2015 INTEGRATED FINANCIAL PLAN

PURPOSE

In 1996 Congress directed the Task Force to prepare an Integrated Financial Plan (IFP) for the restoration, preservation, and protection of the South Florida Ecosystem. The IFP is updated annually and posted on the South Florida Ecosystem Restoration Task Force website http://www.sfrestore.org/documents/index.html. Every two years it accompanies the Task Force Strategy and Biennial Report (Volume 1) as Volume 2 (Coordinating Success/Tracking Success). The last combined report was published in June 2014.

The purpose of the IFP is to provide detailed information about the federal, state, tribal, and local restoration projects that contribute towards the accomplishment of the vision, goals, subgoals, and objectives of the Task Force strategy for restoration of the South Florida Ecosystem.

BACKGROUND

The overall premise of restoration is that the ecosystem must be managed from a broader system-wide perspective. Rather than dealing with issues independently, the challenge is to seek out the interrelationships that exist between all the components of the ecosystem. The same issues that are critical to the natural environment — getting the water right and restoring, preserving, and protecting diverse habitats and species — are equally necessary in maintaining a quality built environment and lifestyle for south Florida's residents and visitors.

The success of this comprehensive approach depends upon the coordination and integration of hundreds of individual restoration projects carried out by various agencies at all levels of government with the input of many stakeholders. Each agency brings its own authority, jurisdiction, capabilities, and expertise to the overall initiative and applies them through their respective individual programs, projects, and activities.

CRITERIA AND ASSUMPTIONS

The IFP is the compilation of project specific information provided by the members of the Task Force. It is important to note that the cost estimating protocols, fiscal year cycles, time frames and methodologies used by each member varies. As such, the IFP reflects criteria and assumptions specific to that reporting Task Force entity and does not follow a single format. Specific criteria and assumptions for each project are annotated with footnotes.

For policy reasons, the Florida Department of Environmental Protection (FDEP) and the South Florida Water Management District (SFWMD) do not make individual project cost projections related to future non- Comprehensive Everglades Restoration Plan (CERP) land acquisitions for habitat preservation and conservation purposes listed under the Task Force Goal 2. The cost of lands already purchased for habitat preservation and conservation purposes are the actual costs. An estimate of future land costs for non-CERP Goal 2 land acquisition is provided as a Total Cost Estimate found within this report.

The following criteria and assumptions apply to all of the project financial information, as provided, in this Task Force 2015 Integrated Financial Plan:

- Federal agencies and the SFWMD operate and report financial activities on an October 1 to September 30 fiscal year, while other State of Florida agencies operate on a July 1 to June 30 fiscal year.
- The U.S. Army Corps of Engineers (USACE), in seeking project authorization, utilizes current year dollars in developing detailed cost estimates for authorizing documents. The costs reflected in this document were derived in the following manner. These costs are inflated using the Office of Management and Budget (OMB) inflation indices as of October 1, 2011.

CERP

For projects where a decision document has not yet been initiated, an estimated cost was derived from the CERP Yellow Book (1999) and inflated to current day dollars. It is important to note that the original project estimates acknowledged that the final methodology to reach the goal would vary and that the actual real estate footprint was still an unknown.

The Project Implementation Report (PIR) is the primary decision document used to obtain approval and/or authorization of CERP projects. Project cost estimates are revised and updated during the PIR development. Once a PIR is approved, the estimated cost contained in the PIR is the new estimated project cost.

For pilot projects a Pilot Project Design Report (PPDR) is completed instead of a PIR and contains similar cost information to that in a PIR.

Central & Southern Florida (C&SF) Projects:

Other previously authorized Central & Southern Florida (C&SF) projects including C-111 (South Dade), West Palm Beach STA 1 East/C-51 West; the Everglades and South Florida Ecosystem Restoration (E&SF) Critical Projects Projects; Kissimmee River Restoration, and Herbert Hoover Dike have been reported in 2011 dollars.

- The SFWMD project costs are reported as follows:

a) Lake Okeechobee Protection Plan – Directed in the Northern Everglades and Estuaries Protection Act, the SFWMD updated the Lake Okeechobee Protection Plan (LOPP) in 2011 for operation and maintenance of current (existing) projects and implementation of the next phase of "near-term" projects (2011-2013) are estimated to be $92.6 million. This estimate was calculated using 2010 dollars and adjusted using a 3.5 percent inflation rate from 2011 to 2013. Cost estimates for subsequent phases will be developed in the future.

    - The Long-Term Phase of the LOPP includes the CERP Lake Okeechobee watershed project. The plan assumes that the cost for non-CERP features will be primarily borne by the SFWMD and the State, while CERP costs are eligible for up to fifty percent cost share with the federal government. It is important to note that the SFWMD expedited a portion of the CERP Lake Okeechobee Watershed Project (specifically Lakeside Ranch Stormwater Treatment Area Phase I) ahead of federal authorization in order to achieve environmental benefits earlier.
      Expediting Phase II of this project is dependent upon continued State and SFWMD funding in advance of federal appropriation.

- In general, non-CERP costs include dispersed water management projects, Lake Okeechobee Protection Plan Phosphorus Source Control projects, Hybrid Wetland Treatment Technology projects, local government initiatives, implementation of BMPs throughout the entire Lake Okeechobee watershed, and ongoing in-lake restoration activities, monitoring, research, and exotics removal.

b) Long Term Plan and Expedited Projects – Project cost estimates are updated as each project progresses through the design process. Each updated cost estimate is reported as the present day value at the time the estimate is performed. Contingencies are included in each estimate with larger contingencies (30%) used during early stages of the design phase and smaller contingencies (10%) used at the final design phase. The contingencies are intended to account for cost escalation due to inflation.

- Reporting agencies needed to presume annual levels of Congressional and State of Florida appropriations to develop project completion schedules. If the actual appropriations vary from presumed levels, then project completion schedules and estimated projects costs may change.
- Federal project execution is contingent upon Administration priorities and subject to available appropriations.
- The Project Summary Table and IFP do not include operational costs or agency programmatic costs that would be incurred regardless of the restoration initiative. For example, the National Park Service costs to operate and maintain Everglades National Park, Fish and Wildlife Service costs to provide for Endangered Species Act consultation and USACE and SFWMD costs to operate and maintain water delivery infrastructure are not included herein.
- The Project Summary Table and IFP do not include the costs of land development and associated infrastructure as well as infrastructure improvements in existing urban areas including but not limited to redeveloping declining urban areas, wastewater and storm water management systems construction and improvements, schools, roadways, utilities, government services, and light rail.
- The Project Summary Table and IFP do not include any costs or future resource needs projected for environmental and system-wide monitoring programs (for example, the $100 million funded over 10 years for the CERP monitoring programs is not included).
- The Project Summary Table and IFP do not include any post-construction operations and maintenance costs in the total financial requirement, except where stated in individual project sheets or footnoted in the Project Summary Table.

Goals	SP Project Number	Project Name	Lead Agency	Start	End	Financial Requirement	Appropriated thru FY13	Measurable Output	Primary Objective	Secondary Objective(s)	Pg #
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Col. 12
GOAL 1. GET THE WATER RIGHT											
1.A.1		**SURFACE WATER STORAGE PROJECTS**						**ACRE-FT.**			
	1101	C&SF: CERP Indian River Lagoon-South [C-23/C-24/C-25/North Fork and South Fork Storage Reservoirs (UU P1 & UU P2), and C-44 Basin Storage Reservoir (B)] (CERP Project WBS # 07)	USACE/SFWMD	2002	TBD	$4,029,099,000	$574,699,283	130,000	1.A.1	1.B.1 /2.A.3	23
	1102	C&SF: CERP Everglades Agricultural Area Storage Reservoirs (G P1 & G P2)	USACE/SFWMD	2010	TBD	$749,117,000	$26,742,209	360,000	1.A.1		35
	1103	C&SF: CERP Central Everglades Planning Project (CEPP)	USACE/SFWMD	2001	TBD	$10,519,000	$8,280,000		1.A.1	1.A.3	37
	1104	C&SF: CERP Lake Okeechobee Watershed (A, W; OPEs: LOWQTF, LOTSD, LIRS) (CERP Project WBS # 01 and 02)	USACE/SFWMD	2001	TBD	$2,093,135,000	$43,139,000	272,823	1.A.1	1.B.1/2.A.3	39
	1105	C&SF: CERP North Lake Belt Storage Area (XX P2) (CERP Project WBS # 25)	USACE/SFWMD	TBD	TBD	$610,223,000	$0	90,000	1.A.1		44
	1106	C&SF: CERP Palm Beach County Agriculture Reserve Reservoir - Part 1 (VV P1) (CERP Project WBS # 20)	USACE/SFWMD	2006	TBD	$141,644,987	$1,377	20,000	1.A.1		46
	1107	C&SF: CERP Site 1 Impoundment (M P1) a/k/a Site 1 Impoundment (Fran Reich Preserve) (CERP Project WBS # 40)	USACE/SFWMD	2004	TBD	$309,903,000	$81,207,000	13,280	1.A.1	2.A.3	47
	1109	C&SF: CERP C-43 Basin Storage Reservoir --Part 1 (D P1) [Caloosahatchee River (C-43) West Basin Storage Reservoir (PIR #1); Caloosahatchee Watershed (PIR #2)] (CERP Project WBS # 04)	USACE/SFWMD	2001	TBD	$649,423,000	$39,507,589	170,000	1.A.1		51
	1110	C&SF: CERP Central Lake Belt Storage Area (S); Flows to Eastern Water Conservation Ares (EEE - previously WBS #23).	USACE/SFWMD	TBD	TBD	$1,198,504,000	$0	190,000	1.A.1	1.B.1	58
	1111	E&SF: Critical Projects - Ten Mile Creek	USACE/SFWMD	1997	2014	$57,000,000	$49,670,020	6,000	1.A.1	2.A.3	60
	1113	C&SF: CERP Water Preserve Area Conveyance (XX P1) (CERP Project WBS # 49)	USACE/SFWMD	2002	TBD	$447,340,594	$227,451	90,000	1.A.1		63
	1114	C&SF: CERP Everglades National Park Seepage Management (V) (FF) (BB) (U) (CERP Projects WBS # 27 and # 43)	USACE/SFWMD	2004	2016	$549,905,000	$3,034,037	11,500	1.A.1		64
	1115	C&SF: CERP North Palm Beach County-- Part 1 (X) (Y) (GGG) (K P1) (OPE) (CERP Project WBS # 17) (Formerly Project ID 1503)	USACE/ SFWMD	2001	TBD	$732,157,000	$18,107,000	46,000	1.A.1		64

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	1116	C&SF: CERP Broward County (WPA) Water Preserve Areas (R) (Q) (O) [Broward County WPA - C-9 Impoundment (R) and Westerm C-11 Diversion Impoundment and Canal (Q) and Water Conservation Areas 3A and 3B Levee Seepage Management (O)] (CERP Project WBS # 45) (Formerly Project ID 1501)	USACE/ SFWMD	2002	2023	$1,081,212,000	$27,187,000	11,648	1.A.1	2.A.3	72
	2100	Allapattah Flats/Ranch	FDEP	1997	TBD	Footnote 1	Footnote 1	32,000	1.A.1	2.A.1	
		Closed Projects									
	1112	Taylor Creek Reservoir – Expedited Project – The SFWMD is implementing as part of Northern Everglades Project	SFWMD	2005	2010	$3,685,505	$3,685,505	0	1.A.1		529
1.A.2		**ALTERNATIVE WATER STORAGE SYSTEMS PROJECTS**						**BGD**			
	1200	C&SF: CERP North Palm Beach County - Part 2 (LL) (K P2) (CERP Project WBS # 18)	USACE/SFWMD	TBD	TBD	$303,103,000	$18,076,694	0.220	1.A.2		75
	1201	C&SF: CERP Lake Okeechobee ASR (GG P1, GG P2, GG P3) (CERP Project WBS # 03)	USACE/SFWMD	TBD	TBD	$2,003,131,000	$23,065,306	1.000	1.A.2		77
	1202	C&SF: Hillsboro ASR Phase 2 (M P2) (CERP Project WBS # 22)	USACE/SFWMD	TBD	TBD	$176,608,000	$8,150,125	0.150	1.A.2		79
	1203	C&SF: CERP ASR Regional Study (CERP Project WBS # 44)	USACE/SFWMD	2003	2015	$25,271,000	$25,200,000		1.A.2		81
	1204	C&SF: CERP PBC Agriculture Reserve Aquifer Storage & Recovery -- Part 2 (VV P2) (CERP Project WBS # 21)	USACE/SFWMD	TBD	TBD	$78,919,000	$0	0.075	1.A.2		84
	1205	C&SF: CERP C-43 Basin Aquifer Storage and Recovery (ASR) (D P2) Caloosahatchee River Aquifer Storage and Recharge Project (C-43ASR) (CERP Project WBS # 05)	USACE/SFWMD	TBD	TBD	$375,935,000	$0	0.220	1.A.2		86
		Inactive Projects									
	1206	Seminole Tribe Brighton Reservation Aquifer Storage and Recovery (ASR) Pilot Project	SFWMD/Seminoles	2007	2017	$2,500,000	$450,000		1.A.2		
	1207	Taylor Creek Aquifer Storage and Recovery (ASR) Project	SFWMD	2006	2017	$2,000,000	$850,000		1.A.2		
	1208	Fisheating Creek Feasibility Study	SFWMD/State of Florida	2008	2015	$1,036,230	$792,921		1.A.2		

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1.A.3.		**MODIFY IMPEDIMENTS TO SHEETFLOW PROJECTS**						**MILES MODIFIED**			
	1300	C&SF: C-111 (South Dade)	USACE/SFWMD	1994	2017	$360,599,000	$258,228,000	4.75	1.A.3	3.B.1	88
	1301	C&SF: CERP WCA -3 Decompartmentalization and Sheetflow Enhancement (AA) (QQ P1 & QQ P2) (SS) (ZZ) (CERP Projects WBS # 12, # 13 and # 47)	USACE/SFWMD	2001	TBD	$163,395,000	$28,509,000	240	1.A.3		93
	1303	E&SF: Critical Projects Southern CREW Project Addition/ Imperial River Flowway (also CERP OPE) Southern CREW	USACE/SFWMD	1999	2015	$40,004,032	$1,356,837		1.A.3	2.A.3	96
	1306	Kissimmee River Restoration Project	USACE/SFWMD	1994	2019	$711,853,860	$607,109,706	31	1.A.3	2.A.3	98
	1307	Modified Water Deliveries to Everglades National Park (Footnote 3)	NPS	1990	2016	$414,864,000	$414,864,000	21	1.A.3	2.A.3	102
	1308	E&SF: Critical Projects Tamiami Trail Culverts Additional Water Conveyance Structures under Tamiami Trail (Formerly Project ID 1400)	USACE/SFWMD	1998	TBD	$5,244,255	$3,574,969	16	1.A.3		110
	1309	Tamiami Trail Modifications: Next Steps (f/k/a Tamiami Trail 2 or Enabling Northeast Shark River Slough Restoration SFO –"support for others" (DOI))	DOI/USACE	2009	TBD	$147,475,000	$216,631		1.A.3		112
	1310	C&SF: CERP Southern CREW Project Addition/ Imperial River Flowway (also CERP OPE) Southern CREW	USACE/SFWMD	TBD	TBD	$57,903,814	$0		1.A.3	2.A.3	117
	1520	Long-Term Plan for Achieving Everglades Water Quality Goals (Formerly project ID 1723)	SFWMD	2004	2016	$2,100,000,000	$1,060,155,355		1.B.1	1.A.3	118
		Completed Projects									
	1305	Kissimmee Prairie	FDEP/ SFWMD	1996	1997	Footnote 1	Footnote 1	38.3	1.A.3	2.A.1	
		Inactive Projects									
	1302	C&SF: CERP Florida Keys Tidal Restoration (OPE) (CERP Project WBS # 31)	USACE/SFWMD	2001	TBD	$18,926,335	$1,395,748	0.6	1.A.3		99
		OTHER RELATED HYDROLOGY PROJECTS									
	1401	Biscayne Bay Feasibility Study	USACE/M-DADE	1996	TBD	$210,942,115	$23,748,784				118
	1403	C&SF: CERP Broward County Secondary Canal System (CC) (CERP Project WBS # 24)	USACE/SFWMD	TBD	TBD	$26,235,695	$62,068				119
	1408	C&SF: CERP Loxahatchee National Wildlife Refuge Internal Canal Structures (KK) (CERP Project WBS # 14)	USACE/SFWMD	TBD	TBD	$14,191,660	$49,426				120
	1409	C&SF: CERP Seminole Tribe Big Cypress Water Conservation Plan (CERP Project WBS # 96)	USACE/Seminole Tribe	TBD	2016	$62,161,193	$53,234,768				121
	1412	C&SF: CERP WCA 2B Flows to Everglades National Park (YY) (CERP Project WBS # 48)	USACE/SFWMD	TBD	TBD	$137,530,592	$284,370				124

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	1419	C&SF: CERP Lake Okeechobee Regulation Schedule (LORS)	USACE/SFWMD	TBD	TBD	TBD	$0				125
	1420	C&SF: CERP Modify Holey Land Wildlife Management Area Operation Plan (DD) (CERP Project WBS # 15)	USACE/SFWMD	TBD	TBD	$0	$0				126
	1421	C&SF: CERP Modify Rotenberger Wildlife Management Area Operation Plan (EE) (CERP Project WBS # 16)	USACE/SFWMD	TBD	TBD	$0	$0				127
	1422	C&SF: CERP Modifications to Southern L-31N and C-111 (OO) F/k/a Operational Modification to Southern Portion of L-31N and C-111 (OO)	USACE/SFWMD	TBD	TBD	$0	$0				128
	1423	C&SF:CERP Hillsboro Aquifer Storage and Recovery Pilot A/k/a Hillsboro ASR (CERP Project WBS # 34)	USACE/SFWMD	2001	2013	$8,146,967	$3,142,413				129
	1425	E&SF: Critical Projects - Seminole Tribe Big Cypress Water Conservation Plan	Seminole Tribe/ USACE	1997	2016	$60,000,000	$50,247,754				134
	1431	C&SF: CERP Southwest Florida Feasibility Study (CERP Study)	USACE/SFWMD	2001	2014	$17,000,000	$16,588,350				135
	1435	C&SF: CERP C-4 Control Structures (T) (CERP Project WBS # 46)	USACE/SFWMD	2004	TBD	$3,190,000	$113,481				137
	1437	C&SF: CERP PLA /Information and Data Management	USACE/SFWMD	2000	TBD	PLA Budget	$0				138
	1438	C&SF: CERP PLA/Interagency Modeling Center	USACE/ SFWMD	2000	TBD	PLA Budget	$0				139
	1439	C&SF: CERP PLA/Environmental and Economic Equity	USACE/SFWMD	2000	TBD	PLA Budget	$0				141
	1440	C&SF: CERP PLA/Master Recreation Plan (MRP)	USACE/SFWMD	2000	TBD	PLA Budget	$0				143
	1441	C&SF: CERP PLA /Restoration Coordination and Verification (RECOVER)	USACE/ SFWMD	2000	TBD	PLA Budget	$0				144
	1442	C&SF: CERP Program Management	USACE/SFWMD	2000	TBD	$721,384,883	$407,875,172				147
		Completed Projects:									
	1406	E&SF: Critical Projects - East Coast Canal Structures (C-4)	USACE/SFWMD	1999	2003	$3,737,000	$3,737,000				459
	1416	C&SF: CERP L-31N (L-30) Seepage Management Pilot F/k/a L-31N Seepage Management Pilot (CERP Project WBS # 36)	USACE/SFWMD	2010	TBD	$16,161,976	$8,111,135				460
	1418	C&SF: CERP Lake Okeechobee Aquifer Storage and Recovery Pilot Lake Okeechobee ASR Pilot [Kissimmee River ASR (KRASR); Port Mayaca ASR (PMASR)] (CERP Project WBS # 32)	USACE/SFWMD	2001	TBD	$23,339,403	$23,339,466				463
	1428	Indian River Lagoon Restoration Feasibility Study	USACE/SFWMD	1996	2002	$6,150,000	$6,150,000				466
		Inactive Projects									
	1411	C&SF: CERP C-43 Aquifer Storage and Recovery Pilot F/k/a Caloosahatchee (C-43) River ASR Pilot (CERP Project WBS # 33)	USACE/SFWMD	2002	2013	$5,915,641	$3,255,516				

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	1417	C&SF:CERP Lake Belt (In-Ground Reservoir) Technology - Pilot (CERP Project WBS # 35)	USACE/SFWMD	2001	TBD	36,682,817	$1,918,971				
	1426	C&SF: CERP Florida Bay Florida Keys Feasibility Study (CERP Study)	USACE	2001	TBD	$6,500,000	$6,516,870				
		Closed Projects									
	1436	Permanent Forward Pumps – Expedited Project –The SFWMD is implementing as part of Northern Everglades Project	SFWMD	2006	2010	$2,000,000	$2,000,000				
Sub-Goal 1.B GET THE WATER QUALITY RIGHT											
1.B.1		**STORMWATER TREATMENT AREA (STA) PROJECTS**						**ACRES**			
	1500	C&SF: CERP Big Cypress/L-28 Interceptor Modifications (CCC) (CERP Project WBS # 10)	USACE/SFWMD	2015	TBD	$76,424,689	$0	1,900	1.B.1		149
	1502	C&SF: CERP Miccosukee Tribe Water Management Plan (OPE) (CERP Project WBS # 90)	USACE/Miccosukee Tribe	2003	TBD	$43,727,307	$0	900	1.B.1		150
	1505	C&SF: CERP Caloosahatchee Backpumping with Stormwater Treatment (DDD) (CERP Project WBS # 06)	USACE/SFWMD	2011	TBD	$140,631,185	$0	5,000	1.B.1		151
	1506	E&SF: Critical Projects - Lake Okeechobee Water Retention/ Phosphorus Removal	USACE/SFWMD	1997	2014	$28,550,000	$26,814,663	940	1.B.1		152
	1513	C&SF: West Palm Beach Canal STA-1E / C-51 West	USACE/SFWMD	1994	2018	$375,436,000	$367,785,000	6,500	1.B.1		154
	1515	Lakeside Ranch STA - Expedited Project – The SFWMD is implementing as part of Northern Everglades Project	SFWMD	2005	TBD	$107,975,000	$43,655,854	2,700	1.B.1		157
	1518	C&SF: CERP Henderson Creek/Belle Meade Restoration (OPE) (CERP Project WBS # 93)	USACE/FDEP	TBD	TBD	$8,499,654	$128,009	10	1.B.1		159
	1519	C-43 Water Quality Treatment Area and Test Facility	SFWMD	2007	TBD	$2,100,000	$1,585,023	1,200	1.B.1		160
	1520	Long-Term Plan for Achieving Everglades Water Quality Goals (Formerly project ID 1723)	SFWMD	2004	TBD	$2,100,000,000	$1,060,155,355	45,000	1.B.1		162
	1101	C&SF: CERP Indian River Lagoon-South [C-23/C-24/C-25/North Fork and South Fork Storage Reservoirs (UU P1 & UU P2), and C-44 Basin Storage Reservoir (B)] (CERP Project WBS # 07)	USACE/SFWMD	2002	TBD	Footnote 1	Footnote 1	9,000	1.A.1	1.B.1/2.A.3	23
	1104	C&SF: CERP Lake Okeechobee Watershed (A, W; OPEs: LOWQTF, LOTSD, LIRS) (CERP Project WBS # 01)	USACE/SFWMD	2001	TBD	Footnote 1	Footnote 1	12,000	1.A.1	1.B.1/2.A.3	39
	1110	C&SF: CERP Central Lake Belt Storage Area (SP1 & SP2) (EEE) (CERP Project WBS # 26)	USACE/SFWMD	TBD	TBD	Footnote 1	Footnote 1	640	1.A.1	1.B.1	58
		Closed Projects									
	1514A	State Expedited project includes Agricultural Area (EAA) Stormwater Treatment Areas (STAs) Expansion	SFWMD	2009	2012	$335,583,167	$335,583,167	18,000	1.B.1		467

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1.B.2.		**TOTAL MAXIMUM DAILY LOAD (TMDL) PLAN DEVELOPMENT**						Completed Plans			
	1600	Total Maximum Daily Load (TMDL) for South Florida	FDEP	2000	2013	$1,300,000	TBD		1.B.2		163
	OTHER RELATED WATER QUALITY PROJECTS										
	1701	C&SF: CERP Comprehensive Integrated Water Quality Feasibility Study (CERP Study)	USACE/FDEP	2001	TBD	$8,100,000	$734,921				171
	1702	E&SF: Critical Projects - Lake Trafford Restoration	USACE/SFWMD	1999	2011	$26,043,767	$2,662,763				175
	1706	Everglades Regulation Division -Phosphorus Source Controls for Basins Tributary to the Everglades	SFWMD	1998	TBD	Footnote 2	$48,141,000				177
	1722	Lake Okeechobee Protection Plan	SFWMD	2000	TBD	TBD	$560,319,000				179
	1723	Hybrid Wetland Treatment Technology	SFWMD/State of Florida	2007	TBD	$24,484,000	$24,484,000				181
	1725	C&SF: CERP - Lake Trafford Restoration	USACE/SFWMD	TBD	TBD	$22,220,917	$0				183
		Completed Projects:									
	1700	Chapter 298 Districts/Lease 3420 Improvements	SFWMD	1994	2005	$24,115,521	$24,115,521				471
	1703	E&SF: Critical Projects - Western C-11 Water Quality Treatment	USACE	1997	2006	$18,494,996	$18,494,996				472
	1705	Everglades National Park Water & Wastewater	NPS	1997	2006	$18,965,000	$18,965,000				473
	1708	Lake Okeechobee Sediment Removal Feasibility Study and Pilot	SFWMD	2000	2003	$955,069	$955,069				474
	1709	Lake Okeechobee Tributary Sediment Removal Pilot	SFWMD	2000	2004	$440,000	$440,000				475
	1713	S-5A Basin Runoff Diversion Works	SFWMD	1994	2005	$14,233,758	$14,233,758				476
	1714	Seminole Tribe Best Management Practices for the Big Cypress Reservation	Seminole Tribe	1996	2015	$4,779,000	$4,779,000				477
	1715	Seminole Tribe Best Management Practices for the Brighton Reservation	Seminole Tribe	1998	2012	$374,000	$374,000				479
	1716	Seminole Tribe Comprehensive Surface Water Management System for the Brighton Reservation	Seminole Tribe	1999	2010	$15,818,000	$15,818,000				481
	1717	Seminole Tribe Water Conservation Project for Big Cypress Reservation	Seminole Tribe	2002	2011	$60,000,000	$60,000,000				482
	1719	STA-1 Inflow and Distribution Works	SFWMD	1994	2005	$12,679,955	$12,679,955				484
	1724	Local Cost-Share Projects with Martin County	SFWMD/State of Florida/Martin County	2008	TBD	$25,977,000	$8,947,809				485

Goals	SP Project Number	Project Name	Lead Agency	Start	End	Financial Requirement	Appropriated thru FY13	Measurable Output	Primary Objective	Secondary Objective(s)	Pg #
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Col. 12
		Closed Projects									
	1707	Floridan Aquifer Restoration	NRCS	2002	2009	$900,000	$900,000				531
Goal 2 Restore Preserve and Protect Natural Habitats and Species											
Sub-Goal 2.A. RESTORE, PRESERVE AND PROTECT NATURAL HABITATS											
2.A.1.		**HABITAT PROTECTION LAND ACQUISITION PROJECTS**						**ACRES**			
		State Acquisitions									
	2181	Adams Ranch	FDEP	1997	TBD	TBD	$0	10,841	2.A.1		184
	2100	Allapattah Flats/Ranch (Footnote 4)	FDEP	1997	TBD	TBD	$0	40,363	2.A.1		185
	2101	Atlantic Ridge Ecosystem (Footnote 4)	FDEP/SFWMD	1995	TBD	TBD	$7,572,756	16,283	2.A.1		186
	2104	Belle Meade	FDEP	1993	TBD	TBD	$40,003,058	28,810	2.A.1		187
	2105	Big Bend Swamp/Holopaw Ranch	FDEP	2000	TBD	TBD	$6,829,000	59,132	2.A.1		188
	2106	Biscayne Coastal Wetlands (Footnote 4)	SFWMD/M-DADE	1998	TBD	TBD	$523,915	1,995	2.A.1		189
	2107	Bombing Range Ridge	FDEP	1998	TBD	TBD	$20,352,608	41,465	2.A.1		190
	2108	Caloosahatchee Ecoscape	FDEP	1998	TBD	TBD	$1,948,038	18,497	2.A.1		191
	2109	Catfish Creek	FDEP	1990	TBD	TBD	$9,444,266	13,198	2.A.1		192
	2111	Charlotte Harbor Estuary/ Flatwoods/Cape Haze	FDEP	1986	TBD	TBD	$20,931,504	12,305	2.A.1		193
	2112	Corkscrew Regional Ecosystem Watershed	FDEP	1991	TBD	TBD	$93,714,310	73,365	2.A.1		194
	2114	Coupon Bight/ Key Deer/ Big Pine Key	FDEP	1985	TBD	TBD	$30,650,827	3,373	2.A.1		195
	2172	Cypress Creek/Loxahatchee	SFWMD	2002	TBD	TBD	$64,630,767	4,374	2.A.1		196
	2115	Cypress Creek/Trail Ridge	SFWMD	1997	TBD	TBD	$25,027,417	32,639	2.A.1		197
	2183	Devils Garden	FDEP	2002	TBD	TBD	$0	82,508	2.A.1		198
	2117	East Coast Buffer(Footnote 4)	FDEP/SFWMD	1994	TBD	TBD	$102,990,022	48,108	2.A.1		199
	2118	Estero Bay	FDEP	1985	TBD	TBD	$69,418,260	14,358	2.A.1		200
	2120	Fakahatchee Strand	FDEP	1980	TBD	TBD	$25,278,263	80,332	2.A.1		201
	2121	Fisheating Creek	SFWMD/FDEP	1999	TBD	TBD	$101,928,563	176,876	2.A.1		202
	2122	Florida Keys Ecosystem	FDEP	1992	TBD	TBD	$98,595,304	13,632	2.A.1		203
	2186	Half Circle L Ranch	SFWMD	2003	TBD	TBD	$0	11,269	2.A.1		204
	2124	Indian River Lagoon Blueway	FDEP	1998	TBD	TBD	$41,887,018	2,044	2.A.1		205
	2125	Juno Hills /Dunes	FDEP	1994	TBD	TBD	$41,892,718	590	2.A.1		206
	2176	Jupiter Ridge	FDEP	1991	TBD	TBD	$23,099,950	280	2.A.1		207
	2126	Kissimmee - St. John Connector	FDEP	2001	TBD	TBD	$0	9,463	2.A.1		208

Goals	SP Project Number	Project Name	Lead Agency	Start	End	Financial Requirement	Appropriated thru FY13	Measurable Output	Primary Objective	Secondary Objective(s)	Pg #
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Col. 12
	2127	Kissimmee River (Lower Basin)	SFWMD	1985	TBD	TBD	$177,870,261	75,617	2.A.1		209
	2128	Kissimmee River (Upper Basin)	SFWMD	1990	TBD	TBD	$86,156,014	38,591	2.A.1		210
	2129	Lake Wales Ridge Ecosystem/ Henscratch Ranch	FDEP	1992	TBD	TBD	$32,786,399	14,310	2.A.1		211
	2132	Loxahatchee Slough Land Acquisition	SFWMD	1996	TBD	TBD	$74,447,218	13,099	2.A.1		212
	2134	Miami-Dade County Archipelago	FDEP	1994	TBD	TBD	$23,717,314	884	2.A.1		213
	2135	Model Lands (Footnote 4)	SFWMD/M-DADE	1994	TBD	TBD	$0	54,458	2.A.1		214
	2138	North Fork St Lucie River (Footnote 4)	FDEP/SFWMD	1988	TBD	TBD	$5,567,581	3,714	2.A.1		215
	2139	North Key Largo Hammocks	FDEP	1983	TBD	TBD	$84,087,154	5,415	2.A.1		216
	2141	Okaloacoochee Slough	FDEP/ SFWMD	1996	TBD	TBD	$20,570,673	35,201	2.A.1		217
	2142	Okeechobee Battlefield	FDEP	2001	TBD	TBD	$3,217,250	211	2.A.1		218
	2143	Osceola Pine Savannas	FDEP	1995	TBD	TBD	$310,000	6,357	2.A.1		219
	2144	Pal-Mar (Footnote 4)	FDEP/SFWMD	1992	TBD	TBD	$82,240,259	39,146	2.A.1		220
	2145	Panther Glades	FDEP	2001	TBD	TBD	$75,049,836	60,007	2.A.1		221
	2146	Paradise Run	SFWMD	1998	TBD	TBD	$4,908,582	3,841	2.A.1		222
	2147	Lake Marion Creek and Reedy Creek/Lake Hatchineha Watershed	SFWMD	1996	TBD	TBD	$12,339,666	43,322	2.A.1		223
	2186	Pine Island Slough Ecosystem	FDEP	2005	TBD	TBD	$0	21,583	2.A.1		224
	2148	Pineland Site Complex	FDEP	1996	TBD	TBD	$1,751,874	206	2.A.1		225
	2178	Ranch Reserve	SFWMD	1997	TBD	TBD	$39,286	2,217	2.A.1		226
	2149	Rookery Bay	FDEP	1980	TBD	TBD	$49,583,833	18,721	2.A.1		227
	2150	Rotenberger/Holey Land Tract	FDEP	1984	TBD	TBD	$20,119,775	79,170	2.A.1		228
	2151	Shingle Creek	SFWMD	1987	TBD	TBD	$4,365,170	7,704	2.A.1		229
	2152	Six Mile Cypress Land Acquisition	SFWMD	1987	TBD	TBD	$36,909,895	2,193	2.A.1		230
	2154	South Savannas	FDEP/SFWMD	1981	TBD	TBD	$20,902,290	6,046	2.A.2		231
	2155	Southern Glades (Footnote 4)	SFWMD/M-DADE	1964	TBD	TBD	$5,046,000	34,093	2.A.1		232
	2156	Southern Golden Gate Estates (Save Our Everglades)- Picayune Strand (Footnote 4)	FDEP	1984	TBD	TBD	$0	55,051	2.A.1		233
	2180	Ten Mile Creek Natural Lands	SFWMD	1990	TBD	TBD	$2,042,586	240	2.A.1		234
	2182	Tiger Cattle Company Ranch	FDEP	2009	TBD	TBD	$0	2,230	2.A.1		235
	2186	Triple Diamond	FDEP	2009	TBD	TBD	$0	7,991	2.A.1		236
	2158	Twelve Mile Slough	SFWMD	1998	TBD	TBD	$11,000,000	15,835	2.A.1		237
	2160	Water Conservation Areas 2, and 3	SFWMD	1948	TBD	TBD	$9,606,104	709,618	2.A.1		238

Goals	SP Project Number	Project Name	Lead Agency	Start	End	Financial Requirement	Appropriated thru FY13	Measurable Output	Primary Objective	Secondary Objective(s)	Pg #
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Col. 12
	2184	Florida Communities Trust lands, State Park Lands and State Wildlife Mgmt Areas	FDEP		TBD	TBD	$652,835,702	256,139	2.A.1		239
		Completed Projects:									
	2102	Babcock Ranch	FDEP	2001	2007	$350,000,000	$350,000,000	73,542	2.A.1		486
	2110	Cayo Costa	FDEP	1980	2004	$29,002,346	$29,002,346	1,954	2.A.1		487
	2116	Dupuis Reserve	SFWMD	1985	1986	$23,016,601	$23,016,601	21,878	2.A.1		488
	2123	Frog Pond	FDEP/SFWMD	1982	2007	$20,005,367	$20,965,314	3,062	2.A.1		489
	1305	Kissimmee Prairie	FDEP	1996	1997	$21,953,790	$21,953,790	38,316	2.A.1		490
	2130	Sumica (previously Lake Walk-In-Water)	SFWMD	1995	1999	$3,950,000	$3,950,000	4,009	2.A.1		491
	2131	Loxahatchee River Land Acquisition	SFWMD	1984	2001	$19,738,769	$19,738,769	1,915	2.A.1		492
	2137	Nicodemus Slough	SFWMD	1981	1988	$1,894,501	$1,894,501	2,231	2.A.1		493
	2153	South Fork St. Lucie River Land Acquisition	SFWMD	1995	1996	$2,480,000	$2,480,000	184	2.A.1		494
	2157	Tibet-Butler Preserve	SFWMD	1988	1999	$3,601,900	$3,601,900	439	2.A.1		495
	2161	Yamato Scrub	FDEP	1992	1996	$25,932,850	$25,932,850	217	2.A.1		496
		Federal Acquisitions									
	2161	A.R. M. Loxahatchee National Wildlife Refuge	USFWS	1955	TBD	$30,119,000	$119,000	147,392	2.A.1		240
	2163	Big Cypress National Preserve Addition	NPS	1989	TBD	$77,373,737	$75,206,737	146,117	2.A.1		241
	2164	Big Cypress National Preserve Private Inholdings (Footnote 3)	NPS	1974	TBD	$244,000,000	$222,155,000	574,449	2.A.1		242
	2165	Biscayne National Park	NPS	1968	TBD	$33,699,000	$31,851,000	172,971	2.A.1		243
	2166	Crocodile Lake National Wildlife Refuge	USFWS	1979	TBD	$14,319,000	$13,093,000	7,100	2.A.1		244
	2184	Everglades and Dry Tortugas National Parks	NPS	1947	TBD	TBD	$24,000,000	1,464,072	2.A.1		245
	2167	Everglades National Park Expansion	NPS	1990	TBD	$109,897,000	$97,678,000	109,504	2.A.1		246
	2169	Florida Panther National Wildlife Refuge	USFWS	1989	TBD	$10,692,000	$10,682,000	61,573	2.A.1		247
	2168	Florida Keys National Wildlife Refuge Complex	USFWS	1960	TBD	$60,434,000	$32,669,000	415,433	2.A.1		248
	2170	Hobe Sound National Wildlife Refuge	USFWS	1968	TBD	$5,935,000	$135,000	1,130	2.A.1		249
	2171	J.N. "Ding" Darling National Wildlife Refuge	USFWS	1945	TBD	$13,805,000	$9,785,000	10,255	2.A.1		250
	2185	Lake Wales Ridge National Wildlife Refuge	USFWS	1945	TBD	TBD	$268,000	3,384	2.A.1		251
2.A.2.		**CORAL REEF PROTECTION PROJECTS**						**% Reef Protected**			
	2200	Planning and Implementation of the Tortugas Ecological Reserve	NOAA	1997	TBD	Footnote 2	$59,435,000	10	2.A.2		252

Goals	SP Project Number	Project Name	Lead Agency	Start	End	Financial Requirement	Appropriated thru FY13	Measurable Output	Primary Objective	Secondary Objective(s)	Pg #
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Col. 12
2.A.3		**IMPROVE NATURAL AREAS HABITAT QUALITY PROJECTS**						**ACRES**			
Note – The April 1999 USACE C&SF Project Comprehensive Review Study Final Integrated Feasibility Report and Programmatic Environmental Impact Statement included an extensive environmental evaluation of habitat units tha would be improved through implementation of the CERP projects. Table 7-18 in this publication identifies in detail which projects are anticipated to achieve this objective. However, appropriate measures by project are currently being developed through the establishment of interim goals. There are some projects included in our tracking matrix that exemplify how this objective will be achieved.											
	2302	C&SF: CERP Lakes Park Restoration OPE (CERP Project WBS # 94)	USACE/Lee Co.	1999	TBD	$6,567,000	$880,932	60	2.A.3		254
	2303	C&SF: CERP Restoration of Pineland and Hardwood Hammocks in C-111 Basin (OPE) (CERP Project WBS # 92)	USACE	TBD	TBD	$992,430	$0	50	2.A.3		257
	2304	A.R.M. Loxahatchee NWR Prescribed Fire program	USFWS	2002	TBD	Footnote 2	$1,106,000	TBD	2.A.3		258
	2305	Loxahatchee Impoundment Landscape Assessment (LILA)	USFWS	2002	2014	Footnote 2	$2,638,000				262
	2306	C&SF: CERP Acme Basin B Discharge (OPE) (CERP Project WBS # 38)	USACE/SFWMD	2002	TBD	$41,189,468	$5,497,425	365	2.A.3	3.C.2	266
	2307	*Gate Estates Hydrologic Restoration)* (OPE) (CERP Project WBS # 30)	USACE/SFWMD	2001	2017	$625,273,387	$473,279,015	55,000	2.A.3		268
	2308	C&SF: CERP PLA /Adaptive Assessment and Monitoring	USACE/SFWMD	TBD	TBD	$165,757,000	$109,045,000	TBD	2.A.3		271
	2309	C&SF: CERP Biscayne Bay Coastal Wetlands (FFF) (OPE) (CERP Project WBS # 28) (Formerly project ID 1410)	USACE/SFWMD	2001	TBD	$475,754,000	$23,799,000	1,695	2.A.3		275
	2310	C&SF: CERP C-111 Spreader Canal (WW) (Formerly Project ID 1517) (CERP Project WBS # 29)	USACE/SFWMD	2000	TBD	$210,339,000	$26,328,000	TBD	2.A.3		277
	2312	C&SF: CERP Strazzulla Wetlands (OPE) (CERP Project WBS # 39)	USACE/SFWMD	TBD	TBD	$92,365,677	$497,866	3,335	2.A.3		280
	2313	C&SF: CERP Winsberg Farms Wetland Restoration (OPE) (CERP Project WBS # 91)	USACE/PBCWUD	TBD	TBD	$30,985,655	$3,834,000	114	2.A.3	3.C.2	281
	1101	C&SF: CERP Indian River Lagoon--South [C-23/C-24/C-25/North Fork and South Fork Storage Reservoirs (UU P1 & UU P2), and C-44 Basin Storage Reservoir (B)] (CERP Project WBS # 07)	USACE/SFWMD	2002	TBD	Footnote 1	Footnote 1	99,781	1.A.1	1.B.1/2.A.3	23
	1104	C&SF: CERP Lake Okeechobee Watershed (A) (W) (OPEs: LOWQTF, LOTSD, LIRS) (CERP Project WBS # 01)	USACE/ SFWMD	2001	TBD	Footnote 1	Footnote 1	3,730	1.A.1	1.B.1/2.A.3	39
	1107	C&SF: CERP Site 1 Impoundment (M P1) *[a/k/a Site 1 Impoundment (Fran Reich Preserve)]* (CERP Project WBS # 40)	USACE/SFWMD	2002	2014	Footnote 1	Footnote 1	114	1.A.1	2.A.3	47
	1111	E&SF: Critical Projects - Ten Mile Creek	USACE/SFWMD	1997	2011	Footnote 1	Footnote 1	2,740	1.A.1	2.A.3	60

Goals	SP Project Number	Project Name	Lead Agency	Start	End	Financial Requirement	Appropriated thru FY13	Measurable Output	Primary Objective	Secondary Objective(s)	Pg #
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Col. 12
	1116	C&SF: CERP Broward County (WPA) Water Preserve Areas (R) (Q) (O) [Broward County WPA - C-9 Impoundment (R) and Westerm C-11 Diversion Impoundment and Canal (Q) and Water Conservation Areas 3A and 3B Levee Seepage Management (O)] (CERP Project WBS # 45) (Formerly Project ID 1501)	USACE/ SFWMD	2002	2020	Footnote 1	Footnote 1	4,633	1.A.1	2.A.3	72
	1303	E&SF:Critical Projects - Southern CREW	USACE	1999	2015	Footnote 1	Footnote 1	4,090	1.A.3	2.A.3	96
	1306	Kissimmee River Restoration Project	USACE/SFWMD	1994	2012	Footnote 1	Footnote 1	27,000	1.A.3	2.A.3	98
	1307	Modified Water Deliveries to Everglades National Park (Footnote 3)	NPS	1990	2013	Footnote 1	Footnote 1	190,000	1.A.3	2.A.3	102
	3902	C&SF: CERP Wastewater Reuse Technology Pilot (CERP Project WBS # 37) (Formerly Project ID 3802)	USACE/SFWMD	2001	TBD	Footnote 1	Footnote 1	3,500	3.C.2	2.A.3	417

Goals	SP Project Number	Project Name	Lead Agency	Start	End	Financial Requirement	Appropriated thru FY13	Measurable Output	Primary Objective	Secondary Objective(s)	Pg #
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Col. 12
	OTHER NATURAL HABITAT AND SPECIES PROJECTS										
	2402	South Florida Multi-Species Recovery Plan	USFWS	1994	TBD	$386,112,000	$13,939,000				283
	2403	WCA-2A Regulation Schedule Review	USACE	TBD	TBD	TBD	$0				285
	2404	C&SF: Manatee Pass Gates	USACE/SFWMD	2001	2014	$17,351,000	$17,350,888				286
		CLOSED PROJECTS									
	2300	C&SF: CERP Strazzulla Wetlands (OPE) (CERP Project WBS # 39)	USACE/SFWMD	2002	2010	$497,866	$497,866	3,335	2.A.3		502
	2301	C&SF: CERP Winsberg Farms Wetland Restoration (OPE) (CERP Project WBS # 91)	USACE/PBCWUD	2000	2009	$3,833,780	$3,833,780	114	2.A.3	3.C.2	503
	2311	C&SF: S-169/Nine Mile Canal Basin	USACE/SFWMD	2001	2009	$1,200,000	$1,200,000				505
Sub-Goal 2.B. CONTROL INVASIVE PLANT AND ANIMAL SPECIES											
2.B.1	**PREVENT THE INTRODUCTION OF INVASIVE EXOTIC SPECIES**										
	2500	Brown Marmorated Stink Bug	Fl. DACS	2013	2014	TBD	$272,127		2.B.1		288
	2501	Detector Dog Teams	Fl. DACS	2013	2014	TBD	$1,193,872		2.B.1		289
	2502	Fruit Fly Survey and Detection	Fl. DACS	2013	2015	TBD	TBD		2.B.1		290
	2503	Python Responder/Patrol Training	FFWCC	2013	TBD	$248,000	$92,000		2.B.1		291
	2504	Exotic Psyllids and Liberibacter species	Fl. DACS	2013	2014	TBD	$58,460		2.B.1		293
	2505	High Risk Areas	Fl. DACS	2013	2014	TBD	$200,000		2.B.1		294
	2506	Interdiction Sites and Marina and Canals	Fl. DACS	2013	2014	TBD	$1,126,558		2.B.1		295
	2507	Effects of exotic fish on Everglades structure and function: risk assessment	NPS/USGS	2013	2018	$165,000	$45,000		2.B.1		296
	2508	Enhanced pest detection at high-risk domestic interdiction sites and marinas/canals systems	Fl. DACS	2013	2014	TBD	$1,126,558		2.B.1		298
	2509	Enhancement of Fruit Fly Immature Stage ID and Taxonomy	Fl. DACS	2013	2015	TBD	$413,750		2.B.1		299
2.B.2	**ERADICATE INVASIVE EXOTIC SPECIES BY IMPLEMENTING EARLY DETECTION AND RAPID RESPONSE**										
	2601	Early detection of new exotic fish species in adjacent canals Vital Sign	NPS	2012	TBD	$106,182	$40,600		2.B.2		300
	2602	Mexican Red Bellied Squirrel Eradication on the Islands in Biscayne National Park	NPS	2008	TBD	$25,918	$10,000		2.B.2		302
	2603	Development of comprehensive fish monitoring programs in Everglades National Park	NPS	1999	TBD	$239,450	$57,000		2.B.2		304
	2604	Cooperative Agricultural Pest Survey	FL DACS	2014	2014	TBD	$778,610		2.B.2		307

Goals	SP Project Number	Project Name	Lead Agency	Start	End	Financial Requirement	Appropriated thru FY13	Measurable Output	Primary Objective	Secondary Objective(s)	Pg #
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Col. 12
	2605	Everglades Invasive Reptile and Amphibian Motoring Program	UF/FWC/SFWMD	2010	TBD	$1,845,940	$502,190		2.B.2		308
	2606	Metagenomic survey in south Florida waters	USDA/APHHIS	2014	TBD	$72,000	$34,500		2.B.2		311
	2607	Development of eDNA for Nile Monitor detection and removal	USDA/APHHIS	2014	2015	$76,000	$27,000		2.B.2		312
	2608	Burmese python eDNA development and application	USDA/APHHIS	2014	TBD	$91,000	$37,000		2.B.2		313
	2609	MDFR Rapid Response and Invasive Species Removal	Miami-Dade County	2014	TBD	TBD	$790,000		2.B.2		314
	2610	Develop and Implement a FWS Invasive Species Strike Team (ISST)	USFWS	2004	TBD	TBD	$6,832,000		2.B.2		315
	2611	Giant African Land Snail Eradication Program	Fl. DACS	2014	2015	TBD	$6,141,952		2.B.2		317
	2612	Northern African Python Removal	FFWCC	2009	TBD	$248,000	68000		2.B.2		319
	2613	Corridors of Invasiveness Vital Sign	NPS	2011	TBD	$106,182	$40,600		2.B.2		320
	2614	Fruit Fly Eradication Methods Development	Fl. DACS	2012	2014	TBD	$60,000		2.B.2		322
	2615	eDNA monitoring of five aquatic invasive species in South Florida	USFWS	2014	TBD	$529,836	$213,396		2.B.2		323
	2616	Early Detection Rapid Response	ECISMA	2014	TBD	$222,030	$42,030		2.B.2		324
2.B.3	**CONTAIN THE SPREA OF INVASIVE EXOTIC SPECIES**										
	2700	Eradication of Gambian Pouch Rat	FDACS	2006	2017	$82,000	$62,600		2.B.3		325
	2701	Population suppression and biology of Black spiny-tailed Iguanas Ctenosaura similis	USDA/APHIS	2014	2016	$26,000	$20,500		2.B.3		328
	2702	Argentine black-and-white tegu (Tupinambis merianae) interdiction	FFWCC/NPS	2012	TBD	$963,500	$427,500		2.B.3		329
	2703	Improve probability of detection and removal of pythons and other invasive reptiles	UF/SFWMD/USGS	2008	TBD	$428,000	$53,000		2.B.3		332
	2704	Feral Swine Impacts and Control	USDA/APHIS	2014	TBD	$625,000	$250,000		2.B.3		333
	2705	BICY Exotic Reptile Control	BICY	2014	2018	$500,000	$200,000		2.B.3		334
	2706	Nile Monitor Eradication Project	FFWCC	2011	TBD	TBD	TBD		2.B.3		335
	2707	Tegu trap and lure evaluation	USDA/APHIS	2014	2015	$27,500	$20,000		2.B.3		339
	2708	Temporal and Spatial Habitat Use, Genetics, Diet and Disease Survey of the Boa Constrictor (Boa constrictor spp.) at the Charles Deering Estate at Cutler in Miami-Dade County, Florida	Miami Dade County	2012	2015	TBD	$9,500,000		2.B.3		341
	2709	Development and Evaluation of Biological Control Agents for Invasive Species Threatening the Everglades and other Natural and Managed Systems	USFDA/ARS	1997	TBD	TBD	$620,000		2.B.3		344

Goals	SP Project Number	Project Name	Lead Agency	Start	End	Financial Requirement	Appropriated thru FY13	Measurable Output	Primary Objective	Secondary Objective(s)	Pg #
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Col. 12
2.B.4	REDUCE THE POPULATIONS OF WIDELY ESTABLISHED INVASIVE EXOTIC SPECIES AND MAINTAIN AT LOWEST FEASIBLE LEVELS										
	2800	Biscayne National Park Schaus swallowtail butterfly (Heraclides aristodemus ponceanus) Habitat Enhancement	NPS	2011	TBD	$72,000	$57,000		2.B.4		345
	2801	Invasive Exotic Control Program	USFWS	2012	TBD	$536,000	$351,000		2.B.4		347
	2802	Enhanced Mitigation Techniques for Control of Cactus Moth	FL DACS	2013	2014	TBD	$404,796		2.B.4		350
	2803	Biological Control of Imported Fire Ant	FL DACS	2013	2014	TBD	$538,000		2.B.4		351
	2804	Enhanced Mitigation Techniques for the Control of Several Whitefly Species	FL DACS	2013	2014	TBD	$245,933		2.B.4		353
	2805	Expansion of Asian Citrus Psyllid Biocontrol	FL DACS	2014	2015	TBD	$1,071,000		2.B.4		354
	2806	Python Removal Program	FFWCC	2009	TBD	TBD	TBD		2.B.4		355
	2807	Everglades Complex of Wildlife Management Areas (Everglades & Francis S. Taylor, Holey Land, and Rotenberger)	FFWCC	2014	2018	$2,399,950	$944,950		2.B.4		357
	2808	Native Tree and Shrub Planting/Maintenance	FFWCC	2014	2018	$680,625	$260,625		2.B.4		359
	2809	Conservation Land Acquisition and Management	Miami-Dade EEL	1990	TBD	TBD	$175,172,000		2.B.4		361
	2810	Invasive Exotic Control Program	USFWS	TBD	TBD	$25,000,000	$6,252,332		2.B.4		364
	2811	Python and invasive species removal authorized agent program for South Florida National Parks	NPS	2009	TBD	$300,000	$60,000		2.B.4		366
	2812	Lionfish assessment and control in South Florida National Parks	NPS	2011	TBD	$583,000	$155,000		2.B.4		368
	2813	Palmetto Bay/Cutler Bay Coastal Habitat Restoration	NPS	2013	TBD	$150,000	$75,000		2.B.4		370
	2814	Digital Aerial Sketch Mapping (DASM)	NPS	2003	TBD	$250,000	$100,000		2.B.4		372
	2815	Python Chemical Communication	USDA/APHIS	2014	2017	$68,500	$46,000		2.B.4		374
	2816	Genetic analyses of invasive reptiles in Florida	UF	2014	2015	$18,000	$18,000		2.B.4		375
	2817	Thermal infra-red detection of Burmese pythons	USDA/APHIS	2014	2015	$23,500	$23,500		2.B.4		376
	2818	C&SF:CERP Melaleuca Eradication and Other Exotic Plants (OPE) (CERP Project WBS # 95)	USACE	2013	2038	$4,712,901	$4,536,687		2.B.4		377
	2819	Everglades National Park Exotic Control Program	NPS	2002	TBD	TBD	TBD		2.B.4		379
	2820	Hole-in-the-Donut	NPS	1994	2014	TBD	$62,812,302		2.B.4	2.A.3	383
	2821	Aquatic and Upland Invasive Plant Management	FWC	TBD	TBD	$11,654,500	$291,864		2.B.4		384
	2822	Invasive Exotic Plant Control in Terrestrial and Aquatic Natural Systems	SFWMD	2007	TBD	TBD	$64,050,000		2.B.4		386
	2823	Invasive Species Research and Information Exchange	SFWMD	2007	TBD	TBD	$1,453,000		2.B.4		389
	2824	Enhancement of the Aquatic Resources at the Miccosukee Tribe	Miccosukee Tribe	2012	2014	TBD	$174,865		2.B.4		391

Goals	SP Project Number	Project Name	Lead Agency	Start	End	Financial Requirement	Appropriated thru FY13	Measurable Output	Primary Objective	Secondary Objective(s)	Pg #
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Col. 12
	2825	BICY Long-term Exotic Plant Maintenance and Control	BICY	2014	2018	TBD	$1,060,000		2.B.4		392
	2826	Mitigating the ecological and cultural effects of Laurel wilt in the Everglades.	USDA/APHIS	2014	2015	TBD	$135,379		2.B.4		394
	2827	Invasive Species Action Plan	Miccosukee Tribe	2014	2016	TBD	$147,801		2.B.4		395
		COMPLETED PROJECTS									
	2509	Invasive Exotic Species Management	Seminole Tribe	1998	2012	$988,000	$988,000		2.B.2		497
	2604	Estero Bay Aquatic Preserve and Buffer Reserve Enhancement and Exotic Removal Project	FDEP	1998	2004	$587,600	$587,600		2.B.2		498
	2701	Melaleuca Quarentine Facility	USDA/ARS	1997	2005	$7,100,000	$7,100,000		2.B.2		499
GOAL 3. FOSTER COMPATIBILITY OF THE BUILT AND NATURAL SYSTEM											
Sub-Goal 3.A. USE AND MANAGE LAND COMPATIBLE WITH RESTORATION											
3.A.1	**FLORIDA PARK, RECREATION AND OPEN SPACE LANDS PROJECTS**							**Acres**			
	3200	Florida Keys Overseas Heritage Trail (Formerly Project ID 3301)	FDEP	TBD	TBD	TBD	$56,227,700	TBD	3.A.1		397
	3202	Florida Greenways and Trails Program (Formerly Project ID 3100)	FDEP/ OGT	2000	TBD	$4,500,000	$1,363,400	10,000	3.A.1		398
3.A.2	**AGRICULTURE LANDS CONSERVATION MANAGEMENT PROJECTS**							**Acres**			
	3300	Technical Assistance to Seminole and Miccosukee Indian Reservations (Formerly Project ID 3201)	NRCS	1998	2015	$15,000,000	$478,000	107,000	3.A.2		400
	3301	2008 Farm Bill (Formerly Project ID 3202)	NRCS	2009	TBD	TBD	$458,544,000	408,135	3.A.2		401
3.A.3	**INCREASE COMMUNITY UNDERSTANDING OF RESTORATION PROJECTS**										
	3502	C&SF: CERP PLA/Public Outreach	USACE	2000	TBD	TBD	PLA Budget		3.A.3		402
	3503	SFWMD Outreach Program	SFWMD	TBD	TBD	Footnote 2	$2,609,846		3.A.3		404
Sub-Goal 3.B FLOOD PROTECTION COMPATIBLE WITH ECOSYSTEM RESTORATION											
3.B.1	**FLOOD PROTECTION COMPATIBLE WITH ECOSYSTEM RESTORATION PROJECTS**										
	3600	C-4 Flood Mitigation Projects	SFWMD	2005	2015	Footnote 2	$2,457,638		3.B.1		405
	1300	C&SF: C-111 (South Dade)	USACE/SFWMD	1994	2014	Footnote 1	Footnote 1		1.A.3	3.B.1	
3.B.2	**HERBERT HOOVER DIKE REHABILITATION**										
	3700	Herbert Hoover Dike Rehabilitation	USACE	2006	2019	$2,069,514,000	$701,296,500		3.B.2		408

Goals	SP Project Number	Project Name	Lead Agency	Start	End	Financial Requirement	Appropriated thru FY13	Measurable Output	Primary Objective	Secondary Objective(s)	Pg #
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Col. 12
Sub-Goal 3.C PROVIDE SUFFICIENT WATER RESOURCES FOR BUILT AND NATURAL SYSTEMS											
3.C.1		**WATER RESOURCE DEVELOPMENT PROJECTS**						**MG**			
	3800	Regional Water Supply Plans (Formerly Project ID 3704)	SFWMD	2004	2035	$27,077,000	$0		3.C.1		412
3.C.2		**INCREASE VOLUME OF WATER RESOURCE PROJECTS**						**MGD**			
	3900	C&SF: CERP South Miami-Dade County Reuse (BBB) (CERP Project WBS # 98) (Formerly Project ID 3800)	USACE/M-DADE	TBD	TBD	$657,651,505	$0	131	3.C.2		414
	3901	C&SF: CERP West Miami-Dade County Reuse (HHH) (CERP Project WBS # 97) (Formerly Project ID 3801)	USACE/M-DADE	TBD	TBD	$747,982,196	$0	100	3.c.2		416
	3902	C&SF: CERP Wastewater Reuse Technology Pilot (CERP Project WBS # 37) (Formerly Project ID 3802)	USACE/SFWMD	2001	TBD	$44,826,978	$1,876,009		3.C.2	2.A.3	417
3.C.3		**ALTERNATIVE WATER SUPPLY PROJECTS**						**MGD**			
	4000	Alternative Water Supply Grant (Formerly Project ID 3900)	SFWMD	1997	TBD	TBD	$193,829	105	3.C.3		419
	OTHER BUILT AND NATURAL SYSTEM COMPATIBILITY PROJECTS										
	4101	BMPs for Agriculture	NRCS	1997	2015	$160,278,000	$119,338				420
	4102	Monitoring of Organic Soils in the Everglades	NRCS	1998	TBD	$1,236,000	$36,000				421
	4103	Soil Survey Update for the Everglades Agricultural Area	NRCS	2007	2017	$2,100,000	$0				422
	4104	Soil Survey Update for Everglades National Park, Big Cypress National Preserve and Water Conservation Areas	NRCS	2007	2017	$6,000,000	$35,000				423
	4105	C&SF: CERP Flow to Northwest and Central WCA -3A (II) (RR) (CERP Project WBS # 11)	USACE/SFWMD	2002	TBD	$56,614,086	$66,297				424
		Completed Projects									
	4100	E&SF: Critical Projects - Keys Carrying Capacity Study	FDCA/USACE	1997	2003	$4,493,067	$4,493,067				500
Sub-Goal 3.D REDUCE INVASIVE EXOTICS SPECIES PATHWAYS ORIGINATING FROM THE BUILT ENVIRONMENT											
3.D.1		**ECONOMY, CULTURE AND HUMAN HEALTH**						**MG**			
	4200	Environmentally Endangered Lands Volunteer Workdays (Project ID 4200)	Miami Dade EEL	1990	TBD	TBD	$696,000		3.D.1		425
	4201	Everglades Non-Native Fish Round Up	NPS	2010	TBD	$10,619	$2,000		3.D.1		427
	4202	Zoo Miami/Miami-Dade County Invasive Species Outreach and Educational Programs	Miami Dade EEL	2011	TBD	TBD	$36,125		3.D.1		430
	4203	Public Outreach to Support Containment Efforts	UF	2011	TBD	$160,000	$40,000		3.D.1		435
	4204	Public Outreach to Support EDRR Efforts	UF	2011	TBD	$250,000	$70,000		3.D.1		438
	4205	Public Outreach Project to Support Prevention Efforts	UF	2011	TBD	$150,000	$60,000		3.D.1		441
	4206	Exotic Pet Amnesty	FFWCC	2006	TBD	$190,000	$130,000		3.D.1		444

Goals	SP Project Number	Project Name	Lead Agency	Start	End	Financial Requirement	Appropriated thru FY13	Measurable Output	Primary Objective	Secondary Objective(s)	Pg #
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Col. 12
	4207	Exotic Species Reporting Hotline and Database Maintenance	FFWCC	2011	TBD	$400,000	$160,000		3.D.1		446
	4208	Outreach and Educational Events	ECISMA	2014	2015	TBD	$8,400		3.D.1		448
	4209	ECISMA Outreach	ECISMA	2014	TBD	$71,500	$11,500		3.D.1		450
3.D.2		**CONTUNIE EXISTING AND DEVELOP NEW PARTNERSHIPS THAT FOCUS ON REDUCING PATHWAYS**						**MGD**			
	4300	"Travelers Pack a Don't Pest" Targeted Marketing	Fl. DACS	2013	2014	TBD	$785,666		3.D.2		451
	4301	ECISMA	ECISMA	2008	TBD	TBD	TBD		3.D.2		453
	4302	HABITATTITUDE	USFWS	TBD	TBD	TBD	TBD		3.D.2		455
	4303	SWF CISMA	ECISMA	2008	TBD	TBD	$8,400		3.D.2		456

Project Specific Footnotes:

The following information is project specific and is provided in reference to its appearance as a numbered notation on the project summary table:

[1] This is a multiple objective project, funding is listed in other objective.

[2] Available funding through project completion is not provided on the project sheet, due to the uncertainty of the annual Federal and State appropriations process. For the purposes of calculating Goal subtotals for all projects, only the dollars appropriated to date have been used for this project.

[3] Consistent with authorizing Big Cypress legislation.

[4] The cost information for this project reflects the adjusted total cost information provided on the project sheet.

DETAILED INTEGRATED FINANCIAL PLAN PROJECT SHEETS

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Project Name: **C&SF: CERP Indian River Lagoon – South (IRLS)**
C-23/C-24/C-25/Northfork and Southfork Storage Reservoirs (UU P1 & UU P2) and C-44 Basin Storage Reservoir (B)
Project ID: 1101 (CERP Project WBS # 07)
Lead Agency: USACE / SFWMD
Authority: WRDA 2000; WRDA 2007; *("C-44 Basin Storage Reservoir (B)" was a WRDA 2000 Initially Authorized Project; uncompleted portions were de-authorized in WRDA 2007 when the broader IRL-S project was authorized for construction)*
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: **Primary:** 1-A.1 **Secondary:** 2-A.3, 1-B.1, and 1-B.2

Measurable Output(s):

- 130,000 acre-feet reservoir storage (12,000 acres of above-ground storage)
  (C-23/24 N: 43,920 ac-ft; C-23/24 S: 48,900 ac-ft; C-44: 33,150 ac-ft; C-25: 5,176 ac-ft)
- 9,000 acres of manmade wetlands (C-23/24: 2,363 acres; C-44: 6,000 acres; C-25: 142 acres)
  - 122 metric tons/yr. phosphorus expected load reduction
  - 475 metric tons/yr. nitrogen load expected reduction
- 99,781 acres of habitat improvement/restoration and additional water storage
  - Mosaic**:** 95,230 acres natural upland/wetlands habitat
    - Allapattah: 42,348 acres
    - Palmar: 17,143 acres
    - Cypress Complex: 32,639 acres
    - North Fork: 3,100 acres (flood plain preservation)
  - Aquatic Habitat: 4,551 acres in St. Lucie River and Estuary
    - Benthic: 2,650 acres
    - Submerged: 922 acres aquatic vegetation restoration
      90 acres artificial submerged vegetation habitat
    - 889 acres or more of oyster habitat (muck removal at 1.8 ft = 7.9 M yd^2)

April 1999 (Restudy) Project Synopsis: Included above-ground reservoirs with a combined storage capacity of approximately 349,400 acre-feet located in the C-23/C-24/C-25**/** Northfork and Southfork basins in St. Lucie and Martin Counties, as well as an above-ground reservoir with a total storage capacity of approximately 40,000 acre-feet located in the C-44 Basin in Martin County. The initial design of the reservoirs in the C-23/C-24/C-25 Basins assumes 39,000 acres (water levels up to 8 feet above grade) and 9,350 acres (water levels up to 4 feet above grade). And the initial design of the reservoir in the C-44 basin assumes 10,000 acres (water levels up to 4 feet above grade). Features are to capture runoff and provide water quality improvement including reduced loading of nutrients, pesticides and runoff pollutants.

Current Project Synopsis: This project is located in the Martin, St. Lucie, and Okeechobee counties.

The C-44 storage area feature was one of the initially authorized projects for implementation in WRDA 2000 and was recommended by the Chief of Engineers in August 2004. Plans and specifications for the C-44 Reservoir and STA were also part of the SFWMD early start work.

Since that time, the combined cost for the IRL-S project was estimated at $1.365 billion when the entire project was authorized for construction in WRDA 2007, dependent on appropriations from Congress. Based on the feasibility study and the PIR, and further refinements, the entire IRL-S project is expected to include the following components:

- Construction and operation of an additional 12,000 acres of above-ground storage and their connecting canals, control structures, levees and pumps to capture water from the C-44, C-23, C-24 and C-25 canals.
- Construction and operation of four new stormwater treatment areas to reduce sediment, phosphorus, and nitrogen going to the St. Lucie River estuary and the lagoon. STAs are planned for each of the basins: C-44 basin (1), C-23/24 basin (2) and C-25 basin (1) reducing damaging effects of watershed runoff
- Restoration of the upland/wetland mosaic with ditch plugging, berm construction, and periodic fire maintenance at three locations.
- Redirection of water from the C-23/24 basin to the Northfork of the St. Lucie River attenuating freshwater flows to the estuary.
- Muck removal from the north and south forks of the St. Lucie River and the middle estuary reducing nutrients (nitrogen and phosphorus). Oyster shell, reef balls, and artificial submerged aquatic vegetation near muck removal sites will be added for habitat improvement.

Current Status:

Construction of the C-44 reservoir and stormwater treatment area component of the IRL-S project began in 2011 and, it is being implemented through use of multiple construction contracts by the USACE and the SFWMD until its current scheduled construction completion in the year 2020. The first major construction contract (canals, roads, culverts, and bridge work) was awarded in July 2011 and was completed in July 2014. Due to questions regarding the 2008 design, Contract 2 (initially reservoir, pump station, and discharge canal) was divided in two phases. Contract 2 Phase 1 design addressed questions regarding surveys accuracy, need for additional surveys, removal of unnecessary low-level discharge culverts, construction phasing, appropriate storm-routing analysis, incorporation of latest guidance and standards from USACE and SFWMD, and embankment armoring soil-cement mix and design. Phase 1 was completed in April 2012. The design of Phase 2 began in October 2012 and addressed the changes identified in technical memoranda prepared by the designer of record during phase 1 design. Contract 2 design completed in December 2014. Scheduled Contract 2 (final including the reservoir and 2-miles of discharge canal) is scheduled for award in 2015. STA and Pump Station construction contracts were issued by the SFWMD in October 2014 and April 2015.

Est. Cost: $ 4,029,099,000

Project Schedule:

2011	C-44 reservoir construction began with Contract 1 (canals, roads, culverts, and bridge work)
2014	C-44 Contract 1 completed; C-44 STA construction with 10-mi of discharge canal began
2015	Initiate construction of C-44 Reservoir and Pump Station
2017	C-44 STA and 10-mi of discharge canal finish
2018	C-44 Pump Station finish
2019	C-44 Reservoir and 2-mi of discharge canal finish
2020	C-23/24 North Reservoir and C-23/24 STA constructions begin
2021	C-23/24 South Reservoir construction begins
2029	C-25 reservoir and STA construction begins
2028	Allapattah complex construction begins
2028	Muck removal & artificial habitat construction begins
2032	North fork land acquisition (flood plain) begins
2037	Palmar complex construction begins
2041	Cypress Creek / Trail Ridge complex construction begins

Detailed Project Budget Information (rounded):

IRLS	Obligations Thru FY 2014
USACE	$66,206,055
SFWMD	$508,493,228
Total	**$574,699,283**

Aerial photo of C-44 Reservoir and Stormwater Treatment Area's intake canal at Citrus Blvd bridge (March 2014).

Hyperlinks:
http://www.saj.usace.army.mil/Missions/Environmental/EcosystemRestoration/IndianRiverLagoonSouth.aspx

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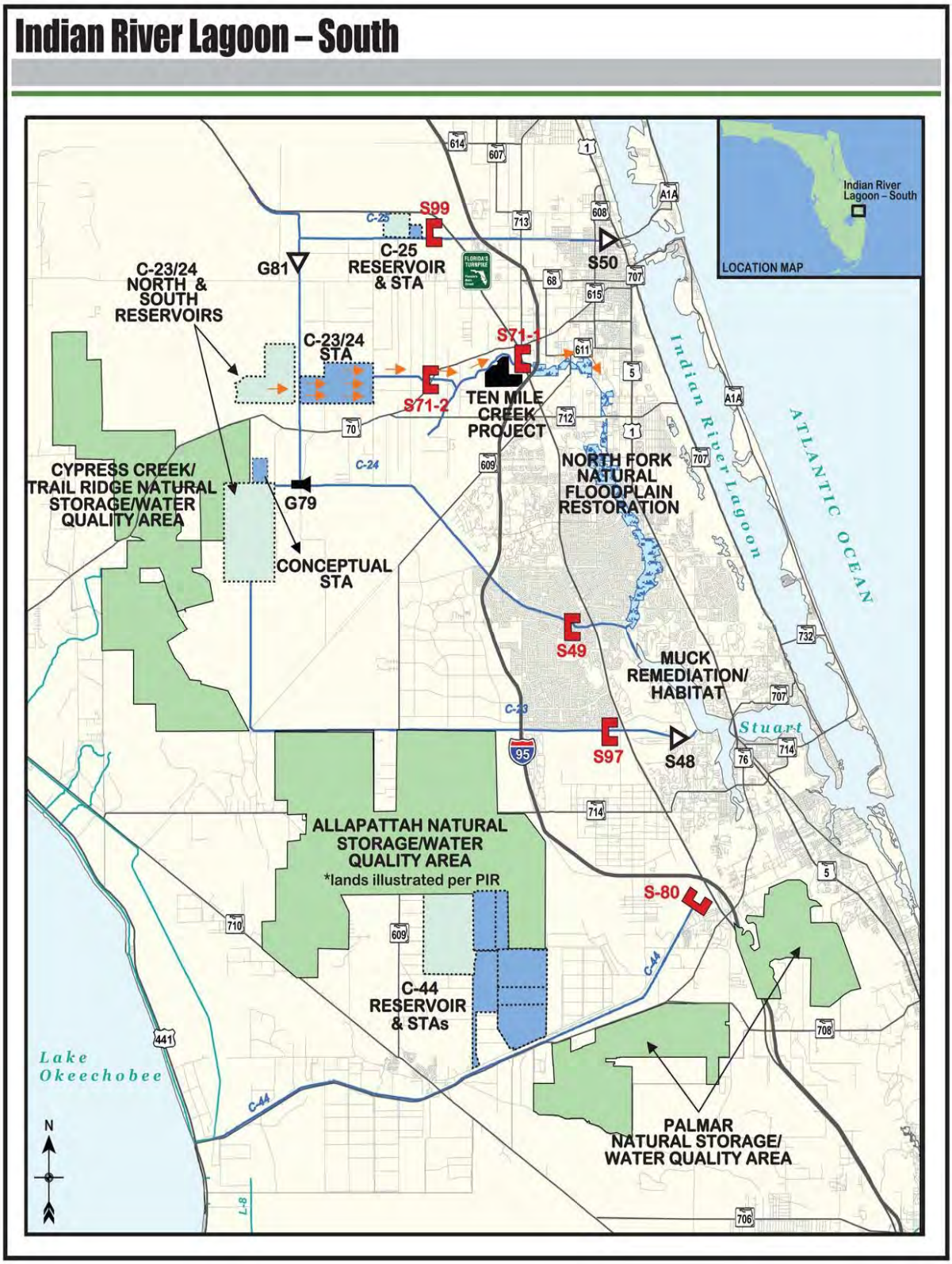
Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate and current project status includes information summarized from the *Central and Southern Florida Project Indian River Lagoon – South Final Integrated Project Implementation Report (PIR) and Environmental Impact Statement (EIS)* (2004) and is updated to reflect current price levels in May 2013 dollars; along with the authorization in WRDA 2007. Current status was provided by the project manager. Actual expenditures include all federal expenditures through FY14 (Sept, 2014) and sponsor verified and recorded in kind credit through 4th quarter FY14. Schedule is updated based on the approved *Integrated Delivery Schedule Through 2020* (February 10, 2010).

Additional Information:



Program Name: Infrastructure
Project Name: **C&SF: CERP – Indian River Lagoon South - Project includes C-44 Basin Storage Reservoir (B) – C-44 (St. Lucie Canal) Reservoir/Stormwater Treatment Area (STA) and C-23/C-24/C-25/Northfork and Southfork Storage Reservoirs (UU)**

Project ID: 1101A (CERP Project WBS #07)
Lead Agency: SFWMD
Authority: C-44 initially authorized in WRDA 2000;
Memorandum of Agreement Regarding Acceleration of the CERP
WRDA 2007
Project Partnership Agreement with USACE – September 2010
Funding Source: State and Federal

Strategic Plan Goal(s) Addressed: 1.A.1

Measurable Output(s): 50,600 ac-ft reservoir, pump station and 6,300-acre STA (C-44 measurable outputs are part of the overall project total; the north and south C-23/24 reservoirs, the C-23/24 STA and the C-25 reservoir and STA are on hold while the agencies concentrate on the C-44 construction effort).

Project Synopsis: A 3,400–acre, above-ground reservoir approximately 15 feet deep (50,600 acre-feet) to capture local C-44 basin runoff then provide treatment using 6,300 acres of Stormwater Treatment Areas. This project is a component of the Indian River Lagoon South (IRL-S) Project Implementation Report (PIR) and is located in central Martin County, adjacent to and north of the C-44 Canal, between Lake Okeechobee and the east coast.

Current Status: Plans and specifications for the C-44 Reservoir and STA were part of the early-start work by the SFWMD and were completed in 2007 and updated in 2008. The SFWMD has completed construction for three C-44 project related relocation efforts: the C-132 and northern C-133 canal modifications, the Troup Indiantown Water Control District temporary modifications and the C-44 Communication Tower. The USACE has completed Contract 1, which includes the Intake Canal, Project Access Road, C-133 Canal and the Citrus Boulevard Bridge. In 2014, the Project Partnership Agreement with the USACE was amended to allow some of the project components to be constructed by the SFWMD. The USACE has continued with the conversion of the Contract 2 design documents for the 50,600 acre foot reservoir for a proposed late FY15 construction start. SFWMD has responsibility for constructing the remainder of the project and has initiated construction for the 6 STA cells, the System Discharge Canal and Spillway and the Reservoir Pump Station. The System Discharge and STA contracts were both awarded in the 4th quarter of FY14 and are scheduled for completion in November 2015 and August 2017, respectively. The Reservoir Pump Station contract was awarded in March 2015 and has a completion date of September 2018. In 2015, the SFWMD also awarded a contract for removing the agro-chemically impacted soils from the reservoir footprint, to be complete by June 15, 2015 and prior to the expected award date for the Contract 2 construction by the USACE

Total Estimated Project Cost: $1,336,696,000 (all reservoirs and STAs, without land)

Actual Construction Start Date:	May 2010 (SFWMD contract)
Scheduled Construction Start Date:	August 2015 (USACE contract 2, C-44 Reservoir)
Actual Construction Start Date:	September 2014 (SFWMD, System Discharge)
Actual Construction Start Date:	October 2014 (SFWMD, C-44 STA)
Actual Construction Start Date:	April 2015 (SFWMD, C-44 Reservoir Pump Station))

Scheduled Project Construction Completion Date: September 2019

Actual Expenditures to date by SFWMD:

	Thru 2009	2010	2011	2012	2013	2014	2015	Total
SFWMD	$31,463,219	$1,785,915	$6,698,912	$1,300,000	$5,938,385	$3,298,104	$2,619,295	$ 53,103,830

Hyperlink:

http://www.sfwmd.gov/portal/page/portal/pg_grp_sfwmd_sfer/portlet_prevreport/2013_sfer/v3/chapters/v3_ch2.pdf

Contact: Beth Kacvinsky - bkacvins@sfwmd.gov
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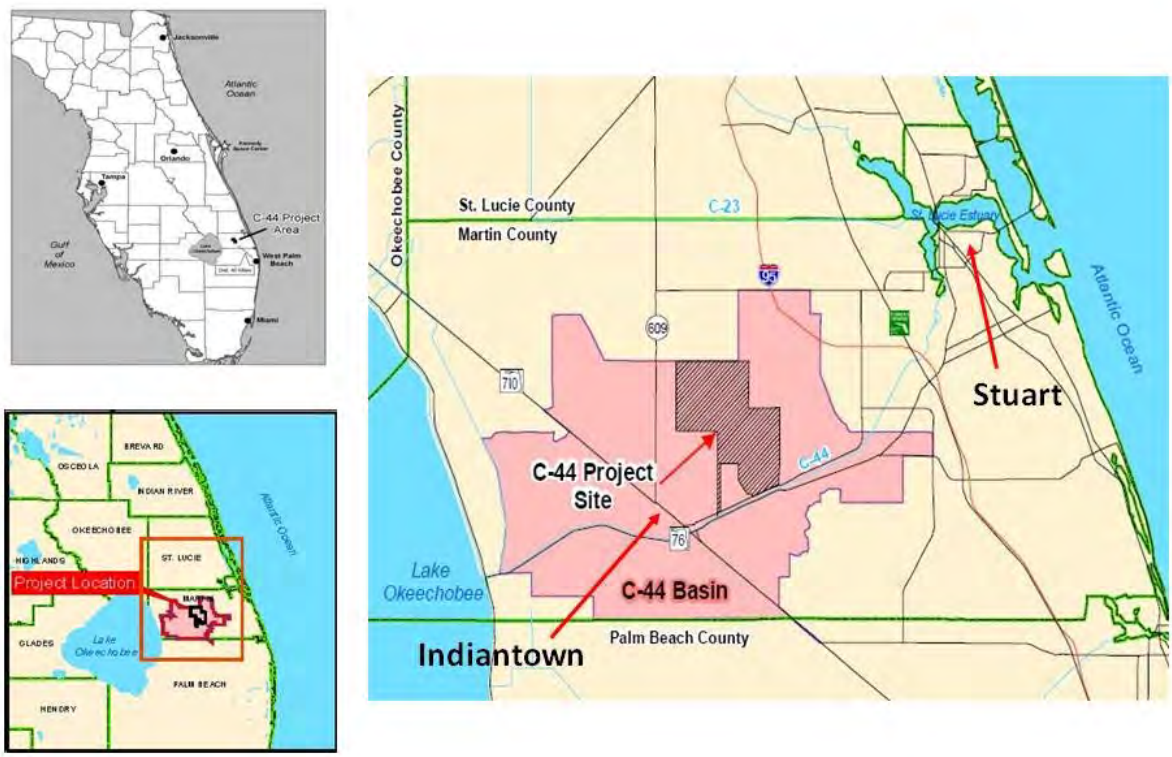


C-44 Project site location maps shown above.

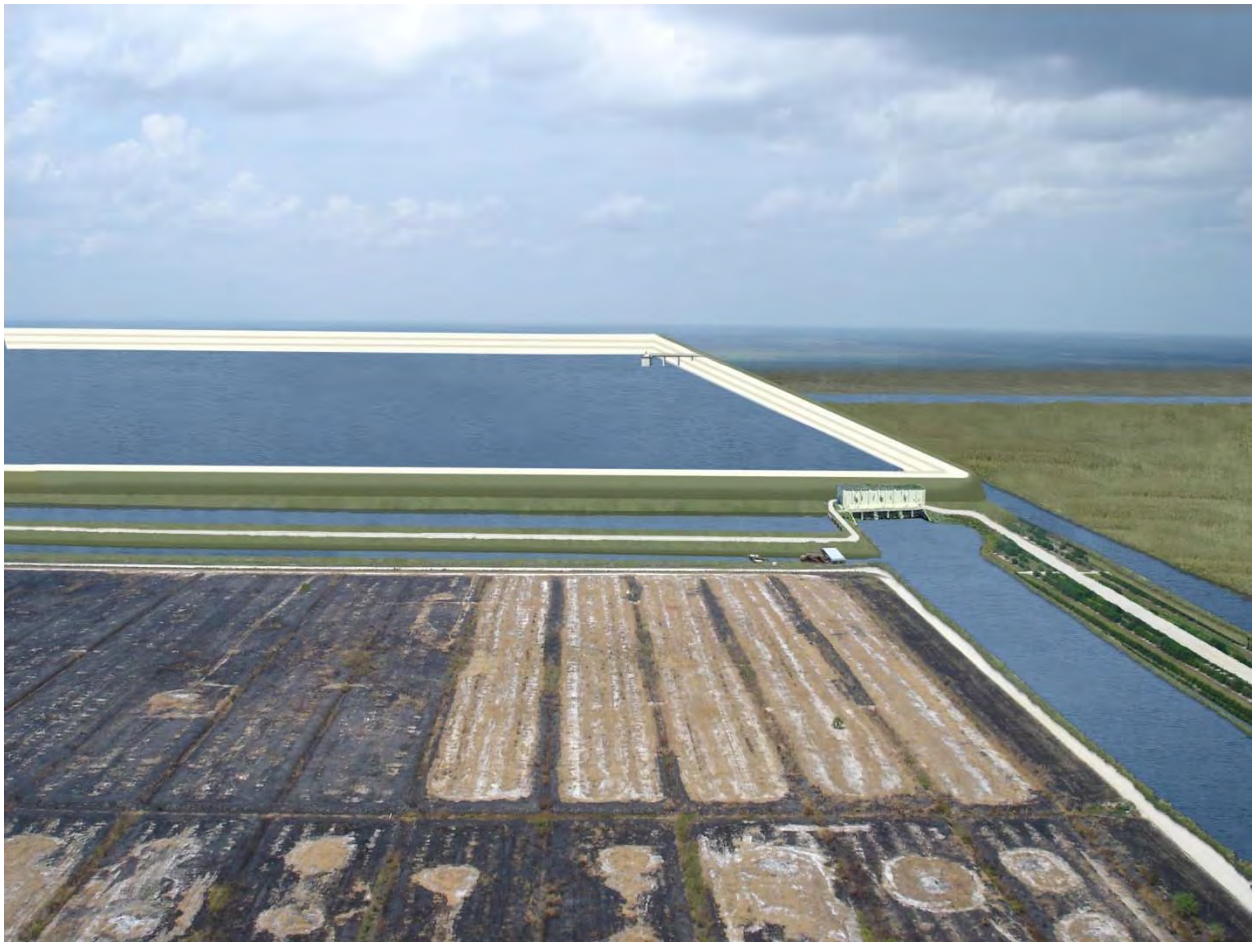
Intake Canal Construction – December 2012

This is the Intake Canal at the new Citrus Boulevard Bridge

This is the new Citrus Boulevard Bridge

This is the C-44 Communication Tower

This is the Intake Canal, looking north from the transmission power line easement



Artist's rendering of the C-44 Reservoir/STA Project looking from the southeast corner of the reservoir at the inflow pump station, with STAs to the east.

Project Name: **C&SF: CERP Everglades Agricultural Area Storage Reservoirs (G P1 & G P2)**
A/k/a Everglades Agricultural Area Storage Reservoirs - East & West
Project ID: 1102 (*includes 1103*) (WBS # 08 and WBS# 09)**;**
Lead Agency: USACE / SFWMD
Authority: WRDA 2000 *(only Phase 1 'G P1'-"Initially Authorized Project)*; Phase 2 not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 1-A.1

Measurable Output(s): 360,000 acre-feet total surface storage
[240,000 acre-feet Phase 1 (WRDA 2000) and 120,000 acre-feet Phase 2]

April 1999 (Restudy) Project Synopsis: Runoff from the Everglades Agricultural Area (EAA), Miami and North New River Canal Basins and regulatory releases from Lake Okeechobee is to be pumped into the reservoirs. Additionally, it provides for canal conveyance capacity increases for the Miami, North New River, Bolles, and Cross Canals. The aboveground reservoir(s) will have a storage capacity of approximately 360,000 acre-feet located in the EAA in western Palm Beach County. The initial design for the reservoir(s) assumed 60,000 acres, and was divided into three equally sized compartments (1, 2, and 3), with water level fluctuation up to 6-feet above grade:

1) Discharges used to meet Everglades Agricultural Area irrigation demands only.
2) Discharges used to meet environmental demands as a priority; and can be used to supply a portion of agricultural demands in cases where there is no environmental demand.
3) Discharges used to meet environmental demands.

Current Project Synopsis: The purpose is to improve the timing of environmental deliveries to the Water Conservation Areas, including reducing damaging flood releases from the Everglades Agricultural Area to the Water Conservation Areas. The features will also support reducing Lake Okeechobee regulatory releases to the estuaries, meeting Everglades Agricultural Area irrigation and Everglades natural system water demands, and mitigating flood risk for the Everglades Agricultural Area.

The Central Everglades Planning Project (CEPP) proposes an increment of storage in the EAA within the A-2 Flow Equalization Basin (FEB) component of the CEPP plan. Storage and treatment of additional water from Lake Okeechobee would be possible with the construction of the 14,000 acre FEB that would be operationally integrated with the State's A-1 FEB and existing Stormwater Treatment Areas. This feature in combination with the other features of the CEPP plan will provide an average of approximately 210,000 acre-feet per year of additional clean freshwater flowing into the central portion of the Everglades. The CEPP plan also reduces the number and severity of undesirable, high volume discharges from Lake Okeechobee, improving salinity in the St. Lucie and Caloosahatchee estuaries. The additional water flowing into northern WCA-3A and Everglades National Park will help restore the pre-drainage vegetative communities and habitat for fish and wildlife while providing incremental improvement of natural processes critical for the development of peat soils and tree islands, which are essential features of the Everglades ridge and slough landscape. Increased flows to Florida Bay will improve salinities, resulting in greater abundance and diversity of sea grasses and other estuarine plant and animal species.

Current Status: The Central Everglades Planning Project (CEPP) proposes an increment of storage, 60,000 acre-feet, within the A-2 Flow Equalization Basin component of the CEPP plan.

Est. Cost: $ 749,117,000

Project Schedule: TBD

Detailed Project Budget Information (rounded):

Everglades Agricultural Area Storage Reservoirs	Expenditures Thru FY 2010
USACE	$12,070,343
SFWMD	$14,671,866
Total	**$26,742,209**

Hyperlinks: http://141.232.10.32/pm/projects/proj_08_eaa_phase_1.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Matt Morrison, Lead Project Manager, SFWMD
(561) 681-2563 x3718, mjmorris@sfwmd.gov

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is also based on original project design updated to reflect current price levels in October 2014 dollars. Actual expenditures include all federal expenditures through FY09 (Sept, 2009) and sponsor verified and recorded in kind credit through 4th quarter FY07; as well as approved but not yet recorded in kind credit for FY08 through FY10, and Acceler8 in kind credit that has been reviewed and determined creditable but not yet approved for FY04 through FY09.

Additional Information: None.

Project Name: **C&SF: CERP Central Everglades Planning Project (CEPP)**
Project ID: 1103
Lead Agency: USACE / SFWMD
Authority: WRDA 2000
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: **Primary:** 1-A.1 **Secondary:** 1-A.3

Measurable Output(s): Improve the quantity, quality, timing and distribution of water flows to the Northern Estuaries; the central Everglades including Water Conservation Area 3 and Everglades National Park, in order to restore the hydrology, habitat and functions of the natural system.

April 1999 (Restudy) Project Synopsis:
The CEPP project is part of the National Pilot Program for Feasibility Studies which will provide an opportunity to test principles that have been outlined in the USACE *Recommendations for Transforming the Current Pre-Authorization Study Process* (January 2011).

The study area for the CEPP encompasses the Northern Estuaries (St. Lucie River and Indian River Lagoon and the Caloosahatchee River and Estuary), Lake Okeechobee, a portion of the Everglades Agricultural Area, the Water Conservation Areas; Everglades National Park, the Southern Estuaries (Florida Bay and Biscayne Bay), and the Lower East Coast. Utilizing the Incremental Adaptive Restoration approach recommended by the National Research Council and new information gained to date, the project will be composed of increments of project components that were identified in the CERP Comprehensive Review Study (Yellow Book), reducing the risks and uncertainties associated with project planning and implementation.

The scope of the CEPP includes increments of the following components that were part of the Yellow Book Plan:

- Everglades Agricultural Storage Reservoirs (G)
- Modified Holey Land Wildlife Management Area Operation Plan (DD)
- Flow to Northwest and Central Water Conservation Area 3A (II)
- Water Conservation Area 3 Decompartmentalization and Sheet flow Enhancement (AA, QQ and SS)
- Dade-Broward Levee/Pennsuco Wetlands (BB)
- Bird Drive Recharge Area (U)
- L-31N Improvements for Seepage Management and S-356 Structures (V and FF)
- Everglades Rain-Driven Operations (H)

Current Project Synopsis: This new pilot process diverts from the standard USACE planning process and requires greater, more interactive and concurrent involvement from the vertical team including the USACE South Atlantic Division, Headquarters, and Assistant Secretary of the Army's office; at multiple points throughout the study to provide input and decision making. The pilot study is divided into four phases, each with a key Decision Point and associated In-Progress Reviews in order to achieve a Project Implementation Report (PIR).

The project was kicked off November 2011. CEPP Decision Point 1 (DP-1) was completed in January 2012; where the project received concurrence on the Determination of Federal Interest and approval to move forward with the study as outlined in the January 2012 CEPP Scoping Plan. The scoping plan identified the formulation strategy to analyze the project study area and prepare the PIR. Selection of the TSP was completed in August 2013 at CEPP Decision Point 2 (DP-2). Public review of the draft PIR/EIS and the Independent External Peer Review (IEPR) was completed November 2013. The Civil Works Review Board was held on April and May 2014. The CEPP pilot study is currently in the Final Phase of the study.
The goal of the CEPP is to improve the quantity, quality, timing and distribution of water in the Northern Estuaries, Water Conservation Area 3, and Everglades National Park in order to restore the hydrology, habitat and functions of the natural system.

Current Status: The Chief of Engineer's Report, or Chief's Report, for CEPP was signed by Lt. Gen. Thomas Bostick, USACE Commander and Chief of Engineers in December 2014. The project is waiting for Congressional Authorization.

Est. Cost of PIR: $ 10,519,000

Project Schedule:

Aug 2014	Publish in Federal Register
Dec 2014	Chief of Engineers Report

Detailed Project Budget Information (rounded):

MWD	Obligations Thru FY 2013
USACE	$8,280,000
SFWMD	$0
TOTAL	$8,280,000

Hyperlinks:
http://www.saj.usace.army.mil/Missions/Environmental/EcosystemRestoration/CentralEvergladesPlanningProject.aspx

Contact: Kimberly Taplin, Project Manager, Ecosystem Branch, Programs and Project Management Division, USACE, Kimberley.A.Taplin@usace.army.mil

Matt Morrison, Lead Project Manager, SFWMD
mjmorris@sfwmd.gov

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).*

Additional Information: None

Project Name: **C&SF: CERP Lake Okeechobee Watershed (A) (W)** (OPEs: LOWQTF, LOTSD, LIRS)
[North of LOW Storage Reservoir (A), Taylor Creek/Nubbin Slough Storage and Treatment Area (W), OPEs: LOW Water Quality Treatment Area (LOWQTF), LOW Tributary Sediment Dredging (LOTSD), Lake Istokpoga Regulation Schedule Modification (LIRS)
Project ID: 1104 (CERP Project WBS # 01 and WBS #02)
Lead Agency: USACE / SFWMD
Authority: WRDA 2000 *(Initially Authorized Project – "W");* WRDA 2000 *(Programmatic Authority < $25 M) - OPEs: LIRS, LOTSD;* other components not authorized.
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Primary: 1-A.1 **Secondary:** 1-B.1, 2-A.3

Measurable Output(s):

- 272,823 acre-feet storage capacity in the Lake Okeechobee Watershed (202,500 LOW; 55,000 Taylor Creek Nubbin Slough, 4,375 OPEs; 1,984 Taylor Creek Reservoir)
- 12,000 acre stormwater treatment area
- 3,730 acres of habitat restoration (primarily wetlands)
- 74 metric tons/year average reduction of phosphorus going into Lake Okeechobee

April 1999 (***Restudy***) **Project Synopsis:** The Restudy initially included each of the following separate elements:

North of Lake Okeechobee Storage Reservoir (A) – Initial design was an above-ground reservoir with total storage capacity of approximately 201,250 acre-feet in a 17,500-acre reservoir (water levels fluctuating up to 11.5 feet above grade) and a 2,500-acre stormwater treatment area to be located in the Kissimmee River Region, north of Lake Okeechobee. The location was anticipated to be in Glades, Highlands, or Okeechobee Counties. The final size, depth and configuration to be determined through more detailed planning, land suitability analyses, and design determined by an evaluation of degraded water bodies within the watersheds of the storage/treatment facility for appropriate pollution load reduction targets, and other water quality restoration targets for the watershed.

Taylor Creek/Nubbin Slough Storage and Treatment Area (W) - One of the ten Initially Authorized Projects identified in the Water Resources Development Act (WRDA) 2000, the initial design includes a 5,000-acre above-ground reservoir (water levels fluctuating up to 10 feet above grade) with a storage capacity of approximately 50,000 acre-feet and a 5,000-acre stormwater treatment area with 20,000 acre-feet capacity in the Taylor Creek/Nubbin Slough Basin to attenuate flows and reduce the amount of nutrients flowing to the lake.

Lake Okeechobee Watershed Water Quality Treatment Facilities (LOWQTF) – Includes two reservoir-assisted stormwater treatment areas and the plugging of select local drainage ditches. The initial design of these reservoir-assisted stormwater treatment areas assumes a 1,775-acre facility in the S-154 Basin in Okeechobee County and a 2,600-acre facility in the S-65D sub-basin of the Kissimmee River Basin in Highlands and Okeechobee Counties. The plugged drainage ditches will result in restoration of approximately 3,500 acres of wetlands throughout the Lake Okeechobee watershed basin. The other portion of this feature includes the purchase of conservation easements within four key basins of Lake Okeechobee to restore the hydrology of isolated wetlands by plugging the connection to drainage ditches and the diversion of canal flows to adjacent wetlands. Sites range from an individual wetland to an entire sub-basin and are located within the lower Kissimmee River Basins (S-65D, S-65E, and S-154) and Taylor Creek/Nubbin Slough Basin (S-191).

Lake Okeechobee Tributary Sediment Dredging (LOTSD) (OPE) - The purpose is to remove phosphorous from canals located in areas with the most intense agriculture in the watershed that contribute to excessive phosphorus loading to Lake Okeechobee by dredging sediments from 10 miles of primary canals within an 8-basin area in the northern watershed of Lake Okeechobee. The initial design assumes the dredged material will contain approximately 150 tons of phosphorus. A partnership with local landowners will be pursued for disposal of the material on uplands.

Lake Istokpoga Regulation Schedule (LIRS) (OPE) - Develops a plan to address water resource problems in the Lake Istokpoga Basin, a natural lake located in Highlands County, and a tributary of both Lake Okeechobee and the Kissimmee River. The focus is to create a balance between environmental needs, water supply and flood control in the basin.

Current Project Synopsis: The LOW project area covers approximately 1,800 square miles and consists of four major planning areas based on the four major tributary systems that naturally drain the lower portion of the watershed into Lake Okeechobee. The purpose is to increase aquatic and wildlife habitat, regulate extreme highs and lows in lake staging, reduce phosphorus loading and reduce damaging releases to the surrounding estuaries. In addition, this project will focus on rehydrating wetlands in and around the areas north of the lake and improve the ecological health of Lake Istokpoga.

As part of the Corps planning process the LOW Project Tentatively Selected Plan (TSP) consists of <u>six</u> structural water storage and treatment features and a recommended Lake Istokpoga Regulation Schedule (LIRS – combining WBS #2, formerly a separate project):

1) **A reservoir in the Taylor Creek/Nubbin Slough basin –** A 1,984-acre reservoir, located in the S-191 sub-basin, will provide a maximum capacity of 32,000 acre-feet at an average depth of 18 feet situated on the Grassy Island Ranch. The reservoir will receive inflows from and discharge back to Taylor Creek. *(One of the ten initial projects authorized in WRDA 2000).*

2) **A stormwater treatment area (STA) in the Taylor Creek/Nubbin Slough basin** A 3,975 acre treatment area will be located in the S-135 sub-basin and have an average operating depth of 1.5 feet. This feature will receive inflow from the L-64 canal and discharge back to the L-47 canal and is projected to provide 15.8 metric tons of average annual phosphorus load reduction. *(One of the ten initially authorized projects in WRDA 2000 - a/k/a Lakeside Ranch STA).*

The Taylor Creek portion of the Lake Okeechobee Water Retention Phosphorus Removal project (Project) has been transferred to the sponsor (SFWMD) who accepted the project and assumed O&M Authority by letter dated 2 May 2011.

The Nubbin Slough portion of the Project is undergoing additional construction by the sponsor sediment transport issues. The project will be completed and transferred to the sponsor for operation and maintenance at the end of FY 2012.

A reservoir in the Kissimmee River basin – A 10,281 acre above ground reservoir will provide a maximum storage capacity of 161,263 acre-feet (at 16 feet average depth. Located in the C-41A sub-basin within the Kissimmee River drainage basin. It will receive flow from and discharge back to the C-38 canal (Kissimmee River).

1) **A reservoir in the Lake Istokpoga basin –** A 5,416-acre reservoir is proposed for the C-40A and C-41A sub-basins and to provide a maximum storage capacity of 79,560 acre-feet (at an average depth of 16 feet). It will receive inflow from and discharge back to the C-41A canal.
2) **A stormwater treatment area in the Lake Istokpoga basin** - An 8,044-acre treatment area will be located in the L-49 sub-basin (at an average operating depth of 1.5 feet). It will receive flow from the C-41 canal and discharge treated water to Lake Okeechobee and is expected to provide approximately 29.1 metric tons of average annual phosphorus load reduction.
3) **Restoring a wetland in Paradise Run** - A 3,730-acre wetland restoration site is planned for the ecologically significant confluence (under pre-development conditions) of Paradise Run, oxbows of the Kissimmee River, and Lake Okeechobee. Restored, it would re-establish a rain-driven hydrology, unless future efforts to further enhance watershed conditions could link the site to the surface flows from the C-38 (Kissimmee River) or C-41A (Istokpoga) Canals.

NOTE: *The Lake Okeechobee Tributary Sediment Dredging project (LOTSD) included in the WRDA 2000 programmatic authorization for implementation of projects with a total project cost under $25 million; was later removed from this project due to non-cost effectiveness.*

Current Status: This project is "on hold" at the request of the sponsor, and the date to revise and complete the PIR has been delayed indefinitely in response.

SFWMD is pursuing a 4,000-acre Taylor Creek Reservoir as part of the Northern Everglades Project (Task Force ID #1112). But it was on hold pending the Northern Everglades Feasibility Study of the Taylor Creek/Nubbin Slough basin.

Est. Cost: $2,093,135,000

Project Schedule:

TBD	Construction start estimated.
TBD	Construction completed.

Detailed Project Budget Information (rounded):

Lake Okeechobee Watershed	Obligations Thru 2014
USACE	$16,271,000
SFWMD	$26,868,000

Hyperlink: http://141.232.10.32/pm/projects/proj_01_lake_o_watershed.aspx

Contact: Jim Hourican, Project Manager, Everglades Division, USACE
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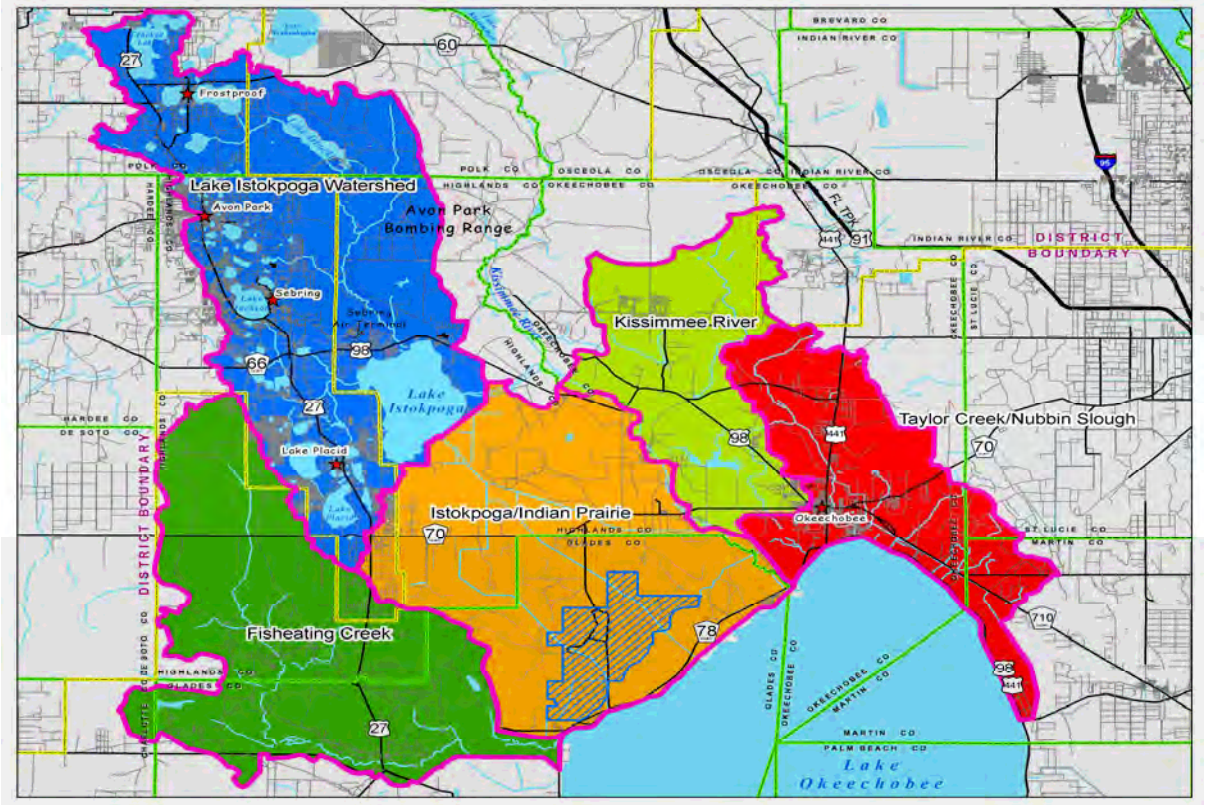
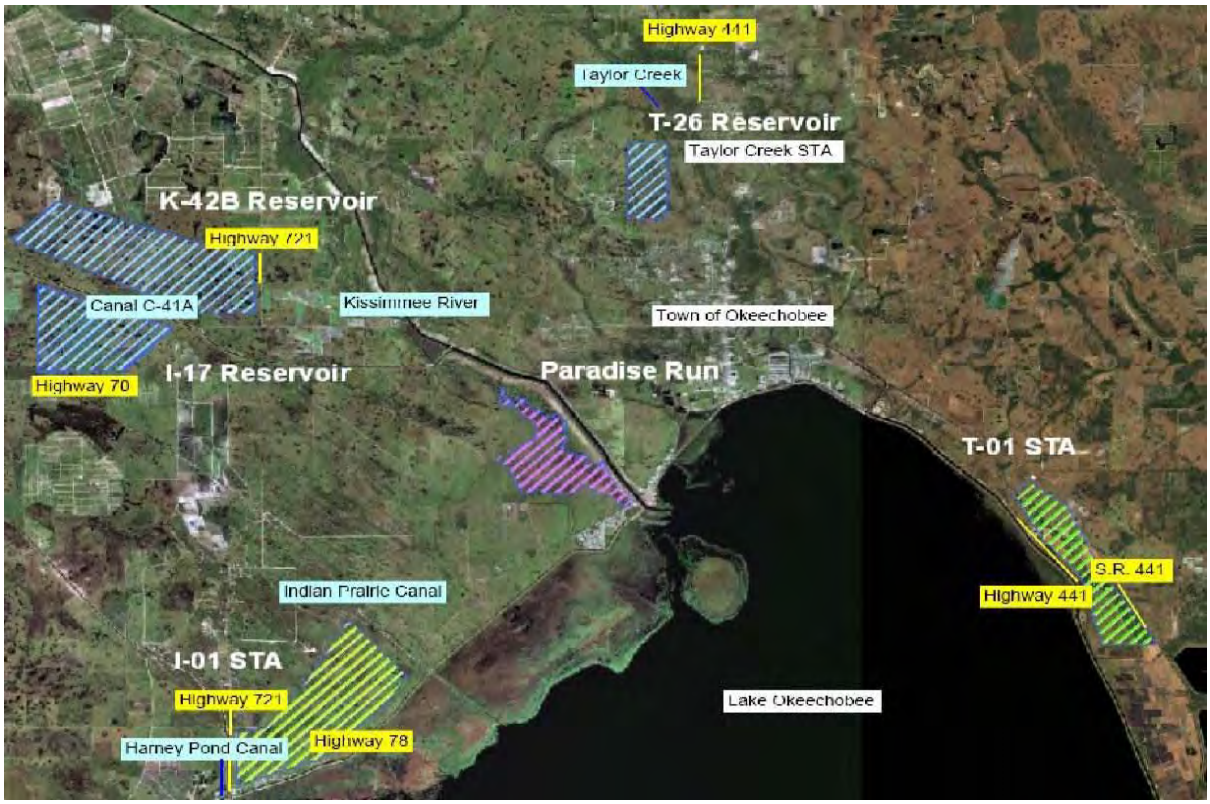
Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2011 dollars. Actual expenditures include all federal expenditures through FY11 (Sept. 2011) and sponsor verified and approved in kind credit through 4th quarter FY11.





Project 1104 C&SF: CERP Lake Okeechobee Watershed Page 5 of 5

Project Name: **C&SF: CERP North Lake Belt Storage Area (XX P2)**
Project ID: 1105 (CERP Project WBS # 25)
Lead Agency: USACE / SFWMD
Authority: Not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Primary: 1-A.1

Measurable Output(s): 90,000 acre-feet reservoir

April 1999 (Restudy) Project Synopsis: Includes canals, pumps, water control structures, and an in-ground storage reservoir with a total capacity of approximately 90,000 acre-feet located in Miami-Dade County within an area proposed for rock mining. The initial design of the reservoir assumed 4,500 acres (water level fluctuating from ground level to 20-feet below grade). A subterranean seepage barrier will be constructed around the perimeter to enable drawdown during dry periods, to prevent seepage losses, and to prevent water quality impact due to the high transmissivity of the Biscayne Aquifer in the area.

Current Project Synopsis: The purpose of this project is to capture and store a portion of the stormwater runoff from the C-6, western C-11 and C-9 Basins. The stored water will be used to maintain stages during the dry season in the C-9, C-6, C-7, C-4 and C-2 canals and to provide fresh water deliveries to Biscayne Bay to aid in meeting salinity targets. Runoff is pumped and gravity fed into the in-ground reservoir from the C-6 (west of Florida's Turnpike), western C-11, and C-9 basins. Outflows from the facility will be directed into the C-9 Stormwater Treatment Area/Impoundment for treatment prior to delivery to the C-9, C-7, C-6, C-4 and C-2 canals.

This project adheres to the original concept outlined in the Restudy. However, a pilot test of this component will be conducted prior to final design to determine construction technologies, storage efficiencies, impacts upon local hydrology, and water quality effects. If necessary, additional stormwater treatment areas will be constructed adjacent to the in-ground reservoir.

Current Status: This project has not yet begun.

Est. Cost: $ 610,223,000

Project Schedule: TBD

Detailed Project Budget Information (rounded):

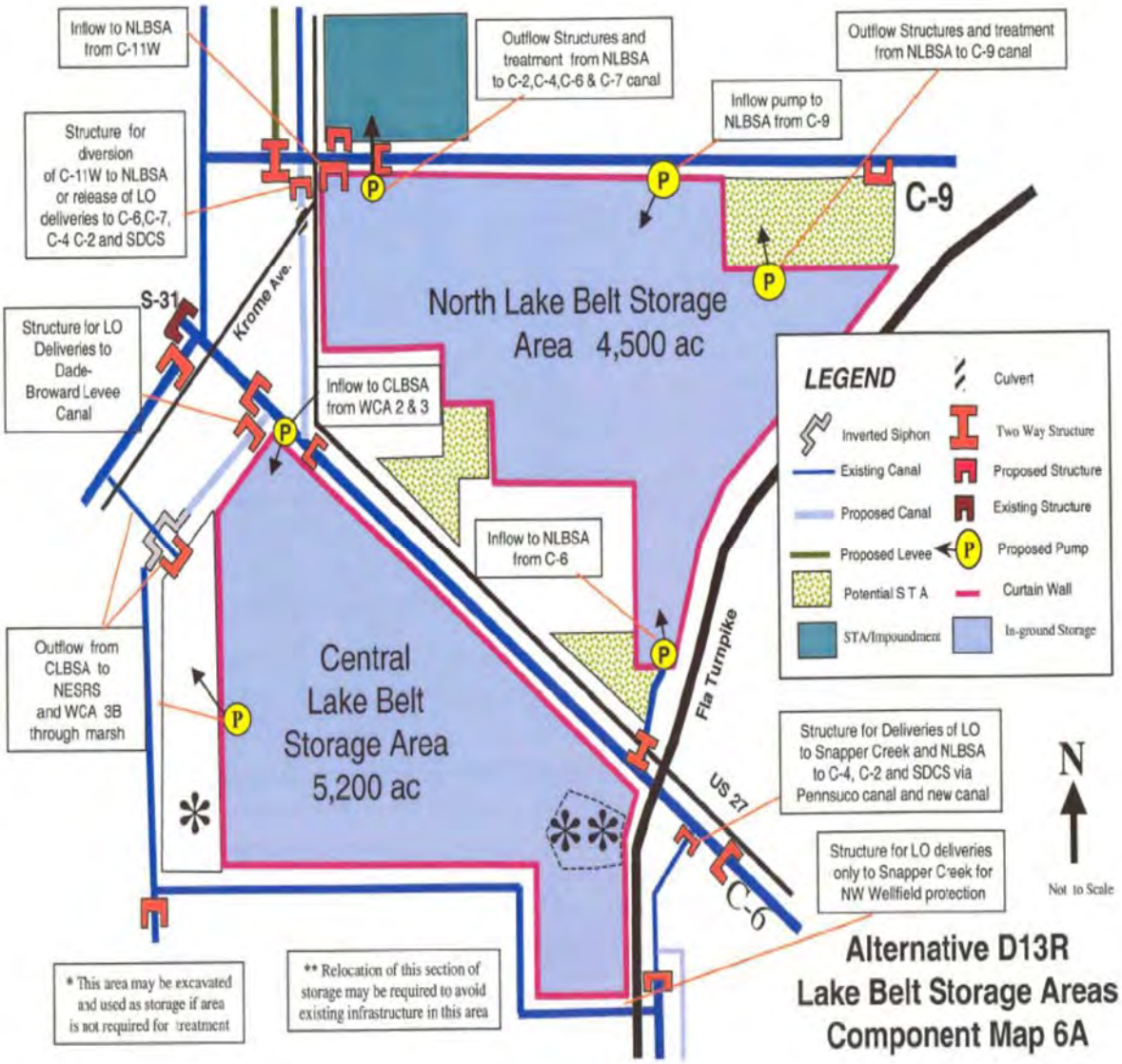
North Lake Belt	Obligations Thru FY 2013
USACE	$0
SFWMD	$0
Total	**$0**

Hyperlink: http://141.232.10.32/pm/projects/proj_25_north_lake_belt.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars.

Additional Information:



Project Name: **C&SF: CERP PBC Agriculture Reserve Reservoir (VV P1)**
Project ID: 1106 (CERP Project WBS # 20)
Lead Agency: USACE / SFWMD
Authority: Not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 1-A.1

Measurable Output(s): 20,000 acre-feet reservoir

April 1999 (Restudy) Project Synopsis: Includes an above-ground reservoir with a total storage capacity of approximately 20,000 acre-feet located in the western portion of the Palm Beach County (PBC) Agriculture Reserve. The initial design assumes a 1,660-acre reservoir (with water levels fluctuating up to 12-feet above grade). Facilities will be filled during the wet season with excess water from the western portions of the Lake Worth Drainage District and possibly from Acme Basin B. Water will be returned to the Lake Worth Drainage District Canals to help maintain canal stages during the dry-season. If water is not available in the reservoir or the associated ASR wells (Part 2), existing rules for water delivery to this region will be applied.

Current Project Synopsis: The purpose of this feature is to supplement water supplies for central and southern Palm Beach County by capturing and storing excess water currently discharged to the Lake Worth Lagoon. These supplemental deliveries will reduce demands on Lake Okeechobee and Loxahatchee National Wildlife Area. It is assumed that this facility could also be designed to achieve water quality improvements in downstream receiving waters, depending upon pollutant loading conditions in the watershed.

The reservoir portion (part 1) is planned to work with the ASR (part 2 WBS #21 discussed on the next page).

Current Status: This project has not yet begun.

Est. Cost.: $ 141,644,987

Project Schedule: TBD

Detailed Project Budget Information (rounded):

PBC Agriculture Reserve Reservoir	Obligations Thru FY13
USACE	$1,377
SFWMD	$0
Total	**$1,377**

Hyperlink: http://141.232.10.32/pm/projects/proj_20_pbc_arr.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars.

Project Name: **C&SF: CERP Site 1 Impoundment (M P1)**
Site 1 Impoundment (Fran Reich Preserve)
Project ID: 1107 (CERP Project WBS # 40)
Lead Agency: USACE / SFWMD
Authority: WRDA 2000 *(Initially Authorized Project);* WRDA 2007
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: **Primary:** 1-A.1 **Secondary:** 2-A.3

Measurable Output(s):
- 13,280 acre-feet reservoir storage
- 114 acres of restored wetland and upland habitat

April 1999 Project Synopsis: The purpose of this project is to supplement water deliveries to the Hillsboro Canal by capturing and storing excess water currently discharged to the Intra-coastal Waterway. These supplemental deliveries will reduce demands on Lake Okeechobee and Loxahatchee National Wildlife Refuge. The impoundment pool will also provide groundwater recharge, reduce seepage from adjacent natural areas, and prevent saltwater intrusion by releasing impounded water back to the Hillsboro Canal when conditions dictate. Some measure of flood protection may also be provided along with water quality improvement.

The project contained in the Restudy was titled *Site 1 Impoundment and Aquifer Storage and Recovery (M)* and included an above-ground reservoir and a series of aquifer storage and recovery wells. The reservoir was estimated with a total storage capacity of approximately 15,000 acre-feet located in the Hillsboro Canal Basin in southern Palm Beach County. The initial design of the reservoir assumed 2,460 acres (water levels fluctuating up to 6 feet above grade). Water from the Hillsboro Canal will be pumped into the reservoir during the wet season or periods when excess water is available and released back to help maintain canal stages during the dry-season.

Associated aquifer storage and recovery wells (separate project) include a total capacity of approximately 150 million gallons per day and associated pre- and post- water quality treatment. An initial design of the aquifer storage and recovery facility assumed 30 well clusters, each with a capacity of five million gallons per day with chlorination for pre-treatment and aeration for post-treatment; sourcing water from the surficial ground water adjacent to the reservoir.

Current Project Synopsis: The original Restudy project has since been divided into two parts. The first part is known as *Site 1 Impoundment* (M P1) (a/k/a *Fran Reich Preserve*) (CERP Project WBS #40), this project, relates to the reservoir portion. The second part, known as the *Hillsboro ASR* (M P2) (CERP Project WBS #22) relates to the aquifer storage and recovery wells portion, and is reported separately.

The reservoir, located adjacent to the Arthur R. Marshall Loxahatchee National Wildlife Refuge in southwestern Palm Beach County will provide water storage considered essential to restoring Everglades historic health and viability. A Tentatively Selected Plan (TSP) for this project (the reservoir) was identified and the Alternative Formulation Briefing (AFB) held in August 2004. The TSP includes a 1,800-acre project footprint with a 1,600-acre 8 foot deep, above-ground impoundment (13,280 acre-feet capacity) and includes an inflow pump station, discharge gated culvert, emergency overflow spillway, and seepage control canal with associated structures.

A revised final PIR received a signed Chief of Engineer's Report in December 2006. The reservoir project was authorized for construction in WRDA 2007 for $80,840,000, subject to appropriations. The project has been sub-divided further into two phases:

1) Phase 1 - D-525N (L-40 modifications) and miscellaneous features; and
2) Phase 2 - the impoundment features.

