



Audit of Compliance with Lake Okeechobee Protection Act

Report # 09-02

Prepared by
Office of Inspector General

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SOUTH FLORIDA WATER MANAGEMENT DISTRICT

February 10, 2010

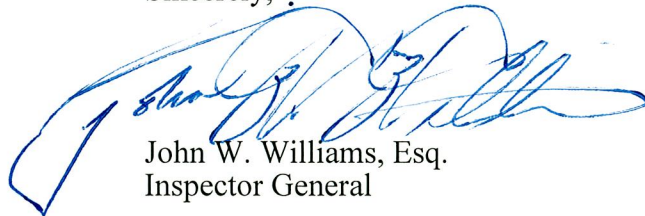
Audit and Finance Committee Members:

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Mr. Eric Buermann, Member
Mr. Michael Collins, Member
Mr. Joe Collins, Member

Re: Audit of Compliance with Lake
Okeechobee Protection Act
Audit No. 09-02

This audit was performed pursuant to the Inspector General's authority set forth in Chapter 20.055, F.S. The objectives focused on determining whether the District is complying with its responsibilities specified in the Lake Okeechobee Protection Act and whether it appears that the phosphorous load reduction goal required to be achieved prior to January 1, 2015 will be accomplished. This report was prepared by Tim Beirnes and Jankie Bhagudas.

Sincerely, .

A handwritten signature in blue ink, appearing to read "John W. Williams", is written over a blue ink scribble that resembles a stylized signature or initials.

John W. Williams, Esq.
Inspector General

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BACKGROUND

In accordance with the Office of Inspector General's Fiscal Year 2009 Audit Plan, we conducted an audit to determine the District's compliance with the Lake Okeechobee Protection Act.

Lake Okeechobee (the Lake) is one of largest lakes in the United States and is a part of the headwaters of the Everglades. The 730 square mile lake provides a number of values and benefits to the state's population, economy and environment, including environmental, public and agricultural water supply, and flood protection. It is also a multimillion-dollar recreational and commercial fishery and a natural habitat for a variety of endangered and threatened animal and plant species. The watershed of the Lake stretches from just south of Orlando to areas that border the Lake on the south, east, and west and covers approximately 3.45 million acres.

Lake Okeechobee has been subjected to three long-term impacts: (1) excessive phosphorus loads, (2) unnaturally high and low water levels, and (3) rapid spread of exotic and nuisance plants. Despite a long history of regulatory and voluntary incentive-based programs to control phosphorus inputs into the Lake, no substantial reduction in loading occurred during the 1990s. As a result, the Florida legislature passed the Lake Okeechobee Protection Act [Section 373.4595, Florida Statutes, (F.S.)] in 2000, to establish a program to restore and protect the Lake. The program is referred to as the Lake Okeechobee Protection Program.

The Lake Okeechobee Protection Act requires the District, Florida Department of Environmental Protection, and Florida Department of Agriculture and Consumer Services to work together to implement management strategies through a watershed-based, phased, comprehensive and innovative protection program to address the issues of excessive phosphorous loading and exotic species expansion. To address these loads, the Lake Okeechobee Protection Act mandates that a Total Maximum Daily Load (TMDL)¹ of 140 metric tons of phosphorous per year from the watershed to the Lake be met prior

¹ A TMDL is the maximum amount of a given pollutant that a water body can absorb and still maintain its designated uses (e.g., drinking, fishing, swimming, and shellfish harvesting). It is based on a five year rolling average in order to account for variations in the water flow and loads.

to January 1, 2015. The TMDL was developed by Florida Department of Environmental Protection and consists of 105 metric ton per year of phosphorous from the watershed and 35 metric tons per year from atmospheric deposition (i.e., rain and wind). The Lake Okeechobee Protection Act also requires aggressive programs to control exotic plants and a long-term program of water quality and ecological assessment, research, and predictive-model development.

The Lake Okeechobee Protection Program requires that the coordinating agencies, i.e., the District, Florida Department of Environmental Protection, and Florida Department of Agriculture and Consumer Services, implement the following seven components of the Lake Okeechobee Protection Act:

1. Lake Okeechobee Watershed Protection Plan
2. Lake Okeechobee Watershed Construction Project
3. Lake Okeechobee Watershed Phosphorous Source Control Program
4. Lake Okeechobee Research and Water Quality Monitoring Program
5. Lake Okeechobee Internal Phosphorous Management Program
6. Lake Okeechobee Exotic Species Control Program.²
7. Annual Progress Report

The coordinating agencies have specific responsibilities and deliverables to ensure that the TMDL will be achieved prior to the January 1, 2015 deadline.

In April 2007, the Florida legislature substantially expanded the Lake Okeechobee Protection Act to include protection and restoration of the Lake Okeechobee Watershed and the Caloosahatchee and St. Lucie rivers watersheds and estuaries. The expanded legislation also extended the Save Our Everglades Trust Fund for 10 years that provided a dedicated state funding source for the restoration through 2020.³ This new program was named the Northern Everglades and Estuaries Protection Program (Section 373.4595, F.S.) and its primary goal is to restore and protect surface water resources by addressing not only the water quality but also the quantity, timing and distribution of water to the natural system. It should be noted that the Lake Okeechobee and Estuary

² Note that compliance with this requirement is currently being addressed in a separate audit titled Audit of Vegetation Management.

³ The Save Our Everglades Trust Fund was created by the Florida legislature in 2000 to fund the State's share of the Comprehensive Everglades Restoration Plan (CERP)

Recovery Plan, announced by former Governor Bush in October 2005, was migrated into the Northern Everglades and Estuaries Protection Program.

In addition, the Northern Everglades and Estuaries Protection Program legislation requires the coordinating agencies in cooperation with local governments to develop:

- The Lake Okeechobee Watershed Construction Project Phase II Technical Plan
- The St. Lucie River Watershed Protection Plan
- The Caloosahatchee River Watershed Protection Plan

These plans are intended to augment and enhance restoration currently under way in the Everglades south of the Lake and build upon ongoing restoration efforts north of the Lake and in the river watersheds. It should be noted that we performed tests to determine compliance with the Northern Everglades and Estuaries Protection Program (see Appendix 1); however, our audit focuses on the Lake Okeechobee Protection Act portion of the Northern Everglades and Estuaries Protection Program and the District's compliance with its Lake Okeechobee Protection Act responsibilities and deliverables.

The Lake Okeechobee Division, situated in Everglades Restoration & Capital Projects, is primarily responsible for implementing the Lake Okeechobee Protection Act and is focused on developing and implementing management activities to restore the ecological health of the Lake while balancing flood protection, water supply, navigation and recreation. Certain projects included in the Lake Okeechobee Protection Plan (e.g., water storage and water quality improvement projects) are part of the Comprehensive Everglades Restoration Plan and are primarily the responsibility of the Everglades Restoration resource area.

During FY 2001 to FY 2008, approximately \$220 million has been appropriated to the Lake Okeechobee Protection Program and approximately \$149 million has been expended in connection with its implementation.

OBJECTIVE, SCOPE, AND METHODOLOGY

The overall objective of our audit was to determine whether the District is complying with its responsibilities specified in the Lake Okeechobee Protection Act and whether it appears that the phosphorous load reduction goal required to be achieved prior to January 1, 2015 will be accomplished.

To accomplish our objective, we interviewed Lake Okeechobee Division and other relevant District staff responsible for ensuring compliance with the Lake Okeechobee Protection Act. We reviewed laws and regulations specific to the Lake Okeechobee and examined documents substantiating compliance with the Lake Okeechobee Protection Act, e.g., 2004 and 2007 Lake Okeechobee Protection Plan Evaluation Reports, 2009 South Florida Environmental Report, and the Lake Okeechobee Construction Project – Phase II Technical Plan.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

AUDIT RESULTS

Executive Summary

Overall, our audit disclosed that the District is complying with its responsibilities and deliverables outlined in the Northern Everglades and Estuaries Protection Program legislation. For example, the Caloosahatchee and St. Lucie River Watershed Protections Plans were completed, in cooperation with the Florida Department of Environmental Protection, Florida Department of Agriculture and Consumer Services, local governments, and stakeholders, and submitted to the legislature in January 2009. Detailed tests also disclosed compliance with the Lake Okeechobee Protection Act component of the Northern Everglades and Estuaries Protection Program. For example, the District and the coordinating agencies have taken steps and developed plans (e.g., Lake Okeechobee Watershed Construction Project Phase II Technical Plan in February 2008) that will reduce the phosphorous load from the watershed to the Lake to 140 metric tons per year prior to mandated deadline of January 1, 2015. Measures to reduce the phosphorus load and improve water quality include but are not limited to the following: phosphorous source control (e.g., best management practices), changes in regulatory requirements, stormwater treatment areas, deep injection wells, innovative nutrient control technologies, and ongoing watershed research and assessment.

