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Justification Review

Water Resource Management Program
Department of Environmental Protection

Report No. 03-12 February 2003



*Office of Program Policy Analysis
and Government Accountability*

an office of the Florida Legislature

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The Florida Legislature

OFFICE OF PROGRAM POLICY ANALYSIS AND GOVERNMENT ACCOUNTABILITY



John W. Turcotte, Director

February 2003

The President of the Senate,
the Speaker of the House of Representatives,
and the Joint Legislative Auditing Committee

I directed our office to examine the *Water Resource Management Program* administered by the Department of Environmental Protection. OPPAGA reports findings and recommendations as required by the Government Performance and Accountability Act of 1994. Shunti Houston, Laura Miller-Regalado, Lyndon Rodgers, and Bill Howard conducted the examination under the supervision of Larry Novey.

We wish to express our appreciation to the staff of the Department of Environmental Protection for its cooperation and the many courtesies shown us during the course of the examination.

Sincerely,

A handwritten signature in cursive script, reading "J. W. Turcotte".

John W. Turcotte
Director

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Executive Summary

Justification Review of the Water Resource Management Program

Purpose

This report presents the results of our program evaluation and justification review of the Department of Environmental Protection's Water Resource Management Program.

Introduction

The Water Resource Management Program's purpose is to manage, conserve and protect the state's ground and surface waters. The program's primary goals are to

- improve the quality and ecological health of Florida's surface and ground waters and aquatic ecosystems;
- increase water supplies and maximize the efficiency of water use to meet current and future needs; and
- protect, preserve, and restore the state's beaches and coastal system.

The Florida Department of Environmental Protection administers the Water Resource Management Program. For Fiscal Year 2002-03, the department was appropriated \$679.8 million and 367 positions to administer water resource management programs. The Legislature appropriated an additional \$24.6 million and 460 positions to the department's district offices to conduct water resource protection and restoration activities. Florida's five regional water management districts also receive state funding to perform water resource management-related activities.

Program Performance

***The program met
legislatively approved
performance standards
for water quality and
supply***

The program met its legislative performance standards related to surface water quality and ground water quality and supply in Fiscal Year 2001-02. However, Florida's surface and ground waters are threatened by various pollutants. To address threats to surface water quality, the department is in the process of establishing Total Maximum Daily Loads (TMDLs) for impaired surface water bodies. A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive without violating

water quality standards. The Federal Clean Water Act and the U.S. Environmental Protection Agency require states to establish TMDLs for each impaired water body.

Options for Improvement

Improvements needed in department's process for developing TMDLs

The Department of Environmental Protection (DEP) is in the process of implementing a multi-year plan to establish TMDLs for impaired state water bodies. Although its approach to developing TMDLs appears reasonable, we identified several areas in which its processes for identifying impaired water bodies and for evaluating the effectiveness of various practices in reducing pollutant loads needs to be improved.

- The department's process for identifying impaired water bodies may result in it identifying low priority water bodies, such as some storm water conveyance systems, canals, and ditches, as being impaired and requiring TMDLs. Developing TMDLs for low priority water bodies would not be an effective use of the state's limited resources. To address this problem, we recommend that DEP further differentiate water bodies within a specific designation class so that it would give priority to developing TMDLs for waters having the most significant uses.
- Florida law requires DEP to issue a report to the Governor and Legislature on the effectiveness of the state's approach in implementing best management practices to reduce pollutants from non-point pollution sources such as agricultural operations, septic tanks, and urban stormwater systems in January 2005. However, DEP is not required to provide interim reporting on the progress being made in implementing the best management practices. To provide the Legislature with needed information on whether the best management practices are being implemented as planned, we recommend that DEP, the Department of Agriculture and Consumer Services, and local governmental entities responsible for overseeing pollution control practices for septic tanks and urban stormwater systems jointly report annually to the Legislature on the implementation of best management practices and on the practices' results on an interim basis.
- The department does not have adequate information for determining the extent to which new stormwater systems would need to be created or existing systems modified to sufficiently reduce pollutants needed to meet a TMDL. It also lacks information on malfunctioning septic systems. Further, it is unclear how much it would cost to implement the changes needed to meet TMDLs. To assist the Legislature in making fully informed decisions on implementing TMDLs in Florida, we recommend that it require DEP to annually report on the status of its efforts to allocate TMDLs under its watershed management approach. The department should also

develop estimates of the costs to implement strategies to meet TMDLs and proposals for how the strategies could be funded.

***Regulation of
phosphate mining
companies' financial
responsibility
requirements needs
strengthening***

The recent bankruptcy of a company that mined phosphate in Florida revealed that the state's financial responsibility requirements do not provide adequate assurance that companies have sufficient resources to correct environmental damage caused by their operations and to close and manage facilities created to store hazardous byproducts. As a result of the company's bankruptcy, the department had to assume responsibility for stabilizing and managing phosphogypsum stacks formerly owned by the company. Phosphogypsum stacks, which are typically hundred of acres in size, are used to store wastewater created when phosphate rock is chemically processed with sulfuric acid. This has imposed a significant financial burden on the department, which projects that it will have to spend a total of \$164 million to close the company's stacks. To address this concern, the department contracted with a financial consultant to review the adequacy of its rules relating to assessing a phosphate company's financial condition. The consultant concluded that the current tests are inadequate for assuring that mine owners will be financially able to close phosphogypsum stacks. We concur with this assessment.

To ensure that the state does not shoulder the financial burden of closing phosphogypsum stacks and reclaiming phosphate mines, we recommend the actions described below.

- The department should proceed with amending its rules to strengthen the financial responsibility requirements for phosphate mining companies. However, in developing the new requirements, the department needs to ensure that the benefits to be achieved by the new requirements do not exceed their costs and that the requirements do not have the unintended effect of forcing mining companies to go out of business. If this occurred, the state would have to bear the long-term, costly burden of closing phosphogypsum stacks. In order to demonstrate this is the case, the department should conduct a cost-benefit analysis on the effects of its proposed requirements and provide the results to the Legislature.
- Consistent with its consultant's recommendations, the department should incorporate into the revised rules a requirement that company financial statements used in conducting financial tests be audited and prepared under generally accepted accounting practices. We further recommend that the Legislature amend s. 403.4154(2)(b), *Florida Statutes*, to require mining companies' chief executive officers to certify the accuracy and completeness of information used to satisfy financial tests.

Executive Summary

Continued evaluation of wetland mitigation on clay settling areas is needed

The department recently decided to consider allowing clay settling areas to be used as wetland mitigation sites. Clay settling areas are created to store wastes created by the process of separating phosphate from clay and sand. This decision is very controversial. Southwest Florida Water Management District and Charlotte County employees told us that it is their experience that wetlands created on clay settling areas do not function properly; consequently, they believe that such areas are not suitable for serving as mitigation sites. They also said there were no large-scale projects demonstrating that viable, sustainable wetlands can be created on clay settling areas. However, the department appears to be addressing such concerns by requiring that wetland mitigation projects on clay settling areas be successful prior to allowing mining companies to mine a wetland area.

We recommend that the department continue to evaluate wetland mitigation on clay settling areas and ensure that the prototype mitigation sites are successful before giving widespread approval to the practice.

Agency Response

The Secretary of the Department of Environmental Protection provided a written response to our preliminary and tentative findings and recommendations. (See Appendix D, page 45, for his response.)

Introduction

Purpose

This report presents the results of the Office of Program Policy Analysis and Government Accountability's (OPPAGA) program evaluation and justification review of the Department of Environmental Protection's Water Resource Management Program. State law directs OPPAGA to complete a justification review of each state agency that is operating under a performance-based program budget. The Water Resource Management Program began operating under a performance-based program budget in Fiscal Year 2000-01.

Program evaluation and justification reviews assess agency performance measures and standards, evaluate program performance, and identify policy alternatives for improving services and reducing costs. Appendix A summarizes our conclusions regarding each of the nine areas the law directs OPPAGA to consider in a program evaluation and justification review.

Background

The Water Resource Management Program's purpose is to manage, conserve and protect the state's ground and surface waters. The state's waters should be of sufficient quality to support safe drinking water, healthy wildlife and aquatic plant life, and domestic, agricultural, industrial, and recreational activities. The program's primary goals are to

- improve the quality and ecological health of Florida's surface and ground waters and aquatic ecosystems;
- increase water supplies and maximize the efficiency of water use to meet current and future needs; and
- protect, preserve, and restore the state's beaches and coastal system.

To achieve these goals, the program's activities are organized into three service categories: surface and ground water quality, water supply, and beach management.

Surface and ground water quality activities

Federal law requires states to manage water quality

These activities are intended to protect and restore Florida's water resources and drinking water supplies through regulatory and non-regulatory strategies. The Federal Clean Water Act of 1972 requires state water resource managers to establish specific water quality standards, to impose those performance standards on major industries to control pollution, and to implement a water quality management program in areas where water bodies do not meet water quality standards.¹ In response to federal requirements, the 1983 Florida Legislature passed the Water Quality Assurance Act. The Water Quality Assurance Act authorizes the Department of Environmental Protection (DEP) to develop water quality standards and enforce them through permitting and compliance activities.

Department employees regulate pollution from point and some non-point sources.

- Point sources are stationary, identifiable sources of emissions such as industrial plants, sewage treatment plants, and animal feeding operations that release pollutants into water bodies. In Fiscal Year 2001-02, the department processed 6,960 point source permits.^{2,3}
- Non-point sources, unlike pollution from industrial and sewage treatment plants, come from many diffuse sources. Non-point source pollution is created when rain, irrigation water, and other water sources run over the land, pick up pollutants and transport them to lakes, rivers, wetlands, coastal waters, and underground sources of drinking water. Non-point pollutants include bacteria and nutrients from livestock and faulty septic systems; sediment from improperly managed construction sites, crops, and forestlands; oil, grease, and toxic chemicals from urban stormwater runoff; and fertilizers, herbicides, and insecticides from agricultural lands. In cooperation with the water management districts, the department regulates new stormwater discharges. The Department of Health and county health units regulate septic tanks.

The program is also in the process of addressing surface and ground water quality concerns through the Total Maximum Daily Load (TMDL) Program. Section 303(d) of the federal Clean Water Act requires states to develop TMDLs to control the amount of pollutants entering surface waters. A TMDL is a calculation of the maximum amount of a particular

¹ Title 33, *United States Code*, Chapter 26.

² Permit totals include new and renewal permits and permit revisions processed in Fiscal Year 2001-02. The total includes 4,699 domestic wastewater, 599 industrial wastewater, 1,340 National Pollutant Discharge Elimination System (NPDES) Stormwater, and 322 underground injection control (UIC) permits.

³ The Clean Water Act authorizes the National Pollutant Discharge Elimination System (NPDES) permit program, which was delegated to the department in 1995 to control water pollution by regulating point sources that discharge pollutants into surface waters.

pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the point and non-point sources that surround the waterbody. The department has developed a TMDL for phosphorous in Lake Okeechobee, one of the state's most significant water bodies. Our findings and conclusions regarding the status of state efforts to develop TMDLs are discussed in Chapter 4 of this report (pages 21 to 31).

Financial assistance programs help fund pollution control projects

As described below, the program also provides loans and grants to communities needing financial assistance to address point and non-point pollution.

- **State revolving loan programs that provide low-interest loans to communities for planning, designing, and constructing wastewater, storm water and drinking water facilities.** The department administers two revolving funds: the Clean Water State Revolving Fund and the Drinking Water State Revolving Fund, as shown in Exhibit 1. State and federal appropriations fund these loans. The loans are made to communities needing to improve their wastewater, stormwater, and drinking water facilities. Loan repayments are used to make additional loans, and by federal law the programs are to be operated in perpetuity.
- **Grants funded by the EPA under provisions of the federal Clean Water Act.** The department also administers grants funded by the U.S. Environmental Protection Agency. Grants provided through Section 319(h) of the federal Clean Water Act can be used to support a wide variety of activities that help reduce non-point source pollution, including public education programs and the demonstration and evaluation of Best Management Practices. For Fiscal Year 2001-02, the department approved 19 contracts for a total of \$4.6 million.

Exhibit 1
Revolving Loans Help Communities Finance
Wastewater, Stormwater, and Drinking Water Facilities ¹

State Revolving Fund	Loans Awarded in Fiscal Year 2001-02	Total Loan Awards (Since Inception)	Loan Principal Repaid (Since Inception)	Balance Due of Total Disbursed to Date
Clean Water State Revolving Fund	\$131,719,642	\$1,314,305,823	\$280,124,843	\$784,025,942
Drinking Water State Revolving Fund ²	31,251,711	184,304,073	2,800,584	125,774,565

¹ Figures reported are as of October 2002.

² Financial assistance for the Drinking Water State Revolving Fund includes a small increment of grants (less than 10% of the total assistance).

Source: Florida Department of Environmental Protection.

Introduction

State authorization required for use of sovereign submerged lands, wetlands, and other surface waters owned by the state

State authorization (by consent of use, easement, or lease) is required for any construction on or use of submerged lands, wetlands, and other surface waters owned by the state. This includes activities such as dredging and filling, and the construction of docks, piers, and seawalls. Regulation of these activities is shared between the department and four of the state's five water management districts.⁴

Program oversees reclamation of mined lands and regulates phosphate facility discharges

Program employees also oversee the reclamation of lands mined in Florida for such commodities as phosphate, lime rock, sand, and clay.⁵ Reclamation standards vary according to the commodity being mined, but include provisions for safety, re-contouring, restoration of upland and wetland habitats, and water resource protection. To ensure that these standards are met, DEP employees issue permits for mining in wetlands area, oversee wastewater discharges from phosphate industry facilities, and regulate the closure and long-term care of phosphogypsum stacks.⁶ Our findings and conclusions related to the financial responsibility requirements for phosphogypsum stacks and wetland mitigation on clay settling areas are contained in Chapter 5 (pages 32-40).

Water supply activities

Water management districts also conduct water resource management-related activities

DEP and the state's five water management districts share authority for administering programs intended to manage the state's water resources. One of the water management districts' key responsibilities is regulating the use of water through consumptive use permits. Consumptive use permitting is intended to ensure that water use (withdrawals from aquifers or surface waters) is consistent with district or department objectives and is not harmful to the water resources of the area. Consumptive use permit applicants are required to demonstrate that their proposed use of water is reasonable and beneficial, will not adversely affect existing legal uses, and is consistent with the public interest. Other district responsibilities include developing regional water supply plans and setting minimum flows and levels for surface and ground water sources.⁷

⁴ The four water management districts are Suwannee River, St. Johns River, Southwest Florida, and South Florida. Less extensive regulatory programs are implemented by the department and the Northwest Florida Water Management District.