Current Status: The Water Reservation and allocation were verified by the USACE in January 2010. The USACE released a Supplemental Environmental Assessment (SEA) and Draft Finding of No Significant Impact (FONSI) for phased implementation of the Site 1 Impoundment project in Palm Beach County May 20, 2010, for comment until June 18, 2010. The USACE will construct the reservoir through two separate construction contracts. The Corps awarded the contract for Phase 1 in August 2010 for the amount of $44.1M using funding from the American Recovery and Reinvestment Act. The Corps issued a notice to proceed on October 20, 2010. The original contractor was terminated in July 2012. A completion contractor was procured in January 2013 for $47.8M and is scheduled to be complete in August 2015.

Design is complete on Phase 2 features. Construction for the Phase 2 features is currently on hold.

Est. Cost: $ 309,903,000

Project Schedule:

2010	Construction began on Phase 1
2015	Construction physically complete on Phase 1
TBD	Construction began on Phase 2
TBD	Construction physically complete on Phase 2.

Detailed Project Budget Information (rounded):

Site 1 Impoundment	Obligations Thru FY 2014
USACE	$72,828,000
SFWMD	$8,379,000
Total	**$81,207,000**

Hyperlinks: http://141.232.10.32/pm/projects/proj_40_site_1_impoundment.aspx

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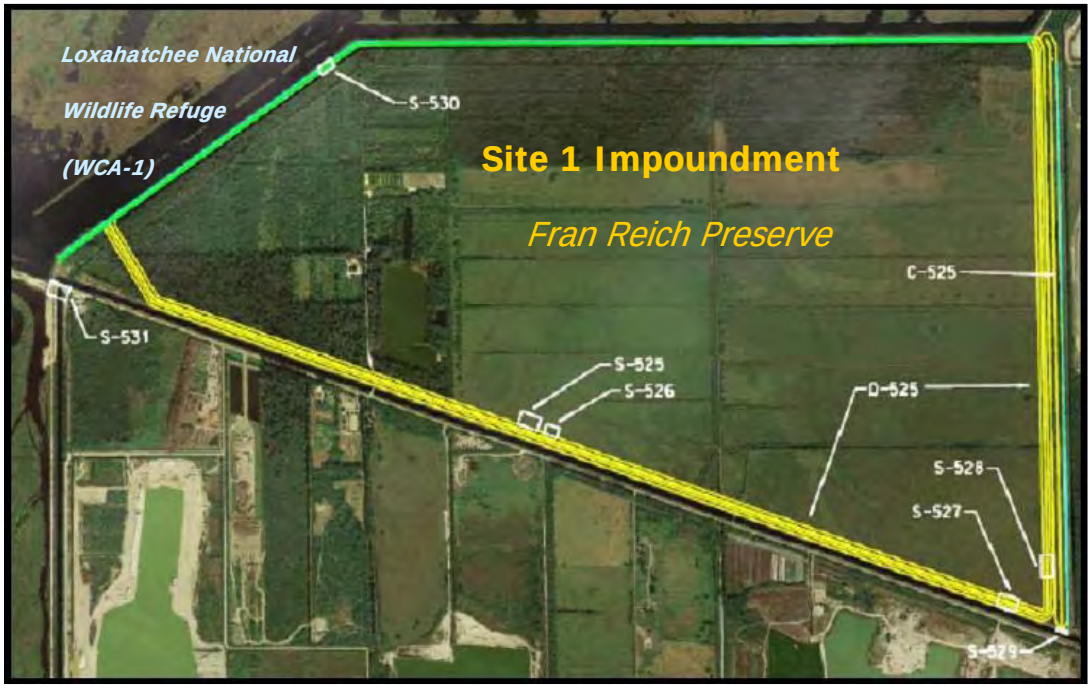
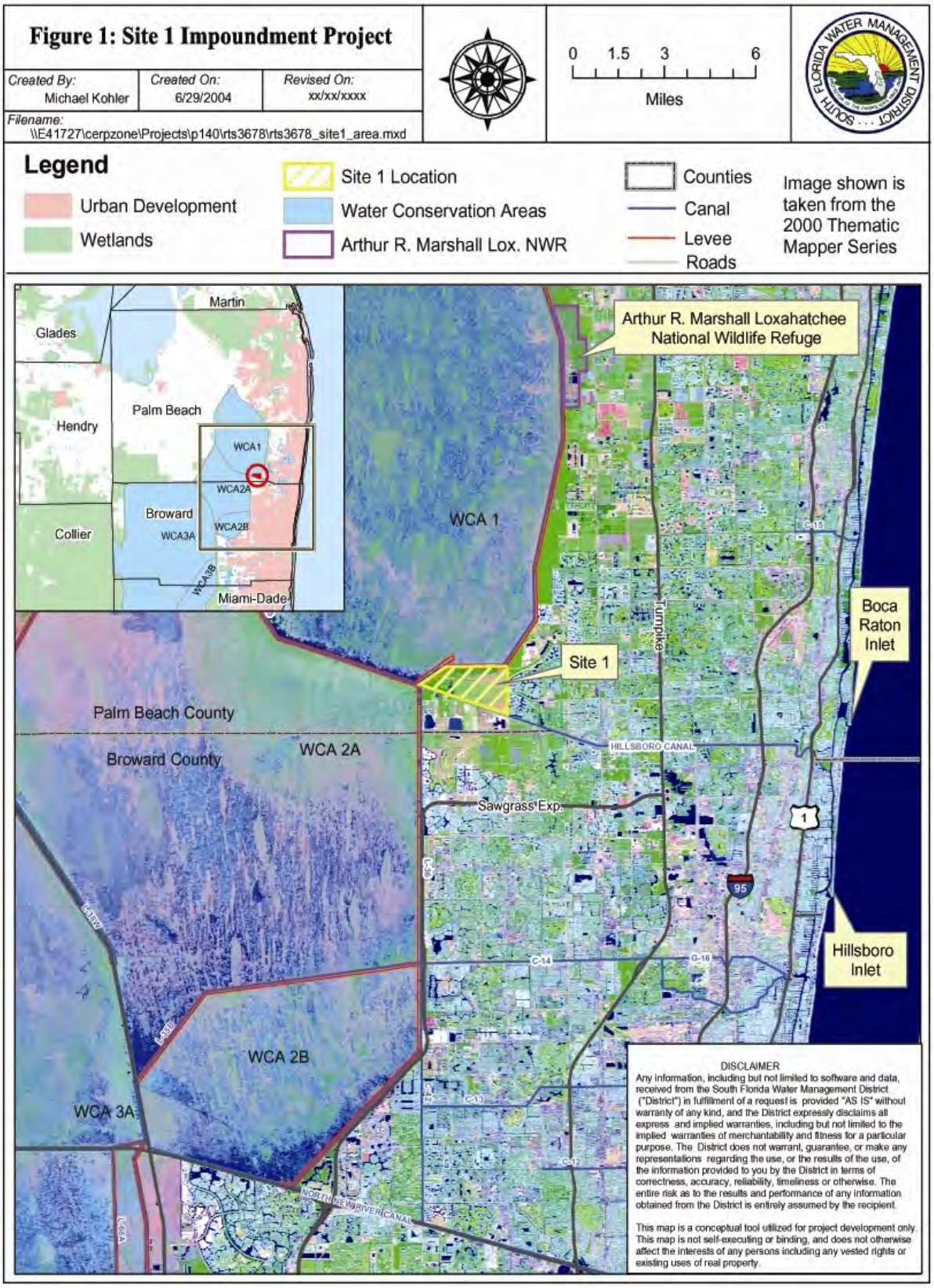
mjmorris@sfwmd.gov

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in April 2013 dollars. Actual expenditures include all federal expenditures through FY14 (Sept, 2014) and sponsor verified and recorded in kind credit through 4th quarter FY14. Current project status includes information summarized from Final PIR/EA (rev. 2006) and authorization in WRDA 2007.

Additional Information:





Project 1107 C&SF: CERP Site 1 Impoundment Page 4 of 4

Project Name: **C&SF: CERP Caloosahatchee River (C-43) West Basin Storage Reservoir and Caloosahatchee Watershed (D P1)**
[F/k/a *C-43 Basin Storage Reservoir – Part 1;* currently 2 PIRs: *Caloosahatchee River (C-43) West Basin Storage Reservoir (PIR #1) and Caloosahatchee Watershed (PIR #2)]*
Project ID: 1109 (CERP Project WBS # 04)
Lead Agency: USACE / SFWMD
Authority: Not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 1-A.1

Measurable Output(s): 170,000 acre-feet storage

April 1999 (Restudy) Project Synopsis: Excess runoff from the C-43 Basin and Lake Okeechobee flood control discharges will be pumped into the initially proposed above-ground reservoir(s) with a total storage capacity of approximately 160,000 acre-feet. The initial design of the reservoir(s) assumed 20,000 acres (water levels fluctuating up to 8 feet above grade). Water from the reservoir will be injected into aquifer storage and recovery well field with a capacity of approximately 220 million gallons per day and associated pre- and post- water quality treatment located in the C-43 Basin in Hendry, Glades, or Lee Counties for long-term storage. Estuarine demands not met by basin runoff and the aquifer storage and recovery wells will be met by Lake Okeechobee as long as the lake stage is above a pre-determined level.

Current Project Synopsis: As part of the Corps planning process, alternative plans were reviewed. The Caloosahatchee (C-43) Basin Storage Reservoir <u>and</u> Aquifer Storage and Recovery (ASR) project (originally component D in the Yellow Book) have been divided into two projects: The latter portion is now a separate project designated D P2 (part 2), previously USACE WBS #5. In 2007, D P1 (part 1), represented here, was further subdivided into two distinct Project Implementation Reports (PIRs):

(1) **Caloosahatchee River (C-43) West Basin Storage Reservoir (WBSR)** will capture excess C-43 Basin runoff and regulatory releases from Lake Okeechobee and release water to the Caloosahatchee Estuary when needed helping to restore the Caloosahatchee estuarine and riverine ecosystems by improving hydrologic conditions with improved water delivery and by improving water quality by reducing salinity and nutrient impacts of runoff. To achieve this goal, the team identified two key objectives: (1) provide additional water to the estuary to augment low or no flows over Structure S-79 during the dry season/dry periods, and (2) reduce damaging peak flows to the estuary by capturing and storing excess basin run-off and Lake Okeechobee releases during high flow conditions.

(2) **Caloosahatchee Watershed** will address further water storage needs for the Caloosahatchee Estuary as well as water quality, water management, and ecological restoration challenges; while also ensuring that agricultural water supply requirements and flood attenuation are not negatively impacted. The project will build on the state's Caloosahatchee River Watershed Protection River Plan (January 2009). Goals include: (1) Identify, evaluate and implement methods and/or means of further decreasing dependency upon water releases from Lake Okeechobee, without disrupting water supply needs in the basin; (2) Identify, evaluate and implement methods and/or means to restore the Estuary by storing and releasing water flows in a more natural manner; and (3) Identify, evaluate and implement methods and/or means to enhance basin water quality.

Current Status:

(1) ***Caloosahatchee River (C-43) West Basin Storage Reservoir (WBSR) 2007 PIR*** addresses formulation, evaluation, and justification of a separable reservoir project in the lower basin. Following the ***Memorandum for Record Land Valuation and Crediting Policy – CE***RP Projects (July 2009), the PIR was updated with an addendum based on the latest policy decision and a re-assessment of alternative cost estimates, including the real estate re-evaluation and was finalized by HQ. A Chief's Report was completed in March 2010. The Record of Decision (ROD) and submission to Congress occurred in April 2011. The project was authorized in the Water Resources Reform and Development Act (WRRDA) 2014. As a state expedited project, the SFWMD designed a reservoir at the Berry Groves site, and final plans and specifications were completed in 2008. The plan includes a 170,000 acre-foot storage reservoir with a 1500 cfs pump capacity.

(2) The design and construction of the project is being performed by the non-federal sponsor, the South Florida Water Management District (SFWMD). SFWMD will design/construct the project in two phases beginning with the western cell, two pump stations, and the perimeter canal. The eastern cell and appurtenances construction is pending additional State funding. The first contract will be awarded in August 2015 and construction of the western cell is scheduled for June 2020.

(3) ***Caloosahatchee Watershed draft Project Management Plan (PMP) was sent*** to the SFWMD in November 2008 for comment. However, cost estimates and a schedule associated with the modeling were in ***flux with policy questions remaining from the overall C-43 WBSR*** PIR split. PMP adjustments include narrowing scope to river and estuary restoration, addressing the savings clause, the modeling plan and identification of the base conditions. Internal review, local sponsor review and full interagency PDT involvement is ongoing. A final PMP was completed in September 2010. Initiation of the PIR has been delayed.

Est. Cost:
Caloosahatchee River (C-43) West Basin Storage Reservoir: $649,136,000

Caloosahatchee Watershed: $ 287,000

Project Schedule:

Caloosahatchee River (C-43) West Basin Storage Reservoir:

TBD Start construction.
TBD Storage reservoir construction completed.

Caloosahatchee Watershed:
TBD

Detailed Project Budget Information (rounded):

Caloosahatchee River (C-43) West Basin Storage Reservoir (DP1)	**Obligations Thru FY 2014**
USACE	$8,870,000
SFWMD	$30,351,000
Total	**$39,221,000**

Caloosahatchee Watershed	Obligations Thru FY 2013
USACE	$286,589
SFWMD	$0
Total	**$286,589**

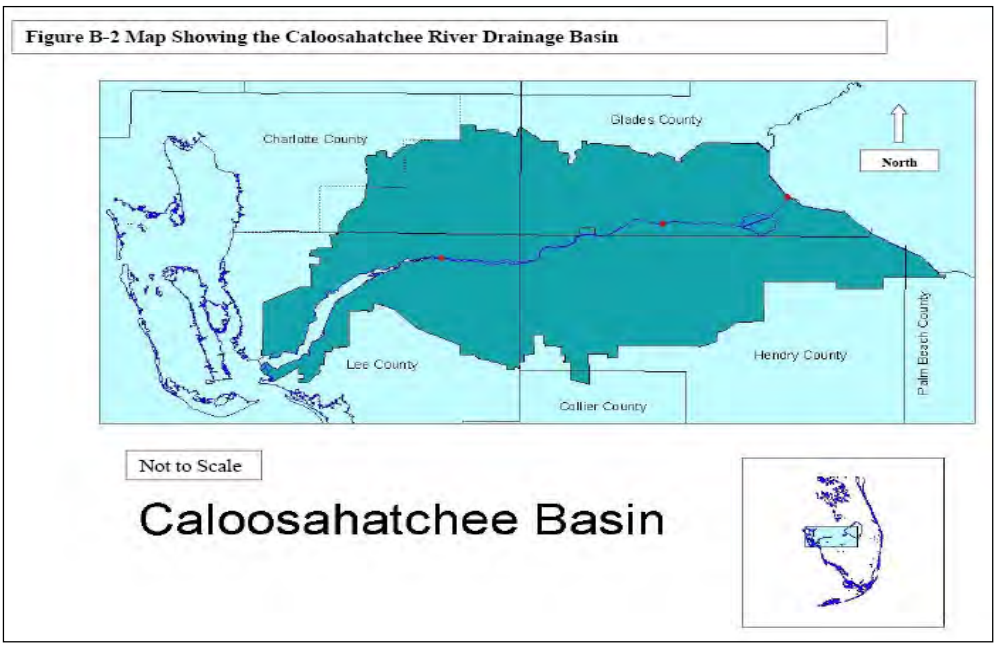
Hyperlinks: http://141.232.10.32/pm/projects/proj_04_c43_basin_1.aspx

Contact: Steve Baisden, Project Manager, Everglades Division, USACE
Stephen.A.Baisden@usace.army.mil

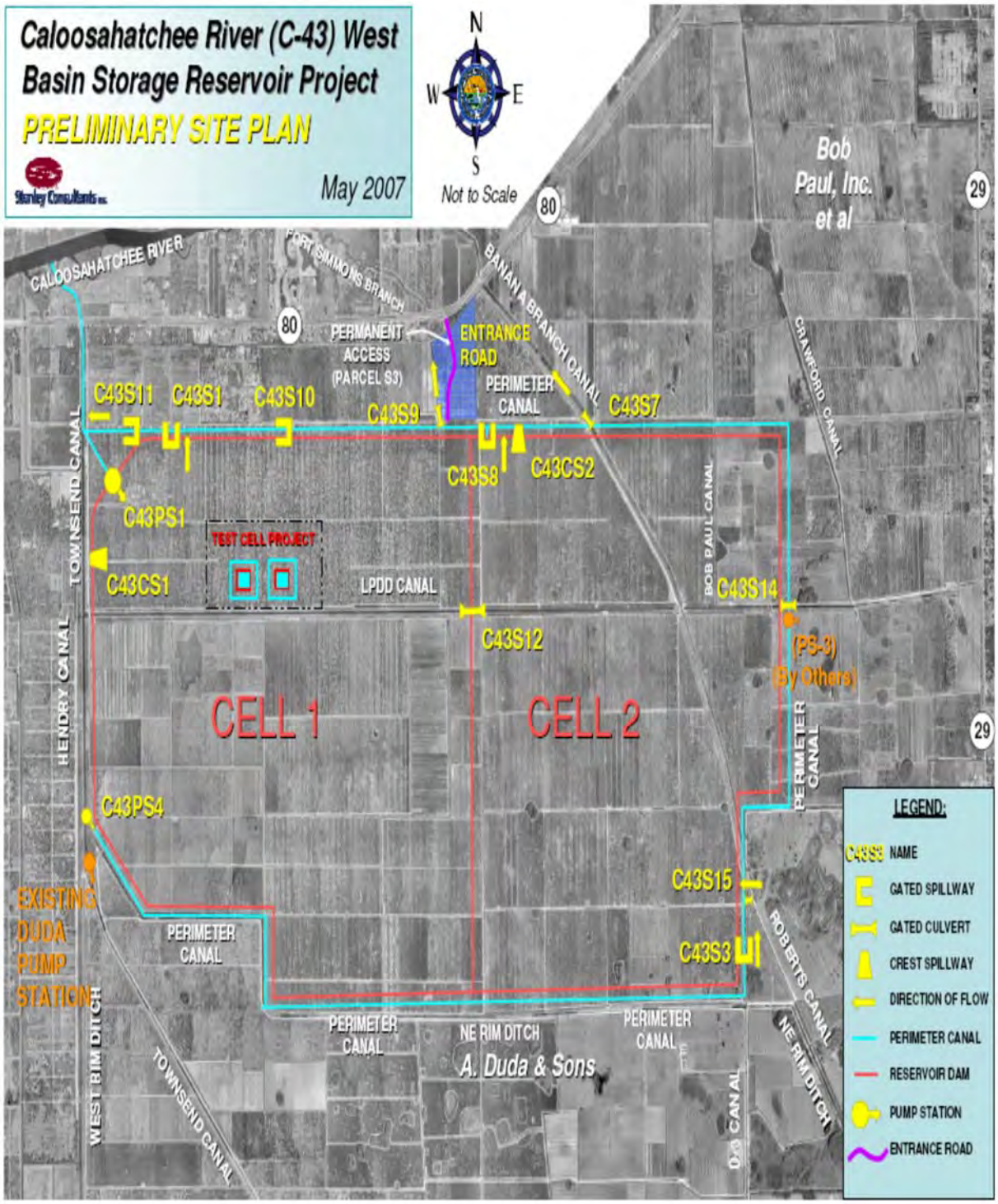
Janet Starnes, Project Manager, SFWMD
jstarne@sfwmd.gov

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars. Actual expenditures include all federal expenditures through FY11 (Sept, 2011) and sponsor verified and approved in kind credit through 4th quarter FY11. Schedule is updated based on the approved *Integrated Delivery Schedule Through 2020* (February 10, 2010).

Additional Information:



Project 1109 C&SF: CERP Caloosahatchee River (C-43) West Basin Storage Reservoir and Caloosahatchee Watershed Page 3 of 7


Caloosahatchee River (C-43) West Basin Storage Reservoir Project
PRELIMINARY SITE PLAN
May 2007
Stanley Consultants
N
W
E
S
Not to Scale
Bob Paul, Inc. et al
CALOOSAHATCHEE RIVER
FORT SIMMONS BRANCH
BANANA BRANCH CANAL
PERMANENT ACCESS (PARCEL S3)
ENTRANCE ROAD
PERIMETER CANAL
C43S11
C43S1
C43S10
C43S9
C43S7
C43S8
C43CS2
C43PS1
TEST CELL PROJECT
C43CS1
LPDD CANAL
C43S12
C43S14
(PS-3) (By Others)
CELL 1
CELL 2
TOWNSEND CANAL
HENDRY CANAL
BOB PAUL CANAL
CRAWFORD CANAL
PERIMETER CANAL
C43PS4
EXISTING DUDA PUMP STATION
C43S15
C43S3
ROBERTS CANAL
NE RIM DITCH
WEST RIM DITCH
A. Duda & Sons
LEGEND:
C43S3 NAME
GATED SPILLWAY
GATED CULVERT
CREST SPILLWAY
DIRECTION OF FLOW
PERIMETER CANAL
RESERVOIR DAM
PUMP STATION
ENTRANCE ROAD

Project Name: C&SF: CERP Caloosahatchee River (C-43) West Basin Storage Reservoir and Caloosahatchee Watershed
Project ID: 1109A (CERP Project WBS #04 and 05)
Lead Agency: SFWMD
Authority: Comprehensive Everglades Restoration Plan Design Agreement
Funding Source: State

Strategic Plan Goal(s) Addressed: Primary: 1.A.1 **Secondary:** 1.A.2

Measurable Output(s): 170,000 ac-ft reservoir; runoff storage from Caloosahatchee River (C-43) basin and Lake Okeechobee; releases to the downstream Caloosahatchee Estuary to restore ecological function and productivity; secondary purposes are limited flood attenuation and water supply, once the estuary needs have been met.

Project Synopsis: There is no longer an expedited portion of the project. All activities are now being conducted under the CERP and the approved Project Implementation Report. The Caloosahatchee River West Basin Storage Reservoir is Part I of the project. The Caloosahatchee Basin ASR is Part II. This project will comprise a significant portion of the total water storage requirement for the C-43 basin. The project consists of an above-ground reservoir located south of the Caloosahatchee River and west of the Ortona lock (S-78). Storage capacity is approximately 170,000 acre-feet. Water depth will vary from 15-25 feet. The reservoir will be constructed on an approximate 10,500-acre parcel in Hendry County, west of LaBelle.

Current Status: Tree clearing efforts to remove approximately 6,000 acres of citrus were completed in October 2010. The Record of Decision for the Caloosahatchee River (C-43) West Basin Storage Reservoir was signed in April 2011, and the approved Project Implementation Report and Environmental Impact Statement were submitted to Congress requesting authorization. The WRRDA of 2014 authorized the project. Water reservation rule development to support the CERP Caloosahatchee River West Basin Storage Reservoir Project was adopted and the effective date is July 16, 2014. In early 2014 the SFWMD made the decision to move forward with the construction of a portion of the Caloosahatchee River (C-43) West Basin Storage Reservoir Project. The construction has been broken in to two phases. Phase 1, to be completed in 2020, will include construction of: the western storage cell (Cell 1) of the reservoir; two pump stations; the full perimeter canal and associated water control structures; and required improvements to the State Road 80 Bridge and the Townsend Canal. Phase 2 will construct the eastern cell (Cell 2) of the reservoir.

Total Estimated Project Cost: $610,736,000 (October 2009 price levels)

Scheduled Construction Start Date: September 2015
Scheduled Project Completion Date: TBD

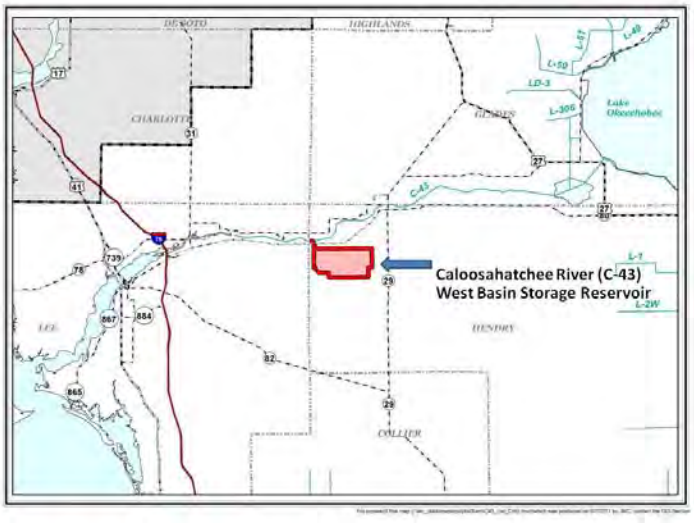
Actual Expenditures to date by SFWMD*:

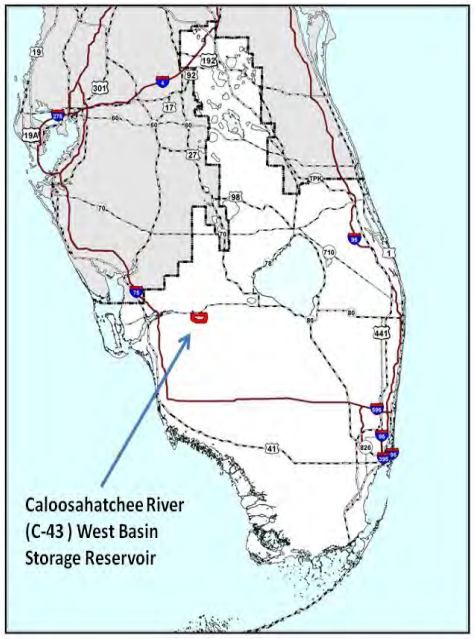
	Thru 2009	2010	2011	2012	2013	2014**	Total
SFWMD	$79,976,621	$1,528,741	$300,382	$183,330	$22,418	$101,948	$82,113,440

*Credit for expedited work subject to inclusion in authorized Federal project. Amount estimated subject to credit once project is authorized and authorization has been given to credit work accomplished prior to signing of a PPA.
**Through April 2014

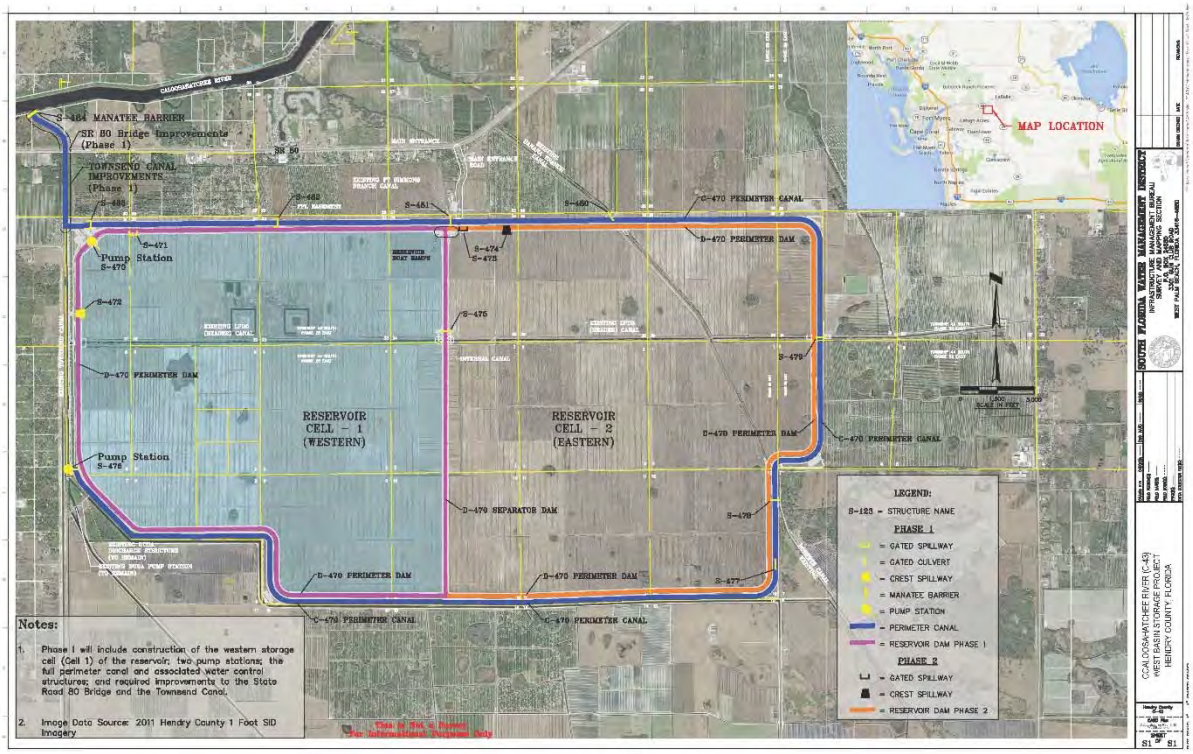
Hyperlink:
http://www.sfwmd.gov/portal/page/portal/xrepository/sfwmd_repository_pdf/spl_caloos_c43_reservoir.pdf

Contact: Janet Starnes, SFWMD, jstarne@sfwmd.gov





The SFWMD acquired the project land and completed the construction and testing of reservoir test cells to evaluate seepage barriers and levee construction design. This information was applied to the detailed design of the reservoir that SFWMD completed in January 2008.



Current schematic of the Caloosahatchee River (C-43) West Basin Storage Reservoir showing the phasing of the construction.

Project Name: **C&SF: CERP Central Lake Belt Storage Area (S P1 & S P2) (EEE)**
Project ID: 1110 (CERP Project WBS # 26)**:** *Central Lake Belt Storage Area (S); Flows to Eastern Water Conservation Ares (EEE - previously WBS #23)*
Lead Agency: USACE / SFWMD
Authority: Not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: **Primary:** 1-A.1 **Secondary:** 1-B.1

Measurable Output(s):

- 190,000 acre-feet storage
- 640 acres stormwater treatment area

April 1999 (Restudy) Project Synopsis:
S and *EEE:* Includes pumps, water control structures, a stormwater treatment area of 640 acres (water level fluctuating up to 4-feet above grade), and a combination above-ground and in-ground storage reservoir of 5,200 acres (water level fluctuating from 16-feet above to 20-feet below grade) with a total storage capacity of approximately 190,000 acre-feet located in Miami-Dade County. A subterranean seepage barrier will be constructed around the perimeter to enable drawdown during dry periods and to prevent seepage losses. A pilot will address potential impacts to the county's Northwest Wellfield during construction and/or operation.

Excess water from Water Conservation Areas 2 and 3 will be diverted into the L-37, L-33, and L-30 Borrow Canals, running along the eastern boundaries of the Water Conservation Areas, and pumped into the Central Lake Belt Storage Area. Water supply deliveries will be pumped through an STA prior to discharge to the Everglades via the L-30 Borrow Canal and a reconfigured L-31N Borrow Canal. A structure will be provided on the Snapper Creek Canal to provide regional system deliveries when water from the Central Lake Belt Storage Area is not available to: (1) Northeast Shark River Slough, (2) Water Conservation Area 3B, and (3) to Biscayne Bay through Snapper Creek Canal at Florida's Turnpike, improving hydropatterns in that order, if available.

Current Project Synopsis: The purpose of the feature is to store excess water from Water Conservation Areas 2 and 3 and to provide environmental water supply deliveries to: (1) Northeast Shark River Slough, (2) Water Conservation Area 3B, and (3) to Biscayne Bay, in that order, if available. It is assumed that water diverted from WCAs 2 and 3 is of adequate quality to return to the Everglades Protection Area and Biscayne Bay. Final configurations and treatment requirements were to come from a Water Preserve Areas Feasibility Study.

Though drafted, the study scope became too large, so projects are being revisited separately.

Current Status: A pilot test of this technology will be conducted prior to final design of this component. Since this facility is to be located within a protection area, the pilot test will be designed to identify and address potential impacts to the Miami-Dade County's Northwest Wellfield, which may occur during construction and/or operation. Project is planned in the future.

Est. Cost: $ 1,198,504,000

Project Schedule: TBD

Detailed Project Budget Information (rounded):

Central Lake Storage Reservoir (S)	**Obligations Thru FY 2013**
USACE	$0
SFWMD	$0
Total	**$0**

Flows to Eastern Water (EEE)	**Obligations Thru FY 2013**
USACE	$0
SFWMD	$0
Total	**$0**

Hyperlinks: http://141.232.10.32/pm/projects/proj_26_central_lake_belt.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars.

Project Name: **E&SF: Critical Projects - Ten Mile Creek Water Preservation Area**
Project ID: 1111
Lead Agency: USACE / SFWMD
Authority: WRDA 1996 (Section 528); WRDA 2007 *(amended cumulative cap)*
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: **Primary:** 1-A.1 **Secondary:** 2-A.3

Measurable Output(s):

- 6,000 acre feet of storage provided on 526 acres of land
- 2,740 acres of habitat improved by project

Project History: WRDA 1996 authorizes the Secretary of the Army to expeditiously implement restoration projects deemed critical to the restoration of the south Florida ecosystem. The SFER Task Force nominated 35 projects with input from the Governor's Commission for a Sustainable South Florida and the public. Based on the set of priorities, the USACE conducted an abbreviated study of and produced a report transmitted to the Secretary of the Army for approval. This is one of the 12 restoration "Critical Projects" having the Secretary of the Army's approval (WRDA 1996). However, Federal funding caps under WRDA 1996 and later revised under WRDA 2007 provide a $95M spending limit.

Current Project Synopsis: Ten Mile Creek is the largest sub-basin delivering water to the North Fork of the St. Lucie River Estuary (SLE), which has been established as an *Outstanding Florida Water* (OFW). The SLE discharges into the Indian River Lagoon, also an OFW, and the most biologically diverse estuary in North America. The entire lagoon is endangered by increased watershed runoff. Excess stormwater, due to drainage improvements, is causing radical fluctuations of the salinity concentration in the estuary. Adverse salinity concentrations eliminate viable habitat suitable for oysters, sea grasses, and marine fish spawning.

The project site is located just south of Ten Mile Creek in St. Lucie County and consists of the acquisition of 1,559 acres of land in the eastern portion of the Ten Mile Creek Basin and construction of an above-ground impoundment for stormwater detention purposes. It includes construction of a pump station and several control structures for circulation and discharge within the project. A constructed wetland or flow-through marsh has been added for additional water quality improvement purposes. This feature includes construction of a water preserve area and polishing cell to attenuate flows and improve water quality.
Detailed monitoring will provide practical information about how well the reservoir can capture nutrients on its own, prior to treatment in the STA; fish and wildlife use of the reservoir; and whether species can persist under a greatly fluctuating hydrologic regime.

The 1998 Tentatively Selected Plan (TSP) provides seasonal or temporary storage of stormwater from the Ten Mile Creek basin. Land certification, plans and spec completion and the construction award occurred in 2003; and construction was physically completed on the Ten Mile Creek Water Preserve Area by June 2006. Since that time, interim operations, testing and monitoring have been under way by the South Florida Water Management District (SFWMD) and the U.S. Army Corps of Engineers (USACE) in accordance with the Water Quality Permit and Project Cooperation Agreement.

During the process for preparation to transfer the project to the sponsor (SFWMD) for full operations, concerns were raised about some aspects of the project. In September 2007, the USACE and the SFWMD immediately began identifying all issues and planning a course of action toward remediation and delivering a quality project. This effort identified additional project needs and their associated costs, which were significant.

Current Status: On June 1, 2009 the SFWMD ceased Operations and Maintenance. As current holder of the FDEP permit, the USACE is responsible for the facility. That same month, the SFWMD transferred responsibility for the Ten Mile Creek project to the USACE and discontinued active project participation. The Corps has placed the facility in a passive operating state in order to limit project expenditures, which are within $33K of the $25M Federal spending cap set for Critical Projects (WRDA 1996 and WRDA 2007.)

The 2009 Water and Energy Appropriations Act increased the spending authorization by $3.5M. The $3.5M would be used to complete a post authorization change report and to fund facility maintenance thru FY2014. A Feasibility Cost Share Agreement (FCSA) was underway from September 2010 through April 2011 between USACE and SFWMD, which would increase project spending cap, with the non-Federal sponsor, to begin the post authorization change report. However the agreement was put on hold by the SFWMD in April 2011, pending the outcome of the litigation efforts.

The Ten Mile Creek WPA project has been in a passive operating state since 2009. Temporary operational testing of the reservoir was conducted for data collection purposes from Dec. 15, 2011, to March 2012 to monitor and evaluate the performance of the reservoir. Upon completion of the limited operations of the Ten Mile Creek WPA, all water was pumped out of the reservoir and back into Ten Mile Creek and the project has been returned to a passive operating state. The data collected is being used by the government and will assist the U.S. Army Corps of Engineers in identifying the future operation plan for the Ten Mile Creek WPA.

Est. Cost: $ 57,000,000

Project Schedule:

1997	Start
2006	Finish Construction
2007	Interim Operations and Monitoring – SFWMD
2009	Passive Operations and Monitoring begun - USACE
2015	SFWMD temporary operational testing

Detailed Project Budget Information (rounded):

Ten Mile Creek	Obligations Thru FY 2013
USACE	$24,966,898
SFWMD	$24,703,122
Total	$49,670,020

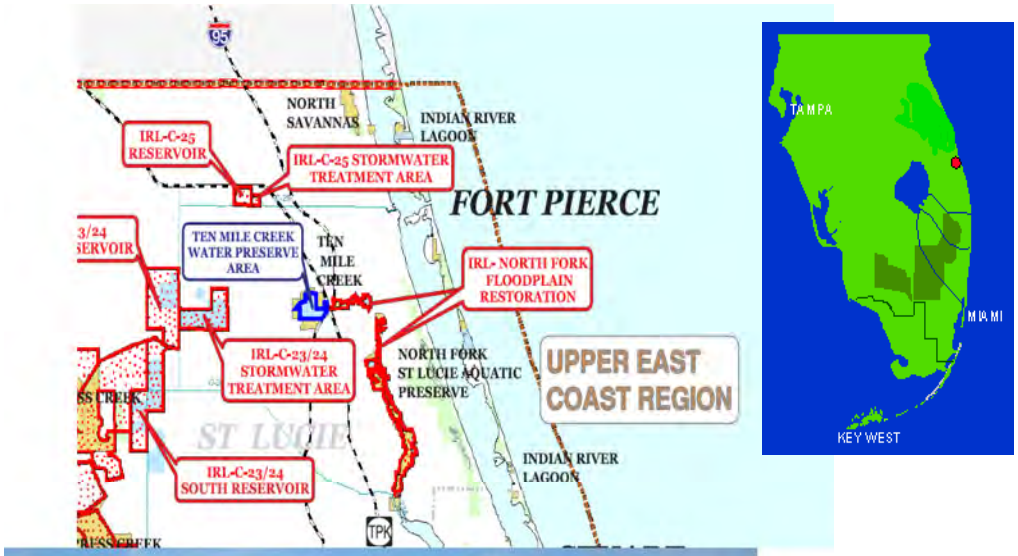
Hyperlink:http://www.saj.usace.army.mil/Portals/44/docs/Environmental/Ten%20Mile%20Creek/10 Mile_FS_March2015.pdf

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Alan Shirkey, Lead Engineer, SFWMD
ashirkey@sfwmd.gov

Source: Project description was summarized from the *Central and Southern Florida Project Comprehensive Review Study (1999).* Current status information was provided by the program manager.

Additional Information:



Project Name: **C&SF: CERP WPA Conveyance (XX Part 1)**
A/k/a ***Water Preserve Area Conveyance***
Project ID: 1113 (CERP Project WBS # 49)
Lead Agency: USACE / SFWMD
Authority: Not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 1-A.1

Measurable Output(s): 90,000 acre-feet reservoir

April 1999 (Restudy) Project Synopsis: Includes water control structures and modifications to the Dade-Broward Levee and associated conveyance system located in Miami-Dade County.

Current Project Synopsis: The purpose of this water preservation area is to reduce seepage losses to the east from the Pennsuco Wetlands and southern Water Conservation Area 3B, enhance hydroperiods in the Pennsuco Wetlands, and provide recharge to Miami-Dade County's Northwest Well field. This project adheres to the original concept outlined in the Restudy.

Current Status: This project has not yet begun.

Est. Cost: $ 447,340,594

Project Schedule: TBD

Detailed Project Budget Information (rounded):

WPA Conveyance	Obligations Thru FY 2013
USACE	$227,451
SFWMD	$0
Total	**$227,451**

Hyperlink: http://141.232.10.32/pm/projects/proj_49_wpa.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars. Actual expenditures include all federal expenditures through FY09 (Sept, 2009) and sponsor verified and recorded in kind credit through 4th quarter FY07.

Project Name: **C&SF: CERP ENP Seepage Management (V) (FF) (U) (BB)**
Project ID: 1114 (CERP Project WBS # 27 and # 43)
Lead Agency: USACE / SFWMD
Authority: WRDA 2000 *(only 'BB' Programmatic Authority < $25 M)*; others not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 1-A.1

Measurable Output(s): 11,500 acre-feet storage

April 1999 (Restudy) Project Synopsis: Includes three components: (1) L-31N Improvements for Seepage Management (Component FF), (2) S-356 Structures (Component V), and (3) the Bird Drive Recharge Area. These three components will improve water deliveries to Northeast Shark River Slough (NESRS) and restore wetland hydroperiods and hydropatterns in ENP via seepage management. Groundwater flows during the wet season are captured by ground water wells adjacent to L-31N and pumped to ENP. The CERP L-31N improvements for seepage management and S-356 structures components included relocating and enhancing L-31N, groundwater wells and sheetflow delivery system adjacent to ENP in Miami-Dade County. Detailed planning, design, and pilot studies were to be conducted to determine the appropriate technology to control seepage from ENP. Also included was a feature to relocate the Modified Water Deliveries structure S-357 to provide more effective water deliveries to ENP.

The original project description includes pumps, water control structures, canals, and an aboveground recharge area with a total storage capacity of approximately 11,500 acre-feet. The initial design of the recharge feature assumed 2,877 acres (water level fluctuating up to 4-feet above grade). Final design will enhance and maintain the continued viability of wetlands within the basin. Inflows from the western C-4 Canal Basin and from the proposed West Miami-Dade Wastewater Treatment Plant will be pumped into the Recharge Area. Recharge area outflows will be prioritized to meet: (1) groundwater recharge demands, (2) South Dade Conveyance System demands, and (3) Northeast Shark River Slough demands, when supply is available. Regional system deliveries will be routed through the seepage collection canal system of the Bird Drive Recharge Area to the South Dade Conveyance system.

Current Project Synopsis: The purpose of this feature is to improve water deliveries to Northeast Shark River Slough (NESRS) and restore wetland hydropatterns in ENP by reducing levee and groundwater seepage and increasing sheetflow. During the Corps planning process, evaluation of existing and future without project conditions was necessary as the Yellow Book description was limited. Detailed planning, design, and pilot studies [CERP L-31N (L-30) Seepage Management Pilot] will be conducted to determine the appropriate technology to control seepage from ENP and an appropriate amount of wet season groundwater flow control to minimize potential impacts to Miami-Dade County's west well field and freshwater flows to Biscayne Bay.

The Bird Drive Recharge Area feature was added in 2004 to recharge groundwater and reduce seepage from ENP buffer areas by increasing water table elevations east of Krome Avenue. The facility should provide C-4 flood peak attenuation and water supply deliveries to South Dade Conveyance System and NESRS. As of 2008, the project evaluates four of the 68 components in the Restudy: L-31N Improvements (V), S-356 Structure Relocation (FF), Drive Recharge Area (U) and Dade-Broward Levee/Pennsuco Wetlands (BB) (added from North Lake Belt Storage Area - WPA Conveyance Area project).

Current Status: ENPSM is on hold pending the results of the L-31N Seepage Management Pilot project. ENPSM is expected to resume plan formulation efforts in 2013.

ENPSM will need a flexible plan due to the highly variable rates of seepage during dry and wet years along with inconsistent aquifer hydro-geomorphology making a regional "k-value" (conductivity) determination difficult. Preliminary modeling indicated flooding potential within and east of the project site as a result of constructing and operating the ModWaters and DECOMP features – but, was not noted in the coarser SFWMM 2X2 model. The RECOVER review was completed in 2009.

Est. Cost: $ 549,905,000

Project Schedule: This project is currently suspended.

Detailed Project Budget Information (rounded):

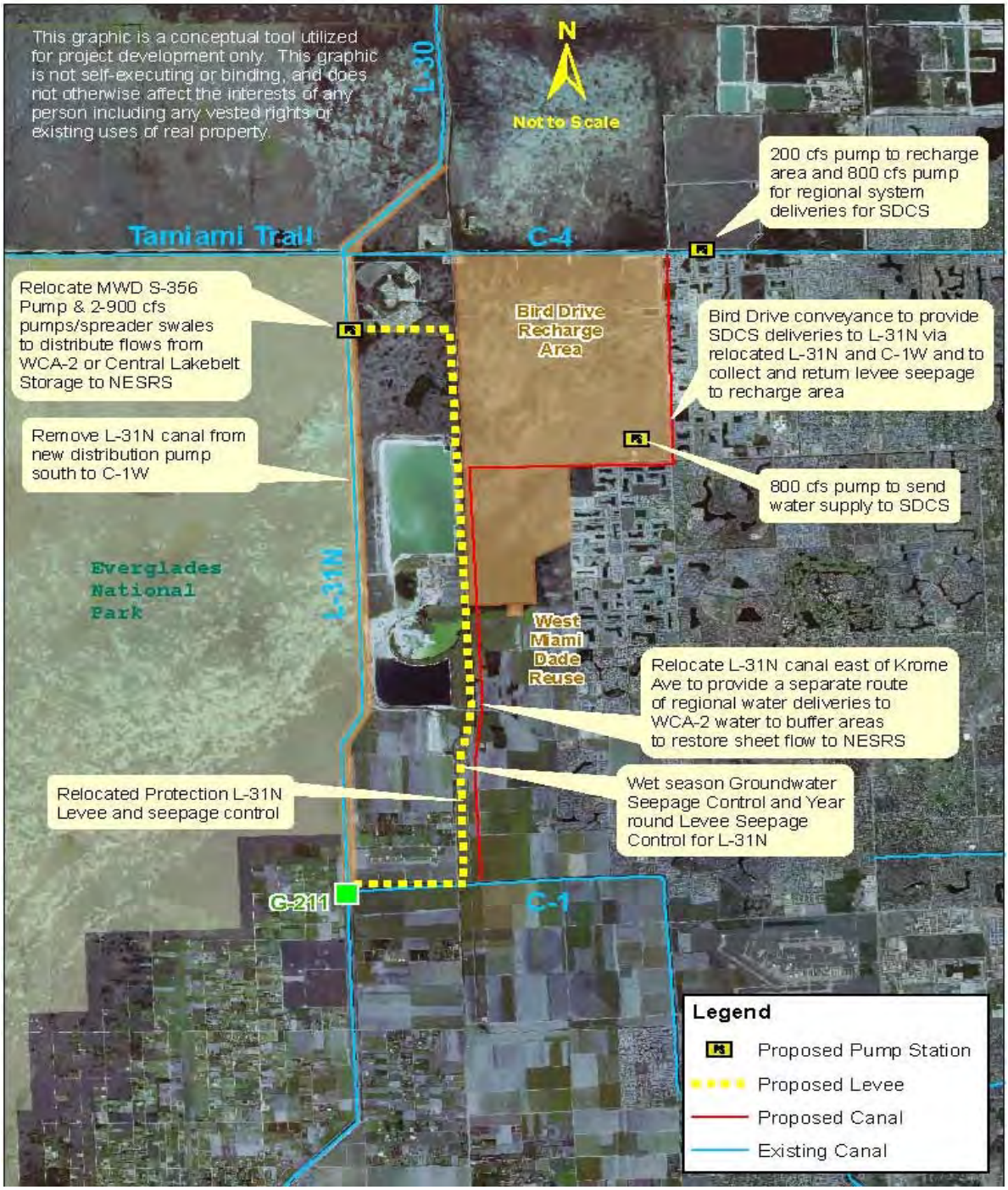
ENP Seepage Mgt.	Obligations Thru FY 2013
USACE	$2,648,512
SFWMD	$385,525
Total	**$3,034,037**

Hyperlink: http://141.232.10.32/pm/projects/proj_27_enp_seepage.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars. Actual expenditures include all federal expenditures through FY09 (Sept, 2009) and sponsor verified and recorded in kind credit through 4th quarter FY07. Schedule is updated based on the approved *Integrated Delivery Schedule Through 2020* (February 10, 2010).

Additional Information: *(see next page)*


This graphic is a conceptual tool utilized for project development only. This graphic is not self-executing or binding, and does not otherwise affect the interests of any person including any vested rights or existing uses of real property.
N
Not to Scale
L-30
Tamiami Trail
C-4
200 cfs pump to recharge area and 800 cfs pump for regional system deliveries for SDCS
Relocate MWD S-356 Pump & 2-900 cfs pumps/spreader swales to distribute flows from WCA-2 or Central Lakebelt Storage to NESRS
Bird Drive Recharge Area
Bird Drive conveyance to provide SDCS deliveries to L-31N via relocated L-31N and C-1W and to collect and return levee seepage to recharge area
Remove L-31N canal from new distribution pump south to C-1W
800 cfs pump to send water supply to SDCS
Everglades National Park
L-31N
West Miami Dade Reuse
Relocate L-31N canal east of Krome Ave to provide a separate route of regional water deliveries to WCA-2 water to buffer areas to restore sheet flow to NESRS
Relocated Protection L-31N Levee and seepage control
Wet season Groundwater Seepage Control and Year round Levee Seepage Control for L-31N
G-211
C-1
Legend
Proposed Pump Station
Proposed Levee
Proposed Canal
Existing Canal

Project Name: **C&SF: CERP Loxahatchee River Watershed Restoration - Part 1(X)(Y)(GGG)(K P1) (OPE)**
Project ID: 1115 (CERP Project WBS # 17)
Lead Agency: USACE / SFWMD
Authority: Not specifically authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: **Primary:** 1-A.1 *(Reservoir)*

Measurable Output(s): 46,000 acre-feet reservoir

April 1999 (Restudy) Project Synopsis: Projects elements were listed separately in the original concept as outlined in the Restudy (below):

1. *and* **2. Water Preserve Areas / L-8 Basin (K** and **GGG):** A combination above-ground and in-ground reservoir with a total storage capacity of approximately 48,000 acre-feet located immediately west of the L-8 Borrow Canal, north of the C-51 Canal in Palm Beach County. Other construction features include aquifer storage and recovery wells with a capacity of 50 million gallons per day and associated pre- and post- water quality treatment to be constructed in the City of West Palm Beach (Lake Mangonia), a series of pumps, water control structures, and canal capacity improvements in the M Canal. The initial design assumed a 1,800-acre reservoir with 1,200 usable acres (water level fluctuating from 10-feet above grade to 30-feet below grade).

3. C-17 Back-pumping and Treatment: Back-pumping facilities and a stormwater treatment area with a total storage capacity of approximately 2,200 acre-feet located in northeastern Palm Beach County. The initial design for the stormwater treatment area assumed 550 acres (water level fluctuating up to 4-feet above grade).

4. C-51 Back-pumping and Treatment: Back-pumping facilities and a stormwater treatment area with a total storage capacity of approximately 2,400 acre-feet located in Palm Beach County. The initial design for the stormwater treatment area assumed 600 acres in size (water level fluctuating up to 4-feet above grade).

5. Lake Worth Lagoon Restoration (OPE): Sediment removal and trapping within the C-51 Canal, as well as sediment removal or trapping within a 2.5-mile area downstream of the confluence of the C-51 Canal and the Lake Worth Lagoon, located in Palm Beach County. A prototype project will be conducted to determine if the Lagoon sediments will either be removed or trapped.

6. Pal-Mar and J.W. Corbett Wildlife Management Area Hydro-pattern Restoration (OPE): Water control structures, canal modifications and the acquisition of 3,000 acres located between Pal-Mar and the J.W. Corbett Wildlife Management Area in Palm Beach County.

Current Project Synopsis: During the plan formulation process, the six CERP elements listed above and identified in the Yellow Book (1999) were combined into a single project. WRDA 2000 authorized the preparation of a PIR for the project.

The overall project area of 730 square miles is located in northeastern portions of Palm Beach County and Southern Martin County. The project purpose is to capture and store excess water that is currently discharged to the Lake Worth Lagoon and the Loxahatchee Estuary. L-8 Basin drainage will be captured in the L-8 Canal and routed to the L-8 reservoir during the wet season to reduce inland drainage and

damaging pulses of freshwater to the coast. During the dry season the stored water will be routed around Grassy Waters Preserve to the Loxahatchee Slough and then on to the Loxahatchee River to restore a hydrologic regime more natural to the region. Stored water will also be routed to the City of West Palm Beach for water supply which will reduce the reliance on Grassy Waters Preserve.

As a result of the FSM completed in 2004, two of the six separable features were removed from the project scope: C-51 and C-17 Pumping and Treatment. This decision was made due to lack of stakeholder support and insufficient available real estate in the area. Since the FSM, SFWMD has been modeling project components to develop an array of alternatives. Selection of the Tentatively Selected Plan was performed in June 2010, but approval was dependent upon receipt and review of the Alternative Formulation Briefing (AFB) document. In August 2010, the AFB was completed and submitted by South Florida Water Management District (SFWMD) for USACE review.

Following extensive PDT discussion of the remaining components, the following objectives were established:

- **L-8 and Associated Basins (C-18 and C-51))** - Capture and store excess surface water that would be lost to tide to Lake Worth Lagoon through S-155, or to the Loxahatchee River Estuary through S-46. Optimize quantity, quality, timing and distribution of surface water to/from areas including Corbett Wildlife Management Area, Grassy Waters Preserve, Loxahatchee Slough, and Loxahatchee River to achieve ecological and water supply enhancement purposes. Minimize damaging intermittent stormwater releases to downstream estuaries and maintain the current level of flood protection in the L-8 Basin.

- **Pal Mar/Cypress Creek and Associated Basins Surrounding the Loxahatchee River (Pal Mar/Loxahatchee)** - Capture and store excess surface waters, and use them to increase discharge to and base flow in the Northwest Fork of the Loxahatchee River during periods of insufficient flow and lowered groundwater levels. Reduce peak discharges to the Loxahatchee Estuary through the Southwest Fork of the Loxahatchee River through the S-46 water control structure. Restore freshwater forested wetlands in the Loxahatchee River closer to 1940's conditions (consistent with FDEP vision for river restoration). Establish and preserve a continuous greenway system that to improves wildlife corridor and habitat values and links up with the regional greenway system. Provide or improve hydrologic connections within the contiguous greenway and the regional water management system to increase water management options for maintaining or enhancing the existing natural areas (i.e., pine flatwoods, wetlands and other natural habitats).

- **Lake Worth Lagoon Near the S-155 Discharge** - Protect and improve Lake Worth Lagoon water quality, and improve aquatic conditions to enhance benthic and sea grass communities. Reduce stormwater discharges to the Lake Worth Lagoon through the S-155 water control structure. Reduce adverse impacts of accumulated undesired sediments in the Lagoon. Reduce sediment loading to the Lagoon through S-155. Establish a more stable salinity regime within the Lake Worth Lagoon restoration area, as the area is defined in the Restudy.

Early constructed elements of Flowway 1 (G-160, G-161, M-canal widening) will also be evaluated. In addition, the planning process will examine a suite of alternatives associated with various other flowways and components with respect to providing beneficial flows to the Loxahatchee River, achieving hydro-pattern restoration and reducing flows to the Lake Worth Lagoon.

Current Status: In October 2013, SFWMD purchased Mecca Farms to help restore Loxahatchee River flows. Re-scoping the Loxahatchee River Watershed Restoration project was initiated in 2015 and is scheduled for completion in 2018.

Est. Cost: $732,157,000

Project Schedule:

2008	C-51 & L-8 Phase 1 (PBA) construction completed.
TBD	LWL, Pal-Mar/Corbett (X), (Y), (K P1)
TBD	C-51 and L-8 (GGG)

Detailed Project Budget Information (rounded):

Loxahatchee Watershed Restoration	**Obligations Thru FY 2014**
USACE	$5,842,000
SFWMD	$12,265,000
Total	**$18,107,000**

Hyperlink:
http://www.saj.usace.army.mil/Missions/Environmental/EcosystemRestoration/LoxahatcheeRiverWatershedRestorationProject.aspx

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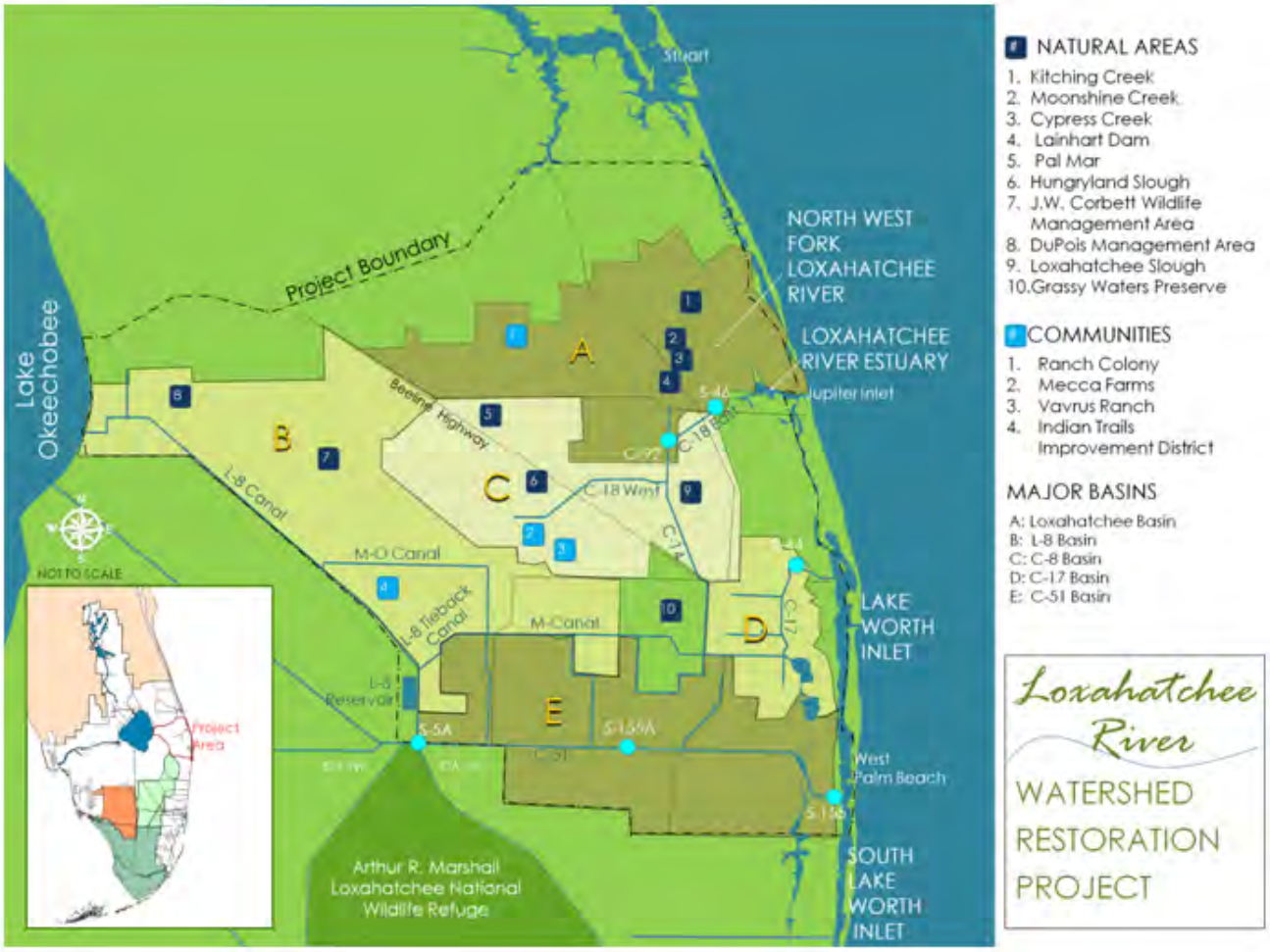
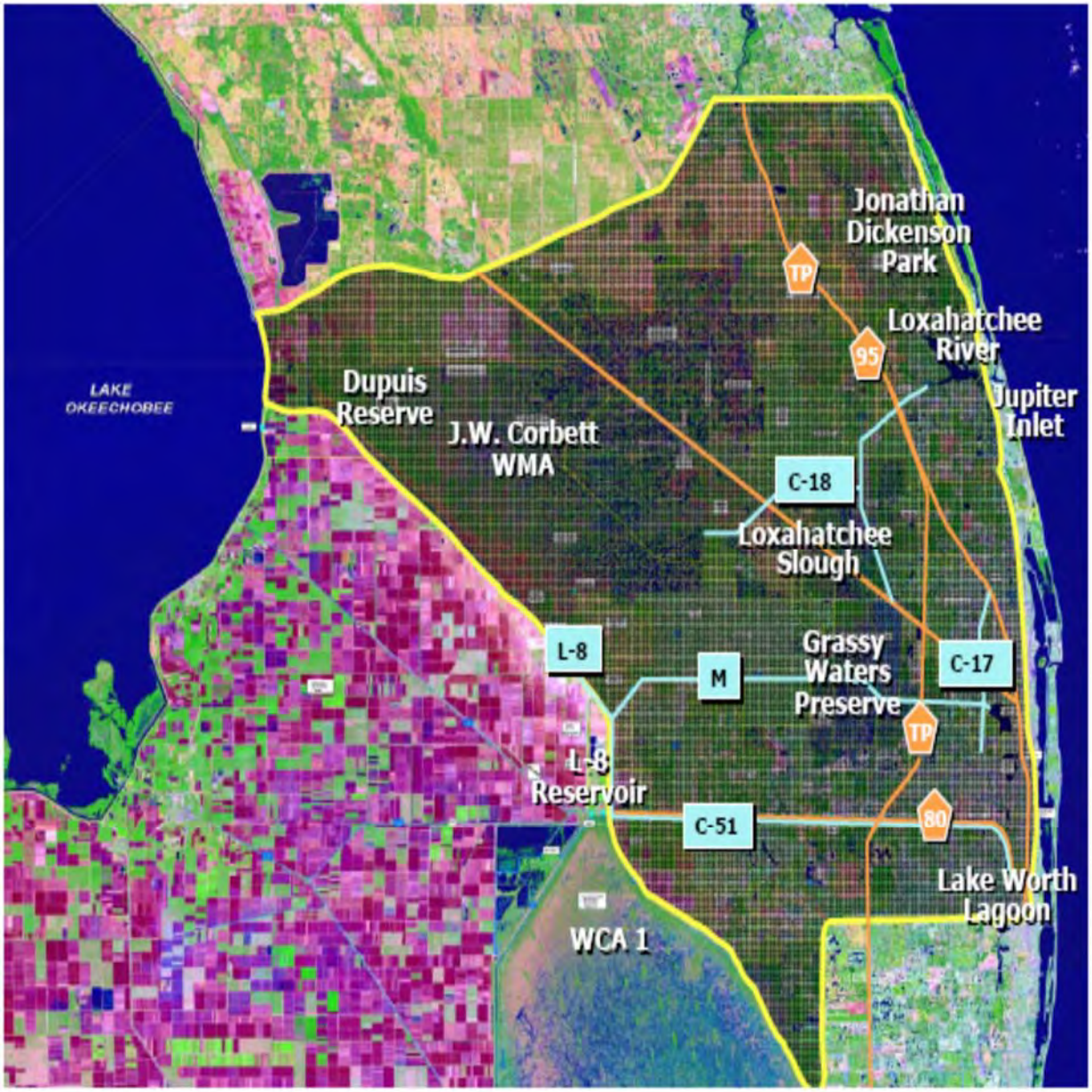
Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is based on planning level TSP cost estimate and is updated to reflect current price levels in October 2012 dollars. Actual expenditures include all federal expenditures through FY14 (Sep, 2014) and sponsor requested in kind credit through 4th quarter FY14 for the Project Implementation Reports efforts.

Additional Information:




Jonathan Dickenson Park
TP
Loxahatchee River
95
Jupiter Inlet
LAKE OKEECHOBEE
Dupuis Reserve
J.W. Corbett WMA
C-18
Loxahatchee Slough
L-8
M
Grassy Waters Preserve
C-17
TP
L-8 Reservoir
C-51
80
Lake Worth Lagoon
WCA 1

Project Name: **C&SF: CERP Broward County Water Preserve Areas (R) (Q) (O)**
[A/k/a Broward County WPAs [Broward County WPA - C-9 Impoundment (R) and Western C-11 Diversion Impoundment and Canal (Q) and Water Conservation Areas 3A and 3B Levee Seepage Management (O)]
Project ID: 1116 (CERP Project WBS # 45)
Lead Agency: USACE / SFWMD
Authority: WRDA 2000 *(Initially Authorized Projects -3);* pending PIR approval and submission to Congress
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: **Primary**: 1-A.1 **Secondary**: 2-A.3

Measurable Output(s):

- 11,648 acre-feet total storage (2,808 acres of impoundment)
- 4,633 acres of natural area

April 1999 (Restudy) Project Synopsis: The original concept includes canals, levees, water control structures, and a stormwater treatment area/impoundment with a total storage capacity of 6,400 acre-feet located in western Broward County. The initial design of a stormwater treatment area/impoundment assumed 1,600 acres (water level fluctuating up to 4 feet above grade). Detailed design of this feature will address appropriate pollution load reduction targets necessary to protect receiving waters.

Purposes of the features (O) and (Q) are to divert and treat runoff from the western C-11 Basin presently discharged into Water Conservation Area 3A, control seepage from Water Conservation Areas 3A and 3B by improving groundwater elevations, and providing flood protection for the western C-11 Basin. Runoff in the western C-11 Canal Basin that was previously back-pumped into Water Conservation Area 3A through the S-9 pump station will be diverted into the C-11 Impoundment and then into either the North Lake Belt Storage Area, the C-9 Stormwater Treatment Area/Impoundment, or Water Conservation Area 3A after treatment, as applicable.

The initial design of the C-9 stormwater treatment area/impoundment (R) assumed 2,500 acres (water level fluctuating up to 4 feet above grade). Purposes of the C-9 feature are to provide treatment of runoff stored in the North Lake Belt Storage Area, enhance the groundwater recharge within the basin, provide seepage control for Water Conservation Area 3 and buffer areas to the west, and to provide flood protection for western C-9 Basin.

Current Project Synopsis: As part of the Corps planning process, several alternative plans were reviewed. The Tentatively Selected Plan was identified in January 2005. This project contains three (3) of the ten Initially Authorized Projects identified in the Water Resources Development Act (WRDA) of 2000: WCA 3A/3B Levee Seepage Management (Q), C-11 Impoundment (O), and C-9 Impoundment (R). The impoundment areas will 1) aid in reducing seepage; 2) provide groundwater recharge; 3) provide adequate water supply to urban areas; and 4) prevent saltwater intrusion. The final size, depth and configuration of these facilities were determined through more detailed planning and design completed as a part of the *Draft Water Preserve Areas Feasibility Study* and as part of the final PIR.

The project has been refined in the Final Project Implementation Report (PIR) signed by the District Engineer in June 2007. During the planning process, the stormwater treatment area (STA) component of the project was dropped.

- **WCA 3A/3B Levee Seepage Management system** will focus on seepage reduction by allowing higher water levels in the L-33 and L-37 borrows.

- **C-11 Impoundment** will direct runoff from the western C-11 drainage basin into an impoundment in lieu of pumping untreated runoff via the S-9 pump station into the WCA 3A. When water is not available in the impoundment to perform these functions, S-381 will be opened to allow seepage water to recharge the basin and prevent excessive dry outs. In addition, seepage will be collected and returned to the impoundment area. The western C-11 Diversion Impoundment and Canal together with the Water Conservation Areas 3A and 3B Levee Seepage Management feature include 4,633 acres of natural area, canals, levees, water control structures, and an impoundment with a total storage capacity of 4,592 acre-feet located in western Broward County (with an initial design that assumes 1,068 acres and water levels fluctuating up to 4 feet above grade).

- **C-9 Impoundment** will include canals, levees, water control structures and an impoundment having a total capacity of 7,056 acre-feet located in the western C-9 Basin in Broward County (initial design assumes 1,641 acres and water level fluctuating up to 4.3 feet above grade) to pump runoff from the western C-9 drainage basin and diverted water from the western C-11 basin into the impoundment and assist in reducing seepage from the WCA 3A/3B Levee Seepage Management.

Current Status:
The PIR was signed by the President as of 10 June 2014 giving authorization. The project is currently waiting funding and will begin the PPA process in FY 2015.

Est. Cost: $ 1,081,212,000

Project Schedule:

2016	Construction begins C-11 Impoundment
2018	Construction completed C-11 Impoundment
2018	Construction begins SMA WCA 3A & 3B/S-356
2021	Construction begins C-9 Impoundment
2023	Construction completed C-9 Impoundment

Detailed Project Budget Information: (Rounded)

Broward County WPA	Obligations Thru FY 2014
USACE	$12,788,000
SFWMD	$14,399,000
Total	**$27,187,000**

Hyperlink: http://141.232.10.32/pm/projects/proj_45_broward_wpa.aspx

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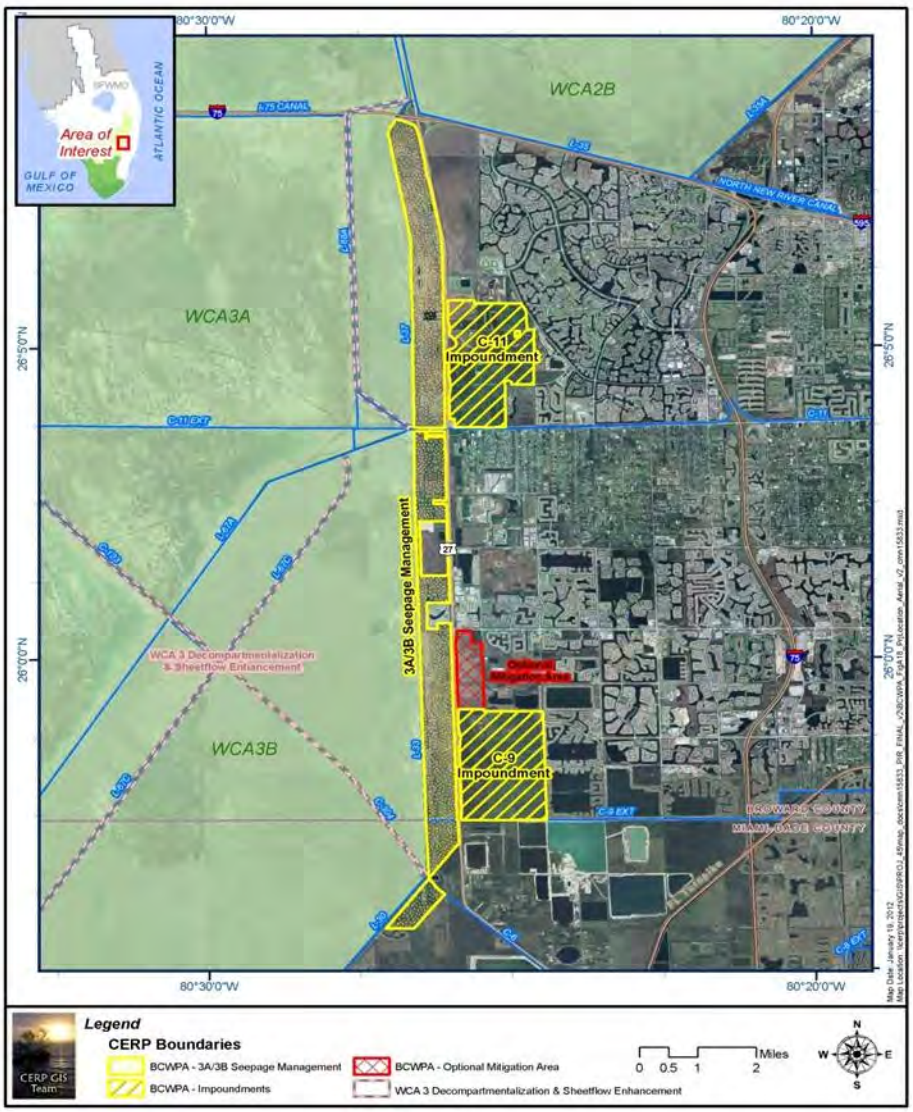
Lisa Cannon, Lead Project Manager, Everglades Restoration, SFWMD
lcannon@sfwmd.gov

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2012 dollars. Actual expenditures include all federal expenditures through FY14 (Sept, 2014) and sponsor verified and recorded in kind credit through 4th quarter FY14. Current synopsis is summarized from information contained in the *Final Project Implementation Report and Environmental Impact Statement* (2012).

Additional Information:



Project Name: **C&SF: CERP North Palm Beach County – Part 2 (LL) (K P2)**
Project ID: 1200 (CERP Project WBS # 18)
Lead Agency: USACE / SFWMD
Authority: Not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 1-A.2

Measurable Output(s): 220 million gallons per day of ASR wells *(.220 billion gallons per day)*

April 1999 (Restudy) Project Synopsis: Included two separable elements: (1) the C-51 Regional Groundwater ASR system and (2) the L-8 Basin Aquifer Storage and Recovery (ASR) system to provide additional long-term storage within the North Palm Beach County region.

Current Project Synopsis: The purpose of this feature is to capture and store excess flows from the C-51 Canal, currently discharged to the Lake Worth Lagoon, for later use during dry periods.

- **C-51 Regional Groundwater Aquifer Storage and Recovery** (LL) includes a series of aquifer storage and recovery wells with a capacity of 170 million gallons per day as well associated pre- and post-water quality treatment to be constructed along the C-51 Canal in Palm Beach County. The initial design of the wells assumed 34-well clusters, each with a capacity of 5 million gallons per day with chlorination for pre-treatment and aeration for post-treatment. The ASR facilities will be used to inject and store surficial aquifer ground water adjacent to the C-51 Canal into the upper Floridan Aquifer instead of discharging the canal water out to tide. Water will be returned to the C-51 Canal to help maintain canal stages during the dry-season. If water is not available in the ASR system, existing rules for water delivery to this region will be applied.

- **L-8 Basin Aquifer Storage and Recovery** (K Part 2) includes ASR wells with a capacity of 50 million gallons per day and associated pre- and post- water quality treatment to be constructed within the L-8 Basin or along the City of West Palm Beach water supply conveyance and storage system or a combination of both. The initial design of the wells assumed 10 wells, each with a capacity of 5 million gallons per day with chlorination for pre-treatment and aeration for post-treatment. During periods when the West Palm Beach Catchment Area is above desirable stages, 50 million gallons per day will be diverted to Lake Mangonia for storage in the ASR wells.

Current Status: This project has not yet begun.

Est. Cost: $ 303,103,000

Project Schedule: TBD

Detailed Project Budget Information (rounded):

North Palm Beach County - Part 2	**Obligations Thru FY 2012**
USACE	$5,562,301
SFWMD	$12,514,393
Total	**$18,076,694**

Hyperlink: http://www.evergladesplan.org/pm/projects/proj_18_npbc_2.cfm

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Beth Kacvinsky, Project Manager, SFWMD
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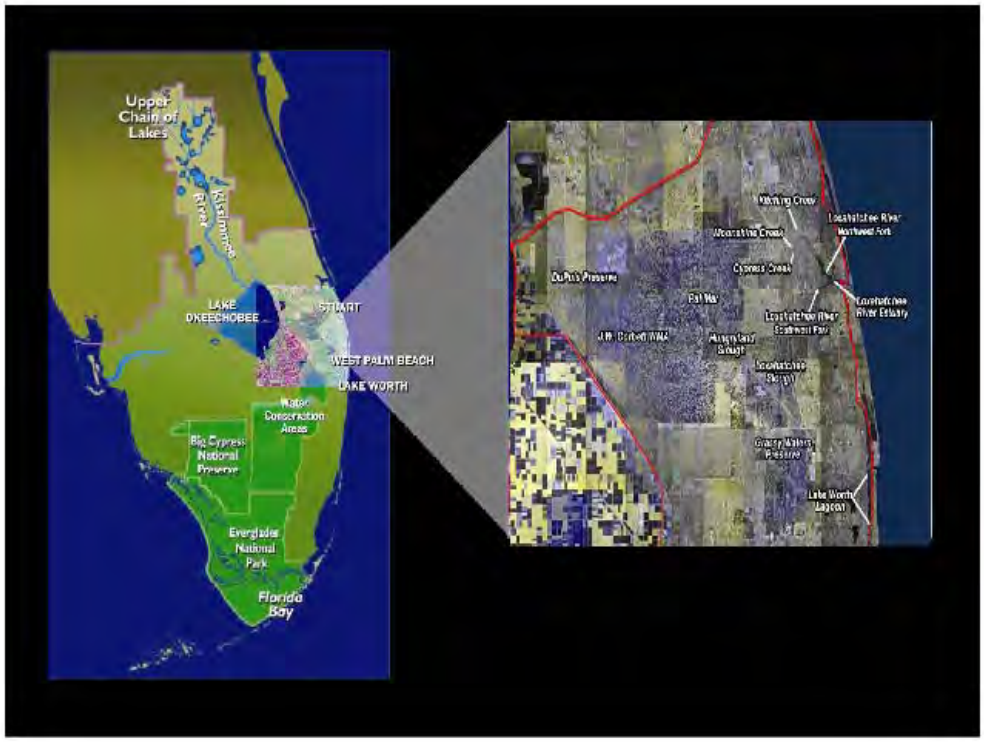
Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars.

Additional Information:



Project Name: **C&SF: CERP Lake Okeechobee Aquifer Storage and Recovery (GG)**
(GG Pt. 1, GG Pt. 2, GG Pt. 3)
Project ID: 1201 (CERP Project WBS # 03)
Lead Agency: USACE / SFWMD
Authority: Not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 1-A.2

Measurable Output(s): 1 billion gallons/per day of ASR wells

April 1999 (Restudy) **Project Synopsis:** Includes a series of aquifer storage and recovery wells adjacent to Lake Okeechobee with a capacity of one billion gallons per day and associated pre- and post- water quality treatment in Glades and Okeechobee Counties. The initial design assumes 200 wells, each with the capacity of 5 million gallons per day with 8- ultra-filtration water quality pre-treatment facilities and aeration for post-treatment. Based on information from existing aquifer storage and recovery facilities, it is assumed that recovery of aquifer-stored water would have no adverse effects on water quality conditions in Lake Okeechobee. In fact, some level of nutrient load reduction may occur as a result of aquifer storage, which would be a long-term benefit to in-lake water quality conditions.

Current Project Synopsis: The purpose of this project is to:

1) Provide additional regional storage while reducing both evaporation losses and the amount of land removed from current land use (e.g. agriculture) normally associated with construction and operation of above-ground storage reservoirs; Increase the lake's water storage capability to better meet regional water supply demands for agriculture, Lower East Coast urban areas, and the Everglades;
2) Manage a portion of regulatory releases from the Lake primarily to improve Everglades hydropatterns and to meet supplemental water supply demands of the Lower East Coast;
3) Reduce harmful regulatory discharges to the St. Lucie and Caloosahatchee Estuaries; and
4) Maintain and enhance the existing level of flood protection.

Operation assumes that after treatment, water from Lake Okeechobee will be injected into the upper Floridan Aquifer when the climate-based inflow model forecasts lake levels significantly above those desirable for the littoral zone (shoreline ecosystem). Water in the aquifer may be returned to the lake, post-aeration treatment, when the level falls during a dry season.

Current Status: Adheres to the original concept outlined in the Restudy and is dependent on the findings from the LOW ASR pilot (WBS #32) in progress. This project is expected to have three (3) phases, but has not yet begun and is planned for the future.

Est. Cost: $ 2,003,131,000

Project Schedule:

TBD	Construction begins.
TBD	Construction completed.

Detailed Project Budget Information (rounded):

LOW ASR	Obligations Thru FY 2013
USACE	$18,839,361
SFWMD	$4,225,945
Total	**$23,065,306**

Hyperlink: http://www.evergladesplan.org/pm/projects/proj_03_lake_o_asr.cfm

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Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars.

Project Name: **C&SF: CERP Hillsboro Aquifer Storage and Recovery (M P2)**
Project ID: 1202 (CERP Project WBS # 22)
Lead Agency: USACE / SFWMD
Authority: **WRDA 1999, 2000, 2007**
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 1-A.2

Measurable Output(s): 150 million gallons per day *(.150 billion gallons per day)* at full build-out. Present configuration stores 5 million gallons per day *(0.005 billion gallons per day)*

April 1999 (Restudy) Project Synopsis: *Site 1 Impoundment and Aquifer Storage and Recovery* (M) included both an above-ground reservoir and a series of aquifer storage and recovery (ASR) wells. The conceptual design of the ASR facility assumes 30 wells, each with a capacity of 5-million gallons per day with chlorination for pre-injection treatment and aeration for post- injection water quality treatment.

Current Project Synopsis: For purposes of project execution, the Restudy components were divided into two components: The Site 1 Impoundment, and the Hillsboro ASR. This is the latter piece, *Hillsboro ASR Phase 2* (M P2) (CERP project WBS #22, relates to the companion aquifer storage and recovery (ASR).

The purpose of the ASR project is to supplement water deliveries to the Hillsboro Canal during dry periods, thereby reducing demands on Lake Okeechobee and the Loxahatchee National Wildlife Refuge. Water coming from the WCA 1 (Loxahatchee) in the Hillsboro Canal basin, located in southern Palm Beach County, will be injected into ASR wells adjacent to the Site 1 reservoir location. The location, extent of treatment and number of ASR wells may be modified based on findings obtained from the Hillsboro ASR Pilot (WBS #34). Water will be released back to the Hillsboro Canal to help maintain canal stages during the dry-season with pre-injection and post-withdrawal injection water quality treatment And then water from the Hillsboro Canal may be pumped into the Site 1 reservoir should excess water be available.

Current Status: The Hillsboro ASR pilot project resulted in construction of a single ASR well and associated monitor wells plus surface facility. Construction was completed in 2008, and operational testing was completed in 2012. The Hillsboro ASR system currently is inactive. Planning and design of this Phase 2, which expands the present ASR system, is planned for the future. The first phase of Site 1 Impoundment construction is in progress (2013), to reinforce the L-40 levee that serves as the northern and western margins of the impoundment. Hillsboro ASR system expansion will proceed after the completion of Phase 1 [see *Site 1 Impoundment* (M P1) (a/k/a *Fran Reich Preserve*) (CERP Project WBS #40)] and is dependent upon the results from other ASR feasibility and pilot studies that are ongoing.

Est. Cost: $ 176,608,000

Project Schedule: **C**omplete.

Detailed Project Budget Information (rounded):

Hillsboro ASR	Obligations Thru FY 2013
USACE	$2,094,337
SFWMD	$6,055,788
Total	**$8,150,125**

Hyperlink: http://www.evergladesplan.org/pm/projects/proj_22_hillsboro_asr_2.cfm

Contact: April Patterson, Project Manager, Programs and Project Management Division, USACE, April.N.Patterson@usace.army.mil

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Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars. Actual expenditures include all federal expenditures through FY09 (Sept, 2009) and sponsor verified and recorded in kind credit through 4th quarter FY07.

Project Name: **C&SF: CERP Aquifer Storage and Recovery Regional Study**
A/k/a *ASR Regional Study*
Project ID: 1203 (CERP Project WBS # 44)
Lead Agency: USACE / SFWMD
Authority: *Programmatic Authority*
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 1-A.2

Measurable Output(s): Peer Reviewed Technical Data Report

April 1999 (Restudy) Project Synopsis: Not described.

Current Project Synopsis: While the CERP Restudy did not directly call for an ASR Regional Study, the USACE and the SFWMD agreed that a coordinated central data collection and regional modeling effort was required to address the large-scale ASR implementation issues under the CERP. The ASR Regional Study described in the PMP was completed in2015.

The study investigated regional and technical issues governing the feasibility of full-scale ASR implementation; and its potential effect on water levels and water quality within the aquifer systems, and on existing water users, surface-water bodies, and the flora and fauna that inhabit them. This study will conduct critical ASR-related research and develop scientific data required to help determine the scientific and engineering feasibility of large-scale ASR implementation as proposed in the CERP.

State and Federal scientists, engineers, and stakeholders proposed a list of significant uncertainties related to hydro-geologic processes, geotechnical evaluations, ecosystem effects and ASR operation and performance. The ASR pilot facilities are the platforms used to conduct scientific and engineering studies addressing the uncertainties identified with using the technology at the scale envisioned under the CERP. Objectives of the ASR Regional Study are to acquire a comprehensive understanding of the characteristics of the Floridian Aquifer system, its ability to support ASR as envisioned in the CERP, and to identify any limitations to applying full scale ASR. With this information, optimum implementation of regional ASR water storage and recovery can be determined. Goals of the ASR Regional Study include:

- Addressing outstanding issues of a regional nature that cannot be adequately addressed by the authorized ASR Pilot Projects.
- Reducing uncertainties related to full-scale CERP ASR implementation by conducting scientific studies based on existing and newly acquired data, evaluate the potential effects on water levels and water quality within the aquifer systems, as well as existing users, surface-water bodies, and the flora and fauna that inhabit them.
- Developing a regional groundwater model of the Floridian Aquifer System (FAS) and conduct predictive simulations to evaluate the technical feasibility of the proposed 333-well CERP ASR system, or if determined to be unfeasible, identify an appropriate magnitude of ASR capacity with minimal impact to the environment and existing users of the FAS.

The Restudy envisioned , the facilities to be constructed may store as much as 1.6 billion gallons of freshwater per day to ensure water for the Everglades, improve conditions in Lake Okeechobee and agriculture and to protect urban wells located near the coast from saltwater intrusion.

An interim report (June 2008) summarized efforts, including the pilots and other testing between 2003 and 2007.

Current Status: Groundwater modeling of the envisioned CERP ASR wells (333) operations strategy was completed in FY13, and reviewed by the IMC in FY13. Geotechnical data collection is complete, and is currently being interpreted. Groundwater and surface-water quality data and ecotoxicological data were obtained at two ASR pilot systems during operational testing was completed in July 2013. Incorporation of all acquired data into an Ecological Risk Assessment is under review. The Lake Okeechobee ASR pilot project Technical Data Report encompassing Lake Okeechobee and Hillsboro ASRs is complete. The ASR Regional Study Technical Data Report will be completed in 2015.

In May 2015, the ASR Regional Study Technical Data Report was completed. The ASR Regional Study incorporated and evaluated the results of the pilot projects and eleven years of scientific and engineering investigations. The National Research Council convened a committee of experts to review of the report. The committee agreed with the ASR Regional Study findings that no "fatal flaws" have been discovered, but many uncertainties remain before large-scale ASR should be implemented.

Based on the study's findings, phased implementation of CERP ASR should proceed with continued modeling, testing and expansion of the existing pilots and construction of additional multi-well systems. Projects in the planning phase may consider incorporating ASR into alternatives, or as an aspect of planning alternatives, in conjunction with a reservoir. Additionally, if future ASR systems are implemented, they should proceed in a phased approach (utilizing up to 5 ASR wells) to provide interim restoration benefits and new iterations of groundwater and ecological models should be developed.

Further work on ASR planning and implementation will occur either as a component of a project, as a new project, or under existing pilot project authorizations.

Est. Cost: $25,271,000

NOTE: In addition to the ASR projects, the CERP April 1999 Restudy cost estimate included a total of approximately $128,000,000 for ASR-related Planning, Engineering and Design studies for the six (6) proposed ASR components. Funding was provided from a redistribution of the established CERP ASR design estimates from these related projects.

Project Schedule:

2003	Start - Technical Design Report
2015	Study completed

Detailed Project Budget Information (rounded):

ASR Regional Study	Obligations Thru FY 2014
USACE	$13,921,000
SFWMD	$11,279,000
TOTAL	$25,200,000

Hyperlink:

http://www.saj.usace.army.mil/Missions/Environmental/EcosystemRestoration/AquiferStorageandRecovery(ASR)RegionalStudy.aspx

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Bob Verrastro, Lead Hydro-geologist, SFWMD
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Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to actual expenditures include all federal expenditures through FY14.

CERP ASR SYSTEM LOCATIONS BY BASIN	NUMBER OF WELLS PLANNING ESTIMATE	MODEL SIMULATIONS
Lake Okeechobee	**200**	**139**
Caloosahatchee	**44**	**27**
L-8 Basin	**10**	**8**
C-51 Basin	**34**	**24**
Central Palm Beach County	**15**	**14**
Hillsboro	**30**	**20**
TOTAL	**333**	**232**

Project Name: **C&SF: CERP PBC Agriculture Reserve Aquifer Storage & Recovery (VV P2)**
Project ID: 1204 **(**CERP Project WBS # 21)
Lead Agency: USACE / SFWMD
Authority: Not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 1-A.2

Measurable Output(s): 75 million gallons per day ASR wells *(0.075 billion gallons per day)*

April 1999 (Restudy) Project Synopsis: Includes the companion aquifer storage and recovery (ASR) wells, with a capacity of 75-million gallons per day and associated pre- and post- water quality treatment located adjacent to the associated reservoir (Part 1). The initial design of the wells assumes 15 well clusters, each with a capacity of 5- million gallons per day as well as chlorination for pre-treatment and aeration for post-treatment. The source of water to be injected is expected to be surficial ground water, adjacent to the reservoir.

Current Project Synopsis: The purpose of this project is to supplement water supplies for central and southern Palm Beach County by capturing and storing excess water currently discharged to the Lake Worth Lagoon. These supplemental deliveries will reduce demands on Lake Okeechobee and Loxahatchee National Wildlife Area. It is assumed that this facility could also be designed to achieve water quality improvements in downstream receiving waters, depending upon pollutant loading conditions in the watershed. These supplemental deliveries will reduce demands on Lake Okeechobee and the Loxahatchee National Wildlife Area.

The wells will pump water into the aquifer during the wet season and will pump water from the aquifer to the Lake Worth Drainage District canals to help maintain canal stages during the dry season. If water is not available in the associated reservoir (Part 1) or the aquifer storage and recovery wells, existing rules for water delivery to this region will be applied.

Current Status: Adheres to the original concept outlined in the Restudy. This ASR project was planned as the next portion (Part 2) of the project on the previous page (WBS #20 "Part 1"). It is scheduled in the future.

Est. Cost: $ 78,919,000

Project Schedule: TBD

Detailed Project Budget Information (rounded):

PBC Agriculture ASR	Obligations thru FY 2013
USACE	$0
SFWMD	$0
Total	**$0**

Hyperlink: http://141.232.10.32/pm/projects/proj_21_pbc_asr_2.aspx

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Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars.

Project Name: **C&SF: CERP C-43 Basin Aquifer Storage and Recovery (D P2)**
Caloosahatchee River Aquifer Storage and Recharge Project (C-43ASR)
Project ID: 1205 (CERP Project WBS # 05)
Lead Agency: USACE / SFWMD
Authority: Not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Primary: 1-A.2

Measurable Output(s): 220 million gallons a day of ASR wells *(0.220 billion gallons per day)*

April 1999 (Restudy) Project Synopsis: Initially described with an above-ground reservoir(s) with a total storage capacity of approximately 160,000 acre-feet and aquifer storage and recovery wells with a capacity of approximately 220 million gallons per day and associated pre- and post- water quality treatment was to be located in the C-43 Basin in Hendry, Glades, or Lee Counties. The original design of the reservoir(s) assumed 20,000 acres (water levels fluctuating up to 8 feet above grade). Excess runoff from the C-43 Basin and Lake Okeechobee flood control discharges will be pumped into the proposed reservoir. Water from the reservoir will be injected into the aquifer storage and recovery well field for long-term storage. Any estuarine demands, not met by basin runoff and the aquifer storage and recovery wells, will be met by Lake Okeechobee as long as the lake stage is above a pre-determined level.

Current Project Synopsis: The original Caloosahatchee (C-43) Basin Storage Reservoir and Aquifer Storage and Recovery (ASR) project (component D in CERP) has since been divided into two separate projects. This latter ASR portion is now a distinct project (D P2); and is described apart from its prior association with Caloosahatchee River (C-43) West Basin Storage Reservoir (USACE WBS #4 and Task Force #1109). The purpose of the ASR feature is to capture C-43 Basin runoff and releases from Lake Okeechobee. Facilities will be designed for water supply benefits, some flood attenuation, to provide environmental water supply deliveries to the Caloosahatchee Estuary, and water quality benefits to reduce salinity and nutrient impacts of runoff to the estuary. It is assumed that, depending upon the location of the facility and pollutant loading conditions within the watershed, the facility could be designed to achieve significant water quality improvements, consistent with appropriate pollution load reduction targets.

Current Status: This project represents the ASR portion (D P2). This project has not yet begun and is planned in the future.

Est. Cost: $ 375,935,000

Project Schedule: TBD

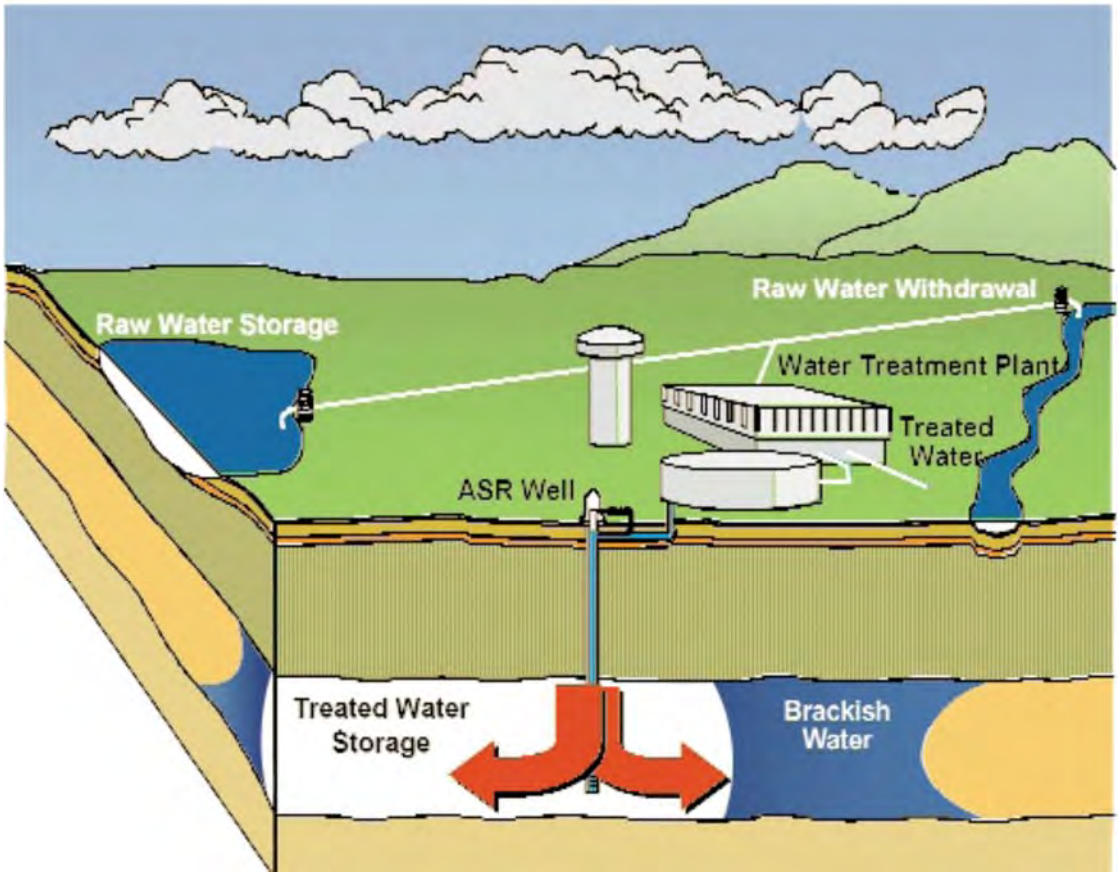
Detailed Project Budget Information (rounded):

C-43 Basin ASR	Obligations Thru FY 2013
USACE	$0
SFWMD	$0
Total	**$0**

Hyperlink: http://141.232.10.32/pm/projects/proj_05_c43_asr_2.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars.



Project Name: **C&SF: C-111 (South Dade)**
Project ID: 1300
Lead Agency: USACE / SFWMD
Authority: Flood Control Act of 1948 (modified Flood Control Act 1962, modified WRDA 1996) and the ENP Expansion Act 1989
Funding Source: Federal/State
Strategic Plan Goal(s) Addressed:
Primary: 1-A.3
Secondary: 3-B.1
Measurable Output(s): 4.75 miles total length impediments removed

Project History*:* Originally authorized as an addition to the C&SF Project (1948) with the Flood Control Act of 1962, the C-111 Project has been further modified by authorization of the ENP-South Dade Conveyance System (1968) and the Everglades National Park Expansion Act of 1989.

The 1996 Water Resources Development Act (WRDA 1996) required the Federal government and the Non-Federal sponsor to amend the project's cost share agreement for the C-111 project as approved and described in the Canal 111 (C-111), South Dade County, Florida, Final Integrated General Reevaluation Report and Environmental Impact Statement completed May of 1994 (1994 GRR). A supplement to the 1994 GRR was completed in 2002 and in 2004 an addendum, updating the supplement, was produced to satisfy USACE HQ concerns regarding real estate and water quality. Neither the 2002 supplemental nor the 2004 addendum have been approved. Coordination with HQ USACE resulted in guidance directing the District to amend the cost share agreement prior to completion of a Post Authorization Change (PAC) Report, and to execute a second amendment after the PAC report is complete. The purpose of the first amendment is to change the cost share agreement with the Non-Federal Sponsor as efficiently as possible. The second amendment will address design refinements and cost increases.

Current Project Synopsis: This basin includes 100 square miles of agricultural lands in the Homestead/Florida City area and the entire Taylor Slough basin within Everglades National Park (ENP). The C-111 (canal) discharges into Florida Bay at its downstream terminus thru S-197. Because of extreme porosity in this area of the Biscayne Aquifer, canal water levels directly impact water levels in adjacent areas.

Modifications to the existing water management system are to restore historic freshwater flows in the Taylor Slough and are expected to help reverse the deterioration of Florida Bay. The 1994 GRR recommended creating operational capability with flexibility to provide restoration of the ecological integrity of Taylor Slough and the eastern panhandle areas of the Everglades and maintaining flood mitigation for the agricultural interests adjacent to C-111.

The project includes structural modifications: canals, levees, pump stations and replacement of a bridge; non-structural modifications to increase natural flow and hydropatterns; and the removal of approximately 4.75 miles total length impediments. Features address the objectives of restoring historic hydrologic conditions, protection of natural values associated with the Everglades National Park, elimination of damaging freshwater flows to Manatee Bay/Barnes Sound, and to maintain current levels of flood risk reduction for the C-111 basin east of L-31N and C-111. A hydraulic ridge will be created via a collection of features/activities limiting the amount of seepage leaving Everglades National Park (ENP) lands. A series of pump structures will provide control for this ridge by pumping directly into a retention/detention zone adjacent to ENP lands which can also be utilized for temporary storage of excess flood water.

The 1994 GRR recommended five pump stations ((S-332A, S-332B, S-332C, S-332D, and S-332E), located adjacent to the L-31N levee and C-111 canals, each pump station having a pumping capacity of 300-cfs.

The pump stations would pump water into the retention/detention zone; addressing the objective of maintaining flood control capacity while creating the hydraulic ridge between ENP and the canal which would help restore the ecosystem within Taylor Slough. In addition, approximately 5 miles of the L-31W Canal would be backfilled to prevent the canal from draining water out of the park, Canal 109 and Canal 110 were to be backfilled, the Taylor Slough Bridge replaced, the C-111 Spoil Mound removed, and a Spreader Canal created. Since that time, S-332A has been taken out of the project.

Construction began in 1996. A land exchange of 1,000 acres between ENP and SFWMD was approved by Congress and executed 2005. A completed PMP for the C-111 (South Dade) project was revised in October 2007, updated in September 2011, and March 2013.

Current Status: To date the following have occurred: pump stations S-332B, S-332C, and S-332D have been constructed, the retention/detention zone has been constructed, the Taylor Slough Bridge has been replaced, Canal 109 has been backfilled, and parts of the C-111 Spoil Mound have been removed. A command and control center was also constructed for the purpose of reducing long term operations and maintenance costs.

The remaining features to be constructed include: a detention area north of the retention/detention zone, which will tie the C-111 South Dade Project into the Modified Water Delivery Project and the backfill (or plugging) of the L-31W Canal. A PCA Amendment was signed 14 August 2014. Plans and Specifications have been completed and the detention area construction is expected to begin August 2015. NEPA for the backfill of the L-31W Canal is ongoing. Plans and Specifications development can begin once the final alternative configuration is selected. The pump station 332E, the spreader canal, and the C-110 backfill have been deferred to the Comprehensive Everglades Restoration Program and are now components of the CERP: C-111 Spreader Canal - Western PIR project.

Est. Cost: $ 360,599,000

Project Schedule:

1994	Start
2017	Finish

Detailed Project Budget Information (rounded)**:**

C-111 (South Dade)	**Obligations Thru FY 2014**
USACE	$118,505,000
SFWMD	$139,723,000
Total	$258,228,000

Hyperlink: http://www.saj.usace.army.mil/Missions/Environmental/EcosystemRestoration.aspx

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Source: Project history and synopsis are summarized from the *Central and Southern Florida Project Final Integrated General Reevaluation Report and Environmental Impact Statement Canal 111 (C-111) South Dade County, Florida.* Current status summarized and the updated PMP (2013) and information provided from the project manager. Cost estimate information is updated to reflect current price levels in October 2014 dollars.

Additional Information: None

Project Name: **C&SF: CERP WCA 3 Decompartmentalization and Sheetflow Enhancement (AA) (QQ P1 & QQ P2) (SS) (ZZ)**
WCA 3 Decompartmentalization and Sheetflow Enhancement Part 1 and Part 2 (DECOMP) [raise and Bridge East Portion of Tamiami Trail and Fill Miami Canal within Water Conservation Area 3 (QQ), North New River Improvements (SS); *Restoring Eastern Everglades Flow Path and Restoring Western Everglades Flow Path]*; and *Water Conservation Area 3A/3B Flows to Central Lake Belt Storage (ZZ)]*

Project ID: 1301 (CERP Project WBS # 12, WBS # 13, and WBS #47)

Lead Agency: USACE / SFWMD

Authority: WRDA 2000 (*only 'QQ P1' and 'SS' – were Initially Authorized Projects);*
Other components not authorized

Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 1-A.3

Measurable Output(s): 240 miles of impediments removed

April 1999 (Restudy) Project Synopsis: The Water Conservation Area (WCA) 3 Decompartmentalization and Sheetflow Enhancement project includes the following components:

AA: Construction of additional S-345 conveyance structures (through L-67A and L-67C levees and borrow canals), to improve flow of water from WCA3A to 3B.

QQ Phase 1: Raise and bridge *(using ten 100-foot box culvert bridges)* the eastern portion of Tamiami Trail and to completely backfill the Miami Canal within WCA-3.

SS: North New River Improvements, as needed to improve the discharge capability of an expanded/improved North New River Canal and to compensate for any water conveyance capacity lost via removal of the Miami Canal.

QQ Phase 2: Remove the remaining sheetflow obstructions, i.e., L-67A borrow canal (by filling in the southern 7.5 miles), L-68A, L-67C, L-29, L-288 tieback levees and borrow canals (formerly WBS #13).

ZZ*:* Pumps, water control structures, canals around conveyance improvements adjacent to WCA 2 and 3 in Broward County. As stages in WCA 2 B, 3A or 3B exceed target depths, excess water will also be transported to the Central Lake Belt Storage Area.

Current Project Synopsis: The natural flow of water volume, direction, speed and depth create the unique characteristics of the Everglades ecosystem. Decompartmentalization entails removing constructed canals, levees and other barriers that impede the natural sheetflow of water into and through the historic Everglades and restoring a more natural water flow. The primary impediment to the natural flow of water through WCA-3A is the Miami Canal, separating WCA-3A north from WCA-3A south.

Because of scientific and ecological uncertainties, and dependence upon the Modified Water Deliveries Project (per WRDA 2000), the DECOMP Project Delivery Team is utilizing a multiple PIR phased approach for implementation that uses adaptive management, construction of a first phase, monitoring of component performance, and additional construction to achieve the desired results. In 2006, WCA 3 Decompartmentalization and Sheetflow Enhancement – "Part 2" (Restudy - QQ P2/WBS #13) was combined with "Part 1" (Restudy - AA, SS, and QQ P1 - WBS #12) for reporting.

PIR 1 (Miami Canal portion of QQ P1 and SS) includes WCA-3 and extends as far north as the southern end of Lake Okeechobee and as far south as the Tamiami Trail within Broward and Miami-Dade counties. Potential modifications to the Miami Canal and the North New River Canal will be analyzed.

Additional project implementation reports will address barriers to sheet flow in other parts of the ecosystem. This PIR focuses on options to backfill the Miami Canal, and on any North New River improvements needed to offset conveyance lost in the Miami Canal. Alternatives being examined include complete backfill, partial backfill, plugging of the canal and removal of existing canal spoil mounds. A hydration feature, more specifically a hydropattern restoration feature (HRF) has been added to PIR 1 to maximize sheetflow in WCA-3A. HRF was originally part of SFWMD's long term plan but got postponed due to funding.

Concurrent with PIR #1, a temporary field-scale test will be implemented to investigate the effective design of features for restoring sheet flow and for removing barriers to habitat connectivity in Water Conservation Area 3. The field test - also known as a ***Physical Model*** - is important because there are critical questions regarding design and effectiveness of decompartmentalization features that cannot be answered with current computer simulation models. The physical model will gather data to better understand the hydrological and ecological effects associated with different types of canal and levee modifications to maintain the landscape characteristics of the Everglades.

The field test will take place along the L-67A and L-67C levees and canals in Water Conservation Area 3 (A&B) in northern Miami-Dade County, approximately 10 miles north of S-333. Flow will be manipulated by allowing water to pass from the L-67A canal (WCA-3A) into a region known as "the pocket" through proposed Structure 152 (S-152), consisting of ten gated 60-inch diameter culverts at the levee. The culverts will be installed side-by-side and will discharge directly into sloughs within the flow-way. To establish sheet flow and evaluate canal backfilling options, a 3,000-foot gap will be opened in the L-67C levee downstream of S-152. Levee material will be deposited in the L-67C canal to create a 1,000-foot long *completely* backfilled segment and a 1,000-foot long *partially* backfilled segment. The remaining 1,000-foot segment of the L-67C canal will not be altered. These features will provide a controllable hydrologic connection between WCA-3A and WCA-3B delivering pulsed flows at velocities of at least 3 cm/sec over a period of days. DPM data and assessment of the effects of pulsed flows on hydrology, transport, vegetation and wildlife will guide planning, design and operational guidance for alternatives for both PIRs #2 and #3 of the DECOMP project.

The entire DECOMP Physical Model (DPM) project includes planning and evaluation of test alternatives in an Environmental Assessment, baseline monitoring, installing test features, operation, post-installation monitoring and removal of all field test features. A Project Operating Manual will be developed. The Corps has designed the project to be completely reversible -- so following testing, the area will be returned to its pre-test condition.

Water levels in WCA-3A are currently managed according to the WCA-3A Interim Regulation Schedule and the Interim Operation Plan (IOP) for protection of the Cape Sable Seaside Sparrow (2006). IOP includes the WCA-3A Regulation Schedule and South Dade Conveyance System operations. The current WCA-3A regulation schedule and IOP 2006 will continue to be used during the field test. Total surface water deliveries to Northeast Shark River Slough and Everglades National Park during the field test are anticipated to remain about the same as they would under current IOP operations. Water managers may consider additional deliveries, if allowable, given consideration of system-wide conditions.

PIR 2 (Tamiami Trail portion QQ - P1 and AA) focuses on modifying eastern sections of Tamiami Trail to improve water flows.

PIR 3 (QQ - P2) includes backfilling the southern 7.5 miles of L-67A borrow canal, removal of the L-68A, L-67C; degradation of western portions of L-29 below WCA 3A, L-28, and L-28 Tieback Levees and Borrow Canals; and elevating the western portion of Tamiami Trail south of WCA 3A.

An adaptive management strategy will be developed for the overall project, including formation of an interagency adaptive management team. Sequencing with the Modified Water Deliveries, C-111 South Dade, and CERP projects (e.g., L-31N Seepage Management Pilot, ENP Seepage Management, Broward County Water Preserve Areas, and Everglades Agricultural Area) is critical because of inter-relationships.

Current Status:

PIR 1

At a June 2008 Feasibility Scoping Meeting, the PDT recommended an Incremental Adaptive Restoration (IAR) strategy. An initial plan formulation summary was drafted and RECOVER has completed its performance measure consistency review. Conceptual alternatives were modeled using the South Florida Water Management Model to determine which segment(s) of the Miami Canal yielded the most benefits when backfilled. The RMA-2 (developed by Resource Management Associates for the USACE 1973) model was used to determine optimal plug length and spacing given variable fill quantities. These model results, along with additional considerations, were used to formulate a preliminary array of alternatives. The PDT used a structured screening process to reduce the preliminary alternatives to a final array of ten to be further analyzed using the Regional Simulation Model (RSM).

Inclusion and evaluation of hydration feature(s) or hyrdropattern restoration feature (HRF) along the northern boundary of WCA 3 was added in 2010. The team developed a final array of alternatives that include hydration features and various Miami Canal backfill configurations. Initiation of the Central Everglades Planning Project (CEPP) that includes Water Conservation Area 3 has incorporated ALL the study that has occurred to date into its planning process. Therefore, all efforts on PIR1 have been compiled into the Decomp Project Documentation Report and no additional work will be conducted solely on PIR1.

Physical Model:

Water quality certification is complete and the contract was awarded in May 2012. A science and engineering report underwent review in 2009. The draft NEPA document, Environmental Assessment (EA) and Design Test Documentation Report was released November 6, 2009 and the Corps accepted written comments on the EA and Operations Plan through December 6, 2009. In February 2010, a public meeting on the Draft Operational Guidance was held. A FONSI was signed in April 2010. The original project duration was anticipated to last five-years and included: two years of baseline monitoring, one year for installation, and two years of post-installation monitoring and evaluation. The SFWMD and USACE have agreed to add an additional operational/testing year beginning Nov 2015. This temporary project will be dismantled at the close of the monitoring period.

The installation was completed in October 2013. The gates were opened on November 5 and will remain open until the end of December 2013. Data collection is also underway.

Est. Cost: $163,395,000

Project Schedule:

2013	Install and Operate DECOMP Physical Model
2015	Decommission Physical Model
TBD	Construction of Features included in CEPP

Detailed Project Budget Information (rounded):

DECOMP	Obligations Thru FY 2014
USACE	$20,528,000
SFWMD	$7,981,000
Total	**$28,509,000**

Hyperlinks:
http://www.saj.usace.army.mil/Missions/Environmental/EcosystemRestoration/DecompPhysicalModel(DPM).aspx

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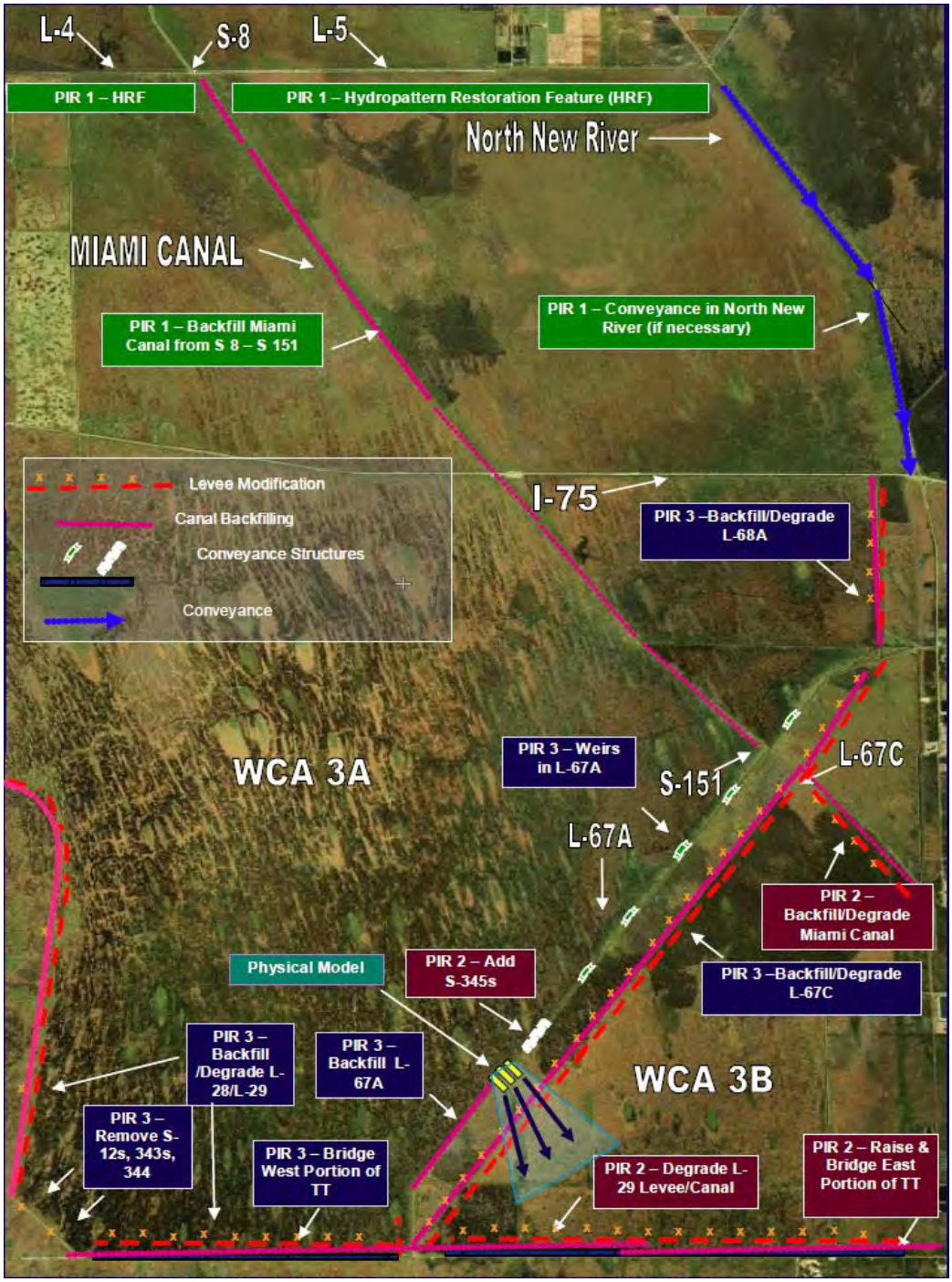
Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2011 dollars. Actual expenditures include all federal expenditures through FY11 (Sept, 2011) and sponsor verified and approved in kind credit through 4th quarter FY11.

Additional Information: For wetlands in the footprint of the DECOMP Project, and downstream into the southern estuaries, the objective restoration: Given the nature of irreversible constraints in modern south Florida, true restoration is an ecosystem that, as closely as possible, is a self-regulating system that has recovered the ecological functions, relationships and physical and biological components that defined the pre-drainage ecosystem. Defining characteristics include the extent of naturally connected and inter-related wetland landscapes, uninterrupted marsh and slough "sheet flow", low levels of nutrients in freshwater wetlands, numerous and healthy tree islands and solution "holes", resilience of plant community mosaics, an abundance of large aquatic vertebrates exemplified by otters, storks, ibis and alligators, and high levels of downstream, estuarine productivity.

Although a "new" Everglades will be smaller than the pre-drainage system -- the DECOMP project will have been successful when the new system no longer acts like a set of managed, disconnected wetlands—but, rather responds to the recovery of these defining characteristics by functionally and organizationally behaving, both in space and time, as the wild Everglades system.


L-4
S-8
L-5
PIR 1 – HRF
PIR 1 – Hydropattern Restoration Feature (HRF)
North New River
MIAMI CANAL
PIR 1 – Backfill Miami Canal from S 8 – S 151
PIR 1 – Conveyance in North New River (if necessary)
Levee Modification
Canal Backfilling
Conveyance Structures
Conveyance
I-75
PIR 3 –Backfill/Degrade L-68A
WCA 3A
PIR 3 – Weirs in L-67A
S-151
L-67C
L-67A
PIR 2 – Backfill/Degrade Miami Canal
Physical Model
PIR 2 – Add S-345s
PIR 3 –Backfill/Degrade L-67C
PIR 3 – Backfill /Degrade L-28/L-29
PIR 3 – Backfill L-67A
WCA 3B
PIR 3 – Remove S-12s, 343s, 344
PIR 3 – Bridge West Portion of TT
PIR 2 – Degrade L-29 Levee/Canal
PIR 2 – Raise & Bridge East Portion of TT

Project Name: **E&SF: Critical Projects Southern CREW Project Addition/ Imperial River Flowway** *Southern CREW* (also included as a CERP OPE)
Project ID: 1303
Lead Agency: USACE / SFWMD
Authority: WRDA 1996 (Critical Project), WRDA 2000 *(in CERP Plan; limitation of watershed addition outside of the CERP),* WRDA 2007 *(modified Critical Project cap)*
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: **Primary** 1-A.3 **Secondary:** 2-A.3

Measurable Output(s): 4,090 acres of restored wetlands *(proposed footprint)*

Project History: As noted in the Restudy, WRDA 1996 authorizes the Secretary of the Army to expeditiously implement restoration projects deemed critical to the restoration of the south Florida ecosystem. The SFEER Task Force nominated 35 projects with input from the Governor's Commission for a Sustainable South Florida and the public. Based on the set of priorities, the USACE conducted an abbreviated study and produced a report transmitted to the Secretary of the Army for approval. This is one of the 12 restoration "Critical Projects" having the Secretary of the Army's approval (WRDA 1996). However, funding caps under WRDA 1996 and later revised under WRDA 2007 limit spending per project and for the group.

April 1999 (Restudy) Project Synopsis: The *Central and Southern Florida Project Comprehensive Review Study* (Restudy) included an (OPE) under Programmatic Authority for the acquisition and restoration of 4,670 acres of land, replacement of the Imperial Bonita Estates Bridge on the Imperial River, and replacement of the Kehl Canal Weir in southern Lee County, adjacent to Corkscrew Sanctuary; clearing and snagging on Imperial River, Estero River and Halfway Creek, reconnection of Spring Creek and Halfway Creek under U.S. I-75, and replacement of the Imperial Bonita Estates bridge.

WRDA 2000 approved this project as part of the Plan (CERP), but with the limitation that the Southern Corkscrew regional ecosystem "watershed addition should be accomplished outside of the scope of the Plan".

Current Project Synopsis: This project will re-establish historical sheetflow, hydroperiods and wetland storage on project lands and the Corkscrew Regional Ecosystem Watershed (CREW) and Corkscrew Sanctuary wetlands to the east; reduce excessive freshwater discharges to Estero Bay during the rainy season; improve habitat for other wildlife; reduce nutrient loads and pollutants to the Imperial River and Estero Bay, and mitigate flooding of homes and private lands west of the project area. The effort includes the removal of agricultural canals and road berms, house foundational pads and the filling of ditches. It also includes acquisition of 4,670 acres and restoration of the land to a natural state.

