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South Florida Ecosystem Restoration and the Comprehensive Everglades Restoration Plan

Nicole T. Carter
Analyst in Environmental Policy
Resources, Science, and Industry Division

Summary

The Everglades, a unique network of subtropical wetlands, is now half its original size. Many factors have contributed to its decline, including flood control projects and agricultural and urban development. As part of a larger restoration program for South Florida, the U.S. Army Corps of Engineers (Corps) and other federal, state, tribal, and local agencies collaborated to develop a Comprehensive Everglades Restoration Plan (CERP or the Plan). CERP focuses on increasing storage of wet season waters to provide more water during the dry season for the natural system, and urban and agricultural users. The Plan consists of 68 projects estimated to take 36 years and $7.8 billion to complete. The Water Resources Development Act of 2000 (P.L.106-541) authorizes appropriations for initial construction projects and their operation and maintenance. The federal government will pay half the Plan's costs and an array of state, tribal, and local agencies the other half. Major issues associated with the Plan include: the development of programmatic regulations, coordination of restoration efforts, its effectiveness as a restoration effort, uncertainties in technologies and costs, specifics of water allocation, and its effect on the Corps budget. Draft programmatic regulations were circulated in December 2001. This report outlines the history and current conditions of the Everglades, CERP legislation and funding, and associated issues. It will be updated as events warrant.[1]

Introduction

The 106th Congress enacted legislation – Title VI of the Water Resources Development Act of 2000 (P.L. 106-541) – authorizing U.S. Army Corps of Engineers (Corps) involvement in a plan to restore the Everglades, a nationally and internationally recognized natural resource.[2] This legislation requires the development of programmatic regulations for implementing the Comprehensive Everglades Restoration Plan (CERP or

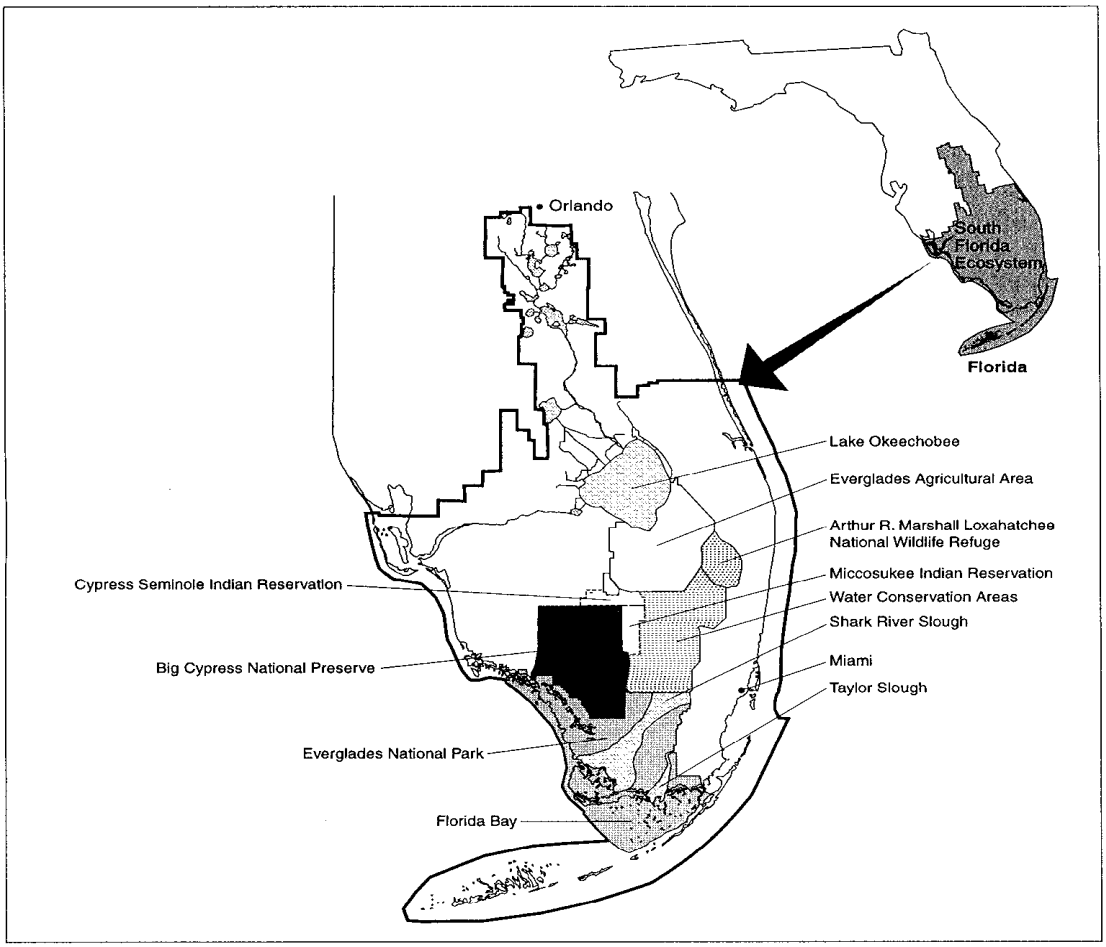
[1] This report was updated by Betsy A. Cody and Pervaze A. Sheikh.

