



Audit of the Water Quality Program

Project #11-09

Prepared by
Office of Inspector General

J. Timothy Beirnes, CPA, Inspector General
Jankie Bhagudas, CPA, Lead Consulting Auditor



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

April 12, 2012

Audit and Finance Committee Members:

Mr. Timothy Sargent, Chair
Mr. Glenn J. Waldman, Vice Chair
Mr. James J. Moran, Member
Mr. Juan M. Portuondo, Member

Re: Audit of the Water Quality
Program
Project No. 11-09

This audit was performed pursuant to the Inspector General's authority set forth in Chapter 20.055, F.S. The objectives focused on examining the District's methodology for fulfilling its mission as it relates to improving water quality by assessing whether it provides a cohesive approach to addressing water quality issues. Jankie Bhagudas and I prepared this report.

Sincerely,

A handwritten signature in blue ink that reads "J. Timothy Beirnes".

J. Timothy Beirnes, CPA
Inspector General

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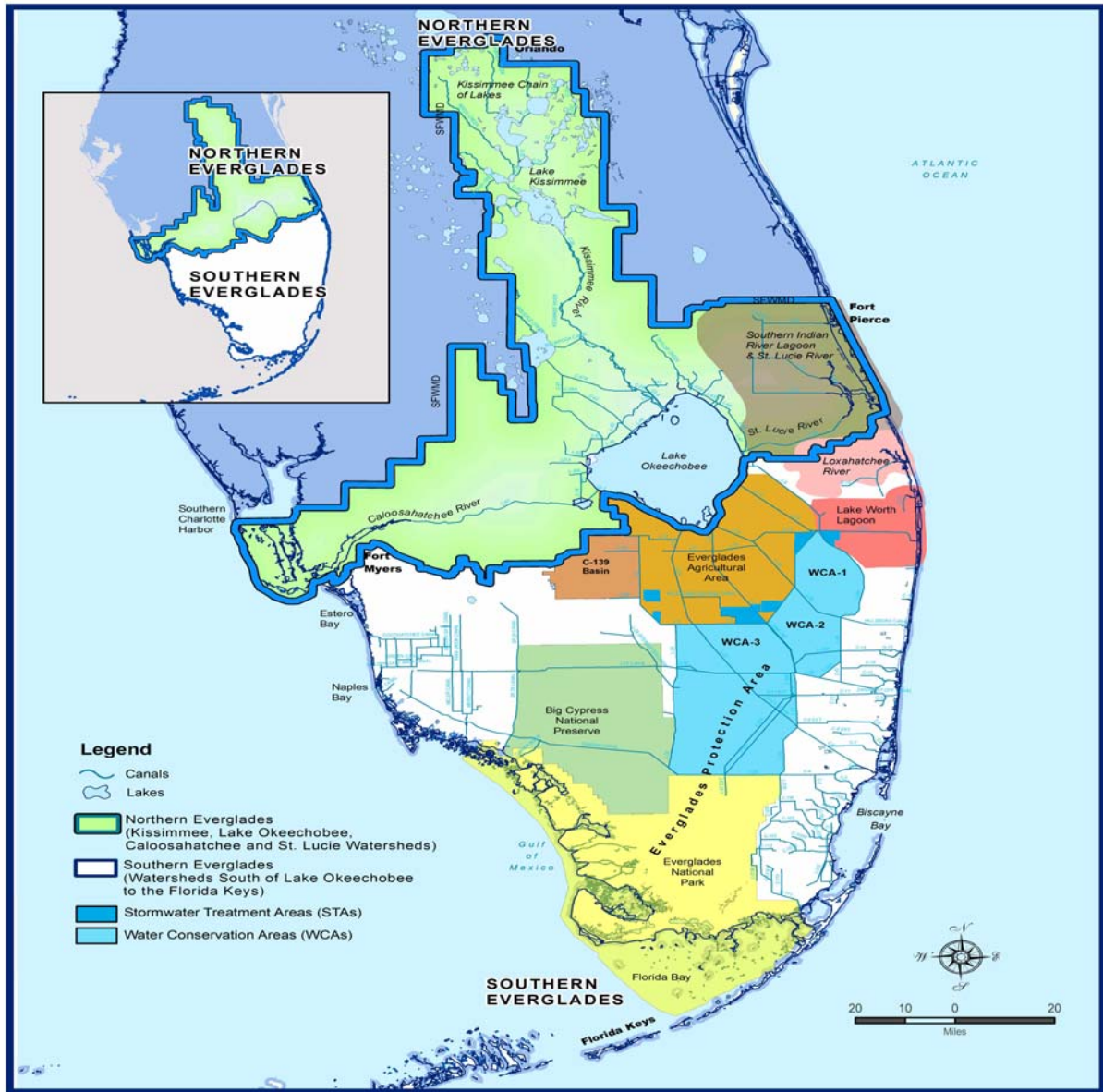
BACKGROUND

In accordance with the Office of Inspector General's Fiscal Year 2011 Audit Plan, we conducted an audit of the District's Water Quality Program.

The District, created in 1949, operates and maintains the Central and Southern Florida Flood Control (C&SF) Project, a system of canals, storage areas and water control structures spanning the area from Lake Okeechobee to both the east and west coasts and from Orlando south to the Everglades. It was designed and constructed during the 1950s by the Army Corps of Engineers to provide flood control and improve navigation and recreation. Today, the C&SF Project remains one of the world's largest public works projects. The District also develops and implements water supply plans, provides ecosystem research and monitoring, regulates water use, purchases land for preservation, and implements ecosystem restoration plans. The District works with Federal, State and local governments, and other stakeholders to improve water quality by restoring the environment within its boundaries.

The District's mission is to manage and protect water resources of South Florida by balancing and improving water quality, flood control, natural systems and water supply. South Florida is characterized by its unique and diverse ecosystems. The main features are the Northern and Southern Everglades. The Northern Everglades include the Kissimmee area lakes and river, Lake Okeechobee and the Caloosahatchee and St. Lucie rivers and estuaries. The Southern Everglades include the Water Conservation Areas, Big Cypress National Preserve, Biscayne Bay, Everglades National Park/Florida Bay and coastal bays and estuaries south of Lake Okeechobee.

