Everglades Restoration

Staff Update
October 2020

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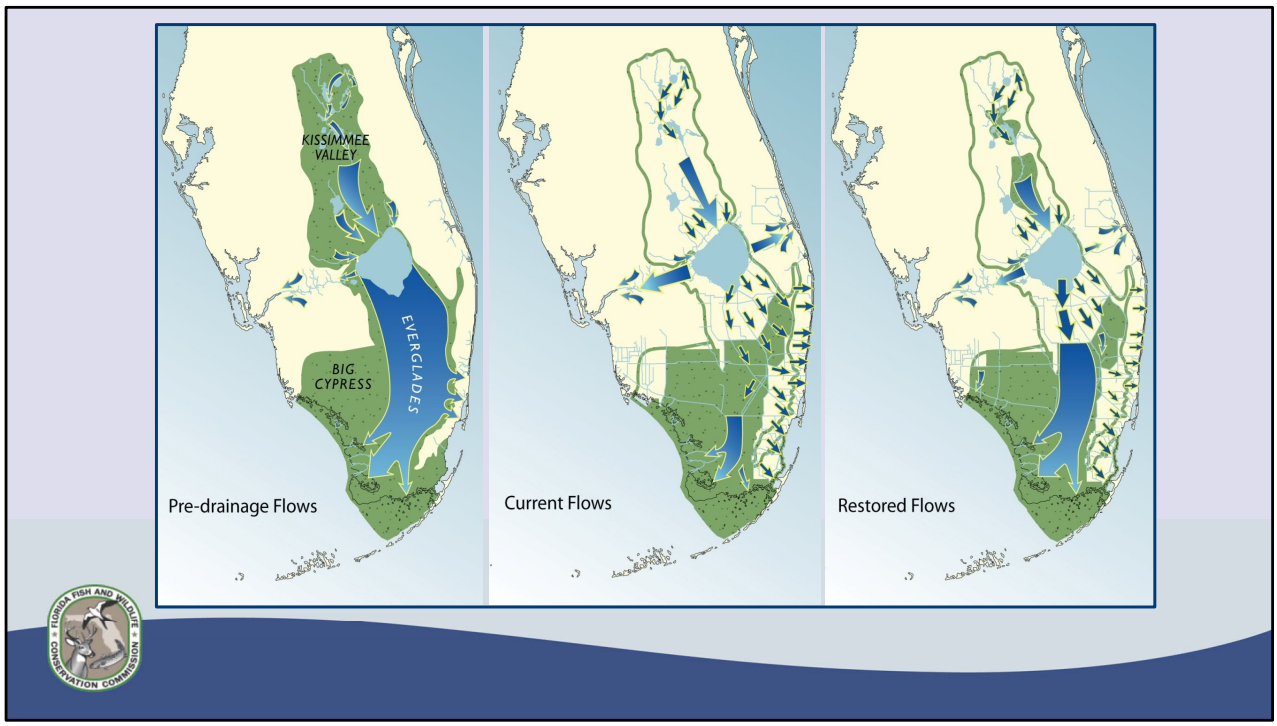
This presentation is a high-level overview of the Everglades restoration program, water conditions from the 2020 wet-season and highlights of specific restoration projects. Also included is an overview of Cape Sable seaside sparrow ecology and a report on work being done to address management challenges.



This is an overview of hydrologic restoration in the South Florida ecosystem, which is outlined in the darker green. The blue arrows on these graphics represent water flows under historic, pre-drainage conditions on the left, our current conditions in the center, and the restored flow scenario on the right. In the pre-drainage system on the left, water flowed across broad expanses of the historical River of Grass, in what we now call sheet flow, and the system was hydrologically connected. Under the current flow representation in the center, with the use of canals, shown with the smaller arrows, excess water is reduced and discharged to the east and west coasts. The third panel depicts a hydraulically restored flows, where freshwater is redirected south with a significant increase in sheet flow through the central Everglades, Shark River Slough (center arrow) and to Taylor Slough (south-east arrow). This delivers freshwater directly to Florida Bay.

