Caloosahatchee Watershed Regional Water Management Issues

Short- and Long-term Solutions for Storage and Treatment

Lee County
Southwest Florida

City of Fort Myers Florida — City of Palms
City of Bonita Springs Florida
Cape Coral Florida
The Town of Fort Myers Beach — Established 1995
Sanibel Florida — Incorporated 1974

Revised: February 23, 2015

Caloosahatchee Watershed Regional Water Management Issues

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CALOOSAHATCHEE WATERSHED — REGIONAL WATER MANAGEMENT ISSUES

STORAGE & TREATMENT PROGRESS SUMMARY February 23, 2015

Introduction

The coastal communities of Lee County were devastated by the freshwater discharges from Lake Okeechobee and the Caloosahatchee watershed during the summer of 2013. For more than four months a dark-colored freshwater plume blanketed Lee County's beaches. This event impacted the ecology of our waters, the quality of life of our citizens, area businesses, and it continues to have a lasting effect on our local economy. These discharges occurred as a direct result of inadequate water storage within the Kissimmee, Lake Okeechobee, and Caloosahatchee watersheds and the ability to convey water south into Everglades National Park and Florida Bay.

Flood control projects, channelization, and other land use changes that have occurred throughout Central and South Florida over the past century have resulted in a water management system that is very different from its original state. The system that we have today delivers water to the coast very quickly, with little to no water treatment. This has resulted in the Caloosahatchee estuary receiving too much water during the wet season and not enough during the dry season. The water that we do receive is laden with excessive nutrients that can stimulate harmful algal blooms.

What is at Stake?

In Lee County, tourism generates more than $2.7 billion annually. Real estate tax revenue in Lee County is more than $293 million annually. A recent poll by the Lee County Visitor and Convention Bureau indicated that 94% of all visitors to Lee County identified our beaches as our most attractive asset. Local water quality can have a tremendous influence on consumer confidence and can greatly impact tourism and our local economy. In addition to impacts on our local economy, too much or too little freshwater delivered to the coast can effect critical estuarine resources such as seagrasses, oysters and fishes. The combined impacts on the local economy and the ecology of our waters can greatly influence the quality of life of Lee County residents.

What is needed to address the Problem?

A comprehensive strategy is needed to address water storage and treatment within the Kissimmee, Lake Okeechobee, and Caloosahatchee watersheds. In addition, land and infrastructure are needed to convey excess water south into Everglades National Park and Florida Bay where it is needed.

What are Lee County and the five municipalities of Lee County doing to address the problem?

Lee County and the five municipalities of Lee County are working together to address the Lake Okeechobee and Caloosahatchee water resource issues. Recognizing that the problem originates in the Kissimmee watershed, just south of Orlando, and includes Lake Okeechobee and the Caloosahatchee watersheds, the County and municipalities are working with federal and state agencies responsible for water management and are working in their local watersheds to advocate for and implement projects that will address the problem. Collectively, the County and municipalities have developed a list of short-term, low-cost strategies, as well as a longer-term list of state and federal priorities to address water storage and treatment throughout the Kissimmee, Lake Okeechobee, and Caloosahatchee watersheds. The goal is to improve the quantity, quality, timing and distribution of water to the coast of Lee County and restore historic flows to the Everglades and Florida Bay.

Short-term, Low-Cost Strategies for Water Storage

1. *Revisit the Lake Okeechobee Regulation Schedule (LORS 2008) risk assessment to determine if there are any opportunities to provide more storage to reduce discharges to the estuaries in light of recent improvements in the Herbert Hoover Dike. Evaluate the Lake Okeechobee Minimum Flow and Level (MFL) to determine if Lake levels can be maintained lower to increase storage capacity without ecological impacts. Reevaluate how flows to the Caloosahatchee are measured under the LORS 2008 schedule (S-77 instead of S-79 in higher bands) to make regulatory releases more equitable.*

    a. On September 17, 2013, the Lee County municipalities sent a joint letter to Governor Scott and the South Florida Water Management District (SFWMD) requesting support for the U.S. Army Corps of Engineers (USACE) to reevaluate the risk assessment for the Lake

Okeechobee Regulation Schedule, LORS 2008. On July 8, 2014, the Southwest Florida Community Foundation sent a letter on behalf of 24 individuals representing several local governments and organizations to Assistant Secretary of the Army, Jo-Ellen Darcy, requesting that the Corps accelerate the risk assessment for the Herbert Hoover Dike. Over the past year, the U.S. Army Corps of Engineers has been working on the Herbert Hoover Dike Rehabilitation Project and Dam Safety Modification Study. As part of that study, the Corps will be assessing progress to date on the Herbert Hoover Dike and will evaluate the risk assessment for LORS 2008 in light of progress made on dike repairs to date. The report is scheduled to be completed in March 2015.

2. *Maximize flows through the Stormwater Treatment Areas (STAs) and Water Conservation Areas (WCAs) to the fullest extent possible to convey water south during the wet season to reduce high-flow impacts to the coastal estuaries.*

    a. During the 2013 wet season, approximately 72,000 acre-feet of water was released to the WCAs through the STAs. During the 2014 wet season, approximately 216,000 acre-feet of water was released to the WCAs through the STAs. The increase in the volume of water conveyed south in 2014 was the result of: 1.) continued legislative funding for increased pumping and maintenance; 2.) additional capacity due to differences in regional rainfall; 3.) increased capacity in STA-1 East, STA-1 West and STA-3/4; 4.) suitable conditions and canal levels within the Everglades Agricultural Area; and 5.) improved coordination between the SFWMD and the U.S. Army Corps of Engineers.

    b. One of the major challenges to moving water south in the short-term is the lack of storage, treatment, and conveyance infrastructure south of Lake Okeechobee. Projects like Modified Water Deliveries (MOD Waters), the Central Everglades Planning Project (CEPP), and the structural improvements along the Tamiami Trail are needed in order to increase the capacity and eliminate impacts to tribal and agricultural lands south of the Lake. *It is important to note that these are long-term projects, not short-term low-cost strategies.

c. Another option to addressing high-flow impacts to the estuaries is to seek emergency temporary deviations from federal and state water quality criteria and restrictions that limit discharges south into Everglades National Park during extreme wet conditions and events. This engages a "shared adversity" doctrine that does not pit one ecosystem against another.

3. *Maximize storage on all private lands currently under contract with the SFWMD for the dispersed water management program. Investigate the potential for additional projects based on cost/benefit analysis (e.g., Alico Corporation 75,000 acres in eastern Caloosahatchee basin). Explore additional economic incentives for water storage on private lands within the Caloosahatchee basin.*

   a. Over the past year a significant volume of additional dispersed water storage has become available. As of October 11, 2014, the SFWMD was reporting 86,257 acre-feet (annual average) of dispersed storage being utilized. The Nicodemus Slough dispersed water management project has been constructed, is being tested, and is expected to be fully operational by next rainy season. This project is estimated to store an additional 34,000 acre-feet of water within the Caloosahatchee watershed and will reduce wet season flows to the Caloosahatchee. The SFWMD is continuing to explore other dispersed water storage projects, including a proposal from Alico Corporation to store additional water within the Caloosahatchee basin. In order for this program to be viable and compete with regional storage facilities, these projects <u>must be cost-effective and their performance verified</u>. An overall analysis needs to be completed to verify effectiveness, along with a plan to meet a designated amount of managed storage to provide the desired outcome.

