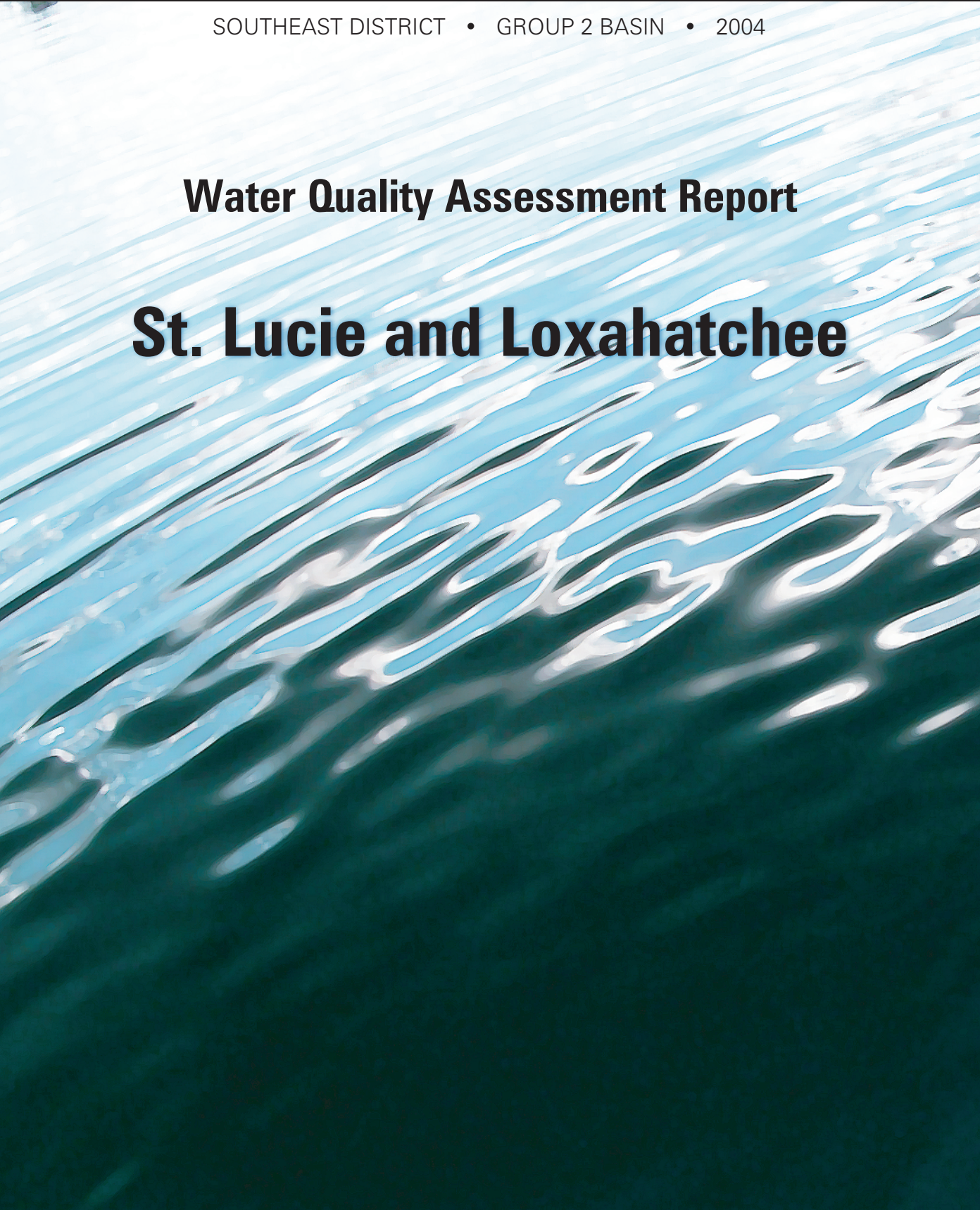


SOUTHEAST DISTRICT • GROUP 2 BASIN • 2004

The background of the report cover is a photograph of water with ripples. The water is a deep blue-green color, and the ripples create a pattern of light and dark blue lines that flow diagonally across the frame.

Water Quality Assessment Report

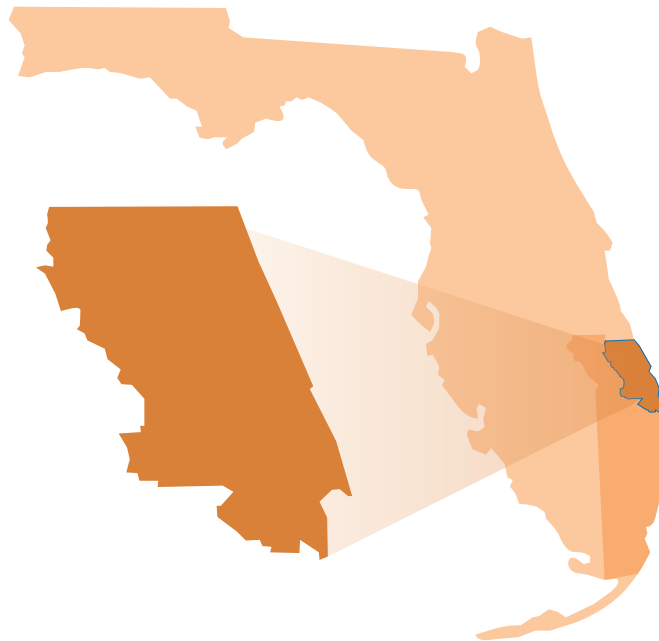
St. Lucie and Loxahatchee



FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Water Resource Management

2004

Water Quality Assessment Report
St. Lucie and Loxahatchee





Acknowledgments

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

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Web Sites

Florida Department of Environmental Protection, Bureau of Watershed Management

TMDL Program

<http://www.dep.state.fl.us/water/tmdl/index.htm>

Identification of Impaired Surface Waters Rule

<http://www.dep.state.fl.us/water/tmdl/docs/AmendedIWR.pdf>

STORET Program

<http://www.dep.state.fl.us/water/storet/index.htm>

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

St. Lucie and Loxahatchee

The Water Quality Assessment Report for the St. Lucie and Loxahatchee Basins 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 (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 St. Lucie and Loxahatchee Basins. 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 4.2** in Chapter 4) that has been adopted by Secretarial Order and approved by the U.S. Environmental Protection Agency (EPA). TMDLs must be developed and implemented for these waters, unless the impairment is documented to be a naturally occurring condition that cannot be abated by a TMDL or unless a management plan already in place is expected to correct the problem. The Verified List also constitutes the Group 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 St. Lucie and Loxahatchee Basins, 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 basins through close coordination with key stakeholders and initiatives such as the South Florida Water Management District (SFWMD), the U.S. Army Corps of Engineers (USACOE), the Loxahatchee River Environmental Control District, the Department's Southeast District and its Parks and Recreation Division, the Comprehensive Everglades Restoration Program (CERP), the Indian River Lagoon Surface Water Improvement and Management (SWIM) Plan, the South Florida Water Quality Protection Program, local governments, concerned citizens, agricultural interests, and members of the local business community.

Not only do stakeholders in the basins 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 basins include the SFWMD, Loxahatchee River Environmental Control District, local governments, and volunteer monitoring groups.

During the next few years, considerable data analysis will be done to establish TMDLs for impaired waters in the St. Lucie and Loxahatchee Basins, 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

Water quality in the rivers, streams, canals, lakes, and estuaries of the St. Lucie and Loxahatchee Basins is mainly affected by agricultural practices and urbanization in the basins, and possibly also by the transport of lower quality water from the adjacent Lake Okeechobee Basin. Water quality concerns in the waters of these basins identified in this evaluation are related to low levels of DO, excessive nutrients, metals (copper and mercury), elevated levels of bacteria, and biological stresses. Salinity fluctuations due to periodic, excessive discharges of fresh water and accumulations of transported sediment are also affecting the ecological integrity of the St. Lucie Estuary, in particular. Elevated salinity in the Loxahatchee River due to low flow conditions is an additional water quality concern in the Loxahatchee Basin.

In the St. Lucie Basin, most of the land in the noncoastal areas is used for the production of citrus and beef cattle. The extensive network of canals that drains these agricultural areas transports stormwater runoff containing nutrients, sediment, bacteria, and other pollutants. These reach the natural drainageways (such as the North and South Forks of the St. Lucie River) and ultimately the St. Lucie Estuary and the South Indian River Lagoon. The St. Lucie Canal (C-44), the inland waterway that connects Lake Okeechobee to Florida's east coast, transports regulated releases of water from Lake Okeechobee and runoff from agricultural areas within the C-44 Basin.

Other major canals also transport stormwater from inland agricultural areas to the estuary. Canals C-23 and C-24 discharge water into the North Fork of the St. Lucie River, and the C-25 Canal discharges to the Indian River Lagoon. These canals transport loads of nutrients and eroded sediment to the estuary and slugs of fresh water that create fluctuations in estuarine salinity levels. Urban and residential areas continue to expand in coastal areas, with polluted urban stormwater runoff and seepage from septic tanks also contributing to the water quality problems in streams and

canals. As a result, parts of the St. Lucie Estuary are impaired by nutrients, copper, and low levels of DO. Nutrient loads, salinity fluctuations, and accumulations of sediment stress the estuarine ecology.

In the Loxahatchee Basin, residential and urban growth is affecting water quality more than agriculture. Much of this watershed remains as undeveloped wetland, but development continues in the northern part of Palm Beach County. Water quality issues in the river system are related to low levels of DO, nutrients, bacteria, and impaired biology. The federal Wild and Scenic River status of the Northwest Fork of the Loxahatchee River affords some special status, but does not fully protect the river from polluted stormwater runoff from urban, residential, and agricultural areas in its watershed.

The Department's TMDL Program focuses on water quality; however, in both the St. Lucie and Loxahatchee Basins the amount and timing of freshwater flows are prominent concerns to the estuaries. Hydrologic modifications in the rapidly urbanizing watersheds of the main branches of the Loxahatchee River, as well as the diversion of surface water that once reached the Loxahatchee estuary via the C-18 Canal, have significantly reduced the size of the watershed and the amount of water the river receives. The permanent opening of Jupiter Inlet has also resulted in adverse changes to the river system, allowing the encroachment of salt water farther upriver.

The Department's assessment shows that thirty waterbodies or waterbody segments in the St. Lucie and Loxahatchee Basins are impaired and require the development of TMDLs. The following summarizes, by planning unit, impairments by waterbody types and the primary pollutants. Planning units are smaller areas in the basins that provide a more detailed geographic basis for identifying and assessing water quality improvement activities.

C-25/Basin 1 Planning Unit

Of the five waterbody segments in the C-25/Basin 1 planning unit, two segments have sufficient data for assessment. These two segments are verified impaired for the parameters assessed, two segments remain on the Planning List, and one meets standards for one or more parameter. The verified impaired segments, and the parameters of impairment, are as follows:

C-25 Canal East Segment	DO, nutrients (chlorophyll <i>a</i>), iron
Ft. Pierce Farms Canal (Belcher Canal/Taylor Creek)	DO

In addition, potential impairments in the planning unit include iron, biology, total coliforms, and fecal coliforms. Uncertainties associated with most of these problems are either directly or indirectly related to insufficient data.

North St. Lucie Planning Unit

Of the five waterbody segments in the North St. Lucie planning unit, four have sufficient data for assessment. Of these, four are verified impaired for at least one parameter assessed; one remains on the Planning List. The





four verified impaired segments, and the parameters of impairment, are as follows:

North St. Lucie	DO, nutrients (historical chlorophyll), copper
Tenmile Creek	DO
St. Lucie	DO, nutrients (chlorophyll <i>a</i>), copper
Fivemile Creek	DO

Potential impairments in the planning unit include mercury (in fish tissue), total coliforms, and fecal coliforms. Most of these problems are either directly or indirectly related to insufficient data.

C-24 Planning Unit

One waterbody segment in the C-24 planning unit has sufficient data for assessment. This waterbody is verified impaired for at least one parameter assessed. The verified impaired segment, and the parameters of impairment, are as follows:

C-24 Canal	DO, nutrients (chlorophyll <i>a</i>), iron
------------	---

In addition, C-24 Canal is potentially impaired and on the Planning List for fecal coliforms. There are insufficient data to verify this impairment.

C-23 Planning Unit

One waterbody segment in the C-24 planning unit has sufficient data for assessment. This waterbody is verified impaired for at least one parameter assessed. The verified impaired segment, and the parameters of impairment, are as follows:

C-23 Canal	DO, nutrients (chlorophyll <i>a</i>), iron
------------	---

South St. Lucie Planning Unit

Of the eight waterbody segments in the South St. Lucie planning unit, four segments have sufficient data for assessment. Of these, four are verified impaired for at least one parameter assessed; four remain on the Planning List. The four verified impaired segments, and the parameters of impairment, are as follows:

Tidal St. Lucie	Nutrients (chlorophyll <i>a</i>), copper
St. Lucie Canal	DO, nutrients (chlorophyll <i>a</i>)
South Fork St. Lucie	DO
Bessey Creek	DO, nutrients (chlorophyll <i>a</i>)

Potential impairments in the planning unit include total coliforms and biology. Additional data are needed to verify these potential impairments.

C-44 Planning Unit

One waterbody segment in the C-24 planning unit has sufficient data for assessment. This waterbody is verified impaired for at least one parameter assessed. The verified impaired segment, and the parameter of impairment, is as follows:

C-44 Canal	DO, iron
------------	----------

This waterbody is also potentially impaired based on biology. A causative pollutant(s) must be determined to verify this potential impairment.

Loxahatchee Planning Unit

Of the 12 waterbody segments in the Loxahatchee planning unit, 6 segments have sufficient data for assessment. Of these, 6 are verified impaired for at least one parameter assessed; 5 remain on the Planning List. The 6 verified impaired segments, and the parameters of impairment, are as follows:

Jonathan Dickinson	Fecal coliforms, bacteria (shellfish)
North Fork Loxahatchee	DO, nutrients (chlorophyll <i>a</i>)
NW Fork Loxahatchee	Bacteria (shellfish)
SW Fork Loxahatchee	Bacteria (shellfish), fecal coliforms
Loxahatchee River	Bacteria (shellfish)
C-18	Total coliforms, iron

Potential impairments in the planning unit are biology and mercury (in fish tissue). Additional data are needed to verify these problems.

Coastal Planning Unit

Of the 33 waterbody segments in the Coastal planning unit, 11 segments have sufficient data for assessment. Of these, 11 are verified impaired for at least one parameter assessed, 6 remain on the Planning List, and 16 meet standards. The 11 verified impaired segments, and the parameters of impairment, are as follows:

North Coastal	Nutrients (chlorophyll <i>a</i>), bacteria (shellfish)
St. Lucie River	Nutrients (chlorophyll <i>a</i>)
Roosevelt Bridge	Bacteria (shellfish)
Manatee Pocket	Nutrients (chlorophyll <i>a</i>), copper
South Indian River	Bacteria (shellfish)
Dubois Park	Mercury in fish
Coral Cove Park	Mercury in fish
Coastal Ocean 2	Bacteria (shellfish)
Coastal Ocean 3	Bacteria (shellfish)
Coastal Ocean 4	Bacteria (shellfish)
Florida Atlantic Coast	Mercury in fish

Another potential impairment in the planning unit, fecal coliform bacteria, is either directly or indirectly related to insufficient data.





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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 St. Lucie and Loxahatchee Basins. A copy of the report can be found at http://www.dep.state.fl.us/water/tmdl/stat_rep.htm.

This Water Quality 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, there are 30 waterbodies or segments in the St. Lucie and Loxahatchee Basins that 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 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



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.



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

The first 303(d) list, which was required by the EPA in 1998, is to be amended annually to include basin updates. Florida's 1998 303(d) list included a number of waterbodies in the St. Lucie and Loxahatchee Basins. **Tables 3.5 through 3.12** 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. The 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 basins.

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**). A copy of 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 St. Lucie and Loxahatchee Basins. These include the South Florida Water Management District (SFWMD), the U.S. Army Corps of Engineers (USACE), the Loxahatchee River Environmental Control District, the Department's Southeast District and its Parks and Recreation Division, the Comprehensive Everglades Restoration Program (CERP), the Indian River Lagoon Surface Water Improvement and Management (SWIM) Plan, the South Florida Water Quality Protection Program, local governments, concerned citizens, agricultural interests, and members of the local business community.

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 RETR ieval 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 (NPDES) point and nonpoint source permits

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

Figure 1.1 shows the order in which the Department's Southeast 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.

Lake Okeechobee, a Group 1 basin that includes waters in the Lake Okeechobee and Taylor Creek hydrologic units, was the first basin in the district to undergo a preliminary assessment in 2000; an Assessment Report was published in 2003. A preliminary assessment for the Group 2 basins, St. Lucie and Loxahatchee, was completed in 2001, and the basins are the subject of this Assessment Report. Group 2 includes the watersheds that are within parts of the St. Johns River–Upper, Indian River–South, and Southeast Florida Coast hydrologic units. Basin Groups 3, 4, and 5 are all in the Southeast Florida Coast hydrologic unit. The Group 3 basin, Lake Worth Lagoon and Palm Beach Coast, was assessed on a preliminary basis in 2002. Similarly, a preliminary assessment for the Group 4 basins, Southeast Coast and Biscayne Bay, was initiated in 2003. The Group 5 assessment, which includes the Everglades and Florida Keys, will begin in 2004. In 2005, the cycle will resume with the Group 1 basin, Lake Okeechobee.

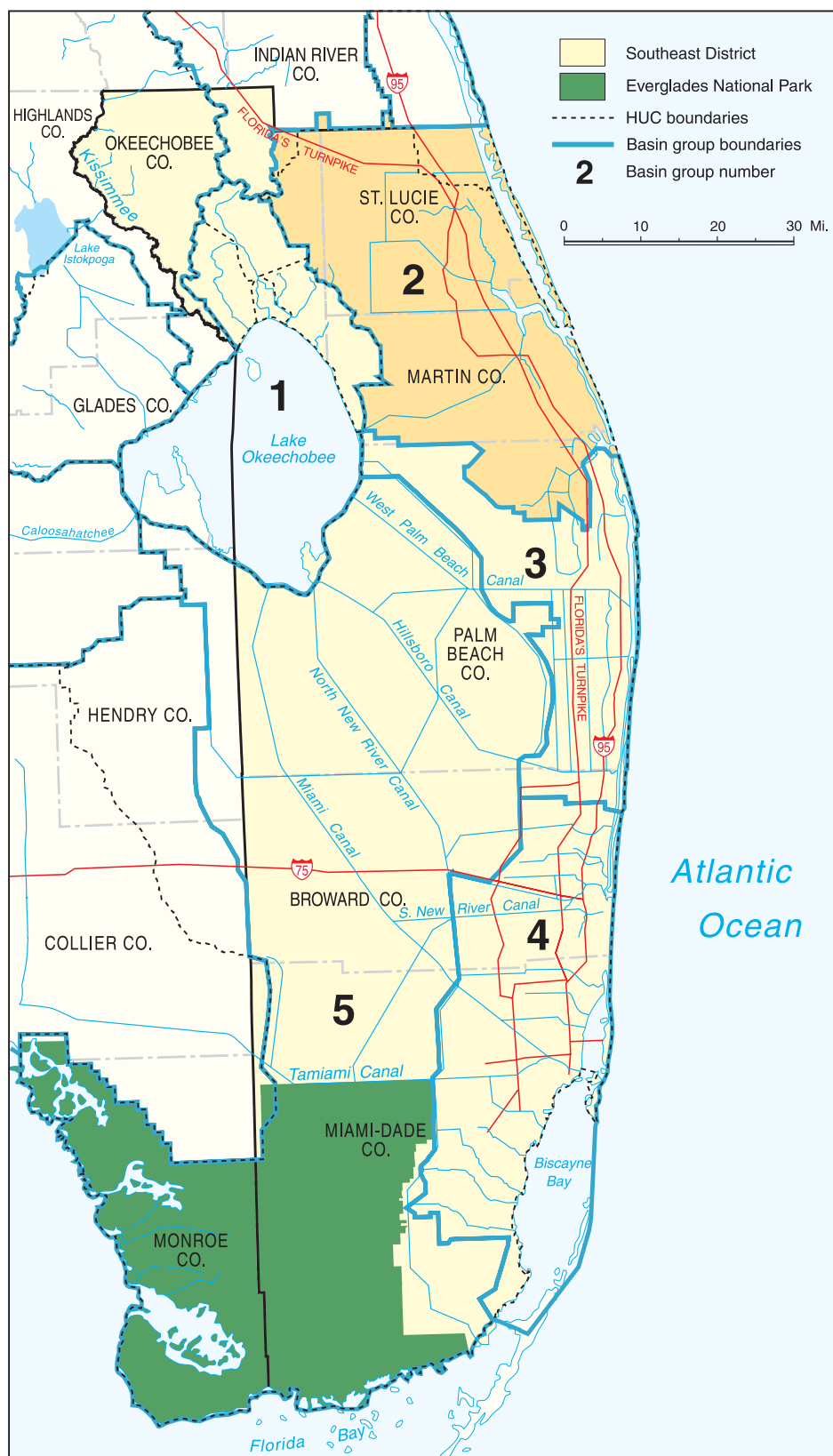


Figure 1.1: Schedule for Implementing the Watershed Management Cycle in the Department's Southeast District, Basin Groups 1 through 5

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 Southeast 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: Verified List of Impaired Waters** contains the Verified List of impaired waters, discusses public participation, 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, 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. Lucie and Loxahatchee Basin Group 2 assessment area extends southward from the Indian River–St. Lucie County line, including most of St. Lucie and Martin Counties, to the northern part of Palm Beach County. The area defined as the St. Lucie River Basin includes the 1,050-square-mile St. Lucie River watershed and the C-25 Basin to the north. The adjacent Loxahatchee Basin, to the south, includes the 278-square-mile watershed of the Loxahatchee River. **Figure 2.1** shows the principal geopolitical features in the St. Lucie and Loxahatchee Basins.



The part of the Indian River Lagoon (IRL) that is south of Ft. Pierce Inlet (near the Indian River–St. Lucie County line) together with the St. Lucie Inlet (in southern Martin County) are considered to be the South Indian River Lagoon segment of the IRL. The Loxahatchee River Estuary is considered by many to be a southern extension of the South Indian River Lagoon, thus extending the southern boundary to Jupiter Inlet (in northern Palm Beach County).

The IRL system (including the St. Lucie and Loxahatchee River Estuaries) contains the most diverse estuarine ecology in North America, but it exists in a delicate balance. It is threatened by stormwater runoff, disruptions in freshwater inflows, and other factors. As in other parts of Florida, the watershed of this southern extent of the IRL is changing. Increases in population, land use changes, and alterations of natural drainage patterns have resulted in impacts to water quality and the ecological health of the IRL, the St. Lucie and Loxahatchee River Estuaries, and their watersheds.

According to recent census figures, the populations of St. Lucie, Martin, and Palm Beach Counties have grown by more than 25, 28, and 31 percent, respectively, over the recent 10-year census period (U.S. Census Bureau, 2002). In the St. Lucie and Loxahatchee Basins, population growth and urbanization have mostly occurred in near-coastal areas. The largest population centers include Ft. Pierce and Port St. Lucie (St. Lucie County), Stuart (Martin County), and Jupiter and Palm Beach Gardens (Palm Beach County). Other coastal communities and residential developments have extended from these population centers. Urban and suburban stormwater and treated wastewater from these areas are discharged directly or indirectly into the southern IRL, the rivers, and their tributaries.

The human population is much lower inland. Westward from the coast, extending as far as the Lake Okeechobee Basin, the St. Lucie Basin consists of former wetlands that have been extensively drained and put into agricultural production. Beef cattle and citrus production are the largest agricultural activities in terms of area in the St. Lucie Basin. Beef cattle

Much of the information about the St. Lucie and Loxahatchee Basins in this chapter was obtained from the Indian River Lagoon Surface Water Improvement and Management (SWIM) Plan, produced by the St. Johns River and South Florida Water Management Districts (Steward et al., September 1994), and the Indian River Lagoon SWIM Plan Update (SJRWMD and SFWMD, 2002). References also include the following:

- *Indian River Lagoon National Estuary Program Web site at <http://www.epa.gov/owow/estuaries/programs/irl.htm>*
- *Links through the SFWMD Martin/St. Lucie Service Center Web site at <http://www.sfwmd.gov/org/exo/mslsc/index.html>,*
- *Comprehensive Everglades Restoration Plan (CERP) Web site at <http://www.evergladesplan.org/>,*
- *Central and Southern Project Indian River Lagoon–South Feasibility Study Draft Integrated Feasibility Report and Supplemental Environmental Impact Statement (USACOE and SFWMD, October 2001), at <http://www.evergladesplan.org/>, and*
- *Loxahatchee River Watershed Action Plan (Department, October 1998), at <http://www.dep.state.fl.us/southeast/hottopics/Lox/LoxActionPlan.pdf>.*

Other references used are individually cited in this chapter.

production occurs on rangeland and improved pasture covering more than 25 percent of the area. Citrus production, an agricultural practice that relies more heavily on irrigation, drainage, and the use of agrochemicals, occupies more than 20 percent of the St. Lucie Basin. Stormwater runoff from these agricultural areas drains into the St. Lucie Estuary (SLE) and the IRL via networks of farm ditches, canals maintained by county and water control districts, major canals maintained by the South Florida Water Management District (SFWMD), and the remaining natural streams.

One of these canals, C-44 (also known as the St. Lucie Canal, St. Lucie Waterway, or Okeechobee Waterway), is part of an inland navigational route between the east and west coasts that was completed in the 1920s. C-44 connects Lake Okeechobee to the South St. Lucie River and transfers fresh water to the St. Lucie River when water is released from the lake. Excess fresh water entering the estuary from C-44 and discharges from the C-23 and C-24 Canals have resulted in degradation due to extreme fluctuations of salinity, increased sedimentation, and discharges of nutrients and other pollutants. Record rainfall amounts in 1998 resulted in high discharges of fresh water from the lake through C-44 and caused particularly negative impacts to the estuary. As a result, citizens, local governments, and federal, state, and regional environmental agencies placed more attention on the estuary's water quality and overall health.

In contrast to the St. Lucie Basin, wetlands remain the predominant land cover in the Loxahatchee Basin, and a much lower percentage of the basin is used for agriculture. In this area, urban sprawl and new residential development are of concern, both within the basin and in the rapidly developing region to the south. The Loxahatchee Basin contains an area of approximately 10,000 acres known as Jupiter Farms, consisting of large lot ranchettes, many of which support livestock. Jupiter Farms is located at the headwaters of the federally designated "Wild and Scenic" Northwest Fork of the Loxahatchee River and is a watershed for stormwater entering the river.

Many areas of the Loxahatchee Basin that are not developed for residential purposes have been purchased or are being purchased for conservation. However, significant alterations to the Loxahatchee River watershed have reduced its overall size, modified the function of some of the major tributary streams, and significantly reduced the flow of the river. At this time, the loss of flow to the Loxahatchee River (and the resulting ecological impacts) in many respects outweighs water quality issues as a concern of local water managers and the public. **Figure 2.1** shows the geopolitical features in the St. Lucie and Loxahatchee Basins.

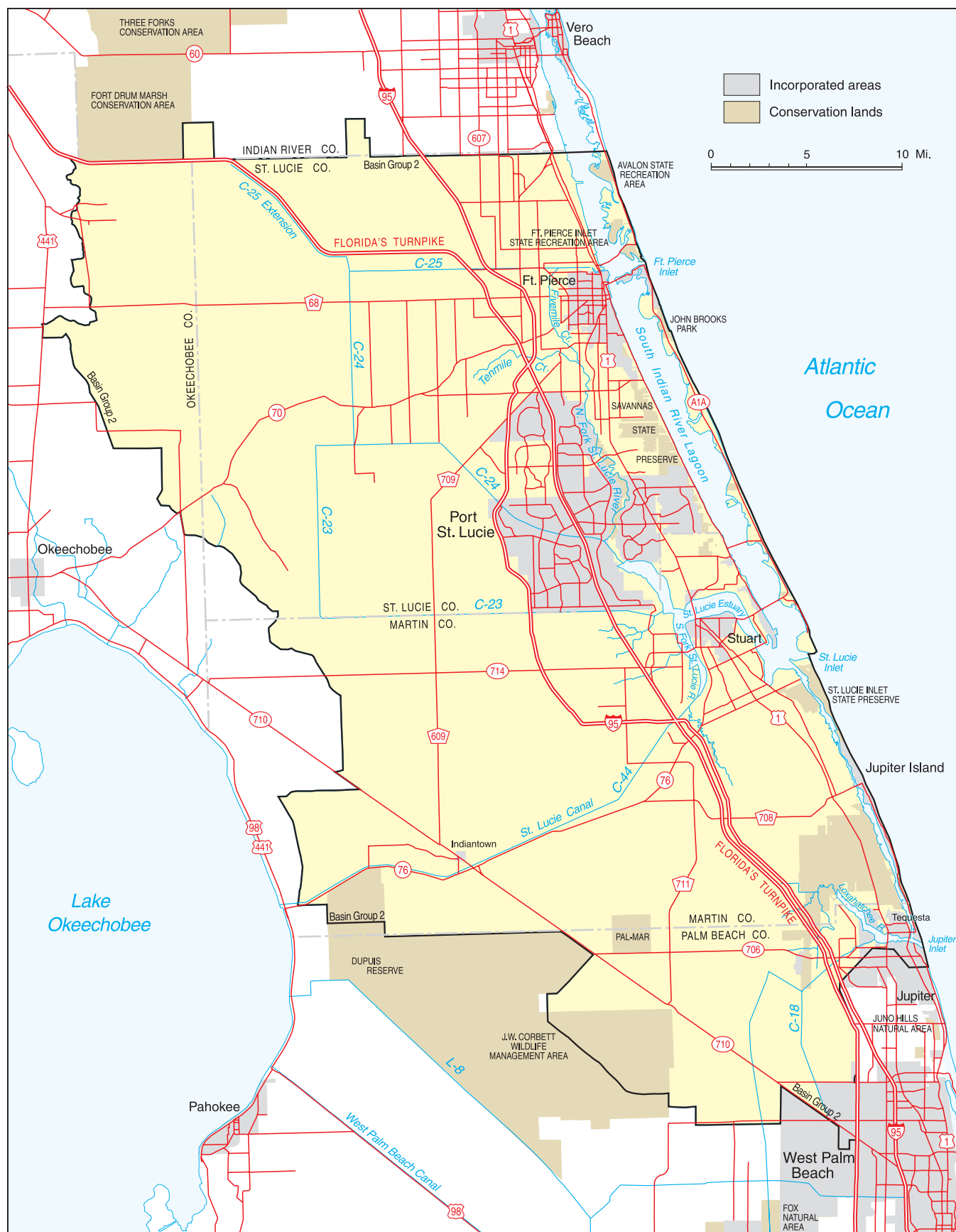
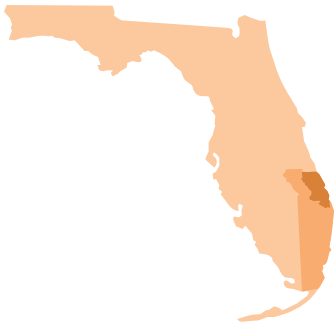


Figure 2.1: Geopolitical Map of the St. Lucie and Loxahatchee Basins



Surface Water Resources

The St. Lucie and Loxahatchee Basins contain numerous surface waterbodies. Surface waters, including lakes, streams, wetlands, estuaries, and canals, occupy approximately 79 square miles, or about 63 percent of the basins' total area. This section delineates the basins' hydrology, describes the movement and management of water in the basins, briefly describes the major characteristics of surface waters that influence water quality in the basins, and describes surface water classifications and special designations.

The South Indian River Lagoon segment, which includes the St. Lucie and Loxahatchee Basins, was poorly drained and had many connected and isolated wetland areas under natural conditions. Historically, the naturally functioning system absorbed floodwater, recharged ground water, and naturally allowed the assimilation of nutrients and sediments. The area was nearly level and subject to frequent flooding. Under the Central and Southern Florida (C&SF) Project of 1948, Congress authorized the U.S. Army Corps of Engineers (USACOE) to implement a major regional drainage and flood control program. The ensuing activities included the construction of canals and levees, flood control structures, navigational locks, and impoundments. The C&SF Project and accompanying smaller-scale drainage projects severely altered the hydrology and landscape of the area as wetlands were drained, natural drainage features were modified, and land was converted to the agricultural and urban/residential land uses of today.

Figure 2.2 shows the locations of the largest surface waterbodies in the St. Lucie and Loxahatchee Basins. A more detailed discussion in Chapter 3 provides information on each planning unit.

St. Lucie Basin

In the St. Lucie Basin, all drainage is to the SLE and IRL. The inner SLE is composed of the South and North Forks of the St. Lucie River. The two forks converge to form a single middle estuary, which extends eastward to where it meets the IRL. Historically, this area included a much smaller natural watershed that directly contributed to the river system. Interior areas of Martin and St. Lucie Counties contained large expanses of poorly drained wetlands that did not directly feed to the river and estuary. With the construction of the various drainage improvements in the inland areas, however, the effective drainage area of the SLE and IRL expanded to include all of Martin and St. Lucie Counties.

As described previously, C-44 serves as a flood control conveyance for Lake Okeechobee and transports water from the lake into the South Fork. It also transports runoff from agricultural areas in its subbasin. The construction of canals C-25, C-24, and C-23 (in addition to C-44) provided connections between subbasins and effectively increased the watershed area of the St. Lucie River. Canals C-24 and C-23 discharge to the North Fork and provide drainage from their respective basins and from the western part of the C-25 Basin. The C-25 canal receives agricultural runoff from northern St. Lucie County and areas to the north and discharges directly into the IRL north of the SLE across from the Ft. Pierce Inlet. The Ft. Pierce and St. Lucie Inlets are man-made inlets that allow for ocean access as well

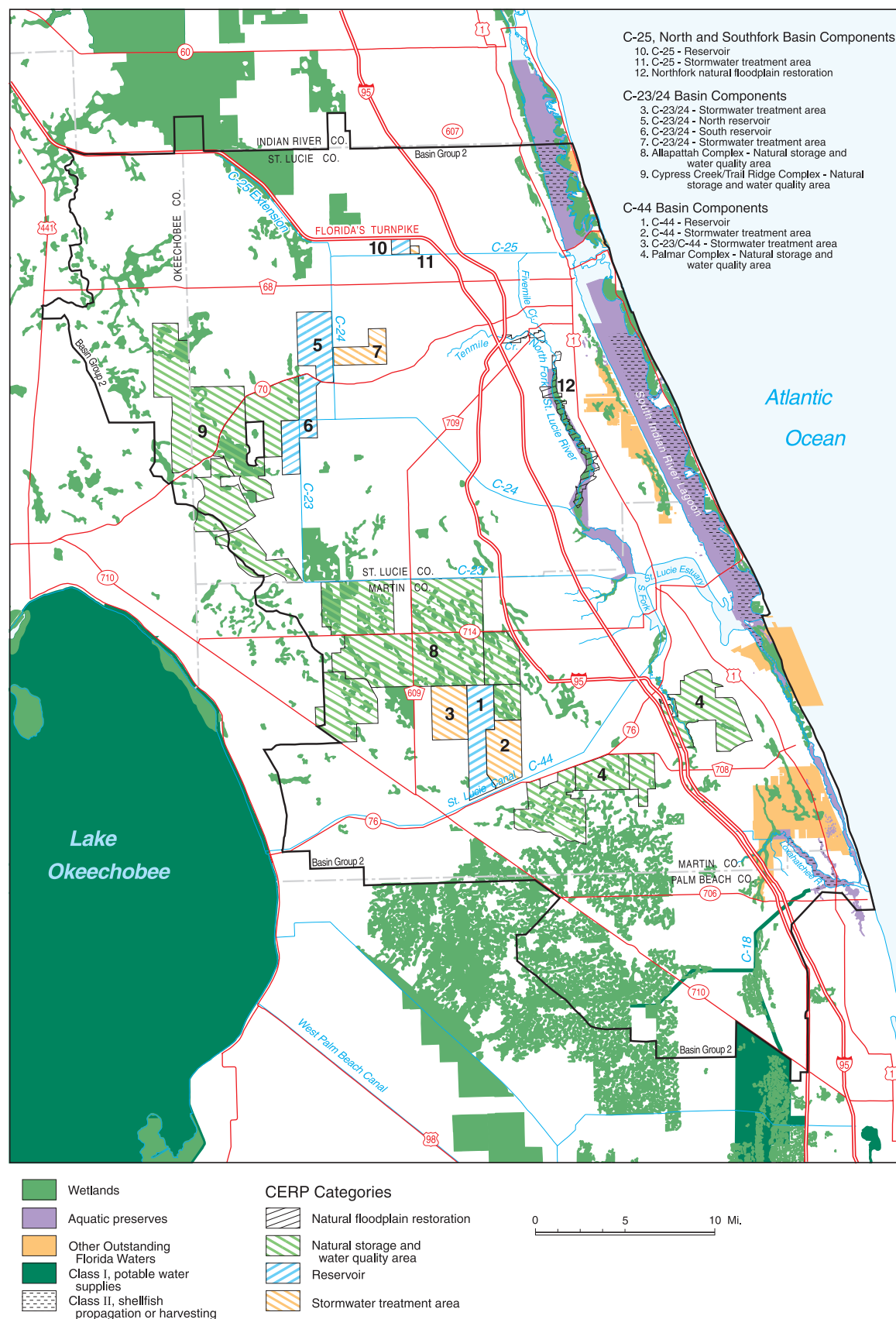
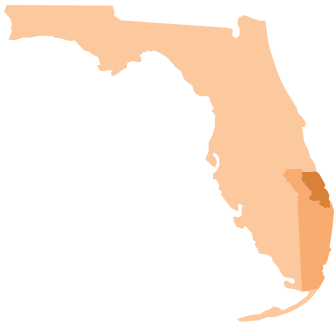


Figure 2.2: Surface Water Resources of the St. Lucie and Loxahatchee Basins



as tidal exchange between the estuary and the Atlantic Ocean. Prior to the construction of the St. Lucie Inlet, the SLE was a freshwater lagoon.

Loxahatchee Basin

In the Loxahatchee Basin, the major feature of the watershed is the Loxahatchee River. The watershed historically included more than 300 square miles of sloughs and wetlands in northern Palm Beach County and southern Martin County, but it has decreased in size and has been significantly modified as the area developed. The North Fork, Northwest Fork, and Kitching Creek are primary tributaries that are less altered by drainage modifications than others. Other natural tributaries (the Southwest Fork, Limestone Creek, and Cypress Creek) have been more significantly altered. Since the 1940s, drainage patterns within the basin have changed and the overall drainage area of the basin and the amount of water available to the river have decreased. The changes include the construction of the C-18 Canal and water control structures, and the construction of secondary drainage canals to provide fresh water for development, flood control, and drainage of more land for agricultural and urban development.

The Northwest Fork of the Loxahatchee River has been greatly affected by the diversion of fresh water south to the West Palm Beach Water Catchment Area, previously part of the 300-square-mile watershed. At the turn of the 19th century, the Loxahatchee Slough, extending from the southern part of the Loxahatchee Basin, was bisected, with its waters diverted or contained to supply water for northern Palm Beach County, in particular, West Palm Beach. This reduced the size of the Loxahatchee River's watershed. The drainage of the remaining northern part of the Loxahatchee Slough through the C-18 Canal has greatly reduced flow to the Northwest Fork, with much of this water diverted to supply Palm Beach Gardens. Flow to Kitching Creek, a main tributary to the river, has been altered and reduced by road construction and agricultural drainage ditches for citrus production.

The dredging and creation of a permanent inlet to the Atlantic Ocean at Jupiter Inlet has allowed more salt water to enter the estuary and has significantly altered the natural hydrography and ecology of the estuary and the river. The Northwest Fork has lost six river miles of cypress swamp since the 1940s due to the encroachment of salt water caused by the dredging of the inlet and the decrease in fresh water flow to the river.

Surface Water Quality Classifications

One surface waterbody in the St. Lucie and Loxahatchee Basins is Class I and provides potable supplies. The C-18 Canal supplies potable water for Seacoast Utility Authority (Seacoast) and the town of Jupiter. Both utilities have consumptive use permits from the SFWMD to draw water from C-18 to recharge their wellfields. The C-18 Canal is a primary ground water recharge source for Seacoast but is used less frequently as a recharge source for wells for the town of Jupiter. Several areas of the IRL and SLE are designated as Class II waters because they include commercially viable shellfish beds (**Figure 2.2**). All other waters in the two basins are Class III, which includes rivers, streams, canals, lakes, ponds, impoundments, wetlands, and estuaries. Although they may exist functionally, no

Class IV waters have specifically been designated in these basins. As elsewhere in Florida, no waterbodies are designated as Class V.

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 are expressed as numeric or narrative limits for specific parameters. They define the water quality necessary to maintain these uses. Florida's surface water is classified using the following five designated use categories:

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

Special Designations

Outstanding Florida Waters and Wild and Scenic Rivers

Figure 2.2 identifies Outstanding Florida Waters (OFW) in the St. Lucie and Loxahatchee Basins. Three of these, the IRL, Loxahatchee River, and North Fork of the St. Lucie River, are also designated as state aquatic preserves.

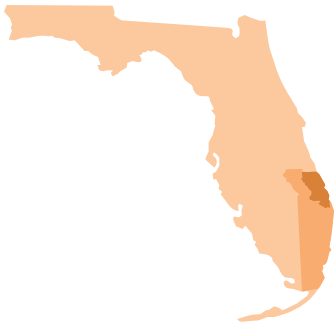
OFWs are designated for "special protection due to their natural attributes" (Section 403.061, F.S.). These waters are listed in Section 62-302.700, Florida Administrative Code (F.A.C.). The intent of an OFW designation is to maintain ambient water quality, even if these designations are more protective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

In 1985, the Northwest Fork of the Loxahatchee River was federally designated as the first Wild and Scenic River in Florida (Florida Department of Environmental Protection [Department] and SFWMD, June 2000). The Wild and Scenic River Program was created to provide some protection through the implementation of river preservation and enhancement programs.

Surface Water Improvement and Management Priority Waters

The 1987 Surface Water Improvement and Management (SWIM) Act (Sections 373.451–373.4595, F.S.) designated the IRL system as a priority waterbody in Florida for restoration and special protection. Because the lagoon system overlaps the jurisdiction of two water management districts, the St. Johns River Water Management District (SJRWMD) and the SFWMD, both districts developed a joint SWIM Plan for the system. However, the lagoon portion from St. Lucie Inlet to Jupiter Inlet is not





covered by the SWIM Plan. The SFWMD and SJRWMD updated the SWIM Plan in 2002.

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

Minimum Flows and Levels

Under the District Water Management Plan (DWMP) for South Florida (SFWMD, 2000), the St. Lucie River and Estuary and the Loxahatchee River and Estuary were designated as priority waterbodies for the development of minimum flows and levels (MFL). The SFWMD produced draft MFLs for the St. Lucie River and the Loxahatchee River in 2001.

To help determine the amount of water that is available for human use from a particular source, the water management district(s) must determine each waterbody's MFL. Under the Florida Water Resources Act (Chapter 373, F.S.), an MFL is the limit at which further water withdrawals will cause significant harm to the water resources of the area and related natural systems. Lakes and aquifers have minimum levels. Minimum flows are set for rivers and streams.

These waterbodies are priorities because consumptive use and alterations to their watersheds have reduced or have the potential for reducing the amount and timing of water being delivered to their estuaries. There is also concern that projected increases in withdrawals could reduce future flows and levels. This is particularly the case for the Loxahatchee River, where the alterations to its watershed have caused a significant reduction in the delivery of fresh water and the adverse changes to the river's ecosystem have been well documented. Although it is not presently a problem, a minimum delivery of fresh water to the SLE is equally important.

Ground Water Resources

Aquifers

Ground water is the primary source of drinking water in the St. Lucie and Loxahatchee Basins. The major aquifer systems in the basins are the surficial aquifer system and the Floridan aquifer system (Lukasiewicz and Smith, 1996; SFWMD, 1998). The surficial aquifer system within this area has fairly good water quality and is the primary source of drinking and irrigation water in urban areas. Ground water from the Floridan aquifer system is available, but its use as a drinking water supply is limited due to high dissolved solids and chloride concentrations. The Upper Floridan

aquifer, however, is used extensively for citrus irrigation, especially in St. Lucie County.

The surficial aquifer system is unconfined and composed of permeable sands (Pamlico sand), limestone (Anastasia Formation), shell beds, and an unconsolidated mixture of clay, sand, and calcium carbonate (Caloosahatchee Formation). It is the primary source of potable water, although its water-bearing properties vary widely throughout the area. The surficial aquifer system exists near the land surface in most of the basins and has a maximum thickness of approximately 200 feet. This unconfined, shallow aquifer system is recharged by local rainfall, and its water-bearing properties vary widely throughout the area.

Low-permeability sediments of the Miocene-age Hawthorn Group create a confining layer for the Floridan aquifer system and lie beneath the surficial aquifer system throughout the basins. The Hawthorn Group, composed of low-permeability phosphatic silts, clays, and marl, is approximately 200 feet thick at the northernmost boundary of the St. Lucie Basin and thickens to approximately 500 feet at the southern edge of the Loxahatchee Basin.

The Suwannee Limestone, Ocala Limestone, and Avon Park Formation are Oligocene- to Eocene-age limestones that comprise the Upper Floridan aquifer in this area and underlie the Hawthorn Group. One to eight different flow zones exist between these formations along unconformities and are frequently used for water supply wells. The thickness of the Floridan aquifer system in the basins ranges from 300 to 1,000 feet and thins toward the southern tip of the basins.

The Lower Floridan aquifer, although present throughout the area, is seldom used as a water supply due to its much higher mineral content. Under natural conditions, the Floridan aquifer system is hydrologically isolated from the surficial aquifer system and is highly mineralized and saline. Recharge to the Floridan aquifer system occurs to the west and northwest of the basins, where the confining unit is thinner and more permeable. Ground water flow in both the surficial and Floridan aquifer systems is generally eastward and northeastward toward the coast.

Ground Water–Surface Water Interactions

The exchange of water between the surficial aquifer system and surface waterbodies is an important consideration in understanding the region's hydrology. In this area, ground water discharge is important because of the shallow water table and the influence of human-made canals and control structures that intersect the surficial aquifer system. These canals are used to control water flow, prevent flooding, and drain otherwise inundated areas, and they also serve to recharge ground water and replenish drinking water supplies. To better understand the contribution of ground water to the St. Lucie Estuary and River and South Indian River Lagoon, the SFWMD has initiated a study to chemically characterize and evaluate the inflows and outflows of water between the surficial aquifer and surface waterbodies.





Ground Water Usage

The demands for water supply in South Florida vary seasonally with high winter demands from seasonal tourists and peak demands in spring for irrigating agricultural crops. Although the surficial aquifer system is the primary source of potable water in the basins, reliance on the Floridan aquifer system is increasing. Most ground water is withdrawn by municipal wellfields operated by St. Lucie West Utilities, Ft. Pierce Utilities, the city of Stuart, Jupiter Water System, and Seacoast Utility for Palm Beach Gardens. As the population continues to grow in this region, the demand on its water supply will be heightened, possibly increasing the use of treated ground water from the Floridan aquifer system. Currently, almost 50 percent of the potable water for Jupiter is drawn from the Floridan aquifer, and the village of Tequesta and Jupiter Island are putting in reverse osmosis (RO) plants to treat water from the Floridan aquifer.

The agricultural industry has the highest freshwater withdrawals and utilizes surface water supplemented by ground water from both the surficial and Floridan aquifer systems. In the western portions of the region, where surface water from canals is used for agricultural needs, a study showed that the existing surface water supplies might not be sufficient to meet continuing water demands. According to the SFWMD, more than 70 percent of the irrigated acreage in St. Lucie and Martin Counties is under permit to use ground water from the Floridan aquifer system as a supplemental source. If demand does not increase, ground water from the Floridan aquifer system should be available to meet present and future agricultural needs without causing adverse impacts.

Critical Water Supply Problem Areas

Critical Water Supply Problem Areas have been designated in much of South Florida where water resources are critical or are anticipated to become critical over the next 20 years (Rule 40E-23, F.A.C.). Within these caution areas, some zones have been categorized as Reduced Threshold Areas for obtaining consumptive use permits. Normally, consumptive use permits are required for daily withdrawals of 100,000 gallons per day or greater, but in Reduced Threshold Areas, permits are required for withdrawals that are 10,000 gallons per day or greater. All of St. Lucie and Martin Counties are identified as Critical Water Supply Problem Areas.

Saltwater intrusion is a primary threat due to increased water use demands along the coast. It is also a problem where deeper wells tap artesian brackish and saline waters and, due to construction problems, allow the intrusion of salt water into freshwater zones. Over the years, thousands of abandoned artesian wells tapped the brackish waters of the Floridan aquifer system, increasing saline water in freshwater zones of the surficial aquifer system. By aggressively implementing an abandoned well-plugging program, SFWMD has greatly reduced this problem.

Watershed Management Activities and Processes

Over the years, management plans and activities in the basins have been implemented to eliminate wastewater discharges; reduce the 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.

Much of the progress in the St. Lucie and Loxahatchee Basins for developing water quality restoration plans and implementing watershed and water quality improvements is attributable to coordinated local, state, and regional efforts. Many plans share common goals, and their implementation is based on various groups playing critical roles in planning, funding, managing, and executing projects. The Department continues to coordinate its efforts with these entities to obtain data, strengthen monitoring activities, and exchange information through periodic meetings. The local organizations and initiatives described in **Table 2.1** provide leadership in waterbody restoration and preservation efforts.

Major Programs and Projects

A number of major restoration initiatives, if continued, will have significant positive effects on the basins' water quality. **Appendix H** contains a summary of management and planning activities designed to improve water quality in the St. Lucie and Loxahatchee Basins. The activities identified are those that have potential benefits to waterbodies on the Verified List.