The average phosphorous load to Lake Okeechobee for the five most current water years (WY2004 – WY2008) was 551 metric tons, which is about four times higher than the TMDL of 140 metric tons considered necessary to achieve the phosphorous load reduction target. There are strategies in place to ensure that the phosphorous load will be reduced to 140 metric tons before 2015, however; there are concerns that the goal may not be achieved due to certain assumptions and uncertainties such as; concerns about funding, legacy phosphorous, and land acquisitions.

The District is partly relying on state funding to meet the TMDL goal, however; there are funding concerns due to the current economic crisis. In addition, the presence of residual or legacy phosphorous in the watershed is a major source of phosphorous to the Lake that must be addressed and has proven to be a bigger challenge than originally anticipated at the time when the TMDL reduction goal was adopted by Florida Department of Environmental Protection in 2001. Specifically, there is enough mobile

legacy phosphorus in the watershed to maintain high levels going to the Lake for decades and this can substantially delay phosphorus reductions. Further, about 23,998 acres of land is yet to be acquired for CERP's Lake Okeechobee Watershed Project, which is proposed to reduce phosphorous loading to the Lake by about 60 metric tons each year. The Army Corp of Engineers has to decide whether the water quality aspects of the project are eligible for cost sharing and the Project Implementation Report has not been approved. It appears uncertain that this project will be completed prior to January 1, 2015 to achieve the 60 metric ton reduction.

Failure to reduce the phosphorous loading to 140 metric tons per year would mean non-compliance with the State's restoration requirements and the State could take action against the District, for example, it could impose strict deadlines for the completion of proposed projects intended to reduce the phosphorous load. In addition, there could be lawsuits against the District by various interest groups.

Compliance With Statute Requirements

Overall, our audit disclosed that the District is complying with its responsibilities and deliverables outlined in the Northern Everglades and Estuaries Protection Program legislation. For, example, the Caloosahatchee and St. Lucie River Watershed Protections Plans were completed, in cooperation with Florida Department of Environmental Protection, Florida Department of Agriculture and Consumer Services, local governments, and stakeholders, and submitted to the legislature in January 2009. Detailed tests also disclosed compliance with the Lake Okeechobee Protection Act component of the Northern Everglades and Estuaries Protection Program. The following sections detail the District's compliance with major requirements of the Lake Okeechobee Protection Act. (Refer to APPENDIX I for all the Northern Everglades and Estuaries Protection Program requirements, the compliance status of each requirement, the coordinating agency responsible for compliance, and the actions taken towards compliance.) It is important to note that our audit focuses on the District's compliance with its responsibilities and we did not perform detailed tests to substantiate whether Florida Department of Environmental Protection and Florida Department of Agriculture and Consumer Services are complying with their responsibilities. Florida Department of

Environmental Protection's and Florida Department of Agriculture and Consumer Services' compliance statuses are based on information contained in various reports prepared by the District with input from Florida Department of Environmental Protection and Florida Department of Agriculture and Consumer Services, for example, *Chapter 10: Lake Okeechobee Protection Program – State of the Lake and Watershed, 2009 South Florida Environmental Report*.

Lake Okeechobee Watershed Protection Plan

The District, in cooperation with Florida Department of Environmental Protection and Florida Department of Agriculture and Consumer Services, developed the Lake Okeechobee Protection Plan in January 2004, as required by the Lake Okeechobee Protection Act. The Protection Plan identified activities (e.g., the implementation of phosphorous source control programs, best management practices at the parcel level, and sub-basin and regional phosphorous control and flow attenuation projects) schedules, and costs to meet the total phosphorous TMDL of 140 metric tons before January 1, 2015.

The Lake Okeechobee Protection Act also specifies that the plan be reevaluated every three years to determine whether additional phosphorous reduction strategies may be necessary to meet the TMDL. An updated plan was submitted to the legislature in March 2007 by the coordinating agencies detailing how the phosphorous load reduction will be achieved prior to the January 1, 2015 deadline (e.g., source control such as best management practices and changes in regulatory requirements, stormwater treatment areas, deep injection wells, and innovative nutrient control technologies). The plan also indicated the projects that required future funding, the agency responsible for implementing the activities, and the estimated total phosphorous load reduction.

The next reevaluation of the plan to the legislature is due in early 2010. However, the District and the coordinating agencies are considering requesting permission from the legislature not to submit a revised plan because the Lake Okeechobee Watershed Construction Project Phase II Technical Plan was prepared by the District and the coordinating agencies and submitted to the legislature on February 1, 2008. A reevaluation of the plan would essentially present the same information and conclusions as those in the Phase II Technical Plan, which identifies the various construction projects,

along with on-site measures such as agricultural and urban best management practices, needed to achieve water quality targets for the Lake.

Lake Okeechobee Watershed Construction Project

The Lake Okeechobee Construction Project is required to be implemented in two phases - Phase I and Phase II. Phase I projects were intended to bring immediate phosphorous load reductions to Lake Okeechobee and Phase II projects are intended to reduce the phosphorous load necessary to meet the TMDL target of 140 metric tons per year.

Phase I

- As required by the Lake Okeechobee Protection Act, the District and the Army Corp of Engineers partnered in the design and construction of the Grassy Island Ranch (Taylor Creek STA) and New Palm Dairy (Nubbin Slough STA) stormwater treatment facilities. The Grassy Island Ranch facility is functional; however, certain operational issues required the U.S. Army Corp of Engineers to perform remedial work.
- As required by the Lake Okeechobee Protection Act, the District obtained permits and completed construction of two of the isolated wetland restoration projects that are part of the Lake Okeechobee Water Retention/Phosphorus Removal Critical Project. Specifically, the Lemkin Creek and the Kirton Ranch projects have been completed.

Phase II

As required by the Lake Okeechobee Protection Act, the District and the coordinating agencies prepared the preferred Lake Okeechobee Watershed Construction Project Phase II Technical Plan and submitted it to the legislature on February 1, 2008. The plan identifies various construction projects, along with on-site measures such as agricultural and urban best management practices, needed to achieve water quality targets for the Lake. In addition, the plan includes other projects for increasing water storage north of the Lake to achieve healthier lake levels and reduce harmful discharges to the

Caloosahatchee and St. Lucie estuaries. Some of the major components of the plan are as follows:

- implementing best management practices on more than 1.7 million acres of farm and urban lands
- adopting new regulations that will reduce the impacts of development on water quality and flow
- building treatment wetlands to clean water flowing into the Lake
- using other nutrient control technologies to reduce phosphorus loads from the watershed
- creating between 900,000 and 1.3 million acre feet of water storage north of the Lake through a combination of aboveground reservoirs, underground storage, and alternative water storage projects on public and private lands

***Lake Okeechobee Watershed Phosphorous
Source Control Programs***

The Lake Okeechobee Watershed Phosphorus Control Program requires the following: (1) continued implementation of existing regulations and voluntary agricultural and non-agricultural best management practices, (2) development and implementation of improved best management practices, (3) improvement and restoration of hydrologic function of natural and managed systems, and (4) use of alternative technologies for nutrient reduction. Under the Lake Okeechobee Protection Act, Florida Department of Agriculture and Consumer Services is responsible for implementing a voluntary best management practices program on all agricultural lands within the watershed; Florida Department of Environmental Protection is responsible for developing non-agricultural, non-point source best management practices; and the District is responsible for the implementation of phosphorous reduction projects and large-scale regional projects, research and monitoring, existing regulations, and exotic plant control.

The following sections summarize the actions taken by Florida Department of Agriculture and Consumer Services, Florida Department of Environmental Protection and the District to comply with the Phosphorus Control Program.

***Florida Department of Agriculture and
Consumer Services Agricultural Programs***

Florida Department of Agriculture and Consumer Services has a voluntary best management practices program to reduce the movement of phosphorous from agricultural lands to the Lake. Florida Department of Agriculture and Consumer Services adopted Chapter 5M-3 (*BMP for Agriculture in the Lake Okeechobee Watershed*), Florida Administrative Code, which requires participating landowners to develop and implement conservation plans consistent with the U.S. Department of Agriculture Natural Resources Conservation Service guidelines. Participating landowners are presumed to be in compliance with water quality standards and also are eligible for monetary assistance to implement best management practices. In general, landowners are eligible to receive between 75 and 88 percent cost share, either through the Florida Department of Agriculture and Consumer Services or a combination of Florida Department of Agriculture and Consumer Services and U.S. Department of Agriculture Natural Resources Conservation Service funds.