4. *Utilize emergency storage on all public lands within the Kissimmee, Lake Okeechobee, St. Lucie and Caloosahatchee basins. Secure permits and/or authorizations now in preparation for the spring recession in Lake Okeechobee and free up storage capacity for wet season. The C-43 West Reservoir/Berry Groves site is a good example of where there are opportunities for water storage on public lands. These sites should be utilized prior to exceeding the high flow ecological targets in the Caloosahatchee (>2,800 cfs 30-day moving average).*

a. During the 2014 wet season, the SFWMD utilized publicly owned pre-project lands and other District-owned lands for emergency water storage throughout the water management system. SFWMD emergency storage efforts for 2014 included 9,169 acre-feet on pre-project lands and the use of approximately 148,771 acres of natural lands for water temporary water storage. This estimate includes a portion of the C-43 West Basin Reservoir Project lands. The SFWMD secured permits and authorization to utilize the site for temporary storage prior to the 2014 wet season. The west coast stakeholders were persistent in requesting that all permits and authorizations were in place prior to this year's rainy season.

5. *Provide adaptive flexibility for water level management in the Upper Kissimmee Chain of Lakes regulation schedules to allow more water storage by holding lake levels higher earlier than November for the benefit of water supply, water quality, and wildlife habitat.*

   a. To date there has not been any substantive progress on this issue. The Corps continues to manage water levels within the Kissimmee Chain of Lakes at their current schedules and no deviations from these schedules have occurred over the past year. However, throughout the 2014 rainy season the Corps has maintained levels within the Chain of Lakes close to the top of their specified schedules. This has marginally helped reduced the rate at which water flows into Lake Okeechobee.

6. *Reassess the Adaptive Protocols for Lake Okeechobee to ensure that the Caloosahatchee receives ecologically beneficial flows to meet established salinity targets during the dry season when other water users are not experiencing water shortage cutbacks and no other ecosystems are being harmed.*

   a. On March 3, 2014, the Lee County municipalities sent a joint letter to the SFWMD requesting that the Adaptive Protocols for Lake Okeechobee be reassessed to ensure that water flows to the Caloosahatchee are not reduced or eliminated when the needs of all other water users are being met. On June 18, 2014, the municipalities of Lee County sent a similar letter to the SFWMD regarding Adaptive Protocols highlighting that there are inherent flaws in the Protocols that reduce flows to the Caloosahatchee when there is no risk of water shortage and no other water users

are being cut back. In July 2014, the SFWMD Governing Board approved a staff recommendation to evaluate whether or not there were opportunities for additional operational flexibility within the Adaptive Protocols in the middle and upper bands of the Lake Regulation Schedule. SFWMD staff is currently evaluating the data to determine if operational changes can provide additional water for all water users. This exercise could identify additional water in the middle and upper bands of the LORS to supplement dry season flows to the Caloosahatchee. Lee County is a participant on the technical team that is investigating additional storage options in the middle and upper bands.

7. *Settle the Lykes Brothers Basinger Grove dike/floodplain storage issue between the SFWMD and USACE, which is preventing 70% of the Kissimmee River restoration storage and treatment benefits for work already completed.*

    a. This issue has been resolved. Additional storage is now available within the Kissimmee River floodplain as a result of this agreement. This should provide additional storage and treatment benefits to the Caloosahatchee. Total storage and treatment numbers are forthcoming.

FEDERAL PRIORITIES

1. *Fully support the 2014 Water Resources Reform and Development Act (WRRDA) bill, which includes authorization for the Caloosahatchee C-43 West Basin Reservoir Project; and appropriate the necessary funds to implement the C-43 Reservoir Project. The reservoir will provide 170,000 acre-feet of storage within the Caloosahatchee basin and help address high and low flow issues.*

    a. The WRRDA bill was signed into law by President Obama on June 10, 2014. The bill authorizes several important Comprehensive Everglades Restoration Program (CERP) projects, including the C-43 West Basin Reservoir, the C-111 Spreader Canal, Broward County Water Preserve Area, and the Biscayne Bay Coastal Wetlands projects. The next step is for Congress to appropriate the funds needed to construct the various projects in WRRDA. This will require

a great deal of work to ensure that our legislators hear from us and understand the importance of funding the C-43 Reservoir Project. This year the Florida legislature appropriated $18 million to help fund the C-43 Reservoir Project. It is estimated that we will need $300 million in federal appropriations to match state funds to complete the project. According to the South Florida Water Management District, work on the project is scheduled to begin in winter 2015. Lee County and several of the municipalities passed resolutions urging congress to pass WRRDA. Representatives from Lee County and its municipalities traveled to Washington D.C. to advocate for WRRDA and to promote projects that would create additional water storage and treatment.

2. *Obtain federal authorization and funding for the Central Everglades Planning Project (CEPP). The project will move approximately 210,000 acre-feet of water south of Lake Okeechobee and will address some of the damaging flows to the St. Lucie and Caloosahatchee estuaries.*

    a. The Corps' Project Implementation Report (PIR) was not completed in time for the project to be included in the 2014 WRRDA bill. However, the report was later approved by the Army Corps Civil Works Review Board and the public comment period for the Final PIR ended on October 3, 2014. CEPP continues to be one of the region's top priorities. We are hopeful that this project will be authorized in the next WRRDA bill or sooner. On September 16, 2014, Senator Bill Nelson and Congressman Patrick Murphy sponsored a bill to authorize the Central Everglades Planning Project. This bipartisan bill is supported by Senator Rubio and other members of the Florida delegation. Full support of the Florida delegation will be critical for this bill to get traction.

3. *The Federal Government needs to fund their share of the Comprehensive Everglades Restoration Plan (CERP) and implement the projects agreed to in the plan. A majority of the lands needed for the projects have already been purchased by the State and need Federal funding to move forward with the projects.*

    a. Through authorization of WRRDA, the Federal government will have the opportunity to appropriate funds for several very important CERP projects, including the C-43 West Basin Reservoir. We need to

keep pressure on our Federal legislative delegation to ensure that funds are appropriated for our priority projects.

4. *Continue to keep pressure on the U.S. Army Corps of Engineers to move as quickly as possible to rehabilitate the Herbert Hoover Dike. The project will protect the communities around Lake Okeechobee and possibly provide additional storage in the lake to reduce peak flows to the estuaries.*

    a. On September 17, 2013, the Lee County municipalities sent a joint letter to Governor Scott and the SFWMD requesting support for the U.S. Army Corps of Engineers to reevaluate the risk assessment for the Lake Okeechobee Regulations Schedule, LORS 2008. On July 8, 2014, the Southwest Florida Community Foundation sent a letter on behalf of 24 individuals representing several local governments and organizations to Assistant Secretary of the Army, Jo-Ellen Darcy, requesting that the USACE accelerate the risk assessment for the Herbert Hoover Dike. Over the past year, the USACE has been working on the Herbert Hoover Dike Rehabilitation Project and Dam Safety Modification Study. As part of this study, the Corps will be assessing progress to date on the Herbert Hoover Dike and will evaluate the risk assessment for LORS 2008 in light of progress on dike repairs. The report is scheduled to be completed in March 2015. It is hopeful that the assessment will determine that improvements made to date have reduced the risk of dam failure to the point where the current cap on lake elevation can be raised, thereby providing more available storage. It is not our desire to maintain the lake at higher elevations but only to expand the operating range. Lowering of the lake for the benefit of its ecosystem can continue but at a rate that is less harmful to the estuaries.

STATE PRIORITIES

1. *Construct the first Cell of the C-43 West Basin Reservoir Project. As currently planned, the C-43 Reservoir will store up to 170,000 acre-feet of basin storm water and overflow from Lake Okeechobee. The C-43 Reservoir is expected to supply enough water to meet the existing Minimum Flow and Level for the Caloosahatchee River 80% of the time. The project, with an estimated cost of more than $600 million, was designed with two large*

cells, a single 1,500 cfs pump station and a number of gated overflow and discharge structures. Under CERP, the State of Florida and South Florida Water Management District are responsible for 50% of the total project costs. Historically, the State has generally satisfied their cost share through land acquisition. In this case, however, most of the land was purchased using federal dollars. As a result, the State will be responsible for paying for at least 50% of the construction costs. The first cell is expected to provide approximately 85,000 acre-feet of storage and is estimated to cost approximately $300 million.