The following map shows the major geographic features of the South Florida environment within the District's boundaries.



Source: 2011 South Florida Environmental Report

Over time, increased development and urbanization significantly changed the size, hydrology, water quality and ecology of ecosystems throughout the District's 16-county region. Specifically,

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- The Kissimmee River was channelized to control floods, causing extensive loss of wetland habitat.
 - Runoff from urban and agricultural lands near Lake Okeechobee poses an ongoing challenge to water management, making it difficult to balance issues related to water supply and prevent impacts to downstream ecosystems.
 - The Everglades has been reduced to half of its original extent, and its water supply has been significantly modified in both quantity and quality.
 - Invasive exotic species have aggressively invaded natural habitats, causing displacement of native plants and animals.

Water quality is the physical, chemical, and biological condition of water as applied to a specific use. To assess water quality, the District monitors surface water in a variety of locations, including canals, pumping stations, agricultural discharges, and many other types of aquatic environments. The District also monitors sediments and fish for a variety of pollutants; including nutrients, trace metals and pesticides, which can be conveyed by water. Water quality standards set by federal and state governments are based on the water's intended use; for example, recreation, fishing, drinking, and agriculture. The District collects data for multiple projects from water quality monitoring stations throughout the 16 counties. Scientists and technicians make approximately 30,000 site visits each year to water quality monitoring stations to collect water quality samples. Sampling locations include pumping stations, culverts, marsh environments and open water environments. Water quality is analyzed in order to track ecosystem status and trends and the performance of District projects, as well as to provide information needed to meet legal and regulatory requirements.

Data collected for water quality monitoring is available on the District's specialized database called DBHYDRO, which stores hydrologic, meteorologic, hydrogeologic, and water quality data. In addition, data stored in DBHYDRO includes more than seven million water quality results and is the source of historical and up-to-date environmental data for the 16-county region covered by the District.

OBJECTIVE, SCOPE, AND METHODOLOGY

Our objectives focused on examining the District's methodology for fulfilling its mission as it relates to improving water quality by assessing whether it provides a cohesive approach to addressing water quality issues.¹

To accomplish our objective we obtained an understanding of the administration of the water quality program by interviewing key personnel in the Water Resources and Regulation Divisions, Office of Everglades Policy and Coordination, and relevant District staff in other areas. We also reviewed relevant policies and procedures, laws and regulations specific to water quality and examined documents substantiating compliance; for example, Settlement Agreement, Everglades Forever Act, Northern Everglades and Estuaries Protection Program, and various South Florida Environmental Reports.

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.

¹ It should be noted that our audit did not determine the District's level of compliance with the various water quality requirements specified in state and federal mandates, laws, and regulations that are intended to improve the quality, quantity, and distribution of water. Instead, our objectives focused on determining the District's methodology for addressing the various water quality issues.

AUDIT RESULTS

Executive Summary

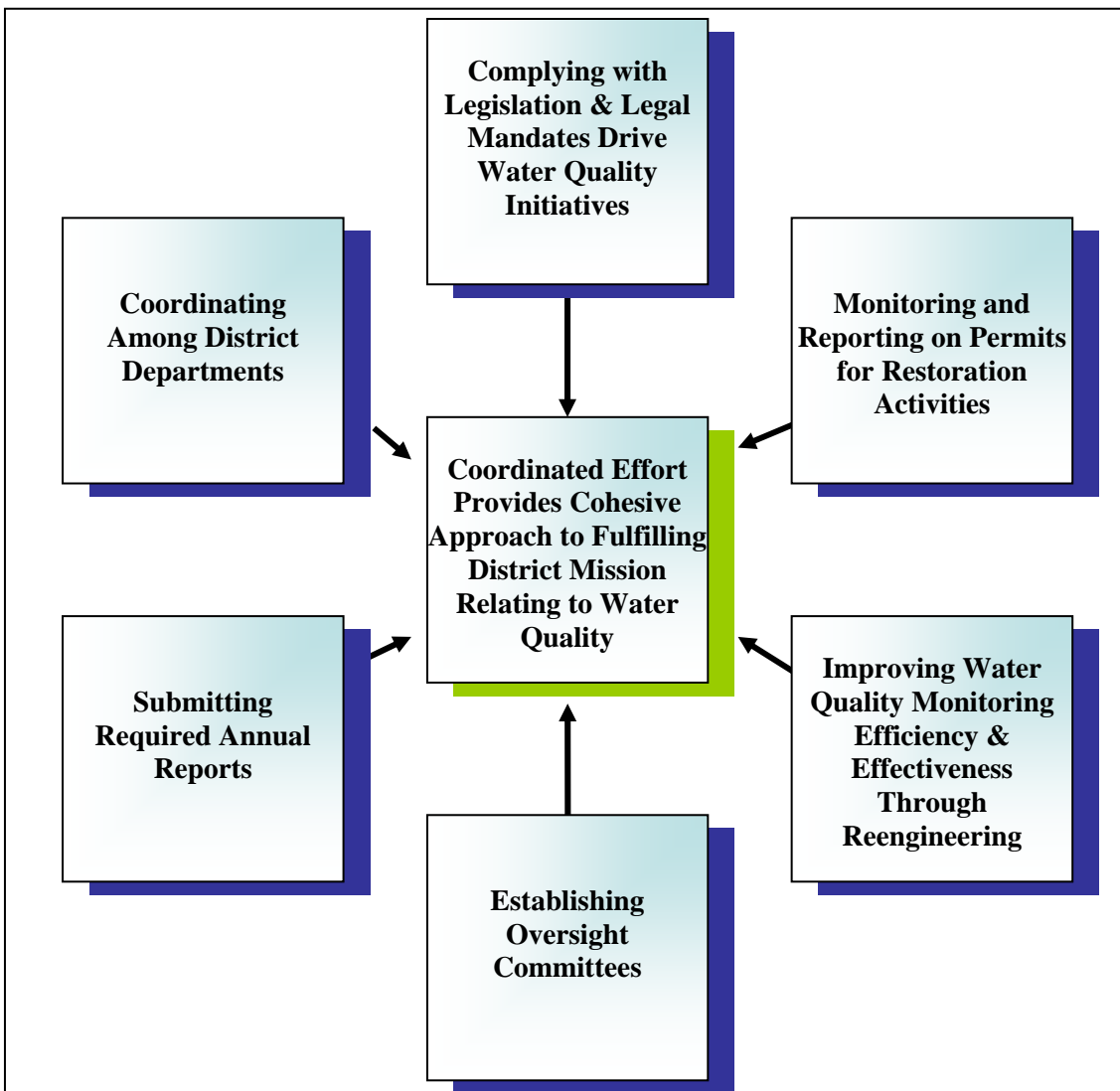
Our review disclosed that there are adequate controls in place to ensure that the District's mission relating to water quality improvement is fulfilled and that water quality issues are addressed in a cohesive manner. Specifically, improving water quality is a core District mission that is driven primarily by complying with various water quality requirements specified in federal and state mandates, laws, regulations and permits; for example, the Everglades Forever Act and the Northern Everglades and Estuaries Protection Program. In addition to ensuring compliance with specific mandated water quality requirements, the District performs certain activities to gather research, baseline, and other data; however, due to limited resources and funding constraints these activities are being reassessed. In certain instances, the District is required to collaborate with other agencies and stakeholders; for example, Army Corps of Engineers, Florida Department of Environmental Protection, Florida Department of Agriculture and Consumer Services, and local governments.

