Annual Assessment of The Everglades

2022 Edition
Volume 5

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Florida Department of Environmental Protection

Food and Resource Economics Department, Institute of Food and Agricultural Sciences, University of Florida

South Florida Ecosystem Restoration Task Force

South Florida Water Management District

U.S. Army Corps of Engineers

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7. The Everglades

The Florida Everglades, famously referred to as the "River of Grass," is a mosaic of sawgrass marshes, freshwater ponds, sloughs, prairies, and forested uplands that supports a diverse plant and wildlife community. The Greater Everglades ecosystem originally encompassed about 9,000,000 acres or 14,000 square miles from central Florida to the Florida Keys.[1] Historically, sheets of freshwater flowed naturally from the Kissimmee chain of lakes to Lake Okeechobee, where its flood waters traveled slowly southward through a variety of low-lying habitat types before finally reaching the Gulf of Mexico, Florida Bay, and Biscayne Bay.

Source: Progress Toward Restoring the Everglades; The Eighth Biennial Review - 2020 (2021)

Because of efforts to drain the marshland for flood control, agriculture, and development, the Everglades today is about half the size it was a century ago.[2] Yet, what remains of the Everglades is still considered one of the most unique ecosystems in the world.[3] The Everglades wetlands provide numerous benefits to South Florida (including water supply, flood control, and

[1] Different calculations exist. The information here relies on the U.S. Army Corps of Engineers in its Overview of the Review Study (the "Restudy") released October 1998 describing conditions in the mid-1800s. *See* Overview: Central and southern Florida project comprehensive review study, October 1998 - Project Management Reports - USACE Digital Library (oclc.org). *See* also Everglades Restoration: Federal Funding and Implementation Progress (congress.gov). (Both documents accessed March 2022.)

[2] *Id.*

[3] § 373.4592(1)(a), Fla. Stat.

recreational opportunities), while serving as a unique habitat for diverse species of wildlife and plant life.[4] The Everglades also provides natural water storage for the environment during drier seasons, serves as an important water recharge area for South Florida, and plays a potentially significant role in the state's climate change response, if managed appropriately.

As a topic, the Everglades continues to be treated separately in this Edition since the quantity and quality of its waters are so intrinsically linked and cannot be classified as exclusively one or the other. This chapter outlines major Everglades restoration plans and identifies historic expenditures related to those initiatives. Further, this Edition continues to build upon the previously used methodology for forecasting the expenditures necessary to complete the Comprehensive Everglades Restoration Plan. Future editions will improve upon this forecast and provide additional expenditure forecasts governing discrete elements of Everglades restoration, including the state's water quality restoration initiatives.

7.1 Historical and Legal Context

To restore and protect the greater Everglades ecosystem, the Florida Legislature established the State of Florida's responsibilities in a series of statutes under chapter 373, Florida Statutes. In addition to authorizing the South Florida Water Management District (SFWMD) to serve as the local sponsor or lead entity for the state's restoration efforts, the Legislature directed the roles and responsibilities of both the Florida Department of Environmental Protection (DEP) and SFWMD for plans or programs authorized under Florida law including the Everglades Forever Act,[5] the Northern Everglades and Estuaries Protection Act,[6] and the Comprehensive Everglades Restoration Plan Regulation Act.[7] An important—but not exclusive—focus of these laws is operationalizing the state-federal partnership for implementation of the Comprehensive Everglades Restoration Plan (CERP).[8]

For a "forward-looking snapshot" of schedules and estimated costs for completing projects that implement CERP and non-CERP Everglades restoration initiatives, see the most recent Integrated Delivery Schedule of the U.S. Army Corps of Engineers (Corps).[9] For a summary of all the South Florida ecosystem restoration activities by state and federal entities for the reporting period of July 1, 2018 through June 30, 2020, see the South Florida Ecosystem Restoration Task 2020 Biennial Report.[10] The major restoration programs that require state or regional funding are discussed below.

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[4] § 373.4592(1), Fla. Stat.
[5] § 373.4592, Fla. Stat.
[6] § 373.4595, Fla. Stat.
[7] § 373.1502, Fla. Stat.
[8] §§ 373.470, 373.1502, Fla. Stat.
[9] U.S. Army Corps of Engineers, Integrated Delivery Schedule, https://www.saj.usace.army.mil/Missions/Environmental/Ecosystem-Restoration/Integrated-Delivery-Schedule/. (Accessed March 2022.) The 2020 Integrated Delivery Schedule is final; the proposed document for 2021 is available as a working draft. *See* also the Fiscal Year 2022 Cross-Cut Budget Request, available at: https://static1.squarespace.com/static/5d5179e7e42ca1000117872f/t/61682d85e6c5e04d088a57e7/1634217349962/FY2022+CrossCut+Budget.pdf. (Accessed March 2022.)
[10] South Florida Ecosystem Restoration Task Force: 2020 Biennial Report, available at: https://static1.squarespace.com/static/5d5179e7e42ca1000117872f/t/6017f7d8bc2f951141e66caa/1612183513940/2020_Biennial_Report.pdf. (Accessed March 2022.)

Comprehensive Everglades Restoration Plan

Congress authorized the Corps to implement phases of the Central and Southern Florida Project for Flood Control (C&SF Project) under the Flood Control Act of 1948[11] and the Flood Control Act of 1954,[12] with subsequent modifications authorized by later acts of Congress. With construction beginning in 1950 and running through the 1970s, the C&SF Project drained areas of the Everglades in order to provide "flood control; water supply for municipal, industrial, and agricultural uses; prevention of saltwater intrusion; water supply for the Everglades National Park (ENP); and protection of fish and wildlife resources."[13] The resulting 1,000 miles of canals, 720 miles of levees, and more than 150 water control structures that collectively made up the massive South Florida water management system severely altered the Everglades ecosystem. The unintended adverse effects on the environment prompted Congress to require the Corps to conduct a reexamination of the C&SF Project in order to develop a comprehensive plan for the restoration, preservation and protection of the South Florida ecosystem, with the objective of protecting the water quality in, and the reduction of the loss of fresh water from, the Everglades.[14]

With the passage of the Water Resources Development Act of 2000 (WRDA 2000), Congress formally designated CERP as the primary framework for all modifications and operational changes to the C&SF Project. The purpose of WRDA 2000 was to provide a coordinated plan for restoring the water resources of central and southern Florida, including the Everglades, while meeting other water-related needs such as water supply and flood protection.[15] Notably, the original authorization by Congress included an "Assurance of Project Benefits" and "Agreement" that stated specifically:

