	Lake		Mercury in Fish	Medium	2011	Mercury in Fish met verification threshold of IWR. Fish tissue levels in 20 samples averaged 0.8480 ppm in 2000.

Table 4.2 (contined)

Planning Unit	WBID	Waterbody Segment	Water-body Type	1998 303(d) Parameters of Concern	Parameters Identified Using the 2002 Impaired Surface Waters Rule	Priority for TMDL Development*	Projected Year for TMDL Development*	Comments
Lake Monroe Unit	2893C	St. Johns River Above Wekiva River	Stream	Nutrients	Nutrients (Chlorophyll *a*)	Low	2008	Colimitation of N and P based on a TN/TP median of 18 (326 values) during the planning period and a median of 18 (189 values) during the verified period. Planning period: 5 Chlorophyll *a* annual means exceeded 20 µg/L (1991–1993, 1999–2000). 327 TN values, median 1.41 mg/L. 327 TP values, median 0.08 mg/L; verified period: 2 Chlorophyll *a* annual means exceeded 20 µg/L (1999–2000). 190 TN values, median 1.42 mg/L. 190 TP values, median 0.08 mg/L.
Lake Monroe Unit	2893D (Called 2893D [and 2893C] on 1998 303[d] List)	Lake Monroe	Lake	DO	DO	Low	2008	Planning period: 78/344 values below DO criterion; verified period: 39/193 values below DO criterion. DO met verification threshold of IWR and nutrients are the causative pollutant. 621 DO values, median 6.59 mg/L, mean 6.49 mg/L, range 0.08–11.2 mg/L.
Lake Monroe Unit	2893D (Called 2893D [and 2893C] on 1998 303[d] List)	Lake Monroe	Lake	Nutrients	Nutrients (TSI)	Low	2008	Colimitation of N and P based on a TN/TP median of 20 (389 values) in the planning period and a median of 20 (320 values) in the verified period. Planning period: 3 TSI annual means exceeded 60 (1998–2000); verified period: 4 TSI annual means exceeded 60 (1998–2001). 327 TN values, median 1.51 mg/L. 321 TP values, median 0.08 mg/L.

Table 4.2 (contined)

Planning Unit	WBID	Waterbody Segment	Water-body Type	1998 303(d) Parameters of Concern	Parameters Identified Using the 2002 Impaired Surface Waters Rule	Priority for TMDL Development*	Projected Year for TMDL Development*	Comments
Lake Monroe Unit	2893E	St. Johns River Above Lake Monroe	Stream		DO	Medium	2008	DO met verification threshold of IWR, and nutrients are the causative pollutant. Planning period: 38/101 values below DO criterion; verified period: 24/77 values below criterion. 262 DO values below criterion, mean 5.18 mg/L, median 5.36 mg/L, range 0.43–10.76.
Lake Monroe Unit	2893E	St. Johns River Above Lake Monroe	Stream		Nutrients (Chlorophyll *a*)	Medium	2008	Colimitation of N and P based on a TN/TP median of 19 (102 values) in the planning period and a median of 18 (80 values) in the verified period. Planning period: 0 Chlorophyll *a* annual means exceeded 20 μg/L; verified period: 1 Chlorophyll *a* annual means exceeded 20 μg/L (2002). 82 TN values, median 1.39 mg/L. 81 TP values, median 0.08 mg/L.
Lake Monroe Unit	2951	Lake Marie	Lake		Nutrients (TSI)	Medium	2008	Colimitation of N and P based on a TN/TP median of 26 (66 values) during the planning period and a median of 24 (48 values) during the verified period. Planning period: 1 TSI annual mean exceeded 60 (1996); verified period: 1 TSI annual mean exceeded 60 (1996). 48 TN values, median 1.04 mg/L. 48 TP values, median 0.05 mg/L.
Lake Monroe Unit	2962	Smith Canal	Stream	DO	DO	Low	2008	Planning period: 2/7 values below DO criterion; verified period: 16/31 values below DO criterion. DO met verification threshold of IWR and BOD is the causative pollutant. BOD median = 2.1 mg/L. 36 DO values, median 5.21 mg/L, mean 5.31 mg/L, range 1.99–10.17mg/L.

Table 4.2 (contined)

Planning Unit	WBID	Waterbody Segment	Water-body Type	1998 303(d) Parameters of Concern	Parameters Identified Using the 2002 Impaired Surface Waters Rule	Priority for TMDL Development*	Projected Year for TMDL Development*	Comments
Lake Monroe Unit	2962	Smith Canal	Stream	Coliform Bacteria	Fecal Coliform Bacteria	Low	2008	Planning period: 1/4 values exceed criterion; verified period: 8/30 values exceed criterion. Coliform median 247 colonies/100 ml, range 1–870 colonies/100 ml. No more than 2 values per month.
Lake Monroe Unit	2962	Smith Canal	Stream	Iron	Iron	Low	2008	Planning period: 0/1 values exceed criterion; verified period: 7/22 values exceed criterion.
Lake Monroe Unit	2973	DeForest Lake Outlet	Stream		DO	Medium	2008	Planning period: 12/17 values below DO criterion; verified period: 17/25 values below DO criterion. DO met verification threshold of IWR and BOD is causative pollutant (BOD median = 3.8 mg/L). 25 DO values, median 3.5 mg/L, mean 3.89 mg/L, range 1.46–7.1 mg/L.
Lake Monroe Unit	2973F	DeForest Lake	Lake		Nutrients (TSI)	Medium	2008	Colimitation of N and P based a TN/TP median of 33 (36 values) in the planning period and a median of 33 (44 values) in the verified period. Planning period: 1 TSI annual mean exceeded 60 (1999); verified period: 1 TSI annual mean exceeded 60 (1999). 18 TN values, median 0.86 mg/L. 44 TP values, median 0.027 mg/L.
Lake Monroe Unit	2981A	Lake Jesup Near St. Johns River	Lake	Nutrients	Nutrients (TSI)	High	2004	Colimitation of N and P based on a TN/TP median of 19 (100 values) during the planning period and a median of 20 (86 values) during the verified period. Planning period: 5 TSI annual means exceeded 60 (1995–1999); verified period: 4 TSI annual means exceeded 60 (1996–1999). 68 TN values, median 2.2 mg/L. 109 TP values, median 0.11 mg/L.

Table 4.2 (contined)

Planning Unit	WBID	Waterbody Segment	Water-body Type	1998 303(d) Parameters of Concern	Parameters Identified Using the 2002 Impaired Surface Waters Rule	Priority for TMDL Development*	Projected Year for TMDL Development*	Comments
Lake Woodruff Unit	2893U	Lake Beresford	Lake		Nutrients (TSI)	Medium	2008	Colimitation of N and P based on a TN/TP median of 19 (411 values) in the planning period and a median of 18 (272 values) in the verified period. Planning period: 7 TSI annual means exceeded 60 (1992–1994, 1996, 1997, 1999, 2000); verified period: 6 TSI annual means exceeded 60 (1996, 1997, 1999–2002). 373 TN values, median 1.26 mg/L. 492 TP values, median 0.07 mg/L.
Wekiva River	2934A	Cowpen Pond	Lake		Mercury in Fish	Medium	2011	Mercury in Fish met verification threshold of IWR. Fish tissue levels in 20 samples averaged 0.9135 ppm in 2000.
Wekiva River	2987	Little Wekiva River	Stream	Coliform Bacteria	Fecal Coliform Bacteria	Low	2008	Planning period: 23/49 values exceed criterion; verified period: 20/44 values exceed criterion. Coliform median 420 colonies/100 ml, range 1.0–5800 colonies/ 100 ml. No more than 5 values per month.
Wekiva River	2987	Little Wekiva River	Stream	Coliform Bacteria	Total Coliform Bacteria	Low	2008	Planning period: 9/33 values exceed criterion; verified period: 5/24 values exceed criterion. Coliform median 2000 colonies/100 ml, range 120–24,000 colonies/100 ml. No more than 5 values per month.

Table 4.2 (contined)

Planning Unit	WBID	Waterbody Segment	Water-body Type	1998 303(d) Parameters of Concern	Parameters Identified Using the 2002 Impaired Surface Waters Rule	Priority for TMDL Development*	Projected Year for TMDL Development*	Comments
Wekiva River	2987A	Spring Lake	Lake		Nutrients (TSI)	Medium	2008	P limited based on a TN/TP median of 37 (228 values) in the planning period and a median of 37 (230 values) in the verified period. Planning period: 6 TSI annual means exceeded 60 (1995–2000); verified period: 7 TSI annual means exceeded 60 (1996–2002). 261 TN values, median 1.53 mg/L, mean 1.55 mg/L. 275 TP values, median 0.041 mg/L, mean 0.04 mg/L.
Wekiva River	2998A	Lake Florida	Lake		Nutrients (TSI)	Medium	2008	Colimitation by N and P based on a TN/TP median of 21 (186 values) during the planning period and a median of 22 (242 values) during the verified period. Planning period: 0 TSI annual means exceeded 60; verified period: 1 TSI annual mean exceeded 60 (2002). 257 TN values, median 0.83 mg/L. 258 TP values, median 0.04 mg/L.
Wekiva River	2998C	Lake Orienta	Lake		Nutrients (TSI)	Medium	2008	Colimitation of N and P based on a TN/TP median of 31 (31 values) during the planning period and a median of 30 (696 values) during the verified period. Planning period: 3 TSI annual means exceeded 60 (1996, 1999, 2000); verified period: 5 TSI annual means exceeded 60 (1996, 1999–2002). 725 TN values, median 1.26 mg/L, mean 1.33 mg/L. 726 TP values, median 0.04 mg/L, mean 0.04 mg/L.

Table 4.2 (contined)

Planning Unit	WBID	Waterbody Segment	Water-body Type	1998 303(d) Parameters of Concern	Parameters Identified Using the 2002 Impaired Surface Waters Rule	Priority for TMDL Development*	Projected Year for TMDL Development*	Comments
Wekiva River	2998E	Lake Adalaide	Lake		Nutrients (TSI)	Medium	2008	Colimitation by N and P based on a TN/TP median of 23 (147 values) during the planning period and a median of 22 (159 values) during the verified period. Planning period: 1 TSI annual mean exceeded 60 (1993); verified period: 1 TSI annual mean exceeded 60 (2001). 216 TN values, median 1.02 mg/L. 216 TP values, median 0.05 mg/L.
Wekiva River	3002D	Starke Lake	Lake		Nutrients (TSI)	Medium	2008	P limited with some colimitation based on a TN/TP median of 11 (38 values) during the planning period and a median of 41 (202 values) during the verified period. Planning period: 1 TSI means exceeded 60 (1991) and 1 TSI annual mean exceeded 40 (1993); verified period: 1 TSI annual mean exceeded 40 (1996). The TSI listing threshold for the lake is determined based on the annual average color value for the lake. 309 TN values, median 1.04 mg/L, mean 1.03 mg/L. 359 TP values, median 0.03 mg/L, mean 0.05 mg/L.
Wekiva River	3002E	Lake Primavista	Lake		Nutrients (TSI)	Medium	2008	P limited based on a TN/TP median of 41 (279 values) during the planning period and a median of 40 (204 values) during the verified period. Planning period: 6 TSI annual means exceeded 60 (1993–1997, 1999); verified period: 4 TSI annual means exceeded 60 (1996–1997, 1999, 2001). 309 TN values, median 1.26 mg/L, mean 1.32 mg/L. 358 TP values, median 0.03 mg/L, mean 0.06 mg/L.

Table 4.2 (contined)

Planning Unit	WBID	Waterbody Segment	Water-body Type	1998 303(d) Parameters of Concern	Parameters Identified Using the 2002 Impaired Surface Waters Rule	Priority for TMDL Development*	Projected Year for TMDL Development*	Comments
Wekiva River	3002G	Lake Lotta	Lake		Nutrients (TSI)	Medium	2008	Colimitation of N and P based on a TN/TP median of 17 (512 values) during the planning period and a median of 18 (392 values) during the verified period. Planning period: 1 TSI annual mean exceed threshold of 60 (1997); verified period: 1 TSI annual mean exceed threshold of 60 (1997). 623 TN values, median 0.9 mg/L, mean 0.91 mg/L. 626 TP values, median 0.05 mg/L, mean 0.06 mg/L.
Wekiva River	3002N	Prairie Lake	Lake		Nutrients (TSI)	Medium	2008	Colimitation by N and P based on a TN/TP median of 31 (93 values) during the planning period and a median of 29 (121 values) during the verified period. Planning period: 0 TSI annual means exceeded 60; verified period: 1 TSI annual mean exceeded 60 (2001). 122 TN values, median 0.87 mg/L, mean 1.08 mg/L. 122 TP values, median 0.03 mg/L, mean 0.04 mg/L.
Wekiva River	3004	Little Wekiva Canal	Stream	DO and BOD	DO and BOD	Low	2008	Planning period: 32/103 values below DO criterion; verified period: 23/65 values below DO criterion. DO met verification threshold of IWR and BOD is causative pollutant. (BOD median = 2.1 mg/L). 103 DO values, median 6.2 mg/L, mean 5.9 mg/L, range 0.5–12.09 mg/L.
Wekiva River	3004	Little Wekiva Canal	Stream	Coliform Bacteria	Fecal Coliform Bacteria	Low	2008	Planning period: 29/95 values exceed criterion; verified period: 21/61 values exceed criterion. Coliform median 170 colonies/100 ml, range 2–4,320 colonies/ 100 ml. No more than 4 values per month.

Table 4.2 (contined)

Planning Unit	WBID	Waterbody Segment	Water-body Type	1998 303(d) Parameters of Concern	Parameters Identified Using the 2002 Impaired Surface Waters Rule	Priority for TMDL Development*	Projected Year for TMDL Development*	Comments
Wekiva River	3004	Little Wekiva Canal	Stream	Nutrients	Nutrients (Chlorophyll *a*)	Low	2008	Colimitation by N and P based on a TN/TP median of 14 (156 values) during the planning period and a median of 17 (84 values) during the verified period. 84 TN values, median 1.16 mg/L. 84 TP values, median 0.08 mg/L. Planning period: 6 Chlorophyll *a* annual means exceeded 20 μg/L (1991, 1992, 1994, 1996, 1998, 1999); verified period: 3 Chlorophyll *a* annual means exceeded 20 μg/L (1996, 1998, 1999). The annual Chlorophyll *a* concentrations were: 1991–20.5 μg/L, 1992–20.7 μg/L, 1993–13.6 μg/L, 1994–23.2 μg/L, 1996–25.1 μg/L, 1997–13.0 μg/L, 1998–20.0 μg/L, 1999–26.6 μg/L, and 2000–10.0 μg/L.
Wekiva River	3004C	Lake Lawne	Lake		Nutrients (TSI)	Medium	2008	Colimitation by N and P based on a TN/TP median of 13 (320 values) during the planning period and a median of 17 (98 values) during the verified period. Planning period: 6 TSI annual means exceeded 60 (1991–1994, 1996, 1997); verified period: 2 TSI annual means exceeded 60 (1996, 1997). 27 TN values, median 1.48 mg/L, mean 1.57 mg/L. 404 TP values, median 0.128 mg/L, mean 0.203 mg/L.

Table 4.2 (contined)

Planning Unit	WBID	Waterbody Segment	Water-body Type	1998 303(d) Parameters of Concern	Parameters Identified Using the 2002 Impaired Surface Waters Rule	Priority for TMDL Development*	Projected Year for TMDL Development*	Comments
Wekiva River	3004D	Silver Lake	Lake		Nutrients (TSI)	Medium	2008	Colimitation by N and P based on a TN/TP median of 25 (237 values) during the planning period and a median of 27 (118 values) during the verified period. Planning period: 0 TSI annual means exceed threshold of 60; verified period: 1 TSI annual means exceed threshold of 60 (1998). 173 TN values, median 0.64 mg/L, mean 0.76 mg/L. 224 TP values, median 0.027 mg/L, mean 0.04 mg/L.
Wekiva River	3004G	Bay Lake	Lake		Nutrients (TSI)	Medium	2008	Colimitation by N and P based on a TN/TP median of 29 (406 values) during the planning period and a median of 31 (286 values) during the verified period. Planning period: 8 TSI annual means exceeded 60 (1993–2000); verified period: 7 TSI annual means exceeded 60 (1996–2002). 442 TN values, median 1.21 mg/L, mean 1.27 mg/L. 443 TP values, median 0.04 mg/L, mean 0.042 mg/L.
Wekiva River	3011C	Lake Lucien	Lake		Mercury in Fish	Medium	2011	Mercury in Fish met verification threshold of IWR. Fish tissue levels in 20 samples averaged 0.5075 ppm in 2000.

*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.

BOD = Biological oxygen demand
DO = Dissolved oxygen
N = Nitrogen
P = Phosphorus
ppm = parts per million
TN = Total nitrogen
TP = Total phosphorus
TSI = Trophic State Index

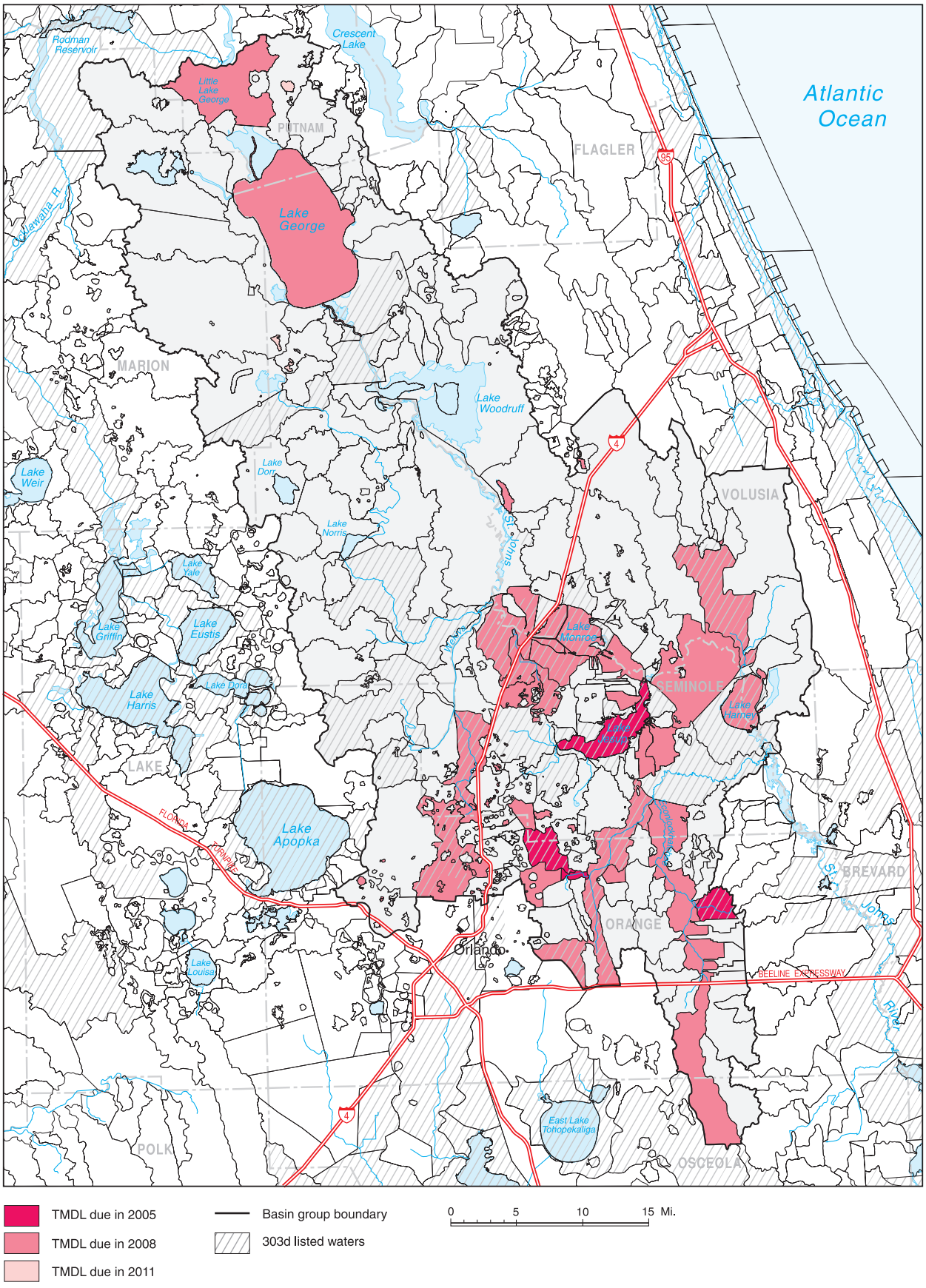


Figure 4.1: Waters on the Verified List, with Projected Year for TMDL Development



waterbody in the assessment unit has been assessed, and other waters in the watershed may not be impaired.

Since the October 2003 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 F.1** in **Appendix F** contains the listing status of all assessed waters in the basin as of May 2004. An order containing the initial Verified List of Impaired Group 2 Waters (Verified List) was signed by the Department's Secretary on May 27, 2004. The order was officially noticed in the May 28, 2004, 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.

Pollutant Causing Impairments

Of the 427 water segments in the Middle St. Johns Basin, 58 waters are verified as being impaired for at least 1 parameter, and a TMDL is required for each of these waters. A total of 88 TMDLs are required for these waters following the methodology in **Appendix E**. The Lake Jesup planning unit has the largest number of TMDL requirements, being identified as 22, followed by the Wekiva River and Econlockhatchee River planning units with 18 TMDLs. At this stage, no TMDL requirement has been identified for the Alexander Spring Creek.

Table 4.3 lists the number of TMDLs required for each planning unit and the parameters under concern.

Table 4.4 lists the number of impairments for each parameter under concern in the Middle St. Johns River Basin. Ten pollutant parameters are identified in the basin. The most common parameter exhibiting impairment throughout the basin is the nutrient. In 7 of the 9 planning

Table 4.3: Number of TMDLs Required for Each Planning Unit

Planning Units	Number of TMDLs Required	Parameters under Concern
Lake Jesup	22	Nutrients, unionized ammonia, DO, iron, fecal coliforms, and total coliforms
Wekiva River	18	Nutrients, DO, BOD fecal coliforms, total coliforms, and mercury in fish
Econlockhatchee River	18	Nutrients, DO, BOD, fecal coliforms, total coliforms, and iron
Lake Monroe	12	Nutrients, DO, fecal coliforms, and iron
Deep Creek	9	Nutrients, DO, iron, lead, and mercury in fish
Lake George	7	Nutrients, DO, and mercury in fish
Lake Kerr	1	Mercury in fish
Lake Woodruff	1	Nutrients
Alexander Springs Creek	0	



Table 4.4: Number of Listings for Each Parameter Exhibiting the Impairment

Parameters under Concern	Number of Impairments	Percent Total Impairments
Nutrients	40	45%
DO	14	16%
Fecal Coliforms	11	13%
Total Coliforms	8	9%
Mercury	6	7%
Iron	5	6%
Lead	2	2%
Cadmium	1	1%
Unionized Ammonia	1	1%
Selenium	0	0%

units of the basin, 40 nutrient impairments are identified, which account for about 45 percent of the total number of impairments. The number of dissolved oxygen (DO) impairment ranked second among all the pollutants. Totally 14 DO impairment are identified in 6 of the 9 planning units, and account for about 16 percent of the total number of impairments in the basin. This is followed by the number of fecal coliform bacteria, which appear in 4 of the 9 planning units, and account for about 13 percent of the total impairment.

There are 6 segments listed as being impaired by mercury in fish tissue based on the fish consumption advisories issued by the Florida Department of Health (DOH). Fish tissue mercury easurements taken by the Florida Fish and Wildlife Commission (FWC) in the preceeding 7.5 years confirm the impairment. Segments include Lake Margaret (WBID 2892, planning unit: Lake George), Grasshopper Lake (WBID 2916B, planning unit: Lake George), Wildcat Lake (WBID 2905C, planning unit: Lake Kerr), Cowpen Pond (WBID 2934A, planning unit: Wekiva River), Lake Lucien (WBID 3011C, planning unit: Wekiva River), and Lake Harney (WBID 2964A, planning unit: Deep Creek). Other metal pollutants within the water column include iron, lead, selenium, and cadmium. Based on **Table 4.3**, the Deep Creek planning unit appears to have the most types of metal pollutions verified for the entire basin.

According to the IWR, to place a water segment on the Verified List for nutrients, the Department must identify the limiting nutrient or nutrients on the Verified List. The following method is used to identify the limiting nutrient(s) in streams and lakes:

1. The ratios of total nitrogen (TN) to total phosphorus (TP) are calculated for each paired value of TN and TP (per sampling event) collected during the verified period.
2. The accumulative frequencies of the ratios below 10, in between 10 and 30, and above 30 are analyzed. If 100 percent of the ratios fall in any 1 of these 3 ranges, the given water segment would be



considered as being limited by nitrogen, co-limited by nitrogen and phosphorus, or limited by phosphorus, respectively. If the majority of the ratios fall into any 1 of the 3 ranges, disregarding ratios outside that range, the water segment under question will be considered as being primarily limited by nitrogen, colimited by nitrogen and phosphorus, or limited by phosphorus, respectively, and some extent of other limitations depending on where the remaining portion of the ratios fall.

Table 4.5 displays the median nitrogen and phosphorus ratios for stream and lake segments impaired by nutrients

As **Table 4.5** shows, the majority of the water segments identified as being impaired by nutrients are nitrogen and phosphorus co-limited. Only two water segments are limited only by phosphorus. No nitrogen limited water segment is identified in the Middle St. Johns River Basin.

Table 4.5: Middle St. Johns Basin Nitrogen to Phosphorus Ratios for the Verified Period

WBID	Waterbody Segment	Waterbody Type	Total Nitrogen and Total Phosphorus Median[1] (mg/L)	Nitrogen to Phosphorus Ratio Median[2]	Limiting Nutrient(s)
2213O	St. Johns River Above Ocklawaha River	Stream	TN = 1.47 mg/L TP = 0.06 mg/L	25 (93 values)	N and P colimitation
2893A1	St. Johns River Below Lake George	Stream	TN = 1.47 mg/L TP = 0.06 mg/L	24 (140 values)	N and P colimitation
2893A2	St. Johns River Above Lake George	Stream	TN = 1.13 mg/L TP = 0.07 mg/L	16 (80 values)	N and P colimitation
2893C	St. Johns River Above Wekiva River	Stream	TN = 1.42 mg/L TP = 0.08 mg/L	18 (189 values)	N and P colimitation
2893E	St. Johns River Above Lake Monroe	Stream	TN = 1.39 mg/L TP = 0.08 mg/L	18 (80 values)	N and P colimitation
2985	Chub Creek	Stream	TN = 2.3 mg/L TP = 0.37 mg/L	10 (47 values).	N and P colimitation
2990	Salt Creek	Stream	TN = 1.71 mg/L	8 (75 values)	N and P colimitation
3004	Little Wekiva Canal	Stream	TN = 1.16 mg/L TP = 0.08 mg/L	17 (84 values)	N and P colimitation
3023A	Lake Baldwin Outfall	Stream	TN = 1.12 mg/L TP = 0.04 mg/L	30 (37 values)	N and P colimitation
2893F	St. Johns River Above Lake Jesup	Stream	TN = 1.36 mg/L TP = 0.07 mg/L	21 (149 values)	N and P colimitation
2893A	Lake George	Lake	TN = 1.17 mg/L TP = 0.07 mg/L	21 (551 values)	N and P colimitation
2893D (Called 2893D [and 2893C] on 1998 303[d] List)	Lake Monroe	Lake	TN = 1.51 mg/L TP = 0.08 mg/L	20 (320 values)	N and P colimitation
2893U	Lake Beresford	Lake	TN = 1.26 mg/L TP = 0.07 mg/L	18 (272 values)	N and P colimitation

Table 4.5 (contnued)

WBID	Waterbody Segment	Waterbody Type	Total Nitrogen and Total Phosphorus Median[1] (mg/L)	Nitrogen to Phosphorus Ratio Median[2]	Limiting Nutrient(s)
2951	Lake Marie	Lake	TN = 1.04 mg/L TP = 0.05 mg/L	24 (48 values)	N and P colimitation
2964A	Lake Harney	Lake	TN = 1.28 mg/L TP = 0.05 mg/L	19 (242 values)	N and P colimitation
2973F	DeForest Lake	Lake	TN = 0.86 mg/L TP = 0.03 mg/L	33 (44 values)	N and P colimitation
2981	Lake Jesup	Lake	TN = 2.47 mg/L TP = 0.15 mg/L	18 (829 values)	N and P colimitation
2981A	Lake Jesup Near St. Johns River	Lake	TN = 1.26 mg/L TP = 0.11 mg/L	20 (86 values)	N and P colimitation
2986D	Lake Alma	Lake	TN = 2.2 mg/L TP = 0.16 mg/L	14 (98 values)	N and P colimitation
2986E	Lake Searcy	Lake	TN = 1.23 mg/L TP = 0.05 mg/L	22 (174 values)	N and P colimitation
2987A	Spring Lake	Lake	TP = 0.04 mg/L	37 (230 values)	N and P colimitation
2994D	Island Lake	Lake	TP = 0.05 mg/L	36 (12 values)	N and P colimitation
2994Y	Fruitwood Lake	Lake	TN = 0.84 mg/L TP = 0.05 mg/L	17 (84 values)	N and P colimitation
2997B	Howell Lake	Lake	TN = 0.95 mg/L TP = 0.05 mg/L	19 (182 values)	N and P colimitation
2997D	Lake Minnehaha	Lake	TN = 0.79 mg/L TP = 0.04 mg/L	24 (246 values)	N and P colimitation
2997L	Lake Winyah	Lake	TN = 0.81 mg/L TP = 0.06 mg/L	13 (191 values)	N and P colimitation
2997P	Lake Concord	Lake	TN = 0.71 mg/L TP = 0.04 mg/L	17 (203 values)	N and P colimitation
2997R	Lake Adair	Lake	TN = 1.02 mg/L TP = 0.08 mg/L	15 (231 values)	N and P colimitation
2997S	Lake Spring	Lake	TN = 0.01 mg/L TP = 0.07 mg/L	16 (60 values)	N and P colimitation
2998A	Lake Florida	Lake	TN = 0.83 mg/L TP = 0.04 mg/L	22 (242 values)	N and P colimitation
2998C	Lake Orienta	Lake	TN = 1.26 mg/L TP = 0.04 mg/L	30 (696 values)	N and P colimitation
2998E	Lake Adalaide	Lake	TN = 1.02 mg/L TP = 0.05 mg/L	22 (159 values)	N and P colimitation
3002D	Starke Lake	Lake	(TN = 1.04 mg/L) TP = 0.03 mg/L	41 (202 values)	P limitation with some colimitation
3002E	Lake Primavista	Lake	TP = 0.03 mg/L	40 (204 values)	P limitation
3002G	Lake Lotta	Lake	TN = 0.90 mg/L TP = 0.05 mg/L	18 (392 values)	N and P colimitation
3002N	Prairie Lake	Lake	TN = 0.87 mg/L TP = 0.03 mg/L	29 (121 values)	N and P colimitation
3004C	Lake Lawne	Lake	TN = 1.48 mg/L TP = 0.13 mg/L	17 (98 values)	N and P colimitation

Table 4.5 (contnued)

WBID	Waterbody Segment	Waterbody Type	Total Nitrogen and Total Phosphorus Median[1] (mg/L)	Nitrogen to Phosphorus Ratio Median[2]	Limiting Nutrient(s)
3004D	Silver Lake	Lake	TN = 0.64 mg/L TP = 0.03 mg/L	27 (118 values)	N and P colimitation
3004G	Bay Lake	Lake	(TN = 1.21 mg/L) TP =0.04 mg/L	31 (286 values)	Colimitation based on data of planning period and P limitation based on data of verified period
3009	Bear Gulley Lake	Lake	TP = 0.04 mg/L	30 (66 values)	P limitation

[1]TN and TP medians are for the entire sets of TN and TP concentrations retrieved from IWR database.
[2]TN to TP ratio medians are for the subset of TN and TP concentrations that paired TN and TP measurements are available.

N = Nitrogen
P = Phosphorus
TN = Total nitrogen
TP = Total phosphorus

As required by the IWR, the Department must identify the pollutants causing or contributing to DO exceedances to confirm impairment and place the waterbody on the Verified List. If a water segment is on the Verified List for both DO and nutrients, then nutrients is identified as a pollutant contributing to DO exceedances. The Department also applies the following analysis to identify the pollutant(s) contributing to DO exceedances:

The water segment median values for biological oxygen demand (BOD), TN, and TP are determined for the verified period (i.e., January 1995 to January 2002).

1. The median values are then compared with the screening levels for the appropriate waterbody type. The screening levels represent the 70th percentile value of data collected from streams, lakes, or estuaries **(Table 4.6)**.
2. If a water segment median value exceeds the screening level, the parameter is identified as a pollutant contributing to the exceedances.

Table 4.6: Screening Level Values (70th Percentile) Based on STORET Data from 1970 to 1987

	BOD (mg/L)	TN (mg/L)	TP (mg/L)
Streams	2.0	1.6	0.22
Lakes	2.9	1.7	0.11
Estuaries	2.1	1.0	0.19

Source: Friedemann, F., and J. Hand, 1989.

Table 4.7 provides causative factors of DO impairment, status of annual average chlorophyll *a* concentration (if a stream was identified as being impaired by the nutrient as well as DO), status of annual average Trophic State Index (TSI) (if a lake was identified as being impaired by the nutrient as well as DO), BOD5 median (if exceeded the screening level), or TN and/or TP medians (if a given water segment was not identified as being impaired by nutrient based on the annual chlorophyll *a* concentration or annual TSI, but TN and/or TP exceeded the screening level). A water segment has to have a sufficient number of DO exceedances and a causative factor to be placed on the Verified List. If a water has a sufficient number of exceedances for placement on the Verified List but does not have an identified causative factor, the DO for that segment is included on the Planning List.



Table 4.7: Middle St. Johns Basin Median Values for the Verified Period

WBID	Waterbody Segment	Waterbody Type	Causative Factor Identified	BOD 5 Day Median (mg/L)	Annual Mean Chlorophyll *a* (µg/L)	Annual Mean TSI	Total Nitrogen Median (mg/L)	Total Phosphorus Median (mg/L)
2893A2	St. Johns River Above Lake George	Stream	Nutrients	—	Exceeded 20	—	—	—
2893D (Called 2893D [and 2893C] on 1998 303[d] List)	Lake Monroe	Lake	Nutrients	—	—	Exceeded 60	—	—
2893E	St. Johns River Above Lake Monroe	Stream	Nutrients	—	Exceeded 20	—	—	—
2893F	St. Johns River Above Lake Jesup	Stream	Nutrients	—	Exceeded 20	—	—	—
2962	Smith Canal	Stream	BOD	2.1	—	—	—	—
2964A	Lake Harney	Lake	Nutrients	—	—	Exceeded 60	—	—
2973	DeForest Lake Outlet	Stream	BOD	3.8	—	—	—	—
2985	Chub Creek	Stream	Nitrogen Phosphorus	—	—	—	2.3	0.37
2990	Salt Creek	Stream	Nitrogen	—	—	—	1.71	—

Table 4.5 (contnued)

WBID	Waterbody Segment	Waterbody Type	Causative Factor Identified	BOD 5 Day Median (mg/L)	Annual Mean Chlorophyll *a* (µg/L)	Annual Mean TSI	Total Nitrogen Median (mg/L)	Total Phosphorus Median (mg/L)
2992	Sweet-water Creek	Stream	Phosphorus	—	—	—	—	0.31
3004	Little Wekiva Canal	Stream	BOD	2.1	—	—	—	—
3014	Crane Strand Drain	Stream	BOD	2.25	—	—	—	—
3024A	Trib. to Little Econ. River	Stream	Nitrogen	—	—	—	2.73	—
3030	Long Branch	Stream	BOD	2.6	—	—	—	—

Adoption Process for the Verified List of Impaired Waters

The Verified List must be submitted in a specific format (Section 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.

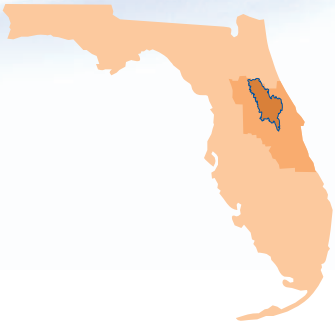
For waters impaired by nutrients, the Department is required to identify whether nitrogen or phosphorus, or both, are the limiting nutrients, and specify the limiting nutrient(s) in the Verified List.

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.

The Verified List was signed by the Secretary on May 27, 2004.

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

Prioritization of Listed Waters



Following the identification of impaired waters on the 303(d) list, the Florida Department of Environmental Protection (Department) determines priorities for developing Total Maximum Daily Loads (TMDL) 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 each waterbody's designated uses, taking into account the most serious water quality problems, most valuable and threatened resources, and risk to human health and aquatic life.

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

High-priority waters:

- Waterbody segments where the impairment poses a threat to potable water supplies or human health;
- Waterbody segments where 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; or
- Waterbody segments verified as impaired that are included on the U.S. Environmental Protection Agency's (EPA) 1998 303(d) list as high priority.

Low-priority waters:

- 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 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 cycle 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 (OFW);
- The presence of waterbody segments that fail to meet more than one designated use, i.e., 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 the high-priority waters for TMDL development in the Middle St. Johns Basin. **Figure 5.1** shows the locations of these waters and their watersheds

Table 5.1: Priorities for TMDL Development in the Middle St. Johns Basin

WBID	Waterbody Name	TMDL Parameter
2981	Lake Jesup	Nutrients, Unionized Ammonia
2081A	Lake Jesup Near St. Johns River	Nutrients
3014	Crane Strand Drain	DO, BOD, Fecal Coliforms, Total Coliforms
3023	Crane Strand	Fecal Coliforms, Total Coliforms
3030	Long Branch	Iron, Fecal Coliforms, Total Coliforms, DO, BOD

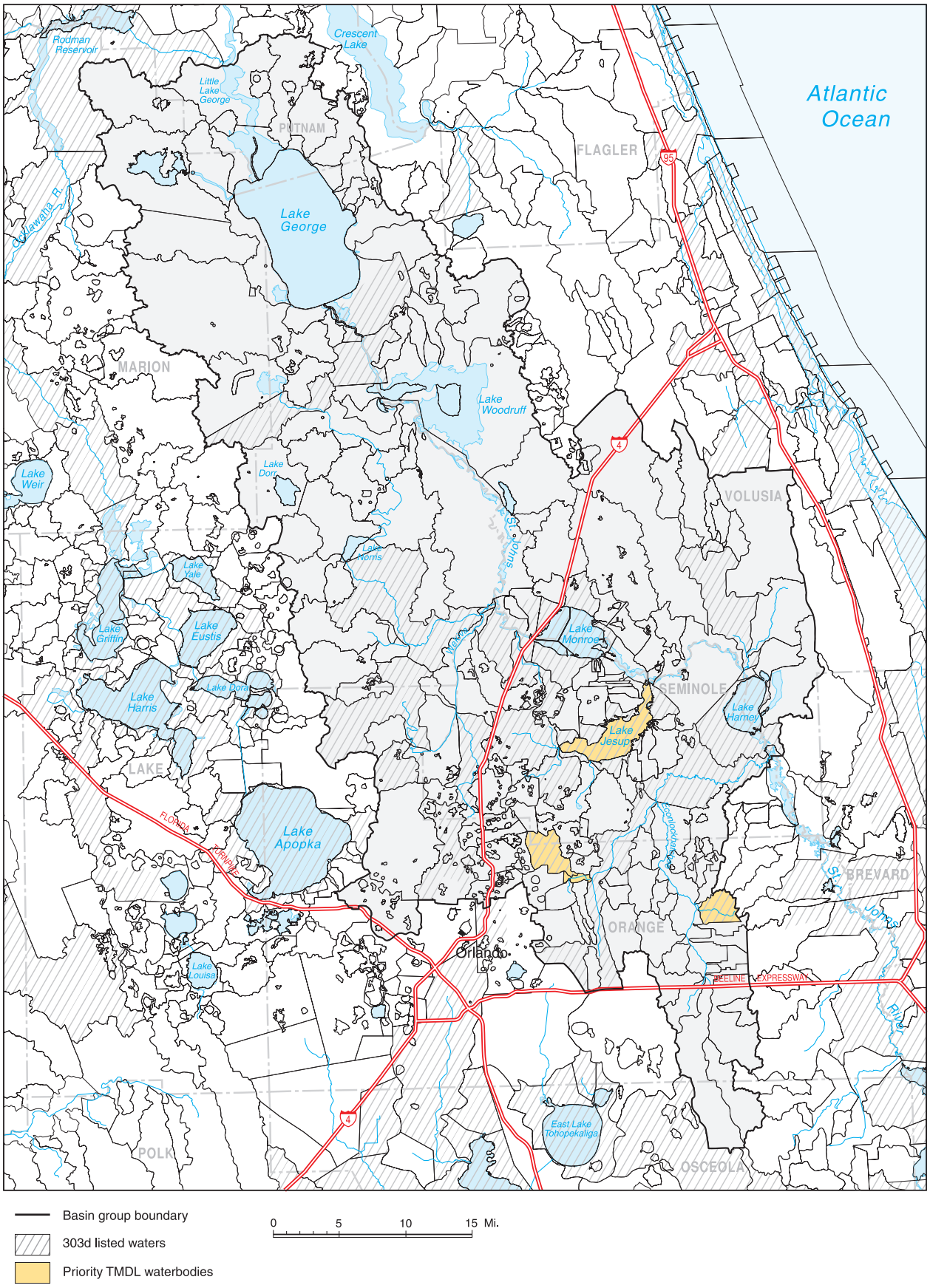


Figure 5.1: Middle St. Johns Basin Priority TMDL Priority Watersheds for 2003



Total Maximum Daily Load 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.

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 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 not due to pollutant discharges—for example, 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.

Total Maximum Daily Load Allocation and Implementation

Initial Allocation of Pollutant Loadings

The Florida Watershed Restoration Act (FWRA) 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 best management practices (BMP) 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 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 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. The municipal NPDES stormwater permittees and copermittees in the Middle St. Johns



Basin are Seminole County, Orange County, and the city of Orlando.

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-MAP) developed under the Florida Watershed Restoration Act;
5. Other water quality management and restoration activities, for example, Surface Water Improvement and Management plans approved under Section 373.456, Florida Statutes;
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.

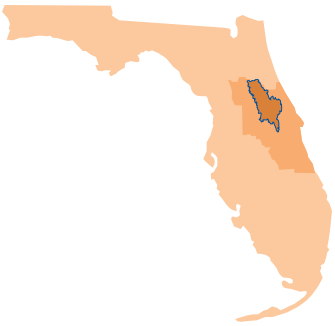
Development of Basin Management Action Plans

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.

References



Adamus, C., S. Brown, and D. Clapp. 1997. *Surface Water Drainage Basin Boundaries SJRWMD: A Reference Guide.* Technical Publication SJ97-1. Palatka, Florida: St. Johns River Water Management District.

Alvarez, Lehman, and Associates, Inc. 1991. *Fish/Wildlife Habitat Assessment of the Lake George Basin.* Special Paper SJ92-SP7. Prepared for St. Johns River Water Management District. Palatka, Florida.

Bess, B. 2002. Florida Department of Environmental Protection. Personal Communication.

Blandford, T. N., and T. Birdie. 1992. *Regional Ground-Water Flow Modeling for East-Central Florida with Emphasis on Orange and Seminole Counties.* Prepared by HydroGeoLogic Inc., Herndon, Virginia, for the St. Johns River Water Management District. Special Publication SJ92-SP17.

Campbell, D., M. Bergman, R. Brody, A. Keller, P. Livingston-Way, F. Morris, and B. Watkins. 1993. *Lower St. Johns River Basin SWIM Plan.* St. Johns River Water Management District.

Cochrane, J. 2002. Environmental Health Program. Seminole County Health Department. Personal Communication.

Cox, J., R. Kautz, M. MacLaughlin, and T. Gilbert. 1994. *Closing the Gaps in Florida's Wildlife Habitat Conservation System.* Florida Game and Fresh Water Fish Commission.

Cross, F. 1994. *Federal Aid in Sport Fish Restoration Performance Report Lower St. Johns River Basin Fisheries Investigation.* Florida Fish and Wildlife Conservation Commission.

DeMort, C. L. 1991. "Chapter 7. The St. Johns River System." In *The Rivers of Florida.* R. L. Livingston, Ed. Ecological Studies 83. New York: Springer-Verlag.

Deyrup, M., and R. Franz. 1994. *Rare and Endangered Biota of Florida, Volume IV. Invertebrates.* Tallahassee: University Press of Florida.

Dickinson, R. E., P. L. Brezonik, W. C. Huber, and J. P. Heaney. 1982. *Gazetteer of Florida Lakes.* Publication No. 63. Department of Environmental Engineering Sciences. Gainesville: University of Florida.

Dillon, M. July 12, 2002. St. Johns River Water Management District. Personal Communication.

Durell, G. S., J. A. Seavey, and C. D. Hunt. 1998. *Sediment Quality in the St. Johns River Water Management District: Physical and Chemical Characteristics.* Prepared for the St. Johns River Water Management District. Special Publication SJ98-SP5.

Durell, G. S. and J. S. Fredriksson. 2000. *Sediment Quality in the St. Johns River Water Management District: Physical and Chemical Characterization of New Sites and Detailed Assessment of Previously Sampled Locations.* Prepared for the St. Johns River Water Management District. Special Publication SJ2001-SP1.

East Central Florida Regional Planning Council. 2002. *Official Estimates of City Population in East Central Florida.*



Environmental Work Group. 2000. *Fish Advisories for Mercury: Florida.* Taken from the U.S. Environmental Protection Agency. Available: http://www.ewg.org/home/reports/brainfood/advisory/FishAdvFL.html.

Federal Clean Water Act. Section 303(d).

Fernald, E. A., and E. D. Purdum, Eds. 1998. *Water Resources Atlas of Florida.* Tallahassee: Institute of Science and Public Affairs, Florida State University.

Fitzgerald, E., G. Hadley, J. Hulbert, and N. Medlin. 1988. *St. Johns River Basin Assessment Report.* Prepared for the Florida Department of Environmental Regulation. Orlando.

Florida Administrative Code. Rule 62-302. *Surface Water Quality Standards.*

Florida Administrative Code. Rule 62-303. *Identification of Impaired Waters Rule.*

Florida Department of Environmental Protection:

—. 1997. *Ecosummary: Lake Ashby Creek at Lake Ashby Park.* Available: http://www.state.fl.us/water/bioassess/ecoced.htm.

—. 1999. *Lake George Restoration Project.* Available: http://www.dep.state.fl.us/central/programs/wtrfclt/wshd/eco/lkegorg.htm.

—. 2000. *Ecosummary: Volusia Springs.* Available: http://www.floridadep.org/labs/reports/springs.htm.

—. 2001. *Ecosummary: Volusia Springs.* Available: http://www.floridadep.org/labs/reports/springs.htm.

—. 2000–2001. *Ecosummary: Volusia Blue Springs.* Available: http://www.floridadep.org/labs/reports/springs.htm.

—. 2001. *A Report to the Governor and the Legislature on the Allocation of Total Maximum Daily Loads in Florida.* Tallahassee: Bureau of Watershed Management, Division of Water Resource Management.

Florida Department of Health. March 2002. *New Installations by Year (1970–2001) Excel Spreadsheet.* Provided by Dale Holcomb, DOH State Office.

Florida Fish and Wildlife Conservation Commission:

—. 1999. *Wading Bird Survey Data Layer.*

—. 2000. *Bald Eagle Nesting Survey Data Layer.*

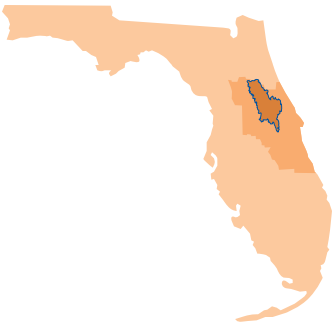
—. 2002. *Health Advisories.* Available: http://floridafisheries.com/health.html.

Florida Watershed Restoration Act. 1999. Chapter 99-223, Laws of Florida.

Foose, D. W. 1981. *Drainage Areas of Selected Surface-Water Sites in Florida*. U.S. Department of the Interior, U.S. Geological Survey. Open-file Report 81-482.

Forstall, R. March 1995. *Florida Population of Counties by Decennial Census: 1900 to 1990.* Washington, D.C.: Population Division, U.S. Census Bureau.

Friedemann, F., and J. Hand. July 1989. *Typical Water Quality Values for Florida's Lakes, Streams and Estuaries.*



Gerritsen, J., B. Jesup, E. Leppo, and J. White. 2000. *Development of Lake Condition Indexes (LCI) for Florida*. Owing Mills, Maryland: Tetra Tech, Inc.

Gilbert, C. 1992. *Rare and Endangered Biota of Florida Volume II. Fishes.* Tallahassee: University Press of Florida.

Griffith, G. E. et al. 1994. *Florida Regionalization Project*. Corvallis, Oregon: U.S. Environmental Protection Agency, EPA/Q-95/002.

Griffith, G. E. et al. 1997. *Lake Regions of Florida*. Corvallis, Oregon: U.S. Environmental Protection Agency, EPA/Q-95/002.

Hoehn, T. 1998. *Rare and Imperiled Fish Species of Florida: A Watershed Perspective*. Florida Game and Fresh Water Fish Commission.

Hupalo, R. B., C. P. Neubauer, L. W. Keenan, D. A. Clapp, and E. F. Lowe. 1994. *Establishment of Minimum Flows and Levels for the Wekiva River System*. Technical Publication SJ94-1. St. Johns River Water Management District.

Knochenmus, D. D. and G. H. Hughes. 1976. *Hydrology of Lake County.* U.S. Geological Survey, Water-Resources Investigations 76–72.

Long, E. R., D. D. MacDonald, S. L. Smith, and F. D. Calder. 1995. "Incidence of Adverse Biological Effects within Ranges of Chemical Concentrations in Marine and Estuarine Sediments." *Environmental Management*. Vol. 19, 1:81–97.

Nordlie, F. G. 1990. "Chapter 12, Rivers and Springs." In R. L. Myers and J. J. Ewel, Eds. *Ecosystems of Florida*. Orlando: University of Central Florida Press.

Osburn, W., D. Toth, and D. Boniol. January 16, 2003. Springs of the St. Johns River Water Management District. Technical Publication SJ2002-5. St. Johns River Water Management District.

Ottoboni, M. A. 1991. *The Dose Makes the Poison: A Plain Language Guide to Toxicology*. Second Edition. Van Nostrand Reinhold, NY.

Rao, D., D. Clapp, T. Ziegler, and C. Ware. 1994. *Flood Management Study Howell Creek Basin Orange and Seminole Counties, Florida.* Technical Publication SJ94-3. St. Johns River Water Management District.

Rosenau, J., G. L. Faulkner, C. W. Hendry, and R. W. Hull. 1977. *Springs of Florida*. Florida Geological Survey Bulletin No. 31.

Rumenik, R. P. 1988. *Runoff to Streams in Florida*. Map Series 122. Prepared by the U.S. Geological Survey.

Schiffer, D. M. 1998. *Hydrology of Central Florida Lakes—A Primer.* U.S. Geological Survey Circular 1137.

Scott, T. M. 1979. *Environmental Geology Series Daytona Beach Sheet*. Map Series 93. Florida Department of Natural Resources, Division of Resource Management, Bureau of Geology.

Scott, T. M., G. H. Means, R. C. Means, and R. P. Meegan. 2002. *First Magnitude Springs of Florida.* Open Report #85. Published for the Florida Geological Survey. Tallahassee.

Seminole County. *Seminole County Natural Lands Programs.* Available: http://www.co.seminole.fl.us/natland.htm.



Seminole County. 2001. *Seminole County Watershed Atlas.* University of South Florida, School of Architecture and Community Design, Florida Center for Community Design and Research. Available: http://www.seminole.wateratlas.usf.edu/navigator/.

Singleton, V. 1996. *Benchmark Farms Project Water Use Report on Leatherleaf Fern and Potatoes (1990–94).* Technical Publication SJ96-4. St. Johns River Water Management District.

Smith, S. K., and J. M. Nogle. 2001. *Population Projection by Age, Sex, and Race for Florida and its Counties, 2000–2020.* Florida Population Studies, Volume 23(3), Bulletin 130.

Snell, L. J., and W. Anderson. 1970. *Water Resources of Northeast Florida (St. Johns River Basin and Adjacent Coastal Areas).* Florida Geological Survey RI-54.

Spechler, R. M., and K. J. Halford. 2001. *Hydrogeology, Water Quality, and Simulated Effects of Ground-Water Withdrawals from the Floridan Aquifer System, Seminole County and Vicinity, Florida.* Publication WRIR 01-4182. U.S. Geological Survey.

St. Johns River Water Management District:

—. October 7, 1999. *The Eastern I-4 Corridor Water Project.* Fact Sheet.

—. 2000a. *District Water Management Plan.* Palatka, Florida.

—. 2000b. *Third Edition: Recreation Guide to District Lands.* Palatka, Florida.

—. 2001a. *Program Overview: Lake Jesup Restoration.* Palatka, Florida. Available: http://sjr.state.fl.us/programs/index.html.

—. 2001b. *Program Overview: Middle St. Johns River Basin.* Available: http://sjr.state.fl.us/programs/index.html.

—. 2001c. *Program Overview: Little Wekiva River Basin Projects.* Available: http://sjr.state.fl.us/programs/index.html.

—. 2001d. *East-Central Florida Water Supply Initiative.* Fact Sheet.

—. 2002a. *Middle St. Johns River Basin Surface Water Improvement and Management Plan.* Palatka, Florida.

—. 2002b. *Water Use in the St. Johns River Water Management District.* Publication SJ2002-FS1.

Toth, D. J. 1993. *Lower St. Johns River Basin Reconnaissance: Hydrogeology.* Volume 1. St. Johns River Water Management District.

Toth, D. J. 1999. *Water Quality and Isotope Concentrations from Selected Springs in the St. Johns River Water Management District.* Technical Publication SJ99-2. St. Johns River Water Management District.

URS Corporation, P.E. 2001. *Middle St. Johns River Basin Reconnaissance Report.* Orlando, Florida.

U.S. Fish and Wildlife Service. 1997. *Florida Trails: Central East Section.* Available: http://www.floridaconservation.org/fltrails/index.html.

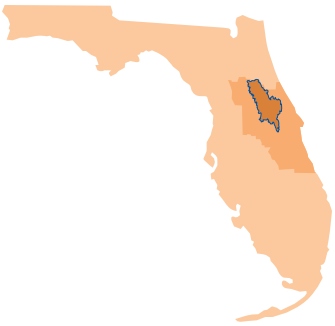
Vergara, B. A. 2000a. *District Water Supply Plan Executive Summary.* St. Johns River Water Management District.

Vergara, B. A. 2000b. *District Water Supply Plan Appendixes.* Special Publication SJ2000-SP1. St. Johns River Water Management District.

Volusia County Health Department. 1999. *Recommendations on the Status of Sewage Disposal and Collection in Volusia County, Florida—1999.* Environmental Health Division.

Wayland, R. H., III. November 19, 2001. *2002 Integrated Water Quality Monitoring and Assessment Report Guidance.* Memorandum to EPA Regional Water Management Directors; EPA Regional Science and Technology Directors; and State, Territory, and Authorized Tribe Water Quality Program Directors. Washington, D.C.: U.S. Environmental Protection Agency.

West Volusia Audubon Society. 2001. *Lake Woodruff National Wildlife Refuge.* Available: http://volusia.org/birding/woodruff.htm.





Middle St. Johns Appendices

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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 **Noteworthy** 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*.

NOTEWORTHY: 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 **Noteworthy** for a description of the legislation's major provisions).

NOTEWORTHY: 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 (FDACS), 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 FDACS 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 **Noteworthy** 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**.

NOTEWORTHY: 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*** *(Sections 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 Subsections 62-302.300[10], Rules 62-4 and 62-6, F.A.C., and described in Sections 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, Section 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 **Basin 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

Phased Approach: *9 years to complete one full cycle of state*

Year/ Group	2000	2001	2002	2003	2004	2005	2006	2007	2008
Group 1	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 1	Phase 2	Phase 3	Phase 4
Group 2		Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 1	Phase 2	Phase 3
Group 3			Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 1	Phase 2
Group 4				Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 1
Group 5					Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
	1	2	3	4	5	6	7	8	9

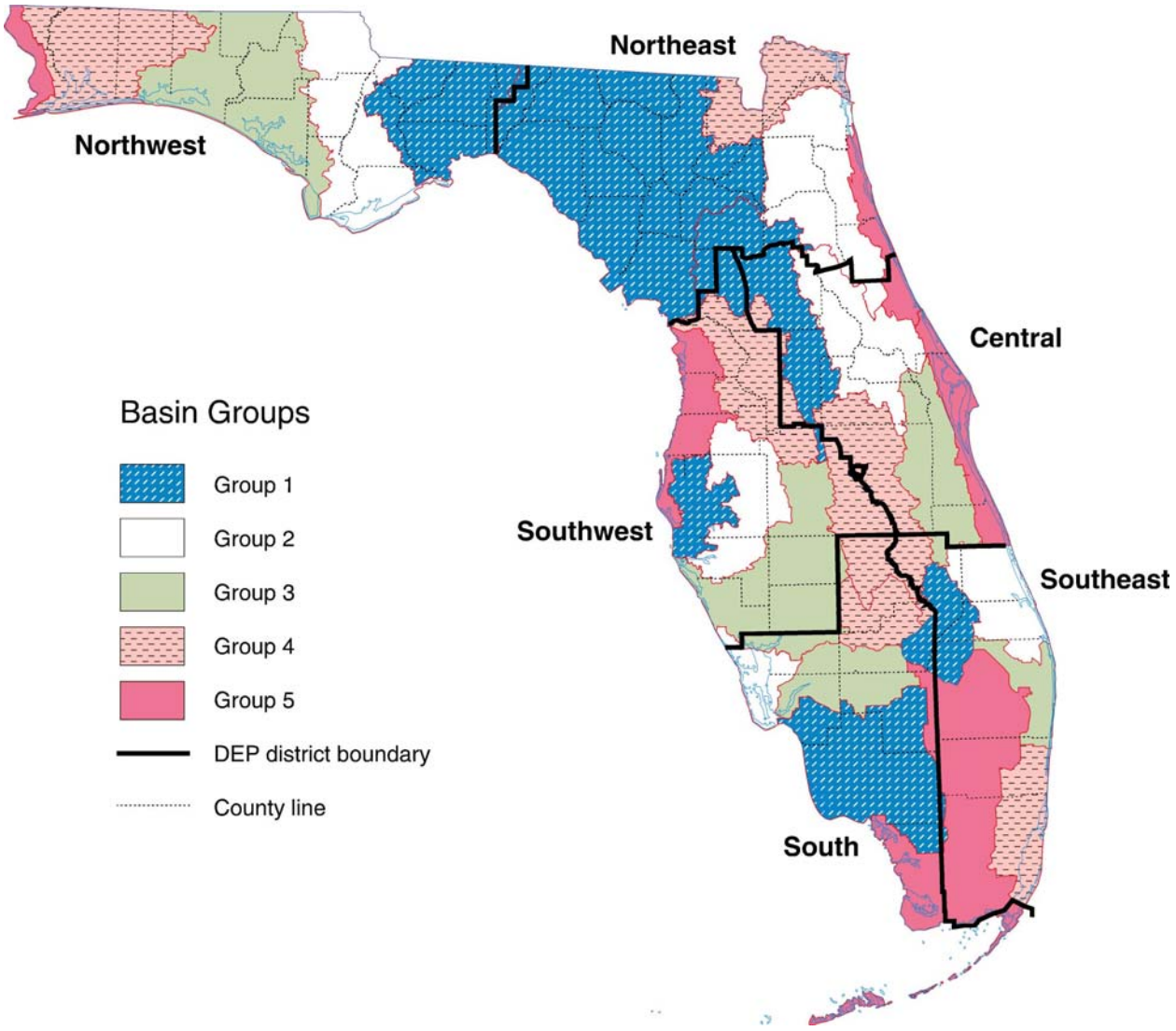


Figure A.1: Five-Year Rotating Basin Cycle in the Department's Six Districts

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 best management practices, 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 best management practices
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 water bodies 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 groundwater, 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.

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, Kevin O'Donnell (850) 245-7607
- Northwest and Central Florida, Mary Paulic, (850) 245-8560
- Northeast Florida and Suwannee Basin, Jennifer Gihring (850) 245-8418
- 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: Ecological Resources in the Middle St. Johns Basin

Table B.1: Areas and Descriptions of Natural Communities in the Middle St. Johns Basin
(Community descriptions are adapted from Cox *et al.,* 1994)

Community Type	Acres	Percent of Basin Area	Community Description
Uplands			
Dry prairie	54,096.80	4.15%	These large native grass and shrub communities are found on flat terrain intermixed with cypress swamps, bayheads, freshwater marshes, and hardwood hammocks. This class includes palmetto prairies, which are pine flatwoods where the overstory has been removed.
Pinelands	170,375.99	13.08%	Pinelands occur on flat, sandy terrain. Dominant overstory trees are longleaf pine, slash pine, or pond pine. This community includes pine plantations. Fire is a major source of natural disturbance. Dominance by longleaf pine occurs on drier, well-drained sites. Pond pine occur on poorly drained sites, and slash pond occur on intermediate or moderately wet sites.
Sand pine scrub	103,385.55	7.94%	Sand pine scrub, a very dry community, occurs on extremely well-drained, sterile sands deposited along ridges or former dunes. This community is dominated by an overstory of sand pine with an understory of myrtle oak, Chapman's oak, sand live oak, and scrub holly. Ground cover is usually sparse. Fire is an important land management tool that results in even-aged stands within regenerated sites.
Sandhill	40,365.38	3.10%	Sandhill communities occur on rolling terrain with deep, well-drained, dry sandy soils. The overstory is dominated by longleaf pine, with an understory of turkey oak and bluejack oak. Fire is important for the control of hardwood species and continued generation of the sandhill community.
Xeric oak scrub	41,532.18	3.19%	This community occurs in areas of deep sands. It comprises clumped patches of low-growing xeric oak species. Common species are myrtle oak, scrub plum, sand live oak, Chapman's oak, and saw palmetto. Fire is an important factor in maintaining oak scrub.
Mixed pine-hardwood forest	23,947.90	1.84%	This community contains a relatively equal mix of hardwood and pine species. Common tree species are beech, mockernut hickory, water oak, loblolly pine, dogwood, slash pine, longleaf pine, and live oak.
Hardwood hammock and forest	81,826.79	6.28%	These major upland hardwood-dominated associations are found on fairly rich sandy soils. They can occur across a range of soil moisture conditions, including hydric, mesic, and xeric.

Table B.1 (continued)

Community Type	Acres	Percent of Basin Area	Community Description
Wetlands and Open Water			
Freshwater marsh and wet prairie	42,948.56	3.30%	These communities are dominated by herbaceous plant species growing on sand, clay, marl, or organic soils. Common species are pickerel weed, spatterdock, cattail, and sawgrass. Water depths and inundation regimes vary. Generally, freshwater marshes occur in deeper areas that are inundated longer and are characterized by tall emergents and floating-leafed species. This category also includes portions of freshwater lakes, rivers, and canals that are dominated by floating-leafed plants. Wet prairies commonly occur in shallow, periodically inundated areas or are found in scattered shallow depressions within dry prairies. They are usually dominated by aquatic grasses, sedges, and their associates.
Cypress swamp	51,176.87	3.93%	The dominant overstory tree is either pond or bald cypress. This community is found along the borders of large rivers, creeks, and lakes or in isolated depressions.
Mixed hardwood swamp	121,416.26	9.32%	These swamps occur as either stands of hardwoods or a mix of hardwoods and cypress. Overstory tree species are black gum, water tupelo, bald cypress, dahoon holly, cabbage palm, red maple, or sweetbay. Swamps are commonly found on organic soils along floodplains of nonalluvial rivers, creeks, and lakes.
Bay swamp	17,030.29	1.31%	The dominant vegetation consists of broadleaf evergreen hardwoods, including sweetbay, swamp bay, and loblolly bay. This community occurs in shallow depressions or at the base of sandy ridges where seepage keeps the soil wet. Soils are usually acidic peat or muck.
Shrub swamp	21,622.74	1.66%	Shrub swamps are dominated by dense, woody shrubs or small trees. Some common species are willow, wax myrtle, buttonbush, and saplings of red maple, black gum, or other wooded wetland species. Shrub swamps can be indicative of wetlands experiencing environmental change.
Open water	117,897.81	9.05%	Lakes and streams
Disturbed Lands			
Grassland / agricultural land	114,979.28	8.83%	These upland communities consist of very low-growing grasses and forbs. They are usually found on intensively managed sites such as improved pastures, lawns, golf courses, road shoulders, cemeteries, or weedy, fallow agricultural fields. This early successional category includes all sites with herbaceous vegetation between the stages of bare ground and shrub and brush, as well as all agricultural fields.
Shrub and brush land	181,894.73	13.96%	Shrub and brush land includes natural upland communities that have been recently disturbed (such as clear-cutting commercial pinelands, land clearing, or fire) and are recovering through natural successional processes. It is characterized as an early stage of succession for old fields, dominated by various shrubs, tree saplings, and lesser amounts of grasses and herbs.
Barren land	118,027.40	9.06%	Highly reflective areas such as roads, beaches, strip mines, tilled agricultural sites, and cleared land are included as barren land. Unvegetated urban areas are also included. Vegetated tracts within urban areas are mapped by their predominate vegetative cover.

Table B.2: Percent Area of Natural Communities by Planning Unit

Community Type	Alexander Springs Creek	Deep Creek	Econlock-hatchee River	Lake George	Lake Jesup	Lake Kerr	Lake Monroe	Lake Woodruff	Wekiva River
Dry prairie	0	9.64	19.73	0.24	0.44	0	1.22	0.65	0
Pinelands	10.65	23.37	14.08	18.38	6.49	2.03	4.66	15.36	11.52
Sand pine scrub	33.35	1.18	0.54	4.02	0.32	47.08	5.87	3.66	1.53
Sandhill	18.53	0.63	0.21	1.42	0	11.09	0.87	0.69	3.76
Xeric oak scrub	5.44	1.26	1.05	1.34	0.83	19.21	1.99	2.57	0.64
Mixed hardwood pine	1.13	3.64	0.06	1.97	0.52	2.91	1.05	1.75	2.21
Hardwood hammock	3.22	3.89	4.17	8.30	10.69	1.42	8.95	7.50	7.83
Freshwater marsh	2.54	3.44	2.37	2.80	4.67	3.28	6.73	4.69	1.67
Cypress swamp	0	13.78	11.76	0.93	1.27	0.9.	1.17	0.98	0.06
Hardwood swamp	8.59	4.98	5.40	7.35	7.18	1.19	3.00	22.44	14.17
Bay swamp	1.30	2.36	2.48	0.61	0.39	0	0.17	2.53	0.72
Shrub swamp	0.16	2.16	0.14	0.39	1.75	0.26	4.41	5.47	0.54
Open water	2.95	5.06	2.22	32.64	13.40	3.88	16.40	5.46	3.81
Grassland and agriculture	0.65	6.50	13.66	3.66	19.30	0.09	13.91	6.42	12.77
Shrub and brush	9.03	14.5	8.39	12.32	11.05	4.09	15.09	15.69	23.97
Barren land	2.46	3.60	13.73	3.64	21.69	2.58	14.52	4.13	14.80

Table B.3: Rare and Protected Plant and Animal Species in the Alexander Springs Creek Planning Unit

Common Name	Scientific Name	Global Rank	State Rank	Federal Status	State Status
Plant Species					
CHAPMAN'S SEDGE	*CAREX CHAPMANII*	G3	S3	N	LE
FLORIDA BONAMIA	*BONAMIA GRANDIFLORA*	G3	S3	LT	LE
OCALA VETCH	*VICIA OCALENSIS*	G1	S1	N	LE
PIEDMONT JOINTGRASS	*COELORACHIS TUBERCULOSA*	G3	S3	MC	LT
PINESAP	*MONOTROPA HYPOPITHYS*	G5	S1	N	LE
SCRUB BAY	*PERSEA HUMILIS*	G3	S3	N	N
SCRUB HOLLY	*ILEX OPACA VAR ARENICOLA*	G5T3	S3	N	N
STAR ANISE	*ILLICIUM PARVIFLORUM*	G2	S2	MC	LE
Animal Species					
BALD EAGLE	*HALIAEETUS LEUCOCEPHALUS*	G4	S3	LT	LT
BIG-CHEEKED CAVE CRAYFISH	*PROCAMBARUS DELICATUS*	G1	S1	N	N
BLUENOSE SHINER	*PTERONOTROPIS WELAKA*	G4	S4	N	LS
DENSE HYDROBE	*APHAOSTRACON PYCNUM*	G1	S1	N	N
EASTERN DIAMONDBACK RATTLESNAKE	*CROTALUS ADAMANTEUS*	G4	S3	N	N
EASTERN INDIGO SNAKE	*DRYMARCHON CORAIS COUPERI*	G4T3	S3	LT	LT
FLORIDA BLACK BEAR	*URSUS AMERICANUS FLORIDANUS*	G5T2	S2	N	LT
FLORIDA PINE SNAKE	*PITUOPHIS MELANOLEUCUS MUGITUS*	G4T3?	S3	N	LS
FLORIDA SANDHILL CRANE	*GRUS CANADENSIS PRATENSIS*	G5T2T3	S2S3	N	LT
FLORIDA SCRUB JAY	*APHELOCOMA COERULESCENS*	G3	S3	LT	LT
GOPHER FROG	*RANA CAPITO*	G3G4	S3	N	LS
GOPHER TORTOISE	*GOPHERUS POLYPHEMUS*	G3	S3	N	LS
LIMPKIN	*ARAMUS GUARAUNA*	G5	S3	N	LS

Table B.4: Rare and Protected Plant and Animal Species in the Deep Creek Planning Unit

Common Name	Scientific Name	Global Rank	State Rank	Federal Status	State Status
Plant Species					
CELESTIAL LILY	*NEMASTYLIS FLORIDANA*	G2	S2	MC	LE
CURTISS' MILKWEED	*ASCLEPIAS CURTISSII*	G3	S3	N	LE
LARGE-FLOWERED ROSEMARY	*CONRADINA GRANDIFLORA*	G3	S3	N	LT
NODDING PINWEED	*LECHEA CERNUA*	G3	S3	N	LT
RUGEL'S PAWPAW	*DEERINGOTHAMNUS RUGELII*	G1	S1	LE	LE
SCRUB BAY	*PERSEA HUMILIS*	G3	S3	N	N
SCRUB HOLLY	*ILEX OPACA VAR ARENICOLA*	G5T3	S3	N	N
Animal Species					
BALD EAGLE	*HALIAEETUS LEUCOCEPHALUS*	G4	S3	LT	LT
FLORIDA LONG-TAILED WEASEL	*MUSTELA FRENATA PENINSULAE*	G5T3	S3	N	N
FLORIDA SCRUB JAY	*APHELOCOMA COERULESCENS*	G3	S3	LT	LT
GOPHER TORTOISE	*GOPHERUS POLYPHEMUS*	G3	S3	N	LS
SNAIL BULLHEAD	*AMEIURUS BRUNNEUS*	G4	S3	N	N

Table B.5: Rare and Protected Plant and Animal Species in the Econlockhatchee River Planning Unit

Common Name	Scientific Name	Global Rank	State Rank	Federal Status	State Status
Plant Species					
BEAUTIFUL PAWPAW	*DEERINGOTHAMNUS PULCHELLUS*	G1	S1	LE	LE
FLORIDA BEARGRASS	*NOLINA ATOPOCARPA*	G3	S3	MC	LT
GIANT ORCHID	*PTEROGLOSSASPIS ECRISTATA*	G2	S2	MC	LT
HAND FERN	*OPHIOGLOSSUM PALMATUM*	G4	S2	N	LE
NODDING PINWEED	*LECHEA CERNUA*	G3	S3	N	LT
SCRUB HOLLY	*ILEX OPACA VAR ARENICOLA*	G5T3	S3	N	N
Animal Species					
BALD EAGLE	*HALIAEETUS LEUCOCEPHALUS*	G4	S3	LT	LT
EASTERN INDIGO SNAKE	*DRYMARCHON CORAIS COUPERI*	G4T3	S3	LT	LT
FLORIDA LONG-TAILED WEASEL	*MUSTELA FRENATA PENINSULAE*	G5T3	S3	N	N
FLORIDA MOUSE	*PODOMYS FLORIDANUS*	G3	S3	N	LS
FLORIDA SANDHILL CRANE	*GRUS CANADENSIS PRATENSIS*	G5T2T3	S2S3	N	LT
FLORIDA SCRUB JAY	*APHELOCOMA COERULESCENS*	G3	S3	LT	LT
GOPHER TORTOISE	*GOPHERUS POLYPHEMUS*	G3	S3	N	LS
RED-COCKADED WOODPECKER	*PICOIDES BOREALIS*	G3	S2	LE	LT
STRIPED NEWT	*NOTOPHTHALMUS PERSTRIATUS*	G2G3	S2S3	N	N

Table B.6: Rare and Protected Plant and Animal Species in the Lake George Planning Unit

Common Name	Scientific Name	Global Rank	State Rank	Federal Status	State Status
Plant Species					
CELESTIAL LILY	*NEMASTYLIS FLORIDANA*	G2	S2	MC	LE
CHAFFSEED	*SCHWALBEA AMERICANA*	G2	S1	LE	LE
CURTISS' MILKWEED	*ASCLEPIAS CURTISSII*	G3	S3	N	LE
OCALA VETCH	*VICIA OCALENSIS*	G1	S1	N	LE
PONDSPICE	*LITSEA AESTIVALIS*	G3	S2	MC	LE
SCRUB BAY	*PERSEA HUMILIS*	G3	S3	N	N
Animal Species					
BALD EAGLE	*HALIAEETUS LEUCOCEPHALUS*	G4	S3	LT	LT
BLUENOSE SHINER	*PTERONOTROPIS WELAKA*	G4	S4	N	LS
EASTERN DIAMONDBACK RATTLESNAKE	*CROTALUS ADAMANTEUS*	G4	S3	N	N
EASTERN INDIGO SNAKE	*DRYMARCHON CORAIS COUPERI*	G4T3	S3	LT	LT
FLORIDA BLACK BEAR	*URSUS AMERICANUS FLORIDANUS*	G5T2	S2	N	LT
FLORIDA SCRUB LIZARD	*SCELOPORUS WOODI*	G3	S3	N	N
FLORIDA SCRUB JAY	*APHELOCOMA COERULESCENS*	G3	S3	LT	LT
GOPHER TORTOISE	*GOPHERUS POLYPHEMUS*	G3	S3	N	LS
SCRUB TIGER BEETLE	*CICINDELA SCABROSA*	G3	S3	N	N
SILVER GLEN SPRINGS CRAYFISH	*PROCAMBARUS ATTIGUUS*	G1	S1	N	N
SOUTHEASTERN WEASEL	*MUSTELA FRENATA OLIVACEA*	G5T4	S3?	N	N

Table B.7: Rare and Protected Plant and Animal Species in the Lake Jesup Planning Unit

Common Name	Scientific Name	Global Rank	State Rank	Federal Status	State Status
Plant Species					
FLORIDA WILLOW	*SALIX FLORIDANA*	G2	S2	MC	LE
HAY SCENTED FERN	*DENNSTAEDTIA BIPINNATA*	G4	S1	N	LE
SCRUB BAY	*PERSEA HUMILIS*	G3	S3	N	N
Animal Species					
BALD EAGLE	*HALIAEETUS LEUCOCEPHALUS*	G4	S3	LT	LT
CLIFTON SPRINGS HYDROBE	*APHAOSTRACON THEIOCRENETUM*	G1	S1	N	N
EASTERN INDIGO SNAKE	*DRYMARCHON CORAIS COUPERI*	G4T3	S3	LT	LT
FLORIDA LONG-TAILED WEASEL	*MUSTELA FRENATA PENINSULAE*	G5T3	S3	N	N

Table B.8: Rare and Protected Plant and Animal Species in the Lake Kerr Planning Unit

Common Name	Scientific Name	Global Rank	State Rank	Federal Status	State Status
Plant Species					
ASHE'S SAVORY	*CALAMINTHA ASHEI*	G3	S3	MC	LT
BUCKTHORN	*SIDEROXYLON LYCIOIDES*	G5	S2	N	LE
CHAPMAN'S SEDGE	*CAREX CHAPMANII*	G3	S3	N	LE
CURTISS' MILKWEED	*ASCLEPIAS CURTISSII*	G3	S3	N	LE
FLORIDA BEARGRASS	*NOLINA ATOPOCARPA*	G3	S3	MC	LT
FLORIDA BONAMIA	*BONAMIA GRANDIFLORA*	G3	S3	LT	LE
FLORIDA WILLOW	*SALIX FLORIDANA*	G2	S2	MC	LE
HARTWRIGHTIA	*HARTWRIGHTIA FLORIDANA*	G2	S2	N	LT
LARGE-LEAVED GRASS-OF-PARNASSUS	*PARNASSIA GRANDIFOLIA*	G3	S2	N	LE
LEWTON'S POLYGALA	*POLYGALA LEWTONII*	G3	S3	LE	LE
NARROWLEAF NAIAD	*NAJAS FILIFOLIA*	G1	S1	N	LT
OCALA VETCH	*VICIA OCALENSIS*	G1	S1	N	LE
PIGMY PIPES	*MONOTROPSIS REYNOLDSIAE*	G1Q	S1	N	LE
PINESAP	*MONOTROPA HYPOPITHYS*	G5	S1	N	LE
SCRUB HOLLY	*ILEX OPACA VAR ARENICOLA*	G5T3	S3	N	N
SCRUB STYLISMA	*STYLISMA ABDITA*	G3	S3	N	LE
STAR ANISE	*ILLICIUM PARVIFLORUM*	G2	S2	MC	LE
Animal Species					
BALD EAGLE	*HALIAEETUS LEUCOCEPHALUS*	G4	S3	LT	LT
BLACK-CROWNED NIGHT-HERON	*NYCTICORAX NYCTICORAX*	G5	S3?	N	N
EASTERN DIAMONDBACK RATTLESNAKE	*CROTALUS ADAMANTEUS*	G4	S3	N	N
EASTERN INDIGO SNAKE	*DRYMARCHON CORAIS COUPERI*	G4T3	S3	LT	LT
FLORIDA BLACK BEAR	*URSUS AMERICANUS FLORIDANUS*	G5T2	S2	N	LT
FLORIDA PINE SNAKE	*PITUOPHIS MELANOLEUCUS MUGITUS*	G4T3?	S3	N	LS
FLORIDA SCRUB LIZARD	*SCELOPORUS WOODI*	G3	S3	N	N
FLORIDA SCRUB JAY	*APHELOCOMA COERULESCENS*	G3	S3	LT	LT
GOPHER FROG	*RANA CAPITO*	G3G4	S3	N	LS
GOPHER TORTOISE	*GOPHERUS POLYPHEMUS*	G3	S3	N	LS
GREAT EGRET	*ARDEA ALBA*	G5	S4	N	N

Table B.8 (continued)

Common Name	Scientific Name	Global Rank	State Rank	Federal Status	State Status
LITTLE BLUE HERON	*EGRETTA CAERULEA*	G5	S4	N	LS
RED-COCKADED WOODPECKER	*PICOIDES BOREALIS*	G3	S2	LE	LT
ROUND-TAILED MUSKRAT	*NEOFIBER ALLENI*	G3	S3	N	N
SAND SKINK	*NEOSEPS REYNOLDSI*	G2	S2	LT	LT
SHERMAN'S FOX SQUIRREL	*SCIURUS NIGER SHERMANI*	G5T3	S3	N	LS
SHORT-TAILED SNAKE	*STILOSOMA EXTENUATUM*	G3	S3	N	LT
SNOWY EGRET	*EGRETTA THULA*	G5	S3	N	LS
SOUTHEASTERN AMERICAN KESTREL	*FALCO SPARVERIUS PAULUS*	G5T4	S3	N	LT
STRIPED NEWT	*NOTOPHTHALMUS PERSTRIATUS*	G2G3	S2S3	N	N
SWALLOW-TAILED KITE	*ELANOIDES FORFICATUS*	G5	S2		

Table B.9: Rare and Protected Plant and Animal Species in the Lake Monroe Planning Unit

Common Name	Scientific Name	Global Rank	State Rank	Federal Status	State Status
Plant Species					
CELESTIAL LILY	*NEMASTYLIS FLORIDANA*	G2	S2	MC	LE
CURTISS' MILKWEED	*ASCLEPIAS CURTISSII*	G3	S3	N	LE
GIANT ORCHID	*PTEROGLOSSASPIS ECRISTATA*	G2	S2	MC	LT
NODDING PINWEED	*LECHEA CERNUA*	G3	S3	N	LT
SCRUB BAY	*PERSEA HUMILIS*	G3	S3	N	N
SCRUB HOLLY	*ILEX OPACA VAR ARENICOLA*	G5T3	S3	N	N
Animal Species					
BALD EAGLE	*HALIAEETUS LEUCOCEPHALUS*	G4	S3	LT	LT
ENTERPRISE SILTSNAIL	*CINCINNATIA MONROENSIS*	G1	S1	N	N
FLORIDA LONG-TAILED WEASEL	*MUSTELA FRENATA PENINSULAE*	G5T3	S3	N	N
FLORIDA PINE SNAKE	*PITUOPHIS MELANOLEUCUS MUGITUS*	G4T3?	S3	N	LS
FLORIDA SCRUB JAY	*APHELOCOMA COERULESCENS*	G3	S3	LT	LT
GOPHER TORTOISE	*GOPHERUS POLYPHEMUS*	G3	S3	N	LS
LEAST TERN	*STERNA ANTILLARUM*	G4	S3	N	LT

Table B.10: Rare and Protected Plant and Animal Species in the Lake Woodruff Planning Unit

Common Name	Scientific Name	Global Rank	State Rank	Federal Status	State Rank
Plant Species					
CELESTIAL LILY	*NEMASTYLIS FLORIDANA*	G2	S2	MC	LE
CHAPMAN'S SEDGE	*CAREX CHAPMANII*	G3	S3	N	LE
CURTISS' MILKWEED	*ASCLEPIAS CURTISSII*	G3	S3	N	LE
LARGE-FLOWERED ROSEMARY	*CONRADINA GRANDIFLORA*	G3	S3	N	LT
OKEECHOBEE GOURD	*CUCURBITA OKEECHOBEENSIS SSP OKEECHOBEENSIS*	G5T1	S1	LE	LE
PIEDMONT JOINTGRASS	*COELORACHIS TUBERCULOSA*	G3	S3	MC	LT
SCRUB BAY	*PERSEA HUMILIS*	G3	S3	N	N
SCRUB HOLLY	*ILEX OPACA VAR ARENICOLA*	G5T3	S3	N	N
STAR ANISE	*ILLICIUM PARVIFLORUM*	G2	S2	MC	LE
Animal Species					
AMERICAN ALLIGATOR	*ALLIGATOR MISSISSIPPIENSIS*	G5	S4	T(S/A)	LS
BALD EAGLE	*HALIAEETUS LEUCOCEPHALUS*	G4	S3	LT	LT
BLACK RAIL	*LATERALLUS JAMAICENSIS*	G4	S3	N	N
BLUE SPRING HYDROBE	*APHAOSTRACON ASTHENES*	G1	S1	N	N
BLUE SPRING SILTSNAIL	*CINCINNATIA PARVA*	GX	S1	N	N
EASTERN DIAMONDBACK RATTLESNAKE	*CROTALUS ADAMANTEUS*	G4	S3	N	N
FLORIDA BLACK BEAR	*URSUS AMERICANUS FLORIDANUS*	G5T2	S2	N	LT
FLORIDA PINE SNAKE	*PITUOPHIS MELANOLEUCUS MUGITUS*	G4T3?	S3	N	LS
FLORIDA SANDHILL CRANE	*GRUS CANADENSIS PRATENSIS*	G5T2T3	S2S3	N	LT
FLORIDA SCRUB JAY	*APHELOCOMA COERULESCENS*	G3	S3	LT	LT
GOPHER FROG	*RANA CAPITO*	G3G4	S3	N	LS
GOPHER TORTOISE	*GOPHERUS POLYPHEMUS*	G3	S3	N	LS
GREAT EGRET	*ARDEA ALBA*	G5	S4	N	N
LIMPKIN	*ARAMUS GUARAUNA*	G5	S3	N	LS
LITTLE BLUE HERON	*EGRETTA CAERULEA*	G5	S4	N	LS
OSPREY	*PANDION HALIAETUS*	G5	S3S4	N	N
RED-COCKADED WOODPECKER	*PICOIDES BOREALIS*	G3	S2	LE	LT
SOUTHEASTERN AMERICAN KESTREL	*FALCO SPARVERIUS PAULUS*	G5T4	S3	N	LT

Table B.11: Rare and Protected Plant and Animal Species in the Wekiva River Planning Unit

Common Name	Scientific Name	Global Rank	State Rank	Federal Status	State Status
Plant Species					
CHAPMAN'S SEDGE	*CAREX CHAPMANII*	G3	S3	N	LE
CURTISS' MILKWEED	*ASCLEPIAS CURTISSII*	G3	S3	N	LE
FLORIDA HASTEOLA	*HASTEOLA ROBERTIORUM*	G1	S1	N	LE
FLORIDA WILLOW	*SALIX FLORIDANA*	G2	S2	MC	LE
GIANT ORCHID	*PTEROGLOSSASPIS ECRISTATA*	G2	S2	MC	LT
HARTWRIGHTIA	*HARTWRIGHTIA FLORIDANA*	G2	S2	N	LT
NODDING PINWEED	*LECHEA CERNUA*	G3	S3	N	LT
PIEDMONT JOINTGRASS	*COELORACHIS TUBERCULOSA*	G3	S3	MC	LT
PINESAP	*MONOTROPA HYPOPITHYS*	G5	S1	N	LE
SAND BUTTERFLY PEA	*CENTROSEMA ARENICOLA*	G2Q	S2	MC	LE
SCRUB BAY	*PERSEA HUMILIS*	G3	S3	N	N
SCRUB BUCKWHEAT	*ERIOGONUM LONGIFOLIUM VAR GNAPHALIFOLIUM*	G4T3	S3	LT	LE
SCRUB LUPINE	*LUPINUS WESTIANUS VAR ARIDORUM*	G2T1	S1	LE	LE
SCRUB STYLISMA	*STYLISMA ABDITA*	G3	S3	N	LE
STAR ANISE	*ILLICIUM PARVIFLORUM*	G2	S2	MC	LE
Animal Species					
AMERICAN ALLIGATOR	*ALLIGATOR MISSISSIPPIENSIS*	G5	S4	T(S/A)	LS
BALD EAGLE	*HALIAEETUS LEUCOCEPHALUS*	G4	S3	LT	LT
BLACKBANDED SUNFISH	*ENNEACANTHUS CHAETODON*	G4	S3	N	N
BLUENOSE SHINER	*PTERONOTROPIS WELAKA*	G4	S4	N	LS
EASTERN DIAMONDBACK RATTLESNAKE	*CROTALUS ADAMANTEUS*	G4	S3	N	N
EASTERN INDIGO SNAKE	*DRYMARCHON CORAIS COUPERI*	G4T3	S3	LT	LT

Table B.11 (continued)

Common Name	Scientific Name	Global Rank	State Rank	Federal Status	State Status
FLORIDA BLACK BEAR	*URSUS AMERICANUS FLORIDANUS*	G5T2	S2	N	LT
FLORIDA BURROWING OWL	*ATHENE CUNICULARIA FLORIDANA*	G4T3	S3	N	LS
FLORIDA MOUSE	*PODOMYS FLORIDANUS*	G3	S3	N	LS
FLORIDA SANDHILL CRANE	*GRUS CANADENSIS PRATENSIS*	G5T2T3	S2S3	N	LT
FLORIDA SCRUB LIZARD	*SCELOPORUS WOODI*	G3	S3	N	N
FLORIDA SCRUB JAY	*APHELOCOMA COERULESCENS*	G3	S3	LT	LT
GOPHER FROG	*RANA CAPITO*	G3G4	S3	N	LS
GOPHER TORTOISE	*GOPHERUS POLYPHEMUS*	G3	S3	N	LS
LIMPKIN	*ARAMUS GUARAUNA*	G5	S3	N	LS
LITTLE BLUE HERON	*EGRETTA CAERULEA*	G5	S4	N	LS
ORLANDO CAVE CRAYFISH	*PROCAMBARUS ACHERONTIS*	G1G2	S1	N	N
ORLANDO SPIDER CAVE CRAYFISH	*TROGLOCAMBARUS SP 1*	G1	S?	N	N
OSPREY	*PANDION HALIAETUS*	G5	S3S4	N	N
RED-COCKADED WOODPECKER	*PICOIDES BOREALIS*	G3	S2	LE	LT
ROCK SPRINGS CAVE ISOPOD	*CAECIDOTEA SP 1*	G1	S1	N	N
SANLANDO SPRING SILTSNAIL	*CINCINNATIA PONDEROSA*	G1	S1	N	N
SEMINOLE SPRING SILTSNAIL	*CINCINNATIA VANHYNINGI*	G1	S1	N	N
SHERMAN'S FOX SQUIRREL	*SCIURUS NIGER SHERMANI*	G5T3	S3	N	LS
SHORT-TAILED HAWK	*BUTEO BRACHYURUS*	G4G5	S1	N	N
SHORT-TAILED SNAKE	*STILOSOMA EXTENUATUM*	G3	S3	N	LT
SNAIL BULLHEAD	*AMEIURUS BRUNNEUS*	G4	S3	N	N
WEKIWA HYDROBE	*APHAOSTRACON MONAS*	G1	S1	N	N
WEKIWA SILTSNAIL	*CINCINNATIA WEKIWAE*	G1	S1	N	N
WHITE IBIS	*EUDOCIMUS ALBUS*	G5	S4	N	LS
WOOD STORK	*MYCTERIA AMERICANA*	G4	S2	LE	LE

Table B.12: Definitions of Codes Used for Plant and Animal Species Listed in Tables B.3 through B.11

Federal designation for both plant and animal	State designation	FNAI global and state rank designation
N – not listed LE – endangered LT – threatened T(S/A) – threatened due to similarity of appearance MC – plant is of management concern	**Plants** N – not listed LE – endangered LT – threatened **Animals** LE – endangered LT – threatened LS – species of special concern	G1 or S1 – Critically imperiled globally or in Florida because of extreme rarity (less than 1,000 individuals or 5 or fewer occurrences) or extreme vulnerability to extinction. G2 or S2 – Imperiled globally or in Florida because of rarity (6 to 20 occurrences or less than 3,000 individuals) or vulnerability to extinction. G3 or S3 – Very rare or local throughout range (21 to 100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction. G4 or S4 – Apparently secure globally and in Florida, but may be rare in parts of range. G5 or S5 – Demonstrably secure globally or in Florida. G#G# or S#S# - Range of rank, because insufficient data to assign specific rank. G#? or S#? – Tentative rank G#T# or S#T# - Rank of a taxonomic subgroup such as a subspecies or variety. G or S portion of rank refers to entire species, and T portion refers to specific subgroup rank. G#Q or S#Q – Rank of questionable species, because of confusion over whether it is a species or subspecies. G#T#Q – Rank of questionable subspecies, because validity of subspecies is questioned.

Table B.13: Characteristics of Lake Ecoregions in the Middle St. Johns Basin

Ecoregion	Description
Ocala Scrub	This region contains ancient sand dunes with excessively drained, deep, sandy soils and sand pine scrub forest. Common soil series are Candler and Astatula. The Ocala Scrub contains acid, mostly clear lakes with low nutrient levels. Clear lakes are found on higher sandy ridges.
Eastern Flatlands	The Eastern Flatlands is a diverse lake region because of the variability of landforms and its latitudinal extent. Most landforms parallel the coast and reflect the marine forces that controlled their shape and formation. Ancient barrier islands, lagoons, dune ridges, spits, and sandbars have left the current region ribbed by low sand ridges and intervening valleys and swampy lowlands. The lake chains of the St. Johns River are the dominant features. North of Lake Harney, river vegetation changes from wet grassland prairies to hardwood swamp forests. The ecoregion contains a mix of different lake types. The lakes that make up the St. Johns River—which include Harney, Jesup, Monroe, and George—are generally alkaline, hardwater, eutrophic, and colored. Inputs of mineralized water from salt springs and marine sediments influence the chemistry of these lakes. Other flatwoods lakes are acid to slightly acid, colored softwater lakes of moderate mineral content with variable trophic states.
Crescent City/DeLand Ridges	The ecoregion contains several sandy upland ridges. The thick sand soil that makes up the parent material for these ridges is deeply weathered Plio-Pleistocene coastal sand deposits. Candler and Astatula are the typical soil series. Most natural vegetation consists of longleaf pine/xerophytic oak forests and some areas of pine scrub forests. Lakes that have formed on lowland type soils may be more characteristic of the smaller darkwater lakes of the Eastern Flatwoods. Many other lakes are clear, acid, and oligotrophic with low mineral content and derive most of their flow from rainfall and subsurface inflows.
Mt. Dora Ridge	The ridge extends from near the Lake/Marion County border near Altoona south to the towns of Eustis and Mount Dora. It contains high sand hills, 75 to 180 feet in elevation, with excessively drained to well-drained sandy soils. Many small, circumneutral, clear lakes with low color, low nutrients, low chlorophyll, and moderate to high alkalinity dot the landscape. Steeply sloping sandhills and old orange groves surround the lakes.
Apopka Upland	This is a region of residual sandhills modified by karst processes, with many small lakes and scattered sinkholes. Elevations range from 70 to 150 feet. Longleaf pine and xerophytic oaks would have been the natural vegetation, although most have been replaced with citrus, pasture, and urban/residential development. The physical and chemical characteristics of the lakes are varied. Some lakes are acid, clear, softwater lakes of low mineral content; some clear lakes have moderate nutrient levels; and there are also darker colored lakes with circumneutral pH values.
Doctor Phillips Ridge	The ridge, which comprises thick sands, ranges in elevation from 100 to 170 feet and contains many solution depression lakes. Soils on the ridges are primarily sands, but some wetter, lowland type soils are also present. These soils are underlain by clayey sands and fine sands and silt of the Hawthorn Group or other unidentified formations. There are over thirty lakes in this region. Most are clear, with circumneutral pH, and are low in nutrients. As a group, these are some of the clearest lakes in Central Florida. The clearest of the group tend to be also the deepest.
Orlando Ridge	Consisting of an urbanized karst area of low relief with elevations from 75 to 120 feet, the ridge comprises poorly sorted quartz sand and pebbles embedded in kaolinitic clay (Scott *et al.,* 1980). The natural vegetation consists of longleaf pine and xerophytic oaks. Lakes are generally characterized as clear, alkaline, hardwater lakes of moderate mineral content. They are mesotrophic to eutrophic, but it is difficult to distinguish between natural conditions and the impacts of urbanization. Lakes tend to be more phosphatic and green than those in the Crescent City/DeLand lake region.
Osceola Slope	This lake region is composed of Pleistocene lagoonal deposits with a top layer of medium to fine sands and silts. Elevations are generally 60 to 90 feet. Vegetation is primarily pine flatwoods, but some low, dry ridges contain turkey oak and scrub. Lakes are acidic, relatively low nutrient, and colored.

Appendix C: Management Activities for the Middle St. Johns Basin

This section identifies the principal basin water quality programs and stakeholders by planning unit. It also identifies the current or proposed major water quality projects in each planning unit. Information on the projects came from the Middle St. Johns River Basin SWIM Plan (SJRWMD, 2002a) unless otherwise referenced.

Stakeholders, Governmental Initiatives, and Current and Proposed Projects, by Planning Unit

Deep Creek Planning Unit

Stakeholders

Primary stakeholder groups are associated with Volusia County government. The same groups also address natural resource conservation issues in the Volusia County portions of the Lake Woodruff, Lake George, and Lake Monroe Planning Units.

The Volusia County Environmental and Natural Resources Advisory Committee was created as an advisory committee to the county council on natural resource protection issues. Membership on the committee includes Volusia County staff and members of the community.

The Volusia Water Alliance is developing a plan to meet Volusia County's long-term water supply needs. Membership in the Alliance includes Volusia County government and cities. The Alliance has ongoing education programs on water conservation.

Local Governmental Initiatives

Volusia County approved Volusia Forever, an environmentally sensitive land-purchasing program, in November 2000. Funded by property taxes, the program will acquire lands for water resource protection and recreation, including source water (drinking) protection.

The Volusia County Conservation Corridor, a program developed with cooperation from large landowners, will define a conservation corridor from north to south through the center of Volusia County, most of which is in the Deep Creek watershed. The corridor will enhance wetlands, restore portions of the floodplain, and preserve habitat. Although the program is unfunded, a charter that is being prepared will provide further details on the goals of the corridor.