Indian River Lagoon National Estuary Program and Indian River Lagoon Surface Water Improvement and Management Plan

The IRL National Estuary Program (NEP) was initiated in 1990 under a cooperative agreement between the SJRWMD and U.S. Environmental Protection Agency (EPA). With the SJRWMD as sponsor and the SFWMD, state agencies, and local governments participating, a Comprehensive Conservation and Management Plan (CCMP) was developed for the lagoon. As described previously, the SFWMD and SJRWMD prepared the IRL SWIM Plan (including the SLE but not the Loxahatchee Basin) as a joint initiative. The SWIM Plan provided a technical basis for the CCMP and has been the foundation for implementing many projects related to water quality improvement, restoration, the improvement of public awareness, and assessment and monitoring. The goals of the SWIM Program and the CCMP are as follows:

- Attain and maintain water and sediment quality entering the estuary and lagoon to support a healthy, seagrass-based estuarine ecosystem,
- Attain and maintain the timing and distribution of fresh water and nutrients for a functioning seagrass ecosystem that supports endangered fish and wildlife,



Table 2.1: Summary of Organizations Implementing Waterbody Restoration and Preservation Plans and Projects in the St. Lucie and Loxahatchee Basins

Organization	Role
Federal, State, or Regional Organizations	
South Florida Water Management District (SFWMD)	The SFWMD sponsors a wide variety of local and regional water quality planning, restoration, and monitoring efforts in the area. It is a key partner in the Indian River Lagoon (IRL) National Estuary Program (NEP), the lead regional agency for planning and implementing the IRL/SLE Feasibility Study under the Comprehensive Everglades Restoration Program (CERP), and the lead agency for many conservation land acquisition efforts. SFWMD also operates and maintains the major network of canals, levees, dikes, and control structures within the area.
Indian River Lagoon National Estuary Program	The St. Johns River Water Management District directs the IRL NEP, administered by the EPA, with key involvement by SFWMD and other stakeholders. The Comprehensive Conservation and Management Plan (CCMP) developed under the NEP provides a framework for coordinating activities to preserve, protect, restore, and enhance the IRL system.
U.S. Army Corps of Engineers (USACOE), Jacksonville District	The USACOE has the responsible lead federal role in CERP and the Indian River Lagoon–South and North Palm Beach County Projects that affect these basins.
U.S. Department of Agriculture Natural Resources Conservation Service (NRCS)	NRCS supports the agricultural community in conserving soil and water, and in reducing irrigation volumes and stormwater runoff from agricultural sites.
University of Florida Institute of Food and Agricultural Sciences (IFAS)	The Indian River Research and Educational Center of IFAS carries out valuable research on the reduction of wastewater loads from citrus operations and on the implementation of agricultural and urban best management practices (BMPs) to reduce nutrient loads to the estuary.
Indian River Citrus League	This organization for all citrus growers in the IRL and SLE watersheds is an important player in the implementation of BMPs to improve the quality, quantity, and timing of water draining from citrus operations.
Florida Department of Environmental Protection (Department)	The Department participates on several advisory boards and councils related to the protection of the St. Lucie River, IRL, and Loxahatchee River. It regulates many of the activities contributing to water pollution. The Division of Recreation and Parks manages two state parks and other state-owned lands within the two basins. The Department actively monitors water quality in the St. Lucie River Basin and sporadically in the Loxahatchee Basin. It also funds and manages the removal of exotic vegetation on publicly owned lands and manages many state and federally funded contracts for restoration projects in these basins.
St. Lucie Basin Organizations and Local Governments	
St. Lucie River Issues Team	This organization of St. Lucie Basin stakeholders—representing regional, local, and state government agencies, environmental groups, and agricultural interests—funds, supports, prioritizes, and implements watershed and water quality improvement and protection projects.
St. Lucie River Initiative	This organization serves as an advocate for the St. Lucie River and Estuary. Its function is to champion more effective action and communication between agencies and organizations responsible for protecting and restoring the river. The goals of the initiative are to improve the water quality and ecological integrity in the estuary through the reduction of pollutant and freshwater inflows and restoration.
Martin County	Martin County is an active participant and leader in conservation land acquisition and watershed/water quality improvement measures. Wetland protection and stormwater treatment measures are key considerations in the county Comprehensive Plan for development.

Table 2.1 (continued)

Organization	Role
St. Lucie Basin Organizations and Local Governments (continued)	
City of Stuart	The city of Stuart implemented a stormwater utility program in 1994 to provide a steady, dependable source of funds to support stormwater projects within the city. The city has been responsible for implementing source controls and stormwater BMPs to treat water flowing into the SLE.
City of Port St. Lucie	Port St. Lucie started a stormwater management program in 1985 and a stormwater utility in 1988. In addition to drainage improvements, the stormwater utility supports a monitoring program.
City of Fort Pierce	Fort Pierce implemented a stormwater capital improvement projects program.
Loxahatchee Basin Organizations and Local Governments	
Loxahatchee River Environmental Control District (Loxahatchee River District)	Dedicated solely to the Loxahatchee River watershed, this organization has for nearly 30 years been responsible for public outreach, education, research, monitoring, and conservation and restoration projects that benefit the Loxahatchee River and its tributaries. It brought sewage treatment to the urban parts of the watershed and now provides reuse water for irrigation to conserve valuable water resources. It is the first agency to implement a regional stormwater management plan for the area.
Jupiter Inlet District	The District is responsible for the maintenance and preservation of the Jupiter Inlet, with a specific emphasis on the navigability of the inlet and the maintenance and preservation of the Loxahatchee River downstream of Jonathan Dickinson State Park. This agency has developed the "River Management Plan" as a guidance document for the long-term management of the Loxahatchee River.
Martin County	Martin County is an active participant and leader in conservation land acquisition and watershed/water quality improvement measures. Wetland protection and stormwater treatment measures are key considerations in the county Comprehensive Plan for development.
Palm Beach County	Palm Beach County has an aggressive land acquisition program that has resulted in the protection of several large natural areas in the Loxahatchee River watershed. The county is actively restoring and conserving these lands while making them accessible to the public.
Town of Jupiter	This municipality has a broad range of responsibilities pertinent to water quality in the Loxahatchee River watershed. Besides protective ordinances and greenways projects, Jupiter has many stormwater improvement projects to retrofit older neighborhoods and industrial parks. It created a stormwater utility and drafted a stormwater management plan in 1994. In addition, facing increasing water shortages in northern Palm Beach County, the town took the step of investing in a reverse osmosis plant that went online in 1990. This step has improved ground water levels and helped protect wetlands from drying out during the recent drought.
Loxahatchee River Coordinating Council	The council was created in 1983 to develop the Loxahatchee River National Wild and Scenic River Management Plan, which was most recently updated in June 2000. Staffed by the SFWMD, this advisory group, consisting of agencies and citizens, meets at least quarterly to monitor activities and developments that may affect the natural or cultural values in the designated Wild and Scenic River corridor.
Loxahatchee River Watershed Planning Committee	The Department formed this stakeholder group in 1996 to address environmental problems in the 278-square-mile watershed. The group mapped the watershed and then drafted the 1998 Loxahatchee River Watershed Action Plan. The action plan identifies water quality improvement projects for state and local funding.
Loxahatchee River Preservation Initiative	This subcommittee of the Watershed Planning Committee is seeking state funding for important water quality improvement projects in the watershed. These include stormwater retrofits for older neighborhoods, wetland/hydrologic restoration, and sewage treatment and potable water to campgrounds along the Northwest Fork of the Loxahatchee River.



- Achieve heightened public awareness and coordinate interagency management, and
- Identify and develop long-term funding sources for prioritized projects and programs to preserve, protect, restore, and enhance the IRL system.

Both water management districts recently updated the SWIM Plan. One project that the SFWMD is responsible for under the IRL SWIM Plan is the development of pollutant load reduction goals (PLRGs) for salinity, nutrients, and total dissolved solids in the IRL and the SLE. Once developed, these PLRGs can be used as targets for setting TMDLs, if they are required. The SFWMD is using computer models to evaluate pollutant load reduction strategies. Salinity models are being developed and used to simulate freshwater inflows into the estuary. In order to model watershed water quality, the SFWMD has initiated a project to develop a watershed hydrology and water quality model (WaSh) that will be used to develop management strategies to improve water quality.

Comprehensive Everglades Restoration Program

The purpose of this nationally significant federal and state program is to restore and preserve South Florida's natural ecosystems, while enhancing water supplies and providing flood control. The lead agencies are the USACOE and SFWMD. The implementation of the program will have the single largest impact in improving water quality, and the timing and delivery of water, in the South IRL and the SLE. As discussed earlier, the C&SF Project of 1948 created the vast network of canals and levees, pumping stations, water control structures, and impoundments that control the hydrology of South Florida.

The Comprehensive Everglades Restoration Program (CERP) was commissioned to review the effects of the C&SF Project and find alternatives to restore/protect some of the region's natural systems. Under Section 528 of the Federal Water Resources Development Act, projects included in CERP must be designed to meet all federal, state, and local water quality criteria. The control of high nutrient loadings from drainage and irrigation canals is the primary water quality concern within CERP basins. TMDLs for impaired waterbodies in these basins will guide design criteria and water quality targets for these projects. The IRL and North Palm Beach Projects are components of CERP that have great potential for significantly improving conditions in the St. Lucie and Loxahatchee Basins (see **Noteworthy** on CERP activities affecting water quality).

The Indian River Lagoon–South (IRLS) Restoration Feasibility Study was included as part of the authorizations for the Restudy of the entire Central and Southern Florida Project under the 1992 and 1996 Water Resources Development Acts (WRDA). The IRLS Project was included in the resulting Comprehensive Everglades Restoration Plan (CERP) authorized by WRDA 2000. The Final Project Implementation Report, which presents the recommended IRLS plan and addresses requirements unique to CERP, was recently released (USACOE and SFWMD, 2004). The IRLS Project focuses on large-scale surface water management options

CERP Activities Affecting Water Quality in the Basins

Proposed CERP components under the IRL–South (IRLS) Project and North Palm Beach (NPB) Project Part 1 will significantly impact water quality in waterbodies of the St. Lucie and Loxahatchee Basins. Below is a summary of the activities that are proposed. These are shown in **Figure 2.2**, the surface water resources map.

Project Category	CERP Project/Component	Location	Major Group 2 Waterbodies Receiving Benefits
Water Storage, Treatment, and Distribution	IRLS/C-23/24 Reservoirs and STA	C-23 and C-24 Canal Subbasins	North Fork St. Lucie River, St. Lucie Estuary
	IRLS/C-25 Reservoirs and RSTA	C-25 Subbasin	Indian River Lagoon, C-25 Canal
	IRLS/C-44 Reservoirs and STA	C-44 Subbasin	St. Lucie Estuary, C-44 Canal
	NPB/L-8/C-51 Reservoirs and STA	L-8 Basin (Group 3)	Northwest Fork Loxahatchee River
	C-17 Backpumping	C-17 Basin (Group 3)	Northwest Fork Loxahatchee River
Wetland Restoration and Reconnection	IRLS/North Fork St. Lucie Natural Floodplain Restoration	North St. Lucie Basin	North Fork St. Lucie River, St. Lucie Estuary
	IRLS/Cypress Creek Complex Natural Storage and Water Quality Area	C-24 Subbasin	C-24 Canal, St. Lucie Estuary
	IRLS/Allapattah Complex Natural Storage and Water Quality Area	C-24 Subbasin	C-23 Canal, C-24 Canal, North Fork St. Lucie River, St. Lucie Estuary
	IRLS/Pal-Mar Complex Natural Storage and Water Quality Area	South St. Lucie Sub-basin	South Fork St. Lucie River, St. Lucie Estuary, C-44 Canal
	NPB/Pal-Mar and Corbett Hydropattern Restoration	Loxahatchee Basin	Northwest Fork Loxahatchee River, Loxahatchee Slough, Loxahatchee Estuary
Estuary Restoration	IRLS/Muck Remediation and Artificial Habitat	St. Lucie Estuary	St. Lucie Estuary



in the canal basins of Martin and St. Lucie Counties. The objectives of the project are to improve the quality, quantity, and timing of flows to the IRL and SLE; improve the habitat quality of estuarine ecosystems; improve the functions of wetland ecosystems; reduce sediment loading and accumulation; improve water supply; and provide recreational enhancements. The recommended plan under the Project Implementation Report includes the following:

- The construction of reservoirs and stormwater treatment areas to attenuate stormwater transported by C-23, C-24, C-25, and C-44, and to regulate and provide treatment of water being discharged to the IRL and SLE;
- The restoration of wetland areas by creating localized natural storage and water quality areas that will attenuate stormwater, provide ground water recharge and reduce the volume of water discharged to the C-23, C-24, and C-44 Canals;
- The restoration of the natural flow of the North Fork of the St. Lucie River; and
- The restoration of the ecological integrity of the SLE by removing organic sediment and ooze and creating artificial habitat for shellfish.

The CERP activities that will significantly impact water quality and any potential effects of those projects in the St. Lucie–Loxahatchee Basins will be considered in TMDL development. The waterbody identification numbers (WBID) that are scheduled for TMDL development by 2005 are the North St. Lucie segment (WBID 3194), St. Lucie segment (WBID 3194B), C-24 segment (WBID 3197), and Bessey Creek segment (WBID 3211). The IRLS/C-23/C-24 Reservoir and STA project geographically overlays with the North St. Lucie and C-24 segments. The IRLS/North Fork St. Lucie Natural Floodplain Restoration project geographically overlays with the North St. Lucie and St. Lucie segments. The IRLS/Cypress Creek Complex Natural Storage and Water Quality Area overlays with the North St. Lucie, St. Lucie, and C-24 segments. One other CERP project, the IRLS/Allapattah Complex Natural Storage and Water Quality Area overlays the St. Lucie, C-24, and Bessey Creek segments.

Table 2.2 lists the performance measures and their associated targets for the CERP IRL–South Project (USACOE and SFWMD, 2004). The recommended plan was selected from a group of alternatives based on its ability to meet these targets, which related directly to the study goals and objectives. It should be noted that while the water quality performance measures, in particular, list precise numeric targets, the evaluation criteria in **Table 2.2** state that the objective is a reduction in phosphorus and nitrogen loading to receiving waterbodies. The IRLS Project Delivery Team did not consider the IRLS project itself to be solely responsible for providing all needed water quality improvements in this region. The study sought to provide substantial water quality improvements for the SLE, IRL, and Lake Okeechobee, but was not intended to meet existing or anticipated water

Table 2.2: CERP IRL–South Performance Measures (USACOE and SFWMD, 2004)

Performance Measures	Target
Estuarine Ecosystem	
Discharges from C-23 at S-48 to estuary	7,781 acre-feet/year
Discharges from C-24 at S-49 to estuary	9,540 acre-feet/year
Reduce number of occurrences between 2000 and 3000 cubic feet per second (cfs) mean monthly flow	18 occurrences
Reduce number of occurrences over 3000 cfs mean monthly flow	5 occurrences
Reduce number of occurrences below 350 cfs mean monthly flow	178 or fewer occurrences
Number of times C-44/C-23 connector canal transports water north in 30-year period (Northward diversion)	3 occurrences
Phosphorus load to SLE	110 metric tons/year
Nitrogen load to SLE	816 metric tons/year
Phosphorus load to IRL from C-25 and C-1 Basins	17 metric tons/year
Nitrogen load to IRL from C-25 and C-1 Basins	233 metric tons/year
Phosphorus load to Lake Okeechobee via C-44 Canal	5.5 metric tons/year
Watershed Ecosystem	
Watershed flow patterns to North Fork (via diversion) <200 cfs	272,500 acre-feet/year
Watershed flow patterns to historical South Fork (via diversion)	82,000 acre-feet/year
Wetlands restored 100 percent	29,500 acres
Wetlands restored 50 percent	25,000 acres
Water Supply/Flood Protection	
Replace agricultural withdrawals from Floridan aquifer—during dry years—with reservoir water	27 (years where reservoir replaces aquifer withdrawal out of 30 years)
Replace agricultural withdrawals from Floridan aquifer with reservoir water	44,509 acre-feet/year from reservoirs
Maintain existing level of flood protection	0 “days in 31 years with flow greater than 2050 base”



quality targets in the absence of other efforts and programs (USACOE and SFWMD, 2004).

The North Palm Beach Project Part 1 of the CERP consists of several regional projects that collectively will improve hydrology and water quality, and increase storage areas in the L-8, C-51, C-17, and C-18 drainage basins. The project will allow for increased water supplies while restoring and enhancing receiving waters, including Loxahatchee Slough, the Lake Worth Lagoon, and the Northwest Fork of the Loxahatchee River. Elements of this CERP project are closely tied to other projects, including the recently completed North Palm Beach County Comprehensive Water Management Plan and the ongoing L-8 General Reevaluation Report (GRR) study. Several of the proposed project elements included under the Part 1 project will achieve the following:

- Help rehydrate the Loxahatchee Slough and the West Palm Beach Catchment Area,
- Restore hydrologic connections between wetland areas,
- Increase base flows to the Northwest Fork of the Loxahatchee River,
- Reduce high discharges to the Lake Worth Lagoon, to the south of the Loxahatchee Basin, and
- Restore the Lake Worth Lagoon through sediment removal and capping.

St. Lucie River Issues Team Projects

The St. Lucie River Issues Team was formed in 1998 to develop federal, state, and stakeholder consensus on an action plan to accelerate progress toward improving water and habitat quality in the St. Lucie River and Estuary. The SFWMD Martin County Service Center provides guidance and staff support to the Issues Team. Major issues of concern to the team include the excess amounts of fresh water released into the estuary from Lake Okeechobee, the freshwater inflow and discharge of pollutants from urban stormwater, and freshwater consumption by agricultural and urban development. The Issues Team includes representatives of the key stakeholders in the St. Lucie Basin who developed an interim action plan and a list of projects to improve water quality in the SLE. The projects solicited and prioritized by the Issues Team are divided into four major categories: stormwater retrofits, water storage areas, restoration, and programs. In fiscal year (FY) 1999–2000, the Issues Team was successful in acquiring funding for 24 projects. In FY 2000–2001, there were 28 funded projects. In FY 2001–2002, the Issues Team successfully acquired funding of \$4 million. A total of 32 projects have been funded, with a 3-year total of \$21.5 million.

Loxahatchee River Watershed Planning Committee Initiatives

The Loxahatchee River Watershed Planning Committee, sponsored by the Department, is the stakeholder group responsible for formulating the Loxahatchee River Watershed Action Plan. The focus of this group is to protect and enhance the natural resources of the Loxahatchee River

watershed through the coordination of public land acquisition, land use planning, and regulatory activities. Under this group, the Loxahatchee River Preservation Initiative is responsible for identifying and seeking state funding for water quality improvement projects in the watershed. This initiative has identified and prioritized 12 projects totaling \$5.92 million for the FY 2004 Legislative Funding Request.

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 best management practices (BMP). 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 and assisting the agricultural community in taking voluntary measures to reduce the pollutants they generate. BMPs have also been developed by IFAS, the U.S. Department of Agriculture (USDA), and the Department to assist the agricultural community in conserving water and reducing pollution from stormwater runoff. 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.

Agricultural stormwater runoff contributes appreciably to water quality concerns related to nutrients and sediment in the St. Lucie and Loxahatchee Basins. As TMDLs are developed for waterbodies in the St. Lucie and Loxahatchee Basins, the implementation of agricultural BMPs will be critical in the attainment of water quality criteria. The Department and DACS will work with local agricultural interests in monitoring and refining BMP effectiveness.

To encourage growers to use BMPs, BMP manuals have been published for a number of agricultural industries in Florida. Many of these manuals can be downloaded at <http://www.dep.state.fl.us/water>. The use of a BMP manual alone, however, does not presume compliance with the Department's water quality standards.

Citrus groves cover a large percentage of the land area in the St. Lucie Basin, as well as some of the Loxahatchee Basin. In 1999, IFAS developed a Water Quality/Quantity BMP manual for Indian River Area Citrus Groves (Boman et al., 1999), with full support by the Indian River Citrus League. The citrus BMPs are intended to minimize the off-site discharge of water





after excessive rainfall; minimize the off-site transport of sediments, nutrients, pesticides, and metals; and minimize the proliferation of aquatic plants in waterways. This manual also addresses BMPs to minimize the transport of aquatic plants off-site to public waterways.

Pastureland also covers a large percentage of the St. Lucie Basin. Most of this land is in beef cattle production. A BMP guidance document for Cow/Calf Operations was produced by the Florida Cattlemen's Association in 1995 and is supported by the Department (Florida Cattlemen's Association, 1999). This BMP manual presents practices intended to reduce the off-site transport of nutrients, sediment, pesticides, and other toxic materials used routinely in cattle operations.

Land Acquisition

Land acquisition programs preserve and restore the natural communities within the estuary and its watershed; create wetland treatment areas to store, attenuate, and help clean stormwater; and provide valuable buffers for pristine areas. Federal, state, regional, and local governments have contributed to land acquisition in the basins. Programs such as Preservation 2000 (and its successor Florida Forever), the IRL Blueway Conservation and Recreation Lands (CARL) Program project, the IRL Save Our Rivers (SOR) legislation, as well as local government initiatives, have been responsible for significant acquisitions. These include the following:

- Jonathan Dickinson State Park and Loxahatchee River Aquatic Preserve and Loxahatchee SOR Project,
- Savannas State Reserve and Recreational Area,
- Indian River, Jensen Beach to Jupiter Inlet Aquatic Preserves,
- North Fork St. Lucie River Aquatic Preserve,
- Pal-Mar,
- Loxahatchee Slough,
- Atlantic Ridge, and
- Dupuis Reserve.

Some of these land acquisitions support restoration efforts included in CERP projects, such as the re-creation of natural flow-ways in the Allapattah Flats and Pal-Mar, and the reconnection of the floodplain along the North Fork of the St. Lucie River.

Public Awareness and Involvement

Public education and involvement in water conservation and water quality improvements are vital, particularly in residential areas where individual homeowners contribute appreciably to stormwater quality problems. The St. Lucie River Initiative sponsors the Adopt a Drop Program that provides education and advice to property owners about how they and members of their neighborhood can address stormwater problems. The Florida Yards & Neighborhoods (FY&N) Program, created by IFAS, was

developed to address the serious problems of pollution and disappearing habitats by involving homeowners. The program is ongoing in both the St. Lucie and Loxahatchee Basins. FY&N provides special educational and outreach activities directed at the community to help residents reduce pollution and enhance their environment by improving home and landscape management. Several groups are also focusing on environmental awareness programs, educational opportunities for children and adults, newsletters, and volunteer sampling programs in the Loxahatchee Basin. These include the Loxahatchee River District, the Loxahatchee River Watershed Environmental Education Committee, the Nature Conservancy, and the Busch Wildlife Sanctuary. The Loxahatchee River District also sponsors the “Friends of the Loxahatchee,” a group of concerned citizens.

South Florida Water Quality Protection Program

The South Florida Water Quality Protection Program (SFWQPP), funded in part by the EPA, established in 1999, was designed to integrate water quality protection efforts, develop a compendium of existing water quality protection strategies, summarize existing water quality information, determine major pollutant sources, and document actions currently under way to address these sources.

Due to the successful regulation efforts to mediate impacts from point sources, nonpoint source pollution has become the single largest threat to South Florida waters. Nonpoint sources can be broadly subdivided into stormwater runoff from agricultural activities and stormwater runoff from urban development. Since BMPs would address stormwater runoff from agriculture under the purview of DACS, the SFWQPP has initially focused on addressing nonpoint source pollution arising from urbanization. To accomplish this, actions under the SFWQPP have included identifying, obtaining, reviewing, and evaluating stormwater control plans aimed toward maximizing their benefit to the overall effort to restore and maintain the South Florida ecosystem. Under this program, the Department is also involved in assessing water quality conditions and pollutant loadings to waterbodies in the northern Palm Beach County area, which includes the Loxahatchee Basin.





Chapter 3: Surface Water Quality Assessment

Scope of the Assessment

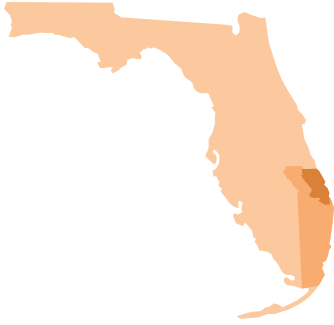
This chapter presents the results of an updated assessment of surface water quality in the St. Lucie and Loxahatchee Basins. The primary purpose of the assessment is to determine if waterbodies or waterbody segments are to be placed on the Verified List of impaired waterbodies. The listing will be in 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 basins for which Total Maximum Daily Loads (TMDL) will be developed.

The chapter describes the planning units in the basins 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 B** provides additional information on reasonable assurance. **Appendix C** provides the methodology used to develop the Planning and Verified Lists. **Appendix D** contains the integrated water quality assessment summary (**Table D.1**) and the water quality monitoring stations used in the assessment (**Table D.2**). **Appendix E** lists permitted wastewater treatment facilities and landfills in the basins, and **Appendix F** lists Level I 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>.





DBHydro

The SFWMD's corporate environmental database that stores hydrologic, meteorologic, hydrogeologic, and water quality data.

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. Beginning in early 2002, a strategic monitoring program was carried out by the Water Quality Section of the Florida Department of Environmental Protection's (Department) Southeast District. The focus of this program was to collect the additional data necessary to verify conditions in many of the potentially impaired waterbody segments. A minimum of 10 samples was collected from each potentially impaired segment. A particular emphasis of the program was to collect chlorophyll *a* data in accordance with the IWR criteria to properly evaluate nutrient-related impairments in segments of the St. Lucie Estuary (SLE), Indian River Lagoon (IRL), and major canals.

Nine 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), biochemical 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).

Thirty waterbody segments were verified as impaired for at least one parameter in the St. Lucie and Loxahatchee Basins as the result of strategic monitoring and data-gathering activities in Phase 2. **Table D.1** in **Appendix D** provides the updated impairment status of the basins as of December 8, 2003.

Sources of Data

The assessment of water quality in the St. Lucie and Loxahatchee Basins includes an analysis of quantitative data from various sources, some of which are readily available to the public. These sources include the South Florida Water Management District (SFWMD) **DBHydro** water quality database, the U.S. Environmental Protection Agency's (EPA) Legacy and "new" **STO**rage and **RE**trieval (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, the Loxahatchee River Environmental Control District, local governments, and volunteer monitoring groups. **Appendix C** 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 Database for the St. Lucie and Loxahatchee Basins for the period of record used in this assessment. **Figure 3.1** contains a chart showing the amount of data provided by each source.

Table 3.1: Summary of Data Providers in the St. Lucie and Loxahatchee Basins

Organization	Number of Records Collected by Calendar Year												
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
South Florida Water Management District	15,653	38,201	34,382	29,244	31,222	30,775	29,809	23,354	26,750	31,311	38,073	29,213	11,011
Florida Department of Environmental Protection	3,108	2,057	6,099	5,187	3,469	4,456	7,110	3,406	4,341	4,361	4,133	4,825	6,985
U.S. Geological Survey	343	517	954	957	777	443	825	774	586	940	624	207	
Loxahatchee River District	1,066	875	1,696	1,869	2,974	3,359	3,139	3,287	3,722	2,859			
Marine Resource Council		523	1,560	158	184	1,364	844		2,124				
Florida Department of Health											457	1,068	1,458
Palm Beach County Environmental Resource Management	687	683	445	262	207	65				43	138	151	29
St. Lucie County						115	180	210	228				

The data provided were collected during 1991 through 2002 for the St. Lucie and Loxahatchee Basins by the EPA–Region 4, SFWMD, Department, USGS, Loxahatchee River District, Marine Resource Council, DOH, Palm Beach County Environmental Resource Management, and St. Lucie County.

In 2002, the Department created the IWR Database to evaluate data in accordance with the methodology prescribed in the IWR (Rule 62-303, F.A.C.). For the Planning List assessment, the data evaluation period of record is 10 years, and for the Verified List, 7.5 years. **Table C.2** in **Appendix C** 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 St. Lucie and Loxahatchee Basins (IWR 2003 Run 14.2).

To support listing decisions, the evaluation of water quality in the St. Lucie and Loxahatchee Basins also includes qualitative information drawn from the IRL Surface Water Improvement and Management (SWIM) Plan, the Loxahatchee River Minimum Flows and Levels (MFL) report, and the IRL–South Feasibility Study. Additionally, a draft document produced by the Department’s Southeast District Water Quality Sec-

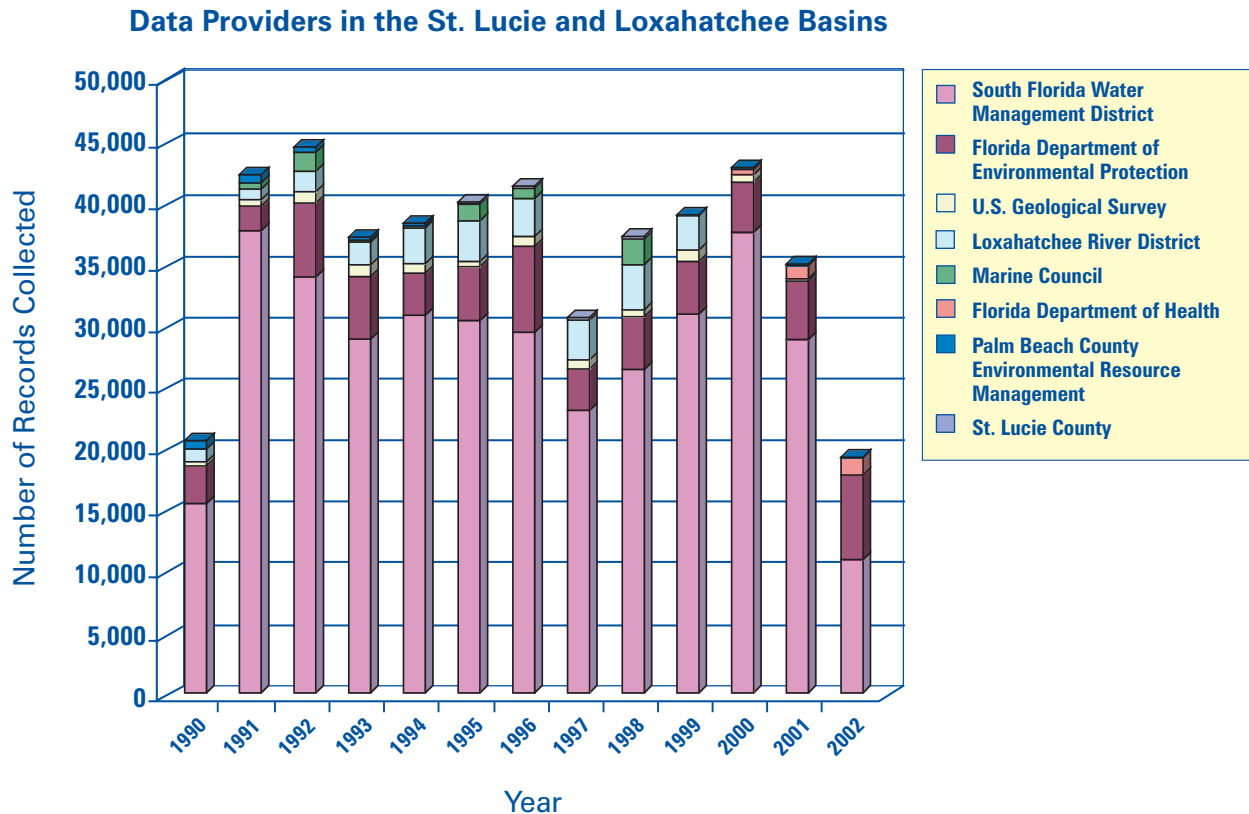


Figure 3.1: Sources of Data for the St. Lucie and Loxahatchee Basins

tion, *St. Lucie Estuary: Evidence of Impairment* (Graves et al., June 2002), was used as the basis for supporting listing decisions for some of the SLE segments.

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 Water Quality Assessment Report integrates the 303(d) list and the 305(b) report for the St. Lucie and Loxahatchee Basins.

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

Because not enough recent data on chemistry, biology, and fish consumption advisories have been collected, currently only a few waterbodies or waterbody segments statewide fall into Category 1 (attaining all uses). In particular, fish tissues in many waterbodies statewide have not been tested for mercury. Out of 66 waterbodies or waterbody segments in the St. Lucie and Loxahatchee Basins, none has sufficient data to assess all designated use categories.

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

However, most waterbodies in the state fall into Category 3 (having insufficient data). In the St. Lucie and Loxahatchee Basins, the breakdown of waterbodies or segments in Category 3 is as follows:



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 the 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 that 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 Status 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 the EPA approves a TMDL for the impaired waterbody or segment, it will be included in a Basin Management Action Plan (BMAP) 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.

- Category 3a—3 segments for which no data are available to determine their water quality status,
- Category 3b—7 segments with some data but not sufficient data for making any determinations, and
- Category 3c—8 segments that are potentially impaired based on the Planning List criteria.

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

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

- Category 4a—Segments for which a TMDL has already been developed,
- Category 4b—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—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.

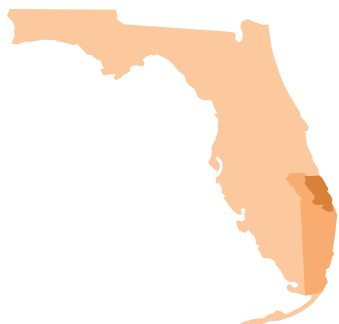
Finally, 30 waterbodies in the basins are in Category 5. These impaired waterbodies are on the Verified List of impaired waters adopted by the Department's Secretary and will require TMDLs. Chapter 5 of this report discusses in detail the waters in this category.

Planning Units

The St. Lucie and Loxahatchee Basins encompass approximately 1,300 square miles and a complex hydrologic system. To provide a more detailed geographic basis for identifying and assessing water quality improvement activities, the basins were 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 St. Lucie and Loxahatchee Basins contain eight planning units: C-25/Basin 1, North St. Lucie, C-24, C-23, South St. Lucie, C-44, Loxahatchee, and Coastal. **Table 3.4** describes these planning units, and **Figure 3.2** shows their locations and boundaries. The remainder of this chapter provides a general description of each planning unit, information on land uses 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 D of this report provides, by planning unit, the integrated assessment summary and a list of water quality monitoring stations.

Appendix E includes summary information, by planning unit, for permitted wastewater treatment facilities and landfills. **Appendix F** lists Level I land uses in the basins, by planning unit.

Table 3.4: Planning Units in the St. Lucie and Loxahatchee Basins

Planning Unit	Description
C-25/Basin 1	The northwestern subbasin in the south segment of the IRL. Includes a complex network of canals for agricultural drainage (C-25, Basin 1, C-25 East, and the Ft. Pierce Farms Canal). Basin 1 includes the Ft. Pierce Farms Water Control District.
North St. Lucie	Extends from Ft. Pierce Inlet to the St. Lucie Inlet and westward to the C-24 Canal. Historically, the planning unit drained naturally into the SLE and includes the North Fork of the St. Lucie River and its main tributaries, Tenmile Creek and Fivemile Creek. The planning unit also includes the North St. Lucie Water Control District, located in the northern part where drainage flows to Tenmile Creek, C-25 Canal, and C-24 Canal.
C-24	Located west of the North St. Lucie planning unit and mostly outside the area that would naturally discharge to the IRL. Construction of the C-24 Canal created an outlet to the SLE. Agricultural canals extensively improve drainage of the planning unit. The planning unit is not further divided into subbasins.
C-23	Located south of C-24 and, like C-24, and is not further divided into subbasins. Agricultural drainage canals in the planning unit discharge to C-23, which can discharge to the North Fork of the St. Lucie River.
South St. Lucie	Includes the natural drainage of the South St. Lucie River and contains several other drainage areas, including Basin 2, Bessey Creek (Basin 4), Basin 5, Basin 6, and the Tidal St. Lucie drainage. Also includes the outlet of the C-44 Canal to the estuary.
C-44	Includes the St. Lucie Canal, which is part of the navigational route between the east and west coasts of Florida and directly connects Lake Okeechobee to the St. Lucie River. Agricultural canals locally improve drainage. Planning unit is not further divided into subbasins.
Loxahatchee	Includes the Loxahatchee River and its tributaries. Contains multiple drainage basins. Main tributaries include the North, Northwest, and Southwest Forks of the river, Kitching Creek, C-18 Canal, and Cypress Creek.
Coastal	Includes the North Coastal, Mid Coastal, and South Coastal subbasins of the St. Lucie River Basin and the Coastal subbasin of the Loxahatchee Basin. The South IRL and most of the SLE are included, as well as three inlets to the Atlantic Ocean.

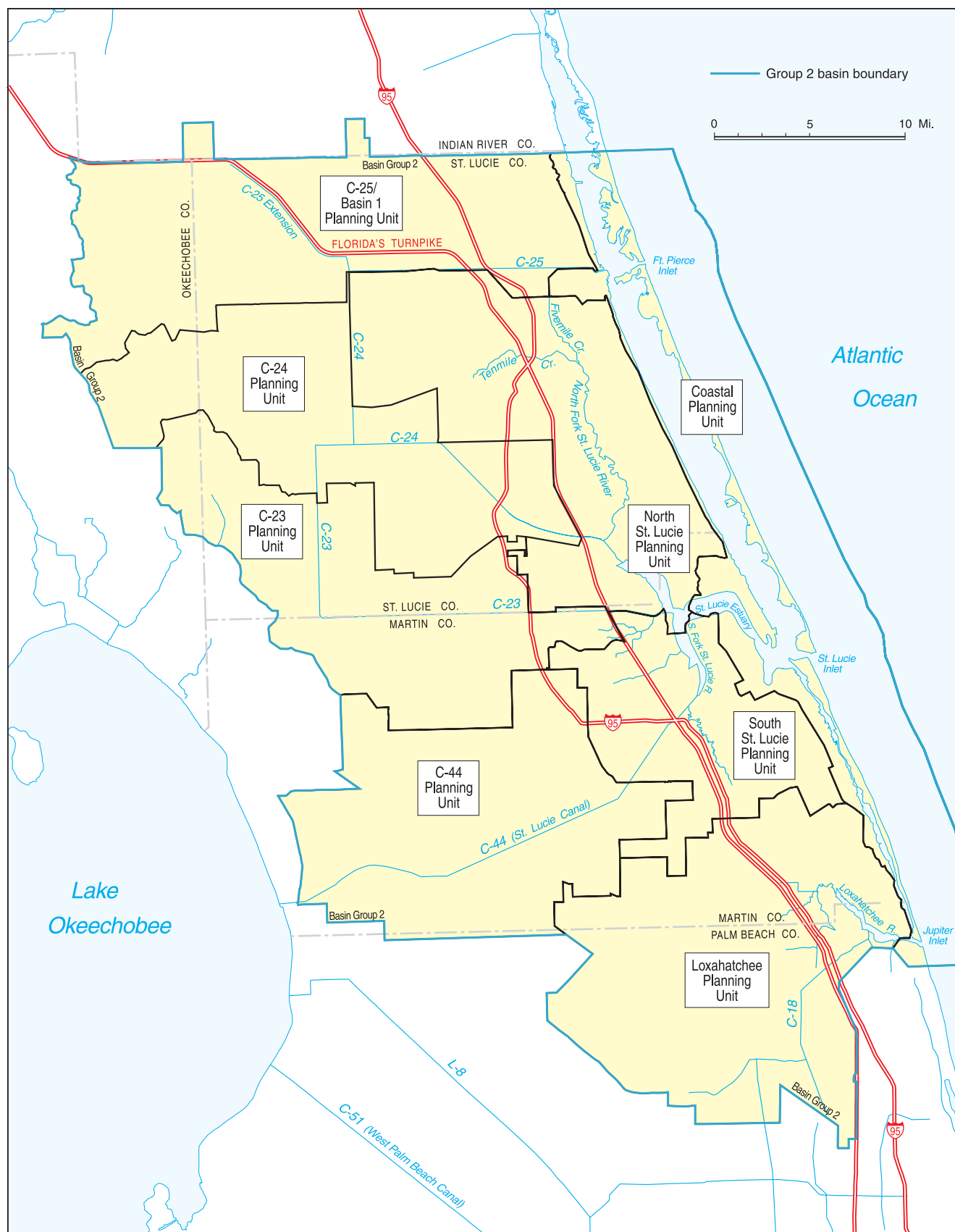


Figure 3.2: Locations and Boundaries of Planning Units in the St. Lucie and Loxahatchee Basins



Assessment by Planning Unit

• C-25/Basin 1 Planning Unit

General Description

The planning unit includes the watershed of the C-25 Canal (also known as Belcher Canal), which transports water eastward across northern St. Lucie County from near the St. Lucie–Okeechobee County border. It includes the C-25, Basin 1, and C-25 East subbasins that are defined by the SFWMD. The USGS includes all of these but Basin 1 as being in the Southeast Florida Coast hydrologic unit. As defined by the USGS, Basin 1 lies in the Indian River South hydrologic unit.

The planning unit contains a complex network of canals, primarily for agricultural drainage, that has created a conveyance for discharge to the IRL. Runoff from the western part of the planning unit can discharge southward to the C-24 Canal via the C-25 extension (C-25 EXT). Runoff from the eastern and central portions of this subbasin is conveyed eastward through the S-99 structure on the C-25 Canal. Basin 1, east of S-99, receives drainage from the Ft. Pierce Farms Water Control District (WCD) that was established under Chapter 298, Laws of Florida. The Ft. Pierce Farms WCD Canal #1 is the primary surface water conveyance for Basin 1, draining the agricultural area and inhibiting saltwater intrusion. Canal #1 and C-25 discharge into the South IRL through the mouth of Taylor Creek at Ft. Pierce. The eastern part of this planning unit includes the northern edge of the Ft. Pierce city limits.

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, potential pollution sources, and CERP projects. **Table 3.5** summarizes the water quality assessment status of all waterbody segments in the planning unit. Waterbodies represented by these data include the C-25 Canal, lakes in the Lakewood Park subdivision, and Cowbone Creek.

The table and figure show that two waterbody segments in the planning unit are impaired. The eastern segments of the C-25 Canal (WBID 3163B) and the Ft. Pierce Farm Canal (WBID 3163) are confirmed as impaired for DO by the IWR criteria. WBID 3163B (East Segment) is also listed as impaired for nutrients and iron.

Potentially impaired segments based on the IWR criteria include: C-25 West, WBID 3160 (also known as the C-25 Extension), for DO, nutrients, total coliforms, fecal coliforms, pH, and iron; WBIDs 3163 and 3163B for biology; and Cowbone Creek (WBID 3189), in the western part of the planning unit, for total coliforms, fecal coliforms, DO, and nutrients. To verify the impairment of waterbodies based on DO exceedances or biology, causative pollutants need to be identified. Four waterbody segments are on the 1998 303(d) list of potentially impaired waters: WBID 3160 for DO, nutrients, and coliforms; WBID 3163 for nutrients and DO; WBID 3163B for DO; and WBID 3189 for coliforms, DO, and nutrients.

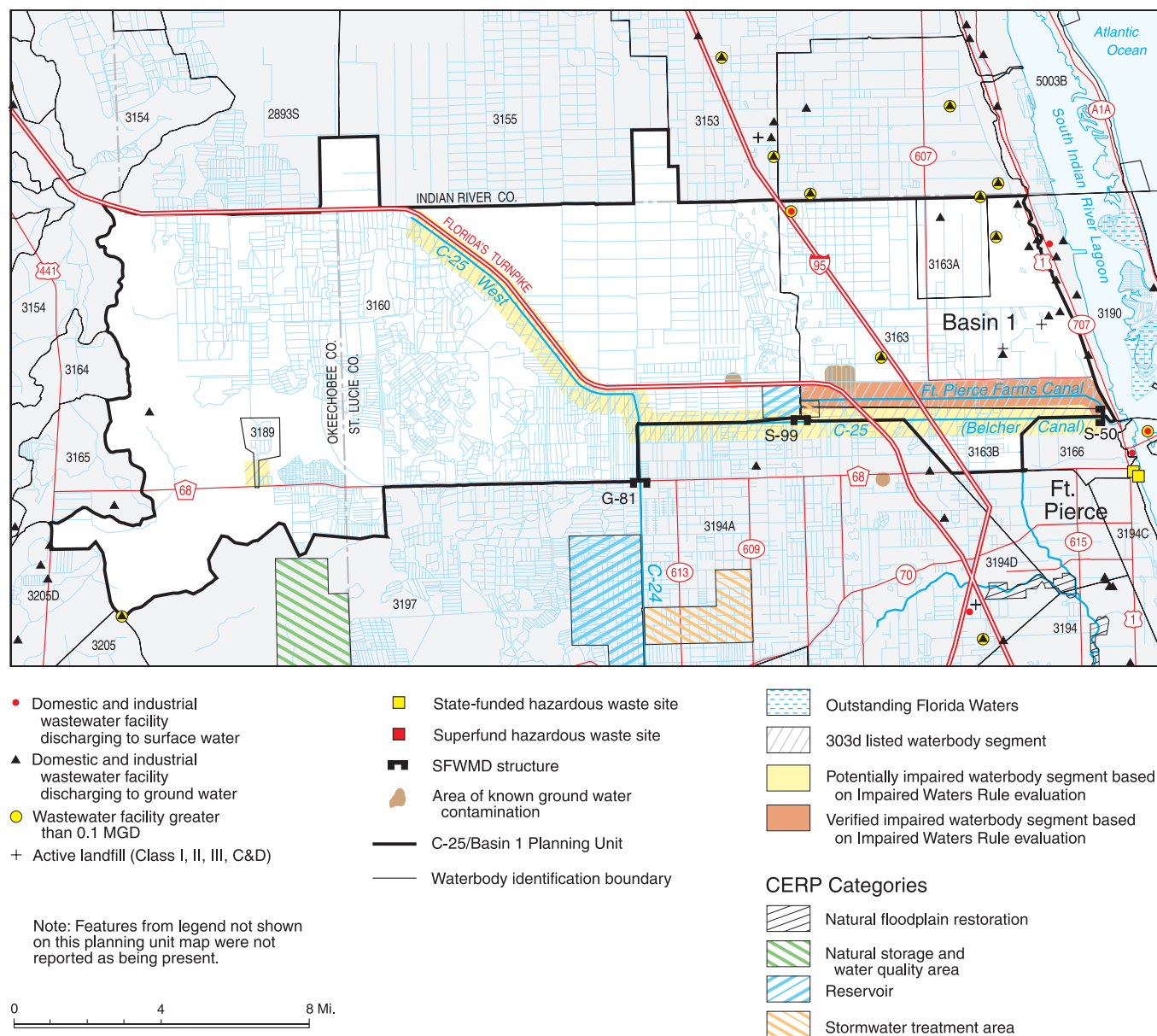


Figure 3.3: Composite Map of the C-25/Basin 1 Planning Unit, Including the 1998 303(d) List, Planning List and Verified List Waters, Potential Pollution Sources, and CERP Projects

Table 3.5: Integrated Water Quality Assessment Summary for the C-25/Basin 1 Planning Unit

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	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/303(d) Integrated Report Assessment Category for WBID ⁴
3160	C-25 West (St. Johns Marsh)	Stream	IIIF	DO, Nutrients, Coliforms	DO, Nutrients (Chlorophyll <i>a</i>), Iron	—	Fecal Coliforms, Total Coliforms, Turbidity	3c
3163	Ft. Pierce Farm Canal (Belcher Can/ Taylor Ck)	Stream	IIIF	Nutrients, DO	Biology	DO	Nutrients (Chlorophyll <i>a</i>), Copper, Turbidity	5
3163A	Lakewood Park Lakes	Lake	IIIF	—	—	—	Nutrients (TSI)	2
3163B	C-25 East Segment	Stream	IIIF	DO	Biology	Nutrients (Chlorophyll <i>a</i>), DO, Iron	Turbidity, Copper	5
3189	Cowbone Creek (C-25)	Stream	IIIF	Coliforms, DO, Nutrients	Total Coliforms, Fecal Coliforms, DO, Nutrients (Chlorophyll <i>a</i>)	—	Turbidity	3c

Notes:

¹The designation “stream” includes canals, rivers, and sloughs. The designation “lake” includes some marshes.

²The 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)

³The 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 an existing or proposed pollution control mechanism provides reasonable assurance that the water will attain standards in the future;

4c—Impaired for one or more designated uses but no TMDL is required because the impairment is not caused by a pollutant; and

5—Water quality standards are not attained and a TMDL is required.

⁴The 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

TSI = Tropic state index

The Lakewood Park Lakes that were evaluated (3163A) appear not to be impaired for nutrients, based on LakeWatch monitoring data, but do not have sufficient data to be evaluated for other parameters.

Permitted Discharges and Land Uses

Point Sources. In the planning unit, Department records indicate that there are twelve permitted wastewater treatment facilities, only two of which discharge directly to surface water (see **Noteworthy** for a definition of point sources). The facility with the largest design flow is the Spanish Lake Fairways Reverse Osmosis Plant, which is permitted for 0.78 million gallons per day (mgd) and has an industrial wastewater permit to discharge to surface water. The other permitted facility that discharges to surface water is the Larson Dairy Barn #4. The second largest treatment facility is also for Spanish Lakes Fairways, which has a domestic wastewater permitted capacity of 0.25 mgd, but does not discharge directly to surface water.

Other potential point sources include landfills. There is one Class I solid waste landfill in the planning unit that is currently not in operation. There are no state-funded or federal (National Priorities List [NPL]) hazardous waste cleanup sites in the planning unit, although there are two delineated areas of ground water contamination for the agricultural chemical ethylene dibromide (EDB) (see **Noteworthy** on delineated ground water contamination areas). Also, according to Department records, there have been more than fifty reported discharges from petroleum storage facilities in the planning unit.

Figure 3.3 shows permitted wastewater treatment facilities, landfills, and delineated ground water contamination areas in the planning unit.

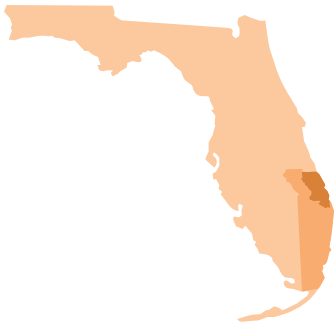
Appendix E lists the basins' permitted wastewater treatment facilities and landfills by planning unit.