It should be noted that the agricultural area in the Lake Okeechobee Watershed covers about 1.58 million acres (46 percent of the total watershed area). Florida Department of Agriculture and Consumer Services reports that management plans have been completed for approximately 550,000 acres in the watershed and best management practices are in various stages of implementation and plans are being developed for an additional approximately 600,000 acres.

Florida Department of Agriculture and Consumer Services and U.S. Department of Agriculture Natural Resources Conservation Service have an interagency agreement that commits available federal resources to expedite conservation planning. Florida Department of Agriculture and Consumer Services contracted with the University of Florida Institute of Food and Agricultural Sciences to identify, train, and contract with private-sector technical service providers to develop plans for cow/calf, citrus, row crop, and other agricultural operations.

Further, regional and sub-regional water quality monitoring is conducted by the District and the U.S. Geological Survey, which can help identify where to focus on plan development, implementation, and best management practices effectiveness studies.

***Florida Department of Environmental Protection
Non-Agricultural Programs***

The largest contributors of phosphorous loading from non-agricultural areas to the Lake are non-point and point sources within residential developments without stormwater treatment (e.g., yard fertilization, pet wastes, and septic tanks, etc). Florida Department of Environmental Protection has various regulatory programs to reduce phosphorous loads from these sources to the Lake. Florida Department of Environmental Protection's two primary regulatory programs are administered through Environmental Resource Permits and the National Pollutant Discharge Elimination System stormwater permitting program.

One of Florida Department of Environmental Protection's most productive and cost-effective methods for reducing phosphorus to the Lake is educational outreach and partnering with local agencies to encourage behavior change. To accomplish this objective, Florida Department of Environmental Protection provides grant funding to the University of Florida Institute of Food and Agricultural Sciences to provide public education including:

- Publishing weekly articles in Okeechobee area newspapers that address proper lawn maintenance practices
- Distributing brochures on the use of low-phosphorus fertilizers and the use of appropriate non-structural best management practices when applying such chemicals
- Educating employees of landscape management companies about environmentally sound landscaping through the Green Industry Best Management Practices Program.

District's Phosphorous Source Control Programs

The District in coordination with Florida Department of Environmental Protection and Florida Department of Agriculture and Consumer Services have developed and implemented over 30 phosphorous reduction projects in an effort to reduce phosphorous loads to the Lake. It is estimated that these projects will result in a reduction of 28 metric

tons of load reductions necessary to meet the Lake's TMDL for phosphorus. Further, these projects have some level of performance monitoring to facilitate evaluation and potential future use of these types of technologies. The projects were implemented under the following:

- Phosphorous Source Control Grants
- Isolated Wetland Restoration
- Former Dairy Remediation
- Dairy Best Available Technologies
- Public-Private Partnership Programs
- Alternate Water Storage and Treatment

Regulatory Revisions

To ensure compliance with the statutes, the District is revising its Lake Okeechobee Works of the District permitting program rule (Chapter 40E-61, F.A.C.). This rule was initially adopted to address the reduction of phosphorus to Lake Okeechobee based on the goals and objectives of the Surface Water Improvement and Management Plan for the Lake and is the foundation of all subsequent best management practices program. The amended rule would include several new and updated requirements, for example,

- Implement a phosphorus source control program utilizing best management practices for all lands within watershed.
- Provide an option for agricultural land uses of greater than 100 acres to participate in the Florida Department of Agriculture and Consumer Services best management practices rule under Chapter 5M-3, F.A.C., to meet the intent of the Lake Okeechobee Works of the District rule.
- Establish a timeline for implementation of all best management practices source control programs within the watershed by year 2010.
- Establish load-based performance measures for the combined best management practices source control programs.

The amendments are expected to be available for review in 2009. The District published a Notice of Rule Development in July 2008 and three public workshops were conducted in the late summer of 2008 to obtain public input.

***Lake Okeechobee Watershed Research
and Water Quality Monitoring Program***

The District, in cooperation with Florida Department of Environmental Protection and Florida Department of Agriculture and Consumer Services have implemented a comprehensive research and water quality monitoring program for the Lake. Some of the steps taken by the District to comply with specific statute requirements are as follows:

- Implemented a total phosphorus monitoring program at appropriate structures owned or operated by District and within the watershed. Water quality monitoring is conducted through the Lake Okeechobee Watershed Assessment micro-basin monitoring for phosphorus and through the District's ambient water quality monitoring program for total phosphorus and total nitrogen. Data collected is used to evaluate changes in total phosphorus concentrations throughout the watershed
- Developed the Lake Okeechobee Water Quality Model was developed to forecast responses of the lake to long-term management scenarios, e.g., phosphorous load reduction.
- Conducts water quality monitoring at project sites to verify the effectiveness of best management practices at a basin and sub-basin scale.

The statutes also require that the District assess current water management practices within the watershed and develop recommendations for structural and operational improvements. In this regard, the District is responsible for water supply needs, flood control, and enhancement of fish and wildlife resources and the Army Corp of Engineers is responsible for navigation and for implementing the Water Control Plan for the Lake Okeechobee regulation schedule. It should be noted that in April 2008, the Corp of Engineers approved a new regulation schedule (LORS2008) for the Lake to replace the Water Supply and Environment operational regulation schedule that had been in effect since 2000. The new schedule focuses on public health and general welfare

considerations associated with the safety of the Herbert Hoover Dike. The Army Corp of Engineers also plans construction projects to improve the structure of the Hubert Hoover Dike.

Internal Phosphorous Management Program

As required, the District, in cooperation with Florida Department of Environmental Protection and Florida Department of Agriculture and Consumer Services and interested parties, completed a Lake Okeechobee internal phosphorus load removal feasibility study titled *The Lake Sediment Management Feasibility Study*. The study's design, results, and conclusions were presented in the January 2004 annual report to the legislature. The main conclusions were as follows: (1) dredging is not a feasible or effective measure for reducing internal phosphorus loads in Lake Okeechobee; (2) chemical treatment might be effective, but should only be considered if the lake fails to respond as expected to external load reductions, due to environmental concerns about alum additions; and (3) the recommended alternative is to focus on phosphorus load reductions in the watershed.

Since then, several other in-lake projects have been conducted, or are in process, to address the three key Lake issues: (1) impacts of excessive nutrient inputs; (2) impacts of extreme high and low water levels; and (3) impacts of nuisance and exotic species.

Annual Progress Report

In compliance with the statute, a progress report to the legislature is included in the annual *South Florida Environmental Report - (Chapter 10: Lake Okeechobee Protection Program - State of the Lake and the Watershed)*. The annual report updates the Lake and watershed conditions along with best management practices implementation activities. It also summarizes water quality and habitat conditions, results of recently completed projects, and status of research and monitoring.

Concerns about Achieving the Phosphorous Load Reduction Goal Prior to the January 1, 2015 Deadline

The overall object of the Lake Okeechobee Protection Act is to reduce the phosphorous load from the watershed to the Lake to a TMDL of 140 metric tons, based on a five-year rolling average per year, prior to January 1, 2015. The average phosphorous load to the Lake Okeechobee for the most current five water years⁴ (WY2004 – WY 2008) was 551 metric tons, which is about four times higher than the TMDL of 140 metric tons considered necessary to achieve the phosphorous load reduction target. The following table illustrates the annual phosphorous load for WY2003 through WY2008.

Annual Phosphorous Loads to Lake Okeechobee	
Water Year (May 1 –April 30)	Phosphorus Measured Load (Metric Tons)
2003	639
2004	553
2005	960
2006	795
2007	203
2008	246
Five Year Averages	
WY2003 –WY2007	630 metric tons
WY2004 –WY2008	551 metric tons

It should be noted that the current five-year average includes two of the consecutive wettest years on record (WY2005 and WY2006) that includes the impacts of four hurricanes and the two subsequent dry years (WY2007 and WY2008).

There are plans in place to ensure the TMDL goals will be achieved. Specifically, as required, the District and the coordinating agencies have reevaluated the Lake Okeechobee Protection Act every three years (2004 and 2007) to identify load reductions necessary to achieve compliance with the TMDL. Based on the 2007 Lake Okeechobee Protection Act update, a reduction of 328 metric tons was needed to achieve the TMDL.

⁴ The period from May 1 through April 30, during which water quality and other data were collected and reported in the *South Florida Environmental Report*.

