Essentials #3, #4, #5

Construct the requisite storage and flow to restore the Everglades, the estuaries, and Lake Okeechobee

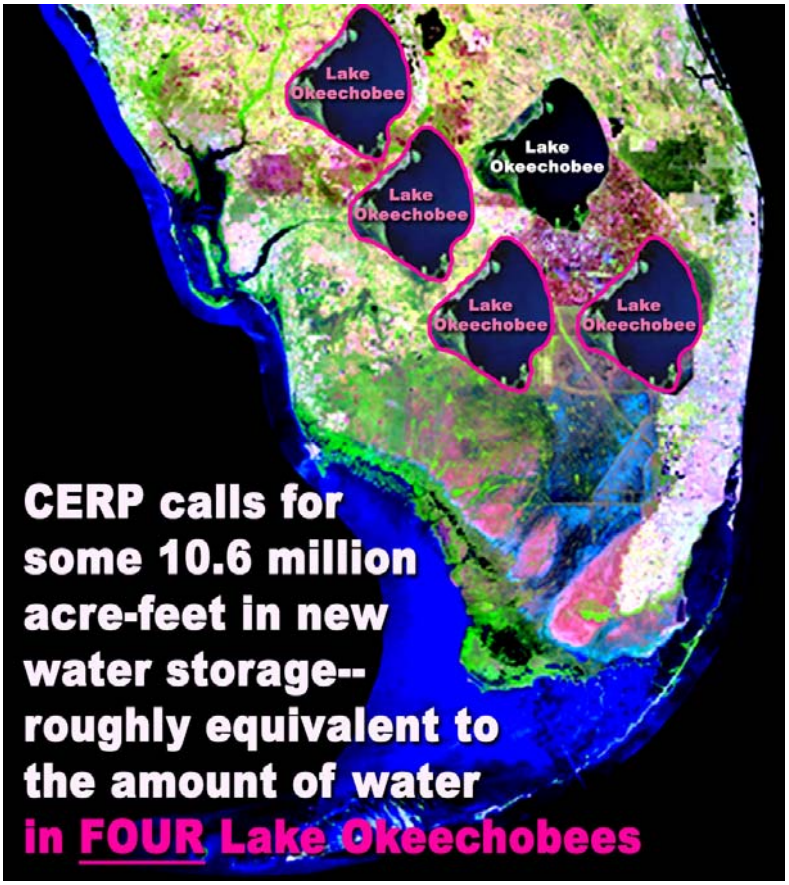
The Background

When the southern reaches of the Hoover Dike were completed around Lake Okeechobee in 1933, the Everglades lost most of its water supply. Without water from Lake Okeechobee's watershed, the Everglades became much drier, causing reduced productivity in Florida Bay as well as in the Gulf Coast estuaries.

Water that historically flowed south was directed to the east coast by the St. Lucie River and the west coast by the Caloosahatchee River. This caused the coastal estuaries to bear the brunt of huge amounts of damaging fresh water releases from Lake Okeechobee.

Decades of relentless drainage of the Everglades marshes coupled with lowered Lake Okeechobee water levels has decreased the amount of space available to store water--the amount of water the natural systems need to get them through the dry season, and through times when rainy season does not bring its usual bounty. As a consequence of not being able to save water, the remnant Everglades ecosystem is very susceptible to floods and droughts.

If the Everglades is to survive, the storage that was inherent in the vast spatial extent of its natural wetlands must be recovered. This need to store additional water is of paramount importance to the Comprehensive Everglades Restoration Plan (CERP). CERP calls for huge increases in storage--some 10.6 million acre-feet in new storage which is roughly equivalent to the amount of water in four Lake Okeechobees.



The fate of CERP relies on the plan's ability to provide this storage. Yet the 2000 plan suggested that 90 percent of this new storage could be provided by Aquifer Storage and Recovery (ASR) wells. Beyond the ASRs, CERP also planned to store another 3 percent of the water necessary in “reclaimed” rock mines.

Today both technologies are recognized as extremely risky and of highly uncertain feasibility. Long-promised ASR contingency plans have not been delivered by the State and federal partner agencies; Essentials #3, #4, and #5 propose just such a contingency plan.

