



SANIBEL ISLAND WATER QUALITY IMPROVEMENT PROGRAM

SHORT- AND LONG-TERM NUTRIENT REDUCTION GOALS

Short Term

1. Complete Sanibel Comprehensive Nutrient Management Plan. Document will provide nutrient loading hotspots and guide project implementation. Complete Phase III in FY15 and develop list of projects aimed at nutrient loading hotspots.
2. Implement flow monitoring within the Sanibel River at the Tarpon Bay and Beach Road weirs to determine the volume of water and nutrient loads leaving the Sanibel River on an annual basis.
3. Design and engineer one-way flap gate for the Dunes community weir to prevent bay water from entering community lakes during extreme high tides. This will prevent lakes from filling up prematurely and discharging nutrient-rich water over the weir into bay waters.
4. Continue to educate homeowners and contractors on the impacts of improper fertilizer use. Train contractors on Best Management Practices. Focus homeowner education on source control around community lakes and stormwater drains. Develop homeowner guide to proper use of reclaimed water. Develop web-based BMP education for homeowners who live on community lakes.
5. Continue to implement the City's Golf Course Fertilizer and Lake Management Guidelines and Report Card Program. Continue to meet with golf course staff annually to evaluate practices and provide report cards.
6. Continue to monitor the island's surface water quality in the Sanibel River (6 stations); Blind Pass, Sanibel Bayous and Clam Bayou (6 stations). All data uploaded to FDEP and USEPA the STORET database.
7. Complete baseline nutrient sampling and feasibility assessment of transitioning the Sanibel Island Golf Course to an on-demand re-use water irrigation system.

Long Term

1. Implement on-demand water irrigation at the Sanibel Island Golf Course to eliminate the existing re-use water holding pond on the golf course suspected of leaching into the Sanibel River.
2. Move forward with final phase of the City's municipal sewer system to eliminate all septic tanks on Sanibel.
3. Implement denitrification at the Donax wastewater treatment plant to reduce nitrogen concentration in the City's re-use water used for irrigation on golf courses and condominiums along West Gulf Dr.
4. Look at the feasibility of sediment dredging or removal of *Chara* spp. in the Sanibel River to remove nutrients in the sediments or in plant biomass.
5. Evaluate the feasibility of filter marshes adjacent to the Sanibel River to remove nutrients from the Sanibel River (location to be driven by results of the Nutrient Management Plan).



FRESHWATER DISCHARGES FROM LAKE OKEECHOBEE & CALOOSAHATCHEE WATERSHED

SHORT-TERM LOW-COST STRATEGIES FOR WATER STORAGE

1. 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.
2. Maximize flows through the Stormwater Treatment Areas (STAs) and Water Conservation Areas (WCAs) to the full extent possible to convey water south during the wet season to reduce high-flow impacts to the coastal estuaries.
3. Maximize storage on all private lands currently under contract with the SFWMD for the disbursed water management program. Investigate the potential for additional projects based on cost/benefit analysis (e.g., Alico Corporation 75,000 ac in eastern Caloosahatchee basin). Explore additional economic incentives for water storage on private lands within the Caloosahatchee basin.
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-d moving average).
5. Revisit the Lake Okeechobee Release Schedule (LORS 2008) risk assessment to determine if there are any opportunities to provide more freeboard 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.
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.



FRESHWATER DISCHARGES FROM LAKE OKEECHOBEE

& CALOOSAHATCHEE WATERSHED

SANIBEL LEGISLATIVE AND FUNDING PRIORITIES

STATE PRIORITIES

1. **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 Corp. 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.
2. **Interim storage on C-43 West Reservoir site** – Project would significantly increase the amount of water that can be stored on the C-43 West Reservoir (Berry Groves) property until the full project is completed. It would require additional infrastructure, including building berms and installing larger pumps to put more water on the site. This would be considered phase I of the larger C-43 West Reservoir CERP project and could be included in the state cost share for the federal project. Estimated cost of the interim storage project is \$10 million. In addition, the 1,500 acres of land purchased as part of the Berry Groves acquisition should be used to construct a stormwater treatment area (STA) adjacent to the reservoir to treat water before it is discharged into the Caloosahatchee.
3. **Lake Hicpochee Restoration Project** – Funds 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.
4. **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.

*Note: *The state needs to continue to fully support the Comprehensive Everglades Restoration Program (CERP) projects. Our biggest relief from the freshwater releases into the Caloosahatchee are going to come from the larger federal projects, which have much larger water storage benefits and can move water south into the Everglades. The state needs to continue to work with our federal partners to come up with strategies to move more water south of Lake Okeechobee.*

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FRESHWATER DISCHARGES FROM LAKE OKEECHOBEE

& CALOOSAHATCHEE WATERSHED

SANIBEL LEGISLATIVE AND FUNDING PRIORITIES

FEDERAL PRIORITIES

1. **Fully support the 2013 Water Resources Development Act (WRDA) 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.
2. **Fast track the Central Everglades Planning Project (CEPP) and get congressional support and funding for the project.** The project will move approximately 210,000 acre-feet of water south of Lake Okeechobee and will reduce some of the damaging flows to the St. Lucie and Caloosahatchee estuaries.
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.
4. **Continue to keep pressure on the U.S. Army Corps to move as quickly as possible to rehabilitate the Herbert Hoover Dike.** The project will protect the communities around Lake Okeechobee and provide more freeboard and temporary storage in the lake to reduce peak flows to the estuaries.
5. **Revisit the Lake Okeechobee Release Schedule (LORS 2008) risk assessment** to determine if there are any opportunities to minimize discharges to the estuaries in light of recent improvements in the Herbert Hoover Dike; and reevaluate how flows to the Caloosahatchee are measured under the LORS 2008 schedule to make regulatory releases more equitable.

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