In addition to the land needed to construct the reservoir, there is an additional 1,500 acres of land on the site that was purchased as part of the Berry Groves acquisition. This land should be used to construct a stormwater treatment area (STA) adjacent to the reservoir to treat water before it is discharged into the Caloosahatchee.

a. The State appropriated $18 million for moving forward with an interim project for the C-43 reservoir site. Work is scheduled to begin in winter 2015. The SFWMD is evaluating options for cell one construction on the site. Additional funds will be needed from the Legislature in 2015 to move forward with construction of the first cell.

b. As part of the Caloosahatchee Visioning process, the water quality treatment component for the C-43 Reservoir (STA) has been one of the top-ranked priorities (to date) for the stakeholders participating in the process. This project could get momentum if there is continued support from the stakeholders.

2. *Construct the C-43 Water Quality Treatment and Demonstration Project (BOMA Property). The objective of this project is to demonstrate and implement cost effective wetland-based strategies for reducing Total Nitrogen (TN) load, and other constituents including Total Phosphorus (TP) and Total Suspended Solids (TSS), to the Caloosahatchee River and its downstream estuarine ecosystems. This is a multi-phased project involving bioassays, mesocosms, test cells, and field-scale cells to test, optimize, and demonstrate effectiveness of wetland-based technology, ultimately leading to implementation of a full-sized treatment facility.*

    a. In late 2012, a conceptual design for a testing facility was completed. Full engineering design and permitting of the testing

facility is contingent upon funding. The SFWMD will be performing the bioassays and mesocosms study in 2015 and 2016.

3. *Move forward with the Lake Hicpochee Restoration Project. Funds are needed to complete planning and construction on north and south sides of Lake Hicpochee to increase storage and treatment. Estimated cost for planning and construction is $20-30 million. Project will result in increased water storage and treatment within the Caloosahatchee basin.*

    a. Northern Lake Hicpochee restoration is in progress. 5,300 acres of land are already in State ownership and the SFWMD acquired an additional 640 acres north of Lake Hicpochee to be used for shallow storage. The project will provide shallow water storage of approximately 1,917 acre-feet. The State has an option to purchase an additional 2,454 acres of land to expand the project. Acquisition of this land would greatly enhance storage and treatment opportunities for this project. The Lake Hicpochee South Project is currently in a holding pattern. According to the SFWMD, cost/benefit data from the project on the south side of Lake Hicpochee suggest that, as designed, the project is not cost-effective. A redesign of the project may be necessary to make this project more feasible.

4. *Purchase additional lands south of Lake Okeechobee at fair market value, acquire private easements, or swap existing State-owned lands for the critical lands needed to facilitate storage, treatment and conveyance of water south into Everglades National Park. The State currently owns 26,790 acres of land that was purchased for $197,396,088 ($7,400/acre) from U.S. Sugar Corporation as part of the Reviving the River of Grass Project, with an option to purchase an additional 153,209 acres. The State should acquire the critical lands needed to store, treat and convey water south through purchase from willing sellers, acquisition of private easements, or by swapping for existing non-essential State-owned lands to acquire the footprint needed to effectively store, treat and convey water south through the Everglades Agricultural Area.*

    a. Under the State's contract with U.S. Sugar Corporation the "Initial Non-Exclusive Option", which includes approximately 46,800 acres of land, expires in October 2015. The "Entire Option Property Non-Exclusive Option", which includes 153,209 acres, or the balance of

that if the Initial Non-Exclusive Option is exercised, will expire in October 2020.

b. The University of Florida has been contracted to conduct a study to evaluate the feasibility of moving water south through the EAA to Everglades National Park. This study is scheduled to be completed in March 2015.

c. The Central Everglades Planning Project (CEPP) will provide the initial infrastructure for conveying water south. A phased approach, building on the CEPP project, would be an alternative to a Plan 6 flowway concept and would further the goal of increasing flows south, reducing the harmful high-flow discharges to the estuaries.

5. *Increase distributed storage in Kissimmee, Lake Okeechobee, and Caloosahatchee basins. Additional funds are needed for the State to partner with large land owners in the Kissimmee, Lake Okeechobee and Caloosahatchee basins to store more water on the land so that it is not discharged to Lake Okeechobee or to the Caloosahatchee River. Investigate the potential for additional projects based on cost/benefit analysis.*

   a. Over the past year, a significant volume of additional dispersed water storage has become available. As of October 11, 2014, the SFWMD was reporting 86,257 acre-feet (annual average) of disbursed storage being utilized. The District is continuing to explore other dispersed water storage projects. In order for this program to be viable and compete with regional storage facilities, these projects <u>must be cost-effective and their performance must be verified</u>. An overall analysis needs to be completed to verify effectiveness, along with a plan to meet a certain volume of managed storage to provide the desired outcome.

6. *Implement projects and programs funded under State legislative appropriations for the Caloosahatchee basin including the following:*

   a. Establish new monitoring sites to assess environmental impacts to the Caloosahatchee River and Estuary. An objective of the Senate Select Committee on Indian River Lagoon and Lake Okeechobee Basin (IRLOB) funding was to identify scientifically based solutions to improve the water quality and quantity in the St. Lucie Estuary, Indian River Lagoon, and Caloosahatchee River and estuary.

Information generated through the monitoring and research efforts will help support potential changes in the design and operation of the Northern Everglades and Estuaries system. To achieve this, Lee County in partnership with the Sanibel-Captiva Conservation Foundation (SCCF) Marine Laboratory is seeking funding to deploy two new RECON/LOBO sensors in the Caloosahatchee estuary; upgrade the original nitrogen and phosphorus sensors with current technology on three existing LOBO units and cost share 8 flow monitoring stations with the USGS. This suite of projects will provide documentation and enable us to better inform and focus local and state TMDL and BMAP assessments. Total cost for the additional monitoring is estimated at $615,260.

b. Begin oyster and seagrass restoration within the Caloosahatchee River and Estuary. The Northern Estuaries Resource Recovery pilot program was designed to re-establish vital estuarine habitats of shellfish and submerged aquatic vegetation (SAV) beds within the Northern Estuaries; St. Lucie/Indian River Lagoon and Caloosahatchee Estuary. The Senate Select Committee recommended, and the Legislature approved, appropriating $500,000 for each estuary to support the program, for a total of $1 million. The intent of this program is to replace critical ecosystem components such as oyster reefs and SAV that were lost by the high volume 2013 discharges to the northern estuaries. Tasks 2 and 4 seek to replace (restore) habitats damaged beyond repair to a pre-2013 level. Tasks 3 and 5 of this program seek to build resiliency by providing a source of healthy reefs and SAV for future restoration projects.

OTHER REGIONAL PROGRESS

1. *Caloosahatchee Visioning Program/Community Forum Update. Progress towards developing a regionally-supported list of restoration projects within the Caloosahatchee basin.*

   a. The SFWMD is sponsoring a program referred to originally as the Caloosahatchee Visioning Process, which was aimed at identifying a restoration "vision" for the Caloosahatchee River and Estuary. The process began with a series of stakeholder interviews. The goal of

these interviews was to collect information from local stakeholders on what they thought were the restoration priorities for the Caloosahatchee and the process that should be followed to implement restoration. Following the interviews a science-based Caloosahatchee Ecological Indicators workshop was convened. This workshop was organized by the SFWMD and the Consensus Building Institute (CBI), under contract with the SFWMD for the Caloosahatchee Visioning Program. The purpose of the Indicators Workshop was for scientists and resource managers to discuss past, present and future ecological indicator species that may help to guide restoration of the Caloosahatchee River and Estuary. A final report of the proceedings was submitted to the SFWMD by the Florida Gulf Coast University Watershed Institute. The Caloosahatchee Visioning Program has now morphed into an interagency group made up of state and local agencies, utilities, and other effected parties that have been tasked with developing consensus on a list of priority projects to address water storage and water quality within the Caloosahatchee basin. The SFWMD and CBI held the first of several Caloosahatchee Community Forums on August 8, 2014 to bring in other local stakeholders to get input on priority projects. The community forum and the interagency working group have been directed to focus specifically on restoration projects. Discussion of policy-related issues of how the Caloosahatchee is managed has been precluded.

b. The interagency team has developed a preliminary list of Caloosahatchee River Watershed Priority Projects. Two lists of projects were created, a Regional Project list and a Local Project list. The Regional Project list includes large-scale projects that are perceived to provide regional benefits. The local project list includes projects that will have more localized benefits, but cumulatively will benefit water storage and treatment within the Caloosahatchee watershed. See attached lists at bottom for details.

