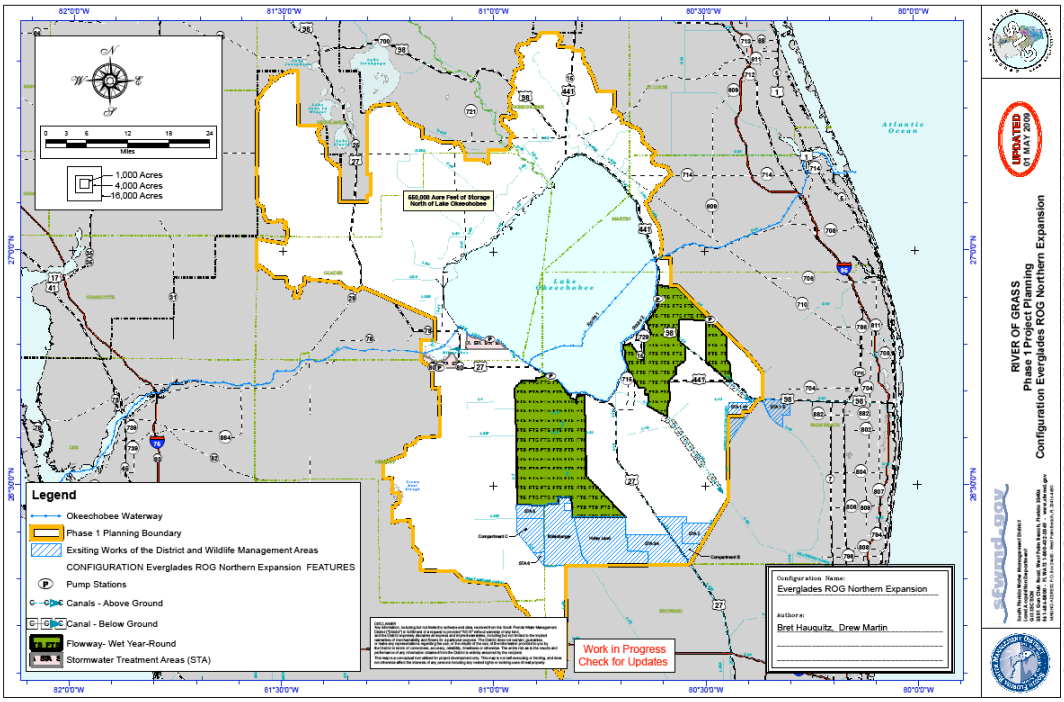
Everglades River of Grass Northern Expansion (ERNE)

Drew Martin, Bret Hauquitz

This configuration consists primarily of shallow flowways, intended to mimic natural, vegetated sheetflow as much as possible. The flowways are intended to serve a dual purpose: They have the ability to store water in a depth range of 0.5 feet to 3.0 feet and since they will be vegetated, they are also expected to provide water quality treatment. In addition to the flowways, reservoir storage is included north of Lake Okeechobee to aid in maintaining environmentally beneficial Lake levels and decreasing harmful discharges to the estuaries.



Major Components:

- North Deep Storage – 550,000 acre-feet
- South Shallow Storage - 551,205 acre-feet
- West Stormwater Treatment Area – 7,650 net acres of treatment area

General Description of How Water Flows Through System/Operational Intent: The northern storage is utilized to store Lake Okeechobee watershed flows until this water is needed by the Lake or the Everglades. Pump stations are proposed to take water from Lake Okeechobee and transfer it into the flowways (eastern L-8 Basin flowway, S-5A Basin flowway and western flowway). From there, the water will sheetflow through aquatic vegetation southward, receiving treatment as it moves. When it reaches the end of its assigned flowway, it will be transferred via gravity flow into either a Water Conservation Area (WCA) or into the Holey Land/Rotenberger tracts, depending on the location of the flowway. That water would then make its way into the Everglades. To the west, pumps will transfer Lake Okeechobee and C-43 Basin water into the proposed

stormwater treatment areas (STAs), which will provide treatment prior to gravity discharging in to the C-43 Canal via Lake Hicpochee.

Total Acreage Identified:

- 41,250 acres north of Lake Okeechobee
- 126,600 acres south of Lake Okeechobee
- 77,550 acres east of Lake Okeechobee
- 8,500 acres west of Lake Okeechobee

Of the total acreage identified 25,294 acres is in public ownership and the remaining 228,606 acres would need to be acquired.

Hydrologic Performance: Achieved 78% (overall result of 19 months total in Lake-triggered high discharges during the 41-year period of record) reduction in Lake-triggered high discharges to the Northern Estuaries. Received an 83% standard score for Everglades demand target delivered and an 80% standard score for dry season Everglades demand target delivered.

Water Quality Performance: This configuration requires approximately an additional 2,900 acres of Stormwater Treatment Area. This configuration was evaluated such that the flowways never went dry. Based on the assumption that flowways can not reduce phosphorous concentrations below 25 parts per billion (ppb), discharges from flowways will need to be routed through an STA prior to discharge to the Everglades.

Environmental / Ecological Advantages or Benefits: The proposed flowways are meant to provide additional habitat for birds, fish, reptiles and aquatic vegetation. Creates opportunity to more effectively manage the Holey Land and meet the operational criteria on a more frequent basis

Environmental / Ecological Impacts or Concerns: With acreage needed for the storage north of Lake Okeechobee, there is a chance that existing wetlands and/or threatened or endangered species will be impacted by the configuration footprint. Maintaining flowways in a wet condition will likely improve water quality benefits but will impact the amount of water available for Lake Okeechobee or for deliveries to the Everglades.

Increased Spatial Extent of Shallow Storage/Treatment (≤ 4 feet water depth): 212,650 total acres. Results of relative landscape viability comparisons between the alternative configurations (based on maintenance of minimum depths) indicate that this configuration fell in the high range.

Economic / Recreational Advantages or Benefits: The flowways are expected to draw birds, fish and other wildlife. The flowways have the potential to support recreational activities such as bird watching and canoeing, which could help support the local economy.

Economic / Recreational Impacts or Concerns: Results of relative sugarcane production comparison between alternative configurations indicated that this configuration fell in the low range.

Major Infrastructure Impacts: Power transmission lines, railroad lines and roadways will be impacted and will need to be replaced. Pump stations, control structures and additional canals will need to be constructed to offset impacts to local 298 drainage districts. There are also two residential neighborhoods impacted by the configuration footprint.

Operation and Maintenance (O&M) Considerations: Vegetation management, particularly removal of exotic species will be a major consideration for this configuration, given the high amount of vegetated flowway area proposed. This configuration contains a substantial amount of embankment (primarily ≤ 9 feet height) that will have to be maintained. This configuration also includes seven (7) pump stations.

Uncertainty Concerns: Hydraulic uncertainties related to flowways. Uncertainty of the level of water quality performance achieved through the use of unmanaged flowway systems.