Volusia County has also initiated a small lot acquisition program to enhance wetlands, restore floodplains, and preserve habitat. The program is long term but has limited funding. Targeted properties include platted, floodprone areas.

The Volusia County ECHO (Ecological, Cultural, Heritage, and Outdoors) initiative, approved by voters in November 2000, funds environmental, cultural, historic, and

outdoor recreation capital projects. It is a strategy to promote ecotourism in Volusia County. Volusia ECHO is funded by a property tax levy.

Econlockhatchee River Planning Unit

Stakeholders

The Department developed and moderates the Econlockhatchee Working Group. This working group is composed of local governments, the SJRWMD, the Department, environmental advocacy groups such as Audubon and the Sierra Club, and residents and interested parties in the watershed. Attendees have strongly supported the group, which will provide information and gain input during the TMDL process.

The Friends of the Econ is an informal group comprised of local residents with an interest in maintaining the health of the Econlockhatchee River and encouraging land acquisition. This group played a critical role in the designation of the Econlockhatchee as an Outstanding Florida Water.

The Clean Lakes Coalition of Central Florida, which has about 500 members, educates homeowners about lake ecology. It has been effective in convincing Orange County of the importance of formulating stormwater solutions.

The Friends of Maitland's Waterways mission is to inform Maitland/Winter Park citizens of the best management practices (BMPs) that will improve water quality in their lakes. Its goal is to educate citizens by disseminating educational literature.

Local Governmental Initiatives

Orange and Seminole Counties have each funded a comprehensive master planning initiative in their portions of the Little Econlockhatchee River watershed. Completed in 2001, the two plans, which address water quality improvements and flooding concerns, support one another. An effort was made to ensure consistency between the two counties and eliminate discrepancies in the plans. Because the Little Econlockhatchee watershed is densely developed and largely flat topography, many of the remediation projects will require costly land acquisition so that large regional stormwater facilities can be constructed.

The SJRWMD is working with Seminole and Orange Counties to cost-share a stormwater quality improvement project in the Crane Strand section of the watershed.

The Florida legislature appropriated $1 million for the SJRWMD's Middle Basin Initiative, fiscal year 2001/02. The initiative included a project for the implementation of the Little Econlockhatchee River master plan. Funds will be directed to county projects that will provide water quality improvements.

Orange and Seminole Counties have also initiated master planning for the Econlockhatchee River and its watershed. The master plans will address water quality, flooding, and ecosystem concerns and will include recommendations for water resource improvement projects.

PROJECTS

- **Little Econlockhatchee Surface Water Plan:** Seminole and Orange Counties have completed a comprehensive water quality and flood remediation plan that includes projects to address chronic water quality and flooding problems in the watershed.

- **East Orlando Regional Retrofit System/Orange County:** The East Orlando/Azalea Park Regional Stormwater Facility, in the southern and upstream portion of the Little Econlockhatchee River Planning Unit, requires the construction of a regional stormwater facility to provide water quality treatment, flow attenuation, and flood control for both the East Orlando and Azalea Park canals. The two canals are in close proximity to one another, so that a single water quality improvement and flow attenuation pond could serve both systems. Much of the 1,481-acre watershed was developed prior to current stormwater rules and does not have adequate stormwater controls. The project will include the construction of a pond on approximately 88 acres largely owned by Orange County.

- **Crane Strand System Retrofit and Stormwater Park/Seminole County:** Crane Strand, a tributary to the Little Econlockhatchee River, is the third highest contributor of pollutants to the river. Because most development in the watershed occurred before the 1980s, stormwater treatment systems were not required. The project includes a pollution abatement and flow attenuation facility to treat stormwater and reduce flood levels for a developed area of approximately 300 acres. The proposed pond will be in Seminole County, although the system will benefit both Orange and Seminole Counties.

Lake George Planning Unit

STAKEHOLDERS

The Lake George Working Group was formed in July 1997 as part of the Department's ecosystem management initiative. Membership included the U.S. Army Corps of Engineers, the FWC, the Department, the SJRWMD, and concerned residents and property owners. The group's primary concern was the accumulation of muck in the Drayton Island area of Lake George. The group has not met for about two years.

Stakeholder groups affiliated with the government of Volusia County are described under the Deep Creek Planning Unit.

LOCAL GOVERNMENTAL INITIATIVES

Activities funded by Volusia County are listed under the Deep Creek Planning Unit.

Lake Jesup Planning Unit

STAKEHOLDERS

The Friends of Lake Jesup group was created in the early 1990s to advance the restoration of the lake's water quality, habitat, and navigational values. Because of

concerns about the degraded water quality of Lake Jesup, in 1994 the Florida legislature passed the Lake Jesup Act, which directed the SJRWMD to begin diagnostic investigations on Lake Jesup and created the Friends of Lake Jesup Restoration and Basin Management Team. As a result, the Friends shifted from a grassroots citizen organization to a legislatively mandated advisory group. Membership comprises representatives from homeowners' associations, environmental groups, local governments, and state agencies. The Friends provided guidance in formulating and evaluating strategies for management, protection, and restoration activities. The group's legislatively mandated advisory role expired in 1998, but members have continued to meet and provide input on the Lake Jesup restoration.

PROJECTS

- **Demonstration and implementation projects:** The Lake Jesup Act provided funding for projects to solve the lake's problems, for example, a phased lake improvement program. Phase 1 of the program consisted of diagnostic studies of the lake and its tributaries. Phase 2 included projects such as lake circulation modeling and the development of a water and nutrient budget. Phase 3 is the implementation of demonstration projects for nutrient load reduction and restoration methods consistent with the Lake Jesup Restoration and Management Plan (Marzolf, 1999). Projects include the following:

  - The SJRWMD is working to establish nutrient goals or pollution load reduction goals for Lake Jesup by 2005. Improved stormwater quality is expected to reduce nutrient loads. Major mechanisms are stormwater parks, wetland treatment systems, and other appropriate methods.

  - To date, the SJRWMD has completed a bathymetric study (1996) of Lake Jesup to assess the lake's circulation patterns. The model predicts circulation patterns based on rainfall, tributary flows, wind speed and direction, evaporation, and the topography of the lake bottom. The study results will be useful in understanding the impact of environmental factors, the State Road 46 causeway, and urban drainage into the lake.

  - The SJRWMD also has a project under way to collect sediments from the bottom of Lake Jesup. The sediments are mapped and analyzed to determine their impact on water quality.

  - Water quality at twenty sites in the lake, its tributaries, and floodplain has been sampled monthly since 1995. Environmental scientists are conducting analyses to explain the characteristics of degraded quality, such as frequent algal blooms and fish kills in the lake. Orange and Seminole Counties have completed water quality and water quantity models for the Howell Creek, Gee Creek, and Soldier Creek watersheds.

- Through ad valorem and local government sources, the SJRWMD is coordinating 1-foot contour mapping for the Howell Creek watershed.

• **Wetlands restoration:** A project encompassing approximately 1,300 acres is currently under way.

• **Dredging and removal of sedimentation:** A FWC project is scheduled to begin in fiscal year 2002–03.

• **Nutrient load reductions from Lake Nina:** Lake Nina, a 12-acre lake with a surface runoff area of approximately 79 acres, is a contributing surface water in the Lake Jesup Planning Unit. The Lake Nina project will reduce the nutrients discharged into Lake Jesup. The existing Trophic State Index (TSI) for the lake indicates eutrophic conditions; the future TSI goal for the lake is mesotrophic. A 15 percent reduction in phosphorus loading is required to reach that goal. Most of the watershed contains a four-lane divided roadway that discharges all of its stormwater runoff into the lake, contributing approximately 25 pounds of phosphorus per year to the lake. Instead of excavating a single portion of the adjacent park for a wet detention system, the entire park will be regraded to serve as a treatment area during rain events. During dry weather the park will be open to the public. The project was funded as part of the 2001/2002 special legislative appropriation.

• **Lake Waunatta Remediation Project:** Lake Waunatta is one of many Orange County lakes that has experienced extensive urbanization and altered drainage patterns in recent years. These alterations have inevitably increased stormwater flow and degraded water quality in the lake. In the mid-1990s, Lake Waunatta experienced high water levels during an unusual wet weather period. A basinwide stormwater assessment by Orange County in 1996 documented the need for stormwater flood controls and recommended further water quality studies. Pollutants of concern are dissolved nitrogen and phosphorus, which enter the lake from atmospheric deposition, untreated and partially treated stormwater runoff, and baseflow of surficial groundwater that may include contributions from treated septic tank effluent.

A simplified pollutant loading model was developed for Lake Waunatta, based on yearly estimated mass loadings, to predict the pollutant loadings that could enter the lake. In addition, potential loadings from on-site sewage treatment and disposal systems (OSTDSs) were evaluated for the lake's immediate shoreline. Together, the latter two sources could be controlled through engineered solutions. Based on the findings of the loading analysis, about 2,100 pounds of nitrogen and 290 pounds of phosphorus are generated annually from runoff in the watershed. About 60 to 80 percent of this loading reaches Lake Waunatta. Pollutants from OSTDSs in the watershed potentially account for only about 15 pounds of nitrogen and 3 pounds of phosphorus. According to model predictions, a 20 percent reduction in annual loadings may improve trophic status by about 5 percent. Improvements to Lake Waunatta include stormwater storage improvements and long-term water quality improvements. Improved maintenance in the Kmart and Unigold Shopping Plaza ponds would provide an immediate, cost-effective

way to reduce runoff volumes. The project was funded by special legislative appropriation for fiscal year 2001/2002.

- **Aquatic plant revegetation:** The SJRWMD has initiated an aquatic planting plan to improve fisheries habitat in Lake Jesup. The project will also help to evaluate aquatic vegetation growth patterns in various substrates.

- **Construction of a box culvert along State Road 46 and Lake Jesup:** In partnership with the Florida Department of Transportation and the city of Sanford, the SJRWMD has completed the design of a double concrete box culvert , approximately one mile west of the Geneva Bridge, that would reconnect the lake's floodplain and provide a wildlife crossing. Construction will begin once flowage easements are obtained from private landowners.

- **Removal of levees at the Lake Jesup Conservation Area and the North Lake Jesup Conservation Area:** Removing the levees has reconnected 3,682 acres of wetlands to the lake and will improve fisheries and wildlife habitat. It has also expanded the lake's storage volume, increasing flood protection in surrounding areas. Seminole County has provided additional lake access for public use and established a public park along the southwest shore.

- **Seminole County subdivision stormwater retrofit program.** The county has initiated early planning for the program. Approximately 2,058 subdivisions in Seminole County were platted and constructed prior to 1983, before the development of the SJRWMD's stormwater rule. Approximately 1,420 plats are in the unincorporated areas of the county. The retrofit program is needed most in the Lake Jesup watershed but also includes other watersheds in the county.

- **Removal of the State Road 46 causeway and elevation of a new bridge over Lake Jesup.** The Florida Department of Transportation is in the planning phase of the project, which will allow important internal and external lake recirculation. The U.S. Army Corps of Engineers is determining how best to remove flowage impediments beneath the new bridge.

- **Navy Canal Flood Attenuation and Retrofit Project:** A section of the Navy Canal flows over its banks, causing flooding and increasing the erosion and washouts of downstream structures. The proposed correction involves constructing a 6.4-acre wet detention pond with associated control structures north of Sand Dollar and regrading a segment of the Navy Canal. The pond will also provide water quality treatment for the watershed. The project is projected to reduce pollutant loads by 20,500 pounds per year.

- **Cameron Ditch Project:** The proposed project for Cameron Ditch includes the construction of a 4-acre wet detention facility to provide water quality treatment for a tributary drainage area of approximately 416 acres. The Watershed Management Model

(WMM) predicts that the facility will remove approximately 45,000 pounds of phosphorus per year.

Lake Monroe Planning Unit

STAKEHOLDERS

Stakeholder groups affiliated with Volusia County government are described under the Deep Creek Planning Unit.

LOCAL GOVERNMENTAL INITIATIVES

The SJRWMD is developing minimum flows and levels (MFLs) for the Middle St. Johns River near State Road 44 in Volusia County. Rule making on the proposed flow levels is not anticipated till April 2003.

Seminole County has completed master plans for several watersheds in the planning unit, including the Midway, Sanford, and Lake Monroe watersheds. The plans identify deficiencies and include recommendations for remediation projects. A 2001 legislative appropriation of $1 million provided funding for the Lake Monroe and Midway watersheds.

The city of Deltona is developing a Watershed Management Plan to address water quality and flood protection needs.

Due to increased development and increased concerns about flood damage, the SJRWMD asked the National Weather Service's Southeast River Forecast Center to develop and implement a flood forecast system for the southern portion of the Middle St. Johns Basin. The model is being verified and is scheduled for implementation within one year. It will focus on the Lake Monroe watershed.

Activities directed by Volusia County are listed under the Deep Creek Planning Unit.

PROJECTS

- **Lake Monroe Basin Watershed Plan Implementation/Seminole County:** Water quality and flooding problems are common in the planning unit. Many areas were developed before the implementation of stormwater regulations, resulting in the direct discharge of untreated stormwater to Lake Monroe and the St. Johns River. In several areas of the Midway watershed, retrofits are needed to improve surface water quality and quantity. Master planning efforts by Seminole County have identified locations for remediation projects.

- **Remediation projects to solve flood problems and improve water quality:** A number of projects have been identified and will be implemented through funding from special legislative appropriations. The remediation projects, which include measures to improve stormwater water quality discharged to receiving bodies, are as follows:

  - ***Cameron Avenue Drainage Improvements and Water Quality Retrofit Project:*** Water from the drainage area receives no treatment and

discharges via a 36-inch pipe directly into the St. Johns River. The project involves the installation of a water quality baffle box to remove sediments and pollutants and improvements to the secondary drainage system, consisting of the installation of one curb inlet, curb repairs, and regrading and sodding of an existing swale/ditch.

- ***Brisson Avenue Drainage Improvements and Water Quality Retrofit Project:*** The drainage area includes Brisson Avenue at the railroad crossing and south of Celery Avenue. Drainage is provided by ditches and cross-drains that eventually discharge into Lake Monroe, with no water quality treatment. Roads in the area frequently flood. The retrofit involves the design and construction of a retention pond to improve water quality, the replacement and upsizing of several culverts and cross-drains, and regrading and sodding of some of the ditches.

- ***First Drive Drainage Improvements and Water Quality Retrofit:*** Drainage for the First Drive area consists of ditches and cross-drains that eventually discharge into the St. Johns River, with no water quality treatment. Roads in the area frequently flood. The project involves the design and construction of a retention pond/sedimentation basin, the upsizing of several cross-drains, and the regrading and sodding of some ditches.

- ***Celery Avenue Regional Flood Attenuation and Water Quality Treatment Facility:*** The Celery Avenue drainage area, which currently receives no water quality treatment and experiences erosion and flooding problems, discharges into Lake Monroe and the St. Johns River. The construction of a 20-acre regional stormwater retention pond will improve water quality and provide flood protection for homes and for Celery Avenue, which floods during minor storms. A created wetland will further improve water quality and enhance wildlife habitat. The project will also delineate and remediate contaminated soils on the site.

Lake Woodruff Planning Unit

STAKEHOLDERS

Stakeholder groups affiliated with Volusia County government are described under the Deep Creek Planning Unit.

LOCAL GOVERNMENTAL INITIATIVES

Activities initiated by Volusia County are listed under the Deep Creek Planning Unit.

Wekiva River Planning Unit

STAKEHOLDERS

The Wekiva River Basin Working Group was initiated by the Department and has been meeting since 1994. Membership in the group comprises the Department, SJRWMD, Lake County, Seminole County, Orange County, Altamonte Springs, Division of Forestry, FWC, and U. S. Army Corps of Engineers. A major accomplishment of the group was the development of a master mitigation list for use by permitting agencies and local governments.

The Friends of the Wekiva River, a nonprofit organization, works to preserve the beauty and natural function of the Wekiva River ecosystem. Its major goals are to promote and protect the aesthetic and recreational values of the watershed, promote restoration of the river and its tributaries, and present educational programs to achieve these goals. The Friends identify potential impacts to the river and work to minimize or eliminate them.

The Little Wekiva River Technical Subcommittee, formed in 1995 by the SJRWMD, has a legislative mandate to direct state funding for projects in the Little Wekiva watershed. The group has secured funding for riverbank stabilization projects, sediment removal, and stormwater retrofits. Membership includes the Department, the SJRWMD, Orange and Seminole Counties, the cities of Altamonte Springs and Orlando, the Friends of the Wekiva, and property and business owners. New efforts are under way to develop a basinwide master plan to address water quality and stream flow attenuation projects in the watershed. Sedimentation in the downstream sections of the Little Wekiva has also added to nuisance vegetation problems in both the Little Wekiva and the Wekiva rivers. Canoe usage is being documented to encourage state and federal agencies to maintain the stream, and to identify parcels of land needed to provide public access for recreation.

Sweetwater Cove is a tributary to the Wekiva River that historically received wastewater. Excess sediment, nuisance vegetation, and poor esthetics are concerns. The Sweetwater Cove Tributary Surface Water Restoration Project was initiated in 2000 with legislative funding. The SJRWMD formed the Sweetwater Cove Tributary Surface Water Restoration Project Advisory Group to allow stakeholders the opportunity to participate in the restoration process. The group comprises representation from local residents, the Department, Friends of the Wekiva, Utilities, Inc., SJRWMD, and Seminole County.

PROJECTS

- **Water quality planning, management, and improvement projects:** Projects in the Little Wekiva watershed include intensive work to address erosion and sedimentation issues. Since 1995, the Little Wekiva River Technical Working Group and the SJRWMD have developed a master plan for erosion control, and received $11.95 million from the state during 1995, 1996, 1998, 2000, and 2001 to implement the plan. An additional $350,000 was made available through the Florida Department of Transportation Mitigation Bill process. All of these funds were matched with local and regional funds to complete the work. Eleven projects have

been constructed, including four high-priority projects, to address bed and bank stabilization and sediment removal. An additional four projects are in the design phase, with construction anticipated in the next calendar year. Part of the Little Wekiva River's stream channel was diverted to a pipe in the 1970s. A portion of the pipe has collapsed, causing extensive damage to several homes. One of the largest projects currently under design is the removal of 1,700 linear feet of that pipe. During the 2000 legislative session, $5 million was appropriated for restoring this section of the river.

- **Development of master plans:** Orange and Seminole Counties have initiated the development of master plans for their portions of the Wekiva River watershed. Orange County has completed master plans for the Coroni, McCoy, and Prevatt watersheds. The plans include stormwater retrofit projects.

- **Land acquisition:** As a result of the 1990 Central Florida Beltway Mitigation Act, the SJRWMD has received funds to purchase environmentally sensitive lands or restoration lands in the Wekiva River watershed. The district has completed several ecosystem/water quality improvement projects in the watershed through the Florida Department of Transportation's Central Florida Beltway Mitigation Bill. Restoration of the STS site on the Wekiva River, an erosion control project in Wekiwa Springs State Park, the Tram Road removal in the Wekiva River Preserve State Park, and some additional land acquisition will also be possible with funds provided through the Beltway Bill.

- **Votaw Road Pond Water Quality Improvement:** Identified by Orange County in the master plan for the Coroni, McCoy, and Prevatt watersheds, the project received special legislative appropriations for fiscal year 2000/2001. It includes the retrofit of a stormwater treatment system known as the Votaw Road Pond. The system drains into the Wekiva River Basin Preserve State Park. An additional stormwater retrofit is planned for the Lake McCoy watershed utilizing unspent funds from the Votaw Road project. Construction on the Tanglewilde Street/Ustler Road retrofit is scheduled for late 2002 or early 2003.

- **Sweetwater Oaks/Cove Lake tributary to the Wekiva River:** In 2001, the Florida legislature provided $500,000 in funding for restoration work in this tributary watershed. Historically, the watershed was a discharge point for treated wastewater. The work will include water quality improvements, native vegetation restoration, and possibly some dredging.

- **Little Wekiva River Watershed Management Plan Implementation:** Erosion has caused water quality and environmental degradation in the downstream sections of the Little Wekiva River and the Wekiva River system. The design and construction of surface water restoration projects listed in the Little Wekiva River Watershed Management Plan will address the erosion and sediment transport problems in the main channel of the Little Wekiva River. The projects include structural bed and

bank protection, biotechnical bank protection, grade control structures, the widening and re-sloping of river sections, and the installation of sedimentation basins. Several dredging and grading projects are in the design phase; these include Edgewater Drive, Gusty Lane, Sherry Drive, and Elba Way. Several projects have been successfully constructed and the remainder of the plan is being implemented, including the following projects:

- ***Northwestern Avenue Area/Seminole County:*** Erosion in the Northwestern Avenue portion of the river is very high, and sediment transport to the downstream system is excessive. The Northwestern bridge is at risk, and its collapse would cause serious downstream impacts in addition to the impacts at the site. The project will stabilize the riverbed and banks, restore the grade to a manageable level, and reduce the transport of sediment downstream. The project will include gabion side banks, renomattress channel lining, and if necessary a grade control structure.

- ***State Road 434 Sedimentation Basin/Seminole County:*** Near State Road 434, the river profile changes from a very steep gradient, becoming much flatter. As a result, the excess sediments are deposited just downstream of State Road 434 and the river channel becomes filled in. This location is the farthest downstream point where sediment can be removed prior to the more pristine river section. The construction of a sedimentation basin will allow routine maintenance to remove collected sediment without destruction of the stream channel that would result from the direct removal of sediments. The Sedimentation Basin will be constructed so that the flow will be off-line from the river and will be closed from flow during maintenance. The off-line system will also provide additional treatment.

- ***Riverbend Apartments/City of Altamonte Springs:*** The Riverbend project includes a site where severe erosion has caused water quality degradation and adverse environmental impacts. The area was identified for an erosion control and bank stabilization project in the Little Wekiva River Watershed Management Plan. The project will realign the river to re-create its historical route and will include bank stabilization and bed protection for the highly eroded parts. Funding is also available for this project from a previous year.

Local Government Capital Improvement Project List

Listed below, by basin location and responsible entity, are the tentative 5-year capital improvement projects of each local government in the MSJRB that related to water quality (SJRWMD, 2002). A funding request is given for each project, if available.

Wekiva River Basin	Entity	Funding Request
Wekiva Basin Master Study (W-110)	Orange County	$500,000.00
Ponkan Road and Ustler Road (W-112)	Orange County	$202,963.00
Wekiva Basin Lake Level Study (W-119)	Orange County	$250,000.00
Erosion & Sedimentation Mitigation (LW-001)	Orange County	$3,737,805.00
Riverside Acres Pipe Replacement (LW-002)	Orange County	$1,577,170.00
Big Lake Fairview and Lake Silver (LW-004)	Orange County	$71,000.00
Little Lk Fairview Stormwater Retrofit (LW-005)	Orange County	$1,011,981.00
Plantation Estates Drainage Plan (LW-006)	Orange County	$660,964.00
Miscellaneous Secondary Projects (LW-010)	Orange County	$250,000.00
L. Wekiva H2O Quality Trtmnt Program (LW-011)	Orange County	$5,447,856.00
Little Wekiva Erosion Countermeasures	Orange County	$2,777,000.00
Little Wekiva Erosion Countermeasures	Seminole County	$2,322,000.00
Grade Control Structure #3 (N-43)	Seminole County	$133,824.00
Grade Control Structure #5 (N-39)	Seminole County	$139,200.00
Northwestern Avenue Bridge Area (N-45 to N-46)	Seminole County	$588,084.00
Sedimentation Basin (N-43)	Seminole County	$2,528,100.00
Basin 1602-01 Pond Retrofit	Seminole County	$48,000.00
Basin 1603-03 Wetland/Pond Improvements	Seminole County	$275,000.00
Basin 1607-02 Skimmer and Diversions	Seminole County	
Cove Lake Basin 1602-10 Retrofit	Seminole County	$1,200,000.00
Cove Lake and Big Wekiva State Park Skimmer and Trash Wall	Seminole County	$45,000.00
Lake Brantley East Side Outfall Retrofit	Seminole County	$340,000.00
Lake Brantley Outfall	Seminole County	$45,000.00
Lake Brantley Outfall Catchment Screens	Seminole County	$135,000.00
Stormwater Pond Dredging and Cleaning (1602-21 to 1602-07)	Seminole County	$20,000.00
Stormwater Canal/Pond Dredging and Cleaning (1603-05)	Seminole County	$40,000.00
Water Quality Treatment for Basin 1602-05	Seminole County	$85,000.00
Water Quality Treatment for Basin 1607-02	Seminole County	$660,000.00
Little Lake Fairview Treatment System	Orlando	$1,725,000.00
Street Sweeper Upgrades	Orlando	$450,000.00
		$27,265,947.00

Lake Jesup Basin	Entity	Funding Request
Howell Branch Basin Master Study (H-104)	Orange County	
Florida Avenue Regional Pond, Outfall and Conveyance System	Seminole County	$3,500,000.00
Oklahoma Street Regional Pond, Outfall and Conveyance System	Seminole County	$2,000,000.00
Deleon Street Pond and Conveyance System	Seminole County	$3,190,000.00
Brisson Avenue Flood Attenuation and Water Quality Retrofit	Seminole County	$2,700,000.00
Mellonville Ave. Flood Attenuation & Water Quality Improvements	Seminole County	$700,000.00
Regional Pond East of Richmond Avenue	Seminole County	$500,000.00
Navy Canal Flood Attenuation and Retrofit Project (403005X)	Seminole County	$1,200,000.00
Six Mile Creek Regional Facility (120210C, 114005X - 122005X)	Seminole County	$6,500,000.00
Howell Creek Retrofit: Kewannee Trail Area (Site #1)	Seminole County	$3,000,000.00
Howell Creek Retrofit: Deer Run/Red Bug (Site #2)	Seminole County	$2,900,000.00
Howell Creek Retrofit: Seminole Co. Water Plant (Site #3)	Seminole County	$2,000,000.00
Howell Creek Retrofit: Area East of Dodd Road (Site #4)	Seminole County	$3,500,000.00
Howell Creek Retrofit: Lightwood Knox Canal (Site #5)	Seminole County	$2,500,000.00
Howell Creek Retrofit: Bear Gully Creek/Canal (Site #6)	Seminole County	$2,200,000.00
Howell Creek Retrofit: Bear Gully Lake South (Site #7)	Seminole County	$3,500,000.00
Howell Creek Retrofit: Bear Gully Lake West (Site #8)	Seminole County	$2,700,000.00
Howell Creek Retrofit: Lake Ann Outfall (Site #9)	Seminole County	$500,000.00
Gee & Soldier Creek Water Quality Retrofit: (Site #1)	Seminole County	$2,700,000.00
Lake Jesup/Six Mile Creek Retrofit: (Site #2)	Seminole County	$1,900,000.00
Little Lake Howell Basin Water Quality Retrofit: (Site #1)	Seminole County	$600,000.00
Soldier Creek Basin North Water Quality Retrofit: (Site #1)	Seminole County	$900,000.00
Soldier Creek Basin East Water Quality Retrofit: (Site #1)	Seminole County	$600,000.00
Ivanhoe Blvd. Drainage (City of Orlando)	Orlando	$368,000.00
Mills Avenue Retrofit	Orlando	$77,330.00
Nina Canal Retrofits	Maitland	$350,000.00
Lake Sybelia Retrofits	Maitland	$385,000.00
Lake Maitland Basin Retrofits	Maitland	$750,000.00
South Lake Jackson Retrofit	Maitland	$250,000.00
Hill Rec Center Retrofit	Maitland	$350,000.00
Lake Gem/Park Lake Retrofit	Maitland	$200,000.00
Canal Sediment Dredging	Maitland	$350,000.00
Update Stormwater Master Plan	Maitland	$200,000.00
New York Ave sub-basin Retrofits	Winter Park	$600,000.00
Green Cove Road Retrofits	Winter Park	$250,000.00
McKean Circle Retrofits	Winter Park	$50,000.00
Trisman/Lakewood Retrofits	Winter Park	$270,000.00
Executive Drive Retention	Winter Park	$100,000.00
Bonita Drive Retrofits	Winter Park	$100,000.00
Dixie Parkway Retrofits	Winter Park	$300,000.00
Pinetree Road Retrofits	Winter Park	$400,000.00

Lake Jesup Basin (continued)	Entity	Funding Request
Internal Loading Reduction Pilot Project – Lake Sylvan	Winter Park	$25,000.00
Lake Virginia Internal Load Reduction Project	Winter Park	$250,000.00
Landlocked Lakes Retrofit Feasibility Study	Winter Park	$75,000.00
Landlocked Lakes Retrofit Construction	Winter Park	$600,000.00
Sterling Swamp Study	Winter Park	$25,000.00
Palmer Avenue Retrofits	Winter Park	$300,000.00
Lake Sue Retrofits	Winter Park	$600,000.00
Lake Berry Retrofits	Winter Park	$500,000.00
Alberta Drive Retrofits	Winter Park	$300,000.00
Ditch Bank Stabilization	Winter Park	$600,000.00
Lake Howell CDS (Sausalito Shores)	Casselberry	$125,000.00
Piping Existing Drainage Ditch	Casselberry	$250,000.00
Lake Howell CDS (3rd Outfall)	Casselberry	$125,000.00
		$58,915,330.00
Econlockhatchee River Basin		
Bithlo Retrofits (BE-001)	Orange County	$5,849,485.00
Bonneville Master Plan CIP (BE-002)	Orange County	$1,914,119.00
Sunflower Trail Drainage Improvements (BE-003)	Orange County	$1,260.500.00
Big Econlockhatchee River Basin Study (BE-004)	Orange County	$7,744,500.00
Land Locked Lakes (BE-005)	Orange County	$300,000.00
Miscellaneous Secondary Projects (BE-006)	Orange County	$250,000.00
Stormwater Master Plan (Little Econ Basin) (LE-001)	Orange County	$250,000.00
Quail Hollow Subdivision Master Drainage Plan (LE-004)	Orange County	$750,000.00
SR 50 Small Area Study (LE-005)	Orange County	$75,000.00
Little Lake Barton Outfall	Orange County	$65,000.00
Miscellaneous Secondary Projects (LE-016)	Orange County	$500,000.00
Little Econ Water Quality Treatment Program (LE-017)	Orange County	$23,023,476.00
Ditch Bank Stabilization	Winter Park	$500,000.00
Eastbrook & Wrenwood Heights (Crane Strand)	Seminole County	$7,540,200.00
		$48,761,780.00
Deep Creek Basin		
Water Quality Monitoring Program	Volusia County	
		$0.00

Lake Monroe Basin	Entity	Funding Request
Lincoln Heights Residential Area (02-0410C,02-0406C,020404C)	Seminole County	$1,658,000.00
Oregon Street and Michigan Avenue Area	Seminole County	$422,000.00
Ohio, New York and Michigan Avenue (02-0222C2,-02-0225X)	Seminole County	$875,000.00
Ohio, New York, Michigan Avenues (02-0226C-02-0228X)	Seminole County	$3,491,000.00
Kennel Ditch (02-0634C, 02-0635BC and 02-0622X)	Seminole County	$1,012,250.00
Elder Creek/Ditch (02-0514C, 02-0516C, 02-0524C, 02-0526C)	Seminole County	$3,752,000.00
Jewett Ditch (02-0614C, 02-0618C and 02-0610EX)	Seminole County	$627,000.00
Borrow Area West of I-4 (02-0316X and 02-0324X)	Seminole County	$345,000.00
Vihlen Road (02-0368C)	Seminole County	$2,776,000.00
Orange Boulevard (02-206C,02-220C,02-238C, 02-0246C)	Seminole County	$1,569,000.00
Old Monroe Ditch (02-0662C- 02-0641X)	Seminole County	$1,219,000.00
Central Florida Zoo/Jewett Ditch (02-0610C, 02-614C, 02-0604P)	Seminole County	$850,000.00
Brisson Avenue Ditch, South of Celery (04-07-D1X & 04-D3X)	Seminole County	$208,000.00
Celery Avenue Cross Drain (04-19-006C)	Seminole County	$2,500,000.00
Alum Treatment for Fisher Lake	Deltona	$43,000.00
Alum Treatment for Lake Lorraine	Deltona	$53,000.00
Alum Treatment for Twin Oaks Lake	Deltona	$34,000.00
Alum Treatment for Randolph Lake	Deltona	$34,000.00
Alum Treatment for Castle Lake	Deltona	$34,000.00
		$21,502,250.00
Total Local Government Capital Improvement Costs for Water Quality Improvements		$156,445,307.00

Appendix D: 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:

1. 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

2. 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 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:

Section 62-303.600, Evaluation of Pollution Control Mechanisms

1. 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.

2. 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.

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[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.

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 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:

1. **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.

3. **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.

4. **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.

5. **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.

6. **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

[2] Baseline data would be data for the year prior to designation of the OFW.

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 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 E: 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 Section 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, Section 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 E.1 summarizes the designated uses assigned to Florida's various surface water classifications.

Table E.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 E.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 Basin Status Reports and Assessment Reports for each basin.

Table E.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 E.2,** unless there were three exceedances of water quality or one exceedance of an acute toxicity criterion in a three-year period. The screening methodology for the Verified List requires at least twenty samples from the last five years preceding the Planning List assessment. An exceedance, meaning that water quality criteria or standards are not met, is recorded any time the criterion is exceeded by any amount. An exceedance for DO, however, means that a waterbody does not meet the dissolved oxygen criterion, rather than an actual exceedance of the 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 Section 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 Basin 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 *[Definition: Of, on, or relating to the banks of a natural course of water]*) 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.

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 (Section 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 Basin 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 Basin 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 Subsection 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.

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 F: Integrated Assessment (Master List) for the Middle St. Johns Basin

Data collected since the April 2004 update of the 303(d) list were used to update the listing status of waters. **Table F.1** contains the listing status of all assessed waters in the basin as of April 2004. All of the waters in the table are Class III fresh water. It should be noted that subsequent to the April 2004 update of the 303(d) list, some waterbody segments were further subdivided to produce separate segments for lakes versus their surrounding watersheds. Therefore, **Table F.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 F.2** includes only stations with data from the Planning and Verified assessment periods.

Table F.1: Integrated Water Quality Report (Master List) for the Middle St. Johns Basin, by Planning Unit

WBID	Waterbody Segment Name	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	Parameters Identified Using the IWR	Proposed Status	Integrated Report Category[1]	Priority for TMDL Develop-ment[2]	Projected Year for TMDL Develop-ment[2]	Comments[3] (# Exceedances/ # Samples) PP= Planning Period VP= Verified Period
	Alexander Springs Creek									
2917	South Grasshopper Lake	Lake	3F			Insufficient Data	3b			
2918A	Alexander Springs Drain	Stream	3F			No Data	3a			
2918B	Buck Lake	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2918B	Buck Lake	Lake	3F	Coliform Bacteria	Fecal Coliform Bacteria	Insufficient Data	3c	(Low)	(2008)	PP - 3/46 values exceed criterion. VP - 1/30 values exceed criterion. Only 2 seasons were present, therefore insufficient data to assess.
2918B	Buck Lake	Lake	3F	Coliform Bacteria	Total Coliform Bacteria	Insufficient Data	3c	(Low)	(2008)	PP - 0/0 values exceed criterion. VP - 0/17 values exceed criterion.
2918C	Sellers Lake Drain	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2918C	Sellers Lake Drain	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2918C	Sellers Lake Drain	Lake	3F		Turbidity	Not Impaired	2			
2918D	Echo Lake	Lake	3F			No Data	3a			
2918E	Farles Prairie	Lake	3F			Insufficient Data	3b			
2918F	Buck Lake Drain	Lake	3F			No Data	3a			
2918Z	Alexander Springs	Stream	3F			Insufficient Data	3b			
2927	Alexander Spring Creek	Stream	3F			No Data	3a			
2930	Lulu Lake	Lake	3F			Insufficient Data	3b			
2930A	Akron Lake	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2930A	Akron Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			

WBID	Waterbody Segment Name	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	Parameters Identified Using the IWR	Proposed Status	Integrated Report Category[1]	Priority for TMDL Develop-ment[2]	Projected Year for TMDL Develop-ment[2]	Comments[3] (# Exceedances/ # Samples) PP= Planning Period VP= Verified Period
2930A	Akron Lake	Lake	3F		Turbidity	Not Impaired	2			
2930C	Glenn Branch	Stream	3F			No Data	3a			
2930D	Blue Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2930E	Silver Paisley Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2932	Lake Kathryn Tracy Canal	Lake	3F			No Data	3a			
2932A	Lake Kathryn	Lake	3F			No Data	3a			
	Deep Creek									
2893F	St. Johns River Above Lake Jesup	Stream	3F		Dissolved Oxygen	Verified List	5	Medium	2008	PP - 31/157 values below DO criterion. VP - 24/129 values below DO criterion. DO met verification threshold of IWR and elevated algal biomass is causative pollutant. 254 DO values, median 6.27 mg/L, mean 6.16 mg/L, range 0.93 - 11.71 mg/L.
2893F	St. Johns River Above Lake Jesup	Stream	3F		Fecal Coliform Bacteria	Not Impaired	2			
2893F	St. Johns River Above Lake Jesup	Stream	3F		Iron	Not Impaired	2			
2893F	St. Johns River Above Lake Jesup	Stream	3F		Mercury (in fish tissue)	Planning List	3c			Limited consumption advisory.

WBID	Waterbody Segment Name	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	Parameters Identified Using the IWR	Proposed Status	Integrated Report Category[1]	Priority for TMDL Develop-ment[2]	Projected Year for TMDL Develop-ment[2]	Comments[3] (# Exceedances/ # Samples) PP= Planning Period VP= Verified Period
2893F	St. Johns River Above Lake Jesup	Stream	3F		Nutrients (Current and Historic Chla)	Verified List	5	Medium	2008	Co-limitation of nitrogen and phosphorus based on a TN/TP median of 22 (178 values) in the PP and a median of 21 (149 values) in the VP. PP - 1 chla annual mean exceeded 20 ug/l (2000), 181 TN values, median 1.328 mg/L, 182 TP values, median 0.06 mg/L. VP - 2 chla annual means exceeded 20 ug/l (2000-2001), 152 TN values, median 1.364 mg/L, 152 TP values, median 0.07 mg/L. 4 consecutive years (1999-2002) in the verified period exceeded the historic value 4.98 ug/l (historic time block: 1992-1996) by more than 50%. This historic chla value is based on new information not present in IWR2002 Run14.2.
2893F	St. Johns River Above Lake Jesup	Stream	3F		Total Coliform Bacteria	Not Impaired	2			
2893F	St. Johns River Above Lake Jesup	Stream	3F		Turbidity	Not Impaired	2			
2893F	St. Johns River Above Lake Jesup	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2893F1	Lake Cockran	Lake	3F			No Data	3a			
2893H	Mullet Lake	Lake	3F			Insufficient Data	3b			
2893J	Mud Lake	Lake	3F			No Data	3a			
2922	Deep Creek Diversion	Stream	3F			Insufficient Data	3b			
2922A	Daytona Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2925	Deep Creek - Lake Ashby Canal	Stream	3F		Arsenic	Not Impaired	2			
2925	Deep Creek - Lake Ashby Canal	Stream	3F		Biology	Not Impaired	2			

WBID	Waterbody Segment Name	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	Parameters Identified Using the IWR	Proposed Status	Integrated Report Category[1]	Priority for TMDL Develop-ment[2]	Projected Year for TMDL Develop-ment[2]	Comments[3] (# Exceedances/ # Samples) PP= Planning Period VP= Verified Period
2925	Deep Creek - Lake Ashby Canal	Stream	3F	Cadmium	Cadmium	Verified List	5	Low	2008	PP -7/40 values exceed criterion. VP - 7/34 values exceed criterion.
2925	Deep Creek - Lake Ashby Canal	Stream	3F		Chromium3	Not Impaired	2			
2925	Deep Creek - Lake Ashby Canal	Stream	3F		Copper	Not Impaired	2			
2925	Deep Creek - Lake Ashby Canal	Stream	3F		Dissolved Oxygen	Planning List	3c			DO met verification threshold of IWR, but unable to identify causative pollutant. PP - 7/37 values below DO criterion. VP - 12/45 values below DO criterion. 45 TN values, median 1.15 mg/L. 45 TP values, median 0.08 mg/L. No BOD data.
2925	Deep Creek - Lake Ashby Canal	Stream	3F	Coliform Bacteria	Fecal Coliform Bacteria	Insufficient Data	3c	(Low)	(2008)	PP - 1/7 values exceed criterion. VP - 0/3 values exceed criterion.
2925	Deep Creek - Lake Ashby Canal	Stream	3F	Iron	Iron	Verified List	5	Low	2008	PP - 22/40 values exceed criterion. VP - 21/43 values exceed criterion.
2925	Deep Creek - Lake Ashby Canal	Stream	3F	Lead	Lead	Verified List	5	Low	2008	PP - 12/27 values exceed criterion. VP -6/22 values exceed criterion.
2925	Deep Creek - Lake Ashby Canal	Stream	3F		Nickel	Not Impaired	2			
2925	Deep Creek - Lake Ashby Canal	Stream	3F		Nutrients (Chla)	Not Impaired	2			
2925	Deep Creek - Lake Ashby Canal	Stream	3F		Selenium	Not Impaired	2			PP - 5/32 values exceed criterion. VP - 5/34 values exceed criterion.
2925	Deep Creek - Lake Ashby Canal	Stream	3F	Silver	Silver	Planning List	3c	(Low)	(2008)	PP - 3/3 values exceed criterion. VP - 0/0 values exceed criterion.
2925	Deep Creek - Lake Ashby Canal	Stream	3F	Coliform Bacteria	Total Coliform Bacteria	Insufficient Data	3c	(Low)	(2008)	PP - 0/0 values exceed criterion. VP - 0/5 values exceed criterion.
2925	Deep Creek - Lake Ashby Canal	Stream	3F		Turbidity	Not Impaired	2			
2925	Deep Creek - Lake Ashby Canal	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2925	Deep Creek - Lake Ashby Canal	Stream	3F		Zinc	Not Impaired	2			

WBID	Waterbody Segment Name	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	Parameters Identified Using the IWR	Proposed Status	Integrated Report Category[1]	Priority for TMDL Develop-ment[2]	Projected Year for TMDL Develop-ment[2]	Comments[3] (# Exceedances/ # Samples) PP= Planning Period VP= Verified Period
2925A	Lake Ashby	Lake	3F		Copper	Planning List	3c			PP - 6/23 values above criterion. VP - 5/17 values above criterion.
2925A	Lake Ashby	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2925A	Lake Ashby	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2925A	Lake Ashby	Lake	3F		Fluoride	Not Impaired	2			
2925A	Lake Ashby	Lake	3F		Iron	Not Impaired	2			
2925A	Lake Ashby	Lake	3F		Lead	Not Impaired	2			
2925A	Lake Ashby	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2925A	Lake Ashby	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
2925A	Lake Ashby	Lake	3F		Turbidity	Not Impaired	2			
2925A	Lake Ashby	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
2925A	Lake Ashby	Lake	3F		Zinc	Not Impaired	2			
2925B	Lake Ashby Drain	Lake	3F			Insufficient Data	3b			
2931	Lake Winnemissett	Lake	3F		Arsenic	Not Impaired	2			
2931	Lake Winnemissett	Lake	3F		Cadmium	Not Impaired	2			
2931	Lake Winnemissett	Lake	3F		Chromium3	Not Impaired	2			
2931	Lake Winnemissett	Lake	3F		Copper	Not Impaired	2			
2931	Lake Winnemissett	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2931	Lake Winnemissett	Lake	3F		Iron	Not Impaired	2			

WBID	Waterbody Segment Name	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	Parameters Identified Using the IWR	Proposed Status	Integrated Report Category[1]	Priority for TMDL Develop-ment[2]	Projected Year for TMDL Develop-ment[2]	Comments[3] (# Exceedances/ # Samples) PP= Planning Period VP= Verified Period
2931	Lake Winnemissett	Lake	3F		Lead	Verified List	5	Medium	2008	PP - 8/26 values exceed criterion. VP - 6/21 values exceed criterion.
2931	Lake Winnemissett	Lake	3F		Nickel	Not Impaired	2			
2931	Lake Winnemissett	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2931	Lake Winnemissett	Lake	3F		Selenium	Not Impaired	2			
2931	Lake Winnemissett	Lake	3F		Turbidity	Not Impaired	2			
2931	Lake Winnemissett	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
2931	Lake Winnemissett	Lake	3F		Zinc	Not Impaired	2			
2931A	Lake Winnemissett Outlet	Lake	3F			No Data	3a			
2933	Akins Bay Slough	Stream	3F			No Data	3a			
2935	Samsula Canal-Sandy Dr	Stream	3F			Insufficient Data	3b			
2936	Lake Ashby Creek	Stream	3F		Biology	Not Impaired	2			
2940	Unnamed Ditches	Stream	3F			No Data	3a			
2944	Unnamed Ditches	Stream	3F			No Data	3a			
2945	Unnamed Ditch	Stream	3F			No Data	3a			
2952	Cow Creek	Stream	3F			Insufficient Data	3b			
2957	Lemmon Bluff Ditch	Stream	3F			No Data	3a			
2958	Gopher Slough	Stream	3F			No Data	3a			
2964	St Johns Above Lake Harney (Underhill Slough)	Stream	3F		Dissolved Oxygen	Planning List	3c			DO met verification threshold of IWR, unable to identify causative pollutant. PP - 15/116 values below DO criterion. VP - 12/69 values below DO criterion. 92 TN values, median 1.35 mg/L. 95 TP values, 0.07 mg/L. No BOD data.

WBID	Waterbody Segment Name	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	Parameters Identified Using the IWR	Proposed Status	Integrated Report Category[1]	Priority for TMDL Develop-ment[2]	Projected Year for TMDL Develop-ment[2]	Comments[3] (# Exceedances/ # Samples) PP= Planning Period VP= Verified Period
2964	St Johns Above Lake Harney (Underhill Slough)	Stream	3F		Fecal Coliform Bacteria	Not Impaired	2			
2964	St Johns Above Lake Harney (Underhill Slough)	Stream	3F		Nutrients (Chla)	Not Impaired	2			
2964	St Johns Above Lake Harney (Underhill Slough)	Stream	3F		Total Coliform Bacteria	Not Impaired	2			
2964	St Johns Above Lake Harney (Underhill Slough)	Stream	3F		Turbidity	Not Impaired	2			
2964	St Johns Above Lake Harney (Underhill Slough)	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2964A	Lake Harney	Lake	3F	Cadmium	Cadmium	Not Impaired	2			This segment is being delisted because there were sufficient data for the planning list assessment. PP - 2/25 values exceed criterion, range 0.5 - 3 ug/L, mean 0.55 mg/L. VP - 1/6 values exceed criterion, range 0.0 - 1.08 ug/L, mean 0.43 mg/L.
2964A	Lake Harney	Lake	3F		Chromium3	Not Impaired	2			
2964A	Lake Harney	Lake	3F		Copper	Not Impaired	2			
2964A	Lake Harney	Lake	3F	Dissolved Oxygen	Dissolved Oxygen	Verified List	5	Low	2008	PP - 90/306 values below DO criterion. VP - 31/121 values below DO criterion. DO met verification threshold of IWR and nutrients are the causative pollutant. 509 DO values, median 6.27 mg/L, mean 6.32 mg/L, range 11.8 - 0.42 mg/L.
2964A	Lake Harney	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			

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2964A	Lake Harney	Lake	3F		Iron	Not Impaired	2			
2964A	Lake Harney	Lake	3F		Lead	Not Impaired	2			
2964A	Lake Harney	Lake	3F		Mercury (in fish tissue)	Verified List	5	Medium	2011	Mercury (in fish tissue) met verification threshold of IWR. Fish tissue levels in 20 samples averaged 0.5420 ppm in 2000.
2964A	Lake Harney	Lake	3F		Nickel	Not Impaired	2			
2964A	Lake Harney	Lake	3F	Nutrients	Nutrients (TSI)	Verified List	5	Low	2008	Co-limitation of nitrogen and phosphorus based on a TN/TP median of 24 (541 values) during the PP and a median of 19 (242 values) during the VP. PP - 1 TSI annual mean exceeded 60 (2000). VP - 2 TSI annual means exceeded 60 (2000-2001). 548 TN values, median 1.28 mg/L. 554 TP values, median 0.052 mg/L.
2964A	Lake Harney	Lake	3F	Silver	Silver	Insufficient Data	3c	(Low)	(2008)	PP - 1/2 values exceed criterion. VP - 0/1 values exceed criterion.
2964A	Lake Harney	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
2964A	Lake Harney	Lake	3F		Turbidity	Not Impaired	2			
2964A	Lake Harney	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
2964A	Lake Harney	Lake	3F		Zinc	Not Impaired	2			
2964A1	Lake Harney Outlet	Lake	3F			Insufficient Data	3b			
2964A2	Stone Island	Lake	3F			No Data	3a			
2964D	Underhill Slough	Stream	3F			No Data	3a			
	Econlockhatchee River									

WBID	Waterbody Segment Name	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	Parameters Identified Using the IWR	Proposed Status	Integrated Report Category[1]	Priority for TMDL Develop-ment[2]	Projected Year for TMDL Develop-ment[2]	Comments[3] (# Exceedances/ # Samples) PP= Planning Period VP= Verified Period
2991	Econlockhatchee River	Stream	3F		Biology	Not Impaired	2			
2991	Econlockhatchee River	Stream	3F		Chromium3	Not Impaired	2			
2991	Econlockhatchee River	Stream	3F		Dissolved Oxygen	Not Impaired	2			Low dissolved oxygen is a natural condition, and based on bioassessment results, aquatic life use support is being maintained (8 passing bioassessments 1992-2000). Nutrients (TN and TP) and BOD are all within acceptable ranges. 41 TN values, median 0.93 mg/l. 44 TP values, median 0.05 mg/l. 41 BOD values, median 1.9 mg/l. PP - 78/194 values below DO criterion. VP - 14/51 values below DO criterion. The two most dominant land uses in this area are upland forests (21% of total) and wetlands (37% of total).
2991	Econlockhatchee River	Stream	3F		Fecal Coliform Bacteria	Verified List	5	Medium	2008	PP - 16/116 values exceed criterion. VP - 5/21 values exceed criterion. Coliform median 110 colonies/100ml, range 10 - 2301 colonies/100ml. No more than 3 values per month.
2991	Econlockhatchee River	Stream	3F		Iron	Not Impaired	2			
2991	Econlockhatchee River	Stream	3F		Mercury (in fish tissue)	Planning List	3c			Mercury (in fish tissue) met verification threshold of IWR, but need to confirm 7.5 year age of data. Consumption advisory issued in 1993 for largemouth bass, gar and bowfin.
2991	Econlockhatchee River	Stream	3F		Nickel	Not Impaired	2			

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2991	Econlockhatchee River	Stream	3F		Nutrients (Chla)	Not Impaired	2			
2991	Econlockhatchee River	Stream	3F		Turbidity	Not Impaired	2			
2991	Econlockhatchee River	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2991	Econlockhatchee River	Stream	3F		Zinc	Not Impaired	2			
2991A	Econlockhatchee River	Stream	3F		Biology	Not Impaired	2			
2991A	Econlockhatchee River	Stream	3F	BOD	BOD	Not Impaired	2			Delist. BOD median below screening level (181 BOD values, median 1.7 mg/l, range 0 - 6.6 mg/l), and DO is not impaired..
2991A	Econlockhatchee River	Stream	3F		Cadmium	Not Impaired	2			
2991A	Econlockhatchee River	Stream	3F		Chromium3	Not Impaired	2			
2991A	Econlockhatchee River	Stream	3F		Copper	Not Impaired	2			

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2991A	Econlockhatchee River	Stream	3F	Dissolved Oxygen	Dissolved Oxygen	Not Impaired	2			Delist. Low dissolved oxygen is a natural condition, and based on bioassessment results, aquatic life use support is being maintained. [Passing bioassessments in 1996, 1999, and 2002). Nutrients (TN and TP) and BOD all within acceptable ranges. 190 TN values, median 0.97 mg/l. 196 TP values, median 0.09 mg/l. 181 BOD values, median 1.7 mg/l. PP - 62/374 values below DO criterion. VP - 27/190 values below DO criterion. 374 DO values, median 6.4 mg/L, mean 6.5 mg/L, range 2.1 - 11.7 mg/L. The two dominant land uses in this area are upland forests (21% of total) and wetlands (37% of total).
2991A	Econlockhatchee River	Stream	3F	Coliform Bacteria	Fecal Coliform Bacteria	Not Impaired	2			Delist. PP - 12/209 values exceed criterion, range 2 - 1,800 colonies/100ml. VP - 5/55 values exceed criterion, range 1 - 1,900 colonies/100ml.
2991A	Econlockhatchee River	Stream	3F		Iron	Not Impaired	2			
2991A	Econlockhatchee River	Stream	3F	Lead	Lead	Planning List	3c			PP - 14/50 values exceed criterion, range 0 - 7.89 ug/l, mean 1.58 ug/l. VP - 4/21 values exceed criterion, range 0.13 - 7.89 ug/l, mean 1.49 ug/l.
2991A	Econlockhatchee River	Stream	3F	Mercury (in fish tissue)	Mercury (in fish tissue)	Planning List	3c	(Low)	(2008)	Mercury (in fish tissue) met verification threshold of IWR, but need to confirm 7.5 year age of data.
2991A	Econlockhatchee River	Stream	3F		Nickel	Not Impaired	2			

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2991A	Econlockhatchee River	Stream	3F	Nutrients	Nutrients (Chla)	Not Impaired	2			Delist. PP - 0 chla annual means exceeded 20 ug/l, 833 chla values, range of chla values 0 - 33 ug/L, mean chla over entire period 1.53 ug/L. VP - 0 chla annual means exceeded 20 ug/l, 103 chla values, range of chla values 0.01 - 18.8 ug/L, mean chla over entire period 2.04 ug/L. The annual chla concentrations were: 1991-1.4 ug/l, 1992-1.2 ug/l, 1993-1.6 ug/l, 1994-1.1 ug/l, 1995-1.7 ug/l, 1996-2.6 ug/l, 2001-1.0 ug/l, and 2002-1.6 ug/l. 190 TN values, median 0.97 mg/l. 196 TP values, median 0.09 mg/l.
2991A	Econlockhatchee River	Stream	3F		Silver	Planning List	3c			PP - 3/3 values exceed criterion. VP - No data.
2991A	Econlockhatchee River	Stream	3F	Coliform Bacteria	Total Coliform Bacteria	Not Impaired	2			Delist. PP - 1/93 values exceed criterion, range 8.0 - 2600 colonies/100ml. VP - 0/16 values exceed criterion, range 8 - 570 colonies/100ml.
2991A	Econlockhatchee River	Stream	3F		Turbidity	Not Impaired	2			
2991A	Econlockhatchee River	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2991A	Econlockhatchee River	Stream	3F		Zinc	Not Impaired	2			
2991B	Buck Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2991C	Island Pond	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2991D	Horseshoe Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			

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3001	Little Econlockhatchee River	Stream	3F		Biology	Not Impaired	2			Though biology was planning listed due to a failed bioassessment in 1992, there are several passing bioassessment scores in the verified period (1996, 1999, 2000, and 2002) from which to conclude this segment is not impaired for biology.
3001	Little Econlockhatchee River	Stream	3F	BOD	BOD	Not Impaired	2			Delist. While BOD median is at screening level (537 BOD values, median 2.0 mg/l, range 0.1 - 20.4 mg/l), the DO is not impaired. BOD data has shown an improving trend in verified period. 80% of the BOD values present in the verified period are less than or equal to the MDL.
3001	Little Econlockhatchee River	Stream	3F		Chromium3	Not Impaired	2			
3001	Little Econlockhatchee River	Stream	3F	Dissolved Oxygen	Dissolved Oxygen	Not Impaired	2			Delist. Dissolved oxygen is naturally low, and bioassessment data indicate that aquatic life use support is being maintained (Passing bioassessments in 1996, 1999, 2000 and 2002). Nutrients (TN and TP) and BOD are all within acceptable ranges. 348 TN values, median 0.92 mg/l. 367 TP values, median 0.09 mg/l. 537 BOD values, median 2.0 mg/l. PP - 137/413 values below DO criterion. VP - 70/297 values below DO criterion. 656 DO values, median 5.8 mg/L, mean 5.83 mg/L, range 0.17 - 61.3 mg/L. The dominant land use is defined as urban (50%).

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3001	Little Econlockhatchee River	Stream	3F	Coliform Bacteria	Fecal Coliform Bacteria	Verified List	5	Low	2008	PP - 72/381 values exceed criterion. VP - 41/248 values exceed criterion. Coliform median 108 colonies/100ml, range 2 - 6,801 colonies/100ml. No more than 6 values per month.
3001	Little Econlockhatchee River	Stream	3F		Nickel	Not Impaired	2			
3001	Little Econlockhatchee River	Stream	3F	Nutrients	Nutrients (Chla)	Not Impaired	2			Delist. PP - 0 chla annual means exceeded 20 ug/l, 514 chla values, range of chla values 0 - 107 ug/L, mean chla over entire period 4.99 ug/L. VP - 0 chla annual means exceeded 20 ug/l, 271 chla values, range of chla values 0.38 - 107 ug/L, mean chla over entire period 3.92 ug/L. The annual mean chla concentrations were: 1991-7.9 ug/l, 1992-5.2 ug/l, 1993-2.5 ug/l, 1994-3.1 ug/l, 1995-4.0 ug/l, 1996-8.7 ug/l, 1997-3.0 ug/l, 1998-2.7 ug/l, 1999-2.6 ug/l, 2000-3.1 ug/l, 2001-1.5 ug/l, and 2002-1.1 ug/l. 348 TN values, median 0.92 mg/l. 367 TP values, median 0.09 mg/l.
3001	Little Econlockhatchee River	Stream	3F	Coliform Bacteria	Total Coliform Bacteria	Not Impaired	2			Delist. PP - 46/334 values exceed criterion. VP - 26/206 values exceed criterion, coliform median 510 colonies/100mL, range 0 - 12,000 colonies/100mL. No more than 6 values per month.
3001	Little Econlockhatchee River	Stream	3F		Turbidity	Not Impaired	2			

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3001	Little Econlockhatchee River	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
3001	Little Econlockhatchee River	Stream	3F		Zinc	Not Impaired	2			
3001A	Long Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3003	Lake Pickett	Lake	3F		Cadmium	Not Impaired	2			
3003	Lake Pickett	Lake	3F		Chromium3	Not Impaired	2			
3003	Lake Pickett	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3003	Lake Pickett	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3003	Lake Pickett	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3003	Lake Pickett	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3003	Lake Pickett	Lake	3F		Turbidity	Not Impaired	2			
3003	Lake Pickett	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3003	Lake Pickett	Lake	3F		Zinc	Not Impaired	2			
3003A	Lake Mills	Lake	3F		Biology	Planning List	3c			Biology does not meet verification threshold of IWR due to insufficient data in verified period.
3003A	Lake Mills	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3003B	Lake Pickett Outlet	Lake	3F		Biology	Not Impaired	2			
3012	Lake Price Outlet	Stream	3F			No Data	3a			
3012A	Lake Price	Lake	3F		Dissolved Oxygen	Not Impaired	2			

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3012A	Lake Price	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3012A	Lake Price	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3012A	Lake Price	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3012A	Lake Price	Lake	3F		Turbidity	Not Impaired	2			
3012A	Lake Price	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3014	Crane Strand Drain	Stream	3F		Biology	Verified List	5	Medium	2008	Failed bioassesment due to low DO levels. Causative pollutant believed to be BOD, mean of 14 values = 2.1 mg/L.
3014	Crane Strand Drain	Stream	3F	Dissolved Oxygen and BOD	Dissolved Oxygen and BOD	Verified List	5	High	2004	PP - 1/4 values below DO criterion. VP - 11/30 values below DO criterion. DO met verification threshold of IWR and BOD is causative pollutant. (BOD median = 2.25 mg/L). 30 DO values, median 5.95 mg/L, mean 6.11 mg/L, range 2.87 - 10.95 mg/L.
3014	Crane Strand Drain	Stream	3F		Fecal Coliform Bacteria	Verified List	5	High	2004	PP - 0/3 values exceeded criterion. VP - 7/28 values exceed criterion. Coliform median 182.5 colonies/100ml, range 1.0 - 5,800 colonies/100ml. No more than 4 values per month.

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3014	Crane Strand Drain	Stream	3F	Nutrients	Nutrients (Chla)	Not Impaired	2			Delist. PP - Insufficient data available to calculate annual mean. VP - 0 chla annual means exceeded 20 ug/l, 18 chla values, range of chla values 1.4 - 35 ug/L, mean chla over entire period 8.32 ug/L. The annual mean chla concentration for 2002 was 7.9 ug/l. 30 TN values, median 0.71 mg/l. 28 TP values, median 0.12 mg/l.
3014	Crane Strand Drain	Stream	3F		Total Coliform Bacteria	Verified List	5	High	2004	PP - 0/1 values exceed criterion. VP - 5/20 values exceed criterion. Coliform median 1,500 colonies/100ml, range 1 - 21,000 colonies/100ml. No more than 4 values per month.
3014	Crane Strand Drain	Stream	3F		Turbidity	Not Impaired	2			
3017	Lake Irma	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3017	Lake Irma	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3017	Lake Irma	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3017	Lake Irma	Lake	3F		Turbidity	Not Impaired	2			
3017A	Lake Irma Outlet	Lake	3F			No Data	3a			
3018	Lake Louise	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3018	Lake Louise	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3018	Lake Louise	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3018	Lake Louise	Lake	3F		Turbidity	Not Impaired	2			

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3018	Lake Louise	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3018A	Lake Louise Outlet	Lake	3F			No Data	3a			
3019	Lake Tanner	Lake	3F		Dissolved Oxygen	Planning List	3c			PP - 5/20 values below DO criterion. VP - 9/12 values below DO criterion.
3019	Lake Tanner	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3019	Lake Tanner	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3019	Lake Tanner	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3019	Lake Tanner	Lake	3F		Turbidity	Not Impaired	2			
3019	Lake Tanner	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3019A	Lake Tanner Outlet	Lake	3F			No Data	3a			
3020	Unnamed Drain	Stream	3F			No Data	3a			
3021	Unnamed Branch	Stream	3F		Dissolved Oxygen	Planning List	3c			PP - 23/70 values below DO criterion. VP - 8/11 values below DO criterion.
3021	Unnamed Branch	Stream	3F		Fecal Coliform Bacteria	Not Impaired	2			
3021	Unnamed Branch	Stream	3F		Nutrients (Chla)	Not Impaired	2			
3021	Unnamed Branch	Stream	3F		Total Coliform Bacteria	Not Impaired	2			
3021	Unnamed Branch	Stream	3F		Turbidity	Not Impaired	2			
3021	Unnamed Branch	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
3022	Bithlo Branch	Stream	3F		Biology	Not Impaired	2			
3023	Crane Strand	Stream	3F		Cadmium	Not Impaired	2			

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3023	Crane Strand	Stream	3F		Chromium3	Not Impaired	2			
3023	Crane Strand	Stream	3F		Dissolved Oxygen	Not Impaired	2			
3023	Crane Strand	Stream	3F		Fecal Coliform Bacteria	Verified List	5	High	2004	PP - 14/40 values exceed criterion. VP - 10/20 values exceed criterion. Coliform median 300 colonies/100ml, range 10 - 6,000 colonies100ml. No more than 2 values per month.
3023	Crane Strand	Stream	3F		Nutrients (Chla)	Not Impaired	2			
3023	Crane Strand	Stream	3F		Total Coliform Bacteria	Verified List	5	High	2004	PP - 14/38 values exceed criterion. VP - 10/20 values exceed criterion. Coliform median 810 colonies/100ml, range 40 - 16,300 colonies/100ml. No more than 2 values per month.
3023	Crane Strand	Stream	3F		Turbidity	Not Impaired	2			
3023	Crane Strand	Stream	3F		Zinc	Not Impaired	2			
3023A	Lake Baldwin Outfall	Stream	3F		Dissolved Oxygen	Not Impaired	2			
3023A	Lake Baldwin Outfall	Stream	3F		Fecal Coliform Bacteria	Verified List	5	Medium	2008	PP - 19/36 values exceed criterion. VP - 12/21 values exceed criterion. Coliform median 510, range 30 - 4,100. No more than 2 values per month.

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3023A	Lake Baldwin Outfall	Stream	3F		Nutrients (Chla)	Verified List	5	Medium	2008	Co-limitation of nitrogen and phosphorus based on a TN/TP median of 21 (63 values) during the planning and a median of 30 (37 values) during the VP. PP - 1 chla annual mean exceeded 20 ug/l (1998). VP - 1 chla annual mean exceeded 20 ug/l (1998). 38 TN values, median 1.12 mg/l. 38 TP values, median 0.04 mg/l.
3023A	Lake Baldwin Outfall	Stream	3F		Total Coliform Bacteria	Verified List	5	Medium	2008	PP - 14/35 values exceed criterion. VP - 9/21 values exceed criterion. Coliform median 1,480, range 80 - 8,000. No more than 2 values per month.
3023A	Lake Baldwin Outfall	Stream	3F		Turbidity	Not Impaired	2			
3023B	Lake Barton	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3023B	Lake Barton	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3023B	Lake Barton	Lake	3F		Nutrients (TSI)	Planning List	3c			Co-limitation of nitrogen and phosphorus based on a TN/TP median of 26 (103 values) during the PP and a median of 31 (54 values) during the VP. PP - 5 TSI annual means exceeded 40 (1991-1993, 1996, 1997). VP - 2 TSI annual mean exceeded 40 (1996, 1997). 41 TN values, median 0.57 mg/L, mean 0.55 mg/L. 77 TP values, median 0.03 mg/L, mean 0.07 mg/L. Need to continue to investigate a more appropriate TSI threshold for the lakes in the Orlando Ridge area.

WBID	Waterbody Segment Name	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	Parameters Identified Using the IWR	Proposed Status	Integrated Report Category[1]	Priority for TMDL Develop-ment[2]	Projected Year for TMDL Develop-ment[2]	Comments[3] (# Exceedances/ # Samples) PP= Planning Period VP= Verified Period
3023B	Lake Barton	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3023B	Lake Barton	Lake	3F		Turbidity	Not Impaired	2			
3023B	Lake Barton	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3023C	Lake Susannah	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3023C	Lake Susannah	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3023C	Lake Susannah	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3023C	Lake Susannah	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3023D	Lake Gear	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3023D	Lake Gear	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3023D	Lake Gear	Lake	3F		Nutrients (TSI)	Not Impaired	2			According to Rule 62-303.720, F.A.C., this segment of the river can be delisted because there were three consecutive TSI annual means below 60 in 1998-2000. Co-limitation by nitrogen and phosphorus based on a TN/TP median of 19 (204 values) during the PP and a median of 20 (208 values) during the VP. PP - 1 TSI annual mean exceed threshold. VP - 1 TSI annual mean exceed threshold. 195 TN values, median 0.74 mg/L. 194 TP values, median 0.04 mg/L.
3023D	Lake Gear	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3023E	Lake Corrine	Lake	3F		Dissolved Oxygen	Not Impaired	2			

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3023E	Lake Corrine	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3023E	Lake Corrine	Lake	3F		Nutrients (TSI)	Planning List	3c			Co-limitation by nitrogen and phosphorus. PP - 0 TSI annual mean exceed threshold of 60. VP - 0 TSI annual mean exceed threshold of 60. 29 TN values, median 0.65 mg/L, range 0.24 - 2.415 mg/L. 40 TP values, median 0.10 mg/L. Need to continue to investigate a more appropriate TSI threshold for the lakes in the Orlando Ridge area.
3023E	Lake Corrine	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3023E	Lake Corrine	Lake	3F		Turbidity	Not Impaired	2			
3023E	Lake Corrine	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3023E	Lake Corrine	Lake	3F		Zinc	Not Impaired	2			
3024	Lake Downey	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3024	Lake Downey	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3024	Lake Downey	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3024	Lake Downey	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3024	Lake Downey	Lake	3F		Turbidity	Not Impaired	2			
3024	Lake Downey	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3024A	Trib. To Little Econ. River	Stream	3F		Biology	Not Impaired	2			

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3024A	Trib. To Little Econ. River	Stream	3F		Dissolved Oxygen	Verified List	5	Medium	2008	PP - 12/30 values below DO criterion. VP - 7/20 values below DO criterion. DO met verification threshold of IWR, and nitrogen is the causative pollutant. TN median = 2.73 mg/l. 58 DO values, mean 5.63 mg/l, median 5.58 mg/l, range 3 - 12.9 mg/l.
3024A	Trib. To Little Econ. River	Stream	3F		Fecal Coliform Bacteria	Verified List	5	Medium	2008	PP - 18/32 values exceed criterion. VP - 11/20 values exceed criterion. Coliform median 440 colonies/100ml, range 8 - 3,100 colonies/100ml.
3024A	Trib. To Little Econ. River	Stream	3F		Nutrients (Chla)	Not Impaired	2			
3024A	Trib. To Little Econ. River	Stream	3F		Total Coliform Bacteria	Verified List	5	Medium	2008	PP - 14/34 values exceed criterion. VP - 10/20 values exceed criterion.
3024A	Trib. To Little Econ. River	Stream	3F		Turbidity	Not Impaired	2			
3024B	Lake Downey Outlet	Lake	3F			No Data	3a			
3025	Azalea Park Canal	Stream	3F			No Data	3a			
3026	Unnamed Drain	Stream	3F			No Data	3a			
3027	Unnamed Drain	Stream	3F			No Data	3a			
3030	Long Branch	Stream	3F		Biology	Not Impaired	2			
3030	Long Branch	Stream	3F	Dissolved Oxygen and BOD	Dissolved Oxygen and BOD	Verified List	5	High	2004	PP - 3/5 values below DO criterion. VP - 26/28 values below DO criterion. DO met verification threshold of IWR and BOD is causative pollutant. (BOD median = 2.6 mg/L). 31 DO values, median 3.6 mg/L, mean 3.43 mg/L, range 0.52 - 6.1 mg/L.

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3030	Long Branch	Stream	3F	Coliform Bacteria	Fecal Coliform Bacteria	Verified List	5	High	2004	PP - 1/1 values exceed criterion. VP - 13/26 values exceed criterion. Coliform median 440 colonies/100ml, range 8 - 3,100 colonies/100ml. No more than 6 values per month.
3030	Long Branch	Stream	3F	Iron	Iron	Verified List	5	High	2004	PP - 0/0 values exceed criterion. VP - 12/26 values exceed criterion.
3030	Long Branch	Stream	3F	Nutrients	Nutrients (Chla)	Not Impaired	2			Delist. PP - Insufficient data available to calculate annual mean, 12 chla values, range of chla values 0 - 1.99 ug/L, mean chla over entire period 1.14 ug/L. VP - 0 chla annual means exceeded 20 ug/l, 16 chla values, range of chla values 1.4 - 35.8 ug/L, mean chla over entire period 9.42 ug/L. The annual mean chla concentration in 2001 was 6.0 ug/l and in 2002 was 13.9 ug/l. 27 TN values, median 0.82 mg/l. 30 TP values, median 0.20 mg/l.
3030	Long Branch	Stream	3F	Coliform Bacteria	Total Coliform Bacteria	Verified List	5	High	2004	PP - 0/0 values exceed criterion VP - 11/26 values exceed criterion. Coliform median 2,250 colonies/100ml, range 434 - 27,000 colonies/100ml. No more than 5 values per month.
3030	Long Branch	Stream	3F	Turbidity	Turbidity	Not Impaired	2			Delist. PP - 1/5 values exceed criterion, range 5.4 - 42 NTU, mean 15.82 NTU. VP - 1/28 values exceed criterion, range 2.2 - 71 NTU, mean 12.05 NTU.
3031	Unnamed Drain	Stream	3F			No Data	3a			
3033	Unnamed Drain	Stream	3F			No Data	3a			

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3033C	Lake Corner	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3033C	Lake Corner	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3033C	Lake Corner	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3033C	Lake Corner	Lake	3F		Turbidity	Not Impaired	2			
3033C	Lake Corner	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3033D	Lake Drawdy	Lake	3F		Dissolved Oxygen	Planning List	3c			PP - 5/18 values below DO criterion. VP - 1/12 values below DO criterion.
3033D	Lake Drawdy	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3033D	Lake Drawdy	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3033D	Lake Drawdy	Lake	3F		Turbidity	Not Impaired	2			
3033D	Lake Drawdy	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3034	Unnamed Drain	Stream	3F			No Data	3a			
3036	Lake Frederica	Lake	3F		Cadmium	Not Impaired	2			
3036	Lake Frederica	Lake	3F		Chromium3	Not Impaired	2			
3036	Lake Frederica	Lake	3F		Copper	Not Impaired	2			
3036	Lake Frederica	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3036	Lake Frederica	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3036	Lake Frederica	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3036	Lake Frederica	Lake	3F		Total Coliform Bacteria	Not Impaired	2			

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3036	Lake Frederica	Lake	3F		Turbidity	Not Impaired	2			
3036	Lake Frederica	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3036	Lake Frederica	Lake	3F		Zinc	Not Impaired	2			
3036A	Lake George	Lake	3F			No Data	3a			
3036A1	Lake Barber	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3036A1	Lake Barber	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3036A1	Lake Barber	Lake	3F		Nutrients (TSI)	Planning List	3c			Phosphorus limited based on a TN/TP median of 41 (97 values) during the PP and a median of 37 (42 values) during the VP. PP - 0 TSI means exceeded 60. VP - 0 TSI means exceeded 60. 33 TN values, median 0.57 mg/L . 85 TP values, median 0.02 mg/L. Need to continue to investigate a more appropriate TSI threshold for the lakes in the Orlando Ridge area.
3036A1	Lake Barber	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3036A1	Lake Barber	Lake	3F		Turbidity	Not Impaired	2			
3036A1	Lake Barber	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3036B	Lake Frederica Drain	Lake	3F			No Data	3a			
3037	Unnamed Drain	Stream	3F		Dissolved Oxygen	Planning List	3c			PP - 12/31 values below DO criterion. VP - 8/8 values below DO criterion.
3037	Unnamed Drain	Stream	3F		Turbidity	Not Impaired	2			

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3037	Unnamed Drain	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
3038	Unnamed Ditches	Stream	3F			No Data	3a			
3039	Unnamed Drain	Stream	3F			No Data	3a			
3041	Unnamed Ditches	Stream	3F		Biology	Not Impaired	2			
3043	Cowpen Branch	Stream	3F			No Data	3a			
3045	Ditches	Stream	3F		Biology	Not Impaired	2			
3046	Unnamed Drain	Stream	3F			No Data	3a			
3047	Green Branch	Stream	3F			No Data	3a			
3050	Ditches	Stream	3F		Biology	Not Impaired	2			
3052	Ditches	Stream	3F			No Data	3a			
3053	Turkey Creek	Stream	3F			Insufficient Data	3b			
3054	Little Creek	Stream	3F			No Data	3a			
3055	Unnamed Ditch	Stream	3F			No Data	3a			
3058	Four Mile Creek	Stream	3F			No Data	3a			
	Lake George									
2213O	St. Johns River Above Ocklawaha River	Stream	3F		Dissolved Oxygen	Not Impaired	2			
2213O	St. Johns River Above Ocklawaha River	Stream	3F		Fecal Coliform Bacteria	Not Impaired	2			
2213O	St. Johns River Above Ocklawaha River	Stream	3F		Fluoride	Not Impaired	2			

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2213O	St. Johns River Above Ocklawaha River	Stream	3F		Mercury (in fish tissue)	Not Impaired	2			Mercury (in fish tissue) is not impaired under IWR assessment, but need to confirm how data were assessed.
2213O	St. Johns River Above Ocklawaha River	Stream	3F		Nutrients (Chla)	Verified List	5	Medium	2008	Co-limitation of nitrogen and phosphorus based on a TN/TP median of 25 (77 values) during the PP and a median of 25 (93 values) during the VP. PP - 3 chla annual means exceeded 20 ug/l (1998-2000). VP - 5 chla annual means exceeded 20 ug/l (1998-2002). 93 TN values, median 1.55 mg/l. 93 TP values, median 0.06 mg/l.
2213O	St. Johns River Above Ocklawaha River	Stream	3F		Total Coliform Bacteria	Not Impaired	2			
2213O	St. Johns River Above Ocklawaha River	Stream	3F		Turbidity	Not Impaired	2			
2892	Lake Margaret	Lake	3F		Mercury (in fish tissue)	Verified List	5	Medium	2011	Mercury (in fish tissue) met verification threshold of IWR. Fish tissue levels in 20 samples averaged 0.7830 ppm in 2002.
2892A	Lake Como	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2892B	Banana Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2892C	Lake Estella	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2892Z	Lake Margaret Drain	Lake	3F			No Data	3a			
28934	Silver Glen Spring	Stream	3F		Nutrients (Chla)	Not Impaired	2			
2893A	Lake George	Lake	3F		Arsenic	Not Impaired	2			

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2893A	Lake George	Lake	3F		Cadmium	Not Impaired	2			
2893A	Lake George	Lake	3F		Chromium3	Not Impaired	2			
2893A	Lake George	Lake	3F		Copper	Not Impaired	2			
2893A	Lake George	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2893A	Lake George	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2893A	Lake George	Lake	3F		Iron	Not Impaired	2			
2893A	Lake George	Lake	3F		Lead	Not Impaired	2			
2893A	Lake George	Lake	3F		Mercury (in fish tissue)	Not Impaired	2			Mercury (in fish tissue) is not impaired under IWR assessment, but need to confirm how data were assessed.
2893A	Lake George	Lake	3F		Nickel	Not Impaired	2			
2893A	Lake George	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Co-limitation of nitrogen and phosphorus based on a TN/TP median of 20 (579 values) during the PP and a median of 21 (551 values) during the VP. PP - 9 TSI annual means exceeded 60 (1991-1992, 1994-2000). VP - 7 TSI annual means exceeded 60 (1996-2002). 223 TN values, median 1.17 mg/L. 771 TP values, median 0.07 mg/L.
2893A	Lake George	Lake	3F		Selenium	Not Impaired	2			PP - 17/40 values exceed criterion. VP - 9/74 values exceed criterion.
2893A	Lake George	Lake	3F		Total Coliform Bacteria	Not Impaired	2			

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2893A	Lake George	Lake	3F		Turbidity	Not Impaired	2			
2893A	Lake George	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
2893A	Lake George	Lake	3F		Zinc	Not Impaired	2			
2893A1	St. Johns River Below Lake George	Stream	3F		Copper	Not Impaired	2			
2893A1	St. Johns River Below Lake George	Stream	3F		Dissolved Oxygen	Not Impaired	2			
2893A1	St. Johns River Below Lake George	Stream	3F		Fecal Coliform Bacteria	Not Impaired	2			
2893A1	St. Johns River Below Lake George	Stream	3F		Iron	Not Impaired	2			
2893A1	St. Johns River Below Lake George	Stream	3F		Lead	Not Impaired	2			
2893A1	St. Johns River Below Lake George	Stream	3F		Nutrients (Chla)	Verified List	5	Medium	2008	Co-limitation of nitrogen and phosphorus based on a TN/TP median 24 (235 values) during the PP and a median of 24 (140 values) during the VP. PP - 7 chla annual means exceeded 20ug/l (1994-2000). VP - 7 chla annual means exceeded 20ug/l (1996-2002). 140 TN values, median 1.47 mg/L. 140 TP values, 0.06 mg/L.
2893A1	St. Johns River Below Lake George	Stream	3F		Total Coliform Bacteria	Not Impaired	2			
2893A1	St. Johns River Below Lake George	Stream	3F		Turbidity	Not Impaired	2			

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2893A1	St. Johns River Below Lake George	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2893A1	St. Johns River Below Lake George	Stream	3F		Zinc	Not Impaired	2			
2893A2	St. Johns River Above Lake George	Stream	3F		Dissolved Oxygen	Verified List	5	Medium	2008	PP - 37/112 values below DO criterion. VP - 21/73 values below DO criterion. DO met verification threshold of IWR and elevated algal biomass is causative pollutant. 200 DO values, median 5.68 mg/L, mean 5.69 mg/L, range 0.28 - 9.23 mg/L.
2893A2	St. Johns River Above Lake George	Stream	3F		Fecal Coliform Bacteria	Not Impaired	2			
2893A2	St. Johns River Above Lake George	Stream	3F		Nutrients (Chla)	Verified List	5	Medium	2008	Co-limitation of nitrogen and phosphorus based on a TN/TP median of 17 (120 values) in the PP and a median of 16 (80 values) in the VP. PP - 3 chla annual means exceeded 20 ug/l (1992, 1993, 1999), 123 TN values, median 1.19 mg/L, 124 TP values, median 0.07 mg/L. VP - 1 chla annual mean exceeded 20 ug/l (1999), 83 TN values, median 1.132 mg/L, 80 TP values, median 0.07 mg/L.
2893A2	St. Johns River Above Lake George	Stream	3F		Total Coliform Bacteria	Not Impaired	2			
2893A2	St. Johns River Above Lake George	Stream	3F		Turbidity	Not Impaired	2			
2893A3	Lake George Leftover	Lake	3F			Insufficient Data	3b			

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2893W	Lake Pierson	Lake	3F			No Data	3a			
2895	Beecher Run	Stream	3F			No Data	3a			
2895A	Beecher Springs	Stream	3F			No Data	3a			
2896	Clear Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2896A	Clear Lake Outlet	Lake	3F			No Data	3a			
2897	Bell Lake	Lake	3F			No Data	3a			
2897A	Bell Lake Outlet	Lake	3F			No Data	3a			
2898	Lake Laura Outlet	Stream	3F			No Data	3a			
2898A	Lake Laura	Lake	3F			No Data	3a			
2901	Patty Wiggins Branch	Stream	3F			No Data	3a			
2902	Lower Louise Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2902A	Lower Louise Lake Drain	Lake	3F			No Data	3a			
2903	Unnamed Drain	Stream	3F			No Data	3a			
2904	Price Creek	Stream	3F			No Data	3a			
2914	Blue Creek	Stream	3F			No Data	3a			
2916	Jumping Gulley Creek	Stream	3F			No Data	3a			
2916A	Crooked Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2916B	Grasshopper Lake	Lake	3F		Mercury (in fish tissue)	Verified List	5	Medium	2011	Mercury (in fish tissue) met verification threshold of IWR. Fish tissue levels in 20 samples averaged 1.55 ppm in 2000.
2916B	Grasshopper Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
	Lake Jesup									
2981	Lake Jesup	Lake	3F		Arsenic	Not Impaired	2			
2981	Lake Jesup	Lake	3F		Cadmium	Not Impaired	2			
2981	Lake Jesup	Lake	3F		Chromium3	Not Impaired	2			

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2981	Lake Jesup	Lake	3F		Copper	Not Impaired	2			
2981	Lake Jesup	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2981	Lake Jesup	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2981	Lake Jesup	Lake	3F		Iron	Not Impaired	2			
2981	Lake Jesup	Lake	3F		Lead	Not Impaired	2			
2981	Lake Jesup	Lake	3F		Nickel	Not Impaired	2			
2981	Lake Jesup	Lake	3F	Nutrients	Nutrients (TSI)	Verified List	5	High	2004	Co-limitation of nitrogen and phosphorus based on a TN/TP median of 16 (1077 values) in the PP and a median of 18 (829 values) in the VP. PP - 10 TSI annual means exceeded 60 (1991-2000). VP - 7 TSI annual means exceeded 60 (1996-2002). 198 TN values, median 2.47 mg/L. 1279 TP values, median 0.15 mg/L.
2981	Lake Jesup	Lake	3F		Silver	Planning List	3c			PP - 5/10 values exceed criterion. VP - No data.
2981	Lake Jesup	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
2981	Lake Jesup	Lake	3F		Turbidity	Not Impaired	2			
2981	Lake Jesup	Lake	3F	Un-Ionized Ammonia	Un-Ionized Ammonia	Verified List	5	High	2004	PP - 47/283 values exceed criterion. VP - 27/154 values exceed criterion.
2981	Lake Jesup	Lake	3F		Zinc	Not Impaired	2			
2981B	Lake Jesup Drain	Lake	3F			No Data	3a			
2981B1	Lake Jesup Drain	Lake	3F			No Data	3a			
2981C	Lake Jesup Drain	Lake	3F			No Data	3a			
2981D	Lake Jesup Drain	Lake	3F			No Data	3a			

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2981E	Lake Jesup Drain	Lake	3F			Insufficient Data	3b			
2982	Phelps Creek	Stream	3F		Biology	Not Impaired	2			
2982	Phelps Creek	Stream	3F		Dissolved Oxygen	Not Impaired	2			
2982	Phelps Creek	Stream	3F		Iron	Not Impaired	2			
2982	Phelps Creek	Stream	3F		Nutrients (Chla)	Not Impaired	2			
2982	Phelps Creek	Stream	3F		Turbidity	Not Impaired	2			
2982	Phelps Creek	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2982A	Silver Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2982B	Golden Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2984	Six Mile Creek (formerly Lake Nan)	Stream	3F		Biology	Not Impaired	2			
2984	Six Mile Creek (formerly Lake Nan)	Stream	3F		Dissolved Oxygen	Not Impaired	2			
2984	Six Mile Creek (formerly Lake Nan)	Stream	3F		Fecal Coliform Bacteria	Not Impaired	2			
2984	Six Mile Creek (formerly Lake Nan)	Stream	3F		Nutrients (Chla)	Not Impaired	2			
2984	Six Mile Creek (formerly Lake Nan)	Stream	3F		Total Coliform Bacteria	Not Impaired	2			
2984	Six Mile Creek (formerly Lake Nan)	Stream	3F		Turbidity	Not Impaired	2			

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2984	Six Mile Creek (formerly Lake Nan)	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2984A	Lake Jennie	Lake	3F			Insufficient Data	3b			
2985	Chub Creek	Stream	3F		Dissolved Oxygen	Verified List	5	Medium	2008	PP - 58/67 values below DO criterion. VP - 40/47 values below DO criterion. DO met verification threshold of IWR and nitrogen and phosphorus are causative pollutants (TN median = 2.3 mg/L, TP median = 0.37 mg/L). 68 DO values, median 1.99 mg/L, mean 2.61 mg/L, range 8.55 - 0.29 mg/L.
2985	Chub Creek	Stream	3F		Iron	Verified List	5	Medium	2008	PP - 15/44 values exceed criterion. VP - 15/44 values exceed criterion.
2985	Chub Creek	Stream	3F		Nutrients (Chla)	Verified List	5	Medium	2008	Co-limitation of nitrogen and phosphorus based on a TN/TP median of 10 (67 values) during the PP and a median of 10 (47 values). PP - 3 chla annual means exceeded 20 ug/l (1995-1997). VP - 2 chla annual means exceeded 20 ug/l (1996-1997). 47 TN values, median 2.3 mg/L. 68 TP values, median 0.37 mg/L.
2985	Chub Creek	Stream	3F		Turbidity	Not Impaired	2			
2985	Chub Creek	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2986	Soldier Creek Reach	Stream	3F		Biology	Not Impaired	2			
2986	Soldier Creek Reach	Stream	3F		Cadmium	Not Impaired	2			
2986	Soldier Creek Reach	Stream	3F		Copper	Not Impaired	2			

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2986	Soldier Creek Reach	Stream	3F	Dissolved Oxygen	Dissolved Oxygen	Not Impaired	2			Delist. Low dissolved oxygen is a natural condition, and based on bioassessment results, aquatic life use support is being maintained [Passing bioassessments in 1996, 2000, and 2002). Nutrients (TN and TP) and BOD are all within acceptable ranges. 270 TN values, median 0.97 mg/l. 270 TP values, median 0.14 mg/l. 21 BOD values, median 1.0 mg/l. PP - 36/192 values below DO criterion. VP - 37/177 values below DO criterion. 275 DO values, median 6.38 mg/L, mean 5.98 mg/L, range 0.12 - 10.82 mg/L. The dominant landuse is defined as urban (59% of total).
2986	Soldier Creek Reach	Stream	3F	Coliform Bacteria	Fecal Coliform Bacteria	Planning List	3c	(Low)	(2008)	PP - 5/15 values exceed criterion. VP - 8/13 values exceed criterion.
2986	Soldier Creek Reach	Stream	3F		Iron	Not Impaired	2			
2986	Soldier Creek Reach	Stream	3F	Lead	Lead	Planning List	3c	(Low)	(2008)	PP - 5/19 values exceed criterion. VP - 0/14 values exceed criterion.
2986	Soldier Creek Reach	Stream	3F		Nickel	Not Impaired	2			
2986	Soldier Creek Reach	Stream	3F	Nutrients	Nutrients (Chla)	Not Impaired	2			PP - 0 chla annual means exceeded 20 ug/l. VP - 0 chla annual means exceeded 20 ug/l. 262 chla values, mean 2.52 ug/l, median 0.7 ug/l, range 0.0 - 42.7. The annual mean chla concentrations were: 1992-2.05 ug/l, 1994-1.09 ug/l, 1995-3.88 ug/l, 1996-3.88 ug/l, 1997-2.32 ug/l, 1998-4.70 ug/l, 1999-2.44 ug/l, and 2000-3.61 ug/l. 270 TN values, median 0.97 mg/l. 270 TP values, median 0.14 mg/l.

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2986	Soldier Creek Reach	Stream	3F		Silver	Planning List	3c			PP - 3/3 values exceed criterion. VP - No data.
2986	Soldier Creek Reach	Stream	3F	Coliform Bacteria	Total Coliform Bacteria	Insufficient Data	3c	(Low)	(2008)	PP - 0/0 values exceed criterion. VP - 1/11 values exceed criterion.
2986	Soldier Creek Reach	Stream	3F		Turbidity	Not Impaired	2			
2986	Soldier Creek Reach	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2986	Soldier Creek Reach	Stream	3F		Zinc	Not Impaired	2			
2986A	Lake Bingham	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2986B	Lake Myrtle	Lake	3F		Copper	Not Impaired	2			
2986B	Lake Myrtle	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2986B	Lake Myrtle	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2986B	Lake Myrtle	Lake	3F		Iron	Not Impaired	2			
2986B	Lake Myrtle	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2986B	Lake Myrtle	Lake	3F		Turbidity	Not Impaired	2			
2986B	Lake Myrtle	Lake	3F		Zinc	Not Impaired	2			
2986C	Grace Lake	Lake	3F			No Data	3a			

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2986D	Lake Alma	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Co-limitation of nitrogen and phosphorus based on a TN/TP median of 14 (98 values) during the PP and a median of 14 (98 values) during the VP. PP - 4 TSI annual means exceeded 60 (1997-2000). VP - 4 TSI annual means exceeded 60 (1997-2000). 99 TN values, median 2.2 mg/L, mean 2.28 mg/L. 98 TP values, median 0.16 mg/L, mean 0.18 mg/L.
2986E	Lake Searcy	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Co-limitation of nitrogen and phosphorus based on a TN/TP median of 25 (105 values) in the PP and a median of 22 (174 values) in the VP. PP - 3 TSI annual means exceeded 60 (1998-2000). VP - 5 TSI annual means exceeded 60 (1998-2002). 174 TN values, median 1.17 mg/L, mean 1.23 mg/L. 174 TP values, median 0.05 mg/L, mean 0.06 mg/L.
2988	Wharf Creek	Stream	3F			No Data	3a			
2990	Salt Creek	Stream	3F		Biology	Planning List	3c			Biology met verification threshold of IWR but need to identify causative pollutant. 2 failed bioassessments in the verified period.
2990	Salt Creek	Stream	3F		Dissolved Oxygen	Verified List	5	Medium	2008	PP - 66/94 values below DO criterion. VP - 44/72 values below DO criterion. DO met verification threshold of IWR and nitrogen is causative pollutant (TN median = 1.71 mg/L). 97 DO values, median 3.1 mg/L, mean 3.74 mg/L, range 0.17 - 10 mg/L.
2990	Salt Creek	Stream	3F		Iron	Verified List	5	Medium	2008	PP - 15/67 values exceed criterion. VP - 15/67 values exceed criterion.