Further, based on the February 2008 Lake Okeechobee Watershed Construction Project Phase II Technical Plan, an annual load reduction of 409 metric tons was needed to achieve the TMDL. Both plans identified numerous projects and strategies which would cumulatively reduce the phosphorous loading from the watershed in order to meet the mandated deadline. Failure to achieve the TMDL goal would mean non-compliance with the State's restoration requirements and the State could take action against the District. For example, it could impose strict deadlines for the completion of proposed projects intended to reduce the phosphorous load. In addition, there could be lawsuits against the District by various interest groups.

Although, there are strategies in place to ensure that the Lake restoration goals will be achieved before 2015; there are certain assumptions and uncertainties that may hinder compliance, for example concerns about funding, legacy phosphorous, and land parcels needed for certain projects that have not yet been acquired. These issues are explained below.

Funding

The plans and annual reports to the legislature specify that achieving the TMDL is based on the assumption that best management practices, watershed phosphorus-source control projects, regional projects and strategies, will be appropriately funded in a timely manner, implemented, and perform as intended. A majority of the funding for implementing the Phase II Technical Plan will be from the District, State, and federal sources. In addition, many of the projects will be cost shared with landowners and local governments, as well as State and Federal grant programs. Funding from the Save Our Everglades Trust Fund is appropriated annually by the legislature and must be matched by the District. Thus, the District is partly relying on the state's contribution to meet the TMDL goal.

The 2007 Northern Everglades and Estuaries Protection Program legislation provides a dedicated state funding source for the Northern Everglades restoration by expanding the use of the Save Our Everglades Trust Fund to include the Lake Okeechobee Watershed Protection Plan and the River's Watershed Protection Plans for

the Caloosahatchee and St. Lucie. It also extended the State's commitment to provide funding for CERP and the Northern Everglades through the year 2020.

In FY 2008, the legislature appropriated \$100 million from the Save Our Everglades Trust Fund for Northern Everglades initiatives. In FY 2009, State appropriations of Save Our Everglades Trust Fund were \$50 million with \$3 million allocated to Florida Department of Agriculture and Consumer Services for administering its best management practices program. It should be noted that FY 2010 State appropriations of Save Our Everglades Trust Fund appropriations are also \$50 million.

Florida Department of Agriculture and Consumer Services addressed funding concerns in the 2009 South Florida Environmental Report by reporting that funding shortfalls for FY 2008 – FY 2009 and anticipated additional shortfalls in FY 2009 – FY 2011 will delay best management practices planning and implementation efforts. Florida Department of Agriculture and Consumer Services anticipates that if funding shortfalls continue as predicted, best management practices plans for the remaining agricultural acreage (about 430,000 acres) in the watershed will not be completed until 2012 and full implementation of those plans by the end of 2017. Failure to implement the best management practices could have an impact on the TMDL load reduction goal.

The Phase II Technical Plan points out that funding from sources beyond the recurring annual State and the District will be required, for example, funding from federal agencies (e.g., USACE, DOI, USDA, etc.) local governments, tribal communities, and private landowners. Again, funding from these sources could be impacted by the current economic crisis.

Cost estimates for just the initial implementation stage (2008 – 2010) of the Phase II Technical Plan are estimated to be approximately \$1.7 billion and the rate of implementation of these projects is dependent on federal, state, and District sources. The cost estimates for the initial phase are broken out into CERP features and non-CERP features and the estimated costs for initial implementation are as follows:

- CERP features: \$1 billion - \$1.4 billion - Costs may be eligible for up to a fifty percent cost share with the federal government, however, the funds are required in advance from District and state sources. Thus, completion of certain projects is dependant on District and state funding in advance of federal appropriations.

- Non-CERP features: \$260 million - \$320 million - Costs will be primarily paid by the District and the State.

The initial phase of the plan focuses on implementing ongoing measures and initiatives, for example, ongoing implementation of the Lake Okeechobee Protection Act and Lake Okeechobee and Estuary Recovery water quality measures and alternative water storage facilities. Costs for the two subsequent phases will be developed as information from various pilot projects and studies are factored into more detailed planning design in the future.

Based on the current economic crisis, there are concerns as to whether funding will be available for implementation before the January 1, 2015 deadline.

Legacy Phosphorus

The presence of residual or legacy phosphorous in the watershed is a major source of phosphorous to the Lake that must be addressed and has proven to be a bigger challenge than originally anticipated when the TMDL reduction goal was adopted in 2001. Legacy phosphorus is defined as phosphorus within the watershed that is present as the result of anthropogenic activities (e.g., phosphorous sourced primarily from animal feeds, fertilizers, and domestic products that are either generated locally or imported) that is stored in soils and sediments and has transport potential to the Lake. The District estimates that there is about 176,000 metric tons of legacy phosphorus within the watershed. It is likely that as much as 50 percent of this phosphorus would not be readily released due to soil phosphorus storage capacity and the low mobility of legacy phosphorus that has moved to lower soil layers.

Nevertheless, there is enough mobile legacy phosphorus in the watershed to maintain high levels going to Lake Okeechobee for decades and this can substantially delay phosphorus reductions. The District's study concluded that the reduction of new sources of legacy phosphorus and its mobility to Lake Okeechobee through abatement practices may be the only effective means of addressing this problem and the strategies must also address upland, wetlands, and streams legacy phosphorus sources. Several abatement strategies have been developed and tested. There is also ongoing improvement of the strategies.

Initially, cost effective abatement measures were considered and implemented such as modest best management practices programs, followed by stormwater retention, wetland restoration, and water reuse, etc. More recently, chemical treatments have been added to a few retention-based systems, e.g., dairy best available technology pilot projects. Chemical treatment methods are being further improved and it is anticipated there will be wider agricultural implementation at the best possible locations in another year. Nevertheless, based on the scale of the legacy phosphorus problem in the watershed there appears to be serious concerns as to whether the TMDL reduction goal will be achieved prior to the January 1, 2015 deadline.

Land Acquisitions

CERP's Lake Okeechobee Watershed Project is one of the projects proposed to meet the legislative mandate; it is estimated that upon completion this regional project will reduce the phosphorous loads to the Lake by approximately 60 metric tons per year. This project has several components that will attenuate peak flows from the watershed, bring more natural water level fluctuations in the lake, restore wetland habitat and requires the construction of reservoir storage and stormwater treatment areas. As of September 30, 2008, approximately 38,195 acres of land was needed for this project, however, only 14,197 acres has been acquired. The remaining 23,998 acres are yet to be acquired primarily because of issues regarding whether the water quality features of the project will be eligible for cost share with the Army Corp of Engineers. In order for the land to be eligible for cost share, the District must obtain the Army Corp of Engineers' approval before acquisition.

The District has submitted a water quality cost sharing justification to the Army Corp of Engineers; however, there is no definitive approval timeline. Further, the Project Implementation Report (PIR) has not been approved. Both the approval and acquisition process can be lengthy. It should be noted that if the District acquires land before the PIR is approved, the land costs may not be eligible for cost share. Based on these issues, it appears uncertain whether this project will be completed prior to January 1, 2015, thus; the 60 metric ton reduction may not be achieved.

Recommendations

1. **Carefully analyze the reasons why an updated Lake Okeechobee Protection Plan Evaluation Report for 2010 may not be necessary. If it is determined that a reevaluation is not necessary then request approval from the legislature not to submit the Lake Okeechobee Protection Plan Evaluation Report for 2010.**

Management Response: The amendments to the 2007 legislature created the Northern Everglades Protection Program which required an update to the Lake Okeechobee plan in 2008. Recognizing the report is due tri-annually, staff is working on the 2011 Update for the Northern Everglades and Estuaries Protection Plan.

Responsible Department: Policy and Coordination Department

Estimated Completion: Northern Everglades and Estuaries Protection Plan Report to Legislature by January 2011.

2. **Alert senior management about the potential issues that could delay reducing the phosphorus load to 140 metric tons per year prior to the January 1, 2015 legislative mandate.**

Management Response: This action is in progress

Responsible Department: Policy and Coordination Department

Estimated Completion: Strategy discussions will continue with State agencies and the Governing Board as part of the strategic planning and budget workshops.