Because of escalating land costs in the region, particularly near Bonita Beach Road, and the difficulty in restoring hydrology in areas south of Kehl Canal, a change to the proposed footprint was approved at the March 2009 SFWMD Governing Board meeting. Changes exclude the southern half of Sections 32 and 33 that are south of the Kehl Canal and some areas along the western boundary of the project site that may be impacted by the proposed alignment of County Road 951. Approximately 45 acres in the NW corner of Section 32 and 15 acres in the SW corner of Section 34 were also removed from the project. T

Even with a smaller footprint, the SFWMD will be able to maintain a flowway and corridor along the Kehl Canal and Imperial River connecting and restoring lands within Southern CREW and CREW Trust lands.

However, cost estimates for this project, in combination with the other eight Critical Projects, exceeded the USACE appropriation cap of $95 million (WRDA 2000).

Current Status: Land acquisition has been accomplished with state and federal cost sharing. Exotic species removal has taken place on over 2,560 acres, primarily treatment of Melaleuca trees. In addition, a number of canals have been plugged, berms breached and dirt roads removed enabling sheet flow in areas of the project footprint, restoring hydropatterns on approximately 640 acres of wetlands.

The SFWMD has completed land acquisition and design; all permits should be in hand by the end of September 2014.

Est. Cost: $ 40,004,032

Project Schedule:

1999 Start design work
2015 Finish construction.

Detailed Project Budget Information (rounded)**:**

Southern CREW	**Obligations Thru FY 2013**
USACE	$282,215
SFWMD	$1,074,622
Total	**$1,356,837**

Hyperlink: http://www.saj.usace.army.mil/Missions/Environmental/EcosystemRestoration.aspx

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jstarne@sfwmd.gov

Source: Original project description (OPE) summarized from the *Central and Southern Florida Project Comprehensive Review Study (1999).*

Project Name: **Kissimmee River Restoration** (KRR)
Project ID: 1306
Lead Agency: USACE / SFWMD
Authority: WRDA 1986 Section 1135 (PL 99-662); WRDA 1988 Section 46 (PL 100-676); WRDA 1990 (Section 116 (h) (PL 101-640); **WRDA 1992** Section 101 (8) (PL 102-580)
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: **Primary:** 2-A.3

Measurable Output(s):

- 27,000 acres of floodplain wetlands improved
- 43 miles of meandering river channel restored
- 22 miles of backfilling of Canal 38
- 9 miles of new river channel

Project History: The *Central and Southern Florida Project Comprehensive Review Study* (Restudy) noted that the WRDA 1992 (section 101) authorized remaining portions of the Kissimmee River Restoration (lower basin ecosystem) and construction of the Kissimmee River Headwaters Revitalization project (upper basin creating a more natural physical environment in the lower Kissimmee River Basin. The project included backfilling the 30-foot deep Canal 38 and restoring flow to over 43 miles of presently isolated river channel to restore an estimated 27,000 acres of floodplain wetlands and associated fish and wildlife resources. The project would also provide more natural seasonal flow to Lake Okeechobee.

Current Project Synopsis: As the headwaters of the Everglades system, the health of the 3,000-square-mile Kissimmee River stretching from Orlando to Lake Okeechobee in central Florida is crucial to the health of the South Florida ecosystem. That health will be assured by the reestablishment of more natural flow.
Several alternative plans were reviewed, as part of the USACE planning process, to address the lower basin and the Tentatively Selected Plan (TSP) was identified in 1992. The plan involves reestablishing historic hydrologic conditions, recreating the historical river/floodplain connectivity, recreating the historic mosaic of wetland plant communities, and restoring the historic biological diversity and functionality. This would be accomplished. by modifying the operation of the many lakes and Structure 65; enlargement of canals 36 and 37; backfilling 22 miles of Canal 38; excavation of nine miles of new river channel; removal of two water control structures and locks;, along with land acquisition [Lower Basin Land Acquisition (SFWMD 68,332 acres) and Upper Basin Land Acquisition (SFWMD 36,763 acres)]. The project will restore the ecological integrity of the historical Kissimmee River/floodplain ecosystem by recreating 40 square miles of the river/floodplain ecosystem, including re-establishing flow to 43 miles of contiguous meandering river channel and 27,000 acres of wetlands.

A comprehensive evaluation program for tracking the environmental response to the plan is in place to gauge the success of meeting goals for ecological integrity for the river and the floodplain. This program predicts and tracks resulting ecological changes that are expected, including changes in hydrology, water quality, and major biological communities such as plants, invertebrates, fish, and birds. Evaluation research is required to be continued by the SFWMD for at least 5 years following completion of the final phase of construction (projected for 2019), or until environmental responses stabilize.

The Corps in coordination with SFWMD was proposing to modify water management operating criteria in the Kissimmee Basin to restore ecological integrity to the Kissimmee River and to enhance/sustain the Kissimmee Chain of Lakes (KCOL) habitat quality, while maintaining Congressionally-authorized project purposes. The proposed modification would affect existing structures in the KCOL and newly constructed Kissimmee River Restoration (KRR) Project structures.

In August 2013, it was decided that SFWMD would continue to use current interim regulation schedule operations for the KRR structures and the authorized Headwaters Revitalization Project may be implemented after lower basin construction is complete. The following features are completed: Canal 38 Reach 1 backfilling (2001), Canal 35 maintenance dredging (2001), Structure 65 enlargement (2001), Structure 65A gate extension (2001), Canal 36 widening (2003), U.S. Highway 98 bridge openings (2004), Structure 84 spillway addition (2007), Radio tower (2007), Structure 65DX2 grade control structure (2007), Canal 38 reach 4A backfilling (2007), Structure 68 spillway addition (2009), Canal 38 Reach 4B backfilling (2009), Structure 65DX2 Retrofit, Istokpoga Boat Ramp (2010), Structure 68A spillway (2011), Structure 65DX1 Modifications (2011), Oxbow Excavation and Embankment (2012), Reaches 2 and 3 Oxbow Excavation (2012), Canal 37 Enlargement and Miscellaneous Features (2012), Structure 67 Erosion Repairs (2012), Structure 65D Boat Ramp (2013), CSX Railroad Bridge (2013), and the Canal 37 Enlargement and Miscellaneous Features (2013).

Current Status: More than 98% of the 102,061 acres of land needed for the restoration have been acquired by the SFWMD. Natural flow has been reestablished for 22 of 43 miles of historic river channel, including the 4 miles reconnected in 2009, 4 miles in 2007 and 14 miles in 2001. 6,500 acres of floodplain wetlands are restored and several species, including the Ring-necked Duck, American Avocet and Black-necked Stilt, have returned to the Kissimmee after an absence of 40 years. The USACE has restored 13 of the 22 miles of the Canal 38 (lower basin) to date.

The S-65EX1 gated spillway structure 6 and River Acres Supplemental Works construction is scheduled for completion in summer 2015. The MacArthur Ditch Backfilling construction effort is underway and is scheduled for completion in 2016. Canal 38 Reach 3 Backfill and Bass Embankment Degrade construction award is scheduled to occur in September 2015. The remaining features to be awarded include: Structure 69 Weir (2016), Canal 38 Reach 2 backfilling (2017), and the Canal 37 Erosion Repair (2017). In addition, a Post Authorization Change Report has been prepared and is currently being reviewed to seek approval to request the United States Congress to authorize the USACE to credit the SFWMD, as the non-Federal sponsor, for the cost of work-in-kind activities that are integral to achieving benefits, but fall outside of the crediting authority granted in the Water Resources Development Act of 1992.

Est. Cost: $ 711,853,860

Project Schedule:

1994	Start
1999	Construction begun
2019	Projected Completion

Detailed Project Budget Information (rounded):

KRR	**Obligations Thru FY 2013**
USACE	$591,386,706
SFWMD	$15,723,000
Total	**$607,109,706**

Hyperlinks:

http://www.saj.usace.army.mil/Media/FactSheets/FactSheetArticleView/tabid/6106/Article/479988/kissimmee-river-restoration-project.aspx

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David Colangelo, Project Manager, SFWMD
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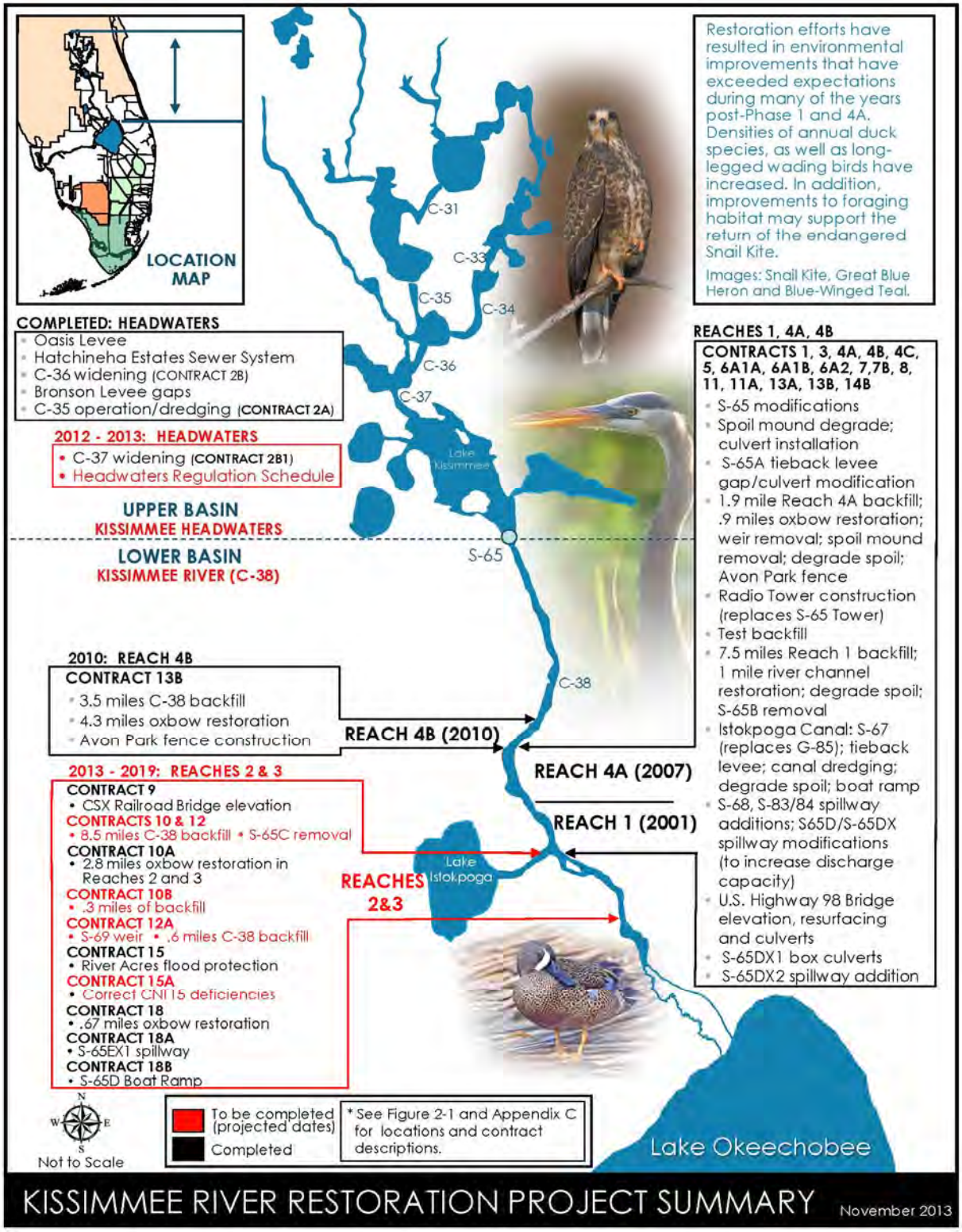
Source: Project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (1999).* Current status information was provided by the project manager. Cost estimate information is updated to reflect current price levels in October 2011 dollars.

Additional Information: None



Project 1306 Kissimmee River Restoration Page 4 of 4

Project Name: **U.S. DOI Modified Water Deliveries to Everglades National Park**
Mod Waters (MWD)
Project ID: 1307
Lead Agency: National Park Service
Authority: Everglades National Park Protection and Expansion Act of 1989 (Public Law 101-229)
Funding Source: DOI

Strategic Plan Goal(s) Addressed: **Primary:** 1-A.3 **Secondary:** 2-A.3, supports 3-B.1

Measurable Output(s):

- 16 miles of impediments removed
  {Tamiami Trail (11 miles), L-67 Extension (4 miles); L-29 (1 mile)]
- 190,000 acres of habitat improved

Project Synopsis: In 1989, Congress approved the Everglades National Park Protection and Expansion Act for the purpose of modifying the Central and Southern Florida (C&SF) Project to improve water deliveries to Everglades National Park (ENP), and to take steps to restore the Park's natural hydrologic condition.

Hydrological improvements are crucial to restoring ecosystem productivity in the southern Everglades and maintaining adequate freshwater inflow to downstream estuaries along the Gulf of Mexico and Florida Bay. Addressing the effects of the Tamiami Trail (U.S. 41) is a major component. The roadway was built in the 1920s so vehicles could travel between two of the earliest centers of population growth in southern Florida, Tampa and Miami. Decades later, restoration agencies identified the Tamiami Trail as one of the most serious threats to the health of the Everglades, as it acts like a dam stopping water flows from moving south. Modified Water Deliveries (MWD) authorized the U.S. Army Corps of Engineers (USACE), in consultation with the DOI, to construct modifications of the C&SF Project water management system and related operational changes and "to the extent practicable, take steps to restore the natural hydrological conditions within the park" improving water deliveries to ENP.

The project design in the USACE 1992 General Design Memorandum (GDM) and Environmental Impact Statement, *Modified Water Deliveries to Everglades National Park, Central and Southern Florida Project for Flood Control and Other Purposes*, and subsequent supplements, specify the construction of structural features with the intended purpose of restoring conveyance between Water Conservation Areas (WCAs) north of ENP and the Shark River Slough, the lifeline of ENP. The combined features would improve conditions for more than 900,000 acres of habitat, aid in the recovery of threatened and endangered species, and lay a foundation for future restoration efforts under the CERP.

In the 1992 GDM, the MWD project consists of four major components. All are necessary and work together to restore flows from WCA-3A to WCA-3B and under Tamiami Trail to the historic headwaters of the Northeast Shark River Slough in the Everglades Expansion Area:

(1) **Flood Mitigation for 8.5 Square Mile Area (8.5 SMA):** a residential and agricultural area directly adjacent to expansion boundary in East Everglades, and tribal residential areas along U.S. 41;

(2) **Conveyance and Seepage Control Features (CSCF):** facilitate flow through the system from WCA 3A to WCA-3B and limit seepage eastward from WCA-3B and ENP, including the re-establishment of the historic Shark River Slough flow ways;

(3) **Tamiami Trail Modifications (TTM):** facilitate water flow beyond the road south into ENP; and

(4) **Project Implementation Support (PIS):** includes monitoring and operational changes, an experimental program; development of a final water control plan, and raising Osceola and Tigertail Camps.

Most of the 109,504 acres of land were acquired in the East Everglades as part of the Everglades National Park expansion by the end of 2012. Acquisition of land within the East Everglades addition is necessary to limit further losses suffered by ENP due to habitat destruction outside former boundaries and to restore natural water flow patterns critical to the ecological integrity and long-term viability of park resources. Only six properties remain to be acquired consisting of three commercial airboat operators, two radio tower facilities, and a strip of land owned by Florida Power and Light (FPL). An additional property, the Airboat Association of Florida, will be acquired by the USACE.

Since completion of the 1992 GDM, scientific investigations identified revised ecosystem restoration requirements and potential design problems associated with some 1992 features. These requirements, in turn, resulted in the completion of supplemental NEPA documents for the 8.5 SMA component (July 2000) and the Tamiami Trail Modifications (TTM) component (January 2006, August 2008).

Historically, the project has been funded through the National Park Service (NPS) in the Department of the Interior (DOI) as part of the NPS annual construction appropriations. Total appropriations through FY2013 to the NPS for the MWD project amount to $337,371,000. Due to the increase in the estimated cost of the project and the focus of much of the remaining work on construction, additional funding was requested through USACE appropriations in FY06, FY07, and FY08. Specifically, in FY06 $32.6 M was received through USACE, primarily to support the construction of the 8.5 SMA features and during the latter two years, USACE appropriations supported the Tamiami Trail project. USACE funding provided for the MWD project totaled $77.5 M.

Current Status:
Since the 1992 GDM, the 8.5 SMA 2000 GRR ROD and the 2008 TTM LRR, there have been design changes to the 8.5 SMA and TTM components, operational development efforts identified that would include the C-111 South Dade Project under a Combined Operations Plan, development of a Pilot Swales feature and additional monitoring requirements resulting in additional costs to the project. Due to limitations on the funds available from the NPS line-item construction program, a maximum of $336.5 million is available to complete this project. Combined with the $77.5 million from prior Corps of Engineers funding and the approximate $3+million to be received from the Florida Department of Transportation for the TTM, the not-to-exceed amount to complete the project is now $417+ million. The final allocations from the NPS for the project will be in FY 2013. Priorities suggested in March 2012 by the NPS for completion within the new budget amount were provided to the USACE and include in order of priority:

(1) Tamiami Trail Modifications
(2) Continue required endangered species monitoring
(3) 8.5 SMA seepage collector system
(4) G-3273 Relaxation and S-356 Test
(5) Development of a final operating plan for MWD constructed components

The NPS and the USACE continues to develop the Scope for the G-3273 Relaxation and S-356 Test and development of the final operating plan for the MWD constructed components that were initiated in 2013. The effort must remain within the not to exceed amount of $417+ million. No additional funding is planned or will be provided for the remaining features of CSCF or Combined Operational Plan. To proceed with the G-3273 Relaxation and S-356 Test effort and the implementation of a final water control plan, sufficient real estate must be acquired and water quality concerns expressed by the SFWMD and FDEP must be resolved. Current status by component is provided below.

(1) **Flood Mitigation for the 8.5 Square Mile Area** (SMA)

The following features have been completed or are in the final phase of completion:

- Land acquisition
- S-357 pump station
- S-357 Stormwater Treatment Area (STA)
- Internal flood mitigation canal
- Perimeter levee
- Internal canal levees
- Land transfers to NPS
- Land transfers to SFWMD
- Internal road and bridge improvements

Lands were acquired and construction was completed in 2008. The Las Palmas residential area, referred to as 8.5 SMA, now has perimeter levees and a seepage collector canal to mitigate for the increased flood risk with planned increased water flows and levels in ENP with future MWD and C-111 component implementation. The new pump station (S-357) will remove water from the seepage collector canal to prevent increased water levels in residential areas, while allowing for increases in the adjacent ENP lands, separated by the protection levee. Land preparations necessary for operation, including access control, debris and invasive vegetation removal have been completed. The USACE developed a Draft Environmental Assessment (EA) of the Interim Water Control Plan, held a public meeting November 19, 2008 and released the revised Draft EA for additional public comments in May, 2009. Operational testing and monitoring of the 8.5 SMA project features began June 1, 2009 and ended earlier than anticipated due to unanticipated changes in water levels. To address the unanticipated changes in the water levels, new water control criteria were developed and approved. An EA was published and the FONSI was signed June 2011. The features were evaluated to ensure full functional capability and additional design refinements are being constructed. Land transfer was completed as scheduled in early 2014. All features have been transferred to the SFWMD for OMRR&R. Due to the complexity of the structures associated with the seepage collector system, there have been delays in the implementation of these features. The USACE recently revised the contracting for the final features and these features are now expected to be implemented by the end of 2014.

(2) **Conveyance and Seepage Control Features** (CSCF)

The following features have been constructed:

- Spillway structures S-355A and B in the L-29 Levee
- S-333 modifications
- Tigertail Camp elevation (raised to 12.0 feet with 1st floor elevations of at least 12.5 feet)
- Pump Station S-356 between L-31N Canal and L-29 Canal
- Osceola Camp elevation evaluation
- Degradation of the L-67 Extension Canal and Levee (4 of 9 miles degraded)
- S-331 Command and Control (added telemetry & remote control of conveyance features)
- At this time no additional funding is planned or will be provided for the remaining CSCF features.
- Structures S-345 A, B and C through the L-67A and C Levees
- Structures S-349 A, B and C in the L-67A Borrow Canal
- Degradation of the L-67 Extension Canal and Levee (remaining 5 of 9 miles)

(3) **Tamiami Trail Modifications (TTM)**

In the 2008 Integrated Limited Reevaluation Report (LRR) and Environmental Assessment (EA), USACE re-analyzed the plan approved in the 2005 Revised GRR/SEIS to determine other less costly alternatives and direction for the TTM project. The LRR plan recommended a one-mile bridge to the east (2 miles west of Krome Avenue), and reinforcing the road to mitigate the impacts from increasing water levels in the adjacent L-29 canal from current operational levels to higher water levels consistent with the design high water of 8.5 feet-NGVD. The TTM project as described in the Integrated LRR/EA, with amendment, was approved by the Assistant Secretary of the Army for Civil Works on August 1, 2008.

On September 29, 2009, USACE awarded the $81 million Tamiami Trail construction contract for the one-mile bridge and to raise and reinforce an additional 9.7 miles of Tamiami Trail roadway. A groundbreaking for the Tamiami Trail Bridge portion took place December 4, 2009. Roadwork construction began in March 2010. An existing utility was not located according to the original roadway plans and specifications that resulted in a contract modification awarded in August 2011. This modification increased the cost of the contract by $11.4 million, added 214 days. As a result the original project completion date of May 2013 was changed to December 2013.The bridge was completed in May 2013 and substantial completion of the roadway was achieved December 2013. The contractor is finalizing the required documentation for construction transfer. Final costs will be determined upon contract close-out. For this reason, NPS funds appropriated for the MWD project through FY13 that have not been transferred to the USACE will be retained by the NPS until final financial requirements can be determined.

(4) Project Implementation Support

This component is ongoing for project and program management support by the DOI and USACE, hydrological stream gage monitoring, wildlife monitoring, the G-3273 Relaxation and S-356 test and a final operating plan. Implementation of the final operating plan is dependent on the acquisition of the remaining real estate within the ENP park expansion area. While negotiations are proceeding to acquire the needed real estate, it is unknown when these acquisitions will be completed. Additionally, water control plan updates will require water quality certification from the State of Florida.

Est. Cost: $ 414,864,000.

Project Schedule:

1990	Start
2016	Finish

Detailed Project Budget Information (agency appropriations to date and rounded*):

DOI	$337,371,000
USACE	$77,493,000
Total	**$414,864,000**

*As of 9/30/13, approximately $12.5 million remain as unobligated funds by the Corps of Engineers and approximately $9.4 million of NPS for MWD project that have not been transferred to the Corps pending the remaining cost for completion of construction of the Tamiami Trail and 8.5 Square Mile Area project components.

Hyperlinks: http://www.evergladesplan.org/pm/projects/non_cerp_sf_projects.aspx

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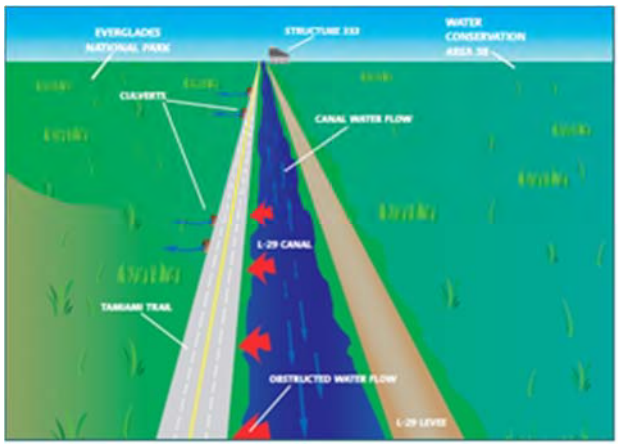
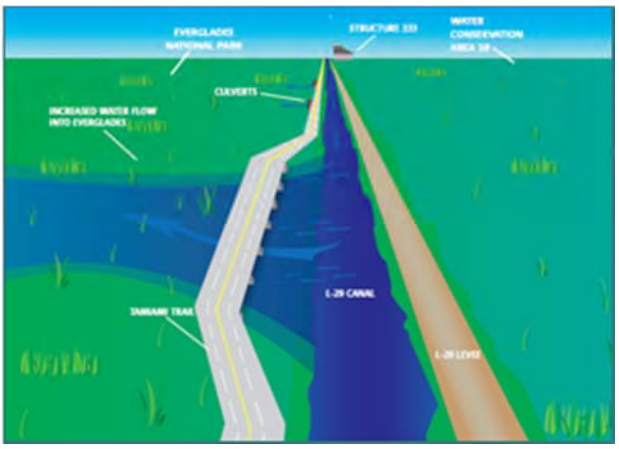
Source: Current status information and expenditure calculation were provided by the project managers. Cost estimate information is updated to reflect current budget approved and agreed to between USACE and DOI.

Additional Information:

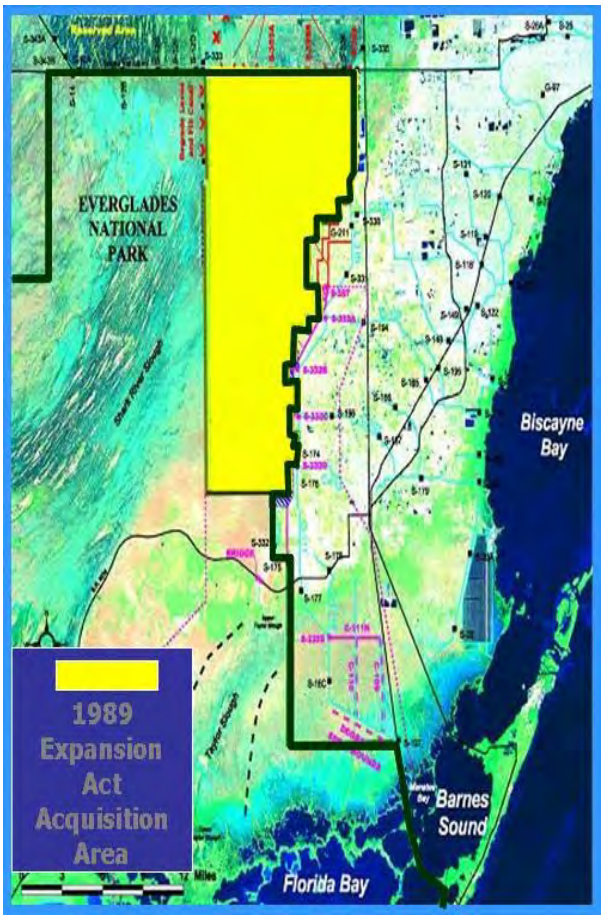
TAMIAMI TRAIL MODIFICATIONS

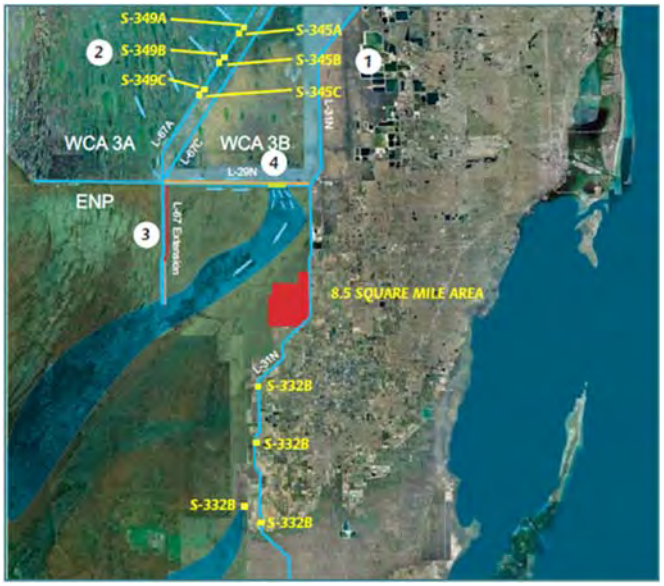


Current Condition of Tamiami Trail

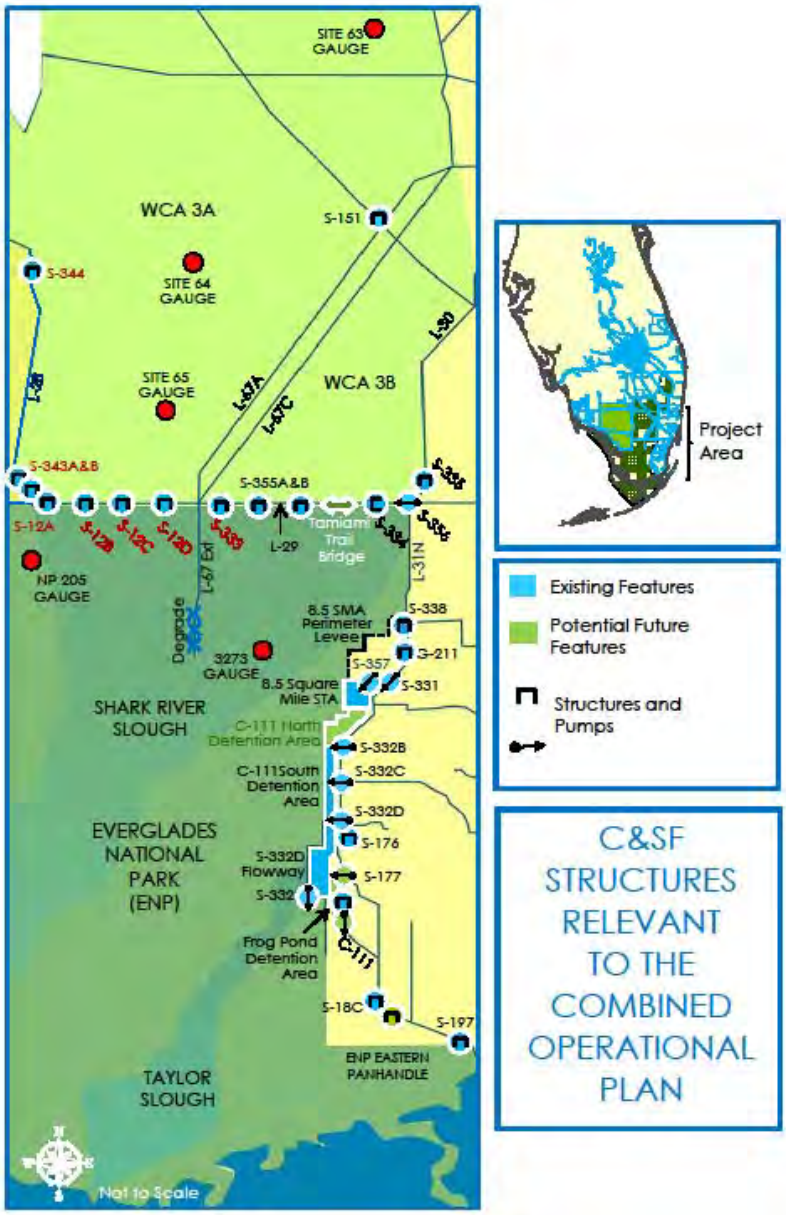


Water Flow When Bridge is Completed





Southeast Florida – Everglades and Adjacent Urban Areas


SITE 63 GAUGE
WCA 3A
S-151
S-344
SITE 64 GAUGE
L-30
SITE 65 GAUGE
L-67A
L-67C
WCA 3B
S-343A&B
S-355A&B
S-12A
S-12B
S-12C
S-12D
S-333
L-29
Tamiami Trail Bridge
S-334
S-335
NP 205 GAUGE
L-67 Ext
L-31N
Degrade
S-338
8.5 SMA Perimeter Levee
S-211
3273 GAUGE
S-357
8.5 Square Mile STA
S-331
SHARK RIVER SLOUGH
C-111 North Detention Area
S-332B
C-111South Detention Area
S-332C
S-332D
EVERGLADES NATIONAL PARK (ENP)
S-176
S-332D Flowway
S-177
S-332
Frog Pond Detention Area
C-111
S-18C
S-197
ENP EASTERN PANHANDLE
TAYLOR SLOUGH
Not to Scale
Project Area
Existing Features
Potential Future Features
Structures and Pumps
C&SF STRUCTURES RELEVANT TO THE COMBINED OPERATIONAL PLAN

Project Name: **E&SF: Critical Projects Tamiami Trail Culverts**
Additional Water Conveyance Structures under Tamiami Trail
Project ID: 1308
Lead Agency: USACE / SFWMD
Authority: WRDA 1996; WRDA 2007 *(modified Critical Projects cap)*
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 1-A.3

Measurable Output(s): 16 miles of impediments removed

Project History: WRDA 1996 authorizes the Secretary of the Army to expeditiously implement restoration projects deemed critical to the restoration of the south Florida ecosystem. The SFEER Task Force nominated 35 projects with input from the Governor's Commission for a Sustainable South Florida and the public. Based on the set of priorities, the USACE conducted an abbreviated study of and produced a report transmitted to the Secretary of the Army for approval. This is one of the 12 restoration "Critical Projects" having the Secretary of the Army's approval (WRDA 1996). In the Restudy, this project was anticipated to be one of the top five funded under the funding cap restrictions of WRDA 1996, later revised under WRDA 2007, that limit spending.

Current Project Synopsis: In 1928, the Tamiami Trail (roadway) was completed between Miami and Naples. To obtain fill material for the roadbed, a borrow canal was excavated on the northern side of the road. The long term effect has been to intercept existing north-south flowways to the Big Cypress National Preserve, and channelize flows through just a few bridges/culverts. Wetland habitats receive too much or too little fresh water and normal seasonal hydropatterns are interrupted.

This project will increase the number of north-south flowways by adding conveyance structures (77 culverts under Tamiami Trail (U.S. 41) in 30 locations) restoring natural hydropatterns impacting sheetflow of surface water within the watersheds of the Ten Thousand Islands National Wildlife Refuge & Aquatic Preserve, Southern Golden Gate Estates, Fakahatchee Strand State Preserve, Big Cypress National Preserve and Everglades National Park enhancing biological restoration of the region. This directly supports objectives for other south Florida projects such as the L-28 Modification and the Picayune Strand Restoration.

There are *two* phases.

Phase I involves planning, project design and construction of 62 culverts and associated improvements of hydrologic sheetflow under 16 miles of Tamiami Trail (US 41) and 15 culverts under the Loop Road between SR 92 and the Collier/Miami-Dade County line. Phase I will not increase the flows, but redistribute them from the northern side of the road to the southern side. Other components include specific plug sites with simple large earthen ditch blocks that could serve as driveway access across the canal. Some existing driveways have pipe culverts that need either to be removed or replaced if the culvert size is found to be substandard. These additional culverts under Tamiami Trail along with a more diffuse flowway beneath artificial barriers will provide a more natural hydropattern both north and south of the highway, enhancing biological restoration in the region.

Phase II involves resurfacing of the roadway of the Tamiami Trail pursuant to construction of the culverts.

During planning, the scope of the project was modified due to budget and time constraints. Cost estimates for completion of the remainder of the project, in combination with the other eight Critical Projects, exceeded the USACE appropriation cap of $95 million (WRDA 2000). The SFWMD completed the acquisition of land and has been constructing the project according to the *revised* plan. Per the revised plan and scope of work: The Tamiami Trail Culvert -- Phase I project currently extends from the intersection of US 41 (Tamiami Trail) and CR 92 and extends from this intersection eastward along the Tamiami Trail corridor to the intersection of US 41 and SR 29, a distance of approximately 16 miles.

Construction of the western portion of Phase I, located west of State Road 92 was begun in June 2004 and completed in March 2006 encompassing the placement of 9 culverts.

Current Status: The western portion of Phase I has been incorporated as a component of the CERP Picayune Strand Restoration project, authorized for construction by Congress as part of WRDA 2007, making this portion of the culvert project eligible for federal cost-share.

Current Status: No work on this project was accomplished during the reporting period.

Est. Cost: $5,244,255 for Phase I

Project Schedule:

1998	Start
2004	Revisions on design
TBD	Finish

Detailed Project Budget Information (rounded):

Tamiami Trail	Obligations Thru FY 2013
USACE	$2,622,128
SFWMD	$952,841
Total	**$3,574,969**

Hyperlink:
http://www.saj.usace.army.mil/Missions/Environmental/EcosystemRestoration/PicayuneStrandRestorationProject.aspx *(Picayune Strand)*

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Janet Starnes, Principle Project Manager, SFWMD
jstarnes@sfwmd.gov

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (1999).*

Project Name: **Tamiami Trail Modifications: Next Steps Project**
Project ID: 1309
Lead Agency: DOI/NPS
Authority: H.R. 1105: Omnibus Appropriations Act of 2009 (P.L. 111-008, dated March 11, 2009)
Funding Source: DOI

Strategic Plan Goal(s) Addressed: Other

Measurable Output(s):

- 5.5 miles of bridging between S-333 and S-334 (10.7-mile section of Tamiami Trail)
- Elevation of the remaining 10.7 mile roadway to allow L-29 Canal stages to be raised consistent with the 9.7′ design high water (7.5′ is the existing constraint and the MWD project design high water is 8.5′)
- Completion of an EIS and ROD that authorized the increased bridging and road raising needed to restore 107,600 acres of wetlands in NESRS and ultimately reconnect WCA-3 to Everglades National Park
- The EIS includes the justification for acquisition of the remaining commercial properties in NESRS. This $25 million was approved by Congress in 2012
- Authorization by Congress in 2012 to construct the "Next Steps" Project
- Initiation of the first phase of the project—the western 2.6-mile bridge

Project Synopsis: The 2009 Omnibus Appropriations Act (March 10, 2009) directed the NPS to evaluate bridging alternatives to the Tamiami Trail (10.7-mile eastern section), beyond what was authorized by the 2008 Limited Reevaluation Report (Modified Water Deliveries Project), in order to "restore more natural water flow to Everglades National Park (ENP) and Florida Bay and for the purpose of restoring habitat within the Park and the ecological connectivity between the Park and the Water Conservation Areas."
The 2009 Omnibus Act also directed the Army Corps of Engineers to immediately construct the 2008 LRR plan—a 1-mile mile bridge and the remaining road elevated to allow stages in the L-29 Canal to be raised from the current 7.5 foot elevation to elevations consistent with the revised design high water of 8.5 feet. Passage of the 2009 Omnibus Act was an acknowledgement that construction of the 1-mile bridge with 1-foot road elevation was only the first step, albeit an important one, to restoration of flows and ecological conditions in ENP.

Current Project Synopsis: The Final EIS was completed with publication of the Notice of Availability on December 20, 2010. The Record of Decision was published in the Federal Register on April 26, 2011.
The Key finding in the FEIS/ROD is that an additional 5.5 miles of bridging and raising the balance of the 10.7-mile highway corridor are necessary to achieve the 2009 Omnibus Appropriations Act's restoration objectives. On December 23, 2011, Congress passed the Consolidated Appropriations Act of 2012 (Public Law 112-74) which authorized construction of the "Next Steps" project. In addition, with the Act's passage, Congress appropriated $25 million for land acquisition in ENP.

Due to this $25 million appropriation, the total cost for implementation of the Recommended Plan (Alternative 6E) is reduced from $310 to $285 million. This project cost is reported in Fiscal Year 2010 dollars and does not include any potential escalation costs that could be related to changes in inflation beyond FY 2010.

Current Status of Phase 1: At this time, only $7.5 million federal funds have been allocated for this project. Everglades National Park has completed appraisals of the remaining commercial properties in the Expansion Area in preparation for the acquisition process. The park completed the radio tower supplemental assessment in FY2012, prior to acquisition as stipulated in the "Next Steps" and 1991 Land Protection Plan NEPA actions. The NPS Director has directed Everglades National Park, in collaboration with the NPS Denver Service Center (DSC), to initiate the planning and design work for one of the four bridges authorized by Congress as a first phase in implementation of the project. This bridge is located on the west side of the project corridor and is 2.6 miles in length. In response to the NPS directive, DSC contracted a consulting engineer to assist with the work needed to complete the initial design work associated with this bridge. In addition, in August 2013, the Florida Department of Transportation (FDOT) agreed to provide $90 million towards the construction of this feature. In December 2013, the ENP, DSC, FDOT collaborated on a Value Analysis of the 2.6-mile bridge, which resulted in modifications to the project. Based on a Memo-to-File (MTF) completed by the NPS in May 2014, the first phase of the project now consists of two bridges within the 2.6 mile highway corridor. The modified plan provides improved access to businesses adversely affected by the original design but also allows for lower project costs while maintain the project benefits documented in the original 2010 FEIS. The NPS and FDOT project team is now working towards completion of the 30% design drawings for the modified bridging and has submitted these and other supporting documents to the Florida Department of Environmental Protection (FDEP) and the U.S. Corps of Engineers and have secured the required construction permits. Based on the current construction schedule approved by FDOT, we anticipate a contract award in May 2016 with substantial completion of construction by Spring 2020.

Phase 1. Cost Estimate: $144,195,000 for construction and $3,280,000 for planning.

Project Schedule:

2011	ROD completed
2012	Congressional authorization
2013	Initiation of planning for first phase (2.6 mile bridge) by ENP and DSC
2013	Completion of the Value Analysis of the Phase 1 features of Next Steps project
2014	Completion the Value Analysis MTF modifying the original bridge plan for improved business access and lower costs while maintaining documented project benefits
2015	Completion of permitting requirements and RFP package
2016	Contract Award
2020	Construction substantially completed

Total Project Budget Information (rounded)**:**

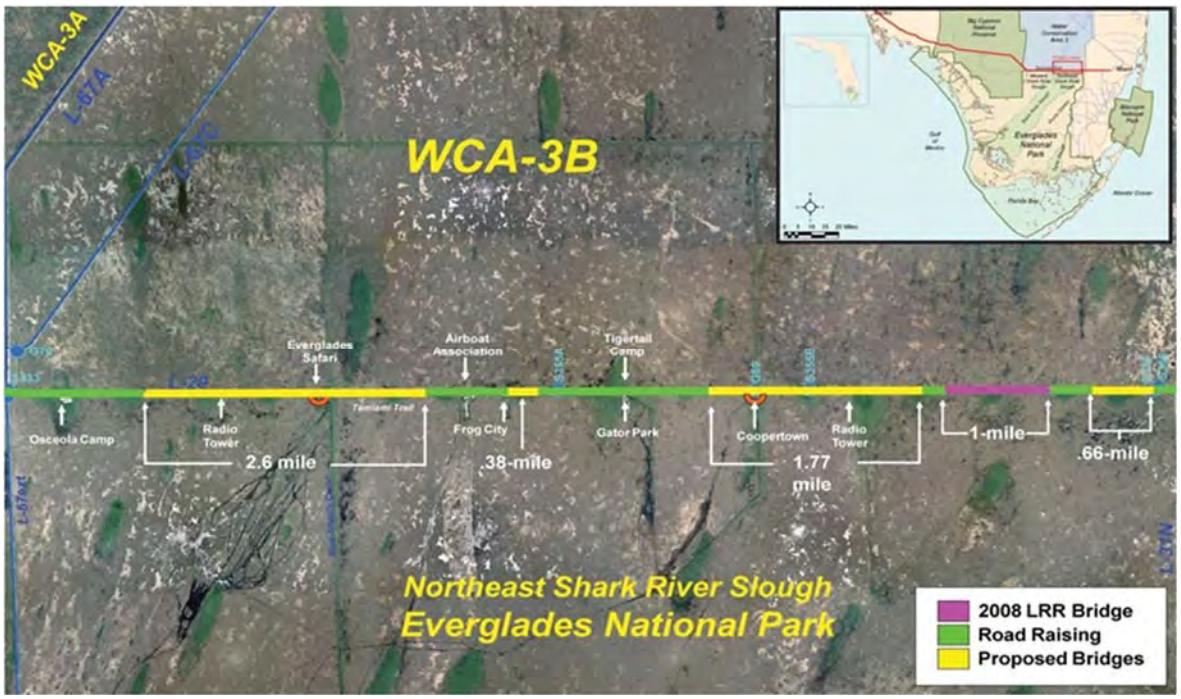
Bridge and Roadway Construction	$144 million Cost shared 50/50 with FDOT (NPS portion planned using FLTP)	DOI/NPS/FLTP/FDOT
Project Planning NEPA (EIS and ROD)	$0.35 million	DOI/NPS
Project Planning for Phase 1. (2.6 mile bridge)	$3.28 million	DOI/NPS/ENP/DSC FLHP

Note: The above figures were provided as and estimate in 2015. Once the contract is awarded, the above figures will be modified to reflect more accurate projects costs.

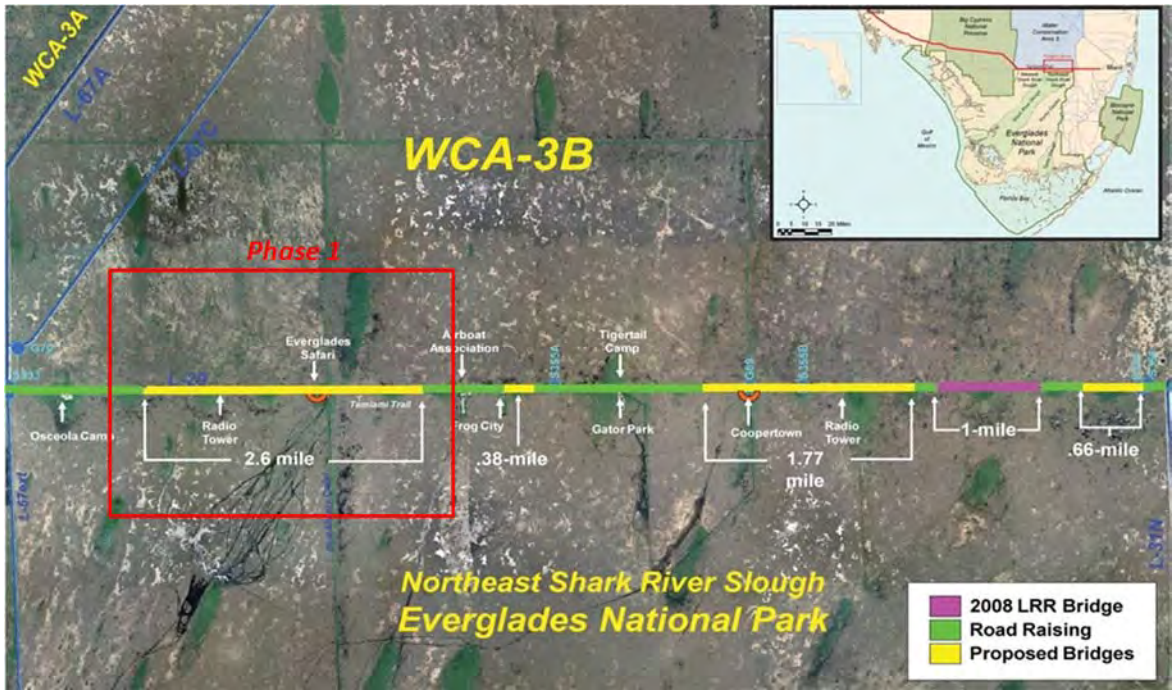
Hyperlink: http://www.nps.gov/ever/naturescience/nessrestoration.htm

Contact: David Sikkema, Everglades National Park, Department of the Interior
dave_sikkema@nps.gov

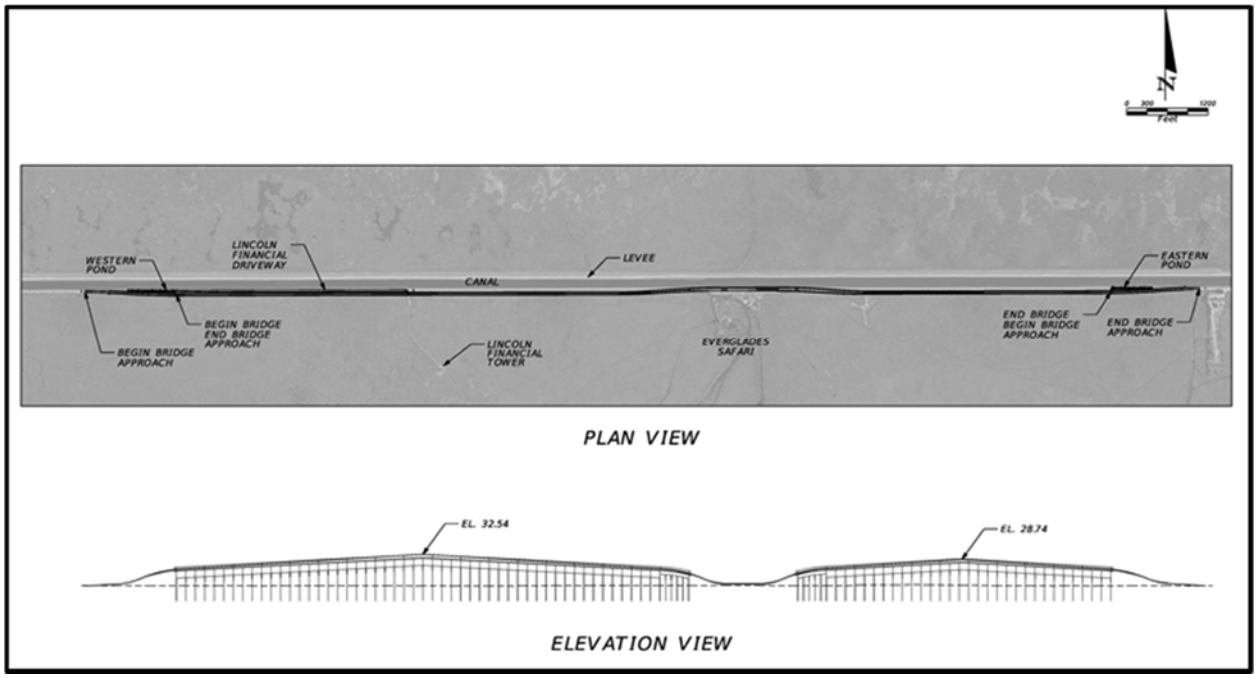
Sources: Tamiami Trail Modifications**:** Next Steps Final Environmental Impact Statement, December 2010
Memo-to-File, Tamiami Trail Modifications: Next Steps Project-Adequacy of National Environmental Policy Act Documentation, May 2014



Tamiami Trail Next Steps, Alternative 6E: 5.5 miles of bridges and Remaining Roadway Elevated. Authorized by Congress on December 23, 2011 with passage of the Consolidated Appropriations Act of 2012 (Public Law 112-74)



Tamiami Trail Next Steps, Alternative 6E: Phase One Project Area.



Value Analysis Modified Plan for Phase 1 of the Next Steps project: The original 2.6-mile bridge span and down ramp to the Everglades Safari Park (ESP) commercial airboat facility has been replaced with two bridges on the east and west sides of ESP and a within corridor ramp to provide access to the business facilities.

Project Name: C&SF: CERP Southern CREW Project Addition/ Imperial River Flowway
Project ID: 1310
Lead Agency: USACE / SFWMD
Authority: Not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Primary 1-A.3 **Secondary:** 2-A.3

Measurable Output(s): 4,090 acres of restored wetlands *(proposed footprint)*

April 1999 (Restudy) Project Synopsis: The *Central and Southern Florida Project Comprehensive Review Study* (Restudy) included an (OPE) under Programmatic Authority for the acquisition and restoration of 4,670 acres of land, replacement of the Imperial Bonita Estates Bridge on the Imperial River, and replacement of the Kehl Canal Weir in southern Lee County, adjacent to Corkscrew Sanctuary; clearing and snagging on Imperial River, Estero River and Halfway Creek, reconnection of Spring Creek and Halfway Creek under U.S. I-75, and replacement of the Imperial Bonita Estates bridge.

WRDA 2000 approved this project as part of the Plan (CERP), but with the limitation that the Southern Corkscrew regional ecosystem "watershed addition should be accomplished outside of the scope of the Plan".

Current Project Synopsis: The same as the Restudy.

Current Status: Portions of this project are currently being pursued under a different program. Please see Project ID 1303.

Est. Cost: $57,903,814

Project Schedule: The CERP project has not begun.

Detailed Project Budget Information (rounded):

Insert project name	Obligations Thru FY 2010
USACE	$0
SFWMD	$0
Total	**$0**

Contact: Karen Smith, Program Management Branch Chief, USACE
Karen.A.Smith@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars.

Project Name: **Biscayne Bay Feasibility Study**
Project ID: 1401
Lead Agency: USACE / Miami-Dade County
Authority: WRDA 1996
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Other

Current Project Synopsis: Biscayne Bay is a shallow, well-mixed estuary located along the southeastern coast of Florida. It includes most of Biscayne National Park, and adjacent lands provide fresh surface- or groundwater to the Bay. The Central and Southern Florida (C&SF) Project impacted the timing, distribution and amount of freshwater reaching the bay affecting natural salinity patterns and ecology.

The Comprehensive Everglades Restoration Plan (CERP) is modifying the C&SF project to improve flows needed for the environment, including Biscayne Bay. Proposed modifications to this connected hydrologic system may also affect Biscayne Bay. Although not part of CERP, this study will allow Miami-Dade County resource managers to assess potential impacts and determine if further studies are needed. Miami-Dade County is sharing the cost.

Current Status: Work on this project has been suspended.

Est. Cost: $ 210,942,115

Project Schedule:
1996 Start
TBD Finish

Detailed Project Budget Information (rounded):

Biscayne Bay Feasibility Study	**Obligations Thru FY 2013**
USACE - Reconnaissance Phase (100% Federal)	$470,000
USACE - Feasibility Phase	$12,083,838
Miami-Dade Co. - Feasibility Phase	$11,194,946
Total	**$23,748,784**

Reconnaissance Study (100% Federal, not included in Estimated Cost or Expenditures): $470,000

Hyperlink: http://www.saj.usace.army.mil/rwp/index.html

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Current status information was provided by the project manager. Cost estimate information is updated to reflect current price levels in October 2009 dollars.

Project Name: **C&SF: CERP Broward Co. Secondary Canal System** (CC)
Project ID: 1403 (CERP Project WBS # 24)
Lead Agency: USACE / SFWMD
Authority: WRDA 2000 *(Programmatic Authority < $25 M)*
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Other

Measurable Output(s): Water control structures, pumps, and canal improvements

April 1999 (Restudy) Project Synopsis: Includes a series of water control structures, pumps, and canal improvements located in the C-9, C-12 and C-13 Canal basins and east basin of the North New River Canal in central and southern Broward County. Excess water in the basins will be pumped into the coastal canal systems to maintain canal stages at optimum levels. To maintain these stages, water will be drawn from other sources such as Site 1 Impoundment and North Lake Belt Storage Area, Lake Okeechobee and the Water Conservation Area when basin water is insufficient.

Current Project Synopsis: The purpose of this feature is to reduce water shortages by recharging local well fields and stabilizing the saltwater interface.

Current Status: This project is planned for the future.

Est. Cost: $ 26,235,695

Project Schedule: TBD

Detailed Project Budget Information (rounded):

Broward Co. Secondary Canal System	Obligations Thru FY 2013
USACE	$19,882
SFWMD	$42,186
Total	**$62,068**

Hyperlink: http://141.232.10.32/pm/projects/proj_24_broward_canal.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars. Actual expenditures include all federal expenditures through FY09 (Sept, 2009) and sponsor verified and recorded in kind credit through 4th quarter FY07.

Project Name: **C&SF: CERP Loxahatchee National Wildlife Refuge Internal Canal Structures** (KK)
Project ID: 1408 (CERP Project WBS # 14)
Lead Agency: USACE / SFWMD
Authority: WRDA 2000 *(Programmatic Authority <$25 M)*
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Other

Measurable Output(s): Water control structures

April 1999 (Restudy) Project Synopsis: Two water control structures in the northern ends of the perimeter canals encircling the Loxahatchee National Wildlife Refuge (Water Conservation Area 1) located in Palm Beach County.

Current Project Synopsis: The purpose of this feature is to improve the timing and location of water depths within the Loxahatchee National Wildlife Refuge. It is assumed that these structures will remain closed except to pass Stormwater Treatment Area 1 East and Stormwater Treatment Area 1 West outflows and water supply deliveries to the coastal canals.

WRDA 2000 specified that this project was approved as part of the Plan with a limitation that the Federal share for land acquisition to enhance existing wetland systems along the Loxahatchee Wildlife Refuge, including the Strazzulla tract, should be funded through the budget of the Department of the Interior (DOI).

Current Status: This project is planned for the future.

Est. Cost: $ 14,191,660

Project Schedule:
TBD

Detailed Project Budget Information (rounded):

Loxahatchee NWR-ICS	**Obligations Thru FY 2012**
USACE	$49,426
SFWMD	$0
Total	**$49,426**

Hyperlink: http://141.232.10.32/pm/projects/proj_14_loxahatchee.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars.

Project Name: **C&SF: CERP Seminole Big Cypress Reservation Water Conservation Plan** (OPE)
Project Name: 1409 (CERP Project WBS # 96)
Lead Agency: USACE / Seminole Tribe of Florida
Authority: Not authorized.
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Other supports 3-A.4 and 3-B.1

Measurable Output(s): Plan to reduce phosphorus level.

April 1999 Project Synopsis: Legislative funding limits of the Critical Projects program (see E&SF Critical Projects sheet) prevented inclusion of the 'east' portion and had only allowed only the 'west' portion of this project to be nominated as a Critical Project. With uncertainty around funding the remaining 'east' portion, the "combined" project was recommended as an OPE in the CERP. The Restudy included construction of water control, management, and treatment facilities to improve the quality of water and runoff from phosphorus generating agricultural sources within the Reservation.

Current Project Synopsis: The proposed comprehensive watershed management system is designed to achieve environmental restoration on the Seminole Big Cypress Reservation located in Hendry County, north of the Big Cypress Preserve, and the Everglades Protection Area. The overall plan has been divided into east and west portions, each of which can provide independent benefits. In addition, the project will reduce flood damage and promote water conservation. The removal of pollutants will be achieved using natural treatment processes in pretreatment cells and water storage areas. A phosphorus level of 50 ppb is the goal; also the level to be achieved by STAs in the Everglades Construction Project.

Should design performance levels for phosphorus become more stringent, this project has sufficient flexibility to incorporate additional alternative technology.

Current Status: The Project Cooperation Agreement (PCA) between the SFWMD and the Corps was executed in 2005. Construction of the east conveyance canal system (2003), Basin 1 (2008), and Basin 4 (2013) is complete. Basin 2 construction contract was awarded September 2013. Construction is scheduled for completion in 2015. An Engineering Documentation Report and associated National Environmental Policy Act (NEPA) documentation has been prepared to remove Basin 3 from the federally authorized project. In addition, an amendment to the Project Cooperation Agreement (PCA) is required to remove the feature from the project. The executed PCA is anticipated in fiscal year 2016.

Est. Cost: $ 62,161,193

Project Schedule: Estimated Project Completion is 2016.

Detailed Project Budget Information (rounded):

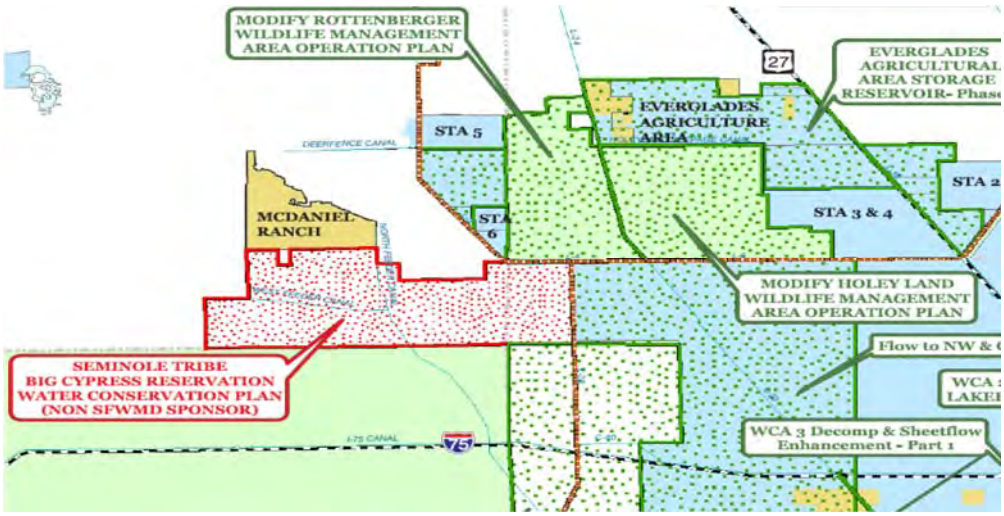
Seminole Big Cypress Reservation WCP	**Obligations Thru FY 2014**
USACE	$27,385,041
Seminole Tribe	$25,849,727
Total	**$53,234,768**

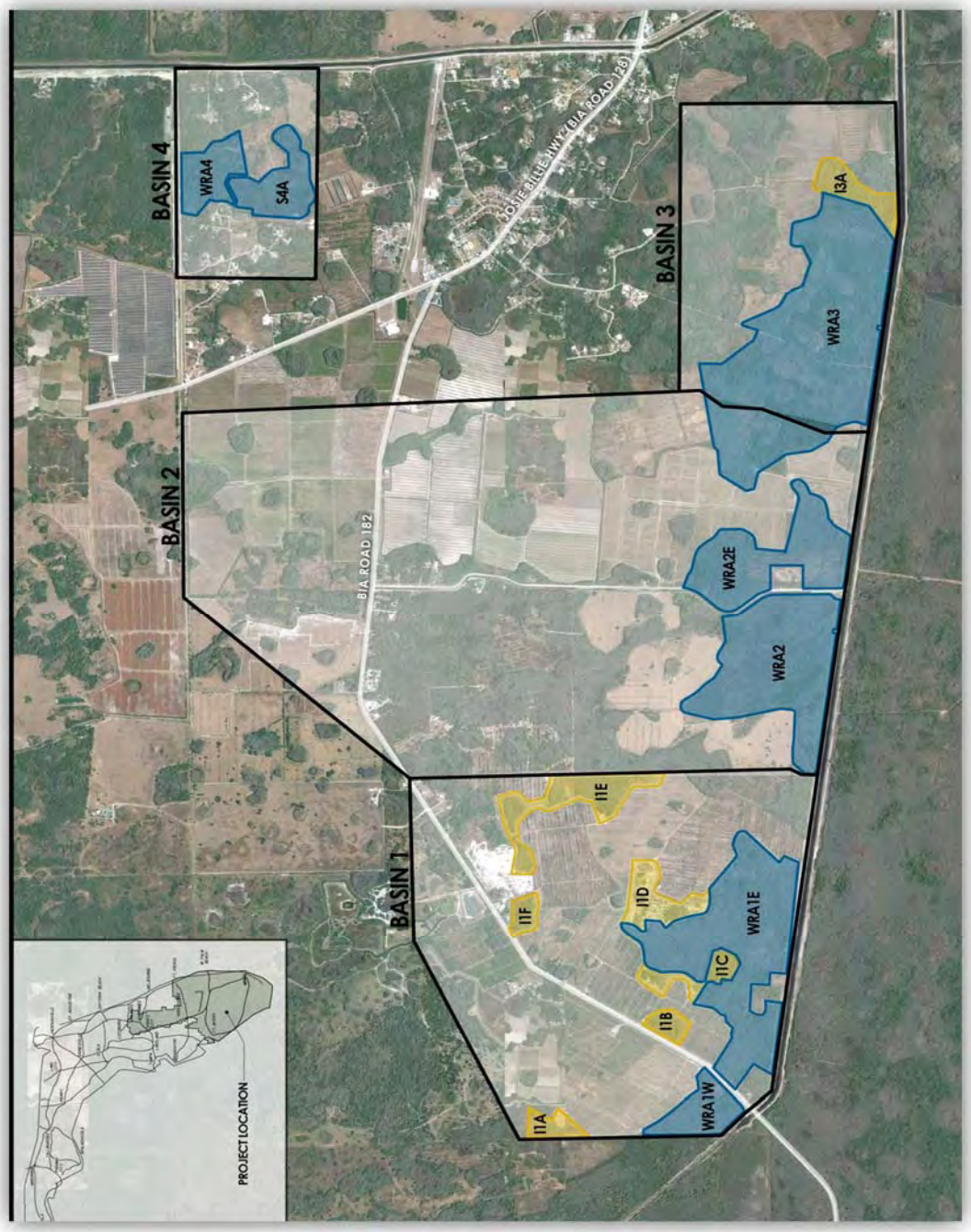
Hyperlink:
http://www.saj.usace.army.mil/Portals/44/docs/FactSheets/SeminoleBigCypress_FS_February2014.pdf

Contact: Tiphanie Jinks, Senior Project Manager, Programs and Project Management Division, USACE, (904) 232-1548, Tiphanie.C.Jinks@usace.army.mil

Cherise Maples, Interim Director of Environmental Resource Management Department, Seminole Tribe of Florida
(954) 965-4380, cmaples@semtribe.com

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2014 dollars. Current status is summarized from the PMP (2005).




BASIN 4
WRA4
S4A
BASIN 2
BASIN 1
BASIN 3
JODIE BILLIE HWY (BIA ROAD 128)
BIA ROAD 182
WRA3
I3A
WRA2E
WRA2
I1E
I1D
I1F
WRA1E
I1C
I1B
I1A
WRA1W
PROJECT LOCATION

Project Name: **C&SF: CERP WCA 2B Flows to ENP *(Everglades National Park*) (YY)**
Project ID: 1412 **(**CERP Project WBS # 48)
Lead Agency: USACE / SFWMD
Authority: Not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Other – supports 2-A.3 and 1=B.1

Measurable Output(s): Water control structures, canals, pumps and canal improvements

April 1999 (Restudy) Project Synopsis: "Diverting Water Conservation Area 2 and 3 Flows to Central Lake Belt", originally included two features (YY) and (ZZ) in the Yellow Book. "This feature includes pumps, water control structures, canals, and conveyance improvements located adjacent to Water Conservation Areas 2 and 3 in Broward County." The final size and configuration of the facilities will be determined through the Water Preserve Areas Feasibility Study. "The purpose of this feature is to attenuate high stages in WCA 2 and 3 and transport this excess water to the Central Lake Belt Storage Area where it will be stored to meet downstream demands in Shark River Slough, Water Conservation Area 3B or Biscayne Bay.

Current Project Synopsis: ZZ has since been combined into the DECOMP project (WBS #12). The remaining (YY) component will store excess water from WCA 2 in the Central Lake Belt Storage Area through control structures and conveyance features and supplement environmental water supply deliveries to: (1) Northeast Shark River Slough, (2) WCA 3B, and (3) to Biscayne Bay, in that order, if available.

Current Status: This project has not yet begun.

Est. Cost: $ 137,530,592

Project Schedule: TBD

Detailed Project Budget Information (rounded):

WCA 2B Flows to ENP	Obligations Thru FY 2013
USACE	$284,370
SFWMD	$0
Total	**$284,370**

Hyperlink: http://www.evergladesplan.org/pm/projects/proj_48_wca_2b.cfm

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars. Actual expenditures include all federal expenditures through FY09 (Sept, 2009) and sponsor verified and recorded in kind credit through 4th quarter FY07.

Program Name: Infrastructure
Project Name: **C&SF: CERP Lake Okeechobee Regulation Schedule** (F)
Project ID: 1419
Lead Agency: USACE / SFWMD
Authority: No Congressional action is required
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Other - supports 1-A.1

Measurable Output(s): Water Management change

April 1999 (Restudy) Project Synopsis: The Lake Okeechobee Regulation Schedule will be modified in order to take advantage of the additional storage facilities identified in the construction features. Two additional zones will be added to the schedule. The first zone will trigger discharges to the north of Lake Okeechobee reservoir and the Everglades Agricultural Area reservoir. The second higher zone will trigger the Lake Okeechobee aquifer storage and recovery facilities to begin injecting water from the Lake. Climate based forecasting will be used to guide management decisions regarding releases to the storage facilities.

It is anticipated that all flood control releases through the C-43 and C-44 Canals will be eliminated with the exception of emergency zone A. Zone A levels are expected to be similar to the levels that occur in the current regulation schedule Run 25, however, the number of times that the Lake is above zone A is expected to be dramatically reduced.

Current Project Synopsis: During the Corps planning process, several alternative plans were reviewed. Currently, regulation schedule revisions are proposed in two phases. The goal of this interim schedule revision is to operate Lake Okeechobee at lower pool elevation while meeting water supply requirements. The second phase studies will be implemented in 2010. This revision will consider the effects of the early CERP projects and the state-expedited projects upon the lake. For both Regulation Schedule revisions, National Environmental Policy Act supplemental Environmental Impact Statements are anticipated.

Est. Cost: TBD as schedule revisions are initiated (C&SF O&M)

Schedule: TBD
Regulation Schedule revisited when appropriate as other facilities come on-line.

Hyperlink: http://www.saj.usace.army.mil/Missions/Environmental/EcosystemRestoration.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project descriptions summarized from the *Central and Southern Florida Project Comprehensive Review Study (1999)*.

Project Name: **C&SF: CERP Modify Holey Land Wildlife Management Area Operation Plan** (DD)
Project ID: 1420 (CERP Project WBS # 15)
Lead Agency: USACE / SFWMD
Authority: No Congressional action is required
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Other – supports 2-A.3

Measurable Output(s): Operational changes and water deliveries TBD

April 1999 (Restudy) Project Synopsis: Several operational components were recommended after evaluation on a regional scale using the South Florida Water Management Model, to analyze regional hydrologic effects. More detailed planning will be necessary to develop the optimum modifications to the C&SF project. Costs to implement these features were not estimated. Most measures will be implemented in association with related construction features and it is assumed costs will be borne by the appropriate affected utilities.

Current Project Synopsis: Water deliveries made to Holey Land from the Rotenberger Wildlife Management Area or from Stormwater Treatment Area 3/4 if Rotenberger flows are insufficient. The deliveries are assumed to be of acceptable water quality. Modification to the current operating plan and rules for Holey Land Wildlife Management Area will be made to implement rain-driven operations for this area to improve the timing and location of water depths within this wildlife management area.

Current Status: To be implemented under existing authorizations and address as needed.

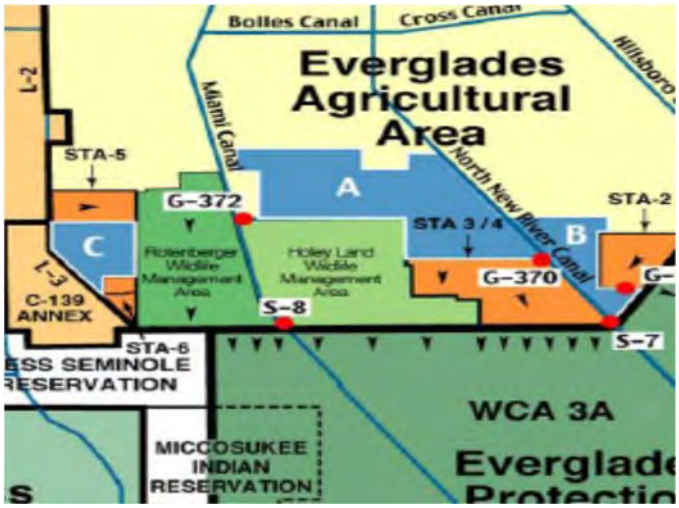
Est. Cost: $0 *(no budget)*

Project Schedule: TBD

Hyperlink: http://141.232.10.32/pm/projects/proj_15_modify_holey.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).*



Project Name: **C&SF: CERP Modify Rotenberger Wildlife Management Area Operation Plan** (EE)
Project ID: 1421 (CERP Project WBS # 16)
Lead Agency: USACE / SFWMD
Authority: No Congressional action is required
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Other – supports 2-A.3

Measurable Output(s): Operational changes and water deliveries TBD

April 1999 (Restudy) Project Synopsis: Several operational components were recommended after evaluation on a regional scale using the South Florida Water Management Model, to analyze regional hydrologic effects. More detailed planning will be necessary to develop the optimum modifications to the C&SF project. Costs to implement these features were not estimated. Most measures will be implemented in association with related construction features and it is assumed costs will be borne by the appropriate affected utilities.

Current Project Synopsis: These new operational rules are intended to improve the timing and location of water depths within the Rotenberger Wildlife Management Area. Modification to the current operating plan for the Rotenberger Wildlife Management Area will be made to implement rain-driven operations for this area as needed. Water deliveries are made to the Rotenberger Area from Stormwater Treatment Area 5.

The water deliveries are assumed to be of acceptable water quality.

Current Status: To be implemented under existing authorizations and address as needed.

Est. Cost: $0 *(no budget)*

Project Schedule: TBD

Hyperlink: http://141.232.10.32/pm/projects/proj_16_modify_rotenberger.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).*

Program Name: Infrastructure
Project Name: **C&SF: CERP Modifications to Southern L-31N and C-111** (OO)
[F/k/a *Operational Modification to Southern Portion of L-31N and C-111* (OO)]
Project ID: 1422
Lead Agency: SFWMD / USACE
Authority: No Congressional action is required
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Other – supports 3-B.1

Measurable Output(s): Modified operations

April 1999 (Restudy) Synopsis: Modifications to the operations of the C-111 project, currently under construction, will be made to the southern portion of L-31N Borrow Canal and C-111. These operational modifications will be made to improve deliveries to Everglades National Park and decrease flood risk of adjacent agricultural areas in the Lower East Coast Service Area.

Current Status: The first part of the operational changes are being implemented in conjunction with the Combined Structural and Operational Plan (CSOP) analysis component associated with the C-111 (South Dade) and Modified Water Deliveries to Everglades National Park projects (MWD).

The balance of changes will be implemented in coordination with other CERP implementation.

Est. Cost: $ 0 budget

Schedule: *Implement as part of C-111 (South Dade) project (Task Force ID #1300).*

Hyperlink: *N/A*

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (1999).*

Project Name: **C&SF: CERP Hillsboro Aquifer Storage and Recovery Pilot**
(A/k/a *Hillsboro ASR Pilot)*
Project ID: 1423 (CERP Project WBS # 34)
Lead Agency: USACE / SFWMD
Authority: WRDA 1999; WRDA 2007 *(modified cost)*
As part of the "Hillsboro and Okeechobee Aquifer, Florida" project
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 1-A.2

Measurable Output(s): Pilot *(output is temporary)*

April 1999 (Restudy) Project Synopsis: The Site 1 above-ground impoundment is proposed to be operated in conjunction with multiple aquifer storage and recovery (ASR) wells in order to maximize the benefits of the reservoir. An ASR pilot will include the construction of a 5- million gallon per day ASR well. The pilot will determine the most suitable sites for the aquifer storage and recovery wells near the reservoir. In addition, identification of the hydro-geological and geotechnical characteristics of the soils and aquifer, the specific water quality characteristics of water within the aquifer, and the quality of water injected and recovered from the aquifer will be determined. Using the pilot project data, the ASR Regional Study team will then determine the optimum configuration and operation of the ASR wells.

Current Project Synopsis: WRDA 1999 authorized the project described in the Chief's Report for the "Hillsboro and Okeechobee Aquifer, Florida" project for aquifer storage and recovery described in the U.S. Corps of Engineers Central and Southern Florida Water Supply Study, Florida, dated April 1989, and in House Document 369, dated July 30, 1968. This project was refined during the Pilot Project Design Report (PPDR) process completed in September 2004.

The CERP Hillsboro ASR Pilot project is located just south of the Loxahatchee National Wildlife Refuge (LNWR) and north of the Hillsboro Canal on a 1,660-acre tract of SFWMD-owned land in south-central Palm Beach County. The Hillsboro pilot site includes the construction of one 5-mgd ASR well and several monitoring wells. Its purpose is to evaluate and reduce the technical and regulatory uncertainties of implementing the full-scale Hillsboro ASR Project, as described in the CERP.

The full-scale Hillsboro ASR project includes construction of up to a 150-mgd ASR capacity (approximately 30 wells) and will be co-located with the 1,660-acre surface water reservoir (Site 1 Impoundment). The full-scale system will store excess water from the Hillsboro Basin when available (typically in the wet season) and release water into the Hillsboro Canal to maintain canal stages during dry periods.

The final Pilot Project Design Report (PPDR) was approved and the Environmental Impact Statement (EIS) received a Record of Decision for all three pilots (C-43, Hillsboro and Okeechobee) in late 2005.

WRDA 2007 amended WRDA 2000 by adding that the *Hillsboro and Okeechobee Aquifer, Florida* project(s) (WBS #32 and #34) are to be treated as "in the Plan", except that operation and maintenance costs of the project shall remain a non-Federal responsibility. WRDA 2007 section 6001 also modified the prior authorization under WRDA 1999 and authorized "the Secretary to carry out the project at a total cost of $42,500,000" (total combined for the two pilot projects).

The SFWMD had taken the lead for this pilot and prepared the plans and specifications for the 5-mgd ASR system that was installed in autumn 2008.

Current Status: Cycle testing began in January 2010 and was completed in2012. Results and findings from operational testing are included in the Lake Okeechobee ASR Pilot Project Technical Data Report, which was completed and reviewed in 2013.

Est. Cost: $ 8,146,967

Project Schedule:

2001	Start
2009	Cycle testing began
2012	Cycle testing ends
2013	Technical Data Report completed and reviewed.

Detailed Project Budget Information (rounded):

Hillsboro ASR	**Obligations Thru FY 2013**
USACE	$2,094,323
SFWMD	$1,048,090
Total	**$3,142,413**

Hyperlink: http://141.232.10.32/pm/projects/proj_34_hillsboro_asr_pilot.aspx

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Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Current Status is from the Project Manager.
Cost estimate information is updated to reflect current price levels in October 2010 dollars. Actual expenditures include all federal expenditures through FY11 (Sept, 2011).

Project Name: **E&SF: Critical Projects - Seminole Tribe Big Cypress Water Conservation Plan**
Project ID: 1425
Lead Agency: USACE / Seminole Tribe of Florida
Authority: WRDA 1996; WRDA 2000 *(addressed cost sharing);* WRDA 2007 *(amended WRDA 1996 Critical Projects cap; raised federal share of cost ceiling to $30 M for this project))*
Funding Source: Federal/Seminole Tribe

Strategic Plan Goal(s) Addressed: Other – supports 1-B.2

Measurable Output(s): Construction of conveyance systems, major canal bypass structures, and water resource areas to meet the 50 ppb phosphorous level goal of the Everglades Construction Project or more stringent performance levels as developed.

Project History, WRDA 1996 authorized the Secretary of the Army to expeditiously implement restoration projects deemed critical to the restoration of the south Florida ecosystem. The SFER Task Force nominated 35 projects with input from the Governor's Commission for a Sustainable South Florida and the public. Based on the set of priorities, the USACE conducted an abbreviated study of and produced a report transmitted to the Secretary of the Army for approval. This is one of the 12 restoration "Critical Projects" having the Secretary of the Army's approval (WRDA 1996) with a funding cap of $12M. Due to the legislated funding limits of the Critical Projects program, only the "west" portion of the project was nominated as a Critical Project.

The Seminole Tribe had requested the assistance of the Natural Resources Conservation Service (NRCS) to implement the "east" portion of the plan. With uncertainty of the NRCS funding and the potential that the west portion might not be entirely funded through the Critical Projects program, the "combined" project was recommended as an Other Project Element (OPE) as part of the Comprehensive Plan in the Restudy. (See: CERP Projects).

April 1999 (Restudy) Synopsis: The proposed comprehensive watershed management system is designed to achieve environmental restoration on the Reservation, the Big Cypress Preserve, and the Central and Southern Everglades and reduce flood damage and promote water conservation on the Reservation to ensure a complete project.

Current Project Synopsis: The project purpose is to improve quality of agricultural water runoff within the Reservation; improve wetland hydrology and return native vegetation. In addition, this project will mitigate agricultural runoff adverse impact and promote water conservation on the Reservation. The Big Cypress Reservation, in Hendry County, is traversed by the L-28 and L-28I canals and the North and West Feeder canals (conveyances were constructed as part of the Central and Southern Florida (C&SF) Project).

East side work consists of conveyance canals, designed and constructed by the Seminole Tribe. West side work consists of several basins, each of which will consist of water resource area (similar to a storm water treatment area (STA), pump stations for transferring water, canals for distribution, and inverted siphons to carry effluent under the West Feeder Canal into the reservation's Native Range. Water will then flow southward into the Big Cypress National Preserve. A planned network of surface water management structures is designed to accomplish the following <u>four</u> objectives to get the water right through quantity, quality, timing and distribution necessary for restoration:

- Remove phosphorus and other pollutants from water leaving the Reservation: The removal of these pollutants will be achieved using natural treatment processes, in water resource areas (WRAs). The Tribe's WRAs will take advantage of the natural treatment processes and will serve additional functions in the storage and conveyance of water
- Convey and store irrigation water: To make use of water provided by the District (to replace the Tribe's diverted Compact water rights), the Tribe needs to be able to take this water, when it is available, to move it and to store it. This will be accomplished through water conveyance improvements.
- Provide improved storm-water flows control: Storm water must be controlled on the Reservation to prevent storm-water damage to agricultural lands and limit impacts downstream to Big Cypress National Preserve. This will be accomplished by means of storm-water attenuation areas.
- Re-hydrate Big Cypress National Preserve: The Seminole Water Conservation Project will provide the opportunity to restore more natural hydro periods southward in the Big Cypress National Preserve.

WRDA 2000 stated that "the Seminole Tribe of Florida shall be responsible for 50 percent of the cost of operation, maintenance, repair, replacement, and rehabilitation activities for the Big Cypress Seminole Reservation Water Conservation Plan Project". Construction of the conveyance canal system on the 'east' side of the Reservation (Phase I) was completed in May 2004. Canal pump stations will connect this conveyance canal system to the North Feeder Canal system. WRDA 2007 increased the Federal share cap specific for the 'west' portion of this Critical Project "not to exceed $30,000,000".

Phase II identified four basins for construction. Basin 1 was constructed (August 2008) and transferred (February 2010) to the Seminole Tribe of Florida for OMRR&R.

Geotechnical testing in basins 2, 3, and 4 revealed permeability rates greater than originally assumed in design documentation. Basin 4 design was modified and basins 2 and 3 designs will be modified to address the higher seepage rates while preserving the environmental restoration benefits.

Current Status: Basin 4 construction was awarded in September 2011 and is scheduled for completions in February 2013, with transfer to the Seminole Tribe of Florida by July 2013 for OMRR&R purposes. Basin 2 is scheduled for design completion in October 2012 and construction contract advertisement in January 2013.

Est. Cost: $60,000,000 (Federal project cost not to exceed $30,000,000)

Project Schedule:

1997	Start
2008	Basin 1 Construction completed.
2013	Basin 4 Construction completed.(expected)
2014	Basin 2 Construction complete (expected)
2016	Basin 3 Construction complete (expected)

Detailed Project Budget Information (Rounded):

Seminole Big Cypress	Obligations Thru FY 2013
USACE	$25,123,877
Seminole Tribe of America	$25,123,877
Total	**$50,247,754**

Ongoing construction of basin 4 water resource area. Photo taken March 15, 2012.

Hyperlink:
http://www.saj.usace.army.mil/Divisions/Planning/Branches/Environmental/Projects_Critical.htm

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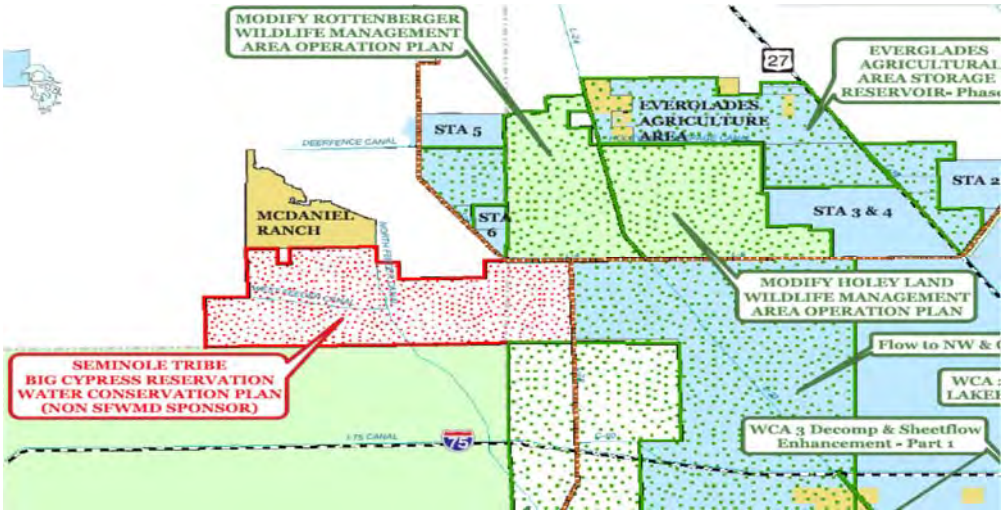
Source: Current status is summarized from information provided by the USACE project manager.

Additional Information:



Project Name: C&SF: CERP Southwest Florida Feasibility Study (SWFCWP)
Project ID: 1431 (CERP Feasibility Study WBS # 516)
Lead Agency: USACE / SFWMD
Authority: WRDA 1992, WRDA 1996
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Other – supports 3-A.4

Measurable Output(s): Regional Plan

April 1999 (Restudy) Project Synopsis: The Plan recognized that more thorough investigations of regional water resource problems was needed, and directed these to be conducted under the authority of WRDA 1996 that allows for the continuation of studies and analyses necessary**.**
The purpose of the study was to determine the feasibility of and provide a framework for making structural, non-structural, and operational modifications and improvements in the region in the interest of environmental quality, water supply, and other purposes and investigate water resources problems and opportunities.

Current Project Synopsis: The Southwest Florida Feasibility Study (currently known as the Southwest Florida Comprehensive Watershed Plan) was tasked with developing a comprehensive regional plan of action to address the health of aquatic and upland ecosystems; the quantity, quality, timing, and distribution of water flows; agricultural, environmental, and urban water supply; the sustainability of economic and natural resources; flood protection; fish and wildlife; biological diversity; and natural habitat.

The Restudy recognized the lack of hydrologic data available for southwest Florida and recommended a comprehensive evaluation of the environmental, agricultural and municipal water resource needs for the region. The area encompasses 4,300 square miles including all of Lee County, much of Collier and Hendry counties, and portions of Charlotte, Glades, and Monroe counties. The northern boundary of the study area parallels the northern drainage extent of the Caloosahatchee River Basin, while the eastern boundary is the drainage divide between the Big Cypress Swamp and the Everglades system.
The study has been underway since 2002, with the assistance of an interagency and interdisciplinary planning team. Issues addressed by the CWMP include loss of habitat, fragmentation of natural areas, alteration of natural freshwater flows to wetlands and estuaries (altered surface water hydrology), invasion of exotics, loss of groundwater recharge and water quality degradation in surface waters.

The study will provide a Comprehensive Watershed Plan that will incorporate projects recommended by a multi-agency PDT to restore natural hydrologic connections, improve habitat and landscape connectivity, enhance existing natural areas, and maintain water supply and flood control throughout the study area. From this Master Plan the PDT will develop a method of tiering to illustrate those components which would be viable as USACE Interest (Tier 1), State/Federal Interest (Tier 2), and Local Interest (Tier 3). Utilizing this method, and coupled with the historic USACE plan formulation process, the watershed plan will highlight specific Tier 1 interests for consideration and acquisition by a possible cost sharing partner.

Current Status: Following review of the initial SWFFS Draft Report at the USACE District and Headquarters levels, the Southwest Florida Feasibility Study was returned to the Jacksonville District office with direction to reformat and package as a Comprehensive Watershed Plan. The PDT has worked to repackage the deliverables in a new draft, while keeping historic documentation from the original feasibility study (to include the Conceptual modeling of alternatives, development of Rough Order of Magnitude construction and real estate costs for alternative analysis, and selection of the TSP).

The Final report was transmitted to SAD in April 2013 and to HQ in November 2013. The report was resubmitted, with comments addressed, to HQ for finalization in 2014.

Est. Cost: $ 17,000,000

Project Schedule:
2001 Start
2012 Complete

Detailed Project Budget Information (rounded)**:**

USACE Recon (100%)	$234,776
Feasibility (50/50)	$8,163,020
SFWMD	$8,190,554
Total	$16,588,350

Hyperlink: http://141.232.10.32/pm/studies/swfl.aspx

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Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (1999).* Cost estimate information is updated to reflect current price levels in October 2008 dollars. Actual expenditures include all federal expenditures through FY09 (Sept, 2009) and sponsor verified and recorded in-kind credit through 4th quarter FY07.

Additional Information:

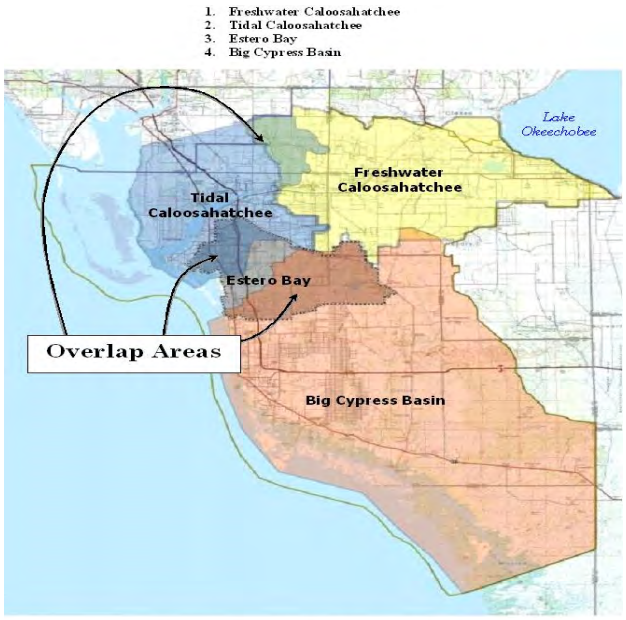

Figure 2: Watersheds in the SWWFS Area

Project Name: **C&SF: CERP C-4 Control Structures (T)**
Project ID: 1435 (CERP Project WBS # 46)
Lead Agency: USACE / SFWMD
Authority: Not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Other – supports 1-A.2

Measurable Output(s): Well field recharge; seepage reduction

April 1999 (Restudy) Project Synopsis: Includes two water control structures located in the C-4 Canal in Miami-Dade County. The purpose of this feature will be to enhance wetland hydroperiods and enhance recharge to Miami-Dade County's Northwest Well field.

Current Project Synopsis: The eastern C-4 structure (S-380E) will be operated to reduce regional system deliveries by diverting dry season stormwater flows to the C-2 Canal to provide salt-water intrusion protection and recharge to downstream ground water well fields. The structure can be operated to maximize the flow in both canals during the wet season to mitigate flooding.

The existing western structure, being implemented under the E&SF Critical Projects (WRDA 1996) program, will be operated to control water levels in the C-4 Canal at a higher elevation to reduce seepage losses from the Pennsuco Wetlands and areas to the west of the structure. This project adheres to the original concept outlined in Restudy.

Current Status: This project has not yet begun.

Est. Cost: $ 3,190,000

Project Schedule: TBD

Detailed Project Budget Information (rounded):

C-4 Control Structures	Obligations Thru FY 2013
USACE	$92,144
SFWMD	$21,338
Total	**$113,481**

Hyperlink: http://www.evergladesplan.org/pm/projects/proj_46_c4_structure.cfm

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Source: Original project description summarized from the Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999). Cost estimate information is updated to reflect current price levels in October 2009 dollars. Actual expenditures include all federal expenditures through FY09 (Sept, 2009) and sponsor verified and recorded in kind credit through 4th quarter FY07.

Program Name: **C&SF: CERP PLA /Information and Data Management**
Program ID: 1437
Lead Agency: USACE / SFWMD
Authority: Design Agreement

Strategic Plan Goal(s) Addressed: Other – Program Support

April 1999 (Restudy) Program Synopsis: While not specifically described in the Restudy, the CERP Master Program Management Plan (MPMP) called for the creation of a shared data network. The MPMP directed implementation of these activities under the guidance of the Program Controls Management Plan.

Current Program Synopsis: The Design Coordination Team (DCT) recommended the creation of a Program Management Plan (PMP) for CERP Information and Data Management (IDM). The Corporate Review Group (CRG) and the Project Review Board (PRB) approved this concept. The initial Information and Data Management PMP (February 26, 2002) included the functional areas of GIS and engineering data. Responsibility for these areas of infrastructure, World Wide Web services and electronic document management moved to Information and Data Management with the adoption of a revised PMP in 2007.

Under this program, the South Florida restoration effort operates a common information system used to collaborate during the planning, engineering, construction, and post-construction phases of the program. This common information system is accessible, upon request, to all Program/Project Delivery Team (PDT) members in the performance of their current and future roles. Much of this data is also made available to the public as projects move out of the developmental stage and into design and construction. Sharing information by all participating agencies increases efficiency, avoids duplication, and provides reliable short term and long term repositories for CERP data.

The data Quality Assurance and Oversight function, responsible for the quality of scientific data collected for the entire CERP program, was also incorporated into Information & Data Management with the 2007 PMP.

Current Status: IDM Programmatic activity is currently a combination of information services and systems that support the project and program level activities of CERP and other South Florida restoration programs. The IDM program developed a database for monitoring data from the CERP program specifically for data that cannot be stored in the SFWMD's DBHydro database. The IDM program ensures that data are appropriately stored for the life of the CERP.

The Quality Assurance Oversight Team (QAOT) continued to revise the Quality Assurance Systems Report (QASR) as necessary. The QASR manual lays out the protocols and procedures for environmental data gathering activities for the implementation of CERP. Efforts in 2011 concentrated on methods for collecting ecological and biological data and culminated with the development of CGM 40 for Project Level Monitoring Plans effective April 2, 2012. Biennial Quality Assurance Reports (QAR), compiling QA information for CERP projects and programs, were released in 2009, 2011, and 2013, and 2015 covering data sampled from May 1, 2012 to April 30, 2014. The QAOT's PMP is updated in conjunction with the IDM PMP.

Detailed Project Budget Information: *Funding is part of the overall Program-Level Activities budget.*

Hyperlink: http://www.cerpzone.org

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Program Name: **C&SF: CERP PLA/Inter-Agency Modeling Center (IMC)**
Program ID: 1438
Lead Agency: USACE / SFWMD
Authority: Master Program Management Plan

Strategic Plan Goal(s) Addressed: Other – Program Support

Measurable Output(s): Critical models and modeling results.

April 1999 (Restudy) Program Synopsis: While the authority for the IMC Program Management Plan (PMP) was not specifically mentioned in the Water Resources Development Act of 2000 it is implicit in the Design Agreement between the Department of the Army and the South Florida Water Management District; and in the Master Program Management Plan that the modeling needs of CERP implementation must be met in a sufficient and adequate manner.

Current Program Synopsis: Good program and project management require unique and complex modeling to execute CERP implementation. System-wide computer models are important tools used to simulate South Florida hydrology and water management, and to evaluate the system-wide performance of the Plan.

A collaborative state and federal interagency effort, the Interagency Modeling Center (IMC), was established in 2003 to provide a centralized pool of resources and expertise to promote greater efficiency and consistency in the hydrologic and ecologic modeling that supports CERP planning. It provides, coordinates, and oversees the modeling needs and efforts for CERP both at the Program Coordination level, such as modeling that will be needed for the MISP scheduling updates, and at the project level for individual project analyses. Modeling needs for individual project analyses are addressed by Project Delivery Teams (PDTs) and consultants, but are coordinated through the IMC to insure consistency with the regional model, for model selection, and appropriate application of project-level models.

Since its inception, the IMC has performed thousands of regional model simulations to support CERP projects and RECOVER evaluations; and has responded to hundreds of requests from CERP projects for review of modeling strategies, scopes of work and reports of project-level model applications. In addition, IMC modelers provide liaison services to PDTs and RECOVER to facilitate their interaction with the IMC.

Current Status: The primary regional model covering most of the CERP domain is the South Florida Water Management Model (SFWMM). Other sub-regional models are often used in conjunction with the SFWMM when finer detail for a portion of the CERP domain is needed, or when the project falls outside the domain of the SFWMM.

The Regional Simulation Model RSM encompasses a family of next generation sub-regional models that are beginning to be applied to certain basins/watersheds to provide more accurate representations of performance under the CERP. Implementation of the Natural System Regional Simulation Model (NSRSM) is intended to provide a superior representation of the pre-drainage system and replace the Natural System Model (NSM).

The SFWMM is being updated to extend the period of record, update land use, topography, and enhance the model code. It was ported from Unix to Linux to facilitate simulations on computer clusters which has dramatically reduced computer run-times for SFWMM simulations.

There will be continued demand for regional and sub-regional model applications for planning and evaluation of CERP projects. Sub-regional implementations of the RSM will be completed and deployed in the IMC for application to provide more accurate representations of the performance of CERP plans. Project-level modeling will continue to be coordinated by the IMC to insure consistency with regional models and for appropriate model applications. Ecological models, which have been under development outside of the IMC, will be implemented in the IMC to facilitate the evaluation of ecological response to CERP projects.

Detailed Project Budget Information: *Funding is part of the overall Program-Level Activities budget.*

Hyperlink:

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Program Name: **C&SF: CERP PLA/Environmental and Economic Equity (EEE)**
Program ID: 1439
Lead Agency: USACE / SFWMD
Authority: Executive Order E012898 (1994)

Strategic Plan Goal(s) Addressed: Other – Program Support

The 1994 Executive Order 12898 directed Federal agencies to make "Achieving Environmental Justice" part of their missions; and requires these agencies to identify and address adverse environmental effects of their programs, policies, and activities on minority and low-income populations, U.S. territories, Commonwealths, and Indian tribes.

April 1999 (Restudy) Program Synopsis: Not specifically described in the *Central and Southern Florida Project Comprehensive Review Study* (Restudy).

Current Program Synopsis: Economic Equity and Environmental Justice are integrated into restoration efforts. Federal laws and executive orders (EO) directed Federal agencies to promote economic equity and environmental justice through fair treatment of all persons regardless of color, creed, belief, or national origin; and to ensure that no group of people, including racial, ethnic, or tribal groups bear a disproportionate share of the negative environmental impacts resulting from industrial, governmental operations, or execution of Federal actions or local programs or policies.

In WRDA 2000, Congress specifically recognized the importance of ensuring that small business concerns, including those owned or controlled by socially and economically disadvantaged individuals and persons with limited English proficiency, are provided with assistance and educational opportunities to review, comment on, and participate in the development and implementation of the CERP. This law also recognized the importance of ensuring to the maximum extent practicable that public outreach and assistance, and educational opportunities are provided to all and every citizen of South Florida including low-income populations and minority populations. The U.S. Army Corps of Engineers District Jacksonville, Florida, under its Environmental and Economic Equity and Outreach program, has targeted efforts to ensure that these opportunities are provided to realize Everglades Ecosystem restoration benefits to both the natural and human systems, and to ensure the complete success of the CERP.

The USACE and SFWMD co-chair the Environmental and Economic Equity Program, which supports mitigation of adverse socio-economic, socio-ecological, and environmental effects that may result from CERP. The Environmental and Economic Equity Program Management Plan (PMP) states six objectives. One objective is to provide relevant, timely, valid and reliable socio-economic and environmental justice baseline data for system-wide and project specific assessments. Baseline data will include, but not be limited to, demographic, economic, water use, conservation and land use data.

The USACE's environmental justice mission, embodied in its environmental and economic equity and outreach program, sees this guiding principle as critical to the long-term success of the Federal Government continuing responsibility to ensure that civil works projects are implemented in ways that do not result in disproportionate impacts on any community(s); and to assure that All Americans, including the unique cultural and ethnic diversity of South Florida's populations, live in "safe, healthful and aesthetically and culturally pleasing surroundings."

Current Status: The project has been put on hold since FY 2008, due to budget restrictions. The Project Delivery Team (PDT) technical efforts had identified, assessed, and addressed potential negative impacts of socio-economic, socio-ecological and environmental effects on the people of South Florida, including low-income and minority populations.

More than fifteen CERP and CERP-related contracts, valued at over $40 million (2007 prices), were awarded to socially and economically disadvantaged firms between 2004 and 2009. In addition, the USACE participated in over 70 business outreach events in South Florida to educate newly qualifying companies about contracting processes and opportunities with the USACE and other Federal agencies.

The 2007 PMP was reviewed by both USACE and SFWMD but was not budgeted for in subsequent fiscal years. The PMP emphasizes meaningful participation by local communities, as well as collection of data, to support resulting analyses and mitigation of any adverse impacts on the human environment.

Detailed Project Budget Information: *Funding is part of the overall Program-Level Activities budget.*

Hyperlink: http://141.232.10.32/pm/progr_outreach.aspx

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Program Name: **C&SF: CERP PLA/Master Recreation Plan (MRP)**
Program ID: 1440
Lead Agency: USACE / SFWMD
Authority: WRDA 1996, WRDA 2000

Strategic Plan Goal(s) Addressed: Supports 3-A2

Measurable Output(s): Critical planning document

April 1999 (Restudy) Program Synopsis: This programmatic need was not initially identified in the *Central and Southern Florida Project Comprehensive Review Study* (Plan); however, recreation is an authorized purpose of the Central & Southern Florida Project. The purpose of the Master Recreation Plan (MRP) is to support the implementation of the CERP Projects while maintaining and protecting the authorized purpose of recreation.

Current Program Synopsis: A significant part of recreation in South Florida is water based. As CERP projects are implemented, the impact to recreation opportunities will be addressed along with the additional recreation opportunities that may be made available by the CERP. A Master Recreation Plan (MRP) is under development to identify the best locations for regional recreation sites within the CERP area. This effort takes a system-wide approach to identify, evaluate, and address the impacts of CERP implementation on existing recreational use within the South Florida Ecosystem and to identify and evaluate potential new recreation, public use and public educational opportunities. A particular focus is on the identification of additional public use and recreational opportunities to compensate for public use facilities that may be lost as a result of CERP implementation.

Opportunities may be recommended for further evaluation during the development of Project Implementation Reports for specific CERP Projects; for implementation through other cost-share arrangements between federal, state, local, and not-for-profit entities; or as stand-alone Congressional authorizations. Specific recreation features will not be recommended; however, opportunities to address deficiencies identified through the Florida Statewide Comprehensive Outdoor Recreation Plan (SCORP) and public involvement will be identified on a regional basis through Conceptual Regional Plans.

Initial suitability mapping for the MRP began in June 2005. A mapping study looked at nine key recreation activities and how they might mesh with the surrounding landscape and restoration purposes in each of the projects. After the maps were complete, the USACE and the SFWMD held 18 "listen and learn" public scoping workshops throughout South Florida, gathering input regarding recreation demand and emerging recreation issues. Following the workshops, regional program analysis and conceptual recreation plans were created. After public review and comment during the spring of 2008, the regional conceptual recreation plans were finalized.

Current Status: The draft MRP is currently being revised per comments received from SAD workshops.

Detailed Project Budget Information: *Funding is part of the overall Program-Level Activities budget.*

Hyperlink: N/A

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Program Name: C&SF: CERP PLA/REstoration COordination and VERification (RECOVER)
Program ID: 1441
Lead Agency: USACE / SFWMD
Authority: WRDA 2000; Master Program Management Plan (USACE and SFWMD 2000a); Design Agreement between the Department of the Army and the South Florida Water Management District for the Design of Elements of the Comprehensive Plan for the Everglades and South Florida Ecosystem Restoration Project (USACE and SFWMD 2000b); Programmatic Regulations for the Comprehensive Everglades Restoration Plan; Final Rule (DOD 2003)

Strategic Plan Goal(s) Addressed: All – Program Support

Measurable Output(s):

- CERP Conceptual Ecological Models (CEMs)
- System-wide Monitoring and Assessment Plan (MAP)
- Online publication of the *Scientific and Technical Knowledge Gained in Everglades Restoration (1999-2009)* document
- Hydrologic, Ecological/Biological and Water Quality Performance Measures
- System Status Report (http://www.evergladesplan.org/pm/ssr_2009/ssr_main.aspx)
- CERP Adaptive Management Strategy
- CERP Adaptive Management Implementation Guide
- Recommendations for CERP Interim Goals and Interim Targets
- System-wide evaluations of individual CERP projects or groups of projects and refinements of the Plan and the existing and future without project condition
- Identification and evaluation of operational modifications to improve system-wide performance during plan formulation
- Reviews of project-level performance measures for consistency with system-level hydrologic, ecological and water quality performance measures
- Identification of improvements for project performance that will improve its system-wide performance
- Maintenance of the most current version of the Plan
- Maintenance of the most current version of the existing and future without project conditions
- Assessment and identification of opportunities for operational modifications to improve system-wide performance
- System-wide Operating Manual
- Identification of opportunities for refinements to the CERP
- Climate Change Study
- Committee on Independent Scientific Review of Everglades Restoration Progress (CISRERP) coordination

April 1999 (Restudy) Program Synopsis: The RECOVER team will be established to provide system-wide evaluation and analyses and to implement the AA&M program. The RECOVER team represents the evolution of the multi-disciplinary interagency Restudy Team that formulated the Plan. CERP is science-based and it is the role of RECOVER to ensure that science continues to guide implementation of the Plan. RECOVER is designed to organize and provide the highest quality scientific and technical support during CERP implementation including assessment of whether the goals and objectives of the CERP are being met.

RECOVER conducts scientific and technical evaluations and assessments for improving the CERP's ability to restore, preserve and protect the south Florida ecosystem while providing for the region's other water-related needs including water supply and flood protection. This will determine how to refine the Plan in the future.

Current Program Synopsis: RECOVER links science and the tools of science in three broad missions of system-wide assessment, evaluation and planning and integration. RECOVER has a 3-part mission:

Assessment - to physically measure, through monitoring, and interpret actual responses in the natural and human systems as the CERP projects are implemented
Evaluation - to work with project delivery teams to evaluate (through predictive modeling) and maximize the contribution made by each project to the system-wide performance of the CERP
Planning and Integration - to identify potential improvements in the design and operation of the CERP, consistent with the CERP objectives, and to strive for consensus regarding scientific and technical aspects of the CERP

RECOVER encompasses all the CERP projects and works with the project delivery teams to relate system-wide goals and objectives to project design and performance as well as incorporates information obtained during project plan formulation into the Plan. At the program level, RECOVER maintains a system-wide focus as it evaluates and assesses the performance of CERP, develops refinements and improvements in the design and operations of the Plan, and reviews the effects that other projects may have on the performance of the CERP. RECOVER continues to operate throughout the entire duration of the restoration process, continuously seeking improvements to the Plan as system-wide monitored responses direct the CERP Adaptive Management process.

RECOVER accomplishes its activities through a partnership amongst the following twelve federal, state and local agencies, and tribal governments: the U.S. Army Corps of Engineers, the South Florida Water Management District, U.S. Environmental Protection Agency, National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service, U.S. Geological Survey, National Park Service, Miccosukee Tribe of Indians of Florida, Seminole Tribe of Florida, Florida Department of Agriculture and Consumer Services, Florida Department of Environmental Protection and Florida Fish and Wildlife Conservation Commission. RECOVER also provides opportunities for the public and stakeholders to participate in the review and refinement of RECOVER work products.

The CISRERP, in their 2010 Biennial Review, concluded that the foundation for Adaptive Management has been laid for CERP and the theory now needs to be put into practice. Further, CISRERP found that research efforts are providing a sound basis for critical decision making, but the effectiveness of the linkages between science and decision making should be examined by CERP leadership.

The System Status Report (SSR) is a comprehensive report that evaluates current monitoring data to determine if the goals and objectives of the Comprehensive Everglades Restoration Plan (CERP) are being met. The SSR incorporates data collected by the Restoration Coordination and Verification (RECOVER) Monitoring and Assessment Plan (MAP) program for CERP, data from CERP projects, and data provided by RECOVER partners. The report evaluates data from different system-wide geographic regions, including Lake Okeechobee, the Northern Estuaries, Greater Everglades and Southern Coastal Systems. The SSR identifies findings associated with the monitoring that are both important to assessing the progress of the restoration effort and considers whether adaptive management actions are beneficial.

The Adaptive Management Integration Guide was finalized in 2011 to provide technical guidance on how to integrate adaptive management activities within projects and program implementation efforts. Coordination workshops occurred on how to develop AM plans for projects and better integration of system-wide science in project and program management. Phase 1 is development of a program-level AM plan to fill gaps between existing documents to illustrate how key uncertainties are being addressed and how new information informs current and future management decision.

CGM 56 Integrating Adaptive Management into CERP Program and Project Management was approved by the DCT in February 2011. This CGM provides guidance on how to integrate adaptive management into Project Implementation Reports (PIR). This CGM complements the Adaptive Management Integration Guide and assists the Project Delivery Teams (PDTs) to apply adaptive management to address uncertainties that inhibit PIR development.

Current Status: RECOVER continues coordinates the assessment work under Adaptive Assessment and Monitoring including 26 monitoring components across CERP. In July, the 2014 System Status Report was published, a draft revision of the Programmatic AM Plan is complete. RECOVER is currently evaluating the Natural Systems Regional Simulation Model developed by IMC.

RECOVER continues to integrate science and policy by providing system-wide support to projects.

As CERP projects are in a variety of stages, RECOVER is transitioning from planning to design and construction focused Adaptive Management (AM) activities. RECOVER is working to establish avenues for providing feedback from scientists with engineers, water managers, and area offices. The CGM 56 Adaptive Management and the PIR template will need modified to reflect the result of the AM Plan implementation. RECOVER will continue to engage with stakeholders and collaborate with agencies, to refine restoration goals and objectives, and to review scientific uncertainties in ecosystem performance.

Detailed Project Budget Information: *Funding is part of the overall Program-Level Activities budget.*

Hyperlinks: http://141.232.10.32/pm/recover/recover.aspx

Contact: April Patterson, Project Manager, Ecosystem Projects Section, Programs and Project Management Division, USACE
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Patti Gorman, SFWMD
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Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (1999)* and WRDA 2000. Additional information provided from the Monitoring and Assessment Plan (2009) and the RECOVER team.

Project Name: **C&SF: CERP Program Management**
Project ID: 1442
Lead Agency: USACE / SFWMD
Authority: Not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed:

Measurable Output(s):

April 1999 (Restudy) Synopsis: The scope of the recommended Comprehensive Plan warrants a management approach that is programmatic in nature. This "program" will require a management structure that is integrated into both the Corps and the local sponsor's executive, managerial, and technical staffs. The program's resources must be based on a sound strategy for implementation that includes identification of system-wide efforts, assigns responsibility for component development, and provides a projection of budget, funding, schedules and manpower requirements supported by appropriate agreements for local cooperation. This management strategy will provide the conceptual framework for Federal, State, local, tribal, and private efforts to protect and restore the south Florida ecosystem.

Current Project Synopsis: The Master Program Management Plan and the Design Agreement have provided additional details in regards to the CERP Program Management, but it is still in-line with what was presented in the Restudy.

Current Status: Initial program guidance was published in August 2000 in the *Master Program Management Plan (MPMP)*. The MPMP is regarded as the baseline program guidance document for the implementation of the CERP program. In the WRDA 2000, Congress approved the Plan and required promulgation of the Programmatic Regulations to ensure that the goals and purposes of the CERP are achieved. The Programmatic Regulations require the development of program coordination processes and products such as the Master Implementation Sequencing Plan (MISP), Pre-CERP Baseline, Guidance Memoranda, Interim Goals and Interim Targets, and Initial CERP Update.

Since the initial MPMP, the USACE and SFWMD program managers have made decisions on a wide array of issues that directly affect execution of the program and have jointly translated their decisions into specific Guidance Memoranda. Efforts have also included work on the Pre-CERP Baseline, Interim Goals and Interim Targets. While Program Coordination was a large part of the initial CERP start-up effort, it continues to be significant because as projects move into the design construction phases, the guidance necessary for those phases is being developed and refined. In 2005, the MISP was completed in accordance with South Florida Ecosystem Restoration Programmatic Regulations. The MISP defined the order in which CERP projects would be planned, designed, and constructed. Building on recommendations in the Committee on Independent Scientific Review of Everglades Restoration Progress 2006 Report to Congress, while the MISP was being updated, it was incorporated into an overall schedule for restoration known as the Integrated Delivery Schedule (IDS).

In addition, there are several CERP Program level activities that support or assist the planning and execution of the projects. These efforts include Restoration Coordination and Verification (RECOVER), the Interagency Modeling Center, the Information and Data Management Program (includes Quality Assurance Oversight Team), and Public Outreach. All of these programs continue to provide support and guidance to the projects and the overall program.

Est. Cost: $ 726,921,000

Project Schedule: On-going

Detailed Project Budget Information (rounded):

USACE	$241,704,000
DOI	$971,000
SFWMD	$183,580,000
Total	**$426,255,000**

Hyperlink: N/A

Contact: Michael Collis, Senior Program Manager, Programs and Project Management Division, USACE, Michael.J.Collis@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2011 dollars.

Project Name: **C&SF: CERP Big Cypress - L-28 Interceptor Modifications (CCC)**
Project ID: 1500 (CERP Project WBS # 10)
Lead Agency: USACE / SFWMD
Authority: Not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 1-B.1

Measurable Output(s): 1,900 acre Stormwater Treatment Area

April 1999 Project Synopsis: This feature includes modification of levees and canals, water control structures, pumps, and stormwater treatment areas with a total storage capacity of 7,600 acre-feet located within and adjacent to the Miccosukee and Seminole Indian Reservations in Collier and Hendry Counties. The initial design of the stormwater treatment areas assumed a total acreage of 1,900 acres (water level fluctuating up to 4-feet above grade). Conceptual sizes of the stormwater treatment areas were based on interim phosphorus concentration targets in the conceptual plan for the Everglades Construction Project.

Current Project Synopsis: The purpose of this feature is to reestablish sheetflow from the West Feeder Canal across the Big Cypress Reservation and into the Big Cypress National Preserve, maintain flood protection on Seminole Tribal lands, and ensure that inflows to the North and West Feeder Canals meet applicable water quality standards. Upstream flows entering the West and North Feeder Canals will be routed through two stormwater treatment areas to be located at the upstream ends of the canals. After conversion to a pump station, S-190 will also push flows south into the L-28 Interceptor Canal where sheetflow to the southwest will be reestablished with backfilling and degradation of the southwest levee of the canal.

Sheetflow will be reestablished south of the West Feeder Canal by a system to be developed consistent with the Seminole Tribe's Conceptual Water Conservation System master plan. Design of the STAs will be based on water quality criteria of the Seminole Tribe and criteria applicable to Big Cypress National Preserve, as appropriate. This project adheres to the original concept outlined in the Restudy.

Current Status: This project has not yet begun and is planned for the future.

Est. Cost: $ 76,424,689

Project Schedule: TBD

Detailed Project Budget Information (rounded):

BC-L-28	Obligations Thru FY 2012
USACE	$0
SFWMD	$0
Total	**$0**

Hyperlink: http://141.232.10.32/pm/projects/proj_10_big_cypress.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars.

Project Name: C&SF: CERP Miccosukee Tribe Water Management Plan (OPE)

Project ID: 1502 (CERP Project WBS # 90)
Lead Agency: USACE / Miccosukee Tribe
Authority: Not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 1-B.1

Measurable Output(s): 900-acre constructed wetland

April 1999 (Restudy) Project Synopsis: Converts 900 acres of tribally owned cattle pasture into a wetland retention /detention area on the Miccosukee Tribe's Alligator Alley Reservation and includes a pump station, levees, trenches and culverts to create the inflow and outflow facilities for the retention/detention area to filter out harmful nutrients contained in stormwater runoff before entering the Everglades Protection Area.

Current Project Synopsis: The Miccosukee Tribe Water Management Plan pertains to constructing a managed wetland on the Tribe's Reservation in western Broward County. It would also provide water storage capacity and water quality enhancement for tribal reservation waters, which discharge from tribal lands downstream into the Everglades Protection Area. The project was sized to treat the nutrient inputs of the Miccosukee Tribal lands and adheres to the original concept outlined in the Restudy.

Current Status: This project has not yet begun.

Est. Cost: $ 43,727,307

Project Schedule: TBD

Detailed Project Budget Information (rounded):

Miccosukee Tribe WMP	Obligations Thru FY 2012
USACE	$0
Miccosukee Tribe	$0
Total	**$0**

Hyperlink: http://141.232.10.32/pm/projects/proj_90_miccosukee.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars.

Project Name: **C&SF: CERP Caloosahatchee Back-pumping with Stormwater Treatment (DDD)**
Project ID: 1505 (CERP Project WBS # 06)
Lead Agency: USACE / SFWMD
Authority: Not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 1-B.1

Measurable Output(s): 5,000 acre STA with a total capacity of 20,000 acre-feet

April 1999 (Restudy) Project Synopsis: This feature includes pump stations and a stormwater treatment area with a total capacity of approximately 20,000 acre-feet located in the C-43 Basin in Hendry and Glades Counties. The initial design of the stormwater treatment area assumed 5,000 acres (water level fluctuating up to 4 feet above grade).

Current Project Synopsis: The purpose of this project is to capture excess C-43 Basin runoff, which will be used to augment regional system water supply. The feature will operate after estuary and agricultural/urban demands have been met in the basin and when water levels in the C-43 Storage Reservoir exceed 6.5 feet above grade. Lake Okeechobee must also be considered to have available storage. When these conditions are met, a series of pump stations will back pump excess water from the reservoir and the C-43 Basin to Lake Okeechobee after treatment through a stormwater treatment area.

Current Status: The project has not yet been initiated.

Est. Cost: $ 140,631,185

Project Schedule: TBD

Detailed Project Budget Information (rounded):

Caloosahatchee Back-pumping with Stormwater Treatment	Obligations Thru FY 2012
USACE	$0
SFWMD	$0
Total	**$0**

Hyperlink: http://141.232.10.32/pm/projects/proj_06_cal_backpumping.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999)*. Cost estimate information is updated to reflect current price levels in October 2009 dollars.

Project Name: **E&SF: Critical Projects - Lake Okeechobee Water Retention / Phosphorous Removal**
Project ID: 1506
Lead Agency: USACE / SFWMD
Authority: WRDA 1996
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 1-B.1

Measurable Output(s): Two stormwater treatment areas with 940 acres

Project History: WRDA 1996 authorizes the Secretary of the Army to expeditiously implement restoration projects deemed critical to the restoration of the South Florida Ecosystem. The SFEER Task Force nominated 35 projects with input from the Governor's Commission for a Sustainable South Florida and the public. Based on the set of priorities, the USACE conducted an abbreviated study of, and produced a report transmitted to, the Secretary of the Army for approval. This is one of the 12 restoration "Critical Projects" having the Secretary of the Army's approval and authorized to be appropriated by Congress (WRDA 1996) for the Department of the Army to pay the federal share up to $75 million (no more than $25 million for any single project) for fiscal years 1997-1999. WRDA 2007 amended the sum to up to $95 million.