Several bureaus throughout the District are responsible for ensuring compliance with various requirements; for example, the Everglades Regulation Bureau is responsible for implementing non-point source control programs utilizing Best Management Practices to reduce nutrients in runoff from agricultural and urban lands that ultimately discharge to the Everglades. In addition, the Water Quality Bureau's Water Quality Monitoring Section makes approximately 30,000 site visits each year to collect water quality and biological samples to support numerous projects. The sampling results are used to guide the District's operations, resource assessment, and environmental restoration initiatives.

Further, to ensure that water quality issues are addressed, the District is required to obtain and comply with State and/or Federal permits authorizing construction and operation of environmental restoration projects that include specific water quality monitoring requirements. In addition, there are several other reporting requirements and oversight in place; for example, the District and the Florida Department of Environmental Protection is responsible for preparing the annual South Florida Environmental Report

unifies more than 50 individual reports into a single document. It includes statutorily mandated plans and reports to the Florida legislature and governor; and contains information about Everglades restoration activities and supports the restoration, management, and protection activities associated with Lake Okeechobee, Kissimmee Basin, and South Florida's coastal ecosystems. Lastly, the District has been reengineering water quality monitoring to ensure that monitoring activities are conducted effectively and efficiently while meeting legal and permit requirements.

The following diagram illustrates the mechanisms in place for addressing water quality issues.



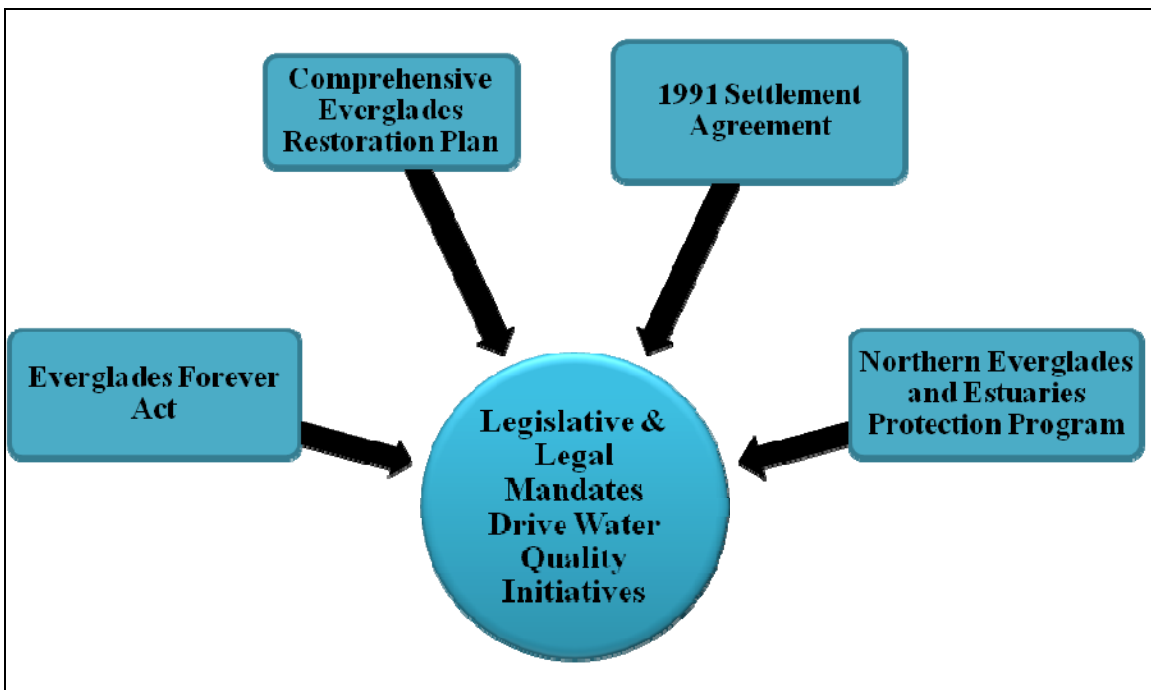
Legislative and Legal Mandates Drive Water Quality Initiatives

Our review disclosed that the District's mission to improve water quality within its boundaries is driven primarily by complying with various water quality requirements specified in federal and state mandates, laws, and regulations that are intended to improve the quality, quantity, and distribution of water. Since the ecosystem within the District's boundaries is diverse, water quality compliance requirements vary. In addition to ensuring compliance with specific mandated water quality requirements, the District performs certain activities to gather research, baseline, and other data; however, due to limited resources and funding constraints these activities are being reassessed. In certain instances, the District is required to collaborate with other agencies and stakeholders; for example, Army Corps of Engineers, Florida Department of Environmental Protection, Florida Department of Agriculture and Consumer Services, and local governments. To achieve mandated pollution reduction levels and water quality standards, including Total Maximum Daily Loads (TMDLs), the District typically addresses water quality improvement first by implementing and monitoring on-site source control programs and then by constructing restoration projects.