2. *Lee County Tidal Caloosahatchee Total Maximum Daily Load (TMDL) and Basin Management Plan (BMAP) Compliance*

a. Lee County and other stakeholders (Florida Department of Transportation (FDOT), City of Ft Myers, Cape Coral, East County Water Control District (ECWCD), Lucaya CCD, Charlotte County) are required by the Florida Department of Environmental Protection (FDEP) to reduce total nitrogen levels (TN) in the Caloosahatchee estuary by

140,853 lbs/yr for the first five-year Basin Management Action Plan (BMAP). Lee County's Conservation 2020 lands buying program has a total of 12,313 acres within the Caloosahatchee River watershed. Lee County in partnership with other local government agencies has constructed water quality treatment amenities on conservation lands. The Conservation 2020 water quality projects account for 22,152 lbs/yr (16%) TN pollution reduction credit. Lee County receives 2,222 lbs/yr TN reduction credit for structural stormwater and hydrologic restoration projects not associated with conservation lands and 196 lbs/yr TN reduction credit for street sweeping within the Caloosahatchee River watershed.

The Lee County Division of Natural Resources (LCDNR) in partnership with the University of Florida Institute of Food and Agricultural Sciences (UF/IFAS) Extension Services has implemented public education programs for do-it-yourself landscapers as well as the professional landscape community to prevent vegetative waste and fertilizer runoff pollution. Under our National Pollution Discharge Elimination System (NPDES) permit, LCDNR provides public education and regulatory enforcement for development-related activities within Lee County. Lee County receives 20,445 lbs/yr (15%) total nitrogen reduction credit toward the BMAP obligations for public education programs and existing fertilizer ordinance.

Caloosahatchee River Watershed Projects List

Information contained in the attached tables (one for regional projects, the other for local projects) reflects project data developed for the 2012 update of the Caloosahatchee River Watershed Protection Plan and information provided by local governments. The information has been updated to reflect project status as of summer 2014. It has also been updated to include results from implementers' individual assessments of each project's relative importance.

Project Phase has been categorized as: Near-term to reflect projects anticipated to be completed within the next 5 years, Long-term to reflect projects that are anticipated to be completed in 5 years or longer, and Ongoing to reflect activities that are anticipated to span both near- and long-term.

Category Projects which are located in or will affect more than one county have been categorized as Regional. The remaining projects are categorized as Local.

Agency reflects the principle agency(s) responsible for the implementation of the project.

Estimate Cost reflects the most current estimate provided by the agency and reflects the costs needed to complete the project.

Estimated Nutrient Removal is based on preliminary load reduction estimates from the 2012 CRWPP Update, modified as appropriate, or as provided by the agency. Estimates in the CRWPP were calculated using Southwest Florida Feasibility Study reductions for project types (i.e. filter marsh, STA, shallow water reservoir, restored wetlands etc.).

Unless otherwise noted, estimates for Nitrogen and Phosphorus removal are in metric tons per year.

Estimated Storage is described in acre-feet.

Caloosahatchee River Watershed Projects
REGIONAL PROJECTS

CRWPP ID	Project/Activity	Description	Project Status	Phase	Category/ Agency	Estimated Cost	Estimated Nutrient Removal (source)	Estimated Storage (ac-ft)
		IMMEDIATE REGIONAL PRIORITIES						
CRE-W Res	C-43 West Basin Storage Reservoir Project	CERP component involves an above-ground reservoir (170,000 ac-ft capacity) located south of the CR and west of the Ortona Lock (S-78); this will comprise a significant portion of total water storage requirement for the C-43 Basin. Project is expected to provide multiple benefits including flood control, recreation, habitat enhancement and water recharge. The project will provide for timed releases of water to the estuary and will have O&M costs associated with the pumping operations.	In April 2011, a Record of Decision was issued by the USACE and an approved Project Implementation Report was submitted to the U.S. Congress. Project was authorized in June 2014. Funding to construct an interim project at the site was appropriated by the Florida Legislature in 2014.	Long-term	Regional State	$452.1m (const.)	97 mt/yr TN 8 mt/yr TP (agency)	170,000
CRE 04 CRE 05 CRE-LO 40	Lake Hicpochee North Hydrologic Enhancement Project	The channelization of the Caloosahatchee River in the 1800's drained the lake and bisected it into two distinct parts, north and south. The objective of this project is to enhance the hydrology of Lake Hicpochee North with ancillary benefits of habitat restoration and water quality improvements. Phase I involves construction of a shallow storage feature on approximately 640 acres of land and construction of a spreader canal to deliver water to Lake Hicpochee North. Phase II involves the acquisition of an additional 2,454 acres for use as a flow equalization basin. Project is expected to provide multiple benefits including flood control, habitat enhancement and water recharge.	Design activities for Phase I are ongoing and construction is scheduled to begin by June 2015. Phase II requires land acquisition and the design and construction of the flow equalization basin. Project has linkages to Nicodemus Slough water storage project.	Short-term (Phase I)	Regional SFWMD	Phase I $17,200,000 (funded) Phase II $16,600,000 (acq.)		
CRE 10	C-43 Water Quality Treatment and Demonstration Project (BOMA Property)	The objective of this project is to demonstrate and implement cost effective wetland-based strategies for reducing TN load, and other constituents including TP and TSS, to the Caloosahatchee River and its downstream estuarine ecosystems. Special attention will be given to reducing dissolved organic nitrogen (DON) as it constitutes the most abundant and recalcitrant form of TN in the Caloosahatchee River. This is a multi-phased project involving bioassays, mesocosms, test cells, and field-scale cells to test, optimize, and demonstrate wetland-based technology effectiveness ultimately leading to implementation of a full sized treatment facility. It is envisioned that information gained from this project will be applicable to other South Florida Systems.	In late 2012, a conceptual design for a testing facility was completed. Full engineering design and permitting of the testing facility is contingent upon funding. The District will be performing the bioassays and mesocosms study in FY15 and 16.	Long-term	Regional SFWMD, Lee County	$8,000,000 (des. & const.)	23% TN min. reduction goal (agency)	
	Babcock Ranch Preserve Water Storage Project	Project purpose is to reduce stormwater runoff to the Caloosahatchee River originating from approximately 4,220 acres of watershed located in the southwest portion of the Babcock Ranch State Preserve. The project will provide shallow water storage by improving existing berms, constructing new berms, modifying existing water control structures and installing new water control structures. Project is expected to provide multiple benefits including flood control, habitat enhancement and water recharge.	Design to be conducted in FY14/15; funded by DACS. Construction funding will be required in FY15/16. Project has linkages to Jacks Branch/County Line Ditch project.	Near-term	Regional TBD	$1,200,000 (des. & const.)		1,500