Restoring Hydrology through the Comprehensive Everglades Restoration Plan, known as CERP, plays a central role in transition from our current constrained system to a more hydraulically connected ecosystem that supports abundant freshwater, terrestrial, and marine wildlife. With 68 projects, CERP provides the framework for restoration.

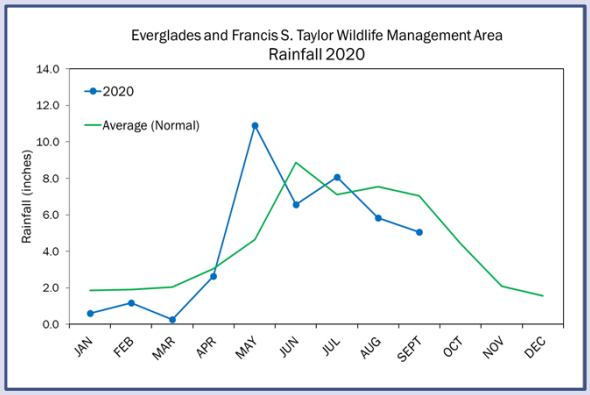
Expedited Projects

- Includes projects benefiting
  - Lake Okeechobee
  - St. Lucie, Caloosahatchee, and Biscayne Bay estuaries
  - Central Everglades
  - Florida Bay

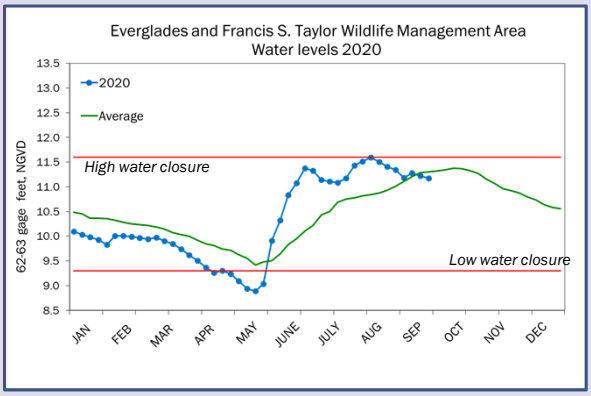
With the leadership of Governor DeSantis and the direction provided in the "*Achieving More Now For Florida's Environment*" Executive Order, the state is expediting more than 29 of the CERP projects across the South Florida ecosystem. These are projects like the Everglades Agricultural Area (EAA) Reservoir that captures and stores discharges from Lake Okeechobee and redirects the water south to the Everglades and onto Florida Bay.

Outstanding progress has been made on many CERP projects throughout the South Florida ecosystem – what follows are highlights of specific projects that have been recently completed, or nearing completion, and directly benefit water management and habitats in the Everglades Wildlife Management Area.

Current Conditions: Water Levels



Driest March on record, above average rainfall in May



Water levels rose rapidly and remained above average

2020 was marked by an abnormally dry-season followed by a rapid onset of the wet season. These two charts show rainfall and the corresponding water levels for the Everglades and Francis S. Taylor Wildlife Management Area. Average rainfall is represented by the green line. The blue line shows this year's rainfall.

The first quarter of 2020 was below average rainfall, with March 2020 being the driest on record. That was followed by a significant increase in May when the Everglades received 235% of the average rainfall. The second chart shows how this rain event dramatically increased water levels in the Everglades WMA early in the season and water remained above average for many weeks briefly exceeding the designated high water closure level. Wildlife responding by seeking high ground well prior the August peak, and continued to seek high ground for several weeks after the water receded below the criteria. Rotenberger WMA has remained closed to public access due to the high water condition specific to that area, but thanks to the coordinated state and federal efforts, water levels in the Everglades WMA receded to a seasonally normal level around early September.

Addressing Challenges: Water Management

- Monitoring
- Communication
- Projects

Getting the water right means monitoring the quantity, quality, timing, and distribution (QQTD). This is one of the most challenging parts of restoring the Everglades; balancing these key features and their relation to wildlife, habitat, and human needs. Information is communicated at multiple levels to inform scientists, water managers, agency leadership, and the public on a variety of conditions throughout the system. This in turn drives the big improvements in hydrology, and sheet flow, that support the ecological gains of restoration. The next few slides highlight just a few successful projects that help better manage water in the Everglades WMA.

