COMPLIANCE IN THE EVERGLADES

Florida district takes steps to improve water quality in the Everglades

By Becky Hachenburg

As one of the country's most important and iconic water systems, the Florida Everglades have become a symbol for the state of Florida and a major focus for ongoing environmental management. For decades, the South Florida Water Management District (SFWMD) has been committed to ensuring the health of the Everglades through proper management of water delivery and quality.

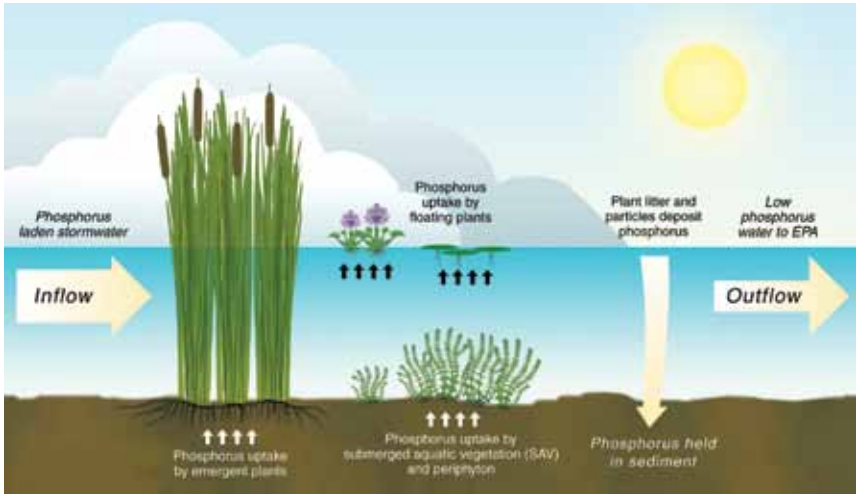
SFWMD is a regional governmental agency that oversees the water resources in the southern half of the state, covering 16 counties from Orlando to the Florida Keys and serving a population of 8.1 million. It is the oldest and largest of the state's five water management districts. Created in 1949, the agency is responsible for managing and protecting water resources by balancing and improving water quality, flood control, natural systems and water supply.

Broad efforts to improve and restore the Everglades watershed and the southern Florida ecosystem involve the cooperation of the SFWMD, the U.S. Army Corps of Engineers, the Florida Department of Environmental Protection (FDEP), other agencies and private landowners.

Compliance Strategies

Since 1994, the state of Florida has invested more than $1.8 billion toward lowering phosphorus levels in Everglades-bound waters through a combination of nutrient source controls and construction projects. Farming best management practices (BMPs) prevent or reduce phosphorus in discharges at the source, and storm water treatment areas (STAs) use green technology to remove excess phosphorus.

In 2012, the state of Florida and the U.S. Environmental Protection Agency reached a consensus on new strategies to improve water quality in the Everglades. Based on months of scientific and technical discussions, the SFWMD created a plan and strategies that will expand water quality improvement projects to achieve the phosphorus water quality standard established for the Everglades.



Of major concern are the area's high levels of phosphorus and other nutrients, which can negatively impact the region and its water supply.

As a result of this collaboration, a series of projects has been scheduled under the name Restoration Strategies to improve water quality south of Lake Okeechobee. The projects have been divided into three flow paths (Eastern, Central and Western), which are delineated by the source basins that are tributary to the existing Everglades STAs. Planned projects include the design and construction management of various restoration infratructure such as STAs, flow equalization basins, reservoirs, canal bank stabilization, storm water pump stations, control structures, spillways and related components that all work to stabilize and improve the Everglades ecosystem throughout southern Florida. Of major concern are the area's high levels of phosphorus and other nutrients, which can negatively impact the region and its water supply.

The identified projects primarily consist of flow equalization basins (FEBs), STA expansions, and associated infrastructure and conveyance improvements.

Project Specifics

The Eastern Flow Path contains STA-1E and STA-1W. The additional water quality projects for this flow path include an FEB in the S-5A basin with approximately 45,000 acre-ft of storage and expanding STA-1W for an additional 7,045 acres of effective treatment area. The STA-1W expansion consists of two components: Expansion Area No. 1 and Expansion Area No. 2.

The Eastern Flow Path consists primarily of the C-51 West and S-5A Basins.

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The flows from these drainage basins are currently routed to STA-1W and STA-1E for treatment prior to discharging into Water Conservation Area 1, also known as the Arthur R. Marshall Loxahatchee National Wildlife Refuge. The S-5A and S-319 pump stations will continue to provide the existing level of flood protection to the S-5A and the C-51 West basins. The Eastern Flow Path projects are intended to manage basin runoff in a more advantageous manner by reducing the impacts of storm event inflows on the STAs by routing flows into an upstream 45,000-acre-ft FEB to improve flow attenuation through STA-1W, and by expanding the effective storm water treatment area of STA-1W to provide additional phosphorous treatment capacity.

The STA-1W Expansion Area No. 1 project, located in Palm Beach County, immediately west of Water Conservation Area 1, is a component of the Restoration Strategies projects identified to work in conjunction with the existing Everglades STAs to meet the water quality-based effluent limit that would achieve compliance with the state of Florida's numeric phosphorus criterion in the Everglades protection area. Phosphorous levels in STA-1W discharges have not yet achieved concentrations necessary to meet the total phosphorus criterion, but significant reductions in the levels of total phosphorus delivered to the Everglades protection area have been noted since STA-1W began operations. STA-1W Expansion Area No. 1 is being designed by MWH Global and will be constructed with the main goal of further reducing the phosphorous discharges into Water Conservation Area 1. Additionally, the project is required for compliance with the FDEP NPDES Consent Order No. 12-1148 and Everglades Forever Act Consent Order No. 12-1149 pursuant to Section 120.52(7), F.S.

The design of Expansion No. 1 is required to be completed before July 30, 2015, with construction commencing by Jan. 31, 2016, and completed by Dec. 31, 2018. The initial flooding and optimization period must be completed by Dec. 31, 2020. STA-1W Expansion No. 2 is approximately 1,800 acres and is proposed seven miles south of the existing STA-1W footprint. The design of Expansion No. 2 is required to be completed before July 31, 2020, with construction commencing by Nov. 30, 2020, and completed by Dec. 31, 2022. The initial flooding and optimization period must be completed by Dec. 31, 2024.

Protecting the environment and preserving the grandeur of the Everglades ecosystem, including Everglades National Park, is a serious undertaking. The expansion of STA-1W will serve as a major component to further reduce phosphorous levels and improve water quality—a benefit for future generations to enjoy. SWS

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