- **Source Control Programs:** Improving water quality starts with the reduction of pollutants through on-site measures that prevent or reduce pollution at the source; such as, agricultural and urban Best Management Practices (BMPs), which range from infrastructure improvements to optimized operations. Reducing on-site pollution promotes the restoration of wetlands, rivers, lakes, and estuaries through cleaner discharges to the Northern and Southern Everglades. Source control programs requirements were established by legislation for the Southern and Northern Everglades. Source control efforts are based on mandatory and incentive-driven Best Management Practices to improve water quality in the Southern Everglades and the District is responsible for overseeing the implementation of these efforts. Efforts in the Northern Everglades are implemented by the District, Department of Environmental Protection, and Florida Department of Agriculture and Consumer Services. The three coordinating agencies implement their respective programs through specific rules that are based on statutory authorizations.

➤ **Restoration Projects:** Restoration projects include, but are not limited to, construction of water quality and storage projects to improve hydrology and water quality. Restoration projects also include Stormwater Treatment Area (STAs), which are large, constructed wetlands designed to remove pollutants, particularly nutrients (such as phosphorous), from stormwater runoff using natural processes, as the water flows into and out of the wetlands. Another restoration project is the Picayune Strand Restoration project, currently underway, that will restore surface water flow to vital wetlands to ensure that wetland plants and animals thrive and improve the Ten Thousand Islands estuaries. Expected benefits also include a more natural pattern of flows and improved aquifer recharge.

The following diagram and the brief summaries below are the major mandates and agreements the District must comply with to achieve water quality standards.



Comprehensive Everglades Restoration Plan

The Comprehensive Everglades Restoration Plan (CERP) is a partnership agreement between the federal government and the State of Florida that provides a framework and guide to restore, protect, and preserve the South Florida ecosystem while providing for other water-related needs of the region, including water supply and flood protection. As a local sponsor, the District has partnered with the Army Corps of Engineers to implement the Comprehensive Everglades Restoration Plan, the goal of which is to increase water storage and improve the timing, quality, and distribution of water deliveries to the Everglades ecosystem. The Comprehensive Everglades Restoration Plan was approved by Congress under Title VI, Section 601 of the Water Resources Development Act (WRDA) of 2000 and includes more than 60 components that will be implemented through various projects and will take more than 30 years to construct. It should be noted that several components of the Comprehensive Everglades Restoration Plan also support the overall goals of the other mandates; for example, the Northern Everglades and Estuaries Protection Program.

1991 Settlement Agreement

A settlement agreement ended an Everglades lawsuit by the United States against the District and the Florida Department of Environmental Protection (United States v. South Florida Water Management District, et al., Case No. 88-1886-CIV-MORENO (S.D. Fla.)). The Settlement Agreement was entered as a consent decree in 1992 that required the Florida Department of Environmental Protection and District to take several specific actions to meet water quality requirements that include, but not limited to, the following:

- Take action necessary so that waters delivered to the Loxahatchee National Wildlife Refuge and Everglades National Park achieve certain phosphorous concentration limits;
- Purchase, design, and construct Stormwater Treatment Areas;
- Conduct research and monitoring; and

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- Establish a regulatory program to reduce total phosphorous loads from the Everglades Agricultural Area to the Stormwater Treatment Areas by at least 25 percent.

Everglades Forever Act

The Everglades Forever Act (EFA) was passed by the Florida Legislature in 1994 (Section 373.4592, Florida Statutes) to promote restoration and protection in the Everglades with a primary focus on water quality and some water quantity and distribution features. It is important to note that the Everglades Forever Act is broader in scope than the Settlement Agreement. Based on the Everglades Forever Act, the following are some of the requirements the District was required to comply with:

- Acquire land, design, permit, and construct a series of Stormwater Treatment Areas (STAs) to reduce phosphorus levels from stormwater runoff and other sources before it enters the Everglades Protection Area.
- Develop and implement a water quality monitoring program to evaluate the effectiveness of Best Management Practices in achieving and maintaining compliance with water quality requirements.

The District was also required to implement the Everglades Construction Project that is composed of 12 interrelated construction projects between Lake Okeechobee and the Southern Everglades, including six nutrient-removing Stormwater Treatment Areas. It also included four hydropattern² restoration projects that will improve the volume, timing, and distribution of water entering the Southern Everglades.

Subsequently, the Everglades Protection Area Tributary Basins Long-Term Plan for Achieving Water Quality Goals (Long-Term Plan) was developed by the District, other agencies, and stakeholders. The Long-Term Plan was a response to a requirement that the District submit to the Florida Department of Environmental Protection a plan by December 31, 2003, for achieving compliance with the total phosphorus criterion and other state water quality standards in the Everglades Protection Area, and to include the estimated costs, funding mechanisms, and implementation schedules associated with the plan.

The Long-Term Plan contains a suite of projects, ranging from of Stormwater Treatment Area structural enhancements, expansions, optimization research, compliance and operational monitoring (hydraulic and water quality), downstream monitoring and research, water quality and hydrodynamic modeling; and supplemental projects in support of the Best Management Practices source controls programs. It also includes integration with the CERP projects for continuous improvement until the long-term water quality goal is achieved and avoids duplicative and unnecessary costs.

The long-term Everglades water quality goal is for all discharges into the Everglades Protection Area to achieve and maintain water quality standards in the Everglades Protection Area and comply with the total phosphorous criterion established in Rule 62-302.540, Florida Administrative Code.

Northern Everglades and Estuaries Protection Program

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 Lake Okeechobee due to three long-term impacts: (1) excessive phosphorus loads, (2) unnaturally high and low water levels, and (3) spread of exotic and nuisance plants. 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 phosphorous loading, the Lake Okeechobee Protection Act mandates the implementation of projects to achieve a Total Maximum Daily Load (TMDL)³ of 140 metric tons of phosphorous per year from the watershed to Lake Okeechobee be met by January 1, 2015.