⁵ Reclamation means the reasonable rehabilitation of land where resource extraction has occurred.

⁶ Phosphogypsum is a radioactive waste product that results from processing phosphate ore to make phosphoric acid that is later used in fertilizer. Because the phosphate ore contains relatively high concentrations of uranium and radium, phosphogypsum also contains these radionuclides. The radium is of particular concern because it decays to form radon, a carcinogenic radioactive gas. Phosphogypsum has few uses and is disposed of in large, aboveground stacks.

⁷ Minimum flows and levels define the limit at which further withdrawals would be significantly harmful to the water resources or the ecology of the area. Each of the water management districts develops a regional water supply plan that identifies water source options to meet the 2020 water demands of areas of the state with inadequate water resources while sustaining natural systems.

Beach management activities

The program performs activities that protect and restore Florida beaches

The department is responsible for implementing several activities intended to protect and restore Florida's beaches, which are one of the state's most valuable natural resources. These activities include assessing shoreline conditions and trends, managing beach restoration initiatives, and enforcing regulations intended to protect beach and dune systems from improperly sited or designed structures that can destabilize or destroy beach and dune systems. The program also administers a grant program to assist county and municipal governments, community development districts, or special taxing districts in financing shore protection and preservation activities on the Gulf of Mexico, Atlantic Ocean, or Straits of Florida.⁸ Eligible activities include beach restoration and nourishment activities; project design and engineering studies; environmental studies and monitoring; inlet management planning; inlet sand transfer, dune restoration and protection activities; and other activities to prevent beach erosion. In Fiscal Year 2001-02, the department provided \$34.8 million to fund the state share of 32 shore protection projects.⁹

Program Organization

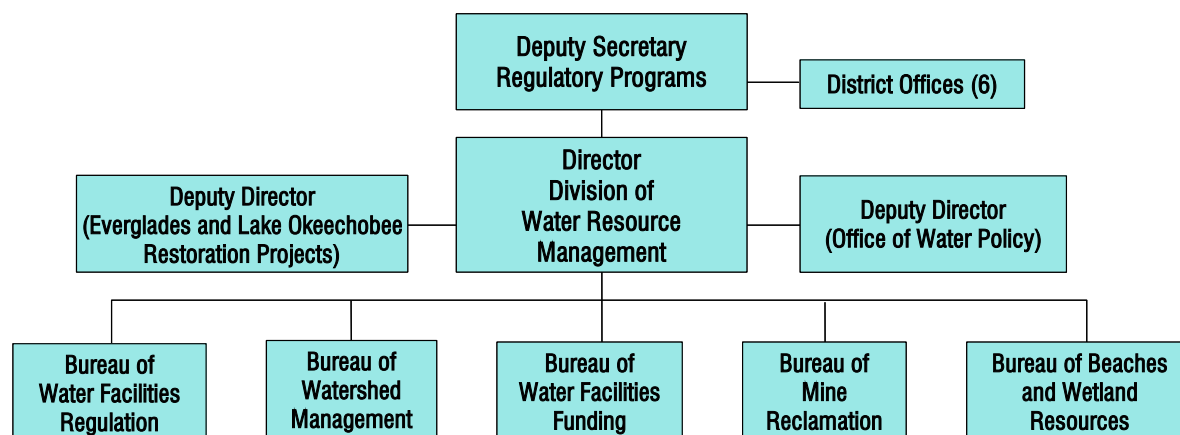
Authority for administering the Water Resource Management Program is shared by the DEP and five regional water management districts. Department employees in Tallahassee and district offices located in Pensacola, Jacksonville, Orlando, Tampa, Fort Myers, and West Palm Beach conduct the department's program-related activities. As shown in Exhibit 2, five bureaus under the department's Division of Water Resource Management are involved in conducting program-related activities.

⁸ Grant funds are provided to local sponsors after projects have been prioritized and ranked, and funds have been appropriated by the Legislature. Grant funding is entirely supported by state trust funds.

⁹ In Fiscal Year 2001-02, the department provided an additional \$2.7 million to expand the length of a federally cost-shared beach restoration project.

Exhibit 2

Services Are Delivered by the Program's Five Bureaus and Six District Offices

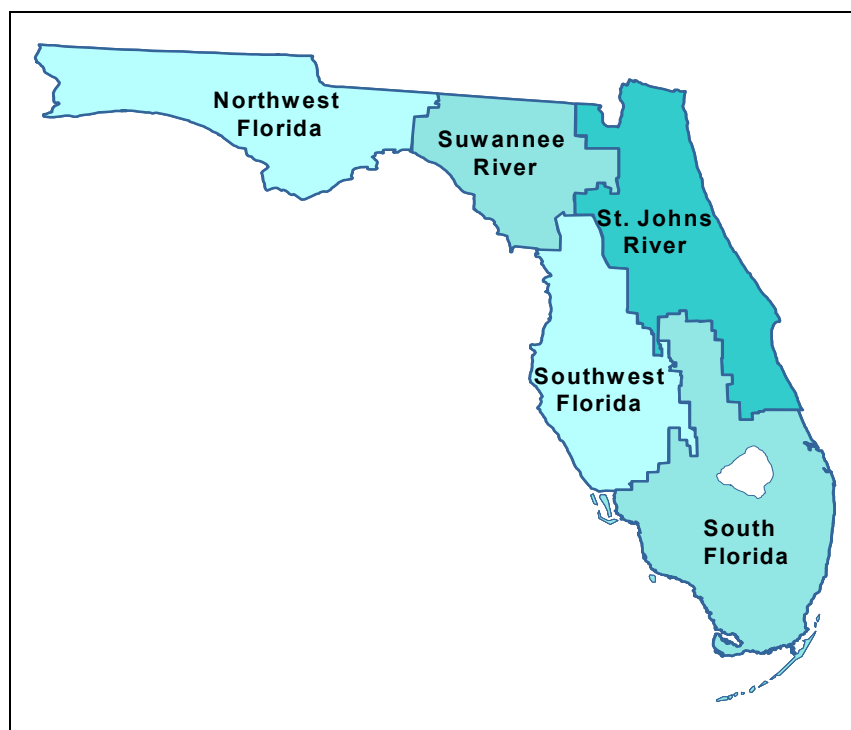


Source: Department of Environmental Protection.

Water management districts are primarily responsible for managing the state's water supplies

The department has general supervisory authority over the water management districts and delegates certain water resources activities to them. Water management districts' program-related activities include working with the department's Office of Water Policy to ensure the Florida Water Plan is consistent with their statutory water management responsibilities regarding water supply, flood protection, water quality, and protection of natural systems. The districts also issue consumptive use and well construction permits to help safeguard water supplies, and regulate the construction and repair of dams, artificial recharge projects, and agricultural, forestry, and wetland projects relating to the management, storage, and drainage of surface waters. Exhibit 3 shows the location of the state's five water management districts.

Exhibit 3
The Department Manages Water Quality and Supply in Concert
With Water Management Districts



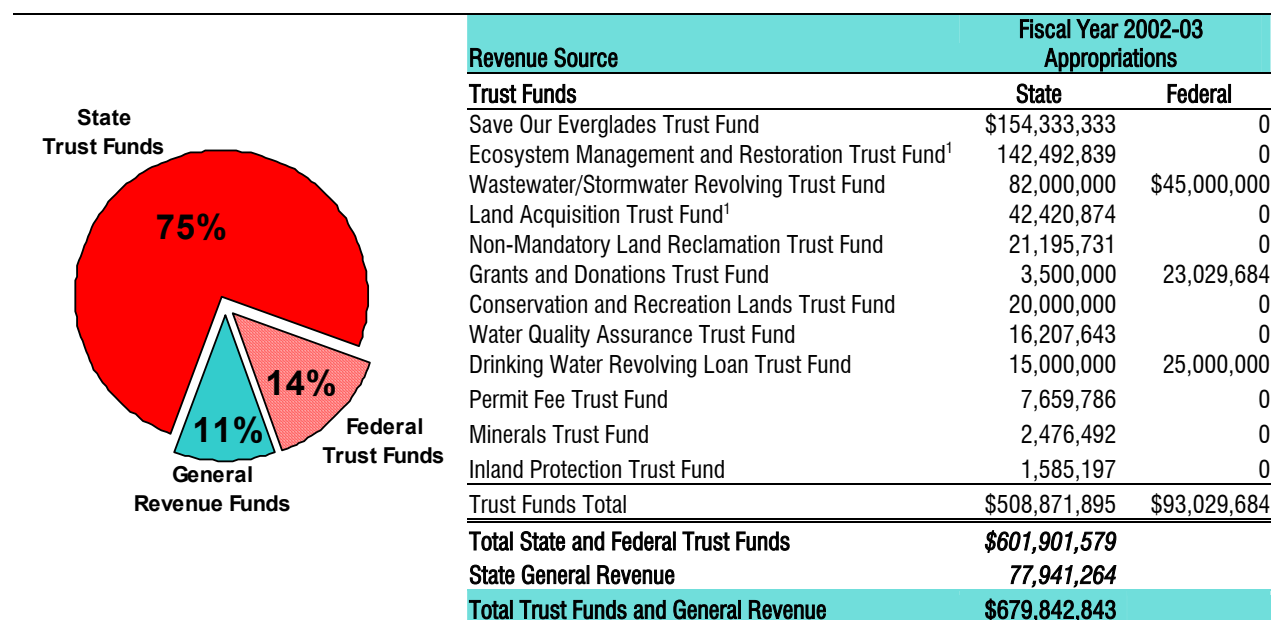
Source: South Florida Water Management District.

Program Resources

*The program is
funded primarily by
state trust funds*

For Fiscal Year 2002-03, the program was appropriated \$679.8 million and 367 positions to administer water resource management programs. As shown in Exhibit 4, \$77.9 million (11%) was from general revenue, while \$601.9 million was from various trust funds. Further, 75% of the total appropriations is from state funding sources, the majority of which are used to acquire land in the Everglades for water control structures and conservation, fund individually appropriated water projects, and match federal grants for wastewater and stormwater projects. Federal funds account for 14% of the total funds and are used primarily to support the state revolving loan programs.

Exhibit 4
Water Resource Management Program Primarily Supported by State Trust Funds



¹ The amounts appropriated in the Ecosystem Management and Restoration Trust Fund and the Land Acquisition Trust Fund in Fiscal Year 2002-03 significantly increased from their Fiscal Year 2001-02 levels because they are now being used as vehicles to fund individually appropriated water projects.

Source: Florida Department of Environmental Protection.

The Legislature appropriated an additional \$24.6 million and 460 positions to the department's district offices to conduct water resource protection and restoration activities. Of this amount, \$11.9 million was from general revenue and \$12.7 million was from trust funds.

Water management districts primarily funded by ad valorem taxes

Florida's five regional water management districts also receive state funding to perform water resource management-related activities. For Fiscal Year 2000-01, the districts budgeted \$1.1 billion for its programs, of which \$333.9 million (31.2%) was from state funding sources, \$420.5 million (39.4%) was from ad valorem taxes levied by the districts, and \$314.3 million (29.4%) was from other sources, including federal and carryover funds.¹⁰

¹⁰ Data obtained from the Executive Office of the Governor's most recent *Report on Water Management District Expenditures For Fiscal Year 1999-2000* and *Review of Water Management District Budgets for Fiscal Year 2000-2001*.

Program Benefit, Placement, and Potential for Privatization

The Water Resource Management Program serves Florida's citizens by providing water conservation and protection services to ensure safe drinking water, healthy wildlife and aquatic life, and domestic, agricultural, industrial, and recreational activities. The program is appropriately placed within the Department of Environmental Protection, which is the state's primary natural resource protection agency. Because many of the water resource restoration and protection services are regulatory in nature, there are limited opportunities for privatization.

The program is beneficial and should be continued

Program activities protect the state's rivers, stream, lakes, and estuarine areas

The Water Resource Management Program provides a valuable service and should be continued. The Florida Water Resources Act states that the waters of the state are among its most basic resources, which must be managed to conserve and protect natural resources and scenic beauty and to realize their full beneficial uses.¹¹ Thus, the program has primary responsibility for protecting more than 51,000 miles of rivers and streams, 7,700 lakes, and 4,437 square miles of estuaries.

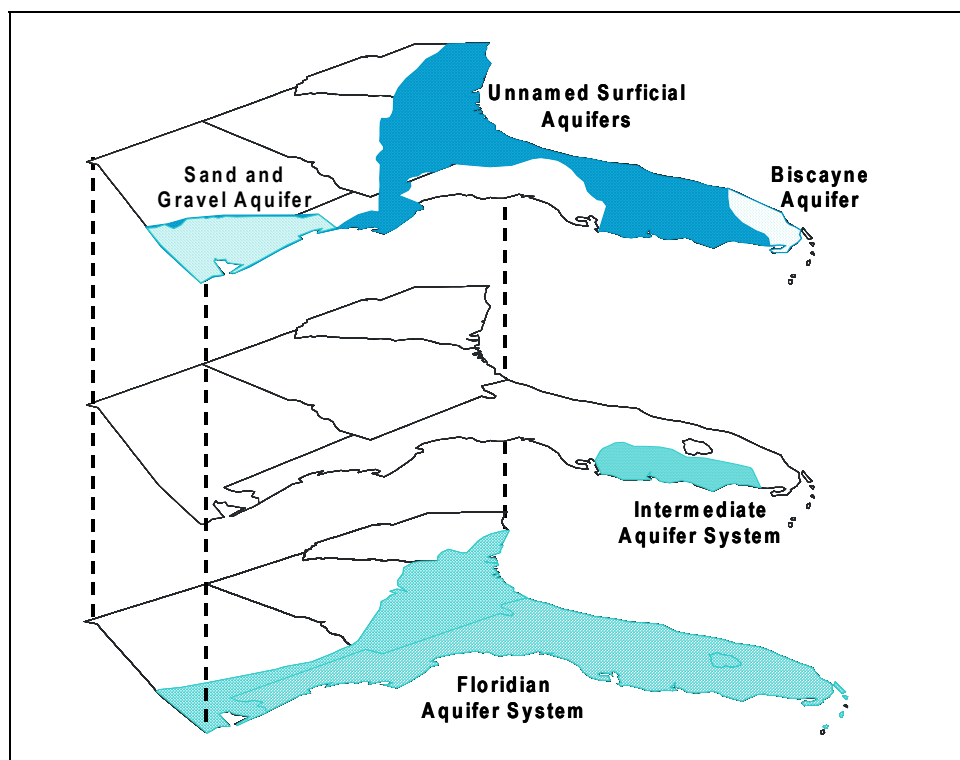
Surface waters primarily support swimming and fishing, and ground water supplies drinking water

The state relies on surface and ground water resources for a number of important uses. Surface waters are used for a variety of purposes, but most are managed to support aquatic life and recreational activities, such as swimming and fishing. Ground water supplies more than 90% of Florida's residents and visitors with drinking water. Additionally, ground water resources supply over 50% of all water needs, including agricultural, industrial, mining, and electric power generation. As shown in Exhibit 6, ground water contained in aquifers underlies virtually all of Florida.