Current Project Synopsis: Four key basins for the Lake Okeechobee watershed include the lower Kissimmee River basins (S-65D, S-65E, and S-154), and the Taylor Creek-Nubbin Slough basin (S-191). Wetlands account for between 18 and 25 percent of the land classification in the basins (U.S. Fish and Wildlife Service 1990 National Wetlands Inventory); however, approximately 37 percent of these wetlands have been ditched to drain the land for agriculture (i.e., improved pasture). Many of these wetlands were isolated depressions that once functioned as small water retention areas in the landscape. Others were more expansive and experienced drying from the regional built drainage system.
The resulting system causes an accelerated loss of water from the watershed as surface water runoff, which is rapidly transported to the tributary system draining into Lake Okeechobee. Loss of isolated wetlands has contributed to rapid rises in the stage of Lake Okeechobee -- resulting in damaging freshwater discharges to the estuaries. There has been a loss of the water quality treatment function that used to result from retaining water for short periods in those wetlands, and a loss of wetland habitat for migratory birds and waterfowl.

As part of the USACE planning process, alternative plans were reviewed and the Tentatively Selected Plan (TSP) was identified in 1998 with a two-pronged approach. The first is to restore the hydrology of isolated wetlands by plugging the connection to drainage ditches; and the second is diversion of the collector canal flows to adjacent wetlands to attenuate peak flows and retain phosphorus in Reservoir-Assisted Stormwater Treatment Areas (RSTAs). The plan includes construction of two stormwater treatment areas, acquiring conservation easements and removing improvements, which will also reduce phosphorous loads going to Lake Okeechobee as well as reestablishing wetlands previously drained for agriculture. At the sub-basin scale, land parcels that were once part of the tributary system's historic flood plain will be re-flooded to add adjacent and/or isolated wetlands back to the landscape. The result will be increased regional water storage north of Lake Okeechobee and restoration of wetland functions in the process.

Current Status: Construction for the Lake Okeechobee Water Retention and Phosphorus Removal Nubbin Slough and Taylor Creek portion was physically complete in 2006 and the interim construction and testing phase, begun in 2007, is still in progress due to low water conditions and other issues.

After a pipe leak during a routine test, and sand boils in 2012, the affected project features were investigated and defects are being repaired. Upon completion and acceptance of the construction repair work, the project was transferred to O&M Authority for operation and maintenance in 2015.

Est. Cost: $ 28,550,000

Project Schedule:

1997	Start
2006	Construction complete
2013	Construction repair and testing
2015	Transfer to SFWMD

Detailed Project Budget Information (rounded):

LOW	Obligations Thru FY 2013
USACE	$13,383,530
SFWMD	$13,431,133
Total	**$26,814,663**

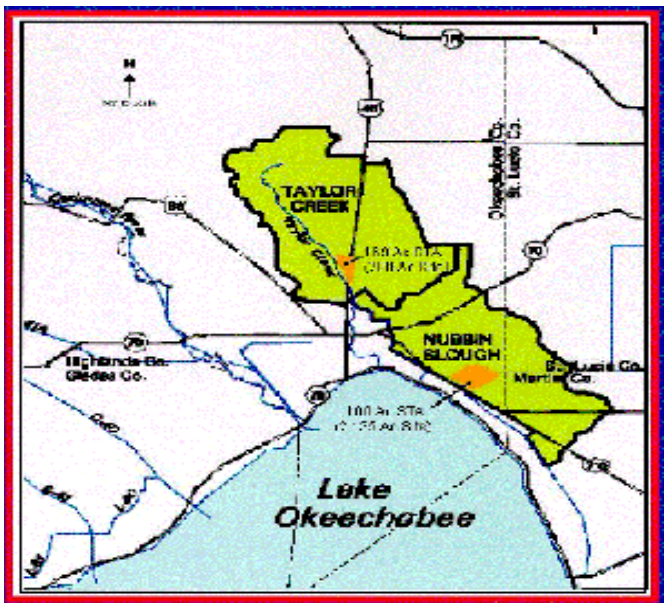
Hyperlink: N/A

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Lisa Krieger, Project Manager, SFWMD
Lkriege@sfwmd.gov

Source: Current status information was provided by the Project Manager. Project description is from the Tentatively Selected Plan (1998), and other planning documents.

Additional Information:



Project Name: **C&SF: West Palm Beach Canal STA-1E / C-51 West**
Project ID: 1513
Lead Agency: USACE / SFWMD
Authority: Flood Control Act 1968; WRDA 1996
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: **Primary**: 1-B.1 **Secondary**: 3-B.1

Measurable Output(s): 6,500-acre storm water treatment area

Project History: The USACE completed work on the West Palm Beach (C-51) Canal, opening it for travel in 1917, as citrus and agriculture boomed in the area. A Design Memorandum containing the same National Economic Development plan as the original project background had many of the same features proposed in the June 1992 Detailed Design Memorandum, a Design Memorandum (February 1998 was approved referencing an "authorized plan",) the plan included replacement of the 2.5 square-mile detention area with STA 1E from the Everglades Construction Project. The "authorized" plan is one result of the Technical Mediated Plan, agreed to as a resolution by the Department of Justice, DOI, DOA, the State of Florida and the SFWMD related to Everglades's litigation.

The state's Everglades Forever Act is based, in part, on the Technical Mediated Plan. The Act includes language for the C-51 West project that additional work, as described in the Everglades Construction Project, shall be accomplished at full Federal cost. This plan was authorized by WRDA 1996.

Current Project Synopsis: The project is located in Palm Beach County and runs east/west from Water Conservation Area 1 (Loxahatchee National Wildlife Refuge) to West Palm Beach at Lake Worth.

The technical mediated plan included a substantially modified C-51 project. The modified plan expands the original 1,600-acre floodwater detention area into what is currently a 6,500-acre STA (1E). It provides both 30-year flood risk management to the urbanized eastern basin and 10-year flood protection to the western basin. In addition to the flood damage/reduction benefits, the modified plan provides water quality treatment, reduction of damaging freshwater discharges to Lake Worth, and increased water supply for the Everglades and other users.

Major components include construction of the following: STA 1E, pumping station S-319 and S-362, Canal C-51 enlargement, and gated structure S-155A. The project will operate in parallel with STA 1W to reduce runoff from both the C-51 West and S-5A basins improving water quality prior to discharge into the Water Conservation Area (Arthur R. Marshall Loxahatchee Wildlife Refuge).

Current Status: All eastern basin features have been constructed. The STA 1E works, pumping station S-319 and S-362, Canal C-51 enlargement, and gated structure S-155A are completed and were transferred to the SFWMD for operations in 2005. A field test for treatment using periphyton was completed in 2010. Deficiency correction work for culverts and trash rakes are underway. Estimated cost for the repair work is $73M with 6 of 8 Task Orders awarded. The Corps has determined Cell 5/7 are performing as designed. S-375 repairs are complete and the structure has been returned to SFWMD for operation. Construction on culvert repairs through task orders 1, 2, 3, and 4, have been completed and the culverts in each have been returned to SFWMD control for flood control and STA operations. Task orders 5, 6, and 7, have been awarded and are under construction. Task order 8 was awarded in September 2014.

Est. Cost: $ 375,436,000

Project Schedule:
1994 Start
2018 Finish

Detailed Project Budget Information (rounded**):**

STA 1E/C-51	Obligations Thru FY 2014
USACE	$291,578,000
DOI	$46,000,000
SFWMD	$30,207,000
Total	$367,785,000

Hyperlink: http://141.232.10.32/pm/projects/non_cerp_sf_projects.aspx

Contact: Jim Hourican, Project Manager, USACE
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Jorge Jaramillo, Project Manager, SFWMD
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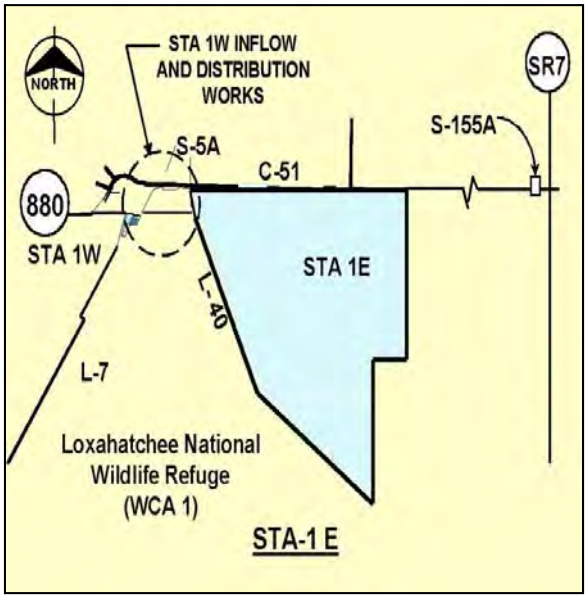
Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (1999).* Current status information was provided by the project manager. Last cost estimate reflect price levels in October 2011 dollars.

Additional Information:



Program Name: Restoration Program: Water Quality and Hydrology
Project Name: **Lakeside Ranch STA -** The SFWMD is implementing as part of the Northern Everglades Project
Project ID: 1515
Lead Agency: South Florida Water Management District
Authority: Chapter 373, Florida Statutes
Funding Source: Lake Okeechobee Trust Fund

Strategic Plan Goal(s) Addressed: 1.B.1 Get the water quality right

Measurable Output(s): 2,700-acre STA

Project Synopsis: In 2007, the Florida legislature enacted the Northern Everglades Initiative, which expands the Lake Okeechobee Protection Act to the entire Northern Everglades system, including the Lake Okeechobee watershed as well as the Caloosahatchee and St. Lucie rivers and estuaries. The plan identifies five construction projects north of Lake Okeechobee, including the Lakeside Ranch STA, as expedited projects.

The South Florida Water Management District is expediting this project as part of the Northern Everglades and Estuaries Program. It is a portion of Taylor Creek/Nubbin Slough Storage and Treatment Area and involves construction of a 2,700-acre STA, adjacent to Lake Okeechobee, and will provide approximately nine to 19 metric tons of phosphorus reduction. Removing this phosphorus will help improve the lake's water quality. The initial Phase 1 portion of the project (990 acres) has been completed and is operational.

Current Status:
This project has been divided into two phases, STA North and STA South:
Phase 1: STA-North and canal improvements, S-650 pump station
STA-N under normal operation
S-650 under normal operation
Phase 2: STA-South and S-191A pump station
STA-S Final design completed
S191A Final design completed

Total Estimated Project Cost: $107,975,000

Project Schedule: Start Date: October 2005
Finish Date: February 2012 for STA North, TBD for STA South

Actual Expenditures to date by SFWMD:

	2006-2009	2010	2011	2012	2013	2014	2015	Total Cost
SFWMD	$12,706,082	$11,556,697	$13,598,734	$5,279,923	$273,858	$14,047	$226,513	$43,655,854

Hyperlink:
http://www.sfwmd.gov/portal/page/portal/xrepository/sfwmd_repository_pdf/jtf_lakeside ranch_sta.pdf
Contact: Jianchang Cai, SFWMD

Lakeside Ranch Phase I

Project 1515 Lakeside Ranch Stormwater Treatment Areas Page 2 of 2

Project Name: **C&SF: CERP Henderson Creek-Belle Meade Restoration (OPE)**
Project ID: 1518 (CERP Project WBS # 93)
Lead Agency: USACE/FDEP
Authority: WRDA 2000 *(Programmatic Authority < $25 M)*
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 1-B.1

Measurable Output(s): 10-acre stormwater lake/marsh filtering system

April 1999 (Restudy) Project Synopsis: Includes multiple individual elements to complement each other to form a larger-scale combined effect: a 10-acre stormwater lake/marsh filtering system; four culverts under State Road 951; hydrologic restoration around Manatee Basin including culverts, ditching, removal of some roadbed; invasive, exotic plant removal; a public access point and interpretive boardwalk; construction of a swale and spreader system; and removal of the Road-to-Nowhere.

Current Project Synopsis: The area known as Belle Meade is the primary drainage basin for the Henderson Creek Estuary, which drains into Rookery Bay. Changes in land use within the primary watersheds draining into Rookery Bay have been identified as the highest priority resource issue that threatens the long-term preservation of the research reserve's estuarine resources. The purpose of this feature in Collier County is to restore historic sheetflow to the estuary, treatment of stormwater, improvement of water quality and increase in habitat value and wetland functions.

Current Status: This project is planned for the future.

Est. Cost: $ 8,499,654

Project Schedule: TBD

Detailed Project Budget Information (rounded):

Henderson Creek-Belle Meade	**Obligations Thru FY 2012**
USACE	$128,009
FDEP	$0
Total	**$128,009**

Hyperlink: http://141.232.10.32/pm/projects/proj_93_henderson.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars. Actual expenditures include all federal expenditures through FY09 (Sept, 2009) and sponsor verified and recorded in kind credit through 4th quarter FY07.

Project Name: **C-43 Water Quality Treatment Area and Test Facility**
Project ID: 1519
Lead Agency: South Florida Water Management District
Authority: Chapter 373, Florida Statutes
Funding Source: State Funds

Strategic Plan Goal(s) Addressed: 1.B.1

Measurable Output(s): 1,200-acre Water Quality Treatment Area (WQTA) and Test Facility

Project Synopsis: In 2007, the Florida legislature enacted the Northern Everglades Initiative, which expands the Lake Okeechobee Protection Act to the entire Northern Everglades system, including the Lake Okeechobee watershed as well as the Caloosahatchee and St. Lucie rivers and estuaries. The South Florida Water Management District and Lee County agreed to develop a Water Quality Treatment Area project near the Caloosahatchee River in the C-43 Basin to address total nitrogen treatment, with a focus on organic nitrogen removal, as well as other incidental nutrient treatment of the Caloosahatchee River Basin water upstream of structure S-79. The project is included in the Caloosahatchee River Watershed Protection Plan. It involves development of a testing facility to test and demonstrate wetland technologies that have the potential to effectively remove and/or reduce background TN loading from the facility's C-43 canal inflow and identify the range of Hydraulic Loading Rates (HLR) per unit area to achieve optimal removal/reduction rates. The ultimate goal is to build a full scale WQTA at the current site. It is anticipated that the project will generate strategies that can be applied to estuaries throughout the SFWMD.

Current Status: In late 2012, a conceptual design for a testing facility was completed which estimated the testing facility to take six years to complete design and testing. Between July 1, 2014 and June 30, 2015 the District pursued Federal Clean Water Act Section 319 (h) grant funds through FDEP for the incremental design and construction of the testing facility. The first element of the testing facility is a group of mesocosms that are to be installed and operated in preparation for the implementation of subsequent phases comprised of larger test cells and field scale cells. After receiving preliminary notification from FDEP that the grant funds would be available, the District engaged a consultant for the final design and construction of the mesocosms in December of 2014. The District also entered into a contract with the Florida International University in November 2014 for conducting a study to determine the bioavailability of nitrogen in the C-43 flows. This information is critical for the successful design of the mesocosms.

Total Estimated Project Cost: $2.1M (test facility only)

Project Schedule: Start Date: September 2007
Finish Date: TBD

Detailed Project Budget Information

2007	2008	2009	2010	2011	2012	2013*	2014*	2015*	Total
0	$817	$746,000	$709,943	$2,655	$53,580	$72,028	$0	$163,641	$1,585,023

* Total and projected expenditures as of June 12, 2015 per SFWMD fiscal year (October 1st through September 30th)

Hyperlink:
http://my.sfwmd.gov/portal/page/portal/pg_grp_sfwmd_sfer/portlet_prevreport/2014_sfer/v1/chapters/v1_ch10.pdf
Contact: Eric González, SFWMD

The goal of this project is to investigate and test wetland-based strategies for reducing concentrations of total nitrogen and other constituents including total phosphorus.

Project 1519: C-43 Water Quality Treatment Area and Test Facility Page 2 of 2

Project Name: **Long-Term Plan for Achieving Everglades Water Quality Goals**
Project ID: 1520
Lead Agency: South Florida Water Management District
Authority: Florida's Everglades Forever Act (EFA)

Strategic Plan Goal(s) Addressed: 1.B.1 **Secondary**: 1.A.3

Measurable Output(s): 57,000 acres of Stormwater Treatment Areas (STAs) with additional STA expansions and flow equalization basins to be constructed over the next 12 years under the Restoration Strategies Program to achieve compliance with a Water Quality Based Effluent Limit (WQBEL) for discharges to the Everglades Protection Area. Through April 2013, Best Management Practices (BMPs) and STAs have retained more than 4,267 metric tons of phosphorus that would have otherwise entered the Everglades.

Project Synopsis: The Long-Term Plan was developed to achieve compliance with water quality standards in the Everglades Protection Area, including the phosphorus criterion established in Rule 62-302.540. The Long-Term Plan expanded the original 40,000 acres of STAs by 17,000 acres including structural and vegetative enhancements, STA optimization research, monitoring and source control programs. In 2013, the Florida legislature modified the EFA and redefined the Long-Term Plan to also include the Restoration Strategies Regional Water Quality Plan (RS), as defined in Section 373.4592(13), F.S. The original October 27, 2003 cost estimate for implementation of the Long-Term Plan was $444 million but the construction of STAs has been significantly expanded and will be further expanded with the implementation of the Restoration Strategies Plan. The cost estimates below reflect all approved revisions to the Long-Term Plan including Restoration Strategies Plan expenditures.

Current Status: To date, nine revisions to the plan have been approved by the FDEP. All revisions have been developed through collective input from the state, stakeholders, and the public, and will aid in the state's comprehensive efforts to meet the Everglades water quality goals. The implementation of the Restoration Strategies Regional Water Quality Plan will add several new project features at an estimated cost of $880 million.

Cost Estimate: Approximately $2.1 billion (Long-Term Plan at $1.2 billion) and Restoration Strategies at $880 million)

Detailed Project Expense Information

	Actual FY 2003-15
LTP	**$ 897,000,000 (1)**
RS	**$ 163,155,355**
Total	**$ 1,060,155,355**

(1)Cost data reflects land, design, and construction costs for the Everglades STAs including Compartments B and C. This total does not include annual costs for monitoring, O&M, or debt service. It also does not include the cost incurred by the USACE to construct STA-1E

Hyperlink:
http://my.sfwmd.gov/portal/page/portal/xweb%20protecting%20and%20restoring/water%20quality%20stormwater%20treatment%20areas

Contact: Lawrence Gerry, SFWMD

Program Name: Water Quality
Project name: **Total Maximum Daily Load (TMDL) for South Florida**
Project ID: 1600
Lead Agency: Florida Department of Environmental Protection
Authority: 403.067, F.S.

Strategic Plan Goal(s) Addressed: 1.B.2: Get the Water Quality Right: Prepare locally-based plans to reduce pollutants as determined necessary by the total maximum daily loads by 2011.

Measurable Output(s): Basin Assessments; Identification of Impaired Waters; Collection of Supplemental Data; Development of Total Maximum Daily Loads (TMDLs), Basin Management Action Plans (BMAPs), and Implementation Plans; Verification that Water Quality (WQ) Standards have been met

Project Synopsis: During the first phase, the water quality data for each basin will be assessed in detail, including the identification of waters for which TMDLs will be developed. Once a basin assessment report and a Plan of Study are completed, intensive monitoring will be conducted in the basin to supply any additional data needed to model the impaired waters in the basin and generate TMDLs. During the third phase, TMDLs will be calculated and then allocated to individual point sources and the major categories of nonpoint sources. After TMDLs are approved, a consensus-based BMAP, which will include a TMDL implementation plan, will be developed during the fourth phase. The implementation plan will include more detailed allocations to nonpoint sources, but the allocations will be voluntary if the sources are currently outside of the State's regulatory authority. Once these plans have been adopted and implemented, verification (using added WQ monitoring data, evaluations of beach closure reports, or number of fish kills, for example) will allow waters to be certified as meeting water quality standards.

Current Status: The Department is continuing to make progress in the development of additional TMDLs to identify impaired waters and has developed key BMAPs within the greater Everglades region. Since 2008, the Department has completed and adopted by rule TMDLs identifying needed reductions for nutrients and/or to address low dissolved oxygen levels in the St Lucie–Loxahatchee Basin (including the Estuary, North Fork, South Fork, C-44, C-24, C-23 canals, Bessey Creek, and Southwest Fork Loxahatchee River), and for nutrients in the estuarine portion of the Caloosahatchee (below the Franklin Locks), and for fecal coliforms in Trout Creek (Caloosahatchee Basin) and Ten Mile Creek (St Lucie–Loxahatchee Basin). In addition, three TMDLs were adopted in the Charlotte Harbor Basin (dissolved oxygen TMDL for Coral Creek-East Branch, plus fecal coliform TMDLs for Gottfried Creek and the North Prong of Alligator Creek). One TMDL was adopted in the Everglades Basin (West Palm Beach Canal Fecal Coliform TMDL). Seven TMDLs were completed for nutrients, dissolved oxygen, unionized ammonia, or fecal coliforms in the Everglades West Coast Basin (1 for Cocohatchee River Estuary, 1 for the Gordon River, 3 for Hendry Creek, 1 for the Imperial River, and 1 for Lake Trafford). A fecal coliform TMDL was adopted for the E-1 Canal in the Lake Worth Lagoon Basin. In 2011, the Department proposed TMDLs to address high fecal coliforms concentrations in 20 water bodies located in the Southeast Coast region of the state, ranging from St Lucie County to Miami-Dade. These TMDLs have now been adopted into rule and became effective May 14, 2012.

The Department is awaiting EPA's approval of TMDLs for two of five lakes in the Kissimmee River Basin that address nutrients and dissolved oxygen impairments (EPA approved: Lake Cypress, Lake Kissimmee, and Lake Marian; Awaiting EPA approval: Lake Holden, Lake Jackson). All five TMDLs were proposed on September 12, 2013 (and re-proposed in response to public comments on October 23, 2013). For the purposes of applying the waste load allocation (WLA) in state wastewater and MS4 permits, these five TMDLs became effective on December 17, 2013. Because EPA also has regulatory authority over the WLA, these state adopted TMDLs also need EPA approval.

The Department is currently developing TMDLs for nutrients and dissolved oxygen in the upper Caloosahatchee River and multiple tributaries located throughout the watershed. As part of this effort, the Department is revisiting and potentially revising the TMDLs for the lower Caloosahatchee River (The Franklin Lock and Dam, S-79, divides the upper from the lower river.). The Department hosted three public

meetings in June and August of 2013, and May of 2014. The Department is currently working with a consulting company to finalize a modeling support contract for the Caloosahatchee project. It is expected that all the modeling work will be completed by July to August in 2016 and TMDLs finalized by the end of the same year.

During Florida fiscal year July 1, 2015 through June 30, 2016, the Department intends to finalize nutrient TMDLs for Mud Lake and Lake Juliana (Withlacoochee Basin) and complete most modeling work for impaired waters in the Caloosahatchee River Basin. In addition, the Department intends to initiate rulemaking projects to develop nutrient TMDLs for Ten Mile Creek and Loxahatchee River Southwest Fork (St. Lucie-Loxahatchee Basin).

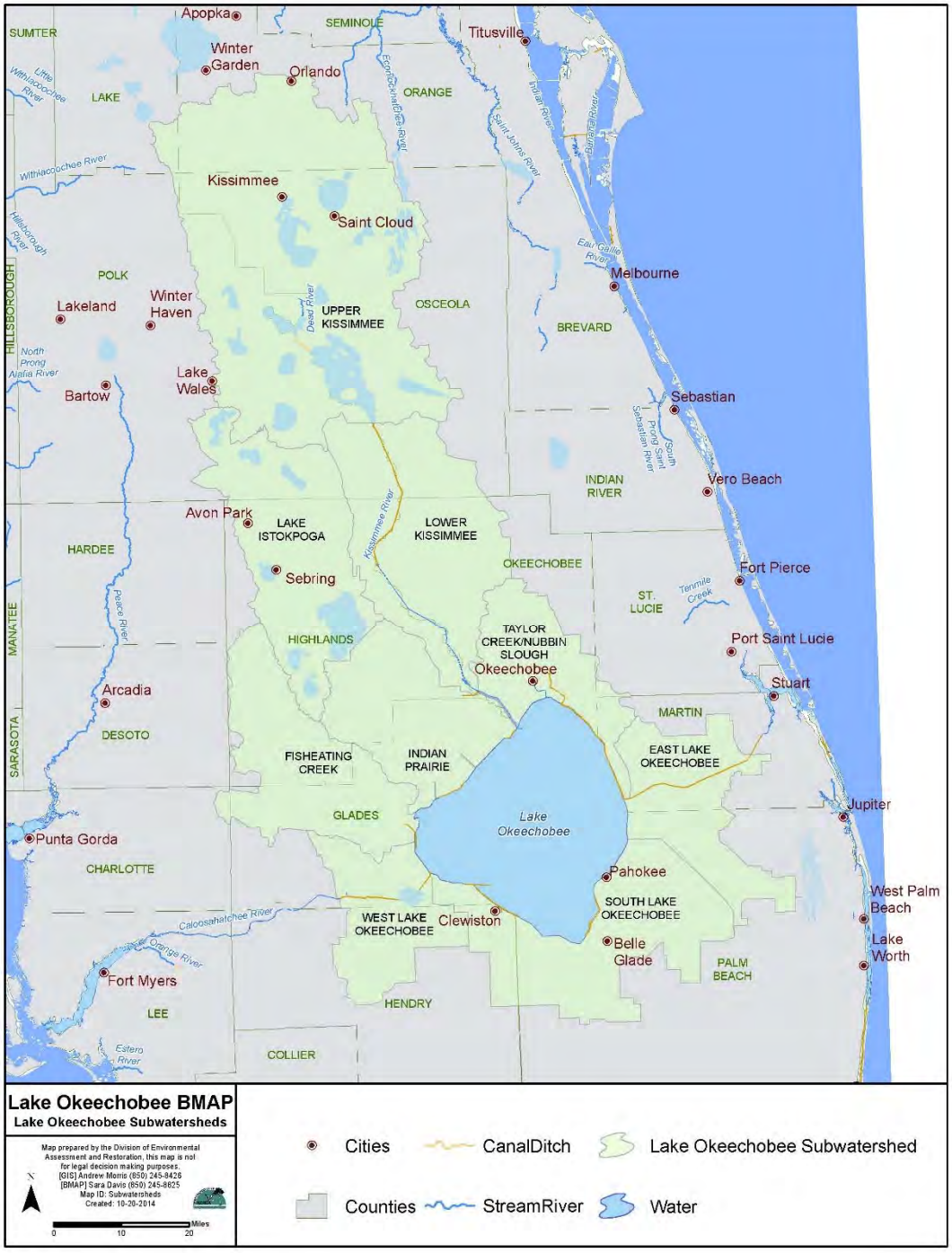
Statewide Mercury TMDL: In October 2013, the U.S. Environmental Protection Agency approved Florida's statewide TMDL for mercury. The statewide TMDL for fresh and marine waters was the most comprehensive approach offering the most protection for the people of Florida. This approach addressed the following concerns: possible elevated levels of mercury in fish in Florida's fresh and marine waters that were not assessed, adjacency of waterbodies, mobility of marine species, and atmospheric deposition of mercury (the dominant source of mercury). The TMDL is now in effect and will be incorporated into new and renewal discharge permits for industrial and large domestic wastewater facilities.

A Basin Management Action Plan (BMAP) is the "blueprint" for restoring impaired waters by reducing pollutant loadings to meet the allowable loadings established in a Total Maximum Daily Load (TMDL). It represents a comprehensive set of strategies--permit limits on wastewater facilities, urban and agricultural best management practices, conservation programs, financial assistance and revenue generating activities, etc.--designed to implement the pollutant reductions established by the TMDL. These broad-based plans are developed with local stakeholders--they rely on local input and local commitment--and they are adopted by Secretarial Order to be enforceable.

The following BMAPs have been completed for the Caloosahatchee, Everglades West Coast, Lake Okeechobee, and St. Lucie basins:

Lake Okeechobee (December 2014) The Lake Okeechobee Watershed BMAP identifies projects and activities needed to restore water quality such that it meets the designated uses in this watershed. The Lake Okeechobee BMAP builds upon the decade plus work already done under the Lake Okeechobee Watershed Protection Program to reduce total phosphorus loadings to the lake. In 2015, the Department, in conjunction with FDACS and the SFWMD, initiated an effort to refine the Watershed Assessment Model (WAM) to better meet the needs of the BMAP. These refinements will include updates to the input data, further model calibration, and the addition of the three sub-watersheds south of Lake Okeechobee to the modeling domain.

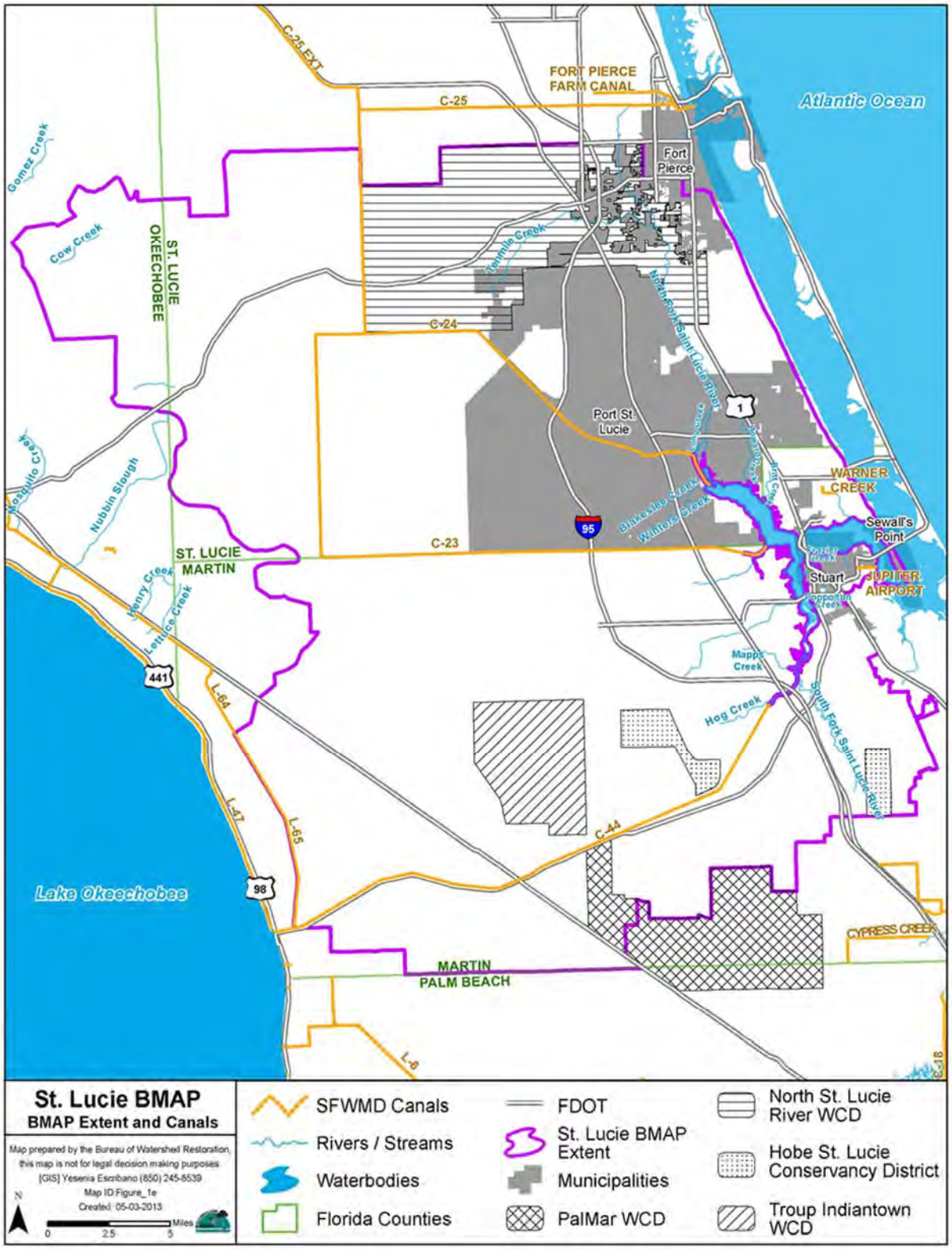
FIGURE 1: LAKE OKEECHOBEE BASIN MANAGEMENT ACTION PLAN



- **St. Lucie River and Estuary (May 2013)**

The St. Lucie River and Estuary Basin Management Action Plan represents the collaborative effort of Martin County, Okeechobee County, St. Lucie County; the cities of Fort Pierce, Port St. Lucie, Stuart, and Town of Sewall's Point; Copper Creek Community Development District (CDD), Tradition CDD, Verano CDD; Hobe St. Lucie Conservancy District, North St. Lucie River Water Control District (WCD), Pal Mar WCD, Troup-Indiantown WCD; Florida Department of Transportation; Florida Turnpike Authority; Florida Department of Agriculture and Consumer Services; and South Florida Water Management District to identify and implement the management strategies necessary to achieve the nutrient and dissolved oxygen total maximum daily loads for the St. Lucie River and Estuary Basin. The Department held a BMAP annual update meeting in August 2014 to update stakeholders on BMAP progress and discuss various projects being implemented by local agencies. In 2015, the Department, in conjunction with the SFWMD, initiated an effort to update the St. Lucie Estuary Watershed Model (WaSH Model) to better meet the needs of the BMAP. This update will include enhancements to the modeling code, updates to the water quality component, and further model calibration.

FIGURE 2: ST. LUCIE BASIN MANAGEMENT ACTION PLAN

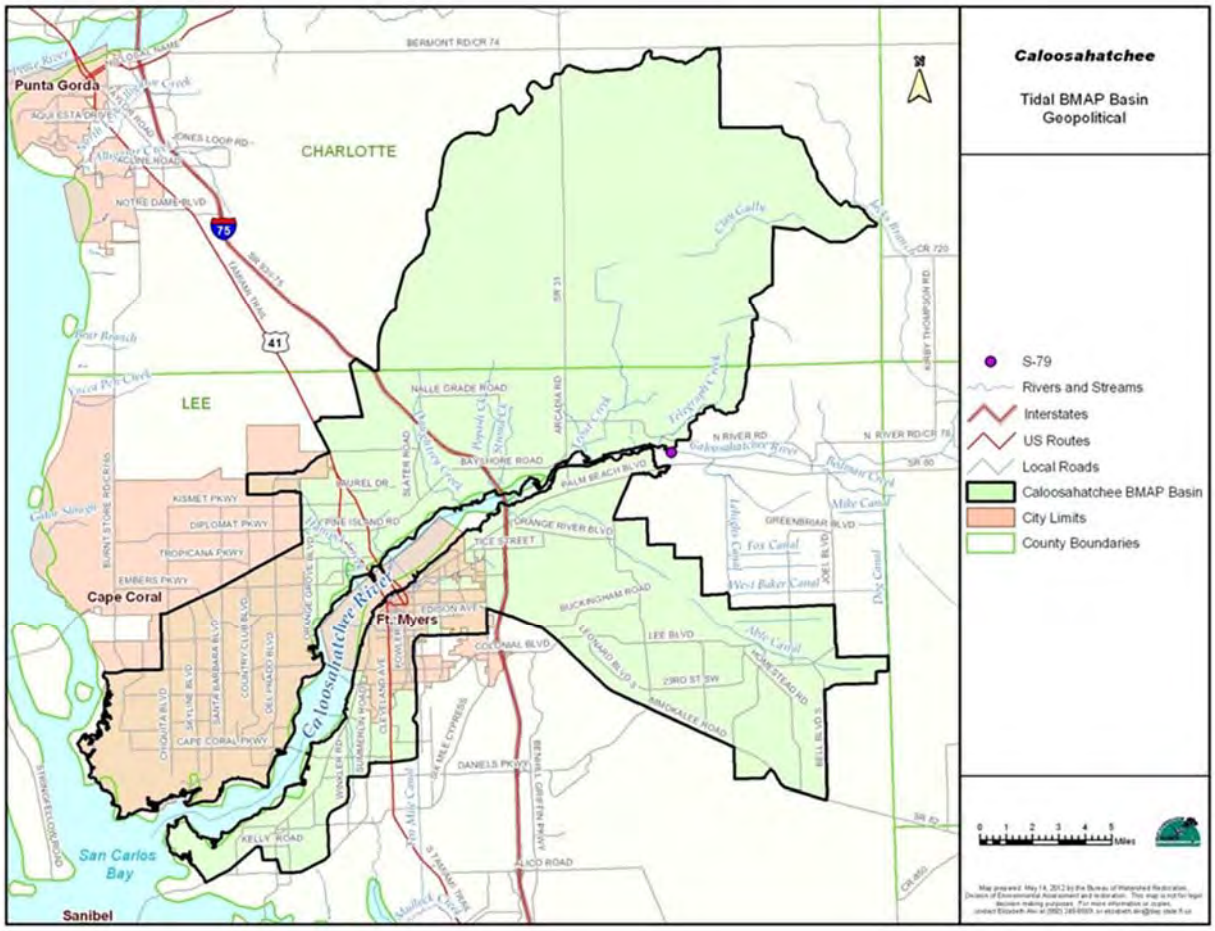


Project Name: **C&SF: CERP Comprehensive Integrated Water Quality Plan (CIWQP)**

- **Caloosahatchee Estuary Basin (November 2012)**

The Caloosahatchee Estuary Watershed Basin Management Action Plan was prepared as part of a statewide watershed management approach to restore and protect Florida's water quality. This document was developed by the Caloosahatchee River stakeholders, with participation from affected local, regional, and state governmental interests; elected officials and citizens; and private interests. The purpose of this BMAP is to implement TN reductions for the portion of the loading generated in the Caloosahatchee Estuary Basin. The Department held BMAP annual update meetings in February of 2014 and January 2015 to update stakeholders on BMAP progress and discuss various projects being implemented by local agencies.

FIGURE 3: CALOOSAHATCHEE BASIN MANAGEMENT ACTION PLAN



- **Everglades West Coast Basin (November 2012)**

The Everglades West Coast Basin Management Action Plan was prepared as part of a statewide watershed management approach to restore and protect Florida's water quality. It was developed by the Everglades West Coast stakeholders, with participation from affected local, regional, and state governmental interests; elected officials and citizens; and private interests. The purpose of this BMAP is to implement TN reductions for the Hendry Creek and Imperial River Basins to achieve the TMDLs for DO. The Department held BMAP annual update meetings in February of 2014 and January 2015 to update stakeholders on BMAP progress and discuss various projects being implemented by local agencies.

FIGURE 4: EVERGLADES WEST COAST BASIN MANAGEMENT ACTION PLAN - HENDRY CREEK BASIN

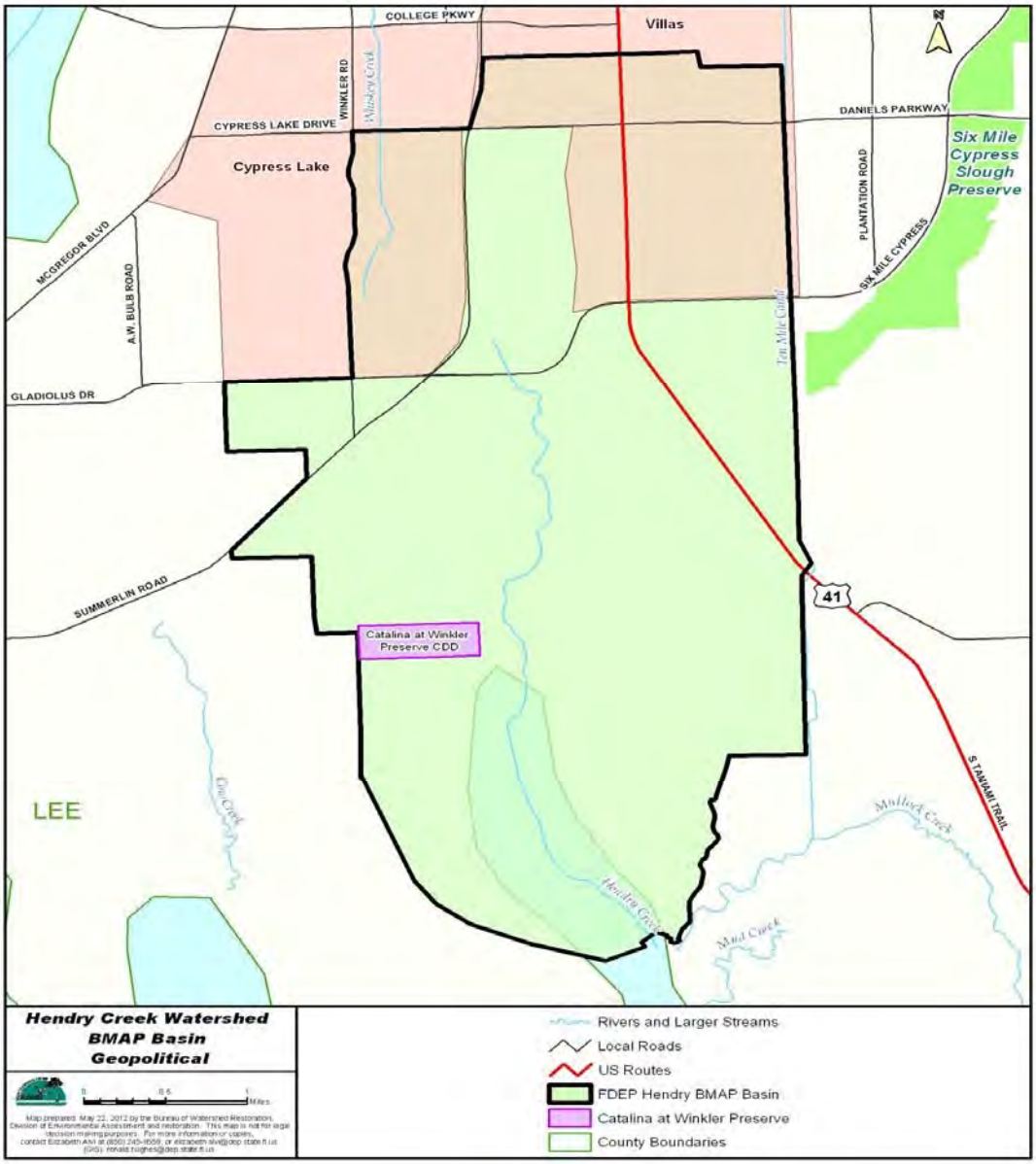
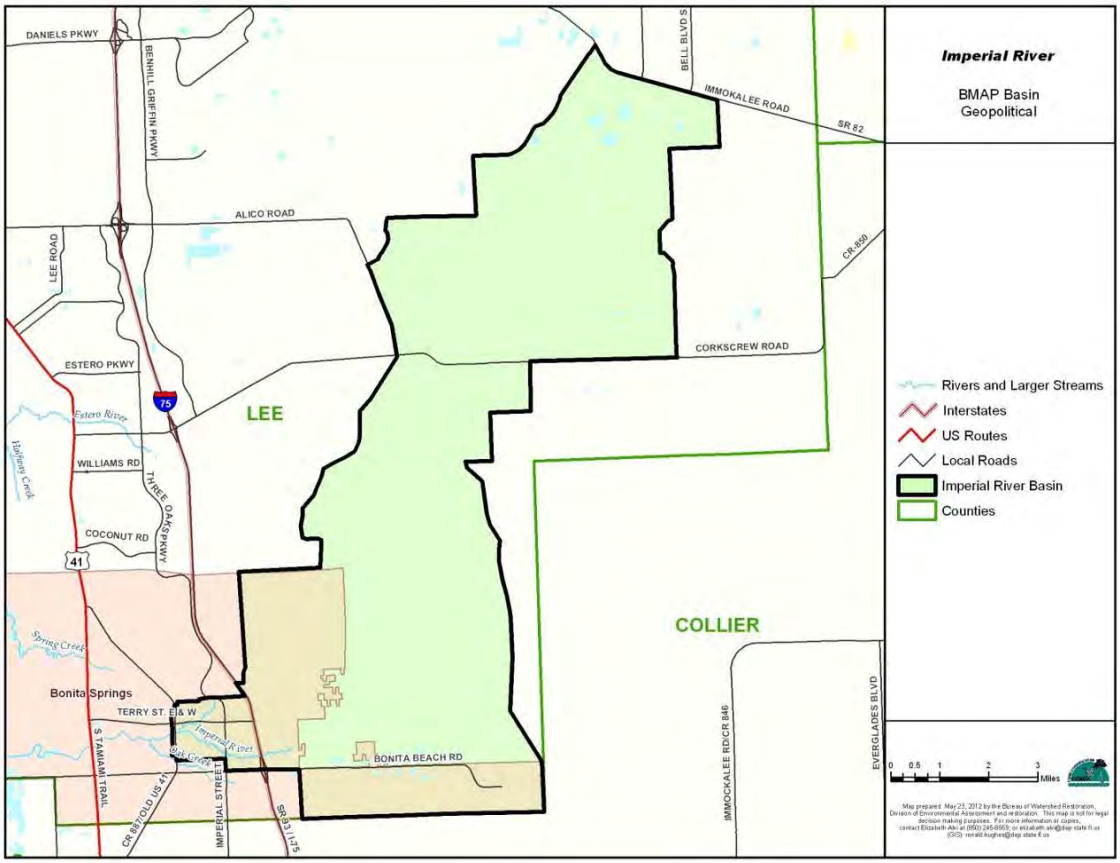


FIGURE 5: EVERGLADES WEST COAST BASIN MANAGEMENT ACTION PLAN - IMPERIAL RIVER BASIN



Cost:

Total:	$1,300,000
Project Development:	$1,000,000*
Land Acquisition:	Unknown
Implementation:	$300,000
Operations and maintenance:	Unknown

**includes $30,000 for state-wide mercury TMDL*

Project Schedule:

Start Date: July 1, 2000

Finish Date: Upon Completion (Current schedule runs to 2015)

Total Maximum Daily Load (TMDL) for South Florida Detailed Project Budget Information– ($1000)						
	Thru 2009	**2010**	**2011**	**2012**	**2013**	**TOTAL**
Federal						
State	6,660	1,300	1,300	1,300	1,300	TBD
Other						
Total	**6,660**	**1,300**	**1,300**	**1,300**	**1,300**	**TBD**

Hyperlink: http://www.dep.state.fl.us/water/tmdl/index.htm
http://www.dep.state.fl.us/water/watersheds/bmap.htm

Contact: Gregory DeAngelo, Division of Environmental Assessment and Restoration

Project ID: 1701
Lead Agency: USACE / FDEP
Authority: WRDA 1996
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Other – supports 3-A.4

Measurable Output(s): Recommendations

April 1999 (Restudy) Project Synopsis: There was no comprehensive plan for achieving water quality restoration in south Florida, which links together water quality restoration programs in the context of comprehensive planning for ecosystem restoration. Achieving all of the water quality goals for ecosystem restoration in all use-impaired water bodies within the study area will depend on actions outside the scope of the *Central and Southern Florida Project Comprehensive Review Study* (Restudy). The degree to which some of the existing water quality improvement programs have been implemented has been limited. To ensure that south Florida ecosystem restoration objectives are achieved, a Comprehensive Integrated Water Quality (CIWQ) Plan that links water quality restoration targets and remediation programs to the hydrologic restoration objectives of the recommended plan must be developed for the entire study area.

In its July, 1998 Interim Report on the C&SF Project Restudy (GCSSF, 1998), the Governor's Commission recommended that a water quality implementation plan for the Restudy be developed with Florida Department of Environmental Protection as the lead agency, in cooperation with the U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, South Florida Water Management District, the Seminole and Miccosukee Native American Tribes, and local governments. In order to resolve water quality problems on an ecosystem wide basis, the Governor's Commission recommended that a comprehensive water quality plan be initiated as a feature of the Restudy. The 1999 Restudy recommended this plan to be conducted under the authority of WRDA 1996 that allows for the continuation of studies and analyses**.** The Restudy recognized the need for a comprehensive water quality plan that would integrate the Comprehensive Everglades Restoration Plan (CERP) projects and other federal, state and local government programs.

Current Project Synopsis: The Comprehensive Integrated Water Quality Plan for south Florida involves identifying pollution-impaired water bodies, quantifying types and sources of pollution, establishing interim and final pollution load reduction targets necessary to achieve ecosystem restoration, recommendations for development of potential source reduction programs, recommendations for baseline and future water quality monitoring programs to assess ecological responses to water quality changes, and recommendations for designing and constructing water quality treatment facilities, if necessary.

Although the scope of the study was not fully developed, it was envisioned that this feasibility study would also address other issues. Recommendations would address fragmented, uncoordinated water quality sampling, data quality, and climatological effects and trends; practices for oversight and support of improved water quality modeling efforts in south Florida; development of additional water quality restoration targets, where needed; remediation programs to achieve those targets; Best Management Practices in specific agricultural and urban areas where appropriate (including identifying those urban areas where participation in the NPDES municipal stormwater program is needed); and, synchronizing water quality restoration programs with the implementation schedule for the Plan components.

The Comprehensive Integrated Water Quality Plan may also include recommendations for locations of water storage and treatment areas and design features to optimize recommended plan components to achieve water quality restoration targets the determination of additional features (e.g., polishing cells, operational features) for the larger recommended plan components currently lacking specific water quality performance elements.

DEP agreed to participate in the Project Management Plan (PMP) phase of the feasibility study as the local sponsor. The Project Delivery Team identified the issues for the feasibility study, and a Draft Project Management Plan (PMP) was prepared in 2003 and approved by the project's Design Coordination Team.

In 1999, the same year the Restudy was published, the Watershed Restoration Act of 1999 (section 403.067 F.S.) directed the Florida Department of Environmental Protection (FDEP) to scientifically evaluate the quality of Florida's surface waters and promote the mechanisms necessary to clean up pollution. The Act was created specifically to implement the federal Total Maximum Daily Load (TMDL) program, which is a systematic approach to establishing how much pollution water bodies can assimilate while still meeting water quality standards. This act had a direct effect on the suspension of work on the Comprehensive Integrated Water Quality Plan. To streamline the TMDL program, DEP adopted a five-year cycle that divides Florida into five groups in which different activities take place each year and the cycle is reiterated continuously. Activities include

Preliminary basin assessments;
Identification of pollutant-impaired waters;
Targeted water quality monitoring and data analysis;
TMDL development and adoption;
Basin planning with local stakeholders to establish the actions necessary to reduce pollution; and
Implementation through regulatory action, funding, pollution prevention strategies and other measures.
The FDEP also adopted an Impaired Waters Rule establishing the methods by which surface waters are evaluated and the need for TMDLs is determined.

Current Status: The FDEP has completed the whole 5-year cycle once and is finishing up the second cycle. FDEP developed and adopted, by rule, 92 TMDLs as of June 2009; another 87 TMDLs have been proposed or are in draft, all of which must also be adopted by rule. Of these, as many as 16 final TMDLs and 5 draft TMDLs are in the CERP study area.

At the same time, FDEP has worked with the Florida Department of Agriculture and Consumer Services (FDACS) and the state's five water management districts to improve the mechanisms local governments, utilities, industries and agricultural operations can use to implement pollution reductions and improve water quality. FDACS has invested significant resources in targeting best management practices to particular agricultural commodity groups and demonstrating why it is in their best long-term economic and social interests to implement them. FDEP has invested over $17.5 million on research and development of non-agricultural best management practices and implementation of targeted monitoring expressly for the TMDL program. FDEP has awarded another $26 million in federal section 319 grants to local governments to implement better urban stormwater treatment projects and practices.

At the same time, the SFWMD and the Monitoring Assessment Plan (MAP) have gone through significant efforts to coordinate water quality monitoring in the CERP study area in order to increase efficiency and decrease duplication of effort. The Interagency Modeling Center was established between the SFWMD and the USACE to better coordinate modeling efforts in south Florida.

Est. Cost: $ 8,100,000

Project Schedule: TBD

Detailed Project Budget Information (rounded)**:**

Comprehensive Integrated Water Quality Study		Obligations Thru FY 2013
USACE	Recon (100%)	$734,921
	Feasibility (50/50)	$0
FDEP		$0
Total		$734,921

Hyperlink: N/A

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Sources: Original project description was summarized from the original PMP and discussion documents. Cost estimate information reflects current price levels in October 2009 dollars; however, cost estimates need to be re-determined, as the PMP has never been finalized. Actual expenditures include all federal expenditures through FY09 (Sept, 2009) and sponsor verified and recorded in kind credit through 4th quarter FY07. Current status of the TMDL program is from the report "*Florida's Total Maximum Daily Load Program: the First 5 Years.*"

Additional Information: The study area encompasses 17,500 square miles from Orlando to the Florida Reef Tract. The Kissimmee River, Lake Okeechobee and the Everglades are the dominant watersheds that connect a mosaic of wetlands, uplands, coastal areas, and marine areas. The study area includes all or part of 19 counties: Monroe, Miami-Dade, Broward, Collier, Palm Beach, Hendry, Indian River, Martin, St. Lucie, Brevard, Volusia, Glades, Lee, Charlotte, Highlands, Okeechobee, Osceola, Orange, and Polk. The project boundary corresponds to that of the SFWMD and the Indian River Lagoon (IRL) North Feasibility Study.

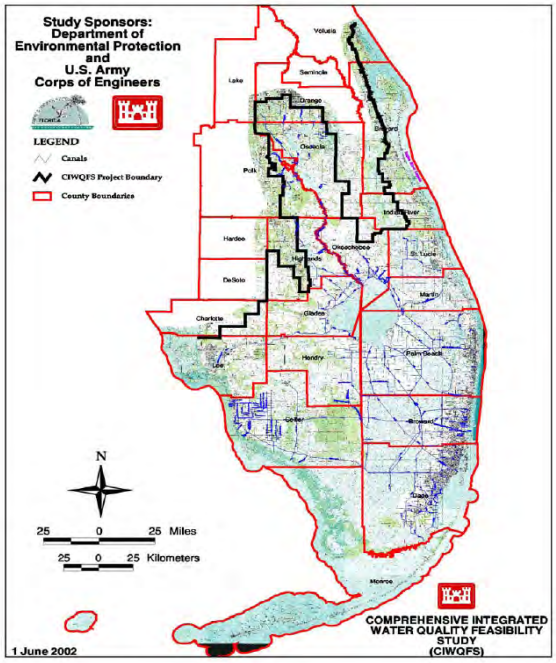


Figure 1.1 STUDY AREA BOUNDARY

Project Name: **E&SF: Critical Project - Lake Trafford Restoration**
Project ID: 1702
Lead Agency: USACE / SFWMD
Authority: WRDA 1996; WRDA 2000 *(Programmatic Authority)*

Strategic Plan Goal(s) Addressed: 2-A.3

Measurable Output(s): 2.85 million cubic yards of organic sediments removed

Project History: WRDA 1996 authorizes the Secretary of the Army to expeditiously implement restoration projects deemed critical to the restoration of the south Florida ecosystem. The SFEER Task Force nominated 35 projects with input from the Governor's Commission for a Sustainable South Florida and the public. Based on the set of priorities, the USACE conducted an abbreviated study of and produced a report transmitted to the Secretary of the Army for approval. This is one of the 12 restoration "Critical Projects" having the Secretary of the Army's approval (WRDA 1996).

April 1999 (Restudy) Project Synopsis: The project is also described in the *Central and Southern Comprehensive Review Study (1999)* as an *OPE,* utilizing one or more 14-inch portable cutter dredges to accomplish lake-wide organic sediment removal.

Current Project Synopsis: Lake Trafford, the largest lake south of Lake Okeechobee, with a surface area of approximately 1,494 acres, is located in north Collier County. The lake is the headwaters for the Corkscrew Swamp Sanctuary to the southwest, the Corkscrew Regional Ecosystem Watershed (CREW) to the west, and the Fakahatchee Strand system including the Florida Panther National Wildlife Refuge, to the south. Lake Trafford has poor water quality, extensive muck accumulations, lost native submerged plant communities, experienced periodic aquatic weed infestations, and had numerous moderate fish kills. Poor water quality is attributed to internal nutrient cycling from extensive organic muck deposits throughout the basin. About 8.5 million cubic yards of loose, flocculent, organic materials form a blanket with a thickness of 9" up to 9' on the lake bottom. The project includes the use of cutter dredges to remove this material and pump it into a 449-acre, diked, agricultural facility. Once completed, improved water quality should enhance fish and wildlife habitat in and around Lake Trafford.

The Lake Trafford Restoration project was initiated in 2002. The in-lake portion of dredging was completed by the spring of 2006. This phase of the project removed approximately 3 million cubic yards of organic sediments from the bottom of the lake. A second phase was to remove approximately 800,000 cubic yards of the muck sediment from the littoral zone and commenced in 2006. However, the prevailing historic drought in south Florida rendered the lake levels critically low for operation of the dredging machinery and remaining effort had to be terminated that same year.

The USACE completed plans and specifications, but at that time there was insufficient funding to award a contract. The SFWMD assumed 100% of the cost of revamping the detailed design and the construction with the intent of receiving credit and/or reimbursement upon project completion and approval by the USACE. The FWC and Collier County Tourist Development Council provided some financial assistance to SFWMD for the project

Current Status:
Construction for Lake Trafford was completed in November 2010. The cost of construction and land was borne by SFWMD (Big Cypress Basin revenue) with funds received from the State (FWC) and from Collier County Tourist Development fund. There are post construction activities, the SFWMD presently has a lake restoration management/ research contract with FGCU who coordinates an inter-agency task group (FWC, DEP, FWS, Collier County, Corps) for monitoring of the post restoration health of the lake. FGCU researchers have been planting SAVs, monitoring lake water clarity parameters, macro-invertebrates etc; FWC is stocking enormous number of fish seedlings, watching their growth, and cautiously treating re-growth of hydrilla, algae with herbicides, and burning shoreline/littoral zone exotics - expense not known. The lake is still unbalanced with several episodes of spotty algae blooms during the last two years.

Est. Cost: $26,043,767
Project Schedule:
2011 Construction complete

Detailed Project Budget Information (rounded):

Lake Trafford	Obligations Thru FY 2013
USACE	$1,600,943
SFWMD	$1,061,820
Total	**$2,662,763**

Hyperlink:

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Janet Starnes, Project Manager Principal, SFWMD
jstarne@sfwmd.gov

Source: Original project description (OPE) is summarized from the *Central and Southern Florida Project Comprehensive Review Study (1999).* Current status and estimate was provided by the project manager.

Program Name: Long-Term Plan for Achieving Everglades Water Quality Goals (Long-Term Plan)
Project Name: Phosphorus Source Controls for Basins Tributary to the Everglades
Project ID: 1706
Lead Agency: South Florida Water Management District
Authority: Everglades Forever Act (EFA)
Funding Source: State - Long-Term Plan funds, which include Everglades Agricultural Privilege Tax

Strategic Plan Goal(s) Addressed: 1.B

Measurable Output(s): Mandatory Best Management Practices (BMP) Program Compliance Model Results; Updates on Implementation of Basin Specific Water Quality Improvement Plans; Reporting on the Long-term Compliance Permit requirements.

Project Synopsis: As a result of the EFA, the SFWMD established the Everglades Regulation Bureau. The Bureau is responsible for complying with the requirements of specific Florida Department of Environmental Protection-issued permits. One such requirement is implementation of the Regulatory Source Control Programs, including BMPs, in the Southern Everglades tributary basins. The Regulatory Source Control Program is primarily made up of a regulatory program developed to decrease phosphorus loads into the stormwater treatment areas (STAs) from the Everglades Agricultural Area (EAA) and C-139 Basins (also referred to as ECP Basins) by reducing phosphorus in permittee discharges to specified levels prior to entering the STAs. For the remaining tributary basins (also referred to as Non-ECP Basins), the source control program is a combination of regulatory and cooperative efforts.

Current Status: For the 19 years that the program has been in place in the EAA Basin, the total phosphorus loads have been reduced by greater than 50% on average. The C-139 Basin Regulatory Source Control Program was initially implemented in 2002. Rule amendments to optimize water quality improvement efforts in the C-139 Basin became effective in November 2010. Water Quality Improvement Plans were developed for each of the other tributary basins to ensure that all basins discharging directly to the Everglades meet state water quality standards. These strategies include BMPs, existing regulatory stormwater management programs, public outreach, and construction of public works projects. All of this work and the funding for this work are mandated by the Everglades Forever Act and the Long-Term Plan.

Project Schedule:
Start Date: March 1998
Finish Date: N/A – This is an on-going mandated regulatory program with no end date.

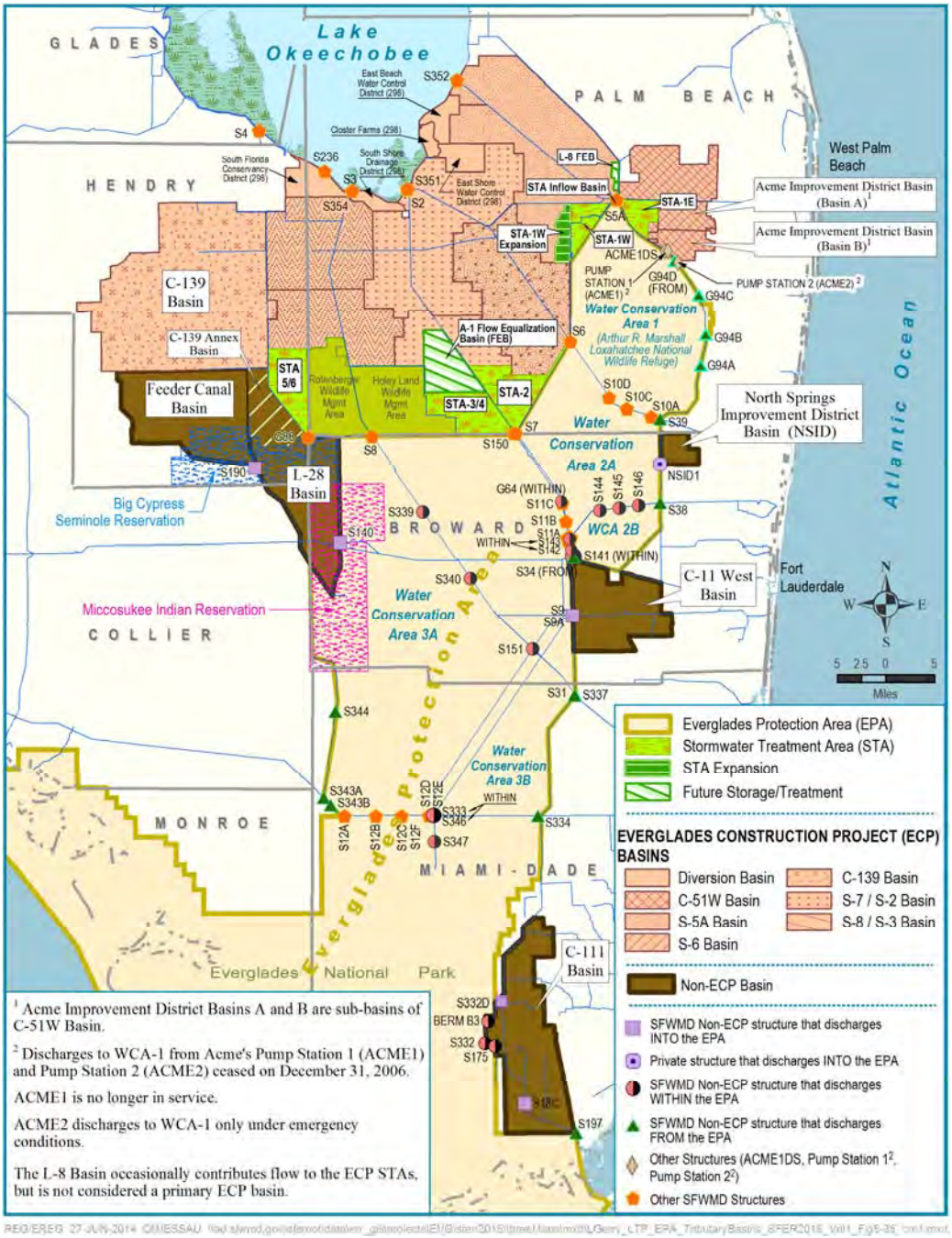
Detailed Project Budget Information (1000s)

	2000-08	2009	2010	2011	2012	2013	2014	2015	2016	Total
State	27,351	4,863	4,063	3,256	2,075	1,694	1,606	1,546	1,687*	48,141
Total	**27,351**	**4,863**	**4,063**	**3,256**	**2,075**	**1,694**	**1,606**	**1,546**	**1,687***	**48,141**

*estimated

Hyperlink:
http://my.sfwmd.gov/portal/page/portal/xrepository/sfwmd_repository_pdf/ltpmtg22may2015_source_control_madden.pdf

Contact: Pamela Wade, SFWMD, 561-682-6901



Program Name: Lake Okeechobee Restoration: Water Quality
Project Name: **Lake Okeechobee Protection Plan**
Project ID: 1722
Lead Agency: South Florida Water Management District
Funding Source: State of Florida Appropriation

Strategic Plan Goal(s) Addressed: Other

Measurable Output(s): Improve the health of Lake Okeechobee through phosphorus load reductions and increased water storage. Water quality objectives are based on Total Maximum Daily Loads (TMDLs) established by the FDEP, while storage targets are aimed at achieving appropriate water levels in Lake Okeechobee and salinities within the estuaries. For Lake Okeechobee, the Total Maximum Daily Load (TMDL) for phosphorus is 140 MT/year (105 MT from the Watershed and 35 MT from atmospheric deposition).

Storage goals North of Lake Okeechobee are integrally related to the amount of storage south of the Lake. The CRWPP and SLRWPP indicate that 400,000 and 200,000 ac-ft of storage are needed in each of these watersheds respectively in order to address local basin runoff, while the magnitude of storage needed in the Lake Okeechobee watershed varies depending on assumptions regarding delivery and storage volumes south of Lake Okeechobee. Regardless of the assumptions used, it is evident that the Lake Okeechobee watershed still needs significantly more storage, on the order of several hundred thousand ac-ft or more.

Planning analyses completed in 2008 (Lake Okeechobee Watershed Construction Project), which assumed that no additional lake water could be sent to south through the Everglades Agricultural Area (EAA) to the Everglades, identified a Lake Okeechobee Watershed water storage goal of 900,000 to 1.3 million acre-feet to be achieved through a combination of above-ground reservoirs, underground storage and dispersed water management projects on public and private lands. Since this analysis, several other regional planning efforts have been conducted that have also evaluated flow and storage needs north or south of Lake Okeechobee. It is clear from all of these modeling efforts that additional storage is needed in the Everglades system and most analyses seem to indicate that at least a million additional acre-ft of storage is needed throughout the system. As new information becomes available, additional analyses will be conducted for the Lake Okeechobee watershed to refine storage volume targets and evaluate various combinations of dispersed and regional storage.

Project Synopsis: For more than two decades, restoration efforts have been under way to improve the water quality and hydrology of the Lake Okeechobee Watershed through implementation of a suite of projects and programs. The reductions due to the dairy buyout, FDEP dairy technology-based rule and implementation of the 40E-61 rule, and other early initiatives leveled-off in the 1990s. As a result, in 2000, the Florida legislature passed the Lake Okeechobee Protection Act (LOPA), which requires the coordinating agencies—the District, FDACS, and FDEP—to work together to address TP loading and exotic species control. The Lake Okeechobee and Estuary Recovery (LOER) Plan, announced in October 2005, was migrated into this program. The LOPA was amended in 2007 to expand restoration efforts to include the St. Lucie and Caloosahatchee River Watersheds, and is now called the Northern Everglades and Estuaries Protection Program (NEEPP) [Section 373.4595, Florida Statutes (F.S.)], which also included a water storage component/goal. The Lake Okeechobee Watershed Protection Plan (LOWPP) is required under the NEEPP, which promotes a comprehensive, interconnected watershed approach to protecting the lake and its downstream estuaries—Caloosahatchee and St. Lucie. It is a cooperative effort between the District, FDEP, and FDACS.

The Lake Okeechobee Watershed Protection Plan (LOWPP) was initially developed in 2004 (SFWMD et.al. 2004) and has been subsequently updated in 2007 (SFWMD et.al. 2007), 2008 (SFWMD et.al. 2008), 2011 (SFWMD et.al. 2011) and 2014 (SFWMD et. al. 2014).

The plan now integrates the Lake Okeechobee Basin Management Action Plan (FDEP 2014), which is the overarching water quality restoration plan for Lake Okeechobee. It also includes source controls (ex. BMPs) and several sub-regional and regional technologies, such as STAs and alternative treatment technologies, to improve the quality of water within the watershed and of that delivered to Lake Okeechobee. Several measures are also included in the plan to improve both water levels within the Lake and the quantity and timing of discharges from Lake Okeechobee to the northern estuaries to achieve more desirable salinity ranges. These measures include reservoirs, dispersed water management projects, aquifer storage and recovery and deep well injection. The LOPP also contains elements of research and monitoring as specified by the act. Accordingly, a comprehensive monitoring program for water quality in the lake and watershed and ecological indicators in the lake has been implemented.

Current Status: The LOPP is currently being implemented and the most recent three year update was submitted to the legislature in March, 2014.

Cost: The LOPP includes a phased implementation. In the 2014 LOPP update, implementation of near-term projects (2014-2016) and the cost for operations and maintenance of current (constructed or completed) projects are estimated to be $213.6M.

Project Schedule:

Start Date: 2000
Finish Date: TBD

Detailed Project Budget Information (1000s)

	FY 1999-2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**TOTAL**
Federal EPA							1,044	1,044
*State SFWMD	238,579	53,091	27,893	15,566	3,181	3,369	14,555	356,234
**Other	137,533	8,142	9,097	10,235	12,505	12,662	12,866	203,040
Total	**376,112**	**61,233**	**36,991**	**25,801**	**15,686**	**16,031**	**28,465**	**560,319**

Sources:
* Lake Okeechobee Program adopted budget – state appropriations
** Lake Okeechobee Program adopted budget – non-state appropriations
Note: Adopted budget may include fund balances from prior years.

Hyperlink:
http://my.sfwmd.gov/portal/page/portal/xweb%20protecting%20and%20restoring/other%20everglades

Contact: Lesley Bertolotti, SFWMD

Program Name: Northern Everglades and Estuaries Protection Program
Project Name: **Hybrid Wetland Treatment Technology**
Project ID: 1723
Lead Agency: FDACS, State of Florida
Funding Source: State General Revenue

Strategic Plan Goal(s) Addressed: 1-B-2, Other Related Water Quality Projects

Measurable Output(s): Estimated annual phosphorus load reduction is 4 metric tons for six Hybrid Wetland Treatment Technology (HWTT) systems.

Project Synopsis: In 2007, the Florida legislature enacted the Northern Everglades and Estuaries Protection Program (NEEPP) (*Section 373.4595, F.S., 2007)*, which expands the Lake Okeechobee Protection Act to the entire Northern Everglades system, including the Lake Okeechobee watershed as well as the Caloosahatchee and St. Lucie rivers and estuaries. This project was initiated by the State of Florida under NEEPP. It combines the use of both wetland and chemical treatment components to remove nutrients from surface waters. This project was jointly initiated in 2007 by the SFWMD and FDACS to demonstrate the technical feasibility and cost effectiveness of this technology.

In 2008, four HWTT systems were constructed (Nubbin Slough, Mosquito Creek, Ideal Grove 2, Larson Lagoon) and optimization efforts were initiated. Three of the facilities are continuous flow systems while the fourth (Larson Lagoon) was used for batch treatment of waters with high nutrient levels but is no longer operational. In 2009, two additional systems were constructed on Wolff Ditch and Lemkin Creek on a District-owned parcel, with operations beginning in late 2009. During 2010 and 2011, a 10 cfs HWTT facility was constructed at the District's Taylor Creek/Grassy Island property with the optimization monitoring period beginning in late 2011. In 2012, Phase II of the Grassy Island HWTT facility increased the treatment capacity of the facility from 10 to 20 cfs. A third and final expansion to increase the treatment capacity of the facility from 20 to 30 cfs was completed by June 2013. In 2014 a seventh HWTT facility is under permit review for construction in the Bessey Creek watershed located in Martin County.

Current Status:
Operations continue on the six current sites (Nubbin Slough, Mosquito Creek, Ideal Grove 2, Wolff Ditch, Lemkin Creek and Grassy Island) providing phosphorus concentration reductions ranging from 60 to 90 percent. The Phase II operations permit was issued by FDEP on November 29, 2012, which authorized operations up 20 cfs. Construction of Phase III was completed on June 14, 2013. The newly expanded Taylor Creek/Grassy Island facility will commence operation at 30 cfs in 2014.

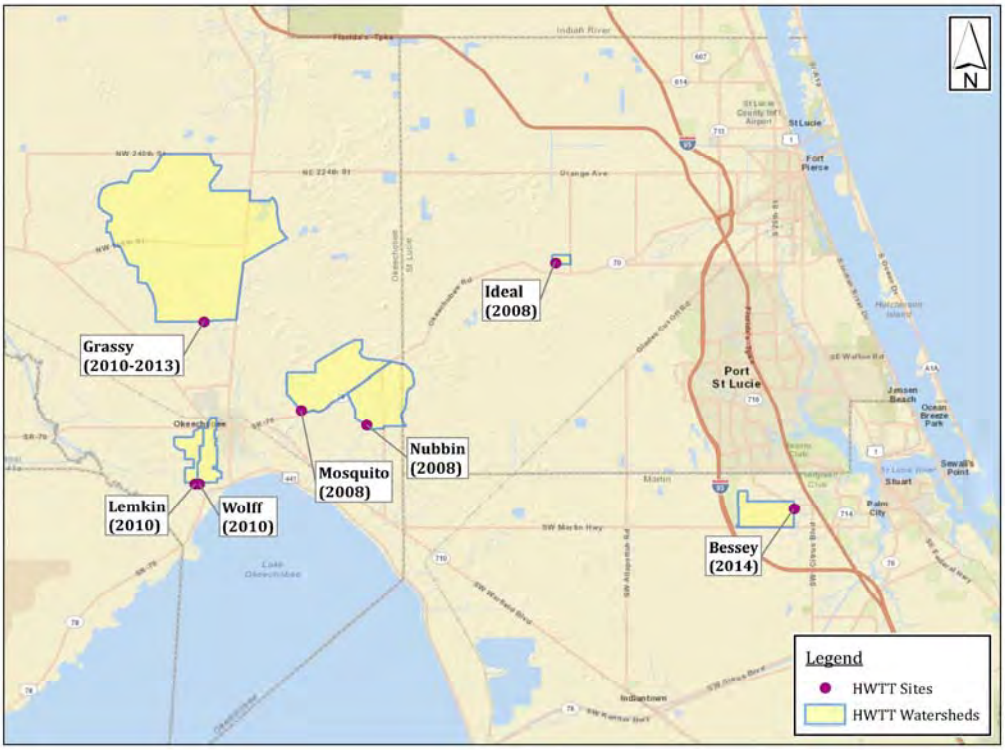
Total Estimated Project Cost for Project: $24.484M to date

Project Schedule:
Start Date: October 2007
Finish Date: On going

	2008	2009	2010	2011	2012	2013	2014	Total to Date
FDACS	$3M	$3M	$3M	$1.484M	$3M	$5M	$6M	$24.484M

Project sheet updated in 2014
Contact: FDACS

HWTT Facilities in the Northern Everglades Watershed



Project 1723 Hybrid Wetland Treatment Page 2 of 2

Project Name: **C&SF: CERP Lake Trafford Restoration**
Project ID: 1725
Lead Agency: USACE / SFWMD
Authority: Not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 2-A.3

Measurable Output(s): 2.85 million cubic yards of organic sediments removed

April 1999 (Restudy) Project Synopsis: Lake Trafford, the largest lake south of Lake Okeechobee, with a surface area of approximately 1,494 acres, is located in north Collier County. The project is described in the *Central and Southern Comprehensive Review Study (1999)* as an *OPE,* utilizing one or more 14-inch portable cutter dredges to accomplish lake-wide organic sediment removal.

Current Project Synopsis: Same as Restudy.

Current Status: Portions of this project are currently being pursued under a different program. Please see Project ID 1702.

Est. Cost: $22,220,917

Project Schedule: The CERP project has not begun.

Detailed Project Budget Information (rounded):

Insert project name	Obligations Thru FY 2010
USACE	$0
SFWMD	$0
Total	**$0**

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars.

Program Name: Land Acquisition
Project Name: **Adams Ranch**
Project ID: 2181
Lead Agency: Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 10,841 Acres Acquired

Project Synopsis: The Adams Ranch Florida Forever project includes a portion of one ownership to be considered for less than-fee-simple acquisition totaling 11,057 acres in southern Osceola County. About 5.2 miles of the western boundary of the project abuts the southeastern boundary of Three Lakes Wildlife Management Area. The northwestern boundary fronts Lake Marian for 1.3 miles. The project stretches east through the center of the entire Adams Ranch holding, which is bracketed to the north and south with Adams Ranch, Inc. property and bounded on the east by Peavine Road. Avon Park Air Force Range and Bombing Range Ridge Florida Forever project are no more than 10 miles to the west of the project. The Mills Ranch and Escape Ranch Conservation Easements lie approximately 3.5 miles to the east. Kissimmee Prairie Preserve State Park is approximately 8.5 miles to the south.

One of the primary concepts of this project is the protection of the way of life for the ranch, which is managed in a way that has historically allowed for the continued protection of an important and biodiverse assemblage of imperiled vertebrate wildlife. Another stated goal of the project is to provide for continued buffering of the Three Lakes Wildlife Management Area from development, avoiding fragmentation of the landscape and allowing for the continuation of proper management on a landscape scale through prescribed fire, maintenance of hydrological regimes, and other appropriate strategies.

This project meets the Florida Forever goals of increasing protection of biodiversity by acquiring 81 acres of Priority 1 habitat and 6,140 acres of Priority 2 habitat, and preserving 10,618 acres of habitat for such rare species as the eastern indigo snake and the bald eagle. Another Florida Forever goal is to increase the acreage of landscape linkages and conservation corridors, by contributing to a 200,000-acre mosaic of protection areas that includes the adjoining Three Lakes Wildlife Management Area. Other Florida Forever goals are to protect waters and wetlands of the state, and the Adams Ranch will preserve 762 acres of floodplain, 5,811 acres that would help protect surface waters, and 2,598 acres of functioning wetlands. Some 10,979 acres of the proposal help recharge the aquifer.

Cost: Project size 10,841. No acres have been acquired.

Project Schedule:
Start Date: 1997
Finish Date: Upon completion

Detailed Project Budget Information (1000s)

	Thru 2015	Balance to complete	Total
State*			
Local			
Federal			
Total	**0**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Allapattah Flats**
Project ID: 2100
Lead Agency: Department of Environmental Protection/South Florida Water Management District
Authority: Florida Forever/Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: 2.A.1 Secondary: 1.A.1

Measurable Output(s): 40,363 Acres Acquired

Project Synopsis: The Allapattah Flats/Ranch project covers 40,363 acres in western Martin County. The site is dominated by poorly drained flatwoods soils, which are saturated for much of the wet season. Historically, this area was a flatwoods matrix, interspersed with depression marshes and wet prairies. With the exception of the four northern sections that drain to Canal-23, the entire site drains slowly to the southeast to the South Fork of the St. Lucie River. Over the past 30 years, the project area has undergone a change in land use from native range grazing to improved pasture, sod farms, and row crops. Most of the understory has been cleared and planted in non-native pasture grasses. Most of the depression marshes remain; however, most of the wet prairies have been drained and the extreme western boundary. There is good species diversity and many large trees remain.

Restoration of Allapattah Flats will play a key role in the effort to reduce flows from C-23 into the St. Lucie Estuary. Regional attenuation facilities, or Water Preserve Areas, are proposed which would store discharges into the St. Lucie Estuary. After acquisition, about 8,000 acres of the project adjacent to C-23 would be converted to a reservoir to provide approximately 32,000 acre-feet of water storage. Estimates indicate that this would reduce wet season stormwater flows into the estuary by 39%. It is estimated that an additional 14% reduction in discharge to the estuary could be achieved by not draining the property. Completely eliminating stormwater discharges is not possible; however, significant reductions could probably be made by blocking existing drainage ditches.

The Florida Fresh Water Fish and Wildlife Commission would be the lead manager for the non-reservoir areas. The District will take the lead on all hydrologic restoration efforts.

Cost: Project size 40,363. 21,865 acres have been acquired at a cost of $63,023,838
Land Acquisition: 18,498 acres remain to be acquired.

Project Schedule:
Start Date: 1997
Finish Date: Upon completion

Detailed Project Budget Information (1000s)

	Thru 2015	Balance to complete	Total
State*	18,836.23		
Local	15,323.384		
Federal	28,864.224		
Total	**63,023.838**	**TBD**	**TBD**
Adjusted Total**	**0**		

*State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.
** A portion of the acres and costs on this project overlaps with Project ID 1101 in Goal 1. The adjusted total compensates for this overlap by allocating the appropriate costs to this project.

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Atlantic Ridge Ecosystem**
Project ID: 2101
Lead Agency: Florida Department of Environmental Protection/South Florida Water Management District
Authority: Florida Forever/Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 16,283 Acres Acquired

Project Synopsis: The project area is located in southern Martin County, between I-95 and U.S. 1. The project area includes approximately 16,002 acres, which is extremely diverse ecologically. It contains large areas of forested sloughs and high quality flatwoods, as well as one of the largest remaining islands of coastal scrub. The current land use is mostly cattle grazing on unimproved pasture with intense agriculture and residential development occurring around the edges of the project area. However, the project also contains extensive wetland and upland systems. Currently, none of this project is in public ownership.

The purpose of this project is to conserve and protect the high quality habitats and to protect water quality of the South Fork of the St. Lucie River and the North Fork of the Loxahatchee River. The project area forms the headwaters to these rivers and the extensive wetland systems provide a source of groundwater base flow to both rivers. This project will conserve and protect significant habitat for endangered and threatened species such as the Florida scrub jay, the Florida sandhill crane, and the Florida scrub lizard. The area is extremely important for aquifer recharge and water supply to the coastal portion of Martin County.

Cost: Total: Project size 16,283. 5,905 acres have been acquired at a cost of $41,597,324
Project Development
Land Acquisition: 10,378 acres remaining to be acquired.

Project Schedule:
Start Date: 1995
Finish Date: Upon completion

Detailed Project Budget Information (1000s)

	Thru 2015	Balance to complete	Total
State*	35,094.095		
Local	6,503.229		
Total	**41,597.324**	**TBD**	**TBD**
Adjusted Total**	**7,572.756**		

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*
247.34 acres plus 100 acres of the Atlantic Ridge Ecosystem and South Fork of the St. Lucie projects respectively, are currently being managed as part of Halpatiokee Park (Martin County).
** A portion of the acres and costs on this project overlaps with Project ID 1101 in Goal 1. The adjusted total compensates for this overlap by allocating the appropriate costs to this project.
Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Belle Meade**
Project ID: 2104
Lead Agency: Florida Forever
Authority: CARL Program

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 28,810 Acres acquired

Project Synopsis: This area of 28,810 acres includes some of the most extensive examples of mature old-growth hydric pine flatwoods in southwest Florida not within other CARL projects. The hydrology of the hydric pine flatwoods and dwarf cypress communities within the project is relatively intact. Three archaeological sites have been recorded within the project boundaries, and additional sites may be present. The area is vulnerable to changes in the timing and amount of water flowing through it. Residential and commercial development spreading from Naples threatens it.

Cost: Project size 28,810 acres. 19,439 acres have been acquired at a cost of $40,033,058
Land Acquisition: 9,371acres remaining to be acquired.

Project Schedule:
Start Date: 1993
Finish Date: Upon completion

Detailed Project Budget Information (1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal			
State*	40,003.058		
Tribal			
Local			
Other			
Total	40,003.058	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Big Bend Swamp/Holopaw Ranch**
Project ID: 2105
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 59,132 Acres acquired

Project Synopsis: Many kinds of wildlife in the expanses of palmetto prairies, pine flatwoods, and cypress swamps in Osceola County. The Big Bend Swamp project will acquire certain rights from landowners to maintain a link of natural lands between the Bull Creek and Three Lakes Wildlife Management Area, and help the ensure survival of caracara, red-cockaded woodpeckers, sandhill cranes, and other wildlife that require these large natural areas.

Cost: Project size is 59,132** acres. 4,151 acres have been acquired at a cost of $6,829,000.
Land Acquisition: 54,981 acres remaining to be acquired.

Project Schedule:
Start Date: 2000
Finish Date: TBD

Detailed Project Budget Information (1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal			
State*	6,829		TBD
Tribal			
Local			
Other			
Total	**6,829**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*
***This project is not entirely within SFWMD; the numbers here are that portion of the project within the SFWMD. Expenditures are pro-rated for that portion of the project.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Biscayne Coastal Wetlands**
Project ID: 2106
Lead Agency: South Florida Water Management District, Miami-Dade County and Florida Communities Trust
Authority: Florida Forever/Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 1,995 Acres

Project Synopsis: The Biscayne Coastal Wetlands are divided into three units that total 1,995 acres. The units lie east of L-31E canal, and adjacent to other protected lands acquired as part of Biscayne National Park and Homestead Bayfront Park. All are a mixture of red, black and white mangroves. The three units appear to be in good condition and relatively exotic-free, except along the western edge and along mosquito ditches, where there are Brazilian Pepper and Australian Pine. Acquisition of these areas would add another layer of protection to Biscayne National Park and provide opportunities for a better distribution of fresh water from L-31E. Some of the properties in this land acquisition project are necessary for the Biscayne Bay Coastal Wetlands-Phase 1, CERP Project.

Cost: Project size is 1,995 acres. 1,562 acres acquired at a cost of $19,559,500.
Land Acquisition: 433 acres remaining to be acquired.

Project Schedule:
Start Date: 1998
Finish Date: TBD

Detailed Project Budget Information (1000s)

	Through 2015	**Balance to Complete**	**Total***
Federal			
State*	18,980.5		
Tribal			
Local	579		
Other			
Total	**19,559.5**		**TBD**
Adjusted Total	**0.523915**		

*State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.
** A portion of the acres and costs on this project overlaps with Project ID 1116 in Goal 1. The adjusted total compensates for this overlap by allocating the appropriate costs to this project.

Contact: Wanda Caffie-Simpson, wsimpso@sfwmd.gov

Additional information available at www.sfwmd.gov under the heading "Major Projects"

Program Name: Land Acquisition
Project Name: **Bombing Range Ridge**
Project ID: 2107
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 41,465 Acres acquired

Project Synopsis: Public acquisition of the 41,465 acre Bombing Range Ridge project will conserve and protect significant habitat for native species and endangered and threatened species. Additionally, public acquisition will provide areas, including recreational trails for natural resource based recreation.

Cost: Project size 41,465 acres with 9,031 acquired at a cost of $20,352,608.
Land Acquisition: 32,434 acres remaining to be acquired

Project Schedule:
Start Date: 1998
Finish Date: Upon completion

Detailed Project Budget Information (1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal			
State*	20,352.608		
Tribal			
Local			
Other			
Total	**20,352.608**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Caloosahatchee Ecoscape**
Project ID: 2108
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 18,497 acres acquired

Project Synopsis: The project encompasses a mosaic of wet prairie, cypress basin and dome swamp, mesic flatwoods, wet flatwoods, depressional marshes and scrub. Clearing and drainage from improved pasture development or farming have impacted the majority of the natural communities on the site. Despite the disturbed plant communities, the project provides important habitat for a variety of listed wildlife species. Most of the land is within the Barron Water Control District and canals have altered the natural hydrology to the extent that no significant natural water resources remain. Eleven archaeological sites are known from the project area; some with material dated to the archaic period.

Cost: Project size 18,497 acres. 3,180 acres acquired at a cost of $1,948,038
Land Acquisition: 15,317 acres remaining to be acquired

Project Schedule:
Start Date: 1998
Finish Date: Upon completion

Detailed Project Budget Information (1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal			
State*	$1,948.038		
Tribal			
Local			
Other			
Total	**1,948.038**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Project Name: **Catfish Creek**
Project ID: 2109
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 13,198 Acres acquired

Project Synopsis: Catfish Creek is a divers natural area extending over high scrub ridges, interspersed with lakes, next to the pristine shore of Lake Pierce. Natural communities include sandhill, scrub, scrubby flatwoods, mesic flatwoods, xeric hammock, bottomland hardwood forest, basin swamp, sandhill upland lake, wet flatwoods, blackwater stream, seepage slopes, and floodplain swamp, all are in excellent condition. The tract harbors at least 18 state listed rare plant and animal species. Rare or endangered animals include the bald eagle, wood stork, gopher tortoise, and scrub jay.

Cost: Total: Project size 13,198 acres. 4,422 acres have been acquired at a cost of $9,444,266
Land Acquisition: 8,777 acres remain to be acquired.

Project Schedule:
Start Date: 1990
Finish Date: Upon completion

Detailed Project Budget Information (1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal			
State*	$9,444.266		
Tribal			
Local			
Other			
Total	**$9,444.266**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Charlotte Harbor Estuary/Flatwoods/Cape Haze**
Project ID: 2111
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 12,305 Acres acquired

Project Synopsis: The project area, located northwest of Fort Myers in Charlotte and Lee Counties, includes 12,305 acres containing the largest and highest quality slash-pine flatwoods left in Southwest Florida. The area contains pockets of old growth that provide habitat for red-cockaded woodpeckers, black bears, and bald eagles, and an occasional Florida panther ranges in the area. Additionally, the tract provides habitat for rare plant communities. Several drainages flow through these flatwoods into the Charlotte Harbor Aquatic Preserve.

Cost: Project size 12,305**. 11,300 acres acquired at a cost of $20,931,504
Land Acquisition: 1,005 acres remaining to be acquired

Project Schedule:
Start Date: 1986
Finish Date: Upon completion

Detailed Project Budget Information ($1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal			
State*	20,324.089		
Tribal			
Local	607.415		
Other			
Total	**20,931.504**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*
***This project is not entirely within SFWMD; the numbers here are that portion of the project within the SFWMD. Expenditures are pro-rated for that portion of the project.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Corkscrew Regional Ecosystem Watershed (CREW)**
Project ID: 2112
Lead Agency: Florida Department of Environmental Protection/South Florida Water Mgmt District
Authority: Florida Forever/Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 73,365 Acres

Project Synopsis: CREW covers 73,365 acres in Lee and Collier counties and is located at the top of the western Big Cypress watershed. It conveys surface water to private, state, and federally protected natural areas, including Corkscrew Swamp Sanctuary, Florida Panther National Wildlife Refuge, and the Everglades National Park. The area supports populations of at least two species of rare and endangered orchids and includes an unusual stand of dwarf bald cypress. Land management will be carried out the SFWMD and the Florida Fish and Wildlife Commission under contract with the SFWMD.

Hydrologic restoration of CREW will restore and protect important habitat for the Florida panther and black bear and will protect the quality of water delivered to Corkscrew Swamp Sanctuary, Florida Panther National Wildlife Refuge, ENP, and Estero Bay. NOTE: Lee County has agreed to cost share this project by purchasing properties equaling the $10,000,000 appropriated. These properties have been turned over to SFWMD for management.

Cost: Project size is 73,365 acres of which 30,876 have been acquired for a cost of $93,714,310.
Land Acquisition: 42,489 acres remaining to be acquired.

Project Schedule:
Start Date: 1991
Finish Date: Upon completion

Detailed Project Budget Information ($1000s)

	Thru 2015	Balance to complete	Total
Federal	5,414.629		
State*	55,248.181		
Tribal			
Local	33,052.500		
Other			
Total	**93,714.310**		**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*
***This total includes Critical CREW project lands.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Coupon Bight/Key Deer/Big Pine Key**
Project ID: 2114
Lead Agency: Florida Department of Environmental Protection
Authority: CARL Program

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 3,373 Acres acquired

Project Synopsis: The project encompasses virtually all of the undeveloped land between the Coupon Bight Aquatic Preserve and the National Key Deer Refuge on Big Pine Key. It includes the only significant sources of freshwater in the lower Keys which are critical to the survival of the endangered Key Deer. The Pine Rocklands are the best remaining anywhere. The project is habitat for 24 FNAI special plant species and 41 FNAI listed animal species.

Cost: Project size 3,373 acres. 1,558 acres have been acquired at a cost of $30,650,827.
Land Acquisition: 1,815 acres remaining to be acquired

Project Schedule:
Start Date: 1985
Finish Date: Upon completion

Detailed Project Budget Information ($1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal			
State*	30,650.827		
Tribal			
Local			
Other			
Total	**30,650.827**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Restoration Program: Habitat and Species
Project Name: **Cypress Creek/Loxahatchee**
Project ID: 2172
Lead Agency: South Florida Water Management District
Authority: Florida Forever/Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 4,374 Acres

Project Synopsis: Cypress Creek/Loxahatchee project is located in southern Martin and northern Palm Beach Counties, near lands recently acquired in Pal-Mar, and adjacent to Jonathan Dickinson State Park. It is a mixture of land uses and community types. Nearly 3,000 acres are mostly undisturbed natural area, containing a mixture of pine flatwoods, cypress swamps, depression marshes, and wet prairies. This area forms the headwaters of Cypress Creek, which drains to the Northwest Fork of the Loxahatchee River. The remainder of the site is cleared and drained for intense agriculture, including row crops and citrus.

Cost: Project size is 4,374 acres of which 4,184 have been acquired at a cost of $64,630,767.
Land Acquisition: 190 acres remaining to be acquired.

Project Schedule:
Start Date: November 2002
Finish Date: Until completed

Detailed Project Budget Information ($1000s)

	Thru 2015	Balance to Complete	Total
Federal			
State**	35,407.660		
Tribal			
Local	29,223.107		
Other			
Total	**64,630.767**		**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Additional information available at www.sfwmd.gov under the heading "Major Projects"

Contact: Wanda Caffie-Simpson, wsimpso@sfwmd.gov

Program Name: Land Acquisition
Project Name: **Cypress Creek/Trail Ridge Land Acquisition**
Project ID: 2115
Lead Agency: South Florida Water Management District
Authority: Florida Forever/Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 32,639 Acres

Project Synopsis: Cypress Creek/Trail Ridge is in southwestern St. Lucie County. The project gets its name from a large forested wetland system that once extended along the entire eastern edge of the Orlando Ridge south of Indian River County, through Allapattah Flats, and drained into the South Fork St. Lucie River. The Cypress Creek portion is also a CARL project.

Cost: Project size is 32,639 acres of which 5,169 have been acquired at a cost of $25,027,417.
Land Acquisition: 27,470 acres remaining to be acquired.

Project Schedule:
Start Date: 1997
Finish Date: Upon Completion

Detailed Project Budget Information (1000s)

	Thru 2015	Balance to Complete	Total
Federal			
State*	20,349.615		
Tribal			
Local	4,677.802		
Other			
Total	**25,027.417**	**TBD**	**TBD**

*State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.

Additional information available at www.sfwmd.gov under the heading "Major Projects"

Contact: Wanda Caffie-Simpson, wsimpso@sfwmd.gov

Program Name: Land Acquisition
Project Name: **Devil's Garden**
Project ID: 2183
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 82,508 acres acquired

Project Synopsis: The Devil's Garden project is located in Hendry and Collier Counties, and is approximately 82,508 acres. This vast project is being proposed to fill a gap in a corridor that will provide a large landscape for the federally endangered Florida panther. There are numerous records of panther use of the property for several years as well as numerous other rare and threatened plants and animals.

Cost: Total: 82,508 acres needed.
Land Acquisition: 82,508 acres remaining to be acquired

Project Schedule:
Start Date: 2002
Finish Date: When completed

Detailed Project Budget Information ($1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal			
State	0		
Tribal			
Local			
Other			
Total	**0**	**TBD**	**TBD**

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **East Coast Buffer- Natural Lands**
Project ID: 2117
Lead Agency: Florida Department of Environmental Protection/South Florida Water Management District/U.S. Department of the Interior
Authority: Florida Forever/Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 48,108 Acres

Project Synopsis: The East Coast Buffer/Water Preserve Areas project involves acquisition of land located along the eastern side of the Everglades Protection Area in western Palm Beach, Broward, and Miami-Dade Counties. Most of the lands in this project area are undeveloped and include a considerable amount of wetland habitat. Current land uses include very low intensity development, pastureland, and limestone mining. The original East Coast Buffer footprint was based on a land suitability analysis which selected lands primarily on the basis of those needed for controlling seepage from the Everglades.

In addition, these lands are needed to implements several components of the Everglades Restoration Plan developed under the C&SF Project Comprehensive Review Study (CERP). The overall purposes of the CERP projects are to: (1) hold more water in the system by controlling seepage from the Everglades; (2) capture, store, and clean up excess stormwater currently lost to tide; (3) provide a buffer between the urban area and the Everglades; and (4) protect and conserve wetlands and habitat values outside the remaining Everglades. Restoration benefits include improved water supply for restoring hydropatterns of the Everglades, improved water quality and preservation of wetland habitat.

The project acres under the Florida Forever/SOR program are directed toward the purchase of natural lands acquired for their conservation, preservation value --high quality flood plains, wetlands and uplands that continue providing recreation, water resource protection, and wildlife habitat for future generations. Acres used or to be used for construction of facilities, such as STAs, reservoirs, and impoundments for Critical Restoration Projects (CRP) and Comprehensive Everglades Restoration Plan (CERP) initiatives have been removed from the Natural Lands project boundary.

Cost: Project size is 48,108 acres of which 15,099 have been acquired at a cost of $140,372,676. Land Acquisition: 33,009 acres remaining to be acquired.

Project Schedule: Start Date: 1994 Finish Date: Upon completion

Detailed Project Budget Information ($1000s)

	Thru 2015	Balance to complete	Total
Federal	66,169.330		
State*	70,069.346		
Local	4,134		
Total	**140,372.676**	**TBD**	**TBD**
Adjusted Total	**102,990.022**		

This project is no longer on the Florida Forever –BOT list (66,809 acres). The total federal grant for the East Coast Buffer/ Water Preserve Area was $72,614,143.
*State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.
** A portion of the acres and costs on this project overlaps with Project ID 1101 in Goal 1. The adjusted total compensates for this overlap by allocating the appropriate costs to this project.
Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Estero Bay**
Project ID: 2118
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 14,358 Acres acquired

Project Synopsis: Much of the Estero Bay Project is comprised of wetlands fronting Estero Bay (mangrove swamp, salt marsh, and salt flats). These communities provide nutrients to the Bay, contributing substantially to its biological productivity. The Bay, one of the most productive estuaries in the State, supports a diversity of wildlife, including the federally endangered bald eagle. These communities provide an important nutrient for the Bay, thus contributing to biological productivity. The wetlands are in a natural condition and help maintain high quality of water in the Estero Bay Aquatic Preserve. The project also includes the largest remaining block of rosemary scrub in southwest Florida. Several archaeological sites attributed to the Calusa Indians and their prehistoric ancestors are known to be within the project area. The project is threatened by the rapid residential development in the area.

Cost: Project size 14,358 acres. 9,392 acres have been acquired at a cost of $69,418,260.
Land Acquisition: 4,966 acres to be acquired

Project Schedule:
Start Date: 1985
Finish Date: Upon completion

Detailed Project Budget Information (1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal			
State*	59,220.290		
Tribal			
Local	10,197.970		
Other			
Total	**69,418.260**		**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name **Fakahatchee Strand (Picayune Strand- Fakahatchee)**
Project ID: 2120
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 80,332 Acres acquired

Project Synopsis: Fakahatchee Strand is located in Collier County. Of the subtropical swamps in South Florida, Fakahatchee Strand is perhaps the most significant, being the richest in orchids and other rare tropical plants. It is the most critical to the survival of the Florida panther, and the most important for the mangrove swamps of the Ten Thousand Islands. The project area is probably the best example of the strand swamp found in the United States. It is linked hydrologically to the Everglades system and is important to the estuarine ecosystem of the Ten Thousand Islands.

Cost: Project size 80,332. 62,897 acres have been acquired at a cost of $25,278.263
Land Acquisition: 17,435 acres remaining to be acquired

Project Schedule:
Start Date: 1980
Finish Date: Upon completion

Detailed Project Budget Information ($1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal			
State*	25,278.263		
Tribal			
Local			
Other			
Total	25,278.263		**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Project Name: **Fisheating Creek Ecosystem**
Project ID: 2121
Lead Agency: Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 176,876 Acres Acquired

Project Synopsis: Fisheating Creek, the only free-flowing tributary to Lake Okeechobee, is an extensive riverine swamp flowing through Glades County and emptying into the Lake. The total project area is 176,876 acres. Currently, none of this acreage is in public ownership. The project area contains relatively undisturbed upland and wetland habitats that serve as habitat for the endangered Florida Panther and a number of threatened species, including the Florida black bear, the bald eagle, the Florida scrub jay, and the Florida sandhill crane. The federally listed wood stork and state listed white ibis are known to use the area.

This acquisition will preserve the water quality and critical habitat of this large watershed. Additionally, the acquisition will provide both hydrologic and water quality benefits for Lake Okeechobee, located downstream. When states in Lake Okeechobee are high, Fisheating Creek serves as an important feeding area for wading birds, which typically use the lake marshes. Restoration requirements would be minimal if any, as most of the property remains in a natural state.

Cost: Project size 176,876 acres. 59,910 acres have been acquired at a cost of $101,928,563.
Land Acquisition: 116,966 remaining to be acquired

Project Schedule:
Start Date: 1999
Finish Date: Upon completion

Detailed Project Budget Information (1000s)

	Thru 2015	Balance to complete	Total
Federal			
State*	$101,928.5		
Tribal			
Local			
Other			
Total	**$101,928.5**		**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*
Breakdown of Fisheating Creek total acres acquired is 59,910.07 - 9,879.80 fee, 50,030.27 conservation easement

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Project Name: **Florida Keys Ecosystem**
Project ID: 2122
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 13,632 Acres acquired

Project Synopsis: This project, in conjunction with the Complete National Key Deer Refuge proposal, includes the remaining 15,336 acres of tropical hardwood hammocks and pine rocklands of significant size and quality remaining in the Florida Keys from southern Key Largo to Sugarloaf Key.

Cost: Project size 13,632 acres. 3,990 acres have been acquired at a cost of $98,595,304.
Land Acquisition: 9,642 acres remaining to be acquired

Project Schedule:
Start Date: 1992
Finish Date: Upon completion

Detailed Project Budget Information (1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal			
State*	98,595.304		
Tribal			
Local			
Other			
Total	**98,595.304**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Half Circle L Ranch**
Project ID: 2186
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1.

Measurable Output(s): 11,269 Acres acquired

Project Synopsis: Located in Collier & Hendry Counties the project is approximately 11,269 acres. There are two owners and sponsored by Turrell and Associates. The project is proposed for fee simple acquisition. FNAI ranks the biological conservation priority for the project as medium high. The project is located within primary habitat zones for the Florida panther and the Florida Black bear, and compliments ongoing conservation efforts in the region.

Cost: Total: 11,269 acres needed.
Land Acquisition: 11,269 acres remaining to be acquired.

Project Schedule:
Start Date: 2003
Finish Date: when completed

Detailed Project Budget Information (1000s)

	2015	**Balance to complete**	**Total**
Federal			
State	0		
Tribal			
Local			
Other			
Total	**0**	**TBD**	**TBD**

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Indian River Lagoon Blueway****
Project ID: 2124
Lead Agency: Department of Environmental Protection and South Florida Water Management District
Authority: Florida Forever/Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 2,044 Acres Acquired

Project Synopsis: This project consists of wetlands, dominated by red and black mangroves, with a few freshwater wetlands.

This acquisition is part of a larger effort by several counties in both the SFWMD and St. Johns River WMD to protect, preserve and restore the Indian River Lagoon. These lands represent the only two undeveloped parcels along the Indian River in St. Lucie County that are not in public ownership. Mosquito control impoundments are present on both tracts. Public ownership of these parcels would allow installation of operable water control structures that allow flushing of the mosquito control impoundments during most of the year. This flushing will provide an important source of mangrove detrital matter, which is critical to the health of the estuary. Public ownership will also prevent aerial applications of chemical pesticides for mosquito control. In 1997, protection was expanded to include lands in Martin County as well.

Cost: Project size 2,044 acres. 1,134 acres have been acquired by the state at a cost of $41,887,018.
Land Acquisition: 910 acres remaining to be acquired

Project Schedule:
Start Date: 1998
Finish Date: Upon completion

Detailed Project Budget Information ($1000s)

	Thru 2015	Balance to complete	Total
Federal	$3,332.074		
State*	$35,655.760		
Tribal			
Local	$2,899.184		
Other			
Total	**$41,887.018**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*
***This project is not entirely within SFWMD; the numbers here are that portion of the project within the SFWMD. Expenditures are pro-rated for that portion of the project.*

Contact: Wanda Caffie-Simpson, wsimpso@sfwmd.gov

Program Name: Land Acquisition
Project name: **Juno Hills/Dunes**
Project ID: 2125
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 590 Acres acquired

Project Synopsis: This 590-acre site in Palm Beach County contains one of the largest and best remaining examples of the now rare coastal scrub. The extremely rare four-petal pawpaw, known only from a few sites in the Southeast Florida coastal scrub, and at least three other rare species of scrub plants occur in the Juno Hills project. Such rare animals as the scrub jay, scrub lizard, gopher tortoise, and red widow spider also inhabit the scrub here. Endangered sea turtles nest on the Atlantic beach/dune portion of the property. A remnant portion of coastal hammock is located west of the dune system. Scrubby slash pine flatwoods, disturbed basin swamps, and estuarine tidal swamps cover parts of the project area.

Cost: Project size 590 acres. 576 acres have been acquired at a cost of $41,892,718.
Land Acquisition: 14 acres remaining to be acquired

Project Schedule:
Start Date: 1994
Finish Date: Upon completion

Detailed Project Budget Information ($1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal			
State*	15,023.556		
Tribal			
Local	26,869.162		
Other			
Total	**41,892.718**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Jupiter Ridge**
Project ID: 2176
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 280 Acres acquired

Project Synopsis: The Jupiter Ridge Natural Area is one of the best remaining examples of the Florida Scrub ecosystem in Palm Beach County. Less than 2% of the historic Florida scrub still exists in the county, making preservation of this endangered natural community extremely important. This 287-acre natural area is located in the Town of Jupiter. It is bordered on the north by commercial development, on the east by U.S. Highway 1, on the west by the Intracoastal Waterway, and on the south by the Bluffs residential development. Small areas of scrubby flatwoods, mangrove swamp and freshwater wetland ecosystems also are present. These diverse habitats support many threatened and endangered species.

Cost: Project size is 280 acres, of which 271 has been acquired for a cost of $23,099,950
Land Acquisition: 9 acres remaining to be acquired.

Project Schedule:
Start Date: 1991
Finish Date: TBD.

Detailed Project Budget Information ($1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal			
State*	$11,047.600		$11,047
Tribal			
Local	$12,052.350		$12,052
Other			
Total	**$23,099.950**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project name: **Kissimmee-St. Johns Connector****
Project ID: 2126
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever Program

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 9,463 Acres acquired

Project Synopsis: Encompassing the watersheds of the Kissimmee and St. Johns Rivers, the Kissimmee-St. Johns Connector project will provide an approximately 9,463 acre hydrological and habitat connection. Though most of the area has been farmed and ranched for years many of the natural communities are in fair condition. Portions of the project provide habitat for Florida sandhill crane, crested caracara, hand ferns and numerous other plants and animals. The project is proposed primarily as a less-than-fee simple acquisition.

The project lies in northeastern Okeechobee and southwestern Indian River counties. It is contiguous with the Ordway-Whittell Kissimmee Prairie Sanctuary (OWKPS) to the west and the Fort Drum Marsh Conservation Area to the east. Kissimmee Prairie Preserve State Park lies immediately to the west of the OWKPS.

Cost: Project size: The project consists of approximately 9,463 acres.
Land Acquisition: 9,463 acres remaining to be acquired.

Project Schedule:
Start Date: 2001
End Date: TBD

Detailed Project Budget Information ($1000)

	Thru 2015	**Balance to complete**	**Total**
Federal			
State			
Total	**$0**	**TBD**	**TBD**

***This project is not entirely within SFWMD; the numbers here are that portion of the project within the SFWMD. Expenditures are pro-rated for that portion of the project.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Restoration Program: Hydrological Restoration
Project Name: **Kissimmee River (Lower Basin) Land Acquisition**
Project ID: 2127
Lead Agency: South Florida Water Management District
Authority: Florida Forever/Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 75,617 Acres

Project Synopsis: The Lower Basin project includes those lands in the historic river floodplain and along the C-38 canal in Pools B, C and D; Pool A, Chandler Slough, and Istokpoga Canal Basin; all of which are components of the Kissimmee River Restoration Project.

Cost: Project size is 75,617 acres of which 72,327 acres have been acquired for a cost of $177,870.261.
Land Acquisition: 3,290 acres remaining to be acquired.

Project Schedule:
Start Date: 1985
Finish Date: TBD

Detailed Project Budget Information (1000s)

	Thru 2015	**Balance to complete**	**Total***
Federal			
State**	177,870.261		
Tribal			
Local			
Other			
Total	177,870.261	**TBD**	**TBD**

**Total includes lands for several components of the Kissimmee River Restoration project.*
***State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*
Contact: Wanda Caffie-Simpson, wsimpso@sfwmd.gov

Program Name: Restoration Program: Hydrological Restoration
Project Name: **Kissimmee River (Upper Basin) Land Acquisition (a/k/a Kissimmee Chain of Lakes)**
Project ID: 2128
Lead Agency: South Florida Water Management District
Authority: Florida Forever/Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: Getting the Water Right

Measurable Output(s): 38,591 Acres

Project Synopsis: In the early 1990s it was determined that not enough water would be available in the upper chain of lakes to provide year round base flow for the restored Kissimmee River. As a result the scope of the Kissimmee River Restoration project includes the acquisition of land around the shoreline of the Kissimmee Chain of Lakes between elevations 52.5′ and 54.0′. This land is needed to support the KRR Headwaters Revitalization Regulation Schedule, which will raise the seasonal high stage in Lakes Kissimmee, Hatchineha and Cypress 1.5′ to 54.0′ NGVD. This project is completed.

Cost: Project size is 38,591 acres of which 35,416 has been acquired for a cost of $86,156,014.
Land Acquisition: 3,175 acres remaining to be acquired.

Project Schedule:
Start Date: 1990
Finish Date: TBD

Detailed Project Budget Information ($1000s)

	Thru 2015	Balance to complete	Total*
Federal			
State**	86,156.014		TBD
Tribal			
Local			
Other			
Total	86,156.014		**TBD**

**The total includes Kissimmee River Restoration Project Lands.*
***State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Additional information available at www.sfwmd.gov under the heading "Major Projects"
Contact: Wanda Caffie-Simpson, wsimpso@sfwmd.gov

Program Name: Land Acquisition
Project name: **Lake Wales Ridge Ecosystem/ Henscratch Ranch****
Project ID: 2129
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 14,310 Acres acquired

Project Synopsis: The proposed refuge was authorized in November 1992 and would comprise 16,096 acres in Osceola and Polk Counties. The area forms the headwaters boundary between the Kissimmee River basin and the Peace River basin. It is the oldest terrestrial ecosystem in the southeast region of the US, and is probably the most threatened ecosystem in South Florida due to citrus conversion, residential housing construction, and commercial development. It supports 24 species of endangered, threatened, and candidate plant species as well as four threatened or endangered animal species.

Cost: Project size 14,310 acres. 10,555 acres acquired at a cost of $32,786,399.
Land Acquisition: 3,755 acres remaining to be acquired.

Project Schedule:
Start Date: 1992
Finish Date: Upon completion

Detailed Project Budget Information ($1000)

	Thru 2015	**Balance to complete**	**Total**
Federal	7,120		
State*	25,666.399		
Tribal			
Local			
Other			
Total	**32,786.399**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*
***The SFWMD Henscratch Ranch project falls within the boundary of the Lake Wales Ridge project. Acres acquired and dollars spent are included in the reported Lake Wales Ridge numbers.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Loxahatchee Slough Land Acquisition**
Project ID: 2132
Lead Agency: South Florida Water Management District/Palm Beach County
Authority: Florida Forever/Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 13,099 Acres

Project Synopsis: The Loxahatchee Slough Project is located in Palm Beach County and covers approximately 13,099 acres. It contains a mixture of habitat types, including pine flatwoods, cypress forest, and wet prairie. The present land use is native range. These lands are adjacent to the Loxahatchee Slough Corridor, an area that has been pledged for protection by the current landowner. Palm Beach County will lead the land management effort for this project and holds title to land.

The purpose of this project is to provide additional wetland and upland buffer to the Loxahatchee Slough Corridor and to preserve critical foraging and nesting sites for wildlife in an area that is undergoing rapid urban development. This system is important for storing surface water runoff and providing groundwater base flow to Canal 18 and the Loxahatchee River. The slough, which is the initial headwaters of the Loxahatchee River, can also spill over to the south and contribute to the Everglades watershed under certain hydrologic conditions.

Cost: Project size is 13,099 acres. 12,984 acres acquired for $74,447,218.
Land Acquisition: 115 acres remaining to be acquired.

Project Schedule:
Start Date: 1996
Finish Date: Upon Completion

Detailed Project Budget Information ($1000)

	Thru 2015	Balance to complete	Total
Federal			
State*	45,283.100		
Tribal			
Local	29,164.118		
Other			
Total	**74,447.218**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Additional information available at www.sfwmd.gov under the heading "Major Projects"
Contact: Wanda Caffie-Simpson, wsimpso@sfwmd.gov

Program Name: Land Acquisition
Project name: **Miami Dade County Archipelago**
Project ID: 2134
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 884 Acres acquired

Project Synopsis: This project includes 884 acres in Miami-Dade County and contains some of the most outstanding examples of rockland hammock that remain in Miami-Dade County, as well as the best remaining examples of the highly endangered pine rockland natural community outside of Everglades National Park. The Miami Rockridge Pinelands sites located within the County's urban development boundary are considered upland and developable. All sites are zoned residential, agricultural, or general use. The trees and endemics are also sensitive to adjacent development and agricultural activities.

Cost: Project size 884 acres. 535 acres have been acquired at a cost of $23,717,314.
Land Acquisition: 349 acres remaining to be acquired

Project Schedule:
Start Date: 1994
Finish Date: Upon completion

Detailed Project Budget Information (1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal			
State*	11,717.314		
Tribal			
Local	12,000		
Other			
Total	**23,717.314**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Model Lands Basin Acquisition**
Project ID: 2135
Lead Agency: South Florida Water Management District and Miami-Dade County
Authority: Florida Forever/Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: **Primary**: 2.A.1

Measurable Output(s): Target 54,458 acres

Project Synopsis: The Model Lands project is located in Miami-Dade County and encompasses the lands between US 1 and Biscayne National Park. The project area of 54,458 acres includes a variety of habitats, both freshwater and estuarine. Lands within the project were identified in the Restudy as necessary for treatment of stormwater from the north and L-31E Canal prior to releasing it to tide or into other project lands to the south. Most of the project lands will be included in the Biscayne Bay Coastal Wetland and C-111 North Spreader Canal, CERP projects. The SFWMD and Miami-Dade County partner in the acquisition and management of lands for the project. The northern portions of the project and the areas near canals, roads, and other areas of disturbance are heavily infested with Australian Pine and Brazilian Pepper. The majority of the project area is undisturbed fresh and saltwater wetlands. These lands form a contiguous habitat corridor with Everglades National Park, Southern Glades SOR project, Biscayne National Park, Crocodile Lakes National Wildlife Refuge, and John Pennekamp State Park.

Cost: Project size is 54,458 acres. 16,892 acres acquired at a cost of $43,854,181.
Land Acquisition: 37,566 acres remaining to be acquired.

Project Schedule:
Start Date: 1994
Finish Date: TBD

Detailed Project Budget Information ($1000)

	Thru 2015	Balance to complete	Total
Federal			
State*	9,217.4		
Tribal			
Local	34,636.781		
Other			
Total	**43,854.181**	**TBD**	**TBD**
Adjusted Total	**0**		

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*
** A portion of the acres and costs on this project overlaps with Project ID 1416 and 2310. The adjusted total compensates for this overlap by allocating the appropriate costs to this project.

Additional information available at www.sfwmd.gov under the heading "Major Projects"
Contact: Wanda Caffie-Simpson, wsimpso@sfwmd.gov

Program Name: Land Acquisition
Project Name: **North Fork St. Lucie River**
Project ID: 2138
Lead Agency: Florida Department of Environmental Protection/South Florida Water Mgmt District
Authority: Florida Forever/Save Our Rivers (SOR)/CERP

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 3,714 Acres Acquired

Project Synopsis: This 3,714 acre project includes a stretch of the North Fork approximately 6 miles long, extending from the White City bridge to Canal 24. This project will extend the boundary of the existing publicly owned St. Lucie River Aquatic preserve. More than 80 percent of the project area is comprised of wetlands within the river floodplain. In addition to the river floodplain, this project includes 175 acres of high quality uplands habitat such as high hammock, pine flatwoods, and sand pine scrub.

The purpose of this project is to preserve the floodplain habitat and to protect the water quality of the St. Lucie River from the rapidly encroaching urban development. Floodplain wetlands help decrease current velocities in the river, thereby attenuating flood waters. This action also facilitates recharge of the surficial aquifer and filters out nutrients, pollutants and suspended solids. This stretch of the river is classified as an Outstanding Florida Water. Boating, fishing and canoeing are actively pursued on this part of the river.

Cost: Project size 3,714 acres. 1,784 acres have been acquired at a cost of $5,567,581.
Land Acquisition: 1,930 acres remaining to be acquired

Project Schedule:
Start Date: 1988
Finish Date: Upon completion

Detailed Project Budget Information ($1000s)

	Thru 2015	Balance to complete	Total
Federal			
State*	4,471.692		
Tribal			
Local	1,095.889		
Other			
Total	**5,567.581**	**TBD**	**TBD**

*State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Hyperlink: http://www.dep.state.fl.us/stland/oes/carlmain.htm

Program Name: Land Acquisition
Project Name: **North Key Largo Hammocks**
Project ID: 2139
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 5,415 Acres acquired

Project Synopsis: The hammocks of north Key Largo form the largest stand of West Indian tropical forest in the United States. This rapidly disappearing forest, which is called Rockland forest, supports a wide diversity of rare plant and animal species. Degraded water quality is becoming an increasing issue in Florida Bay and the Florida Keys, as natural lands are converted to residential housing and commercial development. The project area has over 10 miles of shoreline that directly influences the adjacent waters of John Pennekamp Coral Reef State Park. As in other parts of the Keys, development seriously threatens this area.

Cost: Project size 5,415 acres. 3,576 acres have been acquired at a cost of $84,087,154.
Land Acquisition: 1,839 acres to be acquired

Project Schedule:
Start Date: 1983
Finish Date: Upon completion

Detailed Project Budget Information (1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal			
State*	84,087.154		
Tribal			
Local			
Other			
Total	**84,087.154**		**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Hyperlink: http://www.dep.state.fl.us/stland/oes/carlmain.htm

Program Name: Land Acquisition
Project Name: **Okaloacoochee Slough**
Project ID: 2141
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 35,201 Acres

Project Synopsis: This site contains more than 35,201 acres in Hendry and Collier Counties. It is a major tributary to Fakahatchee Strand and Big Cypress National Preserve. It is dominated by a central slough, consisting of sawgrass marshes and wet prairies, with fringes of live oak/cabbage palm hydric hammocks. Most of the pines have been logged, but otherwise the site is pristine. Okaloacoochee Slough is critical habitat for the Florida panther.

Some exotic treatment is needed to control minor infestations of Brazilian pepper and melaleuca. Hydrologically, the property remains undisturbed.