> *The Plan shall be implemented to ensure the protection of water quality in, the reduction of the loss of fresh water from, the improvement of the environment of the South Florida Ecosystem and to achieve and maintain the benefits to the natural system and human environment described in the Plan, and required pursuant to this section, for as long as the project is authorized...[W]ater made available by each project in the Plan shall not be permitted for a consumptive use or otherwise made unavailable by the State until such time as sufficient reservations of water for the restoration of the natural system are made under State law in accordance with the project implementation report for that project and consistent with the Plan.*[16]

The CERP has become the largest hydrologic restoration initiative ever undertaken in the United States.[17] It represents a comprehensive, long-term partnership between the federal government and the State of Florida with a primary focus on the restoration of the water quality, quantity, timing,

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[11] Pub. L. 80-858, § 201, 62 Stat. 1176 (1948).
[12] Pub. L. 83-780, § 203, 68 Stat. 1248, 1257 (1954).
[13] U.S. Army Corps of Engineers, Jacksonville District, Central and Southern Florida (C&SF) Project Fact Sheet, June 2021, https://www.saj.usace.army.mil/About/Congressional-Fact-Sheets-2021/C-SF-Project-C/. (Accessed March 2022.)
[14] Water Resources Development Act of 1996, Pub. L. 104-303, § 601, 110 Stat. 3767, 3768. Congress initially required the restudy in 1992, but became more specific in the 1996 law. Section 528 of the Water Resources Development Act of 1996 also defined the "South Florida ecosystem" as the "area consisting of the lands and waters within the boundary of the South Florida Water Management District, including the Everglades, the Florida Keys, and the contiguous near-shore coastal waters of South Florida."
[15] Public Law 106-541, 114 Stat. 2680, 2681.
[16] *Id.*
[17] According to SFWMD, it is "...the most ambitious and largest environmental restoration program in the world." *See* https://www.sfwmd.gov/sites/default/files/SFWMD_SB2516_Report.pdf.

and distribution within the Everglades ecosystem.[18] The Florida Legislature authorized SFWMD to act as the local sponsor for CERP projects within the district, subject to certain oversight by DEP.[19]

Several projects included in CERP are comprised of multiple components due to their complexity and size. In total, CERP consists of more than 50 projects totaling 68 project components[20] at a present day value in 2019 of $23.2 billion.[21] The federal government is responsible for 50 percent of the overall cost of implementing CERP, although any land acquisition, easements, rights-of-way, and relocations necessary for CERP projects are the responsibility of the State (the amount of which is credited towards the State's share).[22]

While the CERP itself has been approved by Congress as a modification to the C&SF Project, the projects identified therein are only conditionally approved. Those that cannot be approved under the Corps' programmatic authority require federal authorization for the construction before being eligible for federal appropriation.[23] After CERP's approval, Congress authorized a number of specific projects in 2007 and 2014 referred to as "Generation 1 Projects" and "Generation 2 Projects", respectively. In addition, there is a set of previously authorized projects that pre-date CERP, which were assumed to reach completion during the CERP planning period. These projects are referred to as "Foundation Projects" as they were expected to become the foundation underlying CERP's implementation.[24]

Considerable progress has been made toward CERP implementation since 2014. It has been driven in part by the commitment of long-term state funding for Everglades restoration, a push by the state to expedite the implementation of certain restoration activities, and more consistent federal approval of water resource projects within CERP. Regarding the latter issue, Congress approved the Central Everglades Planning Project (CEPP) in 2016, a suite of restoration projects targeting the central Everglades, which is estimated to cost a total of $2.09 billion.[25] A part of CERP, the CEPP is designed to send more water south from Lake Okeechobee.[26] Likewise, in October 2018, the Everglades Agricultural Area (EAA) reservoir was federally authorized as a change to the

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[18] While variations exist, the use and sequencing of the words "quality, quantity, timing, and distribution" in the text match U.S. Army Corps of Engineers, Jacksonville District, Central and Southern Florida (C&SF) Project Fact Sheet, June 2021, available at: https://www.saj.usace.army.mil/About/Congressional-Fact-Sheets-2021/C-SF-Project-C/. (Accessed March 2022.)

[19] § 373.1501, Fla. Stat.

[20] 2020 Central and Southern Florida Project, Report to Congress, Comprehensive Everglades Restoration Plan, at 6, available at: https://www.saj.usace.army.mil/Portals/44/docs/Environmental/Report%20to%20Congress/FINAL_RTC_2015_01Mar16fin-WithLetters-WithCovers-508Compliant.pdf. (Accessed March 2022.) Other documents use a different number of projects depending on their purpose. Of the 69 "Yellow Book" projects listed in the working draft of the 2021 Integrated Delivery Schedule, 20 are listed as Complete or Phase 1 Implemented, with another 4 successfully completed and removed, for a total of 73.

[21] 2020 Central and Southern Florida Project, Report to Congress, Comprehensive Everglades Restoration Plan, at 75, available at: https://legacy-assets.eenews.net/open_files/assets/2020/12/28/document_gw_03.pdf. (Accessed March 2022.) According to this document, the cost estimate increase of $6.78 billion since the prior report in 2015 is due to price level (inflation) adjustment from October 2014 to October 2019, changes in project scope and schedule, and new project authorizations, including CEPP and EAA.

[22] Pub. L. 106-541, § 601, 114 Stat. 2680, 2684.

[23] Pub. L. 106-541, § 601, 114 Stat. 2680, 2683-2684.

[24] South Florida Ecosystem Restoration Task Force, 2020 Biennial Report, at 8, available at: https://static1.squarespace.com/static/5d5179e7e42ca1000117872f/t/6017f7d8bc2f951141e66caa/1612183513940/2020_Biennial_Report.pdf. (Accessed March 2022.)

[25] Pub. L. No: 115-270 (2018). The U.S. Army Corps of Engineers and SFWMD entered into a CEPP South Project Partnership Agreement in July 2020. The projected cost of $2.09 billion reflects the present day value in 2019.