¹¹ Chapter 373, F.S.

Exhibit 6

**The Floridian Aquifer Is a Primary Water Source for Potable, Industrial,
Irrigation, and Rural Uses**



Source: U.S. Geological Survey.

***Eliminating the
program would
compromise water
quality***

Eliminating the program would endanger the state's water supplies and other natural resources, the public's health and safety, and the state's economy, which relies on safe, clean water. The state's water sources are highly susceptible to contamination and the program has implemented a number of strategies to protect them. In addition, the state would lose approximately \$70 million in annual federal funding to construct or upgrade high priority wastewater and drinking water treatment facilities and stormwater management projects.¹²

In addition, abolishing the program also would jeopardize the state's valuable beaches and coastal systems that it relies on to attract millions of visitors each year. Program employees conduct activities that protect and preserve beach shorelines, regulate construction and excavation activities in 25 coastal counties, and measure shoreline changes and trends. Eliminating these functions could result in serious environmental and economic impacts.

¹² This figure is based on Florida's share of federal allotments for the Clean Water and Drinking Water State Revolving Fund Programs. For Fiscal Year 2002-03, Florida received \$45 million to support the wastewater and stormwater projects and \$25 million for drinking water projects.

Organizational placement of the program is appropriate

***The program is
consistent with DEP's
mission***

The program is appropriately administered by the Department of Environmental Protection (DEP) and the water management districts. Program activities are consistent with the department's mission to protect the state's environment and natural resources. Other states' water resource protection programs also usually are administered by environmental agencies.

***Other state agencies
have water resource
management-related
duties, but that is not
their central focus***

Although a number of state agencies other than DEP have a role in protecting the state's natural resources and water quality, managing the state's water resources is not their central focus. For example, the Fish and Wildlife Conservation Commission performs some water quality-related activities, but its efforts are concentrated on protecting, conserving, and managing aquatic environments that serve as habitat to aquatic plants and animals. The Forest and Resource Protection Program within the Department of Agriculture and Consumer Services helps protect water quality by managing the state's forestlands, but is not directly responsible for providing water resource protection services.

***Neither the department
nor water management
districts can assume
all the responsibilities
associated with
managing and
protecting the state's
waters***

It would not be desirable to either centralize the program within DEP or decentralize the program to the water management districts. If the program were centralized, the state would need to find a replacement for the program funds currently raised through the district's ad valorem taxes, and the department would likely not be as responsive to local needs as are the districts.¹³ If the program were decentralized, the water management districts would need to raise local ad valorem taxes to replace state funding. In addition, decentralizing the program could result in a loss of a statewide program perspective because the districts primarily focus on protecting water resources in their individual regions.

Potential for further privatization is limited

***Some program
activities are currently
privatized***

Opportunities to use private vendors to provide program services are limited. The department currently uses a private contractor to perform many of the administrative tasks associated with operating the National Pollutant Discharge Elimination System (NPDES) Stormwater Program, such as operating the permit application processing center, performing data entry and management activities, preparing permit documents, and conducting compliance inspections. This federally delegated program controls water pollution by regulating point sources that discharge

¹³ Article VII, Section 9 of the Florida Constitution authorizes the state's five water management districts to levy ad valorem taxes upon the assessed value of real property within each district's boundaries. The constitution prohibits the state from assessing ad valorem taxes. The Northwest Florida Water Management District is limited to a constitutional millage cap of 0.05 mill (one-twentieth of a mill), while the remaining four districts are limited to a maximum of 1.00 mill.

*Program Benefit, Placement, and
Potential for Privatization*

***There are limited
opportunities to
outsource some
regulatory services***

pollutants into surface waters. The department also has contracted with the Florida Rural Water Association to provide technical assistance to small communities' wastewater and drinking water systems.

In general, other program functions cannot be readily privatized because they involve the use of the state's police powers, such as enforcing regulations.¹⁴ However, there are limited opportunities to outsource some of its regulatory services to local government entities, such as the permitting of drinking water distribution systems, wastewater collection systems, and issuance of coastal construction control line permits. Collection systems prevent overflows that could affect surface and ground water or underground drinking water lines. Distribution systems prevent conflicts with other underground utilities and provide sufficient drinking water treatment.

The department also has proposed outsourcing the Operator Certification Program, but it is not cost-efficient to do so. This program tests, licenses, and oversees continuing qualifications of more than 10,000 water and wastewater treatment plant operators. It is feasible to contract out these services because they are not regulatory activities and are administrative in nature.¹⁵ Some elements of the program are already contracted out, such as printing, mailing, and tracking licensee education credits. However, to contract out the remaining functions, such as licensing, testing, and training, statutory and rule changes will have to occur and the department will have to request approval from the U.S. Environmental Protection Agency. Also, it may not be feasible to privatize the program's investigative and enforcement activities because these are regulatory functions and involve the state's police powers. Overall, it appears that it will not be cost-efficient to use a private contractor to provide all of the services not currently being provided by private contractors because department estimates show that contractor costs, ranging from \$340,000 and \$450,000, would exceed departmental costs of \$300,000.

¹⁴ *Assessing Privatization in State Agency Programs*, OPPAGA [Report No. 98-64](#), February 1999.

¹⁵ A request for proposals for outsourcing the program would have to address all the licensing, testing, security, training, fee collection, tracking, and database maintenance elements of the program.

Florida's Water Quality Is Generally Good, But Faces Contamination and Supply Threats

Florida's water quality is generally good. The program met its legislative performance standards related to surface water quality and ground water quality and supply in Fiscal Year 2001-02. It met or exceeded legislative performance standards for the percentage of surface waters (lakes, rivers, and estuaries) that met their designated uses; the percentage of ground water meeting its designated use; the percentage of wastewater reclaimed for non-potable uses; and the percentage of miles of critically eroding beaches restored or maintained.

However, Florida's surface and ground waters are threatened by various pollutants. To address threats to surface water quality, the department is in the process of establishing Total Maximum Daily Loads (TMDLs) for impaired surface water bodies. In this initiative, the department plans to implement various regulatory, non-regulatory, or incentive-based actions to reduce pollutants from non-point sources. See Chapter 4 (pages 21 to 31) for OPPAGA's review of the status of the department's TMDL initiative.

Although the program is meeting current water supply needs, the department and water management districts forecast that meeting Florida's water demands by the year 2020 will require greater use of alternative sources of water, such as desalination and water reuse.

The program is meeting legislative performance standards relating to water quality

The program is meeting surface water quality standards

A primary program goal is to improve the quality and ecological health of Florida's surface and ground waters and aquatic ecosystems. The department met its legislative performance-based program budgeting standards relating to the quality of Florida's surface waters, including rivers, lakes, and estuaries. As shown in Exhibit 7, DEP reported that 87% of Florida's lakes met their designated uses in Fiscal Year 2001-02, which meets the legislative performance-based budgeting standard. The term

*Florida's Water Quality Is Generally Good,
But Faces Contamination and Supply Threats*

"designated use" means the present and future most beneficial use of a body of water. Florida's Environmental Regulation Commission classifies the state's water bodies as having one of five designated uses.¹⁶

- **Class I - Potable Water Supplies (suitable for drinking).** This includes 14 areas throughout the state, including impoundments and associated tributaries and certain lakes, rivers, or portions of rivers used as sources of drinking water.
- **Class II - Shellfish Propagation or Harvesting.** These are generally coastal waters where commercial shellfish harvesting occurs.
- **Class III - Recreation, Propagation and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife.** The surface waters of the state are designated as Class III unless otherwise described in rule.
- **Class IV - Agricultural Water Supplies.** These are generally located in agricultural areas around Lake Okeechobee.
- **Class V - Navigation, Utility and Industrial Use.** Currently, there are no Class V bodies of water in Florida. The Fenholloway River was classified as a Class V waterbody until 1998, when it was reclassified as Class III.

Exhibit 7

The Department Reports It Met Legislative Performance Standards for Florida Surface Waters Meeting Their Designated Uses in Fiscal Year 2001-02

Performance Measure	Fiscal Year 2001-02 Actual Performance	Fiscal Year 2001-02 Legislative Standard
Percentage of rivers that meet designated uses	92%	92%
Percentage of lakes that meet designated uses	87%	87%
Percentage of estuaries that meet designated use	95%	95%
Percentage of state water segments that meet designated uses	89%	89%

Source: Florida Department of Environmental Protection.

¹⁶ The Environmental Regulation Commission is composed of seven members who are residents of the state and represent key stakeholder groups. Members are appointed by the Governor and are subject to confirmation by the Senate. The commission has two primary roles: (1) to establish priorities and approve authority for disbursements of federal and state grants for construction of wastewater and water treatment facilities, and (2) approve for adoption most standards relating to air pollution, water quality, and waste management.

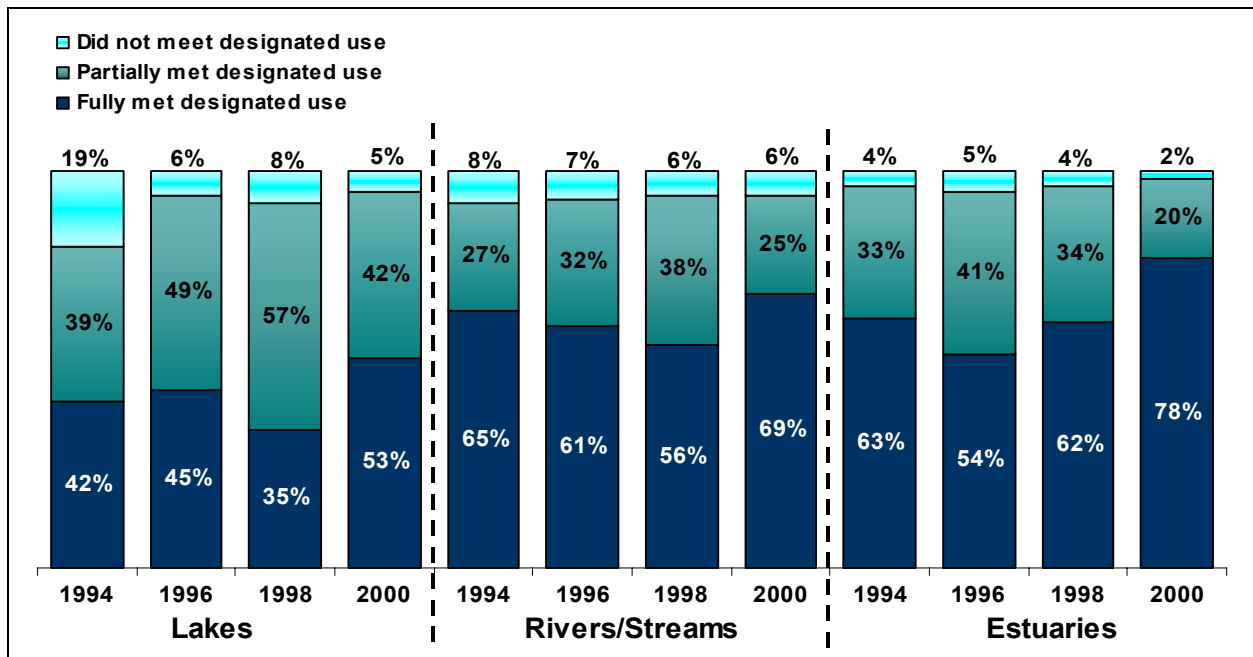
Florida's Water Quality Is Generally Good, But Faces Contamination and Supply Threats

It should be noted that these performance data represent a combination of the percentage of waters that either fully or partially met the appropriate designated use criteria.¹⁷ (See Appendix B for a complete list of the program's legislatively approved performance measures, standards, and actual performance in Fiscal Year 2001-02.)

Surface water quality generally has improved over the last eight years

Our analysis of water quality data shows that surface water quality has improved over the last eight years.¹⁸ As shown in Exhibit 8, the percentage of water bodies meeting and partially meeting their designated uses generally has increased since 1994 while the percentage not meeting their designated uses has declined.

Exhibit 8
Since 1994, Rivers and Estuaries in Better Condition Than Lakes



Source: Florida Department of Environmental Protection, *Secretary's Quarterly Report*, May 2001 and 2000 Florida Water Quality Assessment: 305(b) Report, 2000.

¹⁷ The department determines whether a waterbody is meeting its designated use by rating a water body in four categories: (1) Water Quality Index for streams and Trophic State Index for lakes or estuaries, (2) biological data, (3) exceeded standards for conventional pollutants, and (4) exceeded standards for metals. For each category, a water body is given a rating of 1 for good water quality, 3 for fair water quality, and 5 for poor water quality. An overall average rating is then calculated for each water body. The water body is then scored as meeting its designated use based on the following criteria: average rating of 1 to 2 or less are rated as fully meeting their designated use, average rating of over 2 to 4 or less rated as partially meeting their designated use, and average rating of over 4 to 5 not rated as meeting their designated use.