Cost: Project size is 35,201 acres. 34,985 acres have been acquired at a cost of $20,570,673.
Land Acquisition: 216 acres remaining to be acquired.

Project Schedule:
Start Date: 1996
Finish Date: Upon completion

Detailed Project Budget Information ($1000s)

	Thru 2015	Balance to complete	Total
Federal			
State*	20,570.673		
Tribal			
Local			
Other			
Total	**20,570.673**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Okeechobee Battlefield**
Project ID: 2142
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 211 Acres acquired

Project Synopsis: The Okeechobee Battlefield project represents a portion of one of the last battles of the Second Seminole Indian war. The 211-acre project consists of improved pasture and freshwater marsh, and provides the backdrop for a yearly reenactment of the battle. The site is home to bald eagles, and offers potential habitat for the crested caracara and wood stork. The evaluation team visited the project on September 24, 2001.

The project is situated adjacent to U.S. Highway 441/98 along the northeastern rim of Lake Okeechobee, approximately five miles southeast of the town of Okeechobee in southern Okeechobee County. There are no adjacent or close by conservation lands in the FNAI database, however South Florida Water Management District lands Paradise Run and Kissimmee River are approximately 8 and 12 miles to the west, respectively. St. Lucie County's Bluefield Ranch and St. Lucie Pinelands are approximately 8.5 miles to the east, and 12 miles to the northeast, respectively.

Cost: Project size is 211 acres. 145 acres have been acquired at a cost of $3,217,250
Land Acquisition: 66 acres remaining to be acquired.

Project Schedule:
Start Date: 2001
Finish Date: Upon completion

Detailed Project Budget Information ($1000)

	Thru 2015	Balance to complete	Total
Federal			
State*	3,217.250		
Total	**3,217.250**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project name: **Osceola Pine Savannas**
Project ID: 2143
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 6,357 Acres acquired

Project Synopsis: The project covers an area of old beach ridges and intervening swales, with high-quality, longleaf pine flatwoods interrupted by cypress strands, cypress domes, and wet prairies. There are also extensive dry prairies and patches of oak or sand pine scrub, all of which are natural communities of the Kissimmee Prairie. Six FNAI-listed animals occur on the site, including sandhill crane, wood storks, and crested caracara.

Cost: Project size 6,357** acres. 1,333 acres have been acquired at a cost of $310,000
Land Acquisition: 5,024 acres remaining to be acquired.

Project Schedule:
Start Date: 1995
Finish Date: Upon completion

Detailed Project Budget Information ($1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal			
State*	310		
Tribal			
Local			
Other			
Total	**310**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*
***This project is not entirely within SFWMD; the numbers here are that portion of the project within the SFWMD. Expenditures are pro-rated for that portion of the project.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Pal-Mar**
Project ID: 2144
Lead Agency: Florida Department of Environmental Protection/South Florida Water Management District
Authority: Florida Forever/Save Our Rivers (SOR)/CERP

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 39,146 Acres Acquired

Project Synopsis: Pal-Mar is located in Palm Beach and Martin Counties, east of the J.W. Corbett Wildlife Management Area and west of Jonathan Dickinson State Park. The total project encompasses 35,760 acres, including some of the highest quality pine flatwoods in southern Florida in an ecotone between pine flatwoods and the treeless Everglades. It also includes high quality prairie and savanna habitat.

The primary purpose of this project is to conserve and protect environmentally unique lands that contain native, relatively unaltered flora and fauna. Acquisition of this project will form an extensive wildlife corridor connecting Jonathan Dickinson State Park, Pal-Mar, J.W. Corbett Wildlife Management Area, and DuPuis Reserve. By protecting native flatwoods, prairies, and marshes, this project will protect critical habitat for at least four endangered bird species, including the Florida sandhill crane and Everglades snail kite, and for the endangered Florida panther.

Cost: Total: Project size 39,146 acres. 28,666 acres have been acquired at a cost of $116,423,500.
Project Development
Land Acquisition: 10,480 acres remaining to be acquired
Implementation
Operations and Maintenance

Project Schedule:
Start Date: 1992
Finish Date: Upon completion

Detailed Project Budget Information ($1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal	3,650.931		
State*	85,112.151		
Tribal			
Local	27,660.418		
Other			
Total	116,423.500		**TBD**
Adjusted Total	82,240.259		

*State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.
** A portion of the acres and costs on this project overlaps with Project ID 1101 in Goal 1. The adjusted total compensates for this overlap by allocating the appropriate costs to this project.

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project name: **Panther Glades**
Project ID: 2145
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 60,007 acres acquired

Project Synopsis: The area consists of a landscape mosaic of forested uplands interspersed among forested wetland communities. The ecosystem encompassed by the project is a large landscape and watershed in south-central Hendry County that includes portions of both the Big Cypress and Kissimmee Billy Strand. The Panther Glades project is important to many wildlife species, particularly those that require extensive areas of habitat to maintain viable populations.

Cost: Total: Project size 60,007. 21,724 acres have been acquired at a cost of $75,049,836.
Land Acquisition: 38,283 acres remaining to be acquired

Project Schedule:
Start Date: 2001
Finish Date: Upon completion

Detailed Project Budget Information ($1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal			
State*	75,049.836		
Tribal			
Local			
Other			
Total	**75,049.836**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Paradise Run Land Acquisition**
Project ID: 2146
Lead Agency: South Florida Water Management District
Authority: Florida Forever/Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 3,841 Acres

Project Synopsis: This acre project lies west of canal C-38, between Water Control Structure S-65E and Lake Okeechobee in Glades and Okeechobee Counties. Current land use is predominantly improved pasture and cattle grazing but agricultural activities in the area are intensifying as exemplified by new, nearby row crops (potatoes), sod extraction, and citrus. The remnant river run and adjacent wetlands remain largely intact but have no continuous water flow; hence water quality (especially dissolved oxygen) has become poor and organics have accumulated deeply in the remnant river run. This area consistently has greater wading bird and waterfowl use than most any area of the Kissimmee River. Its close proximity to Lake Okeechobee puts it in foraging flight distance of the large wading bird rookeries. Restoration would be fairly simple because the remnant river run and wetlands are largely intact, and water could gravity flow from Pool E (elevation 21 feet msl) one-half mile to Paradise Run (elevation 16 feet msl). The C-38 canal would be bypassed.

Cost: Project size 3,841 acres. 3,447 acres have been acquired at a cost of $4,908,582.
Land Acquisition: 395 acres remaining to be acquired

Project Schedule:
Start Date: 1998
Finish Date: TBD

Detailed Project Budget Information (1000s)

	Thru 2015	Balance to complete	Total
Federal			
State*	$4,908.582		
Tribal			
Local			
Other			
Total	**$4,908.582**		**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Additional information available at www.sfwmd.gov under the heading "Major Projects"
Contact: Wanda Caffie-Simpson, wsimpso@sfwmd.gov

Program Name: Restoration Program: Hydrological Restoration, Habitat and Species
Project Name: **Lake Marion Creek and Reedy Creek/Lake Hatchineha Watershed**
Project ID: 2147
Lead Agency: Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 43,322 Acres

Project Synopsis: This 43,322-acre project is located at the headwaters of the Kissimmee-Okeechobee-Everglades ecosystem in Polk and Osceola Counties. The project area includes a substantial portion of Reedy Creek and Lake Marion Creek drainage basins. The land contains large expanses of endangered scrub, mesic and wet flatwoods, hydric hammock, and floodplain forest, including habitat for several threatened and endangered plants and animals. The SFWMD in partnership with Polk County has acquired 12,915 acres. SFWMD is the lead land manager.

The primary purpose of this project is to preserve this watershed which is a critical link in the restoration of the Kissimmee-Lake Okeechobee-Everglades ecosystem. Reedy Creek is the headwater drainage for Lake Russel and Cypress Lake. Peak Discharges from major storm events are modified and stored within the swamp and provide year-round base flow to these downstream lakes. The Lake Marion Creek portion of the project is of critical importance to the recharge of the Floridan Aquifer. Lake Marion serves as the headwaters to lake Marion Creek, which combines with Snell and Horse Creeks to provide a constant supply of high-quality water to Lake Hatchineha, which in turn discharges to Lake Kissimmee, and eventually the Kissimmee River and Lake Okeechobee. All three of these water bodies are primary components of the SFWMD's water management system.

Cost: Total: Project size 43,322 acres of which 12,907 have been acquired for $12,339,666.
Land Acquisition: 30,415 acres remaining to be acquired.

Project Schedule:
Start Date: 1996
Finish Date: Upon completion

Detailed Project Budget Information ($1000s)

	Thru 2015	Balance to Complete	Total
Federal			
State	11,503.617		
Tribal			
Local	836.049		
Other			
Total	**12,339.666**	**TBD**	**TBD**

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Restoration Program: Hydrological Restoration, Water Quality, Habitat and Species,
Project Name: **Pine Island Slough Ecosystem**
Project ID: 2186
Lead Agency: Department of Environmental Protection/South Florida Water Management District
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 21,583 Acres

Project Synopsis: The Pine Island Slough Ecosystem project consists of approximately 49,583 acres in Osceola and Indian River Counties, Florida. About 21,583 acres are within the South Florida Ecosystem boundary. This landscape - intact ecological upland and wetland habitat - is reminiscent of the kind of landscape that once dominated Central Florida in pre-European settlement times. It is contiguous with the Kissimmee Prairie Preserve State Park, which is noted for its high quality resource values, and the project's acquisition would allow for the protection of and management of additional high ecological quality habitats in an area of Florida with significant vertebrate wildlife, hydrological values and other important natural resource attributes.

Cost: Total: Project size 21,583*.
Land Acquisition: 21,583 acres remain to be acquired.

Project Schedule:
Start Date: TBD
Finish Date: TBD

Detailed Project Budget Information (1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal			
State	0		
Tribal			
Local			
Total	**0**	**TBD**	**TBD**

**This project is not entirely within SFWMD; the numbers here are that portion of the project within the SFWMD. Expenditures are pro-rated for that portion of the project.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project name: **Pineland Site Complex**
Project ID: 2148
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 206 Acres acquired

Project Synopsis: This internationally significant archaeological site was inhabited by the Calusa for over a thousand years, and includes substantial midden mounds, a burial mound, remnants of an Indian-engineered canal, and buried deposits containing organic remains. Natural habitats within the project area include tidal saltern, a tidal creek, intertidal shoreline, and a large tract of mangrove wetland. Ponds on the site are important to white ibis, egrets, herons, and wood stork.

Cost: Project size 206 acres. 57 acres have been acquired at a cost of $1,751,874.
Land Acquisition: 149 acres to be acquired

Project Schedule:
Start Date: 1996
Finish Date: Upon completion

Detailed Project Budget Information (1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal			
State*	1,355		
Tribal			
Local	396.874		
Other			
Total	**1,751.874**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Ranch Reserve**
Project ID: 2178
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 2,217Acres acquired

Project Synopsis: The project consists of four cattle ranches on the Osceola Plain west of and above the St. Johns River marshes. Mesic flatwoods interrupted by depression marshes cover about 40 percent of the project area. Swamps and hammocks make up much of the remaining natural communities. At least 24 FNAI-listed animals are known or reported from the project, including red-cockaded woodpeckers and one of the best populations of sandhill cranes in Florida.

Cost: Project size: 2,217** acres. 67 acres have been acquired at a cost of $39,286
Land Acquisition: 2,150 acres remaining to be acquired

Project Schedule:
Start Date: 1997
Finish Date: TBD

Detailed Project Budget Information ($1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal			
State*	39.286		
Tribal			
Local			
Other			
Total	**39.286**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*
***This project is not entirely within SFWMD; the numbers here are that portion of the project within the SFWMD. Expenditures are pro-rated for that portion of the project.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project name: **Rookery Bay**
Project ID: 2149
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2 - Restore and Enhance the Natural System

Measurable Output(s): 18,721 acres acquired

Project Synopsis: This project consists of 18,721 acres in Collier County and provides an outstanding example of a subtropical estuarine system. Its mangroves shelter important nesting colonies of water birds, and feed and protect many aquatic animals, which are the foundation of a commercial and sport fishery. The natural communities associated with the estuary are relatively undisturbed and range from mangrove and marsh to flatwoods and maritime hammock. As part of the national estuarine research reserve system, Rookery Bay is representative of the West Indian biogeographic type. The area is believed to have good potential for archaeological investigations. The area is threatened by dredging and filling associated with the rapid development of the area.

Cost: Project size 18,721 acres. 18,644 acres have been acquired at a cost of $49,583,833.
Land Acquisition: 85 acres remaining to be acquired

Project Schedule:
Start Date: 1980
Finish Date: Upon completion

Detailed Project Budget Information (1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal	$3,500		
State*	$46,083.833		
Tribal			
Local			
Other			
Total	**$49,583.833**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project name: **Rotenberger-Holey land Tract**
Project ID: 2150
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 79,170 Acres acquired

Project Synopsis: The Rotenberger/Holey Lands were historically an integral part of the Everglades hydrological system. The natural communities of the project consisted of shallow sawgrass marshes with tree islands interspersed. Much of the area has been disturbed. Restoration of the area is important to the restoration of the water quality and quantity to the Everglades.

Cost: Project size 79,170 acres. 70,833 acres have been acquired at a cost of $20,119,775.
Land Acquisition: 8,337 acres remaining to be acquired

Project Schedule:
Start Date: 1984
Finish Date: Upon completion

Detailed Project Budget Information (1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal			
State*	20,119.775		
Tribal			
Local			
Other			
Total	**20,119.775**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Shingle Creek**
Project ID: 2151
Lead Agency: South Florida Water Management District
Authority: Florida Forever/Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 7,704Acres

Project Synopsis: Shingle Creek Swamp is located in southern Orange and northern Osceola counties. It is a major receiving body for stormwater runoff from areas south and southwest of Orlando. The Orange County portion of the swamp is more than 1.5 miles wide, and is dominated by Cypress, Loblolly Bay, and Red Maple. Shingle Creek itself was channelized in the 1920s and it borders the eastern edge of the swamp. Most to the floodplain in Osceola County is intact, but adjacent uplands, which historically were wiregrass/longleaf pine-dominated systems, have been cleared and planted as improved pasture. As mitigation for the Orlando Beltway Southern Connector, a hydrologic restoration plan was implemented in 1995, which equalizes water levels and sheetflow across the Orange County portion of Shingle Creek Swamp. Osceola County in partnership with SFWMD has acquired an additional 194 acres within the project, granting the District a conservation easement for funding $2,666,174 of the land acquisition cost.

Cost: Project size 7,704. 2,699 acres have been acquired at a cost of $4,365,170.
Land Acquisition: 5,005 acres remaining to be acquired

Project Schedule:
Start Date: 1987
Finish Date: Upon completion

Detailed Project Budget Information ($1000)

	Thru 2015	Balance to Complete	Total
Federal			
State	4,365.170		
Tribal			
Local			
Total	4,365.170	**TBD**	**TBD**

Additional information available at www.sfwmd.gov under the heading "Major Projects"
Contact: Wanda Caffie-Simpson, wsimpso@sfwmd.gov

Program Name: Land Acquisition
Project Name: **Six Mile Cypress**
Project ID: 2152
Lead Agency: South Florida Water Management District
Authority: Florida Forever/Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 2,193 Acres

Project Synopsis: Six Mile Cypress Slough is located in Lee County southeast of the City of Fort Myers. It extendgs from State Road 82 southwesterly for approximately nine miles to Ten Mile Canal. The Slough averages 1,500 feet in width, and consists of Cypress swamps, interspersed with numerous open ponds. It is ringed with pine flatwoods, transitional hardwoods, wet prairies, and stands of Melaleuca. The total project size is 1,966 acres.

Cost: Project size 2,193. 854 acres have been acquired at a cost of $36,909,895.
Land Acquisition: 1,339 acres remaining to be acquired

Project Schedule:
Start Date: 1987
Finish Date: Upon completion

Detailed Project Budget Information ($1000)

	Thru 2015	Balance to Complete	Total
Federal			
State*	2,097.521		
Tribal			
Local	34,812.374		
Other			
Total	**36,909.895**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Wanda Caffie-Simpson, wsimpso@sfwmd.gov

Program Name: Land Acquisition
Project Name: **South Savannas**
Project ID: 2154
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 6,046 Acres Acquired

Project Synopsis: The Savannas forms a chain of marshes and lakes that separate the inland pine flatwoods from the coastal scrub on the Atlantic Ridge in St. Lucie and Martin Counties. The State has acquired most of the lands within the project through the CARL program. The District in partnership with Martin County acquired ownership of a single 77-acre tract and transferred title to the property to the State of Florida in 1999. It is now and will continue to be managed by the Department of Environmental Protection as the Savannas Preserve.

Cost: Project size: 6,046 acres which 5,182 acres have been acquired at a cost of $20,902,290.
Land Acquisition: 864 acres remaining to be acquired.

Project Schedule:
Start Date: 1981
Finish Date: Upon completion

Detailed Project Budget Information ($1000s)

	Thru 2015	Balance to Complete	Total
Federal			
State*	19,902.290		
Tribal			
Local	1,000		
Other			
Total	**20,902.290**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Southern Glades – Natural Lands**
Project ID: 2155
Lead Agency: South Florida Water Management District and Miami-Dade County
Authority: Florida Forever/Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: **Primary:** 2.A.1

Measurable Output(s): Target 34,093 Acres

Project Synopsis: This 34,093-acre project is located adjacent to the C-111 Canal, between U.S. 1 and Everglades National Park. The project land is dominated by Everglades sawgrass marsh and tropical hardwood hammock. Land management will be carried out by the SFWMD and Fish and Wildlife Conservation Commission and the land is currently open for public use. This land is needed for the C-111 Canal project and C-111 Spreader Canal CERP project. These projects will benefit the flow of water into Everglades National Park and Northeast Florida Bay.

The project acres under the Florida Forever/SOR program are directed toward the purchase of natural lands acquired for their conservation, preservation value --high quality flood plains, wetlands and uplands that continue providing recreation, water resource protection, and wildlife habitat for future generations. Acres used or to be used for construction of facilities, such as STAs, reservoirs, and impoundments for Critical Restoration Projects (CRP) and Comprehensive Everglades Restoration Plan (CERP) initiatives have been removed from the Natural Lands project boundary.

Cost: Project size: 34,093 acres. 31,842 acres have been acquired at a cost of $15,285,127.
Land Acquisition: 2,251 acres remaining to be acquired

Project Schedule:
Start Date: 1964
Finish Date: Upon completion

Detailed Project Budget Information ($1000)

	Thru 2015	Balance to complete	Total
Federal			
State*	12,662.332		
Tribal			
Local	2,622.795		
Other			
Total	**15,285.127**	**TBD**	**TBD**
Adjusted Total	**5,046**		

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*
** A portion of the acres and costs on this project overlaps with Project ID 2310. The adjusted total compensates for this overlap by allocating the appropriate costs to this project.

Additional information available at www.sfwmd.gov under the heading "Major Projects"
Contact: Wanda Caffie-Simpson, wsimpso@sfwmd.gov

Program Name: Land Acquisition
Project name: **Southern Golden Gate Estates (Save Our Everglades)- Picayune Strand**
Project ID: 2156
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 55,051 Acres acquired

Project Synopsis: The Southern Golden Gate Estates (SGGE) encompasses an approximately 94 square mile area of sensitive environmental landscape in South Central Collier County. It is an important surface water storage and aquifer recharge area with a unique ecology of cypress, wet and dry prairie, pine flatwoods and hardwood hammock swamp communities; and includes three flowways that contribute freshwater input to the Ten Thousand Island estuary of the western Everglades watershed. The area supports a diversity of wildlife, including at least a dozen endangered and threatened vertebrates as well as a large variety of rare orchids and other air plants. The area is linked hydrologically to the Everglades ecosystem and contains remnants of two large cypress strands, the Lucky Lake and Picayune Strands. The rapid urbanization of southwest Florida is posing a continuous and increasing threat to the wildlife habitat and maintenance of water quality within SGGE. Acquisition of lands within SGGE will preserve large pieces of the South Florida ecosystem. Ultimately, this will contribute to the formation of a continuous public conservation area extending across South Florida from the Gulf Coast to approximately 10 miles from the Atlantic Ocean, protecting the Everglades ecosystem from the encroachment of residential, commercial, and industrial developments.

Cost: Project size 55,051 acres. All acres have been acquired at a cost of $136,706,195
Land Acquisition**: Completed**.

Project Schedule:
Start Date: 1984
Finish Date: Upon completion

Detailed Project Budget Information (1000s)

	Thru 2015	**Balance to complete**	**Total**
Federal	38,084.965		
State*	98,621.230		
Tribal			
Local			
Other			
Total	136,706.195		**TBD**
Adjusted Total	0		

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*
** A portion of the acres and costs on this project overlaps with Project ID 2307. The adjusted total compensates for this overlap by allocating the appropriate costs to this project.

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Ten Mile Creek-Natural Lands**
Project ID: 2180
Lead Agency: Department of Environmental Protection/South Florida Water Mgmt District
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 240 Acres Acquired

Project Synopsis:
The ten mile creek natural areas are those areas of the 10 Mile Creek project that are outside of the levee footprint of the reservoir. These areas include small pockets of hammock vegetation along 10 Mile Creek, an oxbow island north of the reservoir, and the Gordy Road Recreation Area (managed by St. Lucie County under a 50 year lease) east of the 10 Mile Creek STAs.

Cost: Project size 240. 184 acres have been acquired at a cost of $2,042,586.
Land Acquisition: 56 acres remain to be acquired.

Project Schedule:
Start Date: 1998
Finish Date: Upon completion

Detailed Project Budget Information (1000s)

	Thru 2015	Balance to complete	Total
State*	1,792.586		
Local	250		
Federal			
Total	2,042.586	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Tiger Cattle Company Ranch**
Project ID: 2182
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 2,230 Acres

Project Synopsis: The proposal is comprised of two large, impressive, basin marshes (making up approximately 20 percent of the site's landcover), along with scattered depression marshes, dry prairie, mesic flatwoods, and mesic hammock and remnant upland natural communities, imbedded in a matrix of extensive areas of improved pasture (approximately 50 percent). The basin marshes are oriented northsouth through the middle third of the site and most of the remaining natural areas occur adjacent to these marshes. Improved pastures make up most of the eastern and western thirds of the property. A network of relatively shallow ditches/canals and roads have altered hydrology to some extent. Currently, family and friends utilize the land for recreation and wildlife viewing. There is no hunting lease on the property. While the largest marsh and some of the flatwoods have burned recently, prescribed burning apparently is not used on a regular basis.

Acquiring the conservation easement over the Tiger Cattle Company Ranch fulfills Florida Forever goals of increasing the number of acres protected with alternatives to fee-simple acquisition; increasing the number of acres of preserved Strategic Habitat Conservation Areas; creating significant landscape linkages by helping connect the preserved lands of the Kissimmee Prairie Preserve State Park, the Kissimmee-St. Johns River Connector Florida Forever project and the Pine Island Slough Florida Forever project; and protecting 733 acres of surface-water protection.

Cost: Project size 2,230 acres.
Land Acquisition: 2,230 acres remaining to be acquired

Project Schedule:
Start Date: 2009
Finish Date: TBD

Detailed Project Budget Information (1000s)

	Thru 2015	Balance to complete	Total
State*			
Local			
Federal			
Total	**0**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*
Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Restoration Program: Habitat and Species
Project Name: **Triple Diamond**
Project ID: 2186
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever/Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 7,991 Acres

Project Synopsis: The acquisition of this project would preserve significant dry prairie, important in the long-term protection of this endemic natural community and the rare species that it supports, as well as provide recreational and research opportunities. Additionally, preserving this intact and well-managed landscape would for the protection and management of thousands of acres of additional high quality habitats in an area of Florida known for its rare vertebrate wildlife, globally imperiled natural communities, and significant hydro- logical values. This project is bordered on the north by the Kissimmee River Prairie Preserve State Park. Other public lands in the near vicinity include Avon Park Air Force Range, Bombing Range Ridge, and the Kissimmee River to the west and Fort Drum Marsh Conservation Area and Blue Cypress Conservation Area to the east. The Kissimmee-St. Johns River Connector Florida Forever Project is also located within 7 miles to the east of the property. Triple Diamond, along with existing conservation lands, would contribute to a large, contiguous landscape-sized protection area of more than 200,000 acres.

Cost: Project size 7,991 acres.
Land Acquisition: 7,991 acres remaining to be acquired

Project Schedule:
Start Date: 1995
Finish Date: TBD

Detailed Project Budget Information ($1000s)

	Thru 2015	Balance to complete	Total
Federal			
State*			
Tribal			
Local**			
Other			
Total	**0**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*
**Dollars contributed by Polk County

Contact: Wanda Caffie-Simpson, wsimpso@sfwmd.gov

Program Name: Restoration Program: Habitat and Species
Project Name: **Twelve Mile Slough**
Project ID: 2158
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 15,835Acres

Project Synopsis: This site contains 15,835 acres in Hendry County and is tributary to the much larger and regionally significant Okaloacoochee Slough. It contains a mosaic of uplands and wetlands, as well as improved pasture areas which appear to be reverting to native range. Based on a 1993 FGFWFC report, this single-owner tract provides habitat for the endangered Florida panther. Significant restoration on the site is necessary to correct overdrainage of the wetland communities.

Restoration and protection is important because the Twelve Mile Slough is a headwater tributary to Okaloacoochee Slough, which supplies a major source of water for Fakahatchee Strand State Preserve and Big Cypress National Preserve. Surface water storage in the numerous wetlands provides for ground-water recharge of the underlying surficial aquifer and provides surface water supply to the Caloosahatchee River.

Cost: Project size: 15,835 acres. 7,796 acres have been acquired at a cost of $11,000,000
Land Acquisition: 8,039 acres remaining to be acquired

Project Schedule:
Start Date: 1998
Finish Date: TBD

Detailed Project Budget Information ($1000)

	Thru 2015	Balance to complete	Total
Federal			
State*	11,000		
Tribal			
Local			
Other			
Total	**11,000**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Restoration Program: Habitat and Species
Project Name: **Water Conservation Areas 2 and 3**
Project ID: 2160
Lead Agency: South Florida Water Management District
Authority: Florida Forever/Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 709,618 Acres of outstanding fee interests

Project Synopsis: The WCAs encompass approximately 709,618 acres in Broward, Dade, and Palm Beach counties in which the SFWMD holds a combination of fee and easement interests. The SOR project is designed to complete the public acquisition of the outstanding fee interests in the project area. Land management is carried out by the Florida Fish and Wildlife Commission and the U.S. Fish and Wildlife Service, under contract to the SFWMD.

The general purpose of these lands is to store floodwater from developed areas adjacent to the WCAs for later use during the dry season. Releases of water from the WCA's during the dry seasonal and, particularly during drought conditions are considered vital to the maintenance of adequate water levels in the coastal canals, wellfields, and Everglades national Park and for the prevention of saltwater intrusion.

Cost: Project size 709,618 acres*. 688,041 acres have been acquired at a cost of $9,606,104.
Land Acquisition: 21,576 acres remaining to be acquired

Project Schedule:
Start Date: 1948
Finish Date: Upon Completion

Detailed Project Budget Information (1000s)

	Thru 2015	Balance to complete	Total
Federal			
State*	9,606.104		
Tribal			
Local			
Other			
Total	9,606.104	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects. The total project size of the WCA's is 867,000 acres. Which encompasses WCA's 1, 2 and 3. WCA 1 is reported as the State/SFWMD acquired acres under the ARM Loxahatchee National Wildlife Refuge entry.*

Contact: Wanda Caffie-Simpson, wsimpso@sfwmd.gov

Program Name: Land Acquisition
Project Name: **Florida Communities Trust lands, State Park Lands and State Wildlife Mgmt Areas**
Project ID: 2184
Lead Agency: Department of Environmental Protection
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 256,139 Acres Acquired

Project Synopsis: The Florida Communities Trust administers two state land acquisition grant programs that provide funding to local governments and eligible non-profit organizations to acquire parks, open space, greenways and projects supporting Florida's seafood harvesting and aquaculture industries. The source of funding for Florida Communities Trust comes from Florida Forever proceeds. Florida Communities Trust assists communities in strengthening local comprehensive plans through the competitive criteria in two grant programs, the Parks and Open Space Florida Forever Grant Program and the Stan Mayfield Working Waterfronts Florida Forever Grant Program.

The Parks and Open Space Florida Forever grant program assists the Department of Community Affairs in helping communities meet the challenges of growth, supporting viable community development and protecting natural resources and open space. The program receives 21 percent, or $63 million of the total $300 million Florida Forever appropriation.

The creation of the Stan Mayfield Working Waterfronts Florida Forever grant program by the 2008 Florida Legislature acknowledges the importance of the traditional seafood harvesting and aquaculture industries in Florida. The program receives 2.5 percent, or $7.5 million of the total $300 million Florida Forever appropriation.

Florida Communities Trust projects play a significant role in improving the quality of life of Florida's residents. The local and regional parks funded by the Trust's Parks and Open Space grant program also help to promote economic growth and revitalization in local communities through nature based tourism. To learn more about Florida's industries and how Florida Communities Trust fits into the state's economic fabric, please visit the Enterprise Florida website.

Cost: Project size is 256,139 acres. 243,326 acres have been acquired at a cost of $652,835,702
Land Acquisition: 12,813 acres remaining to be acquired.

Detailed Project Budget Information (1000s)

	Thru 2015	Balance to complete	Total
Federal	8,745.402		
State*	357,333.668		
Tribal			
Local	286,756.632		
Other			
Total	**652,835.702**	**TBD**	**TBD**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project name: **A.R. M. Loxahatchee National Wildlife Refuge (includes WCA 1)**
Project Number: 2161
Lead Agency: U.S. Fish and Wildlife Service
Authority: Migratory Bird Conservation Act of 1929

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 147,392 Acres

Project Synopsis: The Arthur R. Marshall Loxahatchee NWR was established in 1951 through an agreement between the South Florida Water Management District and the U.S. Fish and Wildlife Service under the Migratory Bird Conservation Act of 1929. Acquisition is for the purposes of providing buffer to the refuge, Everglades habitats, water recharge and storage, and for habitat protection. Increasing population growth is rapidly changing the landscape, converting farmland to residential neighborhoods. Acquisition support both refuge wildlife management goals as well as CERP restoration goals.

Cost: Total project size 147,392* acres. 143,954 acres have been acquired at a cost of $119,000.
Land Acquisition: 3,438 acres remaining to be acquired.

Project Schedule:
Start Date: 1955
Finish Date: TBD

Detailed Project Budget Information ($1000)

	Thru 2015	Balance to complete	Total
Federal	119,000		
SFWMD			
Total	**119,000**	**30,000**	**30,119**

*The total size of the ARM Loxahatchee NWR is 145,567. 141,324 of these acres are state owned and leased to the USFWS for management. The State owned acres are Water Conservation Area

Contact: Susan C. Trokey, Realty Specialist FWS

Program Name: Land Acquisition
Project name: **Big Cypress National Preserve Addition**
Project ID: 2163
Lead Agency: National Park Service
Authority: Public Law 100-301
Funding Source:

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 146,117 acres

Project Synopsis: On April 29, 1988, Public Law 100-301 established the Big Cypress National Preserve (BCNP) Addition. At that time, I-75 was being designed in such a way as to improve the natural water flow to Everglades National Park, which had been disrupted by State Road 84 (commonly known as Alligator Alley). This provided an opportunity to enhance protection of Everglades National Park, to promote protection of the endangered Florida panther, and to provide for public recreational use and enjoyment of public lands by expanding the BCNP to include those lands adjacent to Interstate 75 in Collier County north and east of the Preserve, west of the Broward County line, and south of the Hendry County line.
The purpose of the Federal acquisition is to provide significant public benefits by limiting development pressures on lands which are important both in terms of fish and wildlife habitat supporting endangered species and of wetlands which are the headwaters of the Preserve. Additionally public ownership of the lands adjacent to the Preserve would enhance the protection of the Everglades National Park while providing recreational opportunities and other public uses currently offered by the Big Cypress.
The Act provided for expansion of the Big Cypress by 146,117 acres, of which approximately 32,557 acres have been acquired by the State of Florida. The authorizing legislation allows the Secretary of the Interior to purchase lands within the preserve boundaries and stipulates that no improved property, as defined by the Act, nor oil and gas rights, shall be acquired without the consent of the owner, unless that property is subject to, or threatened with, uses which are, or would be, detrimental to the purposes of the Preserve. The NPS will acquire the remaining private lands, excluding qualifying exempt property, using fair market value appraisals, consistent with the enabling Act.

Cost: Project size 146,117 acres. 144,461 acres have been acquired at a cost of $75,206,737.
Land Acquisition: 1,656 acres remaining to be acquired.

Project Schedule:
Start Date: 1989
Finish Date: TBD

Detailed Project Budget Information ($1000)

	Thru 2015	Balance to complete	Total
Federal	51,820		
State*	23,386.737		
Total	**75,206.737**	**2,507**	**77,713.737**

All acquisitions will be consistent with authorizing Big Cypress Legislation.
*State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.
**State acres are Florida's donation to Federal Government.

Hyperlink: N/A
Contact: Brian Coleman

Program Name: Land Acquisition
Project Name: **Big Cypress National Preserve**
Project ID: 2164
Lead Agency: National Park Service
Authority: Public Law 93-440

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 826 acres

Project Synopsis: On October 11, 1974, Public Law 93-440 established the Big Cypress National Preserve in order to assure the preservation, conservation, and protection of the natural, scenic, hydrologic, floral and faunal, and recreational values of the Big Cypress Watershed. The total size of the original Preserve is 574,449 acres. The State of Florida donated 186,340 acres to establish the Big Cypress. The Federal government has acquired all but 845 acres of the remaining 388,109 acres in the original Preserve boundaries. The authorizing legislation allows the Secretary of the Interior to purchase lands within the Preserve boundaries and stipulates that no improved property, as defined in the Act, nor oil and gas rights, shall be acquired without the consent of the owner, unless that property is subject to, or threatened with, uses which are, or would be, detrimental to the purposes of the Preserve.

The 179 privately owned tracts are scattered throughout the Preserve. The National Park Service will acquire those tracts, excluding qualifying exempt property, using fair market value appraisals consistent with the Act.

Cost: Project size 574,449 acres. 573,623 acres have been acquired at a cost of $222,155,000
Land Acquisition: 826 acres remaining to be acquired.

Project Schedule:
Start Date: 1974
Finish Date: TBD

Detailed Project Budget Information ($1000)

	Thru 2015	Balance to complete	Total
Federal	180,622		
State*	41,533		
Total	**222,155**	**21,877**	**244,000**

All Acquisitions will be consistent with authorizing Big Cypress Legislation.
*State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.
**State acres are Florida's donation to Federal Government.

Hyperlink: N/A
Contact: Brian Coleman

Program Name: Land Acquisition
Project Name: **Biscayne National Park**
Project ID: 2165
Lead Agency: National Park Service
Authority: Public Law 96-287
Funding Source:

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 172,971 acres

Project Synopsis: This project includes acquisition of three Ragged Keys (326 acres), one tract of submerged lands only (20 acres) and two on-shore tracts (36 acres) in Biscayne National Park. The Ragged Keys are five islands immediately adjacent to the most popular use area in the park, Boca Chita Key. Two islands were acquired through 1999. Two of the three islands remaining to be acquired are natural habitat on the islands and in the surrounding shallows. Least terns nest on land and endangered sea turtles nest on the shoreline. Both nesting sites are greatly disturbed by overflow public use of the area and developers for resort and recreational facilities have repeatedly targeted the islands. A total of 382 acres remains to be acquired.

Cost: **P**roject size 172,971 acres. 170,977 acres have been acquired at a cost of $31,851,000.
Land Acquisition: 1,994 acres remaining to be acquired

Project Schedule:
Start Date: 1968
Finish Date: Open

Detailed Project Budget Information ($1000)

	Thru 2015	**Balance to complete**	**Total**
Federal	31,851		
SFWMD			
Total	**31,851**	**1,848**	**33,699**

**State acres are Florida's donation to Federal Government.

Hyperlink: N/A
Contact: Brian Coleman

Program Name: Land Acquisition
Project name: **Crocodile Lake National Wildlife Refuge**
Project Number: 2166
Lead Agency: U.S. Fish and Wildlife Service
Authority: Endangered Species Act of 1973

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 7,100 acres

Project Synopsis: Crocodile Lake National Wildlife Refuge was established on April 2, 1980 to preserve mangrove wetlands, tropical West Indian hardwood hammocks and open water areas on Key Largo, which are critical feeding and nesting habitat for the endangered American crocodile. The Refuge is within the designated Critical Habitat for the species and contains one-third of all crocodile nests found in Florida. The Refuge consists of about 5,300 acres of mangrove swamp, 1,200 acres of upland hardwood hammock, and 300 acres of open water. The uplands are vegetated with the last remaining remnants of unspoiled West Indian Hardwoods in the United States. The Refuge is inhabited by a number of other endangered or threatened species, most notably the eastern indigo snake, the bald eagle, the Key Largo woodrat, the Key Largo cottonmouse, and the Schaus swallowtail butterfly. The major threat to this habitat is conversion of the uplands to residential or commercial developments. The crocodile has little tolerance to human activities. Wetlands areas are less threatened, but severe alteration and damage has occurred.

Cost: **P**roject size 7,100 acres. 6,702 acres have been acquired at a cost of $13,093,000
Land Acquisition 398 acres remaining to be acquired

Project Schedule:
Start Date: 1979
Finish Date: TBD

Detailed Project Budget Information ($1000)

	Thru 2015	**Balance to complete**	**Total**
Federal	13,093		
SFWMD			
Total	13,093	**1,226**	**14,319**

Contact: Susan C. Trokey, Realty Specialist FWS

Program Name: Land Acquisition
Project Name: **Everglades and Dry Tortugas National Parks**
Project ID: 2184
Lead Agency: US Department of the Interior
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 1,464,072 Acres Acquired

Project Synopsis: In 1928 landscape architect Ernest Coe began a concentrated effort to designate a "Tropical Everglades National Park." His persistence paid off when he and others persuaded Congress to designate the Everglades as a national park in 1934. It took park supporters another 13 years to acquire land and secure funding. In 1947, Marjory Stoneman Douglas would publish *The Everglades: River of Grass*, a work that would come to greatly influence the public perception of the oft-misunderstood region. That same year, Everglades National Park officially opened, marking the first large-scale attempt to protect the area's unique biology. Today, the park comprises a vast wetland wilderness unlike any other in the world.

National Park Service conservation of marine resources in south Florida began when Fort Jefferson National Monument was established in 1935 to include the surrounding water, submerged land, and a series of keys. In 1992 it was redesignated Dry Tortugas National Park and its purposes expanded. The park now protects significant nesting areas for seabirds, habitat for endangered and threatened sea turtles, and sensitive portions of the Florida Keys coral reef ecosystem.

The creation of these national park system units has underscored both the need for and the public interest in preserving south Florida ecosystem resources. The presence of numerous national wildlife refuges and marine sanctuaries as well as state, local, and private protected areas are also evidence of this support. Yet, even though much of the region has been set aside, the ecosystem remains threatened. Combating nutrient-rich (nitrate-contaminated) water, interrupted hydrology, decreased water supply, exotic plants, and mercury contamination cannot be done successfully at the park level alone. Instead, combined and integrated efforts at the federal, state, county, and local levels are necessary.

Cost: Project size is 1,464,072. 1,463,737 acres have been acquired at a cost of $24,000,000.
Land Acquisition: 335 acres remaining to be acquired.

Project Schedule:
Start Date: 1947
Finish Date: TBD

Detailed Project Budget Information ($1000)

	Thru 2015	Balance to complete	Total
Federal	22,000		
SFWMD	2,000		
Total	24,000	TBD	TBD

Hyperlink: N/A
Contact: Brian Coleman

Program Name: Land Acquisition
Project Name: **Everglades National Park Expansion**
Project ID: 2167
Lead Agency: National Park Service
Authority: Everglades National Park Protection and Expansion Act of 1989 (Public Law 101-229)
Funding Source:

Strategic Plan Goal(s) Addressed: Primary: 2.A.1

Measurable Output(s): Target 109,504 acres

Project Synopsis: In 1989, Congress authorized the addition to Everglades National Park involving approximately 109,504 acres of an area known as Northeast Shark Slough and the East Everglades. The act also directed the Army Corps of Engineers to modify water management structures to allow the sheetflow of water and extend the hydroperiod to more closely resemble the historic Everglades. The East Everglades Addition is necessary to limit further losses suffered by the Park due to habitat destruction outside former boundaries and to restore natural water-flow patterns that are critical to the ecological integrity and long-term viability of Park resources. The acquisition of the East Everglades Addition lands and completion of the Modified Water Deliveries to Everglades National Park project are the most significant efforts underway to restore water deliveries to Shark Slough, the principal watershed in the Park. These hydrologic improvements are crucial to restoring ecosystem productivity in the southern Everglades and maintaining adequate freshwater inflow to the downstream estuaries along the Gulf of Mexico and Florida Bay.

Cost: **P**roject size 109,504 acres. 108,805 acres have been acquired at a cost of $97,678,000
Land Acquisition: 699 acres remaining to be acquired

Project Schedule:
Start Date: 1990
Finish Date**: TBD**

Detailed Project Budget Information ($1,000)

	Thru 2015	**Balance to complete**	**Total**
Federal	81,406		
State*	16,272		
Total	**97,678**	**12,219**	**109,897**

*State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.
**State acres are Florida's donation to Federal Government.
Hyperlink: N/A
Contact: Brian Coleman

Program Name: Land Acquisition
Project name: **Florida Panther National Wildlife Refuge (includes Ten Thousand Islands refuge)***
Project Number: 2169
Lead Agency: U.S. Fish and Wildlife Service
Authority: Endangered Species Act of 1973 (Florida Panther); P.L. 100-696 (Ten Thousand Islands)

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 61,573 acres

Project Synopsis: The Florida panther is one of the most endangered mammals in the Nation, with less than 80 individuals inhabiting the Big Cypress-Everglades region. The target lands are valuable for flood water retention, water purification, and aquifer recharge, while providing high quality habitat for a wide variety of flora and fauna in addition to the panther. Most of the area is relatively inaccessible and is one the few remaining retreats for the Florida black bear. The area is diverse and interesting botanically containing rare orchids, large oaks, cypress, maples, cabbage palms and a diversity of tropical trees which form a dense canopy. The increasing human population in South Florida with its consequent urban expansion is jeopardizing the area's ecological integrity. Thus essential habitat for the survival of the Florida panther is being threatened by conversion for agricultural projects, residential development, oil field activities, lumbering and road construction. A preliminary project proposal has been developed for expansion of the Florida Panther Refuge. The ecosystem within the target boundary is absolutely essential to the survival of the Florida panther.

Cost: Project size 61,573 acres. 61,563 acres have been acquired at a cost of $10,682,000
Land Acquisition : 10 acres remaining to be acquired.

Project Schedule:
Start Date: 1989
Finish Date: TBD

Detailed Project Budget Information ($1000)

	Thru 2015	Balance to complete	Total
Federal	10,233		
SFWMD	449		
Total	**10,682**	**10**	**10,692**

*Acres and expenditures reported for the Florida Panther NWR also includes parcels acquired in the Cape Romano/Ten Thousand Islands NWR.

Contact: Susan C. Trokey, Realty Specialist FWS

Program Name: Land Acquisition
Project name: **Florida Keys National Wildlife Refuge (includes National Key Deer, Great White Heron, Key West refuges**
Project Number: 2168
Lead Agency: U.S. Fish and Wildlife Service
Authority: Endangered Species Act (Key Deer), Executive Order 7993 (Great White Heron), Executive Order 923 (Key West)

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 415,433 acres*

Project Synopsis: Acquisitions are to protect and maintain habitat extensively used by the endangered key deer. Preservation of the major habitats for this deer through acquisition contributes to the overall faunal diversity of Florida. Negotiations have been successful and with the availability of funding, acquisition of about 500 acres (30 willing sellers) within the refuge boundary would be possible. No Name and Big Pine Keys are the two most extensively used keys in the deer's range. Other rare, endangered and 'special emphasis' species are also found here. The greatest threat to key deer habitat is habitat modifications by land clearing. Residential development is rapidly proceeding as demand increases for the dwindling supply of acreage that will support construction. Unfortunately, this same land is prime deer habitat. An observable consequence of the residential development of these lands is the incidence of deer kills by vehicle traffic. An expansion of the Refuge to acquire a system of no-development corridors assure the continued existence of habitat for deer movement throughout the island.

Cost: Project size 415,433 acres. 410,948 acres have been acquired at a cost of $32,669,000.
Land Acquisition: 4,485 acres remaining to be acquired.

Project Schedule:
Start Date: 1960
Finish Date: TBD

Detailed Project Budget Information ($1000)

	Thru 2015	Balance to complete	Total
Federal	32,669		
SFWMD			
Total	**32,669**	**27,765**	**60,434**

*Acres and expenditures reported for the Florida Keys NWR also includes parcels acquired in the National Key Deer Refuge, Great White Heron NWR and Key West NWR. Ownership of lands in the Key West NWR have never been under private ownership. They have been transferred between federal agencies.

Contact: Susan C. Trokey, Realty Specialist FWS

Program Name: Land Acquisition
Project name: **Hobe Sound National Wildlife Refuge**
Project Number: 2170
Lead Agency: U.S. Fish and Wildlife Service
Authority: Endangered Species Act of 1973

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 1,130 Acres

Project Synopsis: Hobe Sound National Wildlife Refuge was established in 1969 and presently includes 1,027 acres of coastal sand dunes, mangrove and sand pine-scrub habitat. The primary objective of the refuge is to maintain habitat for some of the most productive nesting areas of the endangered leatherback, green and threatened loggerhead sea turtles. Hobe Sound provides habitat and protection to eight plan and animal species listed as federal threatened or endangered. The South Florida Ecosystem Plan highlights the importance of beaches to sea turtles. One of the Plan's objectives is to prevent the further decline of candidate, threatened, and endangered species and prevent further degradation of their habitats. This project is supported by the State and local governments, the public and conservation groups, with no know opposition. There are many willing sellers of high priority habitat. Nonprofit conservation groups are involved in this project.

Cost: Total project size 1,130 acres. 1,035 acres have been acquired at a cost of $135,000
Land Acquisition: 95 acres remaining to be acquired.

Project Schedule:
Start Date: 1968
Finish Date: TBD

Detailed Project Budget Information ($1000)

	Thru 2015	Balance to complete	Total
Federal	135		
SFWMD			
Total	**135**	**5,800**	**5,935**

Contact: Susan C. Trokey, Realty Specialist FWS

Program Name: Land Acquisition
Project name: **J.N. "Ding" Darling National Wildlife Refuge (includes Caloosahatchee, Island Bay, Matlacha Pass & Pine Island refuges**
Project Number: 2171
Lead Agency: U.S. Fish and Wildlife Service
Authority: Migratory Bird Conservation Act; Executive Order 3299; Executive Order 943

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 10,255 acres

Project Synopsis: The J.N. "Ding" Darling National Wildlife Refuge was established in 1945 and is located in Lee County, Florida on Sanibel Island. The island is 12 miles long and is fringed with mangrove trees, shallow bays and white sandy beaches. Tourism and seasonal residential development threatened to envelop the islands private lands until a growth plan was instituted. Caloosahatchee NWR is located in Fort Myers and acquisition of lands here is necessary for the protection of the endangered West Indian Manatee. Island Bay NWR is located in the Cape Haze area of Charlotte County and includes portions of three islands. All wetlands are protected by Federal or State ownership. Matlacha Pass NWR's acquisition boundary includes all islands, wetlands and uplands lying south of the north boundary line of Township 44 South, crossing the Caloosahatchee River and running southerly and easterly to Bunch Beach. Pine Island NWR generally lies between the western boundary of Pine Island and the Coastal Islands of Cayo Costs, North Captiva and Sanibel.

Cost: **P**roject size 10,255 acres*. 7,588 acres have been acquired at a cost of $9,705,000
Land Acquisition: 2,667 acres remaining to be acquired.

Project Schedule:
Start Date: 1945
Finish Date: TBD

Detailed Project Budget Information ($1000)

	Thru 2015	Balance to complete	Total
Federal	9,705		
SFWMD			
Total	**9,705**	**4,100**	**13,805**

*Acres and expenditures reported for the J. N. "Ding" Darling NWR also includes parcels acquired in the Caloosahatchee NWR, Matlacha Pass NWR and Pine Island NWR. Ownership of lands in the Caloosahatchee NWR and Matlacha Pass NWR have never been under private ownership. They have been transferred between federal agencies.

Contact: Susan C. Trokey, Realty Specialist FWS

Program Name: Land Acquisition
Project name: Lake Wales Ridge National Wildlife Refuge
Project Number: 2185
Lead Agency: U.S. Fish and Wildlife Service

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): Target 3,384 acres

Project Synopsis: The Lake Wales Ridge NWR is managed as part of the Pelican Island NWR complex located about 80 miles away. The Refuge was established in 1994 as the first Refuge designated for the recovery of endangered and threatened plants. The Refuge contains 23 listed plants, at least four listed animals, and more than 40 endemic invertebrates. The Refuge is part of a network of scrub preserves owned by the state of Florida, The Nature Conservancy, Archbold Biological Station, two water management districts and Polk and Highland Counties.

The refuge is composed of four tracts within Polk and Highlands Counties. Because of the potential impact to the plants and animals, the refuge has not been opened to the public. However, this Refuge is an exciting place where researchers from Archbold Biological Station have conducted important ecological studies. Per acre, the Refuge has a very high density of listed species. The Snell Creek tract, located within the SFWMD, contains one of the last remaining tracts of undisturbed sandhill in northern Polk County.

Cost: Total project size 3,384 acres. 147 acres have been acquired at a cost of $268,000.
Land Acquisition : 3,237 acres remaining to be acquired.

Project Schedule:
Start Date: 1945
Finish Date: TBD

Detailed Project Budget Information ($1000)

	Thru 2015	Balance to complete	Total
Federal	268		
SFWMD			
Total	**268**	**TBD**	**TBD**

Contact: Susan C. Trokey, Realty Specialist FWS

Program Name: NOAA South Florida Program
Project Name: **South Florida Ecosystem Restoration Planning and Projects**
Project ID: 2200
Lead Agency: NOAA NMFS/SEFSC and OAR/AOML
Authority: Magnuson Stevens Fisheries Wildlife Conservation Act, Marine Mammal Protection Act. NMSA (16 U.S.C. §§ 1431 *et seq*.), FKNMSPA (PL 101-605), and Executive Order 13089 (Coral Reef Protection)
Funding Source: NOAA and USACE

Strategic Plan Goal(s) Addressed: Goal 2, Restore, Preserve, and Protect Natural Habitats and Species, Subgoal, 2A, Restore, Preserve, and Protect Natural Habitats; and 2B, Control Invasive Exotic Plant and Animal Species

Measurable Output(s): NOAA conducts several projects to support the South Florida Ecosystem Restoration. These projects involve (1) collection and analysis of physical, water quality, and biological data as part of the CERP Monitoring and Assessment Plan; (2) development of physical and biological models of Florida Bay to evaluate CERP and climate change scenarios; (3) monitoring and assessment of selected indicator species in the ecosystem, including abundant forage/prey species; important commercial species and coral; (4) determination of estuarine and coastal marine mammal population health and status; (5) development and application of ecological models; (5) documenting potential species introductions to the marine environment through the ornamental species trade and providing expertise to the South Florida Task Force IES Action Framework Team, NISC, GSARP, and other invasive exotics species planning and advisory teams; and (6) analyses of species and community attributes in relation to freshwater inflow and salinity. NOAA scientists and managers are contributing members of multi-agency groups addressing South Florida Ecosystem Restoration issues and opportunities at several levels, including the Task Force, the Working Group, the Science Coordination Group, CERP RECOVER's Leadership Group, RECOVER's Southern Coastal Systems subteam, and the Biscayne Bay Regional Restoration Coordination Team. NOAA publishes its South Florida research results in scientific journals, contributes to the South Florida Ecosystem Restoration Task Force Biennial Assessment Report and RECOVER's System Status Report, and presents scientific findings about South Florida at scientific symposia. NOAA/AOML conducted bi-monthly water quality sampling trips in Florida Bay and Biscayne Bay throughout the year and made special water quality sampling trips in Biscayne Bay between Rickenbacker Causeway and Barnes Sound to characterize an unusual, widespread phytoplankton bloom in the late summer. SEFSC and AOML collaborated with the University of Miami Rosenstiel School of Marine and Atmospheric Science in a modeling project, "Integrated MODels for Evaluating Climate Change, population growth, and water management effects on south Florida coastal marine and estuarine ecosystems", iMODEC), on Florida's southwest coast and Florida Bay.

Project Synopsis: Ongoing program initiated in FY96 including research, monitoring and modeling components as well as a specific Education/Outreach Component. Includes three NOAA line organizations (NOS, NMFS and OAR) as well as Florida Sea Grant.

Current Status: NOAA is conducting monitoring and assessment projects in Florida Bay and Biscayne Bay as part of the Monitoring and Assessment Plan of the Comprehensive Everglades Restoration Project. Biscayne Bay monitoring is collaborative with the National Park Service.

Cost: Total: FY14 $0.307M from SEFSC
$0.107M from AOML
Project Development: $0.240M USACE

Project Schedule:
Start Date: 1997
Finish Date: Ongoing

Detailed Project Budget Information ($1,000s)

	Thru 2008	2009	2010	2011	2012	2013	2014	Balance to complete	Total to Date
Federal (NOAA)	42,121	1,895	1,895	429	412	309	414	ongoing	46,752
State	2,030	285	285					ongoing	2,600
Tribal									0
Local									0
Other (Corps)	5,223	1,540	1,540	1,540	240	240	240	ongoing	10,083
Total	49,374	**3,720**	**3,720**	**1,969**	**652**			**ongoing**	**59,435**

Project sheet updated in 2014
Hyperlink: http://www.mares-eu.org/index.asp

Contact: Joan Browder 305-361-4270; Christopher Kelble 305-361-4330

Project Name: **C&SF: CERP Lakes Park Restoration (OPE)**
Project ID: 2302 (CERP Project WBS # 94)
Lead Agency: USACE / Lee County
Authority: WRDA 2000 *(Programmatic Authority < $25 M)*
Funding Source: Federal/County

Strategic Plan Goal(s) Addressed: 2-A.3

Measurable Output(s): 40-acre marsh flowway, 11 acres of uplands, 9 acres of littoral zone

April 1999 Project Synopsis: Includes the construction of a 40-acre marsh/flow way in an abandoned rock mine, removal of exotic vegetation, and planting native vegetation on 11 acres of uplands and 9 acres of littoral zone. This feature is located in the Lee County Lakes Regional Park, upstream of Estero Bay.

Current Project Synopsis: The purpose of this feature is to enhance surface water runoff quality by creating a meandering flowway with shallow littoral zones to enhance pollution removal and oxygen content, removing aquatic and upland exotic infestation while allowing public access into upland areas of improved native habitat. The restoration will provide immediate habitat and water quality benefits at Lakes Park and improve downstream conditions in Hendry County and the Estero Bay Aquatic Preserve.
The project adheres to the original concept described in the Restudy. In addition, water quality is being impacted by the growing number of birds using the area as a rookery.

Current Status: Federal efforts on this project are being discontinued. The South Florida Water Management District has advised that they will work with the non-federal sponsor (Lee County) to accomplish this project with non-federal resources to expedite design and construction outside of the CERP. Jacksonville District received a letter from Lee County requesting the project "close-out" process begin. Lee County, working with SFWMD, retrofitted two control structures to stop salt water intrusion and constructed detention areas to improve water quality along the eastern edge of the park, upstream of the control structures (Phase I and Phase II). Lee County has moved forward with the design and permitting for an additional treatment area consisting of a 40-acre filter marsh and flowway (Phase III): to address the offsite stormwater issues. Construction of the filter marsh and the flowway is anticipated to begin in FY2011.

Est. Cost: $ 6,567,000

Project Schedule: TBD by Sponsor

Detailed Project Budget Information (rounded):

Lakes Park Restoration	**Obligations Thru FY 2013**
USACE	$660,699
Lee County	$220,233
Total	**$880,932**

Hyperlink: http://141.232.10.32/pm/projects/proj_94_lakes_park.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars. Actual expenditures include all federal expenditures through FY09 (Sept, 2009) and sponsor verified and recorded in kind credit through 4th quarter FY07. Additional information was summarized from the PMP (2005).

Additional Information: Lakes Park is located east of Cape Coral in Lee County, just west of Highway 41. Lee County has developed this area as a regional park with a bathing area along shores of mining pits developed as lakes. The pits capture runoff from the surrounding developed area (commercial, industrial, and residential), and county monitoring has indicated a decline in water quality in the lakes. The lakes are infested with hydrilla, and adjacent uplands and islands are covered with exotic plant species such as Australian pine and Brazilian pepper.

Adjacent to the developed area, the remaining natural habitat contains pine flatwoods with some cypress heads. This project is expected to restore surface water runoff quality by creating a meandering 40-acre flow way with shallow littoral zones and removing aquatic and upland exotic vegetation. The littoral zone will be harvested periodically to remove excess nutrients from the system. Exotic vegetation will be removed and replaced with native vegetation.

LAKES PARK
PRELIMINARY MASTER PLAN
(NORTH AREA: SHEET 4)
WilsonMillerDesign
APRIL 29, 2003

Project Name: **C&SF: CERP Restoration of Pineland and Hardwood Hammocks in C-111 Basin (OPE)**
Project ID: 2303 (CERP Project WBS # 92)
Lead Agency: USACE
Authority: WRDA 2000 *(Programmatic Authority < $25 M)*
Funding Source: Federal/Miami-Dade County

Strategic Plan Goal(s) Addressed: Primary: 2-A.3

Measurable Output(s): 50 acres pine rockland and tropical hardwood hammock improved

April 1999 Project Synopsis: Includes restoring south Florida slash pine and hardwood hammock species on a 200-foot wide strip ion each side of two miles of SR9336 from the C-111 Canal to the L-31W Borrow Canal (approximately 50 acres) and the establishment of 2, one-acre hammocks in low-lying areas on each side of the road located in Miami-Dade County.

Current Project Synopsis: The project is located in south Miami-Dade County, just east of Everglades National Park (ENP), along State Road 9336 in the area known as the Frog Pond. Eighty percent of the Frog Pond was used for agricultural purposes and farmers plowed the cap rock to create soil for tomato farming. The Frog Pond has since been purchased by the SFWMD as part of the C-111 (South Dade) project to restore the Taylor Slough portion of the Everglades. This project will provide some water quality treatment for runoff passing through the hammocks and demonstrate the techniques required to re-establish native conifer and tropical hardwood forests on land that has been rock plowed.

This project adheres to the original concept described in the Restudy.

Current Status: This project has not yet begun and is planned for the future.

Est. Cost: $ 992,430

Project Schedule: TBD

Detailed Project Budget Information (rounded):

Restoration of Pineland and Hardwood	**Obligations Thru FY 2012**
USACE	$0
SFWMD	$0
Total	**$0**

Hyperlink: http://141.232.10.32/pm/projects/proj_92_rest_pineland.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars.

Program Name: Infrastructure
Project Name: **A.R.M. Loxahatchee NWR Prescribed Fire Program**
Project ID: 2304
Lead Agency: USFWS Arthur R. Marshall Loxahatchee National Wildlife Refuge

Strategic Plan Goal(s) Addressed: 2.A.3

Measurable Output(s): Acres of habitat improved including contribution to the reduction of hazardous fuels, with a secondary benefit of invasive exotic plant reduction.

During Fiscal Year 2014 the Arthur R. Marshall Loxahatchee National Wildlife Refuge conducted prescribed fire on 520 acres of the Refuge. Acreages were hampered last FY by water levels on the refuge. Water was too high for the majority of FY14 to successfully implement prescribed fire treatments.

Project Synopsis: Fire is a natural part of the Everglades ecosystem. Fire also can be used to help control exotic species. A prescribe fire program will help to improve habitats by reducing fuel loads and mimicking natural fire frequencies and intensities where appropriate. The overall result will be an improvement in wildlife habitat on the refuge.

Project Status: As of June 1, 2015 we have burned 15,118 acres of FY15's total project goal. The prescribed fire program at the Arthur R. Marshall Loxahatchee National Wildlife Refuge tries to closely replicate the natural fire occurrence pattern at the refuge. This natural pattern is what the plants and animals on the refuge are adapted to and depend on to flourish.

The natural fire season at the refuge is typically from late May through early September, as the rainy season brings lightning to the refuge. Below is a map which outlines areas which will be targeted for prescribed fire during the upcoming burning season.

Expected Accomplishments:

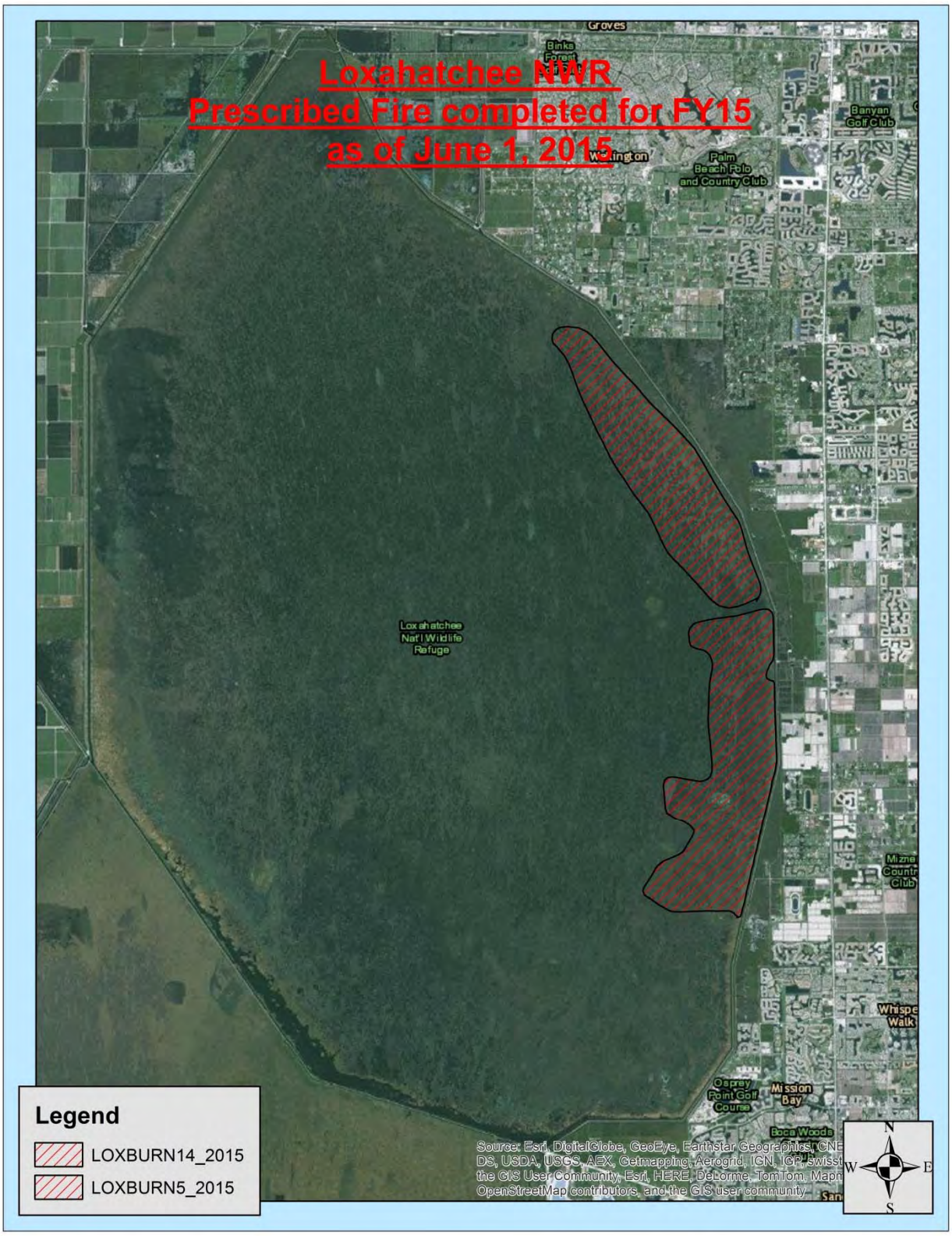
Prescribed burning at the A.R.M. Loxahatchee NWR is expected to be completed for the FY by June 1, 2015. Water levels receded to prescription levels in April and multiple burns were conducted over several days. The refuge is planning an additional 3,000 acres of prescribed burns in 2015.

Project Schedule:
Start Date 2002
Finish Date: recurring

Detailed Project Budget Information (1000s)

	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**Total**
Federal	176	175	170	225	90	90	90	1,106
Total	**176**	**175**	**170**	**225**	**90**	**90**	**90**	**1,106**

Contact: Jon Wallace, Prescribed Fire Specialist, Loxahatchee NWR
Jon_wallace@fws.gov 561-735-6036 (Desk) 208-830-1853 (Cell)


Loxahatchee NWR
Prescribed Fire completed for FY15
as of June 1, 2015
Groves
Binks Forest
Wellington
Palm Beach Polo and Country Club
Banyan Golf Club
Loxahatchee Nat'l Wildlife Refuge
Mizne Countr Club
Whispe Walk
Osprey Point Golf Course
Mission Bay
Boca Woods
Legend
LOXBURN14_2015
LOXBURN5_2015
N
W
E
S

Prescribed fire at Arthur R. Marshall Loxahatchee NWR. Photo by Jon Wallace, FWS.

Aerial view of prescribed fire at Arthur R. Marshall Loxahatchee NWR. Photo by Jon Wallace, FWS.

Program Name: Infrastructure
Project Name: **Loxahatchee Impoundment Landscape Assessment (LILA)**
Project ID: 2305
Lead Agency: SFWMD / USFWS A.R.M. Loxahatchee NWR

Strategic Plan Goal(s) Addressed: 2.A.3

Measurable Output(s): Reports outlining quantitative targets for CERP performance measures.

Project Synopsis: The objective of LILA (Loxahatchee Impoundment Landscape Assessment) is to support CERP by defining hydrologic regimes that sustain a healthy Everglades Ridge and Slough ecosystem and reduce uncertainty in predicting the ecosystem response. LILA will address the effects of water depth, hydro period, and flow rate on wading birds, tree islands, marsh plant communities, marsh fishes and invertebrates, and peat soils. In addition, LILA supports refuge and CERP public outreach by providing opportunities to observe ongoing investigations and results. It will provide educational opportunities through on-site demonstrations, kiosks as well as a forum for discussion of restoration designs.

Project Current Status: In Fiscal year 2015 scientists and engineers associated with the LILA) project completed or continued several important studies including: tree island species survival and growth, tree island carbon budgeting, surface water flow modeling, groundwater-surface water interactions, fish and crayfish behavior in response to hydrology. Many of these studies resulted in manuscripts published in scientific journals and were presented at various conferences including the Organization of Biological Field Stations annual meeting.

Project Schedule:
Start Date: 2002
Finish Date**:** recurring

Detailed Project Budget Information (1000s)

	2009	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**Total**
Federal	10	13	10	0	0	0	0	
State	471	308	655	390	217	290	274	
Tribal								
Local								
Other								
Total	**481**	**321**	**665**	**390**	**217**	**290**	**274**	**2,638**

***$1,900,000 is contribution of land 64 acres**

Hyperlink: http://www.sfwmd.gov/portal/page/portal/PG_GRP_SFWMD_WATERSHED/LILA_-_Loxahatchee_I399?project=1326&ou=440

Contact: Rolf E. Olson, Rolf_Olson@fws.gov

LILA Impoundments, Arthur R. Marshall Loxahatchee NWR.

Researchers transplant white water lily (*Nymphaea odorata)* in the LILA sloughs collected from the adjacent Arthur R. M arshall Loxahatchee Refuge. Photo credit: Patrick Lynch.

LILA scientists plant native tree species on eight experimental tree islands contained within the project site. Photo credit: Patrick Lynch.

Project Name: **C&SF: CERP Acme Basin B Discharge (OPE)**
Project ID: 2306 (CERP Project WBS # 38)
Lead Agency: USACE / SFWMD
Authority: WRDA 2000 *(Programmatic Authority < $25 M)*
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Primary: 2-A.3 **Secondary:** 3-C.2

Measurable Output(s):
365-acre constructed upland/wetland mosaic improved
17,000 acre-feet (ac-ft) per year recaptured for reuse
1,000 acre-feet per year supplement to Lake Worth Drainage District municipal water supply
14,000 acre-feet per year of water conveyance to WCA-2, WCA-3, Everglades National Park, and Shark River Slough

April 1999 (Restudy) Project Synopsis: The concept includes construction of a wetland or chemical treatment area and a storage reservoir with a combined total storage capacity of 3,800 acre-feet located adjacent to the Loxahatchee National Wildlife Refuge in Palm Beach County. Stormwater runoff from Acme Basin "B" will be pumped into the wetland treatment area and then into the storage reservoir, until such time as the water can be discharged into the Loxahatchee National Wildlife Refuge if water quality treatment criteria is met, or into the one of two alternative locations: the Palm Beach County Agricultural Reserve Reservoir (VV) or the combination above-ground and in-ground reservoir area located adjacent to the L-8 Borrow Canal and north of the C-51 Canal (GGG).

Current Project Synopsis: Acme Basin B encompasses approximately 8,680 acres of low-density development with the primary land uses being rural residential lots and nurseries with a substantial presence of stables and other equestrian uses. The primary goal of the Acme Basin B Discharge project is to provide surface water to the refuge that would otherwise be routed through Basin A to C-51 and lost to tide.

In the time period between the Restudy and the start of the Acme Basin B Discharge Project Implementation Report (PIR), the land the Restudy had envisioned for a reservoir was sold to a developer. Thus, due to real estate cost increases, the project changed from an on-site water quality treatment project to a water conveyance project to an off-site water quality treatment area (STA 1E).

Current Status: The SFWMD has decided to work with local interests to expedite design and construction of the Acme Basin B Discharge project, outside the CERP.

Est. Cost: $ 41,189,468

Project Schedule:

2002	Planning begun.
TBD	Construction completed.

Detailed Project Budget Information (rounded):

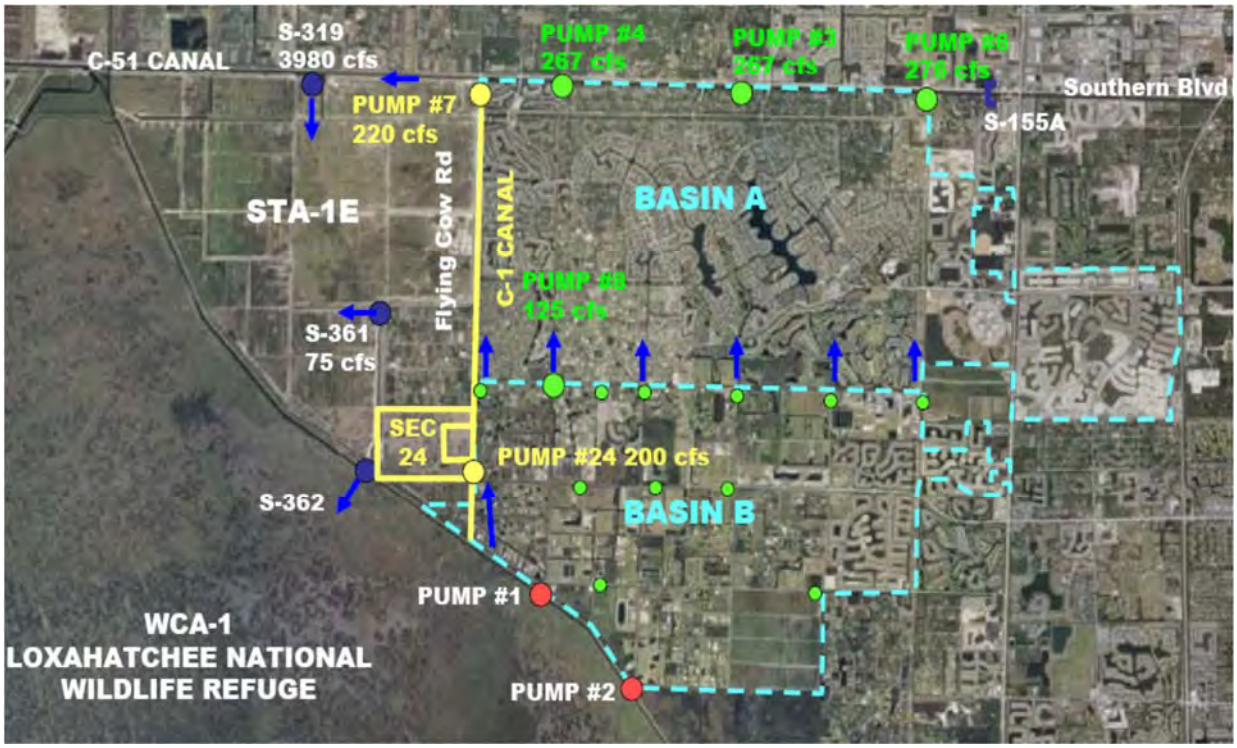
Acme Basin B Discharge	Obligations Thru FY 2012
USACE	$2,238,400
SFWMD	$3,259,025
Total	$5,497,425

Hyperlinks: http://141.232.10.32/pm/projects/proj_38_acme.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars. Actual expenditures include all federal expenditures through FY09 (Sept, 2009) and sponsor verified and recorded in kind credit through 4th quarter FY07.

Additional Information:



Acme Basin B is one of two primary drainage basins within the Acme Improvement District (AID). The AID, a dependent district to the Village of Wellington, is located in central Palm Beach County, Township 43South and 44 South, Range 41 East. Acme Basin B boundaries generally follow Pierson Road to the north, Flying Cow Road to the west, the Arthur R. Marshall Loxahatchee National Wildlife Refuge (Refuge) to the southwest and south and Lake Worth Drainage District (LWDD) to the east.

Project Name: **C&SF: CERP Picayune Strand Restoration**
(F/K/A *Southern Golden Gate Estates Hydrologic Restoration)*
Project ID: 2307 (CERP Project WBS # 30)
Lead Agency: USACE / SFWMD
Authority: WRDA 2007
Funding Source: Corps/State

Strategic Plan Goal(s) Addressed: 2-A.3

Measurable Output(s): 55,000 acres wetlands restored

April 1999 (Restudy) Project Synopsis: Involves the restoration of natural water flow across 85 square miles in western Collier County that were drained in the early 1960s in anticipation of extensive residential development. This subsequent development dramatically altered the natural landscape, changing a healthy wetland ecosystem into a distressed environment. Implementation of the restoration plan would also improve the water quality of coastal estuaries by moderating the large salinity fluctuations caused by freshwater point discharge from the Faka-Union Canal at the Port of the Islands. The plan would also aid in protecting the City of Naples' eastern Golden Gate well field by improving groundwater recharge.

The project includes a combination of spreader basins, canal plugs, road removal, and pump stations located in the Western Basin and Big Cypress, south of I-75 and north of US 41 between the Belle Meade Area and the Fakahatchee Strand State Preserve in Collier County,.

Current Project Synopsis: The plan will restore and enhance over 55,000 acres of wetlands in the former Southern Golden Gate Estates, now Picayune Strand State Forest, and in adjacent natural areas and public lands by reducing over-drainage. Implementation of the restoration plan will also improve the water quality of coastal estuaries by moderating the large salinity fluctuations caused by the freshwater point discharge from the Faka Union Canal.

The project significantly increases the size and improves the major wetland ecosystems in adjacent lands including the Fakahatchee Strand State Preserve, Florida Panther National Wildlife Refuge, and Collier Seminole State Park; benefiting threatened and endangered species communities such as the Florida panther and the red cockaded woodpecker. In addition, the project provides public access and recreational opportunities. Features include a combination of spreader basins, tie-back levees, numerous canal plugs, miles of road removal, and several pump stations located in the Western Basin and Big Cypress, south of I-75 and north of US 41, between the Belle Meade Area and the Fakahatchee Strand State Preserve in Collier County.

In 2003, the state of Florida identified this effort as a state expedited project. A PIR was completed in 2004 and the Report of the Chief of Engineers was signed September 15, 2005. The Assistant Secretary of the Army (ASA) completed a review and referred the project to Congress by letter dated April 2, 2007 and it was authorized for construction in WRDA 2007 for $375,330,000, dependent upon appropriation funding from Congress.

Current Status: The initial phase of the project, plugging of the northern two miles of the Prairie Canal, was completed by South Florida Water Management District (SFWMD) in 2007 and successfully reduced drainage of the adjacent Fakahatchee Strand State Preserve and restored habitat for threatened and endangered species as part of the early-start work.

Benefits are already being realized as native vegetation is quickly covering the plugged areas and very few nuisance or exotic plant species have been observed. Ospreys and wading birds have been observed foraging in the area as were beneficial surface water flows during the wet seasons.

In August 2009, the SFWMD Governing Board approved the Master Agreement, and Amendment 2 to the Design Agreement and addressed Land Valuation and Crediting Policy for CERP projects in general. The Project Partnership Agreement (PPA) for the Picayune Strand Restoration project was executed August 13, 2009.

Federal construction was implemented by the U.S. Army Corps of Engineers and initiated with the October 2009 award of the Merritt Pump Station and Road Removal Contract. The cost for the first federally funded CERP project component was $53 Million with $40M in American Recovery and Reinvestment Act (ARRA) funds. Merritt Pump Station completed construction on September 17, 2014 and started the one year testing period on October 1, 2014. Merritt Pump Station will transfer to SFWMD in October 2015 at the completion of the one year testing period.

The Faka Union Pump Station & Road Removal contract was awarded in October 2010 for approximately $79M and is the largest of the three Pump Stations planned for construction. Construction of Faka Union Pump Station started in January 2011 and is schedule to complete in September 2015.

The construction contract for the Miller Pump Station & Road Removal was awarded in September 2013 for approximately $76M. Construction of Miller Pump Station started in February 2014 and is scheduled to complete in June 2017.

The construction contract for the Manatee Mitigation features was awarded by SFWMD in April 2015 for approximately $3.1M. Construction of the Manatee Mitigation features started in May 2015 and is scheduled to complete in February 2016.

The Southwestern Protection feature modeling effort will resume in October 2015. Design and construction of the Southwestern Protection feature is on hold pending authorization of a project cost increase. A post authorization change Limited Reevaluation Report is scheduled for approval in July 2015.

Est. Cost: **$ 625,273,387**

Project Schedule:

2004	PIR completed
2006	Prairie Canal expedited state construction begun.
2009	Merritt USACE construction began.
2010	Faka-Union USACE construction began.
2013	Miller construction began.
2014	Merritt construction physically completed.
2015	Faka-Union construction physically completed.
2015	Manatee Mitigation feature construction began.
2015	Limited Reevaluation Report scheduled to be approved.
2016	Manatee Mitigation feature physically completed.
2017	Miller construction physically completed.

Detailed Project Budget Information (rounded):

USACE	$315,829,891
SFWMD	$157,449,123
Total	$473,279,015

Hyperlinks: http://141.232.10.32/pm/projects/proj_30_sgge.aspx
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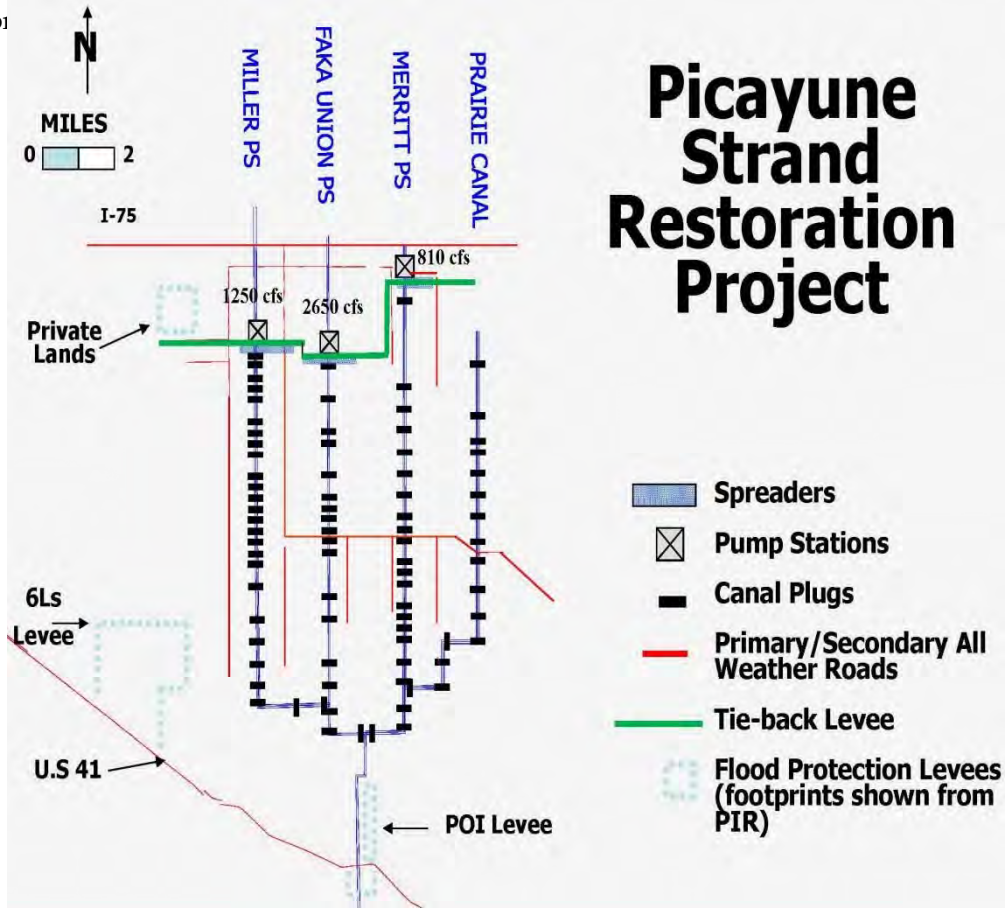
Source: Original project description summarized from the Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999). Detailed information is summarized from the Final Integrated Project Implementation Report and Environmental Impact Statement (PIR/EIS). Cost estimate information is updated to reflect current price in FY 2015 price levels. Actual expenditures include all federal expenditures through FY13 (Sept, 2013), including real estate in the project footprint per the PPA; and spo



Program Name: **C&SF: CERP Adaptive Assessment and Monitoring Program (AA&M)**
Project ID: 2308
Lead Agency: USACE / SFWMD
Authority: Design Agreement; WRDA 1996, WRDA 2000 *(Initially Authorized Project)*

Strategic Plan Goal(s) Addressed: supports 2-A.3

Measurable Output(s): System-wide/Regional Monitoring and Assessment Plan (MAP), Biennial System Status Report

April 1999 (Restudy) Project/Program Synopsis: A rigorous Adaptive Assessment and Monitoring (AA&M) program was included as an essential feature of the Plan and implementation o f the AA&M program will ensure the Plan's overall success. New information about the natural system, that is learned from monitoring and from measuring responses to implementation of Plan components, can be used to increase the ultimate level of success of the overall restoration program. Specifically, AA&M utilizes a focused, system-wide/regional monitoring and assessment plan (MAP) to measure how well each component of the Plan accomplishes its goals and objectives. Data from monitoring is assessed and reported biennially in system status reports (SSRs), providing a status on the Everglades and South Florida ecosystem and information critical to refinement of the Plan as well as its individual components through adaptive management. AA&M was authorized along with the ten Initially Authorized Projects under WRDA 2000.

The AA&M program is rooted in science and includes not only comprehensive monitoring and assessment but development of conceptual models, performance measures, and scientific peer review.

Current Project/Program Synopsis: The AA&M Program is designed to provide system-wide and regional monitoring and assessment that ensures CERP goals and objectives will be met throughout implementation of the Plan. AA&M-related activities include: (1) implementing a system-wide monitoring and assessment plan (MAP) (2) conducting annual assessments by synthesizing MAP and CERP project data; developing and refining the conceptual ecological models; (3) developing performance measures; (4) developing and refining the conceptual ecological models; (5) coordinating peer reviews; and (6) resolving scientific/technical issues. The goal of the AA&M program is to increase the probability of restoration success by recognizing that modifications will be made the Plan and its components in the future; based upon new information garnered from the AA&M program.

The CERP is also being planned, implemented, and refined using the principles of adaptive management (AM). AM was mandated by the Water Resources Development Act of 2000 and the CERP Programmatic Regulations (2003). AM is an iterative and deliberate process of applying principles of scientific investigation to both design and implementation in order to better understand the ecosystem and reduce key uncertainties; AM seeks to continuously refine program/project design and operation. To address uncertainties, and to improve the performance of CERP, AM addresses the challenges inherent in predicting and restoring large-scale complex ecosystems by replacing dependencies on numerical models and traditional planning guidelines with using a "learning-by-doing" approach to decision-making.

This approach takes that learning and applies it to: (1) reducing uncertainties and guiding management decision-making; (2) transferring lessons from one project to another or among project phases in order to refine alternatives and enhance restoration success; (3) using physical models/field testing to test hypotheses and the outcomes of management decisions; and (4) incorporating flexibility and versatility into project design and implementation.

Monitoring and Assessment Plan (MAP): The Monitoring and Assessment Plan (MAP) is the primary tool by which the RECOVER program will assess the performance of the Plan. Over a three-year period, a team of federal, state, tribal governments, local agencies and stakeholders, interest groups, and the public developed the MAP in 2004. The MAP was revised in 2009. The overarching goal for implementation of the MAP is to have a single, integrated, system-wide monitoring and assessment plan that will be used and supported by all participating agencies and tribal governments as the means of tracking and measuring the performance of the CERP. As the primary tool by which RECOVER assesses Plan performance, monitoring determines if ecosystem responses are desirable; if progress is being made toward Interim Goals and Interim Targets; and whether refinement of the Plan is needed. In 2011, the MAP underwent analysis for priority given a target budget constraint. The MAP 2009 continues to be implemented in this limited capacity.

System Status Report (SSR): The SSR provides estimates of pre-CERP conditions of ecosystem indicators monitored by the MAP, in conjunction with data from other sources. The SSR also identifies potential management actions that may be necessary to adjust CERP to achieve its goals and objectives. Data is assessed biennially to establish pre-CERP reference conditions and ultimately to determine whether the goals and objectives of the Plan are being met. A SSR was produced in 2007, 2009, 2012, an interim update, and most recently, 2014.

CERP AM Strategy and AM Integration Guide: The CERP Adaptive Management Integration Guide was published in 2011. The Guide identifies the activities and processes needed to implement CERP AM at the project and program levels and identifies how these activities are integrated with the USACE Six-Step Planning Process, through implementation of nine (9) specific AM activities. The Guide also provides the rationale for, and importance of, the CERP AM Program and is designed to assist managers/decision-makers, scientists, and CERP PDTs understand and integrate AM into CERP planning, design, construction, operations, and maintenance.

Current Status:

The MAP 2009 continues to be implemented using the 2011 Prioritization. RECOVER is currently evaluating the Natural Systems Regional Simulation Model developed by IMC. The team completed the Draft Programmatic AM Plan in 2015. RECOVER is using findings from the 2014 SSR, the monitoring and recent model effort to provide updated information for the 2015 Report to Congress as required by the Programmatic Regulations.

Est. Cost: $ 165,757,000

Detailed Project Budget Information (rounded):

USACE	$63,163,000
ARRA	$941,000
SFWMD	$44,941,000
Total	$109,045,000

Hyperlinks: http://141.232.10.32/pm/recover/recover.aspx

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Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (1999)* and WRDA 2000. Cost estimate information is updated to reflect current price levels in October 2011 dollars. Actual expenditures include all federal expenditures through FY09 (Sept, 2009) and sponsor verified and approved in kind credit through 4th quarter FY11. Additional information provided from the Monitoring and Assessment Plan (2011) and the RECOVER team.

Project Name: **C&SF: CERP Biscayne Bay Coastal Wetlands (FFF) (OPE)**
Project ID: 2309 (CERP Project WBS # 28)
Lead Agency: USACE / SFWMD
Authority: Not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 2-A.3

Measurable Output(s): 1,695 acres of restored wetlands
Saltwater wetlands, acres of lift = 1,242
Freshwater wetland, acres of lift = 453
Sensitivity analysis provides a range from 453 to 1,219, depending upon seepage rate used for the calculation. *(Lower number is used in the final CBEEM analysis).*

April 1999 (Restudy) Project Synopsis: Includes pump stations, spreader swales, stormwater treatment areas, flow ways, levees, culverts, and backfilling canals located in southeast Miami-Dade County and covers 13,600 acres from the Deering Estate at C-100C, south to the Florida Power and Light Turkey Point power plant, generally along L-31E. The component Biscayne Bay Coastal Canals as modeled in D-13R and the Critical Project on the L-31E Flowway Redistribution are smaller components of the Biscayne Bay Coastal Wetlands feature.

Current Project Synopsis: The proposed project will replace lost overland flow and partially compensate for the reduction in groundwater seepage by redistributing, through a spreader system, available surface water entering the area from regional canals. The goal is to improve the ecological health of Biscayne Bay (including freshwater wetlands, tidal creeks and near-shore habitat) by adjusting the quantity, quality, timing, and distribution of freshwater entering Biscayne Bay and Biscayne National Park. The primary means to accomplish this goal is through the redistribution of freshwater flow and the expansion and restoration of wetlands adjacent to southwestern Biscayne Bay (in Miami-Dade County) and to maintain sustainable biological communities. Potential sources of water will be identified and evaluated to determine their ability to provide the target flows.

The project will capture, treat, and redistribute freshwater runoff from the watershed into Biscayne Bay, creating more natural water deliveries, expanding spatial extent and connectivity of coastal wetlands, and providing improved recreational opportunities. The proposed changes for freshwater flow are expected to restore or enhance freshwater wetlands, tidal wetlands, and near shore bay habitat. Diversion of canal discharges into coastal wetlands is expected not only to reestablish productive nursery habitat all along the shoreline, but also to reduce the abrupt freshwater discharges that are physiologically stressful to fish and benthic invertebrates in the bay near canal outlets. Improving salinity distribution near the shoreline with sustained lower-than-seawater salinities in tidal wetlands can help to reestablish productive nursery habitat for shrimp and shellfish.

Reviews of the BBCW Adaptive Management Strategy, the Regional Evaluation, and the Monitoring Plan are complete and an alternative formulation briefing (AFB) was held December 2007.

In February 2008, it was decided to divide the project into <u>two</u> phases. Phase I consists of design and construction of *three* essential components: (1) Deering Estate Flowway; (2) Cutler Ridge Wetlands; and (3) L-31 East Flow Way to restore the quantity, quality, timing, and distribution of freshwater to the Biscayne Bay and estuary and the Biscayne National Park. Miami- Dade County has already constructed a portion of the proposed Deering Estate Flowway. Phase 2 is expected to address the remaining features of alternative 'O'.

The SFWMD has been advancing the design and construction of Phase 1 as a state expedited project.

Current Status: Civil Works Review Board approval on the final PIR/NEPA for Phase 1 was received in December 2011. The Record of Decision and subsequent transmission to Congress occurred in September 2012. BBCW was authorized in WRRDA 2014.
USACE will lead the design/construction of the remaining L-31E Flow Way features beginning in FY15. Anticipate completion of the L-31E components in 2020. The non-federal sponsor will lead the design/construction of the remaining Cutler Wetlands features with an anticipated construction completion in 2021.

Est. Cost: $ 189,475,000 (Phase 1)
$ 283,279,000 (Phase 2)

Project Schedule:

2010	Phase 1 state expedited construction began.
2012	Phase 1 state expedited construction expected to be physically complete.
TBD	Phase 2

Detailed Project Budget Information (rounded):

Biscayne Bay Coastal Wetlands	**Obligations Thru FY 2014**
USACE	$12,113,000
SFWMD	$11,686,000
Total	**$23,799,000**

Hyperlinks: http://141.232.10.32/pm/projects/proj_28_biscayne_bay.aspx

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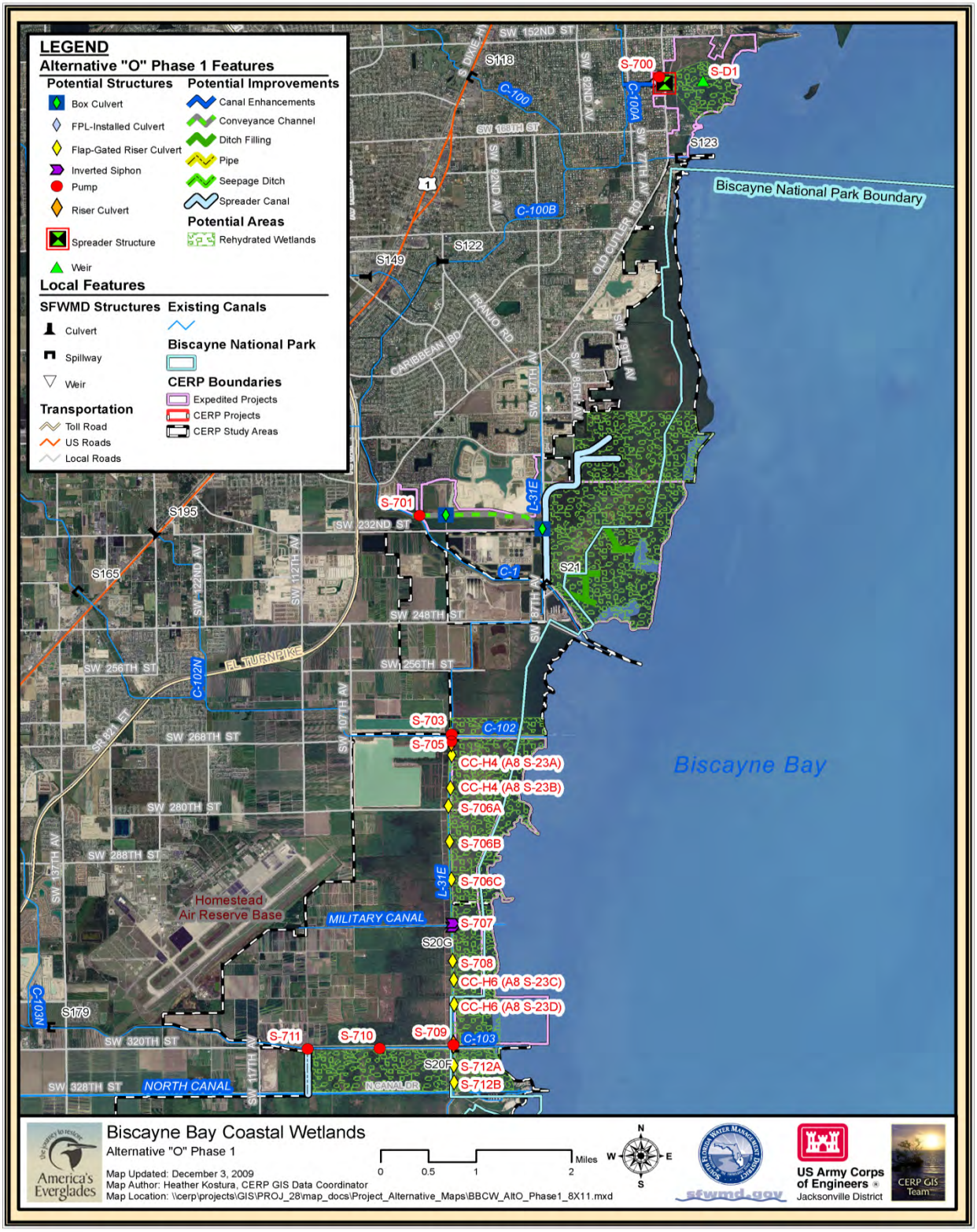
Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2014 dollars. Actual expenditures include all federal expenditures through FY14 (September 2014). Current status information summarized from draft PIR and AFB briefing documentation.



*Project 2309 C&SF: CERP **Biscayne Bay Coastal Wetlands** Page 3 of 3*

Program Name Infrastructure
Project Name: **C&SF: CERP C-111 Spreader Canal (WW)**
C-111 Spreader Canal - Western Project (PIR 1) and *Eastern Project (PIR 2)*
Project ID: 2310 (CERP Project WBS # 29)
Lead Agency: USACE / SFWMD
Authority: WRDA 2000 *(Initially Authorized Project)*
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 2-A.3

Measurable Output(s): Increased Flows to Florida Bay via Taylor Slough – acreage TBD
590-acre Frog Pond and Aerojet Canal detention areas (with pump stations)

April 1999 (Restudy) Project Synopsis: The purpose of the project is to reduce wet season flows in C-111, improve deliveries to Model Lands and Southern Glades and decrease potential flood risk in the lower south Miami-Dade area.

This is to be accomplished by constructing a spreader canal, to evenly distribute water currently lost to tide via the existing canal. Features include construction, removal or modifications of: levees, canals, pump stations, water control structures, and stormwater treatment area. The feature enhances the C&SF C-111 (South Dade) project initial design that pumps water from the C-111 Canals into a retention/detention zone. Pump station S-332E will be enlarged, the canal extended under U.S. Highway 1 and Card Sound Road, and the southern reach of the C-111 canal will be filled in and structures S-18C and S-197 will be removed.

Current Project Synopsis: C-111 N Spreader Canal (WW) is one of the initially authorized projects under WRDA 2000. Past dredging of the C-111 canal redirected water flows to the east, reducing flow through Taylor Slough into the northern Florida Bay impacting fisheries and ecology. A Project Management Plan (PMP) aimed to reduce water loss through the canal system and restore flows was initially approved in March 2002. As part of the Corps planning process, alternative plans were reviewed and this project will be implemented via <u>two</u> Project Implementation Reports (Western PIR and Eastern PIR).

Western PIR – The Western PIR plan includes a 590-acre Frog Pond detention area with a 225 cfs pump station, and an Aerojet Canal detention area with a 225 cfs pump station. Together these features will create a mound of groundwater to the south and west, which will prevent groundwater seepage out of Everglades National Park (ENP). Preventing seepage will improve the quantity, timing and distribution of water delivered to Florida Bay via Taylor Slough -- returning coastal zone salinity levels in western Florida Bay to levels as close as possible to pre-drainage scenario model runs by restoring upstream water levels in eastern Everglades National Park. Hydroperiods and hydropatterns within wetlands of the Southern Glades and Model Lands will be improved by construction of a new water control structure in the lower C-111 Canal, incremental operational changes at existing structure S-18C, changes in operations at the existing S-20 structure, construction of a plug at existing structure S-20A, and installation of ten earthen plugs in the C-110 Canal. This will also support historical vegetation patterns.

The Tentatively Selected Plan (TSP) for PIR 1 was recommended in October 2007. An Alternative Formulation Briefing was held in April 2008 and a Civil Works Review Board was held in December 2009. The Final PIR/EIS was published February 2011. A signed Chief's Report is scheduled for late FY11.

Eastern PIR – The Eastern PIR project will replace existing portions of the lower C-111 canal with a spreader canal to enhance sheetflow to Florida Bay, and help augment restoration efforts within the Southern Glades and Model Lands.

Current Status: The Draft integrated Project Implementation Report and Draft Environmental Impact Statement (DPIR/DEIS) for the Western PIR was published in the Federal Register on April 24, 2009. Library access and public comments or meetings took place thru June 23, 2009. The SFWMD designated the 'Western PIR' as a state expedited project and a 404 permit was issued to the SFWMD on October 14, 2009. Real estate updates, based on the Master Agreement and a non-Federal letter of support, were addressed. A Civil Works Review Board was held December 15, 2009, in Washington, D.C. and the Board approved the Final PIR for State and Agency review, contingent on resolving agricultural chemical issues associated with project lands. The Final PIR was published for State and Agency review in February 2011. Agricultural chemical issues associated with project lands were resolved by Assistant Secretary of the Army for Civil Works policy guidance dated September 14, 2011. The Chief's report for the Western PIR was executed January 30, 2012. A Signed Record of Decision (ROD) was signed in September 2012. The project was authorized in WRRDA 2014. The PPA is scheduled to be approved and executed in FY16.

Along with the Western PIR efforts, an Integrated Design Documentation Report/Environmental Assessment (DDR/EA) was prepared for the C-111 Spreader Canal *Design Test*. This report received public comments between August and September, 2008. The design test survey and hydraulic design were completed and the scope of work for the test was completed in January, 2009 with a final document in July 2009. The contract for the design test was awarded and operation of the 2-year test began February 2010. The test consists of operating a small scale spreader canal and monitoring the effects on groundwater and surface water flows. Data will be used in the development and analysis of alternatives for the Eastern PIR and help to determine the location of that PIR's full-size spreader canal, minimizing impacts to private lands, and maximizing restoration results. Operation of the Design Test was concluded in September 2011 and a Technical Data Report was completed.

Est. Cost: $ 210,339,000

Project Schedule:

2010	Two year Design Test begun.
2012	Design Test disassembled.
2010	Western, construction begun
2012	Western, construction completed.
TBD	Eastern PIR

Detailed Project Budget Information (rounded):

C-111 Spreader Canal	Obligations Thru FY 2013
USACE	$12,467,000
SFWMD	$13,861,000
Total	**$26,328,000**

Hyperlinks: http://141.232.10.32/pm/projects/proj_29_c111.aspx

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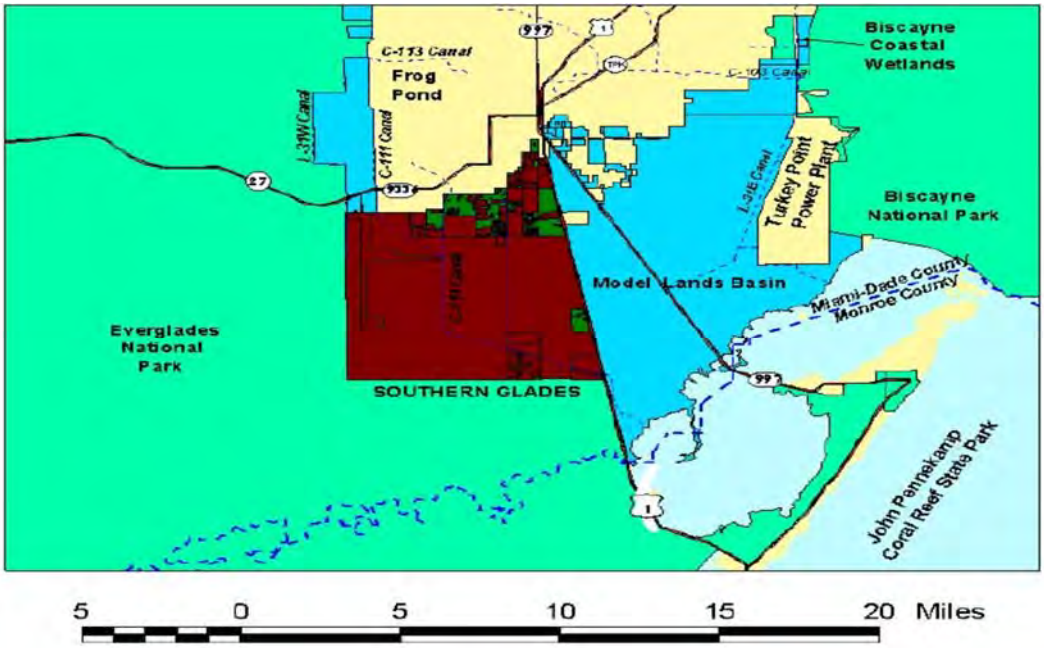
Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2011 dollars. Actual expenditures include all federal expenditures through FY11 (Sept, 2011) and sponsor verified and approved in kind credit through 4th quarter FY11. Other information is summarized from the PIR/EIS for the Western PIR published in the Federal Register on April 24, 2009.

Additional Information:



Project Name: **C&SF: CERP Strazzulla Wetlands (OPE)**
Project ID: 2312
Lead Agency: USACE / SFWMD
Authority: Not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 2-A.3

Measurable Output(s): An increase of 3,335 acres of habitat extent and connectivity

April 1999 (Restudy) Project Synopsis: Water control structures and the acquisition of 3,335 acres located in Palm Beach County. Expanding wetlands will act as a buffer between higher water stages to the west and lands to the east that must be drained.

Current Project Synopsis: The purpose of this feature is to provide a hydrological and ecological connection to the Loxahatchee National Wildlife Refuge and expand the spatial extent of protected natural areas. This land will act as a buffer between higher water stages to the west and lands to the east that must be drained. This increase in spatial extent will provide habitat connectivity for species that require large un-fragmented tracts of land for survival.

WRDA 2000 dictated that the Federal share for land acquisition in the Loxahatchee National Wildlife Refuge, including the Strazzulla tract, should be funded through the budget of the Department of the Interior. The project adheres to the original concept outlined in the Restudy.

Current Status: Portions of this project are currently being pursued under a different program. Please see Project ID 2300.

Est. Cost: $92,365,677

Project Schedule: TBD

Detailed Project Budget Information (rounded):

Strazzulla Wetlands	Obligations Thru FY 2013
USACE	$355,035
SFWMD	$142,831
Total	**$497,866**

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Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars.

Project Name: **C&SF: CERP Winsberg Farm Wetlands Restoration (OPE)**
Project ID: 2313
Lead Agency: USACE / SFWMD
Authority: Not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 2-A.3 **Secondary:** 3.C.2

Measurable Output(s): 114 acres of improved wetlands

April 1999 (Restudy) Project Synopsis: The Winsberg Farm wetlands project was included in the Restudy as an "Other Project Element". Projects in the "Other Project Element" category were determined to be consistent with Restudy planning objectives and have a Federal interest, but were too small in scale to evaluate from a system-wide perspective. The original concept for this feature includes the construction of a 175-acre wetland east of Loxahatchee Wildlife Preserve in Palm Beach County using water that would normally be lost to deep well injection or any future beneficial use.

Current Project Synopsis: The project involves restoration of approximately 114 acres of wetlands on former agricultural lands. Wetlands would reduce the amount of treated wastewater coming from the Palm Beach County's Water Utilities District (PBCWUD) Southern Region Water Reclamation Facility (SRWRF) lost to deep injection wells by further treating and recycling the water. Treated wastewater will instead be reused to recharge the local aquifer system, create a new ecologically significant wildlife habitat and extend the function of the nearby Wakodahatchee Wetland. The initial configuration would include a Phase 1 design and construction with approximately 72 acres of wetlands created in the western half of the project. The remaining 42 acres of the project on the eastern half , considered Phase 2, would work similarly. As a result of the 2003 real estate purchase agreement (175 acres) between PBCWUD, the non-federal sponsor and the Winsberg family, PBCWUD completed construction of Phase 1 in 2004. This included 72 acres of wetlands, plus a parking lot, visitor center, and recreational access features and was completed without Federal funds. The local sponsor refers to this portion of the project as "Green Cay Wetlands".

A draft PIR was completed in February 2008 and released for public and agency comment. In the summer of 2008, PBCWUD made a desicsion to discontinue development of the remainder of the project identified in the Plan.

Current Status: Portions of this project were pursued under a different program. Please see Project ID 2301.

Est. Cost: $30,985,655

Project Schedule: TBD

Detailed Project Budget Information (rounded):

Winsberg Farm Wetlands	Expenditures Thru FY 2009
USACE	$1,856,000
SFWMD	$1,978,000
Total	**$3,834,000**

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999)*. Cost estimate information is updated to reflect current price levels in October 2009 dollars.

Program Name: South Florida Ecological Services Office, Threatened and Endangered Species Program

Project Name: **South Florida Multi-Species Recovery Plan**
Project ID: 2402
Lead Agency: USFWS
Authority: Endangered Species Act of 1973 (16 U.S.C. 1531-1543)
Funding Source: No specific funding source, part of base funding for agency/organizations and further incorporated into agency/organization budgets to extent practical

Strategic Plan Goal(s) Addressed: Other

Measurable Output(s): Number of species delisted, number of species reclassified to threatened, number of species status stable or improving

Project Synopsis: A Multi-Species Recovery Plan (MSRP) for the threatened and endangered species of south Florida was completed in May 1999. This document was prepared to fulfill a major element of the South Florida Ecosystem Restoration Initiative. It contains information on the biology, ecology, status, trends, management, and recovery actions for 67 federally listed species that occur in south Florida, as well as the ecology and restoration needs of 23 natural communities in this region. Implementation of the MSRP is underway through the work of the Service and their many Federal, State, and non-governmental partners. The MSRP implementation schedule was completed in 2007. The implementation schedule prioritizes recovery actions in the MSRP, as well as providing time and cost estimates for those actions. Participants to complete those actions are identified. Additionally, in April 2012, the Service published a final rule listing the Miami blue butterfly as endangered. This brings the full number of federally listed species in south Florida to 68. The South Florida Ecological Services Office has the lead responsibility for 44 of these species. In Fiscal Year 2011, 11 species were considered to have a status of "stable"; these included Florida panther, Key deer, Key Largo cotton mouse, rice rat, American crocodile, Everglade snail kite, Avon Park harebells, Beach jacquemontia, Garber's spurge, Key tree cactus, and Florida ziziphus. A total of 21 species had a status of "uncertain" and 12 species were considered to have a status of "declining".

The Service is working with partners to initiate, continue, or complete recovery actions in the MSRP for a multitude of species. Research, monitoring, and/or habitat restoration are being conducted for the following species: Florida panther, Key deer, Key Largo cotton mouse, Key Largo woodrat, Lower Keys marsh rabbit, southeastern beach mouse, West Indian manatee, Audubon's crested caracara, Cape Sable seaside sparrow, Everglade snail kite, Florida grasshopper sparrow, Florida scrub jay, piping plover, red-cockaded woodpecker, wood stork, American crocodile, eastern indigo snake, blue-tailed mole skink, sand skink, Schaus swallowtail butterfly, crenulate lead-plant, Florida bonamia, deltoid spurge, pygmy fringe-tree, pigeon wings, Avon Park harebells, Garret's mint, scrub mint, Lakela's mint, scrub blazingstar, papery whitlow-wort, Key tree cactus, Lewton's polygala, tiny polygala, wireweed, sandlace, scrub plum, Florida perforate cladonia, snakeroot, Garber's spurge, Highlands scrub hypericum, Carter's mustard, short-leaved rosemary, four-petal pawpaw, beach jacquemontia, fragrant prickly-apple, and Florida ziziphus.

Current Status:

Cost: Total: $386,112,000 (does not include all amounts for habitat acquisition, management, or restoration because those tasks are expressed as costs per acre and could not be determined at this time)

Project Schedule:
Start Date: 1999
Finish Date: TBD

Estimated Cost of Recovery
Includes the estimated cost of accomplishing all recovery actions in the MSRP. These costs were calculated as totals per community for the multiple species that occur within each community. Costs for land acquisition, management, and restoration will be more accurately determined as the MSRP is implemented.

Detailed Project Budget Information (in thousands)

	FY 2005-2007	FY 2008	FY 2009	FY 2010	FY 2011	Balance to complete	Total
Federal	$11,567.5[a]	$2,370.8 [a]	$2,806.3 [a]	$2,388.9 [a]	2,335.6 [a]	$372,173.7[b]	
State							
Tribal							
Local							
Other							
Total	**$11,567.5a**	**$2,370.8 [a]**	**$2,806.3 [a]**	$2,388.9 [a]	2,335.6 [a]	**$372,173.7[b]**	**$386,112[c]**

THIS PROJECT SHEET WAS UPDATED IN 2012

[a]Amounts obtained from the South Florida Ecological Services Office's recovery expenditures report to Congress

[b]Total is rough estimate based upon the 1999 South Florida Multi-Species Recovery Plan and the precise amount of dollars has not been updated recently

[c]Does not include all amounts for habitat acquisition, management, or restoration because those tasks are expressed as costs per acre and could not be determined at this time

Contact: Dana Hartley

Project Name: **WCA 2A Regulation Schedule Review**
Project ID: 2403
Lead Agency: USACE
Authority: Not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Other

Measurable Output(s): Revised Schedule

Project Synopsis: The purpose of the project is to evaluate the feasibility of modifying operational standards for WCA 2A to benefit its fish and wildlife resources, without adversely impacting the area's ability to satisfy its flood control and water supply purposes.

Current Status: The study can be implemented with existing operational and maintenance authority. It will be conducted in coordination with Everglades Rain-Driven Operations and can be funded through ongoing Operations and Maintenance appropriations for the USACE.

Est. Cost: TBD

Project Schedule: TBD

Detailed Project Budget Information (rounded):

Budget information is unavailable, as project has not begun.

Hyperlinks*:*

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Project Name: **C&SF**: **Manatee Pass Gates**
(Construction of Modifications to the C&SF Project features for the Protection of Manatees)
Project ID: 2404
Lead Agency: USACE / SFWMD
Authority: ER 1130-2-540, Environmental Stewardship Operations and Maintenance Policies, 15 November 1996; EP 1130-2-540, Environmental Stewardship Operations and Maintenance Guidance and Procedures, revised 30 November 2001; the Marine Mammal Protection Act of 1972; the Endangered Species Act of 1973 (as Amended) and the approved water control plans and manuals for the Central and Southern Florida Project; Section 203 Flood Control Act (1948) and Section 203 of the Flood Control Act (1958) addresses cost-sharing.
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Other – supports 2-A.3

Measurable Output(s): Structural modifications and operational changes for species protection

Project History: The West Indian manatee is provided protection under the Endangered Species Act of 1973, making it against the law to "harm, harass, kill" etc. any of these animals. After boats, the "operations of spillways and locks are cited as the second leading cause of human related manatee mortalities". Protection of the manatees at water control structures is a part of the long range recovery goals of the Florida Manatee Recovery Plan required by the Marine Mammal Protection Act (1972), to maintain "the health and stability of the marine ecosystem" and to determine and maintain manatee numbers at "optimum sustainable population" in the southeastern United States.

In the *Central and Southern Florida Project Comprehensive Review Study* (Restudy) section 4.9.1.5 of the Restudy, the Manatee Protection Project is described as follows: "The West Indian manatee (*Trichechus manatus*) is listed as a federally endangered species and is one of the most endangered species in Florida. As a response to recent manatee mortality trends associated with water control structures, this project will provide operational changes and implement the installation of a manatee protection system at seven sector gates at navigational locks near Lake Okeechobee. The beneficial outcome of this project will be the reduction of risk, injury, and mortality of the manatee. The seven sector gates include S-193 at Okeechobee and S-310 at Clewiston on Lake Okeechobee; St. Lucie Lock and Port Mayaca Lock on the St. Lucie Canal; and Moore Haven Lock, Ortona Lock, and W. P. Franklin Lock on the Caloosahatchee River.

The mechanism proposed uses hydro acoustic and pressure sensitive devices that immediately stop the gates when an object is detected between the closing gates. These systems transmit an alarm and signal to stop the gate movement when a manatee is detected. When an object or manatee activates the gate sensors, the gate will stop and open approximately six inches to release a manatee. As a result, a manatee will be able to travel between the open gates. Once the gate opens, the operator can fully close the gate, unless an object remains between the gates. The opening process will repeat the cycle as the sensors are activated again. Due to these structural modifications, manatees will be at a significantly less risk as they encounter locks with sector gate.

Current Project Synopsis: The purpose of this project is to develop and install Manatee Protection Devices on vertical lift gates and sector gates at specific navigation and flood control structures.

The project consists of alternative structural modifications to 23 existing water control structures and locks in the C&SF Project to reduce or eliminate manatee mortalities, associated with their operation. The project is being implemented in two phases; the first phase addresses the addition of pressure sensitive devices at water control structures.

The second phase includes acoustic devices at selected sector gate water control structures. These devices reverse the gate closure if a foreign object is detected.

Operation, maintenance, repair, replacement, and rehabilitation responsibilities for each structure differ between Non-Federal and Federal sponsors based on their location. A Project Cooperation Agreement (PCA) for Phase 2 was signed in January, 2005 for the following six sector gates: Moore Haven Lock (S-77), Ortona Lock (S-78), W.P Franklin Lock (S-79), Taylor Creek Lock (S-193), Port Mayaca Lock (S-308B), and S-310.

Current Status:
Installation of acoustic devices and operator training has been completed at Ortona Lock (S-78), W.P. Franklin Lock (S-79), Taylor Creek Lock (S-193), St. Lucie Lock (S-80), and Port Mayaca Lock (S-308B) and at Moore Haven Lock (S-77). Installation of acoustic device and operator training for St. Lucie Lock (S-80) is completed. As of May 2010, due to a high number of reported manatee deaths at Moore Haven Lock (S-77) and none reported at S-310, a modification to the final task order (Option Year 3), for Phase 2, was awarded for MPS at Moore Haven Lock (S-77) in January 2010, in lieu of S-310. A separate contract is proposed to complete the MPS at S-310, located near Clewiston (between HHD and L-9). This award has been delayed due to changing conditions (Lake Okeechobee operations are such that the gate is rarely operated) and will be revisited once Lake Okeechobee operations are such that S-310 will be operated more regularly.

Est. Cost: $17,351,000 *(Different cost-sharing parameters exist for each gate, based on modification requests and PCA)*

Project Schedule:
2001 Start
2014 Finished

Detailed Project Budget Information (rounded):

Manatee Pass Gates	Obligations Thru FY 2013
USACE	$15,268,888
SFWMD	$2,082,000
Total	$17,350,888

Hyperlink: http://www.saj.usace.army.mil/Missions/Environmental/EcosystemRestoration.aspx

Contact: Jim Hourican, Project Manager, Ecosystem, USACE
James.J.Hourican@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (1999)*. Current status information was provided by the project manager. Cost estimate information is updated to reflect current price levels in October 2009 dollars.

Program Name: **Brown Marmorated Stink Bug**
Project ID: 2500
Lead Agency: Florida Department of Agriculture and Consumer Services Division of Plant Industry

Strategy and Biennial Report Objective Addressed: 2-B.1
Invasive Species Strategic Action Framework Goal: 1

Project Synopsis: The Brown Marmorated Stink Bug, Halyomorpha halys (Heteroptera: Pentatomidae) was accidentally introduced in Pennsylvania in 1998 from Asia probably in packing material. By 2013 it had spread or been reported in 38 states and it is has been intercepted several time in the last years in Florida. Its host range includes temperate & tropical fruits, vegetables, legumes, ornamentals and weedy plants. This insect survives the winter by invading houses and other enclosed structures becoming a household nuisance pest. In the spring, adults migrate into field crops where they develop high populations and cause significant feeding damage.
The egg parasitoid Trissolcus halyomorphae (Hymenoptera: Scelionidae) was found and collected in China and brought back into quarantine facilities in the U.S. as a potential biological control agent of the Brown Marmorated Stink Bug.

As part of the risk assessment, host-specificity tests (choice, no-choice) are conducted at the quarantine facilities in Gainesville, Florida exposing T. halyomorphae adult females to several species of stink bugs including phytophagous and predators in the Pentatomidae, Plataspidae and Scutelleridae families. A single adult female T. halyomorphae is exposed to an egg mass in a small clear plastic container in a growth chamber on a 16-hour photoperiod (16:8 h L/D) at 20°C and 60% RH for 24 hours.
Results of the host-specificity tests (choice, no-choice) with the egg-parasitoid Trissolcus halyomorphae indicated that the higher level of parasitoid emergence (>80%) was obtained with Halyomorpha halys, the target pest. Risk assessment continues with T. halyomorphae as well as several other potential natural enemies.