Nonpoint Sources. Based on Level I and Level II land use summary information provided by the SFWMD, the predominant land use in the C-25/Basin 1 planning unit is agriculture (approximately 65 percent of the area). The agricultural lands are used for citrus cultivation (approximately 34 percent of the planning unit's area) and improved pasture (approximately 28 percent of the area). Only 5 percent of the planning unit's area is designated as urban/built-up. These developed land uses can be associated with nonpoint discharges of pollutants and eroded sediments (see **Noteworthy** for a definition of nonpoint sources). **Appendix F** provides summary information on general land uses in the basins by planning unit.

Ecological Summary

Approximately 10 percent of the planning unit's area is defined as wetland and 15 percent is listed as pine flatwoods. The largest contiguous wetland area, an extension of the St. Johns Marsh, is located in the northwestern corner of St. Lucie County. One state-managed natural area, the Green Swamp Preserve, is located in the northwestern corner of the C-25/Basin 1 planning unit. Most waterbodies in the planning unit are agricultural canals used for drainage and/or irrigation that feed the conveyance system provided by C-25 and other SFWMD canals. Although they are





Class III waters, canals are not capable of supporting the diverse ecosystems characteristic of natural streams.

Water Quality Improvement Plans and Projects

The C-25/Basin 1 planning unit is primarily an agricultural area. Efforts to reduce pollutant loadings to stormwater from individual agricultural land holdings are tied to the active participation of local citrus growers and cattlemen in agricultural best management practices (BMP). The Florida Department of Agricultural and Consumer Services (DACS), University of Florida's Institute of Food and Agricultural Sciences (IFAS), U.S. Department of Agriculture Natural Resources Conservation Service (NRCS), and the Department provide assistance in implementing these BMPs.

Under the IRL–South Feasibility Study, a regional water storage reservoir and a stormwater treatment area (STA) are proposed in the planning unit. This project will include a 741-acre above-ground reservoir and a 163-acre STA at the S-99 structure on the C-25 Canal. The system will be used to capture local runoff from the C-25 subbasin and the Ft. Pierce Farms Water Conservation District. The purpose of this component is to provide peak flow attenuation, a water supply for irrigation, and reductions in the concentrations of nutrients, pesticides, and other contaminants. Water quality will be improved in the canal east of the STA and the southern IRL.

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. 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. **Appendix B** contains additional information on the requirements for reasonable assurance.

• North St. Lucie Planning Unit

General Description

The North St. Lucie planning unit, located in eastern St. Lucie County, includes Port St. Lucie and the western half of Ft. Pierce, the western part of Stuart, Palm City, North River Shores, and Lighthouse Point. It extends from Ft. Pierce Inlet to the St. Lucie Inlet, westward to the C-24 Canal, and southward to below the confluence of the North and South Forks of the St. Lucie River. It includes the North Fork of the St. Lucie River, Ten-mile Creek, Fivemile Creek, and the Savannas marshland. This planning unit approximates the area identified by the SFWMD as the North Fork subbasin.

Once draining naturally into the IRL and the North Fork of the St. Lucie River, the watershed is now greatly modified by canals. The North St. Lucie Water Control District (NSLWCD) is located in the northern part of the planning unit. Most of the drainage in the NSLWCD is to the North St. Lucie River, but a fraction also drains to the C-25 and C-24 Canals. The eastern terminus of the C-24 Canal is located in the planning unit.

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.

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 38 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.

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.

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.



Water from C-24 is released to the North Fork of the St. Lucie River via the C-23A Canal.

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, potential pollution sources, and CERP projects. **Table 3.6** summarizes the water quality assessment status of all waterbody segments in the planning unit. Waterbodies represented by these data include the North Fork of the St. Lucie River and Estuary, Tenmile Creek, Fivemile Creek, and the Savannas.

The table and figure show that four waterbody segments in the planning unit are impaired. WBID 3194 (North St. Lucie) and WBID 3194B (St. Lucie) comprise estuarine waters of the North Fork of the St. Lucie River. Both are impaired based on the IWR methodology (exceeding the Verified List screening criteria), and both are included on the 1998 303(d) list. According to the IWR, impairments for these segments include copper, nutrients, and DO (WBID 3194) and nutrients based on chlorophyll *a* concentrations and DO (WBID 3194B). Other evidence of impairment was gathered for the SLE segments in a Department Southeast District biological survey (Graves et al., June 2002). Sediment accumulation, the decline of seagrasses and oysters, algal blooms, fish kills, and the low diversity of benthic macroinvertebrates in the SLE in general and the mid to northern segments of the SLE in particular comprise this body of evidence. One stream, Fivemile Creek (3194D), is also impaired, exceeding the Verified List criteria for DO.

Two of these segments are also potentially impaired for other parameters: North St. Lucie (WBID 3194) for mercury in fish, total coliform and fecal coliform; and Fivemile Creek (WBID 3194D) for conductance. In addition, Tenmile Creek (3194A) is potentially impaired for DO, fecal coliforms and total coliforms, (Planning List criteria, **Appendix C**) and is on the 1998 303(d) list for DO, nutrients, BOD, fecal coliforms, and total coliforms. Also potentially impaired, the Savannas (3194C) are found by the IWR evaluation to be potentially impaired for DO, exceeding Verified List screening criteria.

Tenmile Creek (3194A) and Fivemile Creek (3194D) are impaired, exceeding the Verified and Planning List criteria, respectively, for DO. Tenmile Creek is also potentially impaired for fecal coliforms and total coliforms, (Planning List criteria, **Appendix C**) and is on the 1998 303(d) list for DO, nutrients, BOD, fecal coliforms, and total coliforms. The Savannas (3194C) are found by the IWR evaluation to be potentially impaired for DO, exceeding Verified List criteria.

To verify the impairment of waterbodies based on exceedance of DO standards or biological indicators, causative pollutants need to be identified. Some DO exceedances in the planning unit may be related to total phosphorus.

Permitted Discharges and Land Uses

Point Sources. According to the Department database, there are 36 permitted wastewater treatment facilities in the North St. Lucie planning

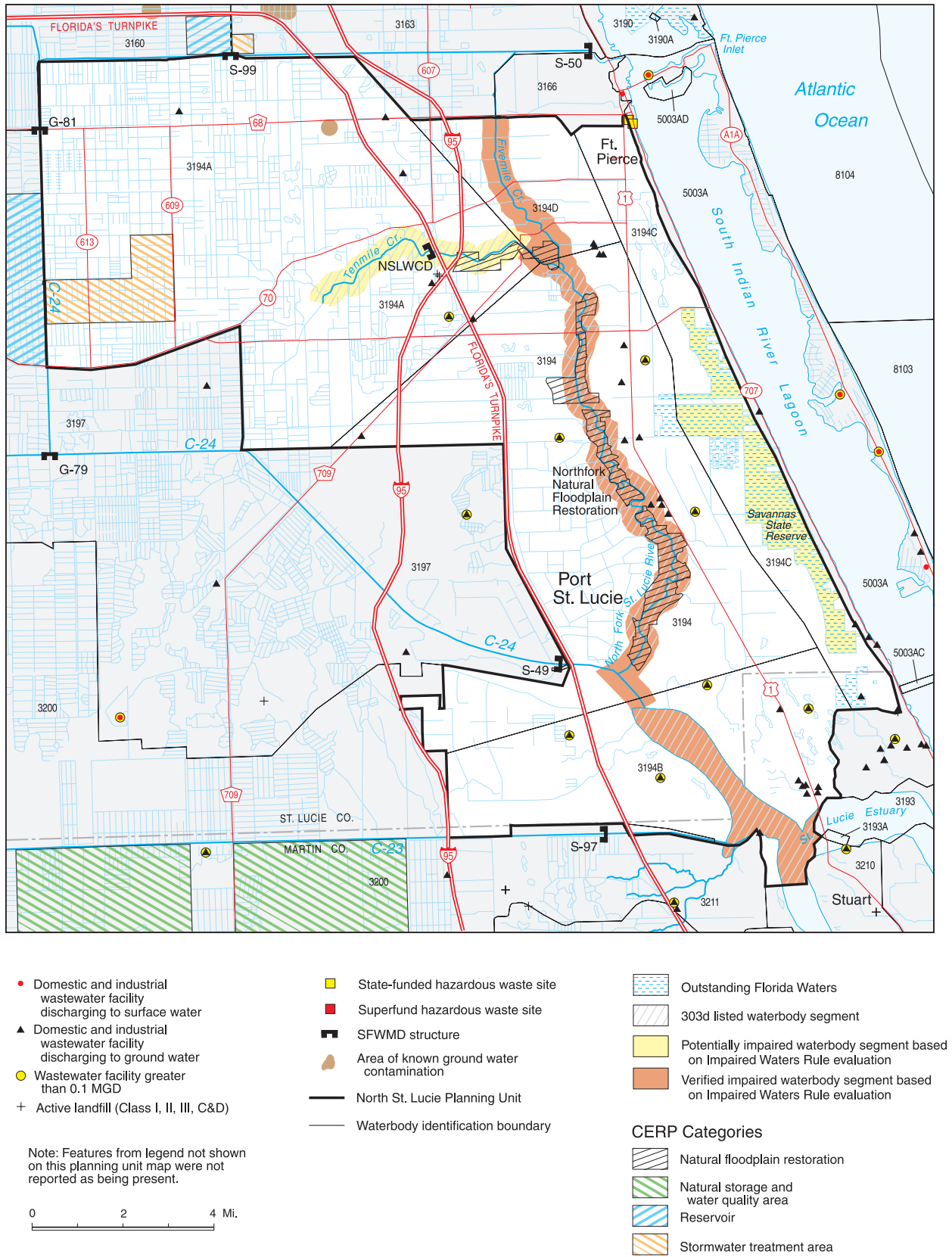


Figure 3.4: Composite Map of the North St. Lucie Planning Unit, Including the 1998 303(d) List, Planning List and Verified List Waters, Potential Pollution Sources, and CERP Projects

Table 3.6: Integrated Water Quality Assessment Summary for the North St. Lucie Planning Unit

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	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/303(d) Integrated Report Assessment Category for WBID ⁴
3194	North St. Lucie	Estuary	IIIM	DO, Coliforms, Mercury in Fish, Nutrients	Mercury in Fish, Total Coliforms, Fecal Coliforms	DO, Copper, Nutrients (Historical Chlorophyll)	Turbidity	5
3194A	Tenmile Creek	Stream	IIIF	DO, Nutrients, BOD, Total Coliforms	DO, Fecal Coliforms, Total Coliforms	—	Turbidity, Nutrients (Chlorophyll <i>a</i>), Copper	5
3194B	St. Lucie	Estuary	IIIM	Nutrients (Chlorophyll <i>a</i>)	—	Nutrients (Chlorophyll <i>a</i>), Copper, DO	Fecal Coliforms, Total Coliforms	5
3194C	Savannas	Lake	IIIF	—	DO	—	Fecal Coliforms, Turbidity	3c
3194D	Fivemile Creek	Stream	IIIF	—	—	DO	Turbidity	5

Notes:

¹The designation “stream” includes canals, rivers, and sloughs. The designation “lake” includes some marshes.

²The 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)

³The 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 an existing or proposed pollution control mechanism provides reasonable assurance that the water will attain standards in the future;

4c—Impaired for one or more designated uses but no TMDL is required because the impairment is not caused by a pollutant; and

5—Water quality standards are not attained and a TMDL is required.

⁴The 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 water

unit (26 domestic wastewater, 9 industrial wastewater, and 1 other). None of these is permitted to discharge directly to surface water. The largest facility, the Martin County Utilities North domestic wastewater plant, has a permitted capacity of 1.2 mgd.

There is 1 permitted solid waste landfill in the planning unit, the St. Lucie County Landfill, and 1 permitted construction and demolition (C&D) debris landfill. There are no state-funded or NPL hazardous waste sites, although there is 1 delineated ground water contamination area (for EDB). There are also 4 dry-cleaning facilities in the Department's dry cleaning solvent cleanup program (DSCP), and more than 100 reported discharges from petroleum storage facilities.

Figure 3.4 shows permitted wastewater treatment facilities, landfills, and delineated areas in the North St. Lucie River planning unit.

Appendix E lists the basins' permitted wastewater treatment facilities and landfills by planning unit.

Nonpoint Sources. Runoff from urban and agricultural areas affects water quality in the North Fork and its tributaries. Urban/built-up (35 percent of the planning unit) and agriculture (also 35 percent of the planning unit) are the predominant land uses. Low-density residential development makes up the largest percentage of urban land (13 percent of the planning unit). Most of the urban development is in the eastern part of the planning unit. Citrus production areas in the western and northwestern parts of the planning unit comprise approximately 16 percent of the planning unit's total area. These developed land uses can be associated with nonpoint discharges of pollutants and eroded sediments. **Appendix F** provides summary information on general land uses in the basins by planning unit.

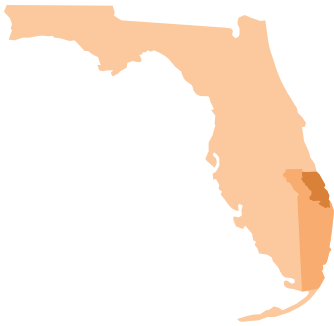
Ecological Summary

Approximately 14 percent of the planning unit consists of wetlands and 12 percent comprises upland forests. The wetland areas are located primarily in two areas, along the North Fork of the St. Lucie River and in the Savannas wetland. The Savannas State Reserve is designated as an Outstanding Florida Water (OFW) (**Figure 3.4**). All waters in the planning unit are designated as Class III, including canals.

Straightening and channelization have significantly modified the North Fork of the St. Lucie River, a state aquatic preserve. These modifications have reduced the river system's ability to filter sediment and attenuate nutrients and have dramatically reduced the wetlands that provide habitat. Sediment transported into the North Fork is accumulating in abnormal quantities in the riverbed (Gardner, 1984). The North Fork forms the upper segment of the SLE. Adverse ecological impacts to the estuary caused by the canal discharges of nutrients, sediment, and fresh water are well documented.

A water quality study on Tenmile Creek, the major tributary to the North Fork, identified significant concentrations of pesticides in the water (most notably malathion and ethion) that are apparently related to citrus farming in the Tenmile Creek Basin (Graves and Strom, 1995). Fish kills and the documentation of degraded biological communities in Tenmile Creek may be attributable to the pesticide load. Sedimentation in Tenmile





Creek and the North Fork due to canal erosion in the NSLWCD is also a documented concern (NSLWCD, 2000).

Water Quality Improvement Plans and Projects

A significant portion of the planning unit is in agricultural land use, primarily citrus production. Individual citrus growers are participating in the BMP program to reduce pollutant loadings to stormwater. Several programs supported by the St. Lucie River Issues Team are focused on reducing irrigation volumes that directly affect the volume of polluted runoff and the magnitude of transported sediment from irrigated citrus groves. In the Citrus Irrigation Conversion project supported by the NRCS, cost share-contributing growers in the North St. Lucie planning unit are converting to low-volume irrigation equipment to help reduce discharges.

Currently, stormwater transported by Canals C-23 and C-24 enters directly into the North Fork of the St. Lucie River through tidal structures. The IRL–South Feasibility Study includes the northern diversion component, which will significantly improve the quality and provide better regulation of water discharged to the North Fork. Under this component, stormwater from the C-23 and C-24 Canals will be diverted into one of two reservoirs to be constructed along the eastern boundary of the C-24 and C-23 basins (C-23/24 North and South Reservoirs). Water from these reservoirs could be returned to the canals to equalize storage, to supply water, or to be diverted to the C-23/24 STA (2,300 acres) in the northwestern part of the planning unit, where it would be treated. From the STA, the treated water would be routed via a bypass canal to Tenmile Creek and into the North Fork. The northern diversion component will improve the quality of water and the timing of fresh water being delivered to the North Fork and the SLE. Hydrologic models predict that it can come close to achieving predrainage distribution flows (quantity) to the North Fork.

The Feasibility Study also includes a significant project to restore the natural hydrology of the North Fork by reconnecting river floodplains and oxbows and returning the river to a condition similar to its historical path. The North Fork Floodplain Restoration component will increase the capacity of the river to accommodate flows and improve water quality and habitat. The North Fork Floodplain Restoration project is already under way. It was one of the numerous water quality improvement projects sponsored by the St. Lucie River Issues Team.

Other Issues Team projects in the planning unit that are funded and under way include the following:

- The Tenmile Creek Restoration (a Central and Southern Florida Project [C&SF] Ecosystem Restoration Critical Project that includes the construction of a temporary/seasonal stormwater basin to provide treatment and flow equalization of water in Tenmile Creek),
- NSLR Canal Retrofits and NSLWCD Bank Restoration projects, under the Issues Team umbrella, addressing soil erosion and sediment transported by canals,

- The Platt's Creek restoration project, which also treats water entering the North Fork in St. Lucie County, and
- Several urban stormwater retrofit projects benefiting the North Fork and SLE.

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. 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. **Appendix B** contains additional information on the requirements for reasonable assurance.

• C-24 Planning Unit

General Description

The C-24 planning unit, comprising the SFWMD's C-24 subbasin, includes an area that lies in St. Lucie County and also includes a small part of Okeechobee County on the western edge. The southern part of Port St. Lucie is located in the planning unit, which is west of the North St. Lucie planning unit. The C-24 planning unit is an area that under natural conditions would have had no direct connection to the estuary. However, the C-24 Canal now provides an outlet to the SLE. Agricultural canals control virtually all drainage within the planning unit. Through the S-49 structure, Canal C-24 discharges water from the subbasin, as well as some water from the C-25 subbasin and the NSLWCD, to the North Fork of the St. Lucie River.

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, potential pollution sources, and CERP projects. **Table 3.7** summarizes the water quality assessment status of the C-24 Canal, the only waterbody segment in the planning unit.

According to the IWR evaluation, C-24 (3197) is verified impaired for DO, fecal coliforms, iron, and nutrients. Data indicate that the causative pollutant may be elevated BOD. The C-24 Canal is also on the 1998 303(d) list for DO and nutrients.

Permitted Discharges and Land Uses

Point Sources. The planning unit has few potential point sources. It contains only 5 permitted wastewater treatment facilities, and only 1 of these discharges to surface water. A Florida Rock Industries mining/quarry operation has an industrial wastewater permit to discharge to surface water at a permitted flow rate of 26.65 mgd.

The Department's database indicates that there have been 10 reported discharges from petroleum storage facilities. There are no permitted solid waste landfills in the planning unit, but there is one C&D landfill. There



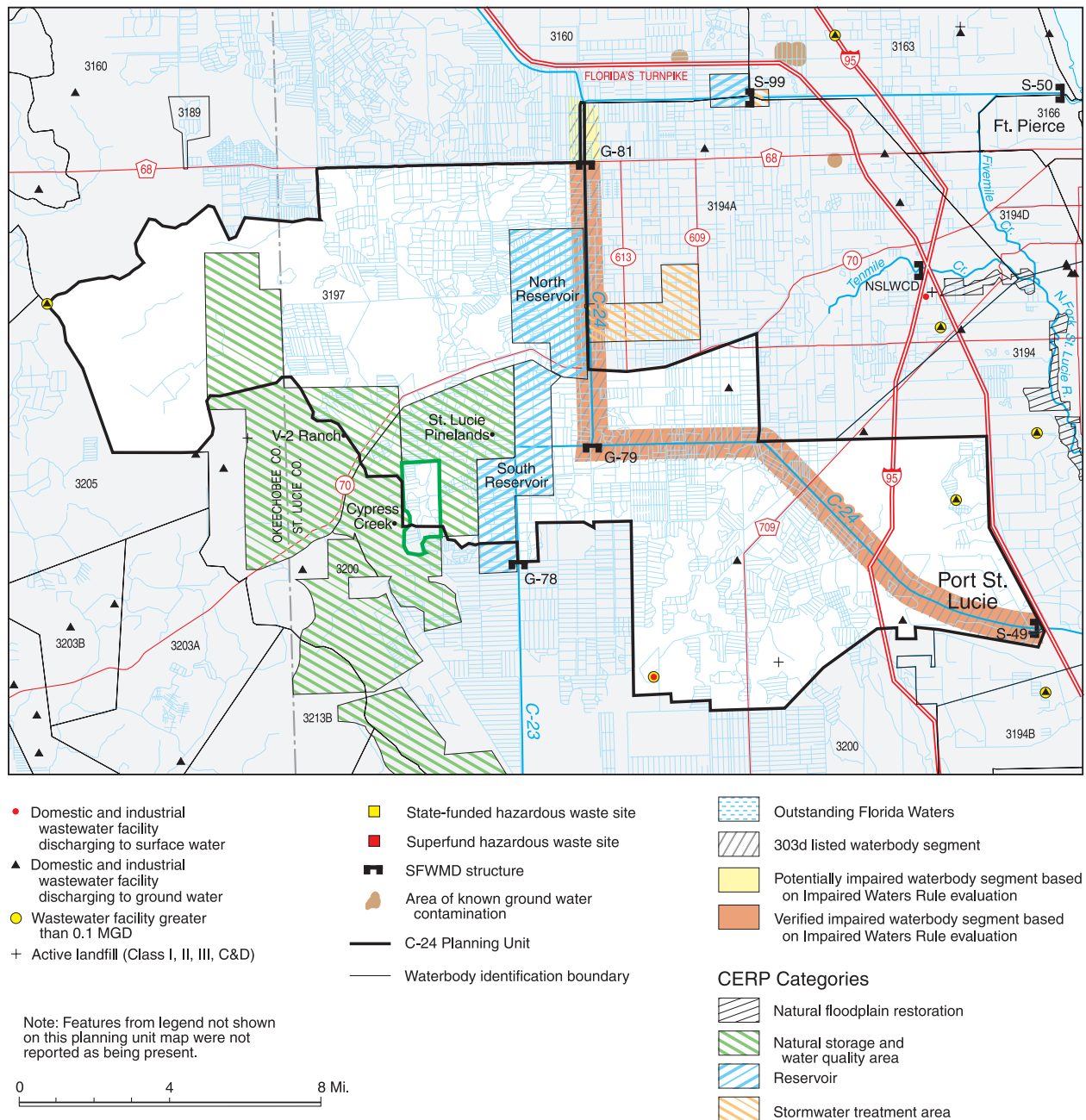


Figure 3.5: Composite Map of the C-24 Planning Unit, Including the 1998 303(d) List, Planning List and Verified List Waters, Potential Pollution Sources, and CERP Projects

Table 3.7: Integrated Water Quality Assessment Summary for the C-24 Planning Unit

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	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/303(d) Integrated Report Assessment Category for WBID ⁴
3197	C-24	Stream	IIIF	Nutrients (Chlorophyll <i>a</i>), DO, Fecal Coliforms	—	Nutrients (Chlorophyll <i>a</i>), Iron, DO	Copper, Turbidity	5

Notes:

¹The designation “stream” includes canals, rivers, and sloughs. The designation “lake” includes some marshes.

²The 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)

³The 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 an existing or proposed pollution control mechanism provides reasonable assurance that the water will attain standards in the future;

4c—Impaired for one or more designated uses but no TMDL is required because the impairment is not caused by a pollutant; and

5—Water quality standards are not attained and a TMDL is required.

⁴The 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

are no state or NPL hazardous waste cleanup sites or delineated ground water contamination areas.

Figure 3.5 shows the permitted wastewater treatment facilities in the planning unit. **Appendix E** lists the basins' permitted wastewater treatment facilities and landfills by planning unit.

Nonpoint Sources. An estimated 61 percent of the planning unit is used for agriculture. Most is in improved pasture (38 percent), followed by citrus production (15 percent). Urban/built-up land constitutes 11 percent of the planning unit, but most of that is listed as undeveloped open land. There are no significant population centers, except for the portion of Port St. Lucie that lies in the extreme eastern part of the planning unit. These developed land uses can be associated with nonpoint discharges of pollutants and eroded sediments. **Appendix F** provides summary information on general land uses in the basins by planning unit.



Ecological Summary

Approximately 17 percent of the C-24 planning unit consists of wetlands and 8 percent is upland forest. The largest wetland area, in the extreme western part of the planning unit in Okeechobee County, is associated with Cypress Creek. Almost all waterbodies in the planning unit are agricultural canals that feed into the conveyance system provided by the C-24 and C-23 Canals. These canals are not capable of supporting the diverse ecosystems characteristic of natural streams.

Water Quality Improvement Plans and Projects

Proposed activities under the IRL–South Feasibility Study in the C-24 and C-23 planning units include the construction of reservoirs for storm-water storage, redirection, and flow equalization within the two canals. These features will be constructed along the eastern boundaries of these planning units. The C-24 planning unit will also include the construction of one of three Natural Storage and Water Quality Treatment Areas that will provide alternative above-ground storage of water, rehydrate former wetlands, create habitat, and improve water quality. These natural area components include the acquisition of large tracts of land, plugging of existing secondary drainage ditches to disconnect drainage from the C&SF system canals, and reestablishment of wetland areas that will store water and reduce nutrient loads to the receiving waters. The C-24 planning unit includes part of the 32,639-acre Cypress Creek Complex within its western boundary. This land is presently used for improved pasture.

Because agriculture is the primary land use in the planning unit, the implementation of effective BMPs to reduce stormwater pollution from cow-calf ranches and citrus groves is critical to the improvement of water quality.

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. 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. **Appendix B** contains additional information on the requirements for reasonable assurance.

• C-23 Planning Unit

General Description

The C-23 planning unit, approximating SFWMD's C-23 subbasin, includes an area that lies in both southern St. Lucie County and northern Martin County and includes a small part of Okeechobee County on the western edge. There are no significant population centers in the planning unit. The C-23 subbasin is located south of C-24. Agricultural drainage canals in the planning unit discharge to C-23, and this flow is discharged to the IRL via the North Fork of the St. Lucie River. The S-97 structure controls discharge from the C-23 subbasin.

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, potential pollution sources, and CERP projects. **Table 3.8** summarizes the water quality assessment status of the C-23 Canal, the only waterbody segment in the planning unit.

The evaluation indicates that DO, nutrients, and iron exceed the Verified List screening criteria, causing impairment for the waterbody. The causative pollutant responsible for the DO exceedance is phosphorus. In addition, recent monitoring by the Department (not represented by the preliminary assessment) indicates that C-23 is also potentially impaired for mercury.

Permitted Discharges and Land Uses

Point Sources. There are five permitted wastewater treatment facilities in the planning unit, none of which discharges to surface water. The database also includes one facility (Turnpike Dairy, Inc.) that discharges to surface water. The largest wastewater treatment facility is the Martin Correctional Institute domestic wastewater treatment plant, which has a permitted capacity of 0.6 mgd.

There are two permitted solid waste landfills in the planning unit, the Okeechobee Landfill Inc., Class I landfill and the Martin County–Palm City II, Class I and Class III landfills. There are six reported discharges from petroleum storage facilities. No other permitted point sources, state or NPL hazardous waste sites, or delineated areas are found in the planning unit.

Figure 3.6 shows permitted wastewater treatment facilities and landfills in the C-23 planning unit. **Appendix E** lists the basins' permitted wastewater treatment facilities and landfills by planning unit.

Nonpoint Sources. Agriculture is the primary land use in the planning unit, occurring in approximately 64 percent of the total area. Most land is in improved pasture (38 percent of the area), followed by citrus production (26 percent of the planning unit). Approximately 2 percent of the C-23 planning unit is in the urban/built-up land use category. These developed land uses can be associated with nonpoint discharges of pollutants and eroded sediments. **Appendix F** provides summary information on general land uses in the basins by planning unit.

Ecological Summary

Wetlands comprise approximately 24 percent of the planning unit's area. Most are associated with Allapattah Flats, an area that naturally existed as flatwoods interspersed with depression marshes and wet prairies. Drainage and conversion to improved pasture have altered much of the natural Allapattah Flats area. Most waterbodies in the planning unit are agricultural canals used for drainage and/or irrigation that feed the conveyance system provided by C-23. Canals are often not capable of supporting the diverse ecosystems characteristic of natural streams.



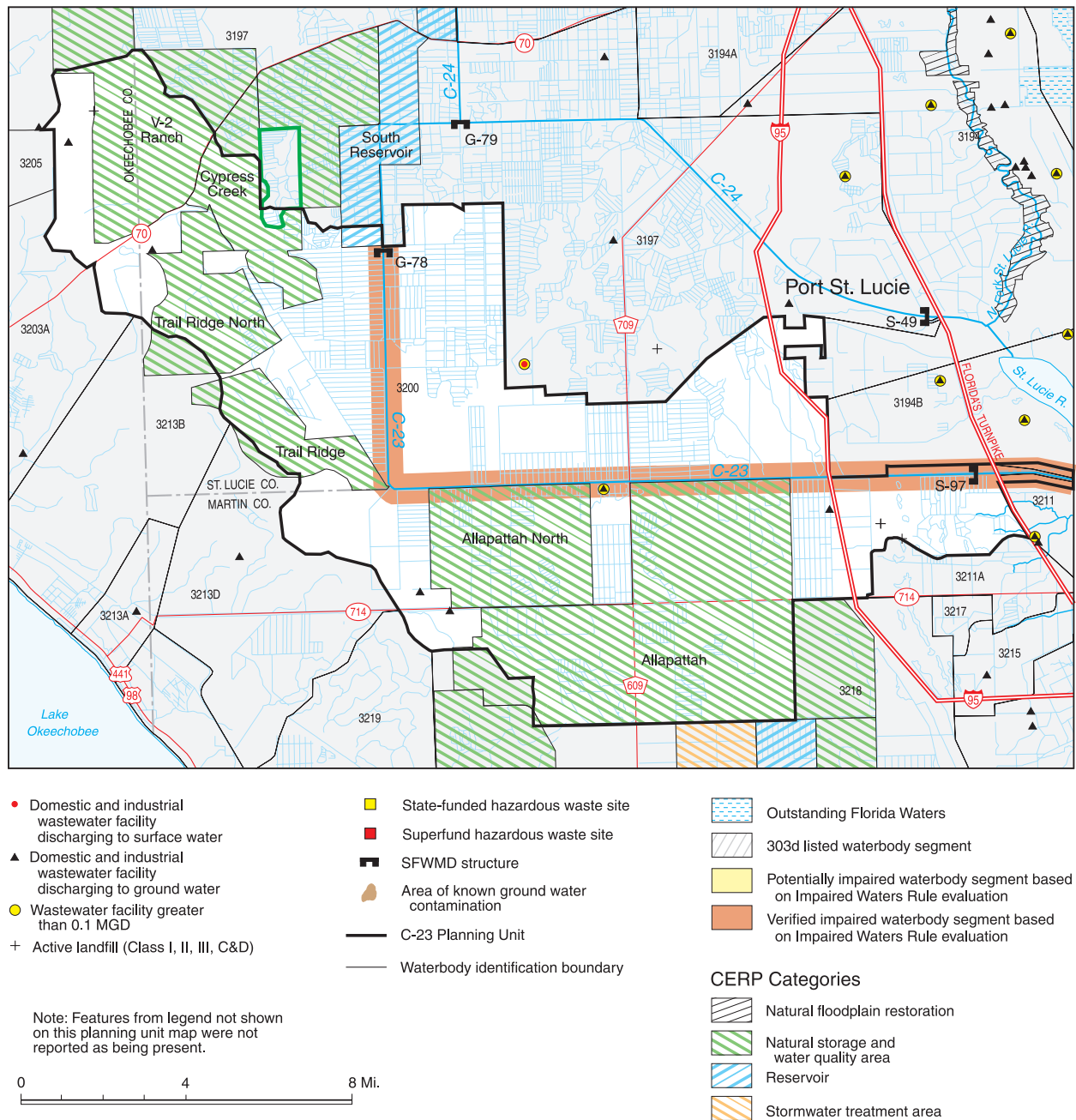


Figure 3.6: Composite Map of the C-23 Planning Unit, Including the 1998 303(d) List, Planning List and Verified List Waters, Potential Pollution Sources, and CERP Projects

Table 3.8: Integrated Water Quality Assessment Summary for the C-23 Planning Unit

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	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/303(d) Integrated Report Assessment Category for WBID ⁴
3200	C-23	Stream	IIIF	—	Mercury	Iron, Nutrients (Chlorophyll <i>a</i>), DO	Turbidity, Copper	5

Notes:

¹The designation “stream” includes canals, rivers, and sloughs. The designation “lake” includes some marshes.

²The 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)

³The 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 an existing or proposed pollution control mechanism provides reasonable assurance that the water will attain standards in the future;

4c—Impaired for one or more designated uses but no TMDL is required because the impairment is not caused by a pollutant; and

5—Water quality standards are not attained and a TMDL is required.

⁴The 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

Water Quality Improvement Plans and Projects

As described above for the C-24 planning unit, the Feasibility Study proposed activities include the construction of the C-23/24 reservoirs for stormwater storage, redirection, and flow equalization within the two canals. The C-24 planning unit also includes the southern part of the Cypress Creek Natural Storage and Water Quality Treatment Area and the 40,048-acre Allapattah Complex in the southern part of the planning unit. Most of the land to be converted to these natural storage and treatment areas is presently improved pasture.

In the southwestern part of the planning unit, the Comprehensive Everglades Restoration Plan (CERP) activities include construction of the 2,300-acre C-23/C-44 STA and diversion canal that comprise the southern diversion component. The project treats excess stormwater that would otherwise be discharged to the St. Lucie River via C-23. A diversion canal will be used to pump water into the STA from the C-23 Canal. After treatment,



the water will be discharged via the southern portion of the diversion canal to the C-44 Canal.

Because agriculture is the primary land use in the planning unit, the implementation of effective BMPs to reduce stormwater pollution from cow-calf operations and citrus groves is critical to improving water quality.

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. 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. **Appendix B** contains additional information on the requirements for reasonable assurance.

- **South St. Lucie Planning Unit**

General Description

The South St. Lucie planning unit mainly lies in Martin County and includes most of Stuart (in the southeastern part), plus portions of Palm City, Coral Gardens, Gomez, and Hobe Sound. The planning unit encompasses the natural drainage of the South St. Lucie River and includes several SFWMD subbasins, such as the Tidal St. Lucie subbasin (which includes the South Fork of the SLE, Manatee Creek Basin (Basin 2), Bessey Creek drainage (Basins 4 and 5), and Danforth Creek (Basin 6). It also includes the eastern terminus of canal C-44 (St. Lucie Canal), through which flow is regulated by the S-80 structure.

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, potential pollution sources, and CERP projects. **Table 3.9** summarizes the water quality assessment status of all waterbody segments in the planning unit. Waterbodies represented by these data include the South Fork of the SLE, Bessey Creek, the nonestuarine South Fork, and Basins 6, 5, and 2.

The table and figure show that three waterbody segments in the planning unit are impaired. Tidal St. Lucie (3210) and St. Lucie Canal below the S-80 structure (3210A) are estuarine segments that represent the South Fork of the SLE. According to the IWR, both are impaired: Tidal St. Lucie for an imbalance of nutrients and copper and St. Lucie Canal for nutrients, copper, and DO. As previously discussed, information provided by Graves et al. (June 2002) presents a convincing argument that potential impairments exist in all SLE segments. The St. Lucie Canal segment (3210A) is also on the 1998 303(d) list for nutrients and DO. Another estuarine waterbody segment, Bessey Creek (3211), a tributary to the SLE, is also impaired for DO and nutrients. This segment of Bessey Creek is on the 1998 303(d) list for coliforms, nutrients, and DO and is potentially impaired for fecal coliforms based on the IWR evaluation. Another segment of Bessey Creek (3211A) does not have sufficient data to be assessed.

Four freshwater stream segments in the planning unit were evaluated: the South Fork of the St. Lucie River south of the estuary (3210B), Basin 6

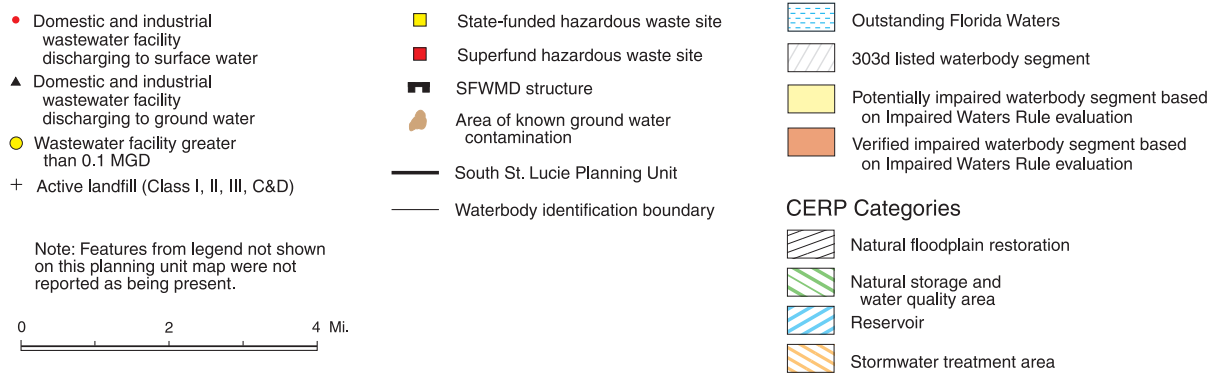
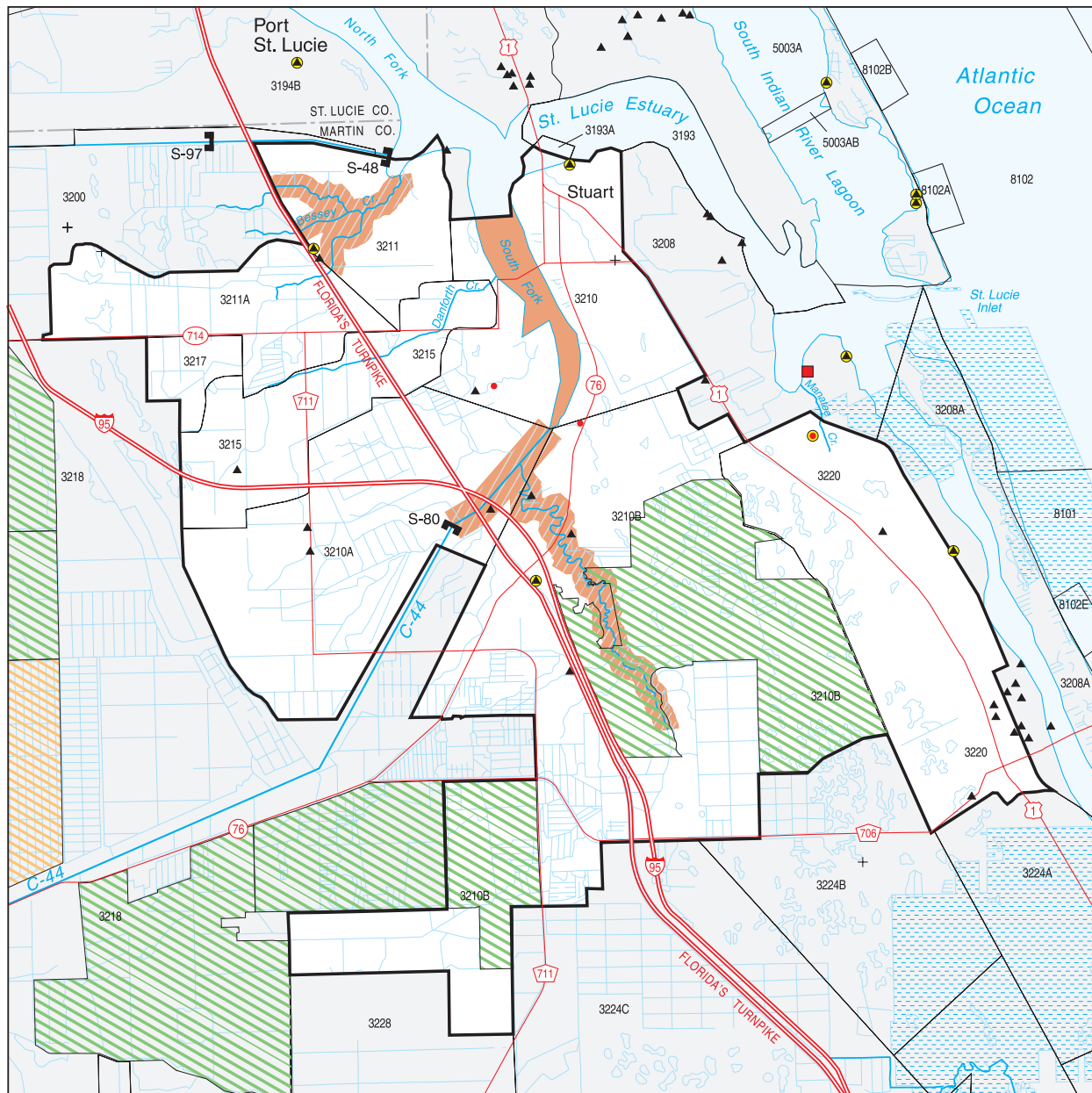


Figure 3.7: Composite Map of the South St. Lucie Planning Unit, Including the 1998 303(d) List, Planning List and Verified List Waters, Potential Pollution Sources, and CERP Projects

Table 3.9: Integrated Water Quality Assessment Summary for the South St. Lucie Planning Unit

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	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/303(d) Integrated Report Assessment Category for WBID ⁴
3210	Tidal St. Lucie	Estuary	IIIM	—	—	Nutrients (Chlorophyll a), Copper	DO, Turbidity, Biology	5
3210A	St. Lucie Canal	Estuary	IIIM	DO, Nutrients	—	DO, Nutrients (Chlorophyll a), Copper	Turbidity, Fecal Coliforms, Total Coliforms	5
3210B	South Fork St. Lucie	Stream	IIIF	DO, TSS, Nutrients	Total Coliforms, Total Suspended Solids, Biology	DO	Turbidity, Fecal Coliforms, Copper, Nutrients (Chlorophyll a)	5
3211	Bessey Creek	Estuary	IIIM	DO, Coliforms, Nutrients	Fecal Coliforms	DO, Nutrients (Chlorophyll a)	Total Coliforms	5
3211A	Bessey Creek	Estuary	IIIM	—	—	—	—	3a
3215	Basin 6	Stream	IIIF	—	DO	—	—	3b
3217	Basin 5	Stream	IIIF	—	—	—	—	3a
3220	Basin 2	Stream	IIIF	—	—	—	—	3b

Notes:

¹The designation "stream" includes canals, rivers, and sloughs. The designation "lake" includes some marshes.

²The 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)

³The 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 an existing or proposed pollution control mechanism provides reasonable assurance that the water will attain standards in the future;

4c—Impaired for one or more designated uses but no TMDL is required because the impairment is not caused by a pollutant; and

5—Water quality standards are not attained and a TMDL is required.

⁴The 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 water

(3215), Basin 5 (3217), and Basin 2 (3220). The South Fork segment is verified impaired for DO and potentially impaired for total coliforms and biology. It is also on the 1998 303(d) list for a variety of parameters, including nutrients, total suspended solids (TSS), and DO. Basin 6 (3215) is potentially impaired for DO. Basins 5 and 2 do not have sufficient data to be assessed.

Permitted Discharges and Land Uses

Point Sources. In this planning unit, there are 19 permitted wastewater treatment facilities—11 treating domestic wastewater, and 8 treating industrial wastewater. Only 3 of these facilities discharge to surface water. The Martin County Utilities (MCU) Consolidated Reuse System (South County) in Port Salerno, a wastewater reclamation/reuse facility, is only allowed to discharge intermittently during periods of heavy rainfall under its National Pollutant Discharge Elimination System (NPDES) permit. The MCU Martin Downs Wastewater Treatment Facility in Palm City, included under the MCU permit, has a permitted capacity of 2 mgd but does not discharge to surface water.

There are two closed solid waste landfills in the planning unit. According to Department records, in the South St. Lucie planning unit, there are 8 dry cleaning facilities in the DSCP and approximately 90 reported discharges from petroleum facilities. There are no state or NPL hazardous waste cleanup sites or delineated ground water contamination areas in the planning unit.

Figure 3.7 shows permitted wastewater treatment facilities and landfills in the South St. Lucie River planning unit. **Appendix E** lists the basins' permitted wastewater treatment facilities and landfills by planning unit.

Nonpoint Sources. Predominant land uses in the South St. Lucie planning unit are agriculture (34 percent) and urban/built-up (26 percent). The primary agricultural land use is improved pasture (25 percent of the planning unit). The predominant land use in the urban/built-up category is low-density residential (approximately 10 percent). These developed land uses can be associated with nonpoint discharges of pollutants and eroded sediments. **Appendix F** provides summary information on general land uses in the basins by planning unit.

Ecological Summary

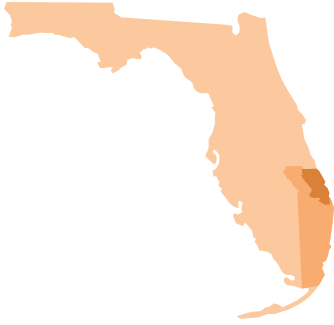
Wetlands comprise approximately 10 percent of the planning unit, and upland forests cover approximately 25 percent of the area. The South Fork of the St. Lucie River along with the Atlantic Ridge (in the southern part of the planning unit) are designated as Save Our Rivers (SOR) priority natural areas for acquisition.

Many of the ecological impacts to the SLE have been felt through the C-44 Canal discharge into the South Fork of the St. Lucie River. The massive surges of fresh water have severely stressed the entire ecosystem of the estuary, at times dramatically reducing the salinity level. The sediment load carried by C-44 has blanketed the bottoms of the estuary, the river, and its tributaries and depleted the natural **benthic** habitat. Urban and agricultural canals that discharge to the estuary are in some respects



Benthic

Occurring at the bottom of a body of water.



equally to blame for the decline in the estuary (St. Lucie River Issues Team Report, 1998).

Water Quality Improvement Plans and Projects

Under the Feasibility Study, approximately 17,143 acres of pastureland in the Pal-Mar tract will be converted to a Natural Storage and Treatment Area. This area is in both the South St. Lucie (Tidal St. Lucie) and C-44 planning units. By plugging canals that would otherwise discharge directly to C-44 and the South Fork and by taking land out of agricultural land use, this component will improve water quality and reduce the sediment load to the river and estuary.

Issues Team plans include three significant urban stormwater retrofit projects under way in the Stuart area. These include the Poppleton Creek, Fern Creek, and Frazier Creek projects, which incorporate detention and treatment of urban stormwater before it reaches the St. Lucie River and the estuary.

Approximately 25 percent of the planning unit is used for agricultural purposes, primarily improved pastureland. Like elsewhere in Florida, the implementation of BMPs to reduce polluted runoff from cow-calf operations is important to the improvement of water quality in the receiving waterbodies.

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. 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. **Appendix B** contains additional information on the requirements for reasonable assurance.

• C-44 Planning Unit

General Description

The planning unit includes most of the drainage basin of the C-44 Canal and approximates the SFWMD's C-44 subbasin. The C-44 Canal, also known as the St. Lucie Canal, St. Lucie Waterway, and Okeechobee Waterway, is the navigational route between the east coast and Lake Okeechobee and directly connects Lake Okeechobee to the South Fork of the St. Lucie River. The C-44 Canal and secondary agricultural drainage canals are the most prominent surface water features in this subbasin, but many natural, poorly drained wetlands are also interspersed. The S-308 structure controls flow from Lake Okeechobee into C-44. The planning unit includes the towns of Indiantown and Bessemer, as well as one water control district, the Troup-Indiantown Drainage District.

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, potential pollution sources, and CERP projects. **Table 3.10** summarizes the water quality status of this segment.

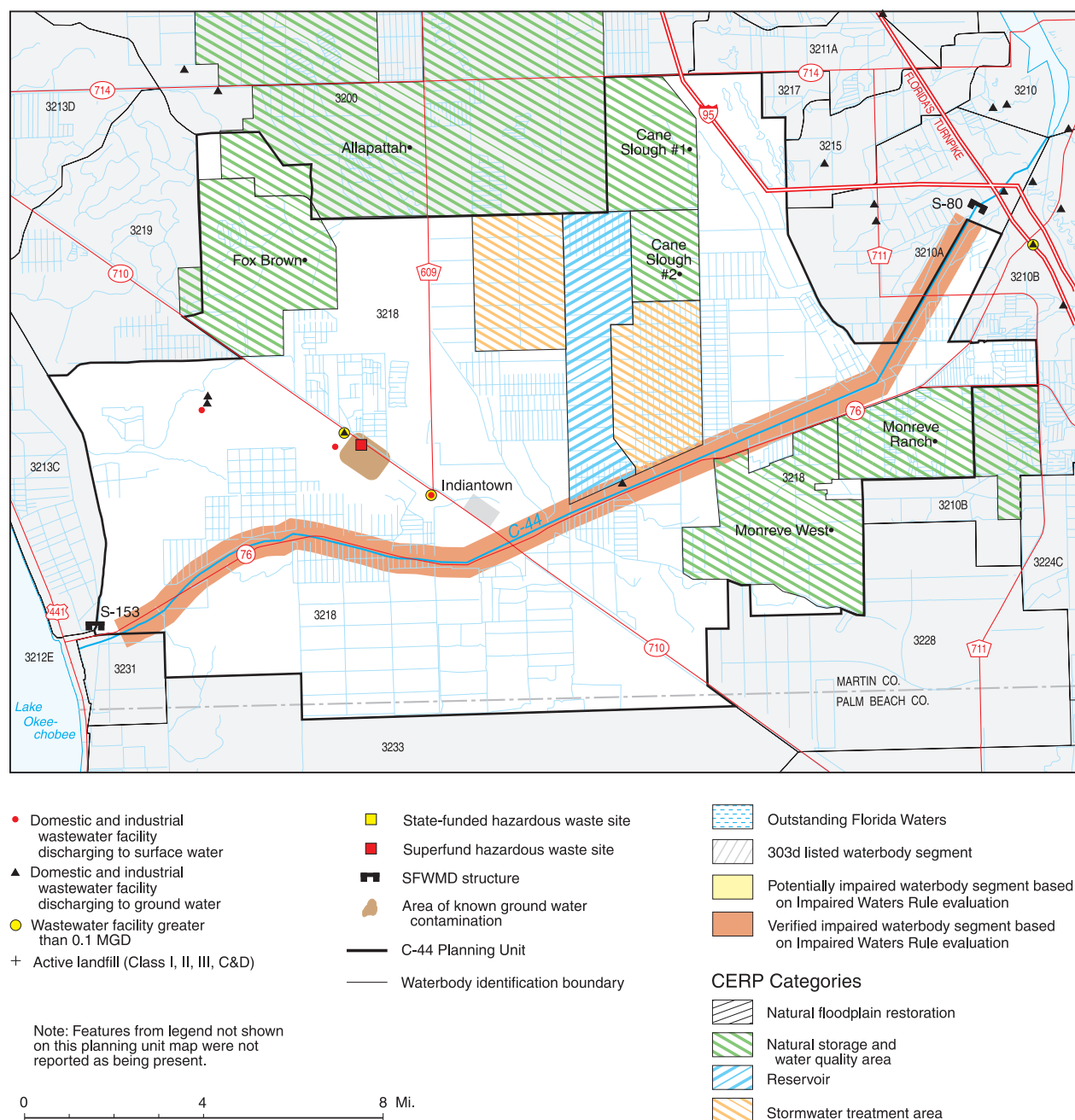


Figure 3.8: Composite Map of the C-44 Planning Unit, Including the 1998 303(d) List, Planning List and Verified List Waters, Potential Pollution Sources, and CERP Projects

Table 3.10: Integrated Water Quality Assessment Summary for the C-44 Planning Unit

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	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/303(d) Integrated Report Assessment Category for WBID ⁴
3218	C-44	Stream	IIIF	—	Biology	DO, Iron	Turbidity, Copper, Nutrients (Chlorophyll <i>a</i>)	5

Notes:

¹The designation “stream” includes canals, rivers, and sloughs. The designation “lake” includes some marshes.