[26] U.S. Army Corp of Engineers, Central Everglades Planning Project Fact Sheet, November 2021, available at https://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll11/id/5416. (Accessed March 2022.)

water storage components of CEPP.[27] This $3.31 billion project will provide additional water storage south of Lake Okeechobee and is intended to reduce high-volume discharges from the lake into the St. Lucie and Caloosahatchee estuaries and restore the hydrological connection to the Everglades.[28]

For the most recent five year-report on the progress of CERP implementation, see the 2020 Central and Southern Florida Project Report to Congress.[29] Subsequent to that report's release, the Corps announced that they will allocate an additional $1.098 billion in funding from the Infrastructure Investment and Jobs Act for specific Everglades projects.[30]

Everglades Forever Act

Beginning well before its direct involvement in CERP and its subsequent federal authorizations, Florida began to carve out a separate state path for the protection of the Everglades.[31] These early efforts were ultimately energized by the federal court's approval of a landmark consent decree in 1992. The consent decree effectively incorporated the settlement agreement between the federal government, the State of Florida, and the SFWMD, which resolved claims brought by the federal government concerning discharges of water with excess phosphorus levels into the Everglades National Park and the Loxahatchee National Wildlife Refuge in violation of the state's own water quality standards. Most importantly, the consent decree required the state parties to construct and operate large freshwater treatment wetlands known as Stormwater Treatment Areas (STAs) to reduce total phosphorus concentrations in surface water runoff before the water is discharged into the Everglades Protection Area. Moreover, it obligated the state to implement a regulatory best management practices (BMP) program in the Everglades Agricultural Area to reduce total phosphorus loads.

Bogged down in a bitter legal and administrative fight over the phosphorus concentration limits and other provisions of the settlement agreement, the Florida Legislature enacted the Everglades Forever Act (EFA) in 1994.[32] The EFA established the state's long-term commitment to restoring and protecting the remaining Everglades ecosystem by improving water quality and water quantity through the implementation of the Everglades Construction Project, source control measures, and a research and monitoring program.[33] The Everglades Construction Project contained 17 projects, with six STAs comprising the primary components. The EFA also required DEP and SFWMD to conduct research in order to propose a numerical Class III phosphorus standard in the Everglades Protection Area, with adoption of a rule by December 31, 2003. Otherwise, a default numerical

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[27] America's Water Infrastructure Act of 2018, Pub. L. No: 115-270 (2018). Note that in 2017, prior to federal authorization, section 373.4598, Florida Statutes, was enacted by the Florida Legislature to establish an expedited schedule for the design and construction of the Everglades Agricultural Area (EAA) reservoir project. The U.S. Army Corps of Engineers and SFWMD entered into a CEPP EAA Project Partnership Agreement in April 2021.
[28] *See* 373.4598, Fla. Stat. The projected cost of $3.31 billion reflects the present day value in 2019.
[29] *See* 2015 – 2020 Momentum: Report to Congress: Comprehensive Everglades Restoration Plan, Central and Southern Florida Project (eenews.net). (Accessed March 2022.) This report covers progress made between July 1, 2015, and June 30, 2020.
[30] *See* Public Law 117-58 (2021) and https://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll6/id/2249 at 2. (Accessed March 2022.)
[31] The Save Our Everglades initiative was first announced in August 1983 by then Governor Bob Graham.
[32] § 373.4592(1)(d), Fla. Stat.
[33] Ch. 94-115, §§ 1-2, Laws of Fla. (codified as amended in § 373.4595, Fla. Stat.).

Class III phosphorus standard of 10 parts per billion (ppb) would become effective.[34] A separate deadline of December 31, 2006, was established for DEP and SFWMD to "take all necessary steps to ensure that water delivered to the Everglades Protection Area achieves state water quality standards, including phosphorus criterion, in all parts of the Everglades Protection Area."[35]

In March 2003, Burns & McDonnell, consultants to SFWMD, found that the Everglades Construction Project had exceeded expectations, but that additional work was necessary to reach the goal of 10 ppb—proffering in lieu of the 2003-2006 period, a proposed planning horizon of 2003-2016. Later that year, the Florida Legislature amended the EFA to incorporate SFWMD's Long-Term Plan for Achieving Water Quality Goals (Long-Term Plan) finding that the plan sets forth the best available phosphorus reduction technology through BMPs and STAs and that it was a good-faith effort to maintain consistency with the settlement agreement.[36,37] The Long-Term Plan consists of a combination of source controls, STAs, Advanced Treatment Technologies, and regulatory programs—all of which were required to be integrated and consistent with CERP so that unnecessary and duplicative costs were avoided.

In 2013, the EFA was amended again to include, as a modification to the Long-Term Plan, the State of Florida and U.S. Environmental Protection Agency's consensus plan on new strategies for improving water quality in the Everglades.[38] Known as the Restoration Strategies Regional Water Quality Plan dated April 27, 2012 (Restoration Strategies), this technical plan includes the creation of 6,500 acres of new STAs and 116,000 acre-feet of additional water storage (flow equalization basins or FEBs) to work in conjunction with existing water quality features to achieve compliance with the state's numeric phosphorus criterion for the Everglades Protection Area.[39]

The cost of implementing the Restoration Strategies is estimated to be $880 million over a 13-year period that began in 2012. Currently, all projects are scheduled to be constructed by December 2025. According to SFWMD, total program expenditures through March 28, 2022, were approximately $492.9 million, with 7 of the 13 scheduled projects already completed by February 28, 2022.[40] By the end of the program, approximately $528 million will have been spent by SFWMD, with the balance provided by the state. To meet its share, the 2013 Legislature dedicated $32 million of annual documentary stamp tax receipts for 11 years (beginning Fiscal Year 2013-14 and ending Fiscal Year 2023-24) to the program. For more detailed information on the status of these projects, see SFWMD's 2022 South Florida Environmental Report, Chapter 5A, Restoration Strategies – Design and Construction Status of Water Quality Improvement Projects.[41]

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[34] *See* page 4 of the Senate Staff Analysis and Economic Impact Statement for CS/SB 626 in 2003 for history. Document on file with EDR.
[35] *See* page 5 of the Senate Staff Analysis and Economic Impact Statement for CS/SB 626 in 2003 for history. Document on file with EDR.
[36] § 373.4592, Fla. Stat.
[37] Florida Administrative Code Rule 62-302.540 establishes the applicable water quality standards for phosphorus within the Everglades Protection Area.
[38] Ch. 2013-59, § 1, Laws of Fla. (amending § 373.4592, Fla. Stat.)
[39] South Florida WMD, Restoration Strategies Regional Water Quality Plan. 2012. Available at: rs_waterquality_plan_042712_final.pdf (sfwmd.gov). (Accessed March 2022.) For additional information, *see also* South Florida WMD, Restoration Strategies for Clean Water for the Everglades, Restoration Strategies for Clean Water for the Everglades | South Florida Water Management District (sfwmd.gov). (Accessed March 2022.)
[40] South Florida Water Management District, Restoration Strategies Program Update (March 2022), available at: RS_Update_2022_03_FINAL.pdf (sfwmd.gov). (Accessed March 2022.) Total expenditures provided by SFWMD; email on file.
[41] Available at: v1_ch5a.pdf (sfwmd.gov). (Accessed March 2022.)