Tamiami Trail Bridging

- 1 Mile bridge completed 2013
- 2.6 miles of bridging completed 2019
- Tamiami Trail Next Steps - Phase 2 starts 2020

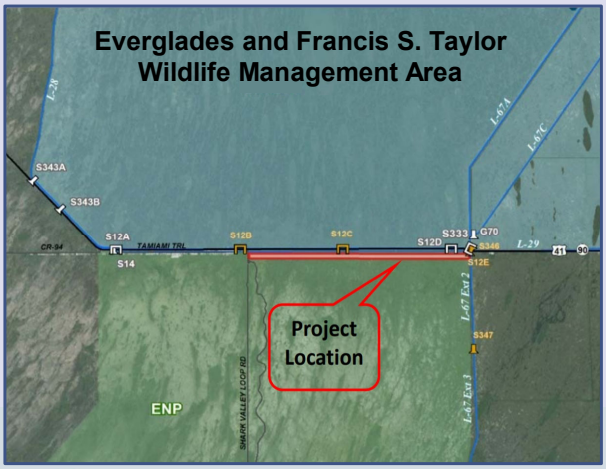
The Tamiami Trail Bridging project opened flow at the southern end of the system and allowed water levels in the canal to be raised, which increases the flow into Everglades National Park. The first 1-mile of bridge was completed in 2013, then an additional 2.6 miles of bridging was completed in 2019 in a partnership between the State of Florida and National Park Service. Phase 2 of this Project starts this year and will raise the roadway along the remaining 6.7 miles and reconnect smaller historic sloughs by using several smaller pre-cast bridges. The project not only fortifies the roadway, it adds safety features and water quality features that were not part of the existing Tamiami Trail. When completed in 2024, the Tamiami Trail will be a significant step toward restoration levels of sheet flow into Everglades National Park. Other key projects, identified on the Intergraded Delivery Schedule (IDS), will need to be completed to fully realize the benefits of the Tamiami Trail Bridging.

S-333 North Water Control Structure

- Increases discharge capability
- Delivers water to Tamiami Trail bridges
- Project was expedited and Completed (2020)

The S-333 North Water Control Structure is located at a key point of the Everglades WMA and Everglades National Park. For many years, even decades, a single structure, the S-333 seen on the left, was located at this critical discharge location and used as a primary control point for waters discharging from the Everglades Wildlife Management Area to Everglades National Park. With the completion of the S-333 North structure, on the right, the capability now exists for water managers to double the volume of water that goes from the Wildlife Management Area 3A to Everglades National Park through this juncture. The water that passes through these critical structures enters the Tamiami Canal and then flows under the 3.6 miles of Tamiami Trail bridging that have been completed along Tamiami Trail.

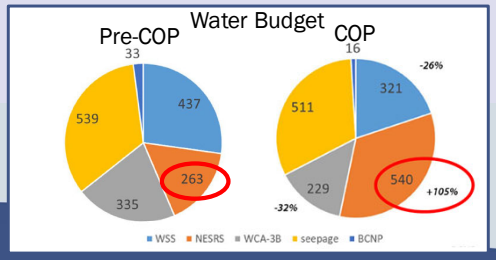
Old Tamiami Trail Removal

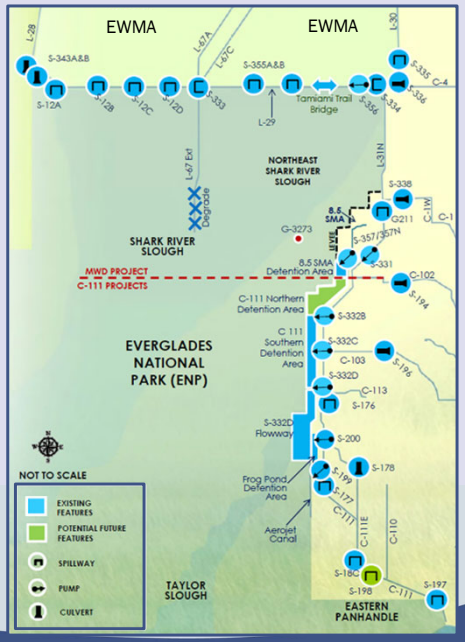


The Old Tamiami Trail removal project, removes a remnant section of the original 1929 road bed that was abandoned many years ago. These pictures show the project location on the left and the actual roadway on the right. This project was accelerated, and underway, thanks to the coordination of many partners including FWC staff who contracted and funded the early geotechnical work, the National Park Service, and Florida Power and Light, who recently relocated the active powerlines that were present. When done, a roadway that acted as a barrier to flow will be removed and the canal that remains will facilitate flow from the Everglades Wildlife Management Area to Everglades National Park.