[2] Everglades National Park is a World Heritage Site and International Biosphere Reserve.

the Plan). Final regulations are required by December 2002. A draft issued in December 2001 generated considerable controversy, as discussed further below.

The Everglades is the defining component of the South Florida ecosystem (see **Figure 1**), which incorporates 16 federal wildlife refuges and four national park units. South Florida is also home to more than six million people and a large agricultural economy. There is wide agreement that major changes in water quantity, quality, timing, and distribution since the 1950s have significantly degraded the region's ecological health. During the dry season, the current water regime in South Florida is unable to provide sufficient freshwater supplies for the natural system, or for urban and agricultural consumers. Water shortages are expected to become more frequent as demand by urban and agricultural consumers increases.

Figure 1. Principal Components of the South Florida Ecosystem



Source: Adapted from an illustration prepared by the South Florida Ecosystem Restoration Task Force.

Everglades History

The Everglades is a network of subtropical wetland landscapes that once stretched 220 miles from Orlando to Florida Bay. Several hundred lakes fed slow-moving creeks, called sloughs, that joined the Kissimmee River. Depending on rainfall, water flowed south down

the river or topped the river's banks and flowed through 40,000 acres of marsh to Lake Okeechobee. During the summer rainy season, the lake would overflow its southern shore, spilling water into the Everglades. Due to flat topography, this water moved slowly south to Florida Bay through a shallow 40-mile wide, 100-mile long sawgrass marsh. These wetlands acted as natural filters and retention areas that recharged underlying aquifers. The unique habitat resulting from the Everglades' combination of abundant moisture, rich soils, and subtropical temperatures supported a vast array of species. However, by the mid-1800s, many in South Florida viewed the Everglades as an unproductive swamp. Flood control and reclamation efforts that manipulated the Everglades hydrology promoted development of the East Coast of Florida and permitted agriculture on reclaimed marshland. Principal among the human interventions affecting the Everglades is the Corps' Central and Southern Florida (C&SF) project, which was first authorized by Congress in 1948 to control floods and to satisfy other water management needs of South Florida. Water flows in South Florida are now directed by 1,000 miles of canals, 720 miles of levees, and almost 200 water control structures.

Current Conditions and Recent Restoration Efforts

Management efforts and development activities have markedly changed the Everglades' water regime. The C&SF project redirects water that once flowed from Lake Okeechobee across the Everglades in a slow-moving sheet into canals and rivers discharging directly to the ocean. Experts now believe that the Everglades receive too little water during the dry season and too much during the rainy season. The altered water regime combined with urban and agricultural development have reduced the Everglades to half its original size. Habitat loss has threatened or endangered numerous plant and animal species.

The Everglades are also affected by degraded water quality. Pollutants from urban areas and agricultural runoff, including excess nutrients (such as phosphorous and nitrogen), metals, and pesticides, have negatively affected plant and animal populations. Nutrients entering the Everglades have caused a decline in native vegetation and an overabundance of invasive exotic species. Changes in the quantity, quality, and timing of freshwater flows have also disrupted the equilibrium of coastal estuaries and reef systems.

The federal government and the State of Florida have already undertaken many restoration activities, such as land acquisitions and preparation of a multi-species recovery plan. Between FY1993 and FY2002, $1.7 billion in federal funds and $3.6 billion in state funds were appropriated for South Florida restoration. The South Florida Ecosystem Restoration Task Force, which was formalized by the Water Resources Development Act of 1996 (P.L. 104-303), coordinates the numerous restoration activities. The Task Force facilitates restoration using the following goals: (1) "get the water right," (2) restore, preserve, and protect natural habitats and species, and (3) foster compatibility of built and natural systems. The Department of the Interior, which chairs the Task Force, estimated that achieving these goals for South Florida would cost $14.8 billion. This sum includes $7.8 billion for CERP. CERP is the principal mechanism under the restoration program for "getting the water right," *i.e.*, restoring natural hydrologic functions and water quality, and providing water supplies.