In order to present a forecast of these expenditures in future editions, the Office of Economic and Demographic Research (EDR) will begin working with DEP and SFWMD staff to obtain annual data on program expenditures. This should include identifying regional and state expenditures, as well as information on the completion timeline and updated cost estimates for projects that have yet to be completed. While scheduled to be completed prior to the end of the 2025 calendar year, National Pollutant Discharge Elimination System (NPDES) and EFA permits for the operation of SFWMD's STAs require each STA to meet the Water Quality Based Effluent Limit (WQBEL) to ensure that the State's water quality standard for the Everglades is achieved prior to ending the program.

Northern Everglades and Estuaries Protection Act

In 2007, the Florida Legislature enacted the Northern Everglades and Estuaries Protection Program (NEEPP), which expanded the then-existing Lake Okeechobee Protection Act[42] by substantially amending the provisions related to the protection and restoration of the Lake Okeechobee watershed and incorporating the Caloosahatchee and St. Lucie rivers and estuaries.[43] As part of NEEPP's passage, the Legislature found that it is imperative for the state, local governments, and agricultural and environmental communities to commit to restoring and protecting the surface water resources of the Lake Okeechobee watershed, the Caloosahatchee River watershed, and the St. Lucie River watershed.[44] The Legislature also found that total maximum daily loads (TMDLs) established in accordance with section 403.067, F.S., provided both an appropriate basis and a means of identifying and addressing the pollutants contributing to the water quality problems in the three watersheds. The total projected project cost for the three watersheds was estimated to be $2.7 billion.[45]

In 2016, the Florida Legislature amended NEEPP to designate the Basin Management Action Plans (BMAPs) adopted for Lake Okeechobee (2014), the Caloosahatchee Estuary Basin (2012), and the St. Lucie River and Estuary Basin (2013), as the primary pollution control planning tools for these watersheds. The amendments clarified the roles and responsibilities of SFWMD, DEP, and the Department of Agriculture and Consumer Services in expeditiously implementing the program and shifted primary responsibility for water quality protection measures through the associated BMAPs from SFWMD to DEP.[46]

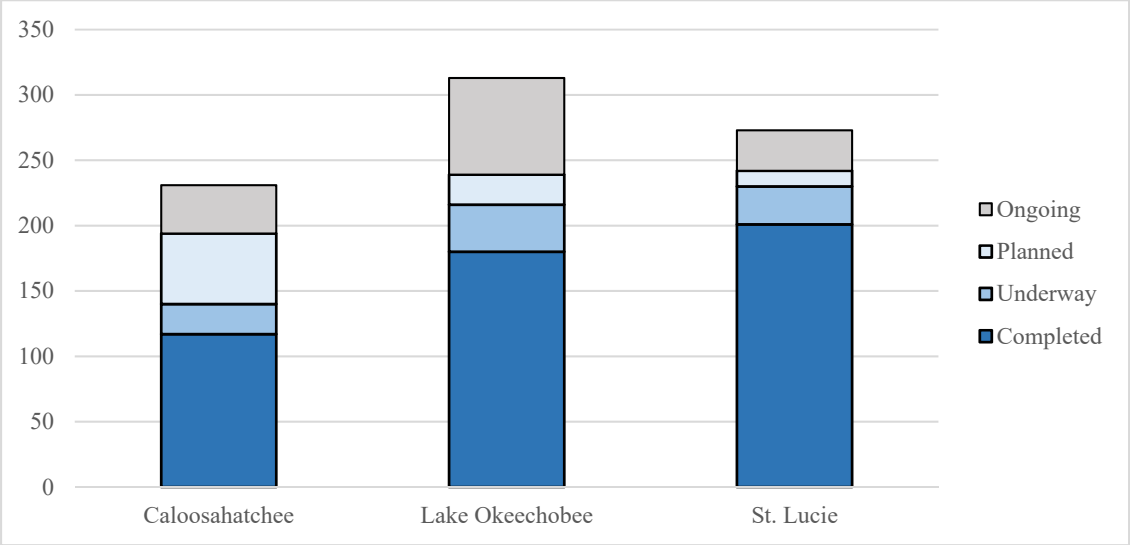
The NEEPP requires these BMAPs to achieve the adopted total maximum daily loads (TMDLs) within 20 years of BMAP adoption with 5-year, 10-year, and 15-year milestones to measure progress. The DEP is also required to conduct a review of each of these BMAPs every five years in order to identify further load reductions that may be necessary to achieve compliance with the applicable TMDLs. The first five-year reviews of the Caloosahatchee Estuary Basin BMAP, the St. Lucie River and Estuary Basin BMAP, and the Lake Okeechobee BMAP were completed in

[42] Ch. 2000-130. Laws of Fla. (amending § 373.4595, Fla. Stat.).
[43] Ch. 2007-253, § 3, Laws of Fla. (amending § 373.4595, Fla. Stat.).
[44] § 373.4595(1)(d), Fla. Stat.
[45] *See* https://www.flsenate.gov/Session/Bill/2007/392/Analyses/20070392SGA_2007s0392.ga.pdf. (Accessed March 2022.)
[46] Ch. 2016-1, § 15, Laws of Fla. (amending § 373.4595, Fla. Stat.). For more information on basin management action plans associated with NEEPP, see DEP, Basin Management Action Plans, available at: https://floridadep.gov/dear/water-quality-restoration/content/basin-management-action-plans-bmaps. For the contemporaneous Senate Bill Analysis and Fiscal Impact Statement for the 2016 revisions, see 2016 S0552 AP (flsenate.gov). (Both documents accessed March 2022.)