New Water Control Plan

- Combine Operational Plan, Approved August 2020
- Improves timing, location, and volume of deliveries to Everglades National Park

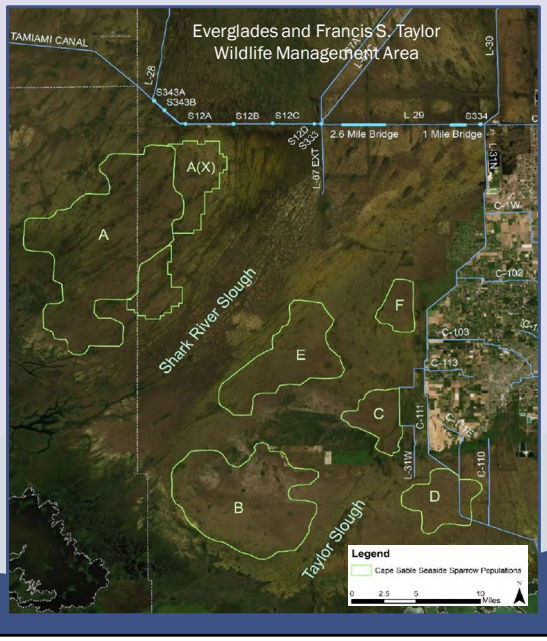




The new water control plan for Southern Everglades, formally called the Combined Operational Plan, takes advantage of restoration projects that were built as part of the Modified Waters Delivery Plan and many of the projects we just highlighted. The plan will work to redistribute the available water, increase flow to Shark River Slough by 105%, and provide some increase of freshwater to Taylor Slough, which brings water directly to Florida Bay. The new water control plan also relaxes some of the constraints on the system as a result of managing habitat for the endangered Cape Sable Seaside Sparrow. (point out gates and Subpop A).

Cape Sable Seaside Sparrow

- Federally endangered
- Six subpopulations
- Located in marl prairie habitats
- Short lived species (2-3 years)
  - Nest close to the ground
  - Makes multiple nesting attempts



The diagram on the right shows where the Cape Sable Seaside Sparrow subpopulations are located in Everglades National Park (green outlined areas) in relation to the Everglades WMA, and the discharge structures that deliver water from the Everglades WMA.

Cape Sable Seaside Sparrow's prefer marl prairie habitats that reside along the flood plains of the historic Shark River Slough. These are ecologically dominated with muhly grasses, a low-lying cord grass, where the sparrows almost exclusively nest. The sparrows tend to stay away from areas dominated by sawgrasses or lots of tree and shrub cover because those are areas where predators hide, and they generally nest just a few inches off the ground. Seaside sparrows are a short-lived species, only living about 3 years and nesting twice or even three times a season is thought to be essential to recovering healthy populations. Of note, the Sparrow's subpopulation A has had a dramatic decline in population numbers. It is located immediately downstream of the S12 water control structures.

Representatives from state agencies, federal agencies and the Miccosukee Tribe, have come together to take a fresh look at the Cape Sable seaside sparrow operations and the habitat in subpopulation A. This group is now developing a course of action that will change the way key gates are operated to provide some additional relief during high water conditions. The course of action will include two parts: water management actions that direct water away from the S-12A and B, and land management actions and ecological treatments that promote high quality habitat in the area of subpopulation A.

The water management and ecological teams are meeting weekly and a third team is developing a scientifically based Everglades Conservation Blueprint at an ecosystem-level scale. By working together and increasing stakeholder coordination and transparency, we can develop more solutions that use some of the built restoration features to both meet the sparrow's needs and the hydraulic needs of the Everglades.

Discussion