²The 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)

³The 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 an existing or proposed pollution control mechanism provides reasonable assurance that the water will attain standards in the future;

4c—Impaired for one or more designated uses but no TMDL is required because the impairment is not caused by a pollutant; and

5—Water quality standards are not attained and a TMDL is required.

⁴The 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

The C-44 planning unit comprises only one waterbody segment (3218, the C-44 Canal itself), and this segment is not on the 1998 303(d) list of impaired waterbodies. The C-44 Canal is impaired for DO and iron, and potentially impaired for biology under the IWR. The causative pollutant for the DO standard exceedance is elevated BOD.

Permitted Discharges and Land Uses

Point Sources. There are 6 permitted wastewater treatment facilities in the C-44 planning unit; all are located in Indiantown. The largest, the Indiantown Company domestic wastewater treatment facility, has a permitted capacity of 1 mgd and discharges to percolation ponds and a restricted access irrigation site. There is 1 permitted solid waste landfill, in Indiantown, and 1 NPL site, the Florida Steel Company site in Indiantown (see **Noteworthy** on environmental remediation). There are approximately 50 reported discharges from petroleum facilities in the planning unit, and no delineated areas. **Figure 3.8** includes permitted wastewater treatment

facilities, landfills, and the NPL site in the C-44 planning unit. **Appendix E** lists the basins' permitted wastewater treatment facilities and landfills by planning unit.

Nonpoint Sources. Over 63 percent of the planning unit is used for agricultural purposes. Citrus production occurs in approximately 32 percent of the planning unit, and approximately 25 percent is in improved pasture (presumably for beef cattle production). Urban/built-up land uses occupy less than 2 percent of the C-44 planning unit. These developed land uses can be associated with nonpoint discharges of pollutants and eroded sediments. **Appendix F** provides summary information on general land uses in the basins by planning unit.

Ecological Summary

Most waterbodies in the planning unit are agricultural canals used for drainage and/or irrigation that feed the conveyance system provided by C-44. C-44 also transports water from Lake Okeechobee eastward to the SLE. The canals in the planning unit may not be capable of supporting the diverse ecosystems characteristic of natural streams. Approximately 21 percent of the C-44 planning unit is wetland. This includes part of the most extensive functional wetland in the region. The 32,000-acre Pal-Mar tract, straddling northern Palm Beach and southern Martin Counties, remains in private ownership but has been much sought after as a public lands acquisition.

Water Quality Improvement Plans and Projects

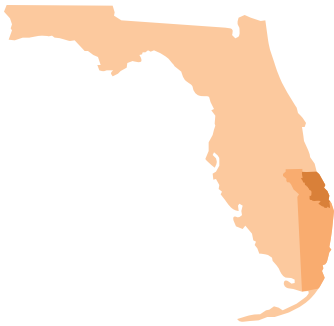
The C-44 planning unit includes four components of the IRL–South Feasibility Study's recommended plan. These components include the C-44 West Reservoir and STA, C-44 East STA, and Pal-Mar Natural Storage and Water Quality Treatment Area.

The C-44 West Reservoir and STA are located outside the western boundary of the planning unit near Lake Okeechobee. The component includes a 3,901-acre reservoir and a 2,575-acre STA that will store and treat water flowing from and to Lake Okeechobee in the C-44 Canal. The reservoir will be used to detain stormwater originating in the C-44 basin to reduce the freshwater flow rate and volume discharged to the estuary during storm events. Water collected in the reservoir will be directed to the STA for treatment prior to being released to Lake Okeechobee or the C-44 Canal.

The 2,222-acre C-44 East STA will be located at the eastern end of C-44 at the S-80 structure and will provide treatment of C-44 basin waters being released to the South Fork of the St. Lucie River via S-80.

As described in the South St. Lucie discussion, the Pal-Mar component includes approximately 17,143 acres of pastureland in the Pal-Mar tract that would be converted to a Natural Storage and Treatment Area. This area is in both the South St. Lucie (Tidal St. Lucie) and C-44 planning units. By plugging canals that would otherwise discharge directly to C-44 and the South Fork and by taking land out of agricultural land use, this component will improve water quality and reduce the sediment load to the river and estuary.





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. 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. **Appendix B** contains additional information on the requirements for reasonable assurance.

• Loxahatchee Planning Unit

General Description

The planning unit includes the Loxahatchee River and its tributaries. The area includes land in both Martin and Palm Beach Counties. Parts of Jupiter and Tequesta are located in the southeastern part of the planning unit, and the northern extremities of Palm Beach Gardens are located in the southern edge of the Loxahatchee planning unit. The planning unit also contains part of four Chapter 298 water control districts: Pal-Mar WCD, Hobe-St. Lucie Conservancy District, South Indian River WCD, and part of the North Palm Beach Improvement District. The three main tributaries in the Loxahatchee Basin are the Northwest Fork, North Fork, and Southwest Fork. These main tributaries drain to the central embayment (estuary) that in turn is connected to the Atlantic Ocean at Jupiter Inlet. The SFWMD has divided the planning unit into the following six basins:

- Jonathan Dickinson (including the northeastern portion of the planning unit and watersheds for the North Fork and Kitching Creek),
- The estuary,
- C-18 Canal/Corbett Wildlife Management Area (WMA) (including the C-18 Canal that drains the J.W. Corbett WMA and remnants of the Loxahatchee Slough to the south),
- Cypress Creek/Pal-Mar (including the Cypress Creek drainage and Pal-Mar wetland area in the northwestern part of the watershed),
- The Groves (a predominantly agricultural area in the north central part of the planning unit), and
- Wild and Scenic River/Jupiter Farms (an area that includes an intensively drained upstream portion of the Northwest Fork and a downstream "wild and scenic" portion).

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, potential pollution sources, and CERP projects. The waterbody segments used in this assessment (as shown in **Figure 3.9**) do not entirely correspond with the Loxahatchee River watershed subbasins defined by the SFMWD that are described above. **Table 3.11** summarizes the water quality assessment status of all waterbody segments in the planning unit. Waterbodies represented by these data include the estuarine and freshwater portions of the Loxahatchee

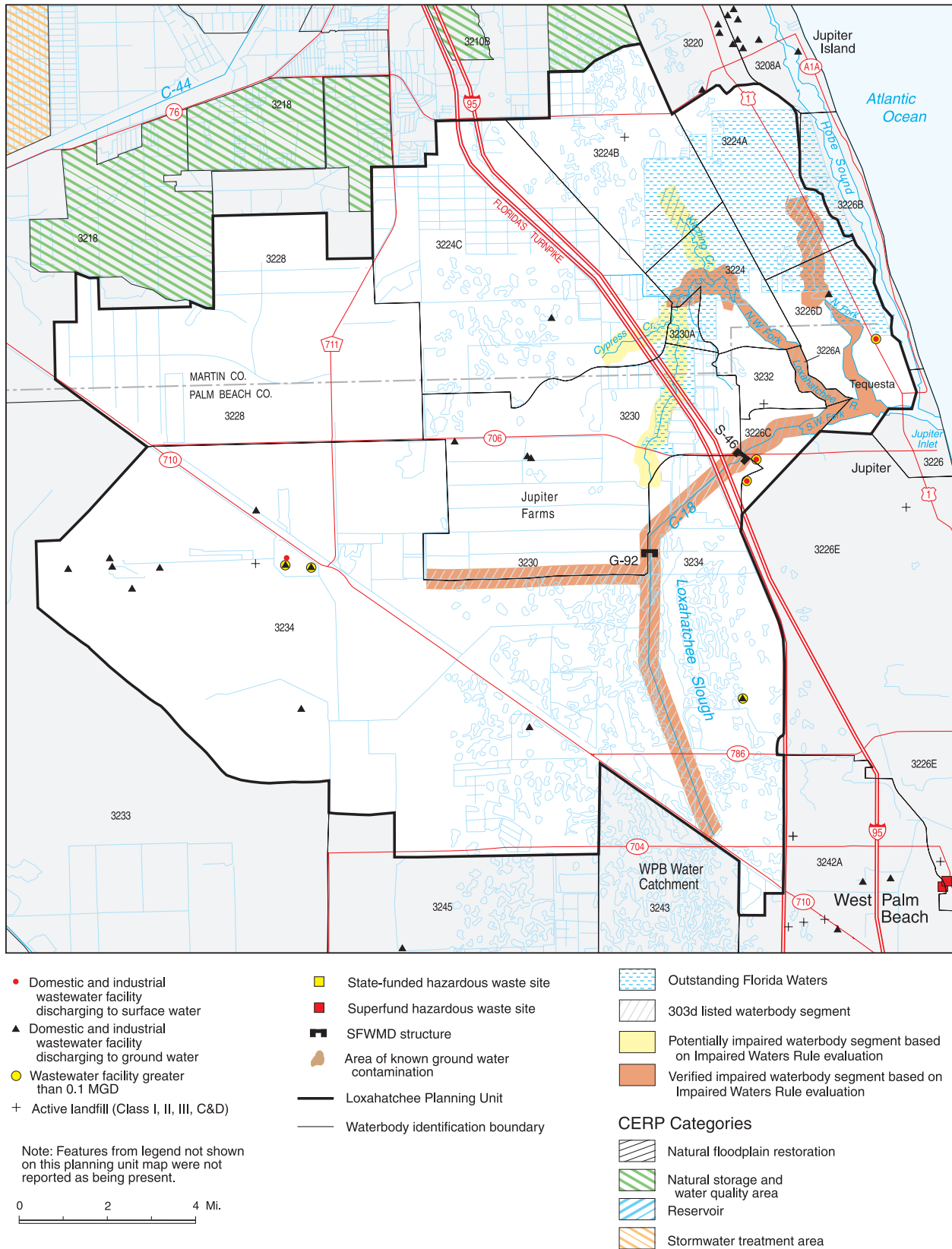


Figure 3.9: Composite Map of the Loxahatchee Planning Unit, Including the 1998 303(d) List, Planning List and Verified List Waters, Potential Pollution Sources, and CERP Projects

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

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	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/303(d) Integrated Report Assessment Category for WBID ⁴
3224	Jonathan Dickinson	Estuary	II	—	—	Fecal Coliforms, Bacteria (Shellfish)	Total Coliforms, Turbidity, DO, Nutrients (Chlorophyll <i>a</i>)	5
3224A	North Fork Loxahatchee	Stream	IIIF	—	—	DO, Nutrients (Chlorophyll <i>a</i>)	Fecal Coliforms, Biology	5
3224B	Kitching Creek	Stream	IIIF	BOD, Coliforms, DO, Nutrients	DO, Nutrients (Chlorophyll <i>a</i>), Biology	—	Turbidity, Fecal Coliforms, Total Coliforms	3c
3224C	Cypress Creek	Stream	IIIF	—	DO	—	Turbidity, Nutrients (Chlorophyll <i>a</i>), Fecal Coliforms	3c
3226A	NW Fork Loxahatchee	Estuary	II	DO, Nutrients	—	Bacteria (Shellfish)	Turbidity, DO, Nutrients (Chlorophyll <i>a</i>), Fecal Coliforms	5
3226C	SW Fork Loxahatchee	Estuary	II	Fecal Coliforms, Total Coliforms	—	Fecal Coliforms, Bacteria (Shellfish)	Total Coliforms, Nutrients (Chlorophyll <i>a</i>), DO, Turbidity	5
3226D	Loxahatchee River	Estuary	II	—	—	Bacteria (Shellfish)	Fecal Coliforms, Turbidity, Total Coliforms, DO, Biology, Nutrients (Chlorophyll <i>a</i>)	5

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	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/303(d) Integrated Report Assessment Category for WBID ⁴
3228	Pal Mar	Stream	IIIF	—	—	—	—	3a
3230	Flood Pln/Jupiter Farms	Stream	IIIF	—	Biology, DO	—	Fecal Coliforms, Turbidity, Total Coliforms, Nutrients (Chlorophyll a)	3c
3230A	NW Fork Loxahatchee	Stream	IIIF	—	DO	—	Turbidity, Fecal Coliforms, Nutrients (Chlorophyll a)	3c
3232	Loxahatchee River	Stream	IIIF	—	—	—	Nutrients (Chlorophyll a)	2
3234	C-18	Stream	I	Coliforms, Mercury in Fish, DO	Mercury in Fish, Biology, DO	Total Coliforms, Iron	Fecal Coliforms, Nutrients (Chlorophyll a), Turbidity, Copper	5

Notes:

¹The designation "stream" includes canals, rivers, and sloughs. The designation "lake" includes some marshes.

²The 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)

³The 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 an existing or proposed pollution control mechanism provides reasonable assurance that the water will attain standards in the future;

4c—Impaired for one or more designated uses but no TMDL is required because the impairment is not caused by a pollutant; and

5—Water quality standards are not attained and a TMDL is required.

⁴The 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



River, tributaries in the Kitching Creek and Cypress Creek subbasins, drainage from the Jupiter Farms and Pal-Mar areas, and the C-18 Canal.

The table and figure show that five waterbody segments in the planning unit are impaired. This assessment subdivided the Loxahatchee River Estuary into four waterbody segments. Jonathan Dickinson (3224), Northwest Fork Loxahatchee River (3226A), Southwest Fork (3226C), and Loxahatchee River (3226D) have sufficient data to indicate attainment of some of their designated uses. Two segments represent the estuarine portion of the Northwest Fork of the river: Northwest Fork Loxahatchee (3226A) and the estuarine portion of the river within Jonathan Dickinson State Park (3224). WBID 3224 is impaired for fecal coliforms. WBID 3226A is potentially impaired for turbidity, DO, nutrients, and fecal coliforms. It also meets some of its designated uses, but is on the 1998 303(d) list for nutrients and DO. WBID 3226C is impaired for fecal coliforms, and is on the 1998 303(d) list for fecal coliforms and total coliforms. WBID 3226D is impaired for bacteria in shellfish.

Low DO also causes potential impairment in five freshwater segments: Kitching Creek [3224B], Cypress Creek [3224C], Floodplain/Jupiter Farms [3230]), Northwest Fork (3230A), and Canal C-18. WBID 3224A is verified impaired for DO and nutrients. WBID 3224B is potentially impaired for biology and nutrients. It is also on the 1998 303(d) list for fecal coliforms, BOD, total coliforms, DO, and nutrients. WBID 3230 is potentially impaired for biology. The Pal-Mar waterbody segment (3228), and Loxahatchee River (3232) have no monitoring data and were not evaluated. One waterbody segment (Loxahatchee River, 3232) is a small area that drains directly to the river; it has no monitoring data, probably because it contains no distinct waterbodies.

The C-18 Canal (3234), a Class 1 waterbody, is impaired for total coliforms and iron, and potentially impaired for biology, mercury (in fish tissue), and DO. As stated previously, potential impairments for DO and biology must be associated with causative pollutants and will require further evaluation.

Permitted Discharges and Land Uses

Point Sources. There are approximately 20 permitted wastewater treatment facilities in the planning unit: thirteen domestic and 9 industrial facilities, and 1 underground injection facility. There are 4 wastewater treatment facilities that discharge to surface water, and they are the more significant discharges in the planning unit. These are Seacoast's Professional Golf Association (PGA) domestic wastewater treatment facility (12 mgd), the Loxahatchee River District's domestic wastewater plant (9 mgd), the Jupiter Water Treatment Plant Reverse Osmosis discharge (permitted capacity of 2 mgd), and the Village of Tequesta Water Treatment Plant Reverse Osmosis discharge (1.3 mgd).

In the planning unit, records show that there are 4 permitted solid waste landfills (3 are reported as active). There are 8 DSCP program dry cleaning facilities and more than 100 reported discharges from petroleum storage facilities. No state or NPL hazardous waste cleanup sites or delineated ground water contamination areas are present. **Figure 3.9** shows

permitted wastewater treatment facilities and landfills in the Loxahatchee planning unit. **Appendix E** lists the basins' permitted wastewater treatment facilities and landfills by planning unit.

Nonpoint Sources. Wetlands are the predominant land cover in the planning unit, covering more than 57 percent of the land area. Urban/built-up land uses occur over 21 percent of the area, and agricultural practices occur on approximately 14 percent of the planning unit. Population centers include the northern extremities of Jupiter and Palm Beach Gardens. The main agricultural land use is improved pasture, most of which occurs in the Cypress Creek and Jupiter Farms areas. However, there is also an area of citrus production (The Groves) in the north-central part of the planning unit. These developed land uses can be associated with non-point discharges of pollutants and eroded sediments. **Appendix F** provides summary information on general land uses in the basins by planning unit.

Ecological Summary

As mentioned above, approximately 57 percent of the Loxahatchee planning unit is wetlands. The largest intact wetland areas occur in the western part of the C-18/J.W. Corbett subbasin, remnants of the Loxahatchee Slough, and part of the Pal-Mar tract.

The Northwest Fork of the Loxahatchee is Florida's first federally designated Wild and Scenic River. The watershed includes a number of natural areas that are essentially intact and in public ownership or being considered for acquisition. These include the J.W. Corbett WMA, Jonathan Dickinson State Park, Beeline Natural Areas, Juno Hills Natural Area, Loxahatchee Slough, Pal-Mar, and Atlantic Coastal Ridge. The waters within Jonathan Dickinson State Park are designated as OFWs (**Figure 3.9**). The Loxahatchee River is also a state aquatic preserve. All waters in the planning unit are Class III, except for the C-18 Canal. The C-18 Canal is designated as a Class I water because it is connected to the West Palm Beach Water Catchment Area to the immediate south, which is used for potable supply.

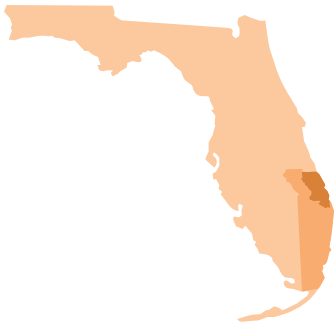
Ecological impacts within the river system are related to reduced flows in the river and upriver advancement of the salinity wedge. The transition of the lower part of the Northwest Fork has resulted in cypress tree die-off and replacement by mangroves. The diversion of water to utilities for potable water supply and irrigation, hydrologic alterations by canals, the permanent opening of Jupiter Inlet, and saltwater intrusion due to ground water drawdown are considered to be the causes (SFWMD, 2002).

Water Quality Improvement Plans and Projects

The North Palm Beach Project Part 1 portion of CERP includes several components that will help aquatic and wetland resources in the Loxahatchee planning unit through water quality improvements, hydrologic reconnection, restoring flows to the river system and estuary, and/or restoring habitat.

The Pal-Mar and Corbett Hydropattern Restoration will provide hydrologic connections between the Corbett WMA and the Moss Property, the C-18 Canal, the Indian Trail Improvement District, and the L-8 Borrow Canal. The Hydropattern Restoration also includes water control





structures, canal modifications, and the acquisition of 3,000 acres between Pal-Mar and the J.W. Corbett WMA in northern Palm Beach County. This will help form an unbroken, 126,000-acre greenbelt extending from the Dupuis Reserve near Lake Okeechobee across the J.W. Corbett WMA and south to Jonathan Dickinson State Park.

The C-51 and L-8 Reservoir project component of CERP includes a combined aboveground and in-ground reservoir that will supply water to Palm Beach County and make water more available to the Loxahatchee Basin. The project, which has a total storage capacity of 48,000 acre-feet, is located immediately west of the L-8 Borrow Canal and north of the C-51 Canal in Palm Beach County. Water will be backpumped into the reservoir from the C-51 Canal and Southern L-8 Borrow Canal during the wet season, or periods when excess water is available, and returned to the C-51 and Southern L-8 during dry periods.

The C-51 Backpumping and Treatment project component includes backpumping facilities and a 2,400 acre-feet STA. Excess C-51 Canal water will be backpumped through existing and proposed water control structures and canals to the STA, which will provide water quality treatment prior to discharge into the West Palm Beach Water Catchment Area, formerly part of and located immediately south of the Loxahatchee Basin.

The C-17 Backpumping and Treatment project component includes backpumping facilities and a 2,200 acre-feet STA. Excess C-17 Canal water will be pumped through existing and proposed water control structures and canals to the STA, which will provide water quality treatment prior to discharge into the West Palm Beach Water Catchment Area.

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

- **Coastal Planning Unit**

General Description

The planning unit includes estuarine and coastal waters of the North Coastal, Mid Coastal, and South Coastal subbasins of the St. Lucie River Basin and the Coastal subbasin of the Loxahatchee Basin. This comprises the most intensively developed portion of the two basins and also includes the southern IRL, Intracoastal Waterway, and the three inlets that connect the estuaries to the Atlantic Ocean (Fort Pierce Inlet, St. Lucie Inlet, and Jupiter Inlet). From north to south, the planning unit extends from the St. Lucie–Indian River County line to just below the Martin–Palm Beach County line. It includes the eastern parts of Fort Pierce and Stuart, as well as the coastal communities of Port Salerno, Golden Gate, Ocean Breeze Park, North River Shores, Sewall's Point, Jensen Beach, Jupiter Island, Tequesta, and the northern part of Jupiter.

Water Quality Summary

Figures 3.10 and **3.11**, composite maps of the planning unit, show waters on the 1998 303(d) list, the Planning List and Verified List, potential pollution sources in the northern and southern portions of the planning unit, and CERP projects. **Table 3.12** summarizes the water quality assessment status of all waterbody segments in the planning unit. Waterbodies represented by these data include the IRL, the main body of the SLE, and estuarine waters of the Martin County coastline. Also included are waterbody segments associated with the nearshore coastal areas along the eastern margin of the basins. Eight of the waterbody segments in the planning unit represent estuarine waters of the southern IRL or segments of the SLE. The remaining 22 segments include nearshore coastal waters that extend along the Atlantic coastline.

The table and figures show that five waterbody segments in the planning unit are impaired. The evaluation of estuarine waters includes waterbody segments within or discharging directly to the IRL. These include the North Coastal segment north of Ft. Pierce (3190), the discharge of Moore's Creek into the IRL at Ft. Pierce (3166), and the IRL from Ft. Pierce southward to the St. Lucie Inlet (5003A). Of these, the northernmost segment (3190) is impaired for nutrients (chlorophyll *a*), and the lagoon segment to the south (5003A) is also impaired by copper.

Two estuarine segments farther south, the main body of the SLE (St. Lucie River, 3193) and Manatee Pocket (3208) are both identified by the IWR evaluation as impaired for nutrients (chlorophyll *a* levels exceeding Verified List screening criteria). Manatee Pocket is also on the 1998 303(d) list for nutrients and DO and is impaired for copper. The remaining estuarine segments (to the south), which represent the Martin County Intracoastal Waterway (3208A and 3226B) and Jupiter Inlet (3226), were found by the IWR evaluation to meet some designated uses for certain parameters. Another coastal delineation, Florida Atlantic Coast (8998) is impaired because of a fish consumption advisory based on mercury found in fish tissue. This delineation overlaps and includes the other Atlantic coastal segments (8101, 8102, 8103 and subdivisions thereof).

The coastal waterbody segments Dubois Park (8101B) and Coral Cove Park (8101C) are impaired for mercury in fish tissue. Roosevelt Bridge and Coastal Ocean 1 are potentially impaired for mercury (in fish tissue) and fecal coliforms, respectively. The rest of the coastal waterbody segments have insufficient data to meet some designated uses for certain parameters. However, two of these, one in south Martin County (8101) and one in northern St. Lucie County (8104), meet designated uses for certain parameters.

Permitted Discharges and Land Uses

Point Sources. There are 50 permitted wastewater treatment facilities in the planning unit. Of these, 7 are permitted for surface water discharge. The Florida Power and Light St. Lucie Nuclear Power Plant is permitted to discharge 771.6 mgd of cooling water to the Atlantic Ocean. Fort Pierce Utilities Wastewater Treatment Plant, the largest domestic wastewater facility (9 mgd permitted capacity), operates a deep injection well for its



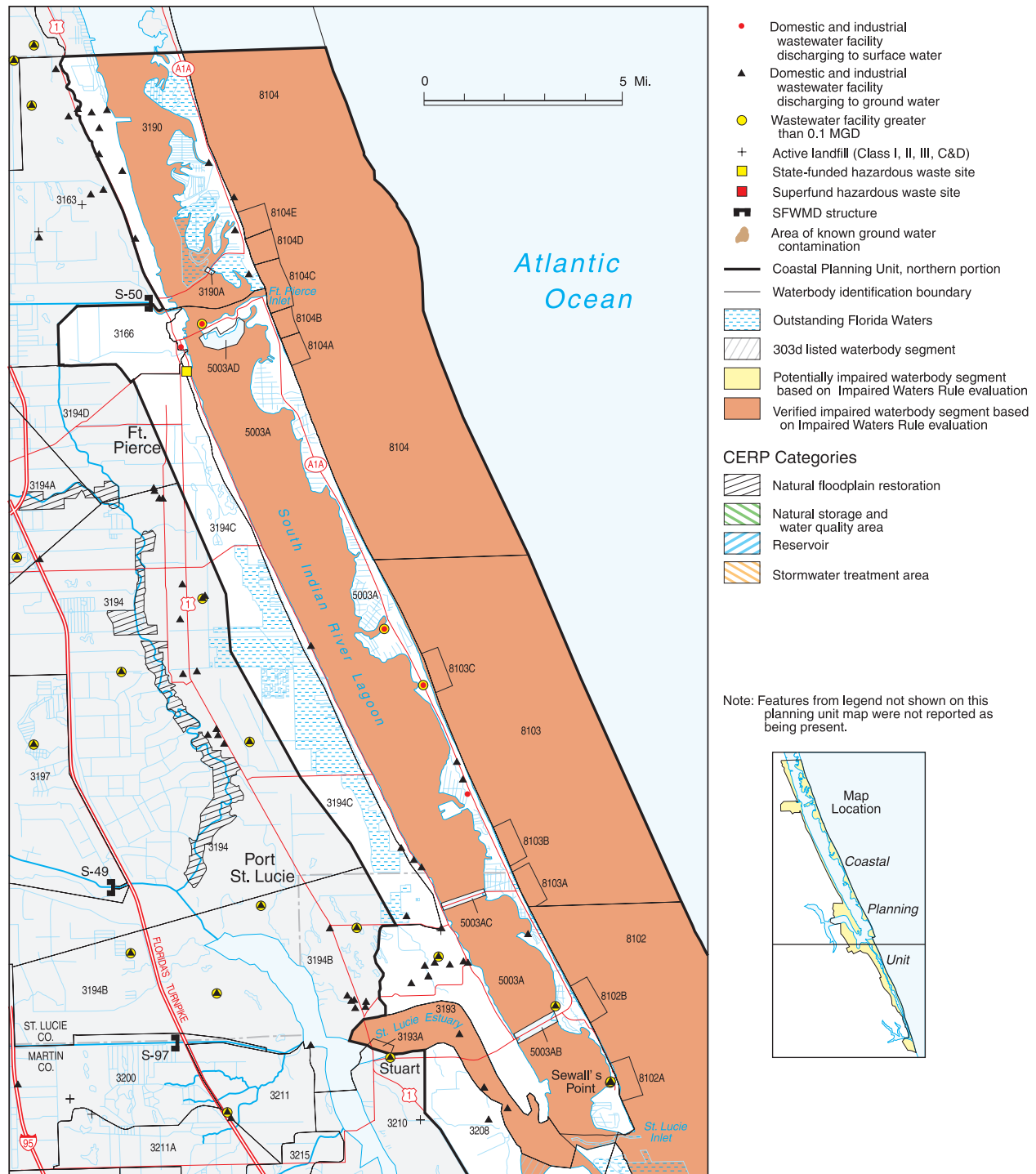


Figure 3.10: Composite Map of the Coastal Planning Unit, Northern Portion, Including the 1998 303(d) List, Planning List and Verified List Waters, Potential Pollution Sources, and CERP Projects

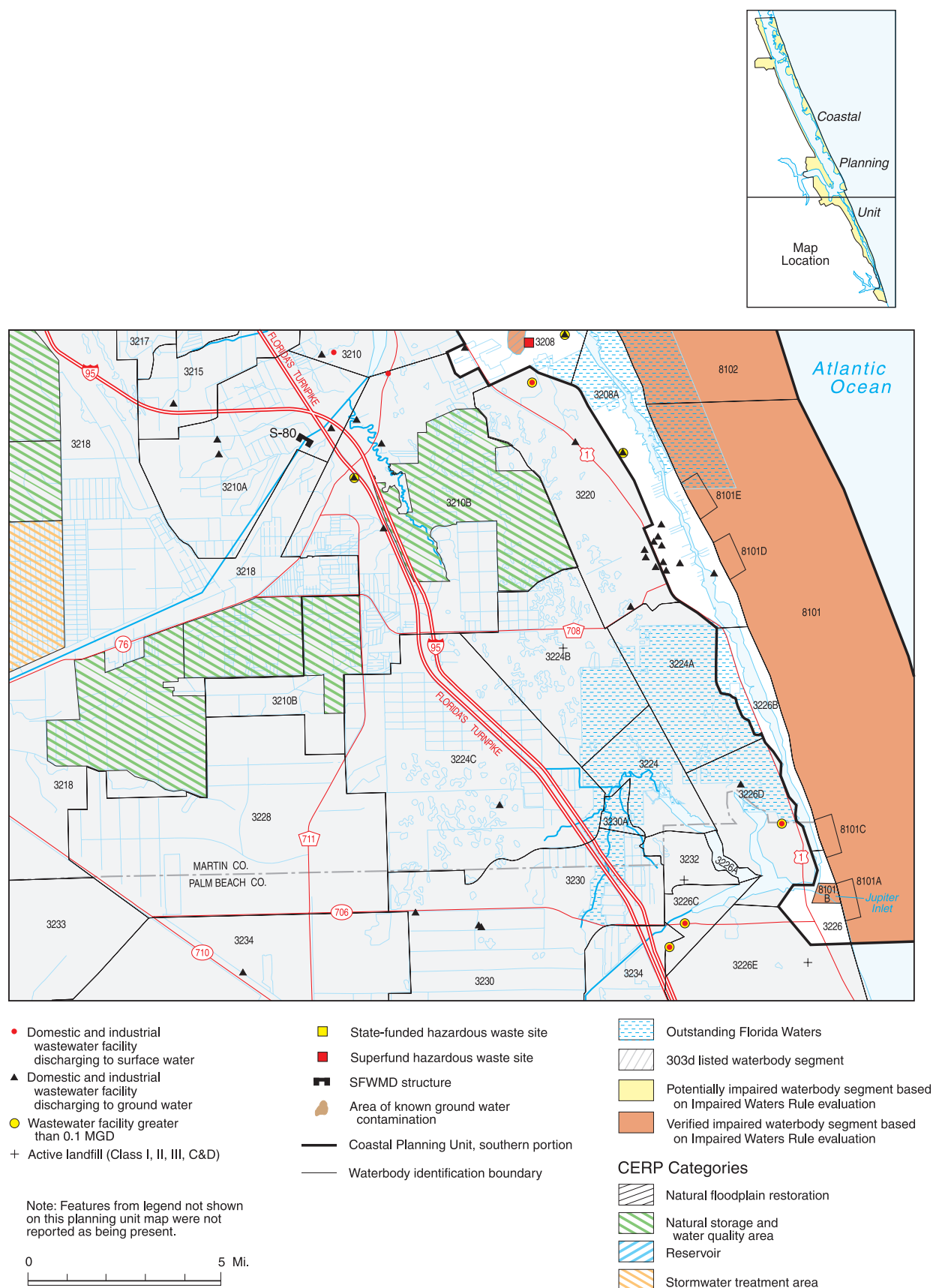


Figure 3.11: Composite Map of the Coastal Planning Unit, Southern Portion, Including the 1998 303(d) List, Planning List and Verified List Waters, Potential Pollution Sources, and CERP Projects

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

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	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/303(d) Integrated Report Assessment Category for WBID ⁴
3166	Moore's Creek	Estuary	IIIM	—	—	—	—	3b
3190	North Coastal	Estuary	IIM	—	—	Nutrients (Chlorophyll <i>a</i>), Bacteria (Shellfish)	DO, Fecal Coliforms, Turbidity	5
3190A	Little Jim Bridge	Coastal	IIIM	—	—	—	Fecal Coliforms	2
3193	St. Lucie River	Estuary	IIIM	—	—	Nutrients (Chlorophyll <i>a</i>)	DO, Turbidity	5
3193A	Roosevelt Bridge	Coastal	IIM	—	Mercury in Fish	Bacteria (Shellfish)	Fecal Coliforms	5
3208	Manatee Pocket	Estuary	IIIM	DO, Nutrients	—	Nutrients (Chlorophyll <i>a</i>), Copper	Turbidity, DO	5
3208A	Martin Co. ICCW	Estuary	IIIM	—	—	—	Turbidity, DO, Nutrients	2
3226	Jupiter Inlet	Estuary	IIIM	—	—	—	Turbidity, Total Coliforms, Fecal Coliforms, Nutrients (Chlorophyll <i>a</i>), DO	2
3226B	Martin Co. ICCW	Estuary	IIIM	—	—	—	Fecal Coliforms, Turbidity, DO, Nutrients (Chlorophyll <i>a</i>)	2
5003A	South Indian River	Estuary	IIM	—	—	Bacteria (Shellfish), Copper	Turbidity, DO, Nutrients (Chlorophyll <i>a</i>),	5
5003AB	Stuart Causeway	Coastal	IIIM	—	—	—	Fecal Coliforms	3b
5003AC	Jensen Beach Causeway	Coastal	IIIM	—	—	—	Fecal Coliforms	3b

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	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/303(d) Integrated Report Assessment Category for WBID ⁴
5003AD	South Causeway at Boat Ramp	Coastal	IIIM	—	—	—	Fecal Coliforms	2
8101	Coastal Ocean 1	Coastal	IIIM	—	Fecal Coliforms	—	DO, Turbidity	3c
8101A	Jupiter Beach Park	Coastal	IIIM	—	—	—	Fecal Coliforms	2
8101B	Dubois Park	Coastal	IIM	—	—	Mercury in Fish	Fecal Coliforms	5
8101C	Coral Cove Park	Coastal	IIM	—	—	Mercury in Fish	Fecal Coliforms	5
8101D	Hobe Sound Public Beach	Coastal	IIIM	—	—	—	Fecal Coliforms	2
8101E	Hobe Sound Wildlife Refuge	Coastal	IIIM	—	—	—	Fecal Coliforms	2
8102A	Bathtub Public Beach	Coastal	IIIM	—	—	—	Fecal Coliforms	2
8102B	Stuart Public Beach	Coastal	IIIM	—	—	—	Fecal Coliforms	2
8103A	Jensen Public Beach	Coastal	IIIM	—	—	—	Fecal Coliforms	2
8103B	Waveland Public Beach	Coastal	IIIM	—	—	—	—	3b
8103C	Walton Rocks Beach	Coastal	IIIM	—	—	—	Fecal Coliforms	2
8104	Coastal Ocean 4	Coastal	IIM	—	—	—	Turbidity, DO	5
8104A	Surfside Park	Coastal	IIIM	—	—	—	Fecal Coliforms	2
8104B	Jetty Park Beach	Coastal	IIIM	—	—	—	Fecal Coliforms	2
8104C	Inlet State Park at River	Coastal	IIIM	—	—	—	Fecal Coliforms	2

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	Verified Impaired (Cat. 4a, 4b, 4c, or 5) for Listed Parameters	Not Impaired (Cat. 2) for Listed Parameters	EPA's 305(b)/303(d) Integrated Report Assessment Category for WBID ⁴
8104D	Inlet State Park at Ocean	Coastal	IIIM	—	—	—	—	3b
8104E	Pepper Park	Coastal	IIIM	—	—	—	Fecal Coliforms	2
8998	Florida Atlantic Coast	Coastal	IIIM	—	—	Mercury in Fish	—	5
8104E	Pepper Park	Coastal	IIIM	—	—	—	Fecal Coliforms	2

Notes:

¹The designation "stream" includes canals, rivers, and sloughs. The designation "lake" includes some marshes.

²The 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)

³The 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 an existing or proposed pollution control mechanism provides reasonable assurance that the water will attain standards in the future;

4c—Impaired for one or more designated uses but no TMDL is required because the impairment is not caused by a pollutant; and

5—Water quality standards are not attained and a TMDL is required.

⁴The 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.

M = Marine water

wastewater disposal. The St. Lucie County Utilities Hutchinson Island Wastewater Treatment Facility (1.6 mgd) operates a reuse system and also discharges into the Atlantic Ocean.

Department records show only 1 permitted landfill, the town of Ocean Breeze Landfill, which is now closed. There are 2 state/federal hazardous waste sites: the Qual Krom Plating site in Fort Pierce, which is in the state cleanup program, and the Solitron Microwave NPL site in Port Salerno. The planning unit has 11 dry cleaning facilities in the DSCP and more than 200 reported releases from petroleum storage facilities. There are no delineated areas. **Figures 3.10** and **3.11** show permitted wastewater treatment facilities, landfills, and hazardous waste sites in the planning unit. **Appendix E** lists the basins' permitted wastewater treatment facilities and landfills by planning unit.

Nonpoint Sources. More than 26 percent of the planning unit is in the urban/built-up land use category, most of which is in the medium-density residential category. The Coastal planning unit includes the receiving waters for the major canals (C-25, C-24, C-23, C-44, and C-18) and rivers. The nutrient loads, sediments, and unregulated flows associated with the C&SF canals, plus smaller, more localized urban drainage canals, affect the coastal waterbodies. These developed land uses can be associated with nonpoint discharges of pollutants and eroded sediments. **Appendix F** provides summary information on general land uses in the basins by planning unit.

Ecological Summary

Within the planning unit are most of the waters that have been designated for protection within the St. Lucie and Loxahatchee Basins. **Figures 3.10** and **3.11** show the OFWs. Aquatic preserves in the planning unit include the IRL from Vero Beach to Ft. Pierce, Jensen Beach to Jupiter Inlet, and a portion of the Loxahatchee Aquatic Preserve. Waters in Avalon State Recreational Area, the Ft. Pierce Inlet State Recreational Area, the St. Lucie Inlet State Park, and Jonathan Dickinson State Park are all designated as OFWs. Within the St. Lucie and Loxahatchee Basins, the IRL from the St. Lucie County line to Jupiter Inlet, including the SLE, is designated as a SWIM restoration waterbody. Most of these waters are designated as Class III, although in some areas where shellfishing is still viable, waters are in Class II. **Figure 2.2** shows Class II waters in the planning unit.

The most well-known ecological impacts have been observed in the SLE, including algal blooms; fish kills; lesions on fish; the depletion of seagrasses, oyster beds, and other estuarine habitat due to turbid and/or oligohaline conditions; and the smothering of benthic habitats by flocculent ooze. These impacts are caused by excessive nutrient and pesticide loadings, unregulated releases of fresh water, eroded sediments being transported from agricultural and urban areas, and septic tank seepage from nearby urban areas.

Discharges from C&SF canals and urban stormwater threaten estuarine habitat and create imbalances to varying degrees in many areas. Similar





impacts are a concern in the IRL, where the C-25 Canal discharges directly to the IRL at Ft. Pierce.

Water Quality Improvement Plans and Projects

As discussed previously, the major components in the Feasibility Study that are designed ultimately to improve water quality in the southern IRL and regulate the delivery of fresh water to the IRL and SLE will occur at points along the course of the major C&SF canals and tributaries. The project includes the storage, treatment, and redirection of water in the contributing watershed and the reconnection of natural wetland areas that will absorb, detain, and treat waters that would otherwise be flushed into the estuary. However, the plan also includes restoration measures within the SLE itself. It includes the removal of flocculent sediment from several areas where thick accumulations cover the estuary bottom. It also includes the creation of artificial habitat for reestablishing oyster beds in the estuary.

Several St. Lucie River Issues Team projects to treat urban stormwater have been approved and initiated. The Airport Ditch, Salerno Creek, Willoughby Creek, Golden Gate subdivision, and Poinciana Gardens subdivision projects were designed to treat stormwater from urban/residential areas that discharges to the SLE in the Manatee Pocket area. The Krueger Creek project, also under the Issues Team, includes the dredging and removal of flocculent sediment from the bottom of Krueger Creek, a tributary to the SLE.

The Loxahatchee River District is the lead agency in a program to provide sewer service to urban areas in the southern part of the Coastal planning unit which are still being served by septic tanks. Within this same area, the town of Jupiter is in the planning phase of the Jones Creek Restoration and Stormwater Upgrade project.

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. 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. **Appendix B** contains additional information on the requirements for reasonable assurance.

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 St. Lucie and Loxahatchee Basins is highlighted in boldface type. **Appendix G** 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 Load (TMDL) Web site, at <http://www.dep.state.fl.us/water/tmdl>, and were also sent on request to interested parties by mail or e-mail.

Citizens were given the opportunity to comment on the draft lists in person and/or in writing. A total of 8 public meetings were held across the state to encourage public participation on a basin-by-basin basis. For this basin group, public meetings were held in Stuart and Jupiter on June 19, 2003 to receive public comment. 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 by 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 Secretarial Order on May 27, 2004, and submitted to U.S. Environmental Protection Agency (EPA) on July 30, 2004. After submittal of the final list, an Administrative Order will be issued to address errors and omissions in the Verified Lists.





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 9, 2003	Public Meeting at Punta Gorda on the Charlotte Harbor Basin
June 10, 2003	Public Meeting at St. Petersburg on the Tampa Bay Tributaries Basin
June 11, 2003	Public Meeting at Sanford on the Middle St. Johns Basin
June 13, 2003	Public Meeting at Apalachicola on the Apalachicola and Chipola Basins
June 19, 2003	Public Meeting at Stuart on the St. Lucie and Loxahatchee Basins
June 19, 2003	Public Meeting 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
September 5, 2003	Publication of Revised Draft Verified List for the 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
May 27, 2004	Adoption of Verified List by Secretarial Order
July 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. The methodology in **Appendix C** 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 St. Lucie and Loxahatchee Basins, 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 two basins as of December 11, 2003, the projected year for TMDL development, and the location of the CERP projects. For presentation purposes, the entire watershed for the listed water is highlighted. However, only the main waterbody in the assessment unit has been assessed, and other waters in the watershed may not be impaired. Due to the construction of projects associated with the Comprehensive Everglades Restoration Plan, water quality in some parts of these basins will likely change. Information on these projects and their relationship to 303(d) listed waters is provided in Chapter 3.

Since the October 2002 update of the 303(d) list, additional data became available for assessing the basins, and these data were used to update the listing status of waters. **Table D.1** in **Appendix D** contains the listing status of all assessed waters in the basins as of January 2003.

Pollutants Causing Impairments

Of the 66 waterbody segments in the St. Lucie and Loxahatchee Basins, 26 waters are impaired for at least 1 parameter, and a TMDL is required for these waters. There are a total of 50 parameter listings for impairment following the methodology in **Appendix C**. The South St. Lucie-Indian River Lagoon planning unit has the largest number of impaired parameter listings (9 listings), followed by the Loxahatchee planning unit (7 listings).

The most common parameter causing impairment throughout the St. Lucie and Loxahatchee Basins is DO (13 listings), nutrients (chlorophyll *a*) (11 listings), iron (5 listings), and copper (4 listings), and shellfish closures based on bacteria (1 listing). Two segments are impaired for fecal coliforms, and 1 coastal segment is listed due to fish consumption advisories for mercury.

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

1. The waterbody segment median values for BOD, total nitrogen (TN), and total phosphorus (TP) are determined for the verified period (i.e., January 1995 to June 2002).
2. 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 4.3**).



Table 4.2: The Verified List of Impaired Waters

WBID	Water-body Segment	Water-body Type	1998 303(d) Parameters of Concern	Parameters Identified Using the Impaired Surface Waters Rule	Current Status	EPA's Integrated Report Category ¹	Priority for TMDL Development ²	Projected Year for TMDL Development ²	Comments
C-25/Basin 1 Planning Unit									
3163	Ft. Pierce Farm Canal	Stream	DO, Nutrients	DO	VL	5	High	2006	Planning period: 4/11 Potentially impaired; verified period: 21/49 verified. Linked to nutrients, with both N and P as limiting nutrients, colimitation of N and P. TN during verified period = 0.706 mg/L. TP during verified period = 0.197 mg/L.
3163B	C-25 East Segment	Stream		Nutrients (Chlorophyll <i>a</i>)	VL	5	Medium	2008	Planning period: No data; verified period: Verified, with one annual mean Chlorophyll <i>a</i> value above 20 µg/L. Colimiting of N and P based upon TN/TP ratios. TN median = 1.438 mg/L, and TP median = 0.145 mg/L. Planning period median TN/TP ratio = 10.46 (327 values); verified period median TN/TP ratio = 10.11 (291 values).
3163B	C-25 East Segment	Stream		DO	VL	5	Medium	2008	Planning period: 75/126 Potentially impaired; verified period: 52/109 Verified. Linked to nutrients, with both N and P as limiting nutrients, colimitation of N and P. TN during verified period = 1.445 mg/L. TP during verified period = 0.139 mg/L.
3163B	C-25 East Segment	Stream		Iron	VL	5	Medium	2008	Planning period: 30/39 Potentially impaired; verified period: 12/25 Verified.

Table 4.2 (continued)

WBID	Waterbody Segment	Waterbody Type	1998 303(d) Parameters of Concern	Parameters Identified Using the Impaired Surface Waters Rule	Current Status	EPA's Integrated Report Category ¹	Priority for TMDL Development ²	Projected Year for TMDL Development ²	Comments
North St. Lucie Planning Unit									
3194	North St. Lucie	Estuary	Mercury in Fish, Coliforms	DO	VL	5	High	2005	Planning period: 119/410 Potentially impaired; verified period: 96/345 Verified. Linked to elevated BOD during planning period and verified period. Planning period = 7.5 mg/L and verified period = 7.7 mg/L.
3194	North St. Lucie	Estuary	Mercury in Fish, Coliforms	Nutrients (Historical Chlorophyll)	VL	5	High	2005	Planning period: Historical chlorophyll potentially impaired; verified period: Verified, based on seven annual mean Chlorophyll <i>a</i> values above 11 µg/L. Colimitation of N and P based on TN/TP ratios. TN median = 0.742 mg/L and TP median = 0.054 mg/L. Planning period median TN/TP ratio = 5.17 (458 values); verified period median TN/TP ratio = 5.43 (283 values).
3194	North St. Lucie	Estuary	Mercury in Fish, Coliforms	Copper	VL	5	Medium	2008	Planning period: 3/3 Potentially impaired; verified period: 20/54 Verified.
3194B	St. Lucie	Estuary	Nutrients	Nutrients (Chlorophyll <i>a</i>)	VL	5	High	2005	Planning period: Historical chlorophyll potentially impaired; verified period: Verified, with seven annual mean Chlorophyll <i>a</i> values above 20 µg/L. N is the limiting nutrient based on TN/TP ratios. Planning period median TN = 1.1 mg/L. Planning period median TN/TP ratio = 3.08 (131 values); verified period median TN/TP ratio = 3.09 (242 values).

Table 4.2 (continued)

WBID	Waterbody Segment	Waterbody Type	1998 303(d) Parameters of Concern	Parameters Identified Using the Impaired Surface Waters Rule	Current Status	EPA's Integrated Report Category ¹	Priority for TMDL Development ²	Projected Year for TMDL Development ²	Comments
North St. Lucie Planning Unit, continued									
3194B	St. Lucie	Estuary	Nutrients	DO	VL	5	Medium	2008	Planning period: 75/557 Potentially impaired; verified period: 56/399 Verified. Linked to elevated nutrients, with colimitation of N and P. TN during verified period = 1.038 mg/L, TP during verified period = 0.193 mg/L.
3194B	St. Lucie	Estuary	Nutrients	Copper	VL	5	Medium	2008	Planning period: 2/11 Not impaired; verified period: 25/58 Verified.
3194D	Fivemile Creek	Estuary		DO	VL	5	Medium	2008	Planning period: 8/15 Potentially impaired; verified period: 12/30 Verified. Linked to elevated BOD level during planning period and verified period. Planning period median BOD = 2.2 mg/L; verified period median = 2.2 mg/L.
C-24 Planning Unit									
3197	C-24	Stream	Nutrients, DO	Fecal Coliforms	VL	5	Medium	2008	Planning period: 9/41 Insufficient data; verified period: 9/41 Verified.
3197	C-24	Stream	Nutrients, DO	Nutrients (Chlorophyll <i>a</i>)	VL	5	High	2005	Planning period: Insufficient data; verified period: Verified, with one annual mean Chlorophyll <i>a</i> value above 20 µg/L. P limiting based on TN/TP ratios. Planning period TP median = 0.251 mg/L; verified period TP median = 0.258 mg/L. Planning period TN/TP ratio median = 5.82 (417 values); verified period TN/TP ratio = 5.68 (408 values).