Current Status: Ongoing (project up for renewal annually)

Project Schedule:
Start Date: 8/4/2014
Finish Date: 8/3/2015

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$138,600	$133,527					
Total	**$138,600**	**$133,527**					**272,127**

Contact: Dr. Greg Hodges, Assistant Director, Division of Plant Industry, Florida Department of Agriculture and Consumer Services.

Hyperlink: http://www.freshfromflorida.com/Divisions-Offices/Plant-Industry/Science/Biological-Control/Brown-Marmorated-Stink-Bug-Biological-Control

Program Name: **Detector Dog Teams**
Project ID: 2501
Lead Agency: Florida Department of Agriculture and Consumer Services Division of Plant Industry

Strategy and Biennial Report Objective Addressed: 2-B.1
Invasive Species Strategic Action Framework Goal: 1

Project Synopsis: The Detector Dog Team program was established to serve as an additional mechanism for pest detection occurring at mail/package service facilities in Florida. It has been well documented that dogs can be trained to detect plant materials in packages. This program will allow for the detection of plant pests that may accompany plant material in mail packages destined for Florida. Four detector dog teams have been deployed at mail/package distribution centers in Miami, Tampa and Orlando. In addition to using this technology at parcel hubs we will have dedicated canines to inspect at high risk areas for the presence of the giant African land snail (GALS) in Miami.

Current Status: Ongoing (project up for renewal annually)

Project Schedule:
Start Date: 9/26/2014
Finish Date: 9/25/2015

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$623,483	$570,389					
SFWMD**							
Local							
Total	**$623,483**	**$570,389**					**1,193,872**

Contact: Dr. Greg Hodges, Assistant Director, Division of Plant Industry, Florida Department of Agriculture and Consumer Services.

Program Name: **Fruit Fly Survey and Detection**
Project ID: 2502
Lead Agency: Florida Department of Agriculture and Consumer Services Division of Plant Industry

Strategy and Biennial Report Objective Addressed: 2-B.1
Invasive Species Strategic Action Framework Goal: 1

Project Synopsis: Fruit flies are one of the most potentially destructive pests in the world. With a wide host range of fruits, vegetables and nuts, most of Florida's crops, including citrus, fall within the host range. This makes it imperative to act quickly and decisively when any species of fruit fly is found. The division is currently utilizing several methods to support and protect Florida from exotic fruit fly pests.

This project is aimed at early detection of exotic fruit fly species that would be harmful to Florida agriculture. Approximately 55,000 fruit fly traps are placed strategically in high risk areas and serviced by state or federal employees every 7, 14, 21 days depending on trap type. A fully staffed diagnostic lab is additionally maintained in Palmetto, Florida to sort/identify fly specimens found in traps.

Project Schedule:
Start Date: 7/15/2014
Finish Date: 7/14/2015

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal							
SFWMD**							
Local							
Total	**TBD**	**TBD**					**TBD**

Contact: Dr. Greg Hodges, Assistant Director Division of Plant Industry, Florida Department of Agriculture and Consumer Services.

Program Name: **FWC Nonnative Fish and Wildlife Program**
Project Name: Python Responder/Patrol Training
Project ID: 2503
Lead Agency: Florida Fish and Wildlife Conservation Commission

Strategy and Biennial Report Objective Addressed: 2-B.1 and 3-D.1
Invasive Species Strategic Action Framework Goal: 1

Measurable Output(s): One way to measure the effectiveness of this program is the number of available trained responders available statewide for constrictor removal who request a permit. Many individuals trained, however, are trained because they may encounter large constrictor snakes in their line of work, therefore a secondary measure may be the total number of individuals that are trained to detect and remove. These people are more likely to call FWC if they are not willing to capture the python themselves. Since FWC took over the program in October 2013, 16 responder trainings have occurred, training 256 people. Of the 256 trained individuals, 83 are currently listed as potential responders to python calls coming into FWC. While The Nature Conservancy was running this program (12/2010-10/2013), 39 trainings were conducted training 449 people.

Project Synopsis:
Python Patrol is the Florida Fish and Wildlife Conservation Commission's EDRR (early detection and rapid response) program designed to help control invasive constrictors in the state. The program's goal is to create a community of people in south Florida who can properly respond when Burmese pythons are encountered, and will include natural resource employees who are likely to encounter pythons during their work duties, animal control and law enforcement officers who are often called first in response to pythons, and interested members of the public who are concerned about Florida's natural resources. Python Patrol also offers detection trainings that teach the general public how to correctly report sightings of Burmese pythons.

Recent data show that training improves python detection and capture rates by an order of magnitude, and that the public recognizes a direct benefit of removing pythons to help protect native wildlife and ecosystems. Burmese pythons pose a threat to our native species, and quality data is needed to help guide management strategies. Large constrictors are dangerous and can also pose a risk to human safety, so proper training for responders is imperative. Responders must also be able to differentiate nonnative pythons from native snakes to avoid removing non-target species. The Python Patrol responder training supplies participants with knowledge, better tools, hands-on experience and more confidence; this helps us help them to be part of the solution.

The goal of the program is to offer at least 48 FWC-led trainings that will increase the number of trained responders and educated citizens by at least 700 people and to provide a more consistent response throughout the state to observations and encounters with nonnative species.

Current Status: Ongoing

Project Schedule:
Start Date: October 2013
Finish Date: Not yet defined

Detailed Project Budget Information

	2013/14	2014/15	2015/16	2016/17	2017/18	Balance to Complete	Total
Federal							
State (FWC)	22000	58,000	52,000*	52,000*	52,000*		**$218,000**
Local							
Private Grants or Donations	18,000	12,000					**$30,000**
Total	**$40,000**	**$52,000**	**$52,000**	**$52,000**	**$52,000**		**$248,000**

*Funding is contingent on continued need, appropriations from the legislature or securing additional grant funding.

Contact: Kristen Penney Sommers, Section Leader,
Kristen.Sommers@MyFWC.com 850-488-3831
888-IVE-GOT-1

Hyperlink: http://myfwc.com/wildlifehabitats/nonnatives/python/python-patrol/

Pictures:

Program Name: **Exotic Psyllids and Liberibacter species**
Project ID: 2504
Lead Agency: Florida Department of Agriculture and Consumer Services Division of Plant Industry

Strategy and Biennial Report Objective Addressed: 2-B.1
Invasive Species Strategic Action Framework Goal: 1

Project Synopsis: This project is aimed at the early detection of exotic psyllid (Hemiptera: Psyllidae) species and *Liberibacter* species that may be present in their bodies. Psyllids are well known as vectors of *Liberibacter* species such as *L. asiaticus, L. africanus, L. americanus* (citrus greening diseases) and *L. solanacearum* (zebra chip in potatoes). To date, the only *Liberibacter* species affecting Florida agriculture is *L. asiaticus* (citrus greening, Huanglongbing). Introduction of exotic psyllid species could lead to the accidental introduction of exotic *Liberibacter* species to Florida agricultural crops. The project involves the creation of different type of traps that can be utilized in detecting psyllids and also survey activities around different agricultural crops grown in Florida.

Current Status: Ongoing (project up for renewal annually)

Project Schedule:
Start Date: 7/15/2014
Finish Date: 7/14/2015

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$58,460	TBD					
SFWMD**							
Local							
Total	**$58,460**	**TBD**					

Contact: Dr. Greg Hodges, Assistant Director, Division of Plant Industry, Florida Department of Agriculture and Consumer Services.

Program Name: **High Risk Areas**
Project ID: 2505
Lead Agency: Florida Department of Agriculture and Consumer Services Division of Plant Industry

Strategy and Biennial Report Objective Addressed: 2-B.1
Invasive Species Strategic Action Framework Goal: 1

Project Synopsis:

Florida is a sentinel state for exotic plant pests with thirty ports of entry, a very high volume of international travelers, and a diverse array of agriculture production. The number of significant exotic invasive pests detected in Florida continues unabated with a new pest being found every month or less. Funding will be used to strengthen the ability to detect, respond and control exotic pests before they establish in Florida and the United States. The primary objective of this initiative is to target domestic inspection activities at vulnerable points in the safeguarding continuum. This project furthers the goals of the 2014 Farm Bill by providing resources for early plant pest detection and surveillance at specifically identified high-risk locations within the state of Florida. The project will provide resources for early threat identification and mitigation of plant pests and diseases.

Project Schedule:
Start Date: 9/20/2014
Finish Date: 9/19/2015

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$200,000	0					
SFWMD**							
Local***	$0	0					
Total	**$200,000**	**0**					

*** note that this refers to state funds in this case
Contact: Dr. Greg Hodges, Assistant Director, Division of Plant Industry, Florida Department of Agriculture and Consumer Services.

Program Name: **Interdiction Sites and Marina and Canals**
Project ID: 2506
Lead Agency: Florida Department of Agriculture and Consumer Services Division of Plant Industry

Strategy and Biennial Report Objective Addressed: 2-B.1
Invasive Species Strategic Action Framework Goal: 1

Project Synopsis:
As one of seven states in the Eastern Region determined to be high risk of being affected by one or more plant pests/diseases due to the number of international ports, volume of international passengers, production of agricultural commodities or natural resources, funding will be used to strengthen our ability to detect, respond and control exotic pests. Specifically, funding will be used to enhance pest detection for pests associated with high-risk domestic interdiction sites which will allow us to better be able to mitigate any new pest finds.

A primary objective of this initiative is to safeguard our nation's food and environmental security from exotic pests and pathogens that threaten our production and ecological systems through early detection. In 2010, cash receipts for Florida's six major commodity products brought in $6.4 billion; however, the impact of new exotic pests was $1.2 billion in 2005, an impact of 22% in economic losses. From 1981 to 2012, 627 New State and USA records were recorded for Florida; a significant number of these are directly related to exotic origin enhanced by the increasing levels of global trade and movement of people from foreign countries. Excluding citrus canker eradication efforts, exotic pests have directly cost Florida over $171 million dollars from 1995-2005, and continue to cost Florida over $500 million per year according to a 2008 publication by NPS and FFWCC.

Project Schedule:
Start Date: 9/26/2014
Finish Date: 9/25/2015

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$596,298	$530,260					
SFWMD**							
Local***	$0						
Total	**$596,298**	**$530,260**					**1,126,558**

*** note that this refers to state funds in this case
Contact: Dr. Greg Hodges, Assistant Director, Division of Plant Industry, Florida Department of Agriculture and Consumer Services.

Program Name: Critical Ecosystems Science Initiative (CESI)
Project Name: **Effects of exotic fish on Everglades structure and function: risk assessment**
Project ID: 2507
Lead Agency: NPS with USGS interagency agreement

Strategy and Biennial Report Objective Addressed: 2-B.1
Invasive Species Strategic Action Framework Goal: 1

Measurable Output(s): 1. A literature review of the existing knowledge of the life-history characteristics, physiological tolerances, and habitat requirements of the non-native fishes in Florida.
2. Research providing knowledge of the information gaps of physiological tolerances and potential impacts of non-native species in support of quantitative risk assessment development.

Project Synopsis:

NPS units within the southeastern US play a key role in the preservation of native fish populations, and native fish are key components of food webs that support the diverse fauna of the parks. Disturbances outside NPS boundaries promote invasion by non-native species (Long et al. 2012), and this appears particularly true in Florida. Florida has the second highest number of non-native fish species reported from the freshwaters of any state (Fuller et al. 1999). Those species are spreading into and establishing within Everglades NP and other south Florida NPS units. Since 1965, 17 non-native freshwater fish species have been observed in Everglades National Park (EVER), including eight new species since 2000 (Kline et al. 2014). Sixteen of the 17 species were first established in canals outside the boundaries of EVER prior to colonizing inside (Loftus 1988, Kline et al. 2014) suggesting fish are spreading from canals into EVER marshes (Kline et al. 2014). In addition, hydrologic changes that alter flows through canals may affect the spread of non-native species into natural areas.

Preventing introduction of non-native species into protected natural areas will require management actions outside the NPS unit boundaries. One of the first steps will be to identify those species that may present the highest risk to establish populations within the NPS units. Resource managers attempting rapid response or control efforts would benefit from a tool that identifies species that pose the greatest risk of establishing populations within the freshwater marshes of the south Florida National Parks. The USGS Natural Resources Preservation Program (USGS NRPP) is supporting the development of such a quantitative predictive risk assessment tool. However, gaps in the knowledge of life history characteristics or physiological tolerances that may influence the likelihood of establishing population in marsh habitats need to be identified and evaluated. In addition, recent studies suggest non-native fishes may have an impact on the aquatic community (Harrison et al. 2013, Rehage et al. 2014, Schofield et al 2014) and additional study is needed (Schofield and Loftus 2015). This CESI project supports research to identify and fill gaps in the knowledge of physiological tolerances or potential impacts of select non-native species in south Florida.

Current Status:

This project is progressing into the third year (FY2015 funding). During the first year (FY2013 funding), a literature review was conducted to research the biological and ecological variables (e.g., life-history characteristics, physiological tolerances, habitat requirements) of the non-native fishes in Florida. FY14 funds supported studies to fill gaps in the known physiological tolerances to cold temperatures of Spotfin Spinyeel (*Macrognathus siamensis*) and Banded Cichlid (*Heros severus*), two species key to the development of a quantitative risk assessment model funded under the USGS Natural Resources Preservation Program. The third year of funding supports a study to explore potential differences of impact on aquatic communities between a native and non-predator. Subsequent work will either fill additional information gaps on physiological tolerances of non-native fishes in Florida or expand research into the potential impacts of non-native fishes in Everglades National Park in support of quantitative risk assessment development.

Project Schedule:

Start Date: September 2013

Finish Date: September 2016–September 2018 pending available funding

Detailed Project Budget Information

	2015	2016	2017	Balance to Complete	Total
Federal	$45,000	$45,000	$45,000	$90000	**$16500**
Total	$45,000	$45,000	$45,000	$90,000	$165,000

Contact: Agreement Representative Jeff Kline**,** EVER Jeff_Kline@nps.gov
PI Dr. Pamela Schofield, USGS

Program Name: **Enhanced pest detection at high-risk domestic interdiction sites and marinas/canals systems**
Project ID: 2508
Lead Agency: Florida Department of Agriculture and Consumer Services Division of Plant Industry

Strategy and Biennial Report Objective Addressed: 2-B.1
Invasive Species Strategic Action Framework Goal: 1

Project Synopsis: Florida is a sentinel state and will likely to continue to serve as an entry point for insect pests and plant diseases and their subsequent spread across large regions. Increased inspections of plants, plant materials and their conveyance and increased pest surveillance in the environs at Florida's Agricultural Inspection Stations, marinas and canals through the deployment of personnel at interdiction stations in northern Florida and the marinas and canal systems of southeast Florida. This program will allow for the detection of plant pests that may accompany plant material destined for Florida.

Current Status: Ongoing (project up for renewal annually)

Project Schedule:
Start Date: 9/26/2014
Finish Date: 9/25/2015

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$596,298	$530,260					
SFWMD**							
Local							
Total	**$596,298**	**$530,260**					**1,126,558**

Contact Dr. Greg Hodges, Assistant Director, Division of Plant Industry, Florida Department of Agriculture and Consumer Services.

Program Name: **Enhancement of Fruit Fly Immature Stage ID and Taxonomy**
Project ID: 2509
Lead Agency: Florida Department of Agriculture and Consumer Services Division of Plant Industry

Strategy and Biennial Report Objective Addressed: 2-B.1
Invasive Species Strategic Action Framework Goal: 1

Project Synopsis: This project will build upon our recent accomplishments in collecting a large number of research specimens and a large diversity of *Anastrepha* species (50+) from two different faunistic regions of the Neotropics: the central Andean region (Peru) and Central America (Panama). New collections total over 10,000 adult and immature stage specimens of high quality that are suitable for both morphological and DNA analysis. We discovered previously unknown pest species attacking guava and an edible *Annona* relative in Peru. Additionally, we have sequence data that provides good diagnostic separation of 3 distinct lineages in the *A. fraterculus* complex. The northern (Mexico - Central America) and southern populations (Argentina - southern Brazil) are genetically well defined, while populations in the middle zone (Andean - Amazon regions) may include further taxonomic subdivisions.

This project will increase our capability for rapid and accurate identification of immature stages of pest fruit flies. As invasive fruit flies spread through global commerce in infested commodities, the entire international plant protection community will benefit from better diagnostic data. Domestic beneficiaries include especially the sentinel states of Florida and California which bear the brunt of invasive fruit fly introductions. The survey element of the project will improve offshore agency capabilities in determining economic and alternate host plants of pest species and applying mitigation strategies to export programs, thus reducing numbers of fruit fly colonization events and associated quarantines that negatively impact numerous specialty crops.

Current Status: Ongoing (project up for renewal annually)

Project Schedule:
Start Date: 9/25/2013; 9/25/14
Finish Date: 9/24/2014; 9/24/15

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$164,200	$249,550					
SFWMD							
Local							
Total	**$164,200**	**$249,550**					**$413,750**

Contact: Dr. Greg Hodges, Assistant Director, Division of Plant Industry, Florida Department of Agriculture and Consumer Services.

Program Name: Exotic Management
Project Name: **Early detection of new exotic fish species in adjacent canals Vital Sign**
Project ID: 2601
Lead Agency: National Park Service

Strategy and Biennial Report Objective Addressed: 2-B.2
Invasive Species Strategic Action Framework Goal: 2

Measurable Output(s): The area surveyed that year will provide us with the amount of exotic fish species located in the canals. This will also allow us to detect the establishment of any new species.

Project Synopsis:
The SFCN monitors the canals adjacent to Everglades National Park (EVER) for the purpose of detecting the new exotic species of fish. Introductions of exotic fish can lead to adverse effects on the aquatic food web by altering community structure over time. The annual sampling of the canals bordering EVER is based on pilot work conducted by the SFCN and baseline data provided by Florida International University (FIU). The SFCN conducts sampling in the canals by way of electrofishing, an efficient technique for assessing fish populations. The sampling technique uses multi-pass electrofishing at a fixed location (multiple passes at the same location) along with a significant amount of the sampling occurring at night (nighttime sampling has higher CPUE, larger fish and more rapid species accumulation). Early detection and reporting of a new exotic fish species, that can potentially harm the aquatic ecosystems in our parks, would allow resource managers to respond quickly and efficiently to the threat.
There are at least five groups operating electrofishing boats in the area (two in NPS, 2 in universities, 1 in Florida Fish and Wildlife Conservation Commission). The activities and goals of these five groups could be coordinated with an expansion of the current budget by $15,000 per year. Fully funding all five of these groups would cost ~$150,000 per year. Current information suggests that species composition of canal reaches are stable across years, and that selective removal of exotic fish can shift the species composition of a canal. Rehage et al (2014) have extensively reviewed available research on depopulation of non-native fish over large areas and this review suggests that managing species composition is possible. The ~$150,000 per year budget is likely to support a systematic depopulation effort. This effort will probably be more effective if coupled with $20,000 per year budget (this is a rough estimate) focused on stocking native piscivorous fish in areas where non-natives are removed.

Current Status:
In 2014, a total of 91 bouts were completed this season in three canals bordering EVER: L31W-North (36 bouts), L31W-South (29 bouts), and L29-East (26 bouts), with 40% of electrofishing conducted at night. This year we expanded our monitoring to include the eastern section of the L29 canal. This is the site of the new Tamiami Bridge, a major CERP restoration project that will affect water flow to the main drainage of EVER. A total of 6,626 fish were caught and processed, of which 1,488 (22.5%) were non-native. We found the proportion of non-native fish in the L31W-North to be greater than that of 2013 (63.5% vs 56.3%) and in the L31W-South to be less (12.5% vs 13.9%). For both the north and south sections of the L31W, we found one more species of non-native fish than we did in 2013 (14 vs 13). The L29 East canal contained 14 species of non-native fish. A draft peer reviewed protocol for this monitoring will be completed by June 2016.

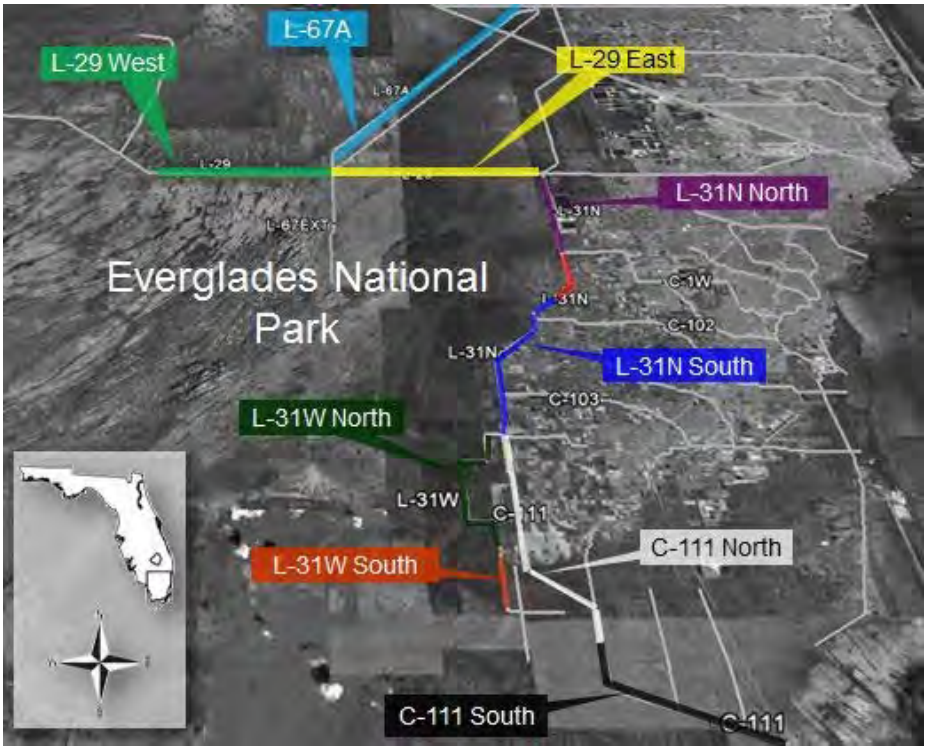
Project Schedule: **Start Date:** 2012 **Finish Date:** ongoing

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$20,000.00	$20,600.00	$21,218.00	$21,854.54	$22,510.18	$86,182.72	$106,182.72
SFWMD*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Local	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	$20,000.00	$20,600.00	$21,218.00	$21,854.54	$22,510.18	$86,182.72	$106,182.72

Contact: Kevin Whelan SFCN NPS **Kevin_Whelan@nps.gov**

Map of Area:



Program Name: Exotic Management
Project Name: **Mexican Red Bellied Squirrel Eradication on the Islands in Biscayne National Park**
Project ID: 2602
Lead Agency: National Park Service

Strategy and Biennial Report Objective Addressed: 2-B.2 and 2-B.3
Invasive Species Strategic Action Framework Goal: 2 and 3

Measurable Output(s): The ongoing eradication program includes systematic squirrel nest surveys, removal, camera trapping and nest box monitoring.

Project Synopsis:
Biscayne National Park initiated an eradication program of the invasive Mexican Red Bellied Squirrel in 2008. The programs main goals were to protect the natural resources of Biscayne National Park while preventing MRBS from expanding its range to other islands or to the US mainland, where it could compete with native wildlife such as native squirrels and state and federally listed species such as the Key Largo woodrat. The potential damage to Florida's agricultural industry was also of concern as MRBS is a significant agricultural pest in its native range.

Current Status: Since 2006, EPMT has found 1,814 dreys, 49 squirrels, over 1,760 hours.

Project Schedule:
Start Date: 2008
Finish Date: ongoing

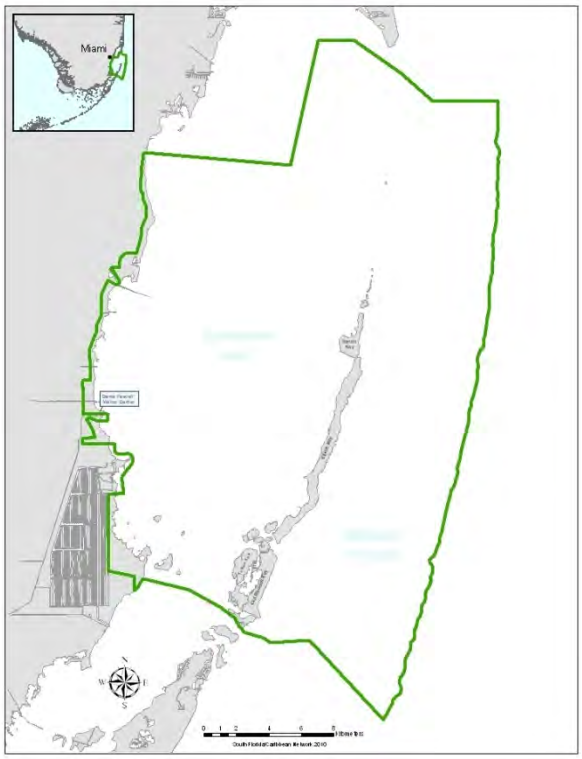
Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$5,000	$5,000.00	$5,150.00	$5,304.50	$5,463.64	$20,918.14	$25,918.14
SFWMD*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Local	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Contact: Tony Pernas EPMT NPS

Pictures:

Area Map:



Project 2602: Mexican Red Bellied Squirrel Eradication on the Islands in Biscayne National Park Page 2 of 2

Program Name: Critical Ecosystem Science Initiative (CESI) and National Park Service Base Funding
Project Name: **Development of comprehensive fish monitoring programs in Everglades National Park**
Project ID: 2603
Lead Agency: NPS

Strategy and Biennial Report Objective Addressed: 2-B.2
Invasive Species Strategic Action Framework Goal: 2

Measurable Output(s): Projects provide data on relative abundance and distribution of non-native fishes and contribute to early detection monitoring in Everglades National Park.

Project Synopsis: Freshwater fish and invertebrates are an integral link in Everglades food webs, providing food for wading birds, larger fish, otters, alligators, and other wildlife (Science Subgroup 1996). However, the construction of canals, imposition of agriculture, and the encroachment of urban development has highly impacted the Everglades ecosystem by loss of habitat and unnatural water quality, quantity, and timing. Altered water timing and flow dynamics and lowering of water levels have likely influenced the dynamics of the freshwater communities in Everglades National Park (EVER; Loftus and Eklund 1994). Understanding the influence of habitat and hydrology on fish assemblages will help provide the knowledge needed to guide restoration programs in the Everglades. Freshwater fisheries monitoring efforts in EVER date back to the 1960s. Most of the long-term monitoring efforts have been designed to track the status and trends of the most common species, understand the influence of habitat and hydrology on fish assemblage structure, and to develop performance measures to evaluate hydrological management and restoration actions. However, very few fish monitoring projects have been designed with the objectives to detect, track the abundance of, or evaluate the impacts of non-native fishes.

Hydrologic restoration alone will not solve the non-native species problem in south Florida's National Parks. In addition, some of the water management actions needed to achieve hydroperiod restoration may pose a threat of introducing new non-native species. As of 2007, 34 species of non-native fishes were reproducing in Florida (Shafland et al 2008). Since 1965, 17 non-native freshwater fish species have been observed in Everglades National Park and 16 of the 17 species were first established in canals outside the boundaries of EVER prior to colonizing inside (Loftus 1988, Kline et al. 2014). After water management actions that changed inflows from canals to EVER, Kline et al. (2014) observed increases in the number of new non-native species observed in suggesting fish are spreading from canals into EVER marshes (Kline et al. 2014). Although the effects of exotic fishes in the Everglades marshes are largely unstudied and unknown (Schofield and Loftus in review), an increase in the abundance, proportion, or number of species of non-native fish indicates adverse conditions for the restoration of EVER. Approximately 25% of Everglades National Park's internal monitoring efforts have been designed with objectives to assess changes in the relative abundance or distribution of non-native fishes in EVER. One sub-project in particular, EVER's Parkwide Monitoring effort, was designed with an objective to contribute to early detection and tracking the distribution of non-native fishes on the freshwater marsh.

Current Status: Monitoring efforts are ongoing that provide a network of reference sites in EVER. Several new non-native species have been detected since 2000. The spread of and distribution of the new non-native fishes have been documented throughout the freshwater marshes.

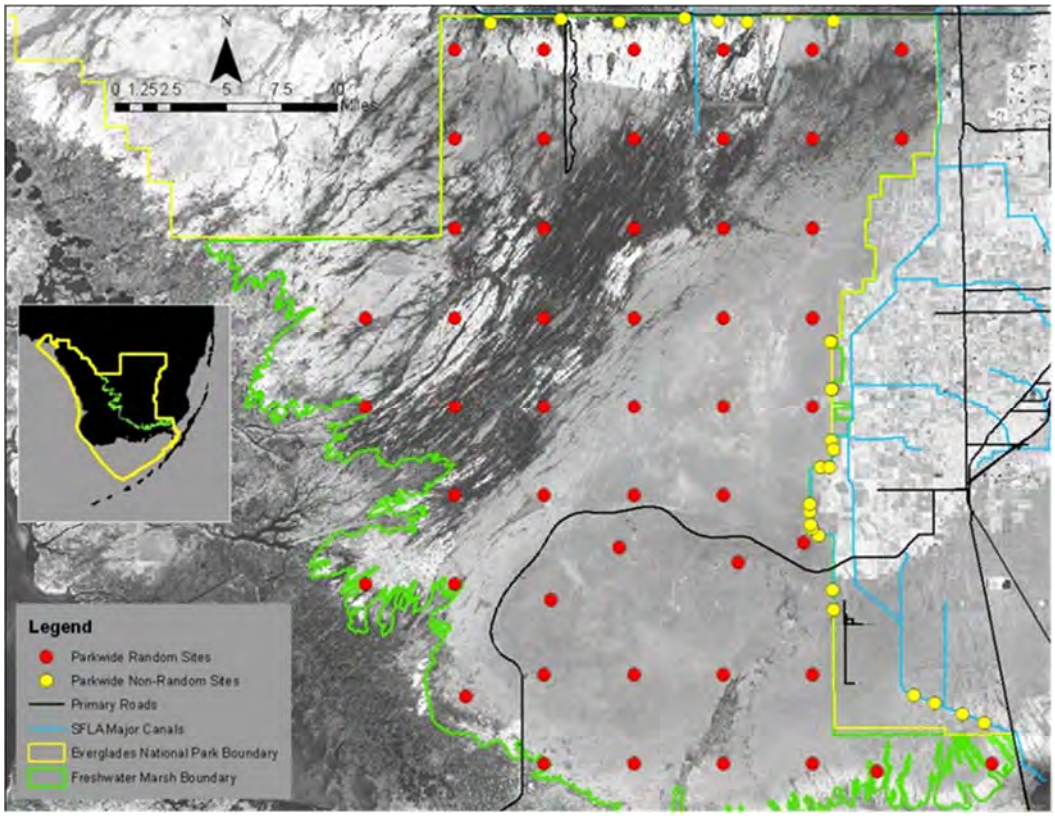
Project Schedule:
Start Date: 1999
Finish Date: Ongoing

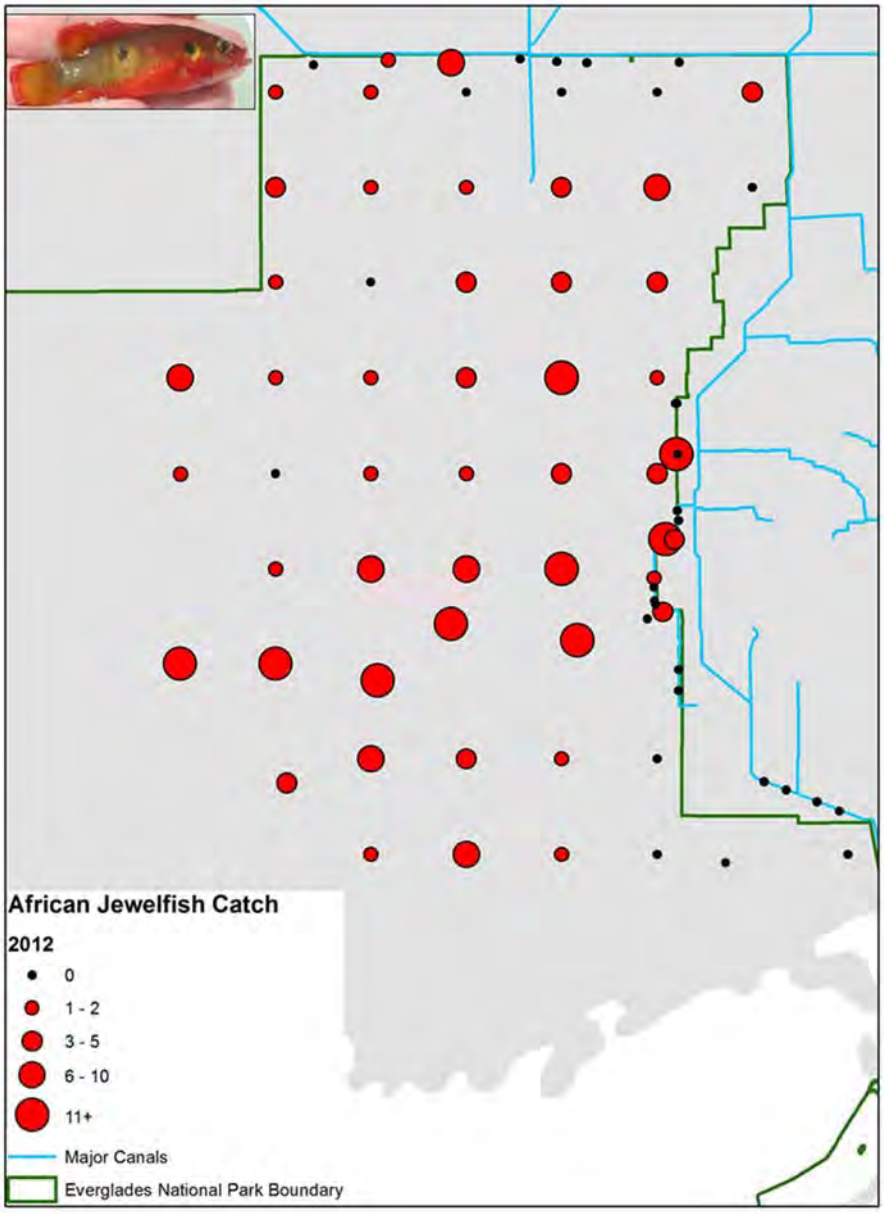
Detailed Project Budget Information

	2015	2016	2017	2018	2019	Balance to Complete	Total
Federal	$57,000	$58,150	$59,300	$60,450	$61,550	ongoing	$239,450
Total	$57,000	$58,150	$59,300	$60,450	$61,550	ongoing	$239,450

Contact: Jeff Kline Jeff_Kline@nps.gov

Map of area: Map of ENP's Parkwide monitoring effort





Project 2603: Development of comprehensive fish monitoring programs in Everglades National Park Page 3 of 3

Program Name: **Cooperative Agricultural Pest Survey**
Project ID: 2604
Lead Agency: Florida Department of Agriculture and Consumer Services Division of Plant Industry

Strategy and Biennial Report Objective Addressed: 2-B.2
Invasive Species Strategic Action Framework Goal: 2

Project Synopsis: The Cooperative Agricultural Pest Survey Program is a combined effort by state and federal agricultural agencies to conduct surveillance, detection, and monitoring of exotic plant pests of agricultural and natural plant resources and biological control agents. Survey targets include plant diseases, insects, weeds, nematodes, and other invertebrate organisms.

Current Status: Ongoing (project up for renewal annually)

Project Schedule:
Start Date: 1/1/2015
Finish Date: 12/31/2015

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$389,305	$389,305					
SFWMD**							
Local							
Total	**$389,305**	**$389,305**					**778,610**

Contact: Dr. Greg Hodges, Assistant Director, Division of Plant Industry, Florida Department of Agriculture and Consumer Services.

Hyperlink: http://www.freshfromflorida.com/Divisions-Offices/Plant-Industry/Bureaus-and-Services/CAPS

Program Name: An Integrated Early Detection, Rapid Response, Management, and Monitoring Program for Everglades Invasive Reptiles and Amphibians
Project Name: **Everglades Invasive Reptile and Amphibian Motoring Program**
Project ID: 2605
Lead Agency: University of Florida, funded jointly by the FWC and SFWMD, supported by Zoo Miami

Strategy and Biennial Report Objective Addressed: 2-B.2, 2B.3 and 2B.4
Invasive Species Strategic Action Framework Goal: 2,3 and 4

Measurable Output(s):
Removal of nonnative wildlife is conducted while collecting location information, data is collected on diet, body condition, sex, and reproductive status. The information provided is used to determine the status and spread of invasive reptiles and amphibians and used to assist in removal of invasive species while determining the impact of invasive species on native wildlife within the Everglades Cooperative Invasive Species Management Area.

Project Synopsis:
The Everglades Invasive Reptile and Amphibian Monitoring Program (EIRAMP) was initiated in 2010, prompted by and addressing needs defined by the Everglades Cooperative Invasive Species Management Area (ECISMA) Early Detection &Rapid Response plan. This inventory and monitoring program, designed to detect species before they become established, helps to provide a foundation to meet the State and DOI science needs for invasive wildlife management. It provides natural areas managers life history and location information to contribute to development of effective control methods for non-native reptiles and amphibians that threaten ecosystem health. This program also involves surveying for native reptiles, amphibians, and mammals concurrently with surveys for invasive species. This provides baseline data to determine impacts of exotic species on native fauna and ecosystems within State lands and other regional conservation lands. When possible, all nonnative species encountered are removed survey all field activities.

Current Status:
Currently funded through fiscal year 2014/15**.**

Project Schedule:
Start Date: October 2010
Finish Date: Will be determined on availability of funds

Detailed Project Budget Information

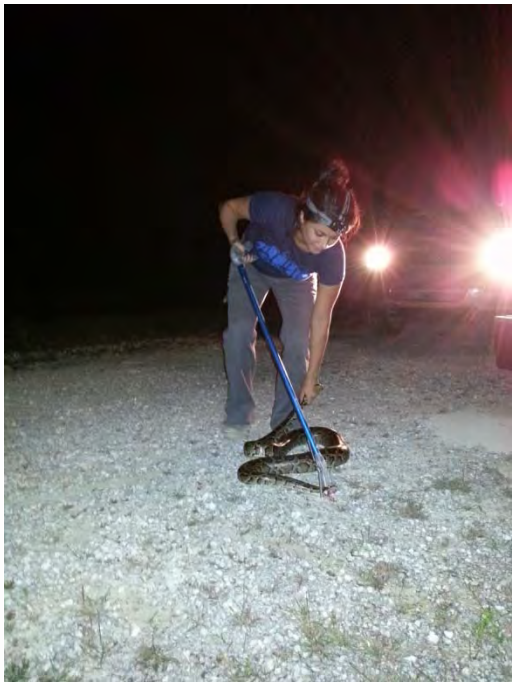
	2013/14	2014/15	2015/16	2016/17	2017/18	Balance to Complete	Total
Federal							
State (FWC)	63,250	50,000	75,000*	75,000*	75,000*	$200,000	**538,250**
State (SFWMD)	131,250	131,250*	131,250*	131,250*	131,250*	$525,000	**1,181,250**
Private Grants or Donations	50,000	75,000					**125,000**
Zoo Miami	1,440						**1,440**
Total	**245,940**	**256,250**	**206,250**	**206,250**	**206,250**	**725,000**	**1,845,940**

***Dependent on availability of funds.**

Contact: Dr. Frank Mazzotti, fjma@ufl.edu

Hyperlink: http://crocdoc.ifas.ufl.edu/projects/eiramp/

Pictures:



Map of area:

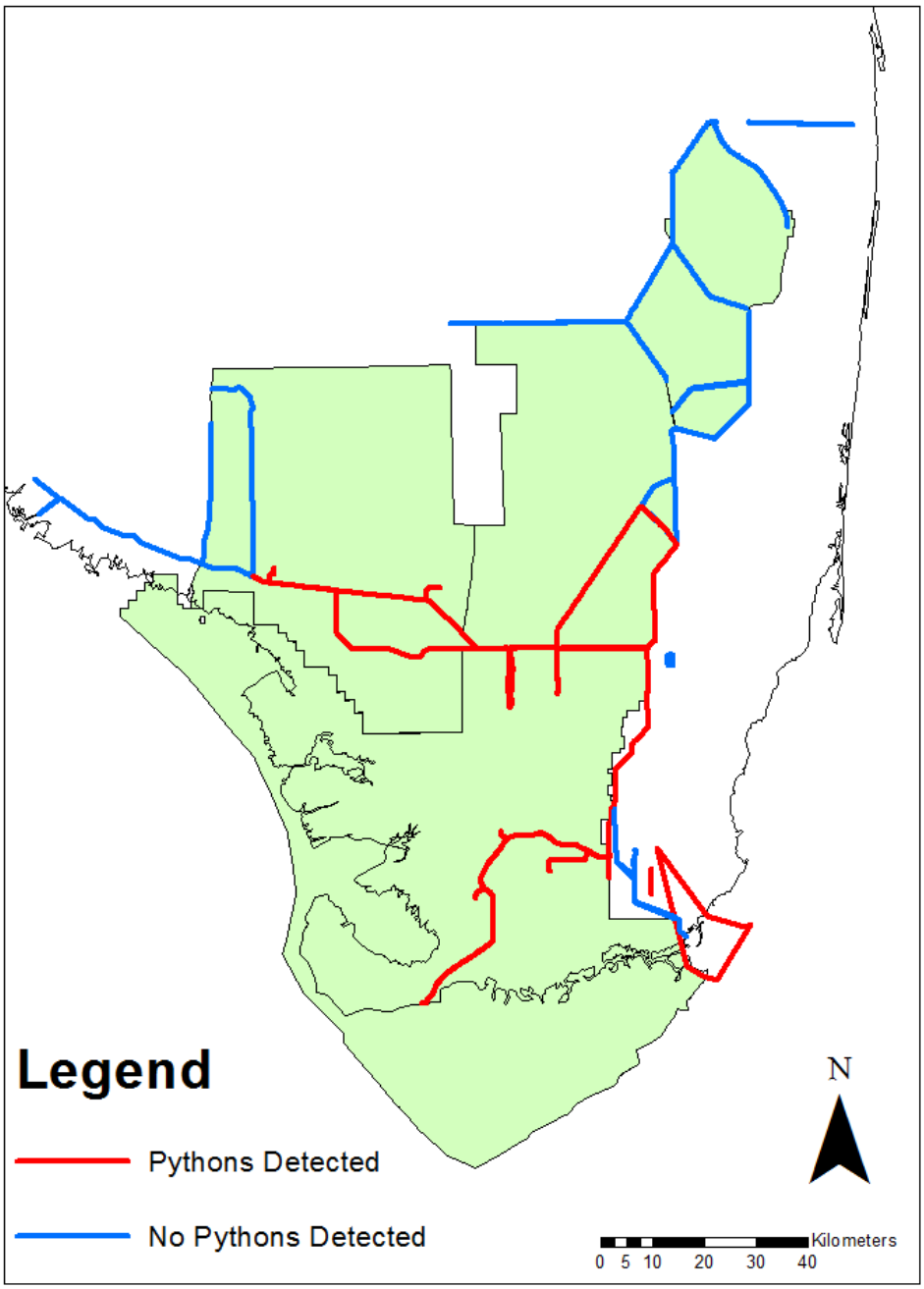


Figure 1. Location of regular EIRAMP (Everglades Invasive Reptile and Amphibian Monitoring Program) survey routes. Burmese pythons have been detected on the red routes. No pythons have been detected on the blue routes.

Program Name: Invasive Species Population Management
Project Name: **Metagenomic survey in south Florida waters**
Project ID: 2606
Lead Agency: USDA/APHIS Wildlife Services National Wildlife Research Center

Strategy and Biennial Report Objective Addressed: 2-B.2
Invasive Species Strategic Action Framework Goal: 2

Measurable Output(s): Taxa identified from water in and near ENP

Project Synopsis: Metagenomics uses the technology of genome sequencing to obtain sequences of every piece of DNA in a single environmental sample. These are then compared to publicly available databases such as the National Center for Biotechnology Information to assess taxonomic diversity and abundance, from bacteria to birds, within a sample. This is a powerful tool for detecting species that are found in low numbers and/or are difficult to detect through traditional field methods. We have applied this tool, using cutting-edge technology, to samples of water from Everglades National Park and surrounding areas to identify the suite of invasive, native, and endangered species within the Park. The metagenomics approach could be applied as a regular monitoring tool and would be extremely powerful used in conjunction with traditional surveillance methods to measure and preserve biodiversity in our natural communities.

Current Status: Water samples were analyzed using the Titan supercomputer at Oak Ridge National Laboratory. Tentative identifications were made on thousands of taxa from viruses to mammals. These include many disease organisms and invasive species. Positive taxonomic identifications require specific genetic verifications which have yet to be performed, pending NPS input and recommendations.

Beyond the initial analyses, there has been no progress. Further application of this methodology is dependent on acquisition of additional funding.

Project Schedule:
Start Date: 2014
Finish Date: ongoing

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$22,000	$12,500	$12,500	$12,500	$12,500	$37,500	**$72,000**
SFWMD**							
Local							
Total	$22,000	$12,500	$12,500	$12,500	$12,500	$37,500	$72,000

Contact: Michael Avery USDA APHIS National Wildlife Research Center

Program Name: Invasive Species Population Management
Project Name: **Development of eDNA for Nile Monitor detection and removal**
Project ID: 2607
Lead Agency: USDA APHIS National Wildlife Research Center

Strategy and Biennial Report Objective Addressed: 2-B.2 and 2B.3
Invasive Species Strategic Action Framework Goal: 2 and 3

Measurable Output(s): (1) Development and publication of methodology to identify Nile monitor eDNA in water samples; (2) Collection and analyses of water samples from south Florida canals to detect presence of Nile monitors.

Project Synopsis: Determining the extent of the range of this invasive reptile currently depends on direct sightings of animals in the field. Assaying water from south Florida canals for presence of DNA will expand detection probabilities and will increase chances of locating incipient populations before they are fully established. Once the analytical method is developed and verified, the method will be implemented in canals and other waterways of south Florida, within the current known range as well as beyond it, to supplement information obtained from visual surveys.

Current Status: Method development is underway. This is an on-going research effort involving cooperators in Cape Coral and wildlife genetics personnel in Ft. Collins.

Project Schedule:
Start Date: 2014, method development and verification.
Finish Date: ongoing, field applications 2015

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$12,000	$15,000	$16,000	$18,000	$15,000	$49,000	**$76,000**
SFWMD**							
Local							
Total	$12,000	$15,000	$16,000	$18,000	$15,000	$49,000	$76,000

Contact: Michael Avery USDA APHIS National Wildlife Research Center

Program Name: Invasive Species Population Management
Project Name: **Burmese python eDNA development and application**
Project ID: 2608
Lead Agency: USDA/APHIS Wildlife Services National Wildlife Research Center

Strategy and Biennial Report Objective Addressed: 2-B.2, 2-B.3, and 2-B.4
Invasive Species Strategic Action Framework Goal: 2, 3 and 4

Measurable Output(s): (1) Development and publication of methodology to identify Burmese python eDNA in water samples; (2) Collection and analyses of water samples from south Florida canals to detect presence of pythons.

Project Synopsis: Using captive animals, we developed a technique to detect DNA from Burmese pythons in water (Piaggio et al. 2014. Molecular Ecology Resources 14:374-380). The method we developed is efficient, inexpensive, and does not produce false positives. We are now applying this method to survey South Florida waterways to detect the presence of this cryptic species. Sample collection is taking place in conjunction with on-going surveys conducted by University of Florida (UF) researchers along routes that are part of their Everglades Invasive Reptile and Amphibian Monitoring Program (EIRAMP). We will initially use two of the survey routes, one along the Tamiami Trail (US Route 41) in the heart of the known Burmese python range, and the other along the L-5 canal 64 km to the north in an area where pythons have seldom been recorded. Each of the sampling transects will be 25 km long, and we will sample at 1-km intervals. At each sampling location, we will collect 5 independent samples. Sampling will occur quarterly to document seasonal changes. Samples will be analyzed at the UF wildlife genetics lab in Gainesville following methodology described by Piaggio et al. (2014). We will apply occupancy modeling to the findings. As new information is acquired, survey locations will likely change to address updated needs.

Current Status: Methodology developed and published in 2013/2014; field sample collections and analyses are on-going. Three sets of initial samples have been collected; analysis of these samples at UF is continuing. Additional sampling locations are under consideration.

Project Schedule:
Start Date: 2014
Finish Date: on-going

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$22,000	$15,000	$18,000	$18,000	$18,000	$54,000	**$91,000**
SFWMD**							
Local							
Total	$22,000	$15,000	$18,000	$18,000	$18,000	$54,000	$91,000

Contact: Michael Avery USDA APHIS National Wildlife Research Center

Program Name: Miami-Dade Fire Rescue (MDFR) Venom Response Program
Project Name: **MDFR Rapid Response and Invasive Species Removal**
Project ID: 2609
Lead Agency: Miami-Dade County

Strategy and Biennial Report Objective Addressed: 2-B.2, 2-B.3, and 2-B.4
Invasive Species Strategic Action Framework Goal: 2, 3 and 4

Measurable Output(s):
Number of incidents to which personnel respond
Number of non-native species removed from environment

Project Synopsis:
The Miami-Dade Fire Rescue Venom Response Program has been involved in removal of non-native species from Miami-Dade County since the inception of the program in 1998. In that time we have removed 100s of animals that have been reported by citizens on Miami-Dade County. The program operates with three persons on a rotating 24 hour schedule. As the unit is staffed 24 hours, personnel are available to remove non-native animals that have been reported within the boundaries of Miami-Dade County. These removals are coordinated with the local, state and federal agencies and the animals removed are turned into the state of Florida Fish and Wildlife Conservation Commission for final disposition. These activities have been solely funded via county government. Prior to coordination with the cooperating agencies, the program was operating as a de facto Early Detection and Rapid Response entity.

Current Status:
Personnel from the unit are currently actively engaged in removal of exotic species during the course of their normal 24 hour workday, and respond to complaints of non-native species regularly (more than 100 calls per year). Recovered 2 new species, a Madagascar leaf nosed snake and a Taiwan beauty snake this year.

Project Schedule:
Start Date: October 2014
Finish Date: Open

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal							
SFWMD**							
Local	*$40,000	*$750, 000					
Total	*$40,000	*$750, 000					

* $40,000 Staff Hours for removal, $300-$400, 000 total personnel cost, $300,000 for anti-venom and other medication expenses.

Contact: Captain Jeffrey Fobb – 786-331-4443

Hyperlink: **http://www.miamidade.gov/fire/about-special-venom.asp**

Program Name: Invasive Exotic Species Management
Project Name: **Develop and Implement a FWS Invasive Species Strike Team**
Project ID: 2610
Lead Agency: U.S. Fish and Wildlife Service (USFWS)
Funding Source: Federal
Goal(s) Addressed: 2.B.1

Measurable Output(s): Project acres treated including Early Detection and Rapid Response (EDRR) projects, gross area surveyed, actual infested acres treated, cost per acre, herbicide amounts utilized, prioritized lists of invasive plants and animals, modify or enhanced control methods, funding totals, invasive exotic plant species targeted, inventory and monitoring methodologies for invasive plants and animals, treatment effectiveness, assessment and evaluation.

Project Synopsis: Secure and appropriate Congressional funding to develop and implement a highly mobile FWS Invasive Species Strike Team (2-member) to rapidly respond to, and control incipient or newly established infestations (EDRR) of highly invasive exotic species (plants and animals) occurring on National Wildlife Refuges (NWRs) in Florida. Officially formed in 2004, the Region 4 Invasive Species Strike Team (R4 ISST) will provide administration, funding and oversight support for projects involving control and treatment of moderate and dense infestations of invasive exotic plants utilizing highly specialized and experienced exotic plant contractors on SE and Florida NWRs. In addition, the R4 ISST will provide technical assistance to Florida and SE NWR refuge managers and staff concerning invasive species identification, control and management, and lastly, will represent the interest of the FWS on associated invasive species task forces or working groups, and Regional Cooperative Invasive Species Management Areas (CISMAs) established throughout peninsular Florida.

Current Status: As of June 2010, the FWS R4 ISST was operating without the Assistant Strike Team Leader (ASTL) position leaving the Strike Team Leader as the sole individual comprising the team. The ASTL position was abolished in 2013 during regional workforce planning. In addition, the R4 ISST Leader has since assumed collateral duties of another vacant position at the duty station, i.e., essentially its functional capacity has been reduced by 75%. The current situation has severely hampered the ability of the R4 ISST to perform its intended functions: responding to new invasions, i.e., Early Detection and Rapid Response (EDRR), providing technical support to refuge managers to effectively manage invasive species, providing a reliable funding source for containment, control and management projects, and participating in priority regional invasive species-related conferences, task forces, workshops, and field activities.

For Fiscal Year (FY) 2015, $315,000 was made available to Southeast (SE) and Florida (FL) refuges for invasive plant and exotic wildlife field projects split 25:75 between SE and FL refuges respectively. This was a 10% decline from FY14. Eight projects were funded on SE refuges, and four projects were funded on FL refuges. Overall, FWS R4 ISST annual budgets to complete field projects have declined an average of 60% since 2008. Since its inception, the R4 ISST has provided over $4M to SE and FL refuges for the control and management of non-native and non-native invasive plants.

For the FY14-15 reporting period, the R4 ISST Leader, using available refuge staff, completed 28+ EDRR non-native invasive plant projects on J.N. "Ding" Darling NWR as collateral work duties restricted travel. The gross acres covered were 187, and the infested acres treated were 10.5. In addition, the R4 ISST provided assistance to the Southwest Florida Cooperative Invasive Species Management Area (SW FL-CISMA) serving on the steering committee, invasive plant and animal EDRR sub-committees, and managed several SW FL-CISMA grants (2) intended for outreach and/or quarterly SW FL- CISMA field workdays.

Estimated Cost: ≥$10 million

Project Schedule:
Start Date: October 1, 2004
Finish Date: N/A

Detailed Project Budget Information ($1000s)

	Thru 2009	2010	2011	2012	2013	2014	2015	Balance to complete	Total
Federal	3,868	494	494	494	494	494	494	N/A	6,832
State									
Tribal									
Local									
Other									
Total	**3,868**	**494**	**494**	**494**	**494**	**494**	**494**	**N/A**	**6,832**

Contact: William G. Thomas, Jr, Region 4 Invasive Species Strike Team Leader, USFWS, (239) 472-1100 x 248, William_G_Thomas@fws.gov

Figure 1. Non-native Rainbow boa surrendered at FFWCC and SW FL-CISMA co-sponsored Pet Amnesty Day, Naples, Florida, November 15, 2014.

Program Name: **Giant African Land Snail Eradication Program**
Project ID: 2611
Lead Agency: Florida Department of Agriculture and Consumer Services Division of Plant Industry

Strategy and Biennial Report Objective Addressed: 2-B.2
Invasive Species Strategic Action Framework Goal: 2

Project Synopsis:

The goal of this cooperative agreement is to provide federal funds to support continued survey, regulatory, control and outreach activities related to the presence of Giant African Land Snail (GALS) in Florida. These activities are intended to: 1) identify infestations; 2) remove the pest from the environment; 3) ensure that persons moving plants and plant material are not further distributing the pest; and 4) educate the public about potential health issues associated with the pest and elicit assistance in reporting pest presence. DPI will continue to closely work with APHIS to implement a program that is scientifically-based and adapted to the challenges presented by this pest within the Florida landscape.

Project Schedule:
Start Date: 4/16/2014
Finish Date: 4/15/2015

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$2,400,000	$2,400,000					
SFWMD**							
Local***	$670,976	$670,976					
Total	**$3,070,976**	**$3,070,976**					**6,141,952**

*** note that this refers to state funds in this case
Contact: Dr. Greg Hodges, Assistant Director, Division of Plant Industry, Florida Department of Agriculture and Consumer Services.

Program Name: FWC Nonnative Fish and Wildlife Program
Project Name: **Northern African Python Removal**
Project ID: 2612
Lead Agency: Florida Fish and Wildlife Conservation Commission

Strategy and Biennial Report Objective Addressed: 2-B.2 and 2-B.3
Invasive Species Strategic Action Framework Goal: 2 and 3

Measurable Output(s): Since 2009, 28 North African pythons have been removed from the Bird Basin Drive. During the reporting period, five of these were captured and removed from the Florida ecosystem.

Project Synopsis:
Northern African python sightings were first noted in west Miami in 2002. A population of Northern African pythons has been documented in the Bird Drive Recharge Area, an approximately 6-square-mile area in western Miami-Dade County. While the FWC has determined that the population is likely limited to a 6-square-mile area, the population is not uniformly distributed because of the lack of good habitat. Current data indicates the Northern African python has been in this area for more than ten years. Biologists believe there may be two or three generations of Northern African pythons; it is unknown how often successful reproduction has occurred. This population was likely introduced to the area when one or more Northern African pythons were released or escaped into the area but no evidence exists on the true origin. Biologists characterize the population of Northern African pythons in south Florida to be "possibly established" and consider eradication still possible.

Since 2009, FWC and partners, including the Miccosukee tribe of Indians, South Florida Water Management District, Miami-Dade County and other local and federal agencies have removed 28 Northern African pythons, including two juveniles, in the Bird Drive Recharge Area. During each dry season, FWC staff and cooperators with the Everglades Cooperative Invasive Species Management Area (ECISMA) conduct surveys and removal efforts on days with optimal weather conditions for finding pythons along established routes in the Bird Drive Recharge Area..

Current Status: Ongoing

Project Schedule:
Start Date: 2009
Finish Date: Not determined

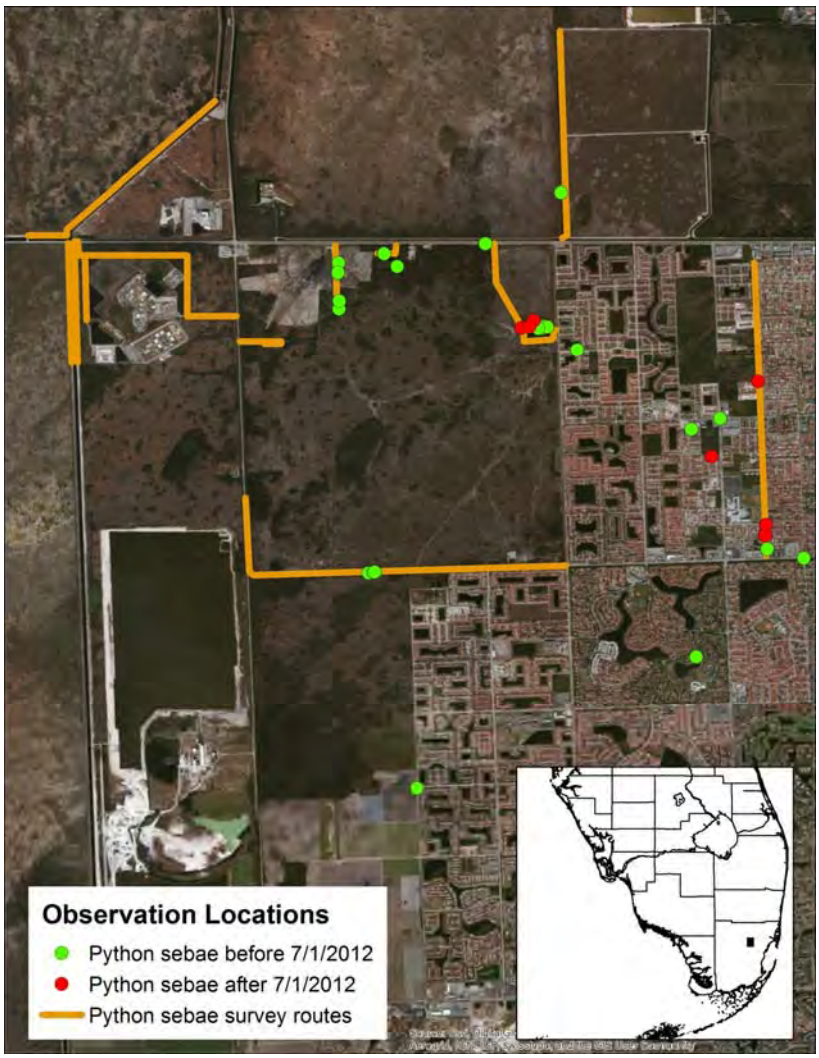
Detailed Project Budget Information
This project has been run primarily by staff time and volunteer time of the ECISMA cooperators. No dedicated budget for this project is identified.

Detailed Project Budget Information

	2013/14	2014/15	2015/16	2016/17	2017/18	Balance to Complete	Total
Federal							
State (FWC)		$68,000	$81.806.87	50000	50,000*		**$218,000**
Local							
Private Grants or Donations			$63,000				**$30,000**
Total	**$**	**$68,000**	**$144,806.87**	**$50,000**	**$50,000**		**$248,000**

Contact: Kristen Penney Sommers, Section Leader,
Kristen.Sommers@MyFWC.com 850-488-3831

Map of area:



Program Name: Exotic Management

Project Name: **Corridors of Invasiveness Vital Sign**
Project ID: 2613
Lead Agency: National Park Service

Strategy and Biennial Report Objective Addressed: 2-B.2
Invasive Species Strategic Action Framework Goal: 2

Measurable Output(s): Routine annual data summary reports to the park surveyed in a particular year. Individual infestations are reported together with waypoint information, infestation area, abundance, field of view estimate, treatment data, and comments. Summary data is also reported by species, whether it's new to the park, the number of infestations, minimum size of infestation found, and maximum size of infestation found, total area, and percent infested in the field of view. Maps and photos are included.

Project Synopsis:
Early detection and rapid response to these new species of exotic plants is important to maintaining the integrity of the parks' natural habitats in a cost-effective manner. The purpose of the Corridors of Invasiveness vital sign is to have early detection of these potential invaders and facilitate rapid treatment of these plants while they are small and isolated. The Corridors of Invasiveness Vital Sign detects new invasive exotic plants that appear/establish along corridors in Big Cypress National Preserve (BICY), Biscayne National Park (BISC), and Everglades National Park (EVER). Our collaboration with the Exotic Plant Management Team (EPMT) of the Florida and Caribbean Office (FLACO) allows early detection and rapid response to the threat of invasive exotic plants. The protocol for this vital sign was completed and sent out for external peer review. The protocol was approved by the Regional Coordinator and officially accepted in the summer of 2013 (available here: https://irma.nps.gov/App/Reference/DownloadDigitalFile?code=472357&file=20130709_Corr_Inv_Protocol_nrss.pdf).
Expansion of this project could be made to include all other state/federal lands in the region (~15 additional areas covering ~2000 square miles or ~75% of area that is currently monitored). Applying concept to other areas would probably cost ~$30,000 per year.

Current Status:
A complete sample of all selected survey sites in the three National Park Service units (BISC, EVER, BICY) occurs every five years. Sampling effort is balanced across years by using a rotating design, with year one starting in Biscayne National Park, year two dedicated to the eastern region of Everglades National Park, and year three dedicated to the south region of Big Cypress National Preserve. Because most of the area of Biscayne National Park is marine, survey sites are restricted to areas of the mainland and a few of the off-shore keys. Therefore, all of BISC can be surveyed within one annual cycle. Since all of BISC will be surveyed in a single year, year four will be dedicated to the western region of EVER, and year five will be dedicated to the north region of BICY, with year six starting the cycle over again, and dedicated to all of BISC. So far BISC, Eastern EVER, and South BICY have been completed. This summer, western EVER will be surveyed.

Project Schedule:
Start Date: 2011
Finish Date: Ongoing

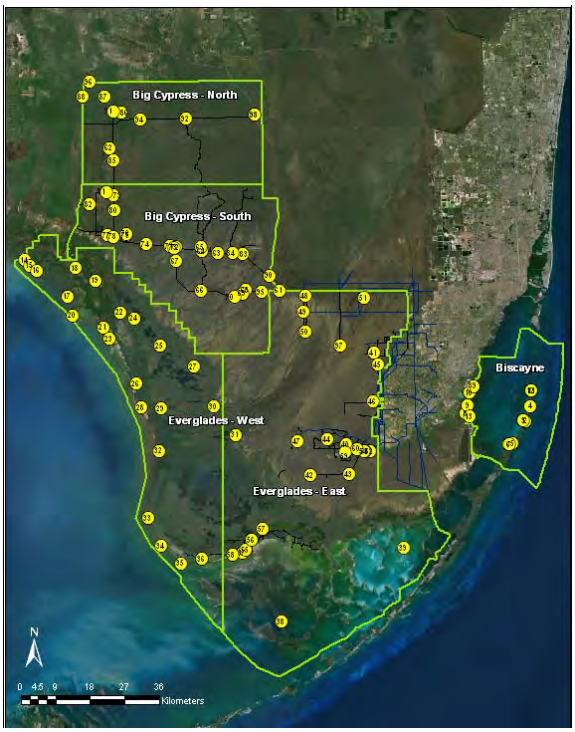
Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$20,000.00	$20,600.00	$21,218.00	21,855.00	$22,510.18	$86,182.72	$106,182.72
SFWMD**	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Local	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	$20,000.00	$20,600.00	$21,218.00	21,855.00	$22,510.18	$86,182.72	$106,182.72

Contact: Kevin Whelan SFCN NPS

Pictures:

Map of area:



Program Name: **Fruit Fly Eradication Methods Development**
Project ID: 2514
Lead Agency: Florida Department of Agriculture and Consumer Services Division of Plant Industry

Strategy and Biennial Report Objective Addressed: 2-B.2
Invasive Species Strategic Action Framework Goal: 2

Project Synopsis: Fruit flies are one of the most potentially destructive pests in the world. With a wide host range of fruits, vegetables and nuts, most of Florida's crops, including citrus, fall within the host range. This makes it imperative to act quickly and decisively when any species of fruit fly is found. The division is currently utilizing several methods to support and protect Florida from exotic fruit fly pests.
The Mediterranean fruit fly, *Ceratitis capitata* (Wiedemann), is one of the world's most destructive fruit pests. Because of its wide distribution over the world, its ability to tolerate colder climates better than most other species of fruit flies, and its wide range of hosts, it is ranked first among economically important fruit fly species.

Its larvae develop and feed on most deciduous, subtropical, and tropical fruits and some vegetables. Although it may be a major pest of citrus, often it is a more serious pest of some deciduous fruits, such as peach, pear, and apple. The larvae feed upon the pulp of host fruits, sometimes tunneling through it and eventually reducing the whole to a juicy inedible mass.
This project is aimed at the discovery of alternative soil drench control measures that can be utilized to control the pupating life stage that is present in soil beneath host fruit trees.

Project Schedule:
Start Date: 2/15/2015
Finish Date: 2/14/2016

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$35,000	$25,000					
SFWMD**							
Local							
Total	**$35,000**	**$25,000**					**60,000**

Contact: Dr. Greg Hodges, Assistant Director, Division of Plant Industry, Florida Department of Agriculture and Consumer Services.

Program Name: Aquatic Invasive Species Program – Southeast Region
Project Name: **eDNA monitoring of five aquatic invasive species in South Florida**
Project ID: 2615
Lead Agency: USFWS

Strategy and Biennial Report Objective Addressed: 2-B.2
Invasive Species Strategic Action Framework Goal: 2

Measurable Output(s): Annual presence/absence data for five aquatic invasive species from 200 sampling sites across Everglades CISMA Boundaries

Project Synopsis: Early detection of aquatic nuisance species (ANS) can pose formidable technical challenges because it depends on the ability to recognize the presence of ANS at extremely low densities and often under difficult conditions. Based on the detection of the targets species' DNA in the environment, environmental DNA (eDNA) methods are tractable over traditional ANS monitoring methods because of their increased sensitivity and specificity as well as potential greater throughput and cost effectiveness. Currently the USFWS's Region 4 Conservation Genetics lab has developed eDNA qPCR markers for five ANS taxa (Mayan cichlid, African jewelfish, bullseye snakehead, lionfish, Asian swamp eel) that will be used for ANS monitoring and rapid response purposed in the Everglades. We propose to train and use citizen scientists to collect and filter water samples throughout the Everglades, then test each filter for the presence of each species listed above in an effort to monitor for invasion and dispersal of each species in an throughout the Park.

Pricing below includes one GS-11 geneticist to carry out the work and is based on sampling 200 locations in the South Florida annually. An overhead rate of 20% was applied to the overall budget.

Project Schedule:
Start Date: 2014 Finish Date: TBD

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Total
Federal	114,000	99,396	102,378	105,449	108,613	**529,836**
SFWMD**						
Local						
Total	114,000	99,396	102,378	105,449	108,613	**529,836**

Contact: Dr. Gregory R Moyer, USFWS, Conservation Genetics Lab, 5151 Spring St, Warm Springs, GA: Greg_Moyer@fws.gov; 706.655.3382 ext 1231; or Dr. John Galvez, USFWS, Peninsular Florida Fisheries Office, Vero Beach, FL: John_Galvez@fws.gov ; 772-538-9934

Hyperlink: http://www.fws.gov/warmsprings/CGL/index.html

Program Name: Everglades Cooperative Invasive Species Management (ECISMA)
Project Name: **Early Detection Rapid Response**
Project ID: 2616
Lead Agency: ECISMA

Strategy and Biennial Report Objective Addressed: 2-B.2
Invasive Species Strategic Action Framework Goal: 2

Measurable Output(s):
ECISMA will assess, coordinate and initiate rapid response to new invasive species. Measurable output will be the number of species assessed and the associated response actions.

Project Synopsis: ECISMA will continue to coordinate, assess and respond to new invasive species, using the ECISMA EDRR plan as a framework. Invasive species assessed will have been reported to ECISMA via EDDMapS or 1-888-Ive Got 1. The invasive species that are currently considered priority rapid response candidates:

Bruguiera gymnorrhiza, Chrysopogon aciculatus, Dalchampia scamdens, Heteropterys glabra Petenia splendida

Current Status: Ongoing management of ECISMA priority EDRR species through ECISMA workdays and contracts. Florida Fish and Wildlife Conservation Commission provides funding for rapid response for new invasive species documented on Florida CISMA EDRR plant lists. The National Park Service, Broward County, Miami-Dade County and others have provided personnel and supplies to respond to newly detected invasive species eradication efforts.

Project Schedule:
Start Date: 2014 Finish Date: TBD

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Total
Federal	$2,000					**2,000**
FWC	$15,000	$15,000	$50,000	$50,000	$50,000	**180,000**
Friends of ECISMA	$30	$10,000	$10,000	$10,000	$10,000	**40,030**
Total	**17,030**	**25,000**	**60,000**	**60,000**	**60,000**	**222,030**

Contact: Art Roybal, Dennis Giardina, Tony Pernas

Hyperlink: www.evergladescismna.org, www.friendsofecisma.org

Program Name: Invasive Exotic Species Management
Project Name: **Eradication of the Giant Gambian Pouched Rat**
Project ID: 2700
Lead Agency: FWC
Cooperating Agencies: USDA-WS, USFWS, Texas A&M
Funding Source: State

Strategy and Biennial Report Objective Addressed: 2-B.3
Invasive Species Strategic Action Framework Goal: 3

Measurable Output(s): Number of rats harvested, rat movements and home range, development of attractants, bait deployment stations and effective baits, susceptibility to baits, and effectiveness of attractants, baits and bait delivery systems

Project Synopsis: A reproducing population of Giant Gambian pouched rats (GPRs) was reported to the USFWS in 2004.In February 2006, a pilot eradication project was initiated on Crawl Key. In June 2006, USDA–APHIS Wildlife Services (USDA-WS) deployed 94 bait stations. Supplemental trapping was done to obtain rats for radio telemetry. From January to May 2007, 1,000 bait stations were placed throughout Grassy Key hammock and residential areas. In March 2007, 20 GPRs were trapped for the USDA-APHIS National Wildlife Research Center for studies of more effective attractants and third generation rodenticides. USDA-WS developed GPR-specific bait deployment stations effectively eliminating the non-target mortality observed in the earlier stages of baiting and trapping, and in addition, after numerous trials, developed an effective bait, zinc phosphide, to eliminate GPRs.

In May 2007, the eradication effort commenced with the pre-baiting of roughly 600 stations around the periphery of the core GPR infestation area. As of January 2008, direct baiting and post-baiting monitoring has resulted in the removal of 73 GPRs from Grassy Key, Crawl Key and adjacent areas. An additional 10 GPR were captured between January-October 2009. A few GPR remained in areas that could not be accessed. Captures and sightings subsided after October 2009 following these initial intensive very successful trapping efforts.

A female GPR was captured in September 2009, sterilized and was fitted with a radio collar, and subsequently released on Grassy Key as a 'Judas' specimen in hopes of attracting other wild GPR, and was monitored for its movements. Tracking indicated she moved frequently from her original capture location to an adjacent 'no access' property. However, this collared 'Judas' rat did not work out as well as hoped, and did not lead researchers to any additional rat activity. Monitoring efforts for the period of November 2009 – through 2010 documented zero GPRs – the only exception being the 'Judas' rat. It appeared that the project was a success. Unfortunately, in early 2011, FWC received a credible report from a private citizen familiar with the project and subsequent trapping confirmed that a hold-out population remained.

Trapping conducted by USDA-WS in August and November 2011 for approximately two weeks at time using 150—200 live traps during each event yielded 17 GPRs, including pregnant females. In December of 2011 FWC staff began baiting and monitoring a small number of camera traps in this area on a weekly basis. In January 2012, staff trapped at the camera locations for two nights with 16 traps. Three rats were trapped during this event, including one juvenile. This effort was repeated in February resulting in the capture of four rats, two of which were very young animals that had been trapped in the same trap.

The last trapping effort by USDA-WS in March 2012 (ten days, approximately 200 traps) and resulted in the removal of two adult rats. FWC staff conducted more two-day trapping operations in August, September, and December 2012 resulting in removal of one GPR in August. Three small-scale trapping events were conducted in 2013 and one in May 2014. No GPRs have been trapped since August 2012 but remote cameras continued to document the presence of rats in 2013.

Current status: The Nonnative Fish and Wildlife Program, housed within the Wildlife Impact Management Section (Formerly Exotic Species Coordination Section) of FWC continues to lead efforts to eradicate this species by conducting monitoring and trapping activities, both in-house and by contracting with USDA-WS. FWC is currently funding these activities with both state funds and with a Florida Wildlife Foundation Conserve Wildlife Tag Grant issued to the Nonnative Fish and Wildlife Program. FWC staff are also conducting targeted outreach to the affected areas to get credible reports of GPR. The project will be considered a success after two years of monitoring and trapping have passed with no credible sightings or captures. Assuming that the extensive trapping scheduled for FY 14/15 is successful, monitoring in 2016 and 2017 will determine whether this eradication effort is successful.

Estimated Cost: $82,000 (*revised est.*)

Project Schedule:

Start Date: February 1, 2006
Finish Date: September 30, 2017

Detailed Project Budget Information

	2012	2013	2014	2015	2016	2017	Total
Federal							
State[1]	2000	5000	3000	2,600	2600	2600	17,800
Tribal							
Local							
Other[2]			25,000	25000			50000
Total	**2,000**	**5,000**	**28,000**	**27,600**	**2600**	**2600**	**67,800**

[1]FWC
[2]Wildlife Foundation of Florida

Contact: Kristen Sommers, Section Leader
Wildlife Impact Management Section
Florida Fish and Wildlife Conservation Commission
Kristen.Sommers@MyFWC.com, (850) 488-3831

Figure 1. Giant Gambian pouched rat in live trap.

Program Name: Invasive Species Population Management
Project Name: **Population suppression and biology of Black spiny-tailed Iguanas *Ctenosaura similis***
Project ID: 2701
Lead Agency: USDA APHIS

Strategy and Biennial Report Objective Addressed: 2-B.3
Invasive Species Strategic Action Framework Goal: 3

Measurable Output(s): (1) Animals removed and (2) population trend.

Project Synopsis: *Ctenosaura similis* was introduced to Florida in 1979. Currently, there are populations in south Florida and the Keys. The largest population, on Gasparilla Island in SW Florida, has been controlled since 2008 resulting in removal of >20,000 animals using methods applicable to other populations. Information obtained from specimens is summarized for 2008-2011 (Avery et al. 2014. Biology and control of invasive black spiny-tailed iguanas, *Ctenosaura similis*, Gasparilla Island, Florida. Integrative Zoology. In press). Analysis of food habits derived from stomach contents is in preparation.

Current Status: Ctenosaurs continue to be removed from Gasparilla Island (Charlotte County) by USDA Wildlife Services personnel. Necropsies are being performed to document additional aspects of the biology of the invasive population. Manuscript on food habits remains to be completed.

Project Schedule:
Start Date: 2014
Finish Date: 2016

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$12,000	$8,500	$5,000			$5,000	**$26,000**
SFWMD**							
Local							
Total	$12,000	$8,500	$5,000			$5,000	$26,000

Contact: Michael Avery USDA APHIS Wildlife Services

Program Name: ECISMA coordinated response
Project Name: **Argentine black-and-white tegu (*Tupinambis merianae*) interdiction**
Project ID: 2702
Lead Agency: Florida Fish and Wildlife Conservation Commission (FWC)/ National Park Service/USGS

Strategy and Biennial Report Objective Addressed: 2-B.3
Invasive Species Strategic Action Framework Goal: 3

Measurable Output(s): Number of tegus removed from perimeter; documented absence or infrequent occurrence on priority lands; number of tegus observed and removed from "core" areas

Project Synopsis:
The Argentine black-and white tegu is a large omnivorous lizard native to South America. While these lizards have been documented eating a wide variety of plants, insects, and small vertebrates, they are known egg predators, and may pose a significant threat to crocodilians, turtles, and birds, as well as many other native species. There are two populations of tegus in Florida: one in Polk and Hillsborough County, and one in South Florida. Tegus in South Florida were observed in South Florida from 2007-2010, and the first nest was discovered in 2010 (Pernas et al., 2011). Since then, sustained trapping effort has been conducted. In 2011 and 2012, a concerted trapping effort was initiated with the objective of eradicating tegus. Live-trapping appears to be quite successful, and in recent years, 300-500+ tegus have been removed from the wild per year from both agency and private trapping efforts. However, despite these captures, the population size and distribution appears to be continuing to grow. As of 2014, tegus occur throughout several hundred square kilometers in South Florida, with a population core near Florida City. After several years of trapping, the consensus is that eradication is unlikely, and the strategy has shifted to containment.

In 2014, Everglades Cooperative Invasive Species Management Area partners continued a multi-agency containment effort. The objectives of the containment effort include intercepting tegus dispersing from the core population area toward the natural areas, reducing the population density in the population core, and monitoring for any tegus within Everglades National Park and other sensitive lands, followed by concerted effort to remove any tegus documented in these areas. FWC, University of Florida, and Zoo Miami coordinated to conduct surveys and monitor live traps and camera traps in the more natural habitats of the core tegu area and along the eastern and southern boundary of the tegu's core range to intercept tegus moving toward American crocodile nesting areas at Turkey Point and towards the Florida Keys. Simultaneously, National Park Service and USGS installed a network of camera traps and live traps along canals between Florida City and Everglades National Park, in an effort to intercept tegus moving from Florida City toward the Everglades. Outreach to the public and targeted live trapping will be employed to address tegus in suburban and agricultural areas near the northern extent of the tegu range. We expect the effort to continue indefinitely to prevent establishment of a tegu population in Everglades National Park, Turkey Point, the Florida Keys, and other sensitive natural areas in South Florida.

Current Status:
Live trapping and camera trapping have been conducted consistently throughout 2014 since tegus emerged from brumation, and several hundred tegus have been captured. The majority of tegus caught have been from the core areas. However, nearly 100 tegus have now been removed from traps between the core and Everglades National Park. At least one tegu has been documented within Everglades National Park, but efforts to capture it were unsuccessful, and tegus have not been observed consistently. There are indications that tegus may be spreading northward through suburban and agricultural areas, and ongoing efforts to contain tegus in this area may be insufficient to achieve containment.

Project Schedule:

Start Date: 2012
Finish Date: Ongoing; indefinite

Detailed Project Budget Information

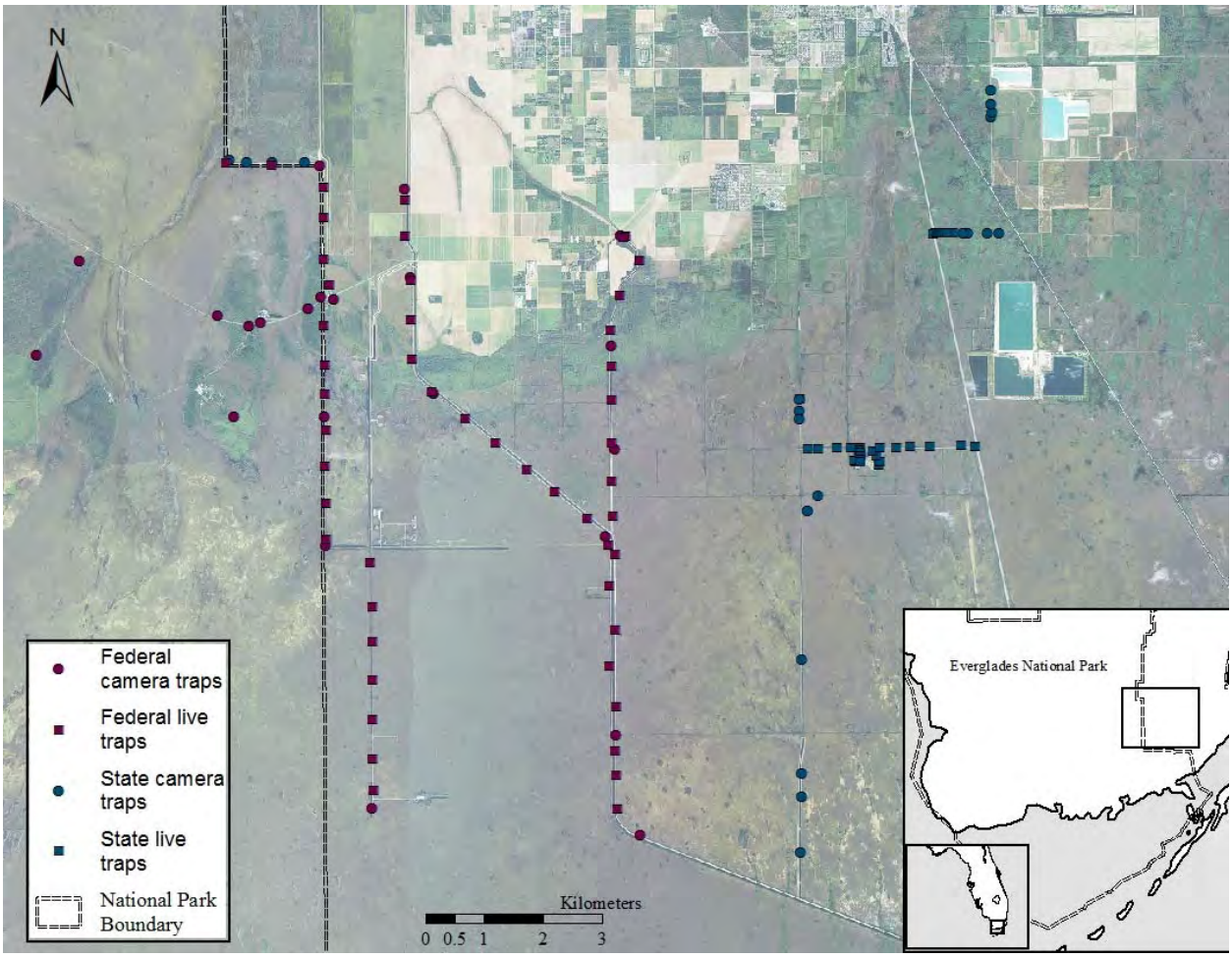
	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal (NPS/USGS)	$70,000	$70,000	$70,000	$70,000	$70,000		
FWC	$100,000	$144,800	$100,000	$100,000	$100,000		
Zoo Miami**	2700						
U of F	$20,000	$20,000	$20,000	$20,000	$20,000		
Local							
Total	**192,700**	**$234,800**	**192,700**	**192,700**	**192,700**		**963,500**

Contact: **FWC – Jenny Eckles/ NPS – Tylan Dean**

Pictures:

Photo credit: Jim Duquesnel, USGS

Map of area:



Project 2702: Argentine black-and-white tegu (Tupinambis merianae) interdictionPage 3 of 3

Program Name: An Integrated Early Detection, Rapid Response, Management, and Monitoring Program for Everglades Invasive Reptiles and Amphibians
Project Name: **Improve probability of detection and removal of pythons and other invasive reptiles**
Project ID: 2703
Lead Agency: University of Florida, funded by the SFWMD, supported by USGS

Strategy and Biennial Report Objective Addressed: 2-B.3
Invasive Species Strategic Action Framework Goal: 3

Measurable Output(s): Probability of detection is estimated using various statistical and modeling approaches from repetitive, spatially referenced field surveys targeted towards specific taxa. Improvement of detection probabilities through adaptive management and structured decision making can be measured.

Project Synopsis: Estimates of probability of detection are used to calculate unbiased estimates of occupancy, density, and abundance. Detection probability is the probability of detecting the species given that it is present. Estimates of occupancy, density, and abundance are the basis for developing performance measures to determine effects of management plans on invasive exotic animals. We can also look at probability of detection in relation to factors such as season, time of day, habitat, weather conditions, and method of survey (among others) to refine and improve our ability to detect pythons.

For pythons we need a method for estimating abundance or occupancy that accounts for imperfect detection. The problem is there are no models for abundance where animals are removed when observed without any marked animals being released. This means we need a way to increase captures to a point where we can estimate these things, and this means we need to boost detection probability, not just the numbers that are detected. To do this we plan on evaluating current capture records to determine if there are better circumstances for detecting pythons. In addition we will evaluate new techniques such as detector dogs for their potential for increased detection

However, we do have data with increased rate of capture for tegus, chameleons, and perhaps monitors that may allow for estimation of detection probability. Those data also will be analyzed as part of this project.

Current Status: Initial analyses have been completed. Currently funded through fiscal year 2014/15 and partially funded for fiscal year 2015/16.

Project Schedule:
Start Date: March 2008 Finish Date: Will be determined on availability of funds

Detailed Project Budget Information

	2013/14	2014/15	2015/16	2016/17	2017/18	Balance to Complete	Total
State (SFWMD) (FWC)		20,000 23,000	20,000*	20,000*	20,000*	60,000	**103,000**
UF	5,000	5,000	5,000	5,000	5,000	15,000	**25,000**
Needed			100,000	100,000	100,000	300,000	**300,000**
Total	**5,000**	**48,000**	**125,000**	**125,000**	**125,000**	**375,000**	**428,000**

***Dependent on availability of funds.**

Contact: Frank Mazzotti, fjma@ufl.edu, Mike Cherkiss, mcherkiss@usgs.gov
Hyperlink: http://crocdoc.ifas.ufl.edu/projects/eiramp/

Program Name: Invasive Species Population Management
Project Name: **Feral Swine Impacts and Control**
Project ID: 2704
Lead Agency: USDA/APHIS Wildlife Services National Wildlife Research Center

Strategy and Biennial Report Objective Addressed: 2-B.3
Invasive Species Strategic Action Framework Goal: 3

Measurable Output(s): Reduction of feral swine impacts.

Project Synopsis: Cooperative projects with State, local, and other agencies will address specific impacts caused by feral swine populations, including damage to natural resources, disease and pathogen transmission, damage to agriculture, and damage to levees and other infrastructure. Projects will include quantifying swine damage before and after control measures are implemented so that efficacy of control actions can be measured.

Current Status: Recently underway with FY2014 funds. Cooperative feral swine research projects to date have been initiated in Highlands, Polk and Franklin counties.

Project Schedule:
Start Date: FY2014
Finish Date: ongoing

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$125,000	$125,000	$125,000	$125,000	$125,000	$375,000	**$625,000**
SFWMD**							
Local							
Total	$125,000	$125,000	$125,000	$125,000	$125,000	$375,000	$625,000

Contact: Michael Avery USDA/APHIS Wildlife Services National Wildlife Research Center

Program Name: Big Cypress National Preserve Exotic Reptile Control
Project Name: **BICY Exotic Reptile Control**
Project ID: 2705
Lead Agency: Big Cypress National Preserve

Strategy and Biennial Report Objective Addressed: 2-B.3
Invasive Species Strategic Action Framework Goal: 3

Measurable Output(s): All major, exotic reptile species within Big Cypress National Preserve are brought to a management level. Measureable output will be numbers of specimens captured and removed.

Project Synopsis: Continue partnering with USGS, FWC and other agency and NGO partners to develop a response network including Authorized Agents for rapid response to new invasive reptile observations within Big Cypress National Preserve. Establish trained staff to conduct exotic reptile detection and eradication efforts.

Current Status: Efforts to control invasive exotic reptiles currently depend upon chance observations from visitors (public and private), contractors, employees, volunteers, and landowners, who report those observations, or are in a position to capture or kill the animal. Often a lag exists between reported observations and staff response capability.

Project Schedule:
Start Date: 2014
Finish Date: 2018

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$100,000	$100,000	$100,000	$100,000	$100,000		**500,000**
SFWMD**							
Total	$100,000	$100,000	$100,000	$100,000	$100,000		500,000

Contact: Ron Clark, Ron_Clark@nps.gov , 239-695-1106

Program Name: FWC Nonnative Fish and Wildlife Program
Project Name: **Nile Monitor Eradication Project**
Project ID: 2706
Lead Agency: Florida Fish and Wildlife Conservation Commission

Strategy and Biennial Report Objective Addressed: 2-B.3
Invasive Species Strategic Action Framework Goal: 3

Measurable Output(s):
During this reporting period, 18 Nile Monitors have been removed from the Palm Beach County area, along the C-51 canal.

Project Synopsis:
Nile monitors have been established and reproducing in Florida for as long as twenty years. Besides the well-documented population in Cape Coral sightings have been verified near the Homestead-Miami Speedway, and scattered records in southern Broward County that indicate one or more breeding populations. More recently, monitors have been confirmed breeding along the C-51 Canal that runs parallel to Southern Boulevard in Palm Beach County. Nile monitors have been confirmed as far east as I-95 and C-51 and west to within a few kilometers of STA 1E. There are also a number of observations along canals to the north and south of the C-51 Canal. The Exotic Species Coordination Section of the Florida Fish and Wildlife Conservation Commission (FWC) began conducting surveys of the canal by boat in May of 2011 which yielded seven observations in two trips. Varying sizes were observed including an animal that appeared to be a young-of-the-year approximately 20 cm in total length. As a result, FWC began trapping for monitors along the C-51 in cooperation with the South Florida Water Management District (SFWMD) and more surveys by boat were planned. In 2011, a total of five monitors were removed from the population, three by live trapping. In 2012, FWC ramped up survey/removal efforts by boat and staff from the University of Florida Ft. Lauderdale Research and Education Center (FL REC) began assisting in these efforts. FWC officially began contracting UF FLEC to conduct monthly EIRAMP surveys in December 2012, including a modified boat-route along the C-51. During 2012 and through April 2013, FWC, UF FLEC, and SFWMD staff have removed 13 Nile monitors along this canal. Ten others were observed. A student from the University of Louisville also trapped one monitor in May 2012 during efforts to gain samples for his dissertation on Nile monitor genetics and stable isotopes of stomach contents. Samples from additional specimens collected will be sent to his lab for analysis.

Also in 2011 and 2012, several Nile monitors sightings were confirmed in Broward County in the extreme eastern and western ends of the urban areas. All sightings were of adults. Numerous attempts were made to trap these animals but they are living in areas with more convoluted canal systems than the Palm Beach population and do not seem susceptible to traps. No juveniles were found and it is possible that the sightings are of the same few individuals but the proximity of the western Broward population/individual(s) is of concern due to the close proximity of the state-managed Everglades. Trapping and surveying efforts will continue in these locations but these areas are more challenging to carry on eradication efforts than the C-51 canal.

Despite the known populations established in Miami-Dade and County and the Cape Coral areas, these populations are believed to be separate introductions, not range expansions.

Current work centers on at least monthly survey and removal trips along the C-51 and searches in other areas when FWC receives verified or credible reports. Currently, FWC staff and UF staff are jointly conducting these surveys.

Current Status: Ongoing
Project Schedule:
Start Date: 2011
Finish Date: Undermined.

Detailed Project Budget Information

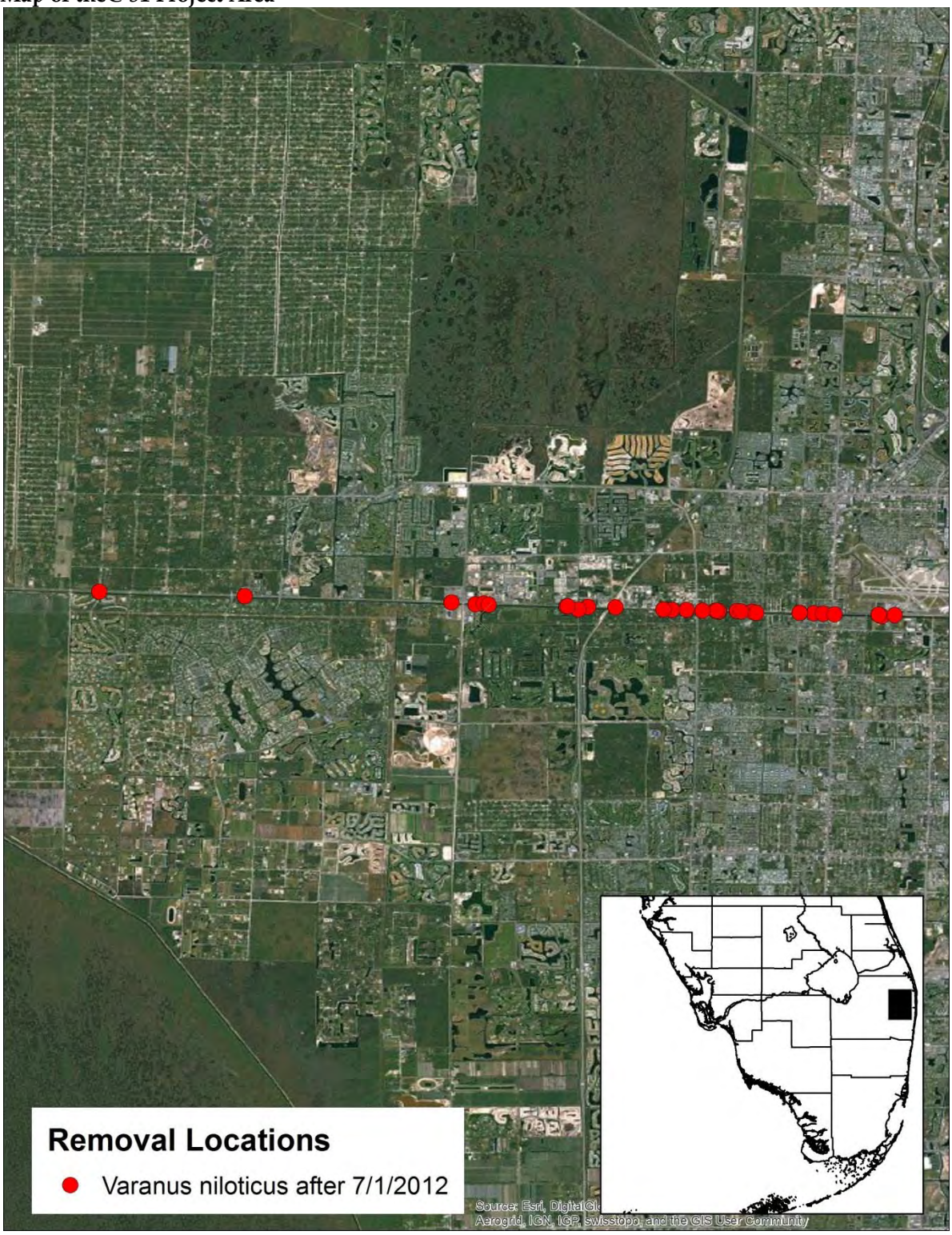
Currently, the primary budget drivers and constraints on this project have been staff time to conduct field work. To complete eradication of established Nile monitors on both coasts of Florida would likely take at least 2 dedicated field staff whose duties would be primarily field work only to remove this species. Estimated budget for Nile Monitor work in State FY 15/16 is Approximately $53,000

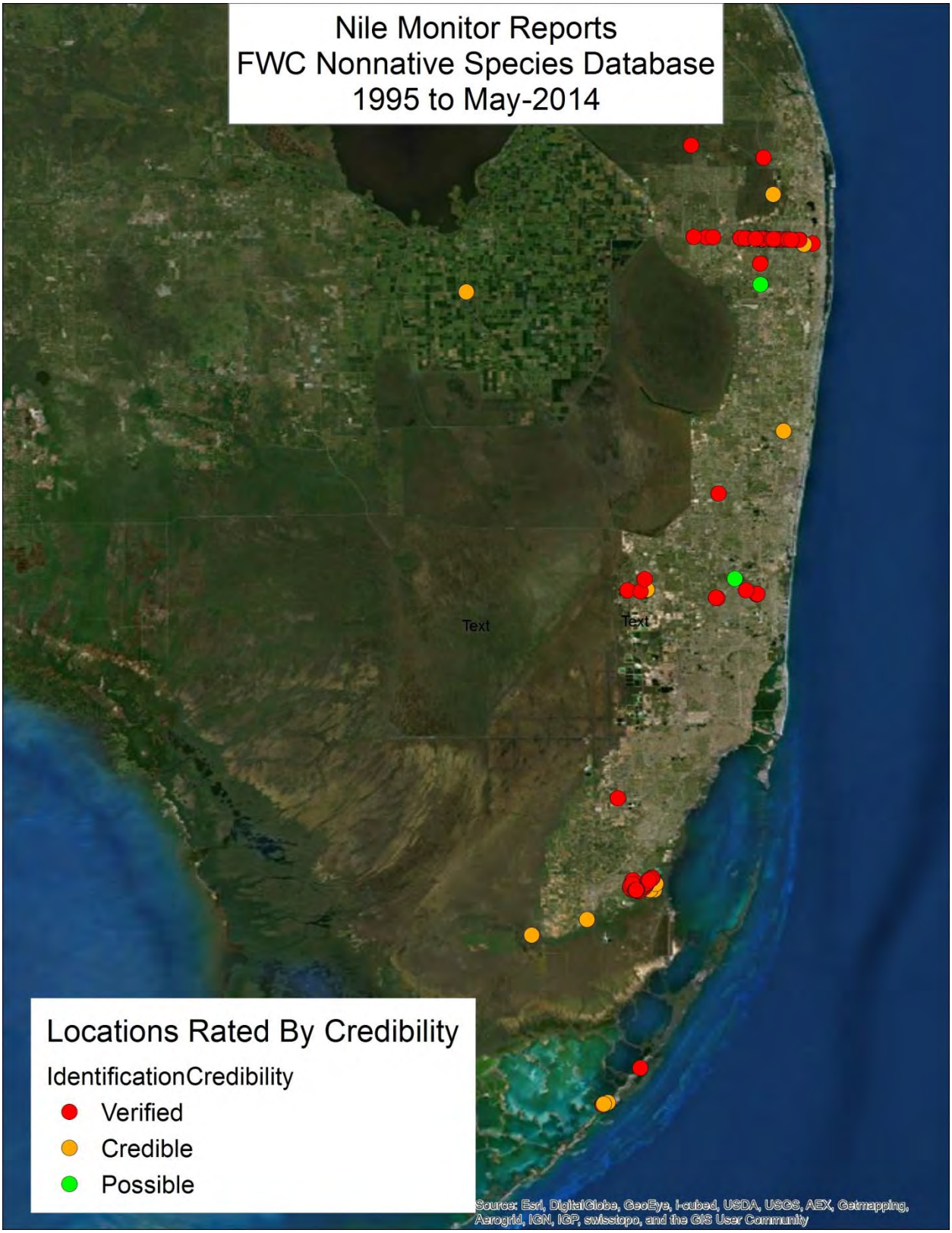
Contact: Kristen Penney Sommers, Section Leader,
Kristen.Sommers@MyFWC.com 850-488-3831

Hyperlink: **www.MyFWC.com/nonnatives**

Pictures: Nile monitors documented displaying mating behavior on the C-51 canal.

Map of theC-51 Project Area





Project 2706: Nile Monitor Eradication Project Page 4 of 4

Program Name: Invasive Species Population Management
Project Name: **Tegu trap and lure evaluation**
Project ID: 2707
Lead Agency: USDA/APHIS Wildlife Services National Wildlife Research Center

Strategy and Biennial Report Objective Addressed: 2-B.3
Invasive Species Strategic Action Framework Goal: 3

Measurable Output(s): Trap and lure alternatives for capturing tegus

Project Synopsis: The "standard" capture method for black-and-white tegus (*Tupinambis merianae*) seems to be a live trap baited with a chicken egg. In this study we are exposing captive tegus to alternative traps and lures to determine if a more efficient capture method might be possible. An alternative which performs better in pen tests than the standard method will be evaluated in field trials.

Current Status: Testing is underway. Series of captive animal trials were conducted, results presented at GEER, and written up for publication. Field application to verify findings of captive trials is planned.

Project Schedule:
Start Date: 2014
Finish Date: 2015

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$11,500	$8,500	$7,500			$7,500	**$27,500**
SFWMD**							
Local							
Total	$11,500	$8,500	$7,500			$7,500	$27,500

Contact: Michael Avery USDA APHIS National Wildlife Research Center

Program Name: Miami-Dade County Parks, Recreation and Open Spaces/Zoo Miami Conservation and Research Department Invasive Species Management
Project Name: Temporal and Spatial Habitat Use, Genetics, Diet and Disease Survey of the Boa Constrictor (*Boa constrictor spp.*) at the Charles Deering Estate at Cutler in Miami-Dade County, Florida
Project ID: 2708
Lead Agency: Miami-Dade County

Strategy and Biennial Report Objective Addressed: Objective 2-B.3
Invasive Species Strategic Action Framework Goal:

Measurable Output(s): Determine the impact on the ecosystems of the Charles Deering Estate at Cutler by the non-native boa constrictor; Use radiotelemetry and visual surveys to determine habitat preference of the boa constrictor; Develop a management and/or eradication plan for this species based on data collected from the research conducted on the population; Collect genetic samples to potentially determine the origin for the introduced population, the genetic diversity of the population to determine relatedness and possible number of founders, and develop a reference genetic profile for the population that will allow identification of individuals found outside the site as dispersers or unrelated releases; Analyze gut contents and fecal samples to learn about its prey base, possible impacts on the local wildlife populations, and possible implications if the population were to ever disperse to other natural areas; and Discover any pathology, viruses or parasites that are endemic in the population that may pose a risk to native wildlife.

Project Synopsis: There are currently 3 species of large constrictors (Boidae) established in South Florida, the Burmese Python (*Python molurus bivittatus*), Northern African Rock Python (*Python sebae*), and the Common Boa Constrictor (*Boa constrictor spp.*). Of the three species, only the Burmese python and Northern African rock python have ongoing research and management programs.

The population of boa constrictors is established and reproducing on the grounds of the Deering Estate at Cutler. It has been at the site since the early 1990s with anecdotal reports as early as the 1970s. At least 157 boas have been captured at the Deering Estate or within 2km of the property, since 1989. Of those 157 boas, 18 were captured since October 2012, which suggests that this population is still established and reproducing.

From 2011-2012, the Florida Fish and Wildlife Conservation Commission (FWC) began surveys for Boa constrictors at the Deering Estate. During these surveys, there were no animals encountered, despite at least 9 survey attempts. These surveys were conducted during summer, fall, and winter during both daytime and nighttime.

Because of the lack of success with surveys, we are proposing a radio-telemetry project which would allow us to understand the temporal and spatial habitat use of this species. Through the use of radio telemetry with non-native species in South Florida, researchers have learned a tremendous amount of behavioral and habitat use information (Snow 2007, Pernas 2012). By learning how this species is utilizing the property, we hope to discover when they are the most easily detected, what methods of detection are most likely to be successful, and what habitat characteristics are the most desirable.

We will utilize 2.2.2 (2 male, 2 female, and 2 juvenile) boa constrictors for a minimum of 10 months for each individual in the radio telemetry study.

Any additional boas encountered will be captured and permanently removed from the Deering Estate. Morphometrics and genetic samples will be taken on all specimens during the study period. Juvenile specimens that are too small to be entered into the telemetry study will be adopted to an FWC approved adopter. Once an individual has completed the radiotelemetry tracking period of the study, or any other removed specimens during the study period, will be humanely euthanized utilizing a pentobarbital solution injection. Genetic samples of the liver and skin will be preserved in alcohol, gut contents will be frozen and saved for dietary analysis, any parasites encountered will be preserved in alcohol for identification. Plasma will be frozen for virology, and a full representative tissue set will be preserved in formalin for histopathology. All specimens will be vouchered with photographs and tissue samples through the Florida Museum of Natural History. A photograph and general location for each specimen captured will also be uploaded onto ivegot1.com/eddmaps.com.

To date, we have only found one published study utilizing radio-telemetry with boa constrictors (Reed et al. 2007). In this study, 76% of boas were encountered in arboreal situations. It is unknown how this established population of snakes is utilizing the developed areas, coastal mangrove forest, pine rockland and hardwood/rockland hammock at the Deering Estate.

This study aims to provide managers and policymakers valuable information on the most effective means and methodology of detection, distribution on property, and potential ecosystem impacts for this introduced population. The genetic profiling and disease evaluation will help shape a more thorough risk assessment for the species.

There will be a component of public outreach, education and awareness building through public lectures, website development, scientific papers, and guided nature tours that will address the issue of non-native species in South Florida and impacts to native ecosystems. In addition, the naturalists at the Deering Estate will be able to utilize the telemetry project during their classes and tours.

Current Status: Currently 2.1.2 transmittered boas are in the field at the Deering Estate and being located twice a week through a partnership between Miami-Dade County Natural Areas Management and Zoo Miami staff.

Project Schedule:
Start Date: October 2012
Finish Date: Fall 2015

Detailed Project Budget Information

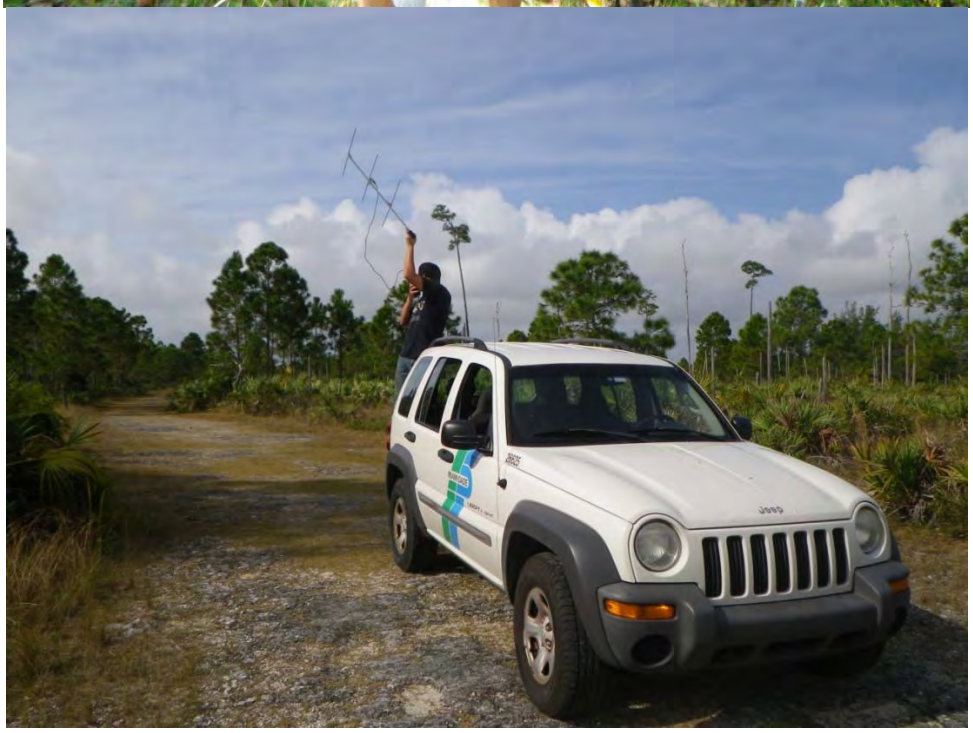
	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal							
SFWMD**							
Local	$9,500.00						
Total	**$9,500,000**						**9,500,000**

Project sheet updated in 2014.

Contact: **Frank Ridgley DVM; frid@miamidade.gov**

Hyperlink: **http://zoomiamiconservation.com/project/rapid-response-to-floridas-invasive-non-native-reptiles-and-amphibians/**

Pictures:



Map of area:

Project 2708 Temporal and Spatial Habitat Use, Genetics, Diet and Disease Survey of the Boa Constrictor (Boa constrictor spp.) at the Charles Deering Estate at Cutler in Miami-Dade County, Florida Page 4 of 4

Project Name: **Development and Evaluation of Biological Control Agents for Invasive Species Threatening the Everglades and other Natural and Managed Systems**
Project ID: 2709
Lead Agency: U.S. Department of Agriculture – Agricultural Research Service
Authority: ARS

Strategic Plan Goal(s) Addressed: Primary: 2.B.3

Measurable Output(s): Number and Impacts of Biological Control Agents Developed and Released

Project Synopsis. Many of the weeds in the United States are of foreign origin, introduced without natural enemies from their native habitat. These invasive plants replace natural and cultivated plant communities, causing the disruption of ecosystem processes necessary for the sustenance of urban, agriculture, and natural areas. Although herbicides remain the primary method for controlling invasive weeds, applications are not always economically feasible and can cause collateral damage to non-target plants. The introduction of host-specific, coevolved natural enemies can be an effective part of an integrated management solution, with a stand-alone benefit: cost ratio of about 35:1. The research serves the interests of specific Federal, State, and private landowners impacted by invasive weed species. For example, without long-term sustainable management of weeds like melaleuca (*Melaleuca quinquenervia),* old world climbing fern *(Lygodium microphyllum)*, downy rose myrtle (*Rhodomyrtus tomentosa*), air potato (*Dioscorea bulbifera*) skunk vine (*Paederia foetida*), Brazilian pepper (*Schinus terebinthifolius*), giant and common salvinia (*Salvinia molesta* and *S. minima*), waterhyacinth (*Eichhornia crassipes*), waterlettuce (*Pistia stratiotes*), and other invasive plants, large parts of the country, including the Everglades, will be permanently degraded causing a tremendous loss of biodiversity, with less water available for agricultural and urban needs. This research supports the Comprehensive Everglades Restoration Plan which will sustain agricultural production and improve environmental quality.

Cost: Total:
Project Development:
Land Acquisition: $0 – long term lease with University of Florida
Implementation:
Operations and maintenance: not yet included in budget

Project Schedule:
Start Date:
First Agent released: 1997
Finish Date: TBD

Detailed Project Budget Information

Agency	Obligations through June 30, 2015.
SFWMD	$460,000
USACE	$160,000
Total	**$620,000**

Point of Contact: Philip W. Tipping, philip.tipping@usda.ars.gov

Program Name: Exotic Management
Project Name: **Biscayne National Park Schaus swallowtail butterfly (*Heraclides aristodemus ponceanus*) Habitat Enhancement**
Project ID: 2800
Lead Agency: National Park Service

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Measurable Output(s): By planting torchwood (*Amyris elemifera*) and wild lime *Zanthoxylum fagara)*, we hope to be able to observe an increase in the Schaus swallowtail butterfly (*Heraclides aristodemus ponceanus*) and a decrease in exotic plants

Project Synopsis:
The SFCN, Florida and Caribbean Exotic Plant Management Team (FLACO EPMT), and Biscayne National Park (BISC) were awarded a grant from the U.S. Fish and Wildlife Coastal Program to fund habitat enhancement for the federally endangered Schaus swallowtail butterfly (*Heraclides aristodemus ponceanus*). The project goal is to restore its critical habitat by removing invasive plants and planting host and nectar plants on Elliott Key and Adam's Key in BISC. We collected seeds of two species of Schaus swallowtail host plants: torchwood (*Amyris elemifera*) and wild lime (*Zanthoxylum fagara*), and reared them in a nursery. The goal is to plant 5,000 seedlings in FY12 through FY14. SFCN and other NPS staff and volunteers spent 2,115 field hours working on this project in FY13.

This project has an educational component to increase public awareness and instill the stewardship ethic through interpretive signage, volunteering, and outreach. Educational/outreach presentations have been given at conferences, seminars, lectures, and science symposia. Articles featuring this project were published in The Miami Herald, The Tropical Garden, and newsletters for the Florida Native Plant Society and the North American Butterfly Association. A podcast filmed by BISC features this project. Volunteer work days were done with the Sierra Club, Florida International University, Doral High School, and alternative spring breakers from Martins Ferry High School in Ohio. An educational sign has been created for the restoration areas, and shirts have been designed and are given out to reward volunteers and raise public awareness. This project is part of a school yard butterfly program which has established 7 butterfly gardens in local schools and comes with lesson plans and presentation.

This project could be aggressively expanded by increasing the number of locations where restoration/planting occur and expanding the number of school-based butterfly garden partnerships that are involved. Enhancements of up to $100,000 per year could be applied to this project.

Current Status: To date, we have planted 2,007 torchwood, 445 wild lime, and 96 nectar plants, for a grand total of 2,548 plants. Plantings took place at Elliott Key in the main breezeway restoration area, and Spite Highway restoration area. Additional plantings took place in Adam's Key in the main restoration area and the breezeway restoration area. Constant maintenance has been done in these areas including herbicide application, removal of noxious weeds, and watering of seedlings. This is necessary as plants are not yet mature enough to shade out understory and prevent weed growth. There is currently ongoing monitoring and removal of exotics species on the project site.

Project Schedule:
Start Date: 2011
Finish Date: ongoing

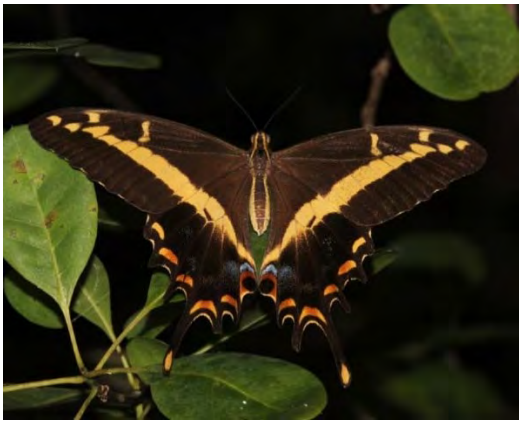
Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$52,000.00	$5,000.00	$5,000.00	$5,000.00	$5,000.00	$20,000.00	$72,000.00
SFWMD *	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Local	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	$52,000.00	$5,000.00	$5,000.00	$5,000.00	$5,000.00	$20,000.00	$72,000.00

*Funds provided by U.S. Fish and Wildlife Coastal Program

Contact: Kevin Whelan SFCN NPS

Pictures:



Map of Area:

Project Name: **Invasive Exotic Control Program**
Project ID: 2801
Lead Agency: USFWS

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Measurable Output(s): Acres treated, acres controlled

Project Synopsis: The Florida Panther National Wildlife Refuge is located in Collier County at the Northwest corner of Interstate 75 and State Road 29. The refuge was established in 1989 to provide habitat for the large ranging, endangered Florida panther. The refuge adjoins Picayune Strand SF and Fakahatchee Strand Preserve on its southern border and Big Cypress National Preserve on its eastern border, forming a protected landscape across most of southern Collier County. The native hardwood hammocks and pine flatwoods located on the refuge provide essential denning and hunting habitat for this large cat. Currently, much of this habitat is threatened by invasive plant encroachment, which affects both the hydrology and fire ecology of this ecosystem. Treatment and removal of FLEPPC Category I invasive plants such as cogongrass and Brazilian Pepper on 19,000 acres of the Florida Panther NWR is imperative to the health of the refuge and subsequently the wellbeing of this endangered species. This is an ongoing project, and to date approximately 35% of the infested area has received initial treatment. This 35% must be retreated at least 2 more times to become a "controlled" area (ie. 95% clean of invasives) and the remaining 65% still needs initial treatment and subsequent retreatments.

The Ten Thousand Islands National Wildlife Refuge (TTI) is located approximately 20 miles southeast of Naples, Florida, south of U.S. Highway 41 (Fig 2). The western boundary lies along County Road 92. The Gulf of Mexico borders the southern boundary, and the eastern boundary lies just west of Everglades National Park and the Faka Union Canal at the northern portion of that boundary. A 5-mile long, 1 1/2-mile wide extension into the Gulf of Mexico is present in the southeastern portion of the refuge. The Collier-Seminole State Park extends into the northwestern portion of the refuge from U.S. 41 south to Blackwater Bay, and encompasses the Royal Palm Hammock Creek and upper portion of Palm Bay, the upper portion of Blackwater River, and all of Mud Bay. At least seven invasive exotic species of plants are known to occur on TTI. Lather leaf, Australian pine, and Brazilian pepper are found along coastal areas and Brazilian pepper is commonly found inland. These species typically grow in dense stands that crowd out the native species. In addition, Australian pine interferes with sea turtle nesting as the extensive root system prohibits turtles from digging nests.

Current Status:
40% Initial treatment complete
35% needs retreatment
60% needs initial treatment

The Service and other interested parties are concerned for the refuges' long-term environmental health and wildlife productivity. Nationwide studies have documented a declining status of numerous vegetative and wetland-dependent wildlife populations. These declines have been attributed to habitat loss and alteration. While the refuge was logged in the 1940s and 50s, cypress forests have regrown. However, the adjoining land use has exerted influences to alter refuge habitats, which continue to this day. Ditching for residential and agricultural development near the refuge has altered refuge hydrology and has promoted generally drier soil conditions which have promoted an expansion of cabbage palms and invasive exotic plants on the Florida Panther NWR. Approximately 12 miles of the refuge is bordered by private lands where the common boundary is generally infested with numerous species of invasive exotic plants.