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(3)	Lake Okeechobee Watershed Protection Program		
	Lake Okeechobee Watershed Protection Plan		
(3)(a)	The District, in cooperation with coordinating agencies, shall be jointly responsible for implementing the Lake Okeechobee Watershed Protection Plan.		Compliance: YES - The District, in cooperation with the Florida Department of Environmental Protection (FDEP) and the Florida Department of Agriculture and Consumer Services (FDACS), developed the Lake Okeechobee Protection Plan in January 2004, as required by LOPA. An updated Protection Plan was submitted to the legislature in March 2007 by the coordinating agencies detailing how the phosphorous load reduction will be achieved prior to the January 1, 2015 deadline. The plan evaluation also indicated the projects that required future funding, the lead agency responsible for implementing the activities and the estimated total phosphorous load reduction. In addition, the coordinating agencies have been meeting on a monthly basis to discuss matters/issues relating to implementing the Lake Okeechobee Watershed Protection Plan.
	Lake Okeechobee Watershed Construction Project (3)(b)		
(3)(b)(1)	Phase I consist of a series of projects consistent with the recommendations of the South Florida Ecosystem Restoration Working Group's Lake Okeechobee Action Plan. Priority basins for such projects include S-191, S-154, and Pools D and E in the Lower Kissimmee River	The District shall serve as a full partner with the Corps in the design and construction of the Grassy Island Ranch and New Palm Dairy stormwater treatment facilities. The Corps shall have the lead in design and construction.	Compliance: IN PROCESS (District and the Corps) - The facilities have been constructed. The Grassy Island Ranch facility (Taylor Creek STA) is functional. The New Palm Dairy facility (Nubbin Slough STA) has operational issues that are being remedied by the Corps. Repairs are expected to be completed by the beginning of the 2009 rainy season.
		The District shall obtain permits and complete construction of two of the isolated wetland restoration projects that are part of the Lake Okeechobee Water Retention/Phosphorus Removal Critical Project.	Compliance: YES (District was the lead agency) - The Lemkin Creek and the Kirton Ranch projects have been completed.
		The District shall work with the Corps to expedite initiation of the design process for the Taylor Creek/Nubbins Slough Reservoir Assisted Stormwater Treatment Area. The District shall take the lead in the design and construction and receive credit towards the local share of the total cost of the CERP.	Compliance: YES (District is the lead agency) - This project has evolved into the Lakeside Ranch STA (commonly known as the Lake Okeechobee Watershed Project). The design is largely complete and construction is expected to begin in March 2009.

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(3)(b)(2)	Phase II	By February 1, 2008, the District, in cooperation with the other coordinating agencies should develop a detailed technical plan. Plan has various requirements, for example, measures for the improvement of the quality, quantity, timing, and distribution of water in the northern Everglades ecosystem, including the Lake Okeechobee watershed and the estuaries.	Compliance: YES (District was the lead agency) - The Phase II Technical Plan of the Lake Okeechobee Watershed Construction Project was developed by the District, in coordination with FDEP and FDACS and was delivered to the Florida Legislature on February 1, 2008. The Plan identifies construction projects, along with on-site measures that prevent or reduce pollution at its source such as agricultural and urban best management practices (BMPs), needed to achieve water quality targets for the Lake. It also includes other projects for increasing water storage north of the Lake to achieve healthier lake levels and reduce harmful discharges to the Caloosahatchee and St. Lucie estuaries.
(3)(b)(3)	Evaluation - By January 1, 2004, and every 3 years thereafter, the District, in cooperation with the coordinating agencies, shall conduct an evaluation of any further load reductions necessary to achieve compliance with all watershed total maximum daily loads established pursuant to s. 403.067. Additionally, the District shall identify modifications to facilities of the Lake Okeechobee Watershed Construction Project as appropriate to meet the total maximum daily loads. The evaluation shall be included in the applicable annual progress report submitted pursuant to subsection (6).		Compliance: YES (District is the lead agency) - The Lake Okeechobee Protection Plan was last updated in 2007 and is scheduled for another update in 2010. It was updated by the District and the coordinating agencies and provided an evaluation/update to the 2004 plan. Specifically, the 2007 plan focused on phosphorus management activities, strategies, associated costs, results of completed projects, and the status of ongoing watershed and in-lake restoration projects. Project time lines, information about funding sources, and other aspects of project planning were also included.
(3)(b)(4)	Coordination and Review - To ensure the timely implementation of the Lake Okeechobee Watershed Construction Project, the design of project facilities shall be coordinated with FDEP and other interested parties, including affected local governments. Lake Okeechobee Watershed Construction Project facilities shall be reviewed and commented upon by FDEP prior to the execution of a construction contract by the District for that facility.		Compliance: YES - The Phase II Technical Plan of the Lake Okeechobee Watershed Construction Project was developed by the District, in coordination with FDEP, FDACS, and extensive input from stakeholders.
(3)(c)	Lake Okeechobee Watershed Phosphorus Control Program		
	Agricultural Non-Point Source Best Management Practices		
(3)(c) (1)	The coordinating agencies shall develop an interagency agreement that assures the development of BMPs that complement existing regulatory programs and specifies how those BMPs are implemented and verified. The agreement shall address measures to be taken by the coordinating agencies during any BMP reevaluation performed.		Compliance: YES - An interagency agreement was executed on 3/23/2001.
(3)(c) (1)(a)	FDACS, in consultation with FDEP, and the District, and affected parties, shall initiate rule development for interim measures, BMPs, conservation plans, nutrient management plans, or other measures necessary for the watershed total maximum daily load reduction.		Compliance: (FDACS is the lead agency) - The District assists when necessary. FDACS adopted Chapter 5M-3 of the Florida Administrative Code to address this requirement.

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(3)(c) (1)(a)	FDACS, in consultation with FDEP, the District, and affected parties, shall conduct an ongoing program for improvement of existing and development of new interim measures or best management practices for the purpose of adoption of such practices by rule.	<u>Compliance: (FDACS is the lead agency)</u> - BMP improvements are discussed at interagency and public meetings.
(3)(c) (1)(a)	FDACS shall work with the University of Florida's Institute of Food and Agriculture Sciences to review and, where appropriate, develop revised nutrient application rates for all agricultural soil amendments in the watershed.	<u>Compliance: YES (FDACS is the lead agency)</u>
(3)(c) (1)(b)	Where BMPs or interim measures have been adopted by rule of the FDACS, the owner or operator of an agricultural nonpoint source addressed by such rule shall either implement interim measures or BMPs or demonstrate compliance with the District's WOD program by conducting monitoring prescribed by the FDEP or the District.	<u>Compliance: (District is the lead agency)</u> - Amendments to Chapter 40E-61, Florida Administrative Code, are being drafted to incorporate these requirements. The amendments are expected to be available for review in 2009. The District published a Notice of Rule Development in July 2008 and three public workshops were conducted in the late summer of 2008 to obtain public input.
(3)(c) (1)(b)	FDACS, in cooperation with the FDEP and the District, shall provide technical and financial assistance for implementation of BMPs, subject to the availability of funds.	<u>Compliance: YES (FDACS is the lead agency)</u> - The District has also participated (e.g., dairy best available technology (BAT) projects). FDACS and U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) have executed an interagency memorandum of agreement that commits available federal resources expedite BMP-based planning.
(3)(c) (1)(c)	The District or the FDEP shall conduct monitoring at representative sites to verify the effectiveness of agricultural nonpoint source BMPs.	<u>Compliance: YES (District and FDACS)</u> - The District and the U.S. Geological Survey monitor water quality at regional and sub-regional levels to determine the collective effectiveness of BMP programs. There is also project-specific monitoring (e.g., demonstration projects).
(3)(c) (1)(d)	Where water quality problems are detected despite the appropriate implementation of adopted BMPs, FDACS, in consultation with the other coordinating agencies and affected parties, shall institute a reevaluation of the BMPs and make appropriate changes to the rule adopting BMPs.	<u>Compliance: NOT APPLICABLE (to date) (FDACS is the lead agency)</u> - Implementation of BMPs began in 2003. It is too early to evaluate their effectiveness and whether reevaluation of BMPs are needed.