Table 4.2 (continued)

WBID	Waterbody Segment	Waterbody Type	1998 303(d) Parameters of Concern	Parameters Identified Using the Impaired Surface Waters Rule	Current Status	EPA's Integrated Report Category ¹	Priority for TMDL Development ²	Projected Year for TMDL Development ²	Comments
C-24 Planning Unit (continued)									
3197	C-24	Stream	Nutrients, DO		VL	5	High	2005	Planning period: 100/156 Potentially impaired; verified period: 92/149 Verified. Linked to elevated BOD during planning period and verified period (planning period mean BOD = 3.0 mg/L. Verified period mean BOD = 3.0 mg/L).
3197	C-24	Stream	Nutrients, Iron DO		VL	5	High	2005	Planning period: 30/39 Potentially impaired; verified period: 12/25 Verified.
C-23 Planning Unit									
3200	C-23	Stream		Nutrients (Chlorophyll <i>a</i>)	VL	5	Medium	2008	Planning period: Insufficient data; verified period: Verified, with one annual mean Chlorophyll <i>a</i> value above 20 µg/L. P limiting for both planning period and verified period based on TN/TP ratios (planning period TP median = 0.306 mg/L; verified period TP median = 0.32 mg/L). Planning period median TN/TP ratio = 4.79 (420 values); verified period median TN/TP ratio = 4.42 (328 values).
3200	C-23	Stream		Iron	VL	5	Medium	2008	Planning period: 47/57 Potentially impaired; verified period: 14/27 Verified.
3200	C-23	Stream		DO	VL	5	Medium	2008	Planning period: 79/161 Potentially impaired; verified period: 56/125 Verified. Linked to elevated TP level. TP above the screening level for both the planning period and verified period (Planning period median 0.31 mg/L; verified period median 0.32 mg/L).

Table 4.2 (continued)

WBID	Waterbody Segment	Waterbody Type	1998 303(d) Parameters of Concern	Parameters Identified Using the Impaired Surface Waters Rule	Current Status	EPA's Integrated Report Category ¹	Priority for TMDL Development ²	Projected Year for TMDL Development ²	Comments
South St. Lucie Planning Unit									
3210	Tidal St. Lucie	Estuary		Nutrients (Chlorophyll <i>a</i>)	VL	5	Medium	2005	Planning period: Potentially impaired; verified period: Verified, with seven annual mean Chlorophyll <i>a</i> values above 11 µg/L. Both P and N are limiting nutrients based on TN/TP ratios. TN median = 1.124 mg/L, median TP = 0.185 mg/L. Planning period median TN/TP ratio = 6.44 (478 values); verified period median TN/TP ratio = 5.87 (256 values).
3210	Tidal St. Lucie	Estuary		Copper	VL	5	Medium	2005	Planning period: 0/2 Insufficient data; verified period: 8/25 Verified.
3210A	St. Lucie Canal	Estuary	Nutrients, DO	Nutrients (Chlorophyll <i>a</i>)	VL	5	Low	2010	Planning period: Not impaired; verified period: Verified, with one annual mean Chlorophyll <i>a</i> value above 11 µg/L. Planning period median 1.291 mg/L and verified period median 1.18 mg/L. Planning period median TN/TP ratio = 7.46 (234 values); verified period median TN/TP ratio = 7.18 (161 values).
3210A	St. Lucie Canal	Estuary	Nutrients, DO	DO	VL	5	Low	2010	Planning period: 37/196 Potentially impaired; verified period: 48/172 Verified. Linked to N levels. TN levels during planning period = 1.2935; verified period = 1.254 mg/L.
3210A	St. Lucie Canal	Estuary	Nutrients, DO	Copper	VL	5	Low	2010	Planning period: No data; verified period: 22/36 Verified.
3210B	South Fork St. Lucie	Stream	TSS	DO	VL	5	Low	2010	Planning period: 92/209 Potentially impaired; verified period: 88/169 Verified. Linked to elevated BOD level. BOD median = 2.25 mg/L.
3211	Bessey Creek	Estuary		Copper	VL	5	Medium	2008	Planning period: No data; verified period: 16/29 Verified.

Table 4.2 (continued)

WBID	Waterbody Segment	Waterbody Type	1998 303(d) Parameters of Concern	Parameters Identified Using the Impaired Surface Waters Rule	Current Status	EPA's Integrated Report Category ¹	Priority for TMDL Development ²	Projected Year for TMDL Development ²	Comments
South St. Lucie Planning Unit (continued)									
3211	Bessey Creek	Estuary	DO, Coliforms, Nutrients	DO	VL	5	High	2005	Planning period: 8/19 Potentially impaired; verified period: 10/29 Verified. Linked to elevated TP level. TP above the screening level for the planning period and verified period (planning period median 5.5 mg/L and verified period median 0.213 mg/L).
3211	Bessey Creek	Estuary	DO, Coliforms, Nutrients	Nutrients (Chlorophyll <i>a</i>)	VL	5	High	2005	Planning period: Insufficient data; verified period: Verified, with one annual mean Chlorophyll <i>a</i> value above 20 µg/L. P limiting based on TN median = 0.747 mg/L and TP median = 0.213 mg/L. Planning period TN/TP ratio median = 7.73 (13 values); verified period = 3.88 (23 values).
C-44 Planning Unit									
3218	C-44	Stream		DO	VL	5	Medium	2008	Planning period: 48/159 Potentially impaired; verified period: 50/154 Verified. Linked to elevated BOD level of 6.6 mg/L during planning period.
3218	C-44	Stream		Iron	VL	5	Medium	2008	Planning period: 33/42 Potentially impaired; verified period: 13/26 Verified.
Loxahatchee Planning Unit									
3224	Jonathan Dickinson	Estuary		Fecal Coliforms	VL	5	Medium	2008	Planning period: 33/288 Not impaired; verified period: 24/162 Verified.
3224A	North Fork Loxahatchee	Stream		DO	VL	5	Medium	2008	Planning period: 52/74 Potentially impaired; verified period: 37/55 Verified. Linked to nutrients, with both N and P as limiting nutrients. Colimitation of N and P. TN during verified period = 0.795 mg/L, TP during verified period = 0.028 mg/L.

Table 4.2 (continued)

WBID	Waterbody Segment	Waterbody Type	1998 303(d) Parameters of Concern	Parameters Identified Using the Impaired Surface Waters Rule	Current Status	EPA's Integrated Report Category ¹	Priority for TMDL Development ²	Projected Year for TMDL Development ²	Comments
Loxahatchee Planning Unit (continued)									
3224A	North Fork Loxahatchee	Stream		Nutrients (Chlorophyll <i>a</i>)	VL	5	Medium	2008	Planning period: Potentially impaired; verified period: Verified, with one annual mean Chlorophyll <i>a</i> value above 20 µg/L. Colimitation of N and P based on TN/TP ratios. TN median = 0.795 mg/L and TP median = 0.028 mg/L. Planning period median TN/TP ratio = 31.53 (62 values); verified period median TN/TP ratio = 31.53 (44 values).
3226C	SW Fork Loxahatchee	Estuary	Coliform, DO, Nutrients	Fecal Coliforms	VL	5	Low	2010	Planning period: 23/157 Potentially impaired; verified period: 12/73 Verified.
3226D	Loxahatchee River	Estuary		Bacteria (Shellfish)	VL	5	Medium	2008	Listed based on downgrade of shellfish harvesting classification.
3234	C-18	Stream	Coliform, Mercury in Fish, DO	Total Coliforms	VL	5	Low	2010	Planning period: 8/48 Potentially impaired; verified period: 5/24 Verified.
3234	C-18	Stream	Coliform, Mercury in Fish, DO	Iron	VL	5	Low	2010	Planning period: 78/101 Potentially impaired; verified period: 30/58 Potentially impaired.
Coastal Planning Unit									
3190	North Coastal	Estuary		Nutrients (Chlorophyll <i>a</i>)	VL	5	Medium	2008	Planning period: Potentially impaired; verified period: Verified, with two annual mean Chlorophyll <i>a</i> values above 11 µg/L. Both P and N identified as limiting nutrients based on TN/TP ratios. TN median = 0.93 mg/L; TP median = 0.056 mg/L. Planning period TN/TP ratio median = 12.5 (357 values); verified period = 14.87 (230 values).

Table 4.2 (continued)

WBID	Waterbody Segment	Waterbody Type	1998 303(d) Parameters of Concern	Parameters Identified Using the Impaired Surface Waters Rule	Current Status	EPA's Integrated Report Category ¹	Priority for TMDL Development ²	Projected Year for TMDL Development ²	Comments
Coastal Planning Unit (continued)									
3193	St. Lucie River	Estuary		Nutrients (Chlorophyll <i>a</i>)	VL	5	Medium	2008	Planning period: Potentially impaired; verified period: Verified, with one annual mean Chlorophyll <i>a</i> value above 11 µg/L. Both P and N identified as limiting nutrients based on TN/TP ratios. TN median = 0.886 mg/L; TP median = 0.108 mg/L. Planning period median TN/TP ratio = 6.9 (530 values); verified period median TN/TP ratio = 7.12 (221 values).
3208	Manatee Pocket	Estuary	Nutrients, DO	Nutrients (Chlorophyll <i>a</i>)	VL	5	Medium	2008	Planning period: Potentially impaired; verified period: Verified, with four annual mean Chlorophyll <i>a</i> values above 11 µg/L. Both P and N identified as limiting nutrient based on TN/TP ratios. Planning period median TN/TP ratio = 9.63 (175 values); verified period median TN/TP ratio = 10.04 (154 values).
3208	Manatee Pocket		Nutrients, DO	Copper	VL	5	Medium	2008	Planning period: 0/1 Insufficient data; verified period: 27/30 Verified.
3208A	Martin Co. ICCW	Estuary		Copper	VL	5	Medium	2008	Planning period: 0/1 Insufficient data; verified period: 19/24 Verified.
5003A	South Indian River	Estuary		Copper	VL	5	Medium	2008	Planning period: 0/1 Insufficient data, verified period: 14/23 Verified.
8101B	Dubois Park	Coastal		Mercury in Fish	VL	5	Low	2011	Planning period: Potentially impaired; verified period: Potentially impaired. Verified age of fish tissue data to be within 7.5 years.
8101C	Coral Cove Park	Coastal		Mercury in Fish	VL	5	Low	2011	Planning period: Potentially impaired; verified period: Potentially impaired. Verified age of fish tissue data to be within 7.5 years.

Table 4.2 (continued)

WBID	Waterbody Segment	Waterbody Type	1998 303(d) Parameters of Concern	Parameters Identified Using the Impaired Surface Waters Rule	Current Status	EPA's Integrated Report Category ¹	Priority for TMDL Development ²	Projected Year for TMDL Development ²	Comments
Coastal Planning Unit (continued)									
8998	Florida Atlantic Coast	Coastal		Mercury in Fish	VL	5	Low	2001	Data verified to be within the last 7.5 years. Confirmed recent data for coastal fish advisory for King Mackerel, Shark, Spotted Seatrout, Little Tunny, Cobia, Greater Amberjack, Bluefish, and Crevalle Jack. Includes WBIDs 3190A, 3193A, 5003AB, 5003AC, 5003AD, 8101, 8101 A-E, 8102, 8102 A-B, 8103, 8103 A-C, 8104, 8104 A-E. Confirmed recent data for coastal fish advisory for Ladyfish, Snowy Grouper, Blackfin Tuna. Includes WBIDs 3190, 3190A, 5003A, 5003AB, 5003AC, and 5003AD.

Notes:

¹The 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 an existing or proposed pollution control mechanism provides reasonable assurance that the water will attain standards in the future;
- 4c—Impaired for one or more designated uses but no TMDL is required because the impairment is not caused by a pollutant; and
- 5—Water quality standards are not attained and a TMDL is required.

²Where 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.

Note: Appendix H contains a summary of management and planning activities designed to improve water quality in the St. Lucie and Loxahatchee Basins. The activities identified are those that have potential benefits to waterbodies on the Verified List.

BOD = Biological oxygen demand
 TN = Total nitrogen
 TP = Total phosphorus
 N = Nitrogen
 P = Phosphorus
 TSS = Total suspended solids
 VL = Verified list

This list includes revisions made to the May 27, 2004, Group 2 St. Lucie–Loxahatchee Verified List adopted by Secretarial Order. The revised Group 2 list and its adoption date are pending signing by Secretarial Order.

3. If a waterbody segment's median value exceeds the screening level, the parameter is identified as a pollutant contributing to the exceedances.

Table 4.3: Screening Level Values (70th Percentile) Based on STORET Data from 1970 to 1987

Waterbody Type	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. July 1989. *Typical Water Quality Values for Florida's Lakes, Streams and Estuaries*.

Table 4.4 provides the median values for waterbody segments where there is a sufficient number of DO exceedances to place the water on the Verified List. If a water has a sufficient number of exceedances for placement on the Verified List, but the median values are less than the screening levels, the DO for that segment is included on the Planning List.

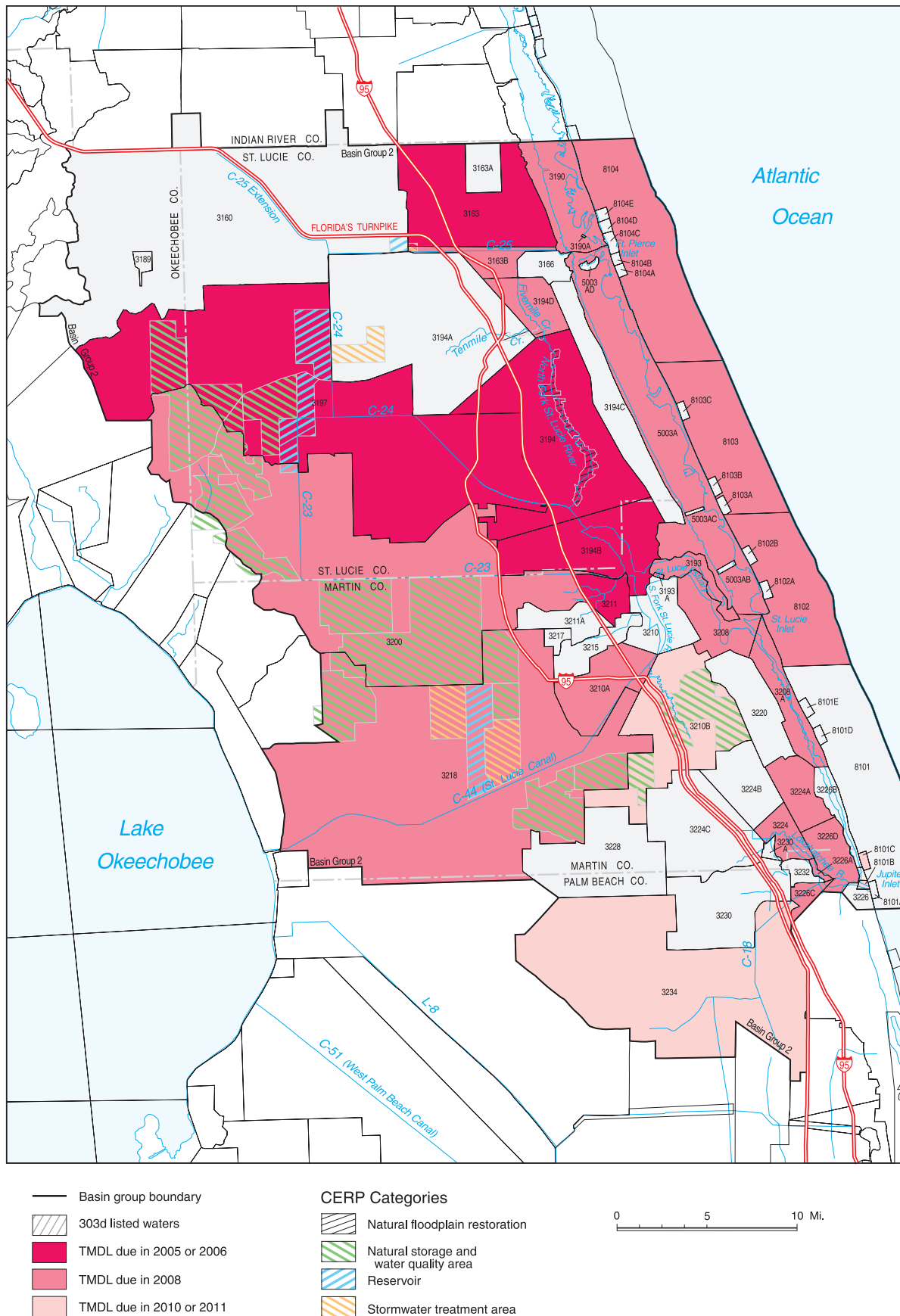
Additionally, to place a water segment on the Verified List for nutrients, the Department must identify the limiting nutrient or nutrients on the Verified List, as required by the IWR. The following method is used to identify the limiting nutrient(s) in streams and lakes:

1. The ratios of TN to TP are calculated for each paired value of TN and TP (per sampling event) collected during the verified period.

Table 4.4: St. Lucie and Loxahatchee Basins Median Values for the Verified Period

WBID	Waterbody Segment	Waterbody Type	BOD 5 Day (mg/L)*	Total Nitrogen (mg/L)*	Total Phosphorus (mg/L)*
3163	Fr. Pierce Farm Canal (Belcher Canal/Taylor Creek)	Stream	ND	0.706	0.197
3163B	C-25 East Segment	Stream	ND	1.445	0.139
3194	North St. Lucie	Estuary	7.7	0.956	0.209
3194A	Tenmile Creek	Stream	2.4	1.04	0.3195
3194B	St. Lucie	Estuary	1.6	1.038	0.193
3194D	Fivemile Creek	Stream	2.2	0.849	0.2245
3197	C-24	Stream	3.0	1.4515	0.267
3200	C-23	Stream	ND	1.418	0.319
3210A	St. Lucie Canal	Estuary	ND	1.254	0.172
3210B	South Fork St. Lucie	Stream	ND	1.0005	0.149
3211	Bessey Creek	Estuary	ND	0.747	0.213
3218	C-44	Stream	ND	1.337	0.1559
3224A	North Fork Loxahatchee	Stream	1.05	0.795	0.028

*Values are based on the Department's IWR Run 14.2.
ND = No data



- The individual ratios over the entire verified period are evaluated to determine the limiting nutrient(s). If all the sampling event ratios are less than 10, nitrogen is identified as the limiting nutrient, and if all the ratios are greater than 30, phosphorus is identified as the limiting nutrient. Both nitrogen and phosphorus are identified as limiting nutrients if the ratios are between 10 and 30.

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

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.



Table 4.5: Nitrogen-to-Phosphorus Ratios for the Verified Period, St. Lucie and Loxahatchee Basins

WBID	Waterbody Segment	Waterbody Type	Total Nitrogen Median (mg/L)*	Total Phosphorus Median (mg/L)*	Nitrogen-to-Phosphorus Ratio Median*	Nitrogen-to-Phosphorus Ratio Minimum*	Nitrogen-to-Phosphorus Ratio Maximum*
3163B	C-25 East Segment	Stream	1.445	0.139	10.112	-20.16	5060
3190	North Coastal	Estuary	ND	ND	14.869	-15.75	77.176
3193	St. Lucie River	Estuary	ND	ND	7.116	-11.902	31.666
3194	North St. Lucie	Estuary	0.956	0.209	5.431	-0.551	101.5
3194B	St. Lucie	Estuary	1.038	0.193	5.426	-4.842	29.415
3197	C-24	Stream	1.452	0.267	5.679	-16.0	5040
3200	C-23	Stream	1.418	0.319	4.417	-332.775	27.955
3208	Manatee Pocket	Estuary	ND	ND	10.037	-18.741	85.263
3210	Tidal St. Lucie	Estuary	ND	ND	5.866	-6.086	115.667
3210A	St. Lucie Canal	Estuary	1.254	0.172	7.178	-0.556	18.75
3211	Bessey Creek	Estuary	0.747	0.213	3.883	1.75	6.304

*Values are based on the Department's IWR Run 14.2

ND = No data



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

Chapter 5: TMDL Development, Allocation, and Implementation

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) (Section 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, drinking water, and the 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.

Figure 5.1 shows the priorities assigned to verified listed waterbodies in the St. Lucie and Loxahatchee Basins.

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

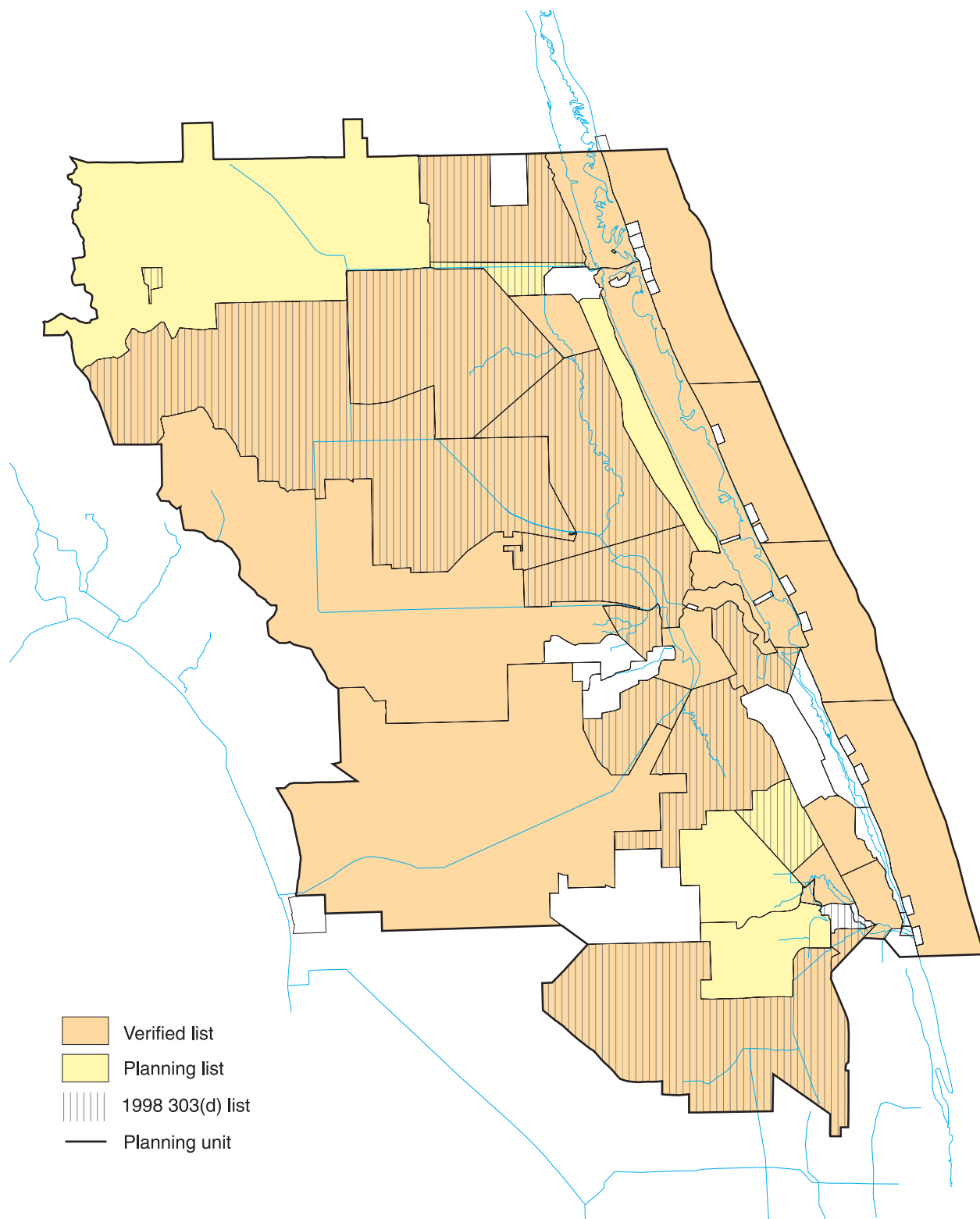
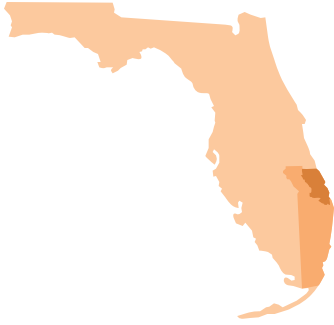


Figure 5.1: St. Lucie and Loxahatchee Basins Priority TMDL Priority Watersheds for 2003



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 that are 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 an 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.

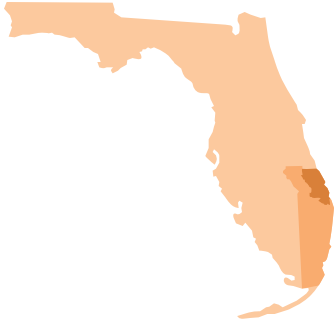
The FWRA provided direction for the allocation of TMDLs and directed the Department to provide guidance on the allocation process by establishing an Allocation Technical Advisory Committee (ATAC), consisting of representatives of key stakeholder groups. The committee’s report recommended a three-step 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:

- 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 in the St. Lucie and Loxahatchee Basins include Martin County, St. Lucie County, Palm Beach County, Port St. Lucie, Stuart, Ft. Pierce, the Florida Department of Transportation [DOT], and the North Palm Beach County Improvement District);
- Local land development codes;
- Nonregulatory and incentive-based programs, including BMPs, cost sharing, waste minimization, pollution prevention, new approaches to land use design and development, and public education;





- Basin Management Action Plans (B-MAPs) developed under the FWRA;
- Other water quality management and restoration activities—for example, Surface Water Improvement and Management plans approved under Section 373.456, Florida Statutes (F.S.);
- Pollutant trading or other equitable economically based agreements;
- Public works, including capital facilities; or
- 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.

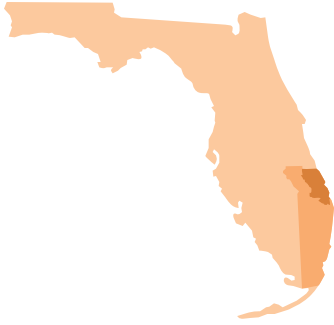
The B-MAPs would contain final allocations, strategies for meeting the allocations, schedules for implementation, funding mechanisms, applicable local ordinances, and other elements. In cases where stakeholder consensus could not be reached on detailed allocations and/or a B-MAP within a reasonable time,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

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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:

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

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 complete text of 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 Subsection 62-302.300[10] and 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.

A Water Quality 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, 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, a **Water Quality**

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 (BMAP).** A BMAP 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 BMAP 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	—	St. Marys–Nassau Rivers	Northeast Coast Lagoons
Central	Ocklawaha River	Middle St. Johns River	Upper St. Johns River	Kissimmee River	Indian River Lagoon
Southwest	Tampa Bay	Tampa Bay Tributaries	Sarasota Bay and Peace–Myakka Rivers	Withlacoochee River	Springs Coast
South	Everglades West Coast	Charlotte Harbor	Caloosahatchee River	Fisheating Creek	Florida Keys
Southeast	Lake Okeechobee	St. Lucie–Loxahatchee Rivers	Lake Worth Lagoon/Palm Beach Coast	Southeast Urban Coast	Everglades

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

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

Note: Projected years for Phases 3, 4, and 5 may change due to accelerated local activities, length of plan development, legal challenges, etc.

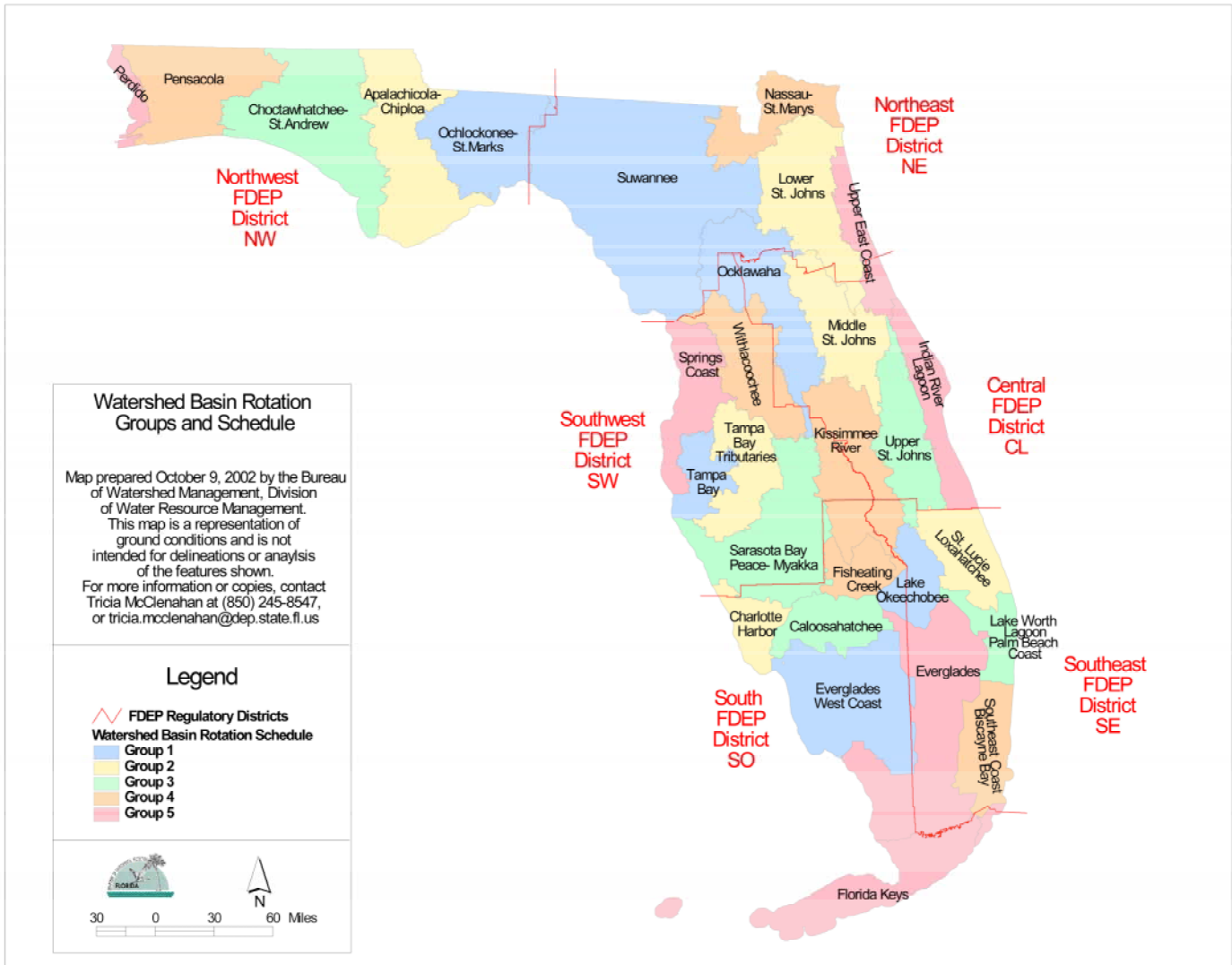


Figure A.1: Five-Year Rotating Basin Cycle in the Department's Six Districts

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

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

Potentially Affected Stakeholders	Actions To Achieve TMDL
Municipal stormwater/wastewater programs	Reduce and treat urban stormwater runoff through stormwater retrofits, replacement of septic tanks
Commercial developers, homebuilders, individual homeowners	Improve development design and construction, enhance best management practices, replace septic tanks
Municipal and industrial wastewater treatment facilities, 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 an 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 the permit renewal and workload. For NPDES municipal stormwater permits, the department intends to insert the following statement once a BMAP 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 BMAP.”

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 water 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 BMAP, they would be implemented through modifications of the existing state permits.

FLORIDA STORMWATER/ENVIRONMENTAL RESOURCE PERMITS

With the implementation of the state's stormwater treatment rule in 1982, Florida became the first state to require the treatment of stormwater from all new development. 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 SJRWMD 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, 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, Dan Apt (305) 795-3486
- Northwest and Central Florida, Mary Paulic (850) 245-8560
- Northeast Florida and Suwannee Basin, John Abendroth (850) 245-8557
- West Central Florida and Tampa Bay Region, Tom Singleton (850) 245-8561

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

Appendix B: 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 cycle¹. 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

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.

submitted to the Department must provide a specific date by which time designated uses are expected to be restored. In cases where designated uses will not be met for many years, the documentation should also provide justification as to why the specified time is needed to restore designated uses.

Parameter-Specific Nature of Demonstration

For the Department not to place an impaired waterbody segment on the Verified List, reasonable assurance must be provided for each pollutant that has been documented to be causing impairment of the waterbody segment. However, some entities, including the Department, may want to provide reasonable assurance addressing only selected pollutants, which could result in the Department not listing the waterbody segment for those pollutants, but still listing it for others. In this event, TMDLs will only be developed for the remaining listed pollutants.

Information To Consider and Document when Assessing Reasonable Assurance in the IWR

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

- **A Description of the Impaired Water**—name of the water listed on the Verified List, the location of the waterbody and watershed, the watershed/8-digit cataloging unit code, the NHD identifier (when they become available), the type (lake, stream, or estuary) of water, the water use classification, the designated use not being attained, the length (miles) or area (acres) of impaired area, the pollutant(s) of concern (those identified as causing or contributing to the impairment), and the suspected or documented source(s) of the pollutant(s) of concern.
- **A Description of the Water Quality or Aquatic Ecological Goals**—a description of the water quality-based targets or aquatic ecological goals (both interim and final) that have been established for the pollutant(s) of concern, the averaging period for any numeric water quality goals, a discussion of how these goals will result in the restoration of the waterbody's impaired designated uses, a schedule indicating when interim and final targets are expected to be met, and a description of procedures (with thresholds) to determine whether additional (backup) corrective actions are needed.
- **A Description of the Proposed Management Actions To Be Undertaken**—names of the responsible participating entities (government, private, others), a summary and list of existing or proposed management activities designed to restore water quality, the geographic scope of any proposed management activities, documentation of the estimated pollutant load reduction and other benefits anticipated from implementation of individual management actions, copies of written agreements committing participants to the management actions, a discussion on how future growth and new sources will be addressed, confirmed sources of funding, an implementation schedule

(including interim milestones and the date by which designated uses will be restored), and any enforcement programs or local ordinances, if the management strategy is not voluntary.

- **A Description of Procedures for Monitoring and Reporting Results**—a description of the water quality monitoring program to be implemented (including station locations, parameters sampled, and sampling frequencies) to demonstrate reasonable progress; quality assurance/quality control elements that demonstrate the monitoring will comply with Rule 62-160, F.A.C.; procedures for entering all appropriate data into STORET; the responsible monitoring and reporting entity; the frequency and format for reporting results; the frequency and format for reporting on the implementation of all proposed management activities; and methods for evaluating progress towards goals.
- **A Description of Proposed Corrective Actions**—a description of proposed corrective actions (and any supporting document[s]) that will be undertaken if water quality does not improve after implementation of the management actions or if management actions are not completed on schedule, and a process for notifying the Department that these corrective actions are being implemented.

Water Quality–Based Targets and Aquatic Ecological Goals

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

In some cases, there may be sufficient historical data (paleolimnological data, loadings from periods predating the impairment, or baseline data for Outstanding Florida Waters², 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.

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

Interim Targets

Because it will usually take many years to restore fully the designated uses of an impaired water, interim water quality targets will often be needed to measure whether reasonable progress is being made towards the restoration of designated uses. Examples of such interim targets are provided in the last section of this document, but site-specific measures are also encouraged.

Averaging Periods for Water Quality Targets

While the averaging period for water quality–based targets should be consistent with how the underlying standard is expressed, they can often be expressed in a variety of ways and need not be expressed as “daily loads.” Annual averages or medians are often appropriate for some parameters, but shorter-term (seasonal, for example) averages may 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 C: 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 and 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 7.5 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
Protection of Human Health

Table C.1 summarizes the designated uses assigned to Florida's various surface water classifications.

Table C.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 STORage and RETrieval (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 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 Database.

Approximately 35 percent of the data used in the 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 Database was created in 2002 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 Database), and the Planning List assessment window is 10 years. **Table C.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 Water Quality Assessment Reports for each basin.

Table C.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 – June 30, 2003
Group 3	Planning List	January 1, 1992 – December 31, 2001
	Verified List	January 1, 1997 – June 30, 2004
Group 4	Planning List	January 1, 1993 – December 31, 2002
	Verified List	January 1, 1998 – June 30, 2005
Group 5	Planning List	January 1, 1994 – December 31, 2003
	Verified List	January 1, 1999 – June 30, 2006

Note: Typically, a 10-year data record is used for the development of the Planning Lists, and a 7.5-year record is used for the Verified Lists.

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 designated use attainment categories discussed earlier: aquatic life, primary contact and recreation, fish and shellfish consumption, 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 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 <i>a</i> for streams and estuaries, and Trophic State Index (TSI) (chlorophyll <i>a</i> , total nitrogen, and total phosphorus) for lakes
Conventionals	Dissolved oxygen (DO), fecal coliforms, total coliforms, pH, un-ionized 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 C.2**, unless there were 3 exceedances of water quality or 1 exceedance of an acute toxicity criterion in a three-year period. The screening methodology for the Verified List requires at least 20 samples from the last five years preceding the Planning List assessment. 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, un-ionized 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 ($\mu\text{g/L}$) 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 $\mu\text{g/L}$ 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.

EXCEEDANCES OF 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 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. 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 D: Integrated Assessment (Master List) for the St. Lucie and Loxahatchee Basins

Data collected since the January 1, 1991 update of the 303(d) list were used to update the listing status of waters. **Table D.1** contains the listing status of all assessed waters in the basin as of January 2003. All of the waters in the table are Class III fresh water. It should be noted that subsequent to the 2002 update of the 303(d) list, some waterbody segments were further subdivided to produce separate segments for lakes versus their surrounding watersheds. Therefore, **Table D.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 D.2** includes only stations with data from the Planning and Verified assessment periods.

Table D.1: Integrated Water Quality Report (Master List) for the St. Lucie and Loxahatchee Basins

WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3200	C-23	Stream	3F		Iron	VL	5	Medium	2008	PP - 47/57 Potentially Impaired; VP - 14/27 Verified
3200	C-23	Stream	3F		Mercury	PL	3C			PP - 2/25 Insufficient Data; VP - 0/8 Insufficient Data
3200	C-23	Stream	3F		Turbidity	NI	2			PP - 0/155 Not Impaired; VP - 1/97 Not Impaired
3200	C-23	Stream	3F		Nutrients (Chlorophyll a)	VL	5	Medium	2008	PP - Insufficient Data; VP - Verified, with one annual mean chlorophyll a value above 20 ug/l. Phosphorus limiting for both PP and VP based on TN/TP ratios (PP TP median = 0.306 mg/L, VP TP median = 0.32 mg/L. PP median TN/TP ratio = 4.79 (420 values), VP median TN/TP ratio = 4.42 (328 values).

WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3200	C-23	Stream	3F		Dissolved Oxygen	VL	5	Medium	2008	PP - 79/161 Potentially Impaired; VP - 56/125 Verified Linked to elevated TP level. TP above the screening level for both the PP and VP. (PP median 0.31 mg/l and; VP median 0.32 mg/l).
3200	C-23	Stream	3F		Copper	NI	2			PP - 0/28 Insufficient Data; VP - 0/30 Not Impaired
3197	C-24	Stream	3F	Nutrients	Nutrients (Chlorophyll a)	VL	5	High	2005	PP - Insufficient Data; VP - Verified, with one annual mean chlorophyll a value above 20 ug/L. Phosphorus limiting based on TN/TP ratios [PP TP median = 0.251 mg/L; VP TP median = 0.258 mg/L. PP TN/TP ratio median = 5.82 (417 values), VP TN/TP ratio = 5.68 (408 values).
3197	C-24	Stream	3F		Fecal Coliform	VL	5			PP - 9/41 Potentially Impaired, VP - 9/41 Verified

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WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3197	C-24	Stream	3F		Turbidity	NI	2			PP - 5/149 Not Impaired, VP - 5/124 Not Impaired
3197	C-24	Stream	3F		Iron	VL	5	High	2005	PP - 30/39 Potentially Impaired; VP - 12/25 Verified
3197	C-24	Stream	3F		Copper	NI	2			PP - 9/41 Potentially Impaired; VP - 8/48 Not Impaired
3197	C-24	Stream	3F	Dissolved Oxygen	Dissolved Oxygen	VL	5	High	2005	PP - 100/156 Potentially Impaired; VP - 92/149 Verified. Linked to elevated BOD during PP and VP [PP mean BOD = 3.0 mg/L, VP mean BOD = 3.0 mg/L.
3197	C-24	Stream	3F		Mercury	ID	3B			PP - 1/16 Insufficient Data; VP - 0/7 Insufficient Data
3197	C-24	Stream	3F		Conductance	PL	3C	High	2005	PP - 41/160 Potentially Impaired; VP - 51/155 Potentially Impaired Need to check background conditions.
3160	C-25 Canal West (St. Johns Marsh)	Stream	3F		Turbidity	NI	2			PP - 0/41 Not Impaired; VP - 0/4 Insufficient Data
3160	C-25 Canal West (St. Johns Marsh)	Stream	3F		Iron	PL	3C			PP - 18/19 Potentially Impaired; VP - 2/2 Insufficient Data

WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3160	C-25 Canal West (St. Johns Marsh)	Stream	3F	Dissolved Oxygen	Dissolved Oxygen	PL	3C	High	2005	PP - 30/43 Potentially Impaired; VP - 3/7 Insufficient Data.
3160	C-25 Canal West (St. Johns Marsh)	Stream	3F		Copper	ID	3B			PP - 0/10 Insufficient Data; VP - 0/1 Insufficient Data
3160	C-25 Canal West (St. Johns Marsh)	Stream	3F	Nutrients	Nutrients	ND	3C	High	2005	PP - No Data; VP - No Data. Moved to Category 3C per Rule 62-303.300(2).
3160	C-25 Canal West (St. Johns Marsh)	Stream	3F	Coliforms	Fecal Coliform	PL	3C			PP - No Data; VP - No Data. Data placed into incorrect WBID.
3160	C-25 Canal West (St. Johns Marsh)	Stream	3F	Coliforms	Total Coliform	PL	3C			PP - No Data; VP - No Data. Data placed into incorrect WBID.
3160	C-25 Canal West (St. Johns Marsh)	Stream	3F		pH	PL	3C			PP - 49/90 Potentially Impaired; VP - 21/28 Potentially Impaired Need to check background conditions to verify impairment.
3163	Ft. Pierce Farm Canal (Belcher Can/Taylor Ck)	Stream	3F		Biology	PL	3C			PP - Potentially Impaired; VP - Potentially Impaired. Based on poor SCI scores provided by the FDEP Southeast District. Have not identified a causative pollutant at this time.

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WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3163	Ft. Pierce Farm Canal (Belcher Can/Taylor Ck)	Stream	3F		Turbidity	NI	2			PP - 0/8, VP - 0/36 Not Impaired
3163	Ft. Pierce Farm Canal (Belcher Can/Taylor Ck)	Stream	3F	Dissolved Oxygen	Dissolved Oxygen	VL	5	High	2006	PP - 4/11 Potentially Impaired; VP - 21/49 Verified Linked to nutrients, with both nitrogen and phosphorous as limiting nutrients, colimitation of Nitrogen and Phosphorus, TN during VP = 0.706 mg/L, TP during VP = 0.197 mg/L.
3163	Ft. Pierce Farm Canal (Belcher Can/Taylor Ck)	Stream	3F	Nutrients	Nutrients (Chlorophyll a)	NI	2	High	2006	PP - Insufficient Data; VP - Not Impaired. The annual average Chlorophyll a concentration for 2002 was 16.11 ug/L. Individual Chlorophyll a observations range from 1.0 to 28.98 ug/L. Total N for VP = 0.706 mg/L.
3163	Ft. Pierce Farm Canal (Belcher Can/Taylor Ck)	Stream	3F		Copper	NI	2			PP - No Data; VP - 0/20 Not Impaired

WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3163	Ft. Pierce Farm Canal (Belcher Can/Taylor Ck)	Stream	3F		Conductance	PL	3C	High	2006	PP - 7/11 Potentially Impaired VP - 28/53 Potentially Impaired Need to check background conditions to verify impairment.
3163A	Lakewood Park Lakes	Lake	3F		Nutrients (TSI)	NI	2			PP - Not Impaired; VP - Not Impaired for TSI. TSI mean of 45.50 during PP and mean of 45.25 during VP.
3163B	C-25 East Segment	Stream	3F		Biology	PL	3C			PP - Potentially Impaired; VP - Potentially Impaired Based on poor SCI scores provided by FDEP Southeast District. Have not identified a causative pollutant at this time.
3163B	C-25 East Segment	Stream	3F		Turbidity	NI	2			PP - 0/121 Not Impaired, VP - 0/94 Not Impaired
3163B	C-25 East Segment	Stream	3F		Mercury	ID	3B			PP - 1/17 Insufficient Data; VP - 0/7 Insufficient Data
3163B	C-25 East Segment	Stream	3F		Copper	NI	2			PP - 0/20 Insufficient Data :VP - 0/30 Not Impaired

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WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3163B	C-25 East Segment	Stream	3F		Nutrients (Chlorophyll a)	VL	5	Medium	2008	PP - No Data; VP - Verified, with one annual mean chlorophyll a value above 20 ug/L. Colimiting of nitrogen and phosphorous based upon TN/TP ratios [TN median = 1.438 mg/L and TP median = 0.145 mg/L. PP median TN/TP ratio = 10.46 (327 values), VP median TN/TP ratio = 10.11 (291 values)].
3163B	C-25 East Segment	Stream	3F		Dissolved Oxygen	VL	5			PP - 75/126 Potentially Impaired, VP - 52/109 Impaired Linked to nutrients, with both nitrogen and phosphorous as limiting nutrients, colimitation of Nitrogen and Phosphorus, TN during VP = 1.445 mg/L, TP during VP = 0.139 mg/L.
3163B	C-25 East Segment	Stream	3F		Iron	VL	5			PP - 30/39 Potentially Impaired; VP - 12/25 Verified

WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3189	Cowbone Creek (C-25)	Stream	3F	Coliforms	Total Coliform	ID	3C	High	2005	PP - 0/4 Insufficient Data, VP - 0/4 Insufficient Data Moved to Category 3C per Rule 62-303.300(2).
3189	Cowbone Creek (C-25)	Stream	3F	Coliforms	Fecal Coliform	PL	3C	High	2005	PP - 11/15 Potentially Impaired, VP - 11/12 Insufficient Data
3189	Cowbone Creek (C-25)	Stream	3F		Turbidity	NI	2			PP - 2/16 Not Impaired; VP - 1/12 Insufficient Data
3189	Cowbone Creek (C-25)	Stream	3F	Dissolved Oxygen	Dissolved Oxygen	PL	3C	High	2005	PP - 7/17 Potentially Impaired; VP - 4/13 Insufficient Data
3189	Cowbone Creek (C-25)	Stream	3F	Nutrients	Nutrients (Chlorophyll a)	ND	3C	High	2005	PP - No Data; VP - No Data. Moved to Category 3C per Rule 62-303.300(2).
3166	Moore's Creek	Estuary	3M		Turbidity	ID	3B			PP - No Data; VP - 0/14 Insufficient Data
3166	Moore's Creek	Estuary	3M		Dissolved Oxygen	ID	3B			PP - No Data; VP - 4/14 Insufficient Data
3166	Moore's Creek	Estuary	3M		Copper	ID	3B			PP - No Data; VP - 0/7 Insufficient Data
3166	Moore's Creek	Estuary	3M		Nutrients (Chlorophyll a)	ID	3B			PP - No Data; VP - Insufficient Data
3190	North Coastal	Estuary	3M		Dissolved Oxygen	NI	2			PP - 32/830 Not Impaired, VP - 39/408 Not Impaired
3190	North Coastal	Estuary	3M		Fecal Coliform	NI	2			PP - 6/810, VP - 3/298 Not Impaired

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WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3190	North Coastal	Estuary	3M		Turbidity	NI	2			PP - 1/990 Not Impaired, VP - 1/424 Not Impaired
3190	North Coastal	Estuary	3M		Copper	ID	3B			PP - No Data; VP - 0/7 Insufficient Data
3190	North Coastal	Estuary	3M		Nutrients (Chlorophyll a)	VL	5	Medium	2008	PP - Potentially Impaired; VP - Verified, with two annual mean chlorophyll a values above 11 ug/L. Both phosphorous and nitrogen identified as limiting nutrients based on TN/TP ratios. TN median = 0.93 mg/L, TP median = 0.056 mg/L. PP TN/TP ratio median = 12.5 (357 values), VP = 14.87 (230 values).
3190A	Little Jim Bridge	Coastal	3M		Fecal Coliform	NI	2			PP - 0/5 Insufficient Data; VP - 0/34 Not Impaired
3193	St. Lucie River	Estuary	3M		Dissolved Oxygen	NI	2			PP - 9/602 Not Impaired; VP - 7/354 Not Impaired
3193	St. Lucie River	Estuary	3M		Turbidity	NI	2			PP - 5/401 Not Impaired; VP - 4/204 Not Impaired
3193	St. Lucie River	Estuary	3M		Copper	ID	3B			PP - 0/2 Insufficient Data; VP - 0/2 Insufficient Data

WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3193	St. Lucie River	Estuary	3M		Nutrients (Chlorophyll <i>a</i>)	VL	5	Medium	2008	PP - Potentially Impaired; VP - Verified, with one annual mean chlorophyll <i>a</i> value above 11 ug/L. Both phosphorous and nitrogen identified as limiting nutrients based on TN/TP ratios. TN median = 0.886 mg/L, TP median = 0.108 mg/L. PP median TN/TP ratio = 6.9 (530 values), VP median TN/TP ratio = 7.12 (221 values).
3193A	Roosevelt Bridge	Coastal	3M		Fecal Coliform	NI	2			PP - 0/9 Insufficient Data; VP - 2/83 Not Impaired
3193A	Roosevelt Bridge	Coastal	3M		Mercury-Fish	PL	3C			Need to verify age of fish tissue data.
3208	Manatee Pocket	Estuary	3M		Turbidity	NI	2			PP - 1/127 Not Impaired; VP - 1/137 Not Impaired
3208	Manatee Pocket	Estuary	3M	Dissolved Oxygen	Dissolved Oxygen	NI	2			PP - 8/290 Not Impaired; VP - 9/200 Not Impaired