December 2017, June 2018, and December 2019, respectively. An update to the Caloosahatchee River and Estuary BMAP was adopted in February 2020, expanding the BMAP area; replacing the original BMAP; incorporating new TMDLs for tributaries to the Caloosahatchee River; and including other components that were recommended in the 5-Year Review. Similarly, an updated BMAP for the St. Lucie River and Estuary was adopted in February 2020, expanding the BMAP area; replacing the original BMAP; and including components that were recommended in the 5-Year Review. Finally, an updated BMAP was also adopted in February 2020 for Lake Okeechobee, replacing the original BMAP for it as well.

According to DEP's statewide annual report (STAR Report) for 2020, the completed projects identified in the Caloosahatchee Estuary BMAP are estimated to achieve 78 percent of the reduction needed[47] to meet the total nitrogen (TN) TMDL allocated to the Caloosahatchee Estuary Basin. For the Lake Okeechobee BMAP, the completed projects in the northern sub-watersheds are estimated to achieve 21 percent[48] of the reduction needed to meet the total phosphorus (TP) TMDL. For the St. Lucie River and Estuary Basin, the completed projects are estimated to achieve 77 percent of the reduction needed to meet the TN TMDL and 49 percent of the reduction needed to meet the TP TMDL.[49] See Figures 7.1.1 ad 7.1.2 for the status of the BMAP projects for the northern Everglades watersheds and progress towards nutrient reduction goals as of December 31, 2020.

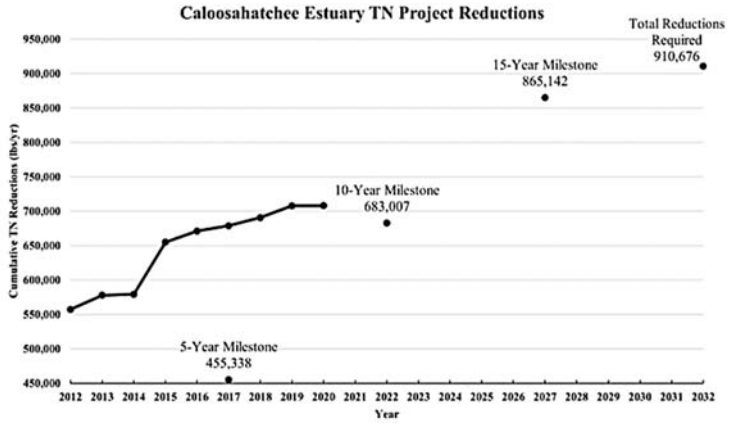
Figure 7.1.1 Status and Count of NEEPP BMAP Projects

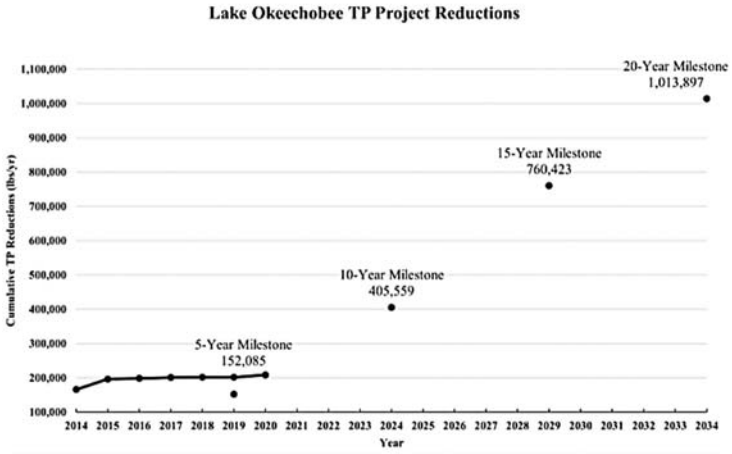


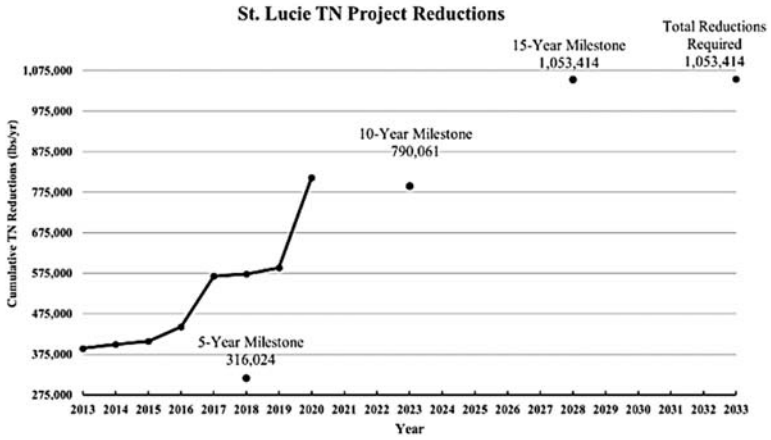
Source: Compiled from the STAR Report's Adopted BMAP Projects data as of December 2020.

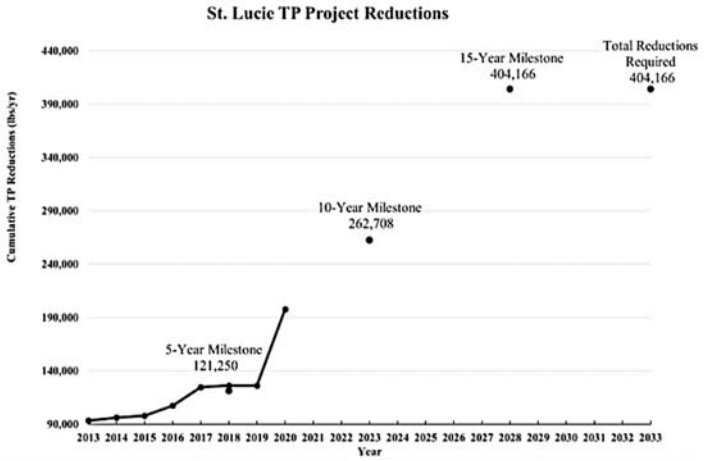
[47] This represents an improvement of 1 percentage point from the 2021 Edition.
[48] This represents a decline of 2.5 percentage points from the 2021 Edition; however, the total phosphorus reduction goal nearly doubled.
[49] These represent a 15 percentage point improvement for the TN TMDL and a 10 percentage point improvement for the TP TMDL relative to the 2021 Edition.