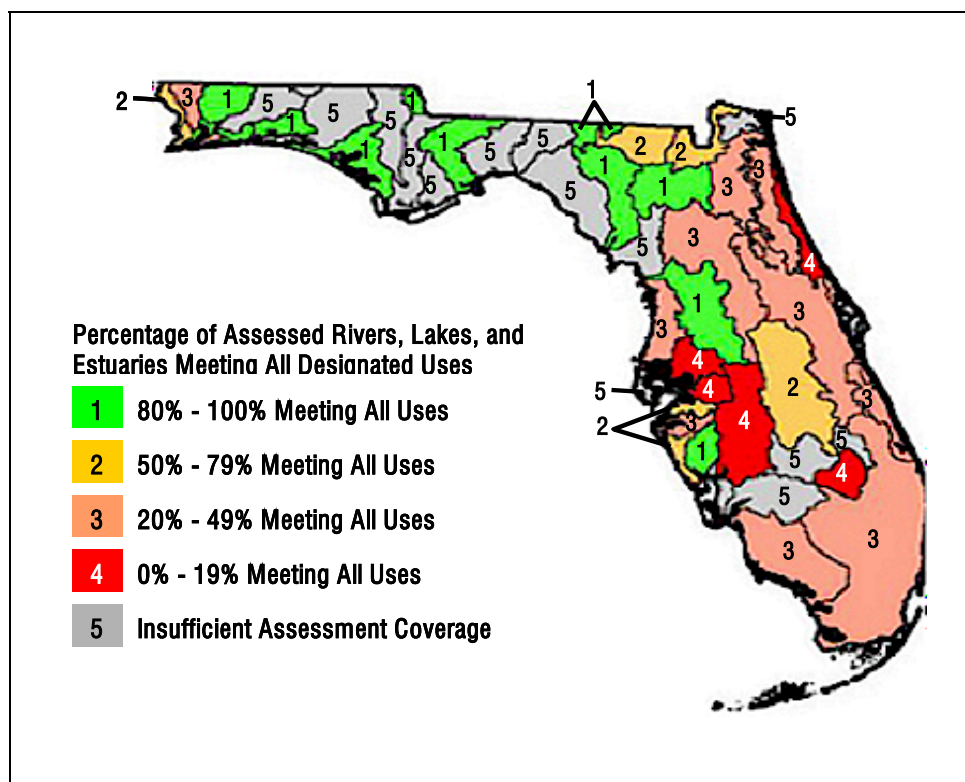
¹⁸ The department submits the *Florida Water Quality Assessment Report* or 305(b) report to the EPA every two years. This report summarizes the quality of the state's water resources, regulatory developments, impacts to surface water and ground water, water quality trends, and current restoration and protection programs. The EPA compiles the state reports into the *National Water Quality Inventory*, which is submitted to the U.S. Congress.

*Florida's Water Quality Is Generally Good,
But Faces Contamination and Supply Threats*

Some water bodies are still experiencing problems, especially in highly urbanized areas

Although the percentage of rivers, lakes, and estuaries meeting their designated uses has increased over the last eight years, some of these water bodies are experiencing water quality problems. Water quality in Florida's rivers is being degraded by nutrient enrichment, low dissolved oxygen or organic enrichment, siltation, and pathogens. Nutrients and algae are degrading water quality in Florida's lakes and estuaries. As shown in Exhibit 9, surface water quality problems are primarily concentrated in highly urbanized areas of central and southern Florida.

**Exhibit 9
Most Polluted Water Bodies Are Located in Urban Areas**



Source: U.S. Environmental Protection Agency.

Non-point pollutants are a threat to surface water quality

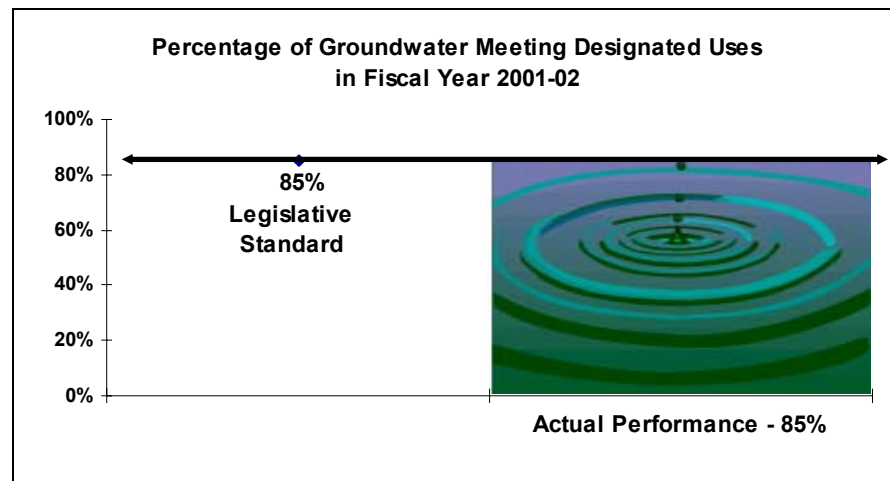
Although the program is meeting legislative standards, pollution from non-point sources, such as urban stormwater and agricultural runoff, remains a threat to surface water quality. To address threats posed by point and non-point sources, the department is in the process of establishing Total Maximum Daily Loads (TMDLs) for 711 impaired water segments (a portion of a water body). Under this initiative, the department plans to implement various regulatory, non-regulatory, or incentive-based actions to reduce pollutants from these sources. See Chapter 4 (pages 21 to 31) for a review of the status of the department's TMDL initiative.

Ground water quality and supply meets performance standards, but faces threats by pollutants and increasing water demands

Program is meeting legislatively approved ground water quality standards

Florida's groundwater is also generally good, and the state is meeting its supply needs. The department met the legislative performance standard for the percentage of ground water meeting designated uses (drinking water is its primary use) in Fiscal Year 2001-02. Department data shows that 85% of the state's ground water met its designated uses, which meets the standard of 85%. ¹⁹ (See Exhibit 10.) This is significant because ground water is the source of drinking water for 90% of the state's population.

**Exhibit 10
Program Met Legislative Performance Standards for
Ground Water Quality**



Source: Florida Department of Environmental Protection.

Ground water quality is generally good, but faces contamination threats

Although Florida's ground water is generally of good quality, it is highly susceptible to contamination from various sources. Two major sources affect the 15% of the state's ground water supply not meeting its designated use.

- **Nutrients that result from runoff from agricultural operations.** Agriculture uses large quantities of pesticides and fertilizers that can contaminate ground water supplies.

¹⁹ In Florida, ground water standards are equivalent to drinking water standards. In calendar year 2000, 89% of the ground water tested met Florida's primary drinking water standards and 93% of ground water met Florida's secondary drinking water standards. Primary and secondary drinking water standards establish allowable levels of regulated contaminants in ground water. Certain contaminants are limited under primary standards and others are limited under secondary standards.

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- **Contamination from leaking petroleum storage tanks.** As shown in Exhibit 11, many drinking water wells are within a one-half mile radius of sites contaminated by petroleum and dry-cleaning related pollutants.

Exhibit 11

Various Sources of Contamination Affect Drinking Water Supplies

Source of Contamination	Drinking Water Wells Within ½-Mile Radius of Contaminated Sites	Residents Potentially Affected by Contaminated Supplies
Petroleum	3,799	15,612,294
Dry Cleaning	242	7,389,357
Other Sources	479	4,608,223
Superfund	19	143,385

Source: Florida Department of Environmental Protection, *Secretary's Quarterly Report*, May 2001.

However, the majority of petroleum tank contamination sites are the result of insufficient protection practices from over 20 years ago. Florida now requires underground storage tanks to be double walled and leak detection systems to be installed to minimize environmental effects from petroleum and petroleum products. OPPAGA has issued reports on the state's efforts to clean up petroleum contamination sites.²⁰ Since the inception of the Petroleum Cleanup Program in 1986, the state has spent \$1.57 billion for direct clean-up activities. Programs to address brownfields and dry-cleaning contamination sites have also been implemented.

***Program employees
being diverted from
regular mining
inspection duties***

The program did not meet the legislative standard for the number of mining inspections conducted in Fiscal Year 2001-02, as shown in Exhibit 12. Program employees inspect mining facilities to ensure they are meeting permit conditions. However, program employees did not perform as many inspections as the Legislature intended for two reasons. First, department representatives report that the department has changed the way it counts inspections, but the standard has not been revised to reflect this change.²¹ Second, program employees have been diverted from their regular inspection duties to perform activities to address problems associated with a phosphogypsum stack that experienced a spill in 1997, as well as Mulberry Corporation's subsequent bankruptcy in 2001.²² As a result, the department has taken financial responsibility for

²⁰ *Follow-up Report on the Petroleum Contamination Site Clean-up Reimbursement Program*, OPPAGA Report No. 98-09, August 1998 and *Review of the Petroleum Contamination Site Cleanup Reimbursement Program*, OPPAGA Report No. 95-32, February 1996.

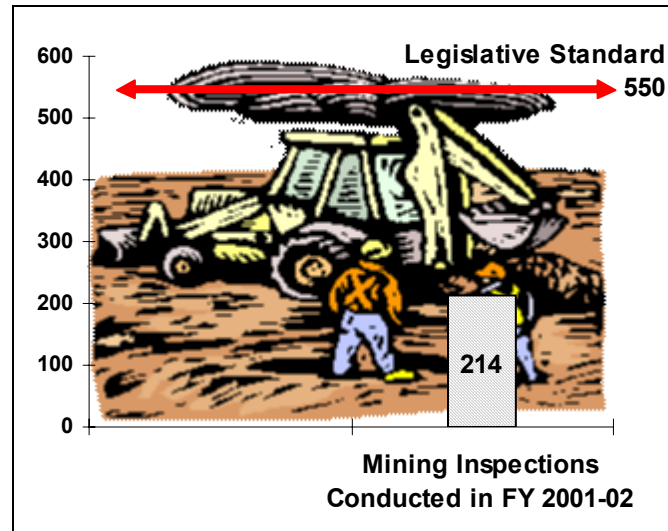
²¹ While the department may conduct a number of different inspections on a single day (i.e., permit, reclamation, conservation easement inspections), they are all counted as one inspection. However, the standard counts these inspections separately.

²² In December 1997, a phosphogypsum stack system managed by Mulberry Phosphate, Inc., overflowed into the nearby Alafia River, resulting in a massive fish kill.

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the spill site and is working to stabilize it to prevent future spills. Program employees also are developing and implementing new site security and safety rules for all phosphate mines and phosphogypsum stacks.

Exhibit 12
Program Failed to Meet Standard for Mining Inspections



Source: Department of Environmental Protection.

DEP and the water management districts forecast the state will have sufficient potable water supplies through 2020

Florida currently has sufficient water supplies, but they are being stressed by population growth and the drought of the last few years. Although the department and water management districts forecast that there will be enough potable water to meet Florida's demands through the year 2020, meeting future water supply needs will require careful planning, great care to protect natural systems, increased water conservation practices, and use of diverse sources of water, such as reuse of reclaimed water, desalination, and aquifer storage and recovery systems. The department is promoting the use of these alternatives to help meet future water needs.

Program is meeting the legislatively approved ground water supply standard

The department met the legislative performance standard for expanding water supply alternatives. In Fiscal Year 2001-02, wastewater treatment facilities processed 50% of wastewater into reclaimed water compared to a legislatively approved standard of 49%. Reclaimed water can be used for a variety of non-potable uses, such as irrigating agricultural crops and public landscapes, industrial practices, vehicle washing, and ground water recharge.

Program generally meeting standards for beach management

The department also met or substantially met most legislative performance standards for beach management. (See Appendix B.) The program met the legislative standard for percentage of miles of critically eroding beaches restored or maintained. However, it only processed 1,576 coastal construction permits in Fiscal Year 2001-02 compared to the legislative standard of 1,725. DEP employees report that the legislative standard anticipated the re-establishment of the Pinellas County Coastal Construction Control Line, which would have put more area under the jurisdiction of the department's Beach Management Program.²³ Because the coastal construction line program was partially delegated to Pinellas County, it has assumed the responsibility for issuing permits in the area. Thus, the legislative standard has been adjusted to 1,625 to reflect the change in responsibility.

²³ The Florida Legislature initiated the Coastal Construction Control Line Program to protect the coastal system from improperly sited and designed structures, which can destabilize or destroy the beach and dune system. Adoption of a coastal construction control line establishes an area of jurisdiction in which special siting and design criteria are applied for construction and related activities.

TMDL Development Reasonable; Implementation, Cost Concerns May Affect Future Success

Florida's surface water pollution is primarily caused by non-point sources such as stormwater runoff. DEP is in the process of implementing the Total Maximum Daily Load (TMDL) Program, which will initially focus on developing strategies for controlling non-point sources of pollution. A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive without violating water quality standards. This amount is allocated among the point and non-point sources that surround a waterbody and are causing it to be polluted. The Federal Clean Water Act and the U.S. Environmental Protection Agency require states to establish TMDLs for each impaired water body.

The Department of Environmental Protection's (DEP) general approach to developing TMDLs appears reasonable. However, we identified several areas in which the department's processes for identifying impaired water bodies and for evaluating the effectiveness of various practices in reducing pollutant loads needs to be improved.

- The department's process for identifying impaired water bodies may result in it identifying low priority water bodies, such as some storm water conveyance systems, canals, and ditches, as being impaired and requiring TMDLs.²⁴ DEP managers realize that developing TMDLs for low priority water bodies would not be an effective use of the state's limited resources. However, to change the way these water bodies are classified so that TMDLs will not be required for them will require considerable effort by DEP.
- Florida law requires DEP to report on the TMDL Program's effectiveness to the Governor and the Legislature by January 1, 2005. However, there is no requirement for interim reporting on the progress being made in implementing best management practices to reduce discharges from agricultural pollutant sources. Interim progress reports would provide the Legislature with needed information on whether the best management practices are being

²⁴ Retention ponds are not included on the impaired waters list because they are not waters of the state.

*TMDL Development Reasonable; Implementation,
Cost Concerns May Affect Future Success*

implemented as planned and provide the basis for assessing whether any future changes in pollutant levels could be attributed reasonably to program activities.

- To meet TMDLs, the department, in coordination with other entities, will likely need to implement strategies such as improving storm water management and improving septic tank and sewer systems. The implementation costs for these strategies are uncertain, but are likely to be high. The department needs to develop cost estimates and funding strategies for legislative consideration.

The department is currently developing Total Maximum Daily Loads, which must be completed before a 2012 court-ordered deadline

The federal Clean Water Act requires states to develop total maximum daily loads (TMDLs) for each impaired waterbody. TMDLs represent the maximum amount of a pollutant from all sources that can be present in a water body with a particular designated use (recreational use, aquatic habitat, etc.) without violating water quality standards.²⁵ TMDLs also provide the basis for identifying strategies to be used to help an impaired waterbody meet those standards.