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2990	Salt Creek	Stream	3F		Nutrients (Chla)	Verified List	5	Medium	2008	Nitrogen limited based on a TN/TP median of 8 (97 values) in the PP and a median of 8 (75 values) in the VP. PP - 1 chla annual mean exceeded 20 ug/l (1998). VP - 1 chla annual mean exceeded 20 ug/l (1998). 75 TN values, median 1.71 mg/L. 97 TP values, median 0.21 mg/L.
2990	Salt Creek	Stream	3F		Turbidity	Not Impaired	2			
2990	Salt Creek	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2992	Sweetwater Creek	Stream	3F		Biology	Planning List	3c			Biology met verification threshold, but need to identify causative pollutant. 1 failed bioassessment (SCI) in 1997.
2992	Sweetwater Creek	Stream	3F		Dissolved Oxygen	Verified List	5	Medium	2008	PP - 88/100 values below DO criterion. VP - 74/93 values below DO criterion. DO met verification threshold of IWR and phosphorus is causative pollutant (TP median = 0.31 mg/L). 158 DO values, median 3.2 mg/L, mean 3.47 mg/L, range 0.15 - 9.71 mg/L. The dominant landuse in this area is wetlands (47%).
2992	Sweetwater Creek	Stream	3F		Iron	Not Impaired	2			
2992	Sweetwater Creek	Stream	3F		Nutrients (Chla)	Not Impaired	2			
2992	Sweetwater Creek	Stream	3F		Turbidity	Not Impaired	2			
2992	Sweetwater Creek	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2994A	Gee Creek	Stream	3F		Biology	Not Impaired	2			

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2994A	Gee Creek	Stream	3F		Cadmium	Not Impaired	2			
2994A	Gee Creek	Stream	3F		Copper	Not Impaired	2			
2994A	Gee Creek	Stream	3F		Dissolved Oxygen	Not Impaired	2			
2994A	Gee Creek	Stream	3F	Coliform Bacteria	Fecal Coliform Bacteria	Planning List	3c	(Low)	(2008)	PP - 7/12 values exceed criterion. VP - 8/14 values exceed criterion.
2994A	Gee Creek	Stream	3F		Iron	Not Impaired	2			
2994A	Gee Creek	Stream	3F	Lead	Lead	Planning List	3c	(Low)	(2008)	PP - 4/20 values exceed criterion. VP - 0/16 values exceed criterion.
2994A	Gee Creek	Stream	3F		Nickel	Not Impaired	2			
2994A	Gee Creek	Stream	3F	Nutrients	Nutrients (Chla)	Not Impaired	2			Delist. PP - 0 chla annual means exceeded 20 ug/l, 429 chla values, range of chla values 0 - 24.7 ug/L, mean chla over entire period 3.49 ug/L. VP - 0 chla annual means exceeded 20 ug/l, 279 chla values, range of chla values 0 - 24.7 ug/L, mean chla over entire period 3.76 ug/L. The annual mean chla concentrations were: 1992-3.1 ug/l, 1994-3.7 ug/l, 1995-3.1 ug/l, 1996-3.8 ug/l, 1997-3.4 ug/l, 1998-6.1 ug/l, and 1999-3.5 ug/l. 98 TN values, median 0.91 mg/l. 98 TP values, median 0.12 mg/l.
2994A	Gee Creek	Stream	3F	Coliform Bacteria	Total Coliform Bacteria	Insufficient Data	3c	(Low)	(2008)	PP - 0/1 values exceed criterion. VP - 2/12 values exceed criterion.
2994A	Gee Creek	Stream	3F		Turbidity	Not Impaired	2			
2994A	Gee Creek	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2994A	Gee Creek	Stream	3F		Zinc	Not Impaired	2			

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2994B	Lake Kathryn	Lake	3F			Insufficient Data	3b			
2994B1	Triplet Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2994C	Fairy Lake	Lake	3F			Insufficient Data	3b			
2994D	Island Lake	Lake	3F		Dissolved Oxygen	Planning List	3c			PP - 4/4 values below DO criterion. VP - 2/12 values below DO criterion.
2994D	Island Lake	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Phosphorus limited based on a TN/TP median of 36 (12 values) during the VP. PP - 0 TSI annual means exceeded 60. VP - 1 TSI annual mean exceeded 60 (2001). 12 TP values, median 0.05 mg/L, mean 0.28 mg/L.
2994D1	Island Lake Drain	Lake	3F			No Data	3a			
2994E	Red Bug Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2994F	Rock Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2994G	Wildmere Lake	Lake	3F			No Data	3a			
2994H	Lake Griffin	Lake	3F		Nutrients (TSI)	Planning List	3c			TSI met planning list but does not meet the verification threshold of the IWR. PP - 1 TSI annual mean exceed threshold. VP - 0 TSI annual means exceed threshold.
2994I	Secret Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2994J	Pearl Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2994K	Lake Concord	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2994L	Lake Jane	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2994V	Lake Kathryn Outlet	Lake	3F			No Data	3a			

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2994W	Fairy Lake Outlet	Lake	3F			No Data	3a			
2994X	Little Lake Howell	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2994Y	Fruitwood Lake	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Co-limitation of nitrogen and phosphorus based on a TN/TP median of 17 (224 values) during the PP and a median of 17 (84 values) during the VP. PP - 4 TSI annual means exceeded 60 (1993-1996). VP - 1 TSI annual mean exceeded 60 (1996). 224 TN values, median 0.84 mg/L, mean 1.03 mg/L. 224 TP values, median 0.05 mg/L, mean 0.07 mg/L.
2994Y1	Lake Tony	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2994Z	Prairie Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2995	Lake Charm	Lake	3F		Biology	Not Impaired	2			
2995A	Lake Charm Shortcut C	Lake	3F			Insufficient Data	3b			
2996	Sweetwater Creek	Stream	3F		Biology	Not Impaired	2			
2996	Sweetwater Creek	Stream	3F		Dissolved Oxygen	Not Impaired	2			
2996	Sweetwater Creek	Stream	3F		Iron	Not Impaired	2			
2996	Sweetwater Creek	Stream	3F		Nutrients (Chla)	Not Impaired	2			
2996	Sweetwater Creek	Stream	3F		Turbidity	Not Impaired	2			
2996	Sweetwater Creek	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2997	Howell Creek Below Lake Howell	Stream	3F		Biology	Not Impaired	2			

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2997	Howell Creek Below Lake Howell	Stream	3F		Copper	Not Impaired	2			
2997	Howell Creek Below Lake Howell	Stream	3F		Dissolved Oxygen	Not Impaired	2			
2997	Howell Creek Below Lake Howell	Stream	3F		Iron	Not Impaired	2			
2997	Howell Creek Below Lake Howell	Stream	3F		Nutrients (Chla)	Not Impaired	2			PP - 0 Chla annual means exceed 20 ug/l. VP - 0 Chla annual means exceed 20 ug/l. Nitrogen limited based on a TN/TP median of 8 (239 values) in the PP and a median of 8 (204 values) in the VP. 205 TN values, median 0.961 mg/L. 205 TP values, median 0.124 mg/L.
2997	Howell Creek Below Lake Howell	Stream	3F		Turbidity	Not Impaired	2			
2997	Howell Creek Below Lake Howell	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2997	Howell Creek Below Lake Howell	Stream	3F		Zinc	Not Impaired	2			
29970	Lake X	Lake	3F			No Data	3a			
29971	Leftover Ivanhoe	Lake	3F			No Data	3a			
29974	Leftover Maitland	Lake	3F			No Data	3a			
29975	Lake Sybella	Lake	3F		Dissolved Oxygen	Not Impaired	2			
29975	Lake Sybella	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			

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29975	Lake Sybella	Lake	3F		Nutrients (TSI)	Planning List	3c			Co-limitation of nitrogen and phosphorus based on a TN/TP median of 25 (77 values) during the PP and a median of 23 (112 values) in the VP. PP - 0 TSI annual mean exceeded 60. VP - 0 TSI annual mean exceeded 60. 102 TN values, median 0.64 mg/L. 118 TP values, median 0.03 mg/L. Need to continue to investigate a more appropriate TSI threshold for the lakes in the Orlando Ridge area.
29975	Lake Sybella	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
29975	Lake Sybella	Lake	3F		Turbidity	Not Impaired	2			
29976	Lake Seminary	Lake	3F		Nutrients (TSI)	Not Impaired	2			
29977	Lake In The Woods	Lake	3F		Dissolved Oxygen	Not Impaired	2			
29977	Lake In The Woods	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			

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29977	Lake In The Woods	Lake	3F		Nutrients (TSI)	Not Impaired	2			According to Rule 62-303.720, F.A.C., this segment of the river can be delisted because there were six consecutive TSI annual means below 60 in 1997-2002. Co-limitation by nitrogen and phosphorus based on a TN/TP median of 20 (266 values) during the PP and a median of 21 (267 values) during the VP. PP - 2 TSI annual means exceeded 60 (1995-1996). VP - 1 TSI annual mean exceeded 60 (1996). 331 TN values, median 0.78 mg/L, mean 0.82 mg/L. 358 TP values, median 0.04 mg/L, mean 0.04 mg/L.
29977	Lake In The Woods	Lake	3F		Turbidity	Not Impaired	2			
29978	Leftover Minnehaha	Lake	3F			No Data	3a			
29978A	Lake Charity	Lake	3F		Dissolved Oxygen	Not Impaired	2			
29978A	Lake Charity	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
29978A	Lake Charity	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
29978A	Lake Charity	Lake	3F		Turbidity	Not Impaired	2			
29978B	Lake Faith	Lake	3F		Dissolved Oxygen	Not Impaired	2			
29978B	Lake Faith	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
29978B	Lake Faith	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
29978B	Lake Faith	Lake	3F		Turbidity	Not Impaired	2			

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29979	Lake Hope1 In Orange County	Lake	3F			No Data	3a			
2997A	Howell Creek	Stream	3F		Dissolved Oxygen	Planning List	3c			DO met verification threshold of IWR, but need to identify causative pollutant.
2997A	Howell Creek	Stream	3F		Fecal Coliform Bacteria	Verified List	5	Medium	2008	PP - 13/41 values exceed criterion. VP - 9/22 values exceed criterion. Coliform median 200 colonies/100ml, range 10 - 3400 colonies/100ml. No more than 3 values per month.
2997A	Howell Creek	Stream	3F		Nutrients (Chla)	Not Impaired	2			
2997A	Howell Creek	Stream	3F		Total Coliform Bacteria	Verified List	5	Medium	2008	PP - 7/36 values exceed criterion. VP - 6/22 values exceed criterion. Coliform median 680 colonies/100ml, range 60 - 8900 colonies/100ml. No more than 2 values per month.
2997A	Howell Creek	Stream	3F		Turbidity	Not Impaired	2			
2997A	Howell Creek	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2997B	Howell Lake	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2997B	Howell Lake	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Co-limitation of nitrogen and phosphorus based on a TN/TP median of 19 (197 values) during the PP and a median of 19 (182 values) during the VP. PP - 3 TSI annual means exceeded 60 (1997, 1999, 2000). VP - 4 TSI annual means exceeded 60 (1997, 1999, 2000, 2002). 203 TN values, median 0.95 mg/L, mean 1.03 mg/L. 224 TP values, median 0.05 mg/L, mean 0.06 mg/L.

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2997B	Howell Lake	Lake	3F		Turbidity	Not Impaired	2			
2997B1	Lake Ann	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2997C	Lake Maitland	Lake	3F		Cadmium	Not Impaired	2			
2997C	Lake Maitland	Lake	3F		Chromium3	Not Impaired	2			
2997C	Lake Maitland	Lake	3F		Copper	Not Impaired	2			
2997C	Lake Maitland	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2997C	Lake Maitland	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2997C	Lake Maitland	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2997C	Lake Maitland	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
2997C	Lake Maitland	Lake	3F		Turbidity	Not Impaired	2			
2997C	Lake Maitland	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
2997C	Lake Maitland	Lake	3F		Zinc	Not Impaired	2			
2997D	Lake Minnehaha	Lake	3F		Cadmium	Not Impaired	2			
2997D	Lake Minnehaha	Lake	3F		Chromium3	Not Impaired	2			
2997D	Lake Minnehaha	Lake	3F		Copper	Not Impaired	2			
2997D	Lake Minnehaha	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2997D	Lake Minnehaha	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			

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2997D	Lake Minnehaha	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Co-limitation by nitrogen and phosphorus based on a TN/TP median of 22 (321 values) during the PP and a median of 24 (246 values) during the VP. PP - 1 TSI annual means exceed threshold of 60 (1997). VP - 2 TSI annual means exceed threshold of 60 (1997, 2001). 347 TN values, median 0.79 mg/L, mean 0.82 mg/L. 400 TP values, median 0.04 mg/L, mean 0.05 mg/L.
2997D	Lake Minnehaha	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
2997D	Lake Minnehaha	Lake	3F		Turbidity	Not Impaired	2			
2997D	Lake Minnehaha	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
2997D	Lake Minnehaha	Lake	3F		Zinc	Not Impaired	2			
2997E	Lake Osceola North	Lake	3F		Cadmium	Not Impaired	2			
2997E	Lake Osceola North	Lake	3F		Chromium3	Not Impaired	2			
2997E	Lake Osceola North	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2997E	Lake Osceola North	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2997E	Lake Osceola North	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2997E	Lake Osceola North	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
2997E	Lake Osceola North	Lake	3F		Turbidity	Not Impaired	2			
2997E	Lake Osceola North	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			

WBID	Waterbody Segment Name	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	Parameters Identified Using the IWR	Proposed Status	Integrated Report Category[1]	Priority for TMDL Develop-ment[2]	Projected Year for TMDL Develop-ment[2]	Comments[3] (# Exceedances/ # Samples) PP= Planning Period VP= Verified Period
2997E	Lake Osceola North	Lake	3F		Zinc	Not Impaired	2			
2997E1	Lake Osceola South	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2997E1	Lake Osceola South	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2997E1	Lake Osceola South	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2997E1	Lake Osceola South	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
2997E1	Lake Osceola South	Lake	3F		Turbidity	Not Impaired	2			
2997E1	Lake Osceola South	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
2997F	Lake Ivanhoe	Lake	3F		Cadmium	Not Impaired	2			
2997F	Lake Ivanhoe	Lake	3F		Chromium3	Not Impaired	2			
2997F	Lake Ivanhoe	Lake	3F		Copper	Not Impaired	2			
2997F	Lake Ivanhoe	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2997F	Lake Ivanhoe	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2997F	Lake Ivanhoe	Lake	3F		Nickel	Not Impaired	2			
2997F	Lake Ivanhoe	Lake	3F		Nutrients (TSI)	Planning List	3c			Co-limitation by nitrogen and phosphorus. PP - 0 TSI annual means exceed threshold of 60. VP - 0 TSI annual means exceed threshold of 60. 1144 TN values, median 0.66 mg/L. 1317 TP values, median 0.03 mg/L. Need to continue to investigate a more appropriate TSI threshold for the lakes in the Orlando Ridge area.

WBID	Waterbody Segment Name	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	Parameters Identified Using the IWR	Proposed Status	Integrated Report Category[1]	Priority for TMDL Develop-ment[2]	Projected Year for TMDL Develop-ment[2]	Comments[3] (# Exceedances/ # Samples) PP= Planning Period VP= Verified Period
2997F	Lake Ivanhoe	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
2997F	Lake Ivanhoe	Lake	3F		Turbidity	Not Impaired	2			
2997F	Lake Ivanhoe	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
2997G	Lake Virginia	Lake	3F		Cadmium	Not Impaired	2			
2997G	Lake Virginia	Lake	3F		Chromium3	Not Impaired	2			
2997G	Lake Virginia	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2997G	Lake Virginia	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2997G	Lake Virginia	Lake	3F		Nutrients (TSI)	Planning List	3c			TSI met planning list but does not meet the verification threshold of the IWR. PP - 2 TSI annual means exceed threshold. VP - 0 TSI annual means exceed threshold.
2997G	Lake Virginia	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
2997G	Lake Virginia	Lake	3F		Turbidity	Not Impaired	2			
2997G	Lake Virginia	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
2997G	Lake Virginia	Lake	3F		Zinc	Not Impaired	2			
2997H	Lake Sue Outlet	Stream	3F			No Data	3a			
2997H1	Lake Sue Outlet	Stream	3F			No Data	3a			
2997I	Lake Sue	Lake	3F		Cadmium	Not Impaired	2			
2997I	Lake Sue	Lake	3F		Chromium3	Not Impaired	2			
2997I	Lake Sue	Lake	3F		Dissolved Oxygen	Not Impaired	2			

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2997I	Lake Sue	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2997I	Lake Sue	Lake	3F		Nutrients (TSI)	Planning List	3c			TSI met planning list but does not meet the verification threshold of the IWR. Phosphorus limited. PP - 1 TSI annual mean exceed threshold. VP - 0 TSI annual means exceed threshold.
2997I	Lake Sue	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
2997I	Lake Sue	Lake	3F		Turbidity	Not Impaired	2			
2997I	Lake Sue	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
2997I	Lake Sue	Lake	3F		Zinc	Not Impaired	2			
2997J	Lake Rowena	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2997J	Lake Rowena	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2997J	Lake Rowena	Lake	3F		Nutrients (TSI)	Planning List	3c			Co-limitation by nitrogen and phosphorus. PP - 2 TSI annual means exceed threshold of 60. VP - 0 TSI annual means exceed threshold of 60. 228 TN values, median 0.77 mg/L, mean 0.81 mg/L. 310 TP values, median 0.04 mg/L, mean 0.22 mg/L. Need to continue to investigate a more appropriate TSI threshold for the lakes in the Orlando Ridge area.
2997J	Lake Rowena	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
2997J	Lake Rowena	Lake	3F		Turbidity	Not Impaired	2			
2997J	Lake Rowena	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			

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2997K	Lake Estelle	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2997K	Lake Estelle	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2997K	Lake Estelle	Lake	3F		Nutrients (TSI)	Planning List	3c			Co-limitation by nitrogen and phosphorus based on a TN/TP median of 22 (602 values) in the PP and a median of 23 (437 values) in the VP. PP - 2 TSI annual means exceeded 60 threshold (1993-1994). VP - 1 TSI annual means exceeded 40 (2002). 722 TN values, median 0.79 mg/L. 720 TP values, median 0.036 mg/L. Need to continue to investigate a more appropriate TSI threshold for the lakes in the Orlando Ridge area.
2997K	Lake Estelle	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
2997L	Lake Winyah	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2997L	Lake Winyah	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2997L	Lake Winyah	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Co-limitation of nitrogen and phosphorus based on a TN/TP median of 13 (275 values) during the PP and a median of 13 (191 values) during the VP. PP - 7 TSI annual means exceeded 60 (1991-1998). VP - 3 TSI annual means exceeded 60 (1996-1998, 2001). 269 TN values, median 0.81 mg/L, mean 0.85 mg/L. 269 TP values, median 0.061 mg/L, mean 0.06 mg/L.
2997L	Lake Winyah	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			

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2997M	Lake Formosa	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2997M	Lake Formosa	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2997M	Lake Formosa	Lake	3F		Nutrients (TSI)	Planning List	3c			Co-limitation by nitrogen and phosphorus. PP - 0 TSI means exceed threshold of 60. VP - 0 TSI means exceed threshold of 60. 314 TN values, median 0.74 mg/L, mean 0.77 mg/L. 390 TP values, median 0.04 mg/L, mean 0.05 mg/L. Need to continue to investigate a more appropriate TSI threshold for the lakes in the Orlando Ridge area.
2997M	Lake Formosa	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
2997M	Lake Formosa	Lake	3F		Turbidity	Not Impaired	2			
2997M	Lake Formosa	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
2997M1	Lake Formosa Outlet	Lake	3F			No Data	3a			
2997N	Lake Highland	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2997N	Lake Highland	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2997N	Lake Highland	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2997N	Lake Highland	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
2997O	Park Lake	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2997O	Park Lake	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2997O	Park Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			

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2997O	Park Lake	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
2997P	Lake Concord	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2997P	Lake Concord	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2997P	Lake Concord	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Co-limitation of nitrogen and phosphorus based on a TN/TP median of 17 (284 values) during the PP and a median of 17 (203 values) during the VP. PP - 2 TSI annual means exceed threshold of 60 (1996, 2000). VP - 2 TSI annual means exceed threshold of 60 (1996, 2000). 254 TN values, median 0.71 mg/L, mean 0.74 mg/L. 313 TP values, median 0.04 mg/L, mean 0.05 mg/L.
2997P	Lake Concord	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
2997P	Lake Concord	Lake	3F		Turbidity	Not Impaired	2			
2997P	Lake Concord	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
2997Q	Lake Dot	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2997Q	Lake Dot	Lake	3F		Fecal Coliform Bacteria	Planning List	3c			PP - 3/15 values exceed criterion. VP - 2/7 values exceed criterion.

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2997Q	Lake Dot	Lake	3F		Nutrients (TSI)	Not Impaired	2			Annual mean for 2000 was above threshold, but resulted from violations of the City of Orlando's Environmental Resource Permit (4-095-0204GMT). Co-limitation of nitrogen and phosphorus based on a TN/TP median of 23 (321 values) during the PP and a median of 20 (232 values) during the VP. PP - 1 TSI annual mean exceeded 60 (2000). VP - 1 TSI annual mean exceeded 60 (2000). 337 TN values, median 0.77 mg/L, mean 0.78 mg/L. 337 TP values, median 0.03 mg/L, mean 0.04 mg/L.
2997Q	Lake Dot	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
2997R	Lake Adair	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2997R	Lake Adair	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2997R	Lake Adair	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Co-limitation of nitrogen and phosphorus based on a TN/TP median of 13 (321 values) during the PP and a median of 15 (231 values) during the VP. PP - 9 TSI annual means exceeded 60 (1991-2000). VP - 5 TSI annual means exceeded 60 (1996-2001) and 1 TSI annual mean exceeded 40 (2002). 337 TN values, median 1.02 mg/L, mean 1.10 mg/L. 333 TP values, median 0.08 mg/L, mean 0.10 mg/L.
2997R	Lake Adair	Lake	3F		Un-Ionized Ammonia	Planning List	3c			PP - 4/23 values exceed criterion. VP - 1/11 values exceed criterion.
2997S	Lake Spring	Lake	3F		Dissolved Oxygen	Not Impaired	2			

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2997S	Lake Spring	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2997S	Lake Spring	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Co-limitation by nitrogen and phosphorus based on a TN/TP median of 16 (60 values) during the PP and a median of 17 (31 values) during the VP. PP - 4 TSI annual means exceeded 60 (1992-1994, 1996). VP - 1 TSI annual mean exceeded 60 (1996). 14 TN values, median 0.01 mg/L, mean 0.01 mg/L. 80 TP values, median 0.07 mg/L, mean 0.07 mg/L.
2997S	Lake Spring	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
2997T	Park Lake Outlet	Stream	3F			No Data	3a			
2997U	Lake Park	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2997U	Lake Park	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2997U	Lake Park	Lake	3F		Nutrients (TSI)	Planning List	3c			Co-limitation by nitrogen and phosphorus. PP - 0 TSI annual means exceed threshold of 60. VP - 0 TSI annual means exceed threshold of 60. 277 TN values, median 0.65 mg/L, mean 0.66 mg/L. 341 TP values, median 0.05 mg/L, mean 0.05 mg/L. Need to continue to investigate a more appropriate TSI threshold for the lakes in the Orlando Ridge area.
2997U	Lake Park	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
2997U	Lake Park	Lake	3F		Turbidity	Not Impaired	2			
2997U	Lake Park	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			

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2997V	Lake Gem	Lake	3F			Insufficient Data	3b			
2997W	Lake Bell	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2997X	Lake Killarney	Lake	3F		Cadmium	Not Impaired	2			
2997X	Lake Killarney	Lake	3F		Chromium3	Not Impaired	2			
2997X	Lake Killarney	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2997X	Lake Killarney	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2997X	Lake Killarney	Lake	3F		Nutrients (TSI)	Planning List	3c			Phosphorus limited. PP - 1 TSI annual mean exceed threshold. VP - 0 TSI annual means exceed threshold. 68 TN values, median 0.66 mg/L, mean 0.67 mg/L. 155 TP values, median 0.03 mg/L, mean 0.05 mg/L.
2997X	Lake Killarney	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
2997X	Lake Killarney	Lake	3F		Turbidity	Not Impaired	2			
2997X	Lake Killarney	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
2997X	Lake Killarney	Lake	3F		Zinc	Not Impaired	2			
2997Y	Lake Mizell	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2997Y	Lake Mizell	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2997Y	Lake Mizell	Lake	3F		Nutrients (TSI)	Planning List	3c			TSI met planning list but does not meet the verification threshold of the IWR. PP - 1 TSI annual means exceeds threshold. VP - No data.

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2997Y	Lake Mizell	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
2997Y	Lake Mizell	Lake	3F		Turbidity	Not Impaired	2			
2997Y	Lake Mizell	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
2997Y	Lake Mizell	Lake	3F		Zinc	Not Impaired	2			
2997Z	Lake Midget	Lake	3F			No Data	3a			
2999	Bear Creek	Stream	3F		Biology	Not Impaired	2			
2999A	Lake Hayes	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2999B	Noname Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2999C	Lake Gem	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2999D	Noname Lake Outlet	Lake	3F			No Data	3a			
3009	Bear Gulley Lake	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Phosphorus limited based on a TN/TP median of 30 (40 values) during the PP and a median of 30 (66 values) during the VP. PP - 1 TSI annual mean exceeded 60 (1999). VP - 3 TSI annual means exceeded 60 (1999-2002). 51 TN values, median 1.12 mg/L, mean 1.15 mg/L. 66 TP values, median 0.038 mg/L, mean 0.04 mg/L.
3009A	Waunatta Lake	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3009A	Waunatta Lake	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			

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3009A	Waunatta Lake	Lake	3F		Nutrients (TSI)	Planning List	3c			Phosphorus limited. PP - 0 TSI annual means exceed threshold of 60. VP - 0 TSI annual means exceed threshold of 60. 266 TN values, median 0.44 mg/L, mean 0.45 mg/L. 322 TP values, median 0.015 mg/L, mean 0.02 mg/L. Need to continue to investigate a more appropriate TSI threshold for the lakes in the Orlando Ridge area.
3009A	Waunatta Lake	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3009A	Waunatta Lake	Lake	3F		Turbidity	Not Impaired	2			
3009A	Waunatta Lake	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3009B	Lake Martha	Lake	3F			No Data	3a			
3009C	Lake Burkett	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3009C	Lake Burkett	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3009C	Lake Burkett	Lake	3F		Nutrients (TSI)	Planning List	3c			Phosphorus limited. PP - 0 TSI annual means exceed threshold of 60. VP - 0 TSI annual means exceed threshold of 60. 260 TN values, median 0.77 mg/L, mean 0.83 mg/L. 320 TP values, median 0.02 mg/L, mean 0.03 mg/L. Need to continue to investigate a more appropriate TSI threshold for the lakes in the Orlando Ridge area.
3009C	Lake Burkett	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3009C	Lake Burkett	Lake	3F		Turbidity	Not Impaired	2			
3009C	Lake Burkett	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			

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3009D	Deep Lake	Lake	3F		Chromium3	Not Impaired	2			
3009D	Deep Lake	Lake	3F		Copper	Planning List	3c			
3009D	Deep Lake	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3009D	Deep Lake	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3009D	Deep Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3009D	Deep Lake	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3009D	Deep Lake	Lake	3F		Turbidity	Not Impaired	2			
3009D	Deep Lake	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3009D	Deep Lake	Lake	3F		Zinc	Not Impaired	2			
3009E	Lake Georgia	Lake	3F		Dissolved Oxygen	Planning List	3c			PP - 5/21 values below DO criterion. VP - 11/16 values below DO criterion.
3009E	Lake Georgia	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3009E	Lake Georgia	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3009E	Lake Georgia	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3009E	Lake Georgia	Lake	3F		Turbidity	Planning List	3c			PP - 6/22 values exceed criterion. VP - 6/17 values exceed criterion.
3009E	Lake Georgia	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3009F	Lake Florence	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3009G	Bear Gulley Lake Drain	Lake	3F			No Data	3a			

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3009H	Lake Nan	Lake	3F		Nutrients (TSI)	Not Impaired	2			
XX18	Leftover Osceola	Lake	3F			No Data	3a			
	Lake Kerr									
2894	Lake Delancey	Lake	3F			Insufficient Data	3b			
2894A	Lake Delancey Drain	Lake	3F			No Data	3a			
2899	Little Lake Kerr Outlet	Stream	3F		Mercury (in fish tissue)	Planning List	3c			Mercury (in fish tissue) met verification threshold of IWR, but need to confirm 7.5 year age of data.
2899A	Hopkins Prairie	Stream	3F		Cadmium	Planning List	3c			PP - 4/15 values exceed criterion. VP - No data.
2899A	Hopkins Prairie	Stream	3F		Chromium3	Not Impaired	2			
2899A	Hopkins Prairie	Stream	3F		Copper	Planning List	3c			PP - 8/29 values exceed criterion. VP - No data.
2899A	Hopkins Prairie	Stream	3F		Dissolved Oxygen	Planning List	3c			PP - 7/30 values below DO criterion. VP - No data.
2899A	Hopkins Prairie	Stream	3F		Iron	Not Impaired	2			
2899A	Hopkins Prairie	Stream	3F		Lead	Planning List	3c			PP - 12/12 values exceed criterion. VP - No data.
2899A	Hopkins Prairie	Stream	3F		Nickel	Not Impaired	2			
2899A	Hopkins Prairie	Stream	3F		Nutrients (Chla)	Not Impaired	2			
2899A	Hopkins Prairie	Stream	3F		Turbidity	Not Impaired	2			
2899A	Hopkins Prairie	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2899A	Hopkins Prairie	Stream	3F		Zinc	Not Impaired	2			
2899B	Lake Kerr	Lake	3F		Cadmium	Planning List	3c			PP - 6/31 values exceed criterion. VP - 2/16 values exceed criterion.

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2899B	Lake Kerr	Lake	3F		Copper	Planning List	3c			PP - 6/32 values exceed criterion. VP - 2/17 values exceed criterion.
2899B	Lake Kerr	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2899B	Lake Kerr	Lake	3F		Iron	Not Impaired	2			
2899B	Lake Kerr	Lake	3F		Lead	Planning List	3c			PP - 7/23 values exceed criterion. VP - 8/9 values exceed criterion.
2899B	Lake Kerr	Lake	3F		Mercury (in fish tissue)	Planning List	3c			Consumption advisory issued in 1993 for largemouth bass, bowfin, and gar.
2899B	Lake Kerr	Lake	3F		Nickel	Not Impaired	2			
2899B	Lake Kerr	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2899B	Lake Kerr	Lake	3F		Selenium	Planning List	3c			PP - 9/12 values exceed criterion. VP - 5/8 values exceed criterion.
2899B	Lake Kerr	Lake	3F		Silver	Planning List	3c			PP - 3/3 values exceed criterion. VP - No data.
2899B	Lake Kerr	Lake	3F		Turbidity	Not Impaired	2			
2899B	Lake Kerr	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
2899B	Lake Kerr	Lake	3F		Zinc	Not Impaired	2			
2899C	Little Lake Kerr	Lake	3F			No Data	3a			
2900	Salt Springs Run	Stream	3F			Insufficient Data	3b			
2900A	Salt Springs	Stream	3F			Insufficient Data	3b			
2905	Juniper Creek	Stream	3F		Biology	Not Impaired	2			
2905	Juniper Creek	Stream	3F		Dissolved Oxygen	Not Impaired	2			
2905	Juniper Creek	Stream	3F		Fecal Coliform Bacteria	Not Impaired	2			

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2905	Juniper Creek	Stream	3F		Total Coliform Bacteria	Not Impaired	2			
2905	Juniper Creek	Stream	3F		Turbidity	Not Impaired	2			
2905	Juniper Creek	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2905A	Juniper Spring	Stream	3F		Fluoride	Not Impaired	2			
2905B	Sweetwater Spring	Stream	3F			Insufficient Data	3b			
2905C	Wildcat Lake	Lake	3F		Mercury (in fish tissue)	Verified List	5	Medium	2011	Mercury (in fish tissue) met verification threshold of IWR. Fish tissue levels in 20 samples averaged 0.8480 ppm in 2000.
2905C	Wildcat Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2905Y	Fern Hammock Spring	Stream	3F			Insufficient Data	3b			
	Lake Monroe									
2959	Little Lake Outlet	Stream	3F			Insufficient Data	3b			
2893	Gemini Springs	Stream	3F			Insufficient Data	3b			
2893C	St. Johns River Above Wekiva River	Stream	3F		Arsenic	Not Impaired	2			
2893C	St. Johns River Above Wekiva River	Stream	3F		Biology	Planning List	3c			Biology met verification threshold of IWR, but need to identify causative pollutant.
2893C	St. Johns River Above Wekiva River	Stream	3F	BOD	BOD	Insufficient Data	3c			BOD median is below screening level and DO is not impaired, but delisting is postponed due to small BOD sample size (1 value in 1993 of 2.6 mg/L).

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2893C	St. Johns River Above Wekiva River	Stream	3F		Cadmium	Not Impaired	2			
2893C	St. Johns River Above Wekiva River	Stream	3F		Chromium3	Not Impaired	2			
2893C	St. Johns River Above Wekiva River	Stream	3F		Copper	Not Impaired	2			
2893C	St. Johns River Above Wekiva River	Stream	3F	Dissolved Oxygen	Dissolved Oxygen	Not Impaired	2			Delist. PP - 40/324 values below DO criterion. VP - 22/207 values below DO criterion.
2893C	St. Johns River Above Wekiva River	Stream	3F		Fecal Coliform Bacteria	Not Impaired	2			
2893C	St. Johns River Above Wekiva River	Stream	3F		Iron	Not Impaired	2			
2893C	St. Johns River Above Wekiva River	Stream	3F	Lead	Lead	Not Impaired	2			Delist. PP - 0/35 values exceed criterion, range 0 - 4.21 ug/L. VP - 0/33 values exceed criterion, range 0 - 3 ug/L.
2893C	St. Johns River Above Wekiva River	Stream	3F		Mercury (in fish tissue)	Not Impaired	2			Mercury (in fish tissue) is not impaired under IWR assessment, but need to confirm how data were assessed.
2893C	St. Johns River Above Wekiva River	Stream	3F		Nickel	Not Impaired	2			

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2893C	St. Johns River Above Wekiva River	Stream	3F	Nutrients	Nutrients (Chla)	Verified List	5	Low	2008	Co-limitation of nitrogen and phosphorus based on a TN/TP median of 18 (326 values) during the PP and a median of 18 (189 values) during the VP. PP - 5 chla annual means exceeded 20 ug/l (1991-1993, 1999-2000). 327 TN values, median 1.41 mg/l. 327 TP values, median 0.08 mg/l. VP - 2 chla annual means exceeded 20 ug/l (1999-2000). 190 TN values, median 1.42 mg/l. 190 TP values, median 0.08 mg/l.
2893C	St. Johns River Above Wekiva River	Stream	3F		Selenium	Not Impaired	2			
2893C	St. Johns River Above Wekiva River	Stream	3F		Total Coliform Bacteria	Not Impaired	2			
2893C	St. Johns River Above Wekiva River	Stream	3F		Turbidity	Not Impaired	2			
2893C	St. Johns River Above Wekiva River	Stream	3F	Total Suspended Solids	Turbidity	Not Impaired	2			Delist. 343 TSS (total non-filterable residue) values, median 10.0 mg/L, range 1.0 - 140 mg/L. Addressed by analysis of turbidity data. Turbidity currently is not impaired.
2893C	St. Johns River Above Wekiva River	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2893C	St. Johns River Above Wekiva River	Stream	3F		Zinc	Not Impaired	2			

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2893D [Called 2893D (& 2893C) on 1998 303(d) list]	Lake Monroe	Lake	3F		Arsenic	Not Impaired	2			
2893D [Called 2893D (& 2893C) on 1998 303(d) list]	Lake Monroe	Lake	3F		Cadmium	Not Impaired	2			
2893D [Called 2893D (& 2893C) on 1998 303(d) list]	Lake Monroe	Lake	3F		Chromium3	Not Impaired	2			
2893D [Called 2893D (& 2893C) on 1998 303(d) list]	Lake Monroe	Lake	3F		Copper	Not Impaired	2			

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2893D [Called 2893D (& 2893C) on 1998 303(d) list]	Lake Monroe	Lake	3F	Dissolved Oxygen	Dissolved Oxygen	Verified List	5	Low	2008	PP - 78/344 values below DO criterion. VP - 39/193 values below DO criterion. DO met verification threshold of IWR and elevated algal biomass is causative pollutant. 621 DO values, median 6.59 mg/L, mean 6.49 mg/L, range 0.08 - 11.2 mg/L.
2893D [Called 2893D (& 2893C) on 1998 303(d) list]	Lake Monroe	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2893D [Called 2893D (& 2893C) on 1998 303(d) list]	Lake Monroe	Lake	3F		Iron	Not Impaired	2			
2893D [Called 2893D (& 2893C) on 1998 303(d) list]	Lake Monroe	Lake	3F	Lead	Lead	Not Impaired	2			Delist. PP - 3/48 values exceed criterion, range 0 - 6.4 ug/L. VP - 0/39 values exceed criterion, range 0.01 - 3.0 ug/L.

WBID	Waterbody Segment Name	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	Parameters Identified Using the IWR	Proposed Status	Integrated Report Category[1]	Priority for TMDL Develop-ment[2]	Projected Year for TMDL Develop-ment[2]	Comments[3] (# Exceedances/ # Samples) PP= Planning Period VP= Verified Period
2893D [Called 2893D (& 2893C) on 1998 303(d) list]	Lake Monroe	Lake	3F		Mercury (in fish tissue)	Not Impaired	2			Mercury (in fish tissue) is not impaired under IWR assessment, but need to confirm how data were assessed.
2893D [Called 2893D (& 2893C) on 1998 303(d) list]	Lake Monroe	Lake	3F		Nickel	Not Impaired	2			
2893D [Called 2893D (& 2893C) on 1998 303(d) list]	Lake Monroe	Lake	3F	Nutrients	Nutrients (TSI)	Verified List	5	Low	2008	Co-limitation of nitrogen and phosphorus based on a TN/TP median of 20 (389 values) in the PP and a median of 20 (320 values) in the VP. PP - 3 TSI annual means exceeded 60 (1998-2000). VP - 4 TSI annual means exceeded 60 (1998-2001). 327 TN values, median 1.51 mg/L. 321 TP values, median 0.08 mg/L.
2893D [Called 2893D (& 2893C) on 1998 303(d) list]	Lake Monroe	Lake	3F	Selenium	Selenium	Not Impaired	2			Delist. PP - 7/22 values exceed criterion, range 0.001 - 113 ug/L. VP - 3/23 values exceed criterion, range 0 - 46.3 ug/L.

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2893D [Called 2893D (& 2893C) on 1998 303(d) list]	Lake Monroe	Lake	3F		Silver	Planning List	3b			PP - 5/9 values exceed criterion. VP - No data.
2893D [Called 2893D (& 2893C) on 1998 303(d) list]	Lake Monroe	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
2893D [Called 2893D (& 2893C) on 1998 303(d) list]	Lake Monroe	Lake	3F		Turbidity	Not Impaired	2			
2893D [Called 2893D (& 2893C) on 1998 303(d) list]	Lake Monroe	Lake	3F	Un-Ionized Ammonia	Un-Ionized Ammonia	Not Impaired	2			Delist. PP - 0/16 values exceed criterion, range 0 - 0.01 mg/L, mean 0.001 mg/L. VP - 0/15 values exceed criterion, range 0 - 0.01 mg/L, mean 0.001 mg/L.

WBID	Waterbody Segment Name	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	Parameters Identified Using the IWR	Proposed Status	Integrated Report Category[1]	Priority for TMDL Develop-ment[2]	Projected Year for TMDL Develop-ment[2]	Comments[3] (# Exceedances/ # Samples) PP= Planning Period VP= Verified Period
2893D [Called 2893D (& 2893C) on 1998 303(d) list]	Lake Monroe	Lake	3F		Zinc	Not Impaired	2			
2893D1	Lake Monroe Drain	Lake	3F			No Data	3a			
2893D2	Lake Monroe Drain	Lake	3F			No Data	3a			
2893E	St. Johns River Above Lake Monroe	Stream	3F		Dissolved Oxygen	Verified List	5	Medium	2008	DO met verification threshold of IWR, and elevated algal biomass is the causative pollutant. PP - 38/101 values below DO criterion. VP - 24/77 values below criterion. 262 DO values below criterion, mean 5.18 mg/l, median 5.36 mg/l, range 0.43 - 10.76.
2893E	St. Johns River Above Lake Monroe	Stream	3F		Fecal Coliform Bacteria	Not Impaired	2			
2893E	St. Johns River Above Lake Monroe	Stream	3F		Iron	Not Impaired	2			
2893E	St. Johns River Above Lake Monroe	Stream	3F		Mercury (in fish tissue)	Planning List	3c			Limited consumption advisory.
2893E	St. Johns River Above Lake Monroe	Stream	3F		Nutrients (Chla)	Verified List	5	Medium	2008	Co-limitation of nitrogen and phosphorus based on a TN/TP median of 19 (102 values) in the PP and a median of 18 (80 values) in the VP. PP - 0 Chla annual means exceeded 20 ug/l. VP - 1 Chla annual means exceeded 20 ug/l (2002). 82 TN values, median 1.39 mg/L. 81 TP values, median 0.08 mg/L.

WBID	Waterbody Segment Name	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	Parameters Identified Using the IWR	Proposed Status	Integrated Report Category[1]	Priority for TMDL Develop-ment[2]	Projected Year for TMDL Develop-ment[2]	Comments[3] (# Exceedances/ # Samples) PP= Planning Period VP= Verified Period
2893E	St. Johns River Above Lake Monroe	Stream	3F		Total Coliform Bacteria	Not Impaired	2			
2893E	St. Johns River Above Lake Monroe	Stream	3F		Turbidity	Not Impaired	2			
2893E	St. Johns River Above Lake Monroe	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2893G	Gleason Lake	Lake	3F			No Data	3a			
2893G1	Gleason Lake Drain	Lake	3F			No Data	3a			
2893M	Thornhill Lake	Lake	3F			Insufficient Data	3b			
2893M1	Thornhill Lake Drain	Lake	3F			No Data	3a			
2938	Chain Of Lakes	Lake	3F			No Data	3a			
2938A	Lake Helen	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2938B	Dupont Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2938C	Lake Clough	Lake	3F			No Data	3a			
2938D	Lake Colby	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2938E	Tivo Lake	Lake	3F			No Data	3a			
2938F	Mcgarity Lake	Lake	3F			No Data	3a			
2938G	Theresa Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			

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2951	Lake Marie	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Co-limitation of nitrogen and phosphorus based on a TN/TP median of 26 (66 values) during the PP and a median of 24 (48 values) during the VP. PP - 1 TSI annual mean exceeded 60 (1996). VP - 1 TSI annual mean exceeded 60 (1996). 48 TN values, median 1.04 mg/L. 48 TP values, median 0.05 mg/L.
2951A	Lake Marie Outlet	Lake	3F			No Data	3a			
2953	Bethel Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2953A	Broken Arrow Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2953A1	Bethel Lake Outlet	Lake	3F			No Data	3a			
2953B	Big Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2953C	Jenkins Pond	Lake	3F			No Data	3a			
2954	Konomac Lake Reservoir	Lake	3F			No Data	3a			
2959A	Little Lake	Lake	3F			No Data	3a			
2962	Smith Canal	Stream	3F		Biology	Planning List	3c			1 failed bioassessment in 1993.
2962	Smith Canal	Stream	3F	Dissolved Oxygen	Dissolved Oxygen	Verified List	5	Low	2008	PP - 2/7 values below DO criterion. VP - 16/31 values below DO criterion. DO met verification threshold of IWR and BOD is the causative pollutant. BOD median = 2.1mg/l. 36 DO values, median 5.21 mg/l, mean 5.31 mg/l, range 1.99 - 10.17mg/l.
2962	Smith Canal	Stream	3F	Coliform Bacteria	Fecal Coliform Bacteria	Verified List	5	Low	2008	PP - 1/4 values exceed criterion. VP - 8/30 values exceed criterion. Coliform median 247 colonies/100 ml, range 1-870 colonies/100 ml. No more than 2 values per month.

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2962	Smith Canal	Stream	3F	Iron	Iron	Verified List	5	Low	2008	PP - 0/1 values exceed criterion. VP - 7/22 values exceed criterion.
2962	Smith Canal	Stream	3F	Nutrients	Nutrients (Chla)	Not Impaired	2			Delist. PP - Insufficient data available to calculate an annual mean, 18 chla values, range of chla values 0 - 33 ug/L, mean chla 1.25 ug/L over entire period. VP - 0 chla annual means exceeded 20 ug/l (2001-2002), 17 chla values, range of chla values 0.44 - 19.4 ug/L, mean chla 5.57 ug/L over entire period. The annual mean chla concentrations for 2001 was 3.66 ug/l and for 2002 was 5.47 ug/l. 33 TN values, median 1.04 mg/l. 32 TP values, median 0.20 mg/l.
2962	Smith Canal	Stream	3F	Coliform Bacteria	Total Coliform Bacteria	Not Impaired	2			Delist. PP - 0/0 values exceed criterion. VP - 4/20 values exceed criterion. Range 240 - 4,900 colonies/100 ml.
2962	Smith Canal	Stream	3F	Turbidity	Turbidity	Insufficient Data	3c			Turbidity is not impaired under IWR assessment, but need to confirm how data were assessed.
2962A	East Twin Lake	Lake	3F			No Data	3a			
2962B	Ada Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2962C	Lake Minnie	Lake	3F			No Data	3a			
2962D	Lake Mary	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2962E	Little Lake Mary	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2968	Unnamed Ditch	Stream	3F			No Data	3a			
2969	Unnamed Ditch	Stream	3F			No Data	3a			
2971	Unnamed Ditch	Stream	3F			No Data	3a			
2972	Brisson Ave Ditch	Stream	3F			No Data	3a			

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2973	DeForest Lake Outlet	Stream	3F		Copper	Not Impaired	2			
2973	DeForest Lake Outlet	Stream	3F		Dissolved Oxygen	Verified List	5	Medium	2008	PP - 12/17 values below DO criterion. VP - 17/25 values below DO criterion. DO met verification threshold of IWR and BOD is causative pollutant (BOD median = 3.8 mg/L). 25 DO values, median 3.5 mg/L, mean 3.89 mg/L, range 1.46 - 7.1 mg/L.
2973	DeForest Lake Outlet	Stream	3F		Fecal Coliform Bacteria	Not Impaired	2			
2973	DeForest Lake Outlet	Stream	3F		Iron	Planning List	3c			PP - 7/13 values exceed criterion. VP - 7/15 values exceed criterion.
2973	DeForest Lake Outlet	Stream	3F		Lead	Planning List	3c			PP - 3/3 values exceed criterion. VP - 3/3 values exceed criterion.
2973	DeForest Lake Outlet	Stream	3F		Turbidity	Not Impaired	2			
2973	DeForest Lake Outlet	Stream	3F		Zinc	Not Impaired	2			
2973A	Lake Emma	Lake	3F			No Data	3a			
2973B	West Crystal Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2973C	East Crystal Lake	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2973C	East Crystal Lake	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2973C	East Crystal Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2973C	East Crystal Lake	Lake	3F		Turbidity	Not Impaired	2			
2973C	East Crystal Lake	Lake	3F		Zinc	Not Impaired	2			
2973C1	East Crystal Lake Outlet	Lake	3F			No Data	3a			
2973D	Jennie Lake	Lake	3F			No Data	3a			

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2973E	Bel-Air Lake	Lake	3F			Insufficient Data	3b			
2973F	DeForest Lake	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2973F	DeForest Lake	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2973F	DeForest Lake	Lake	3F		Iron	Not Impaired	2			
2973F	DeForest Lake	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Co-limitation of nitrogen and phosphorus based a TN/TP median of 33 (36 values) in the PP and a median of 33 (44 values) in the VP. PP - 1 TSI annual mean exceeded 60 (1999). VP - 1 TSI annual mean exceeded 60 (1999). 18 TN values, median 0.86 mg/L. 44 TP values, median 0.027 mg/L.
2973F	DeForest Lake	Lake	3F		Turbidity	Not Impaired	2			
2973F	DeForest Lake	Lake	3F		Zinc	Not Impaired	2			
2974	Canaan Ditch	Stream	3F			No Data	3a			
2977	Unnamed Ditch	Stream	3F			No Data	3a			
2979	Beck Hammock Ditch	Stream	3F			No Data	3a			
2980	Unnamed Ditch	Stream	3F			No Data	3a			
2981A	Lake Jesup Near St. Johns River	Lake	3F	Dissolved Oxygen	Dissolved Oxygen	Not Impaired	2			Delist. PP - 7/101 values below DO criterion, range 2.05 - 19.12 mg/l, mean 8.67 mg/l. VP - 7/87 values below DO criterion, range 1.75 - 19.12 mg/l, mean 8.76 mg/l.
2981A	Lake Jesup Near St. Johns River	Lake	3F		Iron	Not Impaired	2			

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2981A	Lake Jesup Near St. Johns River	Lake	3F	Nutrients	Nutrients (TSI)	Verified List	5	High	2004	Co-limitation of nitrogen and phosphorus based on a TN/TP median of 19 (100 values) during the PP and a median of 20 (86 values) during the VP. PP - 5 TSI annual means exceeded 60 (1995-1999). VP - 4 TSI annual means exceeded 60 (1996-1999). 68 TN values, median 2.2 mg/L. 109 TP values, median 0.11 mg/L.
2981A	Lake Jesup Near St. Johns River	Lake	3F		Turbidity	Not Impaired	2			
2981A	Lake Jesup Near St. Johns River	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
2983	Unnamed Ditch	Stream	3F			No Data	3a			
	Lake Woodruff									
28933	Blue Spring (Volusia)	Spring	3F		Dissolved Oxygen	Planning List	3c			DO met verification threshold of IWR, but need to identify causative pollutant.
28933	Blue Spring (Volusia)	Stream	3F	Nutrients	Nutrients (Chla)	Insufficient Data	3c	(High)	(2004)	PP-No data, VP - Insufficient data
2893B	St. Johns River Above Lake Woodruff	Stream	3F		Arsenic	Not Impaired	2			
2893B	St. Johns River Above Lake Woodruff	Stream	3F		Biology	Planning List	3c			Biology met verification threshold of IWR, but need to identify causative pollutant.
2893B	St. Johns River Above Lake Woodruff	Stream	3F		Cadmium	Not Impaired	2			
2893B	St. Johns River Above Lake Woodruff	Stream	3F		Copper	Not Impaired	2			
2893B	St. Johns River Above Lake Woodruff	Stream	3F		Dissolved Oxygen	Planning List	3c			DO met verification threshold of IWR, but need to identify causative pollutant.

WBID	Waterbody Segment Name	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	Parameters Identified Using the IWR	Proposed Status	Integrated Report Category[1]	Priority for TMDL Develop-ment[2]	Projected Year for TMDL Develop-ment[2]	Comments[3] (# Exceedances/ # Samples) PP= Planning Period VP= Verified Period
2893B	St. Johns River Above Lake Woodruff	Stream	3F		Fecal Coliform Bacteria	Not Impaired	2			
2893B	St. Johns River Above Lake Woodruff	Stream	3F		Iron	Not Impaired	2			
2893B	St. Johns River Above Lake Woodruff	Stream	3F		Lead	Not Impaired	2			
2893B	St. Johns River Above Lake Woodruff	Stream	3F		Mercury (in fish tissue)	Not Impaired	2			Mercury (in fish tissue) is not impaired under IWR assessment, but need to confirm how data were assessed.
2893B	St. Johns River Above Lake Woodruff	Stream	3F		Nickel	Not Impaired	2			
2893B	St. Johns River Above Lake Woodruff	Stream	3F		Nutrients (Chla)	Not Impaired	2			
2893B	St. Johns River Above Lake Woodruff	Stream	3F		Selenium	Planning List	3c			PP - 9/29 values exceed criterion. VP - 7/7 values exceed criterion.
2893B	St. Johns River Above Lake Woodruff	Stream	3F		Total Coliform Bacteria	Not Impaired	2			
2893B	St. Johns River Above Lake Woodruff	Stream	3F		Turbidity	Not Impaired	2			
2893B	St. Johns River Above Lake Woodruff	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2893B	St. Johns River Above Lake Woodruff	Stream	3F		Zinc	Not Impaired	2			
2893B1	Horseshoe Mud Lake	Lake	3F			No Data	3a			

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2893U	Lake Beresford	Lake	3F		Dissolved Oxygen	Not Impaired	2			
2893U	Lake Beresford	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2893U	Lake Beresford	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Co-limitation of nitrogen and phosphorus based on a TN/TP median of 19 (411 values) in the PP and a median of 18 (272 values) in the VP. PP - 7 TSI annual means exceeded 60 (1992-1994, 1996, 1997, 1999, 2000). VP - 6 TSI annual means exceeded 60 (1996, 1997, 1999-2002). 373 TN values, median 1.26 mg/l. 492 TP values, median 0.07 mg/l.
2893U	Lake Beresford	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
2893U	Lake Beresford	Lake	3F		Turbidity	Not Impaired	2			
2893U1	Lake Beresford Drain	Lake	3F			No Data	3a			
2893Z	St. Johns River Above Lake George	Stream	3F		Biology	Planning List	3c			1 failed bioassessment in 1992.

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2893Z	St. Johns River Above Lake George	Stream	3F	Dissolved Oxygen	Dissolved Oxygen	Not Impaired	2			Dissolved oxygen is naturally low, and bioassessment data indicate that aquatic life use support is being maintained (Passing bioassessments in 1992, 1993, and 1994). Nutrients (TN and TP) are within acceptable ranges. 100 TN values, median 1.28 mg/l. 98 TP values, median 0.07 mg/l. No BOD data available. PP - 42/112 values below DO criterion. VP - 35/92 values below DO criterion. 303 DO values, median 5.67 mg/l, mean 5.60 mg/l, range 0.37 - 10.43 mg/l.
2893Z	St. Johns River Above Lake George	Stream	3F		Fecal Coliform Bacteria	Not Impaired	2			
2893Z	St. Johns River Above Lake George	Stream	3F		Fluoride	Not Impaired	2			
2893Z	St. Johns River Above Lake George	Stream	3F		Mercury (in fish tissue)	Not Impaired	2			Mercury (in fish tissue) is not impaired under IWR assessment, but need to confirm how data were assessed.

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2893Z	St. Johns River Above Lake George	Stream	3F	Nutrients	Nutrients (Chla)	Not Impaired	2			According to Rule 62-303.720, F.A.C., this segment of the river can be delisted because there were three consecutive chla annual means below 20 ug/l in 2000, 2001, and 2002. PP - 3 chla annual means exceeded 20 ug/l (1992, 1993, 1999), 118 TN values, median 1.24 mg/L, 119 TP values, median 0.07 mg/L. VP - 1 chla annual mean exceeded 20 ug/l (1999), 94 TN values, median 1.273 mg/L, 92 TP values, median 0.07 mg/L. The annual mean chla concentrations were: 1991-13.6 ug/l, 1992-28.4 ug/l, 1993-20.4 ug/l, 1994-16.8 ug/l, 1995-13.0 ug/l, 1996-12.2 ug/l, 1997-11.7 ug/l, 1998-14.2 ug/l, 1999-20.3 ug/l, 2000-8.8 ug/l, 2001-18.0 ug/l, and 9.9 ug/l. 107 chla values, mean 14.82 ug/l, range 0.16 - 59.0 ug/l.
2893Z	St. Johns River Above Lake George	Stream	3F		Total Coliform Bacteria	Not Impaired	2			
2893Z	St. Johns River Above Lake George	Stream	3F		Turbidity	Not Impaired	2			
2893Z	St. Johns River Above Lake George	Stream	3F	Total Suspended Solids	Turbidity	Not Impaired	2			Delist. 149 TSS (total non-filterable residue) values, median 8.0 mg/L, range 2.2 - 32 mg/L. Addressed by analysis of turbidity data. Turbidity currently is not impaired.
2906	Shaw Lake Outlet	Stream	3F			Insufficient Data	3b			
29061	Shaw Lake	Lake	3F			No Data	3a			

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2907	Unnamed Slough	Stream	3F			No Data	3a			
2908	Deep Creek	Lake	3F		Biology	Planning List	3c			Biology does not meet verification threshold of IWR due to insufficient data in verified period.
2908A	Lake Odum	Lake	3F			No Data	3a			
2908B	Lake Clifton	Lake	3F			No Data	3a			
2909	Dan George Lake Outlet	Stream	3F			No Data	3a			
2909A	Dan George Lake	Lake	3F			No Data	3a			
2910	Lake Emporia	Lake	3F			No Data	3a			
2910A	Cain Lake	Lake	3F			No Data	3a			
2910B	Lake Purdom	Lake	3F			No Data	3a			
2911	Unnamed Slough	Stream	3F			No Data	3a			
2912	Stone Pond Outlet	Stream	3F			No Data	3a			
2912A	Lake Emporia	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2912B	Stone Pond	Lake	3F			No Data	3a			
2913	Unnamed Ditch	Stream	3F			No Data	3a			
2921	Lake Woodruff	Lake	3F		Copper	Not Impaired	2			
2921	Lake Woodruff	Lake	3F		Dissolved Oxygen	Planning List	3c			DO met verification threshold of IWR, but need to identify causative pollutant. PP - 39/196 values below DO criterion. VP - 17/98 values below DO criterion.
2921	Lake Woodruff	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2921	Lake Woodruff	Lake	3F		Iron	Not Impaired	2			

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2921	Lake Woodruff	Lake	3F		Lead	Not Impaired	2			
2921	Lake Woodruff	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2921	Lake Woodruff	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
2921	Lake Woodruff	Lake	3F		Turbidity	Not Impaired	2			
2921	Lake Woodruff	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
2921	Lake Woodruff	Lake	3F		Zinc	Not Impaired	2			
2921A	Ponce De Leon Spring	Stream	3F			Insufficient Data	3b			
2921B	Lake Tedder	Lake	3F			No Data	3a			
2921C	Lake Dexter	Lake	3F			Insufficient Data	3b			
2921D	Lake Woodruff Outlet	Lake	3F			No Data	3a			
2923	Stagger Mud Lake	Lake	3F			Insufficient Data	3b			
2923A	Stagger Mud Lake Dr	Lake	3F			No Data	3a			
2926	Get Out Creek	Stream	3F			No Data	3a			
2928	Deer Haven Lake Outlet	Stream	3F			No Data	3a			
2928A	Deer Haven Lake	Lake	3F			No Data	3a			
2941	Noncontributing Area	Stream	3F			No Data	3a			
2943	Spring Run	Stream	3F			No Data	3a			
	Wekiva River									
2929	Lake Norris Outlet	Lake	3F			Insufficient Data	3b			

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2929A	Black Water Creek	Stream	3F		Arsenic	Not Impaired	2			
2929A	Black Water Creek	Stream	3F		Biology	Not Impaired	2			
2929A	Black Water Creek	Stream	3F	Cadmium	Cadmium	Not Impaired	2			Delist. PP - 4/90 values exceed criterion, range 0.00 - 13.6 ug/L, mean 0.46 mg/L. VP - 2/71 values exceed criterion, range 0.00 - 3.6 ug/L, mean 0.21 ug/L.
2929A	Black Water Creek	Stream	3F		Chromium3	Not Impaired	2			
2929A	Black Water Creek	Stream	3F		Copper	Not Impaired	2			
2929A	Black Water Creek	Stream	3F	Dissolved Oxygen	Dissolved Oxygen	Not Impaired	2			Delist. Dissolved oxygen is naturally low, and bioassessment data indicate that aquatic life use support is being maintained (9 passing bioassessments 1992 - 2001. Nutrients (TN and TP) are within acceptable ranges. 176 DO values, median 5.4 mg/l, mean 5.45 mg/l, range 0.96 - 11.2 mg/l. 119 TN values, 1.35 mg/l. 128 TP values, 0.05 mg/l. PP -50/138 values below DO criterion. VP - 39/120 values below DO criterion.
2929A	Black Water Creek	Stream	3F		Fecal Coliform Bacteria	Not Impaired	2			
2929A	Black Water Creek	Stream	3F	Iron	Iron	Not Impaired	2			Delist. PP - 16/98 values exceed criterion, range 0.023 - 2.583 ug/L, mean 0.584 ug/L. VP - 10/86 values exceed criterion, range 0.023 - 2.583 ug/L, mean 0.584 ug/L.

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2929A	Black Water Creek	Stream	3F	Lead	Lead	Not Impaired	2			Delist. PP - 5/90 values exceed criterion, range 0.00 - 9.39 ug/L, mean 3.62 ug/L. VP - 1/68 values exceed criterion, range 0.00 - 3.2 ug/L, mean 0.834 ug/L.
2929A	Black Water Creek	Stream	3F		Nickel	Not Impaired	2			
2929A	Black Water Creek	Stream	3F	Nutrients	Nutrients (Chla)	Not Impaired	2			PP - 0 Chla annual means exceeded 20 ug/l, 247 chla values, range of chla values 0 - 26.1 ug/l, mean chla over entire period 0.98 ug/l. VP - 0 Chla annual means exceeded 20 ug/l, 182 chla values, range of chla values 0 - 26.1 ug/l, mean over entire period 1.26 ug/L. The annual mean chla concentrations were: 1991-0.23 ug/l, 1992-0.35 ug/l, 1993-0.61 ug/l, 1994-0.61 ug/l, 1995-0.38 ug/l, 1996-1.97 ug/l, 1997-4.31 ug/l, 1998-0.22 ug/l, 1999-0.70 ug/l, 0.61 ug/l. 119 TN values, median 1.35 mg/l. 128 TP values, median 0.05 mg/l.
2929A	Black Water Creek	Stream	3F	Selenium	Selenium	Not Impaired	2			Delist. PP - 10/39 values exceed criterion, range 0.00 - 62 ug/L, mean 3.6 ug/L. VP - 7/42 values exceed criterion, range 0.00 - 15.6 ug/L, mean 1.6 ug/L.
2929A	Black Water Creek	Stream	3F		Silver	Planning List	3c			PP - 3/5 values exceed criterion. VP - No data.
2929A	Black Water Creek	Stream	3F		Turbidity	Not Impaired	2			
2929A	Black Water Creek	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			

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2929A	Black Water Creek	Stream	3F	Zinc	Zinc	Not Impaired	2			Delist. PP - 2/94 values exceed criterion, range 0.00 - 342 ug/L, mean 14.6 ug/L. VP - 0/71 values exceed criterion, range 0.00 - 18 ug/L, mean 5.3 ug/L.
2929B	Lake Norris	Lake	3F			Insufficient Data	3b			
2929B1	Blackwater Swamp	Lake	3F		Dissolved Oxygen	Planning List	3c			PP - 8/16 values below DO criterion. VP - 8/16 values below DO criterion.
2929B1	Blackwater Swamp	Lake	3F		Turbidity	Not Impaired	2			
2929C	Lake Dorr	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
2929C	Lake Dorr	Lake	3F		Mercury (in fish tissue)	Planning List	3c			Consumption advisory issued in 1993 for largemouth bass, bowfin and gar.
2929C	Lake Dorr	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2929C1	Baptist Lake	Lake	3F			No Data	3a			
2929D	Little Lake Mary	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2929Z	Lake Dorr Outlet	Lake	3F			No Data	3a			
2934	Tracy Canal	Stream	3F			Insufficient Data	3b			
2934A	Cowpen Pond	Lake	3F		Mercury (in fish tissue)	Verified List	5	Medium	2011	Mercury (in fish tissue) met verification threshold of IWR. Fish tissue levels in 20 samples averaged 0.9135 ppm in 2000.
2946	Unnamed Slough	Stream	3F			No Data	3a			
2948	Sulphur Run	Stream	3F			No Data	3a			
2949	Lake Dalhouse	Lake	3F			Insufficient Data	3b			
2949A	Lake Dalhouse Outlet	Lake	3F			No Data	3a			
2950	Lake Tuttle Drain	Lake	3F			No Data	3a			
2950A	Lake Tuttle	Lake	3F			No Data	3a			

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2955	Seminole Spring	Stream	3F			No Data	3a			
2956	Wekiva River	Stream	3F		Biology	Not Impaired	2			
2956	Wekiva River	Stream	3F		Dissolved Oxygen	Planning List	3c			PP - 22/34 values below DO criterion. VP - 7/16 values below DO criterion.
2956	Wekiva River	Stream	3F		Fecal Coliform Bacteria	Not Impaired	2			
2956	Wekiva River	Stream	3F		Nutrients (Chla)	Not Impaired	2			
2956	Wekiva River	Stream	3F		Total Coliform Bacteria	Not Impaired	2			
2956	Wekiva River	Stream	3F		Turbidity	Not Impaired	2			
2956	Wekiva River	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2956	Wekiva River	Stream	3F		Zinc	Not Impaired	2			
2956A	Wekiva River	Stream	3F		Biology	Not Impaired	2			
2956A	Wekiva River	Stream	3F		Cadmium	Not Impaired	2			
2956A	Wekiva River	Stream	3F		Chromium3	Not Impaired	2			
2956A	Wekiva River	Stream	3F		Copper	Not Impaired	2			

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2956A	Wekiva River	Stream	3F		Dissolved Oxygen	Not Impaired	2			Dissolved oxygen is naturally low, and bioassessment data indicate that aquatic life use support is being maintained (3 passing bioassessments in the verified period 1997-1999) Nutrients (TN and TP) are within acceptable ranges. 46 TN values, median 0.95 mg/l. 50 TP values, median 0.10 mg/l. Insufficient BOD data. The 3 dominant land uses in this area are wetlands (36%), upland forest (27%) and urban build-up (24%). PP - 18/66 values below DO criterion. VP - 10/41 values below DO criterion. DO median 6.8 mg/L, mean 6.8 mg/L, range 3.26 - 12.6 mg/L over entire period.
2956A	Wekiva River	Stream	3F		Fecal Coliform Bacteria	Not Impaired	2			
2956A	Wekiva River	Stream	3F		Iron	Not Impaired	2			
2956A	Wekiva River	Stream	3F		Lead	Not Impaired	2			
2956A	Wekiva River	Stream	3F		Nickel	Not Impaired	2			
2956A	Wekiva River	Stream	3F		Nutrients (Chla)	Not Impaired	2			
2956A	Wekiva River	Stream	3F		Total Coliform Bacteria	Not Impaired	2			
2956A	Wekiva River	Stream	3F		Turbidity	Not Impaired	2			
2956A	Wekiva River	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2956A	Wekiva River	Stream	3F		Zinc	Not Impaired	2			

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2956A1	Linden Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2956B	Wekiva River Lower	Stream	3F		Biology	Not Impaired	2			
2956B	Wekiva River Lower	Stream	3F		Dissolved Oxygen	Not Impaired	2			Dissolved oxygen is naturally low, and bioassessment data indicate that aquatic life use support is being maintained (2 passing bioassessments in the verified period). Nutrients (TN and TP) are within acceptable ranges. 45 TN values, median 0.87 mg/l. 43 TP values, median 0.09 mg/l. No BOD data. PP - 56/114 values below DO criterion. VP - 19/34 values below DO criterion. 256 DO values, range 0.45 9.0 mg/l, mean 4.67 mg/l, median 5 mg/l.
2956B	Wekiva River Lower	Stream	3F		Fecal Coliform Bacteria	Not Impaired	2			
2956B	Wekiva River Lower	Stream	3F		Nutrients (Chla)	Not Impaired	2			
2956B	Wekiva River Lower	Stream	3F		Total Coliform Bacteria	Not Impaired	2			
2956B	Wekiva River Lower	Stream	3F		Turbidity	Not Impaired	2			
2956B	Wekiva River Lower	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2956C	Wekiva Spring (Orange)	Stream	3F		Dissolved Oxygen	Planning List	3c			PP - 4/12 values below DO criterion. VP - 8/12 values below DO criterion.
2956C	Wekiva Spring (Orange)	Stream	3F	Coliform Bacteria	Fecal Coliform Bacteria	Insufficient Data	3c	(High)	(2004)	PP - 0/6 values exceed criterion. VP - 0/4 values exceed criterion.

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2956C	Wekiva Spring (Orange)	Stream	3F	Nutrients	Nutrients (Chla)	Not Impaired	2			Delist. PP - 0 chla annual means exceeded 20 ug/l (1994 & 1996), 35 chla values, range of chla values 0 - 16.3 ug/L, mean chla over entire period 1.37 ug/L. VP - 0 chla annual means exceeded 20 ug/l (1996), 5 chla values, range 0 - 3.5 ug/L, mean chla over entire period 1.72 ug/L. The annual mean chla concentrations for 1994 was 0.28 ug/l and for 1996 was 1.28 ug/l. 13 TN values, median 1.31 mg/l. 13 TP values, 0.07 mg/l.
2956C	Wekiva Spring (Orange)	Stream	3F	Coliform Bacteria	Total Coliform Bacteria	Not Impaired	2			This segment is being delisted because there were sufficient data for the planning list assessment. PP - 0/11 values exceed criterion, range 4-81 colonies/100 ml. VP - 0/5 values exceed criterion, range 4-81 colonies/100 ml.
2956C	Wekiva Spring (Orange)	Stream	3F		Turbidity	Not Impaired	2			
2956C	Wekiva Spring (Orange)	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2956E	Sand Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2956F	Lake Brantley	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2956X	Sweetwater Creek	Lake	3F		Biology	Not Impaired	2			
2956Z	Miami Spring	Stream	3F			Insufficient Data	3b			
2960	Messant Spring	Stream	3F			No Data	3a			
2961	Lake Sylvan	Lake	3F		Biology	Not Impaired	2			
2961	Lake Sylvan	Lake	3F		Nutrients (TSI)	Not Impaired	2			

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2961A	Lake Sylvan Outlet	Lake	3F			No Data	3a			
2965	Bear Pond Outlet	Stream	3F			No Data	3a			
2965A	Bear Pond	Lake	3F			No Data	3a			
2967	Rock Springs Run	Stream	3F		Biology	Not Impaired	2			
2967	Rock Springs Run	Stream	3F	BOD	BOD	Planning List	3c	(High)	(2004)	30 BOD values, median 2.0 mg/L, range 1.0 - 8.7 mg/L. DO meets verification threshold.
2967	Rock Springs Run	Stream	3F	Dissolved Oxygen	Dissolved Oxygen	Planning List	3c	(High)	(2004)	DO met verification threshold of IWR, but need to identify causative pollutant. PP - 14/35 values below DO criterion. VP - 8/25 values below DO criterion. 25 TN, median 1.3 mg/l. 30 BOD, median 2.0 mg/l. 24 TP, median 0.09 mg/l. Two failed bioassessments (SCI) in 2002.
2967	Rock Springs Run	Stream	3F	Coliform Bacteria	Fecal Coliform Bacteria	Planning List	3c	(High)	(2004)	PP - 8/24 values exceed criterion. VP - 3/10 values exceed criterion.
2967	Rock Springs Run	Stream	3F	Nutrients	Nutrients (Chla)	Not Impaired	2			Delist. PP - 0 chla annual means exceed 20 ug/l (1991-1994, 1996) 87 chla values, range of chla values 0 - 19.4 ug/L, mean chla over entire period 1.74 ug/L. VP - 0 chla annual means exceed threshold (1996), 17 chla values, range of chla values 0 - 19.4 ug/L, mean chla 2.14 ug/L over entire period. The annual mean chla concentrations were 1991-1.2 ug/l, 1992-1.09 ug/l, 1993-0.55 ug/l, 1994-3.06 ug/l, and 1996-1.55 ug/l. 25 TN values, 1.31 mg/l. 24 TP values, 0.09 mg/l.
2967	Rock Springs Run	Stream	3F	Coliform Bacteria	Total Coliform Bacteria	Planning List	3c	(High)	(2004)	PP - 11/19 values exceed criterion. VP - 3/10 values exceed criterion.
2967	Rock Springs Run	Stream	3F		Turbidity	Not Impaired	2			

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2967	Rock Springs Run	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2970	Lake Markham	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2970A	Lake Markham Outlet	Lake	3F			No Data	3a			
2975	Neighborhood Lakes Out	Stream	3F			No Data	3a			
2975A	Neighborhood Lakes	Lake	3F			No Data	3a			
2975B	Neighborhood Lakes	Lake	3F			No Data	3a			
2975C	Neighborhood Lakes	Lake	3F			No Data	3a			
2975D	Neighborhood Lakes	Lake	3F			No Data	3a			
2975E	Neighborhood Lakes	Lake	3F			No Data	3a			
2976	Unnamed Drain	Stream	3F			No Data	3a			
2987	Little Wekiva River	Stream	3F		Arsenic	Not Impaired	2			
2987	Little Wekiva River	Stream	3F		Biology	Not Impaired	2			
2987	Little Wekiva River	Stream	3F		Cadmium	Not Impaired	2			
2987	Little Wekiva River	Stream	3F		Chromium3	Not Impaired	2			
2987	Little Wekiva River	Stream	3F		Copper	Not Impaired	2			

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2987	Little Wekiva River	Stream	3F		Dissolved Oxygen	Not Impaired	2			Dissolved oxygen is naturally low, and bioassessment data indicate that aquatic life use support is being maintained, (5 passing bioassessments 1995, 1997, 1999, 2001, and 2002). PP - 5/79 values below DO criterion. VP - 15/87 values below DO criterion. 26 BOD values, median 2.0 mg/l. 102 TN values, median 1.09 mg/l. 101 TP values, median 0.13 mg/l. 124 DO values, median 6.4 mg/l, mean 6.33 mg/l, range 0.33 - 11 mg/l.
2987	Little Wekiva River	Stream	3F	Coliform Bacteria	Fecal Coliform Bacteria	Verified List	5	Low	2008	PP - 23/49 values exceed criterion. VP - 20/44 values exceed criterion. Coliform median 420 colonies/100ml, range 1.0 - 5800 colonies/100ml. No more than 5 values per month.
2987	Little Wekiva River	Stream	3F		Iron	Not Impaired	2			
2987	Little Wekiva River	Stream	3F		Lead	Not Impaired	2			
2987	Little Wekiva River	Stream	3F		Nickel	Not Impaired	2			

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2987	Little Wekiva River	Stream	3F	Nutrients	Nutrients (Chla)	Not Impaired	2			Delist. PP - 0 chla annual means exceeded 20 ug/l. 47 chla values, mean 5.31 ug/l, range 0 - 67.2 ug/l. VP - 0 chla annual means exceeded 20 ug/l. 41 chla values, mean 5.80 ug/l, range 0.01 - 67.2 ug/l. The annual chla mean concentrations were: 1994-6.3 ug/l, 1995-4.0 ug/l, 1996-13.2 ug/l, 1997-8.6 mg/l, 1998-5.6 ug/l, 1999-7.2 ug/l, 2000-4.8 ug/l, 2001-8.4 ug/l, and 2002-18.6 ug/l. 270 TN values, median 0.97 mg/l. 270 TP values, median 0.14 mg/l.
2987	Little Wekiva River	Stream	3F		Selenium	Not Impaired	2			
2987	Little Wekiva River	Stream	3F	Coliform Bacteria	Total Coliform Bacteria	Verified List	5	Low	2008	PP - 9/33 values exceed criterion. VP - 5/24 values exceed criterion. Coliform median 2000 colonies/100ml, range 120 - 24,000 colonies/100ml. No more than 5 values per month.
2987	Little Wekiva River	Stream	3F		Turbidity	Not Impaired	2			
2987	Little Wekiva River	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
2987	Little Wekiva River	Stream	3F		Zinc	Not Impaired	2			

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2987A	Spring Lake	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Phosphorus limited based on a TN/TP median of 37 (228 values) in the PP and a median of 37 (230 values) in the VP. PP - 6 TSI annual means exceeded 60 (1995-2000). VP - 7 TSI annual means exceeded 60 (1996-2002). 261 TN values, median 1.53 mg/L, mean 1.55 mg/L. 275 TP values, median 0.041 mg/L, mean 0.04 mg/L.
2987B	Little Wekiva Nw Ave T	Stream	3F		Biology	Planning List	3c			Biology does not meet verification threshold of IWR due to insufficient data in verified period.
2987X	Starbuck Spring	Stream	3F			Insufficient Data	3b			
2987Y	Palm Springs	Stream	3F			Insufficient Data	3b			
2987Z	Sanlando Spring	Stream	3F			Insufficient Data	3b			
2989	Mill Creek	Stream	3F			No Data	3a			
2993	Lake Prevatt	Lake	3F	Dissolved Oxygen	Dissolved Oxygen	Planning List	3c	(Low)	(2008)	DO does not meet verification threshold of IWR due to insufficient data in verified period. PP - 12/26 values below DO criterion, VP - 9/11 values below DO criterion.
2993	Lake Prevatt	Lake	3F	Coliform Bacteria	Fecal Coliform Bacteria	Not Impaired	2			This segment is being delisted because there were sufficient data for the planning list assessment. PP - 2/20 values exceed criterion, range 2.0 - 620 colonies/100ml. VP - 1/5 values exceed criterion, range 6.0 - 540 colonies/100ml.

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2993	Lake Prevatt	Lake	3F	Nutrients	Nutrients (TSI)	Not Impaired	2			Delist. PP - 0 TSI annual means exceeded 60, 63 chla values, range of chla values 0 - 83.1 ug/L, mean chla over entire period 20.36 ug/L. VP - 0 TSI annual means exceeded 60, 15 chla values, range of chla values 0 - 68 ug/L, mean chla over entire period 8.12 ug/L. The TSI annual means were 1994-57.6 and 1996-45.8. 11 TN values, median 1.02 mg/l. 11 TP values, median 0.03 mg/l.
2993	Lake Prevatt	Lake	3F	Coliform Bacteria	Total Coliform Bacteria	Not Impaired	2			This segment is being delisted because there were sufficient data for the planning list assessment. PP - 1/19 values exceed criterion, range 2.0 - 7700 colonies/100ml. VP - 0/5 values exceed criterion, range 40.0 - 2100 colonies/100ml.
2993	Lake Prevatt	Lake	3F		Turbidity	Not Impaired	2			
2993	Lake Prevatt	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
2993A	Dream Lake	Lake	3F			No Data	3a			
2993B	Lake Prevatt Outlet	Lake	3F			No Data	3a			
2998	Cranes Roost Outlet	Lake	3F		Nutrients (TSI)	Not Impaired	2			
2998A	Lake Florida	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Co-limitation by nitrogen and phosphorus based on a TN/TP median of 21 (186 values) during the PP and a median of 22 (242 values) during the VP. PP - 0 TSI annual means exceeded 60. VP - 1 TSI annual mean exceeded 60 (2002). 257 TN values, median 0.83 mg/L. 258 TP values, median 0.04 mg/L.

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2998B	Lake Mobile	Lake	3F			No Data	3a			
2998C	Lake Orienta	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Co-limitation of nitrogen and phosphorus based on a TN/TP median of 31 (31 values) during the PP and a median of 30 (696 values) during the VP. PP - 3 TSI annual means exceeded 60 (1996, 1999, 2000). VP - 5 TSI annual means exceeded 60 (1996, 1999-2002). 725 TN values, median 1.26 mg/L, mean 1.33 mg/L. 726 TP values, median 0.04 mg/L, mean 0.04 mg/L.
2998D	Lake Marion	Lake	3F			No Data	3a			
2998E	Lake Adalaide	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Co-limitation by nitrogen and phosphorus based on a TN/TP median of 23 (147 values) during the PP and a median of 22 (159 values) during the VP. PP - 1 TSI annual mean exceeded 60 (1993). VP - 1 TSI annual mean exceeded 60 (2001). 216 TN values, median 1.02 mg/L. 216 TP values, median 0.05 mg/L.
3000	Lake Pearl	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3000	Lake Pearl	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3000	Lake Pearl	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3000	Lake Pearl	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3000	Lake Pearl	Lake	3F		Turbidity	Not Impaired	2			
3000	Lake Pearl	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3000A	Lake Harriet	Lake	3F		Nutrients (TSI)	Not Impaired	2			

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3000B	Lake Yvonne	Lake	3F			No Data	3a			
3000C	Mirror Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3000D	Lake Pearl Outlet	Lake	3F			No Data	3a			
3002	Lucy Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3002A	Horseshoe Lake	Lake	3F			No Data	3a			
3002A1	Lucy Lake Outlet	Lake	3F			No Data	3a			
3002B	Spring Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3002C	Lake Olympia	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3002D	Starke Lake	Lake	3F		Chromium3	Not Impaired	2			
3002D	Starke Lake	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3002D	Starke Lake	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3002D	Starke Lake	Lake	3F		Nutrients (TSI)	Verified List	5			Phosphorus limited with some co-limitation based on a TN/TP median of 11 (38 values) during the PP and a median of 41 (202 values) during the VP. PP - 1 TSI means exceeded 60 (1991) and 1 TSI annual mean exceeded 40 (1993). VP - 1 TSI annual mean exceeded 40 (1996). The TSI listing threshold for the lake is determined based on the annual average color value for the lake. 309 TN values, median 1.04 mg/L, mean 1.03 mg/L. 359 TP values, median 0.03 mg/L, mean 0.05 mg/L.
3002D	Starke Lake	Lake	3F		Total Coliform Bacteria	Not Impaired	2			

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3002D	Starke Lake	Lake	3F		Turbidity	Not Impaired	2			
3002D	Starke Lake	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3002D	Starke Lake	Lake	3F		Zinc	Not Impaired	2			
3002E	Lake Primavista	Lake	3F		Cadmium	Not Impaired	2			
3002E	Lake Primavista	Lake	3F		Chromium3	Not Impaired	2			
3002E	Lake Primavista	Lake	3F		Copper	Not Impaired	2			
3002E	Lake Primavista	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3002E	Lake Primavista	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3002E	Lake Primavista	Lake	3F		Nickel	Not Impaired	2			
3002E	Lake Primavista	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Phosphorus limited based on a TN/TP median of 41 (279 values) during the PP and a median of 40 (204 values) during the VP. PP - 6 TSI annual means exceeded 60 (1993-1997, 1999). VP - 4 TSI annual means exceeded 60 (1996-1997, 1999, 2001). 309 TN values, median 1.26 mg/L, mean 1.32 mg/L. 358 TP values, median 0.03 mg/L, mean 0.06 mg/L.
3002E	Lake Primavista	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3002E	Lake Primavista	Lake	3F		Turbidity	Not Impaired	2			
3002E	Lake Primavista	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			

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3002E	Lake Primavista	Lake	3F		Zinc	Not Impaired	2			
3002F	Lake Bennett	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3002G	Lake Lotta	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Co-limitation of nitrogen and phosphorus based on a TN/TP median of 17 (512 values) during the PP and a median of 18 (392 values) during the VP. PP - 1 TSI annual mean exceed threshold of 60 (1997). VP - 1 TSI annual mean exceed threshold of 60 (1997). 623 TN values, median 0.9 mg/L, mean 0.91 mg/L. 626 TP values, median 0.05 mg/L, mean 0.06 mg/L.
3002H	Lake Sherwood	Lake	3F		Dissolved Oxygen	Planning List	3c			PP - 8/12 values below DO criterion. VP - 8/10 values below DO criterion.
3002H	Lake Sherwood	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3002H	Lake Sherwood	Lake	3F		Turbidity	Not Impaired	2			
3002H	Lake Sherwood	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3002I	Lake Rose	Lake	3F		Nutrients (TSI)	Planning List	3c			TSI met planning list but does not meet the verification threshold of the IWR. PP - 1 TSI annual mean exceed threshold. VP - 0 TSI annual mean exceed threshold.
3002J	Lake Hiawassee	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3002J	Lake Hiawassee	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3002J	Lake Hiawassee	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3002J	Lake Hiawassee	Lake	3F		Total Coliform Bacteria	Not Impaired	2			

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3002J	Lake Hiawassee	Lake	3F		Turbidity	Not Impaired	2			
3002J	Lake Hiawassee	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3002K	Lake Olivia	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3002K	Lake Olivia	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3002K	Lake Olivia	Lake	3F		Nutrients (TSI)	Planning List	3c			TSI met planning list but does not meet the verification threshold of the IWR.
3002K	Lake Olivia	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3002K	Lake Olivia	Lake	3F		Turbidity	Not Impaired	2			
3002K	Lake Olivia	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3002L	Lake Johio	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3002M	Ocoee Drain	Stream	3F			No Data	3a			
3002N	Prairie Lake	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Co-limitation by nitrogen and phosphorus based on a TN/TP median of 31 (93 values) during the PP and a median of 29 (121 values) during the VP. PP - 0 TSI annual means exceeded 60. VP - 1 TSI annual mean exceeded 60 (2001). 122 TN values, median 0.87 mg/L, mean 1.08 mg/L. 122 TP values, median 0.03 mg/L, mean 0.04 mg/L.
3004	Little Wekiva Canal	Stream	3F		Biology	Not Impaired	2			
3004	Little Wekiva Canal	Stream	3F		Chromium3	Not Impaired	2			

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3004	Little Wekiva Canal	Stream	3F	Dissolved Oxygen and BOD	Dissolved Oxygen and BOD	Verified List	5	Low	2008	PP - 32/103 values below DO criterion. VP - 23/65 values below DO criterion. DO met verification threshold of IWR and BOD is causative pollutant. (BOD median = 2.1 mg/L). 103 DO values, median 6.2 mg/L, mean 5.9 mg/L, range 0.5 - 12.09 mg/L.
3004	Little Wekiva Canal	Stream	3F	Coliform Bacteria	Fecal Coliform Bacteria	Verified List	5	Low	2008	PP - 29/95 values exceed criterion. VP - 21/61 values exceed criterion. Coliform median 170 colonies/100ml, range 2 - 4,320 colonies/100ml. No more than 4 values per month.
3004	Little Wekiva Canal	Stream	3F	Nutrients	Nutrients (Chla)	Verified List	5	Low	2008	Co-limitation by nitrogen and phosphorus based on a TN/TP median of 14 (156 values) during the PP and a median of 17 (84 values) during the VP. 84 TN values, median 1.16 mg/L . 84 TP values, median 0.08 mg/L. PP - 6 chla annual means exceeded 20 ug/l (1991, 1992, 1994, 1996, 1998, 1999). VP - 3 chla annual means exceeded 20 ug/l (1996, 1998, 1999). The annual chla concentrations were: 1991 - 20.5 ug/l, 1992 - 20.7 ug/l, 1993 - 13.6 ug/l, 1994 - 23.2 ug/l, 1996 - 25.1 ug/l, 1997 - 13.0 ug/l, 1998 - 20.0 ug/l, 1999 - 26.6 ug/l, and 2000 - 10.0 ug/l.

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3004	Little Wekiva Canal	Stream	3F	Coliform Bacteria	Total Coliform Bacteria	Not Impaired	2			Delist. PP - 14/93 values exceed criterion. VP - 7/61 values exceed criterion. Coliform median 730 colonies/100ml, range 40 - 8,000 colonies/100ml. No more than 4 values per month.
3004	Little Wekiva Canal	Stream	3F		Turbidity	Not Impaired	2			
3004	Little Wekiva Canal	Stream	3F		Un-Ionized Ammonia	Not Impaired	2			
3004	Little Wekiva Canal	Stream	3F		Zinc	Not Impaired	2			
3004A	Bear Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3004B	Lake Fairview	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3004B	Lake Fairview	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3004B	Lake Fairview	Lake	3F		Nutrients (TSI)	Planning List	3c			TSI met planning list but does not meet the verification threshold of the IWR. PP - 1 TSI annual mean exceed threshold. VP - 0 TSI annual means exceed threshold.
3004B	Lake Fairview	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3004B	Lake Fairview	Lake	3F		Turbidity	Not Impaired	2			
3004B	Lake Fairview	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3004C	Lake Lawne	Lake	3F		Cadmium	Not Impaired	2			
3004C	Lake Lawne	Lake	3F		Chromium3	Not Impaired	2			
3004C	Lake Lawne	Lake	3F		Dissolved Oxygen	Not Impaired	2			

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3004C	Lake Lawne	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3004C	Lake Lawne	Lake	3F		Mercury (in water)	Planning List	3c			Mercury in water met the planning list threshold, but need to confirm clean sampling and analytical methodology was used in water sample analysis.
3004C	Lake Lawne	Lake	3F		Nickel	Not Impaired	2			
3004C	Lake Lawne	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Co-limitation by nitrogen and phosphorus based on a TN/TP median of 13 (320 values) during the PP and a median of 17 (98 values) during the VP. PP - 6 TSI annual means exceeded 60 (1991-1994, 1996, 1997). VP - 2 TSI annual means exceeded 60 (1996, 1997). 27 TN values, median 1.48 mg/L, mean 1.57 mg/L. 404 TP values, median 0.128 mg/L, mean 0.203 mg/L.
3004C	Lake Lawne	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3004C	Lake Lawne	Lake	3F		Turbidity	Not Impaired	2			
3004C	Lake Lawne	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3004C	Lake Lawne	Lake	3F		Zinc	Not Impaired	2			
3004D	Silver Lake	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3004D	Silver Lake	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			

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3004D	Silver Lake	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Co-limitation by nitrogen and phosphorus based on a TN/TP median of 25 (237 values) during the PP and a median of 27 (118 values) during the VP. PP - 0 TSI annual means exceed threshold of 60. VP - 1 TSI annual means exceed threshold of 60 (1998). 173 TN values, median 0.64 mg/L, mean 0.76 mg/L. 224 TP values, median 0.027 mg/L, mean 0.04 mg/L.
3004D	Silver Lake	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3004D	Silver Lake	Lake	3F		Turbidity	Not Impaired	2			
3004D	Silver Lake	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3004E	Lake Daniel	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3004E	Lake Daniel	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3004E	Lake Daniel	Lake	3F		Nutrients (TSI)	Planning List	3c			Co-limitation by nitrogen and phosphorus based on a TN/TP median of 23 (126 values) during the PP and a median of 24 (65 values) during the VP. PP - 0 TSI annual means exceeded 60. VP - 1 TSI annual mean exceeded 40 (2002). 65 TN values, median 0.82 mg/L. 65 TP values, median 0.034 mg/L. Need to continue to investigate a more appropriate TSI threshold for the lakes in the Orlando Ridge area.
3004E	Lake Daniel	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			

WBID	Waterbody Segment Name	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	Parameters Identified Using the IWR	Proposed Status	Integrated Report Category[1]	Priority for TMDL Develop-ment[2]	Projected Year for TMDL Develop-ment[2]	Comments[3] (# Exceedances/ # Samples) PP= Planning Period VP= Verified Period
3004F	Lake Sarah	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3004F	Lake Sarah	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3004F	Lake Sarah	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3004F	Lake Sarah	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3004G	Bay Lake	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3004G	Bay Lake	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3004G	Bay Lake	Lake	3F		Nutrients (TSI)	Verified List	5	Medium	2008	Co-limitation by nitrogen and phosphorus based on a TN/TP median of 29 (406 values) during the PP and a median of 31 (286 values) during the VP. PP - 8 TSI annual means exceeded 60 (1993-2000). VP - 7 TSI annual means exceeded 60 (1996-2002). 442 TN values, median 1.21 mg/L, mean 1.27 mg/L. 443 TP values, median 0.04 mg/L, mean 0.042 mg/L.
3004G	Bay Lake	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3004H	Little Lake Fairview	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3004H	Little Lake Fairview	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			

WBID	Waterbody Segment Name	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	Parameters Identified Using the IWR	Proposed Status	Integrated Report Category[1]	Priority for TMDL Develop-ment[2]	Projected Year for TMDL Develop-ment[2]	Comments[3] (# Exceedances/ # Samples) PP= Planning Period VP= Verified Period
3004H	Little Lake Fairview	Lake	3F		Nutrients (TSI)	Planning List	3c			Phosphorus limited. PP - 0 TSI annual means exceed threshold of 60. VP - 0 TSI annual means exceed threshold of 60. 350 TN values, median 0.75 mg/L, mean 0.76 mg/L. 30 TP values, median 0.046 mg/L, mean 0.16 mg/L. Need to continue to investigate a more appropriate TSI threshold for the lakes in the Orlando Ridge area.
3004H	Little Lake Fairview	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3004H	Little Lake Fairview	Lake	3F		Turbidity	Not Impaired	2			
3004H	Little Lake Fairview	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3004I	Lake Rose	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3004I	Lake Rose	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3004I	Lake Rose	Lake	3F		Nutrients (TSI)	Planning List	3c			TSI meets the planning list only. Co-limited by nitrogen and phosphorus. PP - 1 TSI annual mean exceed threshold. VP - 0 TSI annual means exceed threshold. 15 TN values, median 1.215 mg/L. 30 TP values, median 0.046 mg/L.
3004I	Lake Rose	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3004I	Lake Rose	Lake	3F		Turbidity	Not Impaired	2			
3004I	Lake Rose	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3004J	Lake Gandy	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3004J	Lake Gandy	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			

WBID	Waterbody Segment Name	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	Parameters Identified Using the IWR	Proposed Status	Integrated Report Category[1]	Priority for TMDL Develop-ment[2]	Projected Year for TMDL Develop-ment[2]	Comments[3] (# Exceedances/ # Samples) PP= Planning Period VP= Verified Period
3004J	Lake Gandy	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3004J	Lake Gandy	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3004J	Lake Gandy	Lake	3F		Turbidity	Not Impaired	2			
3004J	Lake Gandy	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3004K	Lake Wekiva/Orlando	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3004K	Lake Wekiva/Orlando	Lake	3F		Nutrients (TSI)	Planning List	3c			Co-limitation by nitrogen and phosphorus. PP - 2 TSI annual means exceed threshold. VP - 0 TSI annual means exceed threshold. 31 TN values, median 1.30 mg/L. 32 TP values, median 0.08 mg/L.
3004L	Trout Lake	Lake	3F			No Data	3a			
3004M	Lake Lotus	Lake	3F			No Data	3a			
3004N	Lake Fairview Lake	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3004N	Lake Fairview Lake	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3004N	Lake Fairview Lake	Lake	3F		Nutrients (TSI)	Planning List	3c			Phosphorus limited. PP - 0 TSI annual means exceed threshold of 60. VP - 0 TSI annual means exceed threshold of 60. 88 TN values, median 0.75 mg/L, mean 0.76 mg/L. 177 TP values, median 0.023 mg/L, mean 0.048 mg/L. Need to continue to investigate a more appropriate TSI threshold for the lakes in the Orlando Ridge area.
3004N	Lake Fairview Lake	Lake	3F		Total Coliform Bacteria	Not Impaired	2			

WBID	Waterbody Segment Name	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	Parameters Identified Using the IWR	Proposed Status	Integrated Report Category[1]	Priority for TMDL Develop-ment[2]	Projected Year for TMDL Develop-ment[2]	Comments[3] (# Exceedances/ # Samples) PP= Planning Period VP= Verified Period
3004N	Lake Fairview Lake	Lake	3F		Turbidity	Not Impaired	2			
3004N	Lake Fairview Lake	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3004O	Asher Lake	Lake	3F		Dissolved Oxygen	Planning List	3c			PP - 3/7 values below DO criterion. VP - 11/15 values below DO criterion.
3004O	Asher Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3004P	Cub Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3004Q	Little Bear Lake	Lake	3F		Nutrients (TSI)	Not Impaired	2			
3011	Lake Lucien Outlet	Stream	3F			No Data	3a			
3011A	Lake Weston	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3011A	Lake Weston	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			
3011A	Lake Weston	Lake	3F		Nutrients (TSI)	Planning List	3c			Co-limitation by nitrogen and phosphorus. PP - 1 TSI annual mean exceed threshold. VP - 0 TSI annual mean exceed threshold. 19 TN values, median 0.90 mg/L, mean 085, range 0.46 - 1.28 mg/L. 0 TP values, median 0.00 mg/L.
3011A	Lake Weston	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3011A	Lake Weston	Lake	3F		Turbidity	Not Impaired	2			
3011A	Lake Weston	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3011B	Lake Shadow	Lake	3F		Dissolved Oxygen	Not Impaired	2			
3011B	Lake Shadow	Lake	3F		Fecal Coliform Bacteria	Not Impaired	2			

WBID	Waterbody Segment Name	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	Parameters Identified Using the IWR	Proposed Status	Integrated Report Category[1]	Priority for TMDL Develop-ment[2]	Projected Year for TMDL Develop-ment[2]	Comments[3] (# Exceedances/ # Samples) PP= Planning Period VP= Verified Period
3011B	Lake Shadow	Lake	3F		Total Coliform Bacteria	Not Impaired	2			
3011B	Lake Shadow	Lake	3F		Turbidity	Not Impaired	2			
3011B	Lake Shadow	Lake	3F		Un-Ionized Ammonia	Not Impaired	2			
3011C	Lake Lucien	Lake	3F		Mercury (in fish tissue)	Verified List	5	Medium	2011	Mercury (in fish tissue) met verification threshold of IWR. Fish tissue levels in 20 samples averaged 0.5075 ppm in 2000.