Figure 7.1.2 Progress toward Meeting NEEPP BMAP Nutrient Reduction Goals









Source: Individual BMAP reports for the 3 BMAPs available at: Statewide Annual Report | Florida Department of Environmental Protection.

For more information on the progress of the Caloosahatchee Estuary Basin, St. Lucie River and Estuary Basin, and Lake Okeechobee BMAPs, see DEP's STAR Report for 2020.[50] In future editions of EDR's report, expenditures necessary to complete these particular BMAPs may be isolated from the statewide BMAP implementation analysis presented in Chapter 4. For now, these expenditures are included there.

Comprehensive Everglades Restoration Plan Regulation Act

Passed in 2001, the purpose of the Comprehensive Everglades Restoration Plan Regulation Act (CERPRA)[51] is to provide efficient and effective permitting of all project components. CERPRA permits are issued in lieu of all other permits issued under Chapters 373 and 403, with the exception of NPDES permits. Amended in 2003, the law now requires permit applications to provide reasonable assurances that: "State water quality standards, including water quality criteria and moderating provisions, will be met. Under no circumstances shall the project component cause or contribute to violation of state water quality standards."[52] At this time, no expenditures are included for this function.

Everglades Restoration Investment Act

In 2000, the Legislature passed the Everglades Restoration Investment Act, section 373.470, Florida Statutes, which provided the framework for the state to fund its share of the partnership, through cash or bonds, to finance or refinance the cost of acquisition and improvement of land and water areas necessary for implementing CERP.[53] Among other things, the legislation created the Save Our Everglades Trust Fund to serve as a repository for state, local, and federal project contributions in accordance with section 373.470(4), Florida Statutes. In 2007 and 2008, the Legislature expanded the use of the Save Our Everglades Trust Fund and bonds issued for Everglades restoration to include the Lake Okeechobee Watershed Protection Plan and the River Watershed Protection Plans under the Northern Everglades and Estuaries Protection Program, and the Keys Wastewater Plan.[54] At this time, there are no dedicated revenue sources for this fund.

Lake Okeechobee Watershed Restoration Project

In 2021, the Legislature passed Senate 2516 to expedite the implementation of the Lake Okeechobee Watershed Restoration Project (LOWRP). While it is a CERP eligible project, it has not yet been authorized by Congress for federal funding and cost-share. The first opportunity for this to occur is through the Water Resources Development Act of 2022; however, the state legislation requires SFWMD to take all necessary steps to expedite LOWRP's project design, engineering and construction phases. To accelerate the funding, an annual distribution of $50 million from the state's documentary stamp tax receipts begins in Fiscal Year 2021-22.

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[50] Florida Department of Environmental Protection, 2020 Statewide Annual Report on Total Maximum Daily Loads, Basin Management Action Plans, Minimum Flows or Minimum Water Levels, and Recovery or Prevention Strategies, June 31, 2021, available at: https://floridadep.gov/dear/water-quality-restoration/content/statewide-annual-report. (Accessed March 2022.)
[51] Ch. 2001-172, § 2, Laws of Fla.
[52] Ch. 2003-394, § 19, Laws of Fla.
[53] Ch. 2000-129, § 5, Laws of Fla.
[54] The Keys Wastewater Plan is defined as "the plan prepared by the Monroe County Engineering Division dated November 2007 and submitted to the Florida House of Representatives on December 4, 2007." § 373.470(2)(e), Fla. Stat.

7.2 Everglades Expenditures

The primary sources for Everglades restoration appropriations are the federal government, the State of Florida, and the SFWMD. The share that each of these sources provides for projects varies depending upon the restoration plan or program being implemented. Many of the restoration projects are funded by shares of federal and state funding, with the state funding including SFWMD. As such, distinguishing between state and regional expenditures on Everglades restoration can be challenging. In this section, state and regional expenditures are largely reported together.

Federal Expenditures on Everglades Restoration

Federal funding for Everglades restoration is provided through the Corps and the U.S. Department of the Interior. EDR received data from SFWMD which breaks down historic CERP expenditures by year and government entity. Under CERP, the federal government is required to fund half of the total cost of implementing CERP projects. Over the history of the program, the federal government has spent just under 44 percent of the total expenditures to implement CERP. Table 7.2.1 shows the annual federal expenditures on CERP through September 30, 2020.

Table 7.2.1 Federal Expenditures on CERP (in $millions)

	FFY 99-00	FFY 00-01	FFY 01-02	FFY 02-03	FFY 03-04	FFY 04-05	FFY 05-06	FFY 06-07	FFY 07-08	FFY 08-09	FFY 09-10
Real Estate	$-	$-	$-	$-	$38.08	$-	$-	$-	$-	$41.02	$0.06
Design	$1.32	$10.61	$21.43	$30.69	$40.64	$49.59	$49.17	$57.00	$48.43	$48.46	$51.27
Construction	$-	$-	$-	$-	$-	$-	$-	$-	$-	$-	$10.19
Studies	$-	$0.38	$1.58	$1.24	$1.38	$1.30	$1.83	$0.10	$0.49	$1.08	$0.21
Total	**$1.32**	**$10.99**	**$23.00**	**$31.92**	**$80.11**	**$50.89**	**$51.01**	**$57.10**	**$48.92**	**$90.56**	**$61.73**

	FFY 10-11	FFY 11-12	FFY 12-13	FFY 13-14	FFY 14-15	FFY 15-16	FFY 16-17	FFY 17-18	FFY 18-19	FFY 19-20
Real Estate	$0.03	$0.03	$0.06	$0.01	$0.00	$71.59	$0.00	$0.10	$0.02	$-
Design	$46.60	$37.42	$34.41	$23.34	$19.57	$17.98	$21.82	$21.85	$28.87	$36.10
Construction	$47.15	$67.29	$68.28	$50.36	$43.24	$32.21	$43.83	$52.12	$69.11	$75.32
Studies	$0.29	$0.12	$0.01	$0.01	$-	$-	$0.02	$-	$-	$-
Total	**$94.07**	**$104.86**	**$102.75**	**$73.72**	**$62.81**	**$121.78**	**$65.67**	**$74.07**	**$98.00**	**$111.42**

Note: Historical values in this table may be updated annually as additional data becomes available. Data in this table supersedes that reported in previous editions.