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Non-Agricultural Non-Point Source Best Management Practices		
(3)(c)(2)	The FDEP and the District shall develop an interagency agreement that assures the development of BMPs that complement existing regulatory programs and specifies how those BMPs are implemented and verified. The interagency agreement shall address measures to be taken by the FDEP and the District during any BMP reevaluation performed.	Compliance: YES - An interagency agreement was executed on 3/23/2001.
(3)(c) (2)(a)	FDEP and the District are directed to work with the University of Florida's Institute of Food and Agriculture Sciences(UF/IFAS) to develop appropriate nutrient application rates for all nonagricultural soil amendments in the watershed.	Compliance: YES (FDEP is the lead agency) - Based on the 2009 SFER, UF/IFAS provides weekly articles in Okeechobee area newspapers that address proper lawn maintenance practices. Additionally, a brochure has been developed in conjunction with the fertilizer industry to promote the use of low-phosphorus fertilizers and the use of appropriate non-structural BMPs when applying such chemicals. UF/IFAS staff has educated employees of landscape management companies about environmentally sound landscaping through the Green Industry BMP Program. Additionally, FDEP and UF/IFAS have continued their multi-year research partnership to determine minimum fertilizer and irrigation requirements for establishing and maintaining turf grasses. Other turf grass studies will quantify the amount of nutrient runoff to surface waters.
(3)(c) (2)(a)	FDEP, in consultation with the District and affected parties, shall develop interim measures, BMPs, or other measures necessary for Lake Okeechobee watershed total maximum daily load reduction.	Compliance: YES (FDEP is the lead agency) - Based on the 2009 SFER, FDEP has various regulatory programs that address urban point source stormwater and non-point source inflows to Lake Okeechobee tributaries. The two primary regulatory programs are administered through Environmental Resource Permits (ERP) and the National Pollutant Discharge Elimination System (NPDES) stormwater permitting program.
(3)(c) (2)(a)	FDEP, the District, and affected parties shall conduct an ongoing program for improvement of existing and development of new interim measures or best management practices.	Compliance: YES (FDEP is the lead agency) - Interagency meeting discussions include BMPs improvements and past project successes and failures.
(3)(c) (2)(a)	The District shall adopt technology-based standards under the District's WOD program for nonagricultural nonpoint sources of phosphorus.	Compliance: IN PROCESS (District is the lead agency) - Amendments to Chapter 40E-61, Florida Administrative Code, are being drafted to incorporate these requirements. The amendments are expected to be available for review in 2009. The District published a Notice of Rule Development in July 2008 and three public workshops were conducted in the late summer of 2008 to obtain public input.

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(3)(c) (2)(b)	The owner or operator of a nonagricultural nonpoint source shall implement interim measures or BMPs and be subject to the provisions of s. 403.067(7), where BMPs or interim measures have been developed by the FDEP and adopted by the District.	<u>Compliance: IN PROCESS (District is the lead agency)</u> - Amendments to Chapter 40E-61, Florida Administrative Code, are being drafted to incorporate these requirements. The amendments are expected to be available for review in 2009. The District published a Notice of Rule Development in July 2008 and three public workshops were conducted in the late summer of 2008 to obtain public input.
(3)(c) (2)(b)	FDEP and District shall provide technical and financial assistance for implementation of nonagricultural nonpoint source best management practices, subject to the availability of funds.	<u>Compliance: YES (FDEP is the lead agency)</u> - Based on the 2009 SFER, UF/IFAS agents worked with homeowners on better lawn management through the Florida Yards and Neighborhoods program. Funding was provided by FDEP and the District provided technical support.
(3)(c) (2)(c)	The District or the FDEP shall conduct monitoring at representative sites to verify the effectiveness of nonagricultural nonpoint source BMPs.	<u>Compliance: YES (District is the lead agency)</u> - The District (and FDEP) monitors water quality at representative sites to verify the effectiveness of BMP. Specifically, monitoring is conducted at a basin scale through the District's ambient water quality monitoring network and the sub-basin scale by the District through the LOWOD and the USGS Load Monitoring Programs. In addition, IFAS BMP research sites have been implemented and are being monitored by IFAS to determine BMP effectiveness.
(3)(c) (2)(d)	FDEP and the District shall institute a reevaluation of BMPs, where water quality problems are detected despite the appropriate implementation of adopted BMPs.	<u>Compliance: YES (District and FDEP)</u> - Watershed-scale implementation of BMPs is underway and water quality monitoring is on going to ensure that BMPs are effective. Once all the BMPs are implemented in the watershed, they will be re-evaluated for effectiveness.
(3)(c)(4)	Projects that reduce the phosphorus load originating from domestic wastewater systems within the Lake watershed shall be given funding priority in the FDEP's revolving loan program. FDEP shall coordinate and provide assistance to those local governments seeking financial assistance for such priority projects	<u>Compliance: YES (FDEP is the lead agency)</u>

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(3)(c)(5)	Projects that make use of private lands, or lands held in trust for Indian tribes, to reduce nutrient loadings or concentrations within a basin by one or more of the following methods: restoring the natural hydrology of the basin, restoring wildlife habitat or impacted wetlands, reducing peak flows after storm events, increasing aquifer recharge, or protecting range and timberland from conversion to development, are eligible for grants available under this section from the coordinating agencies. Certain other projects are also eligible.	<u>Compliance: YES (Coordinating agencies)</u> - Addressed by the following: Phosphorous Source Control Grant Program, isolated wetland restoration projects, former dairy remediation projects, dairy best available technology projects, a public-private partnership, and the Florida Ranchlands Environmental Services Project.
(3) (c) (6)(a)	FDEP shall require all entities disposing of domestic wastewater residuals within the watershed and the remaining areas of Okeechobee, Glades, and Hendry Counties to develop and submit to FDEP an agricultural use plan that limits applications based upon phosphorus loading. By July 1, 2005, phosphorus concentrations originating from these application sites shall not exceed the limits established in the District's WOD program. After December 31, 2007, the FDEP may not authorize the disposal of domestic wastewater residuals within the watershed unless the applicant can affirmatively demonstrate that the phosphorus in the residuals will not add to phosphorus loadings in Lake Okeechobee or its tributaries.	<u>Compliance: Not Applicable</u> - Rulemaking is not necessary because the statute indicate applications must not exceed the limits in the District's Works of the District program. There are currently limits under Chapter 40E-6, Florida Administrative Code, and with the amendment of this rule there is expected to be area-wide performance measures. In addition, the District and the coordinating agencies will consider additional requirements as necessary.
(3) (c) (8)	FDACS shall initiate rulemaking requiring entities within the watershed which land-apply animal manure to develop resource management system level conservation plans, according to USDA criteria. Such rules may include criteria and thresholds for the requirement to develop a conservation or nutrient management plan, requirements for plan approval, and recordkeeping requirements.	<u>Compliance: YES (FDACS is the lead agency)</u> - FDACS is required to ensure that landowners are complying with FDEP's rules.
(3) (c) (9)	The District, FDEP, or FDACS, as appropriate, shall implement those alternative nutrient reduction technologies determined to be feasible.	<u>Compliance: YES (District is the lead agency)</u> - The District has already completed several alternative nutrient reduction technologies projects, for example projects under the Phosphorous Source Control Grant Program, isolated wetland restoration projects, former dairy remediation projects, and dairy best available technology projects. Other alternative technology projects are ongoing, e.g., Aquatic Treatment Systems and Hybrid Treatment Wetland Systems.

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	Lake Okeechobee Watershed Research and Water Quality Monitoring Program:	
(3)(d)	The DISTRICT, in cooperation with the other coordinating agencies, shall establish a Lake Okeechobee Watershed Research and Water Quality Monitoring Program that builds upon the District's existing Lake Okeechobee research program. <u>THE PROGRAM SHALL :</u>	
(3)(d)(1)	Evaluate all available existing water quality data concerning total phosphorus in the watershed, develop a water quality baseline to represent existing conditions for total phosphorus, monitor long-term ecological changes, including water quality for total phosphorus, and measure compliance with water quality standards for total phosphorus, including any applicable total maximum daily load for the Lake Okeechobee watershed as established pursuant to s. 403.067.	Compliance: YES (District is the lead agency) - The District and the coordinating agencies have conducted numerous research, assessment, and monitoring projects, e.g., a study of legacy phosphorous in the watershed was recently completed. Water quality monitoring is conducted through the Lake Okeechobee Watershed Assessment (LOWA) micro-basin monitoring and through the District's ambient water quality monitoring program.
(3)(d)(1)	Every 3 years, the District shall reevaluate water quality and quantity data to ensure that the appropriate projects are being designated and implemented to meet the water quality and storage goals of the plan	Compliance: YES (District is the lead agency) - Addressed in the Lake Okeechobee Protection Plan that was updated in 2007. The next update is scheduled for 2010.
(3)(d)(1)	The District shall implement a total phosphorus monitoring program at appropriate structures owned or operated by District and within the Lake Okeechobee watershed.	Compliance: YES (District is the lead agency) - Water quality monitoring is conducted through the Lake Okeechobee Watershed Assessment (LOWA) micro-basin monitoring for phosphorus and through the District's ambient water quality monitoring program for total phosphorus and total nitrogen. Data collected is used to evaluate changes in total phosphorus concentrations throughout the watershed
(3)(d)(2)	Develop a Lake Okeechobee water quality model that reasonably represents phosphorus dynamics of the lake and incorporates an uncertainty analysis associated with model predictions	Compliance: YES (District is the lead agency) - The Lake Okeechobee Water Quality Model was developed to forecast responses of the lake to long-term management scenarios, e.g., phosphorous load reduction.
(3)(d)(3)	Determine the relative contribution of phosphorus from all identifiable sources and all primary and secondary land uses.	Compliance: YES (District is the lead agency) - Water quality monitoring is conducted at the micro-basin level for phosphorus, and through the District's ambient water quality monitoring program for both phosphorus and nitrogen. In addition, the District and the coordinating agencies monitor water quality at representative sites to verify the effectiveness of BMPs at a basin and sub-basin scale.
(3)(d)(4)	Conduct an assessment of the sources of phosphorus from the Upper Kissimmee Chain-of-Lakes and Lake Istokpoga, and their relative contribution to the water quality of Lake Okeechobee. The results of this assessment shall be used by the coordinating agencies to develop interim measures, BMPs, or regulation, as applicable.	Compliance: YES (District is the lead agency) - Assessments were completed in 2003.