The control of invasive exotic plants is essential to improve and maintain native habitats on the Southwest Florida Gulf Coast Refuges (i.e., TTI and Florida Panther NWR). The refuges are fortunate to no longer have large expanding Melaleuca populations. Individual trees are cut or treated when found. Brazilian pepper, on the other hand, is well established on the refuge, found in every unit in varying degrees of infestation. Some areas are extremely infested such at Units 11, 50, 27 and 33. Heavy thickets of pepper occur in many units, but are somewhat isolated. In 2004 systematic control of pepper began on the eastern side of the refuge, with reasonable success. However, retreatments are essential to achieve control conditions. Rosary pea has emerged as an aggressive vine that produces highly poisonous seeds known to kill song birds. Air potato has been a rather recent invader on the refuges, and is primarily found on the Florida Panther NWR. Both of the aforementioned species are primarily found at the Roth Work Center and in Units 33, 34, 35 and 36. However, both species are beginning to spread elsewhere on the Florida Panther NWR. Cogon grass is probably the most aggressive exotic invader, and has been identified as one of the most invasive non-native plant species in the United States. It grows and seeds within four to six weeks after fire, spreads easily by wind-driven seeds and the rhizome roots produce an allelopathic substance that inhibits the germination and growth of other plants, thus allowing monotypic stands of grass. Furthermore, seeds easily germinate in burned areas or where soil disturbance has occurred, such as in areas where cabbage palms have been cut with heavy machinery. Old world climbing fern occurs on the refuge, generally in wooded swamps. Contractors have typically been used to treat this exotic over the past 15 years, with some areas having been retreated several times. Because it spread by releasing spores, control is difficult. Java plum (Syzygium cumini) has been treated on the east side of the refuge in two locations, with good success. However, bordering an old agricultural field is a heavy infestation of Java plum, which still needs treatment for the first time. In the past two years at least five new species of invasive exotics have been observed on the refuge: two species of rattlepod (Crotalaria spp.), climbing cassia (Cassia spp.), and jaragua grass (Hyparrhenia rufa) and Burma reed (Neyraudia reynaudiana).

The Burmese Python (*Python molurus bivittatus*) has been rapidly expanding in south Florida, and has been documented adjacent to the Southwest Florida Gulf Coast Refuges within the past two years. No formal python surveys have been conducted on the refuges, but it is highly likely that the species occurs on both the Florida Panther NWR and TTI. Within the past 10 years, more than 2,000 pythons have been captured in Everglades National Park (ENP) and surrounding areas. On ENP alone, employees oversaw the removal of nearly 370 pythons during 2009 alone. There is a significant need to fund formal Burmese Python surveys on the refuges, and funding needs are only anticipated to increase in order to try to mitigate impacts of this non-native invasive animal species on the refuges. Discussions with potential partners (e.g., Conservancy of Southwest Florida) have already begun, and ideas are being formulated related to surveys and control measures.

The treatment of non-native invasive plant species on the Southwest Florida Gulf Coast Refuges only began in earnest less than 10 years ago. As such, the funding necessary to improve and maintain an early detection and treatment plan for invasive species is only expected to increase with time.

Project Schedule:

Start Date: 2012
Finish Date: TBD

Detailed Project Budget Information

Fund Source	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal (ISST)	$60,000	$60,000	$100,000	$150,000	$180,000	N/A	**$550,000**
Local (FWC)	$130,000	$221,000	$50,000	$60,000	$75,000	N/A	**$536,000**

Contacts:
Kevin Godsea, Project Leader: 239-657-8011; kevin_godsea@fws.gov
Ben Nottingham, Refuge Manager: 239-657-8010; ben_nottingham@fws.gov
Mark Danaher, Supervisory Wildlife Biologist: 239-657-8012; mark_danaher@fws.gov

Hyperlinks:
http://www.fws.gov/refuge/florida_panther/
http://www.fws.gov/refuges/profiles/index.cfm?id=41555

Program Name: **Enhanced Mitigation Techniques for Control of Cactus Moth**
Project ID: 2802
Lead Agency: Florida Department of Agriculture and Consumer Services Division of Plant Industry

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Project Synopsis: The cactus moth, *Cactoblastis cactorum*, native to South America, has been used as an effective biological control agent against exotic *Opuntia* cacti around the world, including several Caribbean islands, Hawaii and Australia. However, the recent unintentional arrival of the moth in the Florida Keys in 1989 was recognized by scientists and conservationists as a serious threat to the richflora and biodiversity of the native desert ecosystems in North America and to agriculture in Mexico where the cacti fruit and young vegetative parts are a staple diet for humans and chopped plants serve as cattle fodder in times of drought. The moth's accelerated dispersal along the Atlantic coast to South Carolina and along the Gulf coast to Alabama in recent years and more recently to Mississippi and Louisiana (2008 & 2009, respectively) has heightened the sense of urgency to slow its natural progression.

Current Status: Ongoing (project up for renewal annually)

Project Schedule:
Start Date: 7/1/2014
Finish Date: 6/30/2015

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	193,500	$211,296					
SFWMD**							
Local							
Total	**$193,500**	**$211,296**					**TBD**

Contact: Dr. Greg Hodges, Assistant Director, Division of Plant Industry, Florida Department of Agriculture and Consumer Services.

Hyperlink: http://www.freshfromflorida.com/Divisions-Offices/Plant-Industry/Science/Biological-Control/Cactus-Moth-Rearing

Program Name: **Biological Control of Imported Fire Ant**
Project ID: 2803
Lead Agency: Florida Department of Agriculture and Consumer Services Division of Plant Industry

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Project Synopsis: The imported fire ant (IFA) currently infests over 325,000,000 acres in thirteen southern states and Puerto Rico with an average density of 1,500-3,000 ants per square meter. Isolated colonies have also been found as far west as California and as far north as Kansas City, Missouri. Additional counties are regularly added to the quarantine zone, particularly in the northern and westernmost infested states. Because of their ferocious sting and aggressive behavior, the IFA is considered a major public nuisance. They have also been found to decrease the diversity and number of native ant species and have a negative impact on wildlife, particularly ground nesting animals such as rodents, birds, turtles, alligators, and deer. The IFA is estimated to cost $6 billion annually to households, businesses, schools, governments, and institutions. Annual agricultural losses to IFA are over $750 million, including crop damage, livestock loss, treatment expenses, and repair and replacement of equipment. Treating all infested land 2-4 times a year with an effective insecticide would cost $10 an acre per treatment for a total annual cost of between $6-12 billion. Because of these facts the IFA remains a top priority target organism for biological control in the southern states.

Phorid decapitating flies from South America, the native home of the IFA, are promising biological control agents because they are highly host specific, are active throughout most of the year, and they appear to have population level impacts on IFA colonies. Potentially, there may be as many as fifteen species or biotypes of the fly that will have an impact on the IFA, and thus are candidates for rearing and release in the United States. The establishment of phorid flies throughout the south will be an important initial step in building an effective management program for the IFA and lessen its impact as an agricultural and public nuisance pest. It is hoped that if several species of phorid flies are established in the IFA infested area of the U.S. over the next ten or more years, the added stress caused by these flies on the IFA colonies will allow native ants and other ground dwelling organisms to better compete for food and territory. The phorid fly-IFA interaction will also hopefully allow homeowners, municipalities, and farmers to make fewer chemical control applications annually to suppress the IFA to acceptable tolerance levels, reducing these compounds adverse effects on humans, wildlife and the environment.
The phorid fly rearing and release project, a cooperative venture between DPI and the USDA, has been a tremendous success. Since 2001, two species of *Pseudacteon* sp. flies have been released at numerous sites in all quarantined states in the contiguous southeastern states and Puerto Rico. No field releases have occurred in New Mexico and only one species has been released in California. *P. tricuspis* is well established in the southern areas of the IFA regulated area (AL, FL, GA, LA, MS, TX and PR), and moderately established in Arkansas, North Carolina and South Carolina. To date, *P. tricuspis* is not known to be established in California, Oklahoma or Tennessee. The second species, *P. curvatus*, is moderately to well established in all southern states (AL, AR, FL, GA, LA, MS, NC, OK, SC, TN and TX) and Puerto Rico. *P. curvatus* has not been released in California. By the end of 2011 *P. tricuspis* and *P. curvatus* were estimated to respectively occur in almost 65% and 90% of the fire ant quarantined area. Two additional species, *P. obtusus* and *P. cultellatus*, have also been released in several states and data on establishment and spread is still pending.

Current Status: Ongoing (project up for renewal annually)
Project Schedule:
Start Date: 7/1/2014
Finish Date: 6/30/2015

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$278,000	$260,000					
SFWMD**							
Total	**$278,000**	**$260,000**					**TBD**

Contact: Dr. Greg Hodges, Assistant Director, Division of Plant Industry, Florida Department of Agriculture and Consumer Services.

Hyperlink: http://www.freshfromflorida.com/Divisions-Offices/Plant-Industry/Science/Biological-Control/Phorid-Fly-Rearing

Program Name: **Enhanced Mitigation Techniques for the Control of Several Whitefly Species**
Project ID: 2804
Lead Agency: Florida Department of Agriculture and Consumer Services Division of Plant Industry

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Project Synopsis: This is the second year of this project in which FDACS-DPI is coordinating with researchers and extension specialists from the University of Florida to identify and enhance existing natural enemies for the rugose spiraling whitefly (*Aleurodicus rugioperculatus*), Bondar's nesting whitefly (*Paraleyrodes bondari*) and ficus whitefly (*Singhiella simplex*). These three whitefly species are fairly recent exotic introductions into Florida and have become serious landscape pests. The goal of this project is to identify potential natural enemies for each of these species that exist in Florida and to enhance their populations to a level that good biological control can be obtained.

Current Status: Ongoing (project up for renewal annually)

Project Schedule:
Start Date: 8/9/2014
Finish Date: 8/9/2015

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$113,967	$131,966					
SFWMD**							
Local							
Total	**$113,967**	**$ 131,966**					**TBD**

Contact: Dr. Greg Hodges, Assistant Director, Division of Plant Industry, Florida Department of Agriculture and Consumer Services.

Program Name: **Expansion of Asian Citrus Psyllid Biocontrol**
Project ID: 2805
Lead Agency: Florida Department of Agriculture and Consumer Services Division of Plant Industry

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Project Synopsis: Asian Citrus Psyllid (ACP), *Diaphorina citri* (Hemiptera: Psyllidae), was discovered by Division of Plant Industry personnel in Boynton Beach, Florida in June of 1998. It quickly spread to all citrus producing counties in Florida. ACP is one of the most efficient vectors of citrus greening disease, which was found in Florida in 2005. Infection with citrus greening, or Huanglongbing (HLB), results in a systemic tree infection leading to poor fruit production and tree decline.
In cooperation with UF-IFAS, two parasitoids of the psyllid, *Diaphorencyrtus aligarhensis* (Hymenoptera: Encyrtidae)and *Tamarixia radiata* (Hymenoptera: Eulophidae), were introduced into the division's quarantine laboratory in 1998 and a permit for field release of *T. radiata* was granted in July of 1999 and *D. aligarhensis* in March of 2000.

Tamarixia radiata quickly established and can be found throughout Florida providing varying levels of ACP control. *Diaphorencyrtus aliharhensis* is not known to have established to date. However, augmentative releases of this wasp does provide additional psyllid control.
Both parasitoids are mass reared and distributed to researchers and citrus growers throughout Florida. In 2012 alone, approximately 1.5 million *T. radiata* and *D. aligarhensis* were distributed.
Current Status: Ongoing (project up for renewal annually)

Project Schedule:
Start Date: 5/1/2014
Finish Date: 4/30/2015

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$535,500	$535,500					
SFWMD**							
Local							
Total	**$535,500**	**$535,500**					**1,071,000**

Contact: Dr. Greg Hodges, Assistant Director, Division of Plant Industry, Florida Department of Agriculture and Consumer Services.

Hyperlink: http://www.freshfromflorida.com/Divisions-Offices/Plant-Industry/Bureaus-and-Services/Bureau-Of-Methods-Development-Biological-Control/Biological-Control/Classical-Biocontrol
Pictures:

Program Name: FWC Nonnative Fish and Wildlife Program
Project Name: **Python Removal Program**
Project ID: 2806
Lead Agency: Florida Fish and Wildlife Conservation Commission in conjunction with SFWMD

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Measurable Output(s): Since inception in 2009, 187 pythons have been removed under permits from state owned and managed lands. Since July 2012, the reporting period, 76 pythons have been removed under permits from state owned and managed lands.

Project Synopsis:
In response to increased public concern about Burmese pythons in south Florida, FWC initiated a program to permit qualified individuals to remove pythons from four Wildlife Management Areas (WMAs) in south Florida.

The Burmese Python Removal Program is not a hunting program or a recreational program; rather it is a management tool that allows people to remove Burmese pythons and other nonnative reptiles from state lands. While the primary focus of the program has historically been Burmese pythons, the intent of the program is to allow properly trained and permitted people to remove all invasive exotic reptiles that are encountered during collection trips. The objective of the program is to collect data on the locations of Burmese pythons and other invasive reptiles, as well as information on the effort spent searching for these reptiles, and to remove the species from the environment.

Burmese Python Removal permits have previously allowed access to both Wildlife Management Areas (WMAs) and properties managed by the South Florida Water Management District (SFWMD). However, FWC is working with SFWMD to address program improvements and enhancements, and permits that include SFWMD properties are currently not being issued.

Permit holders must turn in all captured pythons, but can request to have the carcass returned to them. They can sell the hide and meat, thus providing a type of

All nonnative reptiles, including conditional reptiles may be taken or transported live under this permit. The snakes can be captured by hand or by using hand held equipment (snake tongs, snake hooks, etc.). Pythons may be euthanized onsite by legal and humane methods, or dropped off live at a site designated by FWC.

Current Status: Ongoing

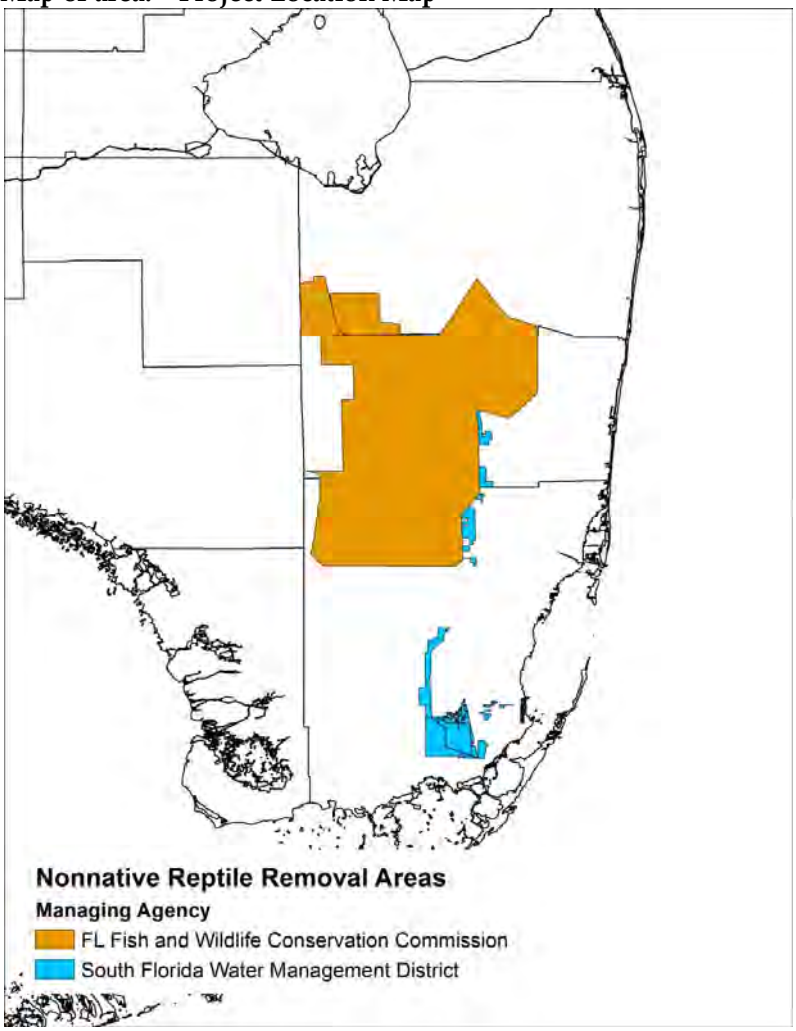
Project Schedule:
Start Date: 2009
Finish Date: Ongoing

Detailed Project Budget Information:
The management of this program is embedded within a few positions inside FWC. Estimated budget is not available.

Contact: Kristen Penney Sommers, Section Leader,
Kristen.Sommers@MyFWC.com 850-488-3831

Hyperlink: **http://myfwc.com/license/wildlife/nonnative-species/python-permit-program/**

Map of area: Project Location Map



Program Name: Everglades Complex of Wildlife Management Areas (Everglades & Francis S. Taylor, Holey Land, and Rotenberger)
Project Name: **Exotic Plant Control**
Project ID: 2807
Lead Agency: Florida Fish and Wildlife Conservation Commission

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Measurable Output(s): Achieve a 95% kill rate of targeted exotic species in the acreage contracted for treatment each year. Main targeted species include Brazilian pepper (*Schinus terebinthifolius*), Old World climbing fern (*Lygodium mycrophyllum*), and Napier grass (*Pennisetum purpeum*) but include all FLEPPC category 1 species found.

Project Synopsis: Contract the survey and treatment of exotic vegetation on tree islands, levee perimeters, and spoil islands within the Complex.

Current Status: On-going annually or biennial (Lygodium surveys)

Project Schedule:
Start Date: Annual
Finish Date: Continuous

Detailed Project Budget Information

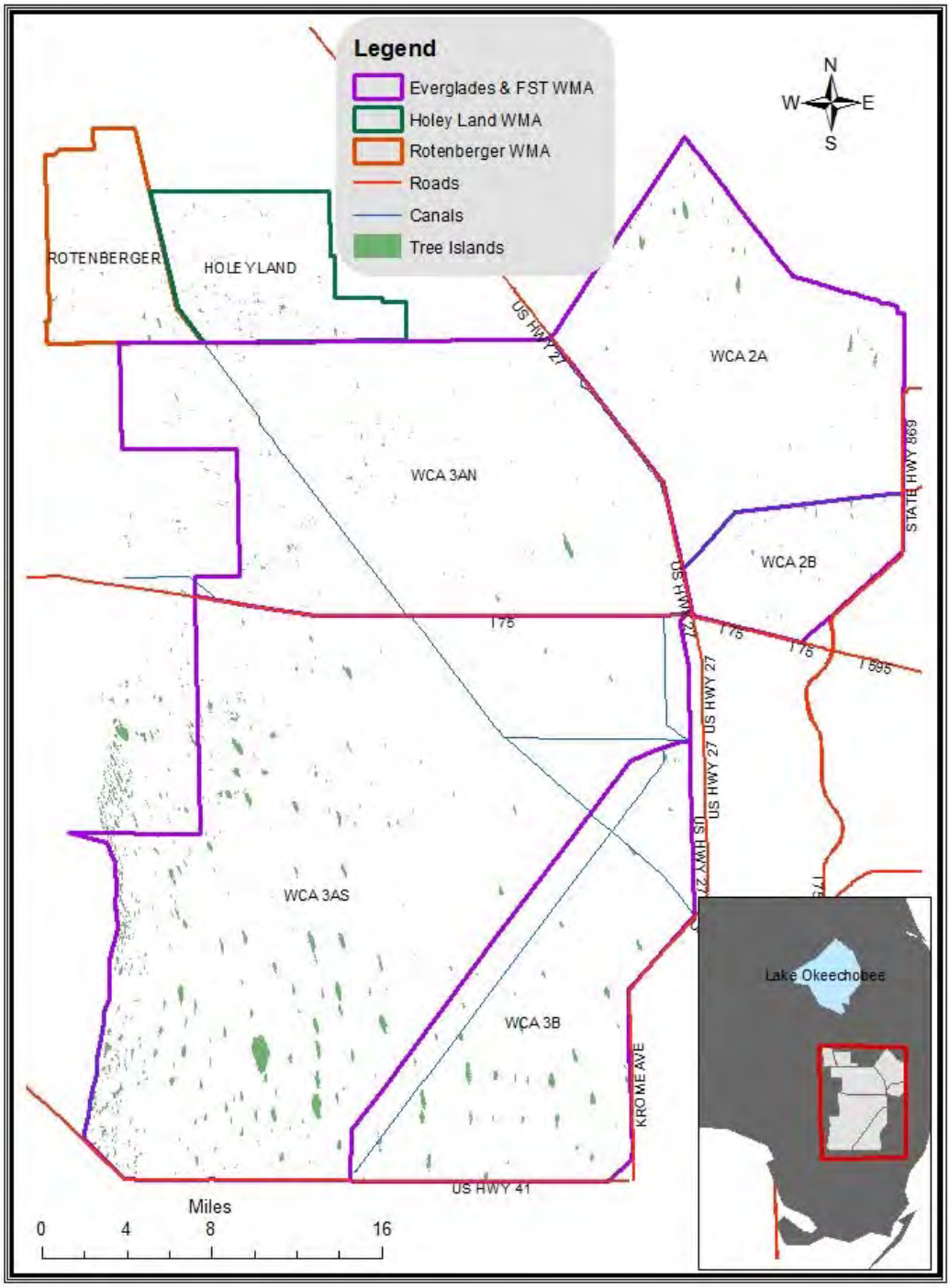
	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal							
SFWMD**							
State	$442,450	$502,500	$485,000*	$485,000*	$485,000*		**$2,399,950**
Local							
Total	**$442,450**	**$502,500**	$485,000	$485,000	$485,000		**$2,399,950**

* Estimated amount to be requested, dependent upon funding

Contact: Marsha Ward marsha.ward@myfwc.com **954-746-1789**

Hyperlink(s): http://myfwc.com/viewing/recreation/wmas/lead/everglades/
http://myfwc.com/viewing/recreation/wmas/lead/holey-land
http://myfwc.com/viewing/recreation/wmas/lead/rotenberger

Map of area(s):


Legend
Everglades & FST WMA
Holey Land WMA
Rotenberger WMA
Roads
Canals
Tree Islands
N
W
E
S
ROTENBERGER
HOLEYLAND
WCA 2A
WCA 3AN
WCA 2B
WCA 3AS
WCA 3B
US HWY 27
STATE HWY 869
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I 595
KROME AVE
US HWY 41
Lake Okeechobee
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Program Name: Everglades Complex of Wildlife Management Areas (Everglades & Francis S. Taylor, Holey Land, and Rotenberger)
Project Name: **Native Tree and Shrub Planting/Maintenance**
Project ID: 2808
Lead Agency: Florida Fish and Wildlife Conservation Commission

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Measurable Output(s): Re-vegetate tree islands post exotic treatment within the Complex through the planting of native trees and shrubs at an average of 150 plants/acre.

Project Synopsis: Contract the planting of native trees and shrubs (est. 600-1,500 plants annually) on tree islands within the Complex. Contract the annual maintenance of protective exclosures around the planted trees and shrubs and track their survival rates utilizing the maintenance data. Re-vegetation of islands previously cleared of invasive exotics improves wildlife habitat and promotes natural recruitment of native plant species.

Current Status: On-going annually

Project Schedule:
Start Date: Annual
Finish Date: Continuous

Detailed Project Budget Information

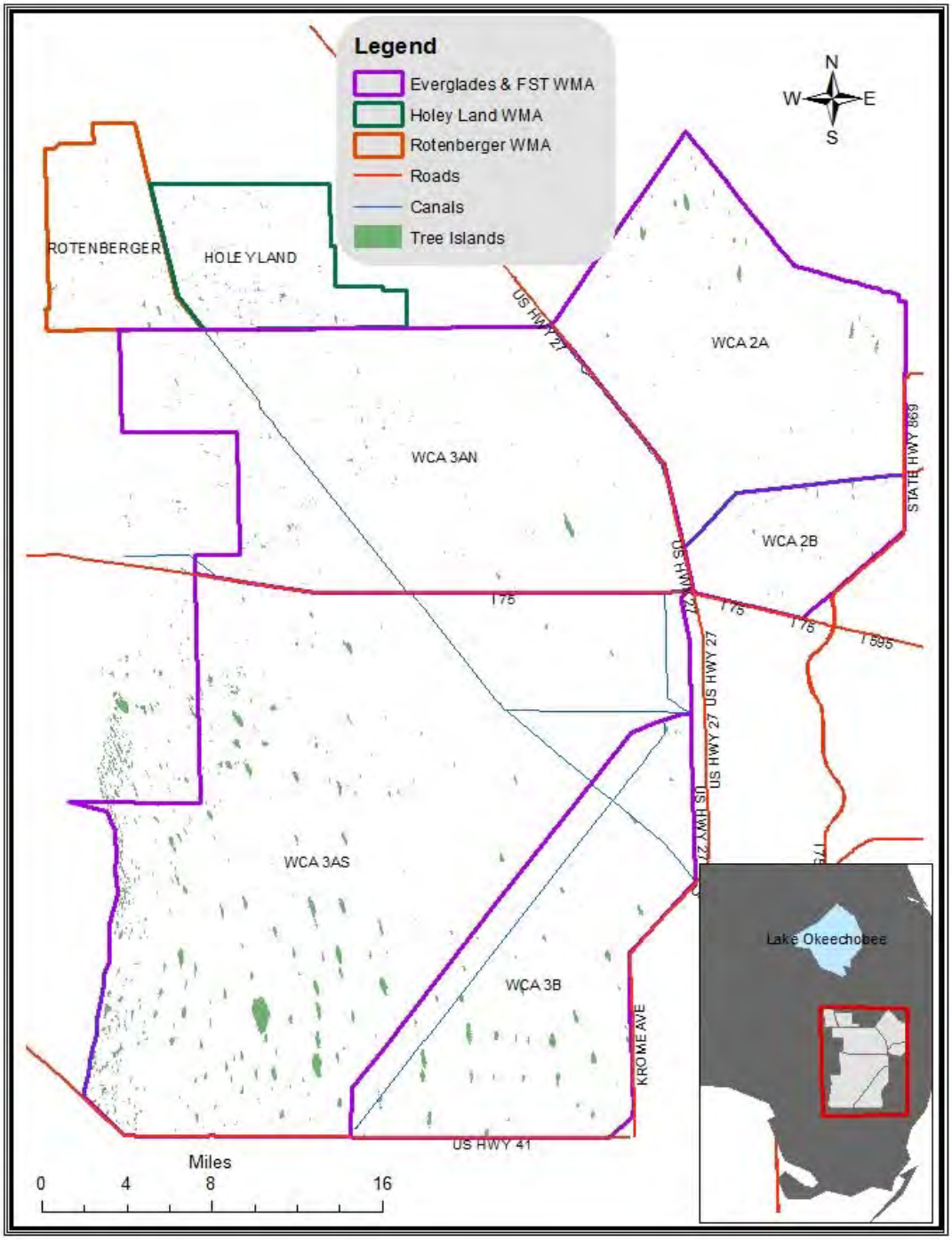
	2014	2015	2016	2017	2018	Total
Federal						
SFWMD**						
State	$135,205	$125,420	$130,000*	$140,000*	$150,000*	**$680,625**
Local						
Total	$135,205	$125,420	$130,000*	$140,000*	$150,000*	**$680,625**

* Estimated amount to be requested, dependent upon funding

Contact: Marsha Ward marsha.ward@myfwc.com **954-746-1789**

Hyperlink(s): http://myfwc.com/viewing/recreation/wmas/lead/everglades/
http://myfwc.com/viewing/recreation/wmas/lead/holey-land
http://myfwc.com/viewing/recreation/wmas/lead/rotenberger

Map of area(s):


Legend
Everglades & FST WMA
Holey Land WMA
Rotenberger WMA
Roads
Canals
Tree Islands
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ROTENBERGER
HOLEY LAND
WCA 2A
WCA 3AN
WCA 2B
WCA 3AS
WCA 3B
STATE HWY 869
US HWY 27
I 75
I 595
KROME AVE
US HWY 41
Lake Okeechobee
Miles
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Program Name: Miami-Dade County Environmentally Endangered Lands Program
Project Name: **Conservation Land Acquisition and Management**
Project ID: 2809
Lead Agency: Miami-Dade County Environmentally Endangered Lands Program

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Measurable Output(s): Acres acquired, acres treated – (The EEL Program acquired 198 acres and eradicated invasive exotic species on 3,869 acres from July 2012 to March 2014, from April 2014 through March 2015, the EEL Program acquired 92 acres and eradicated invasive exotic species on 2,032 acres.)

Project Synopsis: The Miami-Dade County Environmentally Endangered Lands (EEL) Program was established in 1990, amid growing concern about the continued loss of pine rocklands and other natural areas unique to southeast Florida. Miami-Dade County voters approved a referendum for a two-year property tax increase that initially funded and established the EEL Program to acquire, protect and manage environmentally endangered lands for this and future generations. Although the State of Florida had established land acquisition programs for preserving conservation lands by 1990, Miami-Dade County's EEL Program was among the first in the state that was approved at a local level for this purpose. While EEL Funds have adequately supported the program since its inception, EEL Funds will be depleted by 2024, possibly sooner. Recurring revenue sources need to be identified and secured to assure that acquisition and management can continue.

Current Status: Since its inception, the EEL Program has acquired and manages more than 20,800 acres of land within the Greater Everglades Ecosystem, including pine rockland, tropical hardwood hammock, salt marsh, mangrove and freshwater wetlands. The EEL Program manages an additional 2,800 acres of environmentally sensitive lands owned by the county Parks Department. Over 20,000 acres of land within the EEL Program's inventory are within the CERP C-111 and BBCW project footprints. The primary effort of management activities is eradication of invasive exotic plant species and restoration of native habitats at a cost in excess of $3,000,000 per year.

Project Schedule:
Start Date: May 18, 1990
Finish Date: N/A – these lands are meant to be maintained in a restored state in perpetuity

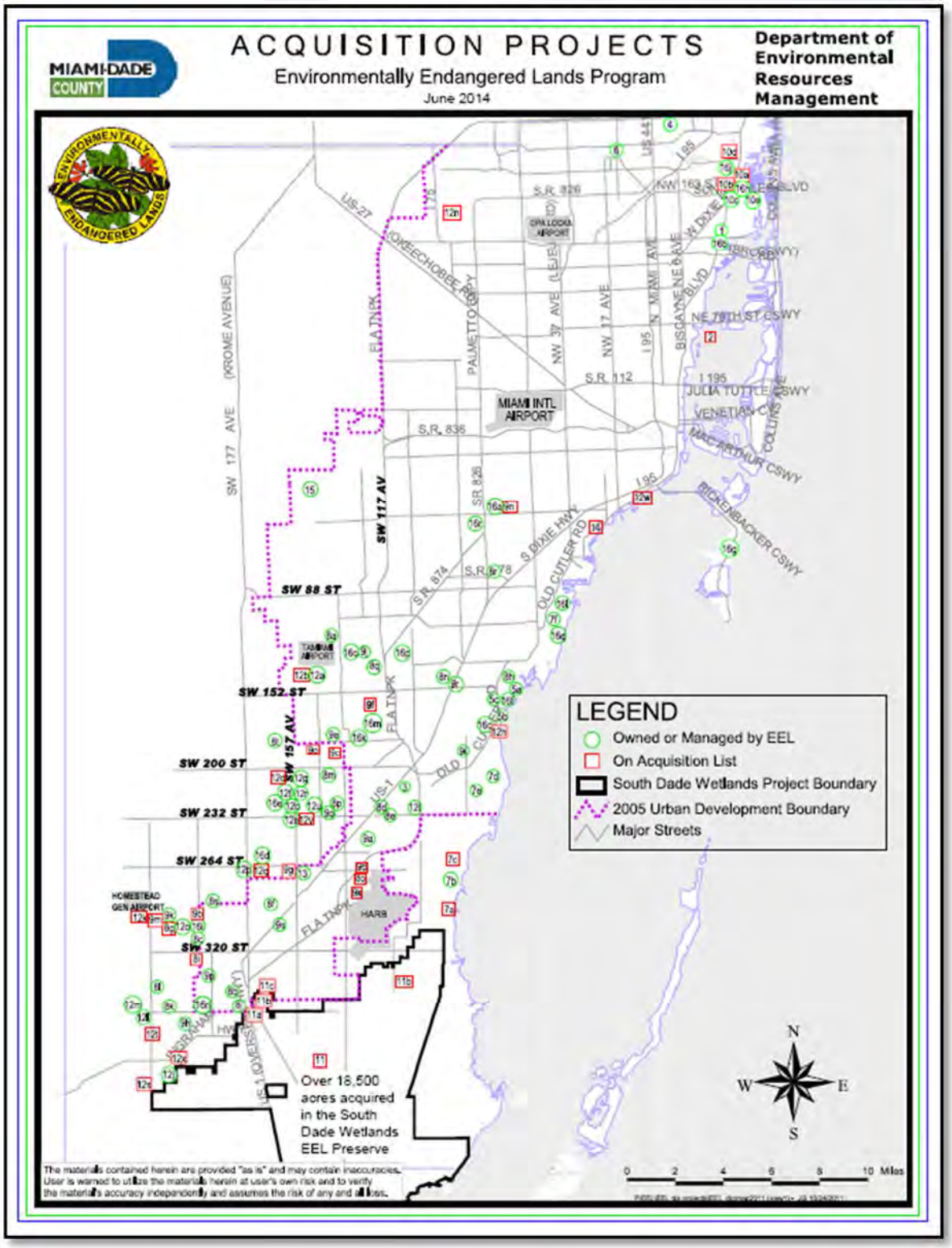
Detailed Project Budget Information

	1990 - 2014	2015	2016	2017	2018	Balance to Complete	Total
Federal / State grants	13,.063,000	100,000	100,000	100,000	100,000		
Local (for management)	39,830,000	3,000,000	3,000,000	3,000,000*	3,000,000*	3,000,000* per year	
Local (for acquisition & administration)	113,679,000	5,500,000	5,606,000*	3,500,000*	1,400,000*	>$100,000,000*	
Total	**166,572,000**	**8,600,000**	**8,706,000***	**6,600,000***	**4,500,000***		**TBD**

*** Dependent on availability of funds**
Contact: Janet Gil, Environmental Resources Project Supervisor gilj@miamidade.gov, 305-372-6471
Hyperlink: **www.miamidade.gov/environment/endangered-lands.asp**

Pictures:

Map of project area:



Program Name: Arthur R. Marshall Loxahatchee National Wildlife Refuge
Project Name: **Invasive Exotic Control Program**
Project ID: 2810
Lead Agency: USFWS

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Measurable Output(s): Acres treated as of June 1, 2015: Old World Climbing Fern – 1,471 Acres, Melaleuca – 612 Acres; Additional acres planned for the remainder of 2015 of Old World Climbing Fern – 4,600, Melaleuca – 3,400 (does not include work in the southern portion of the refuge contracted through SFWMD)

Project Synopsis:
Contracted crews access the interior marsh via airboats and use a combination of chemical and mechanical removal of all Class I species, primarily focusing on Melaleuca, Lygodium, Brazilian pepper, and Australian pine.

Current Status: Ongoing

Project Schedule:
Start Date: ongoing
Finish Date: ongoing

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$1,845,000	$2,457,332	$1,000,000	$1,000,000	$1,000,000	$17,500,000	**$22,500,000**
SFWMD *	$950,000	$1,000,000				N/A	**$2,500,000**
Local							
Total	**$2,795,000**	**$3,457,332**					**$25,000,000**

Contact: Rolf Olson (rolf_olson@fws.gov)

Project 2810: Invasive Exotic Control Program Page 1 of 2

Map of area:

Project 2810: Invasive Exotic Control Program Page 2 of 2

Program Name: Operations of National Park Service
Project Name: **Python and invasive species removal authorized agent program for South Florida National Parks**
Project ID: 2811
Lead Agency: National Park Service

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Measurable Output(s): Number of individuals removed; reduction in occurrence of invasive species over time within target areas

Project Synopsis:
Burmese pythons are currently well-established within Everglades National Park and Big Cypress National Preserve, and likely occur within Biscayne National Park to some degree. Efforts to remove pythons from NPS lands have been under way for many years to limit ecological impacts, but also to obtain individuals for scientific studies. Due to the low detection probability for pythons, efforts to increase search effort have been necessary to continue to remove pythons. Within the Parks, existing regulations prevent "hunting" and removal of wildlife from the Parks. Through the authorized agent program, members of the public are authorized to participate in python removal as "agents of the NPS."

Authorized agents are primarily interested members of the public, and we work to ensure that they are adequately trained and prepared to remove pythons. Their efforts help to generate detection probabilities, gain natural history information about invasive species, and increasingly, they serve an important role in detecting new species. In 2014, authorized agents detected a Nile crocodile in Everglades National Park that led to its eventual removal. Currently, the activities and information from the authorized agents are coordinated in conjunction with USGS to provide invasive species removal from all South Florida park units.

Current Status:
In 2014, there were just over 30 authorized agents working in the parks, and their level of effort fluctuates, but generally results in several trips per week, or 20 or more person hours of searching for pythons and other invasive species

Project Schedule:
Start Date: ~2009
Finish Date: Ongoing

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	60000	60000	60000	60000	60000		
SFWMD**							
Local							
Total	60000	60000	60000	60000	60000		**300,000**

PROJECT SHEET UPDATED IN 2014
Contact: Tylan Dean, Biological Resources Branch Chief, Everglades National Park

Pictures:

Photo credit – Tom Rahill and the Swamp Apes

Program Name: Operations of National Park Service
Project Name: **Lionfish assessment and control in South Florida National Parks**
Project ID: 2812
Lead Agency: National Park Service

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Measurable Output(s): Reduced abundance and occurrence of lionfish at selected reef sites;

Project Synopsis:
Lionfish now occur throughout much of South Florida's marine and estuarine waters. Within Biscayne National Park, Dry Tortugas National Park, and Everglades National Park, efforts have been under way to systematically remove lionfish from selected sites, assess the lionfish populations and trends in conjunction with the control efforts, and better understand the habitat preferences of this species in order to better utilize staff and resources on lionfish control. It is not currently feasible to completely control lionfish throughout these properties, but removal and density reduction can be achieved at specific sites. Within Everglades and Dry Tortugas, spears are prohibited fishing gear, but their use by the public is allowed within Biscayne National Park in accordance with State law, and recreational/commercial harvest may be a significant contributor to control efforts.

NPS personnel and interns select random sites within the Parks, and search these sites to assess the occurrence of lionfish across broad areas and their habitat associations. Teams of divers use spears and hand nets to remove lionfish. Accompanying data, including person-hours, numbers of lionfish observed, numbers of lionfish removed, and abiotic and biotic habitat information are also collected during each dive. Sites are revisited over time, with "hotspots" (sites tending to attract larger densities of lionfish) receiving increased attention. This approach provides information on lionfish distribution and density, as well as habitat associations, rates of re-occupancy of the selected sites, and the extent of effort needed to control lionfish at acceptable levels.

Current Status:
In 2014, Biscayne and Dry Tortugas National Parks have grant-supported programs established to conduct the systematic lionfish removals. The continuation of these programs in future years is contingent upon receipt of additional grant funding. In Everglades National Park, there is no dedicated program for lionfish removal, but personnel from other parks assist with an annual systematic lionfish survey at sites in Florida Bay. Biscayne National Park personnel also conduct removals of lionfish from the bordering Florida Keys National Marine Sanctuary (FKNMS) as part of an agreement with the Sanctuary, since the FKNMS does not have staff available to remove the high numbers of large individuals known to occur in the FKNMS waters just east of the park's boundary.

Project Schedule:
Start Date: 2011 Finish Date: Ongoing

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$155,000	$168,000	$111,000	$111,000	38,000		
Total	$155,000	$168,000	$111,000	$111,000	38,000		**583,000**

PROJECT SHEET UPDATED IN 2014

Contact: Tylan Dean (tylan_dean@nps.gov)

Pictures:

Photo credit – National Park Service

Program Name: Exotic Management
Project Name: **Palmetto Bay/Cutler Bay Coastal Habitat Restoration**
Project ID: 2813
Lead Agency: National Park Service

Strategy and Biennial Report Objective Addressed: 2-B.4, 2-B.2 and 2-B.3
Invasive Species Strategic Action Framework Goal: 4

Measurable Output(s): The presence and absence of exotic plant species and migratory birds and wading birds. will be monitored.
Project Synopsis:
This project will restore habitat for more than 101 species of migratory birds as well as other priority species such as the American crocodile, Florida leafwing butterfly, and five federally listed plant species. Federal, state, county, municipal, private and non-profit partners will work together to restore 371 acres of freshwater and saltwater marshes along Biscayne Bay by removing invasive species, restoring natural fire regimes and water flow, and installing nest boxes.
This project concept could be applied to many other locations. A tenfold increase in budget to this type of project is reasonably possible.

Current Status: In March 2014, a prescribed burn (73 acres) was executed on the site by the Florida Division of Forestry to reduce Napier grass (*Pennisetum purpureum*) biomass on the site. In addition, dense Brazilian pepper was mechanically removed from 10 acres of the site. All invasive species on the remaining acreage were chemically treated in place with herbicide. Ten acres of the site were actively restored and planted with native wetland species including: Gulf Cord Grass (*Spartina spartinae) and* Muhly Gras(*Muhlenbergia capillaris*). Education and outreach was accomplished through numerous volunteer days, public meetings , signage and interpretive trails placed on the site. The restoration effort will be ongoing for the next several years.

Project Schedule:

Start Date: 2013
Finish Date: ongoing

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal*	$37,500	$37,500	$0	$0	$0		$75,000.00
SFWMD	0	N/A	$25,000	$25,000	$25,000		$75,000.00
Local	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	$37,500	$37,500	$25,000	$25,000	$25,000	N/A	$150,000.00

***Paid for by the U.S Fish and Wildlife Service Small Grant**

Contact: Tony Pernas EPMT NPS

Pictures:

Area Map:

Project 2813: Palmetto Bay/Cutler Bay Coastal Habitat Restoration Page 2 of 2

Program Name: Exotic Management
Project Name: **Digital Aerial Sketch Mapping (DASM)**
Project ID: 2814
Lead Agency: **South Florida Water Management District**

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Measurable Output(s): Regularly updated maps describing the location and intensity of the four most common exotic plant species and a rapidly spreading tree disease within the ECISMA boundary.

Project Synopsis: To detect the spread of infestation and observe the rate of change of Schinus terebinthifolius, Casuarina equisetifolia, Melaleuca quinquenervia, Lygodium microphyllum in South Florida at two year intervals.
This project produces a census map for the ECISMA at 5 year intervals, flies a stratified random design covering 2% of the ECISMA each year, and produces detailed maps of work areas for participating regional managers each year. This project could be enhanced with dedicated coordination and synthesis/reporting efforts at a cost of $20,000 per year.

Current Status: We have created a DASM map for 2012-2013 within the ECISMA boundary. The next DASM flight is scheduled for January and will map future contracted treatment areas and the GRTS panels.

Project Schedule:
Start Date: 2003
Finish Date: ongoing

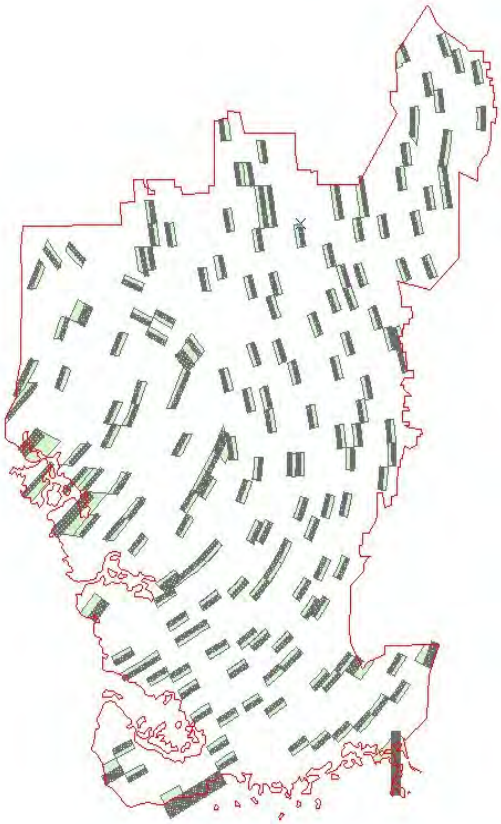
Detailed Project Budget Information

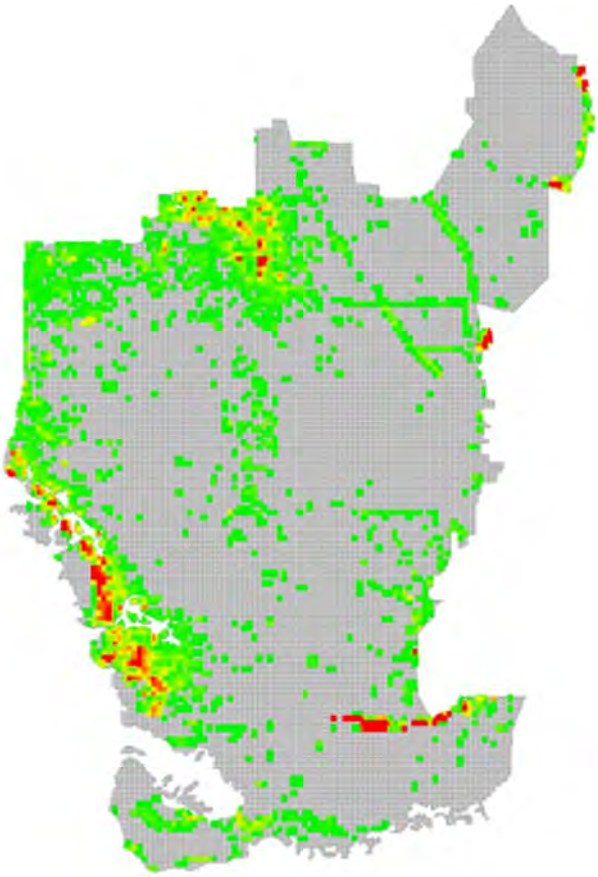
	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SFWMD*	$50,000	$50,000	$50,000	$50,000	$50,000	$200,000	$250,000
Local	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	$50,000	$50,000	$50,000	$50,000	$50,000	$200,000	$250,000

Contact: Leroy Rodgers, SFWMD

Pictures:

Area Map:





Program Name: Invasive Species Population Management
Project Name: **Python Chemical Communication**
Project ID: 2815
Lead Agency: USDA/APHIS Wildlife Services National Wildlife Research Center

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Measurable Output(s): Characterization of python skin chemicals

Project Synopsis: The goal is to obtain quantitative analyses of chemicals in the skin of invasive Burmese pythons now established in Florida. Understanding the nature of the chemical signals used in python reproductive ecology would lead to the development of useful management tools: 1) female-specific chemical signals for tracking and locating female pythons; 2) development of a reproductive attractant to trap male pythons. Altering male pythons with estrogen implants, which was successfully done in garter snakes, should induce the male pythons to produce female pheromones which will increase opportunities to obtain the pheromone, identify constituents, and perhaps synthesize it.

Current Status: Data collection for the project is set to begin in 2014. Extractions have been made, test animals acquired, study protocol developed. Behavioral trials (bioassays) will be conducted during summer 2015.

Project Schedule:
Start Date: 2014
Finish Date: 2017

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$27,500	$18,500	$12,500	$10,000		$22,500	**$68,500**
SFWMD**							
Local							
Total	$27,500	$18,500	$12,500	$10,000		$22,500	$68,500

Contact: Michael Avery USDA APHIS National Wildlife Research Center

Program Name: Invasive Species Population Management
Project Name: **Genetic analyses of invasive reptiles in Florida**
Project ID: 2816
Lead Agency: UF Museum of Natural History

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Project Synopsis: Few studies have performed some degree of molecular comparisons of species from their native range to introduced Florida populations. A major impediment has been the lack of data availability for native range populations for comparisons. Molecular data from recent phylogenetic studies from native populations are now available for certain taxonomic groups, including *Ctenosaura similis* and *Agama agama* complex. In this study, molecular data are examined to determine the native geographic origins of Florida populations of *C. similis* and *Agama a. africana*. Additionally, molecular data are examined to determine species identity of skin, skeletal, and egg samples from unknown giant constrictor species.

Current Status: Genetic sequencing of *Agama* (15 specimens), *Ctenosaura* (22 specimens) and *Python sebae* (21 specimens) are ongoing.

Laboratory work has been completed; manuscripts are being prepared for publication.

Project Schedule:
Start Date: 2014
Finish Date: 2015

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$9,500	$8,500				0	**$18,000**
SFWMD**							
Local							
Total	$9,500	$8,500				0	$18,000

Contact: Kenney Krysko UF Museum of Natural History; Michael Avery USDA APHIS

Program Name: Invasive Species Population Management
Project Name: **Thermal infra-red detection of Burmese pythons**
Project ID: 2817
Lead Agency: USDA/APHIS Wildlife Services National Wildlife Research Center

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Measurable Output(s): Ability of commercial IR units to detect pythons

Project Synopsis: Captive pythons were allowed to bask during the day to accumulate body heat. At sunset, 4 animals tightly secured within nylon mesh snake bags were placed on the ground at varying distances from the IR detectors. One of the detectors was small enough to be taken aloft on an unmanned aerial vehicle should it prove to be able to detect the snakes. The heat signature of each snake was recorded at 10-min intervals until it is no longer visible.

Current Status: Readings were collected and the data are being analyzed, with follow up trials to be determined. No additional work is planned at this time except to develop a paper for publication.

Project Schedule:
Start Date: 2014
Finish Date: 2015

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$15,000	$8,500				0	**$23,500**
SFWMD							
Local							
Total	$15,000	$8,500				0	$23,500

Contact: Michael Avery USDA APHIS National Wildlife Research Center

Project Name: **C&SF: CERP Melaleuca Eradication and Other Exotic Plants (OPE)**
Project ID: 2818 (CERP Project WBS # 95)
Lead Agency: USACE / SFWMD
Authority: WRDA 2000 *(Programmatic Authority < $25 M)*
Funding Source: Federal/State

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Measurable Output(s): Increase effectiveness of biological control technologies

April 1999 Project Synopsis: Includes: (1) upgrading and retrofitting the current quarantine facility in Gainesville, and (2) large-scale rearing of approved biological control organisms for release at multiple sites within the south Florida ecosystem. The purpose of this feature is to increase the effectiveness of biological control technologies to manage Melaleuca and other invasive exotic species.

Current Project Synopsis: The primary benefits of this project include preventing the expansion of invasive exotic plant species into natural areas, and reducing coverage and density of invasive exotic species. Secondary benefits include promoting the re-establishment of native plants, restoring native habitat for native bird and wildlife species, and reducing stressors on rare, threatened and endangered species.

The Design Agreement between the USACE and the SFWMD was amended 29 July 2004 to include the Melaleuca and Other Exotic Plants–Implement Biological Controls project. The Project Management Plan was approved in 2005 and work began on a PIR focused on the mass rearing and controlled release of biological agents to control Melaleuca, Brazilian pepper, Australian pine, and Old World Climbing Fern throughout South Florida.

The preferred alternative for Melaleuca and Australian pine control is inoculate all test areas with approved bio-control agents and to construct a mass rearing annex. This alternative involves releasing insects at a few locations within each project site containing the target invasive plants, and relies on natural dispersal by the insects for full coverage.

The preferred alternative to control Brazilian pepper and Old World climbing fern is inundate all test areas with approved bio-control agents from a constructed mass rearing annex. The invasive plants are inundated with insects, which will be released at many more sites in the project area.

Current Status: An Adaptive Management Strategy was developed in coordination with RECOVER. A draft PIR was submitted to HQ for policy review and concurrent public review in 2008. External review and public workshops were held in February 2009. NEPA requirements were wrapped up and the final PIR/EA was sent to HQ in January, 2010. As an "other program element" in the CERP, this project was authorized by the Secretary of the Army under the WRDA 2000 Programmatic Authority without additional congressional authorization. The Secretary of the Army approved the PIR on June 23, 2010 and the PPA was executed in July 2010. With 2010 ARRA funding for the annex facility in Davie, development of Plans and Specifications for a Design-Build contract was initiated in September 2010. The contract was awarded for construction in August 2011. Construction was completed in November 2013. The annex facility was transferred and accepted by SFWMD in December 2013.

Est. Cost: $ 4,712,901

Project Schedule: December 2013 thru December 2038 – Operations and Maintenance Phase

Detailed Project Budget Information (rounded):

Melaleuca	Obligations Thru FY 2013
USACE	$4,339,099
SFWMD	$197,588
Total	**$4,536,687**

PROJECT SHEET UPDATED IN 2014
Hyperlink: http://www.evergladesplan.org/facts_info/fact_sheets.aspx

Contact: Tiphanie Jinks, Senior Project Manager, Ecosystem Section, USACE
(904) 232-1548, Tiphanie.C.Jinks@usace.army.mil

LeRoy Rodgers, Project Manager, SFWMD
(561) 682-2843, lrodgers@sfwmd.gov

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2011 dollars. Actual expenditures include all federal expenditures through FY11 (Sept, 2011) and sponsor verified and recorded in kind credit through 4th quarter FY11.

Additional Information: Melaleuca trees, (*Melaleuca quinquenervia*), known as punk trees or paper bark tea trees, are native to Australia. There, melaleuca is planted in parks, valued by beekeepers, and is attractive to birds and bats. Because of development, Melaleuca trees in some parts of Australia are the subject of conservation efforts. In the Everglades, however, Melaleuca is a pest, where the trees grow into immense forests, virtually eliminating all other vegetation becoming a "river of trees", a completely alien habitat to the plants and animals that have evolved to live in the glades. Melaleuca grows in terrestrial as well as in completely aquatic situations. During the 50 years since its introduction, Melaleuca has taken over hundreds of thousands of acres of Everglades producing huge quantities of seeds, which become small trees. Herbicides are proving to be somewhat effective, but purposely-set management fires (and lightning-started fires) apparently help spread the seeds and trees. Recently, biological control insects have been released against Melaleuca, but it will take time before bio-control results are known.
SOURCE: University of Florida/IFAS Center for Aquatic Plants.

Program Name: Exotic Vegetation Management Program
Project Name: Everglades National Park Exotic Vegetation Management
Project ID: 2819
Lead Agency: National Park Service

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Measurable Output(s): Acres infested with Exotic Plants

Project Synopsis: Everglades National Park (ENP) encompasses 1.5 million acres of which 1.3 million is designated as wilderness. Non-native (exotic) plants are a significant threat to the native plant communities of ENP. Approximately 1,030 plant species have been recorded in the park. Of these, over 270 species are non-native. Systematic treatments address 10 to 15 species. The most commonly targeted exotics are: Brazilian pepper (*Schinus terebinthifolius*, Melaleuca (*Melaleuca quinquenervia),* Australian pine (*Casuarina equisetifolia)*, Lather leaf *(Colubrina asiatica*), and Old World climbing fern (*Lygodium microphyllum)*. Exotic vegetation is estimated to affect approximately 200,000-300,000 acres of the park.

Over the last 20 years, funds provided by federal, state and county agencies, such as the National Park Service (NPS) South Florida Natural Resources Center, NPS Florida and Caribbean Exotic Plant Management Team, Florida Department of Environmental Protection, Florida Fish and Wildlife Conservation Commission, South Florida Water Management District, Army Corps of Engineers, and Miami-Dade County Department of Environmental Resource Management have helped to treat exotic vegetation in ENP.

Current Status: Although contractors, volunteers, interns, and park staff were able to treat exotic vegetation in all districts of ENP, invasive exotic plant problems still occur in the East Everglades, Gulf Coast, Flamingo, and Key Largo Districts of the park. For example, *Lygodium* is established in the sparsely wooded coastal marsh areas along the western coast in both the Gulf Coast and Flamingo Districts. *Lygodium* was first recognized in the park in 1999. Treatment efforts have been effectively treating large dense stands, but the plant continues to expand its range within ENP.

Brazilian pepper is the most widespread of these species in Everglades National Park. Brazilian pepper is particularly abundant in the western portion of ENP along the fringes of the mangroves. A cost effective strategy for systematically removing Brazilian pepper from the park has not been identified. Treatment of this plant is done sporadically as a part of broader exotics projects and in discreet areas that have been identified as resource management priorities.

Although a great amount of progress has been made in the East Everglades District treating melaleuca and Australian pine, there is still a great need for finishing the remaining initial treatment (~1,400 acres) and re-treatment. Re-treatment efforts are very important in order to continue the progress already achieved. Funding for re-treatment efforts are not guaranteed because there are no dedicated funds for this activity. However, re-treatment funds are crucially important in order to insure restoration success. Table 1 presents funding sources and acres of exotic vegetation treated between July 1, 2014 and June 30, 2015.

Table 1. Summary of exotic vegetation treatment projects in Everglades National Park between July 1, 2014 and June 30, 2015.

Project Name	Major Species Treated	Funding Source	Treatment Type	Gross Infested Acres (hectares) Treated	Canopy Acres (hectares) Treated	% of area infested	Costs	Cost/gross acres
NPS_ENP_EVMP_SFNRC_ Block_5	*Melaleuca* *Casuarina* *Lygogium*	NPS_EVER_ EVMP	Re-treatment	10,965	119 13 0.02	1% 0.1% >0.1%	$192,961.23	$17.60
FWC_SE_Block_6 (SE-224)	*Melaleuca* *Schinus*	FWC	Re-treatment	646	394 10	61% 1.7%	$242,250.00	$375.00
In-House (EVMP, FLCEPMT	Many	NPS_EVER_ EVMP_FLC EPMT	Re-treatment	238	52	22%	Portion of total budget. Estimate for EVMP FY2015 budget and salary of program manager=$186,420	On-going
Total				11,849	588			

Funding Sources
ENP_EVMP (Everglades National Park_Exotic Vegetation Management Program)
FLCEPMT (Florida and Caribbean Exotic Plant Management Team)
FIRE- Everglades Fire and Aviation Management
FWC-Florida Fish and Wildlife Conservation Commission
NPS-National Park Service
SFNRC-South Florida Natural Resources Center

Gross acres is an estimate of the total land area covered by treatment crews. For this report it is based on a GIS shapefile summary of the field GPS tracklogs and/or treatment points from Daily Treatment Progress Reports for each project.
Canopy acres is an estimate of the percent of ground covered by a particular invasive species. For this report it is based on the sum of the daily treatment estimates provided by the field crew. The daily treatment estimates are calculated by multiplying the area treated by the mid-point of the range of cover estimate. For example, 20 acres treated at a cover range of 0.1-5%, invasive species cover would have the mid-point of 3% and have the estimated canopy acres of 6 acres.

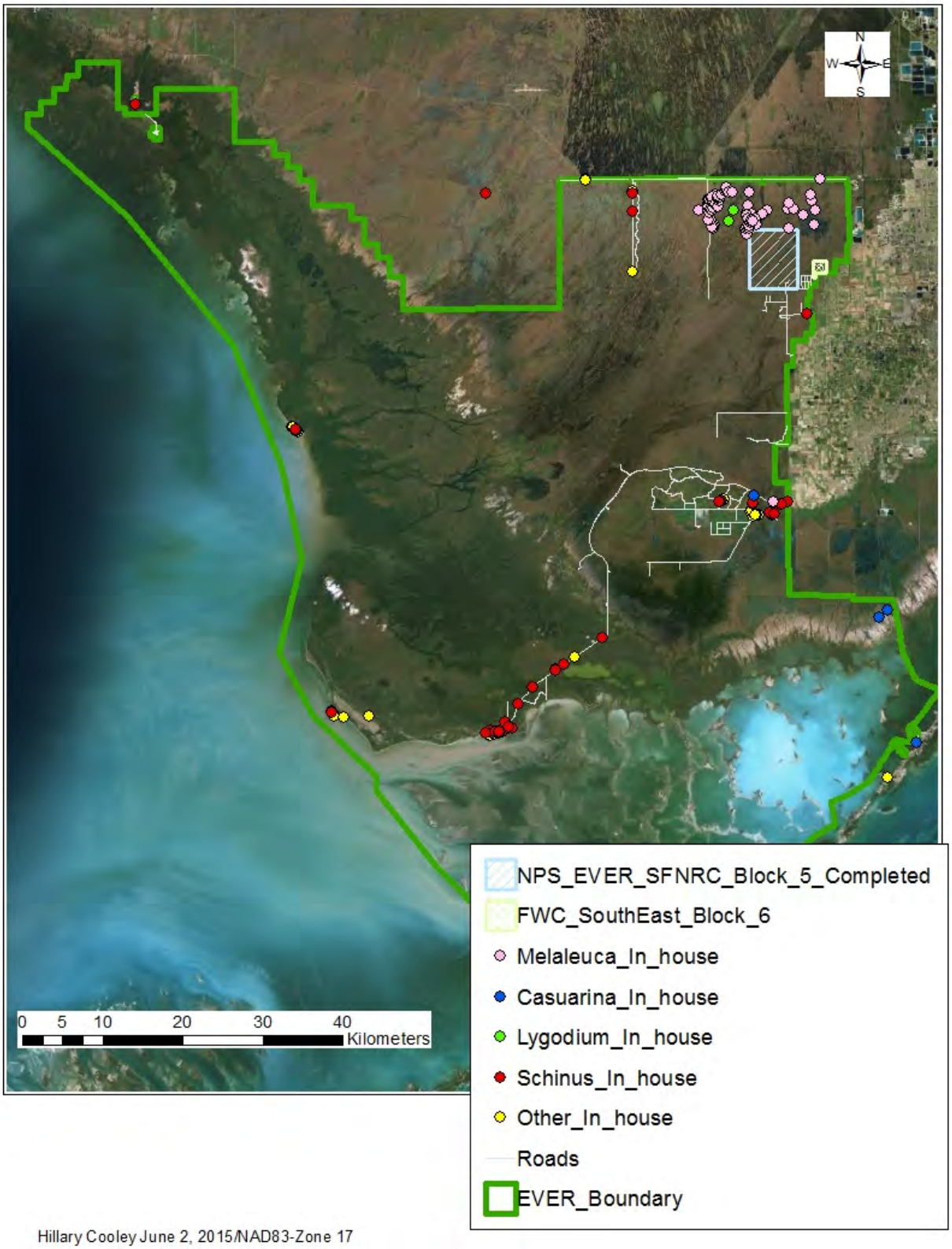


Figure 1: Areas treated in Everglades National Park between July 1, 2014 and June 30, 2015.
Cost: See table above

Project Schedule:

Start Date: 2002
Finish Date: To be determined

Detailed Project Budget Information:

See Table 1 above.

Hyperlink: http://www.nps.gov/ever/naturescience/exoticvegprogram.htm

Contact: Hillary Cooley Hillary_Cooley@nps.gov

Program Name: Invasive Exotic Species Management
Project Name: **Hole-in-the-Donut**
Project ID: 2820
Lead Agency: National Park Service

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Measurable Output(s): Acres of infested Brazilian pepper restored

Project Synopsis: This mitigation project will restore approximately 6,300 acres of wetlands within Everglades National Park by removing Brazilian pepper, an invasive exotic plant species, and the disturbed substrate to limestone bedrock. Invasive exotic plants are one of the greatest long-term threats to the Everglades ecosystem. As a result of this project, approximately 6,300 acres will be restored to natural wetlands within the park as mitigation for development projects in other areas of Miami-Dade County. The amount of restoration accomplished in the **Hole-in-the-Donut** during any one year is dependent on the amount of mitigation activity occurring in Miami-Dade County. A vast seed source with the potential to invade and disturb other areas of the Everglades will be eradicated.

Current Status: In FY 2014, 241 acres of Brazilian pepper were removed at a cost of $2,134,026.81. To date, 4,895 acres of the **Hole-in-the-Donut** have been restored. For FY 2015, the Hole-in-the-Donut project does not anticipate conducting any new restoration.

Cost:
Estimated Total Cost to Date FY 1994 - 2014: $62,812,302.43

Project Schedule:
Restoration Start Date: 1994
Estimated Restoration Finish Date**:** 2020
Estimated Stewardship Start Date: 2021
Estimated Stewardship Finish Date: 2071

Detailed Project Budget Information ($1,000) FY

	Expenditures FY 1994 - FY 2011	**Expenditures FY 1994 - FY 2012**	**Expenditures FY1994-FY2013**	**Expenditures FY 1994 – FY2014 as of June, 2014**
Total	**58,104**	**60,382**	**62,727**	**62,812**

PROJECT SHEET UPDATED IN 2014
Hyperlink: N/A
Point of Contact: Everglades CFO

Program Name: Invasive Exotic Species Management
Project Name: **Aquatic and Upland Invasive Plant Management**
Project ID: 2821
Lead Agency: Florida Fish and Wildlife Conservation Commission
Authority: Chapter 369, F.S.
Funding Source: Invasive Plant Control Trust Fund

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Measurable Output(s): Acres of upland and aquatic invasive plants controlled[1]

Acres Controlled:

Aquatics Program	29,683
Uplands Program	113,104

Project Synopsis: The Fish and Wildlife Conservation Commission is the lead agency in Florida responsible for coordinating and funding two statewide programs controlling invasive aquatic and upland plants on public conservation lands and waterways throughout the state. The aquatic plant management program designs, funds, coordinates, and contracts invasive non-native aquatic plant control efforts in Florida's 1.25 million acres of public waters. The upland plant management program coordinates and funds invasive plant removal projects on 11 million acres of public conservation lands, which include federal, state, and local government owned lands.

Current Status: It is difficult if not impossible to eradicate invasive plants once they have become established. Therefore, it is unrealistic to characterize invasive plant management as a restoration activity. It is more accurately described as management that is necessary in perpetuity. FWC strives to manage, on a continuous basis, invasive aquatic plants in public water bodies and invasive upland plants on public conservation lands within the SFWMD region at levels that support and promote healthy populations of native plants for the benefit of fish, wildlife and people.

Cost:
Total (operations and maintenance) [1]:

Aquatics Program	$7,835,580
Uplands Program	$3,818,920

Project Schedule:
Start Date: annual
Finish Date: continuous

Detailed Project Budget Information (1000s):

	2002	2003	2004	2005	2006	2007	2008	2009	2010
Federal	400.0	795.5	944.0	676.9	675.2	800.0	800.0	483.1	800.0
State	20,536.9[2]	28,038.3[2]	22,122.8[2]	29,747.7[2]	38,434.6[2]	38,434.6[2]	34,591.1[2]	20,549.6	14,107.3
Tribal	0	0	0	0	0	0	0	0	0
Local	54.3	255.7	129.0	0	0	0	0	0	0
Total	**20,991.3**	**29,089.5**	**23,195.8**	**30,424.6**	**39,109.8**	**39,234.6**	**34,591.1**	**21,032.7**	**14,907.3**

	2011	2012	2013	Total
Federal	240.2	1,846.1	1,275.9	7,661.0
State	15,099.4	10,447.9	10,378.6	272,110.2
Tribal	0	0	0	0
Local	0	0	0	439.0
Other	0	0	0	0
Total	**15,339.6**	**12,294.0**	**11,654.5**	**291,864.8**

[1]Within the 16-county SFWMD region during the previous state fiscal year
[2]Includes $1 million match from SFWMD for melaleuca control

Hyperlink: http://www.myfwc.com/wildlifehabitats/invasive-plants/
Contact: William E. Caton

Program Name: South Florida Water Management District Invasive Species Management
Project Name: **Invasive Exotic Plant Control in Terrestrial and Aquatic Natural Systems**
Project ID: 2822
Lead Agency: SFWMD

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Measurable Output(s): Implementation of invasive species management plans as a coordinated program, including inter-agency collaboration; reduction of total acreage for all priority invasive plant species; attainment of maintenance control for invasive exotic plants such as hydrilla, water hyacinth, water lettuce, melaleuca, Brazilian pepper, Australian pine, and Old World climbing fern.

Project Synopsis:
Several decades of integrated management by the SFWMD, FWC, NPS, FWS and other partner agencies have substantially reduced the abundance of melaleuca in the Everglades Protection Area. The remaining dense stands within the EPA are limited to the northern reaches of the Arthur Marshall Loxahatchee National Wildlife Refuge (Loxahatchee Refuge). The decline in melaleuca was achieved through an integrated approach using aerial and ground-based herbicide applications, mechanical removal, biological control, and strategic use of prescribed fire. Recovery of melaleuca continues, especially in areas once dominated by the plant. However, recruitment rates are much lower and are explained by lower propagule pressure and suppression of small plants from biological controls. Continued low-level control in these areas is planned to prevent full recovery of melaleuca in these areas. Maintenance control has also been achieved for melaleuca within many acquisition areas in the East Coast Everglades Buffer Area, the Florida Keys, Lake Okeechobee, and most natural areas in the Treasure Coast and Kissimmee River regions.

Old World climbing fern remains problematic on many SFWMD-managed lands. The SFWMD continues to search for and remove outlier populations of Old World climbing fern in WCA-3A and WCA-3B tree islands. Unfortunately, there is no active ground-based monitoring program in place to detect the spread of this species during the initial stage of establishment. The expansion of laurel wilt disease—a recently introduced lethal pathogen of the swamp bay (*Persea palustris*)—has a potential to promote expansion of Old World Climbing fern in the WCA's through widespread canopy disturbance. Old World climbing fern remains abundant in portions of the central Kissimmee River basin and throughout much of the Loxahatchee Refuge. Management resources (e.g., herbicide control funding) remain far below what is needed to reduce populations and minimize the spread of this highly invasive plant. Continued implementation of control programs, consistent with the Old World climbing Fern Management Plan (FLEPPC), as well as continued progress with management-related research and biological control initiatives are needed.

The SFWMD continues to maintain water lettuce and water hyacinth at maintenance control levels in most natural water bodies under its jurisdiction. Other species, including hydrilla, West Indian marsh grass, torpedograss, limpograss, and Wright's nut rush remain problematic in the Kissimmee Chain of Lakes region. In addition, large-flowered primrose-willow and Cuban bulrush have become priorities for control in the Kissimmee River basin. The SFWMD continues control efforts for most of these species in collaboration with FWC. The SFWMD also continues to focus on locally-problematic species such as downy rose myrtle (pinelands in northeastern region), shoebutton ardisia (eastern Everglades), and South American water grass (Lake Okeechobee).

Current Status: Regional, coordinated efforts have yielded an Everglades Protection Area with few significant melaleuca infestations. Much of the remaining dense populations are now found on private lands. SFWMD continues to focus on removal of Old World climbing fern and Brazilian pepper throughout the Water Conservation Areas and other SFWMD-managed conservation lands as well as continued follow up control of melaleuca in previously treated areas.
In 2014, the SFWMD and FWC initiated a new collaboration with the FWS to increase much-needed control efforts in the Arthur Marshall Loxahatchee National Wildlife Refuge. FWC is funding and SFWMD is implementing herbicide control of melaleuca and Old World climbing fern in the Refuge to augment the FWS invasive plant management program. This effort is expected to continue in 2015.

Project Schedule:
Start Date: 2007
Finish Date: TBD

Detailed Project Budget Information ($1000) / Expenditures to Date

	2007	2008	2009	2010	2011	2012	2013	2014	Total
Federal	135*								**135**
SFWMD**	10,862	9,038	9,186	7,253	5,706	5,191	5,635	6,339†	**63,915**
Local									
Total	**10,997**	**9,038**	**9,186**	**7,253**	**5,706**	**5,191**	**5,635**	**6,339**	**64,050**

PROJECT SHEET UPDATED IN 2014
*USDA grant funds (TAME)
**SFWMD: Expenditures to date per fiscal year; Does not include expenditures for vegetation management supporting flood control system (e.g. canal/levee vegetation), Stormwater Treatment Areas, or salaries.
†2014 expenditures includes unbudgeted funds ($900,000) provided by FWC to implement Loxahatchee Refuge control effort.

Contact: LeRoy Rodgers, SFWMD

Old World climbing fern infestation in a cypress swamp, Palm Beach County, FL (LeRoy Rodgers, SFWMD).

Restoration of marsh habitat invaded by shoebutton ardisia and Brazilian pepper begins with mechanical control to reduce biomass before herbicide application. (photo by LeRoy Rodgers, SFWMD

Program Name: South Florida Water Management District Invasive Species Management
Project Name: **Invasive Species Research and Information Exchange**
Project ID: 2823
Lead Agency: SFWMD

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Measurable Output(s): Development of new management approaches for invasive plants through applied research and information exchange between cooperators; development of management plans for priority invasive species.

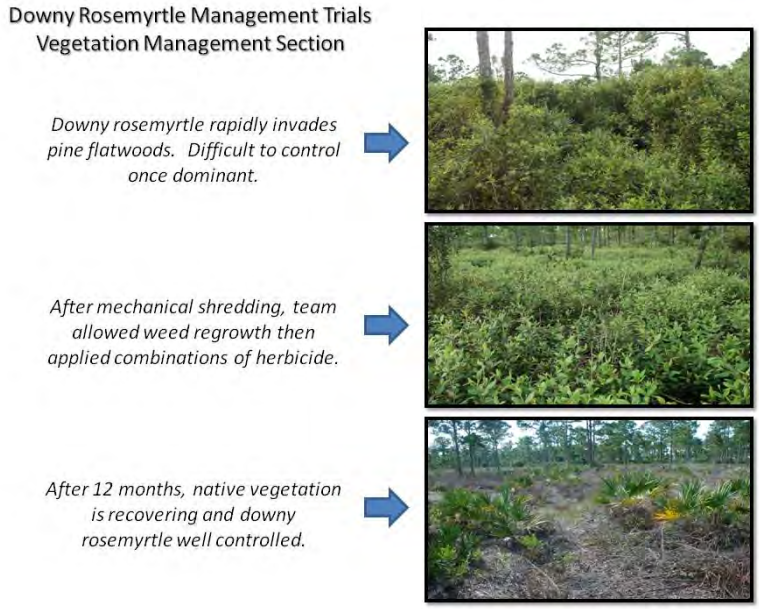
Project Synopsis: The SFWMD continues to conduct and fund research programs in herbicide development and management techniques for priority invasive species. Recent developments in herbicide evaluations and management best management practices are improving control efficacy for numerous species, including hydrilla, shoebutton Ardisia, cattail, and Brazilian pepper. New research evaluating the efficacy of new herbicides for the control of invasive grasses and floating aquatic plants are currently underway.

There is still a large gap in acquiring sufficient funding to implement the multi-species control program with multi-agency integration. However, some success has been achieved through collaboration with Cooperative Invasive Species Management Areas (CISMA). As mandated in the Everglades Forever Act, the SFWMD continues to coordinate invasive species management with other agencies throughout the Everglades Protection Area. In 2008, the SFWMD, FWC, USACE, FWS, and NPS entered into an MOU that formalized ongoing coordination through the formation of the Everglades Cooperative Invasive Species Management Area (CISMA) The Everglades CISMA has achieved many successes in improving implementation of regional control strategies, including early detection and rapid response activities. For example, collaborative efforts to reduce localized populations of the sacred ibis and Asian black mangrove are ongoing with success in containing and possibly eradicating these species. Recent rapid response efforts for other newly established species, such as mile-a-minute weed and the black and white Argentine tegu, have had less success in containing populations, further underscoring the need for more effective prevention measures at the state and federal level.

Current Status: Development and refinement of control tools for invasive species has recently focused on herbicides for cattail, shoebutton Ardisia, hydrilla, roundleaf tooth cup, and limpograss. The District continues to fund biological control research institutions for melaleuca and Old World climbing fern. The SFWMD expends $300,000 annually toward development of biological control agents for these two invasive species through agreements with the U.S. Department of Agriculture Agricultural Research Service (USDA-ARS).

Cost: Total
Project Development: N/A
Land Acquisition: N/A

Project Schedule:



Start Date: 2007
Finish Date: TBD

Detailed Project Budget Information ($1000) / Expenditures to Date

	2007	2008	2009	2010	2011	2012	2013	2014	Total
SFWMD*	110	160	156	206	307	257	257	207	1,453

PROJECT SHEET UPDATED IN 2014
*SFWMD: Expenditures to date per fiscal year. The 2014 figure does not include funding to USDA/ARS for biological control research ($300,000) and CERP Biological Control Implementations ($661, 536) which are identified on other project sheets.

Contact: LeRoy Rodgers, SFWMD

Program Name: Fish and Wildlife Management
Project Name: **Invasive Python Control Initiative**
Project ID: 2824
Lead Agency: Miccosukee Tribe of Indians of Florida

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Project Synopsis: A Federal Executive Order (EO 13112) was signed in 1999 in order to "prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause." Furthermore, the Miccosukee Reserve Area (MRA) Act of 1998 *PL 105-313 requires the Tribe to "…prevent significant propagation of exotic plants or animals outside the MRA that may otherwise be caused by conditions, activities, or structures within the MRA."*

Since the passing of EO 13112, the Miccosukee Tribe has seen a dramatic increase in the number of exotic and invasive animals on their Lands. Specifically, the Burmese (*Python molurus bivittatus)* and African Rock Pythons (*Python sebae)* have become an alarming problem and each year the Tribe removes dozens of exotic pythons from the wild. Pythons have been found inside Tribal homes, schools and traditional camps in the Everglades.

This Invasive Python Control Initiative has a defined Action Plan divided in three categories: Short Term actions, Mid Term actions and Long Term actions. The Short Term actions are addressed by Rapid response protocols and awareness campaign, as it is the most cost effective and results driven strategy that can be applied in this time frame. Mid Term actions are where the funding will fill the gap in knowledge to develop cost effective tools and monitoring efforts that the Miccosukee Tribe as well as our, state and federal partners could benefit the most. This will create a measure of control while the long term phase is developed in which novel tools for selective eradication can be put in action. This open source approach will allow this project to reach its maximum potential by a multiagency synergistic approach.

Current Status: Ongoing

Project Schedule:
Start Date: 10/1/2014
Finish Date: 10/1/2016

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal		$149,625					
Tribal		$25,240					
Total		**$174,865**					

Contact: Gintautas Zavadzkas, Ecological Research Coordinator, Miccosukee Tribe of Indians of Florida Fish and Wildlife Department (gintasz@miccosukeetribe.com).

Program Name: Big Cypress National Preserve Long-term Maintenance and Control of Invasive Exotic Plants
Project Name: **BICY Long-term Exotic Plant Maintenance and Control**
Project ID: 2825
Lead Agency: Big Cypress National Preserve

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Measurable Output(s): All major, exotic plant species' population levels within Big Cypress National Preserve are perpetually maintained and controlled. Measureable output will be acres of the Preserve that remain free from infestation of exotic plants, and no new species become established.

Project Synopsis: Big Cypress National Preserve will continue to treat known areas containing invasive exotic plants and, upon detection of new areas conduct treatments using guidance within the South Florida and Carribbean Parks Exotic Plant Management Plan and Environmental Impact Statement. Terrestrial invasive exotic plant treatment is primarily focused on Australian pine (*Casuarina),* old world climbing fern (*Lygodium),* melaleuca (*Melaleuca quinquenervia),* and Brazilian pepper (*Schinus terebinthifolius*).

Following achieving a management level of exotic plant control, and in order to prevent re-occurrence of exotic plant invasion into previously treated areas, the Preserve will conduct systematic reconnaissance to detect and eradicate exotic plant species throughout the Preserve, in accordance with the South Florida and Carribbean Parks Exotic Plant Management Plan and Environmental Impact Statement and newer guidance as it is developed.

Current Status: Efforts to control invasive plant species in the Preserve began 1984. Currently, Austrailian pine is at maintenance level; *Lygodium* is the Preserve's highest priority exotic; melaleuca is at or near maintenance level; and Brazilian pepper while being addressed in all existing exotic plant treatment contracts, is far from a maintenance level. About 20% of the Preserve acreage remains infested with invasive exotic plants. New threats from exotic plant invasion are eminent. Untreated areas outside the Preserve boundary provide a seed source for new infestations to become established. Two major highways bisect the Preserve, providing opportunity for exotic species to find their way into the Preserve, requiring constant, perpetual vigilance.

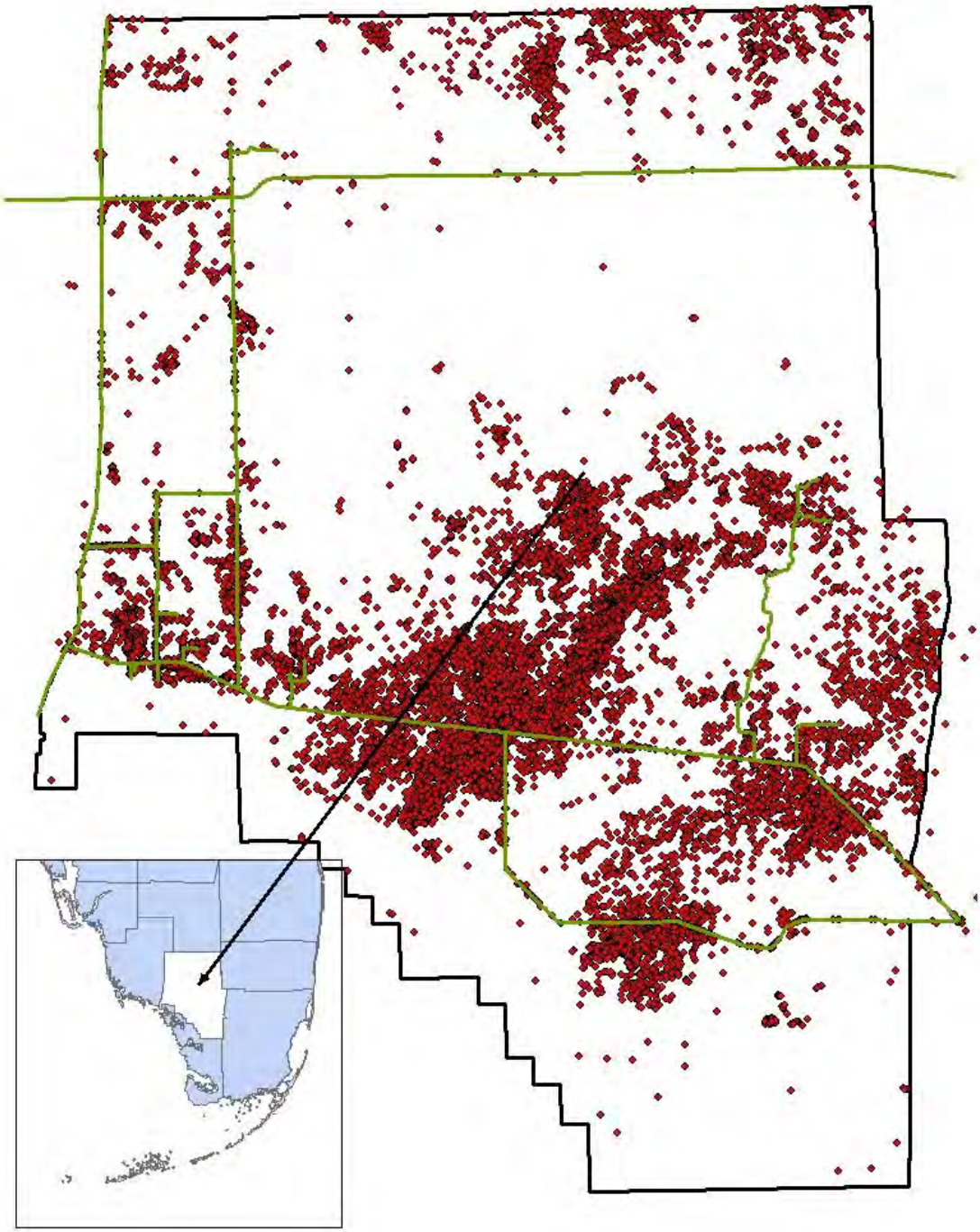
Project Schedule:
Start Date: 2014
Finish Date: 2018

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$380,000	$380,000	$380,000	$380,000	$380,000		
DEP	$150,000	$150,000	$150,000	$150,000	$150,000		
Total	**530,000**	**530,000**	**530,000**	**530,000**	**530,000**		**TBD**

Contact: Ron Clark, Ron_Clark@nps.gov , 239-695-1106

Pictures: Map of Big Cypress National Preserve Current and Past Treatment Areas



Program Name: Farm Bill, FY 14
Project Name: **Mitigating the ecological and cultural effects of Laurel wilt in the Everglades**
Project ID: 2826
Lead Agency: USDA-APHIS and University of Florida

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Measurable Output(s): 1. Identify, propagate and preserve culturally significant swamp bay trees in south Florida. 2.Identify, propagate and screen swamp bay germplasm with putative laurel wilt-resistance for Everglades restoration 3.Ensure cross-generational sustainability of genetic resistance and local adaptation in future Everglades restoration plantings

Project Synopsis:
Laurel wilt (LW) is a highly destructive exotic disease that threatens several native *Persea* species with extinction and poses a major threat to cultivated avocado, a high-value commercial crop. We aim to propagate native *Persea* species (redbay, *P. borbonia*, silkbay, *P. humilis* and swamp bay, *P. palustris*) and evaluate restoration approaches to meet both ecological and cultural needs. To achieve this goal, we are focusing on the following objectives: 1) propagate and evaluate potentially resistant trees and 2) propagate culturally significant swamp bay and distribute these to the Native American community in Florida. By safeguarding the existing population of culturally significant trees prior to their loss from the disease and developing resistant germplasm for restoration efforts, we provide direct and immediate mitigation against this damaging exotic threat. The deployment of resistant trees will not only preserve the ecological and cultural functions of the species, but also reduce the potential for this species to serve as a reservoir for the disease (and its vector) that increases the risk to adjacent avocado production areas, worth more than $60 million in south Florida. In addition, the development of host resistance is critical for mitigation of the disease in the Everglades, because swamp bay is a keystone canopy species in the tree islands. In addition to Goal 6, this work supports Goal 4 as native plant nurseries and conservation agencies will be able to use resistant planting stock. Goal 5 is also supported as part of this project focuses on education, outreach and technology transfer to Native American communities who rely on swamp bay as a major component of traditional tribal medicine.

Current Status:
The project was funded in August of 2014, so the work is ongoing. Second year funding is pending approval for FY 15 Farm Bill.

Project Schedule:
Start Date: August 4, 2014 Finish Date: August 3, 2015

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$135,379						
SFWMD**							
Local							
Total	**$135,379**						**$135,379**

PROJECT SHEE UPDATED IN 2014
Contact: Jason Smith, University of Florida (jasons@ufl.edu); Eduardo Varona, USDA-APHIS (eduardo.varona@aphis.usda.gov)

Program Name: Fish and Wildlife Management
Project Name: **Invasive Species Action Plan**
Project ID: 2827
Lead Agency: Miccosukee Tribe of Indians of Florida

Strategy and Biennial Report Objective Addressed: 2-B.4
Invasive Species Strategic Action Framework Goal: 4

Project Synopsis: A Federal Executive Order (EO 13112) was signed in 1999 in order to "prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause." Furthermore, the Miccosukee Reserve Area (MRA) Act of 1998 *PL 105-313 requires the Tribe to "…prevent significant propagation of exotic plants or animals outside the MRA that may otherwise be caused by conditions, activities, or structures within the MRA."*

Since the passing of EO 13112, the Miccosukee Tribe has seen a dramatic increase in the number of exotic and invasive animals on their Lands. Specifically, the Burmese (*Python molurus bivittatus)* and African Rock Pythons (*Python sebae)* have become an alarming problem and each year the Tribe removes dozens of exotic pythons from the wild. Pythons have been found inside Tribal homes, schools and traditional camps in the Everglades.

The formalization of an Invasive Species Action Plan will be an important document utilized by the Miccosukee Tribal Staff and elected officials and will provide short, mid and long-term guidance and adaptation under a changing climate. The ISAP will address the Guidance Memorandum of Everglades Restoration and the Miccosukee Reserve Area Act of 1998. The capacity building will allow the Tribe to increase trapping efforts, improve tribal education and outreach, safely access remote sites and allow new GIS mapping to take place. It is envisioned by the Miccosukee Fish and Wildlife Department an invasive wildlife program where self-sufficiency and environmental-social responsibility can be accomplished creating a model to follow by other tribes and institutions.

Current Status: Ongoing

Project Schedule:
Start Date: 10/1/2014
Finish Date: 10/1/2016

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal		$130,449					
Tribal		$17,352					
Total		**$147,801**					

Contact: Gintautas Zavadzkas, Ecological Research Coordinator, Miccosukee Tribe of Indians of Florida Fish and Wildlife Department (gintasz@miccosukeetribe.com).

Project Name: Florida Keys Overseas Heritage State Trail
Project ID: 3200
Lead Agency: Division of Recreation and Parks, District 5
Authority: Florida Department of Environmental Protection

Strategic Plan Goal(s) Addressed: 3.A.1

Florida Keys Overseas Heritage Trail Vision
The Florida Keys Overseas Heritage Trail (FKOHT) is being developed by the FDEP, the Florida Department of Transportation (FDOT) and Monroe County as a world-class, multi-use bicycle and pedestrian facility that will traverse the Florida Keys from Key Largo to Key West. A recreational greenway, that upon completion, will include an integrated system of educational kiosks, roadside picnic areas, scenic overlooks, fishing piers, water access points, and bicycle and jogging paths serving both residents and visitors to the Florida Keys. The FKOHT will link communities by providing a safe and continuous multi-use path, offer an alternative form of transportation, help mitigate congestion, promote health opportunities, and provide a mechanism for the preservation and use of the historic Flagler Railroad Bridges. The trail will also provide outstanding educational opportunities for both residents and visitors to learn about the unique history of the Florida Keys and the importance of sustainable development, by offering cultural, historical and ecological interpretation, as users traverse the historical railroad bridges and the many conservation areas between Key Largo and Key West.

Measurable Output(s): Miles of trails: Existing 54.9 ocean side/37.5 bay side,
A recreational greenway, that upon completion, will include an integrated system of educational kiosks, roadside picnic areas, scenic overlooks, fishing piers, water access points, and bicycle and jogging paths serving both residents and visitors to the Florida Keys.

Project Synopsis:
Spurred by concerns in the community for the future of the Old Keys Bridges and under Executive Order, the "Old Keys Bridge Task Force" report was presented to then Governor Lawton Chiles in 1997, outlining recommendations for the old Flagler Railroad bridges as a linear greenway. A similar report had been presented in 1938, to then Governor Fred Cone by the Road and Toll Authority, the State Forestry Department and the National Park Service outlining the creation of a linear park from Key Largo to Key West. In 1998, Clean Florida Keys rallied enough local support to prepare a Florida Keys Overseas Heritage Trail Conceptual plan published in January 1999, and a Florida Keys Overseas Heritage Trail Action plan published in November 1999. With a combination of local citizen support, the Rails To Trails, National Park Service, Greenways and Trails, Monroe County, the Florida Department of Environmental Protection, the Florida Department of Transportation and many other agencies, the Florida Keys Overseas Heritage Trail Master Plan was approved in August 2000. Monroe County passed a resolution in 2000, approving allocation of enhancement funding to the project and a Memorandum of Understanding (MOU) was signed allowing the coordination, planning and implementation of the FKOHT as a joint effort between the FDEP, Monroe County, and the FDOT. Direct support for the 106-mile long multi-use recreational trail and facilities is one of the primary features of the Scenic Highway Corridor Management Plan Goals and Objectives, the Corridor Management Plan (CMP), the Florida Keys Overseas Heritage Trail Master Plan, the Scenic Highway Interpretive Master Plan. In addition, the FKOHT was nominated as a National Recreational Trail in 1994 and has designated all 23 remaining historical Flagler Railroad Bridges on the National Registry of Historic Places. Recently completed signage plan and environmental plan provide a look and mechanism for reviewing the trail corridor as one entity rather than multiple separate segments. A Memorandum of Agreement was signed in August 2001, by the FDEP to maintain FDOT right-of-way where the trail will be designed and built. The FDEP maintains a 50-year lease on all 23 historical bridges from State of Florida, Division of State Lands.

The trail offers access to many points of interest and ecological resources throughout the Keys, including the Everglades National Park, Biscayne National Park, Florida Keys National Marine Sanctuary, The Great

White Heron National Wildlife Refuge, Key Deer National Wildlife Refuge, Crocodile Lakes National Wildlife Refuge, Key West National Marine Sanctuary, as well as 10 state parks.

Current Status:
14.8 miles of new paved trail, improved trail, and historic bridge repair work were completed including Baypoint to Sugarloaf, Key Haven to Big Coppitt, Layton to Channel 5 Bridge, and Sugarloaf to Summerland Key.

11.3 miles of improved trail are bidding and approaching to commence construction including the following segments: Spanish Harbor to Seven-Mile Bridge, Windey Key Trail Segment, Kemp Channel Bridge Reconnection, and the Lower Sugarloaf Trail Extension;

There are several design projects also underway including the following segments: Grassy Key Trail, Knights Key Pedestrian Underpass, Old Spanish Harbor Bridge, and Key West Botanical Gardens and Trailhead.

Cost:
Total: TBD

Project Development:
The FDOT work program and the FDEP implementation plan outline a progression of design and build projects that will construct the Florida Keys Overseas Heritage Trail over the next five years. Construction of the FKOHT is funded in the FDOT Five Year Work Program using enhancement funds for the segments between historic bridges. Additional funding is being sought to retrofit the remaining historical bridges and fishing platforms. The FDEP is certified by the FDOT to design and build projects under the Local Agency Program (LAP) using enhancement funds.

Operations and maintenance
There are currently 92.4 miles of existing bike path located along the ocean side and bay side. Some segments do have trail on both sides so there is some overlap. There are twenty-three bridges comprising fourteen miles of trail in various stages of completion and funding. The City of Key West currently maintains an agreement with the FDEP on maintenance of the existing sections throughout the City. The Village of Islamorada signed an agreement in 2003 and the City of Marathon is in the process of developing agreements for maintenance and trail planning. The FDEP is responsible for the maintenance of the trail in accordance with the agreement established between FDOT and the FDEP and currently maintains 92.4 miles of trail. In 2012, approximately 1.8 million visitors utilized the Florida Keys Overseas Heritage Trail. Records through October 2013 include over 1.5 million visitors.

Florida Keys Overseas Heritage Trail Detailed Project Budget Information– ($1000)									
	2003-07	2008	2009	2010	2011	2012	2013	*2014	Total
State	23,903.6	2,875.5	1,640.1	1,343.0	9,383.3	2,181.2	11,500.5	$3,400.5	56,227.7
Total									

*Projected

Hyperlink: http://www.floridastateparks.org/floridakeys/

Contacts: Anthony Knott and Jim Post, Division of Recreation and Parks

Program Name: Florida Greenways and Trails
Project Name: Florida Greenways and Trails Program
Project ID: 3202
Lead Agency: FDEP-Florida Office of Greenways and Trails
Authority: **A**cquisition: Florida Forever Act, Section 259.105, Florida Statutes
Designation: Chapter 260, F.S.; 62S-1.400, 62S-1.450, F.A.C
Funding Source: Florida Forever

Strategic Plan Goals(s) Addressed: 3.A.1

Measurable Output(s): Target 10,000 acres (Designation)

Project Synopsis: The Office of Greenways & Trails (OGT), within the Florida Department of Environmental Protection (DEP)'s Division of Recreation and Parks, provides leadership and coordination to establish and expand the Florida Greenways and Trails System.

OGT implements the Florida Greenways and Trails System (FGTS) Plan to establish priorities and define the role of the FGTS in advancing Florida's economy, tourism, health, alternative transportation, recreation, conservation and quality of life. OGT oversees the priority and opportunity maps that define the FGTS, and works in partnership with communities, agencies and organizations to close gaps in the system.

The Florida Forever Act authorizes a land acquisition program for the statewide trail system. This is a competitive program that provides funding for local and regional land acquisition projects that will facilitate the establishment of a statewide system of greenways and trails. The primary mission of this program is to facilitate the establishment of a statewide system of greenways and trails for recreation and conservation purposes. Once acquired, the property is owned by the Board of Trustees of the Internal Improvement Trust Fund (Governor and Cabinet) and managed by the state, regional and local governments.

The Office of Greenways and Trails Designation Program encourages voluntary partnerships in conservation, development, and management of greenways and trails, provides recognition for individual components of the system and the partners involved, and raises public awareness of the conservation and recreation benefits of greenways and trails. The criteria for a designated land or waterway are that it must (1) protect and/or enhance natural, recreational, cultural or historic resources and (2) either provide linear open space or a hub or site, or promote connectivity between or among conservation lands, communities, parks, other recreational facilities, cultural sites, or historic sites.

Current Status:

Cost: Total: $4.5 million of Florida Forever funding for land acquisition (statewide)
No direct cost to the state for designation

Project Schedule: Start Date: 2000
Finish Date: Ongoing

<u>South Florida Acres</u>
Through Fiscal Year 2003:
227,094 acres plus 75 linear miles

Through Fiscal Year 2004:
298,774 acres plus 147 linear miles (add 71,680 acres & 72 linear miles)
In 06/07, an additional 179 acres and 24 miles of designated greenways & trails in South Florida

Through Fiscal Year 2008:

2 Blueway systems were designated in South Florida. One in Lee County and one in Charlotte County. The estimated "acreage" for these Blueway systems is 79,400 acres or 440 miles of paddling trails.

Through Fiscal Year 2009:
Designation: The Shingle Creek Paddling Trail (35 miles long, approx 21 acres) and the Shingle Creek Regional Park (1028 acres), which are both located in Osceola County, were designated in 2009. Acquisition: 5.22 acres acquired with Florida Forever funding ($412,000) in Orange County as part of the Cady Way Trail system.

Through Fiscal Year 2010:
Designation: The Pine Creek located in Broward County (.275 miles long, approx 1.5 acres), the Montverde Greenway Trail located in Lake County (.5 miles long, approx 5.4 acres), the Lake Wales Rails to Trails in Polk County (2.1 miles long, approx 18 acres) and the Lake Okeechobee Scenic Trail (110 miles long, approx 226.67 acres), were designated in 2010. Acquisition: Nothing acquired in the 16 counties.

Through Fiscal Year 2011:
Designation: The Lake Wales Rails to Trail located in Polk County (2.1 miles long, 18 acres), the Pine Glades Natural Area located in Palm Beach County (6,642 acres), the Peace River Extension located in Polk County (18 miles long, 832 acres). Acquisition: Nothing acquired in the 16 counties.

Through Fiscal Year 2012:
Designation: Apalachicola River Blueway (116 miles long, 7296 acres).

Through Fiscal Year 2013:
Designation: John Yarbrough Linear Park in Lee County (6 miles, 8l7 acres), Big Talbot State Park in Duval County (1708.34 acres), Winding Waters Natural Area in Palm Beach County (534 acres), North Jupiter Natural Area in Palm Beach County (154 acres) and Jupiter Waterway Trail in Palm Beach County (39.19 miles, 23.51 acres).

Through Fiscal Year 2014:
Cypress Creek Natural Area in Palm Beach County (2,083.1 acres), St. Johns River Blueway in Duval, Clay, St. Johns, Putnam, Flagler, Marion, Lake, Volusia, Orange, Seminole, Brevard, Osceola and Indian River counties (310 miles), and Withlacoochee Gulf Preserve in Levy County (1.5 miles).

Florida Greenways and Trails Program Detailed Project Budget Information ($1000s)								
	FY 04-05	**FY 05-06**	**FY 06-07**	**FY 07-08**	**FY 08-09**	**FY 09-13**	**Balance**	**Total**
State	174	497.372	280	0	412	0		
Total	**174**	**497.372**	**280**	**0**	**412**	0	**3,136.6**	**4,500**

Hyperlink: http://www.dep.state.fl.us/gwt/
Contact: Samantha Browne , Office of Greenways and Trails

Program Name: Watershed Management Assistance
Project Name: **Technical Assistance to Seminole and Miccosukee Indian Reservations**
Project ID: 3300
Lead Agency: Natural Resources Conservation Service
Authority: Public Law 46 & Public Law 566

Strategic Plan Goal(s) Addressed: 3.A.2

Measurable Output(s): Target 107,000 Acres

Project Synopsis: From a watershed management perspective, assist the Seminole and Miccosukee Indian Reservations to plan and implement resource management systems on a voluntary basis to reduce nutrient loading. Assistance will be provided to each agricultural producer, at the direction of the Tribal Councils, to assist in their planning, design, application, cost shared installation and management of BMP's that will improve water quality and the ecological integrity of the landscape.

Current Status:

Cost:
Total (projected through 2015) $15,000,000
Project Development
Land Acquisition
Implementation
Operations and maintenance
Management $15,000,000

Project Schedule:
Start Date: 1998
Finish Date: 2015

Detailed Project Budget Information (1000s)

	Through 2009	2010	2011	2012	Balance to Complete	Total
Federal	$478	00	00	$00	$14,522	$15,000
State						
Tribal						
Local						
Other						
Total	**$478**	**$00**	**$00**	**$00**	**$14,522**	**$15,000**

PROJECT SHEET UPDATED IN 2014

Hyperlink: N/A
Contact: Roney Gutierrez- (USDA – NRCS)

Program Name: Agricultural Assistance
Project Name: **2008 Farm Bill**
Project ID: 3301
Lead Agency: Natural Resources Conservation Service
Authority: Food, Conservation, and Energy Act of 2008 (Farm Bill)
Funding Source:

Strategic Plan Goal(s) Addressed: 3.A.2

Measurable Output(s): Acres Enrolled in 2008 Farm Bill Programs

Project Synopsis: The 2008 Farm Bill responds to a broad range of emerging natural resource challenges faced by farmers and ranchers, including soil erosion, wetlands, wildlife habitat, and farmland protection. Private landowners will benefit from a portfolio of voluntary assistance, including cost-share, land rental, incentive payments, and technical assistance. The 2008 Farm Bill places a strong emphasis on the conservation of working lands, ensuring that land remain both healthy and productive. The assistance includes the design, layout and consultation services associated with the conservation practice application or management guidance provided. Technical assistance is targeted towards nutrient management, water quality, and water conservation concerns associated with animal feeding, livestock grazing operations and fruit and crop production within the Everglades Ecosystem.

Current Status:

Cost:
Project Development:
Land Acquisition:
Implementation:
Operations and maintenance:

Project Schedule:
Start Date: 2009
Finish Date: 2014

Detailed Project Budget Information (1000's)

	Through 2009	**2010**	**2011**	**2012**	**2013**	**Balance to Complete**	**Total**
Federal	$57,500	$153,409	$104,848	$79,732	$63,055		$458,544
State							
Tribal							
Local							
Other							
Total	**$ 57,500**	**$153,409**	**$104,848**	**$79,732**	**$63,055**		**$458,544**

PROJECT SHEET UPDATED IN 2014

Hyperlink: http://www.nrcs.usda.gov/programs/farmbill/2008/index.html
Contact: Roney Gutierrez (USDA – NRCS)
Program Name: Agriculture

Program Name: **C&SF: CERP PLA/Public Outreach and Assistance**
Program ID: 3502
Lead Agency: USACE / SFWMD
Authority: WRDA 2000; Design Agreement, WRDA *2007 (specific authorized funding)*

Strategic Plan Goal(s) Addressed: 3-A.3

April 1999 (Restudy) Program Synopsis: The Restudy listed guidelines for implementing CERP and stated that outreach and public involvement efforts were an integral part of the process and would continue throughout the planning, design, construction, monitoring, and implementation of CERP. The objective of all outreach activities was to ensure that the public is informed about the Plan and that its implementation is reflective of the input received from stakeholders and the public throughout the project's implementation.

Current Program Synopsis: Public outreach is a critical part of CERP. Its two primary components -- involvement and information -- continue to play a key role in the CERP implementation effort. The primary objectives of outreach are to (1) keep the public informed of the status of the program or project and key issues associated with restoration implementation, and (2) provide effective mechanisms for public participation in the restoration plan development. A *CERP Public Outreach Program Management Plan* approved in 2001 describes these outreach goals, objectives, and tasks in more detail.

Since 2001, the USACE and SFWMD have implemented an ongoing multi-faceted public outreach program for the CERP. Outreach strategies seek two-way communication with all public sectors to broaden understanding and to instill a sense of stewardship among all south Floridians and visitors. Two separate and simultaneous levels of public outreach have been employed:

Program-level Outreach - involves long-term, system-wide issues at an overarching program level such as general outreach, RECOVER, environmental equity and other CERP issues that span the life of the 30+ year plan.

Project-level Outreach - involves targeted outreach for the 50+ specific CERP components: the individual reservoirs, underground storage wells, filtering wetlands, and other local project features. A custom outreach plan is developed for each individual CERP project. While program and project outreach activities are considered separate, there is often a great overlap of materials, tools and techniques. The same overarching CERP messages apply to both program and project level outreach activities.

A broad array of outreach involvement and information programs has been developed to include the general public, minority groups, small businesses, and specific stakeholder audiences. The program has included public meetings and workshops; news media relations; creative and unusual information products; environmental education; print, electronic and Internet materials; and many other programs and products to ensure the public is engaged and involved in CERP. The main focus of the outreach efforts is the 16-county central and south Florida region, the area most affected by CERP. However, outreach activities and products also reach people throughout the state of Florida, the nation and the world.

Highlights of this very diverse outreach program, from the past two years, follow below.

Current Status: The USACE and the SFWMD continued to make much progress during this reporting period to raise awareness of central and south Florida's public-at-large about CERP and the restoration of the greater Everglades ecosystem.

While these efforts were organized by the USACE, they often included the SFWMD as a major state partner in the restoration of the Everglades. Ongoing efforts are summarized below:

Web site update: The official everglades web site was transitioned from www.evergladesplan.org to www.evergladesrestoration.gov in 2014. The new website provides an important source of current and archived news and information to the public and stakeholders.

CERP fact sheets, promotional items, and a report. Fact sheets were produced on CERP projects and engaging promotional items helped update the community.

Project Level Involvement. Many public meetings and workshops were held to inform and include the public in the development of CERP projects. This form of project-specific communication is essential to the success of the CERP. Meetings were announced in advance, held in convenient locations, and often featured an open house session to meet CERP staff prior to the formal meeting or workshop. For those people who could not attend meetings, meeting documents were posted online. Comments were taken online, in addition to those taken in person at the meetings and workshops. USACE developed fact sheets and poster boards for individual CERP projects, with some translated into Spanish.

The USACE, SFWMD and the Task Force developed a unified government webpage, www.evergladesrestoration.gov, to bring information about the everglades to the public.

Hyperlinks: http://141.232.10.32/pm/progr_outreach.aspx

Contacts: April Patterson, Project Manager, Everglades Section, USACE
April.N.Patterson@usace.army.mil

Deena Reppen, Deputy Executive Director, Regulatory and Public Affairs, SFWMD
dreppen@sfwmd.gov

Source: USACE PM.

Program Name: SFWMD Outreach Program
Project Name: Outreach
Project ID: 3503
Lead Agency: SFWMD

Strategic Plan Goal(s) Addressed: 3-A.3 Increase community understanding of ecosystem restoration

Measurable Output(s): Public and Stakeholder Meetings; Media Exposure; Social Media Program; Intergovernmental Relations; School and Teacher Education; Symposiums; Ecosystem Groundbreakings, Milestone Celebrations and Ribbon Cuttings; Special Events; Monthly eNewsletter; Awards and Recognitions; Everglades Photos, Animations and Video Clips; Speakers Bureau Presentations; Offsite briefings; Community Events; Updated External Web Site content, including interactive Restoration Ecosystem Restoration Progress map; Ecosystem Workshops for International Students, Scientists, Government Leaders with Onsite Staff Instruction by Scientists and Engineers, including field visits.

Project Synopsis: The South Florida Water Management District continues to participate with the USACE, and other agencies/major stakeholders and general public in various outreach activities, as listed above, to increase the understanding of ecosystem restoration.

Total Estimated Project Cost: Ongoing

Project Schedule:
Start Date: Ongoing
Finish Date: Ongoing

Actual Expenditures to Date by SFWMD:

2004-2009	2010	2011	2012	2013	2014	2015	Total to Date
$2,084,960	$75,825	$74,113	$112,786	$107,254	$72,750	$82,158	$2,609,846

Educating students about Everglades restoration in the field generates an understanding of Florida's ecosystems and an eagerness to become a participant.

Press conferences and public events are examples of outreach activities that SFWMD Public Affairs staff conduct as project thresholds are reached and commemorated.

Program Name: Flood Protection
Project Name: **C-4 Canal Bank Improvements**
Project ID: 3600
Lead Agency: South Florida Water Management District
Authority: FEMA/DCA

Strategic Plan Goal(s) Addressed: 3.B.1

Measurable Output(s): Improve conveyance and level of service protection in the C-4 Basin

Project Synopsis:
Sweetwater Flood Protection Berm & Wall**:** This work involves the construction of a flood protection berm along the north side of the C-4 Canal from SW 107th Avenue to SW 97th Avenue. The north bank will be raised to a minimum elevation of 8.0 feet (NGVD). This will prevent canal overflows into the city during high canal stages and allow for a pumping system constructed by the city to provide flood protection. The project area is within the C-4 Canal right-of-way from SW 97th Avenue to SW 107th Avenue.

Belen Phase 2 Flood Protection Berm & Wall: This work involves the construction of a flood protection berm and wall along the north side of the C-4 Canal from SW 130th Avenue to SW 122nd Avenue. The north bank will be raised to a minimum elevation of 8.0 feet (NGVD). This will prevent canal overflows into the adjacent communities during high canal stages and allow for a pumping system being implemented by Miami-Dade County to provide flood protection. The project area is within the C-4 Canal right-of-way from SW 130th Avenue to SW 122nd Avenue.

Palmetto Flood Protection Berm & Wall (a.k.a. Miami-Dade Floodwall): This work involves the construction of a flood protection berm and wall along the north side of the C-4 Canal from SW 97th Avenue to the Palmetto Expressway. The north bank will be raised to a minimum elevation of 8.0 feet (NGVD). This will prevent canal overflows into the adjacent communities during high canal stages and allow for a pumping system constructed by Miami-Dade County to provide flood protection. This two-mile segment was identified as having low top of bank elevations that would need to be improved for the above improvements to be utilized. This two-mile segment has been surveyed to determine the specific areas where a flood protection berm or wall will be needed. This segment of the canal was not originally included in the C-4 Flood Mitigation Plan.

The portion of this project between SW 94th Avenue and SW 92nd Avenue is called the "Quick Start Floodwall" component and construction of this component was completed in January 2012. This component was constructed first, because there were very few right-of-way encroachments along this portion of the canal bank and construction was therefore easily expedited.

C-4 Canal Conveyance Improvements: This work involves dredging/deepening one or more segments of the C-4 Canal. The dredging will increase the conveyance capacity of the C-4 and as a result reduce the extent of flooding along the canal banks during major storm events.

Current Status: The following projects are complete:

S-25B Forward Pump Station
S-26 Forward Pump Station
C-4 Phase 1 Impoundment (G-420 & G-421)
C-4 Phase 2 Impoundment (G-422)
Sweetwater Linear Berm and Safety Fence
Belen Conveyance Improvements (dredging project)
Belen Phase 1 Floodwall (SW 122nd Ave. to the Florida Turnpike)
Belen Phase 2 Flood Protection Berm and Wall (SW 122nd Ave to SW 130th Ave)
Quick-Start Floodwall (SW 94th Ave. to SW 92nd Ave.)
Updated C-4 Basin Model

The following projects are scheduled to be completed in the near future:

Sweetwater Flood Protection Berm & Wall (Land acquisition complete)
Design is complete and the project is currently in construction. Construction began in December 2015 and will be completed by February 2016.

Palmetto Flood Protection Berm (Land acquisition pending)
Design is currently under way with construction scheduled to begin in December 2015 and to be completed by April 2018. Due to easement enhancement needs for several properties, the area between SW 82nd and SW 87th Ave will be completed as a second phase once acquisitions are complete and will have a construction duration of 9-12 months.

Project Schedule:

Start Date: January 2005
Finish Date: October 2018

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Planning & Design														
Real Estate														
Construction														

Actual Expenditures To Date by SFWMD

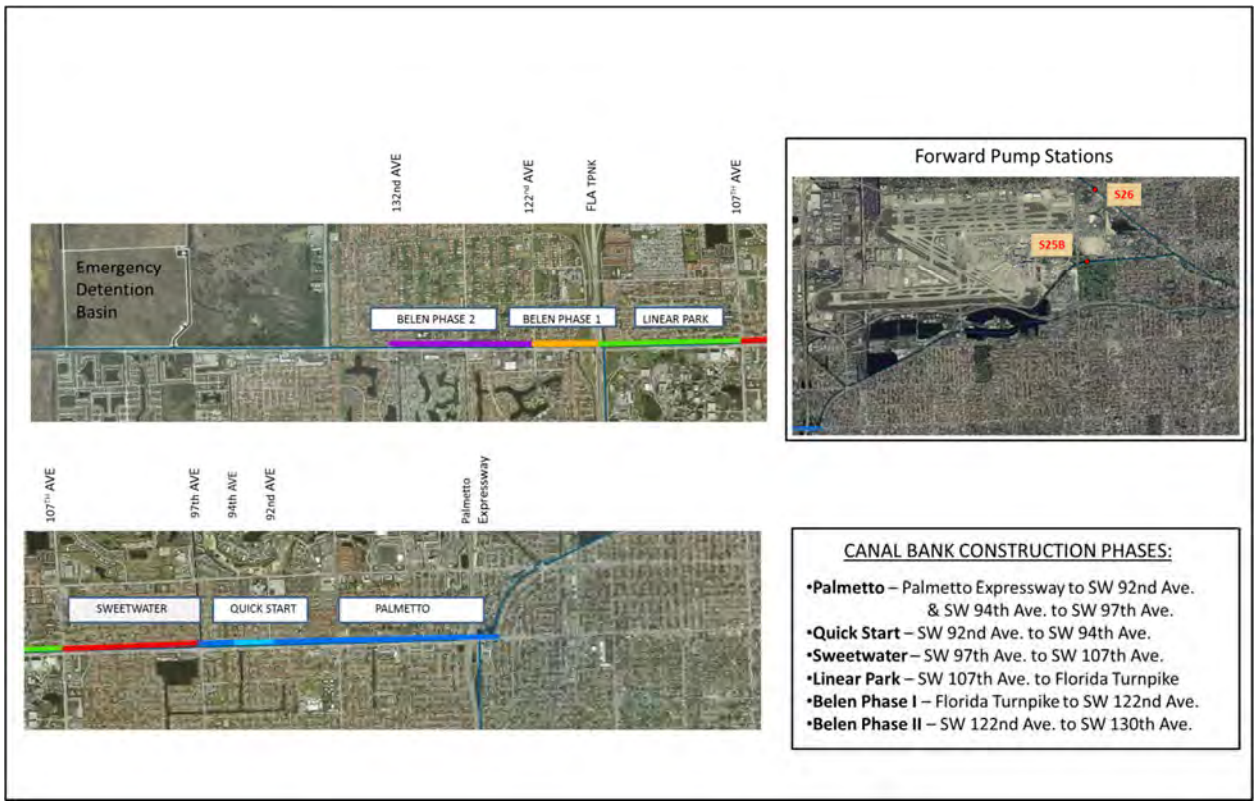
	Exp thru 2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTAL
Federal	$185	$4,083	$600		$32,000						36,868
SFWMD			$14,307	$10,414	$111,696	$508,869	$518,772	$21,453	$275,801	$959,458	$2,420,770
Total	**$185**	**$4,083**	**$14,907**	**$10,414**	**$143,696**	**$508,869**	**$518,772**	**$21,453**	**$275,801**	**$959,458**	**$2,457,638**

*** Updated as of June 11, 2015**

Hyperlinks: C-4 Canal Bank Splash Sheet Facts handout

C-4 Canal Bank Poster Boards Overview

Contact: Jesse VanEyk, SFWMD



C-4 Canal Project Segments

Project Name: **Herbert Hoover Dike Rehabilitation** (HHD)
Project ID: 3700
Lead Agency: USACE
Authority: Central and Southern Florida (C&SF) Project for Flood Control and Other Purposes in the Flood Control Act of 1948, 1954, 1958, 1960, 1965 and 1968; Authorization in 1970 under Section 201 of the Flood Control Act of 1965; the Water Resources Development Acts of 1986, 1988, 1990, 1992, 1996, 2007; and the Rivers and Harbors Act of 1930. WRDA 2007 *(report requirement and authorization)*

Funding Source: USACE

Strategic Plan Goal(s) Addressed: 3-B.2

Measurable Output(s): Risk reduction features implemented within the 143 mile HHD system

Project Synopsis: The Herbert Hoover Dike system consists of nearly 143 miles of levees surrounding Lake Okeechobee, with culverts, hurricane gates and other water control structures. The first embankments around Lake Okeechobee were constructed by local interests from sand and muck, circa 1915. Hurricane tides overtopped the original embankments in 1926 and 1928 causing over 3,000 deaths. The River and Harbor Act of 1930 authorized the construction of 67.8 miles of levee along the south shore of the lake and 15.7 miles of levee along the north shore. The USACE constructed the levees between 1932 and 1938 with crest heights ranging from +32 to +35 feet, NGVD.

A major hurricane in 1947 prompted the need for additional flood protection work. As a result, Congress passed the Flood Control Act of 1948 authorizing the first phase of the Central and South Florida (C&SF) Project, a comprehensive plan to provide flood protection and other water control benefits in Central and South Florida. By the late 1960's the new dike system was completed, raising the elevation of the levees to +41 feet, NGVD. This provides protection to the Standard Project Flood level, approximately an event occurring once in 935 years.

Investigations conducted in the 1980's and early 1990's of the dike system's potential seepage and stability problems resulted in the identification of two major areas of concern: the seepage and embankment stability at the culvert locations, and the problematic foundation conditions of the dike. During high water events, piping is experienced thru the levee. In 1999, the Corps developed a plan to rehabilitate HHD and the plan was approved in 2000.

The Major Rehabilitation Report (MRR) from 2000 divided the 143 mile dike into eight (8) Reaches with the initial focus on Reach 1. This Reach by Reach rehabilitation approach has been replaced with a system wide risk reduction approach as required for safety modifications to Corps dams. The supplemental MRR produced for Reaches 2 and 3 evolved into a system wide Dam Safety Modification Study (DSMS) with current scheduled completion in March 2015. (The MRR approach and approval for Reach 1 occurred prior to procedural changes implemented post-Katrina.) The DSMS addresses the entire dike as a system and includes a risk reduction approach to implementing features based on priority and reducing risk as quickly as possible. All features planned and under construction support the goal of this study.

In 2011, the Corps approved a plan to replace, abandon or remove the 32 water control structures (culverts) operated by the Corps within the HHD system. This project is being implemented as part of the risk reduction approach to the entire system.

Current Status:
21.4 miles of cutoff wall has been constructed in Reach 1. Closing the gaps between the existing structures and cutoff wall in Reach 1 is currently under design for award in 2016. A Supplemental Report to the MRR from 2000 is seeking approval in 2015 to extend the limits of Reach 1 to include 6 additional miles of cutoff wall.

A total of 32 water control structures (culverts) are planned for replacement, removal or abandonment around the dike. The removal of three (3) culverts is complete and the replacement of sixteen (16) culverts is currently under construction. Two (2) additional culvert replacements are planned for award in 2015 while three (3) culvert replacement structures are being designed for award in 2016.

Potential Failure Mode Analyses (PFMA) and Risk Assessments (RA) have been completed through all Reaches supporting the DSMS and identified future risk reduction features that will be necessary to complete the project as part of the Tentatively Selected Plan.