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WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3208	Manatee Pocket	Estuary	3M	Nutrients	Nutrients (Chlorophyll a)	VL	5	Low	2010	PP - Potentially Impaired; VP - Verified, with four annual mean chlorophyll a values above 11 ug/L. Both phosphorous and nitrogen identified as limiting nutrient based on TN/TP ratios. PP median TN/TP ratio = 9.63 (175 values), VP median TN/TP ratio = 10.04 (154 values).
3208	Manatee Pocket	Estuary	3M		Copper	VL	5	Medium	2008	PP - 0/1 Insufficient Data; VP - 27/30 Verified
3208A	Martin Co. Iccw	Estuary	3M		Copper	VL	5			PP - 0/1 Insufficient Data; VP - 19/24 Verified
3208A	Martin Co. Iccw	Estuary	3M		Turbidity	NI	2			PP - 0/249 Not Impaired; VP - 0/191 Not Impaired
3208A	Martin Co. Iccw	Estuary	3M		Dissolved Oxygen	NI	2			PP - 7/231 Not Impaired; VP - 9/183 Not Impaired
3208A	Martin Co. Iccw	Estuary	3M		Nutrients (Chlorophyll a)	NI	2			PP - Not Impaired; VP - Not Impaired Chlorophyll a mean = 5.7 ug/L, and range of 0.8-10.99 ug/L, N=183

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						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3226	Jupiter Inlet	Estuary	3M		Turbidity	NI	2			PP - 1/199 Not Impaired; VP - 1/89 Not Impaired
3226	Jupiter Inlet	Estuary	3M		Total Coliform	NI	2			PP - 0/75 Not Impaired; VP - 0/35 Not Impaired
3226	Jupiter Inlet	Estuary	3M		Fecal Coliform	NI	2			PP - 0/148 Not Impaired; VP - 0/60 Not Impaired
3226	Jupiter Inlet	Estuary	3M		Nutrients (Chlorophyll a)	NI	2			PP - Not Impaired; VP - Not Impaired Chlorophyll a mean 2.5 ug/L, range 0.1 - 10.5 ug/L, N=46
3226	Jupiter Inlet	Estuary	3M		Dissolved Oxygen	NI	2			PP - 1/203 Not Impaired; VP - 1/91 Not Impaired
3226B	Martin Co. lccw	Estuary	3M		Fecal Coliform	NI	2			PP - 0/36 Not Impaired; VP - 0/17 Insufficient Data
3226B	Martin Co. lccw	Estuary	3M		Turbidity	NI	2			PP - 0/189 Not Impaired; VP - 0/123 Not Impaired
3226B	Martin Co. lccw	Estuary	3M		Dissolved Oxygen	NI	2			PP - 0/186 Not Impaired; VP - 2/122 Not Impaired
3226B	Martin Co. lccw	Estuary	3M		Nutrients (Chlorophyll a)	NI	2			PP - Not Impaired; VP - Not Impaired Chlorophyll a mean 3.2 ug/L, Range 0.9 - 14.2 ug/L, N=159

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WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
5003A	South Indian River	Estuary	3M		Turbidity	NI	2			PP - 10/624 Not Impaired; VP - 7/467 Not Impaired
5003A	South Indian River	Estuary	3M		Dissolved Oxygen	NI	2			PP - 84/929 Not Impaired; VP - 41/664 Not Impaired
5003A	South Indian River	Estuary	3M		Nutrients (Chlorophyll a)	NI	2			PP - Not Impaired; VP - Not Impaired Mean of means = 7.77 ug/L, Range = 5.21 - 10.6, N=7
5003A	South Indian River	Estuary	3M		Copper	VL	5			PP - 0/1 Insufficient Data; VP - 14/23 Verified
5003A B	Stuart Causeway	Coastal	3M		Copper	ID	3B			PP - 0/1 Insufficient Data; VP - 0/1 Insufficient Data
5003A B	Stuart Causeway	Coastal	3M		Dissolved Oxygen	ID	3B			PP - 0/1 Insufficient Data; VP - 0/1 Insufficient Data
5003A B	Stuart Causeway	Coastal	3M		Fecal Coliform	NI	2			PP - 0/5 Insufficient Data, VP - 0/73 Not Impaired
5003A C	Jensen Beach Causeway	Coastal	3M		Fecal Coliform	NI	2			PP - 0/7, VP - 1/27 Not Impaired
5003A C	Jensen Beach Causeway	Coastal	3M		Nutrients (Chlorophyll a)	ND	3A			PP - No Data; VP - No Data.
5003A C	Jensen Beach Causeway	Coastal	3M		Dissolved Oxygen	ID	3B			PP - 0/1 Insufficient Data; VP - 0/1 Insufficient Data

WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
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5003A D	South Causeway At Boat Ramp	Coastal	3M		Fecal Coliform	NI	2			PP - 0/6 Insufficient Data, VP - 2/39 Not Impaired
8101	Coastal Ocean 1	Coastal	3M		Dissolved Oxygen	NI	2			PP - 0/12 Not Impaired; VP - 0/4 Insufficient Data
8101	Coastal Ocean 1	Coastal	3M		Fecal Coliform	PL	3C			PP - 0/9 Insufficient Data; VP - 0/1 Insufficient Data
8101	Coastal Ocean 1	Coastal	3M		Nutrients (Chlorophyll a)	ID	3B			PP - Insufficient Data; VP - Insufficient Data
8101	Coastal Ocean 1	Coastal	3M		Turbidity	NI	2			PP - 0/10 Not Impaired; VP - 0/2 Insufficient Data
8101A	Jupiter Beach Park	Coastal	3M		Fecal Coliform	NI	2			PP - 0/11 Insufficient Data; VP - 0/97 Not Impaired
8101B	Dubois Park	Coastal	3M		Fecal Coliform	NI	2			PP - 0/12 Insufficient Data; VP - 0/77 Not Impaired
8101B	Dubois Park	Coastal	3M		Mercury in Fish	VL	5	Low	2011	PP - Potentially Impaired; VP - Potentially Impaired. Verified age of fish tissue data to be within 7.5 years.
8101 C	Coral Cove Park	Coastal	3M		Fecal Coliform	NI	2			PP - 0/11 Insufficient Data; VP - 0/54 Not Impaired

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						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
8101 C	Coral Cove Park	Coastal	3M		Mercury in Fish	VL	5	Low	2011	PP - Potentially Impaired; VP - Potentially Impaired. Verified age of fish tissue data to be within 7.5 years.
8101 D	Hobe Sound Public Beach	Coastal	3M		Fecal Coliform	NI	2			PP - 0/4 Insufficient Data; VP - 0/63 Not Impaired
8101E	Hobe Sound Wildlife Refuge	Coastal	3M		Fecal Coliform	NI	2			PP - 0/3 Insufficient Data; VP - 0/59 Not Impaired
8102A	Bathtub Public Beach	Coastal	3M		Fecal Coliform	NI	2			PP - 0/5 Insufficient Data; VP - 0/64 Not Impaired
8102B	Stuart Public Beach	Coastal	3M		Fecal Coliform	NI	2			PP - 0/3 Insufficient Data; VP - 0/55 Not Impaired
8103A	Jensen Public Beach	Coastal	3M		Fecal Coliform	NI	2			PP - 0/4 Insufficient Data; VP - 0/111 Not Impaired
8103B	Waveland Public Beach	Coastal	3M		Fecal Coliform	ID	3B			PP - 0/3 Insufficient Data; VP - 0/11 Insufficient Data
8103 C	Walton Rocks Beach	Coastal	3M		Fecal Coliform	NI	2			PP - 0/2 Insufficient Data; VP - 0/58 Not Impaired
8104	Coastal Ocean 4	Coastal	3M		Turbidity	NI	2			PP - 2/20 Not Impaired; VP - 2/36 Not Impaired

WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
8104	Coastal Ocean 4	Coastal	3M		Dissolved Oxygen	NI	2			PP - 7/86 Not Impaired; VP - 6/42 Not Impaired Data from "Micco Bluff Run" station are suspect; dropped from evaluation pending further investigation.
8104	Coastal Ocean 4	Coastal	3M		Nutrients (Chlorophyll a)	ID	3B			PP - Insufficient Data; VP - Insufficient Data
8104A	Surfside Park	Coastal	3M		Fecal Coliform	NI	2			PP - 0/1 Insufficient Data; VP - 0/22 Not Impaired
8104B	Jetty Park Beach	Coastal	3M		Fecal Coliform	NI	2			PP - 0/3 Insufficient Data; PP - 0/66 Not Impaired
8104 C	Inlet State Park At River	Coastal	3M		Fecal Coliform	NI	2			PP - 0/6 Insufficient Data; VP - 0/37 Not Impaired
8104 D	Inlet State Park At Ocean	Coastal	3M		Fecal Coliform	ID	3B			PP - 0/3 Insufficient Data; VP - 0/17 Insufficient Data
8104E	Pepper Park	Coastal	3M		Fecal Coliform	NI	2			PP - 0/2 Insufficient Data; VP - 0/58 Not Impaired
3224	Jonathan Dickinson	Estuary	2		Total Coliform	NI	2			PP - 1/44 Not Impaired; VP - 0/20 Not Impaired
3224	Jonathan Dickinson	Estuary	2		Turbidity	NI	2			PP - 0/295 Not Impaired; VP - 0/166 Not Impaired

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WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3224	Jonathan Dickinson	Estuary	2		Dissolved Oxygen	NI	2			PP - 42/297 Potentially Impaired; VP - 18/167 Not Impaired
3224	Jonathan Dickinson	Estuary	2		Nutrients (Chlorophyll a)	NI	2			PP - Not Impaired; VP - Not Impaired Chlorophyll a mean = 5.02 ug/L, and range 0.62 - 19.87 ug/L, N=42
3224	Jonathan Dickinson	Estuary	2		Fecal Coliform	VL	5			PP - 33/288 Not Impaired, VP - 24/162 Verified
3224A	North Fork Loxahatchee	Stream	3F		Total Coliform	ID	3B			PP - 0/1 Insufficient Data; VP - 0/1 Insufficient Data
3224A	North Fork Loxahatchee	Stream	3F		Fecal Coliform	NI	2			PP - 2/56 Not Impaired; VP - 2/37 Not Impaired
3224A	North Fork Loxahatchee	Stream	3F		Dissolved Oxygen	VL	5			PP - 52/74 Potentially Impaired; VP - 37/55 Potentially Impaired Linked to nutrients, with both nitrogen and phosphorous as limiting nutrients, colimitation of nitrogen and phosphorus, TN during VP = 0.795 mg/L, TP during VP = 0.028 mg/L.

WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3224A	North Fork Loxahatchee	Stream	3F		Nutrients (Chlorophyll a)	VL	5	Medium	2008	PP - Potentially Impaired, VP - Verified, with one annual mean chlorophyll a value above 20 ug/L. Colimitation of nitrogen and phosphorus based on TN/TP ratios. TN median = 0.795 mg/L and TP median = 0.028 mg/L. PP median TN/TP ratio = 31.53 (62 values), VP median TN/TP ratio = 31.53 (44 values).
3224A	North Fork Loxahatchee	Stream	3F		Biology	NI	2			PP - Not Impaired; VP - Not Impaired for Biology
3224A	North Fork Loxahatchee	Stream	3F		pH	PL	3C			PP - 16/74 Potentially Impaired; VP - 14/61 Potentially Impaired. Need to check background conditions.
3224B	Kitchings Creek	Stream	3F	BOD	BOD 5-Day	ND	3C	Low	2010	PP - No Data; VP - No Data Moved to Category 3C per Rule 62-303.300(2).
3224B	Kitchings Creek	Stream	3F		Turbidity	NI	2			PP - 0/10 Not Impaired; VP - 0/10 Insufficient Data

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WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3224B	Kitchings Creek	Stream	3F	Coliforms	Fecal Coliform	NI	2			PP - 0/10 Not Impaired; VP - 0/10 Insufficient Data This segment is being delisted because there were sufficient data for the planning list assessment, but it did not meet the listing thresholds for the planning list.
3224B	Kitchings Creek	Stream	3F	Coliforms	Total Coliform	ND	2			PP - No Data; VP - No Data. Delisting based on application of new methodology and flaw in original listing.
3224B	Kitchings Creek	Stream	3F	Dissolved Oxygen	Dissolved Oxygen	PL	3C	Low	2010	PP - 10/10 Potentially Impaired; VP - 10/10 Insufficient Data Have not identified a pollutant causing the impairment at this time.
3224B	Kitchings Creek	Stream	3F	Nutrients	Nutrients (Chlorophyll a)	ID	3C	Low	2010	PP - Insufficient Data; VP - Insufficient Data. Moved to Category 3C per Rule Chapter 62-303.300(2).
3224B	Kitchings Creek	Stream	3F		Biology	PL	3C			PP - Potentially Impaired; VP - No Data

WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3224 C	Cypress Creek	Stream	3F		Turbidity	NI	2			PP - 0/113 Not Impaired; VP - 0/67 Not Impaired
3224 C	Cypress Creek	Stream	3F		Nutrients (Chlorophyll a)	NI	2			PP - Not Impaired; VP - Not Impaired Chlorophyll a mean 6.8 ug/L, range 1.34 - 20.44 ug/L, N=18
3224 C	Cypress Creek	Stream	3F		Fecal Coliform	NI	2			PP - 6/109 Not Impaired, VP - 5/66 Not Impaired
3224 C	Cypress Creek	Stream	3F		Dissolved Oxygen	PL	3C			PP - 42/113 Potentially Impaired; VP - 22/67 Potentially Impaired. Have not identified a pollutant causing the impairment at this time.
3226A	Nw Fork Loxahatchee	Estuary	2		Turbidity	NI	2			PP - 0/41 Not Impaired; VP - 0/26 Not Impaired
3226A	Nw Fork Loxahatchee	Estuary	2	Dissolved Oxygen	Dissolved Oxygen	NI	2			PP - 0/42 Not Impaired; VP - 0/27 Not Impaired

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WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3226A	Nw Fork Loxahatchee	Estuary	2	Nutrients	Nutrients (Chlorophyll a)	NI	2	Low	2010	PP - Not Impaired, VP - Not Impaired The annual average Chlorophyll a concentration for 1999 was 4.04 ug/L. Individual Chlorophyll a observations range from 3.89 - 4.01 ug/l.
3226A	Nw Fork Loxahatchee	Estuary	2		Fecal Coliform	NI	2			PP - 2/39 Not Impaired, 2/24 Not Impaired
3226 C	Sw Fork Loxahatchee	Estuary	2	Dissolved Oxygen	Dissolved Oxygen	NI	2			PP - 17/165 Not Impaired; VP - 10/82 Not Impaired
3226 C	Sw Fork Loxahatchee	Estuary	2		Turbidity	NI	2			PP - 0/160 Not Impaired; VP - 0/80 Not Impaired
3226 C	Sw Fork Loxahatchee	Estuary	2	Coliforms	Fecal Coliform	VL	5	Low	2010	PP - 23/157 Potentially Impaired, VP - 12/73 Verified
3226 C	Sw Fork Loxahatchee	Estuary	2	Coliforms	Total Coliform	NI	2			PP - 0/38 Not Impaired; VP - 0/18 Insufficient Data This segment is being delisted because there were sufficient data for the planning list assessment, but it did not meet the listing thresholds for the planning list.

WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3226 C	Sw Fork Loxahatchee	Estuary	2		Copper	ID	3B			PP - No Data; VP - 0/2 Insufficient Data
3226 C	Sw Fork Loxahatchee	Estuary	2	Nutrients	Nutrients (Chlorophyll a)	NI	2			PP - Not Impaired; VP - Not Impaired The annual average Chlorophyll a concentration for 1998 was 10.4 ug/L and for 1999 was 5.9 ug/L. Individual Chlorophyll a observations range from 1.6 - 23.76 ug/l.
3226 D	Loxahatchee River	Estuary	2		Fecal Coliform	NI	2			PP - 8/155 Not Impaired; VP - 6/66 Not Impaired
3226 D	Loxahatchee River	Estuary	2		Turbidity	NI	2			PP - 0/169 Not Impaired; VP - 0/83 Not Impaired
3226 D	Loxahatchee River	Estuary	2		Total Coliform	NI	2			PP - 0/47 Not Impaired; VP - 0/17 Insufficient Data
3226 D	Loxahatchee River	Estuary	2		Dissolved Oxygen	NI	2			PP - 13/170 Not Impaired; VP - 8/87 Not Impaired
3226 D	Loxahatchee River	Estuary	2		Copper	ID	3B			PP - No Data; VP - 0/3 Insufficient Data
3226 D	Loxahatchee River	Estuary	2		Biology	NI	2			PP - Not Impaired for Biology ; VP - Not Impaired

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WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3226 D	Loxahatchee River	Estuary	2		Nutrients (Chlorophyll a)	NI	2			PP - Not Impaired; VP - Not Impaired Chlorophyll a mean 4.8 ug/L, Range 1.11 - 13.74 ug/L, N=25
3226 D	Loxahatchee River	Estuary	2		Bacteria (in Shellfish)	VL	5	Medium	2008	Listed based on downgrade of shellfish harvesting classification.
3228	Pal Mar	Stream	3F			ND	3A			PP - No Data; VP - No Data
3230	Floodpln/Jupiter Farms	Stream	3F		Fecal Coliform	NI	2			PP - 17/200 Not Impaired; VP - 9/92 Not Impaired
3230	Floodpln/Jupiter Farms	Stream	3F		Turbidity	NI	2			PP - 0/219 Not Impaired; VP - 0/109 Not Impaired
3230	Floodpln/Jupiter Farms	Stream	3F		Total Coliform	NI	2			PP - 4/26 Not Impaired, VP - No Data
3230	Floodpln/Jupiter Farms	Stream	3F		Nutrients (Chlorophyll a)	NI	2			PP - Not Impaired; VP - Not Impaired Chlorophyll a mean 2.6 ug/L, Range 0.3 - 7.06 ug/L, N=27
3230	Floodpln/Jupiter Farms	Stream	3F		Biology	PL	3C			PP - Potentially Impaired; VP - No Data

WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3230	Floodpln/Jupiter Farms	Stream	3F		Dissolved Oxygen	PL	3C			PP - 140/239 Potentially Impaired, VP - 56/112 Potentially Impaired Have not identified a pollutant causing the impairment at this time.
3230A	Nw Fork Loxahatchee	Stream	3F		Turbidity	NI	2			PP - 0/50 Not Impaired; VP - 0/28 Not Impaired
3230A	Nw Fork Loxahatchee	Stream	3F		Fecal Coliform	NI	2			PP - 4/46, VP - 1/24 Not Impaired
3230A	Nw Fork Loxahatchee	Stream	3F		Dissolved Oxygen	PL	3C			PP - 21/51 Potentially Impaired; VP - 11/29 Potentially Impaired. Have not identified a pollutant causing the impairment at this time.
3230A	Nw Fork Loxahatchee	Stream	3F		Nutrients (Chlorophyll a)	NI	2			PP - Not Impaired, VP - Not Impaired Chlorophyll a mean 3.76 ug/L, Range 0.6-4.4 ug/L, N=14
3232	Loxahatchee River	Stream	3F		Chlorophyll	NI	2			PP - No Data; VP - Not Impaired
3234	C-18	Stream	1	Coliforms	Fecal Coliform	NI	2			PP - 12/95 Not Impaired, VP - 6/48 Not Impaired
3234	C-18	Stream	1	Coliforms	Total Coliform	VL	5	Low	2010	PP - 8/48 Potentially Impaired; VP - 5/24 Verified

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WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3234	C-18	Stream	1		Mercury	ID	3B	Low	2010	PP - 5/43 Not Impaired; VP - 0/17 Insufficient Data
3234	C-18	Stream	1	Mercury-Fish	Mercury-Fish	PL	3C	Low	2011	PP - Potentially Impaired; VP - Potentially Impaired. Verified age of fish tissue data to be within 7.5 years.
3234	C-18	Stream	1		Biology	PL	3C			PP - Potentially Impaired; VP - Pending further data analysis.
3234	C-18	Stream	1	Dissolved Oxygen	Dissolved Oxygen	PL	3C	Low	2010	PP - 193/393 Potentially Impaired; VP - 94/229 Potentially Impaired Have not identified a pollutant causing the impairment at this time.
3234	C-18	Stream	1		Nutrients (Chlorophyll a)	NI	2			PP - Not Impaired, VP - Not Impaired Chlorophyll a mean = 5.10 ug/L, Range 4.81 - 5.39 ug/L, N = 29, Mean of means = 5.10 ug/L, N=2
3234	C-18	Stream	1		Turbidity	NI	2			PP - 1/379 Not Impaired; VP - 0/219 Not Impaired

WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3234	C-18	Stream	1		Copper	NI	2			PP - 2/63 Not Impaired; 2/34 Not Impaired
3234	C-18	Stream	1		Iron	VL	5			PP - 78/101 Potentially Impaired; VP - 30/58 Verified
3194	North St.Lucie	Estuary	3M		Lead	ID	3B			PP - No Data; VP - 0/1 Insufficient Data
3194	North St.Lucie	Estuary	3M	Mercury-Fish	Mercury-Fish	ND	3C	Low	2011	PP - No Data; VP - No Data Moved to Category 3C per Rule 62-303.300(2).
3194	North St.Lucie	Estuary	3M	Coliforms	Total Coliform	ID	3C	High	2005	PP - 0/4 Insufficient Data; VP - 0/1 Insufficient Data Moved to Category 3C per 62-303.300(2).
3194	North St.Lucie	Estuary	3M		Fecal Coliform	PL	3C	High	2005	PP - 4/17 Potentially Impaired; VP - 3/12 Insufficient Data
3194	North St.Lucie	Estuary	3M	Dissolved Oxygen	Dissolved Oxygen	VL	5	High	2005	PP - 119/410 Potentially Impaired; VP - 96/345 Verified Linked to elevated BOD during PP and VP. PP = 7.5 mg/L, and VP = 7.7 mg/L.
3194	North St.Lucie	Estuary	3M		Copper	VL	5	Medium	2008	PP - 3/3 Potentially Impaired; VP - 20/54 Verified

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WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3194	North St.Lucie	Estuary	3M	Nutrients	Nutrients (Hist. Chlorophyll a)	VL	5	High	2005	PP - Historical chlorophyll Potentially Impaired; VP - Verified, based on seven annual mean chlorophyll a values above 11 ug/L. Colimitation of nitrogen and phosphorus based TN/TP ratios. TN median = 0.742 mg/L and TP median = 0.054 mg/L. PP median TN/TP ratio = 5.17 (458 values), VP median TN/TP ratio = 5.43 (283 values).
3194	North St.Lucie	Estuary	3M		Turbidity	NI	2			PP - 1/175 Not Impaired; VP - 1/206 Not Impaired
3194	North St.Lucie	Estuary	3M	Coliforms	Fecal Coliform	PL	3C			PP -4/17 Potentially Impaired, VP - 3/13 Insufficient Data
3194	North St.Lucie	Estuary	3M		Total Coliform	ID	3B			PP - 0/4 Insufficient Data; VP - 0/1 Insufficient Data
3194A	Tenmile Creek	Stream	3F		Mercury	ID	3B			PP - 0/1 Insufficient Data; VP - 0/1 Insufficient Data
3194A	Tenmile Creek	Stream	3F		Lead	ID	3B			PP - 0/3 Insufficient Data; VP - 0/5 Insufficient Data

WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3194A	Tenmile Creek	Stream	3F	Dissolved Oxygen	Dissolved Oxygen	PL	3C	Low	2010	PP - 26/33 Potentially Impaired; VP - 64/75 Verified Linked to elevated TP levels. TP above the screening level for both the PP and VP (PP median 0.315 mg/l, VP median 0.316 mg/l).
3194A	Tenmile Creek	Stream	3F		Turbidity	NI	2			PP - 0/29 Not Impaired; VP - 0/49 Not Impaired
3194A	Tenmile Creek	Stream	3F	Nutrients	Nutrients (Chlorophyll <i>a</i>)	NI	2			PP - Insufficient Data; VP - Not Impaired The annual average Chlorophyll <i>a</i> concentration for 2002 was 9.94 ug/L. Individual Chlorophyll <i>a</i> observations range from 1.98 to 25.38 ug/l. Total N for VP = 1.04 mg/L.
3194A	Tenmile Creek	Stream	3F	BOD	BOD 5-Day	ND	3C	Low	2010	PP - No Data; VP - No Data. Moved to Category 3C per Rule 62-303.300(2).
3194A	Tenmile Creek	Stream	3F		Copper	NI	2			PP - 0/5 Insufficient Data; VP - 0/21 Not Impaired

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WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3194A	Tenmile Creek	Stream	3F	Coliforms	Fecal Coliform	ID	3C	Low	2010	PP - 1/4 Insufficient Data; VP - 1/4 Insufficient Data Moved to Category 3C per Rule 62-303.300(2).
3194A	Tenmile Creek	Stream	3F	Coliforms	Total Coliform	ND	3C	Low	2010	PP - No Data; VP - No Data
3194A	Tenmile Creek	Stream	3F		Conductance	PL	3C			PP - 25/31 Potentially Impaired; VP - 65/76 Potentially Impaired. Need to check background conditions.
3194B	St. Lucie	Estuary	3M		Total Coliform	NI	2			PP - 0/10 Not Impaired; VP - 0/2 Insufficient Data
3194B	St. Lucie	Estuary	3M		Turbidity	NI	2			PP - 6/291 Not Impaired; VP - 5/259 Not Impaired
3194B	St. Lucie	Estuary	3M		Fecal Coliform	NI	2			PP - 2/31 Not Impaired, VP - 2/18 Insufficient Data

WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3194B	St. Lucie	Estuary	3M	Nutrients	Nutrients (Chlorophyll a)	VL	5	High	2005	PP - Historical chlorophyll Potentially Impaired; VP - Verified, with seven annual mean chlorophyll a values above 20 ug/L. Nitrogen is the limiting nutrient based on TN/TP ratios. PP median TN = 1.1 mg/L. PP median TN/TP ratio = 3.08 (131 values), VP median TN/TP ratio = 3.09 (242 values).
3194B	St. Lucie	Estuary	3M		Copper	VL	5	Medium	2008	PP - 2/11 Not Impaired; VP - 25/58 Verified
3194B	St. Lucie	Estuary	3M		Dissolved Oxygen	VL	5	Medium	2008	PP - 75/557 Potentially Impaired; VP - 56/399 Verified Linked to elevated nutrients, with colimitation of nitrogen and phosphorous, TN during VP = 1.038 mg/L, TP during VP = 0.193 mg/L.
3194 C	Savannahs	Lake	3F		Fecal Coliform	NI	2			PP - 1/19 Not Impaired; VP - 1/7 Insufficient Data

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WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3194 C	Savannahs	Lake	3F		Turbidity	NI	2			PP - 3/271 Not Impaired; VP - 3/229 Not Impaired
3194 C	Savannahs	Lake	3F		Nutrients (TSI)	ND	3A			PP - No Data; VP - No Data
3194 C	Savannahs	Lake	3F		Total Coliform	ID	3B			PP - 0/9 Insufficient Data; VP - 0/1 Insufficient Data
3194 C	Savannahs	Lake	3F		Dissolved Oxygen	PL	3C			PP - 136/255 Potentially Impaired; VP - 100/210 Potentially Impaired Have not identified a pollutant causing the impairment at this time.
3194 C	Savannahs	Lake	3F		Copper	ID	3B			PP - 0/1 Insufficient Data; VP - 1/14 Insufficient Data
3194 C	Savannahs	Lake	3F		pH	PL	3C			PP - 155/270 Potentially Impaired; VP - 118/225 Potentially Impaired Need to check background condition to verify impairment.

WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3194 D	Fivemile Creek	Stream	3F		Dissolved Oxygen	VL	5			PP - 8/15 Potentially Impaired; VP - 12/30 Verified Linked to elevated BOD level during PP and VP. PP median BOD = 2.2 mg/L, VP median = 2.2 mg/L.
3194 D	Fivemile Creek	Stream	3F		Fecal Coliform	ID	3B			PP - 2/4 Insufficient Data; VP - 2/4 Insufficient Data
3194 D	Fivemile Creek	Stream	3F		Turbidity	NI	2			PP - 0/11 Not Impaired; VP - 0/24 Not Impaired
3194 D	Fivemile Creek	Stream	3F		Nutrients (Chlorophyll a)	ID	3B			PP - Insufficient Data, VP - Insufficient Data
3194 D	Fivemile Creek	Stream	3F		Copper	ID	3B			PP - No Data; VP - 0/7 Insufficient Data
3194 D	Fivemile Creek	Stream	3F		Conductance	PL	3C			PP - 11/15 Potentially Impaired; VP - 14/30 Potentially Impaired Need to check background conditions to verify impairment.
3218	C-44	Stream	3F		Biology	PL	3C			PP - Potentially Impaired; VP - Potentially Impaired Based on poor SCI scores provided by FDEP Southeast District. Have not identified a causative pollutant at this time.

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WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3218	C-44	Stream	3F		Turbidity	NI	2			PP - 15/143 Not Impaired; VP - 13/114 Not Impaired
3218	C-44	Stream	3F		Mercury	ID	3B			PP - 2/18 Not Impaired; VP - 0/10 Insufficient Data
3218	C-44	Stream	3F		Copper	NI	2			PP - 0/42 Not Impaired; VP - 0/45 Not Impaired
3218	C-44	Stream	3F		Nutrients (Chlorophyll a)	NI	2			PP - Insufficient Data, VP - Not Impaired Chlorophyll a mean = 12.254 ug/L, Range 1.5 - 54.22 ug/L, N = 16
3218	C-44	Stream	3F		Dissolved Oxygen	VL	5	Medium	2008	PP - 48/159 Potentially Impaired; VP - 50/154 Verified Linked to elevated BOD level of 6.6 mg/L during PP.
3218	C-44	Stream	3F		pH	NI	2			PP - 5/160 Not Impaired; VP - 5/158 Not Impaired
3218	C-44	Stream	3F		Iron	VL	5			PP - 33/42 Potentially Impaired; VP - 13/26 Verified
3210	Tidal St.Lucie	Estuary	3M		Dissolved Oxygen	NI	2			PP - 28/473 Not Impaired; VP - 22/311 Not Impaired
3210	Tidal St.Lucie	Estuary	3M		Turbidity	NI	2			PP - 18/375 Not Impaired; VP - 14/237 Not Impaired

WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3210	Tidal St.Lucie	Estuary	3M		Nutrients (Chlorophyll a)	VL	5	Medium	2008	PP - Potentially Impaired; VP - Verified, with seven annual mean chlorophyll a values above 11 ug/L. Both phosphorous and nitrogen are limiting nutrients based on TN/TP ratios. TN median = 1.124 mg/L, median TP = 0.185 mg/L. PP median TN/TP ratio = 6.44 (478 values), VP median TN/TP ratio = 5.87 (256 values).
3210	Tidal St.Lucie	Estuary	3M		Biology	NI	2			PP - Biology Not Impaired; VP - No Data
3210	Tidal St.Lucie	Estuary	3M		Copper	VL	5	Medium	2008	PP - 0/2 Insufficient Data; VP - 8/25 Verified
3210A	St. Lucie Canal	Estuary	3M	Dissolved Oxygen	Dissolved Oxygen	VL	5	Low	2010	PP - 37/196 Potentially Impaired, 48/172 Verified Linked to nitrogen levels. TN levels during PP = 1.2935; VP = 1.254 mg/L.
3210A	St. Lucie Canal	Estuary	3M		Copper	VL	5			PP - No Data; VP - 22/36 Verified

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WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3210A	St. Lucie Canal	Estuary	3M	Nutrients	Nutrients (Chlorophyll a)	VL	5	Low	2010	PP - Not Impaired; VP - Verified, with one annual mean chlorophyll a value above 11 ug/L. PP median 1.291 mg/L and VP median 1.18 mg/L. PP median TN/TP ratio = 7.46 (234 values), VP median TN/TP ratio = 7.18 (161 values).
3210A	St. Lucie Canal	Estuary	3M		Turbidity	NI	2			PP - 19/194 Not Impaired, VP - 13/163 Not Impaired
3210A	St. Lucie Canal	Estuary	3M		Fecal Coliform	NI	2			PP - 0/23 Not Impaired; VP - 2/49 Not Impaired
3210A	St. Lucie Canal	Estuary	3M		Total Coliform	NI	2			PP - 1/23 Not Impaired; VP - 2/29 Not Impaired
3210B	South Fork St. Lucie	Stream	3F		Turbidity	NI	2			PP - 4/204 Not Impaired; VP - 4/142 Not Impaired
3210B	South Fork St. Lucie	Stream	3F	Total Suspended Solids	Total Suspended Solids	ND	3C	Low	2010	PP - No Data; VP - No Data. Moved to Category 3C per Rule 62-303.300(2).

WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3210B	South Fork St. Lucie	Stream	3F	Coliforms	Total Coliform	ID	3C	Low	2010	PP - 0/4 Insufficient Data; VP - 0/2 Insufficient Data Moved to Category 3C per Rule 62-303.300(2).
3210B	South Fork St. Lucie	Stream	3F	Coliforms	Fecal Coliform	NI	2	Low	2010	PP - 0/20 Not Impaired; VP - 0/9 Insufficient Data This segment is being delisted because there were sufficient data for the planning list assessment, but it did not meet the listing thresholds for the planning list.
3210B	South Fork St. Lucie	Stream	3F	Dissolved Oxygen	Dissolved Oxygen	VL	5	Low	2010	PP - 92/209 Potentially Impaired; VP - 88/169 Verified Linked to elevated BOD level. BOD median = 2.25 mg/L.
3210B	South Fork St. Lucie	Stream	3F		Copper	NI	2			PP - No Data; VP - 1/24 Not Impaired
3210B	South Fork St. Lucie	Stream	3F		Biology	PL	3C			PP - Potentially Impaired; VP - No Data

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WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3210B	South Fork St. Lucie	Stream	3F	Nutrients	Nutrients (Chlorophyll <i>a</i>)	NI	2	Low	2010	PP - Not Impaired; VP - Not Impaired The annual average Chlorophyll <i>a</i> concentration for 1996 was 15.7 ug/L, 1997 = 15.06 ug/L, 1998 = 7.9 ug/L, 1999 = 8.5 ug/L, 2000 = 18.9 ug/L, 2001 = 14.7 ug/L, 2002 = 10.8 ug/L. Individual Chlorophyll <i>a</i> observations range from 7.98 to 15.7 ug/L. Total N for VP = 1.0 mg/L.
3210B	South Fork St. Lucie	Stream	3F		Conductance	PL	3C	Low	2010	PP - 77/214 Potentially Impaired, VP - 64/171 Potentially Impaired Need to check background conditions to verify impairment.
3211	Bessey Creek	Estuary	3M	Dissolved Oxygen	Dissolved Oxygen	VL	5	High	2005	PP - 8/19 Potentially Impaired; VP - 10/29 Verified Linked to elevated TP level. TP above the screening level for the PP and; VP (PP median 5.5 mg/l and; VP median 0.213 mg/l).

WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3211	Bessey Creek	Estuary	3M		Turbidity	ID	3B			PP - 1/9 Insufficient Data; VP - 0/15 Insufficient Data
3211	Bessey Creek	Estuary	3M	Coliforms	Fecal Coliform	ID	3C	High	2005	PP - 0/4 Insufficient Data; VP - 0/2 Insufficient Data. Moved to Category 3C per Rule 62-303.300(2).
3211	Bessey Creek	Estuary	3M	Coliforms	Total Coliform	ND	2			PP - No Data; VP - No Data. Delisting based on application of new methodology and flaw in original listing.
3211	Bessey Creek	Estuary	3M		Copper	VL	5			PP - No Data; VP - 16/29 Verified
3211	Bessey Creek	Estuary	3M	Nutrients	Nutrients (Chlorophyll a)	VL	5	High	2005	PP - Insufficient Data; VP - Verified, with one annual mean chlorophyll a value above 20 ug/L. Phosphorus limiting based on TN median = 0.747 mg/L and TP median = 0.213 mg/L. PP TN/TP ratio median = 7.73 (13 values), VP = 3.88 (23 values).
3211A	Bessey Creek	Estuary	3M			ND	3A			PP - No Data; VP - No Data

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WBID	Waterbody	Waterbody Type	Waterbody Class	1998 303(d) Parameters of Concern	New Parameters of Concern from IWR	1998 303(d) List	Integrated Report Category*	Priority for TMDL Development	Projected Year for TMDL Development	Comments
						Assessment Status (NI = Not Impaired; IM = Impaired; ID = Insufficient Data; ND = No Data; NA = Not Applicable)				PP = Planning Period; VP = Verified Period; TN = Total Nitrogen; TP = Total Phosphorus
3215	Basin 6	Stream	3F		Dissolved Oxygen	PL	3C			PP - 3/7 Potentially Impaired; VP - 24/34 Potentially Impaired
3215	Basin 6	Stream	3F		Nutrients (Chlorophyll a)	NI	2			PP - No Data; VP - Not Impaired
3215	Basin 6	Stream	3F		Turbidity	ID	3B			PP - No Data; VP - 0/9 Insufficient Data
3215	Basin 6	Stream	3F		Copper	ID	3B			PP - No Data; VP - 0/7 Insufficient Data
3217	Basin 5	Stream	3F			ND	3A			PP - No Data; VP - No Data
3220	Basin 2	Stream	3F		Fecal Coliform	ID	3B			PP - 0/1 Insufficient Data; VP - 0/1 Insufficient Data
3220	Basin 2	Stream	3F		Dissolved Oxygen	ID	3B			PP - 1/1 Insufficient Data; VP - 1/1 Insufficient Data
8998	Florida Atlantic Coast	Estuary	3M		Mercury (in fish tissue)	VL	5	Low	2011	Data verified to be within the last 7.5 years. Confirmed recent data for coastal fish advisory for Ladyfish, grouper, and tuna. Includes WBIDs 8101B and 8101C.

This list includes revisions made to the May 27, 2004, Group 2 St. Lucie - Loxahatchee Verified List adopted by Secretarial Order. The revised Group 2 list and its adoption date are pending signing by Secretarial Order.

Table D.2: Water Quality Monitoring Stations Used in the Assessment for the St. Lucie and Loxahatchee Basins, by Planning Unit

WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
C-25/Basin 1 Planning Unit							
3160	C-25 Canal West (St. Johns Marsh)	Stream	21FLSFWMC25S99	UPSTEAM STATION AT S99 ON C-25 ABOUT 1.75 MIL S	1991	2000	3209
3163	Ft. Pierce Farm Canal (Belcher Can/Taylor Ck)	Stream	21FLWPB 27020556	Fort Pierce Farms Canal just upstream of salinity	1999	2000	103
3163	Ft. Pierce Farm Canal (Belcher Can/Taylor Ck)	Stream	21FLWPB 27020572	Taylor Creek - Indian River Lagoon Sediment Study	2000	2000	19
3163A	Lakewood Park Lakes	Lake	21FLKWATST-ANN-1	St Lucie-Ann-1	1991	2000	412
3163A	Lakewood Park Lakes	Lake	21FLKWATST-ANN-2	St Lucie-Ann-2	1991	2000	415
3163A	Lakewood Park Lakes	Lake	21FLKWATST-ANN-3	St Lucie-Ann-3	1991	2000	413
3163A	Lakewood Park Lakes	Lake	21FLKWATST-BELAIR-1	St Lucie-Bel Air-1	1991	2000	57
3163A	Lakewood Park Lakes	Lake	21FLKWATST-BELAIR-2	St Lucie-Bel Air-2	1991	2000	57
3163A	Lakewood Park Lakes	Lake	21FLKWATST-BELAIR-3	St Lucie-Bel Air-3	1991	2000	57
3163A	Lakewood Park Lakes	Lake	21FLKWATST-DAVID-1	St Lucie-David-1	1991	2000	163
3163A	Lakewood Park Lakes	Lake	21FLKWATST-DAVID-2	St Lucie-David-2	1991	2000	161
3163A	Lakewood Park Lakes	Lake	21FLKWATST-DAVID-3	St Lucie-David-3	1991	2000	164
3163A	Lakewood Park Lakes	Lake	21FLKWATST-DEBORAH-1	St Lucie-Deborah-1	1991	2000	363
3163A	Lakewood Park Lakes	Lake	21FLKWATST-DEBORAH-2	St Lucie-Deborah-2	1991	2000	378

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WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
3163A	Lakewood Park Lakes	Lake	21FLKWATST-DEBORAH-3	St Lucie-Deborah-3	1991	2000	382
3163A	Lakewood Park Lakes	Lake	21FLKWATST-DEWITT-1	St Lucie-De Witt-1	1991	2000	191
3163A	Lakewood Park Lakes	Lake	21FLKWATST-DEWITT-2	St Lucie-De Witt-2	1991	2000	190
3163A	Lakewood Park Lakes	Lake	21FLKWATST-DEWITT-3	St Lucie-De Witt-3	1991	2000	188
3163A	Lakewood Park Lakes	Lake	21FLKWATST-HARRIET-1	St Lucie-Harriet-1	1991	1991	11
3163A	Lakewood Park Lakes	Lake	21FLKWATST-HARRIET-2	St Lucie-Harriet-2	1991	1991	12
3163A	Lakewood Park Lakes	Lake	21FLKWATST-HARRIET-3	St Lucie-Harriet-3	1991	1991	12
3163A	Lakewood Park Lakes	Lake	21FLKWATST-JEAN-1	St Lucie-Jean-1	1991	1999	290
3163A	Lakewood Park Lakes	Lake	21FLKWATST-JEAN-2	St Lucie-Jean-2	1991	1999	286
3163A	Lakewood Park Lakes	Lake	21FLKWATST-JEAN-3	St Lucie-Jean-3	1991	1999	284
3163A	Lakewood Park Lakes	Lake	21FLKWATST-JEFFERY-1	St Lucie-Jeffery-1	1991	1992	41
3163A	Lakewood Park Lakes	Lake	21FLKWATST-JEFFERY-2	St Lucie-Jeffery-2	1991	1992	41
3163A	Lakewood Park Lakes	Lake	21FLKWATST-JEFFERY-3	St Lucie-Jeffery-3	1991	1992	41
3163A	Lakewood Park Lakes	Lake	21FLKWATST-KAREN-1	St Lucie-Karen-1	1991	2000	229
3163A	Lakewood Park Lakes	Lake	21FLKWATST-KAREN-2	St Lucie-Karen-2	1991	2000	229
3163A	Lakewood Park Lakes	Lake	21FLKWATST-KAREN-3	St Lucie-Karen-3	1991	2000	229
3163A	Lakewood Park Lakes	Lake	21FLKWATST-LAGUNA-1	St Lucie-Laguna-1	1991	1997	48
3163A	Lakewood Park Lakes	Lake	21FLKWATST-LAGUNA-2	St Lucie-Laguna-2	1991	1997	48

WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
3163A	Lakewood Park Lakes	Lake	21FLKWATST-LAGUNA-3	St Lucie-Laguna-3	1991	1997	47
3163A	Lakewood Park Lakes	Lake	21FLKWATST-MARGARET-1	St Lucie-Margaret-1	1991	2000	405
3163A	Lakewood Park Lakes	Lake	21FLKWATST-MARGARET-2	St Lucie-Margaret-2	1991	2000	404
3163A	Lakewood Park Lakes	Lake	21FLKWATST-MARGARET-3	St Lucie-Margaret-3	1991	2000	407
3163A	Lakewood Park Lakes	Lake	21FLKWATST-PHYLLIS-1	St Lucie-Phyllis-1	1991	1999	9
3163A	Lakewood Park Lakes	Lake	21FLKWATST-PHYLLIS-2	St Lucie-Phyllis-2	1991	1999	9
3163A	Lakewood Park Lakes	Lake	21FLKWATST-PHYLLIS-3	St Lucie-Phyllis-3	1991	1999	9
3163A	Lakewood Park Lakes	Lake	21FLKWATST-ROSE-1	St Lucie-Rose-1	1991	2000	275
3163A	Lakewood Park Lakes	Lake	21FLKWATST-ROSE-2	St Lucie-Rose-2	1991	2000	275
3163A	Lakewood Park Lakes	Lake	21FLKWATST-ROSE-3	St Lucie-Rose-3	1991	2000	276
3163A	Lakewood Park Lakes	Lake	21FLKWATST-RUCE-1	St Lucie-Ruce-1	1991	1997	21
3163A	Lakewood Park Lakes	Lake	21FLKWATST-RUCE-2	St Lucie-Ruce-2	1991	1997	21
3163A	Lakewood Park Lakes	Lake	21FLKWATST-RUCE-3	St Lucie-Ruce-3	1991	1997	21
3163A	Lakewood Park Lakes	Lake	21FLKWATST-SHARON-1	St Lucie-Sharon-1	1991	1993	25
3163A	Lakewood Park Lakes	Lake	21FLKWATST-SHARON-2	St Lucie-Sharon-2	1991	1993	25
3163A	Lakewood Park Lakes	Lake	21FLKWATST-SHARON-3	St Lucie-Sharon-3	1991	1993	25
3163B	C-25 East Segment	Stream	21FLA 27020535	BELCHER CANAL AT 25TH STREET, FT PIERCE	1995	1995	74
3163B	C-25 East Segment	Stream	21FLSFWMC25S50	UPSTREAM OF WEIR S50 ON C-25 ABOUT 3000 FT UP T	1991	2000	4613

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WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
3163B	C-25 East Segment	Stream	21FLWPB 27020560	C25 Canal @S50 salinity structure upstream.	1999	2000	104
3189	Cowbone Creek (C-25)	Stream	21FLA 26010429	COWBONE CREEK AT SR 68	1995	1998	249
3189	Cowbone Creek (C-25)	Stream	21FLA 26010432	UNNAMED CRK EAST OF COWBONE CRK ON SR 68	1995	1995	18
North St. Lucie Planning Unit							
3194	North St. Lucie	Estuary	112WRD 02276575	N FORK ST LUCIE RIVER AT VETERANS PK, PT ST LUCIE	1999	2000	110
3194	North St. Lucie	Estuary	21FLA 28010008	NO FORK ST LUCIE RIV HAWLEY RD B	1998	1998	1
3194	North St. Lucie	Estuary	21FLA 28010009	NO FORK ST LUCIE RIV SR 712	1992	1998	886
3194	North St. Lucie	Estuary	21FLA 28010010	NO FORK ST LUCIE PRIMA VISTA BR	1992	1992	32
3194	North St. Lucie	Estuary	21FLA 28010035	NEAR MOUTH OF C-24 DIVERSION CAN	1992	1998	49
3194	North St. Lucie	Estuary	21FLA 28010310	N FK ST. LUCIE R SOUTH OF MIDWAY RD	1996	1996	104
3194	North St. Lucie	Estuary	21FLA 28010610	N. FORK ST. LUCIE UPSTREAM N.PT.	1992	1992	30
3194	North St. Lucie	Estuary	21FLA 28010612	NORTH FORK ST LUCIE N OF ST.L.BL	1992	1992	27
3194	North St. Lucie	Estuary	21FLA 28010879	NORTH FORK ST LUCIE RIV AT PORT ST LUCIE BLVD	1992	1992	27
3194	North St. Lucie	Estuary	21FLSFW MSE 06	S.SIDE KELLSTADT BRIDGE N.FORK OF RIVER	1991	2000	12246
3194	North St. Lucie	Estuary	21FLSFW MSE 07	DWN.STRM OF S49 ON C24 CANAL	1991	2000	10385
3194	North St. Lucie	Estuary	21FLWPB 28010008	NO FORK ST LUCIE RIV HAWLEY RD B	1999	1999	118
3194	North St. Lucie	Estuary	21FLWPB 28010009	NO FORK ST LUCIE RIV SR 712	1999	2000	385
3194	North St. Lucie	Estuary	21FLWPB 28010010	NO FORK ST LUCIE PRIMA VISTA BR	1999	1999	70

WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
3194	North St. Lucie	Estuary	21FLWPB 28010879	NORTH FORK ST LUCIE RIV AT PORT ST LUCIE BLVD	1999	2000	85
3194A	Tenmile Creek	Stream	21FLA 28010007	TEN MILE CREEK AT SELVITZ RD BR	1992	1994	30
3194A	Tenmile Creek	Stream	21FLA 28010045	GORDY RD BRIGE OVER TEN MILE CRK	1992	1998	145
3194A	Tenmile Creek	Stream	21FLA 28010122	TENMILE CREEK AT I-95	1998	1998	7
3194A	Tenmile Creek	Stream	21FLA 28010232	TEN MILE CREEK 50 YDS NORTH OF RR TRESTLE	1994	1998	51
3194A	Tenmile Creek	Stream	21FLA 28010267	UNNAMED CANAL S SIDE TEN MILE CREEK E 11 MI ROAD	1994	1994	21
3194A	Tenmile Creek	Stream	21FLSFWMGORDYRD	10 MILE CREEK	1999	2000	898
3194A	Tenmile Creek	Stream	21FLWPB 28010007	TEN MILE CREEK AT SELVITZ RD BR	1999	1999	17
3194A	Tenmile Creek	Stream	21FLWPB 28010045	GORDY RD BRIGE OVER TEN MILE CRK	1999	2000	76
3194B	St. Lucie	Estuary	21FLA 27020542	N FK STLUCIE ESTURY W SHORE NEAR BLAKESLEE CRK	1998	1998	29
3194B	St. Lucie	Estuary	21FLA 27020543	NFK STLUCIE ESTUARY NW HARBOR RIDGE DOCK	1998	1998	7
3194B	St. Lucie	Estuary	21FLA 28010014	ROOSEVELT BRIDGE PNS	1992	1998	800
3194B	St. Lucie	Estuary	21FLA 28010016	CANAL C-23 AT BRIDGE BELOW STR-4	1992	1998	102
3194B	St. Lucie	Estuary	21FLA 28010033	MOUTH OF WINTERS & BLAKESLEE CR	1992	1992	27
3194B	St. Lucie	Estuary	21FLA 28010037	BETWEEN BESSY CR PT & COCONUT PT	1992	1998	413
3194B	St. Lucie	Estuary	21FLA 28010038	BETWEEN PENDARVIS PTS HOWARD CRK	1992	1997	182
3194B	St. Lucie	Estuary	21FLA 28010039	DUE SOUTH OF GREENRIDGE POINT	1992	1992	28
3194B	St. Lucie	Estuary	21FLA 28010051	ST.LUCIE ESTUARY NEAR DYER POINT, NEARSHORE	1992	1992	31
3194B	St. Lucie	Estuary	21FLA 28010214	ST.LUCIE ESTUARY NEAR MOUTH OF BESSEY CREEK	1992	1998	32