DEP to develop TMDLs for state water bodies by 2012

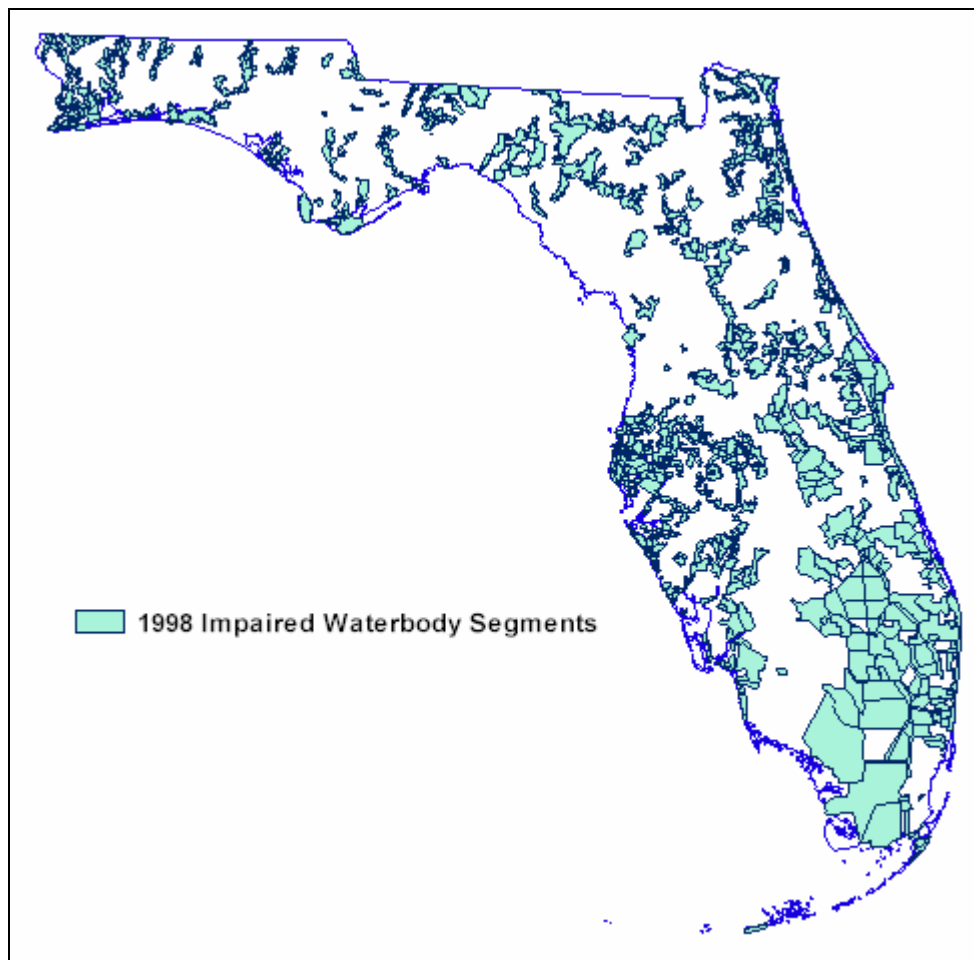
The department is taking action to establish TMDLs for impaired state water bodies by a 2012 deadline set by the U.S. District Court of Appeals. In August 1999, the U.S. District Court for the Northern District of Florida ordered the EPA to establish TMDLs for 711 segments of 500 water bodies in Florida by 2012.²⁶ As shown in Exhibit 13, most of the impaired water bodies are located in central and south Florida. The department is to develop TMDLs for these water bodies under the terms of an agreement with the EPA.

²⁵ 33 *United States Code*, ss. 1313.

²⁶ *Florida Wildlife Federation, Inc., et al., v. Browner, et al.*, Case No. 4:98cv356-WS, Order Approving Consent Decree (N.D. Fla. Aug. 7, 1999).

Exhibit 13

Most Water Bodies Identified as Impaired Located in Central and South Florida



Source: Florida Department of Environmental Protection.

DEP will use a five-phase approach to assess watersheds and develop TMDLs

The department plans to develop and implement TMDLs through a watershed management approach (a five-phase approach that is expected to take five years to complete for each watershed in the state's 62 water basins). A watershed is a waterbody and the feeder streams that flow into it. Under the watershed management approach, Florida's water resources are managed on the basis of natural boundaries such as river basins rather than political or regulatory boundaries. Beginning in the third phase, DEP will convene watershed stakeholders to develop Basin Management Action Plans that will specify the programs, projects, and activities that will be undertaken to reduce pollutant loads to meet the TMDL. The department plans to allocate specific amounts of a pollutant to both point and non-point dischargers that contribute to the pollution level in a specific waterbody. These dischargers may have to implement new or additional pollution control measures or best management practices to

TMDL Development Reasonable; Implementation, Cost Concerns May Affect Future Success

reduce overall pollutant levels.²⁷ (See Exhibit 14 for a summary of the department's five-phase approach.)

Exhibit 14
Watershed Management Approach Consists of Five Phases

Phase	What Happens in this Phase?	When Does It Occur?
Phase 1 -- Initial Basin Assessment	DEP will conduct a Preliminary Basin Assessment that includes the development of a list of potentially impaired waters for which TMDL assessments will be conducted.	Years 1 - 2
Phase 2 -- Coordinated Monitoring	Targeted monitoring will be conducted to help verify whether waters are actually impaired and to develop data needed to calibrate and verify models for TMDL development. At the end of this phase, waters that are verified as being impaired will be placed on a basin-specific list of impaired waters that will be designated by DEP.	Years 1 - 3
Phase 3 -- Data Analysis and TMDL Development	TMDLs for priority-impaired waters within the watershed will be developed and adopted by rule.	Years 2 - 4
Phase 4 -- Basin Management Plan Development	Watershed management plans, including the TMDL development plans, will be developed with public participation.	Years 4 - 5
Phase 5 -- Begin Implementation of Basin Management Plan	Dischargers will implement the activities specified in the watershed management plan.	Year 5+

Source: A Report to the Governor and Legislature on the Allocation of Total Maximum Daily Loads in Florida, February 1, 2001.

The department has concluded that it would be cost prohibitive and complex to develop TMDLs for all the 711 impaired water segments in Florida during a single five-year period. We estimated the department's cost of developing 2,000 TMDLs (Phases 1-4 of the Watershed Management Approach) to be \$56 million, based on EPA's cost estimates.²⁸ The department will incur some additional cost to carry out its responsibilities in Phase 5 of the approach.²⁹ Accordingly, it is planning to phase in the watershed reviews on a prioritized basis.

²⁷ Best management practice (BMP) refers to a practice, or combination thereof, that are determined to be the most effective and practicable means of reducing non-point source pollution and improving water quality. BMPs may include structural controls, such as retention or detention ponds, non-structural controls, such as land management or street sweeping.

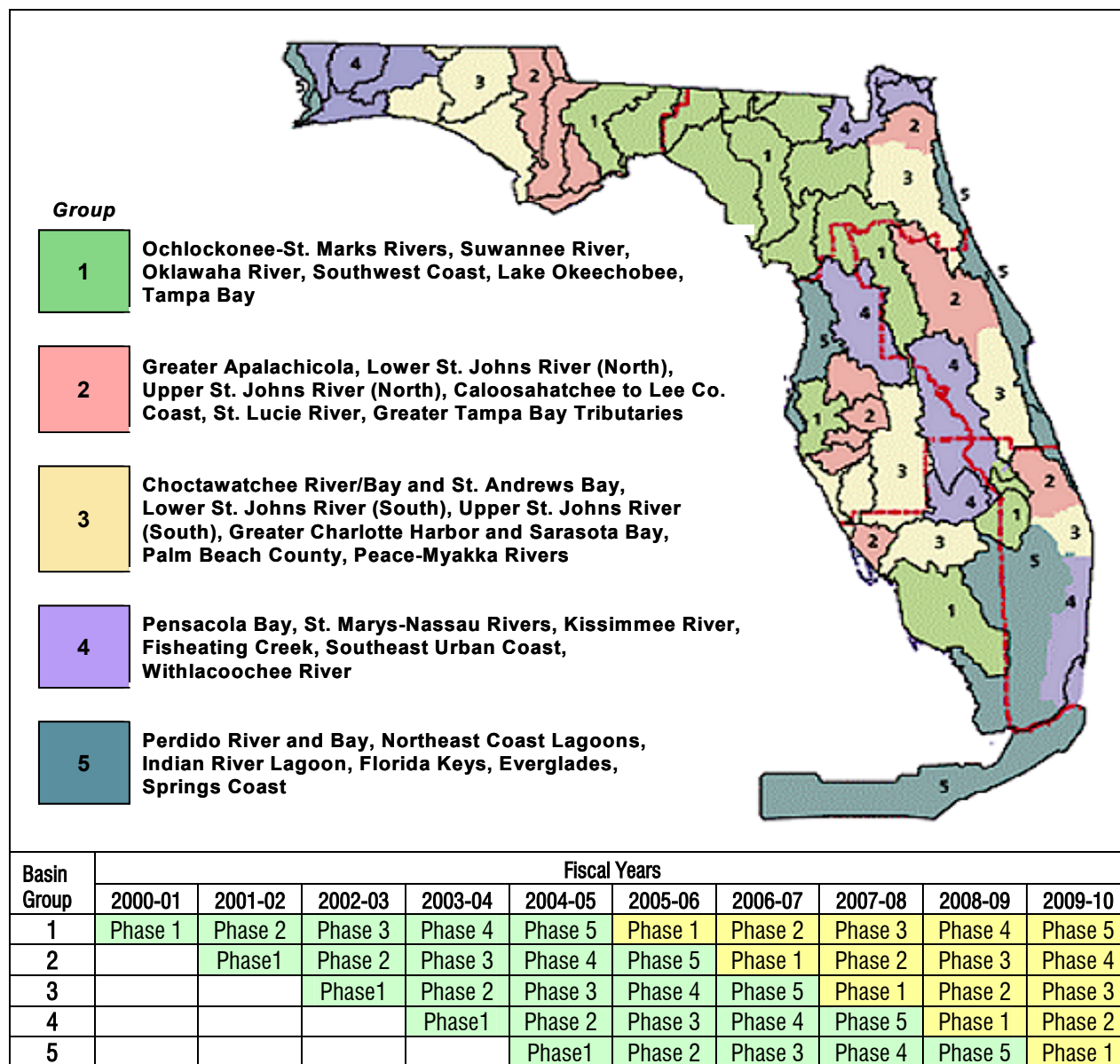
²⁸ The estimate of the cost to develop nearly 2,000 TMDLs for Florida's impaired water bodies is based on EPA's projected national average cost of \$28,000 to develop each TMDL. However, this figure could be as high as \$308 million, depending on the complexity of individual TMDLs.

²⁹ This estimate may vary depending upon whether some waterbody pollutants are addressed through means other than TMDL development. For example, implementation of best management practices may result in attainment of water quality standards prior to the development of a TMDL. In addition, the department has the authority to remove water bodies from the impaired waters list if new data determines that they meet standards.

*TMDL Development Reasonable; Implementation,
Cost Concerns May Affect Future Success*

As shown in Exhibit 15, the department plans to complete assessments for the first group of watersheds by Fiscal Year 2004-05. This group includes watersheds with priority impaired water bodies already identified by the department.³⁰ The department is currently on schedule to complete these assessments by its planned deadline.

Exhibit 15
DEP Plans to Phase in Assessment of the State's Priority Impaired Waters



Source: Florida Department of Environmental Protection.

³⁰ Section 403.067(2), *F.S.*, requires the department to prioritize its list of polluted waters for which TMDLs will be developed.

*TMDL Development Reasonable; Implementation,
Cost Concerns May Affect Future Success*

***TMDL for phosphorous
has been developed for
Lake Okeechobee***

The department is using this type of phased approach to implement a TMDL for a major contaminant (phosphorous) in Lake Okeechobee.³¹ The department included Lake Okeechobee on a list of Florida's impaired waters that it submitted to EPA in 1998.³² The department set a TMDL for phosphorous in Lake Okeechobee at 140 metric tons per year, which is significantly lower than the average annual phosphorous load for the lake over the last five years (498 metric tons per year).³³ The TMDL is designed to reduce the amount of the pollutant entering the lake, which will allow the lake's water quality to meet a target of 40 parts per billion of total phosphorous. Strategies to implement the TMDL will include having individual landowners implement best management practices to reduce phosphorous sources; implementing sub-basin and regional phosphorous control technologies, such as regional treatment systems; and implementing in-lake restoration activities, such as controlling exotic vegetation and removing sediment along key access points to the lake. According to DEP employees, several pilot projects are underway to assist in determining the costs associated with phosphorus removal in the lake. However, preliminary estimates show that approximately \$475 million is needed to implement the Comprehensive Everglades Restoration Plan for Lake Okeechobee, which addresses some of the activities need to implement the TMDL in the lake.

***The department's overall approach for developing
TMDLs is reasonable, but could be improved***

The department's multi-phase approach for developing TMDLs is reasonable. However, we identified several areas in which the TMDL development process can be improved.

³¹ Lake Okeechobee is a large, shallow freshwater lake with a surface area covering 730 square miles. It is the largest freshwater lake in Florida and the second largest freshwater lake in the contiguous United States. Since Lake Okeechobee is a source of drinking water, the department has designated it as a Class I water body. Lake Okeechobee also provides irrigation water for agricultural industries, recharge for aquifers, habitat for fish and waterfowl, and flood control, navigation, and recreational opportunities.

³² Pursuant to section 303(d) of the federal Clean Water Act, the department must submit a list of surface waters or segments of waters that are impaired and for which TMDL assessments will be conducted.

³³ Lake Okeechobee is an important water resource that has both ecological and societal value. Thus, when the ecology of the lake (and surrounding water bodies) is threatened, water management officials at the federal, state, and local levels must institute strategies to manage the resource. For example, water management district scientists have established water levels for Lake Okeechobee (between 13.5 and 15.5 feet) that are ideal for maintaining the health of the lake. When water levels rise above the established range, water managers institute a system of pulse releases that simulate natural rainfall events in an effort to help keep the lake level in check and provide some level of protection to the estuaries on the east and west coasts of Florida. Pulse releases are a way for water managers to avoid continuous high-volume releases for weeks on end, such as those that occurred in 1998, and allow salinity levels in the estuary to remain in healthy ranges from fresh to salty.