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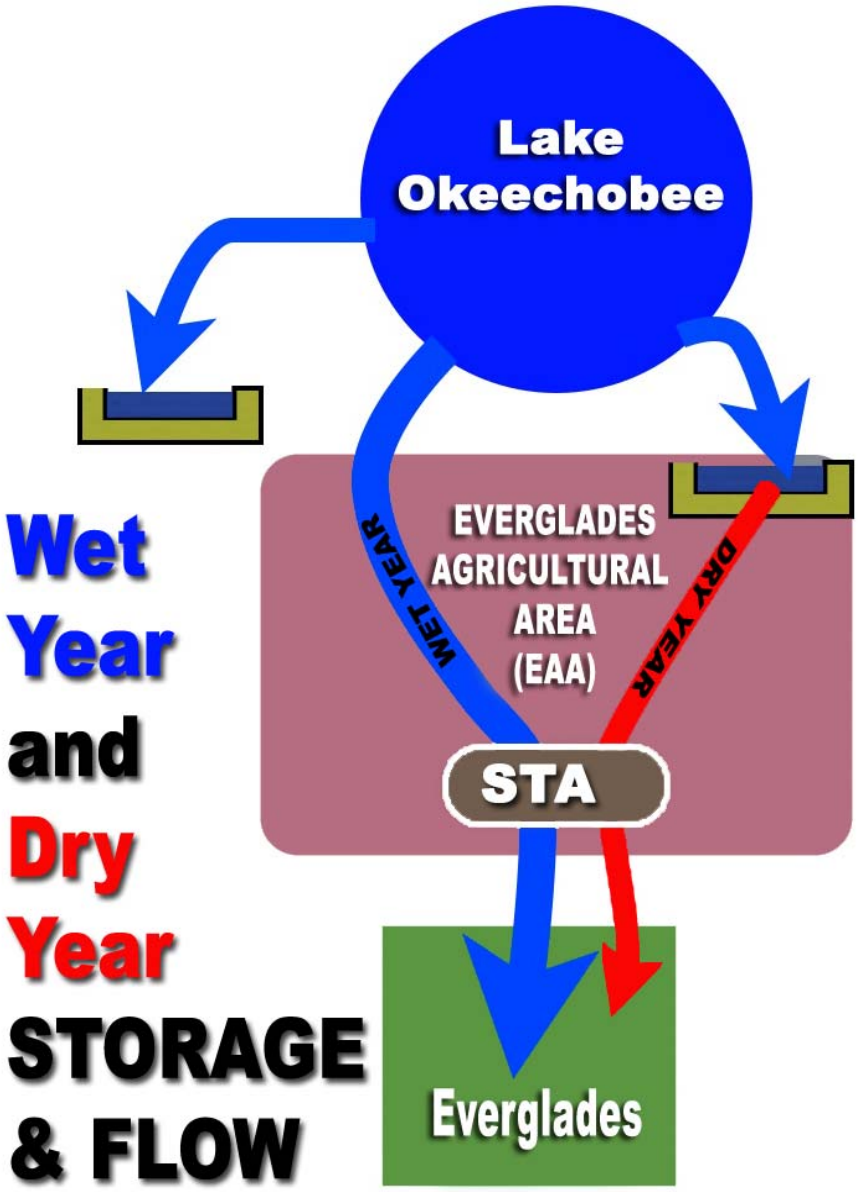


The Key Concept

The concepts of storage and flow are linked.

During wet years, THREE ACTIONS must occur:

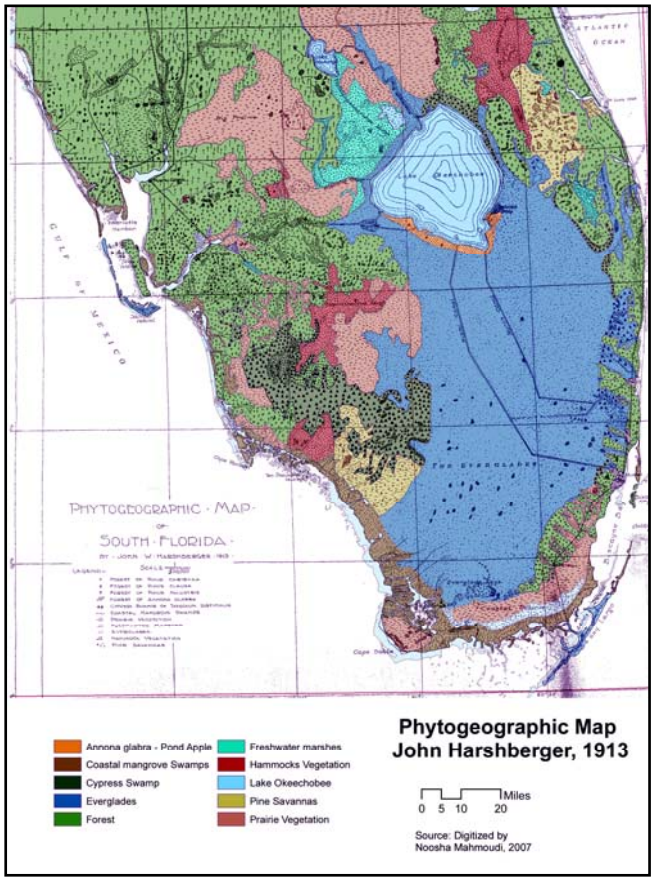
First, store sufficient water in a surface reservoir to supply the Everglades with enough water during droughts. (Essential #3)

Second, after treating the water to remove pollutants, send as much water from Lake Okeechobee as possible to the Everglades. (Essential #4)

And finally, construct enough additional storage to prevent damaging discharges to the estuaries, and use this water for drought supplies to the Lake and for other water needs. This is the operational strategy that minimizes storage need, but restores the estuaries and the Everglades. (Essential #5)

Essential #3

Provide adequate water storage for the ecological needs of Everglades National Park and the Water Conservation Areas (WCAs)



The John Harshberger Map of 1913 shows that the Everglades was a continuous wetland system from just north of Orlando to Florida Bay. Note the "mini-Everglades" north of the Lake on the western side.

The Problem

The Everglades used to flow as a broad, shallow sheet of water through a marsh roughly the size of New Jersey. This "sheetflow" was a defining characteristic of the Everglades.

One of the major engineering challenges to completing the Comprehensive Everglades Restoration Plan (CERP) is figuring out how to sustain the River of Grass during droughts--given that about half of the wetlands in the Everglades are gone, and the Lake is no longer as deep as it once was.

The Solution

Everglades Foundation computer simulations indicate that to maintain sheetflow and ecological function in the Everglades during droughts, approximately 1.5 million acre-ft of storage is needed. Moreover, a true cost accounting will show that the most reliable, lowest cost storage is a surface reservoir in the Everglades Agricultural Area.

This analysis indicates the need to:

- **Construct a 1.5 million acre-ft reservoir in the EAA** fed by releases from Lake Okeechobee during wet years that will supply water to the Everglades during dry seasons and droughts.
- **Implement a plan for full removal of barriers to sheetflow in Water Conservation Area 3 and Everglades National Park.** This would allow a natural drying pattern that would result in the greatest benefit to the Everglades.
- **Build seepage control features along the eastern side of the Everglades Protection Area.** Controlling the loss of water from seepage during droughts will help stabilize drying patterns during droughts.