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(3)(d)(5)	Assess current water management practices within the watershed and develop recommendations for structural and operational improvements. Such recommendations shall balance water supply, flood control, estuarine salinity, maintenance of a healthy lake littoral zone, and water quality considerations.	Compliance: YES (District and the Corps) - The District is responsible for the competing water supply needs, flood control, and enhancement of fish and wildlife resources. The Corps is responsible for navigation and for implementing the Water Control Plan for the lake regulation schedule. In April 2008, the Corps approved a new regulation schedule (LORS2008) for Lake Okeechobee to replace the Water Supply and Environment (WSE) operational regulation schedule that had been in effect since 2000. LORS2008 focuses on public health and general welfare considerations associated with the safety of the Herbert Hoover Dike. The Corps also plans construction projects to improve the structure of the Hubert Hoover Dike.
(3)(d)(6)	Evaluate the feasibility of alternative nutrient reduction technologies, including sediment traps, canal and ditch maintenance, fish production or other aquaculture, bioenergy conversion processes, and algal or other biological treatment technologies.	Compliance: YES (District is the lead agency) - An evaluation titled <i>Desktop Evaluation of Lake Okeechobee Alternate Nutrient Reduction Technologies</i> was completed in 2002.
(3)(d)(7)	Conduct an assessment of the water volumes and timing from the watershed and their relative contribution to the water level changes in Lake Okeechobee and to the timing and volume of water delivered to the estuaries.	Compliance: YES (District and the Corps) - The District conducted the assessment - Lake Okeechobee Regulation Schedule Study (LORSS 2006-2008). Based on the District's assessment, the Corps generated a new operations schedule for Lake Okeechobee known as LORS2008 which replaced the Water Supply & Environment regulation schedule.
Exotic Species Control Program		
(3)(e)	The coordinating agencies shall identify the exotic species that threaten the native flora and fauna within the watershed and develop and implement measures to protect the native flora and fauna.	This component of the statutes will be tested as part of the Inspector General's Audit of the Vegetation Management Program (Audit #09-04), which had already commenced.
Internal Phosphorous Management Program		
(3)(f)	The District, in cooperation with the other coordinating agencies and interested parties, shall complete a Lake Okeechobee internal phosphorus load removal feasibility study. The feasibility study shall be based on technical feasibility, as well as economic considerations, and address all reasonable methods of phosphorus removal. If methods are found to be feasible, the district shall immediately pursue the design, funding, and permitting for implementing such methods.	Compliance: YES (District is the lead agency) - The District conducted the Lake Sediment Management Feasibility Study. The study design, results, and conclusions were presented in the January 2004 annual report to the Florida Legislature. The main conclusions are: (1) dredging is not a feasible or effective measure for reducing internal phosphorus loads in Lake Okeechobee; (2) chemical treatment might be effective, but should only be considered if the lake fails to respond as expected to external load reductions, due to environmental concerns about alum additions; and (3) the recommended alternative is to focus on phosphorus load reductions in the watershed.

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(4)	Caloosahatchee and St. Lucie River Watershed Protection Program	
(4)(a)	Caloosahatchee River Watershed Protection Plan	
(4)(a)	No later than January 1, 2009, the District, in cooperation with the other coordinating agencies, Lee County, and affected counties and municipalities, shall complete a River Watershed Protection Plan. The plan shall identify the geographic extent of the watershed, be coordinated as needed with the plans developed pursuant to paragraph (3)(a) and paragraph (b) of this subsection, and contain an implementation schedule for pollutant load reductions consistent with any adopted total maximum daily loads and compliance with applicable state water quality standards. <u>The plan shall include:</u>	<u>Compliance: YES</u> - The Caloosahatchee River Watershed Protection Plan was developed by the District, in cooperation with FDEP, FDACS, Lee County, other affected counties and municipalities, and a other stakeholder and public input. It was delivered to the legislature by the January 1, 2009 deadline and includes the following components: 1) Caloosahatchee River Watershed Construction Project, 2) Caloosahatchee River Watershed Pollutant Control Program, and 3) Caloosahatchee River Watershed Research and Water Quality Monitoring Program.
(4)(a)(1)	Caloosahatchee River Watershed Construction Project	
(4)(a)(1)	To improve the hydrology, water quality, and aquatic habitats within the watershed, the district shall, no later than January 1, 2012, plan, design, and construct the initial phase of the Watershed Construction Project. In doing so, the District shall:	
(4)(a)(1) (a) to (g)	Develop and designate the facilities to be constructed; conduct scientific studies that are necessary to support the design of the facilities; identify the size and location; provide a construction schedule; provide a schedule for the acquisition of lands or sufficient interests necessary to achieve the construction schedule; provide a schedule of costs and benefits associated with each construction project and identify funding sources. To ensure timely implementation, coordinate the design, scheduling, and sequencing of project facilities with the coordinating agencies, Lee County, other affected counties and municipalities, and other affected parties.	<u>Compliance: YES</u> - The Caloosahatchee River Watershed Construction Project plan is one component of the Protection Plan and it meets all the statute requirements. For example, it includes a description of the facilities to be constructed by 2012; identify the size and location of projects, and the funding sources.
(4)(a)(2)	Caloosahatchee River Watershed Pollutant Control Program	
(4)(a) (2)(a)	Nonpoint source best management practices consistent with paragraph (3)(c), designed to achieve the objectives of the Caloosahatchee River Watershed Protection Program, shall be implemented on an expedited basis. The coordinating agencies may develop an intergovernmental agreement with local governments to implement the nonagricultural, nonpoint-source best management practices within their respective geographic boundaries.	<u>Compliance: YES (Coordinating Agencies)</u> - The Caloosahatchee River Watershed Pollutant Control Program is one of the components of the Plan. Expedited implementation of non-point source BMPs has begun within the watershed as significant portions of agricultural acreage within the watershed are already implementing agricultural BMPs. In addition, FDACS has identified additional activities that they will conduct as necessary and feasible to comply with the legislative mandate. Urban BMPs are implemented by FDEP and through the regulatory programs of FDEP and SFWMD. In addition, several regulatory rule revisions are being proposed in order to better address source control through the regulatory process.

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(4)(a) (2)(c)	Projects that make use of private lands, or lands held in trust for Indian tribes, to reduce pollutant loadings or concentrations within a basin, or that reduce the volume of harmful discharges are eligible for grants available under this section from the coordinating agencies.	Compliance: Not Applicable - No grant requests to date - However, depending on funding availability a process can be established in the future.
(4)(a) (2)(d)	Require assessment of current water management practices within the watershed and shall require development of recommendations for structural, nonstructural, and operational improvements.	Compliance: YES (Coordinating agencies) - Current water management practices within the watershed were evaluated and modeling analyses were conducted to evaluate different project alternatives. Both current water management practices and recommendations for structural, nonstructural, and operational improvements are included in the final plan.
(4)(a) (2)(e)	After December 31, 2007, the FDEP may not authorize the disposal of domestic wastewater residuals within the Caloosahatchee River watershed unless the applicant can affirmatively demonstrate that the nutrients in the residuals will not add to nutrient loadings in the watershed.	Compliance: YES (FDACS is the lead agency)
(4)(a) (2)(g)	FDACS shall initiate rulemaking requiring entities within the Caloosahatchee River watershed which land-apply animal manure to develop a resource management system level conservation plan according to USDA criteria.	Compliance: YES (FDACS is the lead agency) - This requirement is being addressed by FDACS which initiated rule development in February 2008 and expects to adopt the rule by the end of 2008.
Caloosahatchee River Watershed Research and Water Quality Monitoring Program		
(4)(a)(3)	The District, in cooperation with the other coordinating agencies and local governments, shall establish a Caloosahatchee River Watershed Research and Water Quality Monitoring Program. The program shall also conduct an assessment of the water volumes and timing from the Lake Okeechobee and Caloosahatchee River watersheds and their relative contributions to the timing and volume of water delivered to the estuary.	Compliance: YES - The Caloosahatchee River Watershed Research and Water Quality Monitoring Program is one of the components of the Protection Plan
St. Lucie River Watershed Protection Plan		
(4)(b)	No later than January 1, 2009, the District, in cooperation with the other coordinating agencies, Martin County, and affected counties and municipalities, shall complete a plan in accordance with this subsection. The plan shall identify the geographic extent of the watershed, be coordinated as needed with the plans developed pursuant to paragraph (3)(a) and paragraph (b) of this subsection, and contain an implementation schedule for pollutant load reductions consistent with any adopted total maximum daily loads and compliance with applicable state water quality standards. <u>The plan shall include :</u>	Compliance: YES - The St. Lucie River Watershed Protection Plan was developed by the District in cooperation with active participation from Martin and St. Lucie Counties, affected municipalities, and an array of stakeholders. It was delivered to the legislature by the January 1, 2009 deadline and includes the following components: 1) St. Lucie River Watershed Construction Project, 2) St. Lucie River Watershed Pollutant Control Program, and 3) St. Lucie River Watershed Research and Water Quality Monitoring Program.