- **The department's process resulted in it identifying low priority water bodies, such as some storm water conveyance systems, canals, and ditches, as being impaired and requiring TMDLs.** This occurred because the department's process does not distinguish between water bodies, such as some stormwater conveyance systems, canals, and drainage ditches that are used to store or convey water containing pollutants from non-point sources, from lakes and rivers that receive discharges. Due to their design and natural conditions, storm water conveyance systems, canals, and drainage ditches would normally not meet Class III water quality standards. As noted previously, Class III water bodies primarily support recreational activities and propagation and maintenance of a healthy, well-balanced population of fish and wildlife. Consequently, some stormwater conveyance systems, canals, and drainage ditches are listed as impaired and require TMDLs.³⁴ DEP managers agree that including such insignificant waters on the list of 711 impaired waterbody segments will divert scarce resources away from developing and implementing TMDLs for more significant water bodies.

DEP managers realize that these water bodies should not be considered impaired, and that they may have to develop TMDLs for them. However, to change the way these water bodies are classified so that TMDLs will not be required for them, the department must initiate rulemaking, gather the necessary data, draft proposed criteria for each of the new classifications, and run these new classes/criteria through the formal rulemaking process. DEP managers said that rulemaking to designate new classifications is scheduled to begin in January 2003 and will require significant effort on their part. Therefore, it is unlikely that all new classifications will occur at once due to resource constraints. There is also a considerable workload associated with moving the water bodies into the more appropriate classifications.

Other states have addressed this problem by further differentiating water bodies within a specific designation class. For example, Ohio's Environmental Protection Agency developed tiered designated uses for their Class III waters to distinguish between beach use, primary water contact recreation use, and secondary water contact recreation use. Primary contact recreation includes full immersion activities, such as swimming, canoeing, and boating in streams or rivers that are at least one meter in depth. Secondary contact recreation includes activities such as wading, but where full body immersion is not practical because of depth limitations. Under this approach, priority is given to developing TMDLs for waters having the most significant uses.

³⁴ Department managers could not identify how many of these types of water bodies are included on the list of impaired waters. However, they noted specific drainage ponds that are listed as being impaired. For example, Godby Ditch in Leon County is listed as an impaired water body segment.

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- **The department lacks information needed to develop strategies to reduce pollutants from urban stormwater and failed septic systems to meet TMDLs.** A 2001 task force report to the Governor and Legislature recommended that the department use a multi-step process to allocate TMDLs for stormwater runoff and failed septic systems.^{35, 36} Under this process, the department would first estimate the amount of pollutant reductions that would occur if 45% of all urban areas met stormwater treatment requirements for new construction and 45% of the homes with failing septic systems or septic tanks within a 100-year floodplain that were documented to be contributing to the impairment were hooked up to regional sewer systems. If the reductions projected from this step were not sufficient to meet the TMDL, the department would then estimate the amount of additional reduction in pollutant loading that would be achieved if 90% of urban areas met stormwater treatment requirements for new construction and 90% of the septic tanks were hooked up to a sewer system. If the reductions for this step were not sufficient to meet the TMDL, the department would continue to allocate reductions to all sources until the TMDL is met.

The department would face several major impediments if it seeks to implement this recommended approach. It does not have adequate information for determining the extent to which new stormwater systems would need to be created or existing systems modified to sufficiently reduce pollutants to meet a TMDL.³⁷ Further, it does not have information on the location of malfunctioning septic systems or those located in 100-year floodplains of impaired water bodies. Data is available on septic tanks that have been repaired from the Florida Department of Health, which requires licensed contractors to report such repairs. However, data is not available on malfunctioning septic tanks that have not yet been repaired or that have been repaired by unlicensed parties. Without such information, it will be very difficult for the department to determine the amount of changes needed to reduce pollution loads and meet TMDLs.

It is also unclear how the state would pay for any proposed strategies to reduce pollutants from stormwater runoff and failed septic tanks.

³⁵ Stormwater runoff and septic systems are considered major sources of non-point pollution in urban areas. Estimates show that 80% of pollutant loads in urban areas are from stormwater runoff. Septic-tank drain fields are a potential source of pollution that may contribute to water body contamination.

³⁶ Pursuant to Ch. 99-223, *Laws of Florida*, the department established the Allocation and Technical Advisory Committee to address issues relating to the allocation of load reductions among point and non-point pollution sources. The committee developed recommendations on the process for allocating Total Maximum Daily Loads, and submitted them in a report to the Governor and Legislature. To view a copy of the report, see <http://www.dep.state.fl.us/water/tmdl/atac.htm>.

³⁷ To reduce pollutants from stormwater runoff, the department and the water management districts presently require developers to obtain stormwater or environmental resource permits and to use various practices, such as detention ponds, retention and infiltration areas, and wetland systems. However, developments created prior to the adoption of statewide stormwater regulations in 1982 are exempted from having to obtain a stormwater permit.

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The 2001 report did not provide a specific estimate of these costs, but stated that the costs of retrofitting urban areas to reduce stormwater runoff and for converting areas with septic tanks to sewer systems could potentially run into the billions of dollars. Also, a review of the department's Fiscal Year 2003-04 through 2007-08 Long Range Program Plan and 2003-04 Legislative Budget Request shows that the department is requesting an additional \$2.2 million a year over the next 12 years to develop approximately 2,000 TMDLs for listed waterbodies. However, the department did not provide information relating to the total overall costs to implement the TMDL Program.

Given these informational and cost impediments, it is imperative that the department keep the Legislature thoroughly informed regarding the status of its ongoing efforts to allocate TMDLs among non-point sources, such as stormwater runoff and septic systems. The Legislature needs such information to make informed decisions regarding the establishment of TMDL policies and to set funding priorities.

- **The department is not required to provide interim reporting on the progress being made in implementing best management practices to reduce discharges from non-point pollution sources.** Under the TMDL Program, non-point source polluters will voluntarily implement best management practices to reduce pollutants into impaired water bodies. Florida law makes the Department of Agriculture and Consumer Services (DACS) the lead agency responsible for working with agricultural non-point pollutant sources to implement appropriate best management practices for reducing pollutants.³⁸ A team made up of DACS, DEP, and water management district personnel will help agricultural businesses implement appropriate best management practices and will monitor the businesses' compliance with these practices. Local governmental entities will be responsible for ensuring that septic tanks and urban stormwater systems implement the necessary practices to meet their allocations.

Florida law requires DEP to issue a report to the Governor and Legislature on the effectiveness of the voluntary approach in implementing best management practices and reducing pollutant loads by January 1, 2005.³⁹ However, there is no requirement for interim reporting on the progress being made in implementing best management practices to reduce discharges from agricultural operations, septic tanks, and urban stormwater systems. Interim progress reports would provide the Legislature with needed information on whether the best management practices are being implemented as planned and provide the basis for assessing whether

³⁸ Section 403.067(7)(d), *F.S.*

³⁹ Chapter 99-223, *Laws of Florida*.

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any future changes in pollutant levels could be reasonably attributed to program activities.

Conclusions and Recommendations —————

The department's multi-phase approach for developing TMDLs appears reasonable. However, we identified several areas in which the department's process for identifying impaired water bodies and evaluating the effectiveness of various practices to reduce TMDLs needs to be improved.

***DEP should tier its
Class III designation***

To ensure that TMDLs are first developed for the most significant water bodies, we recommend that the Department of Environmental Protection further differentiate water bodies within a specific designation class similar to the approach used by Ohio for its Class III waters. The department's classification system should distinguish between primary contact uses such as swimming and canoeing, and secondary contact uses such as wading. Stormwater conveyance systems, canals, and drainage ditches, which are also Class III waters, should be defined as non-contact uses. This would allow the department to give priority to developing TMDLs for waters having the most significant uses.

***DEP should annually
report the status of
efforts to allocate
TMDLs***

The department faces several major challenges that will need to be addressed in order for it to implement strategies to reduce pollutant levels from certain non-point sources, such as stormwater runoff and failed septic systems. The department does not have adequate information for determining the extent to which new stormwater systems would need to be created or existing systems modified to sufficiently reduce pollutants needed to meet a TMDL. It also lacks information on malfunctioning septic systems. Without such information, it will be very difficult for the department to determine the number of changes needed to reduce pollution loads and meet TMDLs. Further, it is unclear how much it would cost to implement the changes needed to meet TMDLs. To address these concerns, we recommend that the Legislature require the department to annually report on the status of its efforts to allocate TMDLs under its watershed management approach. The department's report should describe the status of efforts to allocate TMDLs to stormwater and septic systems. The department should also develop estimates of the costs to implement strategies to meet TMDLs and proposals for how the strategies could be funded. The Legislature needs such information in order to make fully informed decisions on implementing TMDLs in Florida.

*TMDL Development Reasonable; Implementation,
Cost Concerns May Affect Future Success*

***DEP, DACS, and local
governments should
report annually on the
implementation of best
management practices***

To help ensure that the Legislature is informed regarding the progress being made in reducing pollutant discharges from non-point sources, we recommend that the Department of Environmental Protection, the Department of Agriculture and Consumer Services, and local governmental entities responsible for overseeing pollution control practices for septic tanks and urban stormwater systems jointly report annually to the Legislature on the implementation of best management practices and on the practices' results on an interim basis. Interim progress reports would provide the Legislature with needed information on whether the best management practices are being implemented as planned. It would also help the department determine whether any changes in pollutant levels could be reasonably attributed to these practices in its required review of the TMDL program's effectiveness in 2005.

Phosphate Mine Regulation Needs Strengthening

Phosphate mining is an important industry, but causes environmental damage and produces hazardous byproducts that need to be managed and controlled. The Department of Environmental Protection regulates phosphate mining and oversees the reclamation of mined areas. Our review identified two areas of concern regarding state regulation of phosphate mining.

- The state's financial responsibility requirements for phosphate mining companies do not provide adequate assurance that the companies have sufficient resources to correct environmental damage caused by their operations and to close and manage facilities created to store hazardous byproducts.
- The department's recent decision to consider allowing the creation of wetlands on clay settling areas as mitigation sites is controversial. However, the department appears to be addressing related concerns by requiring that wetlands created on clay settling areas as mitigation sites be successful before companies are allowed to mine a wetland area.

Phosphate mining is a major industry in Florida

Florida's mining companies supply 75% of the United States' demand and 25% of the world's demand for phosphate. Most of this phosphate (90%) is used in manufacturing fertilizers.⁴⁰

Phosphate mining is one of Florida's largest industries and has a significant economic impact on the state.

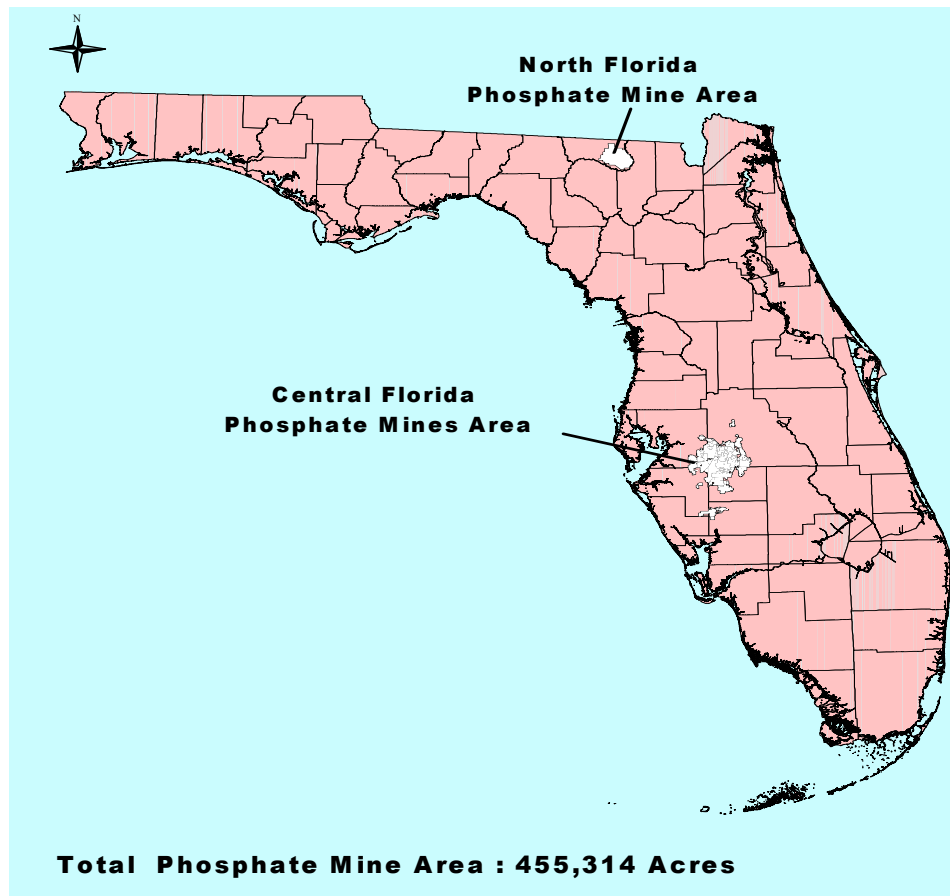
- During 2001, 22.8 million metric tons of phosphate rock were mined from 4,522 acres of land in Florida. During this year, Florida phosphate companies reported having 6,017 employees with a total payroll of \$403.9 million.
- During Fiscal Year 2000-01, 17,287,160 tons of phosphate-related materials were shipped through the Port of Tampa, which is Florida's

⁴⁰ The remaining 10% is used in making various products such as animal feed, soft drinks, and toothpaste.

largest port. Phosphate-related materials represented 37% of the liquid and bulk tonnage shipped through the port.

As shown in Exhibit 16, phosphate is presently mined in Polk, Hillsborough, Hardee, DeSoto and Manatee counties in central Florida and Hamilton County in north Florida.

Exhibit 16
Phosphate Mining Operations in Florida



Source: Department of Environmental Protection.

Phosphate mining has significant environmental effects

Phosphate mining significantly disturbs the environment. To obtain phosphate rock, mining companies use draglines to strip off the top layers of earth to expose soil containing phosphate. This soil layer is typically 15 to 30 feet below the surface. Approximately 310,295 acres of lands have been disturbed by phosphate mining activities in Florida.

The mining and processing of phosphate produces two byproducts that must be managed to reduce their environmental effects. The first

potentially harmful byproduct is phosphogypsum. Phosphogypsum is created when phosphate rock is chemically processed with sulfuric acid. Wastewater from this process represents a major environmental concern since it is highly acidic and contains heavy metals including concentrations of uranium and radium. Phosphogypsum is generally stored in large mounds called stacks that are typically hundreds of acres in size. The stacks are surrounded by impoundments that are designed to contain both the phosphogypsum and related wastewater. Presently, Florida phosphate mines have 25 stacks covering over 7,100 acres, of which nine are still in active use. See Appendix C for a list of phosphogypsum stacks in Florida.