Table F.2: STORET Stations by Planning Unit for the Middle St. Johns Basin

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
	Alexander Springs Planning Unit						
2917	SOUTH GRASSHOPPER LAKE	LAKE	21FLSJWMSGRS	SOUTH GRASSHOPPER LAKE @ CENTER			
2917	SOUTH GRASSHOPPER LAKE	LAKE	1118ATL8050540	GRASSHOPPER (SOUTH)			
2918A	ALEXANDER SPRINGS DRAI	SPRING	112WRD 02236099	ALEXANDER SPRINGS CREEK AT SH 445 NR ASTOR, FL			
2918B	BUCK LAKE	LAKE	21FLGFWF03080101-T-110	Buck Lake Station 1	1996	1996	15
2918B	BUCK LAKE	LAKE	21FLCEN 20010080	Buck Lake at center, Ocala National Forest	1999	2002	32
2918B	BUCK LAKE	LAKE	21FLCEN 20010528	SE Quadrant of Buck Lake	2002	2002	43
2918B	BUCK LAKE	LAKE	21FLCEN 20010527	NW Quadrant of Buck Lake	2002	2002	43
2918B	BUCK LAKE	LAKE	21FLCEN 20010529	SW Quadrant of Buck Lake	2002	2002	43
2918B	BUCK LAKE	LAKE	21FLCEN 20010526	NE Quadrant of Buck Lake	2002	2002	43
2918B	BUCK LAKE	LAKE	21FLGFWF03080101-T-115	Buck Lake Station 2	1996	1996	15
2918B	BUCK LAKE	LAKE	1118ATL8050519	BUCK LAKE	1996	1997	44
2918B	BUCK LAKE	LAKE	21FLA 20010080	Buck Lake at center, Ocala National Forest			
2918C	SELLERS LAKE DRAIN	LAKE	21FLKWATSELLERS2	LAKE SELLERS2 IN LAKE CO.- SEE NOTE			
2918C	SELLERS LAKE DRAIN	LAKE	21FLA 20020496	SELLERS LAKE- CENTER OF LAKE	1996	1996	24
2918C	SELLERS LAKE DRAIN	LAKE	21FLKWATSELLERS3	LAKE SELLERS3 IN LAKE CO.- SEE NOTE			
2918C	SELLERS LAKE DRAIN	LAKE	21FLCEN 20020496	Sellers Lake - Center of Lake	2002	2002	15
2918C	SELLERS LAKE DRAIN	LAKE	12ELS1 3B1-077	SELLERS LAKE			
2918C	SELLERS LAKE DRAIN	LAKE	21FLKWATLAK-SELLERS-3	Lake-Sellers-3	1996	2002	261
2918C	SELLERS LAKE DRAIN	LAKE	21FLKWATLAK-SELLERS-2	Lake-Sellers-2	1996	2002	257
2918C	SELLERS LAKE DRAIN	LAKE	21FLSJWMSELLK	SELLERS LAKE			
2918C	SELLERS LAKE DRAIN	LAKE	21FLKWATLAK-SELLERS-1	Lake-Sellers-1	1996	2002	260
2918C	SELLERS LAKE DRAIN	LAKE	21FLA 20020403	L SELLERS CENTER OF EASTERN LOBE			
2918C	SELLERS LAKE DRAIN	LAKE	21FLKWATSELLERS1	LAKE SELLERS1 IN LAKE CO.- SEE NOTE			
2918C	SELLERS LAKE DRAIN	LAKE	1118ATL8050553	SELLERS LAKE			
2918C	SELLERS LAKE DRAIN	LAKE	21FLA 20020402	SELLERS LAKE-SOUTH END			
2918D	ECHO LAKE	LAKE	21FLKWATECHO083-1	LAKE ECHO1 IN MARION CO.-SEE NOTE			
2918D	ECHO LAKE	LAKE	21FLKWATECHO083-2	LAKE ECHO2 IN MARION CO.-SEE NOTE			
2918D	ECHO LAKE	LAKE	21FLKWAT083ECHO3				
2918D	ECHO LAKE	LAKE	1118ATL8050534	ECHO LAKE			
2918D	ECHO LAKE	LAKE	21FLKWATECHO083-3	LAKE ECHO3 IN MARION CO.-SEE NOTE			
2918D	ECHO LAKE	LAKE	21FLGFWF03080101-T-120	Echo Pond mid lake	1996	1996	27
2918D	ECHO LAKE	LAKE	21FLKWATMAR-ECHO-1	Marion-Echo-1			
2918D	ECHO LAKE	LAKE	21FLKWAT083ECHO1				
2918D	ECHO LAKE	LAKE	21FLKWATMAR-ECHO-3	Marion-Echo-3			
2918D	ECHO LAKE	LAKE	21FLKWATMAR-ECHO-2	Marion-Echo-2			
2918D	ECHO LAKE	LAKE	21FLKWAT083ECHO2				
2918E	FARLES PRAIRIE	LAKE	21FLLCPCLKSELLERS	LAKE SELLERS SE SHORE @ CAMP OCALA	2001	2002	53
2918Z	ALEXANDER SPRINGS	SPRING	112WRD 02236095	ALEXANDER SPRINGS NEAR ASTOR, FLA.	1996	2001	40
2918Z	ALEXANDER SPRINGS	SPRING	21FLGW 9670	ALEXANDER SPRINGS	2001	2003	186

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
2918Z	ALEXANDER SPRINGS	SPRING	21FLLCPCSWALEXSP445	ALEXANDER SPRINGS RUN @ CR445	2000	2002	159
2930	LULU LAKE	LAKE	21FLLCPCLKLULU	LAKE LULU PAISLEY CENTER OF LAKE	2002	2002	27
2930	LULU LAKE	LAKE	21FLSJWMLULU	LULU LAKE @ CENTER			
2930	LULU LAKE	LAKE	21FLLCPCLKLULUSHR	LAKE LULU FROM SHORE @ 43617 SUNSET DR. PAISLEY	2001	2001	19
2930A	AKRON LAKE	LAKE	21FLKWAT069AKRON1				
2930A	AKRON LAKE	LAKE	21FLLCPCLKAKRON	AKRON LAKE CENTER @ PAISLEY	1996	2002	310
2930A	AKRON LAKE	LAKE	21FLSJWMAKRN	AKRON LAKE @ CENTER			
2930A	AKRON LAKE	LAKE	21FLKWATLAK-AKRON-1	Lake-Akron-1	1998	2000	36
2930A	AKRON LAKE	LAKE	21FLKWAT069AKRON3				
2930A	AKRON LAKE	LAKE	21FLKWAT069AKRON2				
2930A	AKRON LAKE	LAKE	21FLKWATLAK-AKRON-3	Lake-Akron-3	1998	2000	36
2930A	AKRON LAKE	LAKE	21FLKWATLAK-AKRON-2	Lake-Akron-2	1998	2000	36
2930D	BLUE LAKE	LAKE	21FLKWATLAK-BLUE-2	Lake-Blue-2	1996	2002	181
2930D	BLUE LAKE	LAKE	21FLKWATBLUE069-2	LAKE BLUE2 LAKE CO SEE NOTE			
2930D	BLUE LAKE	LAKE	21FLKWATLAK-BLUE-1	Lake-Blue-1	1996	2002	181
2930D	BLUE LAKE	LAKE	21FLKWATBLUE069-1	LAKE BLUE1 LAKE CO SEE NOTE			
2930D	BLUE LAKE	LAKE	21FLKWATBLUE069-3	LAKE BLUE3 LAKE CO SEE NOTE			
2930D	BLUE LAKE	LAKE	21FLKWATLAK-BLUE-3	Lake-Blue-3	1996	2002	181
2930E	SILVER PAISLEY LAKE	LAKE	21FLKWATSILVER PAISLEY2	LAKE SILVER PAISLEY2 IN LAKE CO.- SEE NOTE			
2930E	SILVER PAISLEY LAKE	LAKE	21FLKWATSILVER PAISLEY1	LAKE SILVER PAISLEY1 IN LAKE CO.- SEE NOTE			
2930E	SILVER PAISLEY LAKE	LAKE	21FLKWATLAK-SILVERPA-3	Lake-Silver Paisley-3	1996	1997	19
2930E	SILVER PAISLEY LAKE	LAKE	21FLKWATLAK-SILVERPA-1	Lake-Silver Paisley-1	1996	1997	21
2930E	SILVER PAISLEY LAKE	LAKE	21FLKWATSILVER PAISLEY3	LAKE SILVER PAISLEY3 IN LAKE CO.- SEE NOTE			
2930E	SILVER PAISLEY LAKE	LAKE	21FLKWATLAK-SILVERPA-2	Lake-Silver Paisley-2	1996	1997	22
2932A	LAKE KATHRYN	LAKE	112WRD 290045081294801	LAKE KATHRYN (AT CENTER)			
2932A	LAKE KATHRYN	LAKE	112WRD 290045081294802	LAKE KATHRYN (S OF CENTER)			
2932A	LAKE KATHRYN	LAKE	112WRD 290045081294804	LAKE KATHRYN (N OF CENTER)			
	Deep Creek Planning Unit						
2893F	STJ RIV AB LK JESSUP	STREAM	21FLSCES31602	ST. JOHNS RIVER, BOAT BASIN MULLET LK. PARK			
2893F	STJ RIV AB LK JESSUP	STREAM	21FLVEMDSJ05	ST. JOHNS RIVER AT LEMON BLUFF	1996	1998	1170
2893F	STJ RIV AB LK JESSUP	STREAM	21FLA 20010483	ST JOHNS RIVER AT CLARK HAMMOCK			
2893F	STJ RIV AB LK JESSUP	STREAM	21FLA 20010484	ST JOHNS RIVER AT MULLETT LAKE			
2893F	STJ RIV AB LK JESSUP	STREAM	21FLA SJRJESSUP8	LAKE JESSUP STATION OW-SJR-1			
2893F	STJ RIV AB LK JESSUP	STREAM	21FLSCES40814	ST. JOHNS RIVER, OSCEOLA DOCKS PILINGS.			
2893F	STJ RIV AB LK JESSUP	STREAM	21FLSCES31780	ST. JOHNS RIVER, MARINA ISLE			
2893F	STJ RIV AB LK JESSUP	STREAM	21FLSJWM44063	OW-SJR-1 - Mid SJR east of Barge Canal & east of J	2002	2003	264
2893F	STJ RIV AB LK JESSUP	STREAM	21FLA 20010020	ST JOHNS R 200 YD UP GEIGERS LAN			
2893F	STJ RIV AB LK JESSUP	STREAM	21FLCEN 20010483	SJR 3 miles downstream of Lake Harney	2002	2002	20
2893F	STJ RIV AB LK JESSUP	STREAM	21FLSJWMOW-SJR-1	MIDDLE OF ST JOHNS RIVER NO OF LK JESUP	1996	2002	1151
2893F	STJ RIV AB LK JESSUP	STREAM	21FLSJRWOW-SJR-1	Mid SJR east of Barge Canal & east of JJ Fish Camp	1996	2001	2403
2893F	STJ RIV AB LK JESSUP	STREAM	21FLA 20010009	ST JOHNS R AT FLA 415			
2893F1	LAKE COCKRAN	LAKE	21FLKWATSEM-COCHRAN-1	Seminole-Cochran-1	1999	1999	12

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
2893F1	LAKE COCKRAN	LAKE	21FLKWAT117COCHRAN3				
2893F1	LAKE COCKRAN	LAKE	21FLKWAT117COCHRAN2				
2893F1	LAKE COCKRAN	LAKE	21FLKWAT117COCHRAN1				
2893F1	LAKE COCKRAN	LAKE	21FLKWATSEM-COCHRAN-2	Seminole-Cochran-2	1999	1999	11
2893F1	LAKE COCKRAN	LAKE	21FLKWATSEM-COCHRAN-3	Seminole-Cochran-3	1999	1999	11
2893H	MULLET LAKE	LAKE	21FLKWAT117MULLET1				
2893H	MULLET LAKE	LAKE	21FLGFWF03080101-T-105	Mullet Lake West	2002	2003	61
2893H	MULLET LAKE	LAKE	21FLKWAT117MULLET3				
2893H	MULLET LAKE	LAKE	21FLKWATSEM-MULLET-3	Seminole-Mullet-3	2001	2001	16
2893H	MULLET LAKE	LAKE	21FLSEM MUL	MULLET LAKE	1998	1998	40
2893H	MULLET LAKE	LAKE	21FLGFWF03080101-T-100	Mullet Lake East	2002	2003	57
2893H	MULLET LAKE	LAKE	21FLSJWMMULT	MULLET LAKE @ CENTER			
2893H	MULLET LAKE	LAKE	21FLKWATSEM-MULLET-1	Seminole-Mullet-1	2001	2001	16
2893H	MULLET LAKE	LAKE	21FLKWATSEM-MULLET-2	Seminole-Mullet-2	2001	2001	16
2893H	MULLET LAKE	LAKE	21FLKWAT117MULLET2				
2893H	MULLET LAKE	LAKE	21FLSCES31552	MULLET LAKE			
2893J	MUD LAKE	LAKE	21FLSJWMLAMD	MUD LAKE @ CENTER			
2922	DEEP CREEK DIVERSION	STREAM	21FLSJWM44643	DMR - DEEP CREEK AT MAYTOWN ROAD	2002	2002	45
2922	DEEP CREEK DIVERSION	STREAM	21FLSJRWDMR	DEEP_CREEK_AT_MAYTOWN_ROAD			
2922	DEEP CREEK DIVERSION	STREAM	112WRD 02234180	DEEP CREEK DIVERSION CANAL NR OSTEEN, FLA.			
2922	DEEP CREEK DIVERSION	STREAM	112WRD 02247486	WALLY HOFFMEYER CANAL			
2922A	DAYTONA LAKE	LAKE	21FLKWAT127DAYTONA3				
2922A	DAYTONA LAKE	LAKE	21FLKWAT127DAYTONA2				
2922A	DAYTONA LAKE	LAKE	21FLKWATVOL-DAYTONA-1	Volusia-Daytona-1	1999	1999	31
2922A	DAYTONA LAKE	LAKE	21FLKWATVOL-DAYTONA-2	Volusia-Daytona-2	1999	1999	34
2922A	DAYTONA LAKE	LAKE	21FLKWAT127DAYTONA1				
2922A	DAYTONA LAKE	LAKE	21FLKWATVOL-DAYTONA-3	Volusia-Daytona-3	1999	1999	35
2925	DEEP CR-LK ASHBY CA	BLACKWATER	112WRD 02234100	DEEP CREEK NR OSTEEN, FLA.			
2925	DEEP CR-LK ASHBY CA	BLACKWATER	21FLCEN 20010254	DEEP CREEK/LAKE ASHBY CANAL AT MAYTOWN RD.	2002	2002	48
2925	DEEP CR-LK ASHBY CA	BLACKWATER	21FLSJWM71889	DCR-MRD - Deep Creek - Maytown Road	2002	2003	226
2925	DEEP CR-LK ASHBY CA	BLACKWATER	21FLSJWMDMR	DEEP CREEK AT MAYTOWN ROAD BRIDGE	1996	2002	1588
2925	DEEP CR-LK ASHBY CA	BLACKWATER	21FLSCES40800	DEEP CREEK			
2925A	LAKE ASHBY	LAKE	21FLA 20010801	LAKE ASHBY			
2925A	LAKE ASHBY	LAKE	21FLKWATVOL-ASHBY-1	Volusia-Ashby-1	1996	2002	328
2925A	LAKE ASHBY	LAKE	21FLSJWMLACM	LAKE ASHBY CANAL @ MAYTOWN RD			
2925A	LAKE ASHBY	LAKE	21FLKWATASHBY2	ASHBY IN VOLUSIA CO.-SEE NOTE			
2925A	LAKE ASHBY	LAKE	21FLKWATASHBY3	ASHBY IN VOLUSIA CO.-SEE NOTE			
2925A	LAKE ASHBY	LAKE	21FLA 20010492	LAKE ASHBY CENTER - VOLUSIA CO.	1996	1996	24
2925A	LAKE ASHBY	LAKE	21FLKWATVOL-ASHBY-2	Volusia-Ashby-2	1996	2002	327
2925A	LAKE ASHBY	LAKE	21FLKWATVOL-ASHBY-3	Volusia-Ashby-3	1996	2002	325
2925A	LAKE ASHBY	LAKE	21FLSJWM71886	LACR-AP - Lake Ashby Park	2002	2003	251
2925A	LAKE ASHBY	LAKE	21FLGW 3512	ASH	1998	2003	1513
2925A	LAKE ASHBY	LAKE	21FLSJRWASH	CENTER_OF_LAKE_ASHBY			

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
2925A	LAKE ASHBY	LAKE	112WRD 285548081053802	LAKE ASHBY (E OF CENTER)			
2925A	LAKE ASHBY	LAKE	21FLSJWMASH	CENTER LAKE ASHBY	1996	2001	2191
2925A	LAKE ASHBY	LAKE	21FLKWATASHBY1	ASHBY IN VOLUSIA CO.-SEE NOTE			
2925A	LAKE ASHBY	LAKE	112WRD 285548081053807	LAKE ASHBY (AT CENTER)			
2925A	LAKE ASHBY	LAKE	112WRD 285548081053805	LAKE ASHBY (1 MI SSW OF CENTER)			
2925B	LAKE ASHBY DRAIN	LAKE	21FLCEN 20010385	Deep Creek ~ 0.2 mi upstream of SJR	2002	2002	64
2925B	LAKE ASHBY DRAIN	LAKE	21FLCEN 20010386	Deep Creek ~ 0.5 mi upstream of SJR	2002	2002	50
2925B	LAKE ASHBY DRAIN	LAKE	21FLCEN 20010387	Deep Creek ~ 2 mi upstream of SJR	2002	2002	32
2931	LK WINNEMISSETT	LAKE	21FLKWATWINNEMISSETT3	WINNEMISSETT IN VOLUSIA CO.-SEE NOTE			
2931	LK WINNEMISSETT	LAKE	21FLSJWM44841	WIN - LAKE WINNEMISSETT	2002	2002	56
2931	LK WINNEMISSETT	LAKE	112WRD 02234160	LAKE WINNEMISSETT NEAR DELAND, FLA.			
2931	LK WINNEMISSETT	LAKE	21FLKWATVOL-WINNEMISS-1	Volusia-Winnemissett-1	1996	2002	207
2931	LK WINNEMISSETT	LAKE	21FLKWATWINNEMISSETT1	WINNEMISSETT IN VOLUSIA CO.-SEE NOTE			
2931	LK WINNEMISSETT	LAKE	21FLSJWMWIN	CENTER OF LAKE WINNEMISSETT NEAR DELAND	1996	2001	1635
2931	LK WINNEMISSETT	LAKE	21FLKWATVOL-WINNEMISS-3	Volusia-Winnemissett-3	1996	2002	177
2931	LK WINNEMISSETT	LAKE	21FLKWATVOL-WINNEMISS-2	Volusia-Winnemissett-2	1996	2002	192
2931	LK WINNEMISSETT	LAKE	21FLSJRWWIN	LAKE_WINNEMISSETT			
2931	LK WINNEMISSETT	LAKE	21FLKWATWINNEMISSETT2	WINNEMISSETT IN VOLUSIA CO.-SEE NOTE			
2935	SAMSULA CANAL-SANDY DR	BLACKWATER	21FLSJWMUSJ071	SANDY DRAIN AT PELL ROAD			
2936	LAKE ASHBY CREEK	STREAM	21FLA 20010197	ASHBY CREEK AT COUNTY PARK	1997	1997	23
2952	COW CREEK	BLACKWATER	21FLSJWM71888	DCR-CCR - Cow Ck at Dirt road crossing	2002	2003	226
2952	COW CREEK	BLACKWATER	21FLSJWMCOW	COW CREEK AT MAYTOWN ROAD BRIDGE			
2952	COW CREEK	BLACKWATER	112WRD 02234150	COW CREEK NR MAYTOWN, FLA.			
2964	ST JOHNS AB L HARNEY (UNDERHILL SLOUGH)	STREAM	21FLVEMDSJ04	ST. JONHS RIVER AT NORTH END LAKE HARNEY	1996	1998	1270
2964	ST JOHNS AB L HARNEY (UNDERHILL SLOUGH)	STREAM	21FLA 20010008	ST JOHNS R AT EFF END OF L HARNE			
2964	ST JOHNS AB L HARNEY (UNDERHILL SLOUGH)	STREAM	21FLSCES40758	ST. JOHNS RIVER, OFF OSCEOLA FISH CAMP.			
2964	ST JOHNS AB L HARNEY (UNDERHILL SLOUGH)	STREAM	21FLVEMDVC-043	St. Johns River, N of Lake Harney @ Old Osceola Fi	1999	2003	436
2964	ST JOHNS AB L HARNEY (UNDERHILL SLOUGH)	STREAM	21FLCEN 20010008	ST JOHNS R AT EFF END OF L HARNE	2002	2002	326
2964	ST JOHNS AB L HARNEY (UNDERHILL SLOUGH)	STREAM	21FLGFWFGFCCR0188	ST. JOHNS RIVER EXIT TO LAKE HARNEY	1996	1996	47
2964	ST JOHNS AB L HARNEY (UNDERHILL SLOUGH)	STREAM	112WRD 02234010	ST. JOHNS RIVER AT OSCEOLA, FLA.			
2964A	LAKE HARNEY	LAKE	21FLKWATVOL-HARNEY-2	Volusia-Harney-2	1997	2002	147
2964A	LAKE HARNEY	LAKE	21FLKWATVOL-HARNEY-1	Volusia-Harney-1	1997	2002	147
2964A	LAKE HARNEY	LAKE	21FLSJWM54193	CLH - Center of Lake Harney	2002	2002	108
2964A	LAKE HARNEY	LAKE	21FLSCES40106	ST. JOHNS RIVER, S.R. 46 BRIDGE			
2964A	LAKE HARNEY	LAKE	21FLSJRWCLH	CENTER_OF_LAKE_HARNEY			
2964A	LAKE HARNEY	LAKE	11COEJAX3SJR10020	SAINT JOHNS RIVER AT HIGHWAY 46			

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2964A	LAKE HARNEY	LAKE	21FLSCES40501	LAKE HARNEY, SE QUADRANT.			
2964A	LAKE HARNEY	LAKE	21FLORANSJ27	ST. JOHNS R. AT SR46	1996	1998	400
2964A	LAKE HARNEY	LAKE	21FLA 20010012	ST JOHNS R AT FLA HWY NO 46			
2964A	LAKE HARNEY	LAKE	21FLSJRWSRN	Seminole Ranch North boundary at SR 46 in SJR			
2964A	LAKE HARNEY	LAKE	21FLGFWFGFCCR0174	ST. JOHNS RIVER AT SR 46 BR. SOUTH OF L. HARNEY			
2964A	LAKE HARNEY	LAKE	21FLA 20010026	LAKE HARNEY, CENTER OF LAKE			
2964A	LAKE HARNEY	LAKE	21FLSJWMSRN	ST JOHNS R AT SR 46 - SEMINOLE RANCH NTH BOUND	1996	1998	625
2964A	LAKE HARNEY	LAKE	21FLA 20010481	LAKE HARNEY, CENTER			
2964A	LAKE HARNEY	LAKE	21FLKWATHARNEY2	HARNEY IN VOLUSIA CO.-SEE NOTE			
2964A	LAKE HARNEY	LAKE	21FLKWATHARNEY1	HARNEY IN VOLUSIA CO.-SEE NOTE			
2964A	LAKE HARNEY	LAKE	21FLSJWMILH	LAKE HARNEY NEAR INLET			
2964A	LAKE HARNEY	LAKE	21FLKWATHARNEY3	HARNEY IN VOLUSIA CO.-SEE NOTE			
2964A	LAKE HARNEY	LAKE	21FLCEN 20010026	Lake Harney, Center of Lake	1999	1999	14
2964A	LAKE HARNEY	LAKE	21FLVEMDVC-042	St. Johns River, center of Lake Harney	1999	2003	509
2964A	LAKE HARNEY	LAKE	21FLSCES40504	LAKE HARNEY, NE QUADRANT.			
2964A	LAKE HARNEY	LAKE	21FLA 20010482	ST JOHNS RIVER AT LAKE HARNEY			
2964A	LAKE HARNEY	LAKE	21FLSCES40502	LAKE HARNEY, SW QUADRANT			
2964A	LAKE HARNEY	LAKE	21FLSJWMLHI	INLET OF LAKE HARNEY			
2964A	LAKE HARNEY	LAKE	21FLA 20010378	LAKE HARNEY SOUTH OF CENTER			
2964A	LAKE HARNEY	LAKE	21FLVEMDSJ03	LAKE HARNEY - CENTER OF THE LAKE	1996	1998	1480
2964A	LAKE HARNEY	LAKE	21FLVEMDSJ02	ST. JOHNS RIVER AT SOUTHERN END LAKE HARNEY	1996	1998	1089
2964A	LAKE HARNEY	LAKE	112WRD 02234000	ST. JOHNS RIVER ABOVE LAKE HARNEY NR GENEVA, FL			
2964A	LAKE HARNEY	LAKE	21FLKWATVOL-HARNEY-3	Volusia-Harney-3	1997	2002	141
2964A	LAKE HARNEY	LAKE	21FLSCES40503	LAKE HARNEY, NW QUADRANT.			
2964A	LAKE HARNEY	LAKE	21FLSJWMBBS	ST JOHNS RIVER AT USGS GAGE AT SR 46			
2964A	LAKE HARNEY	LAKE	112WRD 284433081045501	LK HARNEY W SHORE			
2964A1	LAKE HARNEY OUTLET	LAKE	112WRD 284217081023001	KILBEE #3 TEST NR GENEVA,FL S-0025			
2964A1	LAKE HARNEY OUTLET	LAKE	21FLSJWM44194	SRN - Lake Harney inflow - SJR at SR 46 Bridge	2002	2003	297
2991	Econlockhatchee River ECONLOCKHATCHEE RIVER	STREAM	21FLA 20010301	BG ECON AT BEELINE HWY			
2991	ECONLOCKHATCHEE RIVER	STREAM	21FLORANBEI	TRIBUTARY ON ALTMAN RANCH	1996	1998	94
2991	ECONLOCKHATCHEE RIVER	STREAM	21FLORANBEH	ECONLOCKHATCHEE R. AT WEEWAHOOTEE RD.			
2991	ECONLOCKHATCHEE RIVER	STREAM	112WRD 02233001	ECONLOCKHATCHEE R AT MAGNOLIA RANCH NR BITHLO FL			
2991	ECONLOCKHATCHEE RIVER	STREAM	112WRD 02233100	ECONLOCKHATCHEE RIVER NR BITHLO, FLA.			
2991	ECONLOCKHATCHEE RIVER	STREAM	21FLORANBEG	ECONLOCKHATCHEE R. AT POWERLINE RIGHT OF WAY	1996	1998	359
2991	ECONLOCKHATCHEE RIVER	STREAM	21FLORANBEF	ECONLOCKHATCHEE R. AT OLD CHENEY	1996	1998	370
2991	ECONLOCKHATCHEE RIVER	STREAM	21FLORANBEA	ECONLOCKHATCHEE R. AT BEELINE			
2991	ECONLOCKHATCHEE RIVER	STREAM	21FLA 20010129	BIG ECONLOCKHATCHEE R SR #420	1996	1997	41
2991	ECONLOCKHATCHEE RIVER	STREAM	21FLA 20010346	Econ River 50 meters upstream of Quarterly Parkwa			
2991	ECONLOCKHATCHEE RIVER	STREAM	21FLA 20010356	Econ River at Old Cheney Highway			
2991	ECONLOCKHATCHEE RIVER	STREAM	21FLCEN 20010129	Big Econlockhatchee River at SR 420	1999	1999	40
2991	ECONLOCKHATCHEE RIVER	STREAM	21FLCEN 20010301	Big Econ at Beeline Highway	1999	1999	2

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2991	ECONLOCKHATCHEE RIVER	STREAM	21FLSJWMBE420	BIG ECONLOCKHATCHEE @ SR 420			
2991	ECONLOCKHATCHEE RIVER	STREAM	21FLSJWM71901	ER-420 - Econ River at Lake Pickett Rd (SR 420)	2002	2003	201
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLSJRWECH	Econlockhatchee River at Snowhill Road	1996	2001	2059
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLGFWFGFCCR0173	ECONLOCKHATCHEE RIVER AT TREE LINE	1996	1996	43
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLSCES51561	ECON RIVER, BRIDGE AT SNOWHILL RD.			
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLSCES52133	ECON RIVER, 2 MI. UPSTREAM FM MOUTH			
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLORANBED	ECONLOCKHATCHEE R. AT HWY 419 (OVIEDO CHULUOTA)	1996	1998	427
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLORANBEE	ECONLOCKHATCHEE R. AT SNOWHILL RD. - CHULUOTA	1996	1998	427
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLSEM BECO	ECONLOCKHATCHEE RIVER	2000	2002	149
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLSEM SNO	ECONLOCKHATCHEE RIVER	2001	2002	189
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLORANSJ26	ECONLOCKHATCHEE R. AT MOUTH	1996	1998	408
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLA 20010039	ECONLOCKHATCHEE R EXT TO PUZZLE			
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLA 20010489	ECON R. UPSTREAM OF CONFLUENCE WITH ST JOHNS R.			
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLGFWFGFCCR0171	ST. JOHNS RIVER 1000 YDS UPSTR OF ECON. RIVER			
2991A	ECONLOCKHATCHEE RIVER	STREAM	112WRD 02233484	ECONLOCKHATCHEE RIVER NR OVIEDO, FLA.			
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLA 20010300	BIG ECON SNOW HILL RD	1996	1996	20
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLSJWMECONSJ	ECONLOCKHATCHEE R NEAR MOUTH @ PALMER-TAYLOR MND			
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLSJWMECH	BIG ECONLOCKHATCHEE R AT SNOW HILL ROAD	1996	1998	558
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLCEN 20010130	Big Econlockhatchee River at SR 419	1999	1999	41
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLA 20010130	BIG ECONLOCKHATCHEE R SR #419			
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLCEN 20010300	Big Econ at Snow Hill Road	1999	1999	40
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLSJWMBEC	BIG ECON RVR JUST UPSTM FROM ST JOHNS RIVER			
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLSJWMAAS	MOUTH OF ECON RIVER AT CONFLU WITH SJR			
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLSJWM71900	ER-ULER - Econ River - Upstream of Little Econ	2002	2003	201
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLSJWM71891	ER-SJR - Econ River before confluence with SJR	2002	2003	226
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLSJWM44143	ECH - Econ River at Snowhill Road (SR 426)	2002	2003	201
2991A	ECONLOCKHATCHEE RIVER	STREAM	112WRD 02233500	ECONLOCKHATCHEE RIVER NR. CHULUOTA, FLA.	2000	2001	107
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLCEN 20010489	ECON R. UPSTREAM OF CONFLUENCE WITH ST JOHNS R.	2002	2002	8
2991A	ECONLOCKHATCHEE RIVER	STREAM	11COEJAX3SJR10019	ECONLOCKHATCHEE RIVER @ SR 13			
2991A	ECONLOCKHATCHEE RIVER	STREAM	21FLCEN 20010533	SJR upstream of Econ River	2002	2002	10
2991B	BUCK LAKE	LAKE	21FLKWAT117BUCK1				
2991B	BUCK LAKE	LAKE	21FLKWATSEM-BUCK-3	Seminole-Buck-3	2000	2002	119
2991B	BUCK LAKE	LAKE	21FLKWATSEM-BUCK-2	Seminole-Buck-2	2000	2002	121
2991B	BUCK LAKE	LAKE	21FLKWATSEM-BUCK-1	Seminole-Buck-1	2000	2002	119
2991B	BUCK LAKE	LAKE	21FLKWAT117BUCK2				
2991B	BUCK LAKE	LAKE	21FLSEM BUC	BUCK LAKE	1998	2002	372
2991B	BUCK LAKE	LAKE	21FLKWAT117BUCK3				
2991C	ISLAND POND	LAKE	21FLKWAT117ISLAND POND1				
2991C	ISLAND POND	LAKE	21FLKWATSEM-ISLANDPO-1	Seminole-Island Pond-1	2000	2002	102
2991C	ISLAND POND	LAKE	21FLKWATSEM-ISLANDPO-2	Seminole-Island Pond-2	2000	2002	105
2991C	ISLAND POND	LAKE	21FLKWAT117ISLAND POND3				
2991C	ISLAND POND	LAKE	21FLKWATSEM-ISLANDPO-3	Seminole-Island Pond-3	2000	2002	106

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2991C	ISLAND POND	LAKE	21FLKWAT117ISLAND POND2				
2991D	HORSESHOE LAKE	LAKE	21FLKWAT117HORSESHOE1				
2991D	HORSESHOE LAKE	LAKE	21FLKWATSEM-HORSESHOE-2	Seminole-Horseshoe-2	1998	2002	110
2991D	HORSESHOE LAKE	LAKE	21FLKWATSEM-HORSESHOE-3	Seminole-Horseshoe-3	1998	2002	111
2991D	HORSESHOE LAKE	LAKE	21FLSEM SHO	HORSESHOE NORTH LAKE	1999	2002	340
2991D	HORSESHOE LAKE	LAKE	21FLKWATSEM-HORSESHOE-1	Seminole-Horseshoe-1	1998	2002	111
2991D	HORSESHOE LAKE	LAKE	21FLKWAT117HORSESHOE2				
2991D	HORSESHOE LAKE	LAKE	11EPALES121901	LAKE HORSESHOE			
2991D	HORSESHOE LAKE	LAKE	21FLKWAT117HORSESHOE3				
3001	LITTLE ECONLOCKHATCHEE	STREAM	112WRD 2835490811	LITTLE ECONLOCKHATCHEE R AT UNIVERSITY BLV,ORLANDO			
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLSCES50144	LITTLE ECON RIVER, BRIDGE AT UNIVERSITY BLVD.			
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLCEN 20010041	Little Econ River at confluence with Big Econ Rive	1999	2002	48
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLSEM LECO	LITTLE ECONLOCKHATCHEE	2000	2002	130
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLSCES50269	LITTLE ECON RIVER, OUTFALL OF IRON BRIDGE STP.			
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLSJWMLEA	LITTLE ECON RIVER AT ALAFAYA TRAIL (SR 520)			
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLSJWMLEL	LITTLE ECON RIVER AT LOCKWOOD ROAD			
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLA 20010664	BIG ECON RIVER SOUTH OF SR 419 BRIDGE			
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLSCES50723	LITTLE ECON RIVER, BRIDGE AT LOCKWOOD ROAD.			
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLA 20010665	LITTLE ECON RIVER AT SR 520 BRIDGE			
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLA 20010383	LITTLE ECON R. MICHAEL'S RES. DA			
3001	LITTLE ECONLOCKHATCHEE	STREAM	112WRD 02233473				
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLSCES50386	LITTLE ECON RIVER, ALAFAYA TRAIL			
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLSCES50871	ECON RIVER, BRIDGE AT S.R. 419			
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLSCES50860	ECON RIVER, UPSTREAM FROM CONF. OF LITTLE ECON.			
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLSCES50000	LITTLE ECON RIVER, MICHAELS DAM.			

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3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLSJWMLILEC	LITTLE ECONLOCKHATCHEE R @ SR 434 NE ORLANDO			
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLSJWM71899	LER-LBB - Little Econ at Lockwood Blvd Bridge	2002	2003	201
3001	LITTLE ECONLOCKHATCHEE	STREAM	112WRD 02233200	LITTLE ECONLOCKHATCHEE R NR UNION PARK, FLA.	2000	2001	110
3001	LITTLE ECONLOCKHATCHEE	STREAM	112WRD 02233300	LITTLE ECONLOCKHATCHEE R AT UNION PARK, FLA.			
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLORANLEE	L. ECON. R. AT N-S CANAL SWD 2	1996	2002	943
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLORANLEH	L. ECON. R. AT HWY 50	1996	2001	912
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLORANLEP	L. ECON. R. AT ECONLOCKHATCHEE TRAIL	1996	2002	1024
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLORANLER	L. ECON. R. AT BUCK RD.	1996	2001	943
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLORANLES	Little Econ at Lockwood Blvd. (Seminole Co.)	1996	2002	763
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLORANLET	L. ECON. R. AT GAUGING STA. B-D RD. SWD 6	1996	2002	1081
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLORANLEZF	Little Econ at Iron Bridge (Seminole Co.)	1996	2001	615
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLORANLEZI	L. ECON. R. ABOUT 100 YDS. BELOW IRON BR. STP	1996	2001	978
3001	LITTLE ECONLOCKHATCHEE	STREAM	112WRD 02233460				
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLA 20010015	LITTLE ECON RIVER AT BUCK ROAD	1996	1996	20
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLORANLEZZ	Little Econ ZZ (Blanchard Park / Park Manor)	1996	2001	639
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLA 20010308	LITTLE ECON NORTH OF HIWAY 50			
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLA 20010131	LIT ECONLOCKHATCHEE R SR 50			
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLA 20010132	LIT ECON AT HALL RD			
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLSJWM02233200	LITTLE ECONLOCKHATCHEE R NR UNION PARK FLA	1998	1998	108
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLGW 3569	2233200	1998	2003	1254
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLA 20010040	LITTLE ECON RIVER AT CURRY FORD RD.	1996	1996	30
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLA 20010016	LITTLE ECON RIVER AT VALENCIA COMM. COLLEGE	1996	1996	20
3001	LITTLE ECONLOCKHATCHEE	STREAM	112WRD 02233475	LITTLE ECONLOCKHATCHEE R. AT SR434 NR OVIEDO,FL			

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3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLA 20010310	LIT ECON S OF SANITARY LANDFIL C			
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLA 20010041	Little Econ River at confluence with Big Econ Riv	1996	1996	20
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLSJWMLED	LITTLE ECON RIVER AT DEAN ROAD (SR 425)			
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLA 20010025	LITTLE ECON RIVER AT BERRY DEASE RD.	1996	1996	20
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLORANBEC	ECONLOCKHATCHEE R. AT L. ECON. R.	1996	1998	390
3001	LITTLE ECONLOCKHATCHEE	STREAM	21FLA 20010309	LITTLE ECON TANNER RD AT BRIDGE			
3001A	LONG LAKE	LAKE	21FLKWATLONG117-3	LONG IN SEMINOLE CO.-SEE NOTE			
3001A	LONG LAKE	LAKE	21FLKWATSEM-LONG-3	Seminole-Long-3	1996	1998	122
3001A	LONG LAKE	LAKE	21FLKWATLONG117-1	LONG IN SEMINOLE CO.-SEE NOTE			
3001A	LONG LAKE	LAKE	21FLKWATSEM-LONG-1	Seminole-Long-1	1996	1998	120
3001A	LONG LAKE	LAKE	21FLKWATSEM-LONG-2	Seminole-Long-2	1996	1998	120
3001A	LONG LAKE	LAKE	21FLKWATLONG117-2	LONG IN SEMINOLE CO.-SEE NOTE			
3003	LAKE PICKETT	LAKE	21FLORANBE9W	CENTER OF LAKE PICKETT'S WEST LOBE	1996	1998	318
3003	LAKE PICKETT	LAKE	21FLORANBE9E	CENTER OF LAKE PICKETT'S EAST LOBE	1996	1998	315
3003	LAKE PICKETT	LAKE	21FLORANBE9	LAKE PICKETT			
3003A	LAKE MILLS	LAKE	21FLA 20010233	MILLS L CTR OF E END 300YDS OFFS			
3003A	LAKE MILLS	LAKE	21FLKWATMILLS1	MILLS IN SEMINOLE CO.-SEE NOTE			
3003A	LAKE MILLS	LAKE	21FLKWATSEM-MILLS-2	Seminole-Mills-2	2002	2002	20
3003A	LAKE MILLS	LAKE	21FLKWATSEM-MILLS-3	Seminole-Mills-3	2002	2002	18
3003A	LAKE MILLS	LAKE	112WRD 283805081065406	MILLS LAKE (SW OF CENTER)			
3003A	LAKE MILLS	LAKE	21FLKWATSEM-MILLS-1	Seminole-Mills-1	2002	2002	20
3003A	LAKE MILLS	LAKE	112WRD 283805081065401	MILLS LAKE (AT CENTER)			
3003A	LAKE MILLS	LAKE	21FLSEM MIL	MILLS, LAKE	1999	2002	337
3003A	LAKE MILLS	LAKE	21FLKWATMILLS2	MILLS IN SEMINOLE CO.-SEE NOTE			
3003A	LAKE MILLS	LAKE	21FLKWATMILLS3	MILLS IN SEMINOLE CO.-SEE NOTE			
3003A	LAKE MILLS	LAKE	21FLA 20010235	MILLS L CTR OF W END 400YDS OFFS			
3003A	LAKE MILLS	LAKE	112WRD 283805081065403	MILLS LAKE (E OF CENTER)			
3012A	LAKE PRICE	LAKE	21FLORANBE10	LAKE PRICE	1996	1998	215
3012A	LAKE PRICE	LAKE	21FLKWATORA-PRICE-2	Orange-Price-2	1997	2000	50
3012A	LAKE PRICE	LAKE	21FLKWATORA-PRICE-3	Orange-Price-3	1997	2000	53
3012A	LAKE PRICE	LAKE	21FLKWATORA-PRICE-1	Orange-Price-1	1997	2000	46
3014	CRANE STRAND DRAIN	STREAM	21FLA 20010282	CRANE STRAND CNL DOWNSTR STP			
3014	CRANE STRAND DRAIN	STREAM	21FLA 20010281	CRANE STRAND CNL AT DNG DITCH			
3014	CRANE STRAND DRAIN	STREAM	21FLA 20010196	CRANE STRAND CNL UPSTR FRM DRNG			
3014	CRANE STRAND DRAIN	STREAM	21FLA 20010198	CRANE STRAND CL DOWNSTR FRM STP			
3014	CRANE STRAND DRAIN	STREAM	21FLA 20010199	CRANE STRAND CNL AT OUTFAL STP			
3014	CRANE STRAND DRAIN	STREAM	21FLSCES130001	DOVER ROAD			

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3014	CRANE STRAND DRAIN	STREAM	21FLCEN 20010357	Crane Strand Canal at University Blvd	1999	2002	135
3014	CRANE STRAND DRAIN	STREAM	21FLA 20010357	Crane Strand Canal at University Blvd			
3014	CRANE STRAND DRAIN	STREAM	21FLSEM CRA	CRANES STAND CANAL	2000	2002	179
3014	CRANE STRAND DRAIN	STREAM	21FLA 20010236	CRANE STRAND CL 100YD UPSTR STP			
3014	CRANE STRAND DRAIN	STREAM	21FLCEN 20010393	Crane Strand Canal @ Goldenrod	2002	2002	93
3014	CRANE STRAND DRAIN	STREAM	21FLCEN 20010394	Crane Strand Canal @ Aloma	2002	2002	96
3014	CRANE STRAND DRAIN	STREAM	21FLCEN 20010196	CRANE STRAND CNL UPSTR FRM DRNG	2002	2002	97
3014	CRANE STRAND DRAIN	STREAM	21FLA 20010325	CRANE STRAND CANAL 50 YDS. UP FROM CITY INDUST.			
3017	LAKE IRMA	LAKE	21FLA 20010414	L IRMA CTR OF NE LOBE			
3017	LAKE IRMA	LAKE	21FLA 20010415	LAKE IRMA CTR OF SE LOBE			
3017	LAKE IRMA	LAKE	21FLKWATIRMA3	LAKE IRMA3 IN ORANGE CO. SEE NOTE			
3017	LAKE IRMA	LAKE	21FLKWATIRMA1	LAKE IRMA1 IN ORANGE CO. SEE NOTE			
3017	LAKE IRMA	LAKE	21FLSJWMIRMA	LAKE IRMA OFF SR 436A NEAR ORLANDO			
3017	LAKE IRMA	LAKE	21FLKWATORA-IRMA-1	Orange-Irma-1	1996	2002	46
3017	LAKE IRMA	LAKE	21FLKWATORA-IRMA-2	Orange-Irma-2	1996	2002	46
3017	LAKE IRMA	LAKE	21FLKWATORA-IRMA-3	Orange-Irma-3	1996	2002	45
3017	LAKE IRMA	LAKE	21FLKWATIRMA2	LAKE IRMA2 IN ORANGE CO. SEE NOTE			
3017	LAKE IRMA	LAKE	21FLORANLE16	Irma	1997	2001	426
3018	LAKE LOUISE	LAKE	21FLKWATLOUISE1	LAKE LOUISE1 IN ORANGE CO. SEE NOTE			
3018	LAKE LOUISE	LAKE	21FLKWATLOUISE2	LAKE LOUISE2 IN ORANGE CO. SEE NOTE			
3018	LAKE LOUISE	LAKE	21FLORANBE7	LAKE LOUISE CENTER	1996	1998	288
3018	LAKE LOUISE	LAKE	21FLKWATLOUISE3	LAKE LOUISE3 IN ORANGE CO. SEE NOTE			
3019	LAKE TANNER	LAKE	21FLORANBE12	LAKE TANNER	1996	1998	318
3021	UNNAMED BRANCH	STREAM	21FLORANBEB	ECONLOCKHATCHEE R. AT HWY 420	1996	1998	256
3021	UNNAMED BRANCH	STREAM	112WRD 02233102	ECONLOCKHATCHEE RIVER TRIB. NR BITHLO, FLA.			
3022	BITHLO BRANCH	STREAM	21FLCEN 20010350	Bithlo Branch at Old Highway 50	1999	1999	39
3022	BITHLO BRANCH	STREAM	21FLA 20010350	Bithlo Branch at Old Highway 50			
3023	CRANE STRAND	STREAM	21FLSJWMUSJ915	CRANE STRAND AT SR 50			
3023	CRANE STRAND	STREAM	21FLORANLEO	L. ECON. TRIB. AT HARREL RD. BEFORE BANNER DAM	1996	2002	1001
3023	CRANE STRAND	STREAM	21FLA 20010382	CRANE STRAND AT ECON TRAIL			
3023A	LAKE BALDWIN OUTFALL	STREAM	21FLKWATORA-BALDWIN-2	Orange-Baldwin-2	2000	2002	32
3023A	LAKE BALDWIN OUTFALL	STREAM	21FLKWATORA-BALDWIN-1	Orange-Baldwin-1	2000	2002	32
3023A	LAKE BALDWIN OUTFALL	STREAM	21FLKWATORA-BALDWIN-3	Orange-Baldwin-3	2000	2002	32
3023A	LAKE BALDWIN OUTFALL	STREAM	21FLORANLEZB	LAKE BALDWIN OUTFALL AT HWY 436	1996	2002	1040
3023B	LAKE BARTON	LAKE	21FLKWATORA-BARTON-2	Orange-Barton-2	1996	1997	12
3023B	LAKE BARTON	LAKE	21FLKWAT095BALDWIN2				
3023B	LAKE BARTON	LAKE	21FLKWAT095BALDWIN1				
3023B	LAKE BARTON	LAKE	21FLORANLE7	LAKE BALDWIN	1996	1998	331
3023B	LAKE BARTON	LAKE	21FLKWAT095BALDWIN3				
3023B	LAKE BARTON	LAKE	21FLGFWFGFCCR0046	LAKE BARTON SOUTH WEST NEAR AIRPORT			
3023B	LAKE BARTON	LAKE	21FLKWATORA-BARTON-3	Orange-Barton-3	1996	1997	12
3023B	LAKE BARTON	LAKE	21FLGFWFGFCCR0047	LAKE BARTON CENTER OF LAKE			
3023B	LAKE BARTON	LAKE	21FLKWATORA-BARTON-1	Orange-Barton-1	1996	1997	12

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3023B	LAKE BARTON	LAKE	21FLORL BALDWIN	LAKE BALDWIN	1996	2002	425
3023C	LAKE SUSANNAH	LAKE	21FLORL SUZANNAH	LAKE SUZANNAH	1996	1997	151
3023C	LAKE SUSANNAH	LAKE	21FLKWATSUSANNAH1	LAKE SUSANNAH1 IN ORANGE CO. SEE NOTE			
3023C	LAKE SUSANNAH	LAKE	21FLKWATSUSANNAH2	LAKE SUSANNAH2 IN ORANGE CO. SEE NOTE			
3023C	LAKE SUSANNAH	LAKE	112WRD 283344081192202	LAKE SUSANNAH (S OF CENTER)			
3023C	LAKE SUSANNAH	LAKE	21FLKWATORA-SUSANNAH-3	Orange-Susannah-3	1997	2002	244
3023C	LAKE SUSANNAH	LAKE	21FLKWATSUSANNAH3	LAKE SUSANNAH3 IN ORANGE CO. SEE NOTE			
3023C	LAKE SUSANNAH	LAKE	21FLKWATORA-SUSANNAH-2	Orange-Susannah-2	1997	2002	224
3023C	LAKE SUSANNAH	LAKE	21FLKWATORA-SUSANNAH-1	Orange-Susannah-1	1997	2002	229
3023C	LAKE SUSANNAH	LAKE	112WRD 283344081192201	LAKE SUSANNAH (AT CENTER)			
3023C	LAKE SUSANNAH	LAKE	112WRD 283344081192204	LAKE SUSANNAH (N OF CENTER)			
3023D	LAKE GEAR	LAKE	21FLKWATORA-GEAR-1	Orange-Gear-1	1996	2001	237
3023D	LAKE GEAR	LAKE	21FLKWAT095GEAR3				
3023D	LAKE GEAR	LAKE	21FLKWAT095GEAR2				
3023D	LAKE GEAR	LAKE	21FLORL GEAR	LAKE GEAR CENTER	1996	2002	440
3023D	LAKE GEAR	LAKE	21FLKWAT095GEAR1				
3023D	LAKE GEAR	LAKE	21FLKWATORA-GEAR-2	Orange-Gear-2	1996	2001	179
3023D	LAKE GEAR	LAKE	21FLKWATORA-GEAR-3	Orange-Gear-3	1996	2001	237
3023E	LAKE BALDWIN	LAKE	21FLKWATBARTON3	LAKE BARTON3 IN ORANGE CO.-SEE NOTE			
3023E	LAKE BALDWIN	LAKE	21FLKWATBARTON1	LAKE BARTON1 IN ORANGE CO.-SEE NOTE			
3023E	LAKE BALDWIN	LAKE	21FLKWATBARTON2	LAKE BARTON2 IN ORANGE CO.-SEE NOTE			
3023E	LAKE BALDWIN	LAKE	21FLORANLE2	LAKE BARTON	1996	1998	322
3024	LAKE DOWNEY	LAKE	21FLA 20010319	LK DOWNEY - HIWAY 50 & DEAN RD U			
3024	LAKE DOWNEY	LAKE	21FLORANLE10	LAKE DOWNEY	1996	1998	331
3024A	TRIB TO LTL ECON RIV	STREAM	21FLORANLEZ	TRIB. TO L. ECON. R. AT SR 50	1996	2002	905
3030	LONG BRANCH	STREAM	21FLCEN 20010395	Long Branch downstream @ powerline easement	2002	2002	146
3030	LONG BRANCH	STREAM	21FLCEN 20010374	Long Branch Creek dwnstrm of CR 13	2002	2002	153
3030	LONG BRANCH	STREAM	21FLCEN 20010384	Long Branch at State Road 13 in Bithlo	1999	2002	325
3030	LONG BRANCH	STREAM	21FLA 20010384	Long Branch at State Road 13 in Bithlo			
3030	LONG BRANCH	STREAM	21FLCEN 20010396	Long Branch @ 50/520 interchange	2002	2002	23
3030	LONG BRANCH	STREAM	21FLCEN 20010397	Long Branch south of 50/520 interchange	2002	2002	22
3030	LONG BRANCH	STREAM	21FLSJWMUSJ070	LONG BRANCH AT HWY 13			
3033C	LAKE CORNER	LAKE	21FLORANBE3	LAKE CORNER CENTER	1996	1998	306
3033D	LAKE DRAWDY	LAKE	21FLORANBE4	LAKE DRAWDY CENTER	1996	1998	317
3033D	LAKE DRAWDY	LAKE	21FLCEN 20010609	Lake Drawdy @ center	2002	2002	22
3036	LAKE FREDERICA	LAKE	21FLORL FREDRICA	LAKE FREDRICA	1996	2002	441
3036	LAKE FREDERICA	LAKE	21FLORANLE13	LAKE FREDERICA	1996	1998	209
3036	LAKE FREDERICA	LAKE	21FLKWATORA-FREDRICA-2	Orange-Fredrica-2			
3036	LAKE FREDERICA	LAKE	21FLKWATORA-FREDRICA-3	Orange-Fredrica-3			
3036	LAKE FREDERICA	LAKE	21FLKWATFREDRICA1	LAKE FREDRICA1 IN ORANGE CO. SEE NOTE			
3036	LAKE FREDERICA	LAKE	21FLKWATFREDRICA2	LAKE FREDRICA2 IN ORANGE CO. SEE NOTE			
3036	LAKE FREDERICA	LAKE	21FLKWATFREDRICA3	LAKE FREDRICA3 IN ORANGE CO. SEE NOTE			
3036	LAKE FREDERICA	LAKE	21FLKWATORA-FREDRICA-1	Orange-Fredrica-1			

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
3036A1	LAKE BARBER	LAKE	21FLORANBC2	LAKE GEORGE	1996	1998	319
3036A1	LAKE BARBER	LAKE	21FLKWATGEORGE3	LAKE GEORGE3 IN ORANGE CO. SEE NOTE			
3036A1	LAKE BARBER	LAKE	21FLKWATORA-GEORGE-1	Orange-George-1			
3036A1	LAKE BARBER	LAKE	21FLKWATORA-GEORGE-2	Orange-George-2			
3036A1	LAKE BARBER	LAKE	21FLKWATORA-GEORGE-3	Orange-George-3			
3036A1	LAKE BARBER	LAKE	21FLKWATGEORGE2	LAKE GEORGE2 IN ORANGE CO. SEE NOTE			
3036A1	LAKE BARBER	LAKE	21FLORL GEORGE	LAKE GEORGE CENTER	1996	2002	437
3036A1	LAKE BARBER	LAKE	21FLKWATGEORGE1	LAKE GEORGE1 IN ORANGE CO. SEE NOTE			
3037	UNNAMED DRAIN	STREAM	21FLORANBEII	DISCHARGE FROM ALAFAYA WETLANDS EASTERLY SYSTEM	1996	1998	178
3038	UNNAMED DITCHES	STREAM	21FLA 20010349	Majestic Canal 50 meters upstream of Econ River			
3041	UNNAMED DITCHES	STREAM	21FLA 20010348	Nettleton Canal 50 meters upstream of Econ River			
3045	DITCHES	STREAM	21FLA 20010347	Quarterly Parkway Canal 50 meters upstream of Eco			
3050	DITCHES	STREAM	21FLA 20010345	Reynolds Parkway Canal 50 meters upstream of Econ			
3053	TURKEY CREEK	STREAM	21FLSJWMUSJ075	TURKEY CREEK AT US 528			
	Lake George Planning Unit						
2213O	STJ RIV AB OKLAWAHA R	STREAM	21FLCEN 20030520	SJR above Oklawaha @ Marker 59	2002	2002	102
2213O	STJ RIV AB OKLAWAHA R	STREAM	21FLSJWMSAVFRTF	SJR at Fruitland Ferry inside grassbed			
2213O	STJ RIV AB OKLAWAHA R	STREAM	21FLSJWMMSJFGF	Middle St. Johns R. Near Ft. Gates Ferry	1997	2002	2260
2213O	STJ RIV AB OKLAWAHA R	STREAM	21FLCEN 20010167	SJR above Oklawaha @ marker 60,1/2 mi s. of Little L.G	2002	2002	99
2213O	STJ RIV AB OKLAWAHA R	STREAM	21FLCEN 20030519	SJR above Oklawaha @ marker 65	2002	2002	103
2213O	STJ RIV AB OKLAWAHA R	STREAM	21FLSJWMLGEO	LITTLE GEORGE LAKE @ CENTER			
2213O	STJ RIV AB OKLAWAHA R	STREAM	21FLA 20010167	ST JOHN R CHAN MARK 60			
2213O	STJ RIV AB OKLAWAHA R	STREAM	21FLA 20030521	ST. JOHNS RIVER AT MARKER 53			
2213O	STJ RIV AB OKLAWAHA R	STREAM	21FLCEN 20010168	LITTLE L GEORGE CHAN MARK 53A	2002	2002	131
2213O	STJ RIV AB OKLAWAHA R	STREAM	21FLA 20030520	ST. JOHNS RIVER AT MARKER 59			
2213O	STJ RIV AB OKLAWAHA R	STREAM	112WRD 2926000814	ST JOHNS RV BUZZARD'S POINT NR STOKES FERRY,FL			
2213O	STJ RIV AB OKLAWAHA R	STREAM	21FLA 20030519	ST. JOHNS RIVER AT MARKER 65			
2213O	STJ RIV AB OKLAWAHA R	STREAM	112WRD 292600081405401		2001	2001	69
2213O	STJ RIV AB OKLAWAHA R	STREAM	112WRD 2927510814	ST JOHNS RV BEECHER'S POINT NR WELAKA,FL			
2213O	STJ RIV AB OKLAWAHA R	STREAM	21FLSJWM45548	MSJFGF - Middle St Johns R Near Ft Gates Ferry	2002	2003	295
2892	LAKE MARGARET	LAKE	21FLA 20030433	LAKE MARGARET SE SECTOR			
2892	LAKE MARGARET	LAKE	21FLA 20030435	LAKE MARGARET NW SECTOR			
2892	LAKE MARGARET	LAKE	21FLA 20030434	LAKE MARGARET CENTER			
2892A	LAKE COMO	LAKE	21FLKWATPUT-COMO-1	Putnam-Como-1	1996	2002	321
2892A	LAKE COMO	LAKE	21FLKWATPUT-COMO-2	Putnam-Como-2	1996	2002	316
2892A	LAKE COMO	LAKE	21FLKWATPUT-COMO-3	Putnam-Como-3	1996	2002	320
2892A	LAKE COMO	LAKE	21FLKWATCOMO3	COMO LAKE IN PUTNAM CO-SEE NOTE			
2892A	LAKE COMO	LAKE	21FLKWATCOMO2	COMO LAKE IN PUTNAM CO-SEE NOTE			
2892A	LAKE COMO	LAKE	21FLKWATCOMO1	COMO LAKE IN PUTNAM CO-SEE NOTE			
2892B	BANANA LAKE	LAKE	21FLKWATBANANA1	BANANA LAKE IN PUTNAM CO-SEE NOTE			
2892B	BANANA LAKE	LAKE	21FLKWATBANANA3	BANANA LAKE IN PUTNAM CO-SEE NOTE			

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
2892B	BANANA LAKE	LAKE	21FLKWATBANANA2	BANANA LAKE IN PUTNAM CO-SEE NOTE			
2892B	BANANA LAKE	LAKE	21FLKWATPUT-BANANA-3	Putnam-Banana-3	1996	1998	91
2892B	BANANA LAKE	LAKE	21FLKWATPUT-BANANA-2	Putnam-Banana-2	1996	1998	93
2892B	BANANA LAKE	LAKE	21FLKWATPUT-BANANA-1	Putnam-Banana-1	1996	1998	93
2892B	BANANA LAKE	LAKE	21FLSJWMSBL	BANANA LAKE @ CENTER NEAR LAKE COMO			
2892C	LAKE ESTELLA	LAKE	21FLKWATNORTH ESTELLA2	NORTH ESTELLA LAKE IN PUTNAM CO-SEE NOTE			
2892C	LAKE ESTELLA	LAKE	21FLKWATNORTH ESTELLA3	NORTH ESTELLA LAKE IN PUTNAM CO-SEE NOTE			
2892C	LAKE ESTELLA	LAKE	21FLKWATNORTH ESTELLA1	NORTH ESTELLA LAKE IN PUTNAM CO-SEE NOTE			
2892C	LAKE ESTELLA	LAKE	21FLKWATSOUTH ESTELLA3	SOUTH ESTELLA LAKE IN PUTNAM CO-SEE NOTE			
2892C	LAKE ESTELLA	LAKE	21FLKWATPUT-NORTHEST-1	Putnam-North Estella-1	2000	2002	136
2892C	LAKE ESTELLA	LAKE	21FLKWATPUT-NORTHEST-2	Putnam-North Estella-2	2000	2002	135
2892C	LAKE ESTELLA	LAKE	21FLKWATPUT-NORTHEST-3	Putnam-North Estella-3	2000	2002	134
2892C	LAKE ESTELLA	LAKE	21FLKWATPUT-SOUTHEST-1	Putnam-South Estella-1	1996	1999	123
2892C	LAKE ESTELLA	LAKE	21FLKWATPUT-SOUTHEST-2	Putnam-South Estella-2	1996	1999	123
2892C	LAKE ESTELLA	LAKE	21FLKWATPUT-SOUTHEST-3	Putnam-South Estella-3	1996	1999	122
2892C	LAKE ESTELLA	LAKE	21FLKWATSOUTH ESTELLA1	SOUTH ESTELLA LAKE IN PUTNAM CO-SEE NOTE			
2892C	LAKE ESTELLA	LAKE	21FLKWATSOUTH ESTELLA2	SOUTH ESTELLA LAKE IN PUTNAM CO-SEE NOTE			
28934	SILVER GLEN SPRING	SPRING	21FLKWATMAR-SIVERGLEN-1	Marion-Silver Glen-1	1999	2002	139
28934	SILVER GLEN SPRING	SPRING	21FLKWATMAR-SIVERGLEN-3	Marion-Silver Glen-3	1999	2002	141
28934	SILVER GLEN SPRING	SPRING	21FLKWAT083SILVER GLEN3				
28934	SILVER GLEN SPRING	SPRING	21FLKWAT083SILVER GLEN2				
28934	SILVER GLEN SPRING	SPRING	21FLKWAT083SILVER GLEN1				
28934	SILVER GLEN SPRING	SPRING	1118ATL8050209	SILVER GLENN SPRINGS	1996	1997	8
28934	SILVER GLEN SPRING	SPRING	1118ATL8050208	SILVER GLENN SPRINGS	1996	1997	8
28934	SILVER GLEN SPRING	SPRING	21FLKWATMAR-SIVERGLEN-2	Marion-Silver Glen-2	1999	2002	140
28934	SILVER GLEN SPRING	SPRING	21FLSJWMCHM	CHIMNEY SPRINGS AT SILVER GLEN SPRINGS			
2893A	LAKE GEORGE	LAKE	21FLGFWFGFCCR0180	LAKE GEORGE JUST OUTSIDE BOAT FENDERS			
2893A	LAKE GEORGE	LAKE	21FLSJWMLEO	LAKE GEORGE 50 M WEST OF CM'S 4 & 5	1996	1998	745
2893A	LAKE GEORGE	LAKE	21FLSJWM20010002	ST. JOHNS RIVER AT HWY 40 NEAR ASTOR	1996	1998	959
2893A	LAKE GEORGE	LAKE	21FLCEN 20010164	L GEO NW CRN 150 YDS E SALT SPRG	2002	2002	35
2893A	LAKE GEORGE	LAKE	21FLCEN 20010163	L GEORGE AT MARKER #4 & 5	2002	2002	37
2893A	LAKE GEORGE	LAKE	21FLKWAT107GEORGESOUTH 2				
2893A	LAKE GEORGE	LAKE	21FLGFWFGFCCR0057	LAKE GEORGE SOUTH OF DRAYTON ISLAND			
2893A	LAKE GEORGE	LAKE	21FLVEMDVC-067	St. John's River, at center of Lake George, at CM	1999	2003	464
2893A	LAKE GEORGE	LAKE	21FLKWATPUT-GEORGESO-3	Putnam-George South-3	1999	2002	120
2893A	LAKE GEORGE	LAKE	21FLGFWFGFCCR0181	LAKE GEORGE FLASHING LIGHT AT L. GEORGE POINT			
2893A	LAKE GEORGE	LAKE	21FLA 20010163	L GEORGE AT MARKER #4 & 5			
2893A	LAKE GEORGE	LAKE	21FLA 20010164	L GEO NW CRN 150 YDS E SALT SPRG			
2893A	LAKE GEORGE	LAKE	21FLA 20010161	LK GEO AT MARKER 13			
2893A	LAKE GEORGE	LAKE	21FLA 20010166	L GEORGE NW SECTOR			
2893A	LAKE GEORGE	LAKE	21FLA 20010002	ST JOHNS RIVER AT HWY 40 NEAR ASTOR	1996	1998	320
2893A	LAKE GEORGE	LAKE	21FLSJWMLAG	LAKE GEORGE AT CM #9	1996	1998	784

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2893A	LAKE GEORGE	LAKE	21FLKWAT107GEORGESOUTH 3				
2893A	LAKE GEORGE	LAKE	21FLSJWM45638	SAVLKGRO - Lake George outside grass bed	2002	2003	288
2893A	LAKE GEORGE	LAKE	21FLKWAT107GEORGESOUTH 1				
2893A	LAKE GEORGE	LAKE	21FLKWATPUT-GEORGEEA-3	Putnam-George East-3	1998	2001	140
2893A	LAKE GEORGE	LAKE	21FLKWATPUT-GEORGEEA-2	Putnam-George East-2	1998	2001	140
2893A	LAKE GEORGE	LAKE	21FLKWATPUT-GEORGEEA-1	Putnam-George East-1	1998	2001	140
2893A	LAKE GEORGE	LAKE	21FLKWATPUT-GEORGE-3	Putnam-George-3			
2893A	LAKE GEORGE	LAKE	21FLKWATPUT-GEORGE-2	Putnam-George-2			
2893A	LAKE GEORGE	LAKE	21FLGFWFGFCCR0058	LAKE GEORGE SOUTH END NEAR JUNIPER RUN			
2893A	LAKE GEORGE	LAKE	21FLSJWM45637	SAVLKGRI - Lake George inside grass bed	2002	2003	288
2893A	LAKE GEORGE	LAKE	112WRD 02236210	LAKE GEORGE NR SALT SPRINGS, FLA.			
2893A	LAKE GEORGE	LAKE	21FLSJWMSAVLKGRI	Lake George inside grass bed	2000	2002	1549
2893A	LAKE GEORGE	LAKE	21FLSJWMSAVLKGR	Lake George inside grass bed			
2893A	LAKE GEORGE	LAKE	21FLKWATPUT-GEORGESO-1	Putnam-George South-1	1999	2002	106
2893A	LAKE GEORGE	LAKE	21FLKWAT107GEORGE SOUTH				
2893A	LAKE GEORGE	LAKE	21FLKWAT107GEORGE EAST3				
2893A	LAKE GEORGE	LAKE	21FLA 20010162	L GEORGE AT MARKER #9			
2893A	LAKE GEORGE	LAKE	21FLKWATPUT-GEORGESO-2	Putnam-George South-2	1999	2002	119
2893A	LAKE GEORGE	LAKE	21FLKWATPUT-GEORGE-1	Putnam-George-1			
2893A	LAKE GEORGE	LAKE	21FLVEMDSJ27	ST. JOHNS RIVER 0.5 MI. SOUTH OF HWY 40 - ASTOR	1996	1998	1060
2893A	LAKE GEORGE	LAKE	112WRD 291830081362201	LAKE GEORGE (6 MI SSE OF CENTER)			
2893A	LAKE GEORGE	LAKE	112WRD 291830081362202	LAKE GEORGE (2.5 MI S OF CENTER)			
2893A	LAKE GEORGE	LAKE	112WRD 291830081362203	LAKE GEORGE (AT CENTER)			
2893A	LAKE GEORGE	LAKE	21FLVEMDSJ29	LAKE GEORGE AT CM 9	1996	1998	1295
2893A	LAKE GEORGE	LAKE	11EPALES121005	LAKE GEORGE			
2893A	LAKE GEORGE	LAKE	11EPALES121004	LAKE GEORGE			
2893A	LAKE GEORGE	LAKE	21FLKWATGEORGE107-1	GEORGE LAKE IN PUTNAM CO-SEE NOTE			
2893A	LAKE GEORGE	LAKE	11EPALES121002	LAKE GEORGE			
2893A	LAKE GEORGE	LAKE	21FLSJWMLGI	LAKE GEORGE AT INLET			
2893A	LAKE GEORGE	LAKE	21FLKWAT107GEORGE EAST2				
2893A	LAKE GEORGE	LAKE	21FLSJWMMSJLGM	MIDDLE ST. JOHNS LAKE GEORGE MIDDLE	1998	1999	354
2893A	LAKE GEORGE	LAKE	11EPALES121001	LAKE GEORGE			
2893A	LAKE GEORGE	LAKE	21FLSJWMMSJLGN	MIDDLE ST. JOHNS LAKE GEORGE NORTH, MID-CHANNEL	1998	1999	396
2893A	LAKE GEORGE	LAKE	21FLSJWMMSJLGS	MIDDLE ST. JOHNS LAKE GEORGE SOUTH, MID-CHANNEL	1998	1999	405
2893A	LAKE GEORGE	LAKE	21FLKWAT107GEORGE EAST1				
2893A	LAKE GEORGE	LAKE	21FLSJWMSAVLKGRO	Lake George outside grass bed	2000	2002	1682
2893A	LAKE GEORGE	LAKE	11EPALES121003	LAKE GEORGE			
2893A	LAKE GEORGE	LAKE	112WRD 02236125	ST. JOHNS RIVER AT ASTOR, FLA.			

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2893A	LAKE GEORGE	LAKE	21FLKWATGEORGE107-2	GEORGE LAKE IN PUTNAM CO-SEE NOTE			
2893A	LAKE GEORGE	LAKE	21FLKWATGEORGE107-3	GEORGE LAKE IN PUTNAM CO-SEE NOTE			
2893A	LAKE GEORGE	LAKE	11EPALES1210A2	ST JOHNS RIVER			
2893A	LAKE GEORGE	LAKE	21FLSJWMSJR40	SJR @ HWY 40 NEAR ASTOR	1998	1999	346
2893A1	STJ RIV BL LK GEORGE	STREAM	21FLSJWM45523	LG12 - SJR btw Drayton Isl and Hog Isl, Mid Channe	2002	2003	252
2893A1	STJ RIV BL LK GEORGE	STREAM	21FLA 20030373	ST JOHNS RIVER CHAN MARK 72			
2893A1	STJ RIV BL LK GEORGE	STREAM	11EPALES1210A1	ST JOHNS RIVER			
2893A1	STJ RIV BL LK GEORGE	STREAM	21FLSJWMLG13	SJR West of Drayton Island, West Bank	1996	1997	276
2893A1	STJ RIV BL LK GEORGE	STREAM	21FLSJWMLG11	SJR West of Drayton Island, East Bank	1996	1997	285
2893A1	STJ RIV BL LK GEORGE	STREAM	21FLSJWM20030373	ST. JOHNS RIVER AT CM 72	1996	1998	941
2893A1	STJ RIV BL LK GEORGE	STREAM	21FLA 20010165	ST JOHN R CHAN MARKER 72			
2893A1	STJ RIV BL LK GEORGE	STREAM	21FLSJWMLG12	SJR btw Drayton Isl and Hog Isl, Mid Channel	1996	2002	2669
2893A2	STJ RIV AB LK GEORGE	STREAM	21FLGFWFGFCCR0179	ST. JOHNS RIVER CM 22 AT ENTRANCE TO CROSS CREEK			
2893A2	STJ RIV AB LK GEORGE	STREAM	21FLVEMDVC-066	St. John's River, at CM 19	1999	2003	538
2893A2	STJ RIV AB LK GEORGE	STREAM	21FLA 20010160	ST JOHNS R AT MARKER 19			
2893A2	STJ RIV AB LK GEORGE	STREAM	21FLVEMDSJ28	ST. JOHNS RIVER AT CM 19	1996	1998	1086
2893A2	STJ RIV AB LK GEORGE	STREAM	21FLVEMDVC-065	St. John's River, about 1/2 mile S. of S.R.40	1999	2003	502
2893A3	LAKE GEORGE LEFTOVER	LAKE	21FLCEN 20010358	Silver Glenn Springs at main boil.	2001	2001	5
2893W	LAKE PIERSON	LAKE	21FLSJWMPIR	LAKE PIERSON AT CENTER			
2895A	BEECHER SPRINGS NR FRU	SPRING	112WRD 02236220	BEECHER SPRINGS NR FRUITLAND, FLA.			
2896	CLEAR LAKE	LAKE	21FLKWATCLEAR107-1	CLEAR LAKE IN PUTNAM CO-SEE NOTE			
2896	CLEAR LAKE	LAKE	21FLKWATCLEAR107-2	CLEAR LAKE IN PUTNAM CO-SEE NOTE			
2896	CLEAR LAKE	LAKE	21FLKWATPUT-CLEAR-2	Putnam-Clear-2			
2896	CLEAR LAKE	LAKE	21FLKWATCLEAR107-3	CLEAR LAKE IN PUTNAM CO-SEE NOTE			
2896	CLEAR LAKE	LAKE	21FLKWATPUT-CLEAR-3	Putnam-Clear-3			
2896	CLEAR LAKE	LAKE	21FLKWATPUT-CLEAR-1	Putnam-Clear-1			
2897	BELL LAKE	LAKE	21FLKWATBELL107-2	BELL LAKE IN PUTNAM CO-SEE NOTE			
2897	BELL LAKE	LAKE	21FLKWATPUT-BELL-2	Putnam-Bell-2			
2897	BELL LAKE	LAKE	21FLKWATBELL107-3	BELL LAKE IN PUTNAM CO-SEE NOTE			
2897	BELL LAKE	LAKE	21FLKWATBELL107-1	BELL LAKE IN PUTNAM CO-SEE NOTE			
2897	BELL LAKE	LAKE	21FLKWATPUT-BELL-3	Putnam-Bell-3			
2897	BELL LAKE	LAKE	21FLKWATPUT-BELL-1	Putnam-Bell-1			
2898A	LAKE LAURA	LAKE	1118ATL8050219	LAURA LAKE			
2902	LOWER LOUISE LAKE	LAKE	21FLKWATVOL-UPPERLOU-2	Volusia-Upper Louise-2			
2902	LOWER LOUISE LAKE	LAKE	21FLKWATVOL-LOWERLOU-2	Volusia-Lower Louise-2	1999	2002	136
2902	LOWER LOUISE LAKE	LAKE	21FLKWATVOL-LOWERLOU-1	Volusia-Lower Louise-1	1999	2002	119
2902	LOWER LOUISE LAKE	LAKE	21FLKWATLOWER LOUISE1	LOWER LOUISE IN VOLUSIA CO.-SEE NOTE			
2902	LOWER LOUISE LAKE	LAKE	21FLKWAT127UPPERLOUISE3				
2902	LOWER LOUISE LAKE	LAKE	21FLKWAT127UPPERLOUISE2				
2902	LOWER LOUISE LAKE	LAKE	21FLKWAT127UPPERLOUISE1				
2902	LOWER LOUISE LAKE	LAKE	21FLKWATLOWER LOUISE3	LOWER LOUISE IN VOLUSIA CO.-SEE NOTE			

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2902	LOWER LOUISE LAKE	LAKE	21FLKWATLOWER LOUISE2	LOWER LOUISE IN VOLUSIA CO.-SEE NOTE			
2902	LOWER LOUISE LAKE	LAKE	21FLKWATVOL-UPPERLOU-3	Volusia-Upper Louise-3			
2902	LOWER LOUISE LAKE	LAKE	21FLKWATVOL-LOWERLOU-3	Volusia-Lower Louise-3	1999	2002	132
2902	LOWER LOUISE LAKE	LAKE	21FLKWATVOL-UPPERLOU-1	Volusia-Upper Louise-1			
2904	PRICE CREEK	STREAM	112WRD 02236157	PRICE CREEK NEAR PIERSON, FL			
2904	PRICE CREEK	STREAM	112WRD 291508081302801	V-0065 SJRWMD 4IN UFA,2MI W OF PIERSON			
2916A	CROOKED LAKE	LAKE	1118ATL8050521	CROOKED LAKE			
2916A	CROOKED LAKE	LAKE	21FLKWATLAK-CROOKED-1	Lake-Crooked-1	1996	2002	327
2916A	CROOKED LAKE	LAKE	12ELS1 3B1-036	CROOKED LAKE			
2916A	CROOKED LAKE	LAKE	21FLKWATCROOKED3	LAKE CROOKED3 LAKE CO SEE NOTE			
2916A	CROOKED LAKE	LAKE	21FLKWATLAK-CROOKED-3	Lake-Crooked-3	1996	2002	326
2916A	CROOKED LAKE	LAKE	21FLKWATLAK-CROOKED-2	Lake-Crooked-2	1996	2002	326
2916A	CROOKED LAKE	LAKE	21FLKWATCROOKED2	LAKE CROOKED2 LAKE CO SEE NOTE			
2916A	CROOKED LAKE	LAKE	21FLKWATCROOKED1	LAKE CROOKED1 LAKE CO SEE NOTE			
2916B	GRASSHOPPER LAKE	LAKE	21FLKWATGRASSHOPPER3	LAKE GRASSHOPPER3 IN LAKE CO.- SEE NOTE			
2916B	GRASSHOPPER LAKE	LAKE	21FLKWATGRASSHOPPER2	LAKE GRASSHOPPER2 IN LAKE CO.- SEE NOTE			
2916B	GRASSHOPPER LAKE	LAKE	21FLKWATGRASSHOPPER1	LAKE GRASSHOPPER1 IN LAKE CO.- SEE NOTE			
2916B	GRASSHOPPER LAKE	LAKE	21FLLCPCLKGRSHPSSHR	LAKE GRASSHOPPER SOUTH @ CLAY RD NORTH OF FS 599	2001	2002	45
2916B	GRASSHOPPER LAKE	LAKE	21FLLCPCLKGRSHPNSHR	LAKE GRASSHOPPER NORTH @ LONGWOODS RD	2001	2001	27
2916B	GRASSHOPPER LAKE	LAKE	1118ATL8050539	GRASSHOPPER (NORTH)			
2916B	GRASSHOPPER LAKE	LAKE	21FLKWATLAK-GRASSHOPP-1	Lake-Grasshopper-1	1996	2002	307
2916B	GRASSHOPPER LAKE	LAKE	21FLKWATLAK-GRASSHOPP-2	Lake-Grasshopper-2	1996	2002	308
2916B	GRASSHOPPER LAKE	LAKE	21FLKWATLAK-GRASSHOPP-3	Lake-Grasshopper-3	1996	2002	293
	LAKE JESSUP						
2981	LAKE JESSUP	LAKE	21FLA 20010180	LAKE JESSUP N HOWELL CR			
2981	LAKE JESSUP	LAKE	21FLA 20010181	LAKE JESSUP SW SECTOR			
2981	LAKE JESSUP	LAKE	21FLVEMDVC-045	St. John's River, at Lake Jessup, S. of S.R.46	1999	2003	498
2981	LAKE JESSUP	LAKE	21FLKWAT117JESUP NORTH3				
2981	LAKE JESSUP	LAKE	21FLKWAT117JESUP NORTH2				
2981	LAKE JESSUP	LAKE	21FLA 20010183	LAKE JESSUP NE SECTOR	1996	1998	343
2981	LAKE JESSUP	LAKE	21FLA 20010179	W END L JESSUP E SOLDIER CR			
2981	LAKE JESSUP	LAKE	112WRD 02234434	LAKE JESUP NR SANFORD, FLA.			
2981	LAKE JESSUP	LAKE	21FLKWATSEM-JESUP-2	Seminole-Jesup-2	2000	2000	24
2981	LAKE JESSUP	LAKE	21FLSJRWOW-3	Lk Jesup betwn Seevee Island & Long Point	1996	2000	1740
2981	LAKE JESSUP	LAKE	21FLKWATSEM-JESUPNOR-3	Seminole-Jesup North-3	2001	2002	76
2981	LAKE JESSUP	LAKE	21FLKWATSEM-JESUPNOR-2	Seminole-Jesup North-2	2001	2002	76
2981	LAKE JESSUP	LAKE	21FLKWATSEM-JESUPNOR-1	Seminole-Jesup North-1	2001	2002	76
2981	LAKE JESSUP	LAKE	21FLKWATSEM-JESUP-3	Seminole-Jesup-3	2000	2000	24
2981	LAKE JESSUP	LAKE	21FLSJWM44059	OW-6 - Lk Jesup off center of Far W Arm	2002	2003	297
2981	LAKE JESSUP	LAKE	21FLKWATSEM-JESUP-1	Seminole-Jesup-1	2000	2000	24
2981	LAKE JESSUP	LAKE	21FLSJRWOW-2	Lk Jesup off Grassy Point	1996	2001	2385
2981	LAKE JESSUP	LAKE	11EPALES122301	LAKE JESSUP			

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
2981	LAKE JESSUP	LAKE	21FLSJWMT-1	ROTTEN EGG SLOUGH ON EAST SIDE OF LAKE JESUP	1996	1997	764
2981	LAKE JESSUP	LAKE	21FLA SJRJESSUP5	LK JESSUP B/T CALDWELL FLDS & NEW BALL FIELD			
2981	LAKE JESSUP	LAKE	21FLSJWM44055	OW-2 - Lk Jesup off Grassy Point	2002	2003	297
2981	LAKE JESSUP	LAKE	21FLA SJRJESSUP4	LK JESSUP B/T WHITE'S LANDING & BIRD ISLAND			
2981	LAKE JESSUP	LAKE	21FLA SJRJESSUP3	LK JESSUP IN 7FT HOLE B/T SEEVEE ISL & LONG PNT			
2981	LAKE JESSUP	LAKE	21FLA SJRJESSUP2	LAKE JESSUP IN 4FT HOLE OF GRASSY POINT			
2981	LAKE JESSUP	LAKE	21FLSJWMUSJ027	LAKE JESSUP NORTH END NEAR SR 46			
2981	LAKE JESSUP	LAKE	112WRD 284320081130001	LAKE JESSUP (1.7 MI ENE OF CENTER)			
2981	LAKE JESSUP	LAKE	112WRD 284320081130006	LAKE JESSUP (1 MI SSW OF CENTER)			
2981	LAKE JESSUP	LAKE	21FLA SJRJESSUP7	LK JESSUP B/T MARL BED POINT & LONG POINT			
2981	LAKE JESSUP	LAKE	11EPALES122302	LAKE JESSUP			
2981	LAKE JESSUP	LAKE	21FLA SJRJESSUP6	LK JESSUP IN 4FT HOLE OFF CENTER OF FAR WEST ARM			
2981	LAKE JESSUP	LAKE	21FLVEMDSJ07	LAKE JESSUP SOUTH OF S.R. 46 BRIDGE	1996	1998	955
2981	LAKE JESSUP	LAKE	21FLSJWMOW-OBC	ORANGE BOAT CLUB WEST OF EXPRESS WAY	1996	1996	36
2981	LAKE JESSUP	LAKE	21FLSJWMOW-MBS	LAKE JESSUP MARL BED SLOUGH SITE	1997	1997	175
2981	LAKE JESSUP	LAKE	21FLSJWMOW-7	L JESUP IN 5FT HOLE B/T MARL BED PT & LONG PT	1996	1997	862
2981	LAKE JESSUP	LAKE	21FLSJWMOW-6	L JESUP IN 4FT HOLE OFF CENTER OF FAR WEST ARM	1996	2002	1647
2981	LAKE JESSUP	LAKE	21FLSJWMOW-5	L JESUP IN 10FT HOLE B/T CALDWELL & NEW BALL FLD	1996	1997	1295
2981	LAKE JESSUP	LAKE	21FLSJWMWLJESS	LAKE JESSUP WEST LOBE			
2981	LAKE JESSUP	LAKE	21FLSJWMOW-4	LAKE JESUP IN 10FT HOLE B/T WHITES LDG & BIRD IS	1996	2002	1362
2981	LAKE JESSUP	LAKE	21FLSJWMOW-2	LAKE JESUP IN 4FT HOLE OFF GRASSY PT	1996	2002	1273
2981	LAKE JESSUP	LAKE	21FLSJWMOW-3	LAKE JESUP IN 7FT HOLE B/T SEEVEE IS. AND LOG PT	1996	1997	852
2981	LAKE JESSUP	LAKE	112WRD 284320081130007	LAKE JESSUP (3 MI W OF CENTER)			
2981	LAKE JESSUP	LAKE	21FLGFWFGFCCR0477	LAKE JESSUP MID LAKE	1996	1996	47
2981	LAKE JESSUP	LAKE	21FLSJRWOW-4	Lk Jesup W of bridge betwn Whites Lndg & Bird Isla	1996	2001	2376
2981	LAKE JESSUP	LAKE	21FLSJRWOW-5	Lk Jesup between Caldwell Fields	1996	2000	2192
2981	LAKE JESSUP	LAKE	21FLSJRWOW-6	Lk Jesup off center of Far W Arm	1996	2001	3137
2981	LAKE JESSUP	LAKE	21FLSJRWOW-7	Lk Jesup betwn Marl Bed and Long Point	1996	2000	1965
2981	LAKE JESSUP	LAKE	21FLSJRWT-1	Rotten Egg Slough on the East side of Lake Jesup	1996	2000	1633
2981	LAKE JESSUP	LAKE	21FLSJRWWLJESS	Lake Jesup West Lobe			
2981	LAKE JESSUP	LAKE	21FLA 20010029	LAKE JESSUP, CENTER OF LAKE			
2981	LAKE JESSUP	LAKE	21FLKWATJESSUP2	JESSUP IN SEMINOLE CO.-SEE NOTE			
2981	LAKE JESSUP	LAKE	21FLKWATJESSUP3	JESSUP IN SEMINOLE CO.-SEE NOTE			
2981	LAKE JESSUP	LAKE	21FLKWAT117JESUP NORTH1				
2981	LAKE JESSUP	LAKE	21FLSCES31902	LAKE JESSUP, MOUTH OF HOWELL CREEK.			
2981	LAKE JESSUP	LAKE	21FLA 20010031	L JESSUP AT HILEYS FISH CMP HW41			
2981	LAKE JESSUP	LAKE	21FLA 20010245	L JESSUP 1 1/2 MI S OF SR 46 BRG			
2981	LAKE JESSUP	LAKE	21FLSCES31903	LAKE JESSUP, OFF BIRD ISLAND.			
2981	LAKE JESSUP	LAKE	21FLSJWM44057	OW-4 - Lk Jesup W of bridge betwn Whites Lndg & Bi	2002	2003	297
2981	LAKE JESSUP	LAKE	21FLSJWMELJESS	LAKE JESSUP EAST LOBE NEAR MECCA HAMMOCK			
2981	LAKE JESSUP	LAKE	21FLKWATJESSUP1	JESSUP IN SEMINOLE CO.-SEE NOTE			
2981	LAKE JESSUP	LAKE	21FLSCES31901	LAKE JESSUP, MOUTH OF SOLDIERS CREEK.			
2981E	LAKE JESSUP DRAIN	LAKE	21FLSJWM44075	T-5 - Howell Creek Delta on SW end of Lake Jesup	2002	2003	226

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2981E	LAKE JESSUP DRAIN	LAKE	21FLSJWMT-5	HOWELL CREEK DELTA ON SW END OF LAKE JESUP	1996	2002	1252
2982	PHELPS CREEK	STREAM	21FLSEM NAV	NAVY CANAL	2000	2002	189
2982	PHELPS CREEK	STREAM	21FLSJRWT-12	Phelps Creek Delta at Pineway Rd north of Lk Jesup	1996	2000	1689
2982	PHELPS CREEK	STREAM	21FLSJWMT-12	PHELPS CK DELTA @ PINEWAY RD OFF N SIDE L JESUP	1996	1997	755
2982	PHELPS CREEK	STREAM	21FLA 20010187	L JESSUP, US CNL TO AT SIPES AVE	1997	1997	21
2982A	SILVER LAKE	LAKE	21FLKWATSEM-SILVER-3	Seminole-Silver-3	1998	2002	115
2982A	SILVER LAKE	LAKE	21FLKWATSEM-SILVER-2	Seminole-Silver-2	1998	2002	113
2982A	SILVER LAKE	LAKE	21FLKWAT117SILVER2				
2982A	SILVER LAKE	LAKE	21FLKWAT117SILVER1				
2982A	SILVER LAKE	LAKE	21FLKWATSEM-SILVER-1	Seminole-Silver-1	1998	2002	111
2982A	SILVER LAKE	LAKE	21FLKWAT117SILVER3				
2982A	SILVER LAKE	LAKE	21FLA 20010229	SILVER LAKE CENTER			
2982B	GOLDEN LAKE	LAKE	21FLKWATSEM-GOLDEN-3	Seminole-Golden-3	1998	1998	20
2982B	GOLDEN LAKE	LAKE	21FLKWAT117GOLDEN3				
2982B	GOLDEN LAKE	LAKE	21FLA 20010220	L GOLDEN CENTER			
2982B	GOLDEN LAKE	LAKE	21FLSEM GOL	GOLDEN LAKE	1999	2002	272
2982B	GOLDEN LAKE	LAKE	21FLKWAT117GOLDEN2				
2982B	GOLDEN LAKE	LAKE	21FLKWAT117GOLDEN1				
2982B	GOLDEN LAKE	LAKE	21FLKWATSEM-GOLDEN-2	Seminole-Golden-2	1998	1998	20
2982B	GOLDEN LAKE	LAKE	21FLKWATSEM-GOLDEN-1	Seminole-Golden-1	1998	1998	20
2984	LAKE NAN	STREAM	21FLSEM SIX	SIX MILE CREEK	2000	2002	207
2984	LAKE NAN	STREAM	21FLA 20010294	ELDER SPRINGS RUN AT MYRTLE AVE. - SANFORD	1997	1997	21
2984	LAKE NAN	STREAM	21FLORANHB29	LAKE NAN CANTER	1996	2001	902
2984	LAKE NAN	STREAM	21FLA 20010177	L JESSUP S SANFORD AVE CANAL			
2984	LAKE NAN	STREAM	21FLA 20010188	SANFORD AVE CANAL WOODEN BRID			
2984A	LAKE JENNIE	LAKE	21FLKWAT117JENNIE1				
2984A	LAKE JENNIE	LAKE	21FLA 20010440	L JENNIE S END APPROX 50YDS OFFS			
2984A	LAKE JENNIE	LAKE	21FLKWAT117JENNIE2				
2984A	LAKE JENNIE	LAKE	21FLKWAT117JENNIE3				
2984A	LAKE JENNIE	LAKE	21FLKWATSEM-JENNIE-1	Seminole-Jennie-1	2000	2001	35
2984A	LAKE JENNIE	LAKE	21FLKWATSEM-JENNIE-3	Seminole-Jennie-3	2000	2001	35
2984A	LAKE JENNIE	LAKE	21FLKWATSEM-JENNIE-2	Seminole-Jennie-2	2000	2001	35
2984A	LAKE JENNIE	LAKE	21FLA 20010441	L JENNIE NW COR APP 50YDS OFFSHO			
2985	CHUB CREEK	STREAM	21FLSJWMT-13	CHUB CK DELTA INSIDE NAKED PL NE END L JESUP	1996	1997	640
2985	CHUB CREEK	STREAM	21FLSJRWT-13	Chub Creek Delta inside Naked Place NE of Lk Jesup	1996	2000	971
2986	SOLDIER CREEK REACH	STREAM	21FLSJRWT-8	Gee and Soldier Creek Delta west of Lake Jesup	1996	2001	3324
2986	SOLDIER CREEK REACH	STREAM	21FLSJWMSLC419	SOLDIER CREEK AT SR 419			
2986	SOLDIER CREEK REACH	STREAM	21FLSJWM44078	T-8 - Gee and Soldier Creek Delta west of Lake Jes	2002	2003	227
2986	SOLDIER CREEK REACH	STREAM	21FLA 20010259	SHEOAH GOLF CR UPSTR CONF SOLD C			
2986	SOLDIER CREEK REACH	STREAM	21FLCEN 20010184	Soldier Creek 100 yards downstream of S.R. Highway	1999	2002	161
2986	SOLDIER CREEK REACH	STREAM	112WRD 02234384	SOLDIER CREEK NR LONGWOOD, FLA.			
2986	SOLDIER CREEK REACH	STREAM	21FLSJRWT-10	Soldier Creek at SR419 off West End of Lake Jesup	1996	2000	1618
2986	SOLDIER CREEK REACH	STREAM	21FLCEN 20010230	SOLDIER CREEK AT SR #427 MIDSTRE	2002	2002	100

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2986	SOLDIER CREEK REACH	STREAM	21FLA 20010257	SOLDIER CR 200 YDS UPSTRM OF S41			
2986	SOLDIER CREEK REACH	STREAM	21FLSJWMT-10	SOLDIER CK AT SR419 OFF W END LAKE JESUP	1996	1997	686
2986	SOLDIER CREEK REACH	STREAM	21FLSJWMUSJ906	SOLDIER CREEK NEAR MOUTH			
2986	SOLDIER CREEK REACH	STREAM	11EPALES1223B1	SOLDIER CREEK			
2986	SOLDIER CREEK REACH	STREAM	21FLSEM SOL	SOLDIERS CREEK	1998	2002	347
2986	SOLDIER CREEK REACH	STREAM	21FLA 20010246	SOLDIER CR AT ACL RR UPSTR STP			
2986	SOLDIER CREEK REACH	STREAM	21FLA 20010230	SOLDIER CREEK AT SR #427 MIDSTRE			
2986	SOLDIER CREEK REACH	STREAM	21FLA 20010184	SOLDIER CR SR #419 MIDSTREAM	1996	1997	22
2986A	LAKE BINGHAM	LAKE	21FLKWATBINGHAM1	BINGHAM IN SEMINOLE CO.-SEE NOTE			
2986A	LAKE BINGHAM	LAKE	21FLKWATSEM-BINGHAM-3	Seminole-Bingham-3	1996	1996	4
2986A	LAKE BINGHAM	LAKE	21FLKWATSEM-BINGHAM-1	Seminole-Bingham-1	1996	1996	4
2986A	LAKE BINGHAM	LAKE	21FLKWATSEM-BINGHAM-2	Seminole-Bingham-2	1996	1996	4
2986A	LAKE BINGHAM	LAKE	21FLKWATBINGHAM2	BINGHAM IN SEMINOLE CO.-SEE NOTE			
2986A	LAKE BINGHAM	LAKE	12ELS1 3B3-110	LAKE BINGHAM			
2986A	LAKE BINGHAM	LAKE	21FLKWATBINGHAM3	BINGHAM IN SEMINOLE CO.-SEE NOTE			
2986B	LAKE MYRTLE	LAKE	21FLKWAT117MYRTLE3				
2986B	LAKE MYRTLE	LAKE	21FLSEM ML02	MYRTLE, LAKE	1997	2002	1126
2986B	LAKE MYRTLE	LAKE	21FLKWATSEM-MYRTLE-3	Seminole-Myrtle-3	1998	2002	39
2986B	LAKE MYRTLE	LAKE	21FLKWATSEM-MYRTLE-1	Seminole-Myrtle-1	1998	2002	68
2986B	LAKE MYRTLE	LAKE	112WRD 02234373	LAKE MYRTLE NR LONGWOOD, FLA.			
2986B	LAKE MYRTLE	LAKE	21FLKWAT117MYRTLE1				
2986B	LAKE MYRTLE	LAKE	21FLKWATSEM-MYRTLE-2	Seminole-Myrtle-2	1998	2002	42
2986B	LAKE MYRTLE	LAKE	21FLKWAT117MYRTLE2				
2986C	GRACE LAKE	LAKE	112WRD 02234369	GRACE LAKE AT LONGWOOD, FLA.			
2986D	LAKE ALMA	LAKE	21FLKWATSEM-ALMA-1	Seminole-Alma-1	1996	1998	41
2986D	LAKE ALMA	LAKE	21FLKWAT117ALMA3				
2986D	LAKE ALMA	LAKE	21FLKWAT117ALMA2				
2986D	LAKE ALMA	LAKE	21FLKWAT117ALMA1				
2986D	LAKE ALMA	LAKE	21FLKWATSEM-ALMA-2	Seminole-Alma-2	1996	2000	175
2986D	LAKE ALMA	LAKE	21FLKWATSEM-ALMA-3	Seminole-Alma-3	1996	2000	174
2986E	LAKE SEARCY	LAKE	21FLKWAT117SEARCY2				
2986E	LAKE SEARCY	LAKE	21FLKWAT117SEARCY3				
2986E	LAKE SEARCY	LAKE	21FLKWATSEM-SEARCY-1	Seminole-Searcy-1	1998	2002	231
2986E	LAKE SEARCY	LAKE	21FLKWATSEM-SEARCY-2	Seminole-Searcy-2	1998	2002	232
2986E	LAKE SEARCY	LAKE	21FLKWATSEM-SEARCY-3	Seminole-Searcy-3	1998	2002	227
2986E	LAKE SEARCY	LAKE	21FLKWAT117SEARCY1				
2990	SALT CREEK	STREAM	21FLSJRWT-2	Salt Creek Delta on Upper East side of Lake Jesup	1996	2000	1768
2990	SALT CREEK	STREAM	21FLSJWMT-2	SALT CREEK DELTA ON UPPER EST SIDE OF L JESUP	1996	1997	761
2990	SALT CREEK	STREAM	21FLA 20010051	SALT CREEK AT PACKARD AVE. NEAR OVIEDO	1997	1997	22
2990	SALT CREEK	STREAM	11EPALES1223E1	SALT CREEK			
2992	SWEETWATER CREEK	STREAM	21FLSJRWT-4	Sweetwater Creek west end Palm Ave east of Jesup	1996	2000	2436
2992	SWEETWATER CREEK	STREAM	21FLSJRWT-4A	Sweetwater Creek delta by Lake Jesup	2000	2001	342

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2992	SWEETWATER CREEK	STREAM	21FLSJWMT-4	SWEETWATER CK @ W END OF PALM AVE E END L JESUP	1996	1997	1066
2992	SWEETWATER CREEK	STREAM	21FLSJWM44074	T-4A - Sweetwater Creek delta by Lake Jesup	2002	2003	226
2992	SWEETWATER CREEK	STREAM	21FLA 20010354	BLACK SWEETWATER CREEK AT HOWARD AVE.	1997	1997	21
2994A	GEE CREEK	STREAM	21FLCEN 20010185	Gee Creek at S.R. Highway 419	1999	2002	120
2994A	GEE CREEK	STREAM	21FLCEN 20010253	GEE CREEK AT MOSS RD DOWNSTR STP	2002	2002	105
2994A	GEE CREEK	STREAM	21FLA 20010253	GEE CREEK AT MOSS RD DOWNSTR STP			
2994A	GEE CREEK	STREAM	21FLA 20010252	GEE CR UPSTRM CASSELBERRY STP			
2994A	GEE CREEK	STREAM	21FLSJRWT-9	Gee Creek at SR419 off SW End of Lake Jesup	1996	2000	1622
2994A	GEE CREEK	STREAM	21FLA 20010185	GEE CR SR #419 MIDSTREAM	1997	1997	24
2994A	GEE CREEK	STREAM	11EPALES1223A1	GEE CREEK			
2994A	GEE CREEK	STREAM	21FLSJWMGCR419	GEE CREEK AT SR 419			
2994A	GEE CREEK	STREAM	21FLSEM GEE	GEE CREEK	1998	2002	347
2994A	GEE CREEK	STREAM	21FLA 20010207	GEE CR AT GEE CR LN DOWNSTR STP			
2994A	GEE CREEK	STREAM	21FLA 20010206	GEE CR AT LAURA ST UPSTR STP EFF			
2994A	GEE CREEK	STREAM	21FLSJWMT-9	GEE CK @ SR419 OFF SW END OF L JESUP	1996	1997	729
2994A	GEE CREEK	STREAM	112WRD 02234400	GEE CREEK NR LONGWOOD, FLA.			
2994A	GEE CREEK	STREAM	21FLSCES140001	LAURA ST.			
2994B	LAKE KATHRYN	LAKE	21FLA 20010222	L KATHRYN CENTER	1998	1998	24
2994B	LAKE KATHRYN	LAKE	112WRD 02234398	LAKE KATHRYN AT CASSELBERRY, FL			
2994B	LAKE KATHRYN	LAKE	21FLA 20010210	GEE CR 20YDS DOWNSTR L KATHYRN			
2994B	LAKE KATHRYN	LAKE	21FLA 20010404	L KATHRYN AT CANAL SE END OF LAK			
2994B	LAKE KATHRYN	LAKE	21FLSCES190001	KATHRYN/SE CORNER OF LAKE (INFLOW CANAL)			
2994B	LAKE KATHRYN	LAKE	21FLSCES190002	LAKE KATHRYN/CENTER OF			
2994B	LAKE KATHRYN	LAKE	21FLSCES190003	KATHRYN/NORTHWEST QUADRANT			
2994B	LAKE KATHRYN	LAKE	21FLA 20010403	L KATHRYN E OF HW 17-92 AT DITCH			
2994B	LAKE KATHRYN	LAKE	21FLA 20010405	L KATHRYN CENTER			
2994B1	TRIPLET LAKE	LAKE	21FLKWATTRIPLETMIDDLE1				
2994B1	TRIPLET LAKE	LAKE	21FLA 20010228	L TRIPLET CENTER			
2994B1	TRIPLET LAKE	LAKE	21FLKWATSEM-TRIPLETM-2	Seminole-Triplet Middle-2	1996	2002	172
2994B1	TRIPLET LAKE	LAKE	21FLKWATSEM-TRIPLETN-2	Seminole-Triplet North-2	1996	2002	176
2994B1	TRIPLET LAKE	LAKE	21FLKWATSEM-TRIPLETS-3	Seminole-Triplet South-3	1996	2002	164
2994B1	TRIPLET LAKE	LAKE	21FLKWATSEM-TRIPLETS-2	Seminole-Triplet South-2	1996	2002	163
2994B1	TRIPLET LAKE	LAKE	21FLKWATSEM-TRIPLETS-1	Seminole-Triplet South-1	1996	2002	164
2994B1	TRIPLET LAKE	LAKE	21FLKWATSEM-TRIPLETN-3	Seminole-Triplet North-3	1996	2002	173
2994B1	TRIPLET LAKE	LAKE	21FLKWATTRIPLETMIDDLE2				
2994B1	TRIPLET LAKE	LAKE	21FLKWATSEM-TRIPLETN-1	Seminole-Triplet North-1	1996	2002	174
2994B1	TRIPLET LAKE	LAKE	21FLKWATSEM-TRIPLETM-3	Seminole-Triplet Middle-3	1996	2002	172
2994B1	TRIPLET LAKE	LAKE	21FLKWATTRIPLETSOUTH3				
2994B1	TRIPLET LAKE	LAKE	21FLKWATSEM-TRIPLETM-1	Seminole-Triplet Middle-1	1996	2002	173
2994B1	TRIPLET LAKE	LAKE	21FLKWATTRIPLETSOUTH1				
2994B1	TRIPLET LAKE	LAKE	21FLKWATTRIPLETSOUTH2				
2994B1	TRIPLET LAKE	LAKE	21FLKWATTRIPLETMIDDLE3				