		NEAR-TERM REGIONAL PRIORITIES						
CRE 13	West Caloosahatchee Water Quality Treatment Area (C-43 reservoir site)	Project consists of a water quality facility in association with C-43 West Basin Storage Reservoir site to treat reservoir water to reduce nutrient concentrations from the CRE and nutrient pollutant loading downstream. Project is expected to provide multiple benefits including habitat enhancement, recreation and water quality improvements. The project is expected to have O&M costs associated with pumping operations.	Project was included in the Southwest Florida Comprehensive Watershed Plan; however there has not been any additional design or funding. 1,500 acres was retained in ownership by the SFWMD for potential future water quality treatment. Funding to initiate a conceptual design study is required.	Long-term	Regional TBD			
	Lake Hicpochee South Project	The purpose of this project is to enhance the hydrology of Lake Hicpochee South by redirecting storm water through upland and wetland areas rather than a canal. Project is expected to provide multiple benefits including flood control, habitat enhancement, and water quality improvements. The project is expected to have O&M costs associated with pumping operations.	In 2008 a conceptual design report was completed that had a high implementation cost for the project. In 2013 a conceptual re-evaluation report was completed in cooperation with the Flaghole Drainage District and Hendry Hilliard Water Control District to refine portions of the 2008 report in order to integrate existing infrastructure where possible to maximize the cost-effectiveness of the project. Project requires funding for design and construction. Land is in public ownership. Will require collaboration with local 298 Districts to implement.	Long-term	Regional TBD	$4,5000,000 (const.)		
		CONCEPTUAL REGIONAL PROJECTS NEEDING FURTHER DEVELOPMENT OR ADDITIONAL FEASIBILITY WORK						
	Charlotte Harbor Flatwoods Initiative	The Charlotte Harbor Flatwoods Initiative is a multi-phased regional hydrologic restoration effort with the overall goal to restore historic flows to Charlotte Harbor. The project involves the development of regional water storage and treatment facilities, establishment of conveyance systems and restoration of habitat to restore sheetflow across five watersheds encompassing approximately 90 square miles. It will establish linkages between Cecil Webb WMA and Yucca Pens WMA. Project is expected to provide multiple benefits including flood control, habitat enhancement, recreation opportunities, water quality improvements and water recharge. The project is expected to provide timed releases of water to enhance hydroperiods, have limited O&M costs and can be modified to meet future needs.	Potential land acquisition of 670 acres in conjunction with I-75 improvements is anticipated in 2014. Funding for final design and construction of storage facility is required Funding for conceptual design is expected to be provided by SWFWMD and FDOT and to begin in winter 2014. Construction funding will be required. Funding for the design and construction of conveyance systems will be required. Project is supported by over a dozen state, federal and local agencies.	Long-term	Regional Multiple	$4,000,000 (acq) $10,000,000 (des. & const.)		
CRE 128	East Caloosahatchee Storage Project	Project includes constructing distributed reservoirs on 7,500 acres of private properties, with the potential to create 100,000 ac-ft of above ground storage. Project could be designed to allow for dry season releases. It is expected to have O&M costs associated with pumping operations.	Further study required to develop project(s). Assumes the acquisition of approximately 7,500 acres.	Long-term	Regional TBD		69 mt/yr TN 5.2 mt/yr TP (CRWPP)	100,000
CRE 128a	Caloosahatchee Storage – Additional Project	Project creates 50,000 ac-ft of aboveground storage in Caloosahatchee River Watershed. Project could be designed to allow for dry season releases. It is expected to have O&M costs associated with pumping operations.	Further study required to develop project(s). Assumes the acquisition of approximately 3,500 acres.	Long-term	Regional TBD		58 mt/yr TN 4.3 mt/yr TP (CRWPP)	50,000
CRE 11	Caloosahatchee Ecoscape Water Quality Treatment Area Project	Project consists of a constructed wetland designed for optimal removal of TN from the CRE. Conceptual project developed to reduce nutrient pollutant loading downstream. Strategy of this effort was to formulate both structural and non-structural features.	Project was included in the Southwest Florida Comprehensive Watershed Plan (formerly Southwest Florida Feasibility Study), which is in the process of being completed; however, there has not been any additional design or funding work performed.	Long-term	Regional TBD		50.0 mt/yr TN 12.0 mt/yr TP (CRWPP)	

CRE-LO 41	C-43 Distributed Reservoirs Project	Project involves construction of multiple storage reservoirs to capture excess runoff for use to meet both environmental flows to the CRE and agricultural demands. Project could be designed to allow for dry season releases. It is expected to have O&M costs associated with pumping operations.	Further study required to develop project(s). Assumes the acquisition of approximately 6,600 acres.	Long-term	Regional TBD		39.4 mt/yr TN 2.6 mt/yr TP (CRWPP)	85,410
CRE 01 CRE 02	Recyclable Water Containment Areas Project	Project uses agricultural or other lands to provide temporary storage, remove nutrients, and treat agricultural stormwater runoff which will help reduce nutrient loading to the CRE. Involves the construction of earthen berms to retain up to two feet of water storage. Would remain operational approximately 5 years, then returned to agricultural production. Project is expected to provide multiple benefits including water reuse and water recharge. It is expected to have O&M costs.	Project was included in the Southwest Florida Comprehensive Watershed Plan (formerly Southwest Florida Feasibility Study), which is in the process of being completed. Funding for design and construction will be required. Additionally, partnerships will be required to implement.	Long-term	Regional TBD		67.5 mt/yr TN 14.3 mt/yr TP (CRWPP)	
	Lee-Charlotte County Border Area Hydrologic Improvement	This project involves reconnecting and improving the hydrology of the area through the construction of a series of filter marshes and weirs within and adjacent to the FPL transmission line. The project will create a conveyance system that during the rainy season will function to connect multiple watersheds within the corridor. It will allow excess water from one watershed to flow to the next watershed via a series of filter marshes providing water treatment and storage before entering the CRE. Project is expected to provide multiple benefits including flood control, habitat enhancement, water quality improvements and water recharge.	A conceptual design study is required. It is unknown at this point if land acquisition will be required. The project will require collaboration with FPL and multiple land owners. It is anticipated to take 15 years to fully implement, but could be constructed in phases.	Long-term	Regional Lee County	$400,000 (feas.) $2,000,000 (design) $5,000,000 (acq.) $12,600,000 (cons.)		
	ASR on Public Lands	Development of Aquifer Storage and Recovery arrays on public lands to capture surplus water flow in watershed. Potential locations include BOMA property and Babcock Ranch Preserve. It is expected to have O&M costs associated with pumping operations.	Further study required to develop project(s).	Long-term	Regional TBD			
	Carlos Waterway Conveyance	A conceptual project to use an existing waterway owned by East County Water Control District to convey water from C-43 West Basin Storage Reservoir into the Caloosahatchee. Project is expected to provide habitat enhancement, and water quality improvements.	A conceptual design study is required.	Long-term	Regional TBD			
		REGIONAL RESTORATION PROJECTS						
CRE 150	Tape Grass (*Vallisneria americana*) Plantings Upstream of S-79 Project	District study helps reestablish viable tape grass seed stock for future populations in the upper CRE. The goal is to create a viable tape grass seed stock in the upper CRE; test two genetic strains of South Florida tape grass for survival, growth, and flower and seed production for two years; and determine how long enclosures need to remain in place to ensure survival.	In 2011, cages were monitored weekly in June and bimonthly in July and August; to date, cages are holding up well. The Lake Trafford plants/cages are showing significantly more growth at both sites compared to those in Lake Kennedy. In August, spread outside of the cages and new growth in the cages was observed at Site 2 for Lake Kennedy treatments. Funding for additional planting and monitoring was appropriated for FY14-15.	Near-term	Regional SFWMD, Lee County			
	Oxbow Restoration	Project involves the restoration of remnant oxbows within the Caloosahatchee River. Project would involve limited dredging of the former river channel and restoration/preservation of adjacent littoral vegetation. Approximately 40 oxbows have been identified for restoration. Project is expected to provide multiple benefits including recreation, habitat enhancement, and water quality improvements.	Several oxbows are publicly owned. Could involve collaboration with multiple public and private entities. Project budget for Oxbow24 was $500,000. Estimated nutrient removal cost was $140/lbs TN, $3,500/lbs TP	Long-term	Regional TBD	$500,000 per oxbow		