The failure of phosphogypsum stacks, caused by breaches in containment impoundments, can lead to wide-scale environmental damage due to the large amount of highly acidic wastewater contained within the structure. A notable incident demonstrated the significant environmental damage that can be caused by a phosphogypsum stack failure. In December 1997, a phosphogypsum stack owned by Mulberry Phosphates, Inc., failed because an impoundment developed a breach. This resulted in the release of approximately 50 to 60 million gallons of acidic water into a tributary of the Alafia River in Polk County, which caused a massive fish kill.

The second byproduct that can adversely affect the environment is clay wastes. During the mining process, phosphate is separated from clay and sand by a process called beneficiation. The clay waste is then pumped back into settling areas where it is allowed to dry out. The process of drying out clay wastes can take many years. Clay wastes can pollute surface waters if allowed to wash into water bodies. Presently, clay settling areas cover over 125,000 acres in Florida.

The Department of Environmental Protection regulates phosphate mining and land reclamation

The Department of Environmental Protection's Bureau of Mine Reclamation is primarily responsible for regulating phosphate mining in the state. Regulatory activities include permitting mines, overseeing the mined land reclamation, monitoring construction and closure of phosphogypsum stacks, and approving wetland mitigation plans.

Reclamation. Florida law provides that areas mined for phosphate after 1975 be reclaimed to a beneficial use in a timely manner. Reclamation activities used to restore mined areas include restoring topsoil and original land contours, correcting interrupted hydrology, ensuring that wildlife are able to return to the disturbed area, and mitigating for damage done to wetlands. In addition, clay settling areas created during

mining operations must also be reclaimed. To ensure that reclamation efforts are adequate, department employees inspect mine reclamation efforts on a quarterly basis until a mined site is fully reclaimed. Mines that started operations after 1975 are reclaimed at the owner's expense.

Areas mined prior to 1975 are not required to be reclaimed, but landowners may voluntarily undertake reclamation efforts. Landowners submit reclamation plans to the bureau for review and approval. If their plans are approved, they are reimbursed for their costs through the Non-Mandatory Land Reclamation Trust Fund.⁴¹ The 2002 Legislature appropriated \$10 million for non-mandatory mine reclamation projects.⁴²

Closing Phosphogypsum Stacks. The department has adopted rules specifying practices to be followed by mining companies in closing phosphogypsum stacks. The rules provide specifications for lining and covering the stacks, collecting liquids, and monitoring groundwater to ensure that the stacks are operated in a safe manner and that groundwater and surface waters are not degraded. The owner or operator of any phosphogypsum stack system is responsible for monitoring and maintaining its facility in accordance with an approved closure plan for 50 years from the date of closing unless the department approves a request to reduce the monitoring and maintenance period.

State phosphate mining company financial responsibility requirements are inadequate

A major principle underlying state environmental policy is that polluters should pay to correct the environmental damage they cause. To help assure that phosphate mining companies can meet this responsibility, the department developed regulations specifying financial mechanisms intended to assure that companies have sufficient resources to correct environmental damages and to close and manage facilities created to store hazardous byproducts. Rule 62-673, *Florida Administrative Code*, provides that owners of phosphate mines must demonstrate they have sufficient financial resources to close phosphogypsum stacks. Mine owners have a number of options for demonstrating their financial responsibility:

- establishing and funding a closure trust fund;
- posting a surety bond guaranteeing payment into a closure trust fund;
- posting a surety bond guaranteeing performance of closure;

⁴¹ Primary sources of revenues for the fund are phosphogypsum stack registration fees and interest earnings. The unreserved balance in the Non-Mandatory Land Reclamation Trust Fund as of September 30, 2002, was \$30.3 million.

⁴² Only 77,656 acres of the 149,130 acres mined before July 1, 1975, are eligible for state reimbursement of reclamation expenses.

- obtaining an irrevocable letter of credit;
- obtaining closure insurance; or
- satisfying financial tests. Companies can satisfy the financial tests through a number of ways, such as having a ratio of total liabilities to net worth of less than two, having a net working capital of at least six times the current cost estimates for closing and managing the closed stacks, or having a tangible net worth that exceeds the company's financial assurance obligations by \$10 million, and a rating on its most recent bond issue of BBB or Baa.

All mine owners in Florida meet the financial responsibility requirements by satisfying the financial tests. This option is less costly for companies because they do not have to incur the expense of issuing a closure bond or purchasing closure insurance. However, the recent bankruptcy of a company that mined phosphate in Florida revealed weaknesses in using the department's financial tests as a basis for determining whether mine owners have sufficient resources to be able to close and manage phosphogypsum stacks. This places the state at an undue risk of having to shoulder costs that should have to be borne by the companies.

Recent bankruptcy of Florida phosphate mining company reveals weaknesses in financial responsibility requirements

In February 2001, the Mulberry Corporation, a company operating phosphate mines in Florida filed for bankruptcy.⁴³ As a result, the department had to assume responsibility for stabilizing and managing the phosphogypsum stacks formerly owned by the company. This has imposed a significant financial burden on the department. A department analysis made in January 2003 projected that by the end of Fiscal Year 2002-03, the department will have spent approximately \$43 million from the Non-Mandatory Land Reclamation Trust Fund to stabilize the stacks. The analysis also projected the total cost to complete the closure of the phosphogypsum stacks will be approximately \$164 million. As a result of these expenses, the department projects a \$13.3 million deficit by Fiscal Year 2005-06 in the Non-Mandatory Land Reclamation Trust Fund if all Fiscal Year 2003-04 non-mandatory reclamation activities are funded.

Department consultant has proposed strengthening phosphate company financial responsibility requirements

As a result of the bankruptcy of the Mulberry Corporation the 2001 Legislature passed legislation that required the department to review the adequacy of its financial responsibility requirements for phosphate

⁴³ As noted previously, a phosphogypsum stack owned by Mulberry Phosphates, Inc., failed in 1997 because a process wastewater impoundment developed a breach. This resulted in a large fish kill.

mining companies, and to take any measures necessary to ensure that the department's rules provide sound and effective provisions to minimize the environmental risks and threats to public health and safety from the failure of phosphogypsum stacks.⁴⁴ As part of its review, the department contracted with a financial consultant to review the adequacy of rules relating to assessing a company's financial condition. The consultant concluded that the current tests are inadequate for assuring that mine owners will be able financially to close phosphogypsum stacks.⁴⁵ For example, under the department's current tests, Mulberry Phosphates, Inc., met the requirements of financial responsibility for phosphogypsum stack closure for the three-year period preceding its bankruptcy.

The consultant recommended new, more stringent financial tests that would be more appropriate for determining a company's financial ability to close a phosphogypsum stack and pay the long-term costs of managing the stack. Under these new tests, Mulberry Phosphate, Inc., and three other mining companies would not have met financial responsibility tests in 1999 and 2000. The consultant also recommended that mine operators be required to submit audited financial statements to the department for verifying the data used in calculating financial ratios and other measures. Program managers said they concur with the findings of the consultant. They hope to have a first public workshop on adopting the new financial tests through the rulemaking process in February or March 2003 and hope to adopt the final rule by January 1, 2004.

We concur with the consultant's conclusions that the department's current tests are inadequate for assuring that mine owners will be financially able to close phosphogypsum stacks. However, we believe the department will need to take into consideration several concerns in devising the specific financial ratios and measures that mining companies will need to meet. Industry representatives are concerned that the proposed financial tests do not take into account some key factors. For example, they believe the department's estimated cost for closing a phosphogypsum stack is too high. The department's cost estimate is based on its experience to date in closing the stack formerly operated by Mulberry Phosphate, Inc. However, industry representatives said this cost was atypical because the department is inexperienced in operating and closing phosphogypsum stacks. They also stated that other phosphate mining companies have incurred much lower costs in closing their stacks. If this factor was not considered, the financial tests may be inappropriately strict and unreasonably difficult to meet.

In our opinion, the revised financial responsibility requirements must be set at a level that protects the state's interests while not having the

⁴⁴ Chapter 2001-134, *Laws of Florida*.

⁴⁵ Peterson, Pamela. *Financial Responsibility for Costs of Closing and Long-Term Care of the Phosphogypsum Stack System*. Florida State University, January 2002.

unintended effect of causing some mining companies to leave the business. If this occurred, the state would have to shoulder the high cost of closing more phosphogypsum stacks.

Department policy to consider clay settling areas to serve as wetland mitigation sites is controversial

Wetlands provide vital functions to the natural environment, including groundwater recharge, stormwater attenuation, and wildlife habitat. Given the environmental importance of wetlands, state policy is to prevent or minimize the loss of wetland functions. To carry out this policy, the department and the state's regional water management districts issue environmental resource permits to regulate activities that alter the landscape and disrupt water flow to wetland areas and surface waters. If a permit recipient cannot avoid damaging a wetland, it may need to take mitigating actions before a permit will be issued.⁴⁶ Mitigation actions can include creating new wetlands, restoring existing wetlands that have previously been damaged, enhancing the functions of wetlands, or preserving wetlands or associated uplands. Mitigation requirements may include activities on the affected site as well as mitigation actions taken at another site. Offsite mitigation options can include donation of funds to offsite regional mitigation areas as well as the purchase of mitigation credits from mitigation banks.⁴⁷

Phosphate is often mined from wetland areas. Approximately 25% to 30% of the lands annually mined by phosphate companies are wetlands. Mining companies have requested the department to issue permits that would allow them to create wetlands on the clay settling area as part of their mitigation and reclamation efforts because there is limited space available for other land uses. Creating wetlands on clay settling areas would allow the companies to conduct more mitigation onsite, which would reduce their costs by not having to conduct wetland mitigation on lands outside the mined area. It would also limit mitigation on lands that could be developed for other purposes. The department reports that it has required phosphate mining companies to create 14,851 acres of wetlands to mitigate the disturbance of 6,982 acres of wetlands and waters of the state. None of these wetlands created for mitigation purposes were on clay settling areas.

During the period from 1990 to 2000, the department did not allow the use of clay settling areas as wetland mitigation sites. The department

⁴⁶ Mitigation refers to actions that the applicant may propose to offset the adverse impacts the proposed development will have on surface waters and wetlands.

⁴⁷ OPPAGA has recently issued two reports concerning wetland mitigation. *Policy Review: Cumulative Impact Consideration in Environmental Resource Permitting*, OPPAGA [Report No. 01-40](#), September 2001, and *Policy Review: Wetland Mitigation*, OPPAGA [Report No. 99-40](#), March 2000.

based its position on a 1991 study that found that wetlands developed naturally on clay settling areas were not viable or sustainable. The department also concluded that while the reclamation of clay settling areas was improving, more information was needed before such areas would meet the department's requirements for serving as suitable wetland mitigation sites.

However, the department is now considering allowing clay settling areas to be used as wetland mitigation sites. A 2001 department report concluded that methods for restoring wetlands in clay settling areas have improved since the prior study in 1991.⁴⁸ Consequently, the department is considering allowing mining companies to use clay settling areas as wetland mitigation sites in the future. In October 2002, the department tentatively approved a company to create wetlands on a 400-acre clay settling pond to serve as a mitigation site.

The department's decision to consider allowing clay settling areas to be used as wetland mitigation sites is controversial. Representatives of the Southwest Florida Water Management District and Charlotte County told us that it is their experience that wetlands created on clay settling areas do not function properly; consequently, they believe that such areas are not suitable for serving as mitigation sites. They also said there were no large-scale projects demonstrating that viable, sustainable wetlands can be created on clay settling areas.

Department managers, however, said that the department would be taking these concerns into consideration. Companies will need to successfully demonstrate the long-term viability and sustainability of wetlands created on clay settling areas before they can receive mitigation credits for the site.

In addition, the Florida Institute of Phosphate Research is considering funding a study in January 2003 that would evaluate the viability of wetlands on clay settling areas. Also, as part of the federally administered National Estuary Program, the Charlotte Harbor Estuary Program recently conducted a workshop in November 2002 that focused on the availability of information regarding the suitability of clay settling areas as wetland mitigation sites, additional research needed to better understand their suitability, and identifying concerns regarding use of clay settling areas for wetland mitigation.⁴⁹

⁴⁸ *Guidance in the Reclamation of Forested and Herbaceous Wetlands on Phosphatic Clay Settling Areas*. Florida Department of Environmental Protection, Bureau of Mine Reclamation, April 19, 2001.

⁴⁹ The Charlotte Harbor National Estuary Program is a partnership of citizens, elected officials, resource managers, and commercial and recreational resource users working to improve the water quality and ecological integrity of the greater Charlotte Harbor watershed in Florida.

Conclusions and Recommendations —————

Phosphate mining benefits the state economically. However, past experience illustrates that the failure to effectively control phosphate mining byproducts can cause significant environmental damage. To ensure that the state does not shoulder the financial burden of closing phosphogypsum stacks and reclaiming phosphate mines, we recommend that the department proceed with amending its rules to strengthen the financial responsibility requirements for phosphate mining companies. In developing the new requirements, the department needs to ensure that the benefits to be achieved by the new requirements do not exceed their costs and that the requirements do not have the unintended effect of forcing mining companies to go out of business. If this occurred, the state would have to bear the long-term, costly burden of closing phosphogypsum stacks. In order to demonstrate this is the case, the department should conduct a cost-benefit analysis on the effects of its proposed requirements and provide the results to the Legislature.

In addition, consistent with the consultant's recommendations, the department should incorporate into the revised rules a requirement that company financial statements used in conducting financial tests be audited and prepared under generally accepted accounting practices. We further recommend that the Legislature amend s. 403.4154(2)(b), *Florida Statutes*, to require mining companies' chief executive officers to certify the accuracy and completeness of information used to satisfy financial tests.

The department's recent decision to consider allowing clay settling areas to be used as wetland mitigation sites is very controversial. Water management district and county employees do not believe it has been proven that wetlands created on clay settling areas are viable. However, the department appears to be addressing such concerns by requiring that wetland mitigation projects on clay settling areas be successful prior to allowing the mining companies to mine a wetland area. We recommend that the department continue to evaluate wetland mitigation on clay settling areas and ensure that the prototype mitigation sites are successful before giving widespread approval to the practice.

Appendix A

Statutory Requirements for Program Evaluations and Justification Reviews

Section 11.513(3), *Florida Statutes*, provides that OPPAGA program evaluation and justification reviews shall address nine issue areas. Our conclusions on these issues as they relate to the Department of Environmental Protection's Water Resource Management Program are summarized below.