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2994B1	TRIPLET LAKE	LAKE	21FLKWATTRIPLETNORTH1				
2994B1	TRIPLET LAKE	LAKE	21FLKWATTRIPLETNORTH2				
2994B1	TRIPLET LAKE	LAKE	21FLKWATTRIPLETNORTH3				
2994C	FAIRY LAKE	LAKE	21FLSEM FAR	FAIRY LAKE	2001	2002	177
2994C	FAIRY LAKE	LAKE	21FLA 20010094	FAIRY L, DRNG DITCHES TO			
2994C	FAIRY LAKE	LAKE	21FLGFWFGFCCR0056	LAKE FAIRY NORTH			
2994C	FAIRY LAKE	LAKE	21FLGFWFGFCCR0055	LAKE FAIRY SOUTH			
2994C	FAIRY LAKE	LAKE	21FLA 20010033	FAIRY L 50FT OFFSH FRM MCGOWAN D			
2994C	FAIRY LAKE	LAKE	21FLA 20010035	FAIRY LAKE, CENTER			
2994C	FAIRY LAKE	LAKE	21FLA 20010030	L FAIRY, 100 FT NORTH ARNOLD LDR			
2994C	FAIRY LAKE	LAKE	21FLA 20010032	FAIRY L 50FT OFFSHORE ARNOLD LDR			
2994C	FAIRY LAKE	LAKE	21FLA 20010034	FAIRY L 50FT OFFSHRE NORTH SIDE			
2994C	FAIRY LAKE	LAKE	21FLA 20010036	FAIRY L 50FT OFFSHORE DOGTRACK			
2994C	FAIRY LAKE	LAKE	21FLA 20010037	FAIRY L, DRNG DTCH FRM L KATHERI			
2994C	FAIRY LAKE	LAKE	21FLA 20010038	FAIRY L, FRM CULVERT NR SKATE CT			
2994C	FAIRY LAKE	LAKE	21FLSJWMUSJ909	FAIRY LAKE AT CENTER			
2994D	ISLAND LAKE	LAKE	21FLSEM ISL	ISLAND HEATHROW	1999	2002	264
2994D	ISLAND LAKE	LAKE	112WRD 284151081221701	ISLAND LAKE #1 - EAST LATERAL,30 FT FROM FENCE			
2994D	ISLAND LAKE	LAKE	112WRD 284151081221706	ISLAND LAKE #6 CENTER LATERAL-237 FT FROM FENCE			
2994D	ISLAND LAKE	LAKE	112WRD 284151081221703	ISLAND LAKE #3 - EAST LATERAL, 221 FT FROM FENCE			
2994D	ISLAND LAKE	LAKE	112WRD 284151081221704	ISLAND LAKE #4 CENTER LATERAL, 35 FT FROM FENCE			
2994D	ISLAND LAKE	LAKE	112WRD 284151081221702	ISLAND LAKE #2 - EAST LATERAL, 106 FT FROM FENCE			
2994D	ISLAND LAKE	LAKE	112WRD 02234394	ISLAND LAKE AT LONGWOOD, FLA.			
2994D	ISLAND LAKE	LAKE	112WRD 284151081221707	ISLAND LAKE #7 WEST LATERAL 23 FT FROM FENCE			
2994D	ISLAND LAKE	LAKE	112WRD 284151081221708	ISLAND LAKE #8 WEST LATERAL 106 FT FROM FENCE			
2994D	ISLAND LAKE	LAKE	112WRD 284151081221709	ISLAND LAKE #9 WEST LATERAL 254 FT FROM FENCE			
2994D	ISLAND LAKE	LAKE	112WRD 284151081221600	ISLAND LAKE OUTLET CENTER STORM PIPE			
2994D	ISLAND LAKE	LAKE	112WRD 284151081221705	ISLAND LAKE #5 CENTER LATERAL-81 FT FROM FENCE			
2994E	RED BUG LAKE	LAKE	21FLKWATSEM-REDBUG-1	Seminole-Red Bug-1			
2994E	RED BUG LAKE	LAKE	21FLA 20010297	RED BUG LAKE AT CENTER OF LAKE	1997	1997	25
2994E	RED BUG LAKE	LAKE	21FLKWATRED BUG1	RED BUG IN SEMINOLE CO.-SEE NOTE			
2994E	RED BUG LAKE	LAKE	21FLKWATRED BUG2	RED BUG IN SEMINOLE CO.-SEE NOTE			
2994E	RED BUG LAKE	LAKE	21FLKWATSEM-REDBUG-3	Seminole-Red Bug-3			
2994E	RED BUG LAKE	LAKE	21FLKWATSEM-REDBUG-2	Seminole-Red Bug-2			
2994E	RED BUG LAKE	LAKE	21FLSEM RED	RED BUG LAKE	1999	2002	337
2994E	RED BUG LAKE	LAKE	21FLKWATRED BUG3	RED BUG IN SEMINOLE CO.-SEE NOTE			
2994E	RED BUG LAKE	LAKE	21FLSCES160038	RED BUG LAKE			
2994F	ROCK LAKE	LAKE	21FLKWATROCK LAKE3	ROCK IN SEMINOLE CO.-SEE NOTE			
2994F	ROCK LAKE	LAKE	21FLKWATSEM-ROCK-3	Seminole-Rock-3	1996	2002	284
2994F	ROCK LAKE	LAKE	21FLKWATSEM-ROCK-2	Seminole-Rock-2	1996	2002	314
2994F	ROCK LAKE	LAKE	21FLKWATROCK LAKE1	ROCK IN SEMINOLE CO.-SEE NOTE			

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2994F	ROCK LAKE	LAKE	21FLKWATROCK LAKE2	ROCK IN SEMINOLE CO.-SEE NOTE			
2994F	ROCK LAKE	LAKE	21FLKWATSEM-ROCK-1	Seminole-Rock-1	1996	2002	275
2994G	WILDMERE LAKE	LAKE	21FLGFWFGFCCR0367	LAKE WILDMERE EAST SIDE			
2994G	WILDMERE LAKE	LAKE	21FLGFWFGFCCR0120	LAKE WILDMERE NORTH			
2994G	WILDMERE LAKE	LAKE	21FLGFWFGFCCR0119	LAKE WILDMERE SOUTH			
2994G	WILDMERE LAKE	LAKE	21FLGFWFGFCCR0368	LAKE WILDMERE CENTER OF LAKE			
2994H	LAKE GRIFFIN	LAKE	21FLCEN 20020163	Lake Griffin @ south side of lake	2002	2002	51
2994H	LAKE GRIFFIN	LAKE	21FLKWATGRIFFIN LAKE2	GRIFFIN IN SEMINOLE CO.-SEE NOTE			
2994H	LAKE GRIFFIN	LAKE	21FLKWATGRIFFIN LAKE3	GRIFFIN IN SEMINOLE CO.-SEE NOTE			
2994H	LAKE GRIFFIN	LAKE	21FLKWATSEM-GRIFFIN-3	Seminole-Griffin-3			
2994H	LAKE GRIFFIN	LAKE	21FLKWATSEM-GRIFFIN-2	Seminole-Griffin-2			
2994H	LAKE GRIFFIN	LAKE	21FLCEN 20020164	Lake Griffin @ north side of lake	2002	2002	51
2994H	LAKE GRIFFIN	LAKE	21FLKWATSEM-GRIFFIN-1	Seminole-Griffin-1			
2994H	LAKE GRIFFIN	LAKE	21FLKWATGRIFFIN LAKE1	GRIFFIN IN SEMINOLE CO.-SEE NOTE			
2994I	SECRET LAKE	LAKE	21FLKWAT117SECRET2				
2994I	SECRET LAKE	LAKE	21FLKWATSEM-SECRET-3	Seminole-Secret-3	1996	2002	168
2994I	SECRET LAKE	LAKE	21FLKWATSEM-SECRET-2	Seminole-Secret-2	1996	2002	167
2994I	SECRET LAKE	LAKE	21FLKWAT117SECRET3				
2994I	SECRET LAKE	LAKE	21FLKWAT117SECRET1				
2994I	SECRET LAKE	LAKE	21FLKWATSEM-SECRET-1	Seminole-Secret-1	1996	2002	168
2994J	PEARL LAKE	LAKE	21FLKWATSEM-PEARL-3	Seminole-Pearl-3	1999	2001	45
2994J	PEARL LAKE	LAKE	21FLKWATSEM-PEARL-1	Seminole-Pearl-1	1999	2001	38
2994J	PEARL LAKE	LAKE	21FLKWATSEM-PEARL-2	Seminole-Pearl-2	1999	2001	47
2994J	PEARL LAKE	LAKE	21FLKWAT117PEARL1				
2994J	PEARL LAKE	LAKE	21FLKWAT117PEARL2				
2994J	PEARL LAKE	LAKE	21FLKWAT117PEARL3				
2994K	LAKE CONCORD	LAKE	21FLKWAT117CONCORD3				
2994K	LAKE CONCORD	LAKE	21FLKWAT117CONCORD2				
2994K	LAKE CONCORD	LAKE	21FLKWAT117CONCORD1				
2994K	LAKE CONCORD	LAKE	21FLKWATSEM-CONCORD-2	Seminole-Concord-2	1996	2002	170
2994K	LAKE CONCORD	LAKE	21FLKWATSEM-CONCORD-3	Seminole-Concord-3	1996	2002	171
2994K	LAKE CONCORD	LAKE	21FLKWATSEM-CONCORD-1	Seminole-Concord-1	1996	2002	169
2994L	LAKE JANE	LAKE	21FLKWATSEM-JANE-1	Seminole-Jane-1	2001	2002	80
2994L	LAKE JANE	LAKE	21FLKWATSEM-JANE-2	Seminole-Jane-2	2001	2002	74
2994L	LAKE JANE	LAKE	21FLKWAT117JANE2				
2994L	LAKE JANE	LAKE	21FLKWAT117JANE1				
2994X	LITTLE LAKE HOWELL	LAKE	21FLKWATSEM-LITTLEHO-3	Seminole-Little Howell-3	1998	2002	118
2994X	LITTLE LAKE HOWELL	LAKE	21FLSEM TUS	TUSKAWILLA LAKE	1999	2002	361
2994X	LITTLE LAKE HOWELL	LAKE	21FLSCES160034	LITTLE LAKE HOWELL			
2994X	LITTLE LAKE HOWELL	LAKE	21FLKWATLITTLEHOWELL2				
2994X	LITTLE LAKE HOWELL	LAKE	21FLKWATLITTLEHOWELL1				
2994X	LITTLE LAKE HOWELL	LAKE	21FLKWATSEM-LITTLEHO-1	Seminole-Little Howell-1	1998	2002	116
2994X	LITTLE LAKE HOWELL	LAKE	21FLKWATSEM-LITTLEHO-2	Seminole-Little Howell-2	1998	2002	114

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2994X	LITTLE LAKE HOWELL	LAKE	21FLKWATLITTLEHOWELL3				
2994Y	FRUITWOOD LAKE	LAKE	21FLKWATSEM-FRUITWOOD-1	Seminole-Fruitwood-1	1996	1999	110
2994Y	FRUITWOOD LAKE	LAKE	21FLKWATFRUITWOOD2	FRUITWOOD IN SEMINOLE CO.-SEE NOTE			
2994Y	FRUITWOOD LAKE	LAKE	21FLKWATFRUITWOOD1	FRUITWOOD IN SEMINOLE CO.-SEE NOTE			
2994Y	FRUITWOOD LAKE	LAKE	21FLKWATFRUITWOOD3	FRUITWOOD IN SEMINOLE CO.-SEE NOTE			
2994Y	FRUITWOOD LAKE	LAKE	21FLKWATSEM-FRUITWOOD-2	Seminole-Fruitwood-2	1996	1999	110
2994Y	FRUITWOOD LAKE	LAKE	21FLKWATSEM-FRUITWOOD-3	Seminole-Fruitwood-3	1996	1999	109
2994Y1	LAKE TONY	LAKE	21FLKWATSEM-TONY-2	Seminole-Tony-2	1999	1999	4
2994Y1	LAKE TONY	LAKE	21FLKWATSEM-TONY-3	Seminole-Tony-3	1999	1999	4
2994Y1	LAKE TONY	LAKE	21FLKWAT117TONY1				
2994Y1	LAKE TONY	LAKE	21FLSEM TON	TONY, LAKE	1999	2002	283
2994Y1	LAKE TONY	LAKE	21FLKWAT117TONY3				
2994Y1	LAKE TONY	LAKE	21FLKWATSEM-TONY-1	Seminole-Tony-1	1999	1999	4
2994Y1	LAKE TONY	LAKE	21FLKWAT117TONY2				
2994Z	PRAIRIE LAKE	LAKE	21FLKWATPRAIRIE3	PRAIRIE IN SEMINOLE CO.-SEE NOTE			
2994Z	PRAIRIE LAKE	LAKE	21FLA 20010284	PRAIRIE L CTR N END 50FT OFFSHOR			
2994Z	PRAIRIE LAKE	LAKE	21FLA 20010283	PRAIRIE L 50FT OFFSHR DNG DITCH			
2994Z	PRAIRIE LAKE	LAKE	21FLKWATPRAIRIE2	PRAIRIE IN SEMINOLE CO.-SEE NOTE			
2994Z	PRAIRIE LAKE	LAKE	21FLKWATSEM-PRAIRIE-1	Seminole-Prairie-1	1996	2002	286
2994Z	PRAIRIE LAKE	LAKE	21FLKWATSEM-PRAIRIE-2	Seminole-Prairie-2	1996	2002	290
2994Z	PRAIRIE LAKE	LAKE	21FLA 20010285	PRAIRIE LAKE CENTER			
2994Z	PRAIRIE LAKE	LAKE	21FLKWATSEM-PRAIRIE-3	Seminole-Prairie-3	1996	2002	310
2994Z	PRAIRIE LAKE	LAKE	21FLSCES160037	PRAIRIE LAKE			
2994Z	PRAIRIE LAKE	LAKE	21FLSEM PRA	PRAIRIE LAKE	1999	2002	273
2994Z	PRAIRIE LAKE	LAKE	21FLKWATPRAIRIE1	PRAIRIE IN SEMINOLE CO.-SEE NOTE			
2995	LAKE CHARM	LAKE	21FLKWAT117CHARM2				
2995	LAKE CHARM	LAKE	21FLKWAT117CHARM3				
2995	LAKE CHARM	LAKE	21FLKWATSEM-CHARM-2	Seminole-Charm-2	2000	2002	32
2995	LAKE CHARM	LAKE	21FLKWATSEM-CHARM-3	Seminole-Charm-3	2000	2002	32
2995	LAKE CHARM	LAKE	21FLKWAT117CHARM1				
2995	LAKE CHARM	LAKE	21FLKWATSEM-CHARM-1	Seminole-Charm-1	2000	2002	33
2995	LAKE CHARM	LAKE	112WRD 02234428	LAKE CHARM AT OVIEDO, FLA.			
2995A	LAKE CHARM SHORT CUT C	LAKE	21FLA 20010127	SHORTCUT CANAL 100 YDS. DOWNSTREAM HOWARD AVE.	1997	1997	21
2996	SWEETWATER CREEK	STREAM	11EPALES1223G1	SWEETWATER CREEK			
2996	SWEETWATER CREEK	STREAM	21FLA 20010090	SWEETWATER CREEK 0.15 MI. S. OF HOWARD AVE.	1997	1997	21
2996	SWEETWATER CREEK	STREAM	21FLSJRWT-7	Sweetwater Ck at DeLeon&Cress run upstm fr Jesup	1996	2001	2480
2996	SWEETWATER CREEK	STREAM	21FLSJWM44077	T-7 - Sweetwater Ck at DeLeon and Cress run upstm	2002	2003	126
2996	SWEETWATER CREEK	STREAM	21FLSJWMT-7	SWEETWATER CK @ DeLEON & CRESS RUN S OF L JESUP	1996	2002	1168
2997	HOWELL CK BL LK HOWELL	STREAM	21FLCEN 20010186	HOWELL CR SR #419 MIDSTREAM	2002	2002	7
2997	HOWELL CK BL LK HOWELL	STREAM	21FLA 20010186	HOWELL CR SR #419 MIDSTREAM	1996	1997	20
2997	HOWELL CK BL LK HOWELL	STREAM	21FLA 20010189	HOWELL CR RED BUG L RD MID			

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2997	HOWELL CK BL LK HOWELL	STREAM	21FLSJWMHOW	HOWELL CREEK @ HWY 419			
2997	HOWELL CK BL LK HOWELL	STREAM	21FLSJRWT-6	Howell Creek at SR434 So of Whites Lodge on Jesup	1996	2000	1696
2997	HOWELL CK BL LK HOWELL	STREAM	21FLSJRWT-5	Howell Creek Delta on SW end of Lake Jesup	1996	2001	2492
2997	HOWELL CK BL LK HOWELL	STREAM	21FLSEM HOWC	HOWELL CREEK	1998	2002	347
2997	HOWELL CK BL LK HOWELL	STREAM	21FLSJWMT-6	HOWELL CREEK @ SR434 S OF WHITES LODGE L JESUP	1996	1997	731
2997	HOWELL CK BL LK HOWELL	STREAM	21FLA 20010028	HOWELL CR AT ENTRANCE TO L JESSU			
2997	HOWELL CK BL LK HOWELL	STREAM	21FLA 20010055	HOWELL CR 0.25 M DWNSTRM OF LK H			
2997	HOWELL CK BL LK HOWELL	STREAM	11EPALES1220A1	HOWELL CREEK			
29974	Leftover Maitland	LAKE	112WRD 02234299	LAKE MINNEHAHA OUTLET AT MAITLAND,FL			
29975	lake Sybella	LAKE	21FLKWATSYBELIA1	LAKE SYBELIA1 IN ORANGE CO. SEE NOTE			
29975	lake Sybella	LAKE	21FLKWATORA-SYBELIA-3	Orange-Sybelia-3	1999	2002	126
29975	lake Sybella	LAKE	21FLKWATORA-SYBELIA-2	Orange-Sybelia-2	1999	2002	126
29975	lake Sybella	LAKE	21FLKWATORA-SYBELIA-1	Orange-Sybelia-1	1999	2002	126
29975	lake Sybella	LAKE	21FLGFWFGFCCR0107	LAKE SYBELIA NORTH			
29975	lake Sybella	LAKE	21FLKWATSYBELIA3	LAKE SYBELIA3 IN ORANGE CO. SEE NOTE			
29975	lake Sybella	LAKE	21FLKWATSYBELIA2	LAKE SYBELIA2 IN ORANGE CO. SEE NOTE			
29975	lake Sybella	LAKE	21FLORANHB37	Sybellia	1997	2001	483
29975	lake Sybella	LAKE	21FLGFWFGFCCR0106	LAKE SYBELIA SOUTH			
29976	Lake Seminary	LAKE	21FLA 20010804	LAKE SEMINARY			
29976	Lake Seminary	LAKE	21FLCEN 20010046	LAKE SEMINARY - CENTER OF THE LAKE	2002	2002	22
29976	Lake Seminary	LAKE	21FLKWATSEMINARY1	SEMINARY IN SEMINOLE CO.-SEE NOTE			
29976	Lake Seminary	LAKE	21FLSCES160030	LAKE SEMINARY			
29976	Lake Seminary	LAKE	21FLSEM SEM	SEMINARY, LAKE	1998	2002	380
29976	Lake Seminary	LAKE	21FLKWATSEMINARY2	SEMINARY IN SEMINOLE CO.-SEE NOTE			
29976	Lake Seminary	LAKE	21FLKWATSEMINARY3	SEMINARY IN SEMINOLE CO.-SEE NOTE			
29976	Lake Seminary	LAKE	21FLA 20010046	LAKE SEMINARY - CENTER OF THE LAKE	1996	1996	19
29976	Lake Seminary	LAKE	21FLKWATSEM-SEMINARY-2	Seminole-Seminary-2	1996	2002	258
29976	Lake Seminary	LAKE	21FLKWATSEM-SEMINARY-3	Seminole-Seminary-3	1996	2002	247
29976	Lake Seminary	LAKE	21FLKWATSEM-SEMINARY-1	Seminole-Seminary-1	1996	2002	260
29977	Lake in the Woods	LAKE	21FLKWATSEM-WOODS-3	Seminole-Woods-3	1996	2002	333
29977	Lake in the Woods	LAKE	21FLCEN 20010392	Lake of the Woods @ south side of lake	2002	2002	94
29977	Lake in the Woods	LAKE	21FLKWATWOODS2	WOODS IN SEMINOLE CO.-SEE NOTE			
29977	Lake in the Woods	LAKE	21FLCEN 20010391	Lake of the Woods @ north side of lake	2002	2002	100
29977	Lake in the Woods	LAKE	21FLSEM LOW	WOODS, LAKE OF THE	1999	2002	364
29977	Lake in the Woods	LAKE	21FLKWATSEM-WOODS-2	Seminole-Woods-2	1996	2002	334
29977	Lake in the Woods	LAKE	21FLKWATWOODS1	WOODS IN SEMINOLE CO.-SEE NOTE			
29977	Lake in the Woods	LAKE	21FLKWATWOODS3	WOODS IN SEMINOLE CO.-SEE NOTE			
29977	Lake in the Woods	LAKE	21FLKWATSEM-WOODS-1	Seminole-Woods-1	1996	2002	334
29977	Lake in the Woods	LAKE	21FLSCES160027	LAKE OF THE WOODS			
29978A	LAKE CHARITY	LAKE	21FLORANHB6	Charity	1997	2000	444
29978A	LAKE CHARITY	LAKE	112WRD 283758081223801	83712201 LAKE CHARITY SHALLOW WELL NEAR MAITLAND			
29978A	LAKE CHARITY	LAKE	112WRD 02234294	LAKE CHARITY NR MAITLAND, FLA.			
29978B	LAKE FAITH	LAKE	112WRD 283815081215702	83812101 LAKE FAITH SHALLOW WELL NEAR MAITLAND			

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29978B	LAKE FAITH	LAKE	112WRD 02234296	LAKE FAITH AT MAITLAND, FLA.			
29978B	LAKE FAITH	LAKE	21FLORANHB10	Faith	1997	2001	473
29979	LAKE HOPE1 IN ORANGE C	LAKE	21FLKWATHOPE3	LAKE HOPE3 IN ORANGE CO. SEE NOTE			
29979	LAKE HOPE1 IN ORANGE C	LAKE	112WRD 02234297	LAKE HOPE AT MAITLAND, FLA.			
29979	LAKE HOPE1 IN ORANGE C	LAKE	21FLKWATORA-HOPE-1	Orange-Hope-1	1996	2000	79
29979	LAKE HOPE1 IN ORANGE C	LAKE	112WRD 283824081221503	83812201 LAKE HOPE SHALLOW WELL NEAR MAITLAND			
29979	LAKE HOPE1 IN ORANGE C	LAKE	21FLKWATHOPE2	LAKE HOPE2 IN ORANGE CO. SEE NOTE			
29979	LAKE HOPE1 IN ORANGE C	LAKE	21FLKWATORA-HOPE-3	Orange-Hope-3	1996	2000	79
29979	LAKE HOPE1 IN ORANGE C	LAKE	21FLKWATORA-HOPE-2	Orange-Hope-2	1996	2000	76
29979	LAKE HOPE1 IN ORANGE C	LAKE	21FLKWATHOPE1	LAKE HOPE1 IN ORANGE CO. SEE NOTE			
2997A	HOWELL CREEK	STREAM	21FLORANHBC	HOWELL BRANCH AT HWY 436	1996	2002	860
2997A	HOWELL CREEK	STREAM	21FLSJWMUSJ913	HOWELL BRANCH AT SR 436			
2997A	HOWELL CREEK	STREAM	11EPALES1223D1	HOWELL CREEK			
2997A	HOWELL CREEK	STREAM	21FLA 20010057	HOWELL CR AT SR 436			
2997A	HOWELL CREEK	STREAM	21FLA 20010070	HOWELL CREEK AT OUTLET FRM L WAM			
2997A	HOWELL CREEK	STREAM	112WRD 02234308	HOWELL CREEK NR ALTAMONTE SPRINGS, FL	2001	2001	31
2997A	HOWELL CREEK	STREAM	21FLA 20010407	HOWELL CR AT TUSKAWILLOW RD			
2997A	HOWELL CREEK	STREAM	21FLA 20010306	HOWELL BRANCH AT HWY 436			
2997A	HOWELL CREEK	STREAM	21FLA 20010065	HOWELL BR CR AT L HOWELL LANE			
2997A	HOWELL CREEK	STREAM	112WRD 02234324	HOWELL CREEK NR SLAVIA, FLA.			
2997A	HOWELL CREEK	STREAM	112WRD 02234344	HOWELL CREEK AT ST. HWY 419 NR OVIEDO, FLA.			
2997A	HOWELL CREEK	STREAM	21FLA 20010062	HOWELL CR AT TEMPLE TR			
2997B	HOWELL LAKE	LAKE	11EPALES122001	LAKE HOWELL			
2997B	HOWELL LAKE	LAKE	21FLSJWMUSJ912	LAKE HOWELL AT CENTER			
2997B	HOWELL LAKE	LAKE	21FLKWAT117HOWELL6				
2997B	HOWELL LAKE	LAKE	21FLKWAT117HOWELL4				
2997B	HOWELL LAKE	LAKE	21FLKWAT117HOWELL5				
2997B	HOWELL LAKE	LAKE	11EPALES122002	LAKE HOWELL			
2997B	HOWELL LAKE	LAKE	21FLKWATHOWELL3	HOWELL IN SEMINOLE CO.-SEE NOTE			
2997B	HOWELL LAKE	LAKE	21FLA 20010067	L HOWELL OFFSHORE JANES PROPERTY			
2997B	HOWELL LAKE	LAKE	21FLA 20010068	L HOWELL OFFSHORE FRM GREENHOUSE			
2997B	HOWELL LAKE	LAKE	112WRD 02234318	LAKE HOWELL NR CASSELBERRY, FLA.			
2997B	HOWELL LAKE	LAKE	21FLSEM HOW	HOWELL, LAKE	1998	2002	376
2997B	HOWELL LAKE	LAKE	21FLSCES90005	EAST END OF LAKE HOWELL			
2997B	HOWELL LAKE	LAKE	21FLSCES90006	HOWELL COVE			
2997B	HOWELL LAKE	LAKE	21FLA 20010066	HOWELL BR CR AT MOUTH L HOWELL			
2997B	HOWELL LAKE	LAKE	21FLA 20010069	L HOWELL, OFFSHR ORNG CAN SR 436			
2997B	HOWELL LAKE	LAKE	21FLSCES90003	LAKE HOWELL LANE			
2997B	HOWELL LAKE	LAKE	21FLKWATHOWELL2	HOWELL IN SEMINOLE CO.-SEE NOTE			
2997B	HOWELL LAKE	LAKE	21FLKWATHOWELL1	HOWELL IN SEMINOLE CO.-SEE NOTE			
2997B	HOWELL LAKE	LAKE	21FLA 20010071	L HOWELL AT MAITLAND STP EFF			

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
2997B	HOWELL LAKE	LAKE	21FLA 20010072	LK HOWELL NW LOBE NR MTLND POD			
2997B	HOWELL LAKE	LAKE	21FLA 20010073	LK HOWELL CENTER	1996	1996	26
2997B	HOWELL LAKE	LAKE	21FLA 20010074	LK HOWELL OUTLET EAST SIDE			
2997B	HOWELL LAKE	LAKE	21FLA 20010221	L HOWELL 50FT OFFSHR L ANN DRG C			
2997B	HOWELL LAKE	LAKE	21FLKWATSEM-HOWELL-2	Seminole-Howell-2	1996	2001	181
2997B	HOWELL LAKE	LAKE	21FLKWATSEM-HOWELL-3	Seminole-Howell-3	1996	2001	187
2997B	HOWELL LAKE	LAKE	21FLKWATSEM-HOWELL-4	Seminole-Howell-4	1999	2001	24
2997B	HOWELL LAKE	LAKE	21FLA 20010059	LK HOWELL CENTER OF NE LOBE			
2997B	HOWELL LAKE	LAKE	21FLSJWMELHDW	LAKE HOWELL AT MOUTH OF HOWELL CREEK			
2997B	HOWELL LAKE	LAKE	21FLA 20010058	LK HOWELL EAST OF HOWEL CR MOUTH			
2997B	HOWELL LAKE	LAKE	21FLKWATSEM-HOWELL-5	Seminole-Howell-5	2000	2001	27
2997B	HOWELL LAKE	LAKE	21FLKWATSEM-HOWELL-6	Seminole-Howell-6	2000	2001	22
2997B	HOWELL LAKE	LAKE	21FLA 20010042	HOWELL CREEK AT WINTER SPRINGS BLVD.	1997	1997	21
2997B	HOWELL LAKE	LAKE	21FLKWATSEM-HOWELL-1	Seminole-Howell-1	1996	2001	186
2997B	HOWELL LAKE	LAKE	21FLSCES90004	WEST END OF LAKE HOWELL			
2997B1	LAKE ANN	LAKE	21FLKWATSEM-ANN-3	Seminole-Ann-3	1997	2002	89
2997B1	LAKE ANN	LAKE	21FLKWAT117ANN3				
2997B1	LAKE ANN	LAKE	21FLSEM ANN	ANN, LAKE	1999	2002	316
2997B1	LAKE ANN	LAKE	21FLKWATSEM-ANN-2	Seminole-Ann-2	1997	2002	87
2997B1	LAKE ANN	LAKE	21FLKWATSEM-ANN-1	Seminole-Ann-1	1997	2002	85
2997B1	LAKE ANN	LAKE	21FLKWAT117ANN2				
2997B1	LAKE ANN	LAKE	21FLKWAT117ANN1				
2997C	LAKE MAITLAND	LAKE	21FLA 20010316	L. MAITLAND - WINTER PARK	1996	1996	26
2997C	LAKE MAITLAND	LAKE	21FLKWATMAITLAND1	LAKE MAITLAND1 IN ORANGE CO. SEE NOTE			
2997C	LAKE MAITLAND	LAKE	21FLKWATMAITLAND2	LAKE MAITLAND2 IN ORANGE CO. SEE NOTE			
2997C	LAKE MAITLAND	LAKE	21FLKWATORA-MAITLAND-3	Orange-Maitland-3			
2997C	LAKE MAITLAND	LAKE	21FLKWATMAITLAND3	LAKE MAITLAND3 IN ORANGE CO. SEE NOTE			
2997C	LAKE MAITLAND	LAKE	21FLKWATORA-MAITLAND-1	Orange-Maitland-1			
2997C	LAKE MAITLAND	LAKE	21FLKWATORA-MAITLAND-2	Orange-Maitland-2			
2997C	LAKE MAITLAND	LAKE	112WRD 283708081214201	LAKE MAITLAND WEST			
2997C	LAKE MAITLAND	LAKE	21FLORANHB24	LAKE MAITLAND	1996	1998	301
2997C	LAKE MAITLAND	LAKE	112WRD 283727081203501	LAKE MAITLAND OUTFLOW			
2997C	LAKE MAITLAND	LAKE	112WRD 283709081210401	LAKE MAITLAND NORTH			
2997C	LAKE MAITLAND	LAKE	112WRD 283703081210305	LAKE MAITLAND (AT CENTER)			
2997C	LAKE MAITLAND	LAKE	112WRD 283703081210304	LAKE MAITLAND (S OF CENTER)			
2997C	LAKE MAITLAND	LAKE	112WRD 283703081210301	LAKE MAITLAND (N OF CENTER)			
2997C	LAKE MAITLAND	LAKE	112WRD 02234300	LAKE MAITLAND AT WINTER PARK, FLA.			
2997C	LAKE MAITLAND	LAKE	112WRD 283644081204901	LAKE MAITLAND SOUTH			
2997D	LAKE MINNEHAHA	LAKE	21FLKWAT095MINNEHAHA2				
2997D	LAKE MINNEHAHA	LAKE	21FLORANHB26	LAKE MINNEHAHA	1996	2002	710
2997D	LAKE MINNEHAHA	LAKE	21FLKWAT095MINNEHAHA1				
2997D	LAKE MINNEHAHA	LAKE	11EPALES122901	LAKE MINNEHAHA			

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
2997D	LAKE MINNEHAHA	LAKE	21FLKWATORA-MINNEHAHA-1	Orange-Minnehaha-1	1996	2002	309
2997D	LAKE MINNEHAHA	LAKE	21FLKWATORA-MINNEHAHA-2	Orange-Minnehaha-2	1996	2002	312
2997D	LAKE MINNEHAHA	LAKE	21FLKWATORA-MINNEHAHA-3	Orange-Minnehaha-3	1996	2002	311
2997D	LAKE MINNEHAHA	LAKE	21FLA 20010337	LAKE MINNEHAHA AT CENTER	1998	1998	24
2997D	LAKE MINNEHAHA	LAKE	21FLKWAT095MINNEHAHA3				
2997E	LAKE OSCEOLA NORTH	LAKE	21FLORANHB30	LAKE OSCEOLA			
2997E	LAKE OSCEOLA NORTH	LAKE	21FLORANHB30N	LAKE OSCEOLA N	1996	2001	867
2997E	LAKE OSCEOLA NORTH	LAKE	21FLORANHB30M	LAKE OSCEOLA CENTER	1996	2002	900
2997E	LAKE OSCEOLA NORTH	LAKE	112WRD 283615081202801	LAKE OSCEOLA NORTH			
29970	LAKE OSCEOLA SOUTH	LAKE	21FLORANHB30S	LAKE OSCEOLA S	1996	2001	869
29970	LAKE OSCEOLA SOUTH	LAKE	112WRD 283556081204101	LAKE OSCEOLA SOUTH			
29970	LAKE OSCEOLA SOUTH	LAKE	21FLA 20010315	L. OSCEOLA - WINTER PK			
2997F	LAKE IVANHOE	LAKE	21FLKWATIVANHOE MIDDLE3	LAKE IVANHOE MIDDLE3 IN ORANGE CO. SEE NOTE			
2997F	LAKE IVANHOE	LAKE	21FLKWATIVANHOE MIDDLE2	LAKE IVANHOE MIDDLE2 IN ORANGE CO. SEE NOTE			
2997F	LAKE IVANHOE	LAKE	21FLKWATIVANHOE MIDDLE1	LAKE IVANHOE MIDDLE1 IN ORANGE CO. SEE NOTE			
2997F	LAKE IVANHOE	LAKE	21FLKWATIVANHOE EAST3	LAKE IVANHOE EAST3 IN ORANGE CO. SEE NOTE			
2997F	LAKE IVANHOE	LAKE	21FLKWATIVANHOE EAST2	LAKE IVANHOE EAST2 IN ORANGE CO. SEE NOTE			
2997F	LAKE IVANHOE	LAKE	21FLKWATIVANHOE EAST1	LAKE IVANHOE EAST1 IN ORANGE CO. SEE NOTE			
2997F	LAKE IVANHOE	LAKE	21FLORL IVANHOE WEST	LAKE IVANHOE WEST CENTER OF LK	1996	2002	456
2997F	LAKE IVANHOE	LAKE	21FLORL IVANHOE MIDDLE	LAKE IVANHOE MIDDLE CENTER OF LK	1996	2002	453
2997F	LAKE IVANHOE	LAKE	21FLORL IVANHOE EAST	LAKE IVANHOE EAST CENTER OF LK	1996	2002	460
2997F	LAKE IVANHOE	LAKE	21FLKWATIVANHOE WEST2	LAKE IVANHOE WEST2 IN ORANGE CO. SEE NOTE			
2997F	LAKE IVANHOE	LAKE	21FLORL IE	IVANHOE EAST			
2997F	LAKE IVANHOE	LAKE	21FLKWATIVANHOE WEST3	LAKE IVANHOE WEST3 IN ORANGE CO. SEE NOTE			
2997F	LAKE IVANHOE	LAKE	21FLORANHB20	LAKE IVANHOE			
2997F	LAKE IVANHOE	LAKE	21FLORANHB20E	CENTER OF LAKE IVANHOE'S EAST LOBE	1996	2001	801
2997F	LAKE IVANHOE	LAKE	21FLORANHB20W	CENTER OF LAKE IVANHOE'S WEST LOBE	1996	2001	943
2997F	LAKE IVANHOE	LAKE	21FLORL IM	IVANHOE MIDDLE			
2997F	LAKE IVANHOE	LAKE	21FLKWATORA-IVANHOEW-3	Orange-Ivanhoe West-3	1996	2002	252
2997F	LAKE IVANHOE	LAKE	21FLKWATIVANHOE WEST1	LAKE IVANHOE WEST1 IN ORANGE CO. SEE NOTE			
2997F	LAKE IVANHOE	LAKE	21FLKWATORA-IVANHOEM-2	Orange-Ivanhoe Middle-2	1996	2002	268
2997F	LAKE IVANHOE	LAKE	21FLKWATORA-IVANHOEM-3	Orange-Ivanhoe Middle-3	1996	2002	269
2997F	LAKE IVANHOE	LAKE	21FLKWATORA-IVANHOEE-3	Orange-Ivanhoe East-3	1996	2002	262
2997F	LAKE IVANHOE	LAKE	21FLKWATORA-IVANHOEW-1	Orange-Ivanhoe West-1	1996	2002	251
2997F	LAKE IVANHOE	LAKE	21FLKWATORA-IVANHOEE-2	Orange-Ivanhoe East-2	1996	2002	264
2997F	LAKE IVANHOE	LAKE	21FLKWATORA-IVANHOEE-1	Orange-Ivanhoe East-1	1996	2002	263
2997F	LAKE IVANHOE	LAKE	21FLKWATORA-IVANHOEW-2	Orange-Ivanhoe West-2	1996	2002	250
2997F	LAKE IVANHOE	LAKE	21FLKWATORA-IVANHOEM-1	Orange-Ivanhoe Middle-1	1996	2002	268
2997F	LAKE IVANHOE	LAKE	21FLA 20010336	LAKE IVANHOE-MIDDLE	1998	1998	24
2997F	LAKE IVANHOE	LAKE	21FLORL IW	IVANHOE WEST			
2997G	LAKE VIRGINIA	LAKE	21FLA 20010314	L. VIRGINIA WINTER PK.			
2997G	LAKE VIRGINIA	LAKE	21FLORANHB39	LAKE VIRGINIA	1996	2002	898
2997G	LAKE VIRGINIA	LAKE	112WRD 283513081203700	V-4 LAKE VIRGINIA			

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
2997G	LAKE VIRGINIA	LAKE	112WRD 283517081204001	LAKE VIRGINIA			
2997G	LAKE VIRGINIA	LAKE	112WRD 283518081210201	LAKE VIRGINIA WEST			
2997G	LAKE VIRGINIA	LAKE	112WRD 02234264	09E LAKE VIRGINIA AT WINTER PARK FLA			
2997H	LAKE SUE OUTLET	STREAM	112WRD 02234263	SUE LAKE OUTLET AT WINTER PARK			
2997H1	LAKE SUE OUTLET NR LAK	STREAM	112WRD 283452081212401	LAKE SUE OUTFLOW CANAL AT LAKE SUE			
2997I	LAKE SUE	LAKE	21FLA 20010313	LK SUE N.E. ORLANDO			
2997I	LAKE SUE	LAKE	21FLORANHB36	CENTER OF LAKE SUE	1996	2000	740
2997I	LAKE SUE	LAKE	21FLKWATORA-SUE-1	Orange-Sue-1	2001	2001	4
2997I	LAKE SUE	LAKE	21FLSJWMLSUE	SUE LAKE @ CENTER			
2997I	LAKE SUE	LAKE	21FLKWAT095SUE3				
2997I	LAKE SUE	LAKE	21FLKWAT095SUE2				
2997I	LAKE SUE	LAKE	21FLKWATORA-SUE-2	Orange-Sue-2	2001	2001	4
2997I	LAKE SUE	LAKE	21FLKWAT095SUE1				
2997I	LAKE SUE	LAKE	21FLKWATORA-SUE-3	Orange-Sue-3	2001	2001	4
2997J	LAKE ROWENA	LAKE	21FLKWATROWENA2	LAKE ROWENA2 IN ORANGE CO. SEE NOTE			
2997J	LAKE ROWENA	LAKE	21FLKWATORA-ROWENA-1	Orange-Rowena-1	1996	2002	122
2997J	LAKE ROWENA	LAKE	21FLKWATROWENA1	LAKE ROWENA1 IN ORANGE CO. SEE NOTE			
2997J	LAKE ROWENA	LAKE	21FLKWATORA-ROWENA-2	Orange-Rowena-2	1996	2002	122
2997J	LAKE ROWENA	LAKE	21FLKWATORA-ROWENA-3	Orange-Rowena-3	1996	2002	121
2997J	LAKE ROWENA	LAKE	21FLORL ROWENA	LAKE ROWENA	1996	2002	646
2997J	LAKE ROWENA	LAKE	21FLSJWMROWE	ROWENA LAKE @ CENTER			
2997J	LAKE ROWENA	LAKE	21FLORANHB34	CENTER OF LAKE ROWENA	1996	2001	888
2997J	LAKE ROWENA	LAKE	21FLKWATROWENA3	LAKE ROWENA3 IN ORANGE CO. SEE NOTE			
2997K	LAKE ESTELLE	LAKE	21FLKWATESTELLE1	LAKE ESTELLE1 IN ORANGE CO.-SEE NOTE			
2997K	LAKE ESTELLE	LAKE	21FLKWATESTELLE3	LAKE ESTELLE3 IN ORANGE CO.-SEE NOTE			
2997K	LAKE ESTELLE	LAKE	21FLKWATESTELLE2	LAKE ESTELLE2 IN ORANGE CO.-SEE NOTE			
2997K	LAKE ESTELLE	LAKE	21FLKWATORA-ESTELLE-2	Orange-Estelle-2	1996	2002	243
2997K	LAKE ESTELLE	LAKE	21FLKWATORA-ESTELLE-3	Orange-Estelle-3	1996	2002	243
2997K	LAKE ESTELLE	LAKE	21FLKWATESTELLE EAST3	LAKE ESTELLE EAST3 IN ORANGE CO. SEE NOTE			
2997K	LAKE ESTELLE	LAKE	21FLKWATESTELLE EAST2	LAKE ESTELLE EAST2 IN ORANGE CO. SEE NOTE			
2997K	LAKE ESTELLE	LAKE	21FLKWATESTELLE EAST1	LAKE ESTELLE EAST1 IN ORANGE CO. SEE NOTE			
2997K	LAKE ESTELLE	LAKE	21FLKWATORA-ESTELLEE-1	Orange-Estelle East-1	1996	2002	238
2997K	LAKE ESTELLE	LAKE	21FLKWATORA-ESTELLEE-2	Orange-Estelle East-2	1996	2002	237
2997K	LAKE ESTELLE	LAKE	21FLORL ESTELLE EAST	LAKE ESTELLE EAST CENTER	1996	2002	450
2997K	LAKE ESTELLE	LAKE	21FLKWATORA-ESTELLEE-3	Orange-Estelle East-3	1996	2002	231
2997K	LAKE ESTELLE	LAKE	21FLORL ESTELLE WEST	LAKE ESTELLE WEST CENTER	1996	2002	455
2997K	LAKE ESTELLE	LAKE	21FLKWATORA-ESTELLE-1	Orange-Estelle-1	1996	2002	246
2997L	LAKE WINYAH	LAKE	21FLKWATWINYAH3	LAKE WINYAH3 IN ORANGE CO. SEE NOTE			
2997L	LAKE WINYAH	LAKE	21FLKWATORA-WINYAH-1	Orange-Winyah-1	1996	2002	193
2997L	LAKE WINYAH	LAKE	21FLKWATORA-WINYAH-2	Orange-Winyah-2	1996	2002	193
2997L	LAKE WINYAH	LAKE	21FLKWATORA-WINYAH-3	Orange-Winyah-3	1996	2002	194
2997L	LAKE WINYAH	LAKE	21FLKWATWINYAH1	LAKE WINYAH1 IN ORANGE CO. SEE NOTE			
2997L	LAKE WINYAH	LAKE	21FLORL WINYAH	LAKE WINYAH	1996	2002	516

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
2997L	LAKE WINYAH	LAKE	21FLKWATWINYAH2	LAKE WINYAH2 IN ORANGE CO. SEE NOTE			
2997M	LAKE FORMOSA	LAKE	21FLKWATORA-FORMOSA-3	Orange-Formosa-3	1996	2002	227
2997M	LAKE FORMOSA	LAKE	21FLKWATORA-FORMOSA-1	Orange-Formosa-1	1996	2002	226
2997M	LAKE FORMOSA	LAKE	21FLKWATORA-FORMOSA-2	Orange-Formosa-2	1996	2002	228
2997M	LAKE FORMOSA	LAKE	21FLORL FORMOSA	LAKE FORMOSA	1996	2002	454
2997M	LAKE FORMOSA	LAKE	21FLORANHB11	CENTER OF LAKE FORMOSA	1996	2001	857
2997M	LAKE FORMOSA	LAKE	21FLKWATFORMOSA3	LAKE FORMOSA3 IN ORANGE CO. SEE NOTE			
2997M	LAKE FORMOSA	LAKE	21FLKWATFORMOSA1	LAKE FORMOSA1 IN ORANGE CO. SEE NOTE			
2997M	LAKE FORMOSA	LAKE	21FLKWATFORMOSA2	LAKE FORMOSA2 IN ORANGE CO. SEE NOTE			
2997N	LAKE HIGHLAND	LAKE	21FLKWATORA-HIGHLAND-3	Orange-Highland-3	1996	2002	8
2997N	LAKE HIGHLAND	LAKE	21FLKWATHIGHLAND3	LAKE HIGHLAND3 IN ORANGE CO. SEE NOTE			
2997N	LAKE HIGHLAND	LAKE	21FLKWATHIGHLAND2	LAKE HIGHLAND2 IN ORANGE CO. SEE NOTE			
2997N	LAKE HIGHLAND	LAKE	21FLKWATORA-HIGHLAND-1	Orange-Highland-1	1996	2002	8
2997N	LAKE HIGHLAND	LAKE	21FLKWATORA-HIGHLAND-2	Orange-Highland-2	1996	2002	8
2997N	LAKE HIGHLAND	LAKE	21FLKWATHIGHLAND1	LAKE HIGHLAND1 IN ORANGE CO. SEE NOTE			
2997N	LAKE HIGHLAND	LAKE	21FLORL HIGHLAND	LAKE HIGHLAND	1996	2002	465
2997O	PARK LAKE	LAKE	21FLORL PARK	PARK LAKE	1996	2002	465
2997O	PARK LAKE	LAKE	112WRD 02234210	PARK LAKE AT ORLANDO, FLA.			
2997P	LAKE CONCORD	LAKE	21FLORL CONCORD	LAKE CONCORD CENTER	1996	2002	458
2997P	LAKE CONCORD	LAKE	21FLKWATORA-CONCORD-2	Orange-Concord-2	1996	2002	177
2997P	LAKE CONCORD	LAKE	21FLKWATCONCORD3	LAKE CONCORD3 IN ORANGE CO.-SEE NOTE			
2997P	LAKE CONCORD	LAKE	21FLKWATCONCORD2	LAKE CONCORD2 IN ORANGE CO.-SEE NOTE			
2997P	LAKE CONCORD	LAKE	21FLKWATORA-CONCORD-3	Orange-Concord-3	1996	2002	176
2997P	LAKE CONCORD	LAKE	21FLORANHB7	GEOGRAPHICAL CENTER OF LAKE CONCORD	1996	2001	889
2997P	LAKE CONCORD	LAKE	21FLKWATORA-CONCORD-1	Orange-Concord-1	1996	2002	176
2997P	LAKE CONCORD	LAKE	21FLKWATCONCORD1	LAKE CONCORD1 IN ORANGE CO.-SEE NOTE			
2997Q	LAKE DOT	LAKE	21FLORL DOT	LAKE DOT	1996	2002	450
2997Q	LAKE DOT	LAKE	21FLKWATORA-DOT-2	Orange-Dot-2	1996	2002	259
2997Q	LAKE DOT	LAKE	21FLKWATDOT1	LAKE DOT1 IN ORANGE CO.-SEE NOTE			
2997Q	LAKE DOT	LAKE	21FLKWATORA-DOT-1	Orange-Dot-1	1996	2002	262
2997Q	LAKE DOT	LAKE	21FLKWATDOT2	LAKE DOT2 IN ORANGE CO.-SEE NOTE			
2997Q	LAKE DOT	LAKE	21FLKWATDOT3	LAKE DOT3 IN ORANGE CO.-SEE NOTE			
2997Q	LAKE DOT	LAKE	21FLKWATORA-DOT-3	Orange-Dot-3	1996	2002	262
2997R	LAKE ADAIR	LAKE	21FLKWATORA-ADAIR-1	Orange-Adair-1	1996	2002	250
2997R	LAKE ADAIR	LAKE	21FLKWATORA-ADAIR-2	Orange-Adair-2	1996	2002	250
2997R	LAKE ADAIR	LAKE	21FLKWATADAIR1	LAKE ADAIR1 IN ORANGE CO.-SEE NOTE			
2997R	LAKE ADAIR	LAKE	21FLKWATORA-ADAIR-3	Orange-Adair-3	1996	2002	250
2997R	LAKE ADAIR	LAKE	21FLORL ADAIR	LAKE ADAIR CENTER	1996	2002	539
2997R	LAKE ADAIR	LAKE	21FLKWATADAIR3	LAKE ADAIR3 IN ORANGE CO.-SEE NOTE			
2997R	LAKE ADAIR	LAKE	21FLKWATADAIR2	LAKE ADAIR2 IN ORANGE CO.-SEE NOTE			
2997S	LAKE SPRING	LAKE	21FLKWATORA-SPRING-3	Orange-Spring-3	1996	2002	36
2997S	LAKE SPRING	LAKE	21FLKWATSPRING095-1-1	LAKE SPRING1 IN ORANGE CO. SEE NOTE			
2997S	LAKE SPRING	LAKE	21FLKWATSPRING095-1-3	LAKE SPRING3 IN ORANGE CO. SEE NOTE			

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
2997S	LAKE SPRING	LAKE	21FLORL SPRING	LAKE SPRING CENTER OF LK	1996	1996	75
2997S	LAKE SPRING	LAKE	21FLKWATORA-SPRING-2	Orange-Spring-2	1996	2002	36
2997S	LAKE SPRING	LAKE	21FLKWATORA-SPRING-1	Orange-Spring-1	1996	2002	36
2997S	LAKE SPRING	LAKE	21FLKWATSPRING095-1-2	LAKE SPRING2 IN ORANGE CO. SEE NOTE			
2997T	PARK LAKE OUTLET	STREAM	112WRD 02234287	PARK LAKE OUTLET AT MAITLAND, FL			
2997U	LAKE PARK	LAKE	21FLORANHB32	LAKE PARK CENTER	1996	2001	1050
2997U	LAKE PARK	LAKE	21FLKWATPARK3	LAKE PARK3 IN ORANGE CO. SEE NOTE			
2997U	LAKE PARK	LAKE	21FLKWATPARK1	LAKE PARK1 IN ORANGE CO. SEE NOTE			
2997U	LAKE PARK	LAKE	21FLKWATORA-PARK-3	Orange-Park-3	1996	2002	232
2997U	LAKE PARK	LAKE	21FLKWATPARK2	LAKE PARK2 IN ORANGE CO. SEE NOTE			
2997U	LAKE PARK	LAKE	21FLKWATORA-PARK-2	Orange-Park-2	1996	2002	234
2997U	LAKE PARK	LAKE	21FLKWATORA-PARK-1	Orange-Park-1	1996	2002	236
2997V	LAKE GEM	LAKE	21FLKWATGEM3	LAKE GEM3 IN ORANGE CO. SEE NOTE			
2997V	LAKE GEM	LAKE	21FLKWATGEM1	LAKE GEM1 IN ORANGE CO. SEE NOTE			
2997V	LAKE GEM	LAKE	21FLKWATORA-GEM-3	Orange-Gem-3			
2997V	LAKE GEM	LAKE	21FLKWATORA-GEM-1	Orange-Gem-1			
2997V	LAKE GEM	LAKE	21FLKWATGEM2	LAKE GEM2 IN ORANGE CO. SEE NOTE			
2997V	LAKE GEM	LAKE	21FLKWATORA-GEM-2	Orange-Gem-2			
2997W	LAKE BELL	LAKE	21FLKWATORA-BELL-3	Orange-Bell-3	1996	1999	64
2997W	LAKE BELL	LAKE	21FLKWATORA-BELL-2	Orange-Bell-2	1996	1999	64
2997W	LAKE BELL	LAKE	21FLKWATORA-BELL-1	Orange-Bell-1	1996	1999	64
2997W	LAKE BELL	LAKE	21FLORANHB2	Bell			
2997W	LAKE BELL	LAKE	21FLKWATBELL095-1	LAKE BELL1 IN ORANGE CO.-SEE NOTE			
2997W	LAKE BELL	LAKE	21FLSJWMBELL	BELL LAKE @ CENTER			
2997W	LAKE BELL	LAKE	21FLKWATBELL095-3	LAKE BELL3 IN ORANGE CO.-SEE NOTE			
2997W	LAKE BELL	LAKE	21FLKWATBELL095-2	LAKE BELL2 IN ORANGE CO.-SEE NOTE			
2997X	LAKE KILLARNEY	LAKE	21FLKWATKILLARNEY2	LAKE KILLARNEY2 IN ORANGE CO. SEE NOTE			
2997X	LAKE KILLARNEY	LAKE	21FLKWATKILLARNEY3	LAKE KILLARNEY3 IN ORANGE CO. SEE NOTE			
2997X	LAKE KILLARNEY	LAKE	112WRD 02234280	09E L KILLARNEY AT WINTER PARK FLA			
2997X	LAKE KILLARNEY	LAKE	21FLORANHB21	CENTER OF LAKE KILLARNEY	1996	2001	834
2997X	LAKE KILLARNEY	LAKE	112WRD 2835560812	Lk Killarney in Orlando, FL			
2997X	LAKE KILLARNEY	LAKE	21FLKWATKILLARNEY1	LAKE KILLARNEY1 IN ORANGE CO. SEE NOTE			
2997X	LAKE KILLARNEY	LAKE	21FLKWATORA-KILLARNEY-1	Orange-Killarney-1			
2997X	LAKE KILLARNEY	LAKE	21FLKWATORA-KILLARNEY-3	Orange-Killarney-3			
2997X	LAKE KILLARNEY	LAKE	21FLA 20010299	LAKE KILLARNEY AT CENTER OF THE LAKE	1997	1997	24
2997X	LAKE KILLARNEY	LAKE	112WRD 283556081221801				
2997X	LAKE KILLARNEY	LAKE	21FLKWATORA-KILLARNEY-2	Orange-Killarney-2			
2997Y	LAKE MIZELL	LAKE	21FLORANHB28	LAKE MIZELL	1996	2002	727
2997Y	LAKE MIZELL	LAKE	112WRD 283534081201801	LAKE MIZELL			
2997Y	LAKE MIZELL	LAKE	112WRD 283545081201901	LAKE MIZELL NORTH			
2999	BEAR CREEK	STREAM	21FLA 20010049	BEAR CREEK AT NORTHERN WAY BRIDGE	1997	1997	21
2999A	LAKE HAYES	LAKE	21FLKWATSEM-HAYES-2	Seminole-Hayes-2	1996	2002	91

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
2999A	LAKE HAYES	LAKE	21FLKWATHAYES1	HAYES IN SEMINOLE CO.-SEE NOTE			
2999A	LAKE HAYES	LAKE	21FLKWATHAYES3	HAYES IN SEMINOLE CO.-SEE NOTE			
2999A	LAKE HAYES	LAKE	21FLKWATSEM-HAYES-1	Seminole-Hayes-1	1996	2002	89
2999A	LAKE HAYES	LAKE	21FLKWATHAYES2	HAYES IN SEMINOLE CO.-SEE NOTE			
2999A	LAKE HAYES	LAKE	21FLKWATSEM-HAYES-3	Seminole-Hayes-3	1996	2002	88
2999A	LAKE HAYES	LAKE	21FLSEM HAY	HAYES, LAKE	2000	2002	219
2999B	NONAME LAKE	LAKE	21FLKWATSEM-NONAME-3	Seminole-Noname-3			
2999B	NONAME LAKE	LAKE	21FLKWATSEM-NONAME-1	Seminole-Noname-1			
2999B	NONAME LAKE	LAKE	21FLKWATSEM-NONAME-2	Seminole-Noname-2			
2999B	NONAME LAKE	LAKE	21FLKWATNONAME1	NONAME IN SEMINOLE CO.-SEE NOTE			
2999B	NONAME LAKE	LAKE	21FLKWATNONAME2	NONAME IN SEMINOLE CO.-SEE NOTE			
2999B	NONAME LAKE	LAKE	21FLKWATNONAME3	NONAME IN SEMINOLE CO.-SEE NOTE			
2999C	LAKE GEM	LAKE	21FLKWAT117GEM2				
2999C	LAKE GEM	LAKE	21FLKWAT117GEM1				
2999C	LAKE GEM	LAKE	21FLKWATSEM-GEM-1	Seminole-Gem-1	1996	2002	78
2999C	LAKE GEM	LAKE	21FLKWATSEM-GEM-2	Seminole-Gem-2	1996	2002	76
2999C	LAKE GEM	LAKE	21FLKWATSEM-GEM-3	Seminole-Gem-3	1996	2002	78
2999C	LAKE GEM	LAKE	21FLKWAT117GEM3				
3009	BEAR GULLEY LAKE	LAKE	21FLSEM BGU	BEAR GULLY LAKE	1999	2002	340
3009	BEAR GULLEY LAKE	LAKE	21FLSCES150003	BEAR GULLY LAKE			
3009	BEAR GULLEY LAKE	LAKE	21FLKWATSEM-BEARGULL-2	Seminole-Bear Gully-2	1999	2002	68
3009	BEAR GULLEY LAKE	LAKE	21FLKWATSEM-BEARGULL-3	Seminole-Bear Gully-3	1999	2002	67
3009	BEAR GULLEY LAKE	LAKE	21FLKWAT117BEAR GULLY1				
3009	BEAR GULLEY LAKE	LAKE	21FLKWAT117BEAR GULLY2				
3009	BEAR GULLEY LAKE	LAKE	21FLKWAT117BEAR GULLY3				
3009	BEAR GULLEY LAKE	LAKE	21FLKWATSEM-BEARGULL-1	Seminole-Bear Gully-1	1999	2002	68
3009A	WAUNATTA LAKE	LAKE	21FLKWATORA-WAUNATTA-3	Orange-Waunatta-3	1996	2002	213
3009A	WAUNATTA LAKE	LAKE	21FLKWATORA-WAUNATTA-2	Orange-Waunatta-2	1996	2002	184
3009A	WAUNATTA LAKE	LAKE	21FLKWATORA-WAUNATTA-1	Orange-Waunatta-1	1996	2002	214
3009A	WAUNATTA LAKE	LAKE	21FLORANHB40	LAKE WAUNATTA	1996	2000	726
3009A	WAUNATTA LAKE	LAKE	21FLKWATWAUNATTA3	LAKE WAUNATTA3 IN ORANGE CO. SEE NOTE			
3009A	WAUNATTA LAKE	LAKE	21FLKWATWAUNATTA1	LAKE WAUNATTA1 IN ORANGE CO. SEE NOTE			
3009A	WAUNATTA LAKE	LAKE	21FLKWATWAUNATTA2	LAKE WAUNATTA2 IN ORANGE CO. SEE NOTE			
3009B	LAKE MARTHA	LAKE	21FLGFWFGFCCR0099	LAKE MARTHA NORTH			
3009B	LAKE MARTHA	LAKE	21FLKWATMARTHA2	LAKE MARTHA2 IN ORANGE CO. SEE NOTE			
3009B	LAKE MARTHA	LAKE	21FLKWATORA-MARTHA-1	Orange-Martha-1	1996	1996	20
3009B	LAKE MARTHA	LAKE	21FLKWATORA-MARTHA-2	Orange-Martha-2	1996	1996	20
3009B	LAKE MARTHA	LAKE	21FLKWATMARTHA3	LAKE MARTHA3 IN ORANGE CO. SEE NOTE			
3009B	LAKE MARTHA	LAKE	21FLKWATMARTHA1	LAKE MARTHA1 IN ORANGE CO. SEE NOTE			
3009B	LAKE MARTHA	LAKE	21FLKWATORA-MARTHA-3	Orange-Martha-3	1996	1996	20
3009C	LAKE BURKETT	LAKE	21FLKWATORA-BURKETT-2	Orange-Burkett-2	1996	2001	260
3009C	LAKE BURKETT	LAKE	21FLKWATBURKETT1	LAKE BURKETT1 IN ORANGE CO.-SEE NOTE			
3009C	LAKE BURKETT	LAKE	21FLKWATBURKETT2	LAKE BURKETT2 IN ORANGE CO.-SEE NOTE			

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
3009C	LAKE BURKETT	LAKE	21FLKWATBURKETT3	LAKE BURKETT3 IN ORANGE CO.-SEE NOTE			
3009C	LAKE BURKETT	LAKE	21FLORANHB4	GEOGRAPHICAL CENTER OF LAKE BURKETT	1996	2001	988
3009C	LAKE BURKETT	LAKE	21FLGFWFGFCCR0050	LAKE BURKETT SOUTH			
3009C	LAKE BURKETT	LAKE	21FLKWATORA-BURKETT-1	Orange-Burkett-1	1996	2001	260
3009C	LAKE BURKETT	LAKE	21FLGFWFGFCCR0049	LAKE BURKETT NORTH			
3009C	LAKE BURKETT	LAKE	21FLKWATORA-BURKETT-3	Orange-Burkett-3	1996	2001	257
3009D	DEEP LAKE	LAKE	21FLCEN 20010398	Deep Lake @ SW side of lake	2002	2002	89
3009D	DEEP LAKE	LAKE	21FLKWATSEM-DEEP-2	Seminole-Deep-2	2001	2002	32
3009D	DEEP LAKE	LAKE	21FLKWAT117DEEP3				
3009D	DEEP LAKE	LAKE	21FLKWAT117DEEP2				
3009D	DEEP LAKE	LAKE	21FLKWATSEM-DEEP-1	Seminole-Deep-1	2001	2002	31
3009D	DEEP LAKE	LAKE	21FLKWATSEM-DEEP-3	Seminole-Deep-3	2001	2002	32
3009D	DEEP LAKE	LAKE	21FLKWAT117DEEP1				
3009D	DEEP LAKE	LAKE	21FLCEN 20010399	Deep Lake @ NE side of lake	2002	2002	85
3009D	DEEP LAKE	LAKE	21FLORANHB47	CENTER OF DEEP LAKE	1996	2001	847
3009E	LAKE GEORGIA	LAKE	21FLKWATORA-GEORGIA-3	Orange-Georgia-3	1996	2002	301
3009E	LAKE GEORGIA	LAKE	21FLA 20010320	L GEORGIA N OF HW 50 W OF DEAN R			
3009E	LAKE GEORGIA	LAKE	21FLKWATORA-GEORGIA-2	Orange-Georgia-2	1996	2002	283
3009E	LAKE GEORGIA	LAKE	21FLKWATORA-GEORGIA-1	Orange-Georgia-1	1996	2002	299
3009E	LAKE GEORGIA	LAKE	21FLKWATGEORGIA1	LAKE GEORGIA1 IN ORANGE CO. SEE NOTE			
3009E	LAKE GEORGIA	LAKE	21FLKWATGEORGIA2	LAKE GEORGIA2 IN ORANGE CO. SEE NOTE			
3009E	LAKE GEORGIA	LAKE	21FLORANHB14	LAKE GEORGIA CENTER	1996	2001	798
3009E	LAKE GEORGIA	LAKE	21FLKWATGEORGIA3	LAKE GEORGIA3 IN ORANGE CO. SEE NOTE			
3009E	LAKE GEORGIA	LAKE	21FLKWATGEORGIA4	LAKE GEORGIA4 IN ORANGE CO. SEE NOTE			
3009F	LAKE FLORENCE	LAKE	21FLSEM FLO	FLORENCE, LAKE	1999	2002	239
3009F	LAKE FLORENCE	LAKE	21FLKWAT117FLORENCE1				
3009F	LAKE FLORENCE	LAKE	21FLKWATSEM-FLORENCE-3	Seminole-Florence-3	1999	2002	59
3009F	LAKE FLORENCE	LAKE	21FLKWATSEM-FLORENCE-2	Seminole-Florence-2	1999	2002	59
3009F	LAKE FLORENCE	LAKE	21FLKWAT117FLORENCE2				
3009F	LAKE FLORENCE	LAKE	21FLKWATSEM-FLORENCE-1	Seminole-Florence-1	1999	2002	58
3009F	LAKE FLORENCE	LAKE	21FLKWAT117FLORENCE3				
3009H	LAKE NAN	LAKE	21FLKWATORA-NAN-3	Orange-Nan-3	1996	1999	164
3009H	LAKE NAN	LAKE	21FLKWATORA-NAN-2	Orange-Nan-2	1996	1999	164
3009H	LAKE NAN	LAKE	21FLKWATORA-NAN-1	Orange-Nan-1	1996	1999	163
2894	LAKE DELANCEY	LAKE	21FLKWAT083DELANCY2				
2894	LAKE DELANCEY	LAKE	21FLA 20030584	LAKE DELANCY CENTER	1998	1998	23
2894	LAKE DELANCEY	LAKE	21FLSJWMLAD	LAKE DELANCY @ CENTER			
2894	LAKE DELANCEY	LAKE	21FLKWATMAR-DELANCY-2	Marion-DeLancy-2			
2894	LAKE DELANCEY	LAKE	21FLKWATMAR-DELANCY-3	Marion-DeLancy-3			
2894	LAKE DELANCEY	LAKE	21FLKWATMAR-DELANCY-1	Marion-DeLancy-1			
2894	LAKE DELANCEY	LAKE	1118ATL8050225	LAKE DELANCEY			
2894	LAKE DELANCEY	LAKE	21FLKWATDELANCY3	LAKE DELANCY3 IN MARION CO.-SEE NOTE			
2894	LAKE DELANCEY	LAKE	21FLKWAT083DELANCY3				

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2894	LAKE DELANCEY	LAKE	21FLKWAT083DELANCY1				
2894	LAKE DELANCEY	LAKE	21FLKWATDELANCY1	LAKE DELANCY1 IN MARION CO.-SEE NOTE			
2894	LAKE DELANCEY	LAKE	21FLKWATDELANCY2	LAKE DELANCY2 IN MARION CO.-SEE NOTE			
2899	LITTLE LAKE KERR OUTLE	STREAM	21FLKWAT083KERR3				
2899	LITTLE LAKE KERR OUTLE	STREAM	21FLKWAT083KERR1				
2899	LITTLE LAKE KERR OUTLE	STREAM	21FLKWAT083KERR2				
2899A	HOPKINS PRAIRIE	STREAM	21FLSJWMHP3	HOPKINS PRAIRIE SOUTH CENTRAL OPP. CAMPGROUND			
2899A	HOPKINS PRAIRIE	STREAM	21FLSJWMHP2	HOPKINS PRAIRIE SOUTHWEST			
2899A	HOPKINS PRAIRIE	STREAM	21FLSJWMHOP	HOPKINS PRAIRIE NORTHWEST			
2899A	HOPKINS PRAIRIE	STREAM	21FLKWATHOPKINSPRAIRIE1				
2899A	HOPKINS PRAIRIE	STREAM	21FLKWATHOPKINSPRAIRIE2				
2899A	HOPKINS PRAIRIE	STREAM	21FLKWATHOPKINSPRAIRIE3				
2899A	HOPKINS PRAIRIE	STREAM	21FLKWATMAR-HOPKINSP-1	Marion-Hopkins Prairie-1			
2899A	HOPKINS PRAIRIE	STREAM	21FLKWAT083HOPKINS PRAI				
2899A	HOPKINS PRAIRIE	STREAM	21FLKWATMAR-HOPKINSP-3	Marion-Hopkins Prairie-3			
2899A	HOPKINS PRAIRIE	STREAM	21FLKWATHOPKNS PRAIRIE1	LAKE HOPKNS PRAIRIE1 IN MARION CO.-SEE NOTE			
2899A	HOPKINS PRAIRIE	STREAM	21FLKWATHOPKNS PRAIRIE2	LAKE HOPKNS PRAIRIE2 IN MARION CO.-SEE NOTE			
2899A	HOPKINS PRAIRIE	STREAM	21FLKWATHOPKNS PRAIRIE3	LAKE HOPKNS PRAIRIE3 IN MARION CO.-SEE NOTE			
2899A	HOPKINS PRAIRIE	STREAM	1118ATL8050215	HOPKINS PRAIRIE			
2899A	HOPKINS PRAIRIE	STREAM	21FLKWATMAR-HOPKINSP-2	Marion-Hopkins Prairie-2			
	Lake Kerr Planning Unit						
2899B	LAKE KERR	LAKE	21FLGFWFGFCCR0431	LAKE KERR			
2899B	LAKE KERR	LAKE	21FLGFWFGFCCR0430	LAKE KERR			
2899B	LAKE KERR	LAKE	21FLGFWFGFCCR0432	LAKE KERR			
2899B	LAKE KERR	LAKE	112WRD 292130081465004	LAKE KERR (.4 MI ESE OF CENTER)			
2899B	LAKE KERR	LAKE	21FLKWATKERR3	LAKE KERR3 IN MARION CO.-SEE NOTE			
2899B	LAKE KERR	LAKE	21FLSJWMKER	LAKE KERR B/T KAUFFMANS ISL AND PT PLEASANT	1996	1998	752
2899B	LAKE KERR	LAKE	112WRD 02236200	LAKE KERR NEAR EUREKA, FLA.			
2899B	LAKE KERR	LAKE	21FLKWATKERR1	LAKE KERR1 IN MARION CO.-SEE NOTE			
2899B	LAKE KERR	LAKE	21FLA 20030917	LAKE KERR CENTER OF WESTERN LOBE	1996	1996	24
2899B	LAKE KERR	LAKE	21FLA 20030918	LAKE KERR SOUTHEAST SECTOR	1996	1996	24
2899B	LAKE KERR	LAKE	21FLKWATMAR-KERR-1	Marion-Kerr-1	2002	2002	4
2899B	LAKE KERR	LAKE	21FLKWATMAR-KERR-2	Marion-Kerr-2	2002	2002	4
2899B	LAKE KERR	LAKE	21FLKWATMAR-KERR-3	Marion-Kerr-3	2002	2002	4
2899B	LAKE KERR	LAKE	21FLKWATKERR2	LAKE KERR2 IN MARION CO.-SEE NOTE			
2899B	LAKE KERR	LAKE	112WRD 292130081465001	LAKE KERR (1.5 MI W OF CENTER)			
2899B	LAKE KERR	LAKE	112WRD 292130081465007	LAKE KERR (1 MI NW OF CENTER)			
2899C	LITTLE LAKE KERR	LAKE	21FLKWATMAR-LITTLEKE-3	Marion-Little Kerr-3	2002	2002	4
2899C	LITTLE LAKE KERR	LAKE	21FLKWATMAR-LITTLEKE-1	Marion-Little Kerr-1	2002	2002	4
2899C	LITTLE LAKE KERR	LAKE	21FLSJWMLKER	LITTLE KERR/WARNER LAKE @ CENTER			
2899C	LITTLE LAKE KERR	LAKE	21FLKWATMAR-LITTLEKE-2	Marion-Little Kerr-2	2002	2002	4
2900	SALT SPRINGS RUN	SPRING	112WRD 291913081412200	SALT SPRINGS RUN 0.6 MI AB MOUTH NR EUREKA, FLA.			

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2900	SALT SPRINGS RUN	SPRING	112WRD 02236205	SALT SPRINGS NR EUREKA, FLA.	1996	2001	66
2900A	SALT SPRINGS	SPRING	1118ATL8050206	SALT SPRINGS REC AREA	1996	1997	29
2900A	SALT SPRINGS	SPRING	21FLGW 11479	MARION SALT SPRINGS	2002	2002	43
2900A	SALT SPRINGS	SPRING	1118ATL8050205	SALT SPRINGS REC AREA	1996	1997	29
2905	JUNIPER CREEK	STREAM	21FLCEN 20010454	Juniper Creek 100 yards upstream of Highway 19	1999	2002	31
2905	JUNIPER CREEK	STREAM	1118ATL8050207	JUNIPER SPRINGS REC AREA	1996	1997	38
2905	JUNIPER CREEK	STREAM	112WRD 02236150	JUNIPER CREEK NEAR ASTOR, FLA			
2905	JUNIPER CREEK	STREAM	21FLSJWMJUNRUN	JUNIPER CREEK AT HWY 19			
2905	JUNIPER CREEK	STREAM	21FLGW 11463	JUNIPER SPRINGS	2002	2002	42
2905	JUNIPER CREEK	STREAM	21FLA 20010454	JUNIPER CREEK AT HIGHWAY 19	1996	1996	20
2905A	JUNIPER SPRING	SPRING	21FLSJWMJUN	JUNIPER SPRINGS AT BOIL	1996	1997	94
2905A	JUNIPER SPRING	SPRING	112WRD 02236130	JUNIPER SPRINGS NR OCALA, FLA.	1996	2001	59
2905B	SWEETWATER SPRING	SPRING	112WRD 02236147	SWEETWATER SPRINGS NR. ASTOR PARK, FL.	1996	2001	30
2905C	WILDCAT LAKE	LAKE	12ELS1 3B1-143	WILDCAT LAKE			
2905C	WILDCAT LAKE	LAKE	21FLKWATWILDCAT1	LAKE WILDCAT1 IN LAKE CO.- SEE NOTE			
2905C	WILDCAT LAKE	LAKE	21FLKWATWILDCAT2	LAKE WILDCAT2 IN LAKE CO.- SEE NOTE			
2905C	WILDCAT LAKE	LAKE	21FLA 20020504	WILDCAT LAKE-CENTER OF THE LAKE			
2905C	WILDCAT LAKE	LAKE	21FLKWATWILDCAT3	LAKE WILDCAT3 IN LAKE CO.- SEE NOTE			
2905C	WILDCAT LAKE	LAKE	21FLLCPCLKWLDCATSHR	LAKE WILDCAT @ NATURE PRESERVE BEACH	2001	2002	54
2905C	WILDCAT LAKE	LAKE	1118ATL8050565	WILDCAT LAKE			
2905C	WILDCAT LAKE	LAKE	1118ATL8050508	WILDCAT LAKE	1997	1997	18
2905C	WILDCAT LAKE	LAKE	21FLKWATLAK-WILDCAT-1	Lake-Wildcat-1	1999	2002	100
2905C	WILDCAT LAKE	LAKE	21FLKWATLAK-WILDCAT-2	Lake-Wildcat-2	1999	2002	103
2905C	WILDCAT LAKE	LAKE	21FLKWATLAK-WILDCAT-3	Lake-Wildcat-3	1999	2002	100
2905Y	FERN HAMMOCK SPRING	SPRING	21FLGW 11456	FERN HAMMOCK SPRINGS	2002	2002	42
2905Y	FERN HAMMOCK SPRING	SPRING	112WRD 02236132	FERN HAMMOCK SPR NR OCALA, FLA.	1996	2001	40
	Lake Monroe Planning Unit						
2893	GEMINI SPRINGS NR DEBA	SPRING	21FLKWATGEMINISPRINGS3				
2893	GEMINI SPRINGS NR DEBA	SPRING	21FLKWATGEMINISPRINGS2				
2893	GEMINI SPRINGS NR DEBA	SPRING	21FLKWATGEMINI SPRINGS2	GEMINI SPRINGS IN VOLUSIA CO.-SEE NOTE			
2893	GEMINI SPRINGS NR DEBA	SPRING	21FLKWATGEMINISPRINGS1				
2893	GEMINI SPRINGS NR DEBA	SPRING	21FLKWATVOL-GESPRINGS-3	Volusia-Gemini Springs-3	2002	2002	6
2893	GEMINI SPRINGS NR DEBA	SPRING	21FLKWATVOL-GESPRINGS-2	Volusia-Gemini Springs-2	2002	2002	6
2893	GEMINI SPRINGS NR DEBA	SPRING	21FLKWATGEMINI SPRINGS3	GEMINI SPRINGS IN VOLUSIA CO.-SEE NOTE			
2893	GEMINI SPRINGS NR DEBA	SPRING	21FLKWATGEMINI SPRINGS1	GEMINI SPRINGS IN VOLUSIA CO.-SEE NOTE			
2893	GEMINI SPRINGS NR DEBA	SPRING	21FLKWATVOL-GESPRINGS-1	Volusia-Gemini Springs-1	2002	2002	6
2893	GEMINI SPRINGS NR DEBA	SPRING	112WRD 285144081183900	GEMINI SPRINGS NR DEBARY, FLA.			
2893C	STJ RIV AB WEKIVA R.	STREAM	21FLGFWF03080101-225	St. Johns River Station 44	1996	1996	62
2893C	STJ RIV AB WEKIVA R.	STREAM	21FLVEMDVC-050	St. John's River, between U.S. 17-92 and I-4	1999	2003	517
2893C	STJ RIV AB WEKIVA R.	STREAM	21FLGFWF03080101-220	St. Johns River Station 42	1996	1996	62
2893C	STJ RIV AB WEKIVA R.	STREAM	21FLVEMDVC-051	St. John's River, at CM 101	1999	2003	488
2893C	STJ RIV AB WEKIVA R.	STREAM	21FLA 20010017	ST JOHNS R 3 MI DOWNSTR FROM IR			
2893C	STJ RIV AB WEKIVA R.	STREAM	21FLSJRW20010003	ST._JOHNS_RIVER_AT_US_HWY_17-92			

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
2893C	STJ RIV AB WEKIVA R.	STREAM	21FLA 20010003	ST JOHNS RIVER AT US HWYS 17-19			
2893C	STJ RIV AB WEKIVA R.	STREAM	21FLGFWFGFCCR0178	LAKE MONROE AT BOAT RAMP ON US 17-92	1996	1996	47
2893C	STJ RIV AB WEKIVA R.	STREAM	21FLGFWFGFCCR0197	ST. JOHNS RIVER 1/2 MILE SOUTH OF WEKIVA RIVER	1996	1996	47
2893C	STJ RIV AB WEKIVA R.	STREAM	21FLA 20010190	ST JOHN R SANFORD POWER PLANT EF			
2893C	STJ RIV AB WEKIVA R.	STREAM	21FLSJWM71895	SJR-UWR - SJR Upstream of Wekiva River	2002	2003	261
2893C	STJ RIV AB WEKIVA R.	STREAM	21FLVEMDSJ12	ST. JOHNS RIVER AT U.S. HWY 17-92	1996	1998	1077
2893C	STJ RIV AB WEKIVA R.	STREAM	21FLVEMDSJ13	ST. JOHNS RIVER AT CM 101	1996	1998	1232
2893C	STJ RIV AB WEKIVA R.	STREAM	11EPALES1231A1	ST JOHNS RIVER			
2893C	STJ RIV AB WEKIVA R.	STREAM	21FLSJWM20010003	ST. JOHNS RIVER AT US HWY 17-92	1996	2001	1898
2893C	STJ RIV AB WEKIVA R.	STREAM	21FLA 20010143	ST JOHNS R AT MARKER #115			
2893C	STJ RIV AB WEKIVA R.	STREAM	21FLGFWF03080101-215	St. Johns River Station 41	1996	1996	56
2893C	STJ RIV AB WEKIVA R.	STREAM	21FLA 20010124	ST JOHNS RIVER AT CM # 101			
2893C	STJ RIV AB WEKIVA R.	STREAM	112WRD 02234500	ST. JOHNS RIVER NR SANFORD, FLA.	2000	2001	1180
2893C	STJ RIV AB WEKIVA R.	STREAM	21FLA 20010018	ST JOHNS R AT IR 4 BRIDGE			
2893C	STJ RIV AB WEKIVA R.	STREAM	21FLGFWF03080101-140	St. Johns River Station 26	1996	1996	62
2893D	LAKE MONROE	LAKE	21FLKWAT117MONROE WEST2				
2893D	LAKE MONROE	LAKE	21FLKWATSEM-MONROEEA-1	Seminole-Monroe East-1	2000	2002	57
2893D	LAKE MONROE	LAKE	21FLKWATSEM-MONROEEA-2	Seminole-Monroe East-2	2000	2002	57
2893D	LAKE MONROE	LAKE	21FLKWATSEM-MONROEEA-3	Seminole-Monroe East-3	2000	2002	55
2893D	LAKE MONROE	LAKE	21FLKWAT117MONROE WEST3				
2893D	LAKE MONROE	LAKE	21FLKWATSEM-MONROEWE-1	Seminole-Monroe West-1	2000	2002	83
2893D	LAKE MONROE	LAKE	21FLVEMDVC-048	St. John's River, at center of Lake Monroe	1999	2003	433
2893D	LAKE MONROE	LAKE	21FLKWAT117MONROE WEST1				
2893D	LAKE MONROE	LAKE	112WRD 02234499	LAKE MONROE NR SANFORD, FLA.			
2893D	LAKE MONROE	LAKE	21FLKWAT117MONROE EAST1				
2893D	LAKE MONROE	LAKE	21FLVEMDVC-047	St. John's River, S. end of Lake Monroe, at CM R4	1999	2003	444
2893D	LAKE MONROE	LAKE	21FLKWATSEM-MONROEWE-2	Seminole-Monroe West-2	2000	2002	84
2893D	LAKE MONROE	LAKE	21FLKWAT117MONROE EAST3				
2893D	LAKE MONROE	LAKE	21FLKWATSEM-MONROEWE-3	Seminole-Monroe West-3	2000	2002	84
2893D	LAKE MONROE	LAKE	21FLKWAT117MONROE EAST2				
2893D	LAKE MONROE	LAKE	21FLVEMDVC-049	St. John's River, at Lake Monroe, at CM R10	1999	2001	410
2893D	LAKE MONROE	LAKE	21FLSJRWLMAC	LAKE_MONROE_AT_CENTER			
2893D	LAKE MONROE	LAKE	21FLSCES32603	LAKE MONROE, SE CORNER OF LAKE.			
2893D	LAKE MONROE	LAKE	21FLA 20010022	L MONROE UPSTR FROM SANFORD CTY			
2893D	LAKE MONROE	LAKE	21FLA 20010019	L MONROE AT ST JOHNS R EXIT			
2893D	LAKE MONROE	LAKE	21FLSJWM44678	LMAC - LAKE MONROE AT CENTER	2002	2002	107
2893D	LAKE MONROE	LAKE	21FLSJWMLMAC	LAKE MONROE AT CENTER	1996	2002	1799
2893D	LAKE MONROE	LAKE	21FLA 20010487	LAKE MONROE AT SOUTH END			
2893D	LAKE MONROE	LAKE	21FLA 20010488	LAKE MONROE AT CM#R4			
2893D	LAKE MONROE	LAKE	21FLA 20010619	LK MONROE N SECT AT CM 10			

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
2893D	LAKE MONROE	LAKE	21FLA 20010620	LK MONROE GEOGRAPH CTR			
2893D	LAKE MONROE	LAKE	21FLA 20010007	CENTE OF LAKE MONROE			
2893D	LAKE MONROE	LAKE	21FLA 20010006	LAKE MONROE AT POWER PLANT			
2893D	LAKE MONROE	LAKE	21FLA 20010021	L MONROE NR SANFORD STP EFF			
2893D	LAKE MONROE	LAKE	21FLA 20010005	STR ENTERING L MONROE AT IR 4			
2893D	LAKE MONROE	LAKE	21FLSJWMILM	LAKE MONROE AT INLET			
2893D	LAKE MONROE	LAKE	11EPALES123102	LAKE MONROE			
2893D	LAKE MONROE	LAKE	21FLVEMDSJ09	SOUTH END OF LAKE MONROE AT CM R4	1996	1998	1074
2893D	LAKE MONROE	LAKE	21FLVEMDSJ10	LAKE MONROE - CENTER OF THE LAKE	1996	1998	1435
2893D	LAKE MONROE	LAKE	21FLVEMDSJ11	LAKE MONROE AT CHANNEL MARKER R10	1996	1998	1339
2893D	LAKE MONROE	LAKE	11EPALES123101	LAKE MONROE			
2893D	LAKE MONROE	LAKE	11EPALES123103	LAKE MONROE			
2893D	LAKE MONROE	LAKE	21FLSCES32601	LAKE MONROE, NEAR POWER PLANT			
2893D	LAKE MONROE	LAKE	21FLGFWFGFCCR0224	LAKE MONROE AT CM'S 7 AND 8			
2893D	LAKE MONROE	LAKE	21FLSCES32602	LAKE MONROE, OFF SANFORD STP			
2893E	STJ RIV AB LK MONROE	STREAM	21FLSCES32208	ST. JOHNS RIVER, OSTEEN BRIDGE			
2893E	STJ RIV AB LK MONROE	STREAM	11EPALES1231A2	ST JOHNS RIVER			
2893E	STJ RIV AB LK MONROE	STREAM	21FLGFWFGFCCR0190	ST. JOHNS RIVER AT SR 415 BRIDGE OSTEEN			
2893E	STJ RIV AB LK MONROE	STREAM	21FLSCES31898	ST. JOHNS RIVER, MOUTH OF LK. JESSUP			
2893E	STJ RIV AB LK MONROE	STREAM	21FLSJWM44064	OW-SJR-2 - Mid SJR betwn Lakes Jesup and Monroe	2002	2003	295
2893E	STJ RIV AB LK MONROE	STREAM	21FLA 20010486	ST JOHNS RIVER NEAR SR 415 BRIDGE			
2893E	STJ RIV AB LK MONROE	STREAM	11EPALES1223F1	ST JOHNS RIVER			
2893E	STJ RIV AB LK MONROE	STREAM	21FLSJWMOW-SJR-2	MIDDLE OF ST JOHNS RIVER NO OF LK JESUP	1996	2002	1331
2893E	STJ RIV AB LK MONROE	STREAM	21FLA 20010023	ST JOHNS R AT SR 415 BRIDGE			
2893E	STJ RIV AB LK MONROE	STREAM	21FLVEMDSJ08	ST. JOHNS RIVER SOUTH OF S.R. 415 BRIDGE	1996	1998	1159
2893E	STJ RIV AB LK MONROE	STREAM	21FLSJWM71898	SJR-415 - SJR 415 Bridge	2002	2003	258
2893G	GLEASON LAKE	LAKE	21FLKWATGLEASON1	GLEASON IN VOLUSIA CO.-SEE NOTE			
2893G	GLEASON LAKE	LAKE	21FLKWATVOL-GLEASON-1	Volusia-Gleason-1			
2893G	GLEASON LAKE	LAKE	21FLKWATVOL-GLEASON-2	Volusia-Gleason-2			
2893G	GLEASON LAKE	LAKE	21FLKWATVOL-GLEASON-3	Volusia-Gleason-3			
2893G	GLEASON LAKE	LAKE	21FLKWATGLEASON2	GLEASON IN VOLUSIA CO.-SEE NOTE			
2893G	GLEASON LAKE	LAKE	21FLKWATVOL-LAPANOCIA-3	Volusia-Lapanocia-3	2002	2002	28
2893G	GLEASON LAKE	LAKE	21FLKWATVOL-LAPANOCIA-2	Volusia-Lapanocia-2	2002	2002	24
2893G	GLEASON LAKE	LAKE	21FLKWATVOL-LAPANOCIA-1	Volusia-Lapanocia-1	2002	2002	28
2893G	GLEASON LAKE	LAKE	21FLKWATGLEASON3	GLEASON IN VOLUSIA CO.-SEE NOTE			
2893M	THORNHILL LAKE	LAKE	21FLSJWMTORN	THORNHILL LAKE @ CENTER			
2938A	LAKE HELEN	LAKE	21FLKWATVOL-HELEN-2	Volusia-Helen-2	1999	2002	176
2938A	LAKE HELEN	LAKE	21FLKWATVOL-HELEN-3	Volusia-Helen-3	1999	2002	176
2938A	LAKE HELEN	LAKE	21FLKWATHELEN3	HELEN IN VOLUSIA CO.-SEE NOTE			
2938A	LAKE HELEN	LAKE	21FLKWATVOL-HELEN-1	Volusia-Helen-1	1999	2002	176
2938A	LAKE HELEN	LAKE	21FLKWATHELEN1	HELEN IN VOLUSIA CO.-SEE NOTE			
2938A	LAKE HELEN	LAKE	21FLKWATHELEN2	HELEN IN VOLUSIA CO.-SEE NOTE			

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
2938B	DUPONT LAKE	LAKE	21FLKWATVOL-DUPONTSO-1	Volusia-DuPont South-1	1996	1998	97
2938B	DUPONT LAKE	LAKE	21FLKWATVOL-DUPONTSO-2	Volusia-DuPont South-2	1996	1998	92
2938B	DUPONT LAKE	LAKE	21FLSJWMDUPLK	DUPONT LAKE OFF HOLAND BLVD			
2938B	DUPONT LAKE	LAKE	112WRD 02234450	LAKE DUPONT NR LAKE HELEN, FLA.			
2938B	DUPONT LAKE	LAKE	21FLKWATVOL-DUPONTSO-3	Volusia-DuPont South-3	1996	1998	95
2938B	DUPONT LAKE	LAKE	21FLA 20010601	LAKE DUPONT CENTER OF NORTH LOBE			
2938B	DUPONT LAKE	LAKE	21FLKWAT127DUPONTSOUTH2				
2938B	DUPONT LAKE	LAKE	21FLA 20010602	LAKE DUPONT CENTER OF SOUTH LOBE			
2938B	DUPONT LAKE	LAKE	21FLKWAT127DUPONTSOUTH1				
2938B	DUPONT LAKE	LAKE	21FLKWAT127DUPONTSOUTH3				
2938C	LAKE CLOUGH	LAKE	21FLKWATVOL-CLOUGH-3	Volusia-Clough-3	1999	1999	18
2938C	LAKE CLOUGH	LAKE	21FLKWAT127CLOUGH3				
2938C	LAKE CLOUGH	LAKE	21FLKWAT127CLOUGH2				
2938C	LAKE CLOUGH	LAKE	21FLKWATVOL-CLOUGH-2	Volusia-Clough-2	1999	1999	20
2938C	LAKE CLOUGH	LAKE	21FLKWAT127CLOUGH1				
2938C	LAKE CLOUGH	LAKE	21FLKWATVOL-CLOUGH-1	Volusia-Clough-1	1999	1999	19
2938D	LAKE COLBY	LAKE	21FLKWAT127COLBY1				
2938D	LAKE COLBY	LAKE	21FLKWATVOL-COLBY-1	Volusia-Colby-1	1998	2002	119
2938D	LAKE COLBY	LAKE	21FLKWATVOL-COLBY-2	Volusia-Colby-2	1998	2002	122
2938D	LAKE COLBY	LAKE	21FLKWAT127COLBY3				
2938D	LAKE COLBY	LAKE	21FLKWAT127COLBY2				
2938D	LAKE COLBY	LAKE	21FLKWATVOL-COLBY-3	Volusia-Colby-3	1998	2002	123
2938E	TIVO LAKE	LAKE	21FLKWATVOL-TIVOLI-1	Volusia-Tivoli-1	1998	2000	17
2938E	TIVO LAKE	LAKE	21FLKWATVOL-TIVOLI-3	Volusia-Tivoli-3	1998	2000	18
2938E	TIVO LAKE	LAKE	21FLKWATVOL-TIVOLI-2	Volusia-Tivoli-2	1998	2000	17
2938E	TIVO LAKE	LAKE	21FLKWAT127TIVOLI3				
2938E	TIVO LAKE	LAKE	21FLKWAT127TIVOLI2				
2938E	TIVO LAKE	LAKE	21FLKWAT127TIVOLI1				
2938F	MCGARITY LAKE	LAKE	21FLKWAT127MCGARITY2				
2938F	MCGARITY LAKE	LAKE	21FLKWAT127MCGARITY1				
2938F	MCGARITY LAKE	LAKE	21FLKWAT127MCGARITY3				
2938F	MCGARITY LAKE	LAKE	21FLKWATVOL-MCGARITY-1	Volusia-McGarity-1	2000	2000	4
2938F	MCGARITY LAKE	LAKE	21FLKWATVOL-MCGARITY-2	Volusia-McGarity-2	2000	2000	4
2938F	MCGARITY LAKE	LAKE	21FLKWATVOL-MCGARITY-3	Volusia-McGarity-3	2000	2000	4
2938G	THERESA LAKE	LAKE	21FLKWATVOL-THERESA-2	Volusia-Theresa-2	1999	2002	163
2938G	THERESA LAKE	LAKE	21FLA 20010604	LAKE THERESA CENTER OF LAKE			
2938G	THERESA LAKE	LAKE	21FLKWAT127THERESA1				
2938G	THERESA LAKE	LAKE	21FLKWATVOL-THERESA-3	Volusia-Theresa-3	1999	2002	167
2938G	THERESA LAKE	LAKE	21FLKWAT127THERESA3				
2938G	THERESA LAKE	LAKE	21FLKWAT127THERESA2				
2938G	THERESA LAKE	LAKE	21FLKWATVOL-THERESA-1	Volusia-Theresa-1	1999	2002	163
2951	LAKE MARIE	LAKE	21FLKWATMARIE3	MARIE IN VOLUSIA CO.-SEE NOTE			
2951	LAKE MARIE	LAKE	21FLKWATVOL-MARIE-2	Volusia-Marie-2	1996	1997	64