Comprehensive Everglades Restoration Plan

CERP focuses on water quantity, quality, timing, and distribution. The overarching concept behind the Plan is to capture and store freshwater currently discharged to the ocean to be used during the dry season; an estimated 80% of the captured water would be used for the natural system, and an estimated 20% for agricultural and urban uses. CERP calls for removal of 240 miles of levees and canals, and building a network of reservoirs, underground storage wells, and pumping stations that would capture water and redistribute it to replicate natural flow.

Legislation in the 106th Congress. Title VI of the Water Resources Development Act (WRDA) of 2000 approved CERP as contained in the "Final Integrated Feasibility Report and Programmatic Environmental Impact Statement" as modified by the Act. Passage of Title VI followed years of delicate negotiations between federal agencies, the State of Florida, Congress, and disparate groups of stakeholders including local and national environmental organizations, sugar growers, utility companies, home builders, the Seminole Tribe of Florida, and the Miccosukee Tribe of Indians.

Funding. Under Title VI, CERP construction as well as operation and maintenance costs are equally shared by Florida and the federal government.[3] Title VI authorizes four pilot projects at a total cost of $69 million ($34.5 million federal share), 10 construction projects and a monitoring program at a total cost of $1.1 billion ($550.5 million federal share), and modifications to the C&SF Project not to exceed $206 million ($103 million federal share). In total, the Plan requires an estimated $7.8 billion—$5.5 billion for construction and $2.3 billion for necessary lands, easements, water rights, relocation expenses, and disposal areas. The Corps expects to request congressional authorization for additional projects every two years through 2014. In May 2000, Florida passed legislation approving CERP and committing $2 billion in state resources. Federal appropriations for CERP activities totaled $39 million for FY2002.[4] Note that appropriations for other Everglades restoration activities and projects may be listed separately from CERP activities and projects in appropriations bills. For example, in the Energy and Water Development Appropriations Act for FY2002 (P.L. 107-66), the Corps received $20 million for Everglades restoration, which was authorized by the Water Resources Development Act of 1996 (P.L. 104-303) and not WRDA 2000.

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[3] Operation and maintenance costs are estimated at $172 million annually (1999 price levels) for the completed Plan. Title VI departs from the Water Resources Development Act of 1996, Section 528, which prohibits federal funding of operation and maintenance. Proponents of the exception argued that a federal project damaged the Everglades and much of the restoration will benefit federally-owned land.

[4] Appropriations for the Corps to conduct CERP activities in FY2002 are included in the Central and Southern Florida line item of the Energy and Water Development Appropriations Act for FY2002 (P.L 107-66) and it appears these activities received $27.9 million; see CRS Report RL31007, *Appropriations for FY 2002: Energy and Water Development*, January 3, 2002. CERP appropriations for the Department of the Interior for FY2002 are not specifically identified in the Interior and Related Agencies Appropriations Act for FY2002 (P.L. 107-63), yet are reported to be $11.4 million; see U.S. Department of the Interior, "Interior's 2002 Budget Fulfils President's Commitments to Conservation, Collaboration," November 14, 2002, [http://www.doi.gov/news/011114.html].

Issues Associated with CERP

While support for CERP has been rather broad, some reservations remain over the specifics of implementation. In particular, concerns have been raised about the level of detail that will be found in guidelines for water allocation listed in the programmatic regulations. Other issues include: the coordination of restoration activities; CERP's effectiveness as a restoration effort; uncertainties in technologies and their costs; and the Plan's effect on the Corps budget.

Programmatic Regulations. Section VI of WRDA requires by December 2002 the promulgation of programmatic regulations to ensure that CERP's implementation will benefit both the natural system and the human environment. The Corps presented a draft version of the Programmatic Regulations in late December 2001 and has received comments from interested parties and the public. Environmentalists argue that the programmatic regulations have few specific requirements and assurances for water allocation to natural areas, do not include quantitative goals for measuring success, and lack timetables for implementation. The Corps has responded by stating that quantitative levels of water allocation will be written in protocols to be determined later for each individual project. Programmatic regulations, according to the Corps, are to provide the framework for determining protocols and other regulations for implementing and managing restoration projects.