While the federal government has expended nearly $1.42 billion on CERP-related projects during this period, its total known obligation is slightly higher—approximately $1.61 billion. This addition would raise its percentage to nearly 47 percent, assuming the state dollars are constant.

In addition to CERP expenditures, the SFWMD provided running totals of expenditures for certain non-CERP Everglades restoration activities. Table 7.2.2 shows the cumulative non-CERP total federal expenditures on Everglades Restoration. EDR will work with district staff to determine annual expenditures and progress where applicable.

Table 7.2.2 Non-CERP Federal Expenditures on Everglades Restoration (in $millions)

Modified Water Deliveries to Everglades National Park	$394.8
Critical Projects	$88.9
Kissimmee River Restoration	$402.5
Herbert Hoover Dike	$1,506.2
Central and South Florida Project (Non-CERP)	$825.5
Total	**$3,217.9**

Source: Integrated Delivery Schedule 2021 Update (Final Draft). Values are cumulative totals as of September 30, 2020.

State and Regional Expenditures on Everglades Restoration

The State of Florida has spent more than $1.43 billion for projects related to Everglades restoration over the most recent ten fiscal years. These expenditures are largely included in the reported state expenditures for water quality restoration projects and initiatives in Chapter 2.[55] Table 7.2.3 shows the annual cash expenditures for various projects or initiatives related to Everglades restoration. The majority of the funding (shown in the "Everglades Restoration" row) is for projects that support CERP and Restoration Strategies.

Table 7.2.3 State Expenditures for Everglades Restoration (in $millions)

	FY11-12	FY12-13	FY13-14	FY14-15	FY15-16	FY16-17	FY17-18	FY18-19	FY19-20	FY20-21
Everglades Restoration	$27.54	$26.60	$54.77	$39.12	$82.86	$121.89	$148.38	$257.29	$219.32	$262.74
Land Acquisition	$-	$-	$-	$-	$0.05	$6.52	$22.61	$14.52	$3.80	$0.11
Florida Keys Wastewater Treatment	$-	$-	$39.16	$10.72	$26.20	$6.23	$6.01	$10.49	$1.19	$-
Lake Okeechobee Agricultural Projects	$-	$-	$-	$4.72	$6.65	$5.72	$7.53	$6.53	$7.48	$3.64
Total	**$27.54**	**$26.60**	**$93.92**	**$54.56**	**$115.77**	**$140.37**	**$184.53**	**$288.83**	**$231.79**	**$266.49**

State funding sources for Everglades restoration projects have included General Revenue, trust fund balances, and bond proceeds. Prior law had authorized the issuance of bonds to finance or

[55] *See* Table 2.3.4. The numbers vary slightly due to different data pulls.

refinance the cost of Everglades restoration from Fiscal Year 2002-03 through Fiscal Year 2019-20 in an amount not to exceed $100 million per fiscal year except under certain conditions.[56] This authorization is no longer effective. Prior to its expiration, the state had issued approximately $336.8 million of Everglades bonds. The most recent year that new bonds were authorized was Fiscal Year 2014-15, when the Legislature authorized bonds of up to $50.0 million for the purpose of constructing sewage collection, treatment, and disposal facilities located within the Florida Keys Area of Critical State Concern.[57]

The aggregate principal amount of outstanding bonds is currently $141.82 million, with net debt service of approximately $22.7 million due in Fiscal Year 2021-22. The debt service is expected to generally decline each year through Fiscal Year 2034-35, at which time the Everglades bonds would be retired. Table 7.2.4 shows the estimated debt service that will be due each fiscal year.

Table 7.2.4 Everglades Restoration Bonds Outstanding Debt Service (in $millions)

	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 28-29
Principal	$16.39	$17.18	$18.03	$18.94	$13.28	$13.90	$7.88	$8.17
Interest	$6.31	$5.51	$4.65	$3.75	$2.83	$2.22	$1.59	$1.30
Outstanding Debt Service	$22.69	$22.69	$22.68	$22.69	$16.11	$16.12	$9.46	$9.47

	FY 29-30	FY 30-31	FY 31-32	FY 32-33	FY 33-34	FY 34-35	FY 35-36	Total
Principal	$5.94	$6.15	$6.38	$3.10	$3.20	$3.32	$0.00	**$141.82**
Interest	$0.99	$0.78	$0.55	$0.33	$0.23	$0.12	$0.00	**$31.17**
Outstanding Debt Service	$6.93	$6.93	$6.93	$3.43	$3.43	$3.43	$0.00	**$172.99**

The Everglades bonds have been issued on a parity basis with Florida Forever bonds, which means both bond programs have a first lien on pledged revenues (*i.e.*, Documentary Stamp Tax). The debt service is paid from the Land Acquisition Trust Fund for both Florida Forever bonds and Everglades bonds.

Similar to the federal expenditure data above, SFWMD provided data on annual CERP expenditures by itself and the state through September 30, 2020. Over the history of the program, the state and regional governments have contributed just over 56 percent of the total expenditures or nearly $1.83 billion. Table 7.2.5 details the complete history of state and regional expenditures on CERP.

[56] § 215.619, Fla. Stat. Specifically, § 215.619(1)(a), Fla. Stat, authorized bonds to exceed $100 million per fiscal year if DEP requested additional amounts to achieve cost savings or accelerate the purchase of lands, or the Legislature authorized additional bonds to fund the Florida Keys and Key West Areas of Critical State Concern.
[57] Specific Appropriation 1626A, ch. 2014-51, Laws of Fla. (Fiscal Year 2014-15 General Appropriations Act).

Table 7.2.5 State/SFWMD CERP Expenditures for Everglades Restoration (in $millions)

	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09
Real Estate	$-	$-	$-	$-	$-	$75.39	$-	$-	$-	$-	$508.99
Design	$0.58	$1.88	$9.62	$17.83	$31.62	$41.67	$64.83	$105.42	$66.29	$59.63	$33.43
Construction	$-	$-	$-	$-	$0.02	$0.82	$2.00	$0.47	$12.81	$0.78	$0.11
Studies	$-	$-	$0.09	$0.94	$1.95	$1.91	$1.37	$1.35	$3.19	$1.42	$0.31
Total	**$0.58**	**$1.88**	**$9.71**	**$18.77**	**$33.58**	**$119.79**	**$68.20**	**$107.25**	**$82.28**	**$61.83**	**$542.83**

	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18*	18-19*	19-20*
Real Estate	$-	$1.64	$1.06	$4.61	$0.55	$0.41	$518.57	$-	$-	$-	$0.03
Design	$22.02	$16.90	$8.37	$10.31	$8.70	$7.61	$9.49	$14.65	$-	$-	$-
Construction	$2.53	$2.51	$1.48	$3.83	$1.65	$32.53	$42.19	$66.82	$-	$-	$-
Studies	$0.07	$0.04	$0.05	$0.04	$0.01	$-	$-	-$0.02	$-	$-	$-
Total	**$24.62**	**$21.09**	**$10.96**	**$18.79**	**$10.92**	**$40.55**	**$570.25**	**$81.45**	**$-**	**$-**	**$0.03**

Note: Historical values in this table may be updated annually as additional data becomes available. Data in this table supersedes that reported in previous editions.
*Full expenditure values for these years are not included because the Corps is still in the process of reviewing the district's final expenditure reports for official cost-share purposes.