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
2951	LAKE MARIE	LAKE	21FLKWATVOL-MARIE-1	Volusia-Marie-1	1996	1997	64
2951	LAKE MARIE	LAKE	21FLKWATVOL-MARIE-3	Volusia-Marie-3	1996	1997	64
2951	LAKE MARIE	LAKE	21FLKWATMARIE2	MARIE IN VOLUSIA CO.-SEE NOTE			
2951	LAKE MARIE	LAKE	21FLKWATMARIE1	MARIE IN VOLUSIA CO.-SEE NOTE			
2953	BETHEL LAKE	LAKE	21FLSJWMBETL	BETHEL LAKE @ CENTER			
2953	BETHEL LAKE	LAKE	21FLKWATBETHEL1	BETHEL IN VOLUSIA CO.-SEE NOTE			
2953	BETHEL LAKE	LAKE	21FLKWATBETHEL2	BETHEL IN VOLUSIA CO.-SEE NOTE			
2953	BETHEL LAKE	LAKE	11EPALES1231B1	BETHEL CREEK			
2953	BETHEL LAKE	LAKE	21FLKWATVOL-BETHEL-3	Volusia-Bethel-3	1997	2002	71
2953	BETHEL LAKE	LAKE	21FLKWATVOL-BETHEL-1	Volusia-Bethel-1	1997	2002	70
2953	BETHEL LAKE	LAKE	21FLCEN 20010366	Lake Bethel @ west side of lake	2002	2002	99
2953	BETHEL LAKE	LAKE	21FLKWATVOL-BETHEL-2	Volusia-Bethel-2	1997	2002	71
2953	BETHEL LAKE	LAKE	21FLCEN 20010367	Lake Bethel @ east side of lake	2002	2002	98
2953	BETHEL LAKE	LAKE	21FLKWATBETHEL3	BETHEL IN VOLUSIA CO.-SEE NOTE			
2953A	BROKEN ARROW LAKE	LAKE	21FLKWATBROKEN ARROW1	BROKEN ARROW IN VOLUSIA CO.-SEE NOTE			
2953A	BROKEN ARROW LAKE	LAKE	21FLKWATBROKEN ARROW2	BROKEN ARROW IN VOLUSIA CO.-SEE NOTE			
2953A	BROKEN ARROW LAKE	LAKE	21FLKWATVOL-BROKENAR-1	Volusia-Broken Arrow-1	1996	2002	231
2953A	BROKEN ARROW LAKE	LAKE	21FLKWATVOL-BROKENAR-2	Volusia-Broken Arrow-2	1996	2002	231
2953A	BROKEN ARROW LAKE	LAKE	21FLKWATVOL-BROKENAR-3	Volusia-Broken Arrow-3	1996	2002	229
2953A	BROKEN ARROW LAKE	LAKE	21FLKWATBROKEN ARROW3	BROKEN ARROW IN VOLUSIA CO.-SEE NOTE			
2953B	BIG LAKE	LAKE	21FLKWAT127BIG2				
2953B	BIG LAKE	LAKE	21FLKWAT127BIG1				
2953B	BIG LAKE	LAKE	21FLCEN 20010125	Wekiva River 0.5 miles from St. Johns River	1999	1999	28
2953B	BIG LAKE	LAKE	21FLKWATVOL-BIG-3	Volusia-Big-3	2000	2002	107
2953B	BIG LAKE	LAKE	21FLKWATVOL-BIG-2	Volusia-Big-2	2000	2002	108
2953B	BIG LAKE	LAKE	21FLKWAT127BIG3				
2953B	BIG LAKE	LAKE	21FLSJWMBIGLK	BIG LAKE OFF DOYLE ROAD (DELTONA)			
2953B	BIG LAKE	LAKE	21FLKWATVOL-BIG-1	Volusia-Big-1	2000	2002	108
2962	SMITH CANAL	STREAM	21FLCEN 20010648	SMITH CANAL AT OHIO ST. BRIDGE	2002	2002	109
2962	SMITH CANAL	STREAM	21FLA 20010646	SMITH CNL AT EXIT OF NO. BRRW PIT			
2962	SMITH CANAL	STREAM	21FLCEN 20010641	SMITH CANL AT SR 46	2002	2002	117
2962	SMITH CANAL	STREAM	21FLA 20010648	SMITH CANAL AT OHIO ST. BRIDGE			
2962	SMITH CANAL	STREAM	21FLA 20010647	SMITH CANAL AT ORANGE BLVD BRIDGE			
2962	SMITH CANAL	STREAM	21FLCEN 20010639	SMITH CANL AT UPSALA RD BRIDGE	2002	2002	110
2962	SMITH CANAL	STREAM	21FLCEN 20010647	Smith Canal at Orange Boulevard Bridge	1999	2002	152
2962	SMITH CANAL	STREAM	21FLA 20010635	SMITH CANAL BELOW LINCOLN HGT ST			
2962	SMITH CANAL	STREAM	21FLSJWMUSJ905	SMITH CANAL AT ORANGE BLVD			
2962	SMITH CANAL	STREAM	21FLA 20010632	SMITH CANAL BELOW LINCOLN HGT ST			
2962	SMITH CANAL	STREAM	21FLA 20010645	SMITH CNL UPSTRM OF NO. BORROW PIT			
2962	SMITH CANAL	STREAM	21FLA 20010630	SMITH CANAL ABOVE LINCOLN HGT ST			
2962	SMITH CANAL	STREAM	21FLA 20010634	DITCH FLOWING INTO SMITH CANL S-			
2962	SMITH CANAL	STREAM	21FLSEM SMI	LOCKHART SMITH CANAL	2000	2002	213
2962	SMITH CANAL	STREAM	21FLA 20010636	DITCH FLOWING INTO SMITH CANL S-			

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
2962	SMITH CANAL	STREAM	21FLA 20010637	DITCH FLOWING INTO SMITH CNL S-8			
2962	SMITH CANAL	STREAM	21FLA 20010638	SMITH CANAL OFF KENNEL RD.			
2962	SMITH CANAL	STREAM	21FLA 20010639	SMITH CANL AT UPSALA RD BRIDGE			
2962	SMITH CANAL	STREAM	21FLA 20010640	SMITH CANAL BELOW ELDER RD.			
2962	SMITH CANAL	STREAM	21FLA 20010641	SMITH CANL AT SR 46			
2962	SMITH CANAL	STREAM	21FLA 20010642	SMITH CNL ABOVE I-4 IND PK OUTFALL			
2962	SMITH CANAL	STREAM	21FLA 20010644	DITCH FLOWING INTO SMITH CNL S-1			
2962	SMITH CANAL	STREAM	21FLA 20010633	SMITH CANAL BELOW LINCOLN HGT ST			
2962A	EAST TWIN LAKE	LAKE	21FLKWAT117TWIN EAST1				
2962A	EAST TWIN LAKE	LAKE	21FLKWATEAST TWIN1	EAST TWIN IN SEMINOLE CO.-SEE NOTE			
2962A	EAST TWIN LAKE	LAKE	21FLKWATEAST TWIN2	EAST TWIN IN SEMINOLE CO.-SEE NOTE			
2962A	EAST TWIN LAKE	LAKE	21FLKWAT117TWIN EAST3				
2962A	EAST TWIN LAKE	LAKE	21FLKWAT117TWIN EAST2				
2962A	EAST TWIN LAKE	LAKE	21FLKWATEAST TWIN3	EAST TWIN IN SEMINOLE CO.-SEE NOTE			
2962A	EAST TWIN LAKE	LAKE	21FLKWATSEM-EASTTWIN-2	Seminole-East Twin-2			
2962A	EAST TWIN LAKE	LAKE	21FLKWATSEM-EASTTWIN-1	Seminole-East Twin-1			
2962A	EAST TWIN LAKE	LAKE	21FLKWATSEM-TWINEAST-2	Seminole-Twin East-2	1997	1998	19
2962A	EAST TWIN LAKE	LAKE	21FLKWATSEM-EASTTWIN-3	Seminole-East Twin-3			
2962A	EAST TWIN LAKE	LAKE	21FLKWATSEM-TWINEAST-3	Seminole-Twin East-3	1997	1998	19
2962A	EAST TWIN LAKE	LAKE	21FLKWATSEM-TWINEAST-1	Seminole-Twin East-1	1997	1998	20
2962B	ADA LAKE	LAKE	21FLKWAT117ADA1				
2962B	ADA LAKE	LAKE	21FLKWAT117ADA2				
2962B	ADA LAKE	LAKE	21FLKWAT117ADA3				
2962B	ADA LAKE	LAKE	21FLKWATSEM-ADA-3	Seminole-Ada-3	1997	2002	126
2962B	ADA LAKE	LAKE	21FLKWATSEM-ADA-1	Seminole-Ada-1	1997	2002	129
2962B	ADA LAKE	LAKE	112WRD 02234409	LAKE ADA AT SANFORD, FLA.			
2962B	ADA LAKE	LAKE	21FLA 20010443	L ADA N END 50 YDS OFFSHORE			
2962B	ADA LAKE	LAKE	21FLKWATSEM-ADA-2	Seminole-Ada-2	1997	2002	131
2962B	ADA LAKE	LAKE	21FLA 20010442	L ADA S END 50 YDS OFFSHORE			
2962B	ADA LAKE	LAKE	21FLSJWMLADA	ADA LAKE @ CENTER			
2962C	LAKE MINNIE	LAKE	21FLSCES160026	LAKE MINNIE			
2962D	LAKE MARY	LAKE	21FLA 20010226	N LAKE MARY 50 F FROM CANAL			
2962D	LAKE MARY	LAKE	21FLKWATMARY117-1	MARY IN SEMINOLE CO.-SEE NOTE			
2962D	LAKE MARY	LAKE	21FLKWATMARY117-2	MARY IN SEMINOLE CO.-SEE NOTE			
2962D	LAKE MARY	LAKE	112WRD 02234414	LAKE MARY AT LAKE MARY, FLA.			
2962D	LAKE MARY	LAKE	21FLSCES70001	LONGWOOD-LAKE MARY RD			
2962D	LAKE MARY	LAKE	21FLKWATSEM-MARY-3	Seminole-Mary-3	1996	2002	256
2962D	LAKE MARY	LAKE	21FLKWATSEM-MARY-1	Seminole-Mary-1	1996	2002	287
2962D	LAKE MARY	LAKE	21FLKWATSEM-MARY-2	Seminole-Mary-2	1996	2002	267
2962D	LAKE MARY	LAKE	21FLA 20010225	N LAKE MARY CTR OF EAST END			
2962D	LAKE MARY	LAKE	21FLKWATMARY117-3	MARY IN SEMINOLE CO.-SEE NOTE			
2962D	LAKE MARY	LAKE	21FLA 20010224	N LAKE MARY CTR WEST END OF LAKE			

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
2962E	LITTLE LAKE MARY	LAKE	21FLKWATSEM-LITTLEMA-2	Seminole-Little Mary-2	1996	2002	183
2962E	LITTLE LAKE MARY	LAKE	21FLKWATSEM-LITTLEMA-1	Seminole-Little Mary-1	1996	2002	179
2962E	LITTLE LAKE MARY	LAKE	21FLA 20010223	S LAKE MARY CENTER			
2962E	LITTLE LAKE MARY	LAKE	21FLKWATLITTLE MARY LK2	LITTLE MARY IN SEMINOLE CO.-SEE NOTE			
2962E	LITTLE LAKE MARY	LAKE	21FLKWATSEM-LITTLEMA-3	Seminole-Little Mary-3	1996	2002	176
2962E	LITTLE LAKE MARY	LAKE	21FLKWATLITTLE MARY LK1	LITTLE MARY IN SEMINOLE CO.-SEE NOTE			
2962E	LITTLE LAKE MARY	LAKE	21FLKWATLITTLE MARY LK3	LITTLE MARY IN SEMINOLE CO.-SEE NOTE			
2973	DEFOREST LAKE OUTLET	STREAM	21FLSEM CL01	LOCKHART SMITH CANAL	1997	2002	550
2973A	LAKE EMMA	LAKE	21FLKWATSEM-EMMA-3	Seminole-Emma-3			
2973A	LAKE EMMA	LAKE	21FLKWATSEM-EMMA-1	Seminole-Emma-1			
2973A	LAKE EMMA	LAKE	21FLKWATEMMA LAKE3	EMMA IN SEMINOLE CO.-SEE NOTE			
2973A	LAKE EMMA	LAKE	21FLKWATEMMA LAKE2	EMMA IN SEMINOLE CO.-SEE NOTE			
2973A	LAKE EMMA	LAKE	21FLKWATEMMA LAKE1	EMMA IN SEMINOLE CO.-SEE NOTE			
2973A	LAKE EMMA	LAKE	21FLKWATSEM-EMMA-2	Seminole-Emma-2			
2973B	WEST CRYSTAL LAKE	LAKE	21FLKWATWEST CRYSTAL2	WEST CRYSTAL IN SEMINOLE CO.-SEE NOTE			
2973B	WEST CRYSTAL LAKE	LAKE	21FLKWATWEST CRYSTAL3	WEST CRYSTAL IN SEMINOLE CO.-SEE NOTE			
2973B	WEST CRYSTAL LAKE	LAKE	21FLKWATSEM-WESTCRYS-1	Seminole-West Crystal-1	1996	1997	17
2973B	WEST CRYSTAL LAKE	LAKE	21FLKWATSEM-WESTCRYS-2	Seminole-West Crystal-2	1996	1997	28
2973B	WEST CRYSTAL LAKE	LAKE	21FLKWATSEM-WESTCRYS-3	Seminole-West Crystal-3	1996	1997	30
2973B	WEST CRYSTAL LAKE	LAKE	21FLKWATWEST CRYSTAL1	WEST CRYSTAL IN SEMINOLE CO.-SEE NOTE			
2973C	EAST CRYSTAL LAKE	LAKE	21FLKWATSEM-EASTCRYS-3	Seminole-East Crystal-3	1996	2000	204
2973C	EAST CRYSTAL LAKE	LAKE	21FLKWATSEM-EASTCRYS-2	Seminole-East Crystal-2	1996	2000	209
2973C	EAST CRYSTAL LAKE	LAKE	21FLKWATEAST CRYSTAL3	EAST CRYSTAL IN SEMINOLE CO.-SEE NOTE			
2973C	EAST CRYSTAL LAKE	LAKE	21FLKWATEAST CRYSTAL2	EAST CRYSTAL IN SEMINOLE CO.-SEE NOTE			
2973C	EAST CRYSTAL LAKE	LAKE	21FLKWATEAST CRYSTAL1	EAST CRYSTAL IN SEMINOLE CO.-SEE NOTE			
2973C	EAST CRYSTAL LAKE	LAKE	21FLKWATSEM-PINE-1	Seminole-Pine-1	1999	1999	22
2973C	EAST CRYSTAL LAKE	LAKE	21FLSEM CL03	EAST CRYSTAL LAKE	1997	2002	579
2973C	EAST CRYSTAL LAKE	LAKE	21FLKWAT117PINE2				
2973C	EAST CRYSTAL LAKE	LAKE	21FLA 20010241	CRYSTAL LAKE WEST SIDE			
2973C	EAST CRYSTAL LAKE	LAKE	21FLKWATSEM-EASTCRYS-1	Seminole-East Crystal-1	1996	2000	196
2973C	EAST CRYSTAL LAKE	LAKE	21FLKWATSEM-PINE-3	Seminole-Pine-3	1999	1999	21
2973C	EAST CRYSTAL LAKE	LAKE	21FLKWATSEM-PINE-2	Seminole-Pine-2	1999	1999	22
2973C	EAST CRYSTAL LAKE	LAKE	21FLA 20010240	CRYSTAL L E END 200YD W OF PUB B			
2973C	EAST CRYSTAL LAKE	LAKE	21FLKWAT117PINE1				
2973C	EAST CRYSTAL LAKE	LAKE	21FLKWAT117PINE3				
2973D	JENNIE LAKE	LAKE	21FLSCES160019	LAKE JENNIE			
2973E	BEL-AIR LAKE	LAKE	21FLKWATSEM-BEL-AIR-3	Seminole-Bel-Air-3	2000	2000	12
2973E	BEL-AIR LAKE	LAKE	21FLKWAT117BEL-AIR3				
2973E	BEL-AIR LAKE	LAKE	21FLKWAT117BEL-AIR2				
2973E	BEL-AIR LAKE	LAKE	21FLKWATSEM-BEL-AIR-2	Seminole-Bel-Air-2	2000	2000	12
2973E	BEL-AIR LAKE	LAKE	21FLKWATSEM-BEL-AIR-1	Seminole-Bel-Air-1	2000	2000	12
2973E	BEL-AIR LAKE	LAKE	21FLKWAT117BEL-AIR1				
2973F	DEFOREST LAKE	LAKE	21FLKWATSEM-DEFOREST-1	Seminole-DeForest-1	1996	1997	24

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
2973F	DEFOREST LAKE	LAKE	21FLKWATSEM-DEFOREST-2	Seminole-DeForest-2	1996	1997	24
2973F	DEFOREST LAKE	LAKE	21FLKWATSEM-DEFOREST-3	Seminole-DeForest-3	1996	1997	24
2973F	DEFOREST LAKE	LAKE	21FLSEM CL02	DEFOREST LAKE	1997	2002	582
2973F	DEFOREST LAKE	LAKE	21FLKWAT117DEFOREST2				
2973F	DEFOREST LAKE	LAKE	21FLKWAT117DEFOREST3				
2973F	DEFOREST LAKE	LAKE	21FLKWAT117DEFOREST1				
2981A	LAKE JESSUP NR STJR	LAKE	21FLSJRWOW-1	SJR in Government Cut N of Lk Jesup & SR46	1996	2000	1701
2981A	LAKE JESSUP NR STJR	LAKE	21FLSJWMOW-1	ST. JOHNS R IN GOV'T CUT N OF L JESUP	1996	1997	941
2981A	LAKE JESSUP NR STJR	LAKE	21FLSEM JES	JESUP, LAKE	1998	2002	333
2981A	LAKE JESSUP NR STJR	LAKE	112WRD 02234435	LAKE JESUP OUTLET NR SANFORD			
2981A	LAKE JESSUP NR STJR	LAKE	21FLA 20010024	ST JOHNS R CONF WITH L JESSUP			
2981A	LAKE JESSUP NR STJR	LAKE	21FLA 20010485	LAKE JESSUP NEAR SR 46 BRIDGE			
2981A	LAKE JESSUP NR STJR	LAKE	21FLA SJRJESSUP9	LAKE JESSUP STATION OW-SJR-2			
2981A	LAKE JESSUP NR STJR	LAKE	21FLGFWFGFCCR0189	LAKE JESSUP AT SR 46 BRIDGE			
2981A	LAKE JESSUP NR STJR	LAKE	21FLA SJRJESSUP1	ST JOHNS RIV IN GOVNMT CUT NORTH OF LAKE JESSUP			
2983	UNNAMED DITCH	STREAM	1118ATL8050570	CHAIN OF LAKES			
	Lake Woodruff Planning Unit						
28933	BLUE SPRING (Volusia)	SPRING	112WRD 02235500	BLUE SPRINGS NR ORANGE CITY FLA	1996	2001	370
28933	BLUE SPRING (Volusia)	SPRING	21FLGW 9673	BLUE SPRING (VOLUSIA)	2001	2003	185
28933	BLUE SPRING (Volusia)	SPRING	21FLCEN 20010365	Blue Springs Run @ main boil	2002	2002	96
28933	BLUE SPRING (Volusia)	SPRING	21FLCEN 20010364	Blue Spr. Run dwnstrm from main boil @ USGS monitor. s	2002	2002	83
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLA 20010153	ST JOHNS R AT MARKER #49			
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLVEMDVC-054	St. John's River, at CM 69	1999	2003	432
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLSJWMBLSPR	BL SPR RUN 200 YD DNSTRM OF SPR HEAD	1996	1998	790
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLVEMDSJ21	ST. JOHNS RIVER AT CM 26	1996	1998	1254
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLA 20010154	ST JOHNS R AT SR 44 BRIDGE			
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLVEMDSJ20	ST. JOHNS RIVER AT CM 39	1996	1998	1183
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLVEMDSJ18	ST. JOHNS RIVER AT CM 53	1996	1998	1031
2893B	STJ RIV AB LK WOODRUFF	STREAM	112WRD 02236000	ST. JOHNS RIVER NR DELAND, FLA.	2000	2001	1205
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLA 20010157	ST JOHNS R AT MARKER #17			
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLA 20010149	ST JOHNS R AT MARKER #69			
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLA 20010147	ST JOHNS R AT MARKER #73			
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLA 20010150	ST JOHNS R AT MARKER #63			
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLVEMDVC-056	St. John's River, at CM 53	1999	2003	513
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLVEMDVC-057	St. John's River, about 50 yds. S. of S.R.44	1999	2003	488
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLVEMDVC-058	St. John's River, at CM 39	1999	2003	433
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLA 20010152	ST JOHNS R AT MARKER #53			
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLVEMDVC-059	St. John's River, at CM 26	1999	2003	463
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLSJWM71892	SJR-CB - St. Johns River at Carson Bend	2002	2003	293
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLVEMDVC-060	St. John's River, at CM 16	1999	2003	501
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLVEMDSJ22	ST. JOHNS RIVER AT CM 16	1996	1998	1087
2893B	STJ RIV AB LK WOODRUFF	STREAM	112WRD 02235499	Blue Springs Dummy			
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLA 20010145	ST JOHNS R AT MARKER #93			

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLA 20010155	ST JOHNS R AT MARKER #26			
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLVEMDSJ15	ST. JOHNS RIVER AT CM 93	1996	1998	1293
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLA 20010156	ST JOHNS R AT MARKER #21			
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLVEMDSJ16	ST. JOHNS RIVER AT CM 69	1996	1998	1241
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLA 20010146	ST JOHNS R AT MARKER #81			
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLGFWFGFCCR0191	ST. JOHNS RIVER AT SR 44 BRIDGE DELAND			
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLSJWM02236000	ST. JOHNS RIVER NEAR DeLAND	1996	1998	941
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLSJWMLAGN	THE LAGOON LAKE @ CENTER			
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLGFWFGFCCR0199	ST. JOHNS RIVER NORTH OF WEKIVA RIVER AT CM 93	1996	1996	47
2893B	STJ RIV AB LK WOODRUFF	STREAM	21FLVEMDSJ19	ST. JOHNS RIVER 50 YDS. S OF S.R. 44 BRIDGE	1996	1998	1441
2893B1	HORSESHOE MUD LAKE	LAKE	21FLSJWMHOMD	HORSESHOE MUD LAKE @ CENTER			
2893U	LAKE BERESFORD	LAKE	21FLKWATVOL-BERESFORD-1	Volusia-Beresford-1	1996	2002	277
2893U	LAKE BERESFORD	LAKE	21FLA 20010151	L BERESFORD CENTER OFF W SHR MAR			
2893U	LAKE BERESFORD	LAKE	21FLKWATBERESFORD3	BERESFORD IN VOLUSIA CO.-SEE NOTE			
2893U	LAKE BERESFORD	LAKE	21FLKWATBERESFORD2	BERESFORD IN VOLUSIA CO.-SEE NOTE			
2893U	LAKE BERESFORD	LAKE	21FLKWATVOL-BERESFORD-3	Volusia-Beresford-3	1996	2002	278
2893U	LAKE BERESFORD	LAKE	21FLVEMDVC-055	St. John's River, center of Lake Beresford	1999	2003	512
2893U	LAKE BERESFORD	LAKE	21FLKWATBERESFORD1	BERESFORD IN VOLUSIA CO.-SEE NOTE			
2893U	LAKE BERESFORD	LAKE	21FLVEMDSJ17	LAKE BERESFORD - CENTER OF THE LAKE	1996	1998	1281
2893U	LAKE BERESFORD	LAKE	21FLKWATVOL-BERESFORD-2	Volusia-Beresford-2	1996	2002	278
2893Z	STJ RIV AB LAKE GEORGE	STREAM	21FLGW 3515	20010002	1998	2003	1535
2893Z	STJ RIV AB LAKE GEORGE	STREAM	21FLVEMDSJ26	ST. JOHNS RIVER AT CM 8	1996	1998	1111
2893Z	STJ RIV AB LAKE GEORGE	STREAM	21FLA 20010159	ST JOHNS R AT MARKER #8			
2893Z	STJ RIV AB LAKE GEORGE	STREAM	21FLVEMDVC-064	St. John's River, at CM 8	1999	2003	483
2906	SHAW LAKE OUTLET	STREAM	21FLKWATVOL-SHAW-1	Volusia-Shaw-1			
2906	SHAW LAKE OUTLET	STREAM	21FLKWATVOL-SHAW-3	Volusia-Shaw-3			
2906	SHAW LAKE OUTLET	STREAM	21FLKWATVOL-SHAW-2	Volusia-Shaw-2			
2906	SHAW LAKE OUTLET	STREAM	21FLKWATSHAW2	SHAW IN VOLUSIA CO.-SEE NOTE			
2906	SHAW LAKE OUTLET	STREAM	21FLKWATSHAW3	SHAW IN VOLUSIA CO.-SEE NOTE			
2906	SHAW LAKE OUTLET	STREAM	21FLKWATSHAW1	SHAW IN VOLUSIA CO.-SEE NOTE			
2906	SHAW LAKE OUTLET	STREAM	21FLSJWMSHW	LAKE SHAW AT CENTER			
2908	DEEP CREEK	STREAM	21FLA 20010524	DEEP CREEK AT HWY 17 NEAR BARBERVILLE	1997	1997	20
2908	DEEP CREEK	STREAM	112WRD 02236120	DEEP CREEK NR BARBERVILLE, FLA.			
2908A	LAKE ODUM	LAKE	21FLKWATVOL-ODOM-3	Volusia-Odom-3			
2908A	LAKE ODUM	LAKE	21FLKWATVOL-ODOM-1	Volusia-Odom-1			
2908A	LAKE ODUM	LAKE	21FLKWATVOL-ODOM-2	Volusia-Odom-2			
2908A	LAKE ODUM	LAKE	21FLKWATODOM1	ODOM IN VOLUSIA CO.-SEE NOTE			
2908A	LAKE ODUM	LAKE	21FLKWATODOM2	ODOM IN VOLUSIA CO.-SEE NOTE			
2908A	LAKE ODUM	LAKE	21FLKWATODOM3	ODOM IN VOLUSIA CO.-SEE NOTE			
2910	LAKE EMPORIA	LAKE	21FLSJWMEMP	LAKE EMPORIA AT CENTER			
2912A	LAKE EMPORIA	LAKE	21FLKWATEMPORIA2	EMPORIA IN VOLUSIA CO.-SEE NOTE			
2912A	LAKE EMPORIA	LAKE	21FLKWATEMPORIA1	EMPORIA IN VOLUSIA CO.-SEE NOTE			

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
2912A	LAKE EMPORIA	LAKE	21FLKWATEMPORIA3	EMPORIA IN VOLUSIA CO.-SEE NOTE			
2912A	LAKE EMPORIA	LAKE	21FLKWATVOL-EMPORIA-3	Volusia-Emporia-3	1996	1999	130
2912A	LAKE EMPORIA	LAKE	21FLKWATVOL-EMPORIA-1	Volusia-Emporia-1	1996	1999	132
2912A	LAKE EMPORIA	LAKE	21FLKWATVOL-EMPORIA-2	Volusia-Emporia-2	1996	1999	132
2921	LAKE WOODRUFF	LAKE	21FLGFWF03080101-290	Lake Woodruff Station 2	2000	2000	20
2921	LAKE WOODRUFF	LAKE	21FLA 20010158	LAKE DEXTER, CENTER OF LAKE			
2921	LAKE WOODRUFF	LAKE	21FLSJWMTIMD	TICK ISLAND MUD LAKE @ CENTER			
2921	LAKE WOODRUFF	LAKE	21FLA 20010122	LAKE WOODRUFF, CENTER OF LAKE			
2921	LAKE WOODRUFF	LAKE	21FLSJWMLKWOOD	LAKE WOODRUFF AT CENTER	1996	1998	873
2921	LAKE WOODRUFF	LAKE	21FLGFWF03080101-295	Lake Woodruff Station 3	2000	2000	20
2921	LAKE WOODRUFF	LAKE	21FLA 20010123	SPRING GARDEN LAKE, CENTER			
2921	LAKE WOODRUFF	LAKE	21FLGFWF03080101-285	Lake Woodruff Station 1	2000	2000	19
2921	LAKE WOODRUFF	LAKE	21FLVEMDSJ24	LAKE WOODRUFF - CENTER OF THE LAKE	1996	1998	993
2921	LAKE WOODRUFF	LAKE	21FLSJWMLDI	LAKE DEXTER AT INLET			
2921	LAKE WOODRUFF	LAKE	21FLVEMDVC-062	St. John's River, center of Lake Woodruff	1999	2003	433
2921	LAKE WOODRUFF	LAKE	21FLVEMDSJ25	LAKE DEXTER - CENTER OF THE LAKE	1996	1998	1035
2921A	PONCE DE LEON SPRING (	SPRING	112WRD 02236110	PONCE DE LEON SPRINGS NR DE LAND FLA	1997	2001	19
2921A	PONCE DE LEON SPRING (	SPRING	21FLGW 11390	PONCE DE LEON SPRINGS-VOL	2002	2002	42
2921B	LAKE TEDDER	LAKE	21FLKWATTEDDER1	TEDDER IN VOLUSIA CO.-SEE NOTE			
2921B	LAKE TEDDER	LAKE	21FLKWATTEDDER2	TEDDER IN VOLUSIA CO.-SEE NOTE			
2921B	LAKE TEDDER	LAKE	21FLKWATTEDDER3	TEDDER IN VOLUSIA CO.-SEE NOTE			
2921B	LAKE TEDDER	LAKE	21FLKWATVOL-TEDDER-3	Volusia-Tedder-3			
2921B	LAKE TEDDER	LAKE	21FLKWATVOL-TEDDER-2	Volusia-Tedder-2			
2921B	LAKE TEDDER	LAKE	21FLKWATVOL-TEDDER-1	Volusia-Tedder-1			
2921C	LAKE DEXTER	LAKE	21FLKWAT127DEXTER1				
2921C	LAKE DEXTER	LAKE	21FLLCPCLKDEXTER	LAKE DEXTER CENTER OF LAKE	2001	2002	55
2921C	LAKE DEXTER	LAKE	21FLKWAT127DEXTER3				
2921C	LAKE DEXTER	LAKE	21FLKWATVOL-DEXTER-3	Volusia-Dexter-3	2001	2002	18
2921C	LAKE DEXTER	LAKE	21FLKWATVOL-DEXTER-1	Volusia-Dexter-1	2001	2002	19
2921C	LAKE DEXTER	LAKE	21FLKWATVOL-DEXTER-2	Volusia-Dexter-2	2001	2002	19
2921C	LAKE DEXTER	LAKE	21FLKWAT127DEXTER2				
2923	STAGGER MUD LAKE	LAKE	21FLLCPCLKSTAGMUD	STAGGER MUD LAKE OFF ST. JOHN'S RIVER SO. ASTOR	2001	2002	52
2923	STAGGER MUD LAKE	LAKE	21FLSJWMSTMD	STAGGER MUD LAKE @ CENTER			
2929	LAKE NORRIS OUTLET	LAKE	21FLLCPCLKNORRISBSA	LAKE NORRIS @ CAMP LANOCHE BSA MAIN DOCK	2002	2002	25
2929A	BLACK WATER CREEK	STREAM	21FLLCPCBWSEMWMA	BLACK WATER CREEK @ BRIDGE IN SEMINOLE WMA	1999	2003	233
2929A	BLACK WATER CREEK	STREAM	21FLA 20010455	BLACKWATER CREEK AT HWY 44A	1996	1996	20
2929A	BLACK WATER CREEK	STREAM	21FLLCPCBWCNOR	BLACKWATER CREEK @ LAKE NORRIS RD	1996	2002	391
2929A	BLACK WATER CREEK	STREAM	21FLA 20010479	BLACKWATER CR. 1.4 MI NO OF SR42			
2929A	BLACK WATER CREEK	STREAM	112WRD 02235200	BLACKWATER CREEK NEAR CASSIA, FL	2000	2001	214
2929A	BLACK WATER CREEK	STREAM	21FLSJWM44630	BWC44 - BLACKWATER CREEK AT HWY 44	2002	2002	52
2929A	BLACK WATER CREEK	STREAM	21FLCEN 20010455	Blackwater Creek 100 yards upstream of Highway 44A	1999	2001	51
2929A	BLACK WATER CREEK	STREAM	21FLCEN 20010323	Blackwater Creek at Lake Norris Road	2001	2001	8
2929A	BLACK WATER CREEK	STREAM	21FLSJRWBWCCPB	BLACKWATER_CREEK_AT_CARTER_PROPERTY_BRIDGE			

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
2929A	BLACK WATER CREEK	STREAM	21FLSJRWBWC44	BLACKWATER_CREEK_AT_HWY_44			
2929A	BLACK WATER CREEK	STREAM	112WRD 285449081320501	BLACK WATER CR AT LK NORRIS RD NR CASS			
2929A	BLACK WATER CREEK	STREAM	21FLSJWM71897	BWCR-JT46 - Blackwater Ck. - Jeep Trail off 46	2002	2003	201
2929A	BLACK WATER CREEK	STREAM	21FLSJWMBWC44	BLACKWATER CREEK AT SR 44	1996	2002	1615
2929A	BLACK WATER CREEK	STREAM	21FLSJWMBWCCPB	BLACKWATER CREEK AT CARTER PROP BRIDGE	1996	2002	1749
2929A	BLACK WATER CREEK	STREAM	21FLSJWM44631	BWCCPB - BLACKWATER CREEK AT CARTER PROP BRIDGE	2002	2002	52
2929A	BLACK WATER CREEK	STREAM	112WRD 285738081344801	BLACK WATER CREEK AT SR42 NR ALTOONA			
2929A	BLACK WATER CREEK	STREAM	21FLLCPCBWCR44A	BLACKWATER CREEK AT CR44A BRIDGE	2003	2003	25
2929B	LAKE NORRIS	LAKE	21FLLCPCLKNORRIS	LAKE NORRIS EAST SHORE @ END OF LAKE NORRIS RD	2001	2001	28
2929B	LAKE NORRIS	LAKE	21FLKWAT069NORRIS2				
2929B	LAKE NORRIS	LAKE	21FLKWAT069NORRIS1				
2929B	LAKE NORRIS	LAKE	21FLKWATLAK-NORRIS-3	Lake-Norris-3	1998	1999	34
2929B	LAKE NORRIS	LAKE	21FLSJWMUSJ015	LAKE NORRIS NORTH END			
2929B	LAKE NORRIS	LAKE	21FLSJWM71880	LN-OW - Lake Norris Center	2002	2003	263
2929B	LAKE NORRIS	LAKE	21FLKWATLAK-NORRIS-2	Lake-Norris-2	1998	1999	34
2929B	LAKE NORRIS	LAKE	21FLSJWMUSJ016	LAKE NORRIS SOUTH END			
2929B	LAKE NORRIS	LAKE	21FLA 20010355	LAKE NORRIS AT CENTER OF LAKE	1997	1997	25
2929B	LAKE NORRIS	LAKE	21FLKWAT069NORRIS3				
2929B	LAKE NORRIS	LAKE	21FLSJWMNORS	NORRIS LAKE @ CENTER			
2929B	LAKE NORRIS	LAKE	21FLKWATLAK-NORRIS-1	Lake-Norris-1	1998	1999	34
2929B1	BLACKWATER SWAMP	LAKE	21FLLCPCBWSR42	BLACKWATER SWAMP RUN @ CR 42	1996	1998	23
2929B1	BLACKWATER SWAMP	LAKE	21FLLCPCBWFR572	BLACKWATER SWAMP RUN @ NFS572-2	1996	2003	245
	Wekiva River Planning Unit						
2929C	LAKE DORR	LAKE	21FLKWATDORR1	LAKE DORR1 IN LAKE CO.- SEE NOTE			
2929C	LAKE DORR	LAKE	21FLA 20010523	LAKE DORR STATION B (SE OF CENTER)			
2929C	LAKE DORR	LAKE	21FLA 20010494	LAKE DORR-CENTER			
2929C	LAKE DORR	LAKE	1118ATL8050532	LAKE DORR			
2929C	LAKE DORR	LAKE	112WRD 290006081372407	LAKE DORR (AT CENTER)			
2929C	LAKE DORR	LAKE	21FLA 20010493	L DORR N END 200 YDS OFFSHORE			
2929C	LAKE DORR	LAKE	112WRD 290006081372404	LAKE DORR (SE OF CENTER)			
2929C	LAKE DORR	LAKE	21FLKWATLAK-DORR-1	Lake-Dorr-1	1996	2002	191
2929C	LAKE DORR	LAKE	21FLLCPCLKDORR	LAKE DORR CENTER	2000	2002	159
2929C	LAKE DORR	LAKE	1118ATL8050510	LAKE DORR REC AREA	1996	1997	22
2929C	LAKE DORR	LAKE	112WRD 02235150	LAKE DORR NEAR ALTOONA, FLA.			
2929C	LAKE DORR	LAKE	21FLA 20010495	L DORR S END 200 YDS OFFSHORE			
2929C	LAKE DORR	LAKE	21FLA 20020508	LAKE DORR-CENTER OF LAKE			
2929C	LAKE DORR	LAKE	21FLKWATDORR3	LAKE DORR3 IN LAKE CO.- SEE NOTE			
2929C	LAKE DORR	LAKE	21FLKWATLAK-DORR-2	Lake-Dorr-2	1996	2002	191
2929C	LAKE DORR	LAKE	21FLKWATLAK-DORR-3	Lake-Dorr-3	1996	2002	191
2929C	LAKE DORR	LAKE	21FLKWATDORR2	LAKE DORR2 IN LAKE CO.- SEE NOTE			
2929C	LAKE DORR	LAKE	112WRD 290006081372401	LAKE DORR (NW OF CENTER)			
2929D	LITTLE LAKE MARY	LAKE	21FLKWATLAK-LITTLEMA-1	Lake-Little Mary-1			

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
2929D	LITTLE LAKE MARY	LAKE	21FLKWATLITTLE MARY2	LAKE LITTLE MARY2 IN LAKE CO.- SEE NOTE			
2929D	LITTLE LAKE MARY	LAKE	21FLKWATLAK-LITTLEMA-2	Lake-Little Mary-2			
2929D	LITTLE LAKE MARY	LAKE	21FLKWATLAK-LITTLEMA-3	Lake-Little Mary-3			
2929D	LITTLE LAKE MARY	LAKE	21FLKWATLITTLE MARY1	LAKE LITTLE MARY1 IN LAKE CO.- SEE NOTE			
2929D	LITTLE LAKE MARY	LAKE	21FLKWATLITTLE MARY3	LAKE LITTLE MARY3 IN LAKE CO.- SEE NOTE			
2934	TRACY CANAL	STREAM	21FLLCPCLKSTCLAIRE	LAKE ST. CLAIRE AT CENTER	2002	2002	10
2934	TRACY CANAL	STREAM	21FLSJWM71884	LN-TC - Lake Norris - Tracy Canal	2002	2003	227
2934	TRACY CANAL	STREAM	112WRD 02235192	TRACEY CANAL NEAR PAISLEY			
2934	TRACY CANAL	STREAM	21FLLCPCBWTRACY	TRACY CANAL @ MAGGIE JONES RD DOWNSTREAM SIDE	2003	2003	25
2949	LAKE DALHOUSE	LAKE	21FLA 20010010	LAKE DALHOUSIE - CENTER OF LAKE	1996	1996	24
2949	LAKE DALHOUSE	LAKE	21FLLCPCLKDALHOUSIEBR	LAKE DALHOUSIE @ BOAT RAMP	2001	2003	105
2949	LAKE DALHOUSE	LAKE	21FLSJWMDALH	DALHOUSIE LAKE @ CENTER			
2955	SEMINOLE SPRING	STREAM	112WRD 02235250	SEMINOLE SPRINGS NR SORRENTO, FLA.			
2956	WEKIVA RIVER	STREAM	21FLA 20010431	WEKIVA R. UPSTRM OF ROCK SPRINGS			
2956	WEKIVA RIVER	STREAM	21FLA 20010434	WEKIVA R. DWSTRM OF SWEETWATER C			
2956	WEKIVA RIVER	STREAM	21FLA 20010433	WEKIVA R UPSTRM OF SWEETWATER CR			
2956	WEKIVA RIVER	STREAM	21FLA 20010436	WEKIVA R OWNSTR FRM LIT WEKIVA R			
2956	WEKIVA RIVER	STREAM	21FLA 20010377	BIG WEKIVA RIV AT WEKIVA MARINA			
2956	WEKIVA RIVER	STREAM	21FLORANBWB	WEKIVA R. AT WEKIWA MARINA	1996	1997	149
2956	WEKIVA RIVER	STREAM	21FLA 20010432	WEKIVA R. DWNSTRM OF ROCK SPRING			
2956	WEKIVA RIVER	STREAM	21FLSCES10466	WEKIVA RIVER-DOWNSTREAM FROM LITTLE WEKIVA			
2956	WEKIVA RIVER	STREAM	21FLSCES10447	WEKIVA RIVER-UPSTREAM FROM LITTLE WEKIVA RIVER			
2956	WEKIVA RIVER	STREAM	21FLCEN 20010431	Wekiva River 50 m upstream of confluence with Rock	1999	1999	28
2956	WEKIVA RIVER	STREAM	21FLCEN 20010377	Big Wekiva River at Wekiva Marina	1999	1999	24
2956	WEKIVA RIVER	STREAM	21FLA 20010103	Big Wekiva River upstream of Little Wekiva	1997	1997	26
2956	WEKIVA RIVER	STREAM	21FLCEN 20010103	Big Wekiva River upstream of Little Wekiva	1999	1999	28
2956	WEKIVA RIVER	STREAM	21FLSCES10117	WEKIVA RIVER-DOWNSTREAM FROM SWEETWATER CANAL			
2956	WEKIVA RIVER	STREAM	112WRD 02234635	WEKIVA RIVER NR APOPKA, FLA.	2000	2001	101
2956	WEKIVA RIVER	STREAM	21FLKWATSEM-WE-RIVER-3	Seminole-Wekiva River-3-3	2002	2002	11
2956	WEKIVA RIVER	STREAM	21FLKWATSEM-WE-RIVER-2	Seminole-Wekiva River-2-2	2002	2002	11
2956	WEKIVA RIVER	STREAM	21FLKWATSEM-WE-RIVER-1	Seminole-Wekiva River-1-1	2002	2002	12
2956	WEKIVA RIVER	STREAM	21FLSCES10098	WEKIVA RIVER-UPSTREAM FROM SWEETWATER CANAL			
2956A	WEKIVA RIVER	STREAM	21FLORANBWC	WEKIVA R. AT SR46	1996	1997	157
2956A	WEKIVA RIVER	STREAM	21FLKWATSEM-WE-LOWER-3	Seminole-Wekiva River Lower-3-3	2001	2001	16
2956A	WEKIVA RIVER	STREAM	21FLCEN 20010126	Big Wekiva River downstream of Little Wekiva	1999	1999	28
2956A	WEKIVA RIVER	STREAM	21FLKWATWEKIVARIVERLO31				
2956A	WEKIVA RIVER	STREAM	21FLSJRW2235000	WEKIVA_RIVER_NEAR_SANFORD			
2956A	WEKIVA RIVER	STREAM	21FLA 20010140	WEKIVA R AT SR #46			
2956A	WEKIVA RIVER	STREAM	21FLKWATWEKIVARIVERLO21				
2956A	WEKIVA RIVER	STREAM	21FLKWATWEKIVARIVERLO11				
2956A	WEKIVA RIVER	STREAM	21FLA 20010341	Blackwater Creek 0.5 meters upstream of Wekiva Ri			
2956A	WEKIVA RIVER	STREAM	21FLSJWM44606	02235000 - WEKIVA RIVER NEAR SANFORD	2002	2002	46

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2956A	WEKIVA RIVER	STREAM	112WRD 02235000	WEKIVA RIVER NR SANFORD, FLA.	2000	2001	205
2956A	WEKIVA RIVER	STREAM	112WRD 022349993	WEKIVA RIVER AT OLD RR CROSSING NR SANFORD,FL			
2956A	WEKIVA RIVER	STREAM	21FLA 20010438	WEKIVA R UPSTR OF BLACKWATER CR			
2956A	WEKIVA RIVER	STREAM	21FLA 20010126	Big Wekiva River downstream of Little Wekiva	1997	1997	26
2956A	WEKIVA RIVER	STREAM	21FLSCES10860	WEKIVA RIVER-S.R. 46 BRIDGE			
2956A	WEKIVA RIVER	STREAM	21FLSJWM71896	WR-UBWC - Wekiva River Upstream of Blackwater Cree	2002	2003	176
2956A	WEKIVA RIVER	STREAM	21FLSCES11057	WEKIVA RIVER-KATIES LANDING			
2956A	WEKIVA RIVER	STREAM	21FLSCES11417	WEKIVA RIVER-UPSTREAM FROM ST. JOHN'S RIVER			
2956A	WEKIVA RIVER	STREAM	21FLSCES10621	WEKIVA FALLS CANAL			
2956A	WEKIVA RIVER	STREAM	21FLSJWM02235000	WEKIVA RIVER NEAR SANFORD	1996	2002	627
2956A	WEKIVA RIVER	STREAM	21FLCEN 20010438	Wekiva River upstream of Blackwater Creek	1999	1999	28
2956A	WEKIVA RIVER	STREAM	21FLSJWMWRUS46	WEKIVA RIVER 100 M UPSTREAM OF SR 46			
2956A	WEKIVA RIVER	STREAM	21FLKWATSEM-WE-LOWER-1	Seminole-Wekiva River Lower-1-1	2001	2001	16
2956A	WEKIVA RIVER	STREAM	21FLKWATSEM-WE-LOWER-2	Seminole-Wekiva River Lower-2-2	2001	2001	16
2956A	WEKIVA RIVER	STREAM	21FLSJWMWR46	WEKIVA RIVER AT CENTER 50 M DNSTR OF SR 46			
2956A1	LINDEN LAKE	LAKE	21FLSEM LIND	LINDEN LAKE	1999	2002	213
2956A1	LINDEN LAKE	LAKE	112WRD 02234999	LINDEN LAKE AT LAKE MARY, FLA.			
2956B	WEKIVA RIVER LOWER	STREAM	21FLA 20010439	WEKIVA R DWNSTR OF BLACKWATER CR			
2956B	WEKIVA RIVER LOWER	STREAM	21FLGFWFGFCCR0196	WEKIVA RIVER PAST FIRST SHARP TURN TO RIGHT	1996	1996	43
2956B	WEKIVA RIVER LOWER	STREAM	21FLA 20010125	WEKIVA RIVER 0.5 MILES FROM ST JOHNS RIVER			
2956B	WEKIVA RIVER LOWER	STREAM	21FLA 20010142	WEKIVA R UPSTR CONF ST JOHNS R			
2956B	WEKIVA RIVER LOWER	STREAM	21FLA 20010144	ST JOHNS R AT MOUTH OF WEKIVA RI			
2956B	WEKIVA RIVER LOWER	STREAM	21FLVEMDSJ14	WEKIVA RIVER 1 MI. UPSTREAM FROM ST. JOHNS	1996	1998	1382
2956C	WEKIVA SPRING (Orange)	SPRING	21FLORANBW82	WAKIVA SPRINGS	1996	1998	319
2956C	WEKIVA SPRING (Orange)	SPRING	21FLSCES10000	WEKIVA RIVER-WEKIVA SPRINGS BOIL			
2956C	WEKIVA SPRING (Orange)	SPRING	112WRD 02234600	WEKIVA SPRINGS NR APOPKA FLA			
2956C	WEKIVA SPRING (Orange)	SPRING	21FLGW 11403	WEKIWA SPRINGS	2002	2002	82
2956C	WEKIVA SPRING (Orange)	SPRING	21FLA 20010430	WEKIVA RIVER AT WEKIVA SPRINGS			
2956E	SAND LAKE	LAKE	21FLSCES160040	SAND LAKE			
2956E	SAND LAKE	LAKE	21FLKWAT117WEKIVA3				
2956E	SAND LAKE	LAKE	21FLSEM WEK	WEKIVA LAKE	1998	2002	385
2956E	SAND LAKE	LAKE	21FLKWAT117WEKIVA2				
2956E	SAND LAKE	LAKE	21FLKWATSEM-WEKIVA-1	Seminole-Wekiva-1	1996	2002	150
2956E	SAND LAKE	LAKE	21FLKWATSEM-WEKIVA-2	Seminole-Wekiva-2	1996	2002	166
2956E	SAND LAKE	LAKE	21FLKWAT117WEKIVA1				
2956E	SAND LAKE	LAKE	21FLKWATSEM-WEKIVA-3	Seminole-Wekiva-3	1996	2002	167
2956F	LAKE BRANTLEY	LAKE	21FLA 20010216	L BRANTLEY DRAINAGE CULVERT			
2956F	LAKE BRANTLEY	LAKE	21FLA 20010214	L BRANTLEY 30YDS FRM ENT KNOB HI			
2956F	LAKE BRANTLEY	LAKE	112WRD 02234638	LAKE BRANTLEY NR FOREST CITY, FLA.			
2956F	LAKE BRANTLEY	LAKE	21FLA 20010213	L BRANTLEY S END OF LAKE			
2956F	LAKE BRANTLEY	LAKE	21FLA 20010280	Lake Brantley at center			
2956F	LAKE BRANTLEY	LAKE	21FLA 20010212	L BRANTLEY NW OFFSHR HORSESHOE C			

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
2956F	LAKE BRANTLEY	LAKE	21FLA 20010215	L BRANTLEY CTR NORTH END OF LAKE			
2956F	LAKE BRANTLEY	LAKE	21FLSCES160012	LAKE BRANTLEY			
2956F	LAKE BRANTLEY	LAKE	21FLKWATBRANTLEY2	BRANTLEY IN SEMINOLE CO.-SEE NOTE			
2956F	LAKE BRANTLEY	LAKE	21FLKWATSEM-BRANTLEY-1	Seminole-Brantley-1	1997	2002	118
2956F	LAKE BRANTLEY	LAKE	21FLKWATBRANTLEY3	BRANTLEY IN SEMINOLE CO.-SEE NOTE			
2956F	LAKE BRANTLEY	LAKE	21FLSEM BRA	BRANTLEY, LAKE	1998	2002	381
2956F	LAKE BRANTLEY	LAKE	21FLKWATSEM-BRANTLEY-2	Seminole-Brantley-2	1997	2002	118
2956F	LAKE BRANTLEY	LAKE	21FLKWATBRANTLEY1	BRANTLEY IN SEMINOLE CO.-SEE NOTE			
2956F	LAKE BRANTLEY	LAKE	21FLCEN 20010280	Lake Brantley at center	1999	1999	15
2956F	LAKE BRANTLEY	LAKE	21FLKWATSEM-BRANTLEY-3	Seminole-Brantley-3	1997	2002	117
2956X	SWEETWATER CREEK	STREAM	21FLSCES10110	SWEETWATER CANAL			
2956X	SWEETWATER CREEK	STREAM	21FLSCES160043	SWEETWATER CREEK			
2956Z	MIAMI SPRING	SPRING	112WRD 02234650	MIAMI SPRINGS NR LONGWOOD FLA	1996	2001	47
2960	MESSANT SPRING	STREAM	112WRD 02235255	MESSANT SPRING NR SORRENTO, FLA.			
2961	LAKE SYLVAN	LAKE	21FLKWATSEM-SYLVAN-1	Seminole-Sylvan-1	1998	2002	62
2961	LAKE SYLVAN	LAKE	21FLKWAT117SYLVAN2				
2961	LAKE SYLVAN	LAKE	21FLSEM SYL	SYLVAN LAKE	1998	2002	340
2961	LAKE SYLVAN	LAKE	21FLKWATSEM-SYLVAN-2	Seminole-Sylvan-2	1998	2002	64
2961	LAKE SYLVAN	LAKE	21FLKWAT117SYLVAN1				
2961	LAKE SYLVAN	LAKE	21FLSCES160031	LAKE SYLVAN			
2961	LAKE SYLVAN	LAKE	21FLA 20010231	SYLVAN L CTR OF SOUTH END OF LAK			
2961	LAKE SYLVAN	LAKE	21FLKWAT117SYLVAN3				
2961	LAKE SYLVAN	LAKE	21FLKWATSEM-SYLVAN-3	Seminole-Sylvan-3	1998	2002	62
2961	LAKE SYLVAN	LAKE	112WRD 284826081230900	SYLVAN LAKE NR PAOLA, FLA.			
2961	LAKE SYLVAN	LAKE	21FLA 20010344	Yankee Lake Outlet Stream at Jeep Trail			
2961	LAKE SYLVAN	LAKE	21FLA 20010232	L SYLVAN CTR N END 200YDS OFFSHR			
2967	ROCK SPRINGS RUN	SPRING	21FLSJWMUSJ904	ROCK SPRINGS RUN NEAR MOUTH			
2967	ROCK SPRINGS RUN	SPRING	21FLORANBWA	ROCK SPRINGS RUN	1996	1998	296
2967	ROCK SPRINGS RUN	SPRING	21FLCEN 20010342	Rock Springs Run 50 meters upstream of Wekiva Rive	1999	2002	121
2967	ROCK SPRINGS RUN	SPRING	112WRD 02234610	ROCK SPRINGS NEAR APOPKA FLA			
2967	ROCK SPRINGS RUN	SPRING	21FLSJWM73483	RSR-WR - Rock Spring Run at Wekiva R.	2002	2003	203
2967	ROCK SPRINGS RUN	SPRING	21FLA 20010342	Rock Springs Run 50 meters upstream of Wekiva Riv			
2967	ROCK SPRINGS RUN	SPRING	21FLGW 11395	ROCK SPRINGS	2002	2002	43
2970	LAKE MARKHAM	LAKE	21FLA 20010448	L MARKHAM W SDE 50 YDS OFFSHORE			
2970	LAKE MARKHAM	LAKE	21FLA 20010447	L MARKHAM, CTR, W OF SANFORD			
2970	LAKE MARKHAM	LAKE	21FLA 20010446	L MARKHAM CTR OF S LOBE S OF SR4			
2970	LAKE MARKHAM	LAKE	21FLSEM MRK	MARKHAM, LAKE	1998	2002	343
2970	LAKE MARKHAM	LAKE	112WRD 284756081233700	LAKE MARKHAM NR PAOLA FL			
2987	LITTLE WEKIVA RIVER	STREAM	112WRD 02234945	LITTLE WEKIVA RIVER AT FOREST CITY, FLA.			
2987	LITTLE WEKIVA RIVER	STREAM	21FLSCES60663	DELK RD			
2987	LITTLE WEKIVA RIVER	STREAM	21FLSCES60455	MONTGOMERY RD.			
2987	LITTLE WEKIVA RIVER	STREAM	112WRD 02234990	LITTLE WEKIVA RIVER NR ALTAMONTE SPRINGS, FL	2000	2001	106

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2987	LITTLE WEKIVA RIVER	STREAM	21FLSJRW20010137	LITTLE_WEKIVA_RIVER_AT_HWY_434			
2987	LITTLE WEKIVA RIVER	STREAM	21FLSCES60265	STATE ROAD 436			
2987	LITTLE WEKIVA RIVER	STREAM	21FLA 20010102	LITTLE WEKIVA RIVER AT BETSY LANE OFF DELK ROAD	1997	1997	39
2987	LITTLE WEKIVA RIVER	STREAM	21FLSCES60231	WEATHERSFIELD RD.			
2987	LITTLE WEKIVA RIVER	STREAM	21FLA 20010134	L WEKIVA R AT CLEMSON RD BRG			
2987	LITTLE WEKIVA RIVER	STREAM	21FLA 20010135	L WEKIVA R AT ORANGE AVE			
2987	LITTLE WEKIVA RIVER	STREAM	21FLA 20010136	LIT WEKIVA R SR #436			
2987	LITTLE WEKIVA RIVER	STREAM	21FLA 20010137	LIT WEKIVA RIVER AT SR 434	1996	1998	381
2987	LITTLE WEKIVA RIVER	STREAM	21FLA 20010138	LIL WEKIVA RIV NEAR SPRING LK			
2987	LITTLE WEKIVA RIVER	STREAM	21FLA 20010139	LIT WEKIVA R AT FT BRIDGE N			
2987	LITTLE WEKIVA RIVER	STREAM	21FLSEM LWEK	LITTLE WEKIVA RIVER	1998	2002	347
2987	LITTLE WEKIVA RIVER	STREAM	112WRD 02234998	LITTLE WEKIVA RIVER NR LONGWOOD,FL			
2987	LITTLE WEKIVA RIVER	STREAM	21FLSEM WET	LITTLE WEKIVA RIVER	2000	2002	221
2987	LITTLE WEKIVA RIVER	STREAM	21FLA 20010462	L WEKIVA R UPSTRM OF LK GENE CANAL			
2987	LITTLE WEKIVA RIVER	STREAM	21FLSCES10458	LITTLE WEKIVA RIVER-MOUTH			
2987	LITTLE WEKIVA RIVER	STREAM	21FLA 20010429	LITTLE WEKIVA RIVER AT SPRINGS LANDING RD			
2987	LITTLE WEKIVA RIVER	STREAM	21FLSJWMLWR434	LITTLE WEKIVA RIVER AT/NEAR SR 434			
2987	LITTLE WEKIVA RIVER	STREAM	21FLSJWM20010137	LITTLE WEKIVA RIVER AT HWY 434	1996	2002	1499
2987	LITTLE WEKIVA RIVER	STREAM	21FLA 20010461	SPRING LK OUTLET CANAL OUTFALL			
2987	LITTLE WEKIVA RIVER	STREAM	21FLA 20010269	LIT WEKIVA R 50 YDS UPSTR ACL RR			
2987	LITTLE WEKIVA RIVER	STREAM	21FLA 20010268	LT WEKIVA R AT SR 436 AND SR 434			
2987	LITTLE WEKIVA RIVER	STREAM	21FLCEN 20010343	Little Wekiva River 50m upstream of Big Wekiva Riv	1999	1999	28
2987	LITTLE WEKIVA RIVER	STREAM	21FLSJWM71885	LW-SVRD - Little Wekiva at Spring Valley Rd	2002	2002	52
2987	LITTLE WEKIVA RIVER	STREAM	21FLA 20010343	Little Wekiva River 50m upstream of Big Wekiva Ri			
2987	LITTLE WEKIVA RIVER	STREAM	21FLSJWM71882	LW-UWR - Little Wekiva Upstream of Wekiva R.	2002	2003	202
2987	LITTLE WEKIVA RIVER	STREAM	21FLSJWM44587	20010137 - LITTLE WEKIVA RIVER AT HWY 434	2002	2002	44
2987	LITTLE WEKIVA RIVER	STREAM	21FLSJWM71881	WR-ULW - Wekiva R. - Upstream of Little Wekiva	2002	2003	231
2987A	SPRING LAKE	LAKE	21FLSEM SPR	SPRING LAKE	1999	2002	324
2987A	SPRING LAKE	LAKE	21FLA 20010417	SPRING L, DNG CL TO, STP EFF			
2987A	SPRING LAKE	LAKE	21FLA 20010418	L SPRING 50FT OFF MO DRNG CL			
2987A	SPRING LAKE	LAKE	21FLA 20010419	LAKE SPRING SE SECTOR E DRNG CL			
2987A	SPRING LAKE	LAKE	21FLA 20010420	SPRING L C OF LAKE			
2987A	SPRING LAKE	LAKE	21FLA 20010421	SPRING L NW SEC			
2987A	SPRING LAKE	LAKE	21FLA 20010424	SPRING LAKE S E END			
2987A	SPRING LAKE	LAKE	21FLKWAT117SPRING3				
2987A	SPRING LAKE	LAKE	21FLKWAT117SPRING2				
2987A	SPRING LAKE	LAKE	21FLKWAT117SPRING1				
2987A	SPRING LAKE	LAKE	21FLA 20010194	SPRING LAKE C OF LAKE			
2987A	SPRING LAKE	LAKE	21FLKWATSEM-SPRING-3	Seminole-Spring-3	1996	2002	286
2987A	SPRING LAKE	LAKE	21FLA 20010193	SPRING LAKE MOUTH CANAL N END			
2987A	SPRING LAKE	LAKE	21FLKWATSEM-SPRING-2	Seminole-Spring-2	1996	2002	284
2987A	SPRING LAKE	LAKE	21FLA 20010195	SPRING L S END 50FT FRM MO DRNG			

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2987A	SPRING LAKE	LAKE	21FLKWATSEM-SPRING-1	Seminole-Spring-1	1996	2002	287
2987B	LITTLE WEKIVA NW AVE T	STREAM	21FLA 20010204	LITTLE WEKIVA R. 100 YDS. DNSTRM ALT. SPRGS. STP	1997	1997	22
2987B	LITTLE WEKIVA NW AVE T	STREAM	21FLA 20010445	LIT WEKIVA R AT NWESTERN AVE			
2987B	LITTLE WEKIVA NW AVE T	STREAM	21FLSCES60162	NORTHWESTERN AVE.			
2987B	LITTLE WEKIVA NW AVE T	STREAM	21FLA 20010203	LITTLE WEKIVA R. 100 YDS. UPSTEAM ALT. SPRGS STP	1997	1997	22
2987X	STARBUCK SPRING	SPRING	21FLGW 11401	STARBUCK SPRING	2002	2002	43
2987X	STARBUCK SPRING	SPRING	112WRD 02234997	STARBUCK SPRING NEAR LONGWOOD FLA	1996	2001	48
2987Y	PALM SPRINGS	SPRING	112WRD 02234996	PALM SPRINGS NEAR LONGWOOD FLA	1996	2001	68
2987Z	SANLANDO SPRING	SPRING	112WRD 02234991	SANLANDO SPRINGS NR LONGWOOD FLA	1996	2001	51
2987Z	SANLANDO SPRING	SPRING	21FLGW 11398	SANLANDO SPRINGS	2002	2002	43
2993	LAKE PREVATT	LAKE	21FLORANBW52	LAKE PREVATT	1996	1998	301
2993A	DREAM LAKE	LAKE	21FLKWATDREAM1	LAKE DREAM1 IN ORANGE CO.-SEE NOTE			
2993A	DREAM LAKE	LAKE	21FLKWATDREAM2	LAKE DREAM2 IN ORANGE CO.-SEE NOTE			
2993A	DREAM LAKE	LAKE	21FLKWATDREAM3	LAKE DREAM3 IN ORANGE CO.-SEE NOTE			
2993A	DREAM LAKE	LAKE	21FLKWATORA-DREAM-3	Orange-Dream-3			
2993A	DREAM LAKE	LAKE	21FLKWATORA-DREAM-1	Orange-Dream-1			
2993A	DREAM LAKE	LAKE	21FLKWATORA-DREAM-2	Orange-Dream-2			
2998	CRANES ROOST OUTLET	LAKE	21FLKWATSEM-CRANESRO-3	Seminole-Cranes Roost-3	1996	2002	284
2998	CRANES ROOST OUTLET	LAKE	112WRD 02234988	CRANES ROOST AT ALTAMONTE SPRINGS, FLA.			
2998	CRANES ROOST OUTLET	LAKE	21FLKWATSEM-CRANESRO-2	Seminole-Cranes Roost-2	1996	2002	290
2998	CRANES ROOST OUTLET	LAKE	21FLKWATCRANES ROOST2	CRANES ROOST IN SEMINOLE CO.-SEE NOTE			
2998	CRANES ROOST OUTLET	LAKE	21FLKWATSEM-CRANESRO-1	Seminole-Cranes Roost-1	1996	2002	288
2998	CRANES ROOST OUTLET	LAKE	21FLKWATCRANES ROOST3	CRANES ROOST IN SEMINOLE CO.-SEE NOTE			
2998	CRANES ROOST OUTLET	LAKE	21FLKWATCRANES ROOST1	CRANES ROOST IN SEMINOLE CO.-SEE NOTE			
2998A	LAKE FLORIDA	LAKE	21FLSCES160015	LAKE FLORIDA			
2998A	LAKE FLORIDA	LAKE	21FLKWATSEM-FLORIDA-3	Seminole-Florida-3	1996	2002	311
2998A	LAKE FLORIDA	LAKE	21FLKWATSEM-FLORIDA-2	Seminole-Florida-2	1996	2002	313
2998A	LAKE FLORIDA	LAKE	21FLKWATSEM-FLORIDA-1	Seminole-Florida-1	1996	2002	319
2998A	LAKE FLORIDA	LAKE	21FLKWATFLORIDA1	FLORIDA IN SEMINOLE CO.-SEE NOTE			
2998A	LAKE FLORIDA	LAKE	21FLKWATFLORIDA2	FLORIDA IN SEMINOLE CO.-SEE NOTE			
2998A	LAKE FLORIDA	LAKE	21FLA 20010218	L FLORIDA AT 1000 FLA BLVD			
2998A	LAKE FLORIDA	LAKE	21FLA 20010402	L FLORIDA SW COR 20FT FRM DIS EF			
2998A	LAKE FLORIDA	LAKE	21FLA 20010401	L FLORIDA CENTER			
2998A	LAKE FLORIDA	LAKE	21FLA 20010400	L FLORIDA NE END 25 FT FRM DITCH			
2998A	LAKE FLORIDA	LAKE	21FLKWATFLORIDA3	FLORIDA IN SEMINOLE CO.-SEE NOTE			
2998B	LAKE MOBILE	LAKE	21FLSCES210001	LAKE MOBILE/SOUTH			
2998C	LAKE ORIENTA	LAKE	21FLKWATORIENTA 22	ORIENTA 2 IN SEMINOLE CO.-SEE NOTE			
2998C	LAKE ORIENTA	LAKE	21FLKWATSEM-ORIENTA2-3	Seminole-Orienta 2-3	1996	2002	239
2998C	LAKE ORIENTA	LAKE	21FLKWATSEM-ORIENTAE-2	Seminole-Orienta East-2	1996	2002	220
2998C	LAKE ORIENTA	LAKE	21FLKWATORIENTA NORTH3	ORIENTA NORTH IN SEMINOLE CO.-SEE NOTE			
2998C	LAKE ORIENTA	LAKE	21FLKWATORIENTA 12	ORIENTA 1 IN SEMINOLE CO.-SEE NOTE			
2998C	LAKE ORIENTA	LAKE	21FLKWATORIENTA 11	ORIENTA 1 IN SEMINOLE CO.-SEE NOTE			
2998C	LAKE ORIENTA	LAKE	21FLKWATSEM-ORIENTA2-1	Seminole-Orienta 2-1	1996	2002	237

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2998C	LAKE ORIENTA	LAKE	112WRD 02234943	LAKE ORIENTA AT ALTAMONTE SPRINGS, FLA.			
2998C	LAKE ORIENTA	LAKE	21FLKWATSEM-ORIENTAN-3	Seminole-Orienta North-3	1996	2002	220
2998C	LAKE ORIENTA	LAKE	21FLKWATORIENTA 13	ORIENTA 1 IN SEMINOLE CO.-SEE NOTE			
2998C	LAKE ORIENTA	LAKE	21FLKWATSEM-ORIENTA2-2	Seminole-Orienta 2-2	1996	2002	239
2998C	LAKE ORIENTA	LAKE	21FLA 20010048	LAKE ORIENTA - CENTER OF THE LAKE	1996	1996	19
2998C	LAKE ORIENTA	LAKE	21FLKWATORIENTA 21	ORIENTA 2 IN SEMINOLE CO.-SEE NOTE			
2998C	LAKE ORIENTA	LAKE	21FLKWATORIENTA EAST1	ORIENTA EAST IN SEMINOLE CO.-SEE NOTE			
2998C	LAKE ORIENTA	LAKE	21FLKWATORIENTA EAST2	ORIENTA EAST IN SEMINOLE CO.-SEE NOTE			
2998C	LAKE ORIENTA	LAKE	21FLKWATORIENTA EAST3	ORIENTA EAST IN SEMINOLE CO.-SEE NOTE			
2998C	LAKE ORIENTA	LAKE	21FLKWATORIENTA NORTH1	ORIENTA NORTH IN SEMINOLE CO.-SEE NOTE			
2998C	LAKE ORIENTA	LAKE	21FLKWATORIENTA NORTH2	ORIENTA NORTH IN SEMINOLE CO.-SEE NOTE			
2998C	LAKE ORIENTA	LAKE	21FLKWATSEM-ORIENTA1-1	Seminole-Orienta 1-1	1996	2002	240
2998C	LAKE ORIENTA	LAKE	21FLKWATSEM-ORIENTA1-2	Seminole-Orienta 1-2	1996	2002	240
2998C	LAKE ORIENTA	LAKE	21FLKWATSEM-ORIENTA1-3	Seminole-Orienta 1-3	1996	2002	240
2998C	LAKE ORIENTA	LAKE	21FLKWATSEM-ORIENTAE-1	Seminole-Orienta East-1	1996	2002	220
2998C	LAKE ORIENTA	LAKE	21FLKWATSEM-ORIENTAE-3	Seminole-Orienta East-3	1996	2002	220
2998C	LAKE ORIENTA	LAKE	21FLKWATSEM-ORIENTAN-2	Seminole-Orienta North-2	1996	2002	220
2998C	LAKE ORIENTA	LAKE	21FLKWATORIENTA 23	ORIENTA 2 IN SEMINOLE CO.-SEE NOTE			
2998C	LAKE ORIENTA	LAKE	21FLKWATSEM-ORIENTAN-1	Seminole-Orienta North-1	1996	2002	219
2998D	LAKE MARION	LAKE	21FLKWATSEM-MARION-1	Seminole-Marion-1	2002	2002	11
2998D	LAKE MARION	LAKE	21FLKWATSEM-MARION-2	Seminole-Marion-2	2002	2002	11
2998D	LAKE MARION	LAKE	21FLSCES160023	LAKE MARION			
2998E	LAKE ADALAIDE	LAKE	21FLKWATSEM-ADELAIDE-2	Seminole-Adelaide-2	1996	2002	211
2998E	LAKE ADALAIDE	LAKE	21FLKWATSEM-ADELAIDE-3	Seminole-Adelaide-3	1996	2002	211
2998E	LAKE ADALAIDE	LAKE	21FLSCES170002	ADELAIDE/PALM SPRINGS APTS			
2998E	LAKE ADALAIDE	LAKE	21FLKWATADELAIDE2	ADELAIDE IN SEMINOLE CO.-SEE NOTE			
2998E	LAKE ADALAIDE	LAKE	21FLKWATSEM-ADELAIDE-1	Seminole-Adelaide-1	1996	2002	211
2998E	LAKE ADALAIDE	LAKE	21FLKWATADELAIDE1	ADELAIDE LAKE IN SEMINOLE CO.-SEE NOTE			
2998E	LAKE ADALAIDE	LAKE	21FLSCES170001	ADELAIDE/701BLDG			
2998E	LAKE ADALAIDE	LAKE	21FLKWATADELAIDE3	ADELAIDE IN SEMINOLE CO.-SEE NOTE			
3000	LAKE PEARL	LAKE	21FLA 20010172	PEARL LAKE CENTER OF NW COVE			
3000	LAKE PEARL	LAKE	21FLA 20010175	PEARL LAKE SE COVE			
3000	LAKE PEARL	LAKE	21FLA 20010174	PEARL LAKE CENTER			
3000	LAKE PEARL	LAKE	21FLA 20010171	PEARL L E SDE 25FT W WW EFF			
3000	LAKE PEARL	LAKE	21FLA 20010169	PEARL L E SDE 15FT W WW EFF			
3000	LAKE PEARL	LAKE	21FLA 20010176	PEARL L 25 FT OFFSHORE WEST SIDE			
3000	LAKE PEARL	LAKE	21FLA 20010173	PEARL L 25FT OFF SHORE EAST SIDE			
3000	LAKE PEARL	LAKE	112WRD 283945081253203	LAKE PEARL (N OF CENTER)			
3000	LAKE PEARL	LAKE	21FLORANHB33	LAKE PEARL CENTER	1996	2001	907
3000	LAKE PEARL	LAKE	21FLSCES160044	W. PEARL LAKE			
3000	LAKE PEARL	LAKE	112WRD 283945081253205	LAKE PEARL (S OF CENTER)			
3000	LAKE PEARL	LAKE	21FLA 20010170	PEARL L DEEP SOUTH PRO WW EFF TO			

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
3000	LAKE PEARL	LAKE	112WRD 283945081253201	LAKE PEARL (AT CENTER)			
3000A	LAKE HARRIET	LAKE	21FLSCES160016	LAKE HARRIET			
3000A	LAKE HARRIET	LAKE	21FLA 20010234	L HARRIET CENTER			
3000A	LAKE HARRIET	LAKE	21FLSEM HAR	HARRIET, LAKE	1999	2002	215
3000B	LAKE YVONNE	LAKE	21FLKWATSEM-YVONNE-3	Seminole-Yvonne-3	1996	1997	16
3000B	LAKE YVONNE	LAKE	21FLKWATSEM-YVONNE-1	Seminole-Yvonne-1	1996	1997	16
3000B	LAKE YVONNE	LAKE	21FLKWATYVONNE1	YVONNE IN SEMINOLE CO.-SEE NOTE			
3000B	LAKE YVONNE	LAKE	21FLKWATSEM-YVONNE-2	Seminole-Yvonne-2	1996	1997	16
3000B	LAKE YVONNE	LAKE	21FLKWATYVONNE3	YVONNE IN SEMINOLE CO.-SEE NOTE			
3000B	LAKE YVONNE	LAKE	21FLKWATYVONNE2	YVONNE IN SEMINOLE CO.-SEE NOTE			
3000C	MIRROR LAKE	LAKE	21FLSEM MIR	MIRROR LAKE	1998	2002	338
3000C	MIRROR LAKE	LAKE	21FLKWATSEM-MIRROR-2	Seminole-Mirror-2			
3000C	MIRROR LAKE	LAKE	21FLKWATSEM-MIRROR-3	Seminole-Mirror-3			
3000C	MIRROR LAKE	LAKE	21FLKWATSEM-MIRROR-1	Seminole-Mirror-1			
3000C	MIRROR LAKE	LAKE	21FLA 20010452	MIRROR L AT SR436 S END 100YDS O			
3000C	MIRROR LAKE	LAKE	21FLA 20010451	MIRROR L AT SR 436 20YDS OFFSHOR			
3000C	MIRROR LAKE	LAKE	21FLKWATMIRROR117-3	MIRROR IN SEMINOLE CO.-SEE NOTE			
3000C	MIRROR LAKE	LAKE	21FLKWAT117MIRROR1				
3000C	MIRROR LAKE	LAKE	21FLKWATMIRROR117-1	MIRROR IN SEMINOLE CO.-SEE NOTE			
3000C	MIRROR LAKE	LAKE	21FLKWATMIRROR117-2	MIRROR IN SEMINOLE CO.-SEE NOTE			
3000C	MIRROR LAKE	LAKE	21FLSCES200002	MIRROR LAKE/NORTHEAST QUADRANT			
3000C	MIRROR LAKE	LAKE	21FLKWAT117MIRROR2				
3000C	MIRROR LAKE	LAKE	21FLKWAT117MIRROR3				
3000C	MIRROR LAKE	LAKE	21FLSCES200001	MIRROR LAKE/SOUTHWEST QUADRANT			
3002	LUCY LAKE	LAKE	21FLSJWMLUCY	LUCY LAKE @ CENTER			
3002	LUCY LAKE	LAKE	21FLKWATLUCY1	LAKE LUCY1 IN ORANGE CO. SEE NOTE			
3002	LUCY LAKE	LAKE	21FLKWATLUCY2	LAKE LUCY2 IN ORANGE CO. SEE NOTE			
3002	LUCY LAKE	LAKE	21FLKWATLUCY3	LAKE LUCY3 IN ORANGE CO. SEE NOTE			
3002	LUCY LAKE	LAKE	21FLKWATORA-LUCY-1	Orange-Lucy-1	1997	1999	43
3002	LUCY LAKE	LAKE	21FLKWATORA-LUCY-2	Orange-Lucy-2	1998	1999	17
3002	LUCY LAKE	LAKE	21FLKWATORA-LUCY-3	Orange-Lucy-3			
3002A	HORSESHOE LAKE	LAKE	21FLKWATHORSESHOE2	LAKE HORSESHOE2 IN ORANGE CO. SEE NOTE			
3002A	HORSESHOE LAKE	LAKE	112WRD 283544081281300	HORSESHOE LAKE NR CLARCONA FLA			
3002A	HORSESHOE LAKE	LAKE	21FLKWATORA-HORSESHOE-1	Orange-Horseshoe-1			
3002A	HORSESHOE LAKE	LAKE	21FLKWATORA-HORSESHOE-2	Orange-Horseshoe-2			
3002A	HORSESHOE LAKE	LAKE	21FLKWATORA-HORSESHOE-3	Orange-Horseshoe-3			
3002A	HORSESHOE LAKE	LAKE	21FLKWATHORSESHOE3	LAKE HORSESHOE3 IN ORANGE CO. SEE NOTE			
3002A	HORSESHOE LAKE	LAKE	21FLKWATHORSESHOE1	LAKE HORSESHOE1 IN ORANGE CO. SEE NOTE			
3002B	SPRING LAKE	LAKE	21FLKWATSPRING095-2-2	LAKE SPRING 22 IN ORANGE CO. SEE NOTE			

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
3002B	SPRING LAKE	LAKE	21FLKWATORA-SPRING2-2	Orange-Spring 2-2	1996	2002	266
3002B	SPRING LAKE	LAKE	21FLKWATSPRING095-2-3	LAKE SPRING 23 IN ORANGE CO. SEE NOTE			
3002B	SPRING LAKE	LAKE	21FLKWATORA-SPRING2-3	Orange-Spring 2-3	1996	2002	265
3002B	SPRING LAKE	LAKE	21FLKWATORA-SPRING2-1	Orange-Spring 2-1	1996	2002	266
3002B	SPRING LAKE	LAKE	21FLKWATSPRING095-2-1	LAKE SPRING 2 IN ORANGE CO. SEE NOTE			
3002C	LAKE OLYMPIA	LAKE	21FLKWATOLYMPIA3	LAKE OLYMPIA3 IN ORANGE CO. SEE NOTE			
3002C	LAKE OLYMPIA	LAKE	21FLKWATORA-OLYMPIA-1	Orange-Olympia-1	1996	2002	237
3002C	LAKE OLYMPIA	LAKE	21FLKWATORA-OLYMPIA-2	Orange-Olympia-2	1996	2002	235
3002C	LAKE OLYMPIA	LAKE	21FLKWATOLYMPIA2	LAKE OLYMPIA2 IN ORANGE CO. SEE NOTE			
3002C	LAKE OLYMPIA	LAKE	21FLKWATOLYMPIA1	LAKE OLYMPIA1 IN ORANGE CO. SEE NOTE			
3002C	LAKE OLYMPIA	LAKE	21FLKWATORA-OLYMPIA-3	Orange-Olympia-3	1996	2002	235
3002D	STARKE LAKE	LAKE	21FLKWATORA-STARKE-1	Orange-Starke-1	1996	2002	254
3002D	STARKE LAKE	LAKE	21FLKWATORA-STARKE-2	Orange-Starke-2	1996	2002	258
3002D	STARKE LAKE	LAKE	21FLKWATORA-STARKE-3	Orange-Starke-3	1996	2002	256
3002D	STARKE LAKE	LAKE	21FLKWATSTARKE3	LAKE STARKE3 IN ORANGE CO. SEE NOTE			
3002D	STARKE LAKE	LAKE	21FLGFWFGFCCR0208	STARKE LAKE EAST NORTH EAST END LAKE PRIMA VISTA			
3002D	STARKE LAKE	LAKE	21FLGFWFGFCCR0209	STARKE LAKE MIDDLE OF LAKE			
3002D	STARKE LAKE	LAKE	21FLGFWFGFCCR0210	STARKE LAKE BOAT BASIN COVE			
3002D	STARKE LAKE	LAKE	21FLCEN 20010614	Lake Starke @ Center	2002	2002	22
3002D	STARKE LAKE	LAKE	21FLKWATSTARKE1	LAKE STARKE1 IN ORANGE CO. SEE NOTE			
3002D	STARKE LAKE	LAKE	21FLKWATSTARKE2	LAKE STARKE2 IN ORANGE CO. SEE NOTE			
3002D	STARKE LAKE	LAKE	112WRD 283416081321201	STARKE LAKE (AT CENTER)			
3002D	STARKE LAKE	LAKE	112WRD 283416081321202	STARKE LAKE (S OF CENTER)			
3002D	STARKE LAKE	LAKE	112WRD 283416081321203	STARKE LAKE (N OF CENTER)			
3002D	STARKE LAKE	LAKE	21FLORANBW60	LAKE STARKE	1996	1998	301
3002E	LAKE PRIMAVISTA	LAKE	21FLKWATPRIMAVISTA1	LAKE PRIMAVISTA1 IN ORANGE CO. SEE NOTE			
3002E	LAKE PRIMAVISTA	LAKE	21FLKWATORA-PRIMAVIST-1	Orange-Primavista-1	1996	2002	256
3002E	LAKE PRIMAVISTA	LAKE	21FLKWATORA-PRIMAVIST-3	Orange-Primavista-3	1996	2002	256
3002E	LAKE PRIMAVISTA	LAKE	21FLORANBW80	CENTER OF LAKE PRIMA VISTA	1996	1998	264
3002E	LAKE PRIMAVISTA	LAKE	21FLKWATPRIMAVISTA3	LAKE PRIMAVISTA3 IN ORANGE CO. SEE NOTE			
3002E	LAKE PRIMAVISTA	LAKE	21FLKWATPRIMAVISTA2	LAKE PRIMAVISTA2 IN ORANGE CO. SEE NOTE			
3002E	LAKE PRIMAVISTA	LAKE	21FLKWATORA-PRIMAVIST-2	Orange-Primavista-2	1996	2002	256
3002F	LAKE BENNETT	LAKE	21FLKWATORA-BENNETT-1	Orange-Bennett-1	1996	2002	261
3002F	LAKE BENNETT	LAKE	21FLKWATORA-BENNETT-2	Orange-Bennett-2	1996	2002	263
3002F	LAKE BENNETT	LAKE	21FLKWATBENNETT3	LAKE BENNETT3 IN ORANGE CO.-SEE NOTE			
3002F	LAKE BENNETT	LAKE	21FLKWATORA-BENNETT-3	Orange-Bennett-3	1996	2002	261
3002F	LAKE BENNETT	LAKE	21FLKWATBENNETT1	LAKE BENNETT1 IN ORANGE CO.-SEE NOTE			
3002F	LAKE BENNETT	LAKE	21FLKWATBENNETT2	LAKE BENNETT2 IN ORANGE CO.-SEE NOTE			
3002G	LAKE LOTTA	LAKE	21FLKWATSOUTH LOTTA1	LAKE SOUTH LOTTA1 IN ORANGE CO. SEE NOTE			
3002G	LAKE LOTTA	LAKE	21FLKWATSOUTH LOTTA3	LAKE SOUTH LOTTA3 IN ORANGE CO. SEE NOTE			
3002G	LAKE LOTTA	LAKE	21FLKWATORA-SOUTHLOT-1	Orange-South Lotta-1	1996	2002	250
3002G	LAKE LOTTA	LAKE	21FLKWATORA-SOUTHLOT-2	Orange-South Lotta-2	1996	2002	248
3002G	LAKE LOTTA	LAKE	21FLKWATORA-SOUTHLOT-3	Orange-South Lotta-3	1996	2002	250

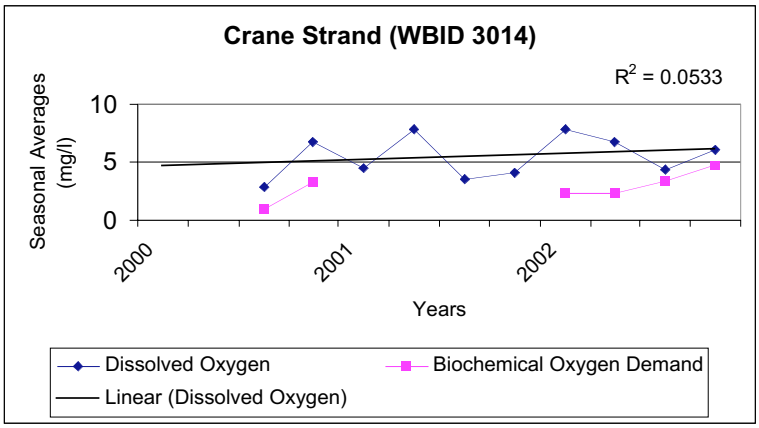
WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
3002G	LAKE LOTTA	LAKE	21FLKWATORA-NORTHLOT-3	Orange-North Lotta-3	1996	2002	264
3002G	LAKE LOTTA	LAKE	21FLKWATORA-NORTHLOT-2	Orange-North Lotta-2	1996	2002	264
3002G	LAKE LOTTA	LAKE	21FLKWATORA-NORTHLOT-1	Orange-North Lotta-1	1996	2002	263
3002G	LAKE LOTTA	LAKE	112WRD 283305081304200		2000	2000	32
3002G	LAKE LOTTA	LAKE	21FLKWATNORTH LOTTA1	LAKE NORTH LOTTA1 IN ORANGE CO. SEE NOTE			
3002G	LAKE LOTTA	LAKE	21FLKWATNORTH LOTTA2	LAKE NORTH LOTTA2 IN ORANGE CO. SEE NOTE			
3002G	LAKE LOTTA	LAKE	21FLKWATNORTH LOTTA3	LAKE NORTH LOTTA3 IN ORANGE CO. SEE NOTE			
3002G	LAKE LOTTA	LAKE	21FLKWATSOUTH LOTTA2	LAKE SOUTH LOTTA2 IN ORANGE CO. SEE NOTE			
3002H	LAKE SHERWOOD	LAKE	112WRD 02234930	LAKE SHERWOOD NR ORLANDO, FLA.			
3002H	LAKE SHERWOOD	LAKE	12ELS1 3B3-029	LAKE SHERWOOD			
3002H	LAKE SHERWOOD	LAKE	21FLORANBW54	GEOGRAPHICAL CENTER OF LAKE SHERWOOD	1996	1998	226
3002I	LAKE ROSE	LAKE	21FLKWATORA-ROSE-1	Orange-Rose-1	1998	1998	4
3002I	LAKE ROSE	LAKE	21FLSJWMROSE	ROSE LAKE @ CENTER			
3002I	LAKE ROSE	LAKE	21FLKWATROSE1	LAKE ROSE1 IN ORANGE CO. SEE NOTE			
3002I	LAKE ROSE	LAKE	21FLKWATROSE2	LAKE ROSE2 IN ORANGE CO. SEE NOTE			
3002I	LAKE ROSE	LAKE	21FLKWATORA-ROSE-2	Orange-Rose-2	1998	1998	4
3002I	LAKE ROSE	LAKE	21FLKWATROSE3	LAKE ROSE3 IN ORANGE CO. SEE NOTE			
3002I	LAKE ROSE	LAKE	21FLKWATORA-ROSE-3	Orange-Rose-3	1998	1998	4
3002J	LAKE HIAWASSEE	LAKE	21FLCEN 20010615	Lake Hiawassee @ Center	2002	2002	20
3002J	LAKE HIAWASSEE	LAKE	21FLKWATHIAWASSEE1	LAKE HIAWASSEE1 IN ORANGE CO. SEE NOTE			
3002J	LAKE HIAWASSEE	LAKE	21FLSJWMHIAW	HIAWASSE LAKE @ CENTER			
3002J	LAKE HIAWASSEE	LAKE	21FLORL HIAWASSEE N	LAKE HIAWASSEE NORTH			
3002J	LAKE HIAWASSEE	LAKE	21FLKWATORA-HIAWASSEE-3	Orange-Hiawassee-3			
3002J	LAKE HIAWASSEE	LAKE	21FLKWATORA-HIAWASSEE-2	Orange-Hiawassee-2			
3002J	LAKE HIAWASSEE	LAKE	21FLORANBW26	LAKE HIAWASSEE CENTER	1996	1998	308
3002J	LAKE HIAWASSEE	LAKE	21FLKWATORA-HIAWASSEE-1	Orange-Hiawassee-1			
3002J	LAKE HIAWASSEE	LAKE	21FLKWATHIAWASSEE2	LAKE HIAWASSEE2 IN ORANGE CO. SEE NOTE			
3002J	LAKE HIAWASSEE	LAKE	21FLKWATHIAWASSEE3	LAKE HIAWASSEE3 IN ORANGE CO. SEE NOTE			
3002K	LAKE OLIVIA	LAKE	21FLORANBW45	LAKE OLIVIA CENTER	1997	1998	167
3002K	LAKE OLIVIA	LAKE	21FLKWATOLIVIA1	LAKE OLIVIA1 IN ORANGE CO. SEE NOTE			
3002K	LAKE OLIVIA	LAKE	21FLKWATOLIVIA3	LAKE OLIVIA3 IN ORANGE CO. SEE NOTE			
3002K	LAKE OLIVIA	LAKE	21FLKWATOLIVIA2	LAKE OLIVIA2 IN ORANGE CO. SEE NOTE			
3002K	LAKE OLIVIA	LAKE	21FLKWATORA-OLIVIA-1	Orange-Olivia-1	1997	2002	51
3002K	LAKE OLIVIA	LAKE	21FLKWATORA-OLIVIA-2	Orange-Olivia-2	1997	2002	50
3002K	LAKE OLIVIA	LAKE	21FLKWATORA-OLIVIA-3	Orange-Olivia-3	1997	2002	51
3002L	LAKE JOHIO	LAKE	21FLKWATORA-JOHIO-3	Orange-Johio-3	1997	2002	110
3002L	LAKE JOHIO	LAKE	21FLKWATORA-JOHIO-2	Orange-Johio-2	1997	2002	110
3002L	LAKE JOHIO	LAKE	21FLKWAT095JOHIO3				
3002L	LAKE JOHIO	LAKE	21FLKWAT095JOHIO2				
3002L	LAKE JOHIO	LAKE	21FLKWAT095JOHIO1				
3002L	LAKE JOHIO	LAKE	112WRD 02234935	LAKE JOHIO NEAR OCOEE. FL			
3002L	LAKE JOHIO	LAKE	21FLKWATORA-JOHIO-1	Orange-Johio-1	1997	2002	110

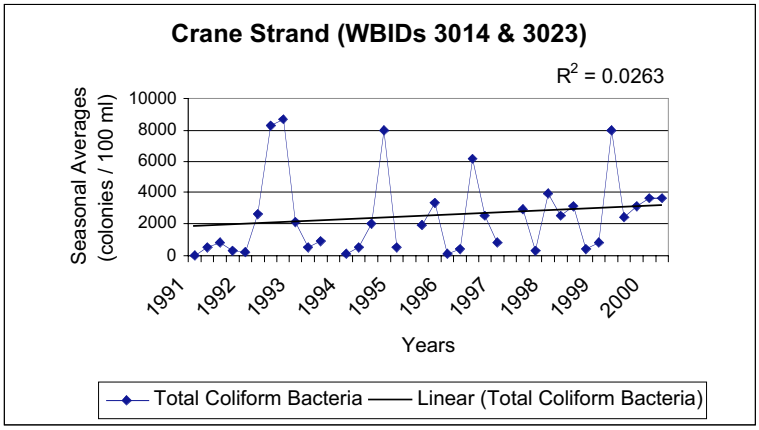
WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
3002N	PRAIRIE LAKE	LAKE	21FLKWAT095PRAIRIE1				
3002N	PRAIRIE LAKE	LAKE	12ELS1 3B3-077	PRAIRIE LAKE			
3002N	PRAIRIE LAKE	LAKE	21FLKWAT095PRAIRIE3				
3002N	PRAIRIE LAKE	LAKE	21FLKWAT095PRAIRIE2				
3002N	PRAIRIE LAKE	LAKE	21FLKWATORA-PRAIRIE-3	Orange-Prairie-3	1997	2001	154
3002N	PRAIRIE LAKE	LAKE	21FLKWATORA-PRAIRIE-1	Orange-Prairie-1	1997	2001	157
3002N	PRAIRIE LAKE	LAKE	21FLKWATORA-PRAIRIE-2	Orange-Prairie-2	1997	2001	153
3004	LITTLE WEKIVA CANAL	STREAM	112WRD 02234815	LAKE WEKIVA OUTLET NR MAITLAND, FLA.			
3004	LITTLE WEKIVA CANAL	STREAM	21FLORANLWA	L. WEKIVA R. AT SILVER STAR RD.	1996	2001	877
3004	LITTLE WEKIVA CANAL	STREAM	21FLORANLWD	L. WEKIVA R. AT ORANOLE RD.	1996	2002	901
3004	LITTLE WEKIVA CANAL	STREAM	21FLA 20010304	LITTLE WEKIWA HWY 441			
3004	LITTLE WEKIVA CANAL	STREAM	21FLA 20010101	LITTLE WEKIVA RIVER NEAR EDGEWATER DR.	1997	1997	25
3004	LITTLE WEKIVA CANAL	STREAM	21FLA 20010100	LITTLE WEKIVA RIVER AT PRINCETON & SILVER STAR	1997	1997	26
3004	LITTLE WEKIVA CANAL	STREAM	21FLA 20010133	LIT WEKIVA CANAL AT ORANOLE RD	1997	1997	25
3004	LITTLE WEKIVA CANAL	STREAM	21FLORANLWB	Little Wekiva B (North O.B.T.)	1996	2002	576
3004	LITTLE WEKIVA CANAL	STREAM	21FLSCES60000	ORANOLE RD			
3004A	BEAR LAKE	LAKE	21FLSCES180001	BEAR LAKE/HOLIDAY			
3004A	BEAR LAKE	LAKE	21FLSCES180002	BEAR LAKE/LINNEAL BEACH			
3004A	BEAR LAKE	LAKE	21FLKWATSEM-BEAR-2	Seminole-Bear-2	1996	2002	332
3004A	BEAR LAKE	LAKE	21FLKWATBEAR1	BEAR IN SEMINOLE CO.-SEE NOTE			
3004A	BEAR LAKE	LAKE	21FLKWATSEM-BEAR-4	Seminole-Bear-4	1996	2002	328
3004A	BEAR LAKE	LAKE	21FLSEM BER	BEAR LAKE	1998	2002	357
3004A	BEAR LAKE	LAKE	21FLKWATBEAR4	BEAR IN SEMINOLE CO.-SEE NOTE			
3004A	BEAR LAKE	LAKE	21FLKWATBEAR2	BEAR IN SEMINOLE CO.-SEE NOTE			
3004A	BEAR LAKE	LAKE	21FLKWATSEM-BEAR-1	Seminole-Bear-1	1996	2002	331
3004A	BEAR LAKE	LAKE	21FLA 20010239	BEAR LAKE AT L BEAR L CANAL			
3004A	BEAR LAKE	LAKE	21FLA 20010238	BEAR L SW END AT DRAINAGE CANAL			
3004A	BEAR LAKE	LAKE	21FLA 20010237	BEAR LAKE CENTER OF NE END			
3004A	BEAR LAKE	LAKE	112WRD 02234942	BEAR LAKE NR FOREST CITY, FLA.			
3004A	BEAR LAKE	LAKE	21FLKWATBEAR3	BEAR IN SEMINOLE CO.-SEE NOTE			
3004A	BEAR LAKE	LAKE	21FLSCES160033	LITTLE BEAR LAKE			
3004A	BEAR LAKE	LAKE	21FLKWATSEM-BEAR-3	Seminole-Bear-3	1996	2002	332
3004B	LAKE FAIRVIEW	LAKE	21FLORANLW29	LAKE FAIRVIEW - S. LOBE	1996	2002	948
3004C	LAKE LAWNE	LAKE	21FLORANLW10M	LAKELAWNE CENTER	1996	2002	922
3004C	LAKE LAWNE	LAKE	21FLORANLW10N	LAKE LAWNE - N. LOBE	1996	2002	806
3004C	LAKE LAWNE	LAKE	21FLORANLW10S	LAKE LAWNE - S. LOBE	1996	2002	922
3004C	LAKE LAWNE	LAKE	21FLA 20010303	LAWNE L W ORNG CO ORLANDO VICINI			
3004C	LAKE LAWNE	LAKE	21FLGFWFGFCCR0435	LAKE LAWNE MID LAKE AT SOUTH END			
3004C	LAKE LAWNE	LAKE	11EPALES124901	LAKE LAWNE			
3004C	LAKE LAWNE	LAKE	21FLGFWFGFCCR0437	LAKE LAWNE MID LAKE AT NORTH END			
3004C	LAKE LAWNE	LAKE	21FLORL LAWNE N	LAKE LAWNE N CENTER OF LK	1997	1997	57
3004C	LAKE LAWNE	LAKE	21FLORL LAWNE S	LAKE LAWNE S	1997	1997	57
3004C	LAKE LAWNE	LAKE	21FLGFWFGFCCR0436	LAKE LAWNE MID LAKE AT PARK			

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
3004C	LAKE LAWNE	LAKE	112WRD 02234770	09E LAWNE LAKE NR ORLANDO FLA			
3004C	LAKE LAWNE	LAKE	21FLSJWMLAWNE	LAKE LAWNE AT CENTER (ORLANDO)			
3004D	SILVER LAKE	LAKE	21FLKWATSILVER LAKE1	LAKE SILVER1 IN ORANGE CO. SEE NOTE			
3004D	SILVER LAKE	LAKE	21FLORL SILVER	LAKE SILVER	1996	2002	464
3004D	SILVER LAKE	LAKE	21FLKWATORA-SILVER-1	Orange-Silver-1	1996	2001	76
3004D	SILVER LAKE	LAKE	21FLKWATSILVER LAKE2	LAKE SILVER2 IN ORANGE CO. SEE NOTE			
3004D	SILVER LAKE	LAKE	21FLKWATORA-SILVER-2	Orange-Silver-2	1996	2001	76
3004D	SILVER LAKE	LAKE	21FLKWATORA-SILVER-3	Orange-Silver-3	1996	2001	74
3004D	SILVER LAKE	LAKE	21FLORANLW18	LAKE SILVER CENTER	1996	2001	790
3004D	SILVER LAKE	LAKE	21FLKWATSILVER LAKE3	LAKE SILVER3 IN ORANGE CO. SEE NOTE			
3004E	LAKE DANIEL	LAKE	21FLORL DANIEL	LAKE DANIEL	1996	2002	458
3004E	LAKE DANIEL	LAKE	21FLKWATDANIEL1	LAKE DANIEL1 IN ORANGE CO.-SEE NOTE			
3004E	LAKE DANIEL	LAKE	21FLKWATDANIEL3	LAKE DANIEL3 IN ORANGE CO.-SEE NOTE			
3004E	LAKE DANIEL	LAKE	21FLKWATORA-DANIEL-3	Orange-Daniel-3	1997	2002	39
3004E	LAKE DANIEL	LAKE	21FLKWATORA-DANIEL-2	Orange-Daniel-2	1997	2002	39
3004E	LAKE DANIEL	LAKE	21FLKWATORA-DANIEL-1	Orange-Daniel-1	1997	2002	39
3004E	LAKE DANIEL	LAKE	21FLKWATDANIEL2	LAKE DANIEL2 IN ORANGE CO.-SEE NOTE			
3004F	LAKE SARAH	LAKE	21FLKWATORA-SARAH-3	Orange-Sarah-3	1996	2002	319
3004F	LAKE SARAH	LAKE	21FLKWATORA-SARAH-1	Orange-Sarah-1	1996	2002	321
3004F	LAKE SARAH	LAKE	21FLKWATORA-SARAH-2	Orange-Sarah-2	1996	2002	321
3004F	LAKE SARAH	LAKE	21FLKWATSARAH1	LAKE SARAH1 IN ORANGE CO. SEE NOTE			
3004F	LAKE SARAH	LAKE	21FLORL SARAH	LAKE SARAH	1996	2002	446
3004F	LAKE SARAH	LAKE	21FLKWATSARAH2	LAKE SARAH2 IN ORANGE CO. SEE NOTE			
3004F	LAKE SARAH	LAKE	21FLKWATSARAH3	LAKE SARAH3 IN ORANGE CO. SEE NOTE			
3004G	BAY LAKE	LAKE	21FLORL BAY	BAY LAKE	1996	2002	460
3004G	BAY LAKE	LAKE	21FLKWATORA-BAY-1	Orange-Bay-1	1996	2002	333
3004G	BAY LAKE	LAKE	21FLKWATORA-BAY-2	Orange-Bay-2	1996	2002	334
3004G	BAY LAKE	LAKE	21FLKWATORA-BAY-3	Orange-Bay-3	1996	2002	335
3004H	LITTLE LAKE FAIRVIEW	LAKE	21FLKWATORA-LITTLEFA-3	Orange-Little Fairview-3	1997	2002	265
3004H	LITTLE LAKE FAIRVIEW	LAKE	21FLKWATORA-LITTLEFA-2	Orange-Little Fairview-2	1997	2002	264
3004H	LITTLE LAKE FAIRVIEW	LAKE	21FLKWATORA-LITTLEFA-1	Orange-Little Fairview-1	1997	2002	264
3004H	LITTLE LAKE FAIRVIEW	LAKE	21FLORANLW11	LITTLE LAKE FAIRVIEW	1996	2001	717
3004H	LITTLE LAKE FAIRVIEW	LAKE	21FLKWATLTL FAIRVIEW3	LAKE LTL FAIRVIEW3 IN ORANGE CO. SEE NOTE			
3004H	LITTLE LAKE FAIRVIEW	LAKE	21FLKWATLTL FAIRVIEW2	LAKE LTL FAIRVIEW2 IN ORANGE CO. SEE NOTE			
3004H	LITTLE LAKE FAIRVIEW	LAKE	21FLKWATLTL FAIRVIEW1	LAKE LTL FAIRVIEW1 IN ORANGE CO. SEE NOTE			
3004I	LAKE ROSE	LAKE	21FLORANBW53	LAKE ROSE CENTER	1996	1998	302
3004J	LAKE GANDY	LAKE	21FLCEN 20010613	Lake Gandy @ Center	2002	2002	24
3004J	LAKE GANDY	LAKE	21FLORANLW7	LAKE GANDY CENTER	1996	2000	717
3004K	LAKE WEKIVA/ORLANDO	LAKE	21FLKWATORLANDO3	LAKE ORLANDO3 IN ORANGE CO. SEE NOTE			
3004K	LAKE WEKIVA/ORLANDO	LAKE	21FLA 20010324	L WEKIVA N OF AW 50 NW ORLANDO			
3004K	LAKE WEKIVA/ORLANDO	LAKE	21FLCEN 20010324	L WEKIVA N OF AW 50 NW ORLANDO	2002	2002	22
3004K	LAKE WEKIVA/ORLANDO	LAKE	21FLKWATORA-ORLANDO-3	Orange-Orlando-3			
3004K	LAKE WEKIVA/ORLANDO	LAKE	112WRD 02234814	LAKE WEKIVA NR MAITLAND, FLA.			