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WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
3194B	St. Lucie	Estuary	21FLA 28010228	NO.FORK ST.LUCIE R. MIDCHNL NEAR DYER POINT	1992	1992	27
3194B	St. Lucie	Estuary	21FLA 28010230	N.FK.ST.LUCIE R. BTWN BESSEY AND PENDARVIS PTS	1992	1992	27
3194B	St. Lucie	Estuary	21FLA 28010231	N.FORK.ST.LUCIE R. BTWN GREENRIDGE+PENDARVIS PTS	1992	1992	28
3194B	St. Lucie	Estuary	21FLINDRSL02	INDIAN RIVER LAGOON-ST LUCIE ESTUARY	1991	1992	218
3194B	St. Lucie	Estuary	21FLSFWMHR1	HR1 N. FORK OF THE ST. LUCIE RIVER (WATER QUALI	1994	2000	8949
3194B	St. Lucie	Estuary	21FLSFWMHR1D-0.5	PRIMARY PRODUCTIVITY MONITORING STATION ST. LUCIE	1999	2000	52
3194B	St. Lucie	Estuary	21FLSFWMHR1D-1.5	PRIMARY PRODUCTIVITY MONITORING STATION ST. LUCIE	1999	2000	35
3194B	St. Lucie	Estuary	21FLSFWMHR1D-2.5	PRIMARY PRODUCTIVITY MONITORING STATION ST. LUCIE	1999	2000	52
3194B	St. Lucie	Estuary	21FLSFWMHR1S	PRIMARY PRODUCTIVITY MONITORING STATION ST. LUCIE	1999	2000	52
3194B	St. Lucie	Estuary	21FLSFWMSE 04	DWN.STRM. S48 ON C23 CANAL	1991	2000	12934
3194B	St. Lucie	Estuary	21FLSFWMSE 05	IN RIVER NEAR GUAGING STA. 4A	1991	1996	7963
3194B	St. Lucie	Estuary	21FLWPB 28010037	BETWEEN BESSY CR PT& COCONUT PT	1999	2000	518
3194B	St. Lucie	Estuary	21FLWPB 28010214	ST.LUCIE ESTUARY NEAR MOUTH OF BESSEY CREEK	2000	2000	14
3194B	St. Lucie	Estuary	21FLWPB 28010368	St . Lucie Estuary Marker 6A	2000	2000	33
3194B	St. Lucie	Estuary	21FLWPB 28010453	St. Lucie Estuary @ Marker 14.	1999	2000	65
3194B	St. Lucie	Estuary	21FLWPB 28010454	St Lucie Estuary @ Marker 5	2000	2000	59
3194B	St. Lucie	Estuary	21FLWPB 28010455	St Lucie Estuary @ Marker 3	2000	2000	42

WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
3194B	St. Lucie	Estuary	21FLWPB 28010473	Port St. Lucie Stormwater Pond A-1 Influent Culver	1998	2000	208
3194C	Savannahs	Lake	21FLA 28010107	SAVANNAHS AT WHITE CITY	1995	1996	123
3194C	Savannahs	Lake	21FLA 28010111	SAVANNAHS AT ANKONA	1993	1998	535
3194C	Savannahs	Lake	21FLA 28010258	SAVANNAS STATE PRESERVE AT MIDWAY RD. CULVERT	1994	1996	103
3194C	Savannahs	Lake	21FLA 28010259	HOWARD ST. CANAL IN INDIAN RIVER ESTATES	1994	1998	251
3194C	Savannahs	Lake	21FLA 28010260	SAVANNAS PRESERVE STORMWATER IMPACT MONITR SITE	1994	1996	233
3194C	Savannahs	Lake	21FLA 28010262	SE OF IMPACT ASSESSMENT SITE IN SAVANNAS	1994	1994	19
3194C	Savannahs	Lake	21FLA 28010284	INDIAN RIVER ESTATES DISCH CANAL AT SCOTT ST	1995	1998	216
3194C	Savannahs	Lake	21FLA 28010285	INDIAN RIVER ESTATES DISCH TO SAVANNAS AT BARTOW	1995	1998	224
3194C	Savannahs	Lake	21FLA 28010286	HOGPEN SLOUGH DISCH TO SAVANNAS AT STRUCTURE	1995	1997	99
3194C	Savannahs	Lake	21FLA 28010287	SAVANNAS DISCHARGE DITCH	1995	1996	68
3194C	Savannahs	Lake	21FLA 28010289	SAVANNA STATE RESERVE AT SCOTT ST DISCH CANAL	1995	1998	258
3194C	Savannahs	Lake	21FLA 28010290	SAVANNA RESERVE S OF SCOTT ST IN IR ESTATES	1995	1996	184
3194C	Savannahs	Lake	21FLA 28010291	SAVANNA RESERVE NEAR HOWARD ST DISCH CANAL MOUTH	1995	1996	183
3194C	Savannahs	Lake	21FLA 28010292	SAVANNA RESERVE NEAR BARTOW ST CANAL	1995	1998	252
3194C	Savannahs	Lake	21FLA 28010293	SAVANNA RESERVE AT BARTOW ST CANAL IN MARSH	1995	1996	178
3194C	Savannahs	Lake	21FLA 28010294	SAVANNA RESERVE AT MOUTH OF HOGPEN SLOUGH	1995	1996	122
3194C	Savannahs	Lake	21FLA 28010295	SAVANNA RESERVE S OF HOGPEN SLOUGH MOUTH	1995	1996	123

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WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
3194C	Savannahs	Lake	21FLA 28010296	SAVANNA RESERVE APPROX. 2000 YDS S OF HOGPEN	1995	1998	257
3194C	Savannahs	Lake	21FLA 28010297	SAVANNA RESERVE N OF ILLEGAL CAUSEWAY	1995	1996	122
3194C	Savannahs	Lake	21FLA 28010298	SAVANNA RESERVE AT MOUTH OF SAVANNA DISCH DITCH	1995	1996	133
3194C	Savannahs	Lake	21FLA 28010299	SAVANNA RESERVE AT GDC ILLEGAL CAUSEWAY	1995	1996	122
3194C	Savannahs	Lake	21FLA 28010300	SAVANNA RESERVE S OF WALTON ROAD	1995	1996	114
3194C	Savannahs	Lake	21FLA 28010301	SAVANNA RESERVE NEAR EPSL DISCH	1995	1996	114
3194C	Savannahs	Lake	21FLA 28010302	SAVANNA RESERVE OFF EAST PORT ST LUCIE	1995	1998	246
3194C	Savannahs	Lake	21FLA 28010303	SAVANNA RESERVE AT EPSL STRMWATR SLOUGH MOUTH	1995	1996	175
3194C	Savannahs	Lake	21FLA 28010304	SAVANNA RESERVE W OF LAKE EDEN	1995	1996	125
3194C	Savannahs	Lake	21FLA 28010305	SAVANNA RESERVE AT SW END OF MARSH	1995	1996	138
3194C	Savannahs	Lake	21FLA 28010312	SAVANNAS DISCH DITCH AT STORMWATER POND	1996	1996	27
3194C	Savannahs	Lake	21FLA 28010339	STREAM OVER SAVANNAS ACCESS ROAD S OF EASY ST	1998	1998	22
3194C	Savannahs	Lake	21FLWPB 28010111	SAVANNAHS AT ANKONA	1999	2000	90
3194C	Savannahs	Lake	21FLWPB 28010258	SAVANNAS STATE PRESERVE AT MIDWAY RD. CULVERT	2000	2000	34
3194C	Savannahs	Lake	21FLWPB 28010259	HOWARD ST. CANAL IN INDIAN RIVER ESTATES	1999	1999	13
3194C	Savannahs	Lake	21FLWPB 28010285	INDIAN RIVER ESTATES DISCH TO SAVANNAS AT BARTOW	1999	1999	13
3194C	Savannahs	Lake	21FLWPB 28010286	HOGPEN SLOUGH DISCH TO SAVANNAS AT STRUCTURE	1999	1999	13
3194C	Savannahs	Lake	21FLWPB 28010339	STREAM OVER SAVANNAS ACCESS ROAD S OF EASY ST	1999	1999	13

WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
3194D	Fivemile Creek	Stream	21FLA 28010133	FIVE MILE CR AT RR TRESTLE	1992	1992	30
3194D	Fivemile Creek	Stream	21FLWPB 28010001	FIVE MILE CRK OKEECHOBEE ROAD	1999	2000	174
C-24 Planning Unit							
3197	C-24	Stream	21FLSFWMC24S49	UPSTREAM OF S49 ON C-24 2000 FEET WEST OF TUR P	1991	2000	4708
3197	C-24	Stream	21FLSFWMS49GS1	PROJECT ASVS SITE AT S-49 SPILLWAY ON CANAL C-24	1999	1999	12
3197	C-24	Stream	21FLSFWMS49GS2	PROJECT ASVS SITE AT S-49 SPILLWAY ON CANAL C-24	1999	1999	12
3197	C-24	Stream	21FLSFWMS49GS3	PROJECT ASVS SITE AT S-49 SPILLWAY ON CANAL C-24	1999	1999	12
3197	C-24	Stream	21FLSFWMS49NR1	PROJECT ASVS SITE AT S-49 SPILLWAY ON CANAL C-24	1999	1999	20
3197	C-24	Stream	21FLSFWMS49NR2	PROJECT ASVS SITE AT S-49 SPILLWAY ON CANAL C-24	1999	1999	24
3197	C-24	Stream	21FLSFWMS49NR3	PROJECT ASVS SITE AT S-49 SPILLWAY ON CANAL C-24	1999	1999	16
3197	C-24	Stream	21FLSFWMS49R1	PROJECT ASVS SITE AT S-49 SPILLWAY ON CANAL C-24	1999	1999	20
3197	C-24	Stream	21FLSFWMS49R2	PROJECT ASVS SITE AT S-49 SPILLWAY ON CANAL C-24	1999	1999	20
3197	C-24	Stream	21FLSFWMS49R3	PROJECT ASVS SITE AT S-49 SPILLWAY ON CANAL C-24	1999	1999	20
3197	C-24	Stream	21FLWPB 28010306	C24 JUST UPSTREAM EASTERNMOST CONTROL STRUCTURE	1999	1999	55
3197	C-24	Stream	21FLWPB 28010386	38	1999	2000	62
3197	C-24	Stream	21FLWPB 28010387	germany Canal @ Germany canal Rd Overpass.	1999	2000	72
3197	C-24	Stream	21FLWPB 28010394	2B	1999	2000	60
3197	C-24	Stream	21FLWPB 28010395	site 79	1999	2000	68
3197	C-24	Stream	21FLWPB 28010404	39	1999	2000	97
3197	C-24	Stream	21FLWPB 28010486	C24	2000	2000	14

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WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
3197	C-24	Stream	21FLWPB 28010883	C-24 CANAL AT GLADES CUT-OFF RD	1999	2000	72
C-23 Planning Unit							
3200	C-23	Stream	21FLSFWMC23S48	UPSTREAM OF WEIR S48 ON C-23 2 MILES EAST OF U	1991	2000	4703
3200	C-23	Stream	21FLSFWMC23S97	UPSTREAM OF S97 ON C-23 .50 MILE WEST OF TURN I	1991	1999	1525
3200	C-23	Stream	21FLWPB 28010349	C23 Canal @ Boat Ramp Road Structure S97 Upstream	1999	2000	108
South St. Lucie Planning Unit							
3210	Tidal St. Lucie	Estuary	112WRD 02277100	ST LUCIE RIVER AT SPEEDY POINT, STUART FL	1999	2000	90
3210	Tidal St. Lucie	Estuary	21FLA 27020518	STLUCIE CANAL JUST S OF MOUTH TO ESTUARY	1998	1998	29
3210	Tidal St. Lucie	Estuary	21FLA 28010015	SO FORK ST LUCIE AT PALM CITY BR	1992	1992	29
3210	Tidal St. Lucie	Estuary	21FLA 28010030	POPPOLTON CREEK AT SR 714 BRIDGE	1992	1992	17
3210	Tidal St. Lucie	Estuary	21FLA 28010075	FRAZER CRK AT US#1 BRIDGE	1992	1992	29
3210	Tidal St. Lucie	Estuary	21FLA 28010084	SOUTH FORK ST. LUCIE RIVER	1992	1992	29
3210	Tidal St. Lucie	Estuary	21FLA 28010216	MOUTH OF DANFORTH CREEK NEAR STUART FLORIDA	1992	1992	17
3210	Tidal St. Lucie	Estuary	21FLA 28010217	MOUTH FERN CREEK AT CONFLUENCE ST. LUCIE CANAL	1992	1992	18
3210	Tidal St. Lucie	Estuary	21FLA 28010229	ST.LUCIE R. MIDCHNL BTWN POPPOLTON CRK-MATCH.PT	1992	1998	421
3210	Tidal St. Lucie	Estuary	21FLA 28010326	S ST. LUCIE ESTUARY AT MOUTH OF C44	1997	1997	42
3210	Tidal St. Lucie	Estuary	21FLINDRSL01	INDIAN RIVER LAGOON-ST LUCIE ESTUARY	1991	1993	260
3210	Tidal St. Lucie	Estuary	21FLINDRSL010	S Fork of St Lucie R 1/2 mi S of br	1995	1996	111

WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
3210	Tidal St. Lucie	Estuary	21FLINDRSL070	S Fork of SL River 1/2 mile S of Roos. Bridge	1998	1998	28
3210	Tidal St. Lucie	Estuary	21FLSFWMSE 03	WEST SIDE OF ROSEVELT BRIDGE	1991	2000	17349
3210	Tidal St. Lucie	Estuary	21FLSFWMSE 08	S.SIDE PALM BAY BRIDGE	1991	2000	5741
3210	Tidal St. Lucie	Estuary	21FLSFWMSFD-0.5	PRIMARY PRODUCTIVITY MONITORING STATION ST. LUCIE	2000	2000	30
3210	Tidal St. Lucie	Estuary	21FLSFWMSFD-1.0	PRIMARY PRODUCTIVITY MONITORING STATION ST. LUCIE	2000	2000	30
3210	Tidal St. Lucie	Estuary	21FLSFWMSFD-1.5	PRIMARY PRODUCTIVITY MONITORING STATION ST. LUCIE	2000	2000	30
3210	Tidal St. Lucie	Estuary	21FLWPB 28010014	ROOSEVELT BRIDGE PNS	1999	2000	210
3210	Tidal St. Lucie	Estuary	21FLWPB 28010015	SO FORK ST LUCIE AT PALM CITY BR	1999	2000	106
3210	Tidal St. Lucie	Estuary	21FLWPB 28010229	ST.LUCIE R. MIDCHNL BTWN POPPOLTON CRK-MATCH.PT	1999	2000	472
3210	Tidal St. Lucie	Estuary	21FLWPB 28010461	St Lucie Estuary @ Marker 31	2000	2000	15
3210A	St. Lucie Canal	Estuary	112WRD 02277000	ST LUCIE CA AT LOCK NR STUART FLA	2000	2000	15
3210A	St. Lucie Canal	Estuary	21FLA 28010028	ST LUCIE CAN AT NAVAG MARKER #49	1992	1992	17
3210A	St. Lucie Canal	Estuary	21FLA 28010221	MOUTH OF MAPP CREEK NEAR CITY OF STUART	1992	1992	28
3210A	St. Lucie Canal	Estuary	21FLA 28010222	MARINA NR TRNPK ON ST. LUCIE CANAL	1992	1992	18
3210A	St. Lucie Canal	Estuary	21FLA 28010344	ST LUCIE CANAL AT I95 OVERPASS	1998	1998	17
3210A	St. Lucie Canal	Estuary	21FLA 28010345	ST LUCIE CANAL DOWNSTREAM C44 SPILLWAY	1998	1998	17
3210A	St. Lucie Canal	Estuary	21FLA 28010609	ST LUCIE CANAL AT SOUTH FORK	1992	1998	45
3210A	St. Lucie Canal	Estuary	21FLGW 3500	SE 10	1999	2000	815

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WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
3210A	St. Lucie Canal	Estuary	21FLSFWMSE 10	DWN STRM. ST LUCIE LOCK	1991	2000	12079
3210A	St. Lucie Canal	Estuary	21FLWPB 28010222	MARINA NR TRNPK ON ST. LUCIE CANAL	2000	2000	14
3210A	St. Lucie Canal	Estuary	21FLWPB 28010344	ST LUCIE CANAL AT I95 OVERPASS	2000	2000	44
3210A	St. Lucie Canal	Estuary	21FLWPB 28010345	ST LUCIE CANAL DOWNSTREAM C44 SPILLWAY	2000	2000	18
3210B	South Fork St. Lucie	Stream	21FLA 28010018	SO FORK ST LUCIE AT SR76 BRIDGE	1992	1992	29
3210B	South Fork St. Lucie	Stream	21FLA 28010238	S FK ST LUCIE R NW HOBE SND, DNSTRM CANAL	1994	1994	39
3210B	South Fork St. Lucie	Stream	21FLA 28010239	S FK ST LUCIE R NW HOBE SND; UPSTRM CANAL DISCH	1994	1998	181
3210B	South Fork St. Lucie	Stream	21FLA 28010608	SOUTH FORK ST LUCIE RIV UPSTREAM	1992	1998	1792
3210B	South Fork St. Lucie	Stream	21FLSFWMSE 09	S. FORK ST LICIE LOCK S-80	1991	2000	11915
3210B	South Fork St. Lucie	Stream	21FLWPB 28010239	S FK ST LUCIE R NW HOBE SND; UPSTRM CANAL DISCH	1999	1999	16
3210B	South Fork St. Lucie	Stream	21FLWPB 28010478	South fork St . Lucie River @ Hosford Park (Cove R	2000	2000	10
3210B	South Fork St. Lucie	Stream	21FLWPB 28010523	SFORK/CANAL	1999	1999	5
3210B	South Fork St. Lucie	Stream	21FLWPB 28010608	SOUTH FORK ST LUCIE RIV UPSTREAM	1999	2000	178
3211	Bessey Creek	Estuary	21FLA 28010031	ST LUCIE RIV AT MOUTH OF BESSEY	1992	1992	196
3211	Bessey Creek	Estuary	21FLA 28010047	BESSEY CRK AT MURPHY RD	1992	1992	201
3211	Bessey Creek	Estuary	21FLA 28010098	AT SPILLWAY IN C23	1992	1992	57
3211	Bessey Creek	Estuary	21FLA 28010176	MOUTH OF BESSEY CRK PRIOR JCT WITH C23	1992	1992	218
3211	Bessey Creek	Estuary	21FLA 28010213	BESSEY CREEK AT END OF NAVIGABILITY	1992	1992	43
3211	Bessey Creek	Estuary	21FLA 28010959	BESSEY CREEK AT BESSEY CREEK/C-23 INTERSECT	1998	1998	12

WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
3211	Bessey Creek	Estuary	21FLWPB 28010959	BESSEY CREEK AT BESSEY CREEK/C-23 INTERSECT	1999	1999	14
3220	Basin 2	Stream	21FLA 28010320	N FK LOX AT BRIDGE ROAD HOBE SOUND	1997	1997	32
C-44 Planning Unit							
3218	C-44	Stream	21FLA 28010017	ST LUCIE CANAL AT ST LUCIE LOCKS	1992	1998	101
3218	C-44	Stream	21FLA 28010027	SR76A BRIDGE OVER ST LUCIE CANAL	1992	1992	30
3218	C-44	Stream	21FLSFWMC44S80	UPSTREAM OF S80 ON C-44	1991	2000	5489
3218	C-44	Stream	21FLSFWMS80	S-80 SPILLWAY AND LOCK ON ST.LUCIE CANAL TIDEWAT	1991	2000	1474
3218	C-44	Stream	21FLWPB 28010017	ST LUCIE CANAL AT ST LUCIE LOCKS	1999	2000	239
Loxahatchee Planning Unit							
3224	Jonathan Dickinson	Estuary	21FLLOX 106	JD PARK KITCHEN CREEK AT END OF NATURE WALK	1995	1999	371
3224	Jonathan Dickinson	Estuary	21FLLOX 107	RIVERS EDGE CULVERT LEADING TO NW FORK LOX. RIV	1994	1999	519
3224	Jonathan Dickinson	Estuary	21FLLOX 62	NORTHWEST FORK UNDER ISLAND WAY BRIDGE	1991	1999	1153
3224	Jonathan Dickinson	Estuary	21FLLOX 63	NW FORK OFF OSPREY NEST UPST OF JD BOAT RAMP	1991	1999	1000
3224	Jonathan Dickinson	Estuary	21FLLOX 64	NW LOXAHATCHEE RIVER AT JD PARK SWIM AREA	1994	1999	788
3224	Jonathan Dickinson	Estuary	21FLLOX 65	NW FORK 1/4 M UPSTREAM OF KITCHEN CREEK	1991	1999	937
3224	Jonathan Dickinson	Estuary	21FLLOX 66	NW FORK AT HOBE GROVE DITCH MARSH ENTRANCE	1991	1999	897
3224	Jonathan Dickinson	Estuary	21FLLOX B62.5	NW FORK E TIP MANG ISLE UPST ISLES OF JUPITER	1992	1998	166

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WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
3224	Jonathan Dickinson	Estuary	21FLPBCH1	NW FK LOXAHATCHEE R NR BRG ISLWA	1991	1992	97
3224A	North Fork Loxahatchee	Stream	21FLA 28010223	NORTH FK LOXAHATCHEE RIVER REF BIO STATION	1992	1998	1896
3224A	North Fork Loxahatchee	Stream	21FLA 28010321	N FK LOXAHATCHEE AT EAGLEWOOD SUBDIVISION	1997	1997	11
3224A	North Fork Loxahatchee	Stream	21FLA 28010322	N FK LOXAHATCHEE RIVER AT N JD PARK BOUNDARY	1997	1997	32
3224A	North Fork Loxahatchee	Stream	21FLA 28010323	N FK LOXAHATCHEE IN JONATHAN DICKENSON STATE PK	1997	1997	10
3224A	North Fork Loxahatchee	Stream	21FLA 28010324	WEST BRANCH N FK LOXAHATCHEE AT JD PARK ROAD	1997	1997	10
3224A	North Fork Loxahatchee	Stream	21FLA 28010325	EAST BRANCH N FK LOXAHATCHEE AT JD PARK ROAD	1997	1997	10
3224A	North Fork Loxahatchee	Stream	21FLLOX 57	N FORK IN JD PARK OFF ENTRANCE ROAD	1993	1999	587
3224A	North Fork Loxahatchee	Stream	21FLLOX 58	N FORK LOXAHATCHEE RIVER AT N JD PARK BOUNDARY	1997	1999	183
3224A	North Fork Loxahatchee	Stream	21FLWPB 28010223	NORTH FK LOXAHATCHEE RIVER REF BIO STATION	1999	1999	5
3224B	Kitching Creek	Stream	21FLLOX 109	NORTH KITCHING CREEK BRIDGE IN JD PARK	1998	1999	147
3224C	Cypress Creek	Stream	21FLA 28010105	CYPRESS CR AT TURNPIKE	1995	1995	20
3224C	Cypress Creek	Stream	21FLLOX 100	NW FORK AT CONFLUENCE WITH CYPRESS CREEK	1992	1999	714
3224C	Cypress Creek	Stream	21FLLOX 104	HOBE GROVE CANAL AT JD PARK WEST BOUNDARY	1994	1999	384
3224C	Cypress Creek	Stream	21FLLOX 105	CYPRESS CREEK GROVE DITCH W OF TURNPIKE	1991	1999	725
3226A	NW Fork Loxahatchee	Estuary	21FLLOX 60	NW FORK 1ST SANDBAR FROM NW SHORE TO CHAN BOUY	1994	1999	834
3226A	NW Fork Loxahatchee	Estuary	21FLLOX B60	NW FORK 1ST SANDBAR FROM NW SHORE TO CHAN BOUY	1992	1998	94

WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
3226C	SW Fork Loxahatchee	Estuary	21FLLOX 71	SW FORK JONES CREEK UNDER CENTER ST BRIDGE	1991	1999	830
3226C	SW Fork Loxahatchee	Estuary	21FLLOX 72	LOX RIVER RD BRIDGE WHERE C-18 ENTERS SW FORK	1992	1999	876
3226C	SW Fork Loxahatchee	Estuary	21FLLOX 73	SW FORK SIMS CREEK UNDER CENTER ST BRIDGE	1991	1999	788
3226C	SW Fork Loxahatchee	Estuary	21FLLOX B70	SW FORK 500 YDS OFF PELICAN POINT	1992	1998	184
3226C	SW Fork Loxahatchee	Estuary	21FLPBCH3A	C-18 CANAL, LOXAHATCHEE RIVER RO	1991	1994	144
3226D	Loxahatchee River	Estuary	21FLA 28010144	LOX RV .35 MI W ALT A1A NEAR IS.	1992	1994	283
3226D	Loxahatchee River	Estuary	21FLLOX 40	CENTRAL EMBAYMENT 100YDS W OF RR DRAWBRIDGE	1992	1999	720
3226D	Loxahatchee River	Estuary	21FLLOX 41	CENTRAL EMBAY W OF MANG ISLE 1/2M W OF RR BRIDGE	1992	1994	120
3226D	Loxahatchee River	Estuary	21FLLOX 51	N FORK LOX RIVER UNDER TEQUESTA DR BRIDGE	1991	1999	950
3226D	Loxahatchee River	Estuary	21FLLOX 55	N FORK LOX RIVER UNDER COUNTY LINE RD BRIDGE	1991	1999	822
3226D	Loxahatchee River	Estuary	21FLLOX B41	CENTRAL EMBAY W OF MANG ISLE 1/2M W OF RR BRIDGE	1993	1998	60
3226D	Loxahatchee River	Estuary	21FLPBCH2	LOXAHATCHEE R AT TEQUESTA-AT TEQ	1991	1992	98
3230	Floodplain/Jupiter Farms	Stream	112WRD 02277600	LOXAHATCHEE RIVER NEAR JUPITER,FL	1994	1995	14
3230	Floodplain/Jupiter Farms	Stream	112WRD 265558080105100	ENCON SITE 20 DRAINAGE CANAL UP STREAM OF ENCON	1992	1993	799
3230	Floodplain/Jupiter Farms	Stream	112WRD 265613080100700		1991	1998	2004
3230	Floodplain/Jupiter Farms	Stream	21FLA 28010079	LOX R AT SR 706. W OF JUPITER	1997	1997	19
3230	Floodplain/Jupiter Farms	Stream	21FLA 28010091	LOX R, CNL TO. W OF JUPITER. STA	1997	1997	19

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WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
3230	Floodplain/Jupiter Farms	Stream	21FLA 28010224	NW FORK OF LOXAHATCHEE RIVER BIO REF STATION	1992	1998	239
3230	Floodplain/Jupiter Farms	Stream	21FLA 28010331	CANAL L4 WHICH DISCH TO NW FORK	1997	1997	39
3230	Floodplain/Jupiter Farms	Stream	21FLA 28010334	L2 CANAL WHICH DISCH TO NW FORK LOX RIVER	1997	1997	35
3230	Floodplain/Jupiter Farms	Stream	21FLLOX 68	LOXAHATCHEE RIVER AT I95 BRIDGE	1991	1999	761
3230	Floodplain/Jupiter Farms	Stream	21FLLOX 69	LOXAHATCHEE RIVER AT INDIANTOWN RD BRIDGE	1991	1999	804
3230	Floodplain/Jupiter Farms	Stream	21FLLOX 92	C14 DOWNSTREAM OF G92	1994	1999	584
3230	Floodplain/Jupiter Farms	Stream	21FLLOX 95	1ST CANAL S OF ITR ON JUPITER FARMS ROAD	1992	1999	727
3230	Floodplain/Jupiter Farms	Stream	21FLPBCH7A	NW FORK CREEK AT INDIANTOWN ROAD	1991	1999	195
3230	Floodplain/Jupiter Farms	Stream	21FLPBCH7B	JUPITER FARMS AND NO-1 CANAL, S	1991	1999	186
3230A	NW Fork Loxahatchee	Stream	21FLA 28010327	NW FORK LOXAHATCHEE R AT DNSTRM SIDE G92 SPILLWAY	1997	1997	19
3230A	NW Fork Loxahatchee	Stream	21FLA 28010330	NW FORK BETWEEN L5 AND L4	1997	1997	16
3230A	NW Fork Loxahatchee	Stream	21FLA 28010333	NW FORK LOX R BTWN L2 AND L3 LATERAL CANALS	1997	1997	16
3230A	NW Fork Loxahatchee	Stream	21FLA 28010336	NATURAL STREAMLET FLOWING INTO NW FORK LOX RIVER	1997	1997	10
3230A	NW Fork Loxahatchee	Stream	21FLLOX 67	NORTHWEST FORK AT TRAPPER NELSONS BOAT DOCK	1991	1999	798
3230A	NW Fork Loxahatchee	Stream	21FLLOX B67	NORTHWEST FORK AT TRAPPER NELSONS BOAT DOCK	1998	1998	10
3234	C-18	Stream	112WRD 265437080103200		1991	1998	764
3234	C-18	Stream	21FLA 28010089	C-18 CNL AT BEND TO NE. W JPTER	1997	1997	25

WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
3234	C-18	Stream	21FLLOX 81	C18 CANAL AT INDIANTOWN RD BRIDGE	1991	1999	759
3234	C-18	Stream	21FLPBCH15	CANAL C-18 AT SR710 BRIDGE	1991	2000	227
3234	C-18	Stream	21FLPBCH16	C-18 (HUNGERLAND SLOUGH) AT SR 7	1991	2000	217
3234	C-18	Stream	21FLPBCH7	CANAL C-18 AT INDIANTOWN RDBRIDG	1991	2000	221
3234	C-18	Stream	21FLSFWMC18G92	UPSTREAM OF G92 ON C-18 ABOUT 2.2 MILES SOUTH E	1991	2000	3496
3234	C-18	Stream	21FLSFWMC18S46	UPSTREAM OF S46 ON C-18 ABOUT 220 FT NORTH OF S	1991	2000	4041
3234	C-18	Stream	21FLSFWMC18SR710	AT THE POINT WHERE C-18 PASSES UNDER SR710	1991	1996	2478
3234	C-18	Stream	21FLWPB 28010135	C-18 CANAL AT SR 786 %PGA BLVD<	1999	2000	67
3234	C-18	Stream	21FLWPB 28010502	C18	1999	1999	39
Coastal Planning Unit							
3190	North Coastal	Estuary	21FLA 70020SEAS	North of North Beach Cswy., west shore, near Inlet	1991	1995	772
3190	North Coastal	Estuary	21FLA 70030SEAS	Across from N. Bch. Cswy boat ramps	1991	2000	4944
3190	North Coastal	Estuary	21FLA 70040SEAS	Cook point southeast of bridge	1991	2000	782
3190	North Coastal	Estuary	21FLA 70050SEAS	Middle canal in Ft. Pierce Cut	1991	1995	401
3190	North Coastal	Estuary	21FLA 70060SEAS	100 yards WSW of Wildcat Cove Point	1991	2000	782
3190	North Coastal	Estuary	21FLA 70070SEAS	ICWW channel marker 180	1991	1995	403
3190	North Coastal	Estuary	21FLA 70071SEAS	N. tip of island E of ICWW CM 179	1991	1995	403
3190	North Coastal	Estuary	21FLA 70080SEAS	ICWW channel marker 178	1991	1995	411
3190	North Coastal	Estuary	21FLA 70090SEAS	Indian River/St. Lucie	1991	2000	792
3190	North Coastal	Estuary	21FLA 70091SEAS	Private CM 4 west of ICWW CM 174	1991	2000	784
3190	North Coastal	Estuary	21FLGW 3504	C25S50	1999	2000	716

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WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
3190	North Coastal	Estuary	21FLINDRIR370	INDIAN RIVER LAGOON-ST LUCIE VILLAGE	1991	1998	318
3190	North Coastal	Estuary	21FLSFWMIRL34	ICWW AT ENTRANCE TO TAYLOR CREEK (C-25)	1991	2000	1764
3190	North Coastal	Estuary	21FLSFWMIRL35	ICWW IN FT. PIERCE CUT SECOND CANAL ON EAST SID	1991	1999	1719
3190	North Coastal	Estuary	21FLSFWMIRL36	ICWW AT CHANNEL MARKER #176	1991	2000	1400
3190	North Coastal	Estuary	21FLSFWMIRL37	HALF WAY DOWN CANAL LEADING TO HARBOR BRANCH OCE	1991	1999	1685
3190	North Coastal	Estuary	21FLSFWMIRL38	ICWW NORTH OF HARBOR BRANCH CANAL ON WEST SIDE	1991	1999	1348
3190	North Coastal	Estuary	21FLSFWMIRL39	ICWW WEST OF CHANNEL MARKER #169 IN LINE WITH SP	1991	2000	1276
3190	North Coastal	Estuary	21FLSLMCWQ19ATC	INDIAN R. ADJ. TO CO. MOSQUITO IMPOUNDMENT 19A	1995	1998	210
3190A	Little Jim Bridge	Coastal	21FLDOH ST LUCIE251	LITTLE JIM BRIDGE	2000	2000	10
3193	St. Lucie River	Estuary	112WRD 02277110	10B ST LUCIE ESTUARY AT A1A BR NR STUART	1999	2000	82
3193	St. Lucie River	Estuary	21FLA 27020449	ST LUCIE ESTUARY NEAR W SHORE DNSTRM US 1	1998	1998	37
3193	St. Lucie River	Estuary	21FLA 27020450	ST LUCIE ESTRY NEAR EAST SHORE DNSTRM US1	1998	1998	66
3193	St. Lucie River	Estuary	21FLA 27020451	ST LUCIE ESTUARY W OF WARNER CRK, NEAR SHORE	1998	1998	37
3193	St. Lucie River	Estuary	21FLA 27020453	STLUCIE NR SHORE SOUTH OF SEWALL POINT	1998	1998	71
3193	St. Lucie River	Estuary	21FLA 27020544	ST LUCIE ESTUARY W SIDE N STUART A1A BRDGE	1998	1998	7
3193	St. Lucie River	Estuary	21FLA 28010020	ST LUCIE RIVER AT A1A IN STUART	1992	1992	28
3193	St. Lucie River	Estuary	21FLA 28010104	MOUTH OF WARNER CRK	1992	1992	29

WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
3193	St. Lucie River	Estuary	21FLA 28010226	ST.LUCIE RIVER EAST OF US1 NEAR HOGGS COVE	1992	1992	29
3193	St. Lucie River	Estuary	21FLA 28010227	ST.LUCIE RIVER EAST US1 MIDCHNL OFF KRUEGER CRK	1992	1992	29
3193	St. Lucie River	Estuary	21FLA 28010793	ST LUCIE R AT MANATEE POCKET MTH	1992	1992	29
3193	St. Lucie River	Estuary	21FLA 28010866	ST LUCIE RIV NR SEAWALL PT STA 44	1992	1992	29
3193	St. Lucie River	Estuary	21FLINDRIR440	mouth of St. Lucie R Rocky Pt Just Sof Mkr#4	1995	1998	567
3193	St. Lucie River	Estuary	21FLINDRSL000	dock on west shore of St Lucie R@res	1994	1998	686
3193	St. Lucie River	Estuary	21FLSFWMBMD-0.5	PRIMARY PRODUCTIVITY MONITORING STATION ST. LUCIE	2000	2000	30
3193	St. Lucie River	Estuary	21FLSFWMBMD-1.5	PRIMARY PRODUCTIVITY MONITORING STATION ST. LUCIE	2000	2000	30
3193	St. Lucie River	Estuary	21FLSFWMBMD-2.5	PRIMARY PRODUCTIVITY MONITORING STATION ST. LUCIE	2000	2000	30
3193	St. Lucie River	Estuary	21FLSFWMBMS	PRIMARY PRODUCTIVITY MONITORING STATION ST. LUCIE	2000	2000	30
3193	St. Lucie River	Estuary	21FLSFWMHGS	PRIMARY PRODUCTIVITY MONITORING STATION ST. LUCIE	2000	2000	30
3193	St. Lucie River	Estuary	21FLSFWMIRL15	ST LUCIE RIVER UNDER A1A BRDG. BETWEEN SEWALLS &	1991	1999	1734
3193	St. Lucie River	Estuary	21FLSFWMSE 01	OUTFLOW GATE NEAR THE MOUTH OF THE RIVER	1991	2000	14524
3193	St. Lucie River	Estuary	21FLSFWMSE 02	CHANEL MARKER Z1 OUT FROM HOGGS CANAL	1991	2000	11157
3193	St. Lucie River	Estuary	21FLWPB 28010226	ST.LUCIE RIVER EAST OF US1 NEAR HOGGS COVE	1999	2000	372

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WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
3193	St. Lucie River	Estuary	21FLWPB 28010365	St Lucie Estuary off Wahoos Restaurant	2000	2000	43
3193	St. Lucie River	Estuary	21FLWPB 28010457	St Lucie Estuary @ Marker 23	2000	2000	30
3193	St. Lucie River	Estuary	21FLWPB 28010458	St Lucie Estuary @ Marker 22	2000	2000	15
3193	St. Lucie River	Estuary	21FLWPB 28010459	St Lucie Estuary@ Hellsgate	2000	2000	15
3193A	Roosevelt Bridge	Coastal	21FLDOH MARTIN165	ROOSEVELT BRIDGE	2000	2000	11
3208	Manatee Pocket	Estuary	21FLA 28010100	GREAT POCKET AT ICW MARKER 8	1998	1998	29
3208	Manatee Pocket	Estuary	21FLA 28010188	MANATEE POCKET AT MOUTH	1998	1998	7
3208	Manatee Pocket	Estuary	21FLINDRMP01	INDIAN RIVER LAGOON-MANATEE POCKET	1991	1995	686
3208	Manatee Pocket	Estuary	21FLINDRMP010	Manatee Pocket on Manatee Cr 2 mi W of SL Inlt	1995	1998	449
3208	Manatee Pocket	Estuary	21FLINDRWC01	WILLOUGHBY CREEK	1992	1993	45
3208	Manatee Pocket	Estuary	21FLINDRWC010	Boat House@Whiticar Boat 2 mi W of St Lucie Inlt	1995	1998	230
3208	Manatee Pocket	Estuary	21FLSFWMIRL12B	ST.LUCIE INLET STATE PARK DUE WEST OF SITE 68 EVEN	1999	2000	322
3208	Manatee Pocket	Estuary	21FLSFWMIRL13	MARTIN CNTY. IN ICWW AT MANATEE POCKET AT CROOKE	1991	1999	1235
3208	Manatee Pocket	Estuary	21FLSFWMIRL14	MARTIN CNTY. IN ICWW MARINIA AT END OF MANATEE P	1991	1999	1178
3208	Manatee Pocket	Estuary	21FLSFWMSE 11	ST. LUCIE INLET N. SIDE OF CHANNEL 1/2 WAY BETWEE	1997	2000	2442
3208A	Martin Co. ICCW	Estuary	21FLA 27020552	ICWW AT HOBE SOUND BOAT RAMP S BRIDGE RD BRDG	1998	1998	7
3208A	Martin Co. ICCW	Estuary	21FLA 27020554	E SIDE ICWW S HOBE SOUND OPPOSITE RED MRKR 34	1998	1998	7
3208A	Martin Co. ICCW	Estuary	21FLA 27020555	W SIDE ICW S OF HOBE SOUND S RED MRKR 34	1998	1998	29
3208A	Martin Co. ICCW	Estuary	21FLKWATMAR-7-MAR-658	Martin-7-Mar-658	2000	2000	4
3208A	Martin Co. ICCW	Estuary	21FLSFWMIRL06	MARTIN CNTY. IN ICWW 50 YARDS OUT FROM JUP. ISL.	1991	2000	1973

WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
3208A	Martin Co. ICCW	Estuary	21FLSFWMIRL07	MARTIN COUNTY IN ICWW UNDER SR 707 BRIDGE	1991	1999	1399
3208A	Martin Co. ICCW	Estuary	21FLSFWMIRL08	MARTIN CNTY. IN ICWW IN COVE W.SIDE JUP. NARROWS	1991	1999	1441
3208A	Martin Co. ICCW	Estuary	21FLSFWMIRL08B	SEAGRASS SITE 70 SOUTH OF #28	1999	2000	172
3208A	Martin Co. ICCW	Estuary	21FLSFWMIRL09	MARTIN CNTY. IN ICWW AT MARKER #24 ADJACENT TO C	1991	1999	1547
3208A	Martin Co. ICCW	Estuary	21FLSFWMIRL10	MARTIN CNTY. IN ICWW IN PECKS LAKE AT CHANNEL MA	1991	1999	1783
3208A	Martin Co. ICCW	Estuary	21FLSFWMIRL11	MARTIN CNTY. IN ICWW AT CHANNEL MARKER #16	1991	1999	1432
3208A	Martin Co. ICCW	Estuary	21FLSFWMIRL11B	NORTH END EAST SIDE PECKS LAKE MARKER #16	1999	2000	160
3208A	Martin Co. ICCW	Estuary	21FLSFWMIRL12	MARTIN CNTY. IN ICWW .5 MI. S. OF ST. LUCIE INLE	1991	1999	1642
3226	Jupiter Inlet	Estuary	21FLLOX 10	JUPITER INLET 50YDS N OFFSHORE DUBOIS PARK	1991	1999	805
3226	Jupiter Inlet	Estuary	21FLLOX 20	INTRACOASTAL WATERWAY UNDER SR 707 BRIDGE	1991	1999	928
3226	Jupiter Inlet	Estuary	21FLLOX 30	INTRACOASTAL WATERWAY UNDER SR 706 BRIDGE	1991	1999	946
3226	Jupiter Inlet	Estuary	21FLLOX B21	SEAGRASS BED EAST OF ICWW CHANNEL MARKER 59	1992	1998	162
3226	Jupiter Inlet	Estuary	21FLPBCH5	ICW AT SR 707 BRIDGE	1991	1992	95
3226	Jupiter Inlet	Estuary	21FLPBCH6	INTRACOASTAL WWY AT JUPITER-SR70	1991	1992	96
3226	Jupiter Inlet	Estuary	21FLSFWMIRL01	0.6 MILES NORTH OF JUPITER INLET IN ICWW AT MARK	1991	1999	1266
3226B	Martin Co. ICCW	Estuary	21FLA 27020553	W SIDE ICWW AT RED MRKR 42 NEAR HOBE SOUND	1998	1998	7
3226B	Martin Co. ICCW	Estuary	21FLKWATMAR-8-MAR-346	Martin-8-Mar-346	2000	2000	4
3226B	Martin Co. ICCW	Estuary	21FLKWATMAR-9-MAR-048	Martin-9-Mar-048	2000	2000	4
3226B	Martin Co. ICCW	Estuary	21FLLOX 25	SEAGRASS BED WEST OF ICWW CHANNEL MARKER 44	1992	1999	747

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WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
3226B	Martin Co. ICCW	Estuary	21FLLOX B25	SEAGRASS BED WEST OF ICWW CHANNEL MARKER 44	1992	1998	93
3226B	Martin Co. ICCW	Estuary	21FLSFWMIRL02	NORTH OF JUPITER INLET IN ICWW AT MARKER #52	1991	2000	1723
3226B	Martin Co. ICCW	Estuary	21FLSFWMIRL03	NORTH OF JUPITER INLET IN ICWW AT MARKER #48	1991	1999	1507
3226B	Martin Co. ICCW	Estuary	21FLSFWMIRL04	MARTIN COUNTY IN ICWW 1/2 WAY BETWEEN MARKER #42	1991	2000	2001
3226B	Martin Co. ICCW	Estuary	21FLSFWMIRL05	MARTIN COUNTY IN ICWW AT MARKER #41	1991	1999	1758
5003A	South Indian River	Estuary	21FLA 27020452	IND RIV NORTH END SNAPPER ISLAND N OF SLUC INLET	1998	1998	7
5003A	South Indian River	Estuary	21FLA 27020464	ST LUCIE & INTRACOASTAL CONFLUEN	1992	1992	30
5003A	South Indian River	Estuary	21FLA 27020545	INDIAN RIVER W SIDE S JENSEN BCH CSWY	1998	1998	29
5003A	South Indian River	Estuary	21FLA 27020547	INDIAN RIVER W SIDE S JENSEN BCH CSWY	1998	1998	6
5003A	South Indian River	Estuary	21FLA 27020549	INDIAN RIVER NR BIRD ISLAND	1998	1998	7
5003A	South Indian River	Estuary	21FLA 28010042	SR 70 BRIDGE OVER TEN MILE CREEK	1994	1994	21
5003A	South Indian River	Estuary	21FLA 28010168	IND RVR 1.9M NNE NW PT NTLS ISL.	1998	1998	7
5003A	South Indian River	Estuary	21FLA 28010174	WAVELAND MARINA, HUTCH. ISLAND	1998	1998	7
5003A	South Indian River	Estuary	21FLINDRIR371	Mouth of Ft. Pierce Inlet (N&S sides)	1996	1998	360
5003A	South Indian River	Estuary	21FLINDRIR372A	North of Fort Pierce East Bank	1998	1998	40
5003A	South Indian River	Estuary	21FLINDRIR373	INDIAN R @Bear Point	1995	1998	105
5003A	South Indian River	Estuary	21FLINDRIR376	INDIAN R Jensen Bch W Bank@res.dock	1995	1998	500
5003A	South Indian River	Estuary	21FLINDRIR379	INDIAN R Jensen CSwy Hutchinson I Side	1996	1996	53

WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
5003A	South Indian River	Estuary	21FLINDRIR390	INDIAN RIVER LAGOON-FORT PIERCE	1992	1992	182
5003A	South Indian River	Estuary	21FLINDRIR405	INDIAN RIVER LAGOON-JENSEN BEACH	1992	1993	189
5003A	South Indian River	Estuary	21FLINDRIR410	INDIAN RIVER LAGOON-MANDALAY ISLAND	1991	1992	336
5003A	South Indian River	Estuary	21FLINDRMOEC	Ft. Pierce Util Manatee Observ. & Training Ctr	1998	1998	273
5003A	South Indian River	Estuary	21FLSFWMIRL16	SAILFISH POINT MARINA IN CANAL LEADING TO BOAT D	1991	1999	1721
5003A	South Indian River	Estuary	21FLSFWMIRL17	MARTIN CNTY. IN ST. LUCIE RIVER AT MARKER #4 S.	1991	2000	1867
5003A	South Indian River	Estuary	21FLSFWMIRL18	MARTIN CNTY. IN RIVER AT MARKER #10 N. OF A1A BR	1991	1999	1222
5003A	South Indian River	Estuary	21FLSFWMIRL19	MARTIN CNTY. IN RIVER AT MARKER #12 S. OF HWY. 7	1991	1999	1478
5003A	South Indian River	Estuary	21FLSFWMIRL20	ST. LUCIE CNTY. IN WAVELAND TRAILER PARK CANAL	1991	1999	1722
5003A	South Indian River	Estuary	21FLSFWMIRL21	ST. LUCIE CNTY. IN ICWW EAST SIDE NETTLES ISLAND	1991	2000	1870
5003A	South Indian River	Estuary	21FLSFWMIRL22	ST. LUCIE CNTY. IN ICWW A CHANNEL MARKER #212	1991	2000	1519
5003A	South Indian River	Estuary	21FLSFWMIRL24	ST. LUCIE CNTY. .5 MI. N. OF HWY. 707A W. SIDE O	1991	2000	1438
5003A	South Indian River	Estuary	21FLSFWMIRL25	ST LUCIE CNTY. IN ICWW 100 YDS WEST OF STATION I	1991	2000	1044
5003A	South Indian River	Estuary	21FLSFWMIRL26	IN ICWW OPPOSITE POWER PLNT. 200 YDS. S. OF POW	1991	1999	1328
5003A	South Indian River	Estuary	21FLSFWMIRL27	ICWW NEAR CHANNEL MARKER #192 W. SIDE 2.0 METERS	1991	2000	1559
5003A	South Indian River	Estuary	21FLSFWMIRL28	ICWW BETWEEN MARKERS #192 AND #193 W. SIDE OUT FR	1991	2000	1331
5003A	South Indian River	Estuary	21FLSFWMIRL29	ICWW S. END OF HUTCHINSON IS. IN MIDDLE OF BEAR	1991	2000	1301

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WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
5003A	South Indian River	Estuary	21FLSFWMIRL30	ICWW S. OF FT. PIERCE INLET IN EAST SIED OF FABE	1991	1999	1660
5003A	South Indian River	Estuary	21FLSFWMIRL31	ICWW S. OF FT. PIERCE INLET AT BOAT RAMP JENNIN	1991	2000	1747
5003A	South Indian River	Estuary	21FLSFWMIRL31B	OPEN WATER SITE FOR WATER QUALITY	2000	2000	153
5003A	South Indian River	Estuary	21FLSFWMIRL33	ICWW AT ENTRANCE TO MORRIS CREEK	1991	1999	1640
5003A	South Indian River	Estuary	21FLSFWMIRL40	ICWW S. OF FT. PIERCE INLET AT VIRGINIA AVE. CAN	1991	2000	1496
5003A	South Indian River	Estuary	21FLSFWMSE 00	MIDDLE OF ST. LUCIE INLET	1991	1994	5482
5003A	South Indian River	Estuary	21FLSLMCWQ01TC	IMPDMNT 1-RIVER SHORE NEXT TO PUMP STA	1997	1997	40
5003A	South Indian River	Estuary	21FLSLMCWQ02TC	IMPDMNT 2-RIVER SHORE NEXT TO PUMP STA	1997	1997	45
5003A	South Indian River	Estuary	21FLSLMCWQ08CTA	IMPDMNT 8C-PERIMTR DTCH NEXT TO PUMP STA	1997	1998	105
5003A	South Indian River	Estuary	21FLWPB 27020570	Indian River Lagoon Site L	2000	2000	11
5003A	South Indian River	Estuary	21FLWPB 27020571	Indian River Lagoon Site M	2000	2000	11
5003A	South Indian River	Estuary	21FLWPB 28010020	ST LUCIE RIVER AT A1A IN STUART	2000	2000	29
5003A	South Indian River	Estuary	21FLWPB 28010364	Indian River Lagoon Marker 231	2000	2000	40
5003AB	Stuart Causeway	Coastal	21FLA 27020548	INDIAN RIVER W SIDE N STUART A1A CSWY	1998	1998	29
5003AB	Stuart Causeway	Coastal	21FLDOH MARTIN164	STUART CAUSEWAY	2000	2000	11
5003AC	Jensen Beach Causeway	Coastal	21FLA 27020546	INDIAN RIVER NEAR RAMP ON JENSEN BEACH CSWY	1998	1998	17
5003AC	Jensen Beach Causeway	Coastal	21FLDOH MARTIN163	JENSEN BEACH CAUSEWAY	2000	2000	12

WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
5003AD	South Causeway at Boat Ramp	Coastal	21FLDOH ST LUCIE252	SOUTH CAUSEWAY AT BOAT RAMP	2000	2000	10
8101	Coastal Ocean 1	Coastal	21FLLOX B31	SANDBAR OFF NE TIP OF ISLAND W OF BOAT RAMP	1992	1998	179
8101A	Jupiter Beach Park	Coastal	21FLDOH PALM BEACH326	JUPITER BEACH PARK	2000	2000	11
8101B	Dubois Park	Coastal	21FLDOH PALM BEACH207	DUBOIS PARK	2000	2000	18
8101C	Coral Cove Park	Coastal	21FLDOH PALM BEACH206	CORAL COVE PARK	2000	2000	12
8101D	Hobe Sound Public Beach	Coastal	21FLDOH MARTIN168	HOBE SOUND PUBLIC BEACH	2000	2000	11
8101E	Hobe Sound Wildlife Refuge	Coastal	21FLDOH MARTIN167	HOBE SOUND WILDLIFE REFUGE	2000	2000	11
8102A	Bathtub Public Beach	Coastal	21FLDOH MARTIN166	BATHTUB PUBLIC BEACH	2000	2000	11
8102B	Stuart Public Beach	Coastal	21FLDOH MARTIN319	STUART PUBLIC BEACH	2000	2000	11
8103A	Jensen Public Beach	Coastal	21FLDOH MARTIN162	JENSEN PUBLIC BEACH	2000	2000	11
8103B	Waveland Public Beach	Coastal	21FLDOH ST LUCIE256	WAVELAND PUBLIC BEACH	2000	2000	10
8103C	Walton Rocks Beach	Coastal	21FLDOH ST LUCIE255	WALTON ROCKS BEACH	2000	2000	10
8104	Coastal Ocean 4	Coastal	1114PEST128066A	ATLANTIC OCEAN OFF FT. PIERCE-FLORIDA.	1992	1992	1
8104	Coastal Ocean 4	Coastal	1114PEST128066B	ATLANTIC OCEAN OFF FT. PIERCE-FLORIDA.	1992	1992	12
8104	Coastal Ocean 4	Coastal	1114PEST128066C	ATLANTIC OCEAN OFF FT. PIERCE-FLORIDA.	1992	1992	1
8104	Coastal Ocean 4	Coastal	1114PEST128066D	ATLANTIC OCEAN OFF FT. PIERCE-FLORIDA.	1992	1992	11
8104	Coastal Ocean 4	Coastal	1114PEST128066E	ATLANTIC OCEAN OFF FT. PIERCE-FLORIDA.	1992	1992	11
8104	Coastal Ocean 4	Coastal	1114PEST128066F	ATLANTIC OCEAN OFF FT. PIERCE-FLORIDA.	1992	1992	1

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WBID	Waterbody Segment	Waterbody Type	Storet Station ID	Station Description	BD	ED	# of Obs
8104	Coastal Ocean 4	Coastal	1114PEST128066G	ATLANTIC OCEAN OFF FT. PIERCE-FLORIDA.	1992	1992	1
8104	Coastal Ocean 4	Coastal	1114PEST128066H	ATLANTIC OCEAN OFF FT. PIERCE-FLORIDA.	1992	1992	7
8104	Coastal Ocean 4	Coastal	1114PEST128066I	ATLANTIC OCEAN OFF FT. PIERCE-FLORIDA.	1992	1992	11
8104	Coastal Ocean 4	Coastal	1114PEST128066J	ATLANTIC OCEAN OFF FT. PIERCE-FLORIDA.	1992	1992	11
8104	Coastal Ocean 4	Coastal	1114PEST128066K	ATLANTIC OCEAN OFF FT. PIERCE-FLORIDA.	1992	1992	1
8104	Coastal Ocean 4	Coastal	1114PEST128066L	ATLANTIC OCEAN OFF FT. PIERCE-FLORIDA.	1992	1992	10
8104	Coastal Ocean 4	Coastal	21FLINDRIR372	Ft. Pierce Yachtng Ctr@Head of Moor's Cr	1995	1998	28
8104	Coastal Ocean 4	Coastal	21FLINDRIR374	INDIAN R@ Resdnce Dock in Queens Cove Ft Prce	1995	1996	258
8104	Coastal Ocean 4	Coastal	21FLSLMCWQ09TA	IMP 9, IN DITCH NEXT TO PUMP STATION	1995	1998	260
8104A	Surfside Park	Coastal	21FLDOH ST LUCIE254	SURFSIDE PARK	2000	2000	9
8104B	Jetty Park Beach	Coastal	21FLDOH ST LUCIE253	JETTY PARK BEACH	2000	2000	10
8104C	Inlet State Park at River	Coastal	21FLDOH ST LUCIE337	INLET STATE PARK @ RIVER	2000	2000	10
8104D	Inlet State Park at Ocean	Coastal	21FLDOH ST LUCIE249	INLET STATE PARK @OCEAN	2000	2000	10
8104E	Pepper Park	Coastal	21FLDOH ST LUCIE248	PEPPER PARK	2000	2000	10

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Appendix E: Permitted Wastewater Treatment Facilities and Landfills in the St. Lucie and Loxahatchee Basins, by Planning Unit

Table E.1: Permitted Wastewater Treatment Facilities in the St. Lucie and Loxahatchee Basins, by Planning Unit

Name	City	Facility Type	Status	NPDES	Permitted Capacity (mgd)
C-25/Basin 1 Planning Unit					
FAIRWINDS GOLF COURSE WWTF, SLCU ST LUCIE COUNTY	FORT PIERCE	DW	A	N	0.0223
SPANISH LAKES COUNTRY CLUB	FT. PIERCE	DW	A	N	0.1600
NORTH COUNTY (HOLIDAY PINES)	FT PIERCE	DW	A	N	0.2100
SPANISH LAKES FAIRWAYS PH 1-4	FT. PIERCE	DW	A	N	0.2500
COUNTRY COVE MHP	FT PIERCE	DW	A	N	0.0300
SLCU LAKEWOOD PARK WWTF	FT PIERCE	DW	A	N	0.0400
SPANISH LAKE FAIRWAYS R.O. CONCENTRATE	FORT PIERCE	IW	A	Y	0.7800
CUSHMAN FRUIT CO. (FORMER SUN CITRUS)	FORT PIERCE	IW	A	N	0.0030
ORCHID ACRES MHP WWTF	FT PIERCE	DW	A	N	0.0050
LARSON DAIRY-BARN #4 (SJR BASIN)	OKEECHOBEE	IW	X	Y	0.0000
TRIPLE G DAIRY	SEBRING	IW	C	N	0.0000
MEADOWOOD COUNTRY CLUB	FT. PIERCE	DW	A	N	0.1800
North St. Lucie Planning Unit					
HALF MILE LAKE CONDO	STUART	DW	A	N	0.0083
VILLAGE SQUARE SHOPPING CENTER	PORT ST. LUCIE	DW	A	N	0.0200
SAVANNA CLUB	PORT ST. LUCIE	DW	A	N	0.1500
SPANISH LAKES-RIVERFRONT	PORT ST LUCIE	DW	A	N	0.1000
INDIAN RIVER LANDING	ST LUCIE CO	DW	A	N	0.0250
VISTA ST. LUCIE	FT. PIERCE	DW	A	N	0.0800
GROVE, THE	FT. PIERCE	DW	A	N	0.1600

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Name	City	Facility Type	Status	NPDES	Permitted Capacity (mgd)
ST LUCIE PLAZA	PORT ST LUCIE	DW	A	N	0.0100
TROPICAL ISLE P.U.D.	FT. PIERCE	DW	A	N	0.0500
PACKERS OF INDIAN RIVER (FKA CHIQUITA CITRUS PACKERS)	FORT PIERCE	IW	A	N	0.0300
H & S CITRUS, INC.	FORT PIERCE	IW	A	N	0.0150
PORT ST LUCIE UTIL NORTHPORT / DIW	PORT. ST. LUCIE	DW	A	N	2.0000
PORT ST LUCIE MEDICAL WWTF	PORT ST LUCIE	DW	A	N	0.0075
TROPICANA PRODUCTS (IW)	FORT PIERCE	IW	A	N	0.5500
BELLSOUTH CAR WASH FACILITY (GP)	FT. PIERCE	IW	A	N	0.0006
ST. LUCIE COUNTY SANITARY LANDFILL	FORT PIERCE	IW	A	Y	0.0000
MARTIN COUNTY UTILITIES NORTH WWTF	JENSEN BEACH	DW	A	N	1.2000
SUNBRITE CITRUS, INC.	FORT PIERCE	IW	A	N	0.0180
SUNLIGHT CITRUS PACKING, INC.	FT. PIERCE	IW	A	N	0.0068
FLORIDA GAS TRANSMISSION COMPANY COMPRESSOR STATION NO. 20	FORT PIERCE	IW	A	N	0.0006
IFAS/FT. PIERCE RESEARCH CENTER	FT. PIERCE	IW	A	N	0.0010
FRESHCO, LTD. CITRUS PROCESSING PLANT	FORT PIERCE	IW	A	N	0.0100
TERRACE GARDENS	STUART	DW	A	N	0.0110
MARTIN COUNTY UTILITIES DEPT.	STUART	OTH	A	N	0.0000
VILLAGE OF 800 PLACE	STUART	DW	A	N	0.0210
PORT ST LUCIE LANES INC -	FORT PIERCE	DW	A	N	0.0050
CUTTER SOUND	PALM CITY	DW	A	N	0.0986
GARDEN VILLAS CONDOMINIUM	STUART	DW	A	N	0.0150
NORTH SHORE PLAZA WWTF	STUART	DW	A	N	0.0210
JENSEN BEACH PLAZA	JENSEN BEACH	DW	A	N	0.0047
STUART YACHT CLUB & MARINA INC.	STUART	DW	A	N	0.0002
LA BUONA VITA MHP	PORT ST LUCIE	DW	A	N	0.0285
PORT ST LUCIE UTIL SOUTHPORT	PORT ST. LUCIE	DW	A	N	2.2000

Name	City	Facility Type	Status	NPDES	Permitted Capacity (mgd)
PORT ST LUCIE UTIL WESTPORT	PORT ST LUCIE	DW	A	N	0.5000
HARBOUR RIDGE P.U.D.	FT PIERCE	DW	A	N	0.1200
BENTONWOOD MOBILE HOME PARK	FT PIERCE	DW	A	N	0.0080
RESERVE UTILITY CORPORATION	FT. PIERCE	DW	A	N	0.0430
C-24 Planning Unit					
ST LUCIE WEST UTILITIES, INC.	ST. LUCIE WEST	DW	A	N	1.0000
FLORIDA ROCK INDUSTRIES/FORT PIERCE	PORT ST. LUCIE	IW	A	Y	26.6500
ALLIED UNIVERSAL CORP, FT PIERCE PLANT	FORT PIERCE	IW	A	N	0.0050
EKE GATLIN MOBIL CAR WASH (GP)	PORT ST LUCIE	IW	A	N	0.0000
BURNAC PRODUCE, INC	PORT ST LUCIE	IW	A	N	0.0000
C-23 Planning Unit					
MARTIN CORRECTIONAL INSTITUTE	INDIANTOWN	DW	A	N	0.6000
RAY MELEAR, INC	OKEECHOBEE	AFO	A	N	0.0000
TURNPIKE DAIRY, INC. (SJR BASIN)	INDIANTOWN	IW	X	Y	0.0000
COBBLESTONE CLUBHOUSE	STUART	DW	A	N	0.0020
DUNKLIN MEMORIAL REHAB CAMP LAUNDRY	(10 MILES N OF INDIANTOWN)	IW	A	N	0.0015
FAITH FARMS ADVANCED SEPTIC SYSTEM	OKEECHOBEE	DW	A	N	0.0120
South St. Lucie Planning Unit					
HOBE SOUND MOBILE HOME PARK	HOBE SOUND	DW	A	N	0.0150
SOUTH FORK HOMEOWNER'S UTILITY CORP	STUART	DW	A	N	0.0150
LAKESIDE VILLAGE MHP	HOBE SOUND	DW	A	N	0.0150
PIPER'S LANDING PROPERTY OWNERS ASSOCIATION	PALM CITY	IW	A	Y	0.0019
MARTIN DOWNS COUNTRY CLUB (CLRS)	PALM CITY	IW	A	N	0.0460
AMERICAN CUSTOM YACHTS, INC.	STUART	IW	A	N	0.0010

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Name	City	Facility Type	Status	NPDES	Permitted Capacity (mgd)
BLOOMFIELD MEADOWS VACATION PARK(FORMERLY HOBE SOUND VAC PK)	HOBE SOUND	DW	A	N	0.0050
MARTIN COUNTY UTIL, TROPICAL FARMS	STUART	DW	A	N	0.9400
MARTIN COUNTY REST AREA I-95	STUART	DW	A	N	0.0160
MARTIN COUNTY UTIL, MARTIN DOWNS WWTF	PALM CITY	DW	A	N	2.0000
SOUTH FORK HIGH SCHOOL/MARTIN CNTY	STUART	DW	A	N	0.0300
STUART, CITY OF	STUART	DW	A	N	4.0000
PIPERS LANDING	PALM CITY	DW	A	N	0.1000
JUST LIKE HOME KENNELS	PALM CITY	IW	N	N	0.0005
KELLY KENNEL	PALM CITY	IW	N	N	0.0000
ST LUCIE SETTLEMENT INC	STUART	DW	A	N	0.0050
TWIN RIVERS MHP	HOBE SOUND	DW	A	N	0.0075
RONNY'S MOBILE RANCH	STUART	DW	A	Y	0.0050
MCU CONSOLIDATED REUSE SYSTEM SOUTH COUNTY	PORT SALERNO	DW	A	Y	4.2700
C-44 Planning Unit					
INDIANTOWN COMPANY INC	INDIANTOWN	DW	A	Y	1.0000
ST LUCIE MOBILE VILLAGE	INDIANTOWN	DW	A	N	0.0400
FPL MARTIN 3 AND 4	INDIANTOWN	DW	A	N	0.0050
INDIANTOWN GENERATING PLANT	INDIANTOWN	IW	A	Y	0.0500
FPL MARTIN CO PLANT	INDIANTOWN	IW	A	Y	0.0000
FPL MARTIN 1 & 2	INDIANTOWN	DW	A	N	0.0160
CAULKINS INDIANTOWN CITRUS	INDIANTOWN	IW	A	N	1.4000
Loxahatchee Planning Unit					
TRI-GAS, INC., INDUSTRIAL GASES	JUPITER	IW	A	N	0.0250
PRATT & WHITNEY (INDUSTRIAL WASTE)	WEST PALM BEACH	IW	A	Y	0.0000
JONATHAN DICKINSON MTA COOLING TOWER BLOWDOWN DISPOSAL	TEQUESTA	IW	A	N	0.0100

Name	City	Facility Type	Status	NPDES	Permitted Capacity (mgd)
VILLAGE OF TEQUESTA RO CONCENTRATE DISPOSAL	TEQUESTA	IW	A	Y	1.3000
NICHOLS SANITATION TRUCK WASH (CLRS)	HOBE SOUND	IW	A	N	0.0100
JUPITER FARMS COMM. SHOPPING CENTER	NORTH PALM BEACH	DW	A	N	0.0364
PRATT & WHITNEY PLANT #1 PLANT	W PALM BEACH ,20 MI W	DW	A	N	0.2190
LOXAHATCHEE ENV. CONTROL DIST. WWTP	JUPITER	DW	A	Y	9.0000
SEACOAST UTILITIES PGA WWTP	PALM BEACH GRDNS	DW	A	Y	12.0000
JUPITER WATER TREATMENT PLANT	JUPITER	IW	A	Y	2.0000
PRATT & WHITNEY DILUTE ACID/ALK RINSE	JUPITER	IW	N	N	1.1000
PRATT & WHITNEY (AREA C)	JUPITER	IW	N	N	0.0000
PRATT & WHITNEY (E8B AREA)	WEST PALM BEACH	IW	N	N	0.0000
JUPITOR FARMS ELEM. SCHOOL	JUPITER	DW	A	N	0.0300
UNITED TECHNOLOGIES CORP.	WEST PALM BEACH	UIC	A	N	0.0000
EVERGLADES YOUTH CAMP	W PALM BEACH	DW	A	N	0.0125
PBC SCHOOL "D" R.O. CONC. (AKA JUPITER FARMS ELEM. SCHOOL)	JUPITER	IW	A	N	0.0000
N COUNTY GENERAL AVIATION AIRPORT	PALM BEACH GARDENS	DW	A	N	0.0120
PALM BEACH PARK OF COMM. STP.	WEST PALM BEACH	DW	A	N	0.0600
WEST JUPITER CAMPGROUND	JUPITER	DW	A	N	0.0150
PRATT & WHITNEY C12/C14 COOLING T.	WEST PALM BEACH	IW	N	N	0.0000
PRATT & WHITNEY (AREAS A,C,C11,C12/14,D E)	WEST PALM BEACH	IW	N	N	0.0000
OLD TRAIL CLUBHOUSE WWTP	STUART	DW	A	N	0.0100
Coastal Planning Unit					
ANGLE INN MOTOR COURT	HOBE SOUND	DW	A	N	0.0090
RIVERWATCH (FKA BEAU JARDIN APTS)	JENSEN BEACH	DW	A	N	0.0100
FISHERMAN'S HAVEN, WWTF	JENSEN BEACH	DW	A	N	0.0250
SOUTH MARTIN REGIONAL UTILITIES WWTF FKA HYDRATECH	HOBE SOUND	DW	A	N	1.2000

Name	City	Facility Type	Status	NPDES	Permitted Capacity (mgd)
SEA BREEZE MOBILE MANOR	HOBE SOUND	DW	A	N	0.0150
LEILANI HEIGHTS UTL CORP	JENSEN BEACH	DW	A	N	0.1500
BLUE HERON TRAVEL TR PK	JENSEN BEACH	DW	A	N	0.0080
PINELAKE VILLAGE	JENSEN BEACH	DW	A	N	0.0990
NATALIE ESTATES MHP	STUART	DW	A	N	0.0240
BEACON 21 CONDO APTS	JENSEN BEACH	DW	A	N	0.0990
SLCU SOUTH HUTCHINSON ISLAND REG. WWTF	ST. LUCIE COUNTY	DW	A	Y	1.6000
FORT PIERCE UTILITIES KING ELECTRIC	FT PIERCE	IW	A	Y	0.0000
FORT PIERCE UTILITY AUTHORITY—WWTF	FT PIERCE	DW	A	Y	9.0000
SOUNDINGS YACHT & TENNIS CLUB INC	HOBE SOUND	DW	A	N	0.0550
ISLAND DUNES	HUTCHINSON ISLAND	DW	A	N	0.0880
HARBOR BRANCH OCEANOGRAPHIC/FT. PIERCE	FORT PIERCE	IW	A	Y	0.0045
GOLDEN HARVEST PACKING COMPANY	FORT PIERCE	IW	A	N	0.0080
OCEAN TOWERS R/O BRINE REJECT	JENSEN BEACH	IW	A	N	0.0300
SEA AG, INC.	FORT PIERCE	IW	N	N	0.0000
RIVER PARK MARINA WWTF	FT. PIERCE	DW	A	N	0.0150
LAKE MANOR	JENSEN BEACH	DW	A	N	0.0100
HARBOR BRANCH FOUNDATION WWTF	FT PIERCE	DW	A	N	0.0150
FPL ST LUCIE NUCLEAR	FT PIERCE	IW	A	Y	771.6000
HARBOR BRANCH OCEANOGRAPHIC INSTITUTION POST DOC APARTMENTS	FORT PIERCE	DW	A	N	0.0150
DO IT FARMS CLAM NUERSERY (GP)	FORT PIERCE	IW	A	N	0.0000
PRINCESS CONDOMINIUM R.O. CONCENTRATE	JENSEN BEACH	IW	A	Y	0.0630
GATEWAY COVE TOWNHOMES	STUART	DW	A	N	0.0025
SAILFISH POINT UTILITY CORP.	STUART	IW	A	Y	0.1150
ISLAND GOLF CLUB R.O. CONCENTRATE DISPOSAL	HOBE SOUND	IW	A	N	0.0667
SAILFISH POINT WWTF	STUART	DW	A	N	0.2510

Name	City	Facility Type	Status	NPDES	Permitted Capacity (mgd)
OCEAN BREEZE PARK, (TOWN OF)	JENSEN BEACH	DW	A	N	0.0240
TROPICAL ACRES MHP WWTF	JENSEN BEACH	DW	A	N	0.0250
RIVER VISTA APARTMENTS WWTF	JENSEN BEACH	DW	A	N	0.0050
HOBE VILLAGE MOBILE HOME PARK	HOBE SOUND	DW	A	N	0.0200
FLA, EVANGELISTIC ASSN.	HOBE SOUND	DW	A	N	0.0360
SLCU NORTH HUTCHINSON ISLAND WWTF	FT. PIERCE	DW	A	N	0.0000
RIVIERA APARTMENTS WWTF	FORT PIERCE	DW	A	N	0.0050
TREASURE COVE DUNES	FT. PIERCE	DW	A	N	0.0100
OCEAN HARBOR CONDOS SOUTH	FT. PIERCE	DW	A	N	0.0600
CONQUISTADOR CONDO APTS	STUART	DW	A	N	0.0800
INDIAN RIVER PLANTATION	STUART	DW	A	N	0.3000
BANYAN HOUSE CONDO	STUART	DW	A	N	0.0250
FIRST FAIRWAY S/D	STUART	DW	A	N	0.0030
MARKET PLACE OF HOBE SOUND	HOBE SOUND	DW	A	N	0.0300
OCEAN BREEZE PLAZA	JENSEN BEACH	DW	A	N	0.0036
RIO INDUSTRIAL CENTER WWTF	JENSEN BEACH	DW	A	N	0.0085
PALMS MOTEL (THE)	HOBE SOUND	DW	A	N	0.0100
JOE'S POINT RO CONCENTRATE	STUART	IW	A	N	0.0400
WOODBIDGE MOBILE VILLAGE (WWTP)	HOBE SOUND	DW	A	N	0.0150
MILES GRANT CONDO	STUART	DW	A	N	0.3000
NORRIS' RESTAURANT (NORTH)	FORT PIERCE	DW	A	N	0.0060

Notes:

D – Domestic wastewater

IW – Industrial wastewater

A – Active

I – Inactive

N – Not an NPDES facility

Y – An NPDES facility that discharges to surface water

Table E.2: Landfills in the St. Lucie and Loxahatchee Basins, by Planning Unit

City	Address
C-25 Planning Unit	
Ft. Pierce	N OF ST LUCIE CO AIRPORT
Ft. Pierce	HAMMOND RD OFF ST LUCIE BLVD
North St. Lucie Planning Unit	
Ft. Pierce	LANDFILL RD & GLADES CUTOFF RD
Ft. Pierce	LANDFILL RD & GLADES CUTOFF RD
C-24 Planning Unit	
Port St. Lucie	1144 SW SAVAGE BLVD
C-23 Planning Unit	
Okeechobee	10800 NE 128TH AVENUE
Palm City	3.7MI W TURNPK OVERPASS SR714
Palm City	3.7MI W TURNPK OVERPASS SR714
South St. Lucie Planning Unit	
Palm City	3.7MI W TURNPK OVERPASS SR714
Stuart	W. OF U.S.1 - S. OF MONTEREY RD
Stuart	MONTEREY ROAD
C-44 Planning Unit	
Indiantown	SR609, 4MI N INDIANTOWN
Loxahatchee Planning Unit	
Hobe Sound	SR708, 3MI SE HOBE SOUND
Jupiter	W END OF ROEBUCK RD
West Palm Beach	1.5MI W JCT SR710 & SR711
West Palm Beach	BEE LINE HWY, STRD 710
Coastal Planning Unit	
Ocean Breeze	OCEAN BREEZE DR

Appendix F: Level I Land Use in the St. Lucie and Loxahatchee Basins, by Planning Unit

Planning Unit ----->	C-23		C-24		C-25		C-44	
Land Use Category	Area (square miles)	Percentage of Land Area	Area (square miles)	Percentage of Land Area	Area (square miles)	Percentage of Land Area	Area (square miles)	Percentage of Land Area
Urban and Built-up	3.40	2.04	18.24	10.70	9.92	4.80	3.10	1.63
Agriculture	106.86	64.13	103.76	60.90	134.67	65.08	119.78	63.15
Rangeland	0.61	0.37	1.28	0.75	1.47	0.71	1.81	0.95
Upland Forests	11.44	6.87	14.51	8.52	33.94	16.40	11.62	6.12
Water	1.58	0.95	2.38	1.40	1.58	0.76	11.59	6.11
Wetlands	39.84	23.91	28.45	16.70	21.29	10.29	39.97	21.07
Barren Land	1.37	0.82	0.51	0.30	0.67	0.32	0.31	0.16
Transportation, Communications, and Utilities	1.53	0.92	1.24	0.73	3.39	1.64	1.50	0.79
Totals	166.64	100.00	170.36	100.00	206.93	100.00	189.66	100.00
Planning Unit ----->	Coastal		Loxahatchee		North St. Lucie		South St. Lucie	
Land Use Category	Area (square miles)	Percentage of Land Area	Area (square miles)	Percentage of Land Area	Area (square miles)	Percentage of Land Area	Area (square miles)	Percentage of Land Area
Urban and Built-up	28.94	26.02	47.34	20.97	66.64	35.26	27.53	26.31
Agriculture	0.88	0.79	32.21	14.27	65.98	34.91	33.41	31.93
Rangeland	0.13	0.12	1.03	0.46	0.90	0.47	2.20	2.11
Upland Forests	9.91	8.91	11.53	5.11	21.71	11.49	24.65	23.56
Water	55.14	49.58	2.14	0.95	2.41	1.27	2.51	2.40
Wetlands	14.17	12.74	128.93	57.11	26.35	13.94	10.31	9.85
Barren Land	0.57	0.51	0.52	0.23	0.78	0.41	1.58	1.51
Transportation, Communications, and Utilities	1.47	1.32	2.03	0.90	4.23	2.24	2.44	2.33
Totals	111.20	100.00	225.74	100.00	188.99	100.00	104.64	100.00

Appendix G: Documentation Provided during Public Comment Period

General Comments on 303(d) Proposal: Received by the Department on July 31, 2003

The EPA, Region 4, has reviewed the water segments of St. Lucie for consistency with the CWA and for verified impairment, delisting proposals, and inconsistencies that lie within the data submitted by FDEP. The objective of these comments is to bring attention to inconsistencies regarding the CWA that were observed on FDEP's proposed verified, delist, and master list. The comments below are a summary of the individual comments that are included on the attached spreadsheet.

1. FDEP has categorized waterbodies improperly. Numerous parameters have been incorrectly categorized based on their data. Please refer to 62-302.530 for the guidelines pertaining to the evaluation of water segments and category listings. Several water segments meet the requirements of impaired waters, but are not placed on the planning list. Also, several water segments satisfy IWR's requirements of meeting standards, but are placed on planning list. (WBID: 3163, 3197, 3194C, 3194B, 3218, 3194A, 3234, 3224, 3210A, 3210B, 3208, 3194, 3200, 3224A, 3224C, 3230, 3230A, 5003AC, 8101)

Response: The Department has reviewed the categories of the waterbodies and has made changes to the Master, Verified, and Delist where data provides the necessary evidence for reevaluation. For many WBIDs, further data analysis is needed to check the background conditions of the waterbodies (WBIDs 3163, 3197, 3194C, 3218, 3194A, 3210B, 3224A). The Department agrees with the EPA suggestion that WBID 3234 (biology) should be moved to "Planning 3c" from the "Not Impaired 2" category. Data show that for WBID 3194 copper has already been placed on the Master List and Verified List, total coliforms has been changed to "Planning 3c," and fecal coliforms has been added to the Master List. DO in WBID 8101 has been moved to "Not Impaired 2," based on reevaluation of the data. In WBID 5003AC, un-ionized ammonia has been removed from the Master List after further evaluation because the parameter is not applicable to the IWR for this waterbody. In WBID 3230A, turbidity has been changed from the "Planning 3c" category to "Not Impaired 2," because of reevaluation of the data. For WBID 3230, total coliforms has been moved into the "Not Impaired" category. Cadmium and zinc in WBID 3200 have been re-evaluated and taken off the list because they are not impaired based on data analysis in the IWR. Chloride has been removed from the master list because the parameter is not applicable to the IWR analysis for this waterbody.

2. According to EPA guidance, where 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 is found in the verified period, but sufficient exceedances occurred 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 that as sufficient evidence of impairment and believes it should be placed on the verified list. (WBID: 3215, 5003A, 3208A)

Response: The Department needs further data analysis to make changes to the lists to verify impairment; at this time there is not enough evidence on the Department's part to determine impairment (WBIDs 3215, 5003A, 3208A).

3. 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: 3226C, 3224B, 3210B)

Response: Fecal coliform in WBID 3226C has been changed to verified impaired based on new data and re-evaluation under the IWR; total coliform is listed as Insufficient Data 3b and is not being delisted. For WBID 3224B, DO needs a causative pollutant and the Department does not have the evidence necessary for listing DO as Verified at this time. For fecal coliforms in WBIDs 3224B and 3210B, the Department can conclude, based on the data that have been provided, that this parameter is not impaired.

4. Impaired waterbodies on the 1998 303(d) list must remain on the 303(d) list if they are not being delisted due to good cause justification. There are several water segments in which coliforms are listed as impaired on the '98 303(d) list but did not remain on the list. Both total and fecal coliforms need to remain on the 303(d) list since they were not proposed for delisting (rule 62-303-300). (WBID: 3224B, 3211, 3194A)

Response: The Department has reviewed the Delist, Verified, and Master Lists and has incorporated the comments suggested by the EPA to include both fecal and total coliform parameters that have been listed on the 1998 303(d) list.

5. According to 62-302.530, Criteria for Surface Water Quality Classifications states that "The discharge of nutrients, shall continue to be limited as needed to prevent violations of other standards..." Thus, nutrients cannot be delisted when dissolved oxygen is impaired due to nutrient impairment. This relationship between DO and nutrients is inconsistent with 62-302.530. (WBID: 3194A)

Response: The Department agrees with the EPA's interpretation of Section 62-302.530, F.A.C. The requirements in Section 62-302.530, F.A.C., are water quality criteria. (**Note:** The criteria for dissolved oxygen are numeric, but the criterion for nutrients is narrative.) Chapter 62-303, F.A.C., "Identification of Impaired Surface Waters," provides a methodology for using independently applicable thresholds (not criteria) for assessing data and information gathered from ambient waters.

Thus, under Chapter 62-303 (used for making listing decisions), the Department may very well determine that the DO criterion is verified as being exceeded more than 10 percent of the time and that the nutrient thresholds that were applied in attempting to identify the suspected cause of the low DO. These nutrient thresholds are "rules of thumb," based on statewide values for each waterbody type. However, the low DO values may also be caused by oxygen-demanding substances, for which we frequently have no data, or they may be (at least in part) due to natural conditions. When we find there is an impairment due to "nutrients," that impairment is not based on concentrations of nitrogen or phosphorus (potential "causative factors"), but rather we apply measures of response variables (e.g., chlorophyll concentrations in streams or marine waters or the Trophic State Index in lakes).

Given the above discussion, the Department agrees that the shorthand term "Meets Standards" may not be the best phrase to describe our findings and will change that column header before posting the final Group 2 lists.

6. In one segment, Fivemile Creek, dissolved oxygen is verified as impaired due to BOD, a parameter that is not monitored for in that WS. BOD needs to be added to the list if it is affecting the status of DO. (WBID: 3194D)

Response: The Department recognizes the EPA's suggestion to list BOD on the Master List since it is affecting the evaluation of DO.

7. EPA does not recognize Florida's statutory requirement to identify the pollutant causing the impairment before a waterbody is included on the 303(d) list. Therefore, EPA will continue to add those impaired water segments with no causative pollutant identified to the 303(d) list.

Response: No response necessary.

8. Data included in the verified period, which is from the past 7.5 years, is not carried over from the planning period data, which is from the past 10 years. Why isn't there an overlap with data that could place a potentially impaired waterbody on the planning list? (WBID: 3166, 3215, 5003A)

Response: The data provided for WBIDs 3166 and 3215 are from 2001 and 2002, that is why the data fit the Verified period of 1/1996–12/2002, and they do not meet the Planning period of 1991–2000. For data in WBID 5003A, one copper sample is from 1998, which falls into the Planning period, but all other data are from 2001 and 2002. There are not enough samples in the Verified period to list copper. For nutrients in

WBID 5003A, there is no causative pollutant identified at this time, but it is believed to be linked to colimitation of nitrogen and phosphorus.

9. When analyzing impairments against fecal and total coliform standards in Class II waterbodies, the impairments should be compared to the appropriate shellfish harvesting derived levels: “MPN not exceeding a median of 14 with not more than 10% of the samples exceeding 43.” The state should also review the classification status of shellfish beds to determine if the designated use is being met. EPA suggests analyzing the delineation of WBIDs to more closely mirror shellfish beds delineation for purposes of analyzing against water quality standards. (WBID: 3226C 12/73)

Response: WBID 3226C for fecal coliforms has been changed from “Not Impaired, Category 2” to “Verified, Category 5” based on the IWR run evaluation at the appropriate shellfish harvesting derived levels, MPN not exceeding a median of 14 with not more than 10 percent of the samples exceeding 43.

Concerns and Comments Regarding Florida’s Verified and Delist List Update: Received by the Department on September 12, 2003

South Fork St. Lucie (WBID 3210B): Conductance’s data listed in the revised verified list is incorrect, 15/134. According to Run 12 and the previous verified list, the exceedence frequency is 45/134. Please correct this data depicted in the verified list.

Response: WBID 3210B has been out on the Planning List 3c, listed with 45/134. Although WBID 3210B is potentially impaired, the Department will need to check background conditions to place conductance on the Verified List.

EPA General Comments, Received by the Department on October 2, 2003

1. According to EPA guidance, where sufficient evidence of impairment is presented in a small data set, the water should be identified as a water quality-limiting segment. Although the data in the verified period may be insufficient according to the IWR, the number of exceedances is higher than that allowed by the IWR during the verified period. Thus, shouldn’t the following WBIDs be placed on the verified list due to their high number of exceedances:

- 3197 – Fecal Coliform (8/14)**
- 3160 – Dissolved Oxygen (6/10)**
- 3189 – Fecal Coliform (11/12)**
- 3208A – Copper (6/11)**
- 5003A – Copper (7/16)**
- 3224B – Dissolved Oxygen (10/10)**
- 3215 – Dissolved Oxygen (5/9)**

Response: It is in the best interest of the Department to keep the WBIDs that are listed above at their current status. First, under the IWR rule there must be sufficient data/samples to determine the water quality of the WBID. Second, in the cases of dissolved oxygen, no causative pollutant has been determined at this time; therefore, no WBID will be placed on the Verified List without just cause. The Department will continue to work in cooperation with the EPA to collect additional data.

2. EPA has identified approximately 12 WBIDs that appear to be impaired due to EPA's interpretation of the CWA, which requires states to list waterbodies that are impaired even where the specific pollutant causing the impairment is not known, unless the State can demonstrate that non-pollutant stressors are causing the impairment. The WBID are as follows:

3163: Biology
3163B: Biology
3218: Biology
3163B: Dissolved Oxygen
3230: Dissolved Oxygen
3234: Dissolved Oxygen
3224A: Dissolved Oxygen
3224B: Dissolved Oxygen
3224C: Dissolved Oxygen
3230A: Dissolved Oxygen
3194C: Dissolved Oxygen
3210A: Dissolved Oxygen

Response: The Department will need more time and data for analysis to determine whether these WBIDs are impaired due to nonpollutant stressors.

3. When is FDEP expecting to draw a conclusion regarding the age confirmation of the data used to verify mercury impairment for fish? (WBID 3234)

Response: Like the age confirmation of the data used to verify mercury impairment in WBID 8998, the age verification is to be within 7.5 years of the data collected.

4. Several WBIDs are being delisted based on flaws in the original listing. Please explain the details of the flaw in the original listing, so that EPA may better understand your good cause justification for delisting purposes. (WBIDs: 3160, 3224B, 3211)

Response: The Department used the guidance in its evaluation of waters for fecal and total coliforms, for Class 3 total coliforms the Department will compare to >2400. Some evaluations were changed due to new guidance for fecal and total coliforms.

5. Total Coliform is not listed as a 1998 parameter on the master list, but is on the 1998 list and is presently being proposed for delisting. Please add total coliform to the master list to prevent confusion. (WBID: 3224B and 3211)

Response: Additions were made to the Master List incorporating total coliform for WBIDs 3224B and 3211.

6. According to the master list, FDEP is proposing to delist the 1998 parameter, fecal coliform, although it is not on the delist list (WBID: 3160). Also, nutrients (WBID 3226A) has not been transferred from the master list to the delist list. Please transfer the fecal coliform and nutrient listing from the master list to the delist list to remain consistent among the lists.

Response: The Department has added fecal coliform (WBID 3160) and nutrients chlorophyll a (WBID 3226A) to the Delist List based on the correction requested by the EPA.

Total Coliform is not found on Group 2's master list for WBID 3194A, although it was on the 1998 303(d) list. Please verify that all parameters on the 1998 list are on the master list and are carried over to the Group 2 list, unless they are proposed for delisting.

Response: Corrections and additions have been made to the Department's list, including the addition of total coliform to WBID 3194A.

8. According to 62-302.530, "The discharge of nutrients shall continue to be limited as needed to prevent violations of other standards..." Thus, nutrients should not be delisted when dissolved oxygen is impaired due to nutrient impairment. (WBID: 3194A)

Response: The Department agrees with the EPA's interpretation of Section 62-302.530, F.A.C. Dissolved oxygen and nutrients were assessed based on their individual analytical data, with no consideration given to the relationship between them.

Appendix H: Summary of Planning and Management Activities To Improve Water Quality in Verified Impaired Waterbodies in the St. Lucie and Loxahatchee Basins

The following table contains a list of planning and management activities to improve water quality in the St. Lucie and Loxahatchee Basins. This list is limited to activities that will provide benefits to waters on the Verified List of impaired waterbodies in the St. Lucie and Loxahatchee Basins. Designations for each planning or management activity include the planning unit where the activity is taking place, the name of the major program or project, the lead agency responsible for the activity, the location of the activity, the verified impaired waterbody receiving benefits from the activity, and the types of waterbodies benefitting from the activity. The table is designed to give an idea of ongoing and planned activities that will benefit water quality. These activities will be an important component in the development and implementation of TMDLs in the St. Lucie and Loxahatchee Basins.

Table H.1: Summary of Planning and Management Activities for Verified Impaired Waterbodies in the St. Lucie and Loxahatchee Basins

Major Programs/Projects	Lead Agency/Group	Project Location	Verified List of Impaired Waters Receiving Benefits	Waterbodies Receiving Benefits
C-25 Planning Unit				
IRL–South Plan/ C-25 Reservoir and STA	USACOE/ SFWMD	C-25 subbasin	North Coastal (3190)	Indian River Lagoon
Citrus BMPs	IFAS	Entire planning unit	Belcher Canal/Taylor Creek (3163)	Primary and secondary canals
			North Coastal (3190)	Indian River Lagoon
North St. Lucie				
IRL–South Plan/ C-23/24 Reservoirs and STA	USACOE/ SFWMD	Eastern boundary of C-23/C- 24 and northwest North St. Lucie Basin	North St. Lucie (3194)	North Fork St. Lucie River
			St. Lucie River (3193)	SLE
IRL–South Plan and Issues Team/ North Fork Natural Floodplain Restoration	USACOE/ SFWMD	North Fork St. Lucie River	North St. Lucie (3194)	North Fork St. Lucie River
			St. Lucie River (3193)	SLE
Issues Team/Platt's Creek Wetland Restoration	St. Lucie County	North Fork St. Lucie River	North St. Lucie (3194)	North Fork St. Lucie River
			St. Lucie (3194B)	North Fork St. Lucie River
			St. Lucie River (3193)	SLE
Issues Team/ Tenmile Creek Stormwater Treatment	SFWMD	North Fork St. Lucie River	Tenmile Creek (3194A)	Tenmile Creek

Major Programs/Projects	Lead Agency/Group	Project Location	Verified List of Impaired Waters Receiving Benefits	Waterbodies Receiving Benefits
			North St. Lucie (3194)	North Fork St. Lucie River
			St. Lucie (3194B)	North Fork St. Lucie River
			St. Lucie River (3193)	SLE
Issues Team/North Point CRA Urban Water Quality Retrofit	City of Stuart	North Fork St. Lucie River	North St. Lucie (3194)	North Fork St. Lucie River
			St. Lucie (3194B)	North Fork St. Lucie River
			St. Lucie River (3193)	SLE
Issues Team/Palm Lake Park Urban Stormwater Treatment	Martin County	North Fork St. Lucie River	North St. Lucie (3194)	North Fork St. Lucie River
			St. Lucie (3194B)	North Fork St. Lucie River
			St. Lucie River (3193)	SLE
Issues Team/Haney Creek Stormwater Treatment	City of Stuart	North Fork St. Lucie River	North St. Lucie (3194)	North Fork St. Lucie River
			St. Lucie (3194B)	North Fork St. Lucie River
			St. Lucie River (3193)	SLE
Issues Team/NSLWCD Canal Improvements	NSLWCD	NSLWCD	Tenmile Creek (3194A)	Tenmile Creek
			Fivemile Creek (3194D)	Fivemile Creek
			North St. Lucie (3194)	North Fork St. Lucie River
			St. Lucie (3194B)	North Fork St. Lucie River
			St. Lucie River (3193)	SLE
Citrus BMPs	IFAS, NRCS	Entire planning unit	Tenmile Creek (3194A)	Tenmile Creek
			Fivemile Creek (3194D)	Fivemile Creek
			North St. Lucie (3194)	North Fork St. Lucie River
			St. Lucie (3194B)	North Fork St. Lucie River
			St. Lucie River (3193)	SLE

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Major Programs/Projects	Lead Agency/Group	Project Location	Verified List of Impaired Waters Receiving Benefits	Waterbodies Receiving Benefits
C-24 Planning Unit				
IRL–South Plan/ C-23/24 Reservoirs and STA	USACOE/ SFWMD	Eastern boundary of C-23/C-24 and northwest North St. Lucie Basin	North St. Lucie (3194)	North Fork St. Lucie River
			St. Lucie River (3193)	SLE
IRL–South Plan/ Cypress Creek Complex-Natural Storage and Water Quality Area	USACOE/ SFWMD	Western part of C-24 and C-23	C-24 (3197)	Natural wetlands, primary and secondary canals
			C-23 (3200)	Natural wetlands, primary and secondary canals
			North St. Lucie (3194)	North Fork St. Lucie River
			St. Lucie (3194B)	North Fork St. Lucie River
			St. Lucie River (3193)	SLE
Citrus and Cow-Calf BMPs	IFAS	Entire planning unit	C-24 (3197)	Primary and secondary canals
			North St. Lucie (3194)	North Fork St. Lucie River
			St. Lucie (3194B)	North Fork St. Lucie River
			St. Lucie River (3193)	SLE
C-23 Planning Unit				
IRL–South Plan/ Cypress Creek Complex and Allapattah Complex-Natural Storage and Water Quality Area	USACOE/ SFWMD	Western part of C-24 and C-23	C-24 (3197)	Natural wetlands, primary and secondary canals
			C-23 (3200)	Natural wetlands, primary and secondary canals
			North St. Lucie (3194)	North Fork St. Lucie River
			St. Lucie (3194B)	North Fork St. Lucie River
			St. Lucie River (3193)	SLE
IRL–South Plan/ C-23/44 STA and Diversion Canal	USACOE/ SFWMD	Southwest part of C-23 and northwest C-44	C-44 (3218)	C-44

Major Programs/Projects	Lead Agency/Group	Project Location	Verified List of Impaired Waters Receiving Benefits	Waterbodies Receiving Benefits
			St. Lucie Canal (3210A)	C-44
			South Fork St. Lucie (3210B)	South Fork St. Lucie River
			St. Lucie River (3193)	SLE
Citrus and Cow-Calf BMPs	IFAS	Entire planning unit	C-23 (3200)	Primary and secondary canals
			North St. Lucie (3194)	North Fork St. Lucie River
			St. Lucie (3194B)	North Fork St. Lucie River
			St. Lucie River (3193)	SLE
C-44 Planning Unit				
IRL–South Plan/C-44 East STA	USACOE/ SFWMD	Eastern part of planning unit	C-44 (3218)	C-44 Canal
			St. Lucie Canal (3210A)	C-44 Canal
			South Fork St. Lucie (3210B)	South Fork St. Lucie River
			St. Lucie River (3193)	SLE
IRL–South Plan/ C-44 West Reservoir and STA	USACOE/ SFWMD	West of C-44 basin boundary	C-44 (3218)	C-44 Canal
			St. Lucie Canal (3210A)	C-44 Canal
			South Fork St. Lucie (3210B)	C-44 Canal
			St. Lucie River (3193)	SLE
IRL–South Plan/ PalMar Complex-Natural Storage and Water Quality Area	USACOE/ SFWMD	Southeastern part of planning unit	C-44 (3218)	Natural wetlands, primary and secondary canals
			St. Lucie Canal (3210A)	C-44 Canal
			South Fork St. Lucie (3210B)	South Fork St. Lucie River
			St. Lucie River (3193)	SLE
Citrus and Cow-Calf BMPs	IFAS	Entire planning unit	C-44 (3218)	Primary and secondary canals
			St. Lucie Canal (3210A)	C-44 Canal
			South Fork St. Lucie (3210B)	South Fork St. Lucie River
			St. Lucie River (3193)	SLE

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Major Programs/Projects	Lead Agency/Group	Project Location	Verified List of Impaired Waters Receiving Benefits	Waterbodies Receiving Benefits
South St. Lucie Planning Unit				
IRL–South Plan/ PalMar Complex-Natural Storage and Water Quality Area	USACOE/ SFWMD	Southwestern part of planning unit	St. Lucie Canal (3210A)	C-44 Canal
			Tidal St. Lucie (3210)	Creeks and marshland of southern part of planning unit
			South Fork St. Lucie (3210B)	South Fork St. Lucie River
			St. Lucie River (3193)	SLE
Issues Team/Poppleton Creek, Fern Creek, Frazier Creek Urban Stormwater Retrofits	Martin County	Urban areas of eastern planning unit	South Fork St. Lucie (3210B)	South Fork St. Lucie River
			St. Lucie River (3193)	SLE
Citrus and Cow-Calf BMPs	IFAS	Agricultural areas of planning unit	Bessey Creek (3211)	Bessey Creek drainage
			St. Lucie Canal (3210A)	Primary and secondary canals
			South Fork St. Lucie (3210B)	South Fork St. Lucie River
			St. Lucie River (3193)	SLE
Loxahatchee Planning Unit				
North Palm Beach Project/ Pal-Mar and Corbett Hydropattern Restoration	USACOE/ SWFMD	Large area of basin	C-18 (3234)	Loxahatchee Slough
North Palm Beach Project/ C-51 and L-8 Reservoir, C-51 Backpumping and Treatment, C-17 Backpumping and Treatment	USACOE/ SFWMD	West Palm Beach Water Catchment Area	C-18 (3234), NW Fork Loxahatchee (3226A), Loxahatchee River (3226D), Jonathan Dickinson (3224)	Loxahatchee Slough, Northwest Fork of Loxahatchee, Loxahatchee River
C-18 Triangle Tract Acquisition	Palm Beach County	Wild & Scenic/Jupiter Farms		
Mitigation Program for Wetlands Impacted by Residential Development	FDEP, USACOE	Wild & Scenic/Jupiter Farms		
Kitching Creek Basin Land Acquisition	FDEP	Jonathan Dickinson Park/Hobe Sound		
Pal-Mar Acquisition	SFWMD	Cypress Creek/Pal-Mar, C-18/Corbett		

Major Programs/Projects	Lead Agency/Group	Project Location	Verified List of Impaired Waters Receiving Benefits	Waterbodies Receiving Benefits
Atlantic Ridge Acquisition	SFWMD	Jonathan Dickinson/Pal-Mar		
Beeline Corridor Land Acquisition	Palm Beach County	C-18/Corbett		
Loxahatchee Slough Outparcel Acquisition	Palm Beach County	C-18/Corbett		
Coastal Planning Unit				
IRL–South Plan/ Muck Remediation and Artificial Habitat	USACOE/ SFWMD	SLE	South Indian River (5003A)	IRL
			Manatee Pocket (3208)	Manatee Pocket
Issues Team/Airport Ditch, Salerno Creek, Willoughby Creek, Golden Gate Subdivision, Poinciana Gardens Urban and Residential Stormwater Retrofits	Martin County	Urban Martin County areas	South Indian River (5003A)	IRL
			Manatee Pocket (3208)	Manatee Pocket
Issues Team/ Krueger Creek Muck Removal	City of Stuart	rugger Creek	Manatee Pocket (3208)	Krueger Creek

Notes: FDEP – Florida Department of Environmental Protection
 IFAS - University of Florida Institute of Food and Agricultural Sciences
 IRL - Indian River Lagoon
 IRL–South Plan - Indian River Lagoon-South Plan (October, 2001)
 Issues Team - St. Lucie River Issues Team (3-Year Report, 2001)
 NRCS - U.S. Department of Agriculture Natural Resources Conservation Service
 NSLWCD - North St. Lucie Water Control District
 SLE - St. Lucie Estuary
 STA - Stormwater Treatment Area
 USACOE/SFWMD - U.S. Army Corps of Engineers and South Florida Water Management District





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