In addition to CERP expenditures, SFWMD provided EDR with running totals of expenditures for non-CERP Everglades restoration activities. Table 7.2.6 shows the cumulative non-CERP total state and regional expenditures for Everglades restoration. EDR will work with district staff to determine annual expenditures and progress, where applicable.

Table 7.2.6 State/SFWMD Non-CERP Expenditures for Everglades Restoration (in $millions)

Critical Projects	$88.2
Kissimmee River Restoration	$396.5
Herbert Hoover Dike	$100.0
Restoration Strategies & Everglades Construction Project	$2,041.6
Central and South Florida Project (Non-CERP)	$225.1
Total	**$2,851.4**

Source: Integrated Delivery Schedule 2021 Update (Final Draft). Values are cumulative totals as of September 30, 2020.

Expenditures Necessary to Comply with Laws and Regulations Governing CERP

When CERP was originally authorized in 2000, it was estimated that it would cost $8.2 billion and take 30 years to complete.[58] This cost was updated in 2019 to $23.2 billion.[59] A portion of the increase since 2014 (estimated at the time to be $16.4 billion) is primarily related to the inclusion of two additional projects: the $2.09 billion ($2019) Central Everglades Planning Project (CEPP) and the $3.31 billion ($2019) Everglades Agricultural Area (EAA) Storage Reservoir. Adjusting the 2019 present value for an additional year of inflation results in a total implementation cost of $23.47 billion in September 2020. Summing the CERP expenditure totals from Tables 7.2.1 and 7.2.5 results in a total of $3.24 billion spent through September 30, 2020, leaving $20.23 billion remaining. Over the most recent five years (Fiscal Year 2015-16 to Fiscal Year 2019-20), total expenditures have averaged nearly $225 million per year, suggesting that CERP would require an additional 90 years to reach full implementation. This inordinate length of time would be detrimental to the success of the underlying restoration efforts, as well as impede any reversal of the ongoing ecosystem degradation.[60] According to the 2018 Seventh Biennial Review of Everglades Restoration by the National Academies of Science, Engineering, and Medicine: "Funding for Everglades restoration remains an important constraint on achieving a rate of progress that would be consistent with the original vision for the CERP." Similarly, the Everglades Report Card produced by the Comprehensive Everglades Restoration Plan (CERP) REstoration COordination and VERification (RECOVER) program states:

> *The key finding of the 2012–2017 Everglades Report Card is that ecosystem health is in fair condition. Everglades' ecosystems are vulnerable to further ecological degradation and is providing minimal ecosystem functions. Essential ecological functions are degraded and unsustainable, leading to inadequate habitats for plants and animals. The overall condition is an area-weighted average of the four sub-region scores. The Southern Coastal Systems scored poorly while Lake Okeechobee, Northern Estuaries, and Greater Everglades scored fair.*[61]

If the original 30 year goal were to be met by 2030, total annual expenditures would need to increase nearly tenfold to a total of approximately $2.2 billion per year. If the more acknowledged alternative goal of 2050 were to be met,[62] annual expenditures would need to more than triple to $696 million per year. These costs would be shared approximately 50-50 between the federal

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[58] Everglades Restoration: Federal Funding and Implementation Progress. Congressional Research Service. Available at: Everglades Restoration: Federal Funding and Implementation Progress (congress.gov). This differs from the Overview of the Review Study (the "Restudy") released in October 1998 by the Corps which indicated a cost of $7.8 billion and 20 years to completion. *See*: Overview: Central and southern Florida project comprehensive review study, October 1998 - Project Management Reports - USACE Digital Library (oclc.org). (Both documents accessed March 2022.)

[59] 2020 Central and Southern Florida Project, Report to Congress, Comprehensive Everglades Restoration Plan, at 75, available at: 2015 – 2020 Momentum: Report to Congress: Comprehensive Everglades Restoration Plan, Central and Southern Florida Project (eenews.net). (Accessed March 2022.)

[60] Progress Toward Restoring the Everglades: The Eighth Biennial Review – 2020. National Academies of Sciences, Engineering, and Medicine. National Academic Press. Available at: Everglades 2021 4-Pager-2.pdf (nationalacademies.org). (Accessed March 2022.) Also see "Everglades: The catalyst to combat the world's water crisis," Colonel Alfred A. Pantano, Jr., Master's Thesis (2009), U.S. Army War College.

[61] *See* https://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll7/id/11519. (Accessed March 2022.)

[62] *See* Congressional Research Service, Recent Developments in Everglades Restoration, September 28, 2021 (stating that CERP will take approximately 50 years [from 2000] to implement), available at: https://crsreports.congress.gov/product/pdf/IF/IF11336. (Accessed March 2022.)

government and the state of Florida, including the South Florida Water Management District. If Florida accelerates the pace of its spending to meet a 30- or 50-year goal, it is unlikely—based on history—that the federal government would accelerate its funding in tandem. However, if the state advances the full cost, it runs the risk that such funds would not be reimbursed.

7.3 Next Steps and Recommendations

Future editions of this report will continue to refine the forecast of expenditures necessary to complete CERP. Additionally, EDR will work with DEP and SFWMD staff to produce a forecast of the expenditures necessary to implement non-CERP Everglades restoration projects required by law. These include the state's water quality initiatives in the Restoration Strategies and the updated BMAPs for the Caloosahatchee River, St. Lucie River, and Lake Okeechobee watersheds.

At this time, EDR has no formal recommendations for legislative consideration regarding Everglades restoration.