Coordination. A significant challenge for CERP implementation will be coordination. The Corps leads CERP implementation with cooperation from local sponsors and the following federal agencies: Department of the Interior (U.S. Fish and Wildlife Service, National Park Service, and U.S. Geological Survey), Department of Agriculture, and U.S. Environmental Protection Agency. Cooperating state entities are the South Florida Water Management District, the Florida Game and Fresh Water Fish Commission, and the Florida Department of Environmental Protection. The South Florida Ecosystem Restoration Task Force coordinates CERP's implementation with ongoing restoration efforts.[5] As CERP project details and operational policies (especially those related to the timing and delivery of water) are developed, support may shift and conflicts arise, testing the effectiveness of the coordination framework of CERP and the Task Force.

Restoration Effectiveness. Some environmental groups question the extent to which CERP contributes to Everglades restoration and whether so complicated and costly a plan is necessary. There is also concern that the Plan does not include enough measures to improve water quality in the Everglades. Some groups and federal agencies have expressed concern that CERP does not explicitly give natural systems precedence in water allocation, and that it is focused first on water supply rather than ecological restoration. To address this point, the Corps revised the project implementation sequencing to include restoration activities in earlier phases. These changes have not satisfied some groups and scientists who continue to oppose CERP. Some environmental groups, which support CERP and Florida's financial participation in the effort, have expressed concern about the

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[5] Other participants in restoration efforts and the Task Force are other federal, state, tribal, and local agencies as well as private and non-profit groups. For an analysis of the coordination of restoration activities, see General Accounting Office. *An Overall Strategic Plan and a Decision-Making Process Are Needed to Keep the Effort on Track.* April 1999. (RCED-99-121).

source of Florida's contribution. They argue against using funds designated for the purchase of land needed for restoration to finance other types of CERP projects. These groups contend that land acquisitions are essential for successful Everglades restoration.

Technological and Cost Uncertainties. Because not all the scientific data and technologies to restore the South Florida ecosystem are available, CERP utilizes a strategy to manage uncertainties called "adaptive assessment," which combines the implementation of initial project features with data collection for use in later project designs. The current state of knowledge and this adaptive refinement strategy means that CERP is not as detailed as typical Corps feasibility proposals. Title VI authorizes funding of four pilot projects; these include projects to test aquifer storage and recovery (ASR), which has never been used on such a large scale in these geologic conditions. ASR uses underground aquifers as reservoirs to store freshwater which is withdrawn later for use during dry periods. A report by the National Research Council concluded that regional modeling efforts should precede implementation of ASR as proposed by CERP.[6] The report also noted the need to assess water quality standards for discharge of ASR water. A General Accounting Office (GAO) report identified uncertainties that could lead to changes in project designs and their costs.[7] These uncertainties included: (1) what treatment would be required for water stored in aquifer storage and recovery wells, (2) whether more water would be needed for Everglades National Park, and (3) whether storm water treatment areas would achieve sufficient phosphorous removal.

Water Allocation. The South Florida ecosystem needs a sufficient amount of water to be restored. Environmentalists fear that the priority for new water supplies generated by restoration projects will be given to agricultural and urban interests. An agreement signed by the President of the United States and Governor of Florida addresses the water allocation priority for CERP. The agreement calls for the State of Florida to direct water made available from restoration projects authorized by CERP to natural areas in need of restoration before directing water for consumptive use. The agreement also states that federal and state governments will work together to follow the water allocation guidelines outlined in each project implementation report and appropriate the necessary funds for the implementation of CERP.[8]

Corps Budget. The substantial commitment of federal funds to CERP might limit the federal construction funds and the operation and maintenance funds available for other Corps projects. The Corps' budget is of particular concern because of its current backlog of construction projects and maintenance activities as well as its increased spending on security. Title VI requires that the annual federal budget include under the heading "Everglades Restoration" all proposed funding for the Plan. Title VI also requires that the Corps budget show the total proposed funding for the Plan and an assessment of the Plan's impact on the budget year and long-term funding levels.

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[6] National Research Council. *Aquifer Storage and Recovery in the Comprehensive Everglades Restoration Plan*. February 2001.

[7] General Accounting Office. *Comprehensive Everglades Restoration Plan: Additional Water Quality Projects May Be Needed and Could Increase Costs*. September 2000. (RCED-00-235).

[8] Papers of the Presidents, January 14, 2002, [http://www.access.gpo.gov/nara/nara003.html] .