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
3004K	LAKE WEKIVA/ORLANDO	LAKE	21FLKWATORA-ORLANDO-2	Orange-Orlando-2			
3004K	LAKE WEKIVA/ORLANDO	LAKE	21FLKWATORA-ORLANDO-1	Orange-Orlando-1			
3004K	LAKE WEKIVA/ORLANDO	LAKE	21FLKWATORLANDO2	LAKE ORLANDO2 IN ORANGE CO. SEE NOTE			
3004K	LAKE WEKIVA/ORLANDO	LAKE	112WRD 283544081260401				
3004K	LAKE WEKIVA/ORLANDO	LAKE	21FLORL ORLANDO EAST	LAKE ORLANDO EAST			
3004K	LAKE WEKIVA/ORLANDO	LAKE	21FLKWATORLANDO1	LAKE ORLANDO1 IN ORANGE CO. SEE NOTE			
3004L	TROUT LAKE	LAKE	21FLA 20010444	WEKIVA R. AT SR# 431 FOREST CITY			
3004M	LAKE LOTUS	LAKE	112WRD 283855081252203	LOTUS LAKE (N OF CENTER)			
3004M	LAKE LOTUS	LAKE	112WRD 283855081252202	LOTUS LAKE (AT CENTER)			
3004M	LAKE LOTUS	LAKE	112WRD 283855081252201	LOTUS LAKE (S OF CENTER)			
3004N	LAKE FAIRVIEW LAKE	LAKE	21FLKWATORA-FAIRVIEW-1	Orange-Fairview-1	1997	2000	97
3004N	LAKE FAIRVIEW LAKE	LAKE	21FLORANLW28	LAKE FAIRVIEW - N. LOBE	1996	2002	959
3004N	LAKE FAIRVIEW LAKE	LAKE	112WRD 283535081242104	LAKE FAIRVIEW (S OF CENTER)			
3004N	LAKE FAIRVIEW LAKE	LAKE	21FLA 20010334	LAKE FAIRVIEW CENTER OF MAIN LOBE	1998	1998	24
3004N	LAKE FAIRVIEW LAKE	LAKE	21FLCEN 20010334	LAKE FAIRVIEW CENTER OF MAIN LOBE	2002	2002	27
3004N	LAKE FAIRVIEW LAKE	LAKE	21FLORL FAIRVIEW	LAKE FAIRVIEW CENTER	1996	1997	89
3004N	LAKE FAIRVIEW LAKE	LAKE	21FLKWATFAIRVIEW4	LAKE FAIRVIEW4 IN ORANGE CO. SEE NOTE			
3004N	LAKE FAIRVIEW LAKE	LAKE	21FLKWATORA-FAIRVIEW-2	Orange-Fairview-2	1998	2000	70
3004N	LAKE FAIRVIEW LAKE	LAKE	112WRD 283535081242101	LAKE FAIRVIEW (AT CENTER)			
3004N	LAKE FAIRVIEW LAKE	LAKE	112WRD 283535081242102	LAKE FAIRVIEW (N OF CENTER)			
3004N	LAKE FAIRVIEW LAKE	LAKE	21FLKWATFAIRVIEW3	LAKE FAIRVIEW3 IN ORANGE CO. SEE NOTE			
3004N	LAKE FAIRVIEW LAKE	LAKE	21FLKWATORA-FAIRVIEW-4	Orange-Fairview-4			
3004N	LAKE FAIRVIEW LAKE	LAKE	21FLKWATORA-FAIRVIEW-3	Orange-Fairview-3	1998	2000	70
3004N	LAKE FAIRVIEW LAKE	LAKE	21FLKWATFAIRVIEW1	LAKE FAIRVIEW1 IN ORANGE CO. SEE NOTE			
3004N	LAKE FAIRVIEW LAKE	LAKE	21FLKWATFAIRVIEW2	LAKE FAIRVIEW2 IN ORANGE CO. SEE NOTE			
3004O	ASHER LAKE	LAKE	21FLSEM ASH	ASHER, LAKE	1999	2002	308
3004P	CUB LAKE	LAKE	21FLSEM CUB	CUB LAKE	1999	2002	337
3004P	CUB LAKE	LAKE	21FLKWAT117CUB2				
3004P	CUB LAKE	LAKE	21FLKWATSEM-CUB-1	Seminole-Cub-1	1999	2000	20
3004P	CUB LAKE	LAKE	21FLKWATSEM-CUB-2	Seminole-Cub-2	1999	2000	20
3004P	CUB LAKE	LAKE	21FLKWATSEM-CUB-3	Seminole-Cub-3	1999	2000	17
3004P	CUB LAKE	LAKE	21FLKWAT117CUB1				
3004P	CUB LAKE	LAKE	21FLKWAT117CUB3				
3004Q	LITTLE BEAR LAKE	LAKE	21FLKWATLITTLE BEAR3	LITTLE BEAR IN SEMINOLE CO.-SEE NOTE			
3004Q	LITTLE BEAR LAKE	LAKE	21FLKWATLITTLE BEAR1	LITTLE BEAR IN SEMINOLE CO.-SEE NOTE			
3004Q	LITTLE BEAR LAKE	LAKE	21FLSEM LBR	LITTLE BEAR LAKE	1999	2002	279
3004Q	LITTLE BEAR LAKE	LAKE	21FLKWATSEM-LITTLEBE-3	Seminole-Little Bear-3	1996	2002	191
3004Q	LITTLE BEAR LAKE	LAKE	21FLKWATSEM-LITTLEBE-2	Seminole-Little Bear-2	1996	2002	190
3004Q	LITTLE BEAR LAKE	LAKE	21FLKWATSEM-LITTLEBE-1	Seminole-Little Bear-1	1996	2002	188
3004Q	LITTLE BEAR LAKE	LAKE	21FLKWATLITTLE BEAR2	LITTLE BEAR IN SEMINOLE CO.-SEE NOTE			
3011A	LAKE WESTON	LAKE	21FLA 20010305	L WESTON NW ORLANDO VICINITY			
3011A	LAKE WESTON	LAKE	21FLCEN 20010305	L WESTON NW ORLANDO VICINITY	2002	2002	22
3011A	LAKE WESTON	LAKE	21FLORANLW20	LAKE WESTON CENTER	1996	2002	758

WBID	Waterbdoy Name	Waterbody Type	Station Number	Stations Name	BD	ED	NOBS
3011B	LAKE SHADOW	LAKE	21FLA 20010083	L SHADOW NW AREA			
3011B	LAKE SHADOW	LAKE	21FLA 20010084	L SHADOW SHORE NE OF LAKE			
3011B	LAKE SHADOW	LAKE	21FLA 20010081	L SHADOW ACROSS LAKE FRM W SHORE			
3011B	LAKE SHADOW	LAKE	21FLA 20010079	LAKE SHADOW 150 FT FROM BEACH			
3011B	LAKE SHADOW	LAKE	112WRD 02234828	09E SHADOW LAKE NR EATONVILLE FLA			
3011B	LAKE SHADOW	LAKE	21FLORANLW17	Shadow	1997	2001	388
3011B	LAKE SHADOW	LAKE	21FLA 20010082	L SHADOW CENTER OF LAKE			
3011B	LAKE SHADOW	LAKE	21FLA 20010077	LAKE SHADOW, DRNG CULVERT INTO L			
3011B	LAKE SHADOW	LAKE	21FLA 20010078	LAKE SHADOW, SOUTH SIDE OF LAKE			
3011C	LAKE LUCIEN	LAKE	21FLKWATORA-LUCIEN-2	Orange-Lucien-2			
3011C	LAKE LUCIEN	LAKE	21FLKWATLUCIEN2	LAKE LUCIEN2 IN ORANGE CO. SEE NOTE			
3011C	LAKE LUCIEN	LAKE	21FLKWATLUCIEN3	LAKE LUCIEN3 IN ORANGE CO. SEE NOTE			
3011C	LAKE LUCIEN	LAKE	21FLKWATORA-LUCIEN-3	Orange-Lucien-3			
3011C	LAKE LUCIEN	LAKE	21FLKWATORA-LUCIEN-1	Orange-Lucien-1			
3011C	LAKE LUCIEN	LAKE	21FLKWATLUCIEN1	LAKE LUCIEN1 IN ORANGE CO. SEE NOTE			
3011C	LAKE LUCIEN	LAKE	112WRD 283735081233000	LAKE LUCIEN AT MAITLAND,FLA.			





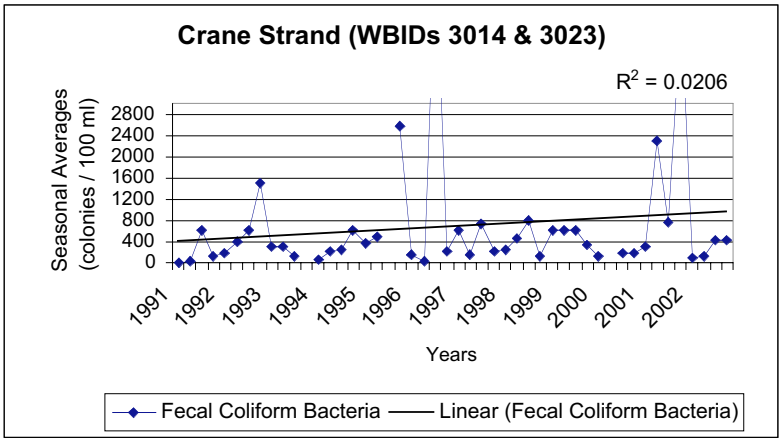
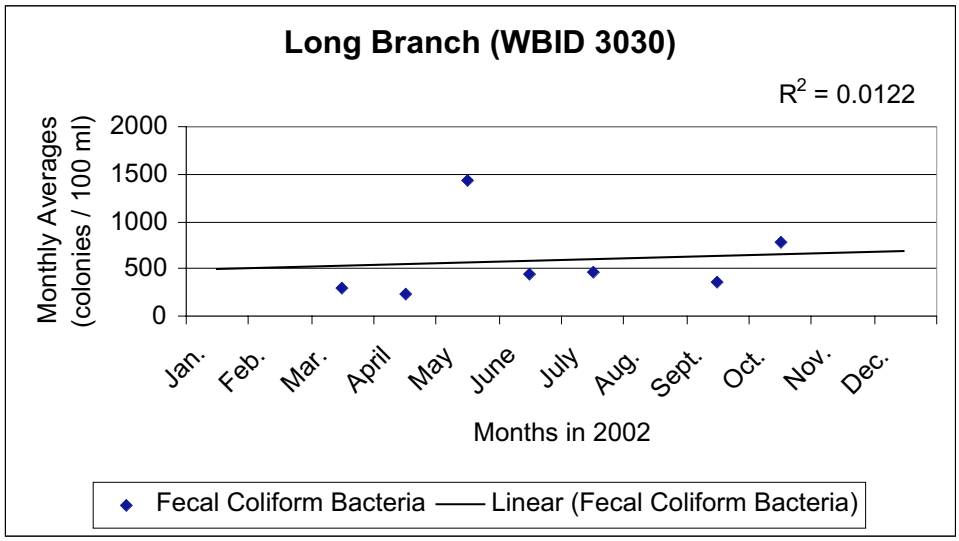


Figure F.1: Water Quality Trends in Crane Strand (WBIDs 3014 & 3023)



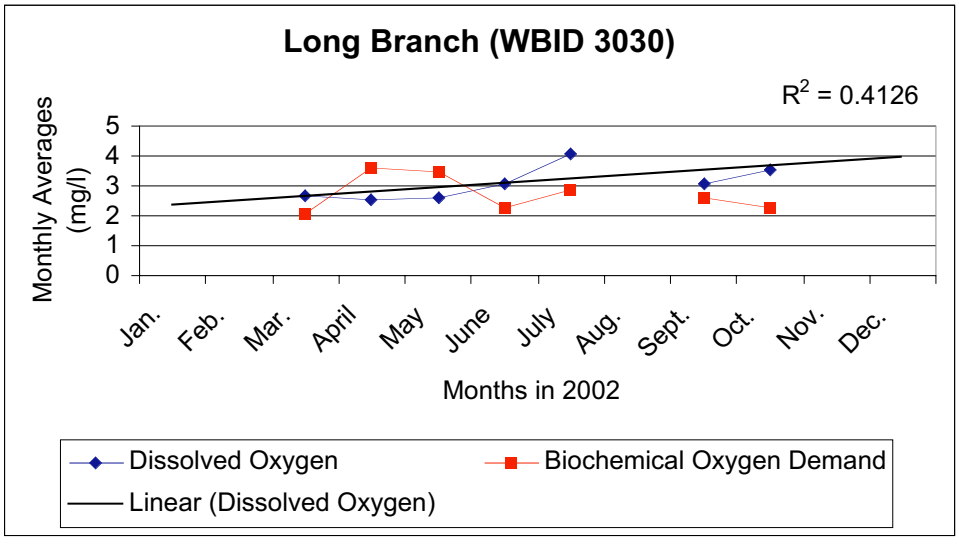
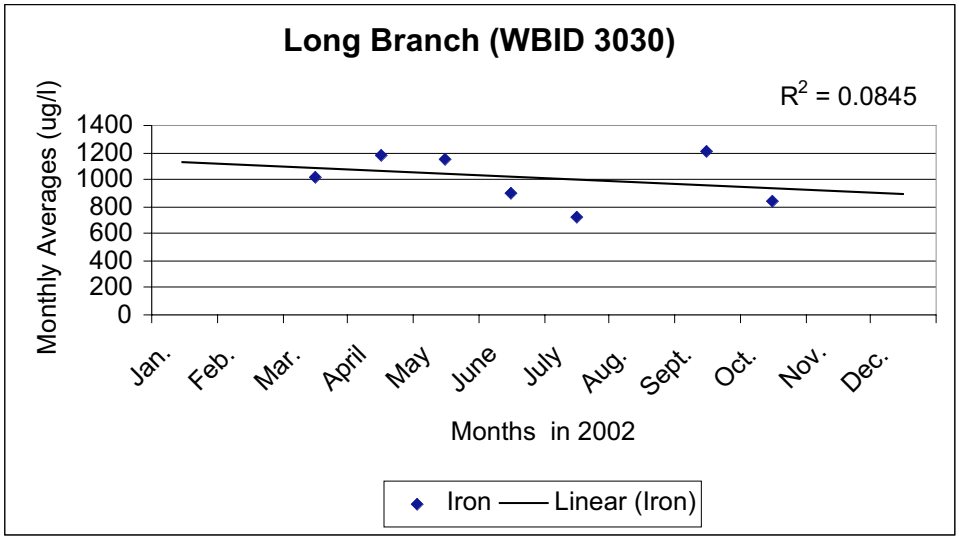


Figure F.2: Water Quality Trends for Long Branch



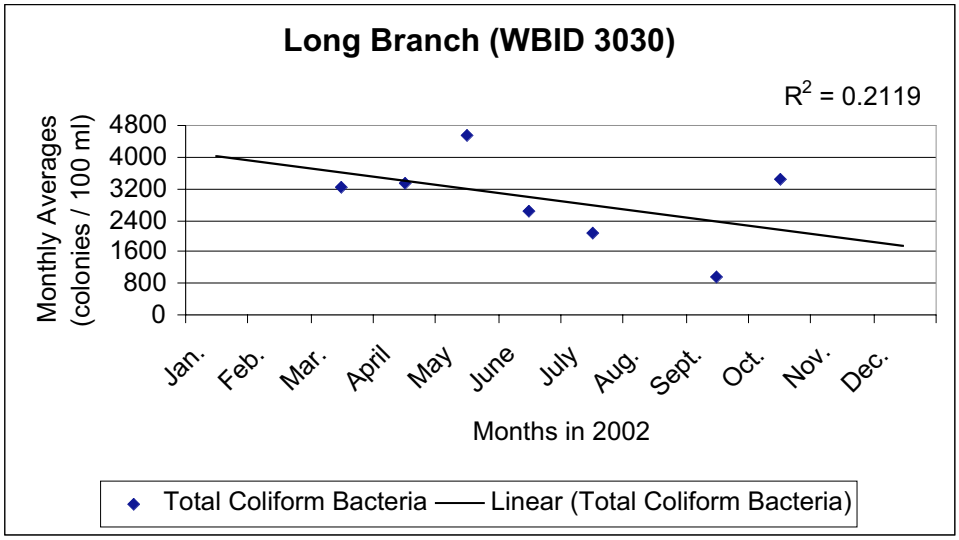
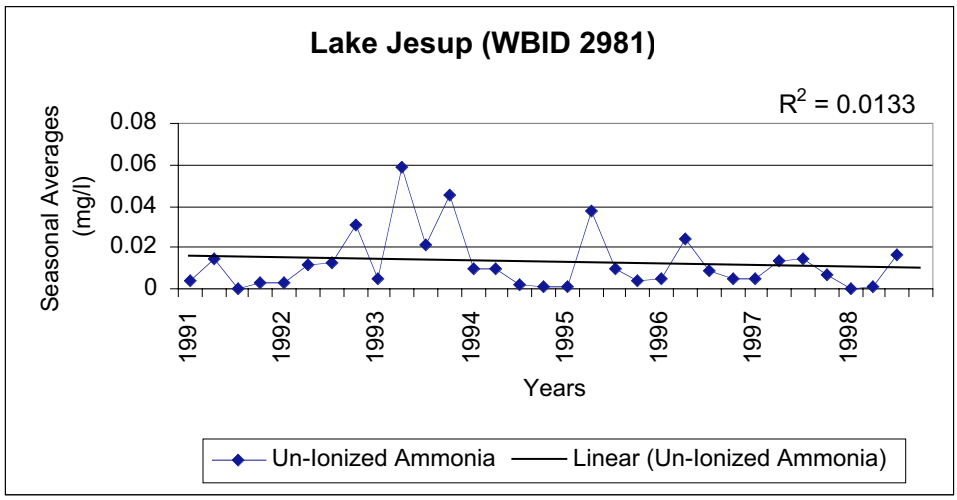


Figure F.3: Water Quality Trend for Long Branch



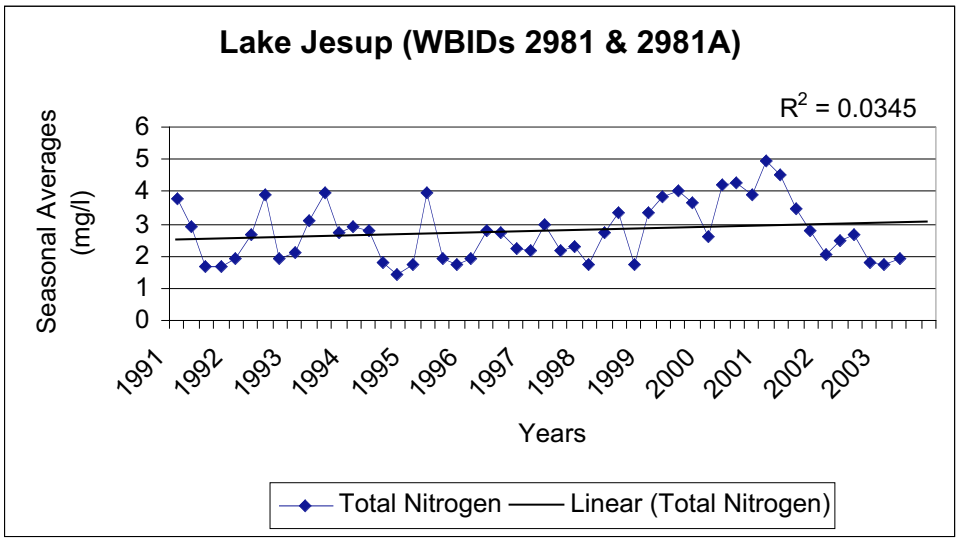
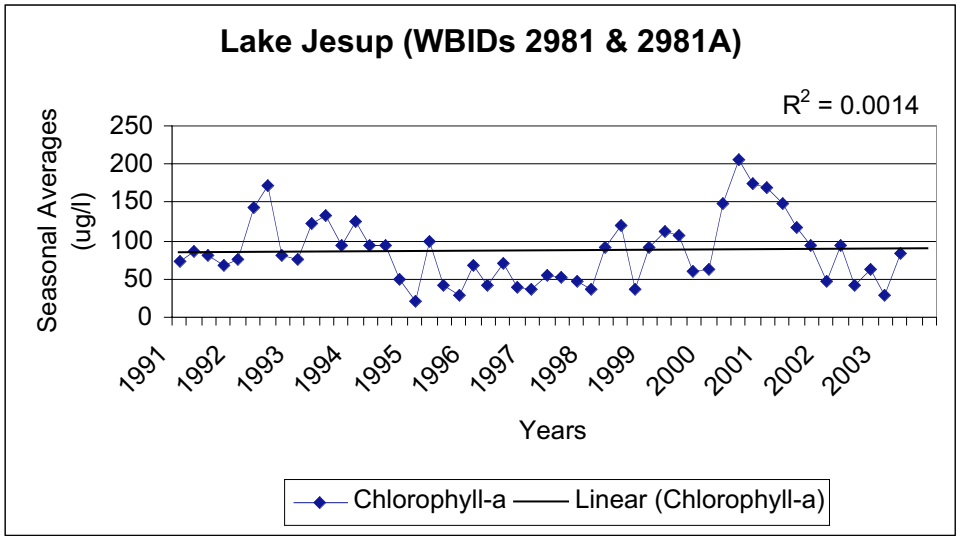


Figure F.4: Water Quality Trends for Lake Jesup



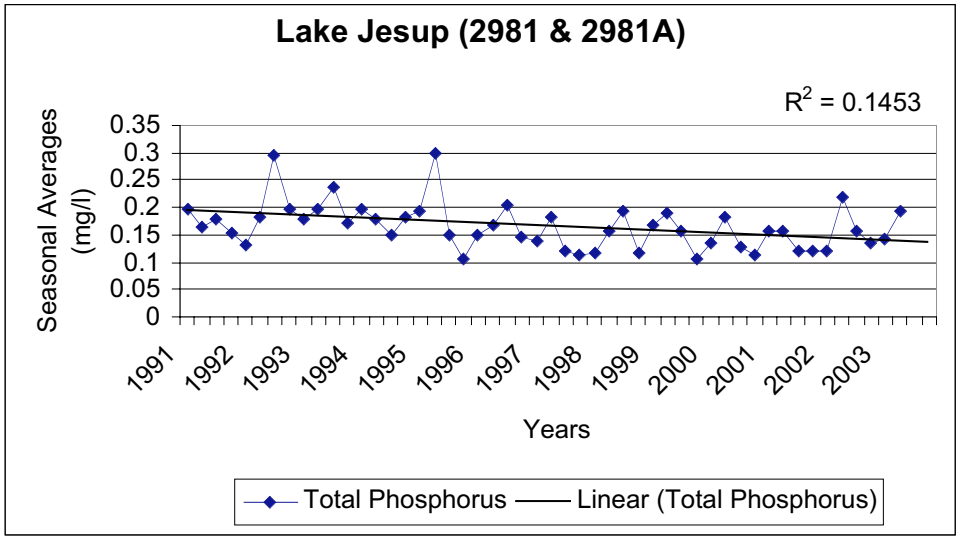


Figure F.5: Water Quality Trends for Lake Jesup

Appendix G: Middle St. Johns Basin Permitted Facilities

Table G.1: Permitted Domestic and Industrial Facilities Discharging to Surface Waters in the Middle St. Johns Basin

Facility Name	Facility Permit Number	Facility Type*	Summary of Treatment Process	Permit Monitoring Conditions**									Latitude	Longitude
				Surface Water Discharge	Flow	Nitrogen	Phosphorus	Dissolved Oxygen	Oxygen Demand	Suspended Solids	pH	Specific. Conductance		
Econlockhatchee River Planning Unit														
PARK MANOR ESTATES	FL0028291	Domestic WWTP	A.S. STP W/SURGE CONTROL-DECHLORINATED EFFLUENT TO DITCH TO LITTLE ECON RIVER	0.35	0.35	X	X	X	X	X	X	X	28°34' 0.54"	81°13' 38.11"
ORLANDO / IRON BRIDGE WPCF	FL0037966	Domestic WWTP	PHYSICAL, CHEMICAL, BIOLOGICAL STP W/ REUSE TO LITTLE ECON RIVER, WETLANDS & PUBLIC ACCESS	40	40	X	X	X	X	X	X	X	28°37' 22.41"	81°12' 56.7"
ORANGE COUNTY UTILITIES DIVISION / EASTERLY SUBREGIONAL STP	FL0038849	Domestic WWTP	CARROUSEL-BARDENPHO STP W/ EFFLUENT TO PERC/PONDS & NONJUR/JUR WETLANDS	6.2	19	X	X	X	X	X	X	X	28°31' 22.34"	81°12' 1.54"
CITY INDUSTRIES SUPERFUND / GW REMEDIATION TREATMENT PLANT	FL0043265	Industrial Wastewater	GROUNDWATER REMEDIATION TREATMENT FACILITY WITH DISCHARGE TO LITTLE ECON RIVER VIA AN ORANGE COUNTY DRAINAGE CANAL			X	X	X	X	X		X		
REXAM GROUNDWATER TREATMENT FACILITY	FL0044181	Industrial Wastewater		0.072	0.072	X			X	X		X	28°33' 59.32"	81°15' 11.98"
AB CONCRETE	FLG110176	Concrete Batch GP												
FLORIDA ROCK / EAST ORLANDO	FLG110268	Concrete Batch GP												
CEMEX / GOLDENROD CONCRETE BATCH PLANT	FLG110401	Concrete Batch GP	CONCRETE MIX WASHOUT WASTEWATER DISPOSAL		0.003									
TENNECO 087-08	FLG910898	Petroleum Cleanup GP (long term)												

Table G.1 (continued)

Facility Name	Facility Permit Number	Facility Type*	Summary of Treatment Process	Permit Monitoring Conditions									Latitude	Longitude
				Surface Water Discharge	Flow	Nitrogen	Phosphorus	Dissolved Oxygen	Oxygen Demand	Suspended Solids	pH	Specific. Conductance		
Lake Monroe Planning Unit														
FPL SANFORD POWER PLANT	FL0001554	Industrial Wastewater	ON-CONTACT COOLING H20 & BOILER BLOWDWD W/ NO TREATMENT DISCH TO ST JOHNS RIVER. METAL CLEANING WASTES, ETC. REC SECONDARY TREATMENT AND DISCHARGED TO POND.	180	180	X					X	X		
SANFORD/NORTH	FL0020141	Domestic WWTP	C.M./A.S. STP W/REUSE IRRIGATION AND WET WEATHER DISCHARGE TO LAKE MONROE	1.0	7.3	X	X	X	X	X	X	X	28°48' 57.16"	81°16' 42.01"
AMOCO SERVICE STATION # 2093	FLG040038	Petroleum Cleanup GP (long term)												
CEMEX / SANFORD CONCRETE BATCH PLANT	FLG110320	Concrete Batch GP	SETTLING AND REUSE FOR STRONG SETTLING AND PERCOLATION FOR WEAK		0.046									
INLAND MATERIALS / DELTONA CONCRETE BATCH PLANT	FLG110324	Concrete Batch GP	SETTLING AGGREGATE RECOVERY, PERCOLATION AND REUSE	0.004	0.004									
DELAND / WILEY NASH	FL0020303	Domestic WWTP	CAROUSEL ACTIVATED SLUDGE STP/FILTERS PUBLIC REUSE & DISCH TO ST JOHNS RIVER	4.0	6.0	X	X	X	X	X	X	X	29°0' 36.38"	81°17' 54.28"

Table G.1 (continued)

Facility Name	Facility Permit Number	Facility Type*	Summary of Treatment Process	Permit Monitoring Conditions									Latitude	Longitude
				Surface Water Discharge	Flow	Nitrogen	Phosphorus	Dissolved Oxygen	Oxygen Demand	Suspended Solids	pH	Specific. Conductance		
Lake Jesup Planning Unit														
SPRAGUE ELECTRONICS GROUNDWATER REMEDIATION	FL0171565	Industrial Wastewater	AERATION, PH ADJUSTMENT, FILTRATION	0.028	0.028	X			X			X		
INLAND MATERIALS / CASSELBERRY CONCRETE BATCH PLANT	FLG110153	Concrete Batch GP	CONCRETE UNIT TRUCK WASHOUT WASTEWATER DISPOSAL SYSTEM	0.002	0.002									
FLORIDA ROCK / OVIEDO CONCRETE BATCH PLANT	FLG110242	Concrete Batch GP	SETTLING, REUSE		0.002									
CIRCLE K STORE #7460	FLG911191	Petroleum Cleanup GP (long term)												
Lake Woodruff Planning Unit														
DELAND / WILEY NASH	FL0020303	Domestic WWTP	CAROUSEL ACTIVATED SLUDGE STP/FILTERS PUBLIC REUSE & DISCH TO ST JOHNS RIVER	4.0	6.0	X	X	X	X	X	X	X		
Wekiva River Planning Unit														
ALTAMONTE SPRINGS/ SWOFFORD	FL0033251	Domestic WWTP	AWT FACILITY WITH DISCHARGE TO LITTLE WEKIVA RIVER & "APRICOT - REUSE"	12.5	12.5	X	X	X	X	X	X	X	28°38' 32.08"	81°23' 55.57"
WEKIVA HUNT CLUB	FL0036251	Domestic WWTP	3 PARALLEL C.S. STPs W/ FILERTS/AWT W/ DISCHARGE TO SWEETWATER CREEK	2.9	2.9	X	X	X	X	X	X	X	28°41' 49.73	81°26' 1.05"
SEMINOLE COUNTY ENVIRONMENTALSERVICES / NORTHWEST REGIONAL	FL0042625	Domestic WWTP	MODIFIED BARDENPHO/STP CHEM FLOCCULAT, FILTRATION, EFF TO 11 RIBS	2.5	2.5	X	X	X	X	X	X	X	28°49' 33.07"	81°23' 49.18"

Table G.1 (continued)

Facility Name	Facility Permit Number	Facility Type *	Summary of Treatment Process	Permit Monitoring Conditions									Latitude	Longitude
				Permitted Surface Water Discharge (mgd)	Flow	Nitrogen	Phosphorus	Dissolved Oxygen	Oxygen Demand	Suspended Solids	pH	Specific. Conductance		
EWELL / WINTER GARDEN	FLG110077	Concrete Batch GP	SETTLING, RECLAMATION AND REUSE OF PROCESS WASTEWATER. DURING LARGE RAINFALL EVENTS AND WHEN THE PLANT IS NOT OPERATING EXCESS RAINWATER WILL BYPASS THE SYSTEM AND FLOW TO THE STORMWATER TREATMENT PONDS. (TYPE I WW TREATMENT)											
FLORIDA ROCK / CARDER ROAD CONCRETE BATCH PLANT	FLG110301	Concrete Batch GP	SETTLING, RECLAMATION AND REUSE OF PROCESS WASTEWATER (STRONGWASTE) NONPROCESS WASTEWATER DISCHARGED TO PERCOLATION POND AND FROM THERE THRU OUTFALL 001 TO CLASS III SURFACE WATER DURING WET WEATHER	0.005	0.005									
IDEAL STORE #108	FLG911022	Petroleum Cleanup GP (long term)	AERATION FOLLOWED BY ACTIVATED CARBON ADSORPTION											

• GP means General Permit.
** X indicates that a facility monitors for this parameter.

Table G.2: Permitted Wastewater Treatment Facilities in the Middle St. Johns Basin

Name	City	Facility Type	Status	NPDES	Design Cap (mgd)
Alexander Springs Creek Planning Unit					
SPRING CREEK ELEM SCHOOL	PAISLEY	DW	A	N	0.0090
ALEXANDER SPRINGS RECREATIONAL AREA	ASTOR PARK	DW	A	N	0.0096
COUNTRY SQUIRE MHV	PAISLEY	DW	A	N	0.0240
U.S. NAVAL TRACKING STATION STP	ASTOR	DW	A	N	0.0090
Deep Creek Planning Unit					
GENEVA ELEMENTARY SCHOOL WWTF	GENEVA	DW	A	N	0.0100
VCUD/SOUTHWEST BARN/EQUIPMENT & TRUCK WASH RECYCLE SYSTEM	OSTEEN	IW	A	N	
QUALITY INN/DELAND	DELAND	DW	A	N	0.0200
LAKE ASHBY MHP	NEW SMYRNA BEACH	DW	A	N	0.0085
CYPRESS POINT WWTF (GOLF & RV CAMPGD)	OSTEEN	DW	A	N	0.0086
LAKE HELEN VILLA	LAKE HELEN	DW	A	N	0.0320
AMERICAN BIOCLEAN RMF	SAMSULA	DW	A	N	0.0500
Econlockhatchee River Planning Unit					
TARMAC/BITHLO CONCRETE BATCH PLANT	BITHLO	IW	A	N	0.0200
AMOCO OIL STATION #60558/CAR WASH RECYCLE SYSTEM	ORLANDO	IW	A	N	
ORLANDO/IRON BRIDGE WPCF	OVIEDO	DW	A	Y	40.0000
ALAFAYA UTILITY	OVIEDO	DW	A	N	1.1000
CHULUOTA	CHULUOTA	DW	A	N	0.1000
PALM VALLEY MHP	OVIEDO	DW	A	N	0.1260
COLUMBIA ELEM SCHOOL	BITHLO	DW	A	N	0.0075
VILLAGE MARKETPLACE	ORLANDO	DW	A	N	0.0042
WINTER PARK ESTATES	WINTER PARK	DW	A	N	0.6150
CITY INDUSTRIES SUPERFUND/GW REMEDIATION TREATMENT PLANT	WINTER PARK	IW	A	Y	
AB CONCRETE	ORLANDO	CBP	A	Y	
FLORIDA ROCK/EAST ORLANDO	ORLANDO	CBP	A	Y	
ORANGE COUNTY UTILITIES DIVISION /EASTERLY SUBREGIONAL STP	ORLANDO	DW	A	Y	11.200
CHENEY ELEM SCHOOL	ORLANDO	DW	A	N	0.0120
RINKER MATERIALS/WINTER PARK CONCRETE BATCH PLANT	WINTER PARK	IW	A	N	
FAIRWAYS COUNTRY CLUB	ORLANDO	DW	A	N	0.1500
CEMEX/GOLDENROD CONCRETE BATCH PLANT	ORLANDO	CBP	A	Y	

Table G.2 (continued)

Name	City	Facility Type	Status	NPDES	Design Cap (mgd)
Econlockhatchee River Planning Unit (continued)					
BIG ECON MOBILE HOME PARK WWTF	ORLANDO	DW	A	N	0.0150
LAKE DOWNEY MHP	ORLANDO	DW	A	N	0.0150
HOLIDAY ACRES TRAILER PARK	BITHLO	DW	A	N	0.0093
CURTIS STANTON ENERGY CENTER, STP	ORLANDO	DW	A	N	0.0340
PARK MANOR ESTATES	ORLANDO	DW	A	Y	0.3500
PINE ISLE MHP	ORLANDO	DW	A	N	0.0100
PINEWOOD MHP	ORLANDO	DW	A	N	0.0050
WEDGEFIELD S/D WWTF	ORLANDO	DW	A	N	0.3680
REXAM GROUNDWATER TREATMENT FACILITY	ORLANDO	IW	A	Y	0.0720
CLEAN ARENA CAR WASH RECYCLE SYSTEM	ORLANDO	IW	A	N	0.0010
MCINERNEY FORD VEHICLE WASH RECYCLE SYSTEM	ORLANDO	IW	T	N	0.0009
OCUD/UNIVERSITY SHORES	ORLANDO	DW	A	N	1.2750
GULFSTREAM HARBOR MHP	ORLANDO	DW	A	N	0.1000
STARLIGHT RANCH MHP	ORLANDO	DW	A	N	0.1200
TENNECO 087-08	WINTER PARK	PET	A	Y	
BOBCAT OF ORLANDO/EQUIPMENT WASH RECYCLE SYSTEM	ORLANDO	IW	A	N	0.0100
ROGER HOLLER CLASSIC NISSAN	ORLANDO	IW	A	N	
UNIVERSITY VILLAGE MOBILE HOME PARK	ORLANDO	DW	A	N	0.0400
Lake George Planning Unit					
TAYLOR JR-SR HIGH SCHOOL	PIERSON	DW	A	N	0.0250
PINE ISLAND FISHING RESORT STP	LAKE GEORGE	DW	A	N	0.0080
VCUD/PINE ISLAND	SEVILLE	DW	A	N	0.0150
ST JOHNS RIVER CAMPGROUND	ASTOR	DW	A	N	0.0075
BLAIRS JUNGLE DEN	ASTOR	DW	A	N	0.0300
WELAKA WWTF	WELAKA	DW	A	N	0.0990
RIVER PARK UTILITIES WWTF	FRUITLAND	DW	A	N	0.0250
SHANNON CAR WASH	ASTOR PARK	IW	A	N	0.0049
HOLIDAY HAVEN	ASTOR	DW	A	N	0.0250
WILDWOODS CAMPGROUND	ASTOR PARK	DW	A	N	0.0075
PIERSON LAUNDROMAT	PIERSON	IW	A	N	0.0043
JUNGLE DEN	ASTOR	DW	A	N	0.0210

Table G.2 (continued)

Name	City	Facility Type	Status	NPDES	Design Cap (mgd)
Lake George Planning Unit (continued)					
PARRAMORE'S CAMPGROUND	ASTOR	DW	A	N	0.0120
ANGLERS PARADISE LODGE	WELAKA	DW	C	N	0.0100
Lake Jesup Planning Unit					
OVIEDO HIGH SCHOOL WWTF	OVIEDO	DW	A	N	0.0650
JACKSON HEIGHTS MIDDLE SCHOOL WWTF	OVIEDO	DW	A	N	0.0150
CASSELBERRY WWTF	CASSELBERRY	DW	A	N	1.4000
WINTER SPRINGS/WEST	WINTER SPRINGS	DW	A	N	1.5460
WINTER SPRINGS/EAST	WINTER SPRINGS	DW	A	N	2.0120
SEMINOLE GREYHOUND PARK STP (CD)	CASSELBERRY	DW	A	N	0.0250
OVIEDO INN (DBA TOUCAN WILLY'S RESTAURANT)	OVIEDO	DW	A	N	0.0076
FLORIDA CENTRAL COMMERCE PARK	LONGWOOD	DW	A	N	0.0950
SCES/GREENWOOD LAKES	LAKE MARY	DW	A	N	3.5000
TARMAC/LONGWOOD CONCRETE BATCH PLANT	LONGWOOD	IW	A	N	
FLORIDA ROCK/OVIEDO CONCRETE BATCH PLANT	OVIEDO	CBP	A	Y	
SHADOW HILLS WWTF	LONGWOOD	DW	A	N	0.5000
INLAND MATERIALS/CASSELBERRY CONCRETE BATCH PLANT	CASSELBERRY	CBP	A	Y	
CIRCLE K STORE #7460	LONGWOOD	PET	A	Y	
METALADE METAL WASH RECYCLE SYSTEM (FORMERLY DATAMAX)	SANFORD	IW	A	N	0.0200
SPRAGUE ELECTRONICS GROUND WATER REMEDIATION	LONGWOOD	IW	A	Y	0.0280
SUN-TECH WINDOWS INC.	SANFORD	IW	N	N	
DOT/OVIEDO MAINTENANCE YD	OVIEDO	IW	A	N	
EWELL INDUSTRIES/WINTER SPRINGS CONCRETE BATCH PLANT	LONGWOOD	IW	A	N	0.0090
SPRING HAMMOCK PARK	LONGWOOD	DW	A	N	0.0100
SCSB MAINTENANCE CONTAINMENT SYSTEM	WINTER SPRINGS	IW	A	N	0.0010
Lake Kerr Planning Unit					
JUNIPER SPRINGS RECREATIONAL AREA	SILVER SPRINGS	DW	A	N	0.0190
FOUNTAIN CENTER WWTF	SALT SPRINGS	DW	A	N	0.0028
SALT SPRINGS	SALT SPRINGS	DW	A	N	0.0850
Lake Monroe Planning Unit					
SANFORD/NORTH	SANFORD	DW	A	Y	7.3000

Table G.2 (continued)

Name	City	Facility Type	Status	NPDES	Design Cap (mgd)
Lake Monroe Planning Unit (continued)					
SIEMENS	LAKE MARY	DW	A	N	0.0350
RINKER MATERIALS/SANFORD CONCRETE BATCH PLANT	SANFORD	IW	A	N	
TWELVE OAKS RV RESORT (SW)	SANFORD	DW	A	N	0.0250
TOWN & COUNTRY RV RESORT	LAKE MONROE	DW	A	N	0.0300
CEMEX/SANFORD CONCRETE BATCH PLANT	SANFORD	CBP	A	Y	
VCUD/DELTONA NORTH	DELTONA	DW	A	N	1.2000
SUNRISE ELEMENTARY SCHOOL	DELTONA	DW	A	N	0.0210
INLAND MATERIALS/DELTONA CONCRETE BATCH PLANT	DELTONA	CBP	A	Y	
DELTONA LAKES	DELTONA	DW	A	N	1.4000
FPL SANFORD POWER PLANT	SANFORD	IW	A	Y	
PARADISE LAKES CAMPGROUND	DELTONA	DW	A	N	0.0150
KOVE ESTATES	OSTEEN	DW	A	N	0.0320
DELTONA CAR WASH	DELTONA	IW	N	N	0.0010
VCUD/MEADOWLEA ON THE RIVER	DEBARY	DW	A	N	0.0430
VOLUSIA PINES ELEM SCHOOL "T"	LAKE HELEN	DW	A	N	0.0100
AMOCO SERVICE STATION # 2093	SANFORD	PET	A	Y	
WINN DIXIE MARKETPLACE/DELTONA	DELTONA	DW	A	N	0.0200
SEMINOLE PRECAST RECYCLE SYSTEM	DEBARY	IW	A	N	
LAKE MONROE RMF	SANFORD	DW	A	N	0.0500
EWELL INDUSTRIES/ORANGE CITY CONCRETE BATCH PLANT	ORANGE CITY	IW	A	N	
STONE ISLAND WWTF	ENTERPRISE	DW	A	N	0.0060
VCUD/OSTEEN ELEMENTARY SCHOOL	OSTEEN	DW	A	N	0.0125
Lake Woodruff Planning Unit					
VCUD/FOUR TOWNES	ORANGE CITY	DW	A	N	0.3000
VCUD/SOUTHWEST REGIONAL	DEBARY	DW	A	N	0.5440
DELAND/WILEY NASH	DELAND	DW	A	Y	7.3700
RINKER MATERIALS/DELAND CONCRETE BATCH PLANT	DELAND	IW	A	N	0.0016
HIGHBANKS MARINA & CAMP RESORT	DEBARY	DW	A	N	0.0240
T.G. LEE FOODS/LIFESTYLE DIVISION	DELAND	IW	A	N	0.0690
SPARTON ELECTRONICS STP	DELEON SPRINGS	DW	A	N	0.0120
HIDDEN VALLEY MHP	DELEON SPRINGS	DW	A	N	0.0300

Table G.2 (continued)

Name	City	Facility Type	Status	NPDES	Design Cap (mgd)
Lake Woodruff Planning Unit (continued)					
ARLINGTON SQUARE APARTMENTS	DELAND	DW	A	N	0.0060
LAKEVIEW TERRACE MHP	DELAND	DW	A	N	0.0100
LINGERING LANE MHP	DELAND	DW	A	N	0.0150
ORANGE CITY COMFORT INN	ORANGE CITY	DW	A	N	0.0100
HOLLY BLUFF MARINA	DELAND	DW	A	N	0.0100
DUVALL HOME FOR RETARDED CHILDREN	GLENWOOD	DW	A	N	0.0600
SUNNY SANDS RESORT	PIERSON	DW	A	N	0.0100
LAND-O-LAKES MHC	ORANGE CITY	DW	A	N	0.0270
DAYS INN OF ORANGE CITY	ORANGE CITY	DW	A	N	0.0040
1876 HERITAGE INN	ORANGE CITY	DW	A	N	0.0100
FLORIDA POWER CORP DEBARY	DEBARY	IW	A	N	0.4200
ST JOHNS RIVER CLUB CONDO ASSOCIATION	DELAND	DW	A	N	0.0060
CANDLELIGHT MHP	ORANGE CITY	DW	A	N	0.0270
TRADERS COVE MHP	DEBARY	DW	A	N	0.0200
HONTOON ISLAND STATE PARK	DELAND	DW	A	N	0.0050
BLUE SPRING STATE PARK	ORANGE CITY	DW	A	N	0.0240
MCINNIS ELEM SCHOOL	DE LEON SPRINGS	DW	A	N	0.0100
VCUD/NORTHWEST BARN EQUIPMENT & TRUCK WASH RECYCLE SYSTEM	DELAND	IW	A	N	
EAGLES NEST S/D	ASTOR	DW	A	N	0.0100
DEERHAVEN CAMPGROUND	PAISLEY	DW	A	N	0.0250
POWELLS CAMPGROUND	ASTOR	DW	A	N	0.0120
DELEON LAUNDRY AND CAR WASH	DELEON SPRINGS	IW	A	N	0.0047
TARMAC/DELAND CONCRETE BATCH PLANT	DELAND	IW	A	N	
TROPICAL APARTMENTS & MARINA	DELAND	DW	A	N	0.0030
ICED OUT AUTO DETAILING	DELAND	IW	N	N	
DELAND/ORANGE CITY KOA CAMPGROUND	ORANGE CITY	DW	A	N	0.0150
Wekiva River Planning Unit					
EXXON STATION 4-0049/CAR WASH RECYCLE SYSTEM	ORLANDO	IW	A	N	
INLAND MATERIALS/ORANGE COUNTY CONCRETE BATCH PLANT	ORLANDO	IW	A	N	
SUNSHINE MATERIALS/LOCKHART (CBS BUILDERS)	LOCKHART	IW	A	N	
BRIGHTWOOD MANOR MHP	APOPKA	DW	A	N	0.0800

Table G.2 (continued)

Name	City	Facility Type	Status	NPDES	Design Cap (mgd)
Wekiva River Planning Unit (continued)					
RINKER MATERIALS/LOCKHART CONCRETE BATCH PLANT	LOCKHART	IW	A	N	
WEKIWA SPRINGS ST PK #2/YOUTH CAMP	APOPKA	DW	A	N	0.0075
SCES/NORTHWEST REGIONAL	SANFORD	DW	A	Y	2.5000
WOODLANDS (DES PINAR)	LONGWOOD	DW	A	N	0.5000
WEKIVA HUNT CLUB	LONGWOOD	DW	A	Y	2.9000
FOREST LAKE ELEMENTARY SCHOOL WWTF	LONGWOOD	DW	A	N	0.0100
SHINERS CAR WASH RECYCLE SYSTEM/WEST 436	ALTAMONTE SPRINGS	IW	A	N	
WEKIWA SPRINGS ST PK #1/MAIN AREA	APOPKA	DW	A	N	0.0200
MAITLAND CENTER COOLING TOWER	MAITLAND	IW	N	N	
MASSEY CADILLAC	ORLANDO	IW	A	N	
REED NISSAN/KIA CAR WASH RECYCLE	ORLANDO	IW	A	N	
ALTAMONTE SPRINGS/SWOFFORD	ALTAMONTE SPRINGS	DW	A	Y	12.5000
BOGGY CREEK GANG CAMP	EUSTIS	DW	A	N	0.0300
ROCK SPRINGS MHP	APOPKA	DW	A	N	0.1500
ZELLWOOD STATION MHP	ZELLWOOD	DW	A	N	0.3000
OCPUD/KELLY PARK	APOPKA	DW	A	N	0.0300
MAGNOLIA MOBILE HOME PARK	ORLANDO	DW	A	N	0.0150
IDEAL STORE #108	FOREST CITY	PET	A	Y	
WEKIVA FALLS RESORT	SORRENTO	DW	A	N	0.0990
CENTRAL FLORIDA BIBLE CAMP STP	EUSTIS	DW	A	N	0.0990
CAMP CHALLENGE STP	SORRENTO	DW	A	N	0.0170
LAKEVIEW TERRACE	ALTOONA	DW	A	N	0.0800
OAK SPRINGS MHP	SORRENTO	DW	A	N	0.1500
CAMP LA NO CHE	PAISLEY	DW	A	N	0.0260
CLARCONA ELEM SCHOOL	APOPKA	DW	A	N	0.0125
RIVERSIDE ELEMENTARY SCHOOL	ORLANDO	DW	A	N	
OCOEE, CITY OF	OCOEE	DW	A	N	3.0000
APOPKA WRF/PROJECT ARROW	APOPKA	DW	A	N	4.0000
CHALET NORTH MHP	APOPKA	DW	A	N	0.0950
LOST LAKE RV RESORT (FORMERLY APOPKA CLARCONA CAMPGRND	APOPKA	DW	A	N	0.0090
AUDUBON VILLAGE MHP	ORLANDO	DW	A	N	0.0490

Table G.2 (continued)

Name	City	Facility Type	Status	NPDES	Design Cap (mgd)
Wekiva River Planning Unit (continued)					
COUNTRY RUN S/D	ORLANDO	DW	A	N	0.0429
CLARCONA RESORT CONDO	APOPKA	DW	A	N	0.0800
GROVES MHP	ORLANDO	DW	A	N	0.0700
SILVER STAR VILLAGE MHC	ORLANDO	DW	A	N	0.0550
FINFROCK INDUSTRIES PRECAST CONCRETE PRODUCTS	APOPKA	IW	A	N	
BENNETT TRUCK EQUIPMENT WASH RECYCLE SYSTEM	ORLANDO	IW	A	N	0.0000
PRO CAR CARE	ORLANDO	IW	A	N	
ROCK SPRINGS ELEM SCHOOL	APOPKA	DW	A	N	0.0050
HILLCREST MHP	ORLANDO	DW	A	N	0.0050
LAKE FAIRVIEW MANOR	ORLANDO	DW	A	N	0.0060
EUSTIS SAND COMPANY	EUSTIS, NE OF	IW	A	N	
SORRENTO(ROUND LAKE) ELEM "A"	SORRENTO	DW	A	N	0.0120
AFFORDABLE AUTOMOTIVE/CAR WASH RECYCLE SYSTEM	ORLANDO	IW	A	N	
SEMINOLE SPRINGS ELEMENTARY SCHOOL WWTF	EUSTIS	DW	A	N	0.0090
FAIRWAYS @ MT PLYMOUTH	MT PLYMOUTH	DW	A	N	0.0750
FLORIDA ROCK/CARDER ROAD CONCRETE BATCH PLANT	ORLANDO	CBP	A	Y	
KEENE ROAD LANDFILL EQUIPMENT WASH RECYCLE SYSTEM	APOPKA	IW	A	N	0.0100
OCPS/NORTHWEST TRANSPORTATION RECYCLE SYSTEM	ORLANDO	IW	A	N	0.0014
NORTRAX EQUIPMENT (NEFF TRUCK WASH)	ORLANDO	IW	A	N	
RELIABLE CONSTRUCTORS INC	SORRENTO	IW	A	N	
441 MOBILE HOME PARK	ORLANDO	DW	A	N	0.0075
SORRENTO COIN LAUNDRY	SORRENTO	IW	A	N	0.0085
EDGEWOOD CHILDRENS RANCH	ORLANDO	DW	A	N	0.0150
PARK RIDGE VILLAS	GOTHA	DW	A	N	0.0050
EWELL/WINTER GARDEN	WINTER GARDEN	CBP	A	Y	

Appendix H: Land Use in the Middle St. Johns Basin

Table H.1: Detailed Land Use Description for the Middle St. Johns Basin

LEVEL3	ATTRIBUTE	ACRES	SQ MILES	PERCENTAGE
1100	Residential, low density - less than 2 dwelling units/acre	72877.7156	113.8719	5.5893
1200	Residential, medium density - 2-5 dwelling units/acre	94682.0383	147.9413	7.2616
1300	Residential, high density - 6 or more dwelling units/acre	25896.4762	40.4634	1.9861
1400	Commercial and services	16612.5880	25.9573	1.2741
1460	Oil & gas storage (except areas assoc. with industrial)	151.3456	0.2365	0.0116
1480	Cemeteries	492.0448	0.7688	0.0377
1500	Industrial	7.2225	0.0113	0.0006
1510	Food processing	44.1150	0.0689	0.0034
1520	Timber processing	2.6734	0.0042	0.0002
1550	Other light industrial	4685.8683	7.3217	0.3594
1560	Other heavy industrial	273.1149	0.4267	0.0209
1600	Extractive	399.0740	0.6236	0.0306
1610	Strip mines	11.9391	0.0187	0.0009
1611	Clays	542.2223	0.8472	0.0416
1620	Sand & gravel pits (must be active)	357.5899	0.5587	0.0274
1630	Rock quarries	39.4838	0.0617	0.0030
1633	Phosphates	141.6944	0.2214	0.0109
1650	Reclaimed lands	49.4424	0.0773	0.0038
1670	Abandoned lands	81.4360	0.1272	0.0062
1700	Institutional	6412.5352	10.0196	0.4918
1730	Military	51.9947	0.0812	0.0040
1750	Governmental - (Use 1700 for city halls, courthouses, police stations, office buildings, post offices)	43.0463	0.0673	0.0033
1800	Recreational	1743.8520	2.7248	0.1337
1810	Swimming beach	6.2706	0.0098	0.0005
1820	Golf courses	4545.2436	7.1020	0.3486
1830	Race tracks	513.2186	0.8019	0.0394
1840	Marinas & fish camps	217.7332	0.3402	0.0167
1850	Parks and zoos	494.8658	0.7732	0.0380
1870	Stadiums - facilities not associated with high schools, colleges, or universities	72.9960	0.1141	0.0056
1900	Open land	4111.8683	6.4248	0.3154
1920	Inactive land with street pattern but no structures	12860.2389	20.0942	0.9863
2110	Improved pastures (monocult, planted forage crops)	47553.4914	74.3026	3.6471
2120	Unimproved pastures	6564.8150	10.2576	0.5035
2130	Woodland pastures	3232.8044	5.0513	0.2479
2140	Row crops	1614.5979	2.5228	0.1238
2150	Field crops	21477.2352	33.5583	1.6472
2160	Mixed crop - used if crop type cannot be determined	845.2329	1.3207	0.0648
2200	Tree crops	258.8196	0.4044	0.0199
2210	Citrus groves	9652.5798	15.0822	0.7403
2240	Abandoned tree crops	7176.1329	11.2128	0.5504

Table H.1 (continued)

LEVEL3	ATTRIBUTE	ACRES	SQ MILES	PERCENTAGE
2310	Cattle feeding operations	246.4299	0.3850	0.0189
2320	Poultry feeding operations	265.2269	0.4144	0.0203
2400	Nurseries and vineyards	58.0239	0.0907	0.0045
2410	Tree nurseries	284.9914	0.4453	0.0219
2430	Ornamentals	3525.5959	5.5088	0.2704
2431	Shade ferns	4386.0066	6.8532	0.3364
2432	Hammock ferns	3909.8022	6.1091	0.2999
2450	Floriculture	43.9518	0.0687	0.0034
2500	Specialty farms	30.5844	0.0478	0.0023
2510	Horse farms	1978.3238	3.0911	0.1517
2540	Aquaculture	197.4683	0.3085	0.0151
2600	Other open lands - rural	37.9376	0.0593	0.0029
2610	Fallow cropland	1984.1047	3.1002	0.1522
3100	Herbaceous range	19646.9644	30.6985	1.5068
3200	Shrub and brushland (wax myrtle or saw palmetto, occasionally scrub oak)	29454.3628	46.0226	2.2590
3300	Mixed rangeland	10952.8132	17.1138	0.8400
4110	Pine flatwoods	112819.6843	176.2815	8.6527
4120	Longleaf pine - xeric oak	12923.5893	20.1932	0.9912
4130	Sand pine	25650.7142	40.0794	1.9673
4200	Upland hardwood forests	2043.5961	3.1931	0.1567
4210	Xeric oak	3448.5905	5.3884	0.2645
4300	Upland mixed forest	24.6781	0.0386	0.0019
4340	Upland mixed coniferous/hardwood	63094.4192	98.5854	4.8390
4370	Australian pine	74.0948	0.1158	0.0057
4410	Coniferous pine	127657.7628	199.4661	9.7907
4430	Forest regeneration	72008.7195	112.5141	5.5227
5100	Streams and waterways	8517.2094	13.3082	0.6532
5200	Lakes	111552.5763	174.3016	8.5555
5300	Reservoirs - pits, retention ponds, dams	3560.0422	5.5626	0.2730
5340	Reservoirs less than 10 acres	4464.2300	6.9754	0.3424
5400	Bays and estuaries	52.7712	0.0825	0.0040
5500	Major springs	230.0620	0.3595	0.0176
5600	Slough waters	64.5568	0.1009	0.0050
6110	Bay swamp (if distinct)	9667.7778	15.1060	0.7415
6150	River/lake swamp (bottomland, may include cypress)	49532.2278	77.3944	3.7989
6170	Mixed wetland hardwoods	8372.3742	13.0819	0.6421
6180	Cabbage palm savannah	64.0000	0.1000	0.0049
6200	Wetland coniferous forests	9593.1575	14.9894	0.7357
6210	Cypress (if distinct as in domes or pure stands)	14456.1963	22.5879	1.1087
6220	Depressional pine	415.9620	0.6499	0.0319
6300	Wetland forested mixed	133546.1847	208.6668	10.2423
6410	Freshwater marshes	43856.7955	68.5265	3.3636
6430	Wet prairies	7640.3779	11.9381	0.5860
6440	Emergent aquatic vegetation	3444.6090	5.3822	0.2642

Table H.1 (continued)

LEVEL3	ATTRIBUTE	ACRES	SQ MILES	PERCENTAGE
6460	Mixed scrub-shrub wetland	32357.4654	50.5587	2.4817
6500	Non-vegetated wetland	72.7221	0.1136	0.0056
7100	Beaches other than swimming beaches	9.5995	0.0150	0.0007
7200	Sand other than beaches	28.5557	0.0446	0.0022
7400	Disturbed land - use level II class. code for rural land in transition, fill areas, burned areas	564.1123	0.8814	0.0433
7410	Rural land in transition without positive indicators of intended activity	2663.2860	4.1614	0.2043
7420	Borrow areas - associated with nearby fill areas for construction	130.6564	0.2042	0.0100
7430	Spoil areas	408.5640	0.6384	0.0313
8110	Airports	1959.5710	3.0618	0.1503
8120	Railroads	113.3591	0.1771	0.0087
8140	Roads and highways (divided 4-lanes with medians)	6442.2046	10.0660	0.4941
8180	Auto parking facilities	7.4095	0.0116	0.0006
8191	Highways	128.3066	0.2005	0.0098
8200	Communications	338.6075	0.5291	0.0260
8310	Electrical power facilities	673.8725	1.0529	0.0517
8320	Electrical power transmission lines	3230.8398	5.0482	0.2478
8330	Water supply plants	178.2430	0.2785	0.0137
8340	Sewage treatment	811.9532	1.2687	0.0623
8350	Solid waste disposal	1171.9962	1.8313	0.0899

Table H.2: Alexander Springs Planning Unit Detailed Land Use Description

LEVEL3	ATTRIBUTE	ACRES	SQ MILES	PERCENTAGE
1100	Residential, low density - less than 2 dwelling units/acre	652.3640	1.0193	1.0199
1200	Residential, medium density - 2-5 dwelling units/acre	753.7234	1.1777	1.1783
1300	Residential, high density - 6 or more dwelling units/acre	28.1111	0.0439	0.0439
1400	Commercial and services	10.7946	0.0169	0.0169
1550	Other light industrial	79.4038	0.1241	0.1241
1700	Institutional	14.5032	0.0227	0.0227
1800	Recreational	106.9412	0.1671	0.1672
1840	Marinas & fish camps	9.3661	0.0146	0.0146
1920	Inactive land with street pattern but no structures	42.8799	0.0670	0.0670
2110	Improved pastures (monocult, planted forage crops)	196.3184	0.3067	0.3069
2130	Woodland pastures	4.1731	0.0065	0.0065
2150	Field crops	211.4658	0.3304	0.3306
2210	Citrus groves	20.9307	0.0327	0.0327
2240	Abandoned tree crops	53.7824	0.0840	0.0841
2310	Cattle feeding operations	155.3405	0.2427	0.2429
2431	Shade ferns	10.9430	0.0171	0.0171
3100	Herbaceous range	48.9748	0.0765	0.0766
3200	Shrub and brushland (wax myrtle or saw palmetto, occasionally scrub oak)	367.5242	0.5743	0.5746
3300	Mixed rangeland	66.2928	0.1036	0.1036
4110	Pine flatwoods	6531.9979	10.2063	10.2118
4120	Longleaf pine - xeric oak	679.2909	1.0614	1.0620
4130	Sand pine	8798.5475	13.7478	13.7553
4200	Upland hardwood forests	10.3933	0.0162	0.0162
4340	Upland mixed coniferous/hardwood	1649.7339	2.5777	2.5791
4410	Coniferous pine	18997.2602	29.6833	29.6995
4430	Forest regeneration	12954.3052	20.2412	20.2522
5100	Streams and waterways	114.0392	0.1782	0.1783
5200	Lakes	2200.4274	3.4382	3.4400
5340	Reservoirs less than 10 acres	13.2481	0.0207	0.0207
5500	Major springs	2.2712	0.0035	0.0036
6110	Bay swamp (if distinct)	727.6272	1.1369	1.1375
6150	River/lake swamp (bottomland, may include cypress)	1267.9501	1.9812	1.9823
6170	Mixed wetland hardwoods	749.6276	1.1713	1.1719
6200	Wetland coniferous forests	458.5990	0.7166	0.7170
6210	Cypress (if distinct as in domes or pure stands)	1.6326	0.0026	0.0026
6220	Depressional pine	26.5983	0.0416	0.0416
6300	Wetland forested mixed	3700.2068	5.7816	5.7847
6410	Freshwater marshes	1029.2603	1.6082	1.6091
6430	Wet prairies	279.9078	0.4374	0.4376
6440	Emergent aquatic vegetation	84.4227	0.1319	0.1320
6460	Mixed scrub-shrub wetland	425.0083	0.6641	0.6644
6500	Non-vegetated wetland	37.4836	0.0586	0.0586
7400	Disturbed land - use level II class. code for rural land in transition, fill areas, burned areas	253.7238	0.3964	0.3967
7410	Rural land in transition without positive indicators of intended activity	5.7513	0.0090	0.0090
8320	Electrical power transmission lines	131.8632	0.2060	0.2061

Table H.3: Deep Creek Planning Unit Detailed Land Use Descriptions

LEVEL3	ATTRIBUTE	ACRES	SQ MILES	PERCENTAGE
1100	Residential, low density - less than 2 dwelling units/acre	10084.9587	15.7578	5.7478
1200	Residential, medium density - 2-5 dwelling units/acre	2033.5822	3.1775	1.1590
1300	Residential, high density - 6 or more dwelling units/acre	150.8209	0.2357	0.0860
1400	Commercial and services	98.0800	0.1533	0.0559
1480	Cemeteries	5.4112	0.0085	0.0031
1510	Food processing	9.9911	0.0156	0.0057
1550	Other light industrial	32.7247	0.0511	0.0187
1600	Extractive	54.2357	0.0847	0.0309
1620	Sand & gravel pits (must be active)	17.8979	0.0280	0.0102
1700	Institutional	127.6290	0.1994	0.0727
1750	Governmental - (Use 1700 for city halls, courthouses, police stations, office buildings, post offices)	15.5158	0.0242	0.0088
1800	Recreational	18.9715	0.0296	0.0108
1820	Golf courses	27.4231	0.0428	0.0156
1900	Open land	48.2252	0.0754	0.0275
1920	Inactive land with street pattern but no structures	835.1882	1.3050	0.4760
2110	Improved pastures (monocult, planted forage crops)	5003.7784	7.8184	2.8519
2120	Unimproved pastures	1666.0401	2.6032	0.9495
2130	Woodland pastures	350.6298	0.5479	0.1998
2140	Row crops	400.0164	0.6250	0.2280
2150	Field crops	5036.8803	7.8702	2.8707
2160	Mixed crop - used if crop type cannot be determined	759.5329	1.1868	0.4329
2210	Citrus groves	597.0834	0.9329	0.3403
2240	Abandoned tree crops	643.2028	1.0050	0.3666
2320	Poultry feeding operations	113.7709	0.1778	0.0648
2410	Tree nurseries	39.3246	0.0614	0.0224
2430	Ornamentals	88.8170	0.1388	0.0506
2432	Hammock ferns	2.3816	0.0037	0.0014
2500	Specialty farms	8.9887	0.0140	0.0051
2510	Horse farms	11.7315	0.0183	0.0067
2540	Aquaculture	3.2481	0.0051	0.0019
2610	Fallow cropland	847.6911	1.3245	0.4831
3100	Herbaceous range	1632.4618	2.5507	0.9304
3200	Shrub and brushland (wax myrtle or saw palmetto, occasionally scrub oak)	7001.7724	10.9403	3.9906
3300	Mixed rangeland	1887.4106	2.9491	1.0757
4110	Pine flatwoods	25707.4009	40.1680	14.6517
4120	Longleaf pine - xeric oak	228.1857	0.3565	0.1301
4130	Sand pine	217.9064	0.3405	0.1242
4200	Upland hardwood forests	37.2169	0.0582	0.0212
4210	Xeric oak	119.9720	0.1875	0.0684
4340	Upland mixed coniferous/hardwood	5648.3127	8.8255	3.2192
4370	Australian pine	74.0948	0.1158	0.0422
4410	Coniferous pine	18204.4256	28.4445	10.3754
4430	Forest regeneration	8665.8686	13.5405	4.9390

Table H.3 (continued)

LEVEL3	ATTRIBUTE	ACRES	SQ MILES	PERCENTAGE
5100	Streams and waterways	912.8483	1.4263	0.5203
5200	Lakes	9786.0003	15.2907	5.5774
5300	Reservoirs - pits, retention ponds, dams	310.2484	0.4848	0.1768
5340	Reservoirs less than 10 acres	314.2104	0.4910	0.1791
5600	Slough waters	57.5077	0.0899	0.0328
6110	Bay swamp (if distinct)	305.8508	0.4779	0.1743
6150	River/lake swamp (bottomland, may include cypress)	410.0881	0.6408	0.2337
6170	Mixed wetland hardwoods	1671.7817	2.6122	0.9528
6180	Cabbage palm savannah	64.0000	0.1000	0.0365
6200	Wetland coniferous forests	3240.9840	5.0641	1.8472
6210	Cypress (if distinct as in domes or pure stands)	7221.8779	11.2842	4.1160
6220	Depressional pine	30.9848	0.0484	0.0177
6300	Wetland forested mixed	31142.5477	48.6604	17.7494
6410	Freshwater marshes	5984.6929	9.3511	3.4109
6430	Wet prairies	1939.7629	3.0309	1.1055
6440	Emergent aquatic vegetation	377.5002	0.5898	0.2152
6460	Mixed scrub-shrub wetland	11194.8353	17.4920	6.3804
6500	Non-vegetated wetland	18.3775	0.0287	0.0105
7100	Beaches other than swimming beaches	7.9789	0.0125	0.0045
7200	Sand other than beaches	18.9571	0.0296	0.0108
7400	Disturbed land - use level II class. code for rural land in transition, fill areas, burned areas	2.6038	0.0041	0.0015
7410	Rural land in transition without positive indicators of intended activity	65.5872	0.1025	0.0374
7420	Borrow areas - associated with nearby fill areas for construction	62.2666	0.0973	0.0355
7430	Spoil areas	52.2562	0.0817	0.0298
8140	Roads and highways (divided 4-lanes with medians)	239.4235	0.3741	0.1365
8200	Communications	0.9230	0.0014	0.0005
8320	Electrical power transmission lines	970.6669	1.5167	0.5532
8330	Water supply plants	1.9653	0.0031	0.0011
8350	Solid waste disposal	491.7110	0.7683	0.2802

Table H.4: Econlockhatchee Planning Unit Detailed Land Use Description

LEVEL3	ATTRIBUTE	ACRES	SQ_MILES	PERCENTAGE
1100	Residential, low density - less than 2 dwelling units/acre	8247.1600	12.8862	4.7644
1200	Residential, medium density - 2-5 dwelling units/acre	11276.1509	17.6191	6.5142
1300	Residential, high density - 6 or more dwelling units/acre	11354.4324	17.7414	6.5594
1400	Commercial and services	2881.5882	4.5025	1.6647
1460	Oil & gas storage (except areas assoc. with industrial)	32.4558	0.0507	0.0187
1480	Cemeteries	110.8570	0.1732	0.0640
1550	Other light industrial	726.0960	1.1345	0.4195
1560	Other heavy industrial	87.2080	0.1363	0.0504
1600	Extractive	36.0292	0.0563	0.0208
1620	Sand & gravel pits (must be active)	144.1323	0.2252	0.0833
1700	Institutional	1720.5849	2.6884	0.9940
1730	Military	51.9947	0.0812	0.0300
1800	Recreational	182.4759	0.2851	0.1054
1820	Golf courses	1188.3891	1.8569	0.6865
1830	Race tracks	172.5964	0.2697	0.0997
1850	Parks and zoos	106.5700	0.1665	0.0616
1900	Open land	107.9668	0.1687	0.0624
1920	Inactive land with street pattern but no structures	4844.5429	7.5696	2.7987
2110	Improved pastures (monocult, planted forage crops)	12011.8746	18.7686	6.9392
2120	Unimproved pastures	2383.0782	3.7236	1.3767
2130	Woodland pastures	451.3745	0.7053	0.2608
2150	Field crops	4346.0707	6.7908	2.5107
2160	Mixed crop - used if crop type cannot be determined	8.6892	0.0136	0.0050
2200	Tree crops	5.4835	0.0086	0.0032
2210	Citrus groves	2257.8411	3.5279	1.3044
2240	Abandoned tree crops	205.8938	0.3217	0.1189
2310	Cattle feeding operations	14.9428	0.0233	0.0086
2320	Poultry feeding operations	3.9140	0.0061	0.0023
2400	Nurseries and vineyards	8.9597	0.0140	0.0052
2410	Tree nurseries	69.9311	0.1093	0.0404
2430	Ornamentals	67.3122	0.1052	0.0389
2510	Horse farms	59.1534	0.0924	0.0342
2600	Other open lands - rural	4.8857	0.0076	0.0028
2610	Fallow cropland	104.4343	0.1632	0.0603
3100	Herbaceous range	6896.8865	10.7764	3.9843
3200	Shrub and brushland (wax myrtle or saw palmetto, occasionally scrub oak)	9048.9423	14.1390	5.2276
3300	Mixed rangeland	2013.5990	3.1463	1.1633
4110	Pine flatwoods	26180.8054	40.9077	15.1246
4120	Longleaf pine - xeric oak	59.6872	0.0933	0.0345
4200	Upland hardwood forests	17.2208	0.0269	0.0099
4210	Xeric oak	256.1974	0.4003	0.1480
4340	Upland mixed coniferous/hardwood	5056.7270	7.9012	2.9213
4410	Coniferous pine	300.6978	0.4698	0.1737
4430	Forest regeneration	1059.2259	1.6550	0.6119

Table H.4 (continued)

LEVEL3	ATTRIBUTE	ACRES	SQ MILES	PERCENTAGE
5100	Streams and waterways	404.5774	0.6322	0.2337
5200	Lakes	3139.6569	4.9057	1.8138
5300	Reservoirs - pits, retention ponds, dams	992.1724	1.5503	0.5732
5340	Reservoirs less than 10 acres	1772.6723	2.7698	1.0241
6110	Bay swamp (if distinct)	855.2001	1.3363	0.4940
6150	River/lake swamp (bottomland, may include cypress)	647.4644	1.0117	0.3740
6170	Mixed wetland hardwoods	439.4970	0.6867	0.2539
6200	Wetland coniferous forests	1847.6345	2.8869	1.0674
6210	Cypress (if distinct as in domes or pure stands)	5842.3494	9.1287	3.3751
6220	Depressional pine	16.1264	0.0252	0.0093
6300	Wetland forested mixed	26012.5248	40.6447	15.0274
6410	Freshwater marshes	4268.9463	6.6703	2.4662
6430	Wet prairies	1123.3929	1.7553	0.6490
6440	Emergent aquatic vegetation	167.2414	0.2613	0.0966
6460	Mixed scrub-shrub wetland	3897.1973	6.0894	2.2514
6500	Non-vegetated wetland	0.0804	0.0001	0.0000
7400	Disturbed land - use level II class. code for rural land in transition, fill areas, burned areas	219.5017	0.3430	0.1268
7410	Rural land in transition without positive indicators of intended activity	398.6677	0.6229	0.2303
7430	Spoil areas	109.5018	0.1711	0.0633
8110	Airports	480.6401	0.7510	0.2777
8140	Roads and highways (divided 4-lanes with medians)	1988.4577	3.1070	1.1487
8200	Communications	28.3035	0.0442	0.0164
8310	Electrical power facilities	410.3423	0.6412	0.2371
8320	Electrical power transmission lines	789.0474	1.2329	0.4558
8330	Water supply plants	42.7639	0.0668	0.0247
8340	Sewage treatment	367.7087	0.5745	0.2124
8350	Solid waste disposal	673.8215	1.0529	0.3893

Table H.5: Lake George Planning Unit Detailed Land Use Descriptions

LEVEL3	ATTRIBUTE	ACRES	SQ MILES	PERCENTAGE
1100	Residential, low density - less than 2 dwelling units/acre	7417.5375	11.5899	4.6003
1200	Residential, medium density - 2-5 dwelling units/acre	1608.0079	2.5125	0.9973
1300	Residential, high density - 6 or more dwelling units/acre	62.6668	0.0979	0.0389
1400	Commercial and services	150.6452	0.2354	0.0934
1480	Cemeteries	3.2698	0.0051	0.0020
1550	Other light industrial	34.7253	0.0543	0.0215
1600	Extractive	6.8490	0.0107	0.0042
1611	Clays	44.9919	0.0703	0.0279
1620	Sand & gravel pits (must be active)	48.1734	0.0753	0.0299
1700	Institutional	99.2902	0.1551	0.0616
1800	Recreational	27.9576	0.0437	0.0173
1820	Golf courses	39.7561	0.0621	0.0247
1840	Marinas & fish camps	10.1144	0.0158	0.0063
1900	Open land	266.7150	0.4167	0.1654
1920	Inactive land with street pattern but no structures	1681.0129	2.6266	1.0425
2110	Improved pastures (monocult, planted forage crops)	3180.5942	4.9697	1.9726
2120	Unimproved pastures	92.3581	0.1443	0.0573
2130	Woodland pastures	207.8776	0.3248	0.1289
2140	Row crops	180.5384	0.2821	0.1120
2150	Field crops	600.2999	0.9380	0.3723
2200	Tree crops	40.8216	0.0638	0.0253
2210	Citrus groves	305.3622	0.4771	0.1894
2240	Abandoned tree crops	371.7674	0.5809	0.2306
2410	Tree nurseries	13.1525	0.0206	0.0082
2430	Ornamentals	33.2850	0.0520	0.0206
2431	Shade ferns	1609.0094	2.5141	0.9979
2432	Hammock ferns	1778.4380	2.7788	1.1030
2450	Floriculture	2.5824	0.0040	0.0016
2510	Horse farms	109.4212	0.1710	0.0679
2540	Aquaculture	149.4300	0.2335	0.0927
2610	Fallow cropland	37.9160	0.0592	0.0235
3100	Herbaceous range	1046.3656	1.6350	0.6489
3200	Shrub and brushland (wax myrtle or saw palmetto, occasionally scrub oak)	1660.5234	2.5946	1.0298
3300	Mixed rangeland	728.0120	1.1375	0.4515
4110	Pine flatwoods	11099.7933	17.3435	6.8840
4120	Longleaf pine - xeric oak	3827.7986	5.9810	2.3740
4130	Sand pine	255.2626	0.3988	0.1583
4200	Upland hardwood forests	143.1293	0.2236	0.0888
4210	Xeric oak	258.6432	0.4041	0.1604
4340	Upland mixed coniferous/hardwood	6735.8186	10.5248	4.1775
4410	Coniferous pine	19298.8544	30.1546	11.9689
4430	Forest regeneration	8000.8593	12.5014	4.9620

Table H.5 (continued)

LEVEL3	ATTRIBUTE	ACRES	SQ MILES	PERCENTAGE
5100	Streams and waterways	3574.9378	5.5859	2.2171
5200	Lakes	48951.1861	76.4865	30.3590
5300	Reservoirs - pits, retention ponds, dams	46.3739	0.0725	0.0288
5340	Reservoirs less than 10 acres	104.0691	0.1626	0.0645
5400	Bays and estuaries	47.3458	0.0740	0.0294
5500	Major springs	21.8882	0.0342	0.0136
6110	Bay swamp (if distinct)	1749.0484	2.7329	1.0847
6150	River/lake swamp (bottomland, may include cypress)	7549.0045	11.7954	4.6818
6170	Mixed wetland hardwoods	315.8797	0.4936	0.1959
6200	Wetland coniferous forests	1484.8298	2.3201	0.9209
6210	Cypress (if distinct as in domes or pure stands)	107.3946	0.1678	0.0666
6220	Depressional pine	62.8699	0.0982	0.0390
6300	Wetland forested mixed	17879.8971	27.9375	11.0889
6410	Freshwater marshes	2566.7417	4.0106	1.5919
6430	Wet prairies	191.2934	0.2989	0.1186
6440	Emergent aquatic vegetation	263.2744	0.4114	0.1633
6460	Mixed scrub-shrub wetland	2585.8929	4.0405	1.6037
6500	Non-vegetated wetland	0.8862	0.0014	0.0005
7200	Sand other than beaches	2.7308	0.0043	0.0017
7410	Rural land in transition without positive indicators of intended activity	310.4467	0.4851	0.1925
7420	Borrow areas - associated with nearby fill areas for construction	3.6582	0.0057	0.0023
7430	Spoil areas	25.5174	0.0399	0.0158
8110	Airports	66.5994	0.1041	0.0413
8310	Electrical power facilities	6.7793	0.0106	0.0042
8320	Electrical power transmission lines	50.8172	0.0794	0.0315
8340	Sewage treatment	2.2926	0.0036	0.0014

Table H.6: Lake Jesup Planning Unit Detailed Land Use Descriptions

LEVEL3	ATTRIBUTE	ACRES	SQ MILES	PERCENTAGE
1100	Residential, low density - less than 2 dwelling units/acre	6758.6299	10.5604	7.2851
1200	Residential, medium density - 2-5 dwelling units/acre	19375.9410	30.2750	20.8851
1300	Residential, high density - 6 or more dwelling units/acre	5764.0842	9.0064	6.2130
1400	Commercial and services	4876.6144	7.6197	5.2565
1480	Cemeteries	94.2250	0.1472	0.1016
1500	Industrial	7.2225	0.0113	0.0078
1510	Food processing	1.9971	0.0031	0.0022
1520	Timber processing	2.6734	0.0042	0.0029
1550	Other light industrial	1141.6768	1.7839	1.2306
1600	Extractive	37.4705	0.0585	0.0404
1620	Sand & gravel pits (must be active)	30.8771	0.0482	0.0333
1700	Institutional	1416.4844	2.2133	1.5268
1800	Recreational	356.8968	0.5577	0.3847
1820	Golf courses	720.6356	1.1260	0.7768
1830	Race tracks	187.0905	0.2923	0.2017
1850	Parks and zoos	129.1772	0.2018	0.1392
1870	Stadiums - facilities not associated with high schools, colleges, or universities	56.1372	0.0877	0.0605
1900	Open land	583.0003	0.9109	0.6284
1920	Inactive land with street pattern but no structures	511.0079	0.7985	0.5508
2110	Improved pastures (monocult, planted forage crops)	1058.1132	1.6533	1.1405
2120	Unimproved pastures	117.1558	0.1831	0.1263
2130	Woodland pastures	509.8159	0.7966	0.5495
2140	Row crops	449.6934	0.7026	0.4847
2150	Field crops	2080.8191	3.2513	2.2429
2160	Mixed crop - used if crop type cannot be determined	58.1346	0.0908	0.0627
2210	Citrus groves	1772.8247	2.7700	1.9109
2240	Abandoned tree crops	392.1410	0.6127	0.4227
2320	Poultry feeding operations	8.2587	0.0129	0.0089
2400	Nurseries and vineyards	6.0027	0.0094	0.0065
2410	Tree nurseries	40.1800	0.0628	0.0433
2430	Ornamentals	132.2833	0.2067	0.1426
2450	Floriculture	21.7707	0.0340	0.0235
2510	Horse farms	118.9680	0.1859	0.1282
2540	Aquaculture	31.0422	0.0485	0.0335
2610	Fallow cropland	453.0199	0.7078	0.4883
3100	Herbaceous range	834.4610	1.3039	0.8995
3200	Shrub and brushland (wax myrtle or saw palmetto, occasionally scrub oak)	707.2963	1.1052	0.7624
3300	Mixed rangeland	488.5421	0.7634	0.5266
4110	Pine flatwoods	1786.5321	2.7915	1.9257
4120	Longleaf pine - xeric oak	3.7221	0.0058	0.0040
4200	Upland hardwood forests	2.7383	0.0043	0.0030
4210	Xeric oak	46.9470	0.0734	0.0506
4340	Upland mixed coniferous/hardwood	4430.5611	6.9228	4.7757
4410	Coniferous pine	118.3527	0.1849	0.1276
4430	Forest regeneration	59.4467	0.0929	0.0641

Table H.6 (continued)

LEVEL3	ATTRIBUTE	ACRES	SQ MILES	PERCENTAGE
5100	Streams and waterways	9.9350	0.0155	0.0107
5200	Lakes	12385.8630	19.3530	13.3506
5300	Reservoirs - pits, retention ponds, dams	224.6169	0.3510	0.2421
5340	Reservoirs less than 10 acres	858.7784	1.3418	0.9257
6110	Bay swamp (if distinct)	61.9931	0.0969	0.0668
6150	River/lake swamp (bottomland, may include cypress)	1357.6236	2.1213	1.4634
6170	Mixed wetland hardwoods	1497.2166	2.3394	1.6138
6200	Wetland coniferous forests	258.7489	0.4043	0.2789
6210	Cypress (if distinct as in domes or pure stands)	1.6121	0.0025	0.0017
6220	Depressional pine	5.9988	0.0094	0.0065
6300	Wetland forested mixed	8816.8720	13.7764	9.5036
6410	Freshwater marshes	4341.6195	6.7838	4.6798
6430	Wet prairies	609.9488	0.9530	0.6575
6440	Emergent aquatic vegetation	148.5423	0.2321	0.1601
6460	Mixed scrub-shrub wetland	1032.9740	1.6140	1.1134
7400	Disturbed land - use level II class. code for rural land in transition, fill areas, burned areas	21.4580	0.0335	0.0231
7410	Rural land in transition without positive indicators of intended activity	254.8628	0.3982	0.2747
7430	Spoil areas	28.4553	0.0445	0.0307
8110	Airports	990.2868	1.5473	1.0674
8140	Roads and highways (divided 4-lanes with medians)	1463.1585	2.2862	1.5771
8191	Highways	115.1136	0.1799	0.1241
8200	Communications	1.3709	0.0021	0.0015
8310	Electrical power facilities	41.5784	0.0650	0.0448
8320	Electrical power transmission lines	252.2523	0.3941	0.2719
8330	Water supply plants	42.9187	0.0671	0.0463
8340	Sewage treatment	162.9178	0.2546	0.1756
8350	Solid waste disposal	6.4636	0.0101	0.0070

Table H.7: Lake Kerr Planning Unit Detailed Land Use Descriptions

LEVEL3	ATTRIBUTE	ACRES	SQ MILES	PERCENTAGE
1100	Residential, low density - less than 2 dwelling units/acre	1175.7377	1.8371	0.9758
1200	Residential, medium density - 2-5 dwelling units/acre	867.8767	1.3561	0.7203
1400	Commercial and services	18.1297	0.0283	0.0150
1550	Other light industrial	2.4316	0.0038	0.0020
1611	Clays	41.8595	0.0654	0.0347
1700	Institutional	18.7698	0.0293	0.0156
1750	Governmental - (Use 1700 for city halls, courthouses, police stations, office buildings, post offices)	8.3967	0.0131	0.0070
1800	Recreational	71.9970	0.1125	0.0598
1810	Swimming beach	6.2706	0.0098	0.0052
1840	Marinas & fish camps	31.4252	0.0491	0.0261
2120	Unimproved pastures	17.2967	0.0270	0.0144
2130	Woodland pastures	71.7595	0.1121	0.0596
2160	Mixed crop - used if crop type cannot be determined	18.8761	0.0295	0.0157
2200	Tree crops	47.4934	0.0742	0.0394
3100	Herbaceous range	49.1240	0.0768	0.0408
3200	Shrub and brushland (wax myrtle or saw palmetto, occasionally scrub oak)	459.9122	0.7186	0.3817
3300	Mixed rangeland	64.5662	0.1009	0.0536
4110	Pine flatwoods	13718.3666	21.4350	11.3855
4120	Longleaf pine - xeric oak	922.5207	1.4414	0.7656
4130	Sand pine	15.1432	0.0237	0.0126
4200	Upland hardwood forests	1122.7773	1.7543	0.9318
4340	Upland mixed coniferous/hardwood	8254.4299	12.8976	6.8507
4410	Coniferous pine	51300.6091	80.1575	42.5768
4430	Forest regeneration	26703.8673	41.7250	22.1628
5100	Streams and waterways	51.4511	0.0804	0.0427
5200	Lakes	4226.3989	6.6038	3.5077
5340	Reservoirs less than 10 acres	5.4384	0.0085	0.0045
5500	Major springs	205.9027	0.3217	0.1709
6110	Bay swamp (if distinct)	442.6347	0.6916	0.3674
6150	River/lake swamp (bottomland, may include cypress)	404.4717	0.6320	0.3357
6200	Wetland coniferous forests	310.9615	0.4859	0.2581
6220	Depressional pine	84.7254	0.1324	0.0703
6300	Wetland forested mixed	4985.8836	7.7905	4.1380
6410	Freshwater marshes	2240.8585	3.5014	1.8598
6430	Wet prairies	698.7199	1.0918	0.5799
6440	Emergent aquatic vegetation	193.3502	0.3021	0.1605
6460	Mixed scrub-shrub wetland	1575.1223	2.4611	1.3073
7100	Beaches other than swimming beaches	1.6207	0.0025	0.0013
7410	Rural land in transition without positive indicators of intended activity	1.8567	0.0029	0.0015
8200	Communications	2.4802	0.0039	0.0021
8310	Electrical power facilities	1.7679	0.0028	0.0015
8320	Electrical power transmission lines	46.3827	0.0725	0.0385

Table H.8: Lake Monroe Planning Unit Detailed Land Use Descriptions

LEVEL3	ATTRIBUTE	ACRES	SQ MILES	PERCENTAGE
1100	Residential, low density - less than 2 dwelling units/acre	7057.0037	11.0266	7.9333
1200	Residential, medium density - 2-5 dwelling units/acre	18557.8326	28.9967	20.8623
1300	Residential, high density - 6 or more dwelling units/acre	1612.2017	2.5191	1.8124
1400	Commercial and services	1308.6500	2.0448	1.4712
1460	Oil & gas storage (except areas assoc. with industrial)	2.4120	0.0038	0.0027
1480	Cemeteries	68.0406	0.1063	0.0765
1550	Other light industrial	521.1484	0.8143	0.5859
1600	Extractive	72.6937	0.1136	0.0817
1620	Sand & gravel pits (must be active)	61.7315	0.0965	0.0694
1630	Rock quarries	39.4838	0.0617	0.0444
1650	Reclaimed lands	37.7540	0.0590	0.0424
1700	Institutional	787.1978	1.2300	0.8849
1750	Governmental - (Use 1700 for city halls, courthouses, police stations, office buildings, post offices)	19.1339	0.0299	0.0215
1800	Recreational	143.9809	0.2250	0.1619
1820	Golf courses	603.6631	0.9432	0.6786
1840	Marinas & fish camps	67.6843	0.1058	0.0761
1850	Parks and zoos	46.4495	0.0726	0.0522
1900	Open land	252.4885	0.3945	0.2838
1920	Inactive land with street pattern but no structures	741.0709	1.1579	0.8331
2110	Improved pastures (monocult, planted forage crops)	1991.4793	3.1117	2.2388
2120	Unimproved pastures	245.2978	0.3833	0.2758
2130	Woodland pastures	196.9074	0.3077	0.2214
2140	Row crops	410.2557	0.6410	0.4612
2150	Field crops	2363.3404	3.6927	2.6568
2210	Citrus groves	337.8690	0.5279	0.3798
2240	Abandoned tree crops	745.4523	1.1648	0.8380
2310	Cattle feeding operations	8.2543	0.0129	0.0093
2320	Poultry feeding operations	32.3820	0.0506	0.0364
2410	Tree nurseries	35.4499	0.0554	0.0399
2430	Ornamentals	98.8599	0.1545	0.1111
2450	Floriculture	4.0711	0.0064	0.0046
2510	Horse farms	68.7589	0.1074	0.0773
2610	Fallow cropland	63.2408	0.0988	0.0711
3100	Herbaceous range	1012.3037	1.5817	1.1380
3200	Shrub and brushland (wax myrtle or saw palmetto, occasionally scrub oak)	1565.9833	2.4469	1.7604
3300	Mixed rangeland	331.3434	0.5177	0.3725
4110	Pine flatwoods	1951.3665	3.0490	2.1937
4120	Longleaf pine - xeric oak	213.8956	0.3342	0.2405
4130	Sand pine	3328.9766	5.2015	3.7424
4200	Upland hardwood forests	3.5648	0.0056	0.0040
4340	Upland mixed coniferous/hardwood	6726.2400	10.5098	7.5615
4410	Coniferous pine	305.6054	0.4775	0.3436
4430	Forest regeneration	117.4821	0.1836	0.1321

Table H.8 (continued)

LEVEL3	ATTRIBUTE	ACRES	SQ MILES	PERCENTAGE
5100	Streams and waterways	957.4404	1.4960	1.0763
5200	Lakes	12799.4353	19.9992	14.3888
5300	Reservoirs - pits, retention ponds, dams	1320.6589	2.0635	1.4847
5340	Reservoirs less than 10 acres	254.0297	0.3969	0.2856
5600	Slough waters	7.0491	0.0110	0.0079
6110	Bay swamp (if distinct)	33.2605	0.0520	0.0374
6150	River/lake swamp (bottomland, may include cypress)	445.8621	0.6967	0.5012
6170	Mixed wetland hardwoods	119.2943	0.1864	0.1341
6200	Wetland coniferous forests	377.9965	0.5906	0.4249
6210	Cypress (if distinct as in domes or pure stands)	592.4253	0.9257	0.6660
6220	Depressional pine	9.8060	0.0153	0.0110
6300	Wetland forested mixed	5822.0716	9.0970	6.5450
6410	Freshwater marshes	5923.9749	9.2562	6.6596
6430	Wet prairies	1058.5323	1.6540	1.1900
6440	Emergent aquatic vegetation	398.8291	0.6232	0.4484
6460	Mixed scrub-shrub wetland	2467.1348	3.8549	2.7735
7400	Disturbed land - use level II class. code for rural land in transition, fill areas, burned areas	65.3286	0.1021	0.0734
7410	Rural land in transition without positive indicators of intended activity	347.4377	0.5429	0.3906
7430	Spoil areas	170.7230	0.2668	0.1919
8110	Airports	386.1601	0.6034	0.4341
8120	Railroads	113.3591	0.1771	0.1274
8140	Roads and highways (divided 4-lanes with medians)	605.9905	0.9469	0.6812
8191	Highways	13.1931	0.0206	0.0148
8310	Electrical power facilities	131.7346	0.2058	0.1481
8320	Electrical power transmission lines	326.5232	0.5102	0.3671
8330	Water supply plants	13.1622	0.0206	0.0148
8340	Sewage treatment	33.6063	0.0525	0.0378