	Tape Grass Plantings below S-79	Involves the restoration and enhancement of +/-1,200 acres of historic submerged aquatic vegetation (tape grass) in the oligohaline littoral zones of the Caloosahatchee River below S-79. The project will involve the planting and establishment of between 16-20 large "founder colonies" in the upper estuary and tributaries to restore fish and wildlife habitat and serve as a seed bank for recovery of historic distribution and density of tape grass.	There is no local sponsor for this project. Project was submitted for RESTORE funding.	Long-term	Regional TBD	$2,312,900		

Caloosahatchee River Watershed Projects
LOCAL PROJECTS

CRWPP ID	Project/Activity	Description	Project Status	Phase	Category/ Agency	Estimated Cost	Estimated Nutrient Removal (mt/yr)	Estimated Storage (ac-ft)
		LOCAL PRIORITIES FOR THE NEAR TERM						
CRE 142	Harns Marsh Improvements – Phase III (West Marsh) Project	Project involves an existing 578-acre ECWCD stormwater treatment facility. Phase III includes designing the West Marsh (additional 202+/- acres) to expand the marsh treatment facility. This will reduce freshwater discharges to the Caloosahatchee River (via the Orange River) and provide water quality treatment. Project is expected to provide multiple benefits including flood control, recreation, habitat enhancement, water quality improvements and water recharge.	All necessary lands have been acquired. Project design is currently underway. The project involves collaboration with multiple agencies including FDOT as a potential source for construction funding.	Near-Term	Local ECWCD	$6,000,000	0.91 mt/yr TN 0.24 mt/yr TP (agency)	400-800
CRE 147	Nalle Grade Stormwater Park Project	Lee County project proposes to restore/modify an existing degraded marsh system and design a stormwater retention facility to minimize flooding in the Bayshore Creek Watershed. Project is expected to provide multiple benefits including flood control, habitat enhancement, water quality improvements and water recharge.	Project is in design and permitting. $500,000 in Legislative funding was appropriated. Construction is scheduled to begin in 2016.	Near-term	Local Lee County	$3,300,000 (design & cons.)	0.54 mt/yr TN 0.14 mt/yr TP (CRWPP)	
CRE 139	Ford Canal Filter Marsh (Ford Street Preserve) Project	City of Fort Myers project creates a filter marsh to improve overall quality of storm water discharging into Billy Creek; marsh is intended to work collectively with other treatment areas along Billy Creek and its tributaries. Project creates a treatment marsh designed to divert and treat low flows from low-level rain events using a diversion weir.	Phase 1 complete, Phase 2 awarded with construction to begin in August 2014 and Phase 3 is being permitted.	Near-term	Local Ft. Myers	$2,000,000	0.54 mt/yr TN 0.21 mt/yr TP (CRWPP)	
CRE 140	Fichter's Creek Restoration Project	Project provides ecosystem restoration through hydrologic and water quality improvements in Fichter's Creek, and provides flood protection for neighboring areas; components include 3.2 acres of lakes, three dry detention areas (7.1 acres), culvert installation/ replacement, filter marsh creation, and berm work. Project is expected to provide multiple benefits including flood control, habitat enhancement and water recharge.	No land acquisition is required. Project has been permitted; construction is planned to begin in FY16.	Near-term	Local Lee County	$1,400,000 (const.)	0.09 mt/yr TN 0.02 mt/yr TP (CRWPP)	6
CRE 30	Aquifer Benefit and Storage for Orange River Basin (ABSORB) Project	Project involves increasing stormwater storage capacity and groundwater recharge in the Southwest area of Lehigh Acres by constructing 27 weirs. Project is expected to provide multiple benefits including flood control, water quality improvements and water recharge.	Project is designed and permitted. Scheduled to begin construction by the end of 2014. Partial funding is in place (FDEP $1.2m) and the rest is being worked on with an agreement from FDOT for the SR 82 widening project.	Near-term	Local ECWCD	$2,400,000 (const.)	3.72 mt/yr TN 0.37 mt/yr TP (agency)	800-1,200
CRE 135	Hickey Creek Canal Widening Project	Project includes the canal widening and construction of littoral zones along three miles of Hickey Creek Canal. Project is expected to provide multiple benefits including flood control, habitat enhancement, water quality improvements and water storage.	No land acquisition is required. Project is designed and permitted. Construction is waiting on funding and a project source to take the fill material removed.	Near-term	Local ECWCD		0.2 mt/yr TN 0.05 mt/yr TP (agency)	420
CRE 22	Hendry Extension Canal Widening Project	Project provides additional water quantity storage within existing canal right-of-way to help provide more stormwater storage in the 5.5 mile section of Hendry Extension Canal. Project is expected to provide multiple benefits including flood control and water recharge.	Project permitted and designed, construction projected in FY2015. FDOT providing funding through SR82 expansion.	Near-term	Local ECWCD	$6,000,000 (const.)	0.36 mt/yr TN 0.1 mt/yr TP (agency)	190

CRE 44	Hydrologic Restoration of Bob Janes Preserve	Project will serve to restore the natural sheet flow and possibly impound water within the abandoned farm fields to allow aquifer recharge, reduce high flows in a manmade ditch (Lighter Canal) during the wet season. Project is expected to provide multiple benefits including flood control, habitat enhancement, water quality improvements and water recharge.	Phase I involving the restoration of former agricultural fields was completed in 2014. The second phase is awaiting construction funds. No land acquisition is required.	Near-Term	Local Lee County	$600,000 (const.)		
	Hydrologic Restoration of Six Mile Cypress Slough Preserve - North	The historical site hydrology and ecosystem have been significantly altered. Water from potions of the preserve has been diverted north into the Orange River, rather than south into Six Mile Cypress Slough. Restoration of historic flows could benefit Six Mile Cypress Slough and reduce the amount of water flowing into the Orange River and ultimately the Caloosahatchee River. Project is expected to provide multiple benefits including flood control, recreation, habitat enhancement, water quality improvements and water recharge.	Phase I, the impoundment, is permitted and will undergo construction during 2014. Additional construction funds will be needed to complete the project phase. Phase II, the rehydration of the western cypress dome, is being permitted and will be constructed with financial help by the Florida Department of Transportation. Phase III, will require the design, permitting and construction of a flowway which will bring water to Phase 1 of the project.	Near-term	Local Lee County	$1,000,000		
CRE 53	Hydrologic Restoration of Caloosahatchee Creeks Preserve	The project area is a former marsh that was disturbed when covered with fill during the dredging of the Caloosahatchee River in the 1950s. The project will cut a meandering stream channel through the spoil in the location near a historic channel and rehydrate former wetlands. Project is expected to provide multiple benefits including habitat enhancement, water quality improvements and water recharge.	No land acquisition is required. The project has been designed and permitted.	Near-term	Local Lee County	$650,000 (cons.)		
	Hydrologic Restoration of Telegraph Creek Preserve	This project will help to restore the natural sheet flow from the 800-acre palmetto prairie and wet prairie/hydric flatwoods system into Telegraph Creek where ditches were installed by previous owners to help drain this portion of the preserve. Geowebbing and/or culverts will be installed along existing management trails that are eroding into the creek. The existing swale where the water formerly would have flowed to the creek will be graded and cleaned out. The washouts will be recontoured and plantings will be installed to reduce further soil erosion into the creek. Project is expected to provide multiple benefits including flood control, habitat enhancement, water quality improvements and water recharge.	No land acquisition is required. The project requires further design.	Near-term	Local Lee County	$500,000 (cons.)		
	Ft. Myers Central Sewer Expansion	Septic tank conversion to central sewer to reduce nutrient loading in the watershed and expand reclaimed water from 6 MGD to 11 MGD. The project area is located within the city limits east of I-75.	The project is tentatively scheduled for FY 2016-2017 based on funding availability	Near-Term	Local Ft. Myers	$11,000,000		
	Ranch Lakes Estates Central Sewer Project	Septic tank conversion to central sewer located at Ranch Lakes Estates in Moore Haven. Involves the construction of additional gravity sewer collection system in the Moore Haven downtown and Ranch Lakes Estates area adjacent to the Caloosahatchee River to homes now served by individual private old and failing septic systems. This project will reduce nutrient loading to the Caloosahatchee Basin.	The wastewater improvement project includes the preliminary engineering services, design, permitting and construction.	Near-term	Local Glades County	$350,000		
CRE 44	Jacks Branch/County Line Ditch	Project involves improvement of water flow within Jacks Branch watershed and modification of the County Line Ditch by widening the ditch and providing weirs for increased water storage and treatment. Project is expected to provide multiple benefits including flood control, water quality improvements and water recharge.	All necessary land has been acquired. The project has been designed and permitted. Requires construction funding. Could be constructed in conjunction with Babcock Ranch Preserve Project.	Near-Term	Local Hendry County	$3,600,000 (const.)		