Table A-1
Summary of the Program Evaluation and Justification Review of the
Water Resource Management Program

Issue	OPPAGA Conclusions
The identifiable cost of the program	For Fiscal Year 2002-03, the Water Resource Management Program was appropriated \$679.8 million and 367 positions to administer water resource management programs. The Legislature appropriated an additional \$24.6 million and 460 positions to the department's district offices to conduct water resource protection and restoration activities. Florida's five regional water management districts also receive state funding to perform water resource management-related activities. For Fiscal Year 2000-01, the districts budgeted \$1.1 billion for its programs.
The specific purpose of the program, as well as the specific public benefit derived therefrom	The purpose of the Water Resource Management Program is to manage, conserve, and protect the state's ground and surface waters.
The consequences of discontinuing the program	The Water Resource Management Program serves the public by implementing strategies to protect more than 51,000 miles of rivers and streams, 7,700 lakes, and 4,437 square miles of estuaries in Florida. The lack of a program to safeguard the state's water resources would endanger water supplies and other natural resources, the public's health and safety, and the state's economy, which relies on safe, clean water. The state's water sources are highly susceptible to contamination, and the program has implemented a number of strategies to protect them. Further, eliminating those functions associated with protecting and preserving the state's valuable beaches and coastal systems could also result in serious environmental and economic impacts.
Determination as to public policy, which may include recommendations as to whether it would be sound public policy to continue or discontinue funding the program, either in whole or in part	The public benefit derived from the water quality, water supply, and beach management services provided by the program illustrates that it is sound public policy to continue funding the program.
Progress towards achieving the outputs and outcomes associated with the program	The Water Resource Management Program met most legislatively approved standards relating to the condition of surface and ground waters, expansion of water supply alternatives, and beach restoration for Fiscal Year 2001-02.
An explanation of circumstances contributing to the state agency's ability to achieve, not achieve, or exceed its projected outputs and outcomes, as defined in s. 216.011, <i>F.S.</i> , associated with the program	Program performance is affected by various conditions that cause impairment to water quality. For example, during rainstorms, runoff from agricultural operations containing chemicals from fertilizers could contaminate nearby surface waters. These chemicals can also leach into the ground and contaminate the ground water, the state's primary source of drinking water. In addition, the state's financial

Issue	OPPAGA Conclusions
	responsibility requirements for phosphate mining companies do not provide adequate assurance that the companies have sufficient resources to correct environmental damage caused by their operations and to close and manage facilities created to store hazardous byproducts. Thus, program performance relating to surface and ground water quality could be adversely affected.
Whether the information reported pursuant to s. 216.03(5), <i>F.S.</i> , has relevance and utility for the evaluation of the program	Existing performance measures are sufficient for determining the program's success in carrying out key functions. However, it should be noted that performance data for the program's water quality measures represent a combination of the percentage of waters that either fully or partially met the appropriate designated use criteria.
Whether the state agency management has established control systems sufficient to ensure that performance data are maintained and supported by state agency records and accurately presented in state agency performance reports	The department's inspector general is required by law to determine the validity of each legislatively approved measure and the accuracy of the measure's associated data. ¹ The department's Fiscal Year 2003-04 through 2007-08 Long Range Program Plan includes the inspector general's assessment of each of the program's legislatively approved performance measures.
Alternative courses of actions that would result in administering the program more efficiently and effectively	To improve the efficiency and effectiveness of the program's activities, OPPAGA recommends that alternative courses of action be implemented. To help ensure that Total Maximum Daily Loads (TMDLs) are first developed for the most significant water bodies, the Department of Environmental Protection should further differentiate water bodies within a specific designation class. To ensure it has adequate information to make fully informed decisions regarding TMDL policies and funding priorities, the Legislature should require the department to annually report on the status of its efforts to allocate TMDLs under its watershed management approach. To help ensure that the Legislature is informed regarding the progress being made in reducing pollutant discharges from agricultural sources, the Department of Environmental Protection, Department of Agriculture and Consumer Services, and local governmental entities responsible for overseeing pollution control practices for septic tanks and urban stormwater systems should jointly report annually to the Legislature on the implementation of best management practices and interim information on the practices' results. To ensure that the state does not shoulder the financial burden of closing phosphogypsum stacks and reclaiming phosphate mines, we recommend that the department proceed with amending its rules to strengthen the financial responsibility requirements for phosphate mining companies. The department should conduct a cost-benefit analysis on the effects of its proposed requirements and provide the results to the Legislature. Consistent with its consultant's recommendations, the department should incorporate into the revised rules a requirement that company financial statements used in conducting financial tests be audited and prepared under generally accepted accounting practices. We recommend that the Legislature amend s. 403.4154(2)(b), <i>F.S.</i>, to require mining companies' chief executive officers to certify the accuracy and completeness of information used to satisfy financial tests. We recommend that the department continue to evaluate wetland mitigation on clay settling areas and ensure that the prototype mitigation sites are successful before giving widespread approval to the practice.

¹ See s. [20.055](#), *F.S.*

Appendix B

Fiscal Year 2001-02 Legislative Performance Measures

Table B-1
Water Resource Management Program Met Most Legislative Performance Expectations,
But Needs Improvement in Key Areas

Service	Measure	2001-02 Actual Performance	2001-02 Performance Standards	Reason for Not Meeting Legislative Standard
Water Quality	Percentage of rivers that meet designated uses	92.0%	92.0%	Met standard
	Percentage of lakes that meet designated uses	87.0%	87.0%	Met standard
	Percentage of estuaries that meet designated use	95.0%	95.0%	Met standard
	Percentage of ground water that meets designated uses	85.0%	85.0%	Met standard
	Percentage of state water segments that meet designated uses	89.0%	89.0%	Met standard
	Percentage of mines in significant compliance with restoration plan	95.0%	95.0%	Met standard
	Percentage of public water systems with no significant public health drinking water quality problems	93.9%	93.5%	Met standard
				Not met. Standard inconsistent with the way inspections are counted because the department may conduct a number of different inspections on a single day (i.e., permit, reclamation, conservation easement inspections), which are all counted as one inspection. However, the standard counts these inspections separately. In addition, program employees were diverted from regular inspection duties to handle continuing follow-up on the Mulberry phosphogypsum stack spill.
	Number of mining inspections	214	550	
	Number of water resource permits processed	29,202	27,750	Met standard
Water Supply				Not met. The department reports that the number of inspections declined due to increased permitting demands. The law requires that the department process permit applications within 90 days, thus it diverted resources from inspections to conduct permit processing.
	Number of regulatory inspections conducted	15,056	19,900	
Water Supply	Reclaimed water (reuse) capacity as percentage of total wastewater capacity	50.0%	49.0%	Met standard
Beach Management	Percentage of miles of critically eroding beaches restored or maintained	49.0%	49.0%	Met standard.
				Not met. DEP employees report that the legislative standard anticipated the re-establishment of the Pinellas County Coastal Construction Control Line, which would have put more area under the jurisdiction of the department's Beach Management Program. Because the coastal construction line program was partially delegated to Pinellas County, it has assumed the responsibility for issuing permits in the area.
	Number of coastal construction permits processed	1,576	1,725	
	Miles of critically eroding beach under a management plan	161.0	161.2	Substantially met
	Number of enforcement or compliance inspections	4,604	3,500	Met standard

Source: Florida Department of Environmental Protection.

Appendix C

Phosphogypsum Stacks in Florida

Owner/Operator	Facility	County	Size (Acres)	Height (Feet)	Activated	Active	Inactive, Closed, or Under Closure
CF Industries, Inc.	Plant City Chemical Complex - South Phosphogypsum Stack	Hillsborough	576	30	1999	X	
Cargill Fertilizer	Bartow Chemical Complex - South Phosphogypsum Stack	Polk	425	60	1965	X	
IMC Phosphates Co.	New Wales Chemical Complex - South Phosphogypsum Stack	Polk	395	140	1992	X	
IMC Phosphates Co.	South Pierce Chemical Complex	Polk	370	140	1967	X	
Cargill Fertilizer	Bartow Chemical Complex - North Phosphogypsum Stack	Polk	350	180	1954	X	
U.S. Agri-Chemicals Corporation	Fort Meade Chemical Complex - North Phosphogypsum Stack	Polk	350	40	1997	X	
PCS Phosphates, Inc.	Swift Creek Chemical Complex - Swift Creek Stack	Hamilton	340	247.8	1979	X	
Cargill Fertilizer	Riverview Chemical Complex - East Phosphogypsum Stack	Hillsborough	325	160	1989	X	
Farmland Hydro, L.P.	Green Bay Chemical Complex - North Phosphogypsum Stack	Polk		23	2001	X	
CF Industries, Inc.	Bartow Chemical Complex	Polk	500	90	1962		X
IMC Phosphates Co.	New Wales Chemical Complex - North Phosphogypsum Stack(old)	Polk	415	200	1975		X
CF Industries, Inc.	Plant City Chemical Complex - North Phosphogypsum Stack	Hillsborough	410	190	1965		X
PCS Phosphates, Inc.	Suwannee River Chemical Complex - CTC Stack	Hamilton	375	240.1	1973		X
Farmland Hydro, L.P.	Green Bay Chemical Complex - South Phosphogypsum Stack	Polk	342	190	1965		X
Cargill Fertilizer	Riverview Chemical Complex - West Phosphogypsum Stack	Hillsborough	325	190	1948		X
U.S. Agri-Chemicals Corporation	Fort Meade Chemical Complex - South Phosphogypsum Stack	Polk	260	210	1961		X
Piney Point Phosphates, Inc.	Piney Point Chemical Complex	Manatee	250	80	1966		X
CYTEC Industries, Inc.	Brewster Phosphogypsum Stack	Polk	210	75	1957		X
PCS Phosphates, Inc.	Suwannee River Chemical Complex - Dorr-Oliver Stack	Hamilton	200	206.5	1965		X
IMC Phosphates Co.	P21 Phosphogypsum Stack		200	40	1962		X
IMC Phosphates Co.	Nichols Chemical Complex	Polk	180	86	1956		X
U.S. Agri-Chemicals Corporation	Bartow Chemical Complex	Polk	120	95	1954		X
Mulberry Phosphates, Inc.	Mulberry Phosphates - North Phosphogypsum Stack	Polk	100	100	1954		X
Estech, Inc.	Agricola Closed Phosphogypsum Stack	Polk	52	40	1948		X
Mulberry Phosphates, Inc.	Mulberry Phosphates - South Phosphogypsum Stack	Polk	56/124	110/35	1975/1989		X

Appendix D

Response from the Department of Environmental Protection

In accordance with the provisions of s. 11.51(5), *Florida Statutes*, a draft of our report was submitted to the secretary of the Department of Environmental Protection for his review and response.

The Secretary's written response is reprinted herein beginning on page 46.



Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

January 22, 2003

Mr. John W. Turcotte, Director
Office of Program Policy Analysis
& Government Accountability
Room 312, Claude Pepper Building
111 West Madison Street
Tallahassee, Florida 32399-1475

Dear Mr. Turcotte:

Enclosed is the Department's written response to the preliminary findings and recommendations contained in the Office of Program Policy Analysis and Government Accountability's Justification Review of DEP's Water Resource Management Program dated December 16, 2002. Thank you for the opportunity to provide comments. If you have any questions in this regard, please call Joseph Aita, Director of Auditing at 245-8013.

Sincerely,

/s/
David B. Struhs
Secretary

Enclosure

DBS/JA/amw

cc: Allan Bedwell, Deputy Secretary for Regulatory Programs
Mimi Drew, Division of Water Resource Management

"More Protection, Less Process"

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**OPPAGA Draft Justification Review: Water Resource Management Program
Response to Conclusions and Recommendations
Division of Water Resource Management
January 2003**

TMDL Program

Tiered Classification System

While we concur with the reports statements regarding performance standards, it should be noted that our assessment methods will be changing in the future from the 305(b) assessment described in the report to the Impaired Waters Rule methodology and the Integrated Reporting format requested by EPA. These changes will change the assessment results and reporting format, and will likely result in new performance standards.

We concur with the need to consider changes to the surface water classification system to further differentiate among designated uses so as to better account for water quality priorities and establish a more refined trigger for developing TMDLs. However, we are not prepared at this time to set a date to initiate rulemaking toward this end nor can we agree preemptively to incorporate specific elements in the system. There are other issues related to quality standards that are being deliberated and until these are resolved, it is not prudent to proceed with changes to the classification system, which will prove controversial.

Program Implementation

The OPPAGA report notes that EPA's cost estimate for the Department to develop the current list of 2,000 TMDLs is \$56 million. It is significant to note that two other studies—one by a Department contractor (SAIC) and the other a national "GAP" model—suggest similar costs. This estimate should be considered relative to the \$2.2 million non-recurring appropriation to the Department in 2002-03 (and requested again in 2003-04). Even if this amount were appropriated each year for the next 11 years, confident with the schedule for the 2,000 TMDLs, the total amount appropriated would be less than half the amount identified as necessary.

Annual Reporting to the Legislature

The Department already is required to report annually the development of TMDLs as one of its performance measures. Additional reporting should focus on local implementation of the specific Basin Management Action Plans being developed pursuant to Section 403.067, F.S., which would reflect on-the-ground actions designed to clean up polluted waters.

With respect to the costs to implement TMDLs, the Department, in conjunction with affected local stakeholders, will prepare cost estimates and funding strategies for each basin through the development of Basin Management Action Plans. Estimates of global implementation costs are purely speculative and serve little purpose.

With respect to reporting on the costs and effectiveness of best management practices (BMP) implementation, the Department is contracting with Florida Atlantic University to develop a database to account for these aspects of BMPs in order to evaluate and report on them. It will be several years before BMPs can be developed and widely implemented and several more years before their effectiveness can be determined. Reliable data that can be reported meaningfully will not be available until after 2005.

**OPPAGA Draft Justification Review: Water Resource Management Program
Response to Conclusions and Recommendations
Division of Water Resource Management
January 2003**

Phosphate Mining

Financial Responsibility Rulemaking

The Department concurs that more rigorous financial responsibility requirements must be implemented and is proceeding with rulemaking. A cost-benefit analysis is a required element of the rulemaking.

Clay Settling Area

As noted, the Department will continue to evaluate the use of clay settling areas for wetland mitigation. The Department does not and will not authorize mining unless the mitigation for the area to be mined proves successful.