Table H.9: Lake Woodruff Planning Unit Detailed Land Use Descriptions

LEVEL3	ATTRIBUTE	ACRES	SQ MILES	PERCENTAGE
1100	Residential, low density - less than 2 dwelling units/acre	12188.9794	19.0454	6.8889
1200	Residential, medium density - 2-5 dwelling units/acre	10699.3613	16.7178	6.0470
1300	Residential, high density - 6 or more dwelling units/acre	942.1243	1.4721	0.5325
1400	Commercial and services	1669.0077	2.6078	0.9433
1460	Oil & gas storage (except areas assoc. with industrial)	76.4677	0.1195	0.0432
1480	Cemeteries	86.4010	0.1350	0.0488
1550	Other light industrial	129.7121	0.2027	0.0733
1600	Extractive	144.5676	0.2259	0.0817
1610	Strip mines	1.9188	0.0030	0.0011
1611	Clays	213.7233	0.3339	0.1208
1650	Reclaimed lands	11.6884	0.0183	0.0066
1670	Abandoned lands	10.9799	0.0172	0.0062
1700	Institutional	550.1643	0.8596	0.3109
1800	Recreational	125.8462	0.1966	0.0711
1820	Golf courses	507.4963	0.7930	0.2868
1830	Race tracks	58.0013	0.0906	0.0328
1840	Marinas & fish camps	93.3160	0.1458	0.0527
1850	Parks and zoos	32.2355	0.0504	0.0182
1870	Stadiums - facilities not associated with high schools, colleges, or universities	16.8588	0.0263	0.0095
1900	Open land	391.9143	0.6124	0.2215
1920	Inactive land with street pattern but no structures	736.5348	1.1508	0.4163
2110	Improved pastures (monocult, planted forage crops)	6119.6580	9.5620	3.4587
2120	Unimproved pastures	393.5930	0.6150	0.2224
2130	Woodland pastures	739.5810	1.1556	0.4180
2140	Row crops	157.5198	0.2461	0.0890
2150	Field crops	1630.6707	2.5479	0.9216
2210	Citrus groves	1190.0399	1.8594	0.6726
2240	Abandoned tree crops	893.1746	1.3956	0.5048
2310	Cattle feeding operations	15.3919	0.0240	0.0087
2320	Poultry feeding operations	14.5337	0.0227	0.0082
2400	Nurseries and vineyards	8.9926	0.0141	0.0051
2410	Tree nurseries	9.6616	0.0151	0.0055
2430	Ornamentals	89.3357	0.1396	0.0505
2431	Shade ferns	2489.1716	3.8893	1.4068
2432	Hammock ferns	2039.6044	3.1869	1.1527
2510	Horse farms	604.2525	0.9441	0.3415
2600	Other open lands - rural	21.8591	0.0342	0.0124
2610	Fallow cropland	118.0897	0.1845	0.0667
3100	Herbaceous range	1049.4991	1.6398	0.5931
3200	Shrub and brushland (wax myrtle or saw palmetto, occasionally scrub oak)	2855.3056	4.4614	1.6137
3300	Mixed rangeland	593.0993	0.9267	0.3352

Table H.9 (continued)

LEVEL3	ATTRIBUTE	ACRES	SQ MILES	PERCENTAGE
4110	Pine flatwoods	11159.1873	17.4363	6.3068
4120	Longleaf pine - xeric oak	5105.4471	7.9773	2.8854
4130	Sand pine	4433.6818	6.9277	2.5058
4200	Upland hardwood forests	291.1314	0.4549	0.1645
4210	Xeric oak	1260.2603	1.9692	0.7123
4300	Upland mixed forest	24.6781	0.0386	0.0139
4340	Upland mixed coniferous/hardwood	10089.1462	15.7644	5.7021
4410	Coniferous pine	12998.4290	20.3101	7.3463
4430	Forest regeneration	7210.0386	11.2657	4.0749
5100	Streams and waterways	2228.8043	3.4825	1.2597
5200	Lakes	7791.8984	12.1749	4.4038
5300	Reservoirs - pits, retention ponds, dams	299.3869	0.4678	0.1692
5340	Reservoirs less than 10 acres	212.1024	0.3314	0.1199
5400	Bays and estuaries	5.4254	0.0085	0.0031
6110	Bay swamp (if distinct)	1323.8808	2.0686	0.7482
6150	River/lake swamp (bottomland, may include cypress)	19812.6218	30.9573	11.1975
6170	Mixed wetland hardwoods	2658.3701	4.1537	1.5024
6200	Wetland coniferous forests	980.4538	1.5320	0.5541
6210	Cypress (if distinct as in domes or pure stands)	586.6014	0.9166	0.3315
6220	Depressional pine	82.4416	0.1288	0.0466
6300	Wetland forested mixed	17699.7051	27.6559	10.0034
6410	Freshwater marshes	12860.4868	20.0946	7.2684
6430	Wet prairies	599.3147	0.9364	0.3387
6440	Emergent aquatic vegetation	937.2624	1.4645	0.5297
6460	Mixed scrub-shrub wetland	5184.5618	8.1009	2.9302
6500	Non-vegetated wetland	13.0259	0.0204	0.0074
7200	Sand other than beaches	3.5691	0.0056	0.0020
7410	Rural land in transition without positive indicators of intended activity	184.4791	0.2882	0.1043
7430	Spoil areas	7.3839	0.0115	0.0042
8110	Airports	12.2454	0.0191	0.0069
8140	Roads and highways (divided 4-lanes with medians)	407.1438	0.6362	0.2301
8200	Communications	225.9599	0.3531	0.1277
8310	Electrical power facilities	35.1738	0.0550	0.0199
8320	Electrical power transmission lines	435.1544	0.6799	0.2459
8330	Water supply plants	4.9269	0.0077	0.0028
8340	Sewage treatment	52.9679	0.0828	0.0299

Table H.10: Wekiva River Planning Unit Detailed Land Use Descriptions

LEVEL3	ATTRIBUTE	ACRES	SQ MILES	PERCENTAGE
1100	Residential, low density - less than 2 dwelling units/acre	19295.3447	30.1491	7.6889
1200	Residential, medium density - 2-5 dwelling units/acre	29509.5623	46.1089	11.7592
1300	Residential, high density - 6 or more dwelling units/acre	5982.0349	9.3470	2.3838
1400	Commercial and services	5599.0783	8.7486	2.2312
1460	Oil & gas storage (except areas assoc. with industrial)	40.0101	0.0625	0.0159
1480	Cemeteries	123.8403	0.1935	0.0493
1510	Food processing	32.1268	0.0502	0.0128
1550	Other light industrial	2017.9496	3.1531	0.8041
1560	Other heavy industrial	185.9069	0.2905	0.0741
1600	Extractive	47.2283	0.0738	0.0188
1610	Strip mines	10.0204	0.0157	0.0040
1611	Clays	241.6475	0.3776	0.0963
1620	Sand & gravel pits (must be active)	54.7777	0.0856	0.0218
1633	Phosphates	141.6944	0.2214	0.0565
1670	Abandoned lands	70.4562	0.1101	0.0281
1700	Institutional	1677.9117	2.6217	0.6686
1800	Recreational	708.7849	1.1075	0.2824
1820	Golf courses	1457.8803	2.2779	0.5809
1830	Race tracks	95.5304	0.1493	0.0381
1840	Marinas & fish camps	5.8271	0.0091	0.0023
1850	Parks and zoos	180.4337	0.2819	0.0719
1900	Open land	2461.5582	3.8462	0.9809
1920	Inactive land with street pattern but no structures	3468.0014	5.4188	1.3820
2110	Improved pastures (monocult, planted forage crops)	17991.6752	28.1121	7.1694
2120	Unimproved pastures	1649.9953	2.5781	0.6575
2130	Woodland pastures	700.6857	1.0948	0.2792
2140	Row crops	16.5743	0.0259	0.0066
2150	Field crops	5207.6882	8.1370	2.0752
2200	Tree crops	165.0212	0.2578	0.0658
2210	Citrus groves	3170.6287	4.9541	1.2635
2240	Abandoned tree crops	3870.7186	6.0480	1.5424
2310	Cattle feeding operations	52.5004	0.0820	0.0209
2320	Poultry feeding operations	92.3676	0.1443	0.0368
2400	Nurseries and vineyards	34.0689	0.0532	0.0136
2410	Tree nurseries	77.2918	0.1208	0.0308
2430	Ornamentals	3015.7029	4.7121	1.2017
2431	Shade ferns	276.8826	0.4326	0.1103
2432	Hammock ferns	89.3782	0.1397	0.0356
2450	Floriculture	15.5277	0.0243	0.0062
2500	Specialty farms	21.5957	0.0337	0.0086
2510	Horse farms	1006.0383	1.5719	0.4009
2540	Aquaculture	13.7481	0.0215	0.0055
2600	Other open lands - rural	11.1928	0.0175	0.0045
2610	Fallow cropland	359.7128	0.5621	0.1433

Table H.10 (continued)

LEVEL3	ATTRIBUTE	ACRES	SQ MILES	PERCENTAGE
3100	Herbaceous range	7076.8879	11.0577	2.8200
3200	Shrub and brushland (wax myrtle or saw palmetto, occasionally scrub oak)	5787.1031	9.0424	2.3061
3300	Mixed rangeland	4779.9477	7.4687	1.9047
4110	Pine flatwoods	14684.2343	22.9442	5.8515
4120	Longleaf pine - xeric oak	1883.0413	2.9423	0.7504
4130	Sand pine	8601.1962	13.4394	3.4275
4200	Upland hardwood forests	415.4240	0.6491	0.1655
4210	Xeric oak	1506.5707	2.3540	0.6003
4340	Upland mixed coniferous/hardwood	14503.4500	22.6617	5.7794
4410	Coniferous pine	6133.5287	9.5837	2.4441
4430	Forest regeneration	7237.6258	11.3088	2.8841
5100	Streams and waterways	263.1759	0.4112	0.1049
5200	Lakes	10271.7099	16.0496	4.0931
5300	Reservoirs - pits, retention ponds, dams	366.5849	0.5728	0.1461
5340	Reservoirs less than 10 acres	929.6811	1.4526	0.3705
6110	Bay swamp (if distinct)	4168.2822	6.5130	1.6610
6150	River/lake swamp (bottomland, may include cypress)	17637.1415	27.5581	7.0282
6170	Mixed wetland hardwoods	920.7072	1.4386	0.3669
6200	Wetland coniferous forests	632.9495	0.9890	0.2522
6210	Cypress (if distinct as in domes or pure stands)	102.3029	0.1598	0.0408
6220	Depressional pine	96.4106	0.1506	0.0384
6300	Wetland forested mixed	17486.4760	27.3227	6.9681
6410	Freshwater marshes	4640.2146	7.2504	1.8491
6430	Wet prairies	1139.5051	1.7805	0.4541
6440	Emergent aquatic vegetation	874.1863	1.3659	0.3484
6460	Mixed scrub-shrub wetland	3994.7388	6.2418	1.5919
6500	Non-vegetated wetland	2.8685	0.0045	0.0011
7200	Sand other than beaches	3.2987	0.0052	0.0013
7400	Disturbed land - use level II class. code for rural land in transition, fill areas, burned areas	1.4965	0.0023	0.0006
7410	Rural land in transition without positive indicators of intended activity	1094.1967	1.7097	0.4360
7420	Borrow areas - associated with nearby fill areas for construction	64.7316	0.1011	0.0258
7430	Spoil areas	14.7264	0.0230	0.0059
8110	Airports	23.6392	0.0369	0.0094
8140	Roads and highways (divided 4-lanes with medians)	1738.0306	2.7157	0.6926
8180	Auto parking facilities	7.4095	0.0116	0.0030
8200	Communications	79.5700	0.1243	0.0317
8310	Electrical power facilities	46.4962	0.0727	0.0185
8320	Electrical power transmission lines	228.1325	0.3565	0.0909
8330	Water supply plants	72.5059	0.1133	0.0289
8340	Sewage treatment	192.4598	0.3007	0.0767

Appendix I: Integrated Scores By Parameter Group in the Middle St. Johns Basin

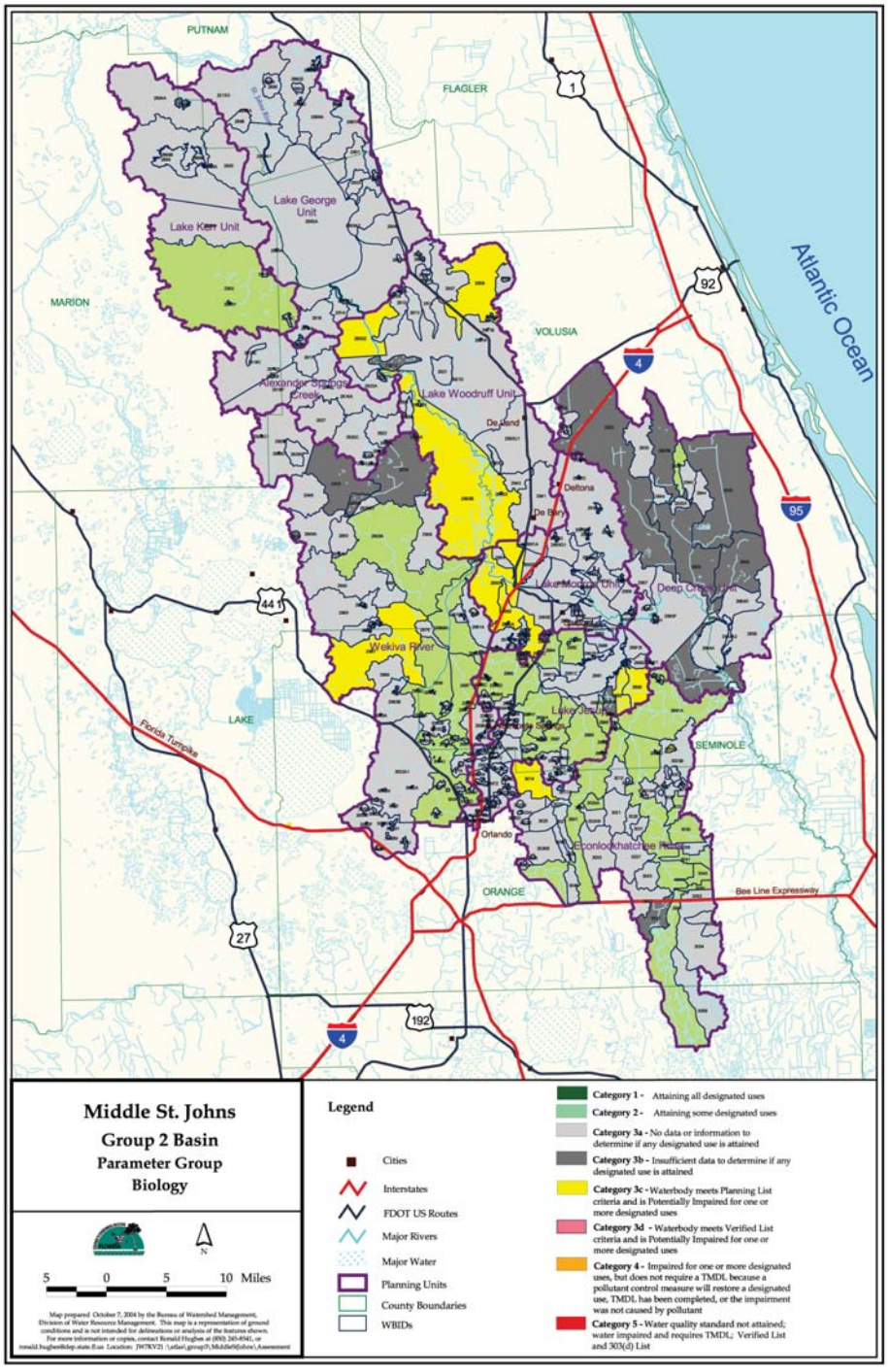


Figure I.1: Status of Biological Impairment in the Middle St. Johns Basin

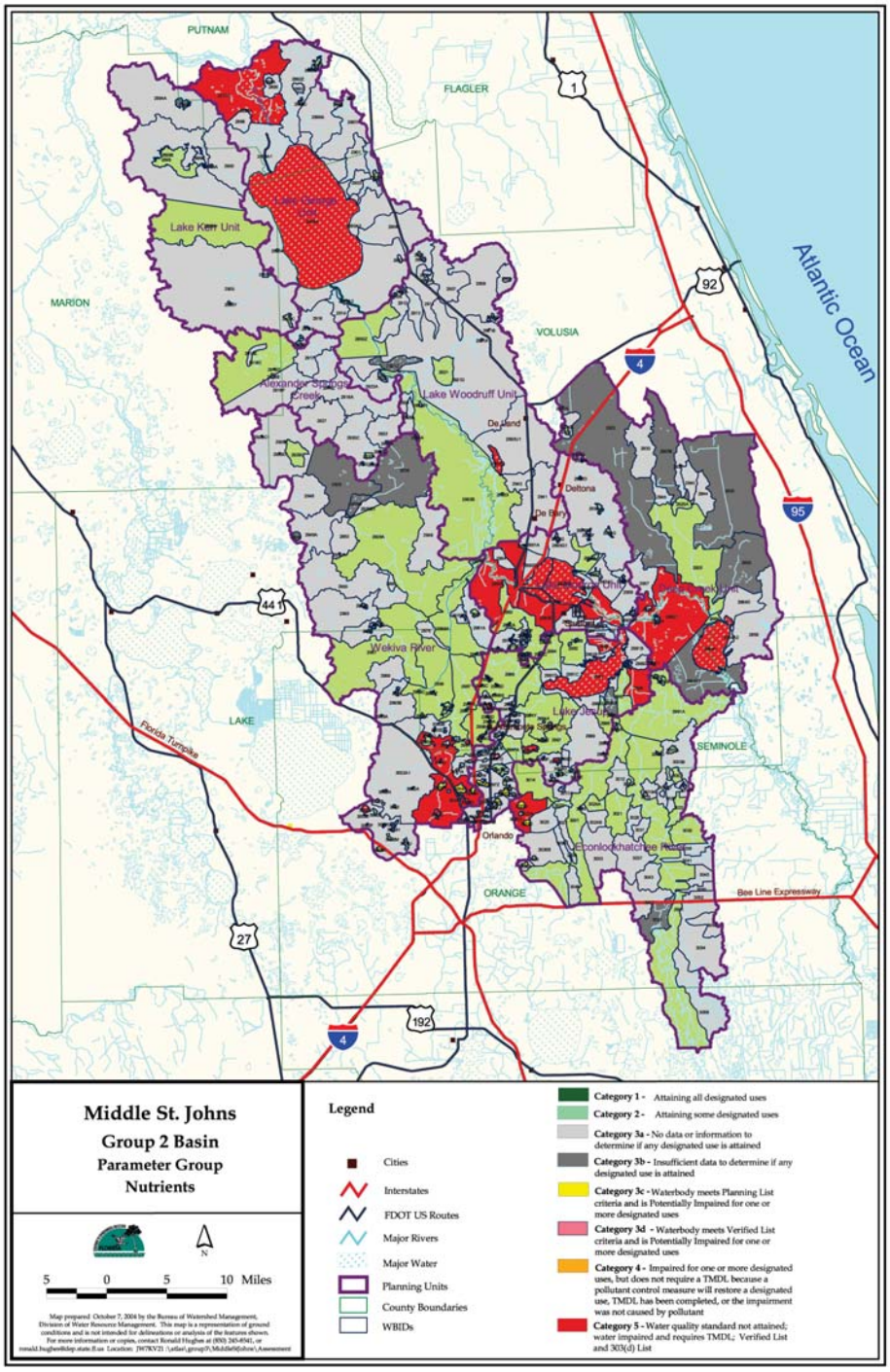


Figure I.2: Status of Nutrient Impairment in the Middle St. Johns Basin

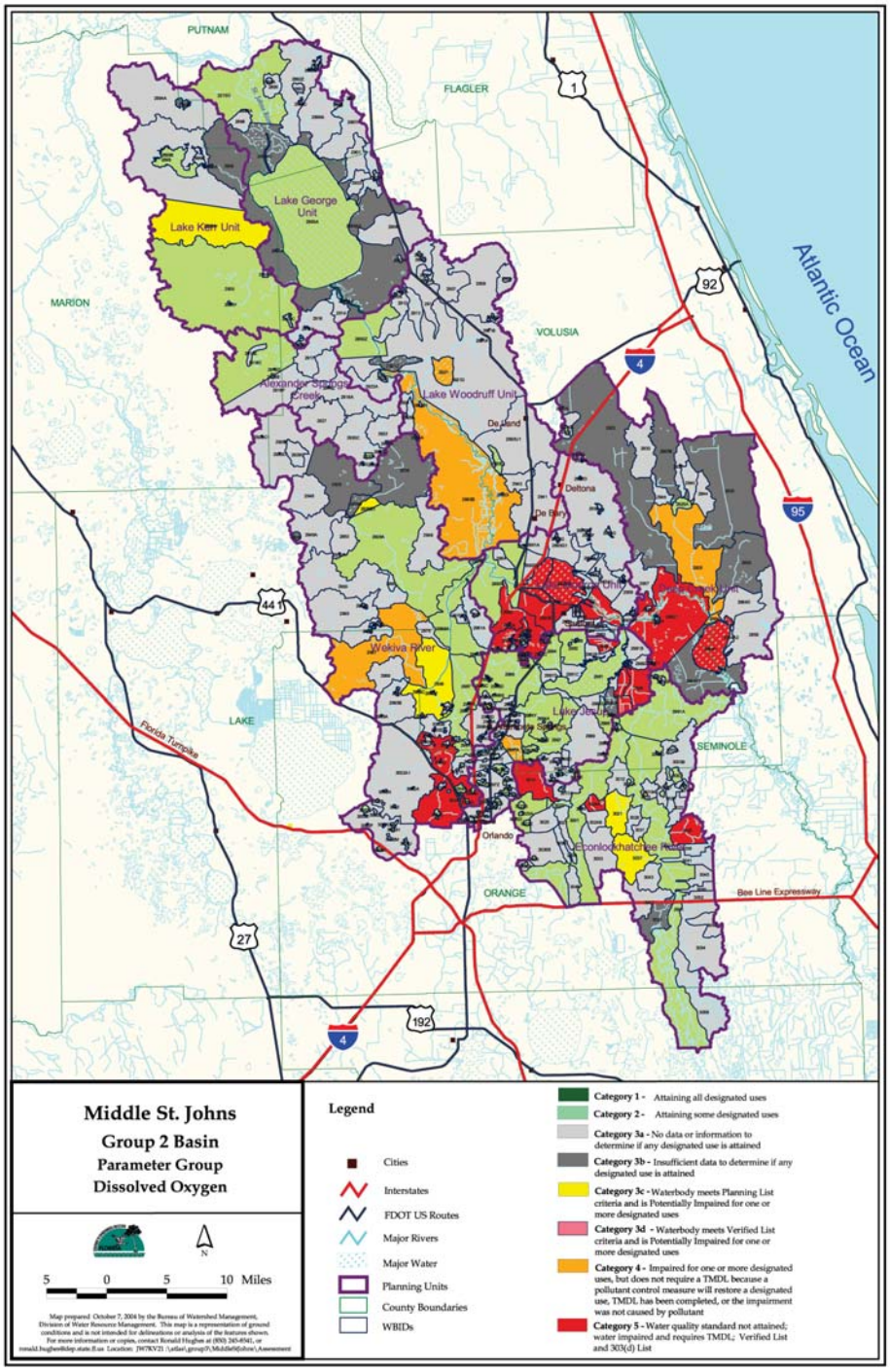


Figure I.3: Status of Dissolved Oxygen Impairment in the Middle St. Johns Basin

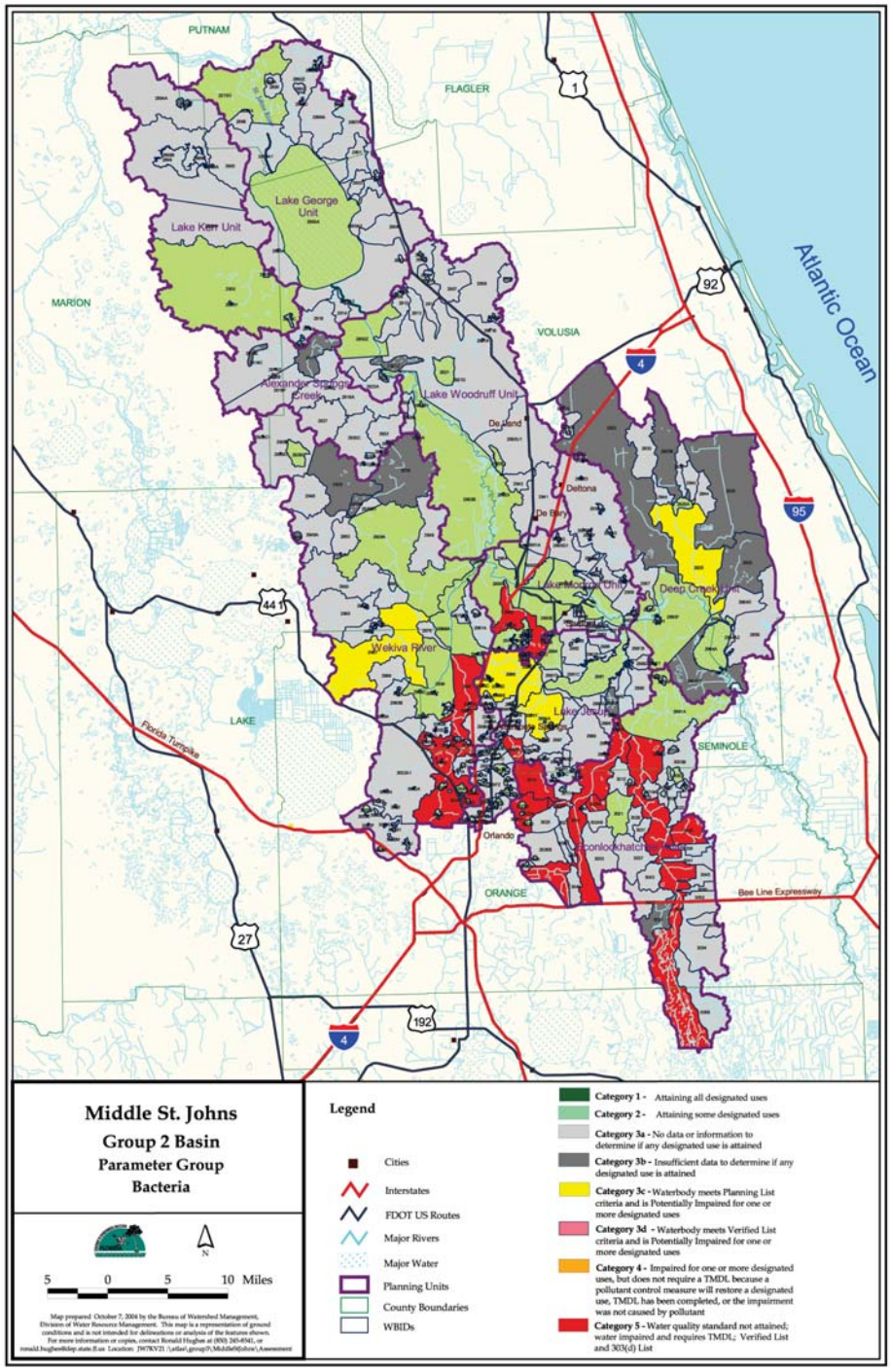


Figure I.4: Status of Coliform Bacteria Impairment in the Middle St. Johns Basin

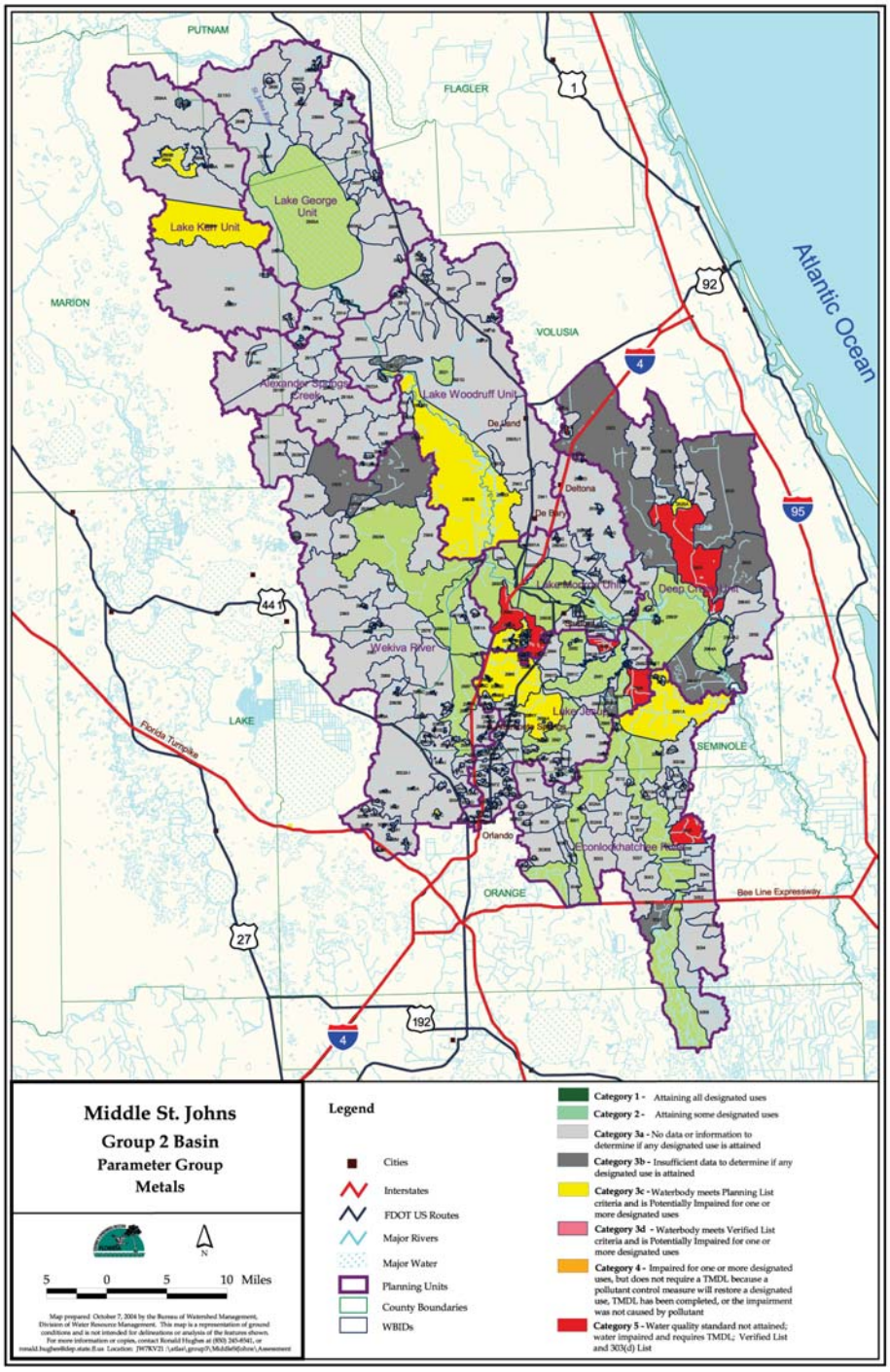


Figure I.5: Status of Metals Impairment in the Middle St. Johns Basin

Appendix J: Summary of Public Comments and the Department's Responses on Florida's 2003 Verified List of Impaired Surface Waters: Middle St. Johns River Group 2 Basin

EPA Comments

1. Some parameters of concern do not contain data in the verified period, but do contain data in the planning period and are being proposed for delisting. Is the state using planning period data for delisting in the absence of verified period data? Why isn't the state also using planning period data for listing in the absence of verified period data? (WBID: 2893D).

   RESPONSE: As of the November 5, 2003 update of the IWR database, there were sufficient data in both the planning and verified periods to assess waterbody segment 2893D (Lake Monroe) for the three parameters which were 1998 303(d) listed and are being proposed for delisting. These are lead, selenium and un-ionized ammonia. To answer these questions however in a more generic manner, where sufficient data are available for assessment of a 1998 303(d) listed parameter in the planning period, and the parameter meets standards, the parameter may be proposed for delisting, even if there are no data or insufficient data for assessment of the parameter in the verified period. This is consistent with section 62-303.720(1) of the IWR. Where a parameter meets standards in the planning period, and there are sufficient data in the verified period for assessment of the parameter, and the parameter is verified impaired, it will be added to the verified list. Where sufficient data are available for assessment of a parameter in the planning period, and the parameter is shown to be potentially impaired, and there are no data or insufficient data in the verified period to assess it, it will be added to the planning list.

2. Placing dissolved oxygen and/or biology in category 5 as verified impaired without identifying the causative pollutant is consistent with EPA policy, but inconsistent with FDEP regulations. EPA does support the proposal for listing dissolved oxygen without the pollutant identified. (WBID: 2964, 2962, 2925, 2893E, 28933, 2921, 2893Z, 2893B, 3001, 3014, 2991A, 2956B, 2986B, 3004).

   RESPONSE: Corrections have been made to the dissolved oxygen listings for water segments 2964, 2925, 28933, 2921, 2893B and they have been retained on the planning list. Only those dissolved oxygen listings for which the causative pollutant has been identified are now listed as verified impaired, consistent with section 62-303.710(2) of the IWR. BOD has been identified as the causative pollutant for the DO impairments in water segments 2962, 3004, and 3014, therefore these have been retained on the verified list. Elevated algal biomass has been identified as the causative pollutant for the DO impairment 2893E, therefore it has been retained on the verified list. It was determined in WBIDs 2893Z, 2956B, 3001, 2991A, and

2956B that dissolved oxygen is naturally low, and bioassessment data indicate that aquatic life use support is being maintained, therefore these have not been listed. As of the November 5, 2003 update of the IWR database, DO was not impaired in water segment 2986B and it is not listed.

3. Those impaired water segments on the 1998 303(d) list that do not meet the sufficiency requirements for the planning list must be placed in category 3c and on the planning list to remain consistent with [section] 62-303.300(2) of the IWR]. The assessment status of two water segments needs to be changed from insufficient data to planning list. (WBID: 2994A, 2962).

   RESPONSE: All 1998 303(d) listed parameters for which there were no data or insufficient data for assessment under the IWR were retained on the planning list, in the 3c EPA Integrated Report Category, but their proposed status is shown as "no data" or "insufficient data" (ND/3c or ID/3c). This was done to distinguish them from 3c listings for which there were sufficient data for assessment (PL/3c). All non-1998 303(d) listed parameters for which there were no data or insufficient data were shown as such, and placed into categories 3a or 3b respectively (ND/3a or ID/3b).

4. According to EPA guidance, when sufficient evidence of impairment is presented in a small data set, the water should be identified as a water quality limited segment. In several water segments insufficient data are found in the verified period, but sufficient exceedances occur to place a parameter on the verified list. Although the data may be insufficient according to the IWR (< 20 samples), the number of exceedances is higher than that allowed by the IWR. EPA views this as sufficient evidence of impairment and believes it should be placed on the verified list. (WBID: 2893A, 2973, 2893B, 2929B1, 2956).

   RESPONSE: Table 2 in section 62-303.420 of the IWR provides thresholds of verified impairment, based upon a minimum number of exceedances at given ranges of total observations. A minimum of 20 observations is required, for verification to be considered under the IWR. This minimum number is intended to ensure that conclusions about impairment are not drawn based upon small, unrepresentative data sets.

5. Silver is not listed as a new parameter of concern from the IWR on the master list. Please enter silver into that column. (WBID: 2925).

   RESPONSE: Silver in water segment 2925 met the data sufficiency requirements for assessment under the IWR, as of the November 5, 2003 update of the IWR database, and is considered potentially impaired. It has been added to the planning list.

6. FDEP did not prioritize this water segment for fish consumption advisories for mercury. The water segment for this parameter shall be designated low priority according to section 62-303.500(3) of the IWR. Please add this to the master list. The projected year of TMDL development is also needed. Silver and cadmium are not listed as new parameters of concern from the IWR on the master list. Please enter these parameters into that column. (WBID: 2964A).

   RESPONSE: Mercury (in fish tissue) in water segment 2964A met the verification threshold of the IWR, and we were able to confirm the 7.5 year age of the data used in the assessment, therefore it has been retained on the verified list. It has been given a medium priority and 2011 as the year of projected TMDL development. Silver and cadmium are both 1998 303(d) listed for water segment 2964A. As of the November 5, 2003 update of the IWR database, there were sufficient silver data for assessment under the IWR and silver made the planning list. As of November 5, 2003, cadmium was delisted because there were sufficient data for the planning list assessment.

7. Nutrients are delisted, although DO is verified. What samples exceeded the statewide averages? Chlorophyll average = 7.9 ug/L. (WBID: 3030).

   RESPONSE: The causative pollutant for the DO impairment was determined to be BOD, not nutrients, based upon analysis of TN, TP and BOD medians. The nutrient delisting was based upon analysis of annual chlorophyll averages, with an impairment threshold of 20 ug/L. As of 11-05-03, there were no chlorophyll annual averages computable according to the IWR in the planning period due to the lack of data in all four seasons of any one year. There were 12 individual chlorophyll observations however during the planning period with an average of 1.4 ug/L, and a range of 0 – 1.99 ug/L. In the verified period, there was one annual chlorophyll average calculated and it did not exceed 20 ug/L impairment threshold. There were 16 individual chlorophyll observations in the verified period with a mean of 9.42 ug/L and a range of 1.4 – 35.8 ug/L.

8. Cadmium is listed twice with differing reported categories (3c and 2). The exceedance frequency of 3/13 in the planning period and insufficient data in the verified period places cadmium in the 3c category and places it on the planning list. DO is in category 5, but the pollutant has not been identified. This is consistent with EPA policy, but appears to be inconsistent with FDEP regulations. EPA supports this proposal for DO. (WBID: 3004).

   RESPONSE: As of the November 5, 2003 update of the IWR database, there were no cadmium data, therefore it was not listed and the causative pollutant for the DO verification was identified as BOD, therefore DO is on the verified list.

Statewide Comments

Formal Public Meeting Comments (Sanford, FL., 6/11/03)

The taped proceedings of this meeting were requested of WPC by WAS, but they haven't been received to date.

Written Public Comments:

ORANGE AUDUBON CONSERVATION

9. During the TMDL workshop in Sanford of June 11, 2003, we discussed my request for revising the projected TMDL development schedule for Crane Strand (WBID 3014) as specific on the verified list. The projected year for dissolved oxygen is 2004, which is acceptable; however, we are requesting to change the coliforms parameter from 2008 to 2004. Crane Strand is a very stressed waterbody that delivers pollutants to Michael's Dam several miles downstream, where the designation of Outstanding Water starts. This designation has been adopted by the ERC and it would be of considerable interest for DEP to protect the outstanding designation from an environmental and legal standpoint [Alex Alexander, Orange Audubon Conservation].

   RESPONSE: As a point of clarification, water segment 3014 is actually designated as Crane Strand Drain while water segment 3023 is designated as Crane Strand proper. Every effort will be made to address the coliform bacteria listings in 2004 rather than 2008.

ORANGE COUNTY AND THE CITIES OF ORLANDO, OCOEE, WINTER PARK AND MAITLAND

10. A number of changes were suggested with regard to the assignment of monitoring stations to water segments. These suggestions were based upon local knowledge of the basin and more accurate station location information than was available to FDEP at the time of the original list development. FDEP analyzed the new information through GIS mapping, and those with which we concur are provided below. These reassignments have been made to the IWR database and are now reflected in current impairment lists. Those highlighted below were found late in our reanalysis and have been added to the final IWR analysis on November 5, 2003.

Station	Original Assignment		New Assignment	
21FLORANLE2	3023B	Lake Barton	3023E	Lake Corrine
21FLGFWFGFCCR0047	3023E	Lake Corrine	3023B	Lake Barton
21FLGFWFGFCCR0046	3023E	Lake Corrine	3023B	Lake Barton
21FLKWATBARTON1	3023E	Lake Corrine	3023B	Lake Barton
21FLKWATBARTON2	3023E	Lake Corrine	3023B	Lake Barton
21FLKWATBARTON3	3023E	Lake Corrine	3023B	Lake Barton
21FLKWAT095BALDWIN2	3023B	Lake Barton	3023E	Lake Corrine
21FLKWAT095BALDWIN3	3023B	Lake Barton	3023E	Lake Corrine
21FLKWAT095BALDWIN1	3023B	Lake Barton	3023E	Lake Corrine
21FLORL BALDWIN	3023A	Lake Baldwin	3023B	Lake Barton
21FLORANLE7	3023A	Lake Baldwin	3023B	Lake Barton
112WRD 02234299	2997D	Lake Minnehaha	29974	Leftover Maitland
112WRD 02233500	2991	Econlockhatchee River	2991A	Econlockhatchee River
21FLA 20010345	2991	Econlockhatchee River	3050	Ditches
21FLORANBEB	2991	Econlockhatchee River	3021	Unnamed Branch
21FLKWATORA-BALDWIN-3	3023A	Lake Baldwin	3023E	Lake Corrine
21FLKWATORA-BALDWIN-2	3023A	Lake Baldwin	3023E	Lake Corrine
21FLKWATORA-BALDWIN-1	3023A	Lake Baldwin	3023E	Lake Corrine

11. Econlockhatchee River (WBID 2991) - The Econlockhatchee WBID is shown as being impaired for mercury in fish due to a limited consumption advisory issued in 1993 by the DOH for largemouth bass, bowfin and gar. Pursuant to Rule 62.303.470, since no mercury in fish data has been collected within the Econlockhatchee River within 7.5 years to support this advisory, this advisory may not be considered valid in the verification of impairment for mercury in fish within the Econlockhatchee River. *Recommendation*: Remove Mercury in Fish Impairment for the Econlockhatchee River from the Verified List. [Orange County TMDL Analysis, PBS&J #100504.01 July 2003]

    RESPONSE: As of the November 5, 2003 update of the IWR database, the Econlockhatchee River water segment (2991) met the verification threshold of the IWR for mercury (in fish tissue), but it has been removed from the verified list to the planning list, pending confirmation of the 7.5 year age of data. Verified mercury in fish tissue listings are not due for TMDL development until the year 2011.

12. The Lake Baldwin water segment (3023A) represents the drainage basin surrounding Lake Barton (3023D), Lake Gear (3023D), Lake Susannah (3023C), Lake Corrine (3023B), and the Lake Corrine outfall channel connecting the lake to the Little Econlockhatchee River. Although the Lake Baldwin water body is designated as a "lake" in the DEP database, the only sampling location that falls within the bounds of the water body is 21FLORANLEZB, located on the outfall channel connecting Lake Corrine to the Little Econlockhatchee River. Thereby, the Lake Baldwin WBID as spatially defined is more representative of a "stream." The other sampling stations

allocated to this WBID fall within the Lake Corrine (3023B) WBID. An evaluation of the only representative sampling station for this WBID [3023A], 21 FLORANLEZB, reveals that when conditions are analyzed for stream impairment, it is not impaired for nutrients. As demonstrated by the data for WBID 3023A, raw chlorophyll-a concentrations have remained under 20-ug/L for the majority of the sampling period of analysis. *Recommendation*: Remove the Nutrient Impairment for WBID 3023A from the Verified List [Orange County TMDL Analysis 5 PBS&J 100504.01 July 2003].

RESPONSE: It should be noted that Lake Corrine is currently assigned the WBID number 3023E and Lake Barton is currently assigned WBID number 3023B and changes to these numbering assignments are not anticipated. As noted in the respondent's comments however, Lake Corrine is otherwise known as Lake Baldwin and there is perhaps some confusion about which water the Department is assessing related to naming conventions. The following changes are recommended in this regard, and have been incorporated in the November 5, 2003 update of the IWR database:

Current Assignment	Current WBID	Proposed Assignment	Proposed WBID
Lake Corrine	3023E	Lake Baldwin	3023E
Lake Baldwin	3023A	Lake Baldwin Outfall	3023A

A re-analysis of available data for segment 3023A leads the Department to concur that segment 3023A should be reclassified as a stream and only the 20 ug/L chlorophyll threshold should be used to assess nutrient impairment, rather than TSI. In reassessing the segment in this manner, the Department finds that segment 3023A is verified impaired for nutrients and should be retained on the verified list. This change is reflected in the final IWR assessment on November 5, 2003.

13. Lake Barber (WBID 3036A1) is listed as being impaired for nutrients (TSI) based on historic data. Annual average TSI values have not increased by 10 units over the assessment period, and therefore, there are no data to support the conclusion that this water body is impaired for historic nutrients (TSI). *Recommendation:* Remove the Nutrient Impairment for Lake Barber from the Verified List [Orange County TMDL Analysis 5 PBS&J 100504.01 July 2003].

RESPONSE: This water segment has been retained on the planning list based on its location in the Orlando Ridge area. Additional investigation is needed to determine a more appropriate TSI threshold for the lakes in this area.

14. Lake Corner (WBID 3033C) and Lake Drawdy (WBID 3033D) are shown as being impaired for nutrients (TSI). Based upon a review of the data, the impairment condition for nutrients cannot be substantiated. *Recommendation:* Remove the Nutrient Impairment for Lake Corner from the Verified List [Orange County TMDL Analysis 5 PBS&J 100504.01 July 2003].

    RESPONSE: As of the November 5, 2003 update of the IWR database, there were no data available from these segments which met the requirements of the IWR, therefore these segments have been removed from the draft verified list for nutrients.

15. Lake Dot (WBID 2997Q) is shown as being impaired for nutrients (TSI). Lake Dot is a 6-acre pond with a 298-acre drainage basin that outfalls to Lake Concord to the north via a 108" storm pipe. Recognizing the high potential for lake impairment, Lake Dot was retrofitted in 1989 when the City of Orlando built an alum injection system to treat the entire watershed. The construction of this treatment system resulted in shifting the lake's conditions from hypereutrophic to mesotrophic. Annual TSI averages range from 43.97 to 56.68 from 1992-2002 except for the year 2000 which resulted in a 60.19 TSI measurement. Information about this data point, as provided by the City of Orlando, revealed that during this year the alum injection system experienced operational problems, which resulted in the system working sporadically for most of the year. Due to the large drainage basin and small lake volume, even short periods of untreated stormwater entering the lake had a dramatic effect on the lake water quality. Since the historic data for this WBID has been within limits except for the single, non-representative, fall-season sample measurement, which was the result of a the temporary operational failure of the alum injection system treating this lake, the data do not support the conclusion that this water body is impaired for nutrients. *Recommendation:* Remove the Nutrient Impairment for Lake Dot from the Verified List [Orange County TMDL Analysis 5 PBS&J 100504.01 July 2003].

    RESPONSE: As of the November 5, 2003 update of the IWR database, TSI values in this segment ranged from 44.1 to 60.8 from 1992 through 2000. Color data were missing for all of these years, therefore the TSI threshold of 60 was used in assessment. As noted in Orange County's comments, one annual TSI mean exceeded this threshold, in 2000 (TSI = 60.8), when the alum treatment system failed. Annual mean for 2000 was above threshold, but resulted from violations of the City of Orlando's Environmental Resource Permit (4-095-0204GMT), therefore this segment has been removed from the draft verified list.

16. Lake Fairview (WBID 3004B) is recommended for removal from the verified list for nutrients [Orange County TMDL Analysis 5 PBS&J 100504.01 July 2003].

    RESPONSE: As of the November 5, 2003 update of the IWR database, Lake Fairview is planning listed only for nutrients. It does not meet the verification threshold of the IWR for nutrients.

17. Lake Ivanhoe (WBID 2997F) is shown as being impaired for dissolved oxygen. The data presented in the IWR_datbase_Run_11a shows that 25 of the 153 dissolved oxygen samples collected in Lake Ivanhoe are impaired, which is above the minimum number of violations (21) required to place dissolved oxygen on the verified list. However, information provided by the City of Orlando indicates that these violations are due to the presence of bottom dissolved oxygen values in STORET and the IWR_database. It is the practice of the City of Orlando to collect dissolved oxygen data from 0.5 meters below the water surface to the bottom of the lake at one meter increments and enter both surface and bottom dissolved oxygen values into the STORET database. Bottom depth dissolved oxygen data are recorded in STORET for the City's use in documenting the thermal stratification for all City lakes. However, during a review of this data, it became apparent that corresponding sample depth was not recorded with the dissolved oxygen values and consequently used in the determination of dissolved oxygen for this water body Instead of just the surface water measurement. The water quality data collected by the City (21FLORL) provided in Appendix D indicates that 83 of the 108 samples collected between 1996 and 2002 represent surficial oxygen concentrations (0.5 feet below the surface). The minimum surficial dissolved oxygen is 5.62 mg/L. As the 25 bottom samples taken at the sediment water interface in the deepest portion of the lake do not represent oxygen levels in the overlying water column, these values have been identified in Appendix D for removal from the IWR database. This will help better representing actual lake conditions. It should be noted that the presence of oxygen at the sediment interface is another indication of this water body healthy conditions. Without the bottom samples, there are no water quality standard violations during the past 7.5 years to impair this WBID for dissolved oxygen. *Recommendation*: Remove the Dissolved Oxygen Impairment for Lake Ivanhoe from the Verified List [Orange County TMDL Analysis 5 PBS&J 100504.01 July 2003].

    RESPONSE: As of the September 2, 2003 update of IWR database, there were 32 instances of dissolved oxygen not meeting the 5 mg/L criterion out of a total of 153 observations in the verified period for this lake. None of the 32 observations below 5 mg/L had associated depth values provided, as noted above. Most of the values above 5 mg/L however had depths associated with them. It is understood that the data without depths were not intended for general characterization of the lake (City of Orlando use only) and these values can be removed from the IWR database and impairment assessment of this segment. Orange County informed the Department of which data need to be removed from the IWR database, and these data were removed in the November 5, 2003 update of the IWR database, therefore this segment is not listed for dissolved oxygen.

18. Lake Lotta (WBID 3002G) is shown as being impaired for nutrients (TSI). However, based upon a review of the data, six annual average TSI data values measure below 60 and the annual TSI values suggest an improving trend. This does not support the impairment conclusion reached for this water body. *Recommendation:* Remove the

Nutrients Impairment for Lake Lotta from the Verified List [Orange County TMDL Analysis 5 PBS&J 100504.01 July 2003].

RESPONSE: As of the November 5, 2003 update of the IWR database, there were nine annual average TSI values calculated for this lake, from 1993 through 1999 and 2001 and 2002, ranging from 55.7 to 61. Given no available color data, the threshold of TSI 60 was used in the assessment. A TSI of 61 in 1997 exceeds this threshold, which would lead to the conclusion of nutrient impairment. There were passing TSI values calculated for the years 1998, 1999, and 2001, which because these years are not consecutive, this segment does not meet the delisting requirements for nutrients in Section 62-303.720(2)(I), therefore this segment was retained on the verified list.

19. Lakes Osceola North (2997E) and Osceola South (2997E1) are recommended for removal from the verified list for nutrients [Orange County TMDL Analysis 5 PBS&J 100504.01 July 2003].

    RESPONSE: As of the November 5, 2003 update of the IWR database, Lakes Osceola North (2997E) and Osceola South (2997E1) are listed as not impaired for nutrients and have been removed from the draft verified list.

20. Lake Pickett (WBID 3003) is shown as being impaired for nutrients (TSI) based on historic data. As demonstrated by the data, annual average TSI values have not increased by 10 units over the assessment period and therefore there are no data to support the conclusion that this water body is impaired for nutrients (TSI). *Recommendation:* Remove the Historic Nutrients Impairment for Lake Pickett from the Verified List [Orange County TMDL Analysis 5 PBS&J 100504.01 July 2003].

    RESPONSE: As of the November 5, 2003 update of the IWR database, there were three TSI values calculated for the years 1992, 1993 and 1994 only. None of the TSI values for these years exceeded the TSI threshold. There were no TSI values from the verified period, therefore Lake Picket (WBID 3003) is considered unimpaired for nutrients and has been removed from the draft verified list.

21. Lake Prevatt (2993) is recommended for removal from the verified list for nutrients [Orange County TMDL Analysis 5 PBS&J 100504.01 July 2003].

    RESPONSE: As of the November 5, 2003 update of the IWR database, Lake Prevatt (2993) is listed as not impaired for nutrients and has been removed from the draft verified list.

22. Lake Rose (WBID 3004I) is shown as being impaired for nutrients (TSI). Based upon a review of the data, the impairment condition for nutrients cannot be substantiated. *Recommendation:* Remove the Nutrient Impairment for Lake Rose from the Verified List [Orange County TMDL Analysis 5 PBS&J 100504.01 July 2003].

RESPONSE: As of the November 5, 2003 update of the IWR database, Lake Rose (WBID 3004I) met the TSI planning list threshold of the IWR only. The Department concurs that this segment should be removed from the draft verified list, but it will be retained on the planning list, based upon one TSI exceedances in the planning period (in 1995, TSI = 61.7).

23. Prairie Lake (3002N) is shown as being impaired for nutrients (TSI). Historic data demonstrates that this water body has maintained annual TSI averages below 60 except for the year 2001 which resulted in a 71 TSI measurement. According to information provided by the City of Ocoee's consultant, PEC, there was a significant spike in the TSI of Prairie Lake late in 2000 through 2001. Due to the location of the lake and the land use of the surrounding area, it is unlikely that a failed BMP or illicit discharge is the cause of this TSI increase. Discussions with City of Ocoee Public Works personnel indicated that the water level in Prairie Lake during this time period was extremely low, nearly to the point of being dry. It was also determined that this lake has a history of fluctuating water levels, with the last large decrease occurring during the 1980's. The rise in TSI was due to the extremely low water levels, which resulted in higher concentration of nutrients (total phosphorus and total nitrogen), and also caused the overall water temperature to increase. This, in turn, facilitated an increase in chlorophyll-a concentrations. The fourth component of TSI, Secchi depth (an indicator of water clarity) was also affected by algal growth. The condition described above is rare, but does occur periodically during periods of extreme drought, and should be considered to be a natural phenomenon for this water body. Therefore, the data do not support the conclusion that this WBID is impaired for nutrients (TSI). *Recommendation:* Remove the Nutrients Impairment for Prairie Lake from the Verified List [Orange County TMDL Analysis 5 PBS&J 100504.01 July 2003].

    RESPONSE: As of the November 5, 2003 update of the IWR database, there were three TSI annual mean values calculated from the verified period for Prairie Lake (3002N) in the years 1998, 1999 and 2001, ranging from 50.6 to 64.8. These figures substantiate that this lake typically has a high TSI level, though perhaps not exceeding 60. While it is understood that periods of drought can serve to concentrate nitrogen and phosphorus, this should not cause TSI to exceed 60, in lakes with normal levels of these constituents. The water segment has been retained on the verified list.

24. Starke Lake (3002D) is shown as being impaired for nutrients (TSI). However, given the high color present in the lake (average 50 Pt-Co) and a review of the average annual TSI values shown, the five annual average TSI data all measure below 60 and do not support the conclusion that this water body is impaired for nutrients. *Recommendation:* Remove the Nutrients Impairment for Lake Starke from the Verified List [Orange County TMDL Analysis 5 PBS&J 100504.01 July 2003].

    RESPONSE: As of the September 2, 2003 update of the IWR database, there were ten annual TSI means calculated for this lake, spanning the years 1991 through 1997,

and 1999, 2001 and 2002. These range from 54.4 to 62. During some of these years color data were missing from the record, while during other years color data were available and color values ranged from 15 to 109 platinum cobalt units (see table below).

Year	TSI in the Planning Period (1/1/91 through 12/31/00)	TSI in the Verified Period (1/1/96 through 6/30/03	Color	Impairment
1991	62		40	Yes
1992	56.5		109	No
1993	58.6		15	Yes
1994	58.7		No Data	No
1995	56.2		No Data	No
1996	55.7	55.7	27	Yes
1997	59.1	59.1	50	No
1998	No Data	No Data	No Data	-
1999	58.8	58.8	No Data	No
2000	No Data	No Data	No Data	-
2001		55.4	No Data	No
2002		54.4	No Data	No
2003		No Data	No Data	-

Thresholds applied to TSI values are; **TSI > 60**, where color data are missing or where color > 40 and **TSI > 40**, where color ≤ 40. Based on these thresholds, there were three TSI exceedances; two in the planning period and one in the verified period which constitutes a verified impairment for nutrients, therefore the water segment has been retained on the verified list.

25. The following water segments were recommended for removal from the draft verified list for nutrients (TSI) because, even though they are shown to be of low color (< 40 pcu), they are located in a region which is characterized by low color as well as TSI values ranging from 50 to 60 [Orange County TMDL Analysis 5 PBS&J 100504.01 July 2003].

LAKE BURKETT (3009C)
LAKE CONCORD (2997P)
LAKE CORRINE (3023E)
LAKE FAIRVIEW (3004B)
LAKE FAIRVIEW LAKE (3004N)
LAKE FORMOSA (2997M)
LAKE KILLARNEY (2997X)
LAKE MINNEHAHA (2997D)
LAKE OSCEOLA NORTH (2997E)
LAKE OSCEOLA SOUTH (2997E1)
LAKE PARK (2997U)
LAKE ROWENA (2997J))
LAKE SUE (2997I)
LAKE SYBELLA (29975)

LITTLE LAKE FAIRVIEW (3004H)
SILVER LAKE (3004D)

RESPONSE: It should be noted that Lake Fairview (3004B) and Lake Sue (2997I) are currently only planning listed for nutrients. They do not meet the verification threshold of the IWR for nutrients. Lakes Osceola North and Osceola South are currently assessed as not impaired for nutrients. Orange County provided paleolimnological evidence substantiating that the lakes listed above are regionally unique and that their condition of low color and high TSI values indicate additional investigation is warranted. Based on this information water segments 2997F, 2997J, 2997K, 2997M, 2997U, 29975, 3004E, 3004H, 3004N, 3009A, 3009C, 3023B, 3023E, and 3036A1 were retained on the planning list.

26. Long Branch (WBID 3030) is a tributary to the Big Econlockhatchee River Basin. It provides drainage from the area east of the Big Econlockhatchee River and south of Bithlo. Long Branch is impaired for iron, dissolved oxygen, and total coliforms. CDM performed an assessment of the impairment conditions in Long Branch as part of the Econlockhatchee River Basin Master Plan effort performed for Orange County. The focus of the assessment was iron, dissolved oxygen, and total coliforms. Based upon the data compiled for Long Branch, the following can be inferred from the assessment.

    • The Long Branch region has been shown as naturally high in iron content.

    • Characteristics of the stream closely follow the characteristics that would describe a black water creek system. These systems have historically low dissolved oxygen concentrations.

    • A significant amount of land previously used for as pasture for cattle grazing, is being converted into a recreational use. Thereby, the source of the elevated coliforms is being eliminated from the creek and the conditions, which have caused the coliform impairment no longer are representative of the system.

    Therefore, site-specific conditions exist in the basin that is not consistent with the impairment assessment currently listed on the verified list. *Recommendation:* Remove the Dissolved Oxygen, Iron and Total Coliform Impairment for Long Branch from the Verified List [Orange County TMDL Analysis 5 PBS&J 100504.01 July 2003].

    RESPONSE: For the Department to remove the iron listing for this segment from the draft verified list, we would need information which clearly describes the source of the iron in the stream, such that it could be categorized as a naturally occurring condition. Other similar investigations conducted by the Department to pinpoint sources of iron have included ruling out any anthropogenic land uses which might

contribute iron to the water segment, such as landfills or considerable irrigation with groundwater. In the absence of these sources, the iron content of the water could be considered natural and unabatable, thus leading to the removal of this parameter from the draft verified list.

With regard to the potential for Long Branch to be a black water stream, the Department would need to see color and pH data from the stream to substantiate this, as well as rule out any other factors which might lead to depressed dissolved oxygen levels, before removing the parameter from the draft verified list. Presently, biochemical oxygen demand (BOD) has been identified as a causative pollutant for the listing of dissolved oxygen in this segment, with a median BOD value of 2.6 mg/L taken over the verified period. The Department uses a BOD threshold of $\geq$2 mg/L to indicate impairment. In addition, there were two failed bioassessments in this segment in 1998 and 1999.

With regard to coliforms, since coliform bacteria are short-lived organisms (they do not persist in the water column as other constituents can), their presence in high concentrations during recent years indicates a present and relatively constant source. The Department would need to obtain reasonable assurance that conversion of agricultural land uses to recreational land uses is making, or is expected to make, a significant decline in the overall coliform content Long Branch before this parameter is removed from the draft verified list.

The Department was unable to make a clear determination that these impairments were not caused by anthropogenic sources, therefore the water segment has remained on the verified list.

27. Lake Fairview Lake (WBID 3004N) is shown as being impaired for nutrients (TSI). This lake was studied in 1998 because of persistent, elevated wintertime bacteria levels. The source was determined to be thousands of roosting sea gulls that migrated to this water body annually. Successful efforts to disperse the birds through pyrotechnics resulted in the elimination of the elevated bacteria levels. In addition, during the same time period, the City of Orlando and Orange County worked in cooperation with the Florida Fish and Wildlife Conservation Commission (FWC) to further improve water quality of the lake by removing the introduced grass carp and reestablishing native plant communities. These BMPs have resulted in dramatic water quality improvements since 1998. Therefore, based on the improving trend of annual TSI values in recent years, due to the implementation of the BMP and the health of the water body, there is no data to support the conclusion that this WBID is impaired for nutrients. As documented by the City of Orlando, following the implementation of BMPs, Lake Fairview has become one of the cleanest lakes in the City. *Recommendation:* Remove the Nutrient Impairment for Lake Fairview Lake from the Verified List [Orange County TMDL Analysis 5 PBS&J 100504.01 July 2003].

RESPONSE: Addressed in comment number 25.

28. As a natural system's health is determined by many physical and chemical attributes and their dependence on each other, an impairment for dissolved oxygen (DO) concentration would manifest itself as an imbalance in other related chemical parameters as well as in biological conditions. The Draft §303(d) Verified List for Group 2 Waters in Orange County includes two water bodies that are listed as impaired solely on the basis of DO concentrations, [Econlockhatchee River (WBID 2991) and Little Econlockhatchee (WBID 3001)]. Data analysis has revealed that these DO impairments are a natural condition, common for many Florida streams. The parameters evaluated in support of this conclusion included BOD5 and chlorophyll-a concentrations, color, and biological conditions. Biological conditions were measured by the SCI index and results of bio-assessments made on each of the streams. Results of the data analysis showed that the depressed DO conditions observed in these WBIDs have not caused a corresponding imbalance in the stream segments with respect to the other related chemical and biological parameters. The BOD5 and chlorophyll-a concentrations are low compared to other Florida streams. The high color data for each of the water bodies also indicate that the stream segments present conditions that are typical of many natural systems in Florida. In addition, the review of historical and recent water quality data for these water bodies shows no evidence that support the conclusion that the low DO concentrations levels are attributable to pollutant discharges. Results also indicated that, in each case, the bioassessments and SCI's have a "good", "healthy", or "excellent" rating. It is recommended that the water bodies listed [above] be removed from the draft Verified List in consideration of the site-specific alternative criteria, per 62-302.800 FAC. This recommendation is also supported by 62-303.420.a FAC, based upon the provision that the water shall not be placed on the verified list when observed exceedances are not due to pollutant discharges, and reflect either physical alterations of the water body that cannot be abated, or natural background conditions. *Recommendation:* Remove the Dissolved Oxygen impairment listings for the Econlockhatchee River and the Little Econlockhatchee River from the Verified List [Orange County TMDL Analysis 5 PBS&J 100504.01 July 2003].

RESPONSE: As of the November 5, 2003 update of the IWR database, the Econlockhatchee River (WBID 2991) and Little Econlockhatchee River (WBID 3001) is only planning listed for dissolved oxygen, as the cause of the impairment has not been identified. Nutrients (nitrogen and phosphorus) and biochemical oxygen demand (BOD) are all within acceptable ranges in this segment and biology (based on bioassessments) is not impaired. The Department concurs that dissolved oxygen is naturally low, and bioassessment data indicate that aquatic life use support is being maintained, therefore these segment have been removed from verified list.

29. Crane Strand Drain (WBID 3014) and Little Wekiva Canal (WBID 3004) are urban drainage ditches, which function as a conveyance component in Orange County's Municipal Separate Storm Sewer System, and are shallow and stagnant waterbodies

during significant portions of each year. They lack the flow regimes and benthic habitats of normal Florida rivers and streams. Water quality data for these urban ditches reflect depressed dissolved oxygen concentration as would normally be expected through considerable portions of the year. The obvious misclassification of these two water bodies should be recognized, and the dissolved oxygen impairment for both WBIDs should be eliminated based on the fact that they are urban ditches and are unlikely to ever function as Class III Streams.
Recommendation: Remove the Dissolved Oxygen Impairment for Crane Strand Drain and Little Wekiva Canal from the Verified List [Orange County TMDL Analysis 5 PBS&J 100504.01 July 2003].

RESPONSE: Class III waters have designated uses of recreation, propagation and maintenance of a healthy, well-balanced population of fish and wildlife. If the waters in question meet the definition of state waters in Rule 62-302, FAC at some level of classification, but only serve as conveyances for a stormwater management system, then site specific alternative criteria (SSAC) are appropriate. Rules 62-312.030 and 62-312.050, FAC can be consulted on the definition of state waters. Permits are required for dredging and filling in state waters and waters that are exempt from these permitting requirements per the above rules can be generally considered severed from state waters. Ditches that are connected to known state waters would also be considered state waters if they are natural waters (not artificially created, whether channelized or not) that are hydrated during most of the year or that are populated by wetland plants indicating hydration, and have at least a 35 square foot cross sectional area and a 3 foot depth at their points of connection with other state waters.

30. The Little Wekiva River (WBID 2987) is listed as impaired for nutrients based on analysis of current versus historic chlorophyll values, even though biology is excellent. *Recommendation:* Remove the nutrient impairment for Little Wekiva River from the verified list [Teleconference between the Department and Orange County and their consultants on September 19, 2003, concerning Middle St. Johns impairment lists].

    RESPONSE: As of the November 5, 2003 update of the IWR database, this segment was not listed for current nor historic chlorophyll, therefore was removed from the draft verified list.

31. The Econlockhatchee River (WBID 2991) is listed for fecal coliform bacteria and it is believed to be a natural condition. *Recommendation:* Remove the fecal coliform bacteria for the Econlockhatchee River (2991) from the verified list [Teleconference between the Department and Orange County and their consultants on September 19, 2003, concerning Middle St. Johns impairment lists].

    RESPONSE: For the Department to remove the fecal coliform bacteria listing for this segment from the draft verified list, we would need information which clearly describes the source of the bacteria in the stream, such that it could be categorized as

a naturally occurring condition. Other similar investigations conducted by the Department to pinpoint sources of coliforms have included ruling out any anthropogenic land uses which might contribute bacteria to the water segment, such as agricultural runoff, septic tanks which might be leaking, urban ponds populated with non-endemic populations of waterfowl or residential development which could be associated with a preponderance of domesticated animals (dogs, cats, etc.). In the absence of these sources, the bacterial content of the water could be considered natural and unabatable, thus leading to the removal of this parameter from the draft verified list. Orange County was unable to provide to the Department evidence that the fecal coliform bacteria level in this segment is a naturally occurring, non-abatable condition, therefore this segment has been retained on the verified list.

32. Lake Price (WBID 3012A), Waunatta Lake (WBID 3009A) and Bay Lake (WBID 3004G) are listed for nutrients (TSI) without evidence of impairment. *Recommendation:* Remove the nutrients (TSI) for Lake Price, Waunatta Lake and Bay Lake from the verified list [Teleconference between the Department and Orange County and their consultants on September 19, 2003, concerning Middle St. Johns impairment lists].

RESPONSE: With regard to the three segments listed above the Department finds:

- Lake Price (WBID 3012A) is not impaired for nutrients and will be removed from the verified list.

- Waunatta Lake (WBID 3009A) was retained on the planning list based on its location in the Orlando Ridge region.

- Bay Lake (WBID 3004G) is impaired for nutrient, with colimitation by nitrogen and phosphorus, based upon seven exceedances of the TSI threshold of 60 in the years 1996 through 2002 (color missing).

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33. A number of changes were suggested with regard to the assignment of monitoring stations to water segments. These suggestions were based upon local knowledge of the basin and more accurate station location information than was available to FDEP at the time of the original list development. FDEP analyzed the new information through GIS mapping, and those with which we concur are provided below. These reassignments have been made to the IWR database and are now reflected in current impairment lists. The notation ZZZ indicates the station was previously unassigned

to a segment or the segment to which it was previously assigned is unknown, or the station has not yet been reassigned to a new segment.

Station	Original Assignment		New Assignment	
21FLSJRWT-1	ZZZ	Unassigned	2981	Lake Jesup
21FLKWAT117PINE1	2973	DeForest Lake Outlet	2973C	East Crystal Lake
21FLKWAT117PINE2	2973	DeForest Lake Outlet	2973C	East Crystal Lake
21FLKWAT117PINE3	2973	DeForest Lake Outlet	2973C	East Crystal Lake
21FLKWATSEM-PINE-1	2973	DeForest Lake Outlet	2973C	East Crystal Lake
21FLKWATSEM-PINE-2	2973	DeForest Lake Outlet	2973C	East Crystal Lake
21FLKWATSEM-PINE-3	2973	DeForest Lake Outlet	2973C	East Crystal Lake
21FLA 20010177	2981	Lake Jesup	2984	Lake Nan (Needs to be renamed Six Mile Creek)
21FLSJWMOW-2	2981A	Lake Jesup Near St. Johns River	2981	Lake Jesup
21FLSJWMOW-3	2981A	Lake Jesup Near St. Johns River	2981	Lake Jesup
21FLSJWMOW-4	2981A	Lake Jesup Near St. Johns River	2981	Lake Jesup
21FLSJWMOW-5	2981A	Lake Jesup Near St. Johns River	2981	Lake Jesup
21FLSJWMOW-6	2981A	Lake Jesup Near St. Johns River	2981	Lake Jesup
21FLSJWMOW-7	2981A	Lake Jesup Near St. Johns River	2981	Lake Jesup
21FLSJWMT-10	2981A	Lake Jesup Near St. Johns River	2986	Soldier Creek Reach
21FLSJWMT-12	2981A	Lake Jesup Near St. Johns River	2982	Phelps Creek
21FLSJWMT-2	2981A	Lake Jesup Near St. Johns River	2990	Salt Creek
21FLSJWMT-4	2981A	Lake Jesup Near St. Johns River	2992	Sweetwater Creek
21FLSJWMT-6	2981A	Lake Jesup Near St. Johns River	2997	Howell Creek Below Lake Howell
21FLSJWMT-8	2981A	Lake Jesup Near St. Johns River	2986	Soldier Creek Reach
21FLSJWMT-1	2981B	Lake Jesup Drain	2981	Lake Jesup
21FLSJRWT-5	2981E	Lake Jesup Drain	2997	Howell Creek Below Lake Howell
21FLKWATNAN1	2984	Lake Nan (Needs to be renamed Six Mile Creek)	ZZZ	Lat/Long needs to be confirmed before reassignment can be done. In Orange Co.?
21FLKWATNAN2	2984	Lake Nan (Needs to be renamed Six Mile Creek)	ZZZ	Lat/Long needs to be confirmed before reassignment can be done. In Orange Co.?
21FLKWATNAN3	2984	Lake Nan (Needs to be renamed Six Mile Creek)	ZZZ	Lat/Long needs to be confirmed before reassignment can be done. In Orange Co.?
21FLSJWMT-7	2992	Sweetwater Creek	2996	Sweetwater Creek
21FLSJRWWLJESS	2994A	Gee Creek	2981	Lake Jesup

Station	Original Assignment		New Assignment	
21FLSJWMT-5	2997	Howell Creek Below Howell Lake	2981E	Lake Jesup Drain
21FLKWATADELAIDE1	2998B	Lake Mobile	2998E	Lake Adalaide
21FLKWATADELAIDE2	2998B	Lake Mobile	2998E	Lake Adalaide
21FLKWATADELAIDE3	2998B	Lake Mobile	2998E	Lake Adalaide
21FLKWATSEM-ADELAIDE-1	2998B	Lake Mobile	2998E	Lake Adalaide
21FLKWATSEM-ADELAIDE-2	2998B	Lake Mobile	2998E	Lake Adalaide
21FLKWATSEM-ADELAIDE-3	2998B	Lake Mobile	2998E	Lake Adalaide
21FLSCES160033	2999	Bear Creek	3004A	Bear Lake
21FLA 20010188	ZZZ	Unassigned	2984	Lake Nan (Needs to be renamed Six Mile Creek)
21FLA 20010294	ZZZ	Unassigned	2984	Lake Nan (Needs to be renamed Six Mile Creek)
21FLORANHB29	ZZZ	Unassigned	2984	Lake Nan (Needs to be renamed Six Mile Creek)
21FLSEM SIX	ZZZ	Unassigned	2984	Lake Nan (Needs to be renamed Six Mile Creek)

34. Cranes Roost Outlet (WBID 2998) is shown as being impaired for nutrients (chlorophyll-a). In order to be impaired for chlorophyll a, a water body must be classified as a stream and meet the criteria stated in Rule Ch. 62-303.351. Since this water body is classified as a lake and is confirmed to be a lake based upon the spatial locations of the water quality sampling locations, it is held to the criteria discussed in Rule Ch. 62-303.352. *Recommendation:* Remove nutrients (Chl-a) impairment from the Verified List [Seminole County TMDL Analysis 4 PBS&J #100339.02 July 2003].

    RESPONSE: As of the September 2, 2003 update of the IWR database, Cranes Roost Outlet (WBID 2998) was classified as a stream, but as Seminole County stated, all of the stations used to assess the segment are lentic and the segment should be reclassified as a lake. This change will be reflected in the updated October 3, 2003 IWR analysis.

35. Econlockhatchee River (WBID 2991and 2991A) and Lake Harney (WBID 2964A) are shown as being impaired for mercury in fish due to a limited consumption advisory issued in 1993 by the DOH for largemouth bass, bowfin and gar within Orange and Palm Beach counties. Pursuant to Rule 62.303.470, since no mercury in fish data has been collected within the Econlockhatchee River [or Lake Harney] within 7.5 years to support this advisory, this advisory may not be considered valid in the verification of impairment for mercury in fish. *Recommendation*: Remove Mercury in Fish Impairment from the Verified List [Seminole County TMDL Analysis 4 PBS&J #100339.02 July 2003].

    RESPONSE: As of the November 5, 2003 update of the IWR database, the Econlockhatchee River water segments (2991 and 2991A) met the verification

threshold of the IWR for mercury (in fish tissue), but they have been removed from the verified list to the planning list, pending confirmation of the 7.5 year age of data. Lake Harney (2964A) met the verification threshold of the IWR and we were able to confirm the 7.5 year age of the data used in the assessment, therefore it has been retained on the verified list. Verified mercury in fish tissue listings are not due for TMDL development until the year 2011.

36. Lake Harney (WBID 2964A) is categorized as impaired for nutrients (TSI). A review of this impairment is driven by a single year's exceedance in 2000. In 2000, Central Florida was experiencing unusually warm conditions in the winter along with drought conditions all year long. This caused many waters bodies to be denied their natural circulation. This results in nutrients being unnaturally accumulated in the water column. Thereby, this single seasonal spike in nutrients is not characteristic of the over all character of the water body and should not be the basis for impairment. *Recommendation:* Remove nutrients from the verified impairments listing [Seminole County TMDL Analysis 4 PBS&J #100339.02 July 2003].

    RESPONSE: As of the November 5, 2003 update of the IWR database, there were ten TSI annual mean values calculated for years 1991 – 1996, and 1999 – 2002 for Lake Harney (2964A), ranging from 48.1 to 65.6, with 50% of them above 57. There were two exceedances of the TSI threshold; in 2000 (65.6) and 2001(64.7). These figures substantiate that this lake typically has a high TSI level. While it is understood that periods of drought can serve to concentrate nitrogen and phosphorus, this should not cause TSI to exceed 60, in lakes with normal levels of these constituents. Seminole County was unable to provide the Department with sufficient evidence of the water level in Lake Harney being unusually low in 2000 and 2001, and a cause for it which could be considered atypical for this lake, therefore this water segment was retained on the verified list.

37. Lake Jesup Near St. Johns River (WBID 2981A) represents the water body segment of the St Johns River where the Lake Jesup outfalls. This reach is more representative of the St Johns River than it is of Lake Jesup, thereby a classification of the reach as a stream is warranted over the current Lake classification. This classification will alter the impairment from Nutrients (TSI) to Nutrients (Chl-a). *Recommendation:* Switch the impairment from nutrients (TSI) to nutrients (Chl-a) in the verified list [Seminole County TMDL Analysis 4 PBS&J #100339.02 July 2003].

    RESPONSE: The Department finds that these stations used to assess this segment are immediately proximal to the lake and are representative of the outfall from the lake, they are more characteristic of lake conditions than stream conditions. This water segment has been retained on the verified list.

38. Lake Mobile (WBID 2998B) Review of the FDEP data indicated that the 158 sampling events collected at three LakeWatch sampling stations that are currently

allocated to the Lake Mobile segment (WBID 2998B) belong in the Lake Adelaide segment (WBID 2998E). With that allocation modification, there is insufficient data to show impairment for nutrients in the Lake Mobile WBID. The data for Lake Adelaide should be reviewed to determine if an impairment condition exists based on the revised allocation. *Recommendation:* Remove the nutrient impairment from Lake Mobile (WBID 2998B) and change WBID allocation for LakeWatch stations and the subsequent nutrient impairment to Lake Adelaide (2998E) [Seminole County TMDL Analysis 4 PBS&J #100339.02 July 2003].

RESPONSE: As of the September 2, 2003 update of the IWR database, the recommended stations changes were made and Lake Mobile (2998B) is no longer listed on the verified list for nutrients. Lake Adelaide (2998E) is verified impaired for nutrients.

39. Lake Nan (WBID 2984) is classified by FDEP as impaired for nutrients. However, the FDEP data set does not appear to support this assessment. First, the WBID and sampling stations are more representative of Six Mile Creek (Stream) than Lake Nan (Lake). The determination of the WBID as representative of a stream rather than a lake would lead to assessing the nutrient impairment based upon chlorophyll-a values rather than the TSI. The chlorophyll-a levels for the creek do not show an impairment condition. *Recommendation:* Remove nutrient impairment from the verified list. Change the name of the WBID to – Six Mile Creek [Seminole County TMDL Analysis 4 PBS&J #100339.02 July 2003].

    RESPONSE: All of the stations used to assess this segment are located in Six Mile Creek, or its drainage, which is located within segment 2984. There is no waterbody by the name of Lake Nan within segment 2984, therefore this segment will be renamed Six Mile Creek and the waterbody type has been changed to a stream. It should be noted that, as of the November 5, 2003 update of the IWR database, segment 2984 was listed as a stream and was not shown to be impaired for nutrients.

40. Lake Pickett (WBID 3003) is shown as being impaired for nutrients (TSI) based on historic data. As stated in Rule Ch. 62-303.352.3, lakes or lake segments shall be included on the planning list for nutrients if: data indicate that annual mean TSIs have increased over the assessment period, as indicated by a positive slope in the means plotted versus time, or the annual mean TSI has increased by more than 10 units over historical values. The values for annual average have not increased more than 10 units over the historical average and thereby, the data does not support the conclusion that this water body is impaired for nutrients (TSI). *Recommendation:* Remove the Historic Nutrients Impairment from the Verified List [Seminole County TMDL Analysis 4 PBS&J #100339.02 July 2003].

    RESPONSE: As of the November 5, 2003 update of the IWR database, there were three TSI values calculated for the years 1992, 1993 and 1994 only. None of the TSI values for these years exceeded the TSI threshold. There were no TSI values from

the verified period, therefore Lake Picket (WBID 3003) is considered unimpaired for nutrients and was removed from the draft verified list.

41. Salt Creek (WBID 2990) is shown as being impaired for nutrients (chlorophyll-a). During a technical review of this data, it was determined that several data measurements were considered highly suspect outliers. Samples taken at the same station (21 FLSJWMT-2) on the same date showed values of chlorophyll ranging by more than a 50% discrepancy, in most cases, and in many cases more than three standard deviations away from the mean of all chlorophyll-a samples for the water body. Without these highly suspect sample data points, the average annual chlorophyll-a for this WBID is well below 20 ug/L and therefore does not support the conclusion that this WBID is impaired for chlorophyll-a. *Recommendation:* Remove the Nutrients – Chl-a Impairment from the Verified List [Seminole County TMDL Analysis 4 PBS&J #100339.02 July 2003].

    RESPONSE: There was no evidence, such as field notes, photographs, or data sheets, that these data points in questions were not representative of the water segment at that particular point in time, therefore this water segment was retained on the verified list.

42. Soldier Creek Reach (WBID 2986) has been classified as impaired for historical chlorophyll-a. However, the FDEP data do not appear to support this determination. The FDEP data set does not extend prior to 1989, with the first valid yearly Chl-a in 1992 and none of the annual chlorophyll-a values over the period of record for either the absolute criteria or the 50% over background criteria. Based upon the data in the FDEP data set, there is a lack of substantiating data to indicate impairment for historical chlorophyll-a in this water body. *Recommendation:* Remove historical chlorophyll from the verified list [Seminole County TMDL Analysis 4 PBS&J #100339.02 July 2003].

    RESPONSE: As of the November 5, 2003 update of the IWR database, Soldier Creek Reach (WBID 2986) was assessed for nutrient impairment based upon analysis of current and historic chlorophyll levels. There were no exceedances of the 20 ug/L chlorophyll threshold in the planning or verified periods. There were adequate data to calculate two historic five-year means; from 1990 through 1994 and from 1995 through 1999. The lowest of these five-year means was 2.2 ug/L, in the 1990 – 1994 period, thus this value is considered the historic chlorophyll level for the purpose of comparison to current levels. There were three exceedances in the verified period of greater than 50% above 2.2 ug/L; in 1996 (3.5 ug/L), 1998 (4.7 ug/L) and in 2000 (3.6 ug/L). Section 62-303.351(2) of the IWR states however that, to consider a water verified impaired for nutrients based upon analysis of current versus historic chlorophyll levels, exceedances of greater than 50% over historical levels must occur for at least two consecutive years. The Department therefore concurs with Seminole County's conclusions and has removed this listing from the draft verified list.

43. As a natural system's health is determined by many physical and chemical attributes and their dependence on each other, an impairment for dissolved oxygen (DO) concentration would manifest itself as an imbalance in other related chemical parameters as well as in biological conditions. The Draft §303(d) Verified List for Group 2 Waters in Seminole County includes seven water bodies that are listed as impaired solely on the basis of DO concentrations; [Econlockhatchee River (WBID 2991 and 2991A), Little Econlockhatchee River (WBID 3001), Soldier Creek (WBID 2986), Sweetwater Creek (WBID 2992), Wekiva River (WBID 2956A) and Wekiva River Lower (WBID 2956B)]. Data analysis has revealed that the alleged DO impairment is a natural condition, which is common for Florida streams. The parameters evaluated in support of this conclusion included BOD5 and chlorophyll-a concentrations, color, and biological conditions. Biological conditions were measured by the SCI index and results of bio-assessments made on each of the streams. Results of the data analysis showed that the depressed DO conditions have not caused a corresponding imbalance in the stream segments with respect to the other related chemical and biological parameters. The BOD5 and chlorophyll-a concentrations are low compared to other Florida streams. The high color data for each of the water bodies also indicate that the stream segments present conditions that are typical of many natural systems in Florida. In addition, the review of historical and recent water quality data for these water bodies shows no evidence that support the conclusion that the low DO concentrations levels are attributable to pollutant discharges. Results also indicated that, with exception of Sweetwater Creek in 1997, in each case, the bioassessments and SCI's have a "good", "healthy", or "excellent" rating. It is recommended that the water bodies listed [above] be removed from the draft Verified List in consideration of the site-specific alternative criteria, per 62-302.800 FAC. This request is also supported by 62-303.420.a FAC, by which if the exceedances are not due to pollutant discharges and reflect either physical alterations of the water body that cannot be abated or natural background conditions, the water shall not be placed on the verified list. *Recommendation:* Remove the Dissolved Oxygen from the Verified List [Seminole County TMDL Analysis 4 PBS&J #100339.02 July 2003].

RESPONSE: As of the November 5, 2003 update of the IWR database, the Econlockhatchee River (WBID 2991), the Wekiva River Lower (WBID 2956B), the Econlockhatchee River (WBID 3001), the Little the Econlockhatchee River (WBID 2991A), the Wekiva River (WBID 2956A), and Soldier Creek Reach (WBID 2986) are only planning listed for dissolved oxygen, as the cause of the impairment has not been identified for these segments. Nutrients (nitrogen and phosphorus) and biochemical oxygen demand (BOD) are all within acceptable ranges in these segments and biology (based on bioassessments) is not impaired. The Department believes that the dissolved oxygen is naturally low, and bioassessment data indicate that aquatic life use support is being maintained, therefore these water segments are not listed.

Sweetwater Creek (WBID 2992) is verified impaired for dissolved oxygen and the causes for this impairment has been identified as phosphorus. Biology is on the planning list, therefore this water segment is retained on the verified list. This is consistent with Section 62-303.420(1)(b) of the IWR, only where it cannot be clearly established that an impairment is due to natural conditions, physical alterations of the watershed or a specific pollutant, can passing bioassessments be used to exclude an aquatic life-based water quality parameter exceedance from the verified list.

44. Portions of the impaired waters in Seminole County are urban ditches (in whole or in part) that are currently classified as either streams or lakes. It is generally recognized by many Florida water resources professionals that urban ditches do not meet, and shouldn't reasonably be expected to meet, existing Class III standards for streams. Urban ditches vary in a number of respects within Seminole County and these differences can be used to differentiate between types of urban ditches. Upon closer examination, the urban ditches fall into two distinctly different groups:

Group I: Engineered Channels – Water segments in this group are open conveyance channels that were designed and constructed for flood control purposes, which were never natural stream courses. These engineered channel segments have been generally classified as streams due to the lack of any other suitable classification.

Group II: Improved Natural Channels – Water segments in this group were natural channels or flow paths that have received conveyance capacity improvements that were designed and constructed for flood control purposes. These improved natural channel segments have been generally classified as streams due in part to their origin, and in part to the lack of another more suitable classification.

A thorough examination of all the potential urban ditches in Seminole County has not been undertaken at this point in time. However, a limited effort has identified five urban ditches that can be used as the basis for an initial discussion, and these "case study" urban ditches are Crane Strand Drain (3014), Deforest Lake Outlet (2973, a/k/a Lockhart Smith Canal headwaters), Smith Canal (2962, a/k/a Lockhart Smith Canal) and Chub Creek (2985). Based upon a review of the spatial location of the sample points allocated to the Deforest Lake Outlet and discussions with Seminole County this water body is more characteristic of a stream than a lake system. *Recommendation:* Remove the water bodies listed from the verified impairments list based upon functional classification [Seminole County TMDL Analysis 4 PBS&J #100339.02 July 2003].

RESPONSE: Class III waters have designated uses of recreation, propagation and maintenance of a healthy, well-balanced population of fish and wildlife. If the waters in question meet the definition of state waters in Rule 62-302, FAC at some level of classification, but only serve as conveyances for a stormwater management system, then site specific alternative criteria (SSAC) are appropriate. Rules 62-312.030 and 62-312.050, FAC can be consulted on the definition of state waters. Permits are

required for dredging and filling in state waters and waters that are exempt from these permitting requirements per the above rules can be generally considered severed from state waters. Ditches that are connected to known state waters would also be considered state waters if they are natural waters (not artificially created, whether channelized or not) that are hydrated during most of the year or that are populated by wetland plants indicating hydration, and have at least a 35 square foot cross sectional area and a 3 foot depth at their points of connection with other state waters.

VOLUSIA COUNTY

45. The Deep Creek – Lake Ashby Canal drains a significant watershed encompassing 99,000 acres. That watershed encompasses Lake Ashby's sub-basin (the canal is an outlet for the lake). The watershed has little overall development or agriculture and is dominated by wetlands and native upland habitats (Table 1).

Table 1. Deep Creek – Lake Ashby Canal Land Use

Land Use	Acres	Relative Percentage
Wetlands	40309	40.6%
Native Uplands	26004	26.2%
Silviculture	13878	14.0%
Pasture	5467	5.5%
Agriculture	5379	5.4%
Residential	4890	4.9%
Open water	1344	1.4%
Other	821	0.8%
Power lines	525	0.5%
Commercial	342	0.3%
Highways	224	0.2%
Total	99183	

The high percentage of wetlands, low relief, and soil conditions are conducive to a high water table with significant natural surface water/ groundwater interactions. This means that natural geology and soil conditions in the unconfined aquifer are likely to exert influence on surface water quality in this watershed. The surficial aquifer throughout much of Volusia County has naturally occurring high iron concentrations (Wyrick 1960). A statewide survey of Florida's background concentrations of heavy metals in surface soils found good correlation between iron concentrations and other heavy metals (Chen et al. 1999). Not surprisingly, high concentrations of iron and some other metals were found in the limited available STORET data from surficial groundwater wells in Volusia County. This information suggests that high metals concentrations in the surface waters of the Deep Creek basin may be due to natural background conditions. Further study of the surficial aquifer within the Deep Creek watershed is warranted to confirm this condition. We believe that, although potential anthropogenic sources of metals contamination occur within the Deep Creek basin (specifically from biosolids application and atmospheric deposition), it is more likely that metals concentrations and dissolved oxygen regimes within Lake Ashby and the Deep Creek-Lake Ashby Canal are due to natural

background conditions. The basis for this opinion is that the watershed is reasonably undisturbed and has a very high percentage of low-relief with intact wetland cover. This supposition is subject to further verification and Volusia County is currently planning additional surface water and groundwater monitoring stations in this basin aimed at determining background verses anthropogenic influence. The St. John's River Water Management District is planning to develop PLRGs for the Deep Creek basin. We suggest a joint meeting among FDEP, SJRWMD, and Volusia County to coordinate future monitoring activities, with an objective toward determining if metals sources and oxygen regimes are anthropogenic or natural prior to verifying a TMDL for this basin. Given the uncertainties of the sources, with reason for believing natural background levels may be controlling concentrations, we recommend shifting metals and dissolved oxygen proposed as "Verified Impaired" under WBID 2925 to the "Planning List" (Table 7). If legal constraints or court decisions prevent this, we ask that sufficient time be given to implement a more definitive monitoring program for determining if sources are anthropogenic or background before setting and implementing a TMDL [Volusia County Deep Creek Assessment, BCI Engineers and Scientists, Inc. July 2003].

RESPONSE: Silviculture (tree plantations) and crop and pasture lands are the most significant land uses in the Deep Creek – Lake Ashby Canal (WBID 2725) watershed, per the 1995 St. Johns River
Water Management District's land use coverage (Figure 1). Next most significant perhaps are surface waters and wetlands. All of the data used in the assessment of this segment for metals content came from samples taken at station 21FLSJWMDMR on Deep Creek (red dot on Figure 1). A wastewater residual (biosolids) application area is located 4.5 miles upstream of this station. The residual application area appears to have the potential for hydrologic connection to Deep Creek through a series of roadway ditches, canals and wetlands, particularly during high-water conditions (Figure 1). What's more, wastewater residuals are commonly used in silviculture because they have been found to promote timber growth. Though it's unknown at this time if residuals are being used in the silvicultural industry in this segment, if so, runoff from such applications would presumably be another source of heavy metals to Deep Creek. It should be noted that station 21FLSJWMDMR is within feet of a tree plantation.

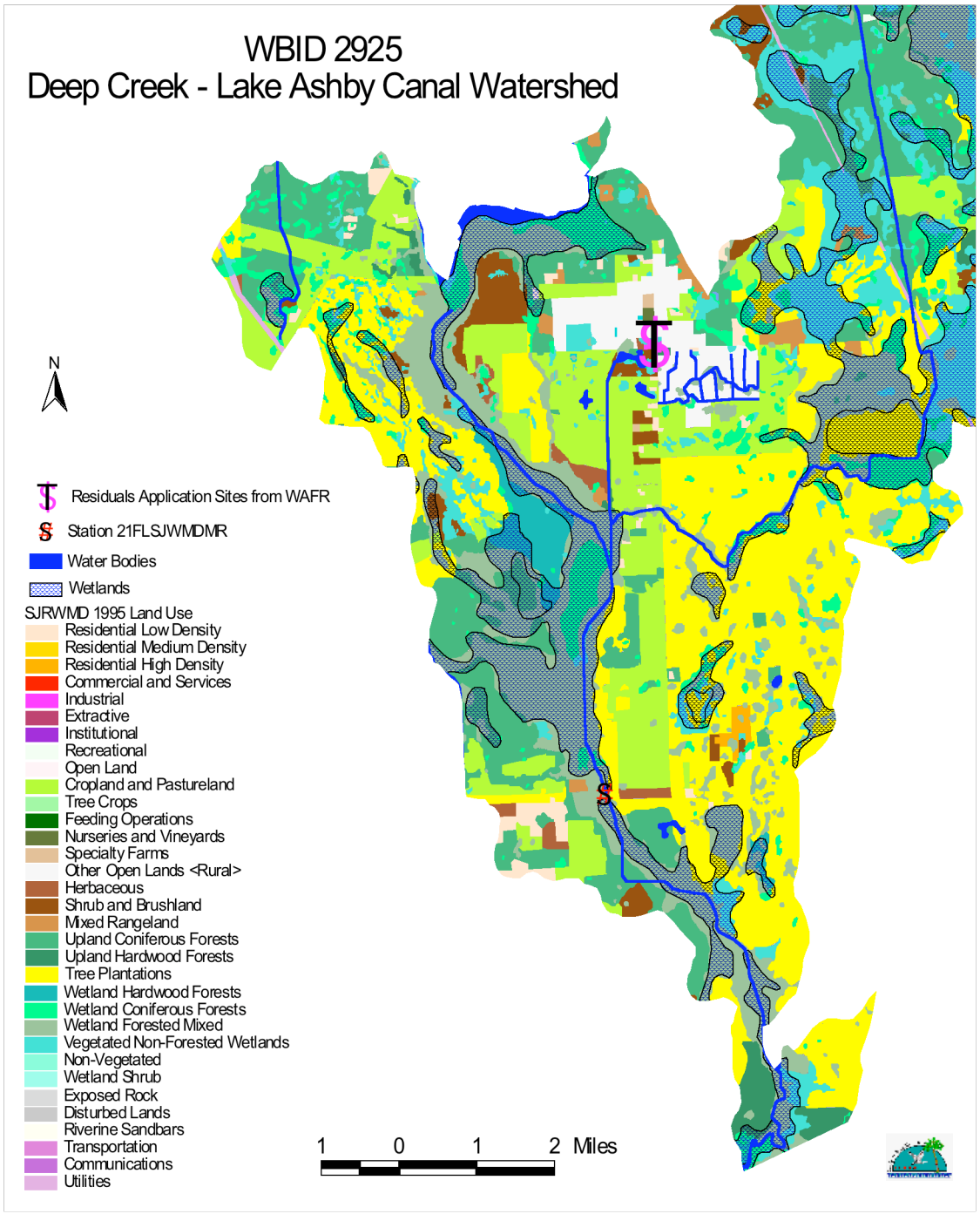
With the exception of iron, most of the metals for which this segment is verified impaired are among the ten most common metals of concern in residual applications, per 40 CFR Part 503 of the Federal Register. While the Department does agree that the metals of concern in this segment do exist naturally in the environment, the levels observed are not consistent with natural levels. High concentrations of metals in groundwater does not necessarily indicate a natural condition, if the potential exists for surface water contaminants to be introduced to groundwater. This is particularly important in this segment in light of the likelihood of significant surface water/groundwater interaction. Before concluding that residual application is not a significant source of contaminants in this segment, the Department would like to

review applicable residual application monitoring reports from this area. As a comparison, metals data from adjacent waters which are out of the influence of residual application would be useful in determining if the metals content of Deep Creek – Lake Ashby Canal is a natural condition. The relationship of aluminum levels to the levels of other metals can also be used to distinguish natural conditions from contaminated conditions. Aluminum can be considered a reference element, due to its abundance in the environment and the fact that its concentration is generally not influenced by anthropogenic sources. Aluminum data are available in the IWR database for segment 2925.

As for iron, high levels in surface are possible due to significant surface water/groundwater interaction. Other sources might include irrigation of croplands with groundwater. In the absence of other anthropogenic sources of iron in the segment however, iron can be considered a natural condition, if irrigation can be ruled out as a significant source.

Volusia County has request a review of the data used in the original assessment of the segment to confirm data QA/QC. A review of the data used to assess the segment shows, where data were coded with the STORET remark U, values were converted to 0.25 ug/L (cadmium) and 1 ug/L (lead and selenium) in the IWR database. There were no iron values reported with STORET remark code U. Hardness values were calculated per Rule 62-302.530, FAC for the particular metals involved.

As of the November 5, 2003 update of the IWR database, Deep Creek – Lake Ashby Canal (WBID 2925) is only planning listed for dissolved oxygen, as the cause of the impairment has not been identified. Nutrients (nitrogen and phosphorus) and biochemical oxygen demand (BOD) are all within acceptable ranges in this segment and biology (based on bioassessments) is not impaired.


WBID 2925
Deep Creek - Lake Ashby Canal Watershed
N
Residuals Application Sites from WAFR
Station 21FLSJWMDMR
Water Bodies
Wetlands
SJRWMD 1995 Land Use
Residential Low Density
Residential Medium Density
Residential High Density
Commercial and Services
Industrial
Extractive
Institutional
Recreational
Open Land
Cropland and Pastureland
Tree Crops
Feeding Operations
Nurseries and Vineyards
Specialty Farms
Other Open Lands <Rural>
Herbaceous
Shrub and Brushland
Mixed Rangeland
Upland Coniferous Forests
Upland Hardwood Forests
Tree Plantations
Wetland Hardwood Forests
Wetland Coniferous Forests
Wetland Forested Mixed
Vegetated Non-Forested Wetlands
Non-Vegetated
Wetland Shrub
Exposed Rock
Disturbed Lands
Riverine Sandbars
Transportation
Communications
Utilities
1 0 1 2 Miles





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