Office of the Inspector General
Compliance with Northern Everglades and Estuaries Protection Program Requirements

Appendix 1

Section	Northern Everglades and Estuaries Protection Program (NEEPP) Florida Statutes (373.4595)	Status / Specific Actions Taken to Comply with Statute Requirements
St. Lucie River Watershed Construction Project		
(4)(b)(1)	To improve the hydrology, water quality, and aquatic habitats within the watershed, the district shall, no later than January 1, 2012, plan, design, and construct the initial phase of the Watershed Construction Project. In doing so, the DISTRICT shall:	
(4)(b)(1) (a) to (g)	Develop and designate the facilities to be constructed; conduct scientific studies that are necessary to support the design of the facilities; identify the size and location; provide a construction schedule; provide a schedule for the acquisition of lands or sufficient interests necessary to achieve the construction schedule; provide a schedule of costs and benefits associated with each construction project and identify funding sources. To ensure timely implementation, coordinate the design, scheduling, and sequencing of project facilities with the coordinating agencies, Martin County, St. Lucie County, other interested parties, and other affected local governments.	Compliance: YES - The St. Lucie River Watershed Construction Project is one element of the St. Lucie River Watershed Protection Plan and it meets all the statutory requirements. For example, it includes a description of the facilities to be constructed by 2012; identify the size and location of projects, and the funding sources.
St. Lucie River Watershed Pollutant Control Program		
(4)(b)(2)	Same requirements as under the Caloosahatchee River Watershed Pollutant Control Program (above - (4)(a)(2))	Compliance: YES - All requirements of the St. Lucie River Watershed Pollutant Control Program are addressed in Chapter 7 of the St. Lucie River Watershed Protection Plan.
St. Lucie River Watershed Research and Water Quality Monitoring Program		
(4)(b)(3)	The District, in cooperation with the other coordinating agencies and local governments, shall establish a St. Lucie River Watershed Research and Water Quality Monitoring Program. The program shall also conduct an assessment of the water volumes and timing from the Lake Okeechobee and St. Lucie River watersheds and their relative contributions to the timing and volume of water delivered to the estuary.	Compliance: YES - The St. Lucie River Watershed Research and Water Quality Monitoring Program is one component of the Protection Plan. Furthermore, it contains an assessment of water volumes and timing from the watersheds as required.
River Watershed Protection Plan Implementation		
(4)(c)	The coordinating agencies shall be jointly responsible for implementing the River Watershed Protection Plans, consistent with the statutory authority and responsibility of each agency. Annual funding priorities shall be jointly established, and the highest priority shall be assigned to programs and projects that have the greatest potential for achieving the goals and objectives of the plans.	Compliance: YES - The District and the coordinating agencies plan to work together on a regular basis to implement the requirements of the River Watershed Protection Plans (Chapter 9).

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Appendix 1

Section	Northern Everglades and Estuaries Protection Program (NEEPP) Florida Statutes (373.4595)	Status / Specific Actions Taken to Comply with Statute Requirements
Evaluation		
(4)(d)	By March 1, 2012, and every 3 years thereafter, the District in cooperation with the coordinating agencies, shall conduct an evaluation of any pollutant load reduction goals, as well as any other specific objectives and goals, as stated in the River Watershed Protection Plans. Additionally, the District shall identify modifications to facilities of the River Watershed Construction Projects, as appropriate, or any other elements of the River Watershed Protection Plans. The evaluation shall be included in the annual progress report submitted pursuant to this section.	Compliance: Required in 2012 - The District will conduct updates as required, in cooperation with coordinating agencies. This requirement defines an adaptive management feedback loop and information generated by monitoring, modeling and research will be used to assist and support the periodic assessments and identify potential modifications.
Legislative Ratification		
(4)(f)	The coordinating agencies shall submit the River Watershed Protection Plans developed pursuant to paragraphs (a) and (b) to the President of the Senate and the Speaker of the House of Representatives prior to the 2009 legislative session for review. If the Legislature takes no action on the plan during the 2009 legislative session, the plan is deemed approved and may be implemented.	Compliance: YES - Both River Watershed Protection Plans were delivered to the Legislature by January 1, 2009, well in advance of the 2009 legislative session. This will provide the legislature with the opportunity to review and act upon the plans as appropriate.
Adoption and Implementation of Total Maximum Daily Loads and Development of Basin Management Action Plans		
(5)	FDEP is directed to expedite development and adoption of total maximum daily loads for the Caloosahatchee River and estuary. FDEP is further directed to, no later than December 31, 2008, propose for final agency action total maximum daily loads for nutrients in the tidal portions of the Caloosahatchee River and estuary.	Compliance: FDEP is the lead agency
(5)(a), (5)(b)	FDEP shall initiate development of basin management action plans as soon as practicable as determined necessary to achieve the total maximum daily loads. The Phase II technical plan and the River Watershed Protection Plans shall provide the basis for basin management action plans.	Compliance: FDEP is the lead agency
Annual Progress Report		
(6)	Each March 1 st , the District shall report on implementation of this section as part of the consolidated annual report required in s. 373.036(7). The annual report shall include a summary of the conditions of the hydrology, water quality, and aquatic habitat in the northern Everglades based on the results of the Research and Water Quality Monitoring Programs, the status of the Lake Okeechobee Watershed Construction Project, the status of the Caloosahatchee River Watershed Construction Project, and the status of the St. Lucie River Watershed Construction Project. In addition, the report shall contain an annual accounting of the expenditure of funds from the Save Our Everglades Trust Fund. The District shall prepare the report in cooperation with the other coordinating agencies and affected local governments.	Compliance: YES - As required, the District will provide an annual progress report the <i>South Florida Environmental Report</i> .

Office of the Inspector General
Compliance with Northern Everglades and Estuaries Protection Program Requirements

Appendix 1

Section	Northern Everglades and Estuaries Protection Program (NEEPP) Florida Statutes (373.4595)	Status / Specific Actions Taken to Comply with Statute Requirements
Lake Okeechobee Protection Permits		
(7)(c)(3)	By January 1, 2004, the District shall submit to the FDEP a permit modification to the Lake Okeechobee structure permits to incorporate proposed changes necessary to ensure that discharges through the structures covered by this permit achieve state water quality standards, including the total maximum daily load established in accordance with s. 403.067. These changes shall be designed to achieve such compliance with state water quality standards no later than January 1, 2015.	Compliance: YES (District is the lead agency) - FDEP issued a permit for Lake Okeechobee Water Control Structure Operations in June 2007.
Restrictions of Water Diversions		
(8)	The District shall not divert waters to the St. Lucie River, the Indian River estuary, the Caloosahatchee River or its estuary, or the Everglades National Park, in such a way that the state water quality standards are violated, that the nutrients in such diverted waters adversely affect indigenous vegetation communities or wildlife, or that fresh waters diverted to the St. Lucie River or the Caloosahatchee or Indian River estuaries adversely affect the estuarine vegetation or wildlife, unless the receiving waters will biologically benefit by the diversion. However, diversion is permitted when an emergency is declared by the water management district, if the Secretary of Environmental Protection concurs.	Compliance: YES (District is the lead agency) - Operations are conducted in accordance with the federally authorized regulation schedules (LORSS 2008) and project operating manuals.