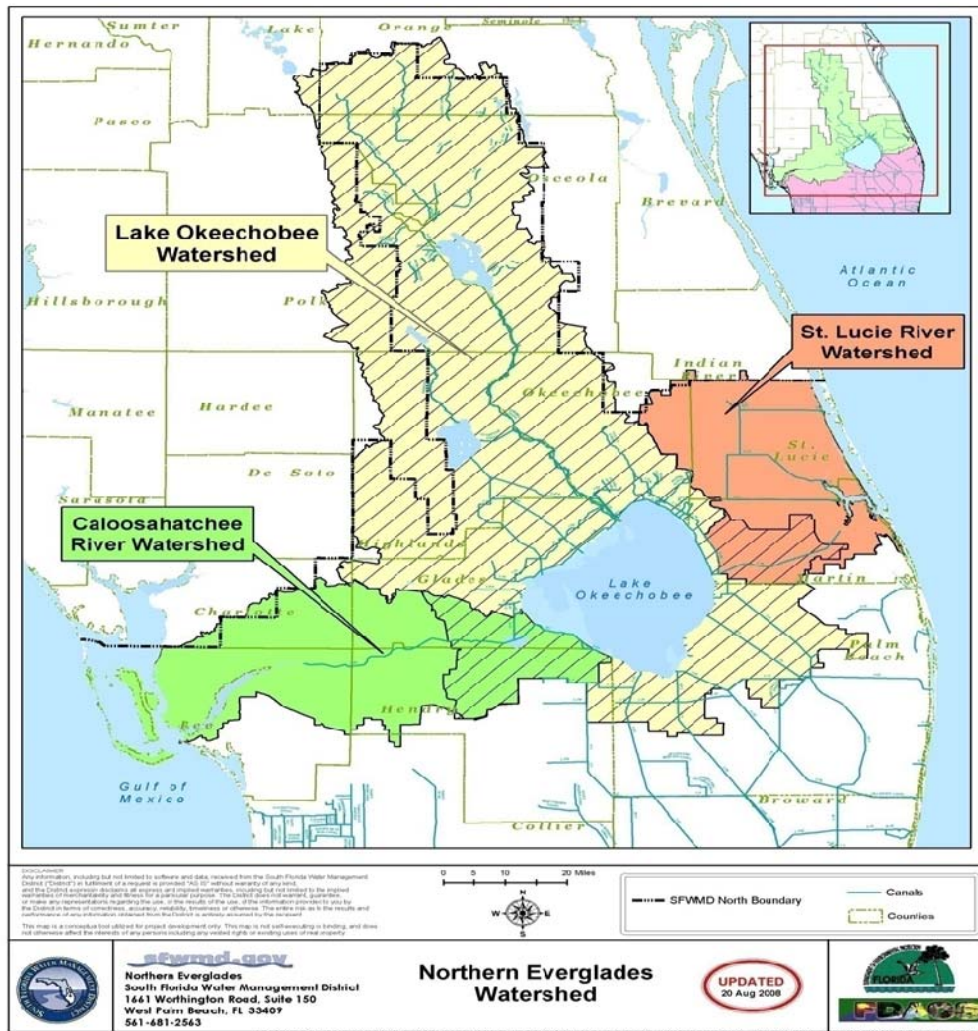
² Hydropattern refers to water depth, duration, timing, and distribution of fresh water in a specified area. A consistent hydropattern is critical for maintaining various ecological communities in wetlands.

³ 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.

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

- 1) Watershed Protection Plan
- 2) Watershed Construction Project
- 3) Phosphorous Source Control Program
- 4) Research and Water Quality Monitoring Program
- 5) Exotic Species Control Program
- 6) Internal Phosphorus Management Program
- 7) Submission of an annual progress report, which is accomplished via the South Florida Environmental Report.

In April 2007, the Florida legislature substantially expanded the Lake Okeechobee Protection Act to also include the protection of Caloosahatchee River and St. Lucie River watersheds. This new program was named the Northern Everglades and Estuaries Protection Program (NEEPP) (Section 373.4595, F.S.) and its objective is to promote a comprehensive, interconnected watershed approach to protect these water bodies. The Program's 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. Further, it requires the reduction of pollutant loadings, restoration of natural hydrology, and compliance with applicable state water quality standards. Essentially, the Northern Everglades and Estuaries Protection Program builds upon and consolidates numerous restoration activities into a comprehensive approach by addressing the reduction of pollutant loadings, restoration of natural hydrology, and compliance with applicable state water quality standards. The following is a map of the Northern Everglades Watershed:



Source: 2011 South Florida Environmental Report

The Northern Everglades and Estuaries Protection Program legislation requires the coordinating agencies in cooperation with local governments to also develop and implement the following:

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

The Protection Plans for St. Lucie River and the Caloosahatchee River Watersheds include the following three components:

- Watershed Construction Project
- Watershed Pollutant Control Program
- Watershed Research and Water Quality Monitoring Program

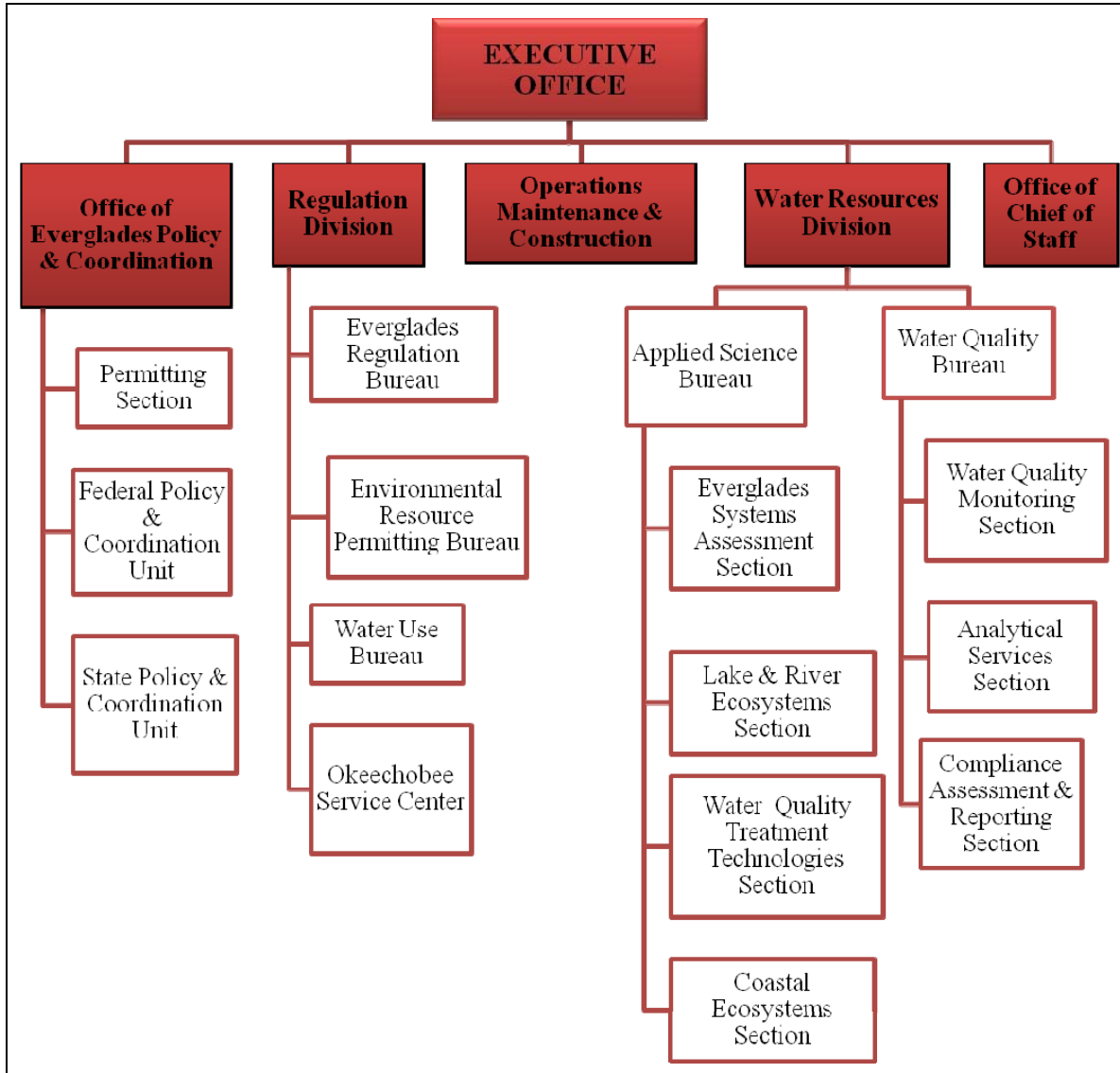
These components require water quality improvement and water storage projects; implementing agricultural and urban best management practices; and building upon existing research and water quality efforts to maximize nutrient loading reductions to meet specific TMDLs in a cost effective manner.

It should be noted that the Comprehensive Everglades Restoration Plan's goals include implementation of several projects in watersheds adjacent to the Lake Okeechobee Watershed, such as the C-43 Reservoir and C-44 Reservoir projects.

Water Quality Initiatives are a District-Wide Responsibility

Improving water quality within the District's boundaries is a core District mission and as such is a District-wide responsibility. The mandated requirements and plans to improve and report on water quality are primarily the responsibility of various District divisions, bureaus, sections and units. The following chart and brief summaries are examples of some of the areas with major responsibilities.

Examples of Areas Responsible for Water Quality



- ***Office of Everglades Policy & Coordination:*** *Federal Policy & Coordination Unit, State Policy & Coordination Unit, and Permitting Section*

This Office’s responsibilities include coordinating policy issues at both the federal and state level including those related to Everglades Restoration, water quality, and water resource protection. The Office also oversees planning activities related to the federal-state partnership to restore the Everglades, Everglades Long-Term Plan, Northern Everglades and Estuaries Protection Program, and the recent River of Grass

acquisition. In addition, the Division's Permitting is responsible for obtaining all federal, state, and local permits that are required in connection with District restoration or capital projects and for ensuring compliance with permitted activities. Further, the permitting process requires coordination with several other areas; for example, Office of Counsel and several sections within the Water Quality Bureau.

➤ **Regulation Division:** *Everglades Regulation Bureau and Environmental Resource Permitting Bureau*

Examples of this Division's responsibilities as they relate to the District's water quality mission are as follows:

- **Everglades Regulation Bureau:** Responsibilities include implementing non-point source control programs utilizing Best Management Practices to reduce nutrients in runoff from agricultural and urban lands that ultimately discharge to the Southern and Northern Everglades and Estuaries. This Bureau is also responsible for issuing the following Works of the District Permits that regulate the water quality.
 - **Everglades Works of the District Permits:** Required by landowners or entities that are within or discharging to drainage basins in the Everglades Agricultural Area (EAA) or C-139 Basin that ultimately drain to the Everglades. An Everglades Works of the District Permit is an approval of a Best Management Practices plan, and of a discharge (water quality and quantity) monitoring plan to help ensure that the District attains the mandated 25-percent reduction in phosphorus loads from the Everglades Agricultural Area Basin as a whole and maintain historic phosphorus discharge loads in the C-139 Basin.
 - **Lake Okeechobee Works of the District Permits:** Required by landowners or entities as part of the Lake Okeechobee Surface Water Improvement and Management (SWIM) Plan to reduce phosphorus flowing into Lake Okeechobee. Each permit outlines target reductions in phosphorus as well as monitoring and reporting requirements and Best Management Practices for private and public landowners in tributary basins of Lake Okeechobee.

Section 373.4595 of the Florida Statutes requires each permitted parcel to achieve a specific off-site total phosphorus discharge concentration limitation in an effort to achieve annual Lake Okeechobee phosphorus loading targets.

- **Environmental Resource Permitting Bureau:** Responsibilities include evaluating the engineering and environmental aspects of Environmental Resource Permit applications that the District is responsible for issuing in accordance with Part IV of Chapter 373, Florida Statutes, and Chapters 40E-4, 40E-40, and 40E-400 of the Florida Administrative Code.
 - **Environmental Resource Permits:** Required for any activity that could affect wetlands, alter surface water flows or contribute to water pollution. The District regulates residential and commercial developments, while the Florida Department of Environmental Protection oversees power plants, wastewater treatment plants and single-family home projects. In instances where activities impact wetlands, permittees are required to compensate for those impacts by preserving or constructing new wetlands either on their property or at an appropriate off-site mitigation location.

➤ **Water Resources Division:** *Water Quality Bureau and Applied Science Bureau*

The Water Resources Division is responsible for the following:

- Ecosystems in the coastal, Everglades wetlands, and lake and rivers of the District
- Water quality monitoring, assessment and reporting
- Water quality treatment technologies and solutions
- Water supply and hydrologic and ecosystem modeling

The sections within the Water Quality Bureau include Water Quality Monitoring, Analytical Services, Compliance Assessment and Reporting; while the sections in the Applied Sciences Bureau include Coastal Ecosystems, Lake and River Ecosystems, Water Quality Treatment Technologies, and Everglades Systems Assessment. Examples of the responsibilities of some of the sections as related to water quality are as follows:

- **Water Quality Monitoring Section:** This section makes approximately 30,000 site visits each year to collect water quality and biological samples to support

more than 100 projects. The sampling results are used to guide the District's operations, resource assessment, and environmental restoration initiatives. This section follows strict collection procedures to ensure the data are scientifically and legally defensible. It also maximizes the District's investment in environmental monitoring by continuous improvements and developing innovative approaches to optimize field sample collection. Further, the Water Quality Monitoring Section leads monitoring reengineering efforts to increase efficiency and reduce costs while meeting legal and permit requirements. In addition, it is involved in developing new monitoring programs and negotiating water quality permit conditions to help increase monitoring efficiency.

- **Analytical Services Section:** This section's staff is knowledgeable in environmental chemistry, laboratory practices and procedures, statistics, data validation and assessment, database and information management, and quality control and quality assurance. Their responsibilities include chemical analyses of surface water, rain water, and groundwater. This section annually tests 35,000 water samples and conducts over 250,000 analyses that for physical parameters, nutrients, and other elements. Most the analyses are performed in the District's chemistry laboratory that is certified by the Florida Department of Health and the National Environmental Laboratory Accreditation Program and staff have routinely demonstrated its excellence through state, national, and international laboratory comparison programs. Further, this section validates field and laboratory results and over seven million water quality data values each year from the real-time water quality stations throughout the District. It also responds to hundreds of requests annually for help accessing data through DBHYDRO, the District's hydrometeorologic and water quality database.
- **Compliance Assessment and Reporting Section:** This section's responsibilities include stewarding permit-related and other assessment of environmental data so that District managers have sound and legally defensible information to support decision making and the District can fulfill its statutory, regulatory, and mission-driven mandates. The section's expertise is used during permit negotiations with the Army Corps of Engineers and the Florida Department of Environmental

Protection to help comprehensively streamline operations, monitoring, and reporting requirements. It also prepares or contributes to more than 50 recurring reports to fulfill state and federal permits, agreements, and legal requirements. The permit-related reports are prepared routinely to comply with various permit conditions issued by the Army Corps of Engineers and the Florida Department of Environmental Protection.

- **Operations, Maintenance & Construction:** *Engineering and Construction Bureau*
- Operations, Maintenance & Construction is responsible for the operations and maintenance of the water resource facilities and infrastructure that are the primary means of water supply and flood protection with a balanced focus on natural system preservation and water quality improvements. This includes routine and emergency operations and maintenance of Works of the District, the Central and Southern Florida Flood Control Project (C&SF), the Everglades Construction Project, and the evolving Comprehensive Everglades Restoration Plan program. For example, the Division's Engineering and Construction Bureau's responsibilities include managing the engineering and design activities associated with the 50-year Capital Improvement Plan and Everglades restoration projects.

State and Federal Permits Require Water Quality Monitoring and Reporting for District Restoration Activities

The District is required to obtain and comply with State and/or Federal permits authorizing construction and operation of environmental restoration projects that include specific water quality monitoring requirements. In addition, the District may be required to comply with Administrative Orders, which establish schedules for compliance with certain permit criteria. In instances where projects are related to mandated restoration activities; such as, the Everglades Forever Act, Comprehensive Everglades Restoration Plan, and Northern Everglades and Estuaries Protection Program; the permitted activities include water quality monitoring at specific locations and at specific frequencies.

In addition, the permits require submittal of annual reports for water quality monitoring activities. Specifically, annual reports for Department of Environmental Protection issued permits are submitted via the annual South Florida Environmental Report and annual reports for Army Corps of Engineers issued permits are submitted separately. Permit reporting requirements is another mechanism in place to ensure that water quality issues are addressed.

Several areas among the different Divisions and Offices are involved in obtaining and reporting on permits to ensure the process is effective and efficient. Specifically, the Office of Everglades Policy and Coordination's Permitting Section is responsible for streamlining and expediting the permitting process for federal, state, and local permits required for District construction, environmental restoration, and operations and maintenance projects. Further, the Water Resources Division is involved in permit negotiations to streamline operations, monitoring, and reporting requirements, and prepares the technical reports to fulfill state and federal permits conditions.

The restoration activity determines the type of permits that are required to be obtained and a single project may require several permits; for example, a project mandated under the Everglades Forever Act may require an Everglades Forever Act permit and a Clean Water Act permit. Summarized below are the major types of State and Federal permits that regulate District restoration activities.

Department of Environmental Protection Permits

- Everglades Forever Act (Chapter 373.4592, Florida Statutes)
- Northern Everglades and Estuaries Protection Program (Chapter 373.4595, Florida Statutes)
- The Comprehensive Everglades Restoration Plan Regulation Act (Chapter 373.1502, Florida Statutes)
- Environmental Resource Permit Program (Chapter 373, Part 1V, Florida Statutes). This permit regulates activities involving the alteration of surface water flows that includes new activities in uplands that generate storm water runoff from upland construction, as well as dredging and filling in wetlands and other surface waters.
- National Pollutant Discharge Elimination System (NPDES) permits are issued under the NPDES program. This is a federal program established by the Clean Water Act under which the US Environmental Protection Agency is authorized via permits to regulate the disposal of domestic and industrial waste water from point sources, such as factories and wastewater plants, into the nation's waterways. The Florida Department of Environmental Protection is authorized to administer NPDES permits under Section 403.0885, Florida Statutes. It should be noted that due to ongoing water quality litigation regarding NPDES permits, the Florida Department of Environmental Protection has been enjoined from issuing Everglades Forever Act Discharge permits until the issues are resolved.

US Army Corps of Engineers Permit

The Federal Water Pollution Control Act Amendments of 1972 established the Section 404 Regulatory Program. Under this Act, it is unlawful to discharge dredged or fill material into waters of the United States without first receiving authorization, usually a permit (Section 404 Clean Water Act permit), from the Army Corps of Engineers, unless the discharge is covered under an exemption. The term "waters of the United States" defines the extent of geographic jurisdiction of the Section 404 program. The term includes such waters as rivers, lakes, streams, tidal waters, and most wetlands. A discharge of dredged or fill material involves the physical placement of soil, sand, gravel, dredged material, or other such materials into the waters of the United States.

Several Other Reporting Requirements and Oversight in Place

The District's compliance with water quality restoration mandates are closely linked to the District's 10-Year Strategic Plan and Annual Work Plan. In addition, there are several reporting mandates and advisory committees to ensure that the District is complying with water quality requirements. Summarized below are the major examples.

- **South Florida Environmental Report (SFER)**: An annual report that unifies more than 50 individual reports into a single document, pursuant to Chapter 2005-36, Laws of Florida, and Subsection 373.036(7), Florida Statutes (F.S.). It includes statutorily mandated plans and reports to the Florida legislature and governor. Overall, the information presented in the South Florida Environmental Report aids in the implementation of Everglades restoration activities and supports the restoration, management, and protection activities associated with Lake Okeechobee, Kissimmee Basin, and south Florida's coastal ecosystems. It builds and updates information from earlier consolidated reports and also satisfies many reporting requirements of multiple federal and state permits. Examples of mandated reports incorporated in the South Florida Environmental Report are as follows: Everglades Forever Act Annual Report, Non-Everglades Construction Project Permit Annual Report, and Northern Everglades and Estuaries Protection Program Progress Report. It also includes information on the following: Status of Water Quality in the Everglades Protection Area, Implementation of the Long-Term Plan for Achieving Water Quality Goals in the Everglades Protection Area, and Lake Okeechobee Protection Program – State of the Lake and Watershed.
- **Everglades Technical Oversight Committee (TOC)**: This committee was created as a result of the Settlement Agreement as a mechanism for technical review and conflict resolution to support the Everglades Program started by the Settlement Agreement. The Committee includes representatives from the District, Florida Department of Environmental Protection, Army Corps of Engineers, Arthur R. Marshall Loxahatchee National Wildlife Refuge, and Everglades National Park. It meets quarterly to review and recommend research, monitoring and compliance

conducted based on the Settlement Agreement. The District prepares quarterly updates to the Committee on certain areas of the Everglades on the compliance status with total phosphorus levels or limits defined in the Settlement Agreement.

Reengineering Water Quality Monitoring to Improve Effectiveness and Efficiency

Over the last few years, the District has been reengineering water quality monitoring to ensure that monitoring activities are conducted effectively and efficiently while meeting legal and permit requirements. Reengineering involves the Water Quality Monitoring Section's reexamination of how regional monitoring is permitted, implemented, integrated, and reported. This effort was undertaken due to several reasons; for example, increasing monitoring costs and demand for monitoring, programs have been operating for decades without any modifications while changes in technology and regulations have occurred. Reengineering has resulted in recommendations for improvements while still ensuring that legal and permit requirements are met. Specifically, reengineering efforts have identified redundancies and inefficiencies and disclosed areas for improvement; for example:

- Travel and staff time are the most costly part of the monitoring process while lab analyses are considerably lower. Thus, reduction of sampling locations and frequency result can result in significant savings.
- Completion of several reengineering efforts that have resulted in cost savings, for example, WCA-2A and Biscayne Bay.

There have been some reengineering challenges; for example, monitoring of certain sites were justified based on statements and inadequate documentation and analyses to support the need. In these instances, staff and stakeholders are resistant to changes. In addition, the Water Quality Monitoring Section is continuously optimizing monitoring activities that require permit modifications. Due to ongoing water quality litigation in the Southern Everglades certain permit modification efforts are on hold. It should be noted that reengineering activities are currently on hold because the reengineering is a lengthy process. Further, due to current economic conditions and limited resources, the District is

reassessing all water quality monitoring activities to ensure that monitoring activities are absolutely required and that they are conducted effectively and efficiently.

Compliance Monitoring Tracking Database Should be Implemented

The Compliance Monitoring Tracking (CMT) database was initiated since 2005; however, it has not yet been implemented due to certain issues. The Compliance Monitoring Tracking database is web-based and would provide information about projects, associated permits, mandates, statutes, monitoring plans, monitoring sites, monitored parameters, and generate reports. The database would be used by relevant District staff to track project status through the permitting process and ensure permit consistency and compliance with State and Federal permitting requirements. The Information Technology Department is currently working to resolve Compliance Monitoring Tracking database issues.

Recommendation

- 1. Resolve Compliance Monitoring Tracking (CMT) Database issues and ensure implementation in a timely manner.**

Management Response: The Compliance Monitoring Tracking (CMT) database is currently in operation and is used to track water quality monitoring sites, mandates, monitoring parameters and generate reports. It is also ultimately intended to be used to track hydrologic and meteorological monitoring sites & stations, responsible stakeholders & programs, mandates, and generate reports. Functionality issues have been identified which need resolution in order for the CMT to better meet the needs of the Permit Acquisition & Compliance, Water Quality Monitoring and Hydro Data Management Sections. Since the original user requirements were developed for the CMT in 2005, the complexity and volume of permits, permit modification and compliance issues has increased. A CMT user group will be convened to revisit the

user requirements and work with the Information Technology Department to prioritize system refinements, subject to available staff and budget resources.

Responsible Division: Water Resources Division

Estimated Completion: June 30, 2012