CRE 121	City of LaBelle Stormwater Master Plan Implementation	Project includes stormwater conveyance and water quality storage improvements in the City of LaBelle.	The C-5 portion of the city's 2004 Master Stormwater Plan was completed in 2010. These stormwater management improvements included retrofitting stormwater catch basins and adding vegetative swale treatment. Funding required to continue design and construction of additional projects.	Near-Term	Local LaBelle		34.8 mt/yr TN 5.8 mt/yr TP (CRWPP)	
CRE 123	North Ten Mile Canal Stormwater Treatment System Project	Project provides stormwater storage and treatment for an urban and commercial area with the City of Ft. Myers. It is intended to minimize peak flows and enhance water quality within Manuel's Branch and Carrell Canal.	FDEP permit is being reviewed for a modification. Project scheduled to begin in next five years	Near-term	Local Ft. Myers	$4,500,000	0.82 mt/yr TN 0.33 mt/yr TP (CRWPP)	
	Sunniland/Nine Mile Run Drainage Improvements	Project involves the restoration of historical flows to Buckingham Trails Preserve. Consists of the rehydration of the preserve through the removal of manmade alterations to correct the natural sheetflow and hydrology. Project is expected to provide multiple benefits including flood control, habitat enhancement and water recharge.	Requires land acquisition. Project design scheduled during FY14/15 with construction in FY15/16.	Near-term	Local Lee County	$50,000 (acq.) $100,000 (des.) $300,000 (con.)		
CRE 64	Yellow Fever Creek/Gator Slough Transfer Facility Project	Project involves the hydrologic restoration of the historical flows to the headwaters of Yellow Fever Creek. Project includes the construction of an interconnection facility between Gator Slough Canal and Yellow Fever Creek to transfer surface waters during high flow. Flows are currently intercepted by Gator Slough Canal and redirected to Matlacha Pass.	Conceptual design is complete. Permitting to begin in FY15 pending further coordination between Lee County and City of Cape Coral.	Near-term	Local Lee County Cape Coral	$671,000 (design & cons.)	0	0
	Billy Creek Restoration Dredging	Removal of exotic vegetation and dredging of Billys Creek.	Project is permitted. Project to begin in FY2016.	Near-term	Local Ft. Myers	$680,000		
	Moore Haven Canal Dredging	Deepening and widening of Moore Haven Canal. Will provide sediment reduction, an increase in wetland habitat, and water quality benefits to the Caloosahatchee River	State and federal permits have been approved. Partially funded in FY13-14.	Near-term	Local Glades County	$12,000,000		
		LONG-TERM LOCAL PROJECTS						
CRE 143	Greenbriar Preserve Project	Project involves modifications within Greenbriar Swamp and to the connecting canal/swale system to increase surface water connectivity and storage within the swamp, thereby reducing freshwater discharge to the Caloosahatchee River via Hickey's Creek. Project is expected to provide multiple benefits including flood control, habitat enhancement and water recharge.	Project is included in the ECWCD FY2014-FY2018 Capital Improvement Plan. Project requires further design work.	Long-term	Local ECWCD Lee County		1.45 mt/yr TN 0.36 mt/yr TP (agency)	600
CRE 144	Section 10 Storage Project	Project includes modifying an existing mine pit to allow for additional surface water storage in the ECWCD Water Management System; also, includes improvements to the connecting canals, control structures, and a pump station.	Requires land acquisition. Project requires further design work.	Long-term	Local ECWCD	$6,500,000	1.63 mt/yr TN 0.41 mt/yr TP (agency)	1,200
CRE 21	Hendry County Storage Project	Project consists of the construction of shallow water storage facility to help reduce nutrient loading to the CRE. Project is expected to provide multiple benefits including flood control, habitat enhancement, water quality improvements and water recharge. The project is expected to have the capability of providing timed releases of water to the estuary. It will be expected to have O&M costs associated with pumping operations.	Project was included in the ECWCD FY2010-FY2014 Capital Improvement Plan. ECWCD has evaluated three sites for possible acquisition. Funding will be required for land acquisition, design and construction.	Long-term	Local ECWCD		2.72 mt/yr TN 0.68 mt/yr TP (agency)	

CRE 44	Spanish Creek Preserve Restoration	Project involves the acquisition of agricultural lands to create shallow water storage and wetland flow-way to rehydrate the Ruby Daniels Preserve at Spanish Creek. Project is expected to provide multiple benefits including flood control, habitat enhancement, water quality improvements and water recharge.	Phase 1 involving the rehydration of a portion of Ruby Daniels Preserve was completed in 2014. Design and acquisition of approximately 640 acres land is required to construct the storage and complete rehydration of Spanish Creek.	Long-Term	Local Lee County	$14,800,000 (acq. des. const.)		
	Lehigh Wetland Restoration	Undeveloped lots will be purchased to restore remnant wetlands through the construction of one weir. Project is approximately 710 acres located in the Greenbriar Swamp area. Project is expected to provide multiple benefits including flood control, habitat enhancement, water quality improvements and water recharge.	Funding needed to initiate the project.	Long-term	Local Multiple	$70,000,000 (acq. des. & const.)	0.34 mt/yr TN 0.10 mt/yr TP (agency)	1,500
CRE 122	Mirror Lakes Storage/Rehydration Project	Multi-phase project intended to rehydrate Mirror Lakes (aka Halfway Pond), reduce peak flow discharges to the Orange River, and restore flows to the headwaters of the Estero River. Project is expected to provide multiple benefits including flood control, habitat enhancement, water quality improvements and water recharge.	Phase I (rehydrate Mirror Lakes) completed October 2012 to include a pump station and approximately 1,000 acre-ft of storage. Phase II and III involves moving water south under SR 82, and is in the planning and preliminary design stage.	Long-term	Local ECWCD FDOT SFWMD	Phase II: $300,000 (const.) Phase III: TBD	Phase II & III: 0.24 mt/yr TN 0.03 mt/yr TP (agency)	100-500
CRE 77	Cape Coral Canal Stormwater Recovery by Aquifer Storage and Recover (ASR) Project	Project uses ASR wells in Cape Coral to overcome water shortfall in the dry season and provide flood attenuation in the wet season. Project is expected to provide multiple benefits including flood control, water quality improvements and water recharge.	Three ASR wells were constructed in 2007; however, cycle testing has not started and construction of pumping stations and associated connections is not anticipated until 2015 due to budgetary constraints.	Long-term	Local Cape Coral		4.13 mt/yr TN 0.82 mt/yr TP (CRWPP)	
	Stumper Jumper Ranch Land Acquisition	Project involves the acquisition and restoration of 149 acres of disturbed land located within the Spanish Creek watershed in northeast Lee County. Project is expected to provide multiple benefits including flood control, habitat enhancement, water quality improvements and water recharge	Project design and acquisition required. Former Lee County Conservation 20/20 nomination.	Long-term	Local Lee County	$1,482,250 (acq.)		
CRE 29	Lehigh Acres Wastewater Treatment and Stormwater Retrofit Project	Project involves installing stormwater treatment features in Lehigh Acres, updating current stormwater management system, and converting high-density septic tanks to centralized wastewater treatment. Includes the conversion of 12,666 septic tank systems to central sewer. Project is expected to provide multiple benefits including flood control and water quality improvements. The project is expected to have O&M costs associated with the central sewer system.	Nearly 100 single family homes in Lehigh Acres have been connected to the centralized wastewater treatment plant since 2009. Project requires funding to continue.	Long-term	Local Multiple	$197,238,350 (sewer component)	48.66- 87.59 mt/yr TN (agency)	
CRE 126	Fort Myers-Cape Coral Reclaimed Water Interconnect Project	Project includes installing a 20-inch diameter transmission line from Fort Myers Treatment Plant to Cape Coral Reclamation Treatment Plant. This is intended to help prevent discharging 9 mgd treated water into the CRE.	The feasibility study completed in 2010 found that constructing a disposal well was a less expensive near-term option; however, project is still desirable as a long-term option. Legislative funding for additional study was appropriated for FY14-15.	Long-term	Local Cape Coral Ft. Myers			
CRE 69	Cape Coral Wastewater Treatment and Stormwater Retrofit Project	City of Cape Coral utility expansion project to convert septic systems to gravity sewers and replace older stormwater inlets with newer inlets designed to assist stormwater management. Includes improvements to existing sewer system and incorporation of roadside swale into drainage system. Project is expected to provide multiple benefits including water quality improvements, water reuse and water recharge.	Project on-going. Next scheduled area is located in Northwest Sector outside of Caloosahatchee watershed.	Long-term	Local Cape Coral		27 mt/yr TN 5.4 mt/yr TP (CRWPP)	