Est. Cost: $2,069,514,000

Project Schedule:

2016	DSMS is complete identifying needed risk reduction features
2021	Water control structure (culvert) construction complete

Detailed Project Budget Information (rounded):

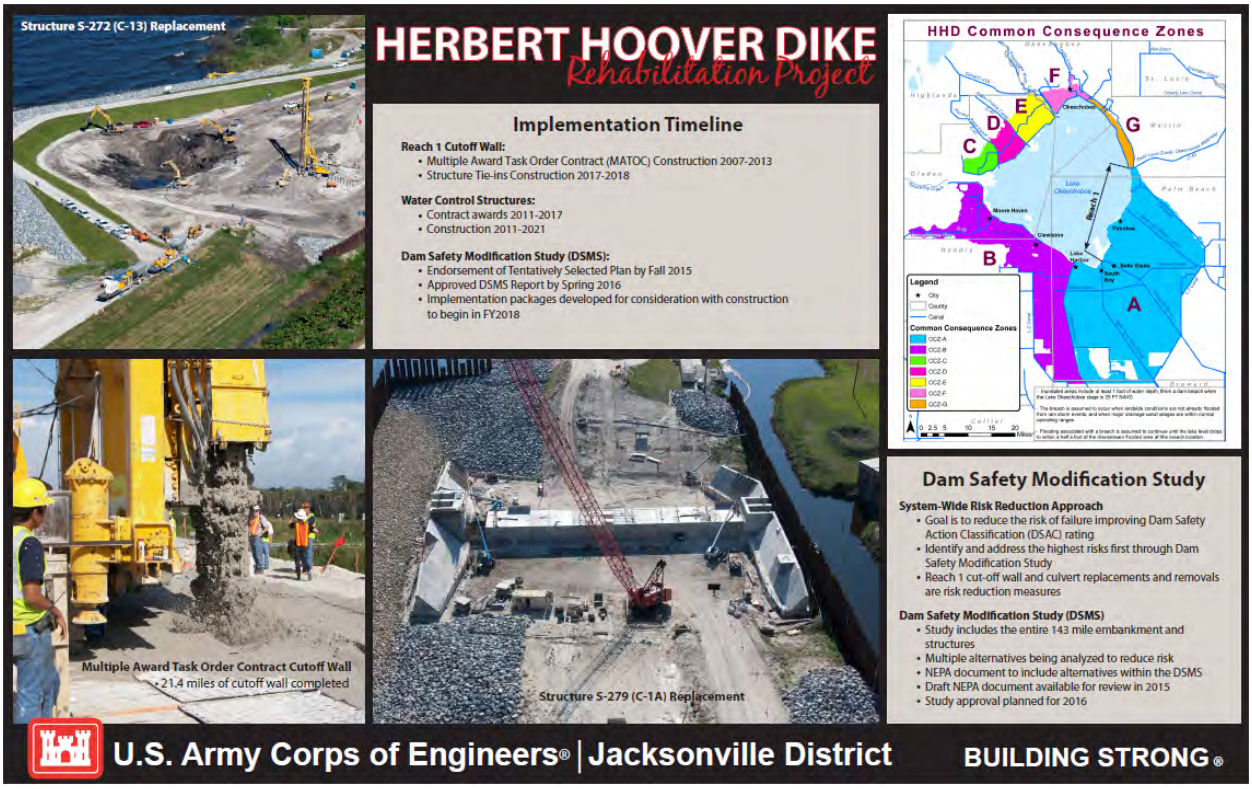
HHD	Obligations Thru FY 2014
USACE	$701,296,500
SFWMD	N/A
Total	**$701,296,500**

Hyperlink: http://www.evergladesplan.org/pm/projects/non_cerp_sf_projects.aspx

Contact: Tim Willadsen, Project Manager USACE
Timothy.D.Willadsen@usace.army.mil

Source: Current status and schedule was provided by the project manager.

Additional Information:



Culvert 1A Replacement (May 2015)

Culvert 16 Replacement (May 2015)

Culvert 8 Replacement (May 2015)

Program Name: Water Supply Planning
Project Name: **Regional water supply plans (*LEC Plan, LWC Plan, UEC Plan, LKB Plan, CFWI Plan*)**
Project ID: 3800 (Formerly Project ID 3704)
Lead Agency: South Florida Water Management District
Authority: Chapter 373, Florida Statutes

Strategic Plan Goal(s) Addressed: 3.C.1

Measurable Output(s): Comprehensive water supply plans identifying strategies to meet existing and projected water needs over a 20-year planning horizon, while meeting the needs of the water resources and related natural systems. Water made available through Alternative Water Supply (AWS) Program is reported separately as Project ID: 3900.

Project Synopsis: In Florida, water supply plans are developed by the water management districts to ensure that an adequate supply of water exists to protect water resources and natural systems and to meet existing and future reasonable-beneficial uses. Development of comprehensive water supply plans customized to each region is key to identifying and understanding current and future water needs. Based on a 20-year outlook, these plans provide detailed, area-specific information and recommended actions including identification of water conservation measures, water supply development project options, and water resource development project options. In addition, water supply plans include minimum flows and levels (MFL) criteria and associated recovery or prevention strategies adopted within the planning region. The plans also identify any surface water or aquifers for which MFLs are scheduled to be adopted. CERP projects form the capital projects element of several MFL recovery strategies. Water supply plans are mandated to be updated at least every five years and are developed in a public process under the auspices of the District's Water Resources Advisory Commission.

Five regional planning areas have been established encompassing the District: the Lower East Coast (LEC), the Upper East Coast (UEC), the Lower West Coast (LWC), Lower Kissimmee Basin (LKB) and the Upper Kissimmee Basin (UKB). The UKB is in the Central Florida Water Initiative (CFWI) Regional Water Supply Planning (RWSP) area, which is a joint effort between South Florida, Southwest Florida, and St. Johns River water management districts. Initial water supply plans were approved between 1998 and 2000 and the first updates were approved between 2005 and 2007. Subsequent updates were approved between 2011 and 2014, except for the CFWI. The most recent updates of the water supply plans reflect the requirements of the State's Water Resource Protection and Sustainability Program (Program).

The Program requires water supply planning coordination between the water management districts and local governments to ensure permitted water supply and potable water facilities are available before new development is approved. The District must notify each local government and PWS utility in the planning region within six months of the plan approval. Each PWS utility then has one year from the notification to identify the water supply projects it intends to develop. Local governments also must update the Water Facilities Element of their Comprehensive Plan within 18 months after the water supply plans are approved that details the water supply projects, conservation, and reuse for at least a 10-year planning period.

Each regional water supply plan includes a water supply development chapter and a water resource development chapter. Water supply projects create water and are the responsibility of local governments and utilities. Water resource development projects support and enhance water supply development projects, but often do not by themselves yield specific quantities of water. For example, hydrologic investigations and groundwater monitoring and modeling provide important information on aquifer characteristics, such as hydraulic properties and water quality. All of these efforts are useful in developing an appropriate facility design, identifying the safe yield and evaluating the economic viability of water supply development projects. Water resource development projects often cross planning region boundaries or are conducted District-wide and usually do not produce water.

Current Status: In May 2014, the Governing Boards of the three Districts acknowledged delivery of the 2014 Final Draft CFWI RWSP and delayed final agency action until the completion of the Solutions Planning Phase and any resulting changes or refinements. The CFWI Regional Water Supply Plan and the 2035 Water Resources Protection and Water Supply Strategies Plan are scheduled for completion in late 2015. Updates to the District's regional water supply plans have been initiated or planned. The schedule for completion of the five year updates are: Upper East Coast in Fiscal Year 2015-16; Lower West Coast in Fiscal Year 2016-17; Lower East Coast in Fiscal Year 2017-18; Lower Kissimmee Basin in Fiscal Year 2018-19; and, CFWI in Fiscal Year 2019¬-20. The planning horizon for these updates is 2040.

Cost:	**Total Cost*+**
Regional water supply plans – Water Resource Development Projects (2015-2019)	$ 27,077,000

*Excludes: costs associated with CERP and costs of alternative water supply projects, which are reported separately, and the estimated portion of the C&SF Operation and Maintenance budget allocated to Water Supply.

Hyperlink:
http://www.sfwmd.gov/watersupply

+ Source: The *2015 South Florida Environmental Report. Table 5A-1. Fiscal Years 2015–2019 implementation schedule and projected costs for regional water resource development projects. Includes projects estimated to be completed between 2015-2019. Includes FTE costs.*

Contacts: Mark Elsner, SFWMD; Cynthia Gefvert, SFWMD

Project Name: **C&SF: CERP South Miami-Dade Reuse (BBB)**
Project ID: 3900 CERP Project WBS # 98
Lead Agency: USACE / Miami-Dade County
Authority: Not authorized
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 3-C.2

Measurable Output(s): 131 million gallons per day advanced WWTP

April 1999 Project Synopsis: This project includes a plant expansion to produce superior, advanced treatment of wastewater from the existing South District Wastewater Treatment Plant (WWTP) located north of the C-1 Canal in Miami-Dade County. In order to attain the superior level of treatment, construction of an add-on pretreatment and membrane treatment system to the existing secondary treatment facility will be necessary. The initial design of this feature assumed the plant would have a capacity of 131 million gallons per day.

Current Project Synopsis: The purpose of the project is to provide additional water supply to the South Biscayne Bay and Coastal Wetlands Enhancement Project. Detailed analyses will be required to determine the quality and quantity of water needed to meet the ecological goals and objectives of Biscayne Bay. Superior water quality treatment features will be based on appropriate pollution load reduction targets necessary to protect downstream receiving surface waters (Biscayne Bay).

Current Status: Due to the water quality issues associated with discharging reclaimed water into Biscayne National Park, an *Outstanding Florida Water,* such as potential failures of the treatment system and the limited ability to control contaminant inputs to the sanitary sewer system serving the treatment facility, other sources of water to provide required freshwater flows to southern and central Biscayne Bay should be investigated before pursuing the reuse facility as a source. If, more appropriate sources are not available, the reuse project will be initiated by determining the parameters of concern, the necessary wastewater treatment requirements, and the appropriate treatment technology to be implemented.

This project has not yet begun.

Est. Cost: $ 657,651,505

Project Schedule: TBD

Detailed Project Budget Information (rounded):

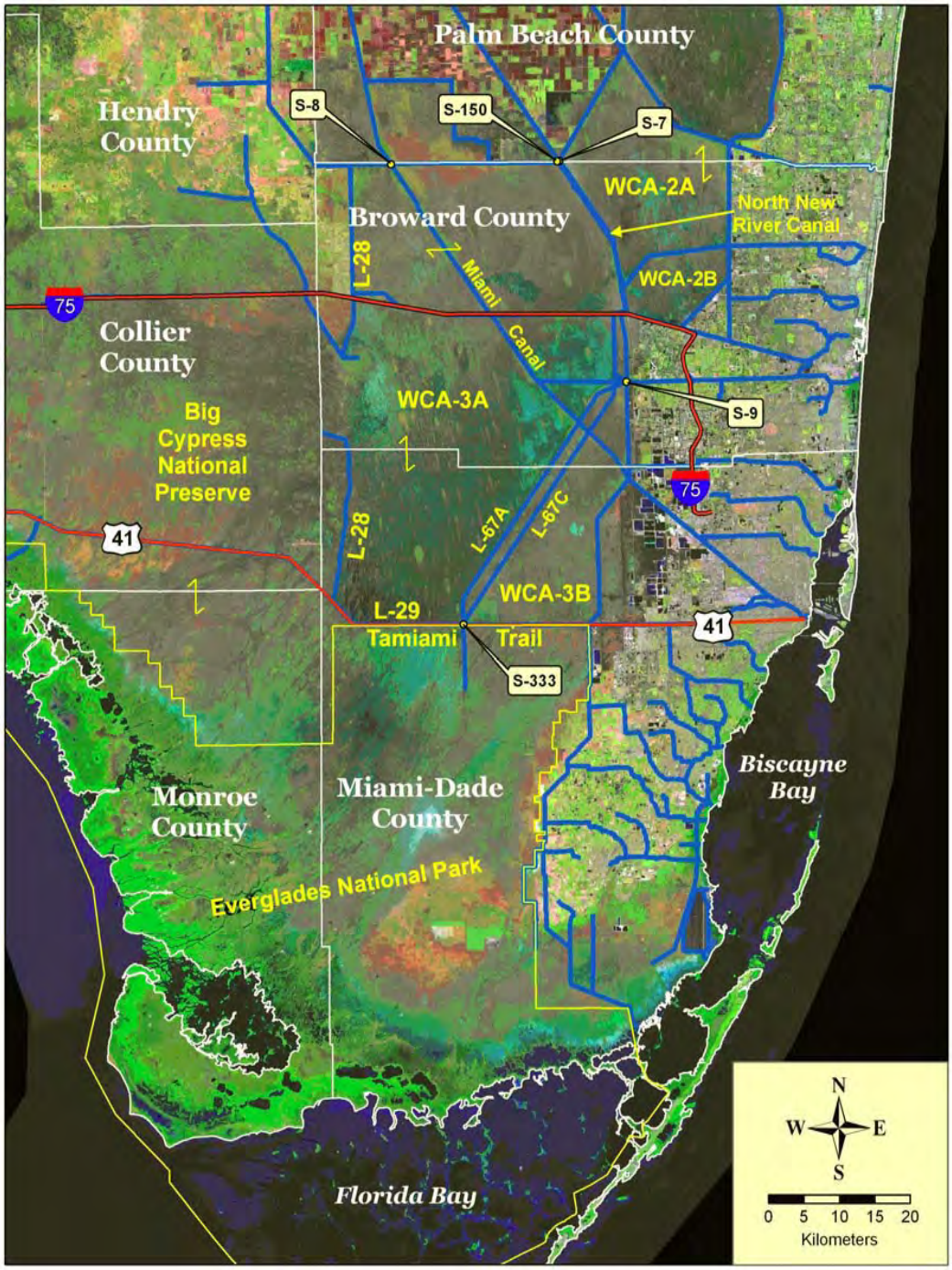
South Miami-Dade Reuse	**Obligations Thru FY 2012**
USACE	$0
SFWMD	$0
Total	**$0**

Hyperlink: http://141.232.10.32/pm/projects/proj_98_south_miami.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars.

Additional Information:



Project Name: **C&SF: CERP West Miami-Dade Reuse (HHH)**
Project ID: 3901 (CERP Project WBS # 97)
Lead Agency: USACE / Miami-Dade County
Authority: Not authorized
Funding Source: Federal/County

Strategic Plan Goal(s) Addressed: 3-C.2

Measurable Output(s): 100 million gallons/day advanced WWTP; report

WRDA 1996: Conduct reconnaissance study to determine Federal interest in using West Dade, FL reuse facility to improve water quality in, and increase supply of surface water to, Everglades to enhance fish and wildlife habitat.

April 1999 Project Synopsis: Superior water quality treatment features will be based on appropriate pollution load reduction targets necessary to protect downstream receiving surface waters. The initial design assumed a potential discharge volume of 100 million gallons per day from the wastewater treatment plant.

Current Project Synopsis: The purpose of the feature is to meet the water demands for: 1) the Bird Drive Recharge Area, 2) the South Dade Conveyance System, and 3) the Northeast Shark River Slough. When all demands have been met, the plant will stop treatment beyond secondary standards and will dispose of the secondary treated effluent into deep injection wells.

This feature includes a wastewater treatment plant expansion to produce superior, advanced treatment of wastewater from a future West Miami-Dade Wastewater Treatment Plant (WWTP) to be located in the Bird Drive Basin in Miami-Dade County. This project adheres to the original concept described in the Restudy.

Current Status: The final configuration of these facilities will be determined through more detailed planning and design to be completed in the ongoing West Dade Water Reuse Feasibility Study authorized in Section 413 of the Water Resources Development Act of 1996. This project has not yet begun.

Est. Cost: $ 747,982,196

Detailed Project Budget Information (rounded):

West Miami-Dade Reuse	Obligations Thru FY 2012
USACE	$0
SFWMD	$0
Total	**$0**

Hyperlink: http://141.232.10.32/pm/projects/proj_98_south_miami.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars. Current status was summarized from the PMP (2005).

Project Name: **C&SF: CERP Wastewater Reuse Technology Pilot**
Project ID: 3902 (CERP Project WBS # 37)
Lead Agency: USACE / SFWMD
Authority: WRDA 2000 *(pilot project)*
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: **Primary:** 3-C.2 **Secondary:** 2-A.3

Measurable Output(s): 3,500 acres of wetlands restored and created

April 1999 (Restudy) Project Synopsis: The original concept addresses water quality issues associated with discharging reclaimed water into natural areas such as the West Palm Beach Water Catchment Area, Biscayne National Park, and the Bird Drive Basin as well as determine the level of superior treatment and the appropriate methodologies for that treatment. A series of studies will be conducted to help determine the level of treatment needed.

Current Project Synopsis: Pilot facilities will be constructed to determine the ecological effects of using superior, advanced treated reuse water to replace and augment freshwater flows to Biscayne Bay and to determine the level of superior, advanced treatment required to prevent degradation of freshwater and estuarine wetlands and Biscayne Bay. The constituents of concern in wastewater will be identified and the ability of superior, advanced treatment to remove those constituents will be determined.

In addition, a pilot facility will be constructed to treat wastewater from the east central regional wastewater treatment facility using improved wastewater treatment processes to remove nitrogen and phosphorus. After treatment, the wastewater will be used toward restoring 1,500 acres of wetlands and to recharge wetlands surrounding the city of West Palm Beach's well field. A portion of the treated wastewater will be used for recharge of a residential lake system surrounding the city's well field and a Palm Beach County well field.

Besides serving as a pilot project for wetlands-based water reclamation, this feature will reduce a portion of the city's dependence on surface water from Lake Okeechobee during dry or drought events. Another 2,000 acres of wetlands would be created or restored. Other benefits include aquifer recharge and replenishment, reduction of water disposed in deep injection wells and a reduction of stormwater discharge to tide.

Current Status: This project is planned for in the future; and has not yet begun.

Est. Cost: $ 44,826,978

Project Schedule: TBD

Detailed Project Budget Information (rounded):

Wastewater Reuse Technology Pilot	Obligations Thru FY 2012
USACE	$1,208,234
SFWMD	$667,774
Total	$1,876,009

Hyperlink: http://141.232.10.32/pm/projects/proj_37_wastewater_pilot.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars. Actual expenditures include all federal expenditures through FY09 (Sept, 2009) and sponsor verified and recorded in kind credit through 4th quarter FY07.

Additional Information:

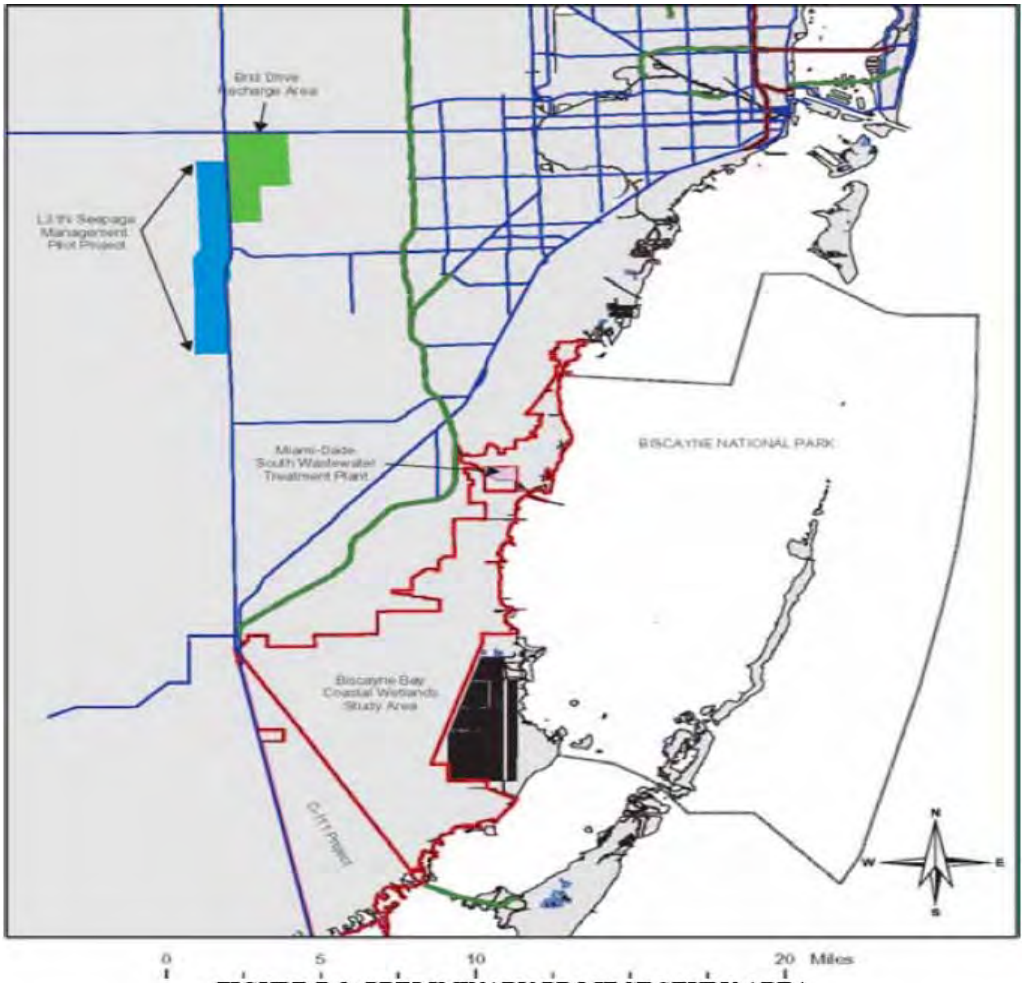


FIGURE B-1: PRELIMINARY PROJECT STUDY AREA

Program Name: Alternative Water Supply (AWS)
Project Name: **Alternative Water Supply Grant**
Project ID: 4000 (Formerly Project ID 3900)
Lead Agency: SFWMD
Authority: Chapter 373.707, Florida Statutes

Strategic Plan Goal(s) Addressed: 3.C.3

Measurable Output(s): 287 MGD of capacity added to water supply system District-wide between FY2006- FY2013. From FY2009 - FY2015, water supply capacity created was 55 MGD.

Project Synopsis: SFWMD has a program of cooperative funding with local governments and other entities to assist in their development of alternative water supplies. Since FY97, this program has invested approximately $193 million for the construction of over 480 projects. In 05, the Water Protection and Sustainability Program established annually recurring State funding, when available, with a required match by the water management districts, which further supported alternative water supply development. No funding was allocated during FY15. For the period FY09 - FY15, $43 million in AWS funding, including reallocated amounts, was budgeted for local government and other partners with $10.9 million provided by the State. This funding was used to assist 90 AWS projects that created 55 MGD of additional water supply capacity.

Current Status:
Two projects have been carried over from FY14 -- the City of St. Cloud – TWA/St. Cloud Reclaimed Water Main Interconnect and the City of Naples – Reclaimed Water System Expansion – North of Central Avenue Phase III. No funding was allocated during FY15.

Cost: $35.1M expended from program for the period FY09 – FY15
Project Development: $35.1M

Project Schedule:
Start Date: 1997
Finish Date: Ongoing/annual grants – current projects to be completed by September 2015.

Detailed District Project Budget Information

Through 2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTAL
$98,286	$38,100	$33,100	$8,850	$1,370	$6,050	$2,720	$2,808	$2,545	$0	$193,829

Hyperlink: www.sfwmd.gov/AWS

Contact: Stacey Adams, SFWMD; Patrick Martin, SFWMD

Project Name: **BMPs for Agriculture**
Project ID: 4101
Lead Agency: Natural Resources Conservation Service
Authority: Public Law 46
Funding Source:

Strategic Plan Goal(s) Addressed: Other

Measurable Output(s): Nutrient Load Reduction

Project Synopsis: This project provides for technical assistance to landowners and managers of agricultural lands. The goals of this project are to encourage the adoption and implementation of Best Management Practices (BMPs) that will provide for sustainable agriculture within the Everglades ecosystem that is both ecologically and economically sound. Comprehensive resource management plans are developed with the farmer/rancher to achieve their management objectives, while meeting federal, state, regional and local environmental quality criteria and standards (TMDLs).

Current Status:

Cost
Total:
$160,278,000
Project Development:
Land Acquisition:
Implementation:
Operations and maintenance:

Project Schedule:
Start Date: 1997
Finish Date: 2015

Detailed Project Budget Information (1000s)

	Through 2009	2010	2011	2012	Balance to Complete	Total
Federal	$48,321	$7,050	$4,000	$2,882		
State	$48,085	$3,000	$3,000	$3000		
Tribal						
Local						
Other						
Total	**$96,406**	**$10,050**	**$7,000**	**$5882**	**$40,940**	**$160,278**

PROJECT SHEET UPDATED IN 2014
Hyperlink: N/A
Contact: Roney Gutierrez- USDA-NRCS

Program Name: Soils
Project Name: **Monitoring of Organic Soils in the Everglades**
Project ID: 4102
Lead Agency: Natural Resources Conservation Service
Authority: Public Law 46
Funding Source:

Strategic Plan Goal(s) Addressed: Other

Measurable Output(s): Resource Assessment

Project Synopsis: This project will produce an assessment of the amount of accretion and/or subsidence that has occurred on organic soils throughout the Everglades region. ARS and IFAS have initiated work within the Everglades Agricultural Area (EAA) based upon observations taken every 5-year from 1913 – 1978. The goal of this project is to expand this assessment to the entire Everglades ecosystem, in an effort to provide scientists and land managers a tool to ascertain the effects from hydrologic condition changes upon the organic soil resource.

Current Status:

Cost:
Total: $1,236,000
Project Development:
Land Acquisition:
Implementation:
Operations and maintenance: $1,236,000

Project Schedule:
Start Date: 1998
Finish Date: On-going

Detailed Project Budget Information ($1000)

	Thru 2011	**2012**	**2013**	**2014**	**2015**	**Balance to complete**	**Total**
Federal	$25	0				$1,211	
State	$11	0					
Tribal		0					
Local		0					
Other		0					
Total	**$36**	**0**				**$1,200**	**1,236**

PROJECT SHEET UPDATED IN 2014

Hyperlink: N/A
Contact: Tom Weber USDA – NRCS

Program Name: Soil Survey
Project Name: **Soil Survey Update for the Everglades Agricultural Area**
Project ID: 4103
Lead Agency: Natural Resources Conservation Service
Authority: Public Law 46
Funding Source:

Strategic Plan Goal(s) Addressed: Other

Measurable Output(s): Acres Mapped

Project Synopsis: This project will produce an updated comprehensive soil survey of the Everglades Agricultural Area (EAA). The project is designed to produce a spatial representation of the soils on approximately 700,000 acres, and a detailed description of each soil's profile. The current soil survey is over 20 years old. Significant changes have occurred due to organic soil subsidence and changes in landscape features. This project will provide an effective conservation planning tool for on-farm decision making that will contribute to over-all ecosystem restoration efforts.

Current Status:

Cost:
Total: $2,100,000
Project Development: $2,100,000
Land Acquisition:
Implementation:
Operations and maintenance:

Project Schedule:
Start Date: 2007
Finish Date: 2017

Detailed Project Budget Information ($1000)

	2012	**2013**	**2014**	**Balance to complete**	**Total**
Federal	0			2,100	$
State	0				
Tribal	0				
Local	0				
Other	0				
Total	**0**			**2,100**	**$2,100**

PROJECT SHEET UPDATED IN 2014

Hyperlink: N/A
Contact: Tom Weber USDA – NRCS

Program Name: Soil Survey
Project Name: **Soil Survey for Everglades National Park, Big Cypress, National Preserve, and Water Conservation Areas**
Project ID: 4104
Lead Agency: NRCS
Authority: PL-46
Funding Source:

Strategic Plan Goal(s) Addressed: **Primary**: Other

Measurable Output(s): Acres Mapped

Project Synopsis: This project will produce a comprehensive soil survey of Everglades National Park, Big Cypress National Preserve, and the Water Conservation Areas. The project is designed to produce a spatial representation of the soils on approximately 2,000,000 acres, and a detailed description of each soil's profile. Currently there is not a detailed soil survey available to land managers, modelers and planners. This project will provide an effective correlation/association tool for land managers, modelers and planners to identify, restore, and sustain natural ecological communities.

Current Status:

Cost:
Total: $6,000,000
Project Development: $6,000,000
Land Acquisition:
Implementation:
Operations and maintenance:

Project Schedule:
Start Date: 2007
Finish Date: 2017

Detailed Project Budget Information ($1000s)

	2012	2013	2014	2015	Balance to complete	Total
Federal	35				$6,000	$
State	0					
Tribal	0					
Local	0					
Other	0					
Total	**35**				**6,000**	**6,000**

PROJECT SHEET UPDATED IN 2014

Hyperlink- N/A
Contact: Tom Weber –USDA – NRCS, Roney Gutierrez

Project Name: **C&SF: CERP Flows to NW and Central WCA 3A (II) (RR)**
Modify G-404 Pump Station (II), Flow to NW and Central Water Conservation Area 3A (RR)
Project ID: 4105 (CERP Project WBS # 11)
Lead Agency: USACE / SFWMD
Authority: WRDA 2000 *(Programmatic Authority <$25 M)*
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Other

Measurable Output(s): Increased flows to WCA 3A

April 1999 Project Synopsis: Additional flows will be directed to the northwest corner and west central portions of Water Conservation Area 3A by increasing the capacity of the G-404 pump station, currently a part of the Everglades Construction Project, and increasing the capacity and relocating the S-140 pump station. Development of a spreader canal system at S-140 will reestablish sheetflow to the west-central portion of Water Conservation Area 3A.

Current Project Synopsis: The purpose of this feature is to increase environmental water supply availability, increase depths and extend wetland hydropatterns in the northwest corner and west-central portions of Water Conservation Area 3A in western Broward County. If additional water quality treatment is determined to be required as a result of future detailed planning and design work, existing facilities would be modified to provide the necessary treatment. Water quality treatment of flows is assumed to be provided by the Everglades Construction Project and water quality treatment strategies developed to fulfill the Non-Everglades Construction Project requirements of the Everglades Forever Act.

Current Status: This project has dependencies on the Everglades Construction project; and has not yet begun.

Est. Cost: $ 56,614,086

Detailed Project Budget Information (rounded):

Flows to NW and Central	Obligations Thru FY 2012
USACE	$59,095
SFWMD	$7,202
Total	**$66,297**

Hyperlink: http://141.232.10.32/pm/projects/proj_11_flow_nw_central.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars. Actual expenditures include all federal expenditures through FY09 (Sept, 2009) and sponsor verified and recorded in kind credit through 4th quarter FY07.

Program Name: Miami-Dade County Environmentally Endangered Lands Program
Project Name: Environmentally Endangered Lands Volunteer Workdays
Project ID: 4200
Lead Agency: Miami-Dade County Environmentally Endangered Lands Program

Strategic Plan Goal(s) Addressed: Foster Compatibility of the Built and Natural Systems

Measurable Output(s): Number of Events, Number of Volunteers – (The EEL Program hosted 2,227 citizen volunteers from July 2012 to March 2014 at 29 Volunteer Workday Events, from April 2014 to March 2015, the EEL Program hosted 1,184 citizen volunteers at 16 Volunteer Workday Events)

Project Synopsis: The Miami-Dade County Environmentally Endangered Lands (EEL) Program was established in 1990, to acquire, protect and manage environmentally endangered lands for this and future generations. Among the EEL Program purposes is to use acquired lands, where feasible within financial constraints and with minimal risk to the environmental integrity of the preserves, to educate Miami-Dade County's school-age population and the general public about the unique importance of Miami-Dade County's subtropical ecosystems and natural communities. The EEL Program accomplishes that objective by engaging volunteers in land management within its Preserves. While EEL Funds have adequately supported the program since its inception, EEL Funds will be depleted by 2024, possibly sooner. ***Recurring revenue sources need to be identified and secured to assure that acquisition and management can continue. The Volunteer Workday Program is funding dependent.***

Current Status: The EEL Program's Volunteer Workdays and other volunteer events run from September through June of each year, with occasional summer projects, within EEL Preserves. The EEL Program hosts at least 15 events annually, attracting over 1,000 volunteers per year who plant trees, maintain trails, remove refuse and debris, eradicate invasive exotic species, and conduct other restoration tasks. ***In exchange for their service, volunteers are provided an opportunity to visit natural areas that are typically not accessible to the public, to learn to identify native species, to learn how to identify and eradicate invasive exotic species and to receive guided tours by naturalists and land managers.***

Project Schedule:
Start Date: May 18, 1990
Finish Date: N/A – these lands are meant to be appreciated by this and future generations

Detailed Project Budget Information

	1990 - 2014	2015	2016	2017	2018	Balance to Complete	Total
Local	646,000	50,000	45,000	50,000	50,000*	~$50,000* annually	
Total	**646,000**	**50,000**	**45,000**	**50,000**	**50,000***		**TBD**

*** Dependent on availability of funds**

Contact: Janet Gil, Environmental Resources Project Supervisor, gilj@miamidade.gov, 305-372-6471

Hyperlink: **www.miamidade.gov/environment/endangered-lands.asp**

Pictures:

Program Name: Exotic Management
Project Name: Everglades Non-Native Fish Round Up
Project ID: 4201
Lead Agency: National Park Service

Strategy and Biennial Report Objective Addressed: 3-D.1
Invasive Species Strategic Action Framework Goal: 2 and 4

Measurable Output(s): We are able to monitor if there are any new invasive fish species in our freshwater canals by involving the community. Any new species are reported to FWC.

Project Synopsis:
The Round Up is a one-day event open to all anglers (shore or boat) who fish in the Everglades area. The purposes of this event are to raise public awareness about the potential negative impacts of releasing nonnative fish into Florida waters, and to encourage anglers to target these nonnative species for sport. The Round Up will also gather data on nonnative fish distribution and abundance, which can assist in their management.
This project could be increased in scope through enhanced communication (advertising) coupled with funds for NPS staff to attend/support the event (i.e. insert information into database and document results). Up to $10,000 per year could be spent to enhance this project.

Current Status: In May 2014, the fifth Annual Non-Native Fish Round Up was held. There were 55 people registered across the three counties. 580 pounds of invasive fish were caught including a new exotic fish called the Marbled-Pin Catfish (*Leiarius marmoratus*).

Project Schedule:
Start Date: 2010
Finish Date: ongoing

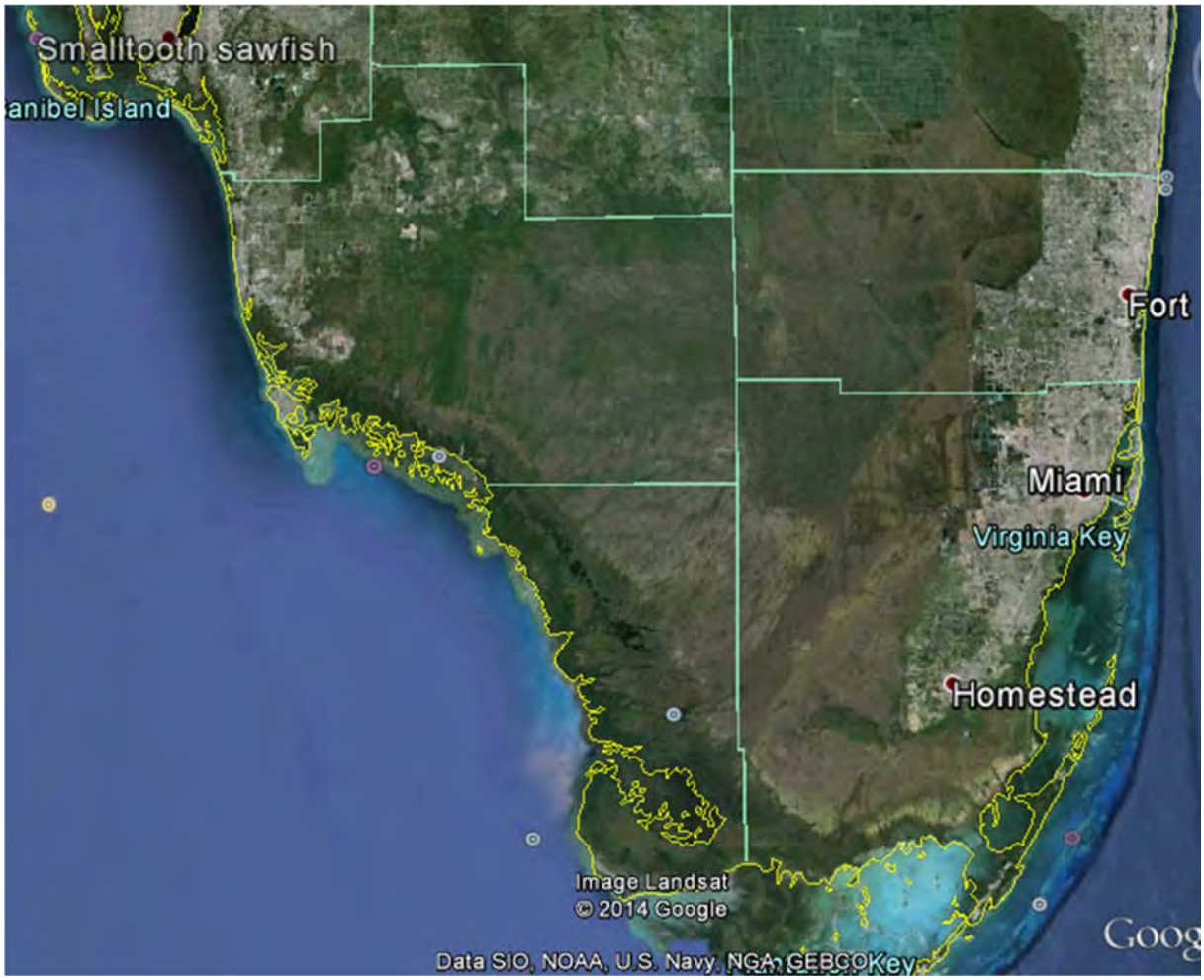
Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$2,000	$2,060	$2,122	$2,186	$2,251	$8,619	$10,619
SFWMD*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Local	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	$2,000	$2,060	$2,122	$2,186	$2,251	$8,618.27	$10,619

PROJECT SHEET UPDATED IN 2014
7
Contact: Tony Pernas EPMT NPS

Pictures:

Map of Area:



Project 4201 Everglades Non-Native Fish Round Up Page 2 of 2

Program Name: Miami-Dade County/Zoo Miami Educational Programming
Project Name: Zoo Miami/Miami-Dade County Invasive Species Outreach and Educational Programs
Project ID: 4202
Lead Agency: **M**iami-Dade County

Strategy and Biennial Report Objective Addressed: 3-D.1
Invasive Species Strategic Action Framework Goal: 1 and 4

Measurable Output(s): Exposing, educating, and engaging nearly one million visitors, students, and volunteers annually about invasive species through classes, lecture series, volunteer work days, internships, signage and tours. Invasive species removal and control programs, habitat restoration and enhancement, and biological surveys of the Zoo's 740 acres and other regional properties.

Project Synopsis:
In 2013, Zoo Miami had 955,000 visitors making it the most popular attraction in South Florida. Through our patrons, educational classes, internships and community engagement activities we leverage these numbers to increase awareness and educate the public about invasive species in South Florida and how they may be active in curtailing further introductions or spread of established species.

Upon completion of our newest area, Amazon and Beyond, several exhibits show species that are from the tropical American regions that have become invasive in South Florida with associated signage discussing the issues. The next area, currently under construction, Florida: Mission Everglades will profile many habitats and species in South Florida and will have signage discussing the impacts of invasive species on our local habitats.

Volunteer days involving corporate, public, and school groups, magnet school students, and members of our Conservation Teen Scientist program participate in guided invasive plant species removal programs and habitat restoration and enhancement plantings.

Zoo Miami has ongoing removal programs for marine toads, Cuban tree frogs, green iguanas, and Cuban knight anoles on property and the staff engages the public about these programs and the effects on our native habitats and species. Internal training also occurs to teach staff of what dangers these animals present to the collection, their animals at home, and proper safe handling.

Zoo Miami holds family conservation fishing days twice a year at our lakes on property to engage the public about the effects of invasive fish species and participate in the removal of them from our lakes. The last three events have resulted in the removal of over 300 spotted tilapia and mayan cichlids with over 100 family participants.

The Conservation and Research Department offers internship opportunities for Florida International University undergrad students and zookeepers at the zoo. These internships usually involve training and active management of invasive plant and animal control programs within Miami-Dade County parks or other regional areas.

Members of the Conservation and Research Department conduct public and internal lecture series to educate about invasive species issues in South Florida. These lectures profile the history and current status of invasive species in the area and leave with messages of how the public can assist in the control and reporting of invasive species through EDDMaps and our Frogwatch USA program.

Staff at the Deering Estate at Cutler conducts field walks into the natural areas of the Deering Estate Rockland Hammock and Pine Rocklands of public groups and students. They discuss invasive plant effects on the native habitats and utilize the transmittered boas on property from the Zoo Miami's Conservation and Research Department's study to have the groups actively participate in tracking boa constrictors while discussing their potential impacts.

Zoo Miami annually hosts an FWC Amnesty Day since that program's inception. Zoo Miami curators, veterinarians and zookeepers staff the animal surrender area to support FWC's event to raise awareness about non-native animals in South Florida.

Current Status:

These multiple outreach and educational programs concerning invasive species will continue in perpetuity as part of our mission. As the Conservation and Research Department expands its programs for invasive species control, more outreach opportunities will be developed and expanded.

Project Schedule:
Start Date: July 2011
Finish Date: Ongoing

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal							
SFWMD**							
Local	$36,125						
Total	**$36,125**						

PROJECT SHEET UPDATED IN 2014

Contact: **Frank Ridgley DVM; frid@miamidade.gov**

Hyperlink: **http://issuu.com/frankridgley/docs/2013_zoo_miami_c_r_annual_report_**

Pictures:

Public and student invasive removal and restoration day.

Family Conservation Fishing Event

Frogwatch USA field training

Map of area:

Project 4202 Zoo Miami/Miami-Dade County Invasive Species Outreach and Educational Programs Page 5 of 5

Program Name: Outreach Support for Invasive Species Management in Florida
Project Name: Public Outreach to Support Containment Efforts
Project ID: 4203
Lead Agency: University of Florida

Strategy and Biennial Report Objective Addressed: 3-D.1
Invasive Species Strategic Action Framework Goal: 3

Measurable Output(s): Website visits, social media followers, outreach products distributed, number of people reached at events and presentations

Project Synopsis: In cases when an invasive species can no longer be eradicated, outreach to the public and decision makers is important to generate political and financial support for ongoing containment and management. This project aims to improve public understanding of containment efforts on an ongoing basis as strategies are continually being assessed and adapted. Communication messages will target a general audience with information about research findings, development of control tools, impacts of invasive species, and benefits of containment for Everglades restoration. Online outreach will be conducted via a redesigned, public-oriented dontletitloose.org website, regular social media posts, a monthly blog, and an events calendar. Face-to-face outreach will be conducted through event exhibits and group presentations, facilitated by the development of a "traveling trunk" of hands-on educational materials. Another important component of this project is the development of fact sheets, as needed, to convey invasive species science and management needs to decision makers (e.g., see The Invasion of Exotic Reptiles and Amphibians in Florida).

The project is being conducted by outreach and human dimensions specialists at University of Florida's Fort Lauderdale Research and Education Center. As chairs of the Outreach Subcommittee of the Everglades Cooperative Invasive Species Management Area (ECISMA) from 2011 to 2013, we produced educational materials (e.g., fact sheets, identification guides, newsletters, bookmark, bumper sticker), coordinated outreach at community events, and conducted an assessment of needs and priorities for an ongoing collaborative outreach program.

Current Status: University of Florida has been coordinating invasive species outreach efforts since 2011 but has not yet received any external funding directed toward this purpose.

Project Schedule:
Start Date: 2011
Finish Date: None

Detailed Project Budget Information
The budget includes salaries of an Environmental Education Coordinator and a Designer/Web Developer.

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal							
SFWMD**							
University of Florida	$10,000	$10,000	$10,000	$10,000	$10,000	$30,000	**$50,000**
Needed		$20,000	$30,000	$30,000	$30,000	$90,000	**$110,000**
Total	**$10,000**	**$30,000**	**$30,000**	**$30,000**	**$30,000**	**$120,000**	**$160,000**

Contact: Frank Mazzotti, fjma@ufl.edu, 954-577-6338

Hyperlink: http://crocdoc.ifas.ufl.edu/

Pictures:

UN-WANTED
BURMESE PYTHON
EVERGLADES COOPERATIVE
INVASIVE SPECIES
MANAGEMENT AREA
CISMA

Program Name: Outreach Support for Invasive Species Management in Florida
Project Name: **Public Outreach to Support EDRR Efforts**
Project ID: 4204
Lead Agency: University of Florida

Strategy and Biennial Report Objective Addressed: 3-D.1
Invasive Species Strategic Action Framework Goal: 2

Measurable Output(s): Website visits, social media followers, outreach products distributed, number of people reached at events and presentations

Project Synopsis: The goal of this project is to engage the south Florida public and key target audiences in helping to detect and report invasive exotic species. The first objective is to develop a coordinated inter-agency public outreach strategy to enhance EDRR efforts. This will involve updating and formalizing the 2012 needs assessment conducted among members of the Everglades Cooperative Invasive Species Management Area (ECISMA). This project will continually coordinate with partners to promote existing invasive species detection resources (e.g., species identification guides, REDDy online training), reporting systems (e.g., 1-888-IVE-GOT1 and IVEGOT1.org, and smart phone apps), and volunteer opportunities (e.g., Python Patrol, EEL workdays). We will also develop and update resources (e.g., Pest Alerts, identification guides) as needed. Online outreach will be conducted via a redesigned, public-oriented dontletitloose.org website, regular social media posts, a monthly blog, and an events calendar. Face-to-face outreach will be conducted through event exhibits and group presentations, facilitated by the development of a "traveling trunk" of hands-on educational materials. Another important component of this project is to conduct targeted outreach—via direct mailings and group trainings—with people who reside or work in areas affected by EDRR species.

This project is being conducted by outreach and human dimensions specialists at University of Florida's Fort Lauderdale Research and Education Center. As chairs of the ECISMA Outreach Subcommittee from 2011 to 2013, we produced educational materials (e.g., fact sheets, identification guides, newsletters, bookmark, bumper sticker), coordinated outreach at community events, and conducted an assessment of needs and priorities for an ongoing collaborative outreach program.

Current Status: University of Florida has been coordinating invasive species outreach efforts since 2011 but has not yet received any external funding directed toward this purpose.

Project Schedule:
Start Date: 2011
Finish Date: None

Detailed Project Budget Information
The budget includes salaries of an Environmental Education Coordinator and a Designer/Web Developer.

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal							
SFWMD**							
University of Florida	$20,000	$10,000	$10,000	$10,000	$10,000	$30,000	**$60,000**
Needed		$40,000	$50,000	$50,000	$50,000	$150,000	**$190,000**
Total	$20,000	$50,000	$60,000	$60,000	$60,000	$180,000	$250,000

Contact: Frank Mazzotti, fjma@ufl.edu, 954-577-6338

Hyperlink: http://crocdoc.ifas.ufl.edu/

Pictures:

CISMA

Pest Alert

June 2012

Nonnative Lizards in Nurseries and Groves

Everglades Cooperative Invasive Species Management Area

Oustalet's Chameleon

Image Courtesy of University of Florida

12 to 24 in. Females are various shades of green with white dots along side. Males are tan with brown/black stripes. Spines extend down the center of back. Please REPORT ALL sightings.

Veiled Chameleon

Image Courtesy of Joshua David Hallmark

12 to 24 in. Bright green with shades of orange, white, and yellow; males have bright yellow bands. Prominent casque on top of head is taller than Oustalet's. Please REPORT ALL sightings.

Argentine Black & White Tegu

Image Courtesy of David Barkaly

2 to 4 ft. Dark bands with plentiful white dots between them. Please REPORT ALL sightings.

Nile Monitor

Image Courtesy of U.S. Geological Survey

4 to 6 ft. Dark brown with yellow spots forming bands around the body. Please REPORT ALL sightings.

Green Iguana

Image Courtesy of University of Florida

4 to 6 ft. Vibrant shades of green become dull with age. Males have larger spines along back. Please DO NOT report.

Cuban Knight Anole

Image Courtesy of Bill Gaither

6 to 18 in. Changes from bright green to brown; yellow facial band. Please DO NOT report.

Quickly report all sightings
of chameleons, tegus, and monitors to:
888-Ive-Got1 or online at www.IveGot1.org

UF UNIVERSITY of FLORIDA
IFAS Extension

Design and production provided by University of Florida.

The ECISMA is a formal partnership among federal, state, and local government agencies, tribes, individuals, and various interested groups that manage invasive species in the Greater Everglades area.

For more information about invasive species in south Florida, upcoming FWC Nonnative Pet Amnesty Days, and tips on how you can help, visit:

EvergladesCISMA.org

Program Name: Outreach Support for Invasive Species Management in Florida
Project Name: **Public Outreach Project to Support Prevention Efforts**
Project ID: 4205
Lead Agency: University of Florida

Strategy and Biennial Report Objective Addressed: 3-D.1
Invasive Species Strategic Action Framework Goal: 1

Measurable Output(s): Website visits, social media followers, outreach products distributed, number of people reached at events and presentations

Project Synopsis: The goal of this project is to inform and engage the south Florida public in efforts to prevent the introduction of invasive exotic species. This project will increase the visibility of the "Don't Let It Loose" message by disseminating practical information related to responsible pet ownership and native plant landscaping. In addition, the project aims to raise awareness of management and regulatory approaches such as exotic species risk assessment, screening and inspection processes, and public declarations (e.g., Don't Pack a Pest). A redesigned, public-oriented dontletitloose.org website, strong social media presence, monthly blog, and events calendar will be used to disseminate information and promote existing prevention programs (e.g., Exotic Pet Amnesty, Don't Let It Loose activity guide). Face-to-face outreach will be conducted through event exhibits and group presentations, facilitated by the development of a "traveling trunk" of hands-on educational materials. Outreach products (brochures, stickers, etc.) will be developed and updated as needed.

The project is being conducted by outreach and human dimensions specialists at University of Florida's Fort Lauderdale Research and Education Center. As chairs of the Outreach Subcommittee of the Everglades Cooperative Invasive Species Management Area (ECISMA) from 2011 to 2013, we produced educational materials (e.g., fact sheets, identification guides, newsletters, bookmark, bumper sticker), coordinated outreach at community events, and conducted an assessment of needs and priorities for an ongoing collaborative outreach program.

Current Status: University of Florida has been coordinating invasive species outreach efforts since 2011 but has not yet received any external funding directed toward this purpose (with the exception of a small subaward for website redesign – see below).

Project Schedule:
Start Date: 2011
Finish Date: None

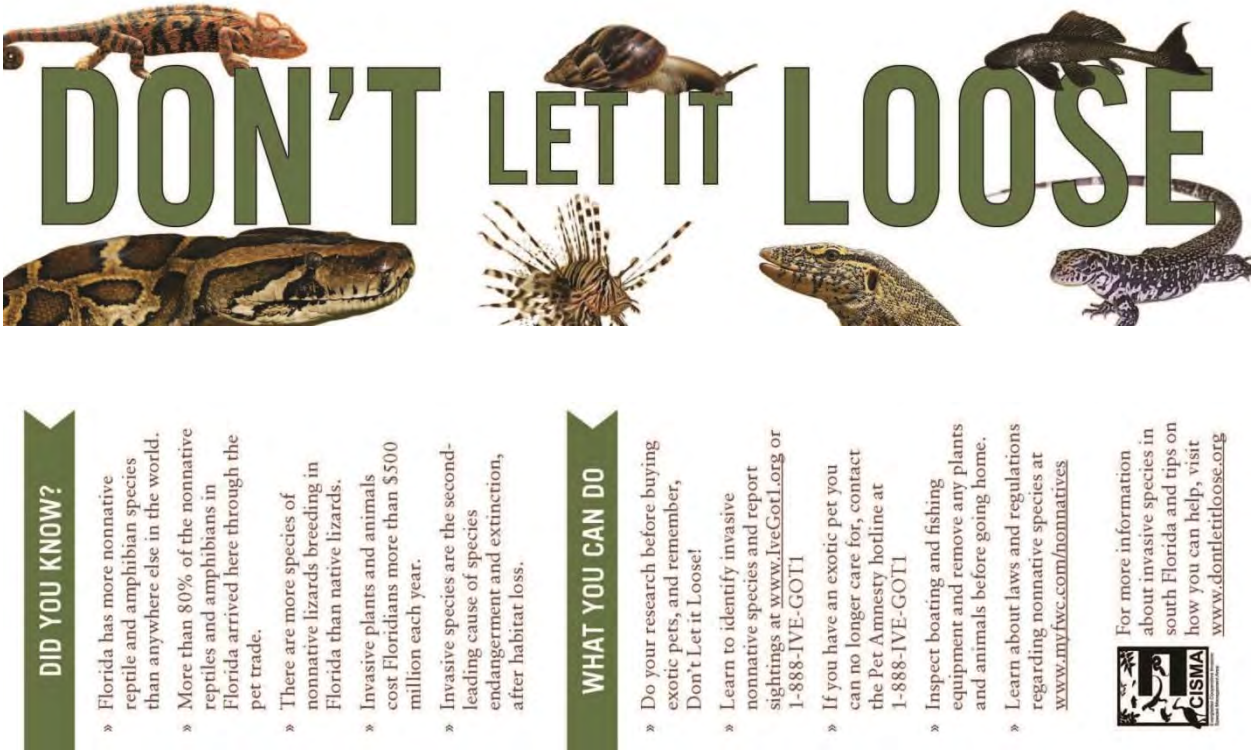
Detailed Project Budget Information
The budget includes salaries of an Environmental Education Coordinator and a Designer/Web Developer.

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$5,000						**$5,000**
SFWMD							
University of Florida	$15,000						**$15,000**
needed			$40,000	$40,000	$40,000	$120,000	**$120,000**
Total	**$20,000**	**$40,000**	**$40,000**	**$40,000**	**$40,000**	**$120,000**	**$150,000**

Contact: Frank Mazzotti, fjma@ufl.edu, 954-577-6338

Hyperlink: http://crocdoc.ifas.ufl.edu/

Pictures:



Project 4205 Public Outreach Project to Support Prevention Efforts Page 2 of 3

Project 4205 Public Outreach Project to Support Prevention Efforts Page 3 of 3

Program Name: FWC Nonnative Fish and Wildlife Program
Project Name: **Exotic Pet Amnesty**
Project ID: 4206
Lead Agency: Florida Fish and Wildlife Conservation Commission

Strategy and Biennial Report Objective Addressed: 3-D.1
Invasive Species Strategic Action Framework Goal: 1

Measurable Output(s): Since 2006, over 25 events have been held statewide, with over 1,800 animals surrendered.
Summary of the Exotic Pets Surrendered

	FY 12-13	FY 13-14	Totals
Pets Surrendered During Events	125	243	**368**
Surrendered Via Hotline	196	147	**343**
Total	321	390	**711**

Project Synopsis:
The Florida Fish and Wildlife Conservation Commission's Exotic Pet Amnesty Program is an innovative effort that provides exotic pet owners with an opportunity to surrender or re-home their exotic pet. The goals of the Exotic Pet Amnesty Program is to reduce the number of exotic pets released in Florida and provide amnesty for animals that require permits, including conditional species such as the Burmese python. The program also serves to provide education and outreach to regarding responsible pet ownership and exotic species in Florida. Initiated in 2006, The Exotic Pet Amnesty Program was started as periodic one-day events where citizens could come and surrender their exotic animals. Surrendered animals are examined by volunteer veterinarians and all healthy animals are held for adoptions during the same day event. These events were linked with multiple exhibitors providing people with the opportunity to learn more about exotic species and animal care. In later years, events were combined with existing festivals and outreach events. Avoiding the responsibility of long-term housing of the animals allows the Exotic Pet Amnesty Program to be successful with a low budget. This program also relies heavily on volunteers from outside organizations. This program has received national attention as in innovative way to prevent the unlawful release of nonnative animals into the wild.

Current Status:
Plans for 6 events a year are underway. Citizens can also call the 888-Ive-Got-1 hotline year round to surrender unwanted nonnative pets. Funding provided through a grant from Everglades National Park is supporting the program through 2015. Following the end of grant funding, FWC will be searching for additional partnerships to help support this program and staff.

Project Schedule:
Start Date: 2006
Finish Date: Not defined.

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$35,000	$35,000				16,000	**16,000**
State (FWC)	$30,000	$30,000	$38,000	$38,000	$38,000	$174,000	**$174,000**
Local							
Private Grants or Donations							
Total	$65,000	$65,000	$38,000	$38,000	$38,000	**$190,000**	**$190,000**

Contact: To surrender an animal or find out more about this program, call 888-IVE-GOT-1.

Hyperlink: http://myfwc.com/wildlifehabitats/nonnatives/amnesty-program/

Program Name: FWC Nonnative Fish and Wildlife Program
Project Name: **Exotic Species Reporting Hotline and Database Maintenance**
Project ID: 4207
Lead Agency: Florida Fish and Wildlife Conservation Commission

Strategy and Biennial Report Objective Addressed: 3-D.1 and 2-B.1
Invasive Species Strategic Action Framework Goal: 1, 2, 3 and 4

Measurable Output(s): Number of verified exotic reports that are placed into state Database (shared with partners). From reports back to the 1920's, the state database has over 30,000 verified nonnative species reports. During this reporting period, over 7,000 reports have been received including those from the hotline and EDDMapS.

Project Synopsis: FWC's Nonnative Fish and Wildlife Program uses sightings- many by the public- to determine if a new non-native species may have potential to reproduce and become established. FWC began manning the toll-free "IVEGOT1" hot line in 2011, a statewide expansion of the Python Patrol hot line for the Florida Keys. Hot line reports, combined with FWC and partner surveys and reports received from EDDMapS, has increased our collective knowledge of many otherwise unknown potential nonnative species issues, such as Argentine black and white tegu expansion and releases, monitor (*Varanus* spp.) distribution in Palm Beach, Broward, Miami-Dade, and Monroe counties, and more recently sightings of chameleon species in south Florida. The hotline also provides a way for the public to give up unwanted exotic pets through the Pet Amnesty program.

The FWC maintains a database that maps sightings of species and tracks trends in distribution. Records in this database come from direct observations; historical records from museums and other databases such as the Avian Knowledge Network (AKN) and the Christmas Bird Count (CBC); or from data sharing relationships with the Early Detection & Distribution Mapping System (EDDMapS) database, developed in 2005 by the University of Georgia's Center for Invasive Species and Ecosystem Health, and the U.S. Geological Survey's Nonindigenous Aquatic Species database.

Current Status: This program continues and will be funded particularly by a grant from the DOI Everglades National Park up to 2015. After the grant expires, the FWC will be looking at current budget and staffing to assume the full costs of the hotline.

Project Schedule:
Start Date: 2011
Finish Date: None

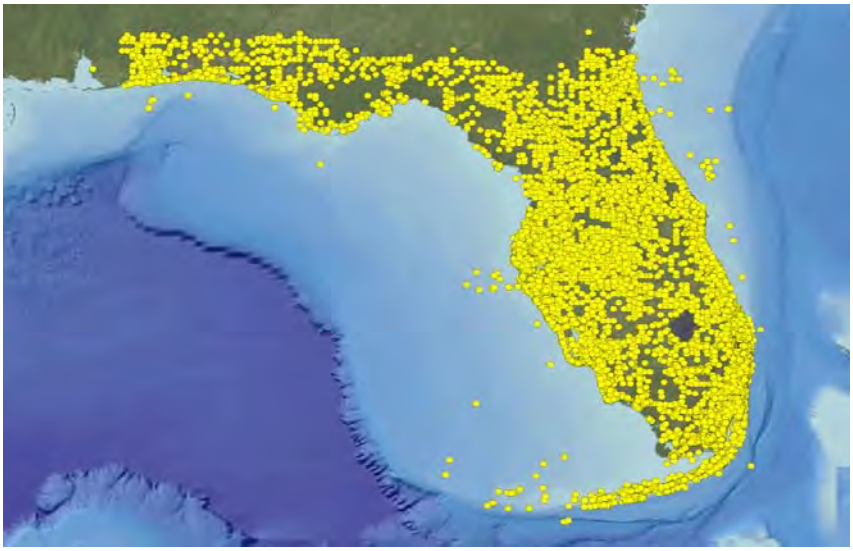
Detailed Project Budget Information
Budget includes the salary of a Wildlife Biologist(s) responding to the Hotline and the proportion of salary for the Program Database coordinator dedicated to verifying and updating the state database and coordination with other agencies. Currently, a grant from the Everglades National Park covers 20 hours/week salary and benefits of one scientist responding to the hotline.

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal (grant)	$30,000	$30,000				$60,000	**$60,000**
State Funds (FWC)	$50,000	$50,000	$80,000	$80,000	$80,000	$340,000	**$340,000**
Local							
Private Grants or Donations							
Total	**$80,000**	**$80,000**	**$80,000**	**$80,000**	**$80,000**	**$400,000**	**$400,000**

Contact: Kristen Penney Sommers, Section Leader,
Kristen.Sommers@MyFWC.com 850-488-3831
888-IVE-GOT-1

Hyperlink: www.MyFWC.com/nonnatives

Map of area:
Observation Reports 1924-April 2014. Almost 30,000 observations of nonnative fish and wildlife are part of the FWC database.



Program Name: Southwest Florida Cooperative Invasive Species Management Area (SWF CISMA)
Project Name: **Outreach and Educational Events**
Project ID: 4208
Lead Agency: SWCISMA

Strategy and Biennial Report Objective Addressed: 3-D.1
Invasive Species Strategic Action Framework Goal: 1, 2, 3 and 4

Measurable Output(s): Number of events attended; Number of people attended

Project Synopsis: The mission of this group is to coordinate and increase efforts between local, state and federal agencies and landowners of all sizes. The goal is to reduce the impact of or eliminate invasive, nonnative plants and nonnative animals by combining programs and resources to address invasive species on a landscape level to achieve common goals and objectives.

Goal 4 of the SWF CISMA Annual Workplan is to provide education, and informational exchange. The CISMA members attend at least seven local events annually. During these events, we host exhibits with live invasive plants and animals, as well as non-live materials people can handle and take with them. We use these opportunities to educate the public and especially youth about the differences between native and invasive species, the impacts invasive species have on our native wildlife and habitats and how the general public can help with monitoring and removing the spread of invasive species across Southwest Florida.

The CISMA also hosts an annual "Exotics Workshop" for agency and organization personnel as well as students and private landowners. This workshop provides an opportunity for people to learn current information on identification and treatment of invasive species in Southwest Florida. During this event we also provide a Python Handling Training for individuals who may be working with large constrictor snakes in the field. During the Fall of 2014, the CISMA will host its first Grass Identification Workshop to assist field personnel in identification of native and invasive grasses in Collier County.

The CISMA will be hosting its third Exotic Pet Amnesty Day within the geographic area of the CISMA. During this November, we will be working in conjunction with the Annual Florida Panther Festival. There will be a location for animal surrender and adoption, as well as a separate exhibit for education and "hands on" opportunities for Collier County residents.

Current Status:
2014: 13 Outreach Events planned, approximately, 3000 people reached
3 Professional Trainings/Workshops, approximately 300 professionals trained
1 Exotic Pet Amnesty Day, approximately 15-20 exotic animals surrendered and adopted out

Project Schedule:
Start Date: January 2014
Finish Date: January 2015

Detailed Project Budget Information

	2014[1]	2015	2016	2017	2018	Balance to Complete	Total
Federal	$5000						
SFWMD**							
NGO	$900						
Local	$2500						
Total	**$8,400**						

[1] Each of these categories is from a grant source. The money is tied to specific projects and/or goals of the CISMA. We may receive more in 2015, but it is more likely that we will just have what is left over after this year's expenditures.

Contact: Erin Myers: 239-370-6302; erin_myers@fws.gov
Christal Segura: 239-289-3310; ChristalSegura@colliergov.net

Hyperlink: www. FloridaInvasives.org/Southwest

Project Name: **ECISMA Outreach**
Project ID: 4209
Lead Agency: ECISMA

Strategy and Biennial Report Objective Addressed: 3-D.1
Invasive Species Strategic Action Framework Goal: 1, 2, 3 and 4

Measurable Output(s):
The number of Outreach Events Attended, Website/Social Media user metrics.

Project Synopsis: The objective is to inform the general public and environmental professionals about invasive species issues.

Current Status: ECISMA informs partners, colleagues and environmental professionals about invasive species issues through the annual Everglades Invasive Species Summit. Invasive species education efforts for the general public are realized through the ECISMA website and attendance at a limited number of outreach events.

Project Schedule:
Start Date: 2014
Finish Date: TBD

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal							
SFWMD**							
FWC							
Friends of ECISMA	$1,500	$10,000	$15,000	$20,000	$25,000	ongoing	**$71,500**
Local							
Total							**$71,500**

Contact: Erica Skolte, Ryan Steele, Dennis Giardina, Tony Pernas

Hyperlink: www.evergladescismna.org, www.friendsofecisma.org

Program Name: **"Travelers Pack a Don't Pest" Targeted Marketing**
Project ID: 4300
Lead Agency: Florida Department of Agriculture and Consumer Services Division of Plant Industry

Strategy and Biennial Report Objective Addressed: 3-D.2
Invasive Species Strategic Action Framework Goal: 1

Project Synopsis: For the past four years, the Travelers Don't Pack a Pest program (DPAP) has been funded by the USDA (Farm Bill and AQI) addressing strategies that prevent the introduction or spread of high-consequence pests into and around the United States, particularly in high-risk areas; develop people's knowledge of plant pests to strengthen the safeguarding system; and increase the number of people actively looking for and reporting high-consequence pests at vulnerable points along high-risk pathways.

The DPAP is a partnership with the USDA and U.S. Customs and Border Protection (CBP). The concept for the key components of the program (video and signage) is using a CBP detector dog to deliver the message … When You Travel, Declare Agricultural Items, Don't Pack a Pest.

Notable accomplishments of FY10-11, FY11-12, FY12-13, FY13-14 contracts have involved the production of a 60-second video, signage and promotional materials for multiple uses and broad distribution. Video is displayed on monitors in the passport control areas at 20 U.S. international airports through CBP's Model Ports Program with the potential to reach 85% of international travelers into the U.S. Video was also aired for over a year on American Airlines flights as part of the *NBC Universal American* programming. Over 350 signs are displayed at Miami International Airport, Fort Lauderdale/Hollywood International Airport, Port of Miami, Port Everglades, Orlando International Airport, two international airports and a cruise port in Jamaica, two airports and a cruise port in the Dominican Republic, ports of entry in San Juan, Puerto Rico and the U.S. Virgin Islands. Plans to launch the program in the Cayman Islands are set for July 2014. A survey of 480 international travelers at Miami International Airport was conducted to gauge travelers' awareness of the DPAP program. Results indicated that 39% of the travelers surveyed had seen the signs, and of those, 85% understood why it was important to declare agricultural items. The survey was repeated in September of 2013 and the program recognition had increased by 23%.

A DPAP website that will assist travelers determine if their agriculture items will be allowed entry into the U.S. is in the final design stages and will be launched in July 2014.

Over the four-year contract period, it is estimated that over 500 million eyes-on-impressions have been achieved through this outreach campaign.

Project Schedule:
Start Date: 9/1/2014
Finish Date: 8/31/2015

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal	$375,000	$410,666					
Total	**$375,000**	**$410,666**					

Contact: Dr. Greg Hodges, Assistant Director, Division of Plant Industry, Florida Department of Agriculture and Consumer Services.

Program Name: Everglades Cooperative Invasive Species Management Area (ECISMA)
Project Name: **ECISMA**
Project ID: 4301
Lead Agency: ECISMA

Strategy and Biennial Report Objective Addressed: 3-D.2
Invasive Species Strategic Action Framework Goal: 1, 2, 3 and 4

Measurable Output(s): Number of agencies involved; materials developed, website "hits"

Project Synopsis:
What is a CISMA? A Cooperative Invasive Species Management Area is a formal partnership of federal, state, and local government agencies, tribes, individuals and various interested groups that manage invasive species and is defined by a geographic boundary.

Why a CISMA in the Everglades? Florida has a long history of invasive species organization cooperation such as the Florida Exotic Pest Plant Council, Noxious Exotic Weed Task Team, Florida Invasive Animal Task Team and Invasive Species Working Group.
Everglades restoration poses new challenges for invasive species management and has created a need for a more defined commitment to cooperation among agencies and organizations at higher levels of policy and management.

What will the Everglades CISMA provide?
Everglades restoration will be enhanced by the establishment of a formal framework for staff and management cooperation among agencies and other coordinating bodies such as the South Florida Ecosystem Restoration Task Force, Working Group and Science Coordination Group.
An Everglades CISMA is needed to:

- Formalize areas of coordination and cooperation among agencies.
- Define specific geographical areas and prioritize species for Everglades restoration.
- Integrate coordination, control and management of invasive species at regional, multi-jurisdictional levels.
- Directly involve high-level policy makers and managers in Everglades invasive species coordination and areas of cooperation through a formal agreement.
- Be eligible for additional funding opportunities that are only available to CISMA-type organizations.
- Provide multi-organizational agreement and support toward the development of an Invasive Species Master Plan as part of CERP.
- Organize an Invasive Species Steering Committee to provide direction, coordinate actions and funding, and provide regular oversight and updates to the Invasive Species Master Plan.
- Resolve interagency coordination issues that require higher level management involvement (such as coordination of budget planning).
- Help ensure the success of Everglades restoration.

The mission of this group is to coordinate and increase efforts between local, state and federal agencies and landowners of all sizes. The goal is to reduce the impact of or eliminate invasive, nonnative plants and nonnative animals by combining programs and resources to address invasive species on a landscape level to achieve common goals and objectives.
Education and outreach will play a vital role in securing cooperation with public lands, private landowners, homeowners and visitors to the region.
Current Status: ongoing, several committees and EDRR and outreach activities. Has a friends group to help raise funding for EDRR activities.
Active website: http://www.evergladescisma.org/

Project Schedule:
Start Date: 2008
Finish Date: Ongoing

Detailed Project Budget Information

	2014[1]	2015	2016	2017	2018	Balance to Complete	Total
Federal							
SFWMD							
NGO							
Local							
Total	**TBD**						

Contact: **Dennis Giardina dennis.giardina@myfwc.com**
Tony Pernas tpernas.nps@gmail.com

Hyperlink: http://evergladescisma.org/

Program Name: Aquatic Nuisance Species Task Force
Project Name: **HABITATTITUDE**
Project ID: 4302
Lead Agency: U.S. Fish and Wildlife Service

Strategy and Biennial Report Objective Addressed: 3-D.2
Invasive Species Strategic Action Framework Goal: 1

Measurable Output(s):
A public awareness campaign that seek to eliminate the transfer and survival of any species outside of their enclosed, artificial system, which has the potential to cause the loss or decline of native plants and animals.

Educate and engage the public about becoming a responsible pet owner.

Project Synopsis:
Habitattitude ™ is a national public awareness campaign developed by the Aquatic Nuisance Species Task Force and its partner organizations. The U.S. Fish and Wildlife Service serves the lead federal agency for Habitattitude ™; with a significant support and involvement of the pet and aquarium trade and the nursery and landscape industry. In addition to the involvement of these industries, two key players are the National Sea Grant College Program and state fish and wildlife agencies.

Habitattitude ™ has been designed to unify all interested organizations and agencies who have a stake in protecting our aquatic resources and to leverage their participation in promoting an increased awareness of the growing aquatic invasive species challenge and responsible consumer behaviors to prevent their spread.

Current Status:
Currently funded by Congressional appropriation nationwide, though it is unknown the amount provided to the state of Florida. Are in the process of updating the website.

Project Schedule:
Start Date: TBD
Finish Date: TBD

Detailed Project Budget Information

	2014	2015	2016	2017	2018	Balance to Complete	Total
Federal							
SFWMD**							
Local							
Total							

Contact: John Galvez
Hyperlink: http://habitattitude.net/
Program Name: Southwest Florida Cooperative Invasive Species Management Area (SWF CISMA)

Project Name: **SWF CISMA**
Project ID: 4303
Lead Agency: Multiple

Strategy and Biennial Report Objective Addressed: 3-D.2
Invasive Species Strategic Action Framework Goal: 1, 2, 3 and 4

Measurable Output(s): Number of agencies involved; materials developed, website "hits"

Project Synopsis:

Cooperative Invasive Species Management Areas (CISMA) are derived from the same concept as Cooperative Weed Management Areas (CWMAs), which are common in the Western US. These partnerships are developed to unite federal, state, and local government agencies, tribes, private landowners and various interested groups under the common goal of managing invasive plants in a defined area. As many of us already know, invasive species know no boundaries, and as such, we must learn to work "across the fence" on both private and public lands to control these plants and animals.

Why is working across fences important? Florida is an inviting destination for invasive species that threaten to undermine the health of the state's fragile environment. Non-native plants and animals can greatly alter the native landscape, adversely impact native wildlife, destroy agricultural crops and threaten public health. Public and private land managers in Florida agree that invasive non-native species are a statewide problem with high ecological and economic costs.

Because invasive species are not confined by fences, property lines, or political boundaries, a cooperative approach is needed to connect private landowners and public land managers with invasive species expertise and assistance programs. All stakeholders, both public and private, can benefit from collaborative efforts to reduce the threat.

How can CISMAs help? They address concerns including prevention, education/awareness, early detection and rapid response to new threats or locations. They help with monitoring of existing invasive species, development of integrated pest management plans and determining success of management.

Cooperative Invasive Species Management Areas are an effective way to formalize partnerships among public and private entities working toward a common goal of increased awareness and effective prevention and control of invasive species. Currently in Florida, there are 17 active CISMAs, and these partnerships include participants from county and city governments (Alachua County, Collier County, Seminole County, Walton County, City of Gainesville), non- governmental organizations (The Nature Conservancy), private landowners, state government (Water Management Districts, FL Fish and Wildlife Commission, FL Department of Environmental Protection, FL Department of Transportation), and federal government (US Army Corps of Engineers, US Fish and Wildlife Service, USDA Natural Resources Conservation Service, USDA Wildlife Services). CISMAs are a mechanism for long-lasting cooperation and community awareness and involvement.

Southwest Cooperative Invasive Species Management Area (SWF CISMA) was founded in September 2008 after a long history of cooperative efforts on public and private lands in this region with many efforts that spilled over onto private lands. Lee, Collier, Charlotte, and Hendry county contain some of the most ecologically diverse and unique communities in North America. However, these same communities are threatened by a myriad of invasive nonnative plants and nonnative animal species, many of which are established, reproducing, and directly impacting native plant and wildlife populations along with reducing the value of areas for sustainable agricultural production. Early detection and repeated treatments across boundaries are needed, as two-thirds of the land is in private ownership adjacent to public lands. Exotic plant infestations on unmanaged lands serve as a constant seed and/or spore source to adjacent lands, as well as lowering the economic viability of these agricultural lands. Land management that works to include non-native invasive plant removal, in conjunction with prescribed burning, are two of the most important management techniques utilized in southwest Florida to improve, restore, and maintain healthy native habitats and retain productive agricultural lands.

The mission of this group is to coordinate and increase efforts between local, state and federal agencies and landowners of all sizes. The goal is to reduce the impact of or eliminate invasive, nonnative plants and nonnative animals by combining programs and resources to address invasive species on a landscape level to achieve common goals and objectives.

Education and outreach will play a vital role in securing cooperation with public lands, private landowners, homeowners and visitors to the region.

Current Status: Active Partners: USFWS, Collier County, Lee County, Florida Forestry Service, Florida DEP State Parks, City of Sanibel, UF IFAS, Charlotte County, FFWCC
website**: www.FloridaInvasives.org/Southwest**
Educational materials: CISMA brochure, Kids activity guide, "Don't Let it Loose" stickers and magnets, Kids interactive game: native and non-native species identification

Project Schedule:
Start Date: 2008 Finish Date: Ongoing

Detailed Project Budget Information

	2014[1]	2015	2016	2017	2018	Balance to Complete	Total
Federal	$5000						
SFWMD**							
NGO	$900						
Local	$2500						
Total	**$8,400**						

[1] Each of these categories is from a grant source. The money is tied to specific projects and/or goals of the CISMA. We may receive more in 2015, but it is more likely that we will just have what is left over after this year's expenditures.

Contact: **Erin Myers: 239-370-6302; erin_myers@fws.gov**
Christal Segura: 239-289-3310; ChristalSegura@colliergov.net

Hyperlink: www. FloridaInvasives.org/Southwest

COMPLETED PROJECTS

Program Name: Infrastructure
Project Name: **E&SF Critical Projects – East Coast Canal Structures (C-4)**
Project ID: 1406
Lead Agency: USACE / SFWMD
Authority: WRDA 1996

Strategic Plan Goal(s) Addressed: Primary: Other

Measurable Output(s): Water control structures

Project History: This project calls for the construction of a gated water control structure (S-380) on the C-4 canal in Dade County, Florida. This structure will be located immediately southeast of the Pennsuco Wetlands.

Project Synopsis: The purpose of the structure is to maintain stages to create and preserve wetlands as well as aquifer recharge.

Current Status: **COMPLETED 2003**

Cost: $3,737,000

Project Schedule:
Start Date: 1999
Finish Date: 2003

Detailed Project Budget Information (rounded):

East Coast Canal Structures (C-4)	Expenditures Thru FY2008
USACE	$1,901,000
SFWMD	$1,836,000
Total	**$3,737,000**

Hyperlink: http://www.saj.usace.army.mil/projects/proj1.htm

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Project Name: **C&SF: CERP L-31N (L-30) Seepage Management Pilot**
F/k/a *L-31N Seepage Management Pilot*
Project ID: 1416 (CERP Project WBS # 36)
Lead Agency: USACE / SFWMD
Authority: WRDA 2000 *(pilot project)*
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Primary: Other – supports 1-A.2 and 2-A.3

Measurable Output(s): Pilot *(output is temporary)*

April 1999 (Restudy) Project Synopsis: The purpose of the L-31N Levee Improvements feature is to reduce levee seepage flow across L-31N adjacent to Everglades National Park (ENP) via a levee cutoff wall. Additionally, the feature was designed to reduce groundwater flows during the wet season by capturing groundwater flows with a series of groundwater wells adjacent to L-31N, then back-pumping those flows to ENP. The pilot project for this feature is necessary to determine the appropriate technology to best control seepage from ENP. The pilot will also provide necessary information to determine the appropriate amount of wet season groundwater flow to return that will minimize potential impacts to Miami-Dade County's West Well field and groundwater flows to Biscayne Bay.

Current Project Synopsis: After further study of the L-31N site, it was determined that a seepage management feature at this location might be rendered obsolete with implementation of the full-scale ENP Seepage Management project. The USACE Jacksonville District proposed further study for a feature located along a portion of the L-30 levee, north of U.S. Highway 41, in Miami-Dade County, Florida. The change in study area was endorsed by the Quality Review Board (October 2005). As a follow up, the Jacksonville District requested official approval to prepare a Pilot Project Design Report (PPDR) for the L-30 site, from the USACE South Atlantic Division (SAD).

The L-31N (L-30) Seepage Management Pilot Project will help resolve critical uncertainties associated with seepage management. These include the characterization of the Biscayne Aquifer hydrodynamics, constructability in south Florida geology, reliability of materials and technologies, implementability of a seasonally flexible operating system, appropriateness of monitoring to evaluate effects on seepage, and cost and time requirements necessary for implementation. The pilot will also help answer questions on overall effectiveness of seepage management technologies. The recommended plan will test structural seepage reduction technologies and ability to seasonally manage seepage flows through pumping operations with the use of extraction and injection wells. Field tests, seepage reports and historical data independently showed that this is one of the most transmissive parts of the Biscayne Aquifer.

Current Status: A detailed monitoring plan has been developed to determine the effectiveness of the seepage management system. In December 2008, intermediate plans and specifications were reviewed by the SFWMD. Independent Technical Review and public and agency review of the draft Pilot Project Design Report (PPDR) were completed by January of 2009. Following Independent External Peer Review in March, the PPDR was approved by the Assistant Secretary of the Army for Civil Works in November 2009. Monitoring will be completed in 2012 at which time a Technical Data Report will be released with the baseline monitoring findings.

Est. Cost: $ 16,161,976

Project Schedule:
2012 Baseline groundwater monitoring complete

Detailed Project Budget Information (rounded):

L-31N (L-30) Seepage Management Pilot	**Obligations Thru FY 2013**
USACE	$6,695,115
SFWMD	$1,416,020
Total	$8,111,135

Hyperlink: http://www.evergladesplan.org/pm/projects/proj_36_l31n_seepage.cfm

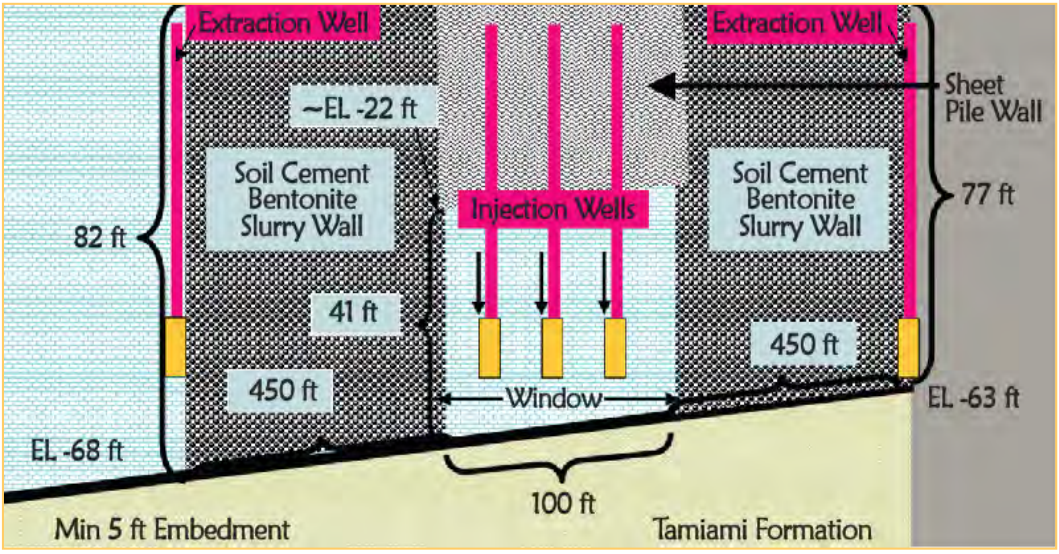
Contact: Michael Collis, Chief, Everglades Section, USACE
Michael.J. Collis@usace.army.mil

Matt Morrison, Project Manager, SFWMD
mjmorris@sfwmd.gov

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Actual expenditures include all federal expenditures through FY11 and sponsor verified and recorded in kind credit through 4th quarter FY11. Schedule is updated based on the approved *Integrated Delivery Schedule Through 2020.*

Additional Information: *(see next page)*

UNDER GROUND VIEW



Project Name: **C&SF: CERP Lake Okeechobee Aquifer Storage and Recovery Pilot**
Lake Okeechobee ASR Pilot [Kissimmee River ASR (KRASR); Port Mayaca ASR (PMASR)]
Project ID: 1418 (CERP Project WBS # 32)
Lead Agency: USACE / SFWMD
Authority: WRDA 1999; WRDA 2007 *(modified cost)*
As part of the "Hillsboro and Okeechobee Aquifer, Florida" project
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Other - supports 1-A.2

Measurable Output(s): Data and analysis acquired during operational testing.

April 1999 Project Synopsis: The pilot project is necessary to identify the most suitable sites for the aquifer storage and recovery (ASR) wells in the vicinity of Lake Okeechobee and to identify the optimum configuration of those wells. Additionally, the pilot will investigate changes to water chemistry resulting from aquifer storage and determine specific water quality characteristics of water to be injected and the water quality characteristics and amount of water recovered from the aquifer. Further information from the pilot project will provide the hydro-geological and geotechnical characteristics of the upper Floridan Aquifer System within the region and the ability of the upper Floridan Aquifer System to maintain injected water for future recovery.

Current Project Synopsis: The initial pilot project consisted of up to five ASR systems, each with one or more ASR wells having an estimated capacity of five million gallons per day (mgd) per well. Three of the ASR systems would be located spatially around Lake Okeechobee to demonstrate ASR performance in geographically different areas: at Moore Haven, Okeechobee (Kissimmee River), and Port Mayaca.
The wells will be used to recharge and recover surface water from the Lake and/or its tributaries. Extensive water quality characterization and pilot treatment testing takes place during the permitting and design phase. Once constructed, the Lake Okeechobee ASR pilot project systems (Kissimmee River and Port Mayaca locations) will be cycle tested to evaluate their ability to achieve assumed water quality and volumetric levels of performance, and recommendations for facility expansion. Well sites are as follows:

Port Mayaca: site includes the construction of three ASR wells and multiple monitoring wells
Kissimmee: site includes the construction of one ASR well and multiple monitoring wells
Moore Haven: site includes the construction of one ASR well and multiple monitoring wells

WRDA 1999 authorized the project described in the Chief's Report for the *Hillsboro and Okeechobee Aquifer Project* for aquifer storage and recovery described in the U. S. Corps of Engineers Central and Southern Florida Water Supply Study, Florida, dated April 1989, and in House Document 369, dated July 30, 1968. This project was refined during the Pilot Project Design Report (PPDR) completed in September 2004.

WRDA 2007 amended WRDA 2000 by adding the "Hillsboro and Okeechobee Aquifer, Florida" project(s) are to be treated "in the Plan", except that operation and maintenance costs of the project shall remain a non-Federal responsibility. WRDA 2007 section 6001 also modified WRDA 1999 and authorized the Secretary to carry out the project for aquifer storage and recovery, Hillsboro and Okeechobee Aquifer (WBS #32 and #34) at a total cost of $42,500,000 combined.

Exploratory wells around Lake Okeechobee obtained preliminary lithologic, geophysical, and hydrogeological data. Results have been incorporated into the PPDR that now includes all three pilot projects [Lake Okeechobee, Hillsboro, and Caloosahatchee River (C-43)].
Installation of this pilot's Kissimmee River ASR facility was completed in 2008. Preliminary operational testing for state and federal regulatory compliance was completed at the end of December 2008.

Current Status: The ASR system planned for Moore Haven was cancelled in 2005. The three-well ASR system was planned and designed for Port Mayaca was never constructed. Operational testing at Kissimmee River ASR was completed successfully in 2013. The Lake Okeechobee ASR Pilot Project Technical Data Report was completed and reviewed in 2013. The Lake Okeechobee ASR facility was transferred in December 2013. The Lake Okeechobee ASR Pilot Project is complete.

Est. Cost: $ 23,339,403

Project Schedule:

2001	Start
2009	Cycle testing began
2013	Cycle testing ends
2013	Technical Data Report completed and reviewed.

Detailed Project Budget Information (rounded):

LOW ASR	Obligations Thru FY 2013
USACE	$19,113,521
SFWMD	$4,225,945
Total	**$23,339,466**

Hyperlink: http://www.evergladesplan.org/pm/projects/proj_32_lake_o_asr_pilot.cfm

Contact: April Patterson, Project Manager, Everglades Section, USACE
April.N.Patterson@usace.army.mil

Bob Verrastro, Lead Hydrogeologist, SFWMD
bverras@sfwmd.gov

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Current status is provided by the project manager. Cost estimate information is updated to reflect current price levels in October 2010 dollars. Actual expenditures include all federal expenditures through FY11 (Sept, 2010).

Additional Information: (see next pages)

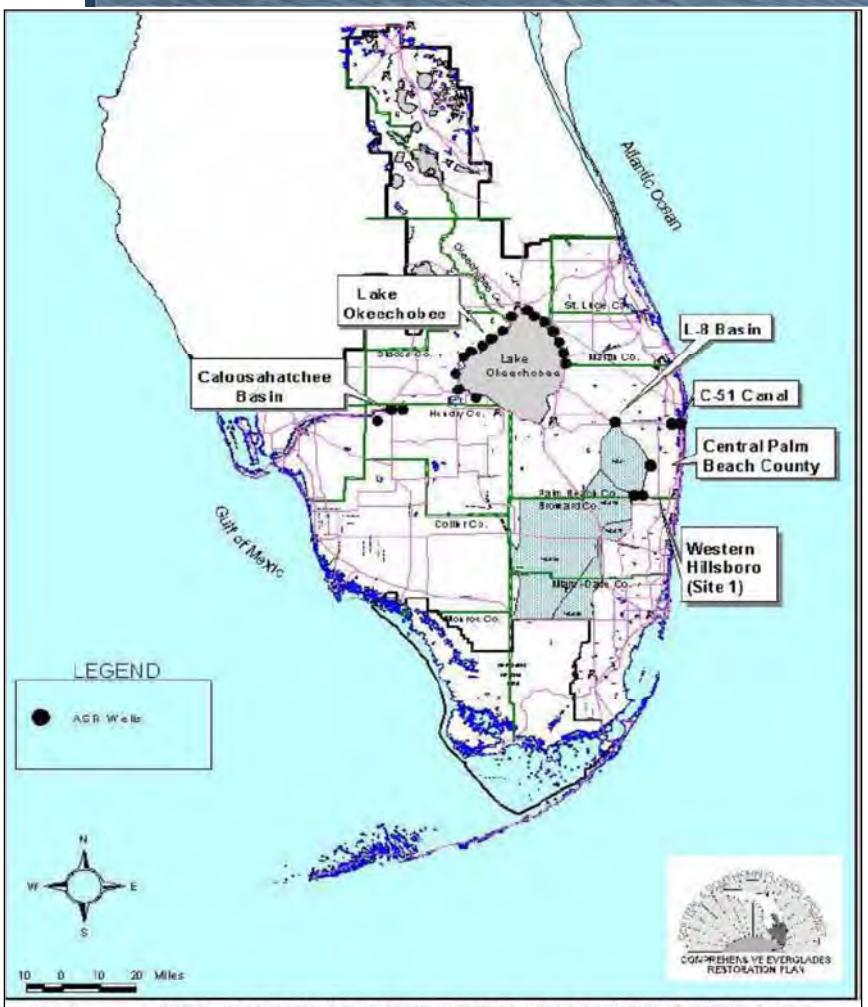


Figure 1. Proposed ASR Systems in the Compresensive Everglades Restoration Plan

Project 1418 C&SF: CERP Lake Okeechobee Aquifer Storage and Recovery Pilot Page 3 of 3

Program Name: Infrastructure
Project Name: **C&SF: Indian River Lagoon Feasibility Study**
Project ID: 1428
Lead Agency: USACE / SFWMD
Authority: WRDA 1996

Strategic Plan Goal(s) Addressed: Other supports 3-C.1

Measurable Output(s): Reports

Project History: The purpose of the study is to investigate making structural and operational modifications to the C&SF Project to improve the quality of the environment, improve protection of the aquifer, and improve the integrity, capability, and conservation of urban and agricultural water supplies and other water related purposes. The product of this study is a regional plan for addressing the water resource problems and opportunities of the St. Lucie River and Estuary and Indian River Lagoon watersheds in Martin and St. Lucie Counties.

Project Synopsis: The initial Indian River Lagoon South Feasibility Study was completed in October 2002 and a Project Implementation Report was completed in March 2004.

Current Status: COMPLETED 2002

Est. Cost: $6,150,000

Project Schedule:
1996 Start
2002 Completed

Detailed Project Budget Information (rounded):

	Total Expenditures
USACE	$3,075,000
SFWMD	$3,075,000
Total	**$6,150,000**

Hyperlink: http://141.232.10.32/pm/studies/irl_south.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE
Jeffery.D.Couch@usace.army.mil

Program Name:	Infrastructure
Project Name:	**State Project Includes Everglades Agricultural Area (EAA) Stormwater Treatment Areas (STAs) Expansion** (Project is being implemented as part of the Long-Term Plan for Achieving Everglades Water Quality Goals [Long-Term Plan])
Project ID:	1514 A
Lead Agency:	SFWMD
Authority:	Everglades Forever Act (EFA)
Funding Source:	State – Long-Term Plan funds

Strategic Plan Goal(s) Addressed: Primary: 1.B.1

Measurable Output(s): ~18,000-acre STA expansion, water quality, phosphorus reduction

Project Synopsis: This SFWMD project, which was implemented as part of the Long-Term Plan, expanded the size and enhanced the performance of existing Stormwater Treatment Areas created as part of the Everglades Construction Project. These constructed wetlands naturally reduce stormwater runoff pollution levels flowing from the Everglades Agricultural Area before entering the Everglades. This Project added approximately 18,000 acres of additional treatment area to the existing Everglades Agricultural Area Stormwater Treatment Areas (EAA STAs). The expansions were built in Compartment B, an approximately 9,500-acre parcel of land located in southern Palm Beach County, and Compartment C, an approximately 8,800-acre parcel of land located in eastern Hendry County.

The first phase of implementation was the EAA STA Initial Expansion Projects which involved expanding STA-2 into Compartment B to construct cell 4, expanding STA-5 into Compartment C to construct flow way 3, and STA 6 into section 2. Phase 1 became flow capable on December 31, 2006. The second phase of implementation, the EAA STA Compartment B and Compartment C Build-out Projects, involved STA construction in the remaining areas of Compartment B and Compartment C. The second phase is now complete.

Current Status: Construction of the initial phases of EAA Compartments B and C STAs and the C-139 Annex Pump Station are complete.
Construction of Compartment C pump station G-508 and Compartment B pump stations G-434, G-435, and G-436 started in September 2009 and are complete.
Flow capable status was achieved by December 2010 for EAA Compartments B and C Build-out STAs.
EAA Compartments B and C Build-out STAs civil works construction was completed in 2011.
Permanent pump stations G-434, G-435, G-436 and G-508 are complete.
Construction to regrade a portion of Cell 8 in STA2 was completed in June 2014.

Total Estimated Project Cost: $334,499,557
Construction Start Date: April 2009, Compartment C; June 2009, Compartment B
Scheduled Project Completion Date: December 2010 (Flow-Capable), June 2012 (Pump Stations)

Actual Expenditures to date by SFWMD:
*Updated through May 2, 2012

	2009	2010 *	2011	2012 (as of 5/02/12)	2013	2014	Total
SFWMD	$121,281,275	$100,085,464	$100,191,267	$12,940,551	$471,000	$612,610	$335,583,167

Hyperlink:
http://my.sfwmd.gov/portal/page/portal/pg_grp_sfwmd_sfer/portlet_prevreport/2011_sfer/v1/chapters/v1_ch8.pdf

Contact: Alan Shirkey, SFWMD

G-434 Pump Station – Compartment B Inflow Pump Station to Cells 4, 5 & 6

G-436 Pump Station – Compartment B Outflow Pump Station Cell 4, 5, 6, 7, & 8

G-508 Pump Station – Compartment C Inflow Pump Station

Program Name: Restoration Program: Hydrological Restoration, Water Quality
Project Name: **Chapter 298 Districts/Lease 3420 Improvements**
Project ID: 1700
Lead Agency: South Florida Water Management District
Authority: Florida's Everglades Forever Act

Strategic Plan Goal(s) Addressed: Getting the Water Right

Measurable Output(s): Extent of reduction of total phosphorus entering Lake Okeechobee.

Project Synopsis: South Florida Water Management District funded works of the Chapter 298 District (East Beach Water Control District, East Shore Water Control District, South Shore Drainage District and South Florida Conservancy District) for the design and construction of these diversion works as described in the Everglades Forever Act. South Florida Water Management District also funded works of the Lessee of Lease No. 3420 (Closter Farms) for the design and construction of diversion works described in the Everglades Forever Act. The primary objective of these improvements is to reduce total phosphorus loads discharged directly to Lake Okeechobee. **All projects are complete and are in operation.**

*** Cost (Estimate):** Total: $ 24,115,521
(1) Project Development: $ 779,995
Land Acquisition: $ -
(2) Implementation: $ 23,335,526
Operations and Maintenance:$ -

Project Schedule: Completion Date:September 2005

	FY 1994 - FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010 - FY 2016
Project Development						
Implementation						

*** Detailed Project Budget Information**

	Actual FY 1994-05	Projected FY 2006	Projected FY 2007	Projected FY 2008	Projected FY 2009	Balance to complete	Total
Federal							
State	$24,115,521	-	-	-	-	-	$24,115,521
Other							
Total	$24,115,521	-	-	-	-	-	$24,115,521

(1) Cost data reflects actual inception-to-date expenditures through September 30, 2005 and current preliminary cost estimate projections.
(2) Project Development includes Design Phase [contracts & staff costs] costs.
(3) Implementation includes all Construction [contracts & contingency] and Construction Management [contracts & staff costs] costs.

Contact: Steve Poonaisingh

Program Name: Infrastructure
Project Name: **E&SF: Critical Projects - Western C-11 Water Quality Treatment**
Project ID: 1703
Lead Agency: USACE / SFWMD
Authority: WRDA 1996
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Other

Measurable Output(s): Gated spillway structure; pump station

Project History: Construction of a 500-cfs seepage pump station (S-9A) and spillway (S-381) in Canal C-11 will separate clean seepage from urban run-off waters and pump the clean water back into Water Conservation Area 3A.

Project Synopsis: The purpose is to improve the quality and timing of stormwater discharges to the Everglades Protection Area from the Western C-11 Basin located in south central Broward County. The S-9 pump station pumped untreated urban and agricultural stormwater runoff from the Western C-11 Basin directly into Water Conservation Area 3A. The project involved construction of a gated control structure on C-11 to divide western seepage waters (i.e., clean water) from the eastern runoff waters in C-11 canal (i.e., polluted water) and construction of an additional pumping station adjacent to S-9 to pump clean seepage back into the Everglades Protection Area. Both features will be remotely controlled using sponsor-installed telemetry.

Construction of pump station S-9A was completed in August 2002. The initial audit of original construction contract termination for spillway S-381 was completed in September 2003. The second audit phase began in February 2004. Construction of a re-designed spillway (S-381) was completed in 2005. The Obermeyer construction contract has been in the closeout phase.

Current Status: **COMPLETED 2006**

Est. Cost: $ 18,066,000

Project Schedule:
1997 Start
2006 Finish

Detailed Project Budget Information (rounded):

Western C-11 Water Quality Treatment	Expenditures Thru FY2009
USACE	$9,247,498
SFWMD	$9,247,498
Total	$18,494,996

Hyperlink:
Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Actual expenditures include all federal expenditures through FY09 (Sept, 2009) and sponsor verified and recorded in kind credit through 4th quarter FY07.

Program Name: Infrastructure

Project Name: **Everglades National Park Water and Wastewater**
Project ID: 1705
Lead Agency: National Park Service

Strategic Plan Goal(s) Addressed: Primary: Other

Measurable Output(s): Number of water and wastewater systems that are rehabilitated or replaced

Project Synopsis: This project will rehabilitate or replace 28 water and wastewater systems in two districts of Everglades National Park. A large percentage of the existing water and wastewater systems within the park were constructed over 35 years ago when the public health and environmental standards were not as fully evolved as they are today. While originally constructed to code, all of the systems are in non compliance with environmental regulations and standards for operating a public water supply. This rehabilitation effort would modify or replace all of the existing systems with new systems that offer the full level of public health and environmental protection that present day standards require. The final result will be potable water systems properly designed to provide safe, clean water and wastewater that is sufficiently treated to fully protect the fragile water resources within Everglades National Park. **This project has been completed.**

Cost:
Total
$18,965,000

Project Schedule:
Start Date: 1997
Finish Date: 2006

	1997	1998	1999	2000	2001	2002	2003	2004
Construction								

Detailed Project Budget Information ($1,000)

	Thru 1999	**2000**	**2001**	**2002**	**2003**	**2004**	**Balance to complete**	**Total**
Federal	3,516	1,894	2,883	4,192	4,594	286	1,600	18,965
State								
Tribal								
Local								
Other								
Total	**3,516**	**1,894**	**2,883**	**4,192**	**4,594**	**286**	**1,600**	**18,965**

Hyperlink: **N/A**
Contact: Michael Jester

Program Name: Restoration Program: Water Quality, Habitat & Species
Project Name: **Lake Okeechobee Sediment Removal Feasibility Study and Pilot Project**
Project ID: 1708
Lead Agency: South Florida Water Management District
Authority: Chapter 373, Florida Statutes
Funding Source:

Strategic Plan Goal(s) Addressed: Other

Measurable Output(s): Recommendation Regarding Sediment Removal from Lake Okeechobee

Project Synopsis: The goal of this project was to analyze alternatives and determine the best method of sediment management to reduce internal phosphorus loading in Lake Okeechobee. The Feasibility Study addressed alternatives such as sediment removal, processing, disposal, chemical treatment, and/or sealing sediment to achieve the project goal. The goal of the Feasibility Study was achieved using an objective methodology that allowed for review and input by experts and stakeholders throughout the study process. A pilot test of a state-of-the-art sediment removal/treatment technology train was conducted in parallel with the Feasibility Study. The pilot test included sediment removal, de-watering, treatment, and a pilot water quality treatment system. The results of the pilot test were incorporated into the Feasibility Study.

The results for the feasibility study indicated that once the TMDL is met the annual frequency of algal blooms would decrease to below a 15% annual probability of a bloom occurrence (from a current annual likelihood of approximately 20%) by 2015 and 10% by 2028. Under this "no in-lake action" alternative, steady-state lake recovery conditions would be achieved approximately 35 years from the point that external loads are reduced to the inflow load of 140 metric tons. Dredging did not prove feasible, while chemical treatment might be of value under limited conditions.

Cost:

Total		$955,069
Project Development		$955,069
Land Acquisition	N/A	
Implementation		N/A
Operations and Maintenance		N/A

Project Schedule:
Start Date: 6/1/00
Finish Date: 6/1/03 (**Completed 04/03**)

Detailed Project Budget Information ($1000)

	Thru 1999	2000	2001	2002	2003	Balance to complete	Total
State		0	287.5	280.8	386.7		955.1
Tribal							
Local							
Other							
Total			**287.5**	**280.8**	**386.7**		**955.1**

Hyperlink: N/A
Contact: Don Nuelle

Program Name: Restoration Program: Water Quality, Habitat & Species
Project Name: **Lake Okeechobee Tributary Sediment Removal Pilot Project**
Project ID: 1709
Lead Agency: South Florida Water Management District
Authority: Chapter 373, Florida Statutes
Funding Source: SFWMD Ad Valorem; EPA 319

Strategic Plan Goal(s) Addressed: Other

Measurable Output(s): Reduction in phosphorus loads from the Lettuce Creek drainage basin to Lake Okeechobee.

Project Synopsis: This project provides a direct comparison between two sediment removal technologies, namely, a continuous deflective separation (CDS) unit and a tributary sediment trap (TST) to determine if particulate phosphorus loading to Lake Okeechobee from Lettuce Creek drainage basin may be reduced using either of two pre-selected technologies. This project also examines the feasibility of sediment removal in a tributary as a method of reducing phosphorus loading to Lake Okeechobee. The effectiveness of the two technologies is being evaluated over a 12-month monitoring period. Initial monitoring results have indicated poor removal efficiencies for phosphorus by both units. Upon evaluation of the physical characteristics of the particles in the Lettuce Creek water, it was hypothesized that the settling velocities of the particles are too slow to allow capture of the particulate phosphorus within the relatively short residence times provided by the two units. Additional sediment management techniques are being investigated to examine if the effectiveness of these units can be improved by enhancing the settling velocity of the particles. The effectiveness of each system will be quantified using both a concentration-based and mass balance approach. The economic viability of each technology will be evaluated by comparing the present worth cost (20-yr) per kilogram of sediment and phosphorus removed by each system. If one of the tested sediment trap methods is found effective, landowners in the watershed will be encouraged to use it. The District will also use the technology wherever possible on District facilities. **This project has been completed.**

Cost:
Total
$440,000
Project Design (Phase I)
$93,728
Construction, Installation and Calibration of Monitoring Instruments (Phase II) $210,940
Post Sediment Removal Monitoring and Measuring Effectiveness of the Project (Phase III)$135,332

Project Schedule: Start Date: October 2000Completion Date: June 2004

	10/2000	08/2001	01/2002	04/2002	05/2002	06/2004
Project Design						
Construction and Installation						
Monitoring and Project Evaluation						

Detailed Project Budget Information ($1000)

	2000-2001	**2001-2002**	**2002-2003**	**2003-2004**	**Balance to complete**	**Total**
Federal EPA	59.5	87.1	23.4			170
State SFWMD	71	136.6	42.4	20		270
Total	**130.5**	**223.7**	**65.8**	**20**		**440**

Contact: Odi Villapando

Program Name: Restoration Program: Hydrological Restoration, Water Quality
Project Name: **S-5A Basin Runoff Diversion Works**
Project ID: 1713
Lead Agency: South Florida Water Management District
Authority: Florida's Everglades Forever Act

Strategic Plan Goal(s) Addressed: Getting the Water Right

Measurable Output(s): Reduce phosphorus levels before it enters the Everglades Protection Area (EPA).

Project Synopsis: S-5A Basin Runoff Diversion Works is located in western Palm Beach County at the confluence of the Hillsboro and Ocean Canals in the Everglades Agricultural Area (EAA). The project diverts flow from the S-5A Basin into STA-2 for treatment. This project included enlargement of approximately 17 miles of the Hillsboro and Ocean Canals in approximately 2001 and the construction of a water control structure (G-341) which was completed in June 2005.

*** Cost (Estimate):** Total: $ 14,233,758
(1) Project Development: $ 408,815
Land Acquisition: $ 1,902,688
(2) Implementation: $ 11,298,233
Operations and Maintenance:$ 624,022

Project Schedule:
Completion Date: June 2005

	FY 1994 - FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010 - FY 2016
Project Development						
Land Acquisition						
Implementation						
Operations and Maintenance						

*** Detailed Project Budget Information**

	Actual FY 1994-05	Projected FY 2006	Projected FY 2007	Projected FY 2008	Projected FY 2009	Balance to complete	Total
Federal							
State	$13,536,252	$49,892	$51,387	$53,314	$54,913	$488,000	$14,233,758
Tribal							
Local							
Other							
Total	$13,536,252	$49,892	$51,387	$53,314	$54,913	$488,000	$14,233,758

(4) Cost data reflects actual inception-to-date expenditures through September 30, 2005 and current preliminary cost estimate projections.
(5) Project Development includes Design Phase [contracts & staff costs] costs.
(6) Implementation includes all Construction [contracts & contingency] and Construction Management [contracts & staff costs] costs.

Contact: Steve Poonaisingh
Program Name: Surface Water Management

Project Name: **Seminole Tribe Best Management Practices for the Big Cypress Reservation**
Project ID: 1714
Lead Agency: Seminole Tribe of Florida
Authority: Tribal Council Resolution

Strategic Plan Goal(s) Addressed: Other

Measurable Output(s):
The project will result in immediate, measurable improvements in the quality of water discharged to the Everglades Protection Area. It will also provide tangible improvement of the water quality leaving the Western Basins, an area not addressed completely by the Everglades Construction Project and the Everglades Forever Act.

Project Synopsis:
The Seminole Tribe has contracted with the NRCS to implement a comprehensive system of best management practices (BMP's) for all seven basins in the Big Cypress Reservation through the EQUIP program. Enhanced water management will be accomplished through BMP's that include: conservation irrigation systems; nutrient loading reduction; application procedure training; fencing of WRA's and irrigation cells as detailed in the Water Conservation Plan; cross fencing for grazing management; livestock watering facilities; grazing management plans; closed-end irrigation systems; and will function independently of the Water Conservation Project, the two will work best together to create the most benefit for the ecosystem.

Current Status:

Grazing Management Plans are complete. Interior fence installation is complete as well as 18 solar panel and pump systems. All BMP projects were completed.

Cost:
Total: $4,779,000
Project Development:
Land Acquisition:
Implementation:
Operations and maintenance:

Project Schedule:
Start Date: June 1996
Finish Date: September 2015

Detailed Project Budget Information ($1000)

BMP BC	Total thru '13	Balance to complete	Total
Federal	3,584.1	0	3,584.1
State			0
Tribal	1,114.75	79.95	1,194.7
Total	**4,698.85**	**79.95**	**4,779.0**

Project sheet updated in 2014.

Contact: Cherise Maples, Director
Environmental Resource Management Department
Seminole Tribe of Florida

Program Name: Infrastructure
Program Name: Surface Water Management
Project Name: **Seminole Tribe Best Management Practices for the Brighton Reservation**
Project ID: 1715
Lead Agency: Seminole Tribe of Florida
Authority: NRCS EQIP Program/Tribal Council Resolution

Strategic Plan Goal(s) Addressed: Other

Measurable Output(s):
Implementation of BMP's will provide immediate water quality benefits for the watershed which includes Lake Okeechobee. They will also compliment a comprehensive system of surface water management works planned for the Brighton Reservation.

Project Synopsis:
The Seminole Tribe has contracted with NRCS to design a comprehensive system of best management practices (BMP's) for the Brighton Reservation. Enhanced water management will be accomplished through application of field-level BMP's which might include: conservation irrigation systems; nutrient loading reduction; application procedure training; cross-fencing for grazing management; livestock watering facilities; grazing management plans; closed-end irrigation systems; and a tail-water recovery system where appropriate.

Current Status:
The plan was completed in 2002. Conservation irrigation systems, livestock watering facilities, closed-end irrigation systems have been established. Monitoring results show reduction in nutrient loads. Solar panels (22) and pump systems were recently installed. Project is complete.

Cost:
Total
$374,000
Project Development
Land Acquisition
Implementation
Operations and maintenance

Project Schedule:
Start Date: January 1998
Finish Date: September 2012

Detailed Project Budget Information (1000s)

BMP Brighton	Total thru '13	Balance to complete	Total
Federal	289.5	0	289.5
State			0
Tribal	84.5	0	84.5
Total	**374**	**0**	**374**

Contact: Cherise Maples, Director
Environmental Resource Management Department
Seminole Tribe of Florida

Program Name: Surface Water Management
Project Name: **Seminole Tribe Comprehensive Surface Water Management System for the Brighton Reservation**
Project ID: 1716
Lead Agency: Seminole Tribe of Florida
Authority: Tribal Council by Resolution

Strategic Plan Goal(s) Addressed: Other

Measurable Output(s): This plan would provide positive water management benefits to the Indian Prairie Basin which discharges into Lake Okeechobee. Water quality will be improved by reducing nutrient loadings through detaining discharges from Tribal lands in each group. Flood control will be enhanced through the implementation of additional sites in each sub-basin. Storage and conveyance of surface waters will be increased and enhanced in each and between sub-basins. Re-hydration of slough systems in each group will also be accomplished.

Project Synopsis: A comprehensive surface water management system will be designed and implemented for the Brighton Reservation which will include supplemental irrigation, storage, improved flood control, surface water conveyance and water quality treatment.

Current Status:

Complete

Cost: $15,818,000

Project Schedule:
Start Date: 1999
Finish Date: 2010

Detailed Project Budget Information (1000s)

	2004	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**Balance to complete**	**Total**
Federal	20	4,344	970	679	853	853	655	0	8,374
State									0
Tribal	0	4,343	970	679	852	426	174	0	7,444
Total	**20**	**8,687**	**1,940**	**1,358**	**1,705**	**1,279**	**829**	**0**	**15,818**

Contact: Cherise Maples, Director
Environmental Resource Management Department
Seminole Tribe of Florida

Program Name: Surface Water Management
Project Name: **Seminole Tribe Water Conservation Project for the Big Cypress Reservation**
Project ID: 1717
Lead Agency: Seminole Tribe of Florida
Authority: Tribal Council Resolution/ USDA PL-53-866

Strategic Plan Goal(s) Addressed: Other

Measurable Output(s):
This network of surface water management structures will produce the following substantial restoration, preservation, and protection benefits and will do so immediately and independently of the completion of any other projects:

Remove phosphorus and other pollutants from water leaving the Reservation and flowing to the Big Cypress National Preserve into Mullet Slough to the Everglades Protection Area. The removal of these pollutants will be achieved using natural treatment processes in pretreatment cells and water resource areas (WRA's). Unlike the stormwater treatment areas in the Everglades Construction Project, the Tribe's WRA's will take advantage of the natural treatment processes and will serve additional functions of water storage and conveyance.

Rewater the Big Cypress National Preserve. This project will provide the opportunity to restore more natural hydroperiods in the Big Cypress National Preserve. The clean water sent in a sheetflow over the Preserve and into Mullet Slough will improve the hydrology in the Everglades Protection Area as well as convey and store irrigation water. To make use of water provided by the SFWMD to replace the Tribe's diverted Compact water rights, the Tribe needs to be able to move and store such water, when it is available. Water conveyance improvements and irrigation storage cells will move and store the Compact water converted for Everglades restoration. This diversion allowed for treatment of water flowing to the Everglades Protection Area.

Provide improved flood control. To prevent extended periods of flooding and to limit downstream impacts of flooding, stormwater must be controlled. Stormwater attenuation areas will detain water from large storm events.

Project Synopsis:
The Seminole Tribe's Big Cypress Reservation is located in Hendry and Broward Counties, directly north of the Big Cypress National Preserve and the federal Miccouskee Reservation. This project provides for the design and construction of water control, management, and treatment facilities in Basins 5, 6 & 7 composing the eastern portion of the Big Cypress Reservation. The project elements include conveyance systems, including major canal bypass structures, irrigation storage cells, and water resources areas. This project is designed to meet 50 ppb. phosphorus, which is the current performance level designed to be achieved by the Everglades Construction Project. Should design performance levels for phosphorus become more stringent, this project is designed to be able to incorporate additional technology to meet stricter levels. This project will enhance the hydroperiod in Big Cypress National Preserve through Mullet Slough and improve the water quality in the Everglades Protection Area.

Current Status:

An EIS has been completed for the project. No activities are planned for Basins 5, 6 and 7.

Cost:

Total
$60,000,000

Project Schedule:
Start Date: 2002
Finish Date: 2012

Detailed Project Budget Information

	2004	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**Total**
Federal	1,500	3,500	3,500	3,500	3,500	8,000	12,500	0	0	36,000
Tribal	0	1,625	1,625	1,625	1,625	4,000	6,400	7,100	0	24,000
Total	**1,500**	**5,125**	**5,125**	**5,125**	**5,125**	**12,000**	**18,900**	**7,100**	**0**	**60,000**

Contact: Cherise Maples, Director
Environmental Resource Management Department
Seminole Tribe of Florida

Program Name: Restoration Program: Hydrological Restoration, Water Quality
Project Name: **STA-1 Inflow and Distribution Works**
Project ID: 1719
Lead Agency: South Florida Water Management District
Authority: Florida's Everglades Forever Act

Strategic Plan Goal(s) Addressed: Getting the Water Right

Measurable Output(s): Reduce phosphorus levels in outflows from the STAs as directed in the Everglades Forever Act.

Project Synopsis: STA-1 Inflow and Distribution Works is located in Western Palm Beach County, just north of the Water Conservation Area No. 1 (Loxahatchee National Wildlife Refuge). This project redirects the discharge from S-5A Pump Station via the L-40 and L-7 Borrow Canals to STA-1 West and STA-1 East. The project scope includes the construction of four water control structures (G-300, G-301, G-302, G-311), and associated bypass canals, a separation levee extending from L-7 to L-40 and an inflow canal and perimeter levee leading to the STA-1W project.

*** Cost (Estimate):** Total: $ 12,679,955
(1) Project Development: $ 1,090,618
(2) Implementation: $ 11,589,337
Operations and Maintenance:$ Included with STA-1 West

Project Schedule:
Completion Date: September 2005 (including structure G-311, inflow structure for STA-1E)

	FY 1994 - FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010 - FY 2016
Project Development						
Land Acquisition						
Implementation						
Operations and Maintenance						

* Detailed Project Budget Information

	Actual FY 1994-05	Projected FY 2006	Projected FY 2007	Projected FY 2008	Projected FY 2009	Balance to complete	Total
Federal							
State	$12,679,955	-	-	-	-	-	$12,679,955
Tribal							
Local							
Other							
Total	$12,679,955	-	-	-	-	-	$12,679,955

(7) Cost data reflects actual inception-to-date expenditures through September 30, 2005 and current preliminary cost estimate projections.

(8) Project Development includes Design Phase [contracts & staff costs] costs.
(9) Implementation includes all Construction [contracts & contingency] and Construction Management [contracts & staff costs] costs.

Contact: Steve Poonaisingh

Program Name: Northern Everglades and Estuaries Protection Program
Project Name: **Local Cost-Share Projects with Martin County**
Project ID: 1724
Lead Agency: SFWMD, State of Florida and Martin County
Funding Source: Lake Okeechobee Trust Fund

Strategic Plan Goal(s) Addressed: 1-B-2, Other Related Water Quality Projects

Measurable Output(s): Improves hydrology, water quality and aquatic habitats in the St. Lucie Watershed. Also reduces sediment and nutrient loading to the St. Lucie River and Estuary and increases basin storage and treatment.

Project Synopsis: The State of Florida, the SFWMD, and Martin County have completed five water quality improvement projects under a unique cost share agreement as part of the Northern Everglades and Estuaries program. These projects provide water quality treatment through construction of stormwater detention/retention areas and marsh filtration areas prior to discharge.

The five projects completed through the Martin County partnership are:
Phase III of the Old Palm City Stormwater Quality Improvement Project developed a neighborhood stormwater quality management system including construction of two STAs.

The **Manatee Pocket Dredging Project** was designed and constructed to improve the water quality in the Manatee Pocket of the St. Lucie Estuary.

The **North River Shores Sewer System** provides sanitary sewer service to approximately 450 single-family and multi-family parcels of land in the North River Shores area. The project enhances water quality in the North Fork of the St. Lucie River by eliminating nutrient loading from septic systems.

The **Manatee Creek Water Quality Retrofit** provides additional water quality treatment for drainage from 833 acres of residential, commercial and industrial development that discharges into the Manatee Pocket of the St. Lucie Estuary.

The **Rio St. Lucie Stormwater Retrofit** captures sediments and nutrients prior to discharging in the middle section of the St. Lucie Estuary through the construction and installation of exfiltration trench and a nutrient separating baffle box in a 45-acre residential/mixed use basin.

Current Status:
All five projects are completed and operational.

Total Estimated Project Cost: $25,977,000

Project Schedule: **Start Date:** Contract execution date for first contract - June 27, 2008
Finish Date: Expiration date for last contract – May 26, 2012

Actual Expenditures to Date by SFWMD:

	2008	2009	2010	2011	2012	2013	2014	Total to Date
SFWMD	-	$1,151,834.80	$167,316.56	$4,902,780.37	$2,415,876.85	$0	$310,000	$8,947,808.58

Contact: **Kathy LaMartina**, SFWMD

Program Name: Land Acquisition
Project Name: **Babcock Ranch**
Project ID: 2102
Lead Agency: Florida Department of Environmental Protection
Authority: Florida Forever Program

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 73,542 Acres acquired

Project Synopsis: The Babcock Ranch project consists of approximately 91,361 acres in Charlotte and Lee counties. Acquisition of would assist in the creation of a wildlife corridor that would span from Lake Okeechobee to the Gulf of Mexico. The majority of the project area consists of mesic flatwoods with the center of the project dominated by Telegraph Swamp. This ten thousand acre swamp drains most of the project area. Portions of the project provide habitat for the endangered red-cockaded woodpecker, crested caracara, and numerous other plants and animals. The project is proposed primarily as a less-than-fee simple acquisition a portion of the project will be acquired in full fee title. The evaluation team visited the project on September 25, 2001.

The majority of the Babcock Ranch project lies in southeastern Charlotte County; a small part extends into northeastern Lee County. It is contiguous with Fred