CRE 125	Shoemaker-Zapato Canal Stormwater Treatment Project	Project includes installing weir/water control structures to increase channel storage and provide peak flow attenuation. It will enhance water quality and reduce erosion and siltation into Billy Creek.	Additional study required	Long-term	Local Ft. Myers		0.54 mt/yr TN 0.14 mt/yr TP (CRWPP)	
CRE 141	Winkler Canal Treatment Marsh Project	Project creates a treatment marsh designed to divert and treat low flows from low-level rain events using a diversion weir.	Project has been permitted but is on-hold pending funding for land acquisition.	Long-term	Local Ft. Myers		0.2 mt/yr TN 0.08 mt/yr TP (CRWPP)	

Caloosahatchee River Watershed Projects
ON-GOING PROGRAMS

CRWPP ID	Project/Activity	Description	Project Status	Phase	Category/ Agency	Estimated Cost	Estimated Nutrient Removal (mt/yr)	Estimated Storage (ac-ft)
CRE 149	Northern Everglades – Payment for Environmental Services (NE-PES) Program	NE-PES solicitation is an innovative approach that allows cattle ranchers to deliver environmental services for water and nutrient retention. The goal is to establish relationships via contracts with private landowners to obtain water management services of water and nutrient retention to reduce flows and nutrient loads to Lake Okeechobee and the St. Lucie and Caloosahatchee rivers.	First solicitation: 8 projects under contract, none within the Caloosahatchee Watershed. Second solicitation: 2 projects are within the Caloosahatchee Watershed. The Mudge Ranch project, located in Glades County north of the Caloosahatchee River, is operational. The Babcock Property Holdings project, located in Charlotte County, is being negotiated.	Ongoing	Regional Dispersed Water Mgmt. SFWMD	$2,000,000 Both Projects Combined		1,610
CRE 152	Dispersed Water Management Water Farming Assessment	Utilize fallow/out-of-production citrus lands to store water and attenuate nutrients. To determine the overall feasibility of the water farming concept, information with respect to environmental benefits gained compared to the cost estimates associated with on-site construction, infrastructure improvements, environmental assessments, and facility maintenance needs to be evaluated.	The District entered into a cooperative agreement with Gulf Citrus Growers Association to assess the feasibility of water farming. The feasibility study was completed in December 2013. Funding for further implementation is not available at this time.	Ongoing	Regional Dispersed Water Mgmt. SFWMD	TBD		
CRE 153	Dispersed Water Management Interim Sites	Parcels scheduled to become regional restoration projects present an opportunity to provide water retention through interim, low-cost alterations to the existing surface water management systems. These parcels would then provide an interim role of contributing to the watershed restoration effort while the final designs are completed and approved. If the public lands are being leased, then water management strategies will be jointly developed with the lessees to reduce discharges while not adversely affecting flood protection (including adjacent properties) and water quality.	Interim lands in the Caloosahatchee Watershed include BOMA and C-43 reservoir site.	Ongoing	Regional Dispersed Water Mgmt. SFWMD	$700,000		1,316
CRE-LO 03 CRE-LO 05 CRE-LO 63	Urban BMPs: Urban Fertilizer Rule [Lake Okeechobee Estuary and Recovery (LOER)] & Florida Yards and Neighborhoods Program	The Urban Fertilizer Rule is an FDACS rule that regulates the content of phosphorus and nitrogen in urban turf fertilizers to improve water quality. The Florida Yards and Neighbors Program provides education to citizens by promoting land use designs to minimize pesticides, fertilizers, and irrigation water.	Since 2009, the UF/IFAS Florida Yards and Neighborhood Program has expanded from a homeowner approach to cover a broader audience (e.g., builders, developers, architects).	Ongoing	Regional Source Control Multiple			

CRE-LO 01,02,49	Agricultural BMPs – Owner Implemented, Funded Cost-Share, and Cost-Share Future Funding	Implements agricultural BMPs and water quality improvement projects to reduce the discharge of nutrients from the watershed.	Total agricultural acreage in the Caloosahatchee Watershed is approximately 476,568 acres. Approximately 71 percent of this acreage is enrolled in owner implemented BMPs and have cost-share type BMPs in place. Goal is 100% coverage	Ongoing	Regional Source Control DACS			
CRE-LO 09	Coastal & Estuarine Land Conservation Program (CELCP)	Established in 2002 by NOAA, CELCP protects important coastal and estuarine areas that have significant conservation, recreation, ecological, historical, or aesthetic values, or that may be converted from their natural or recreational state to other uses (CELCP Final Guidelines, 2003). In Florida, CELCP is coordinated through FDEP's Coastal Management Program.	The primary purpose of the program is to acquire property in coastal and estuarine areas that have significant conservation, recreation, ecological, historical, or aesthetic values, or that are threatened by conversion from a natural or recreational state to other uses. The program provides up to $3 million dollars for each eligible project.	Ongoing	Regional DEP			
CRE-LO 91	Farm and Ranchland Partnerships	There are two USDA-NRCS farm and ranchland partnership programs: Farm and Ranchlands Protection Program, and Wetlands Reserve Program (WRP). Under these programs, landowners sell development rights to land and place it in a conservation easement that permanently maintains land as agriculture and open space.	The District executed a Memorandum of Understanding in October 2010 to assist USDA-NRCS by providing technical assistance in implementing their WRP projects.	Ongoing	Regional Dispersed Water Mgmt. SFWMD			
CRE-LO 63	Wastewater & Stormwater Master Plans	Master Plans outline implementing urban stormwater retrofit or wastewater projects to achieve additional nutrient reductions and water storage basin-wide by working with entities responsible for wastewater/stormwater programs in the service area.	See the CRWPP Construction Project for the implementation status of urban stormwater retrofits and wastewater projects.	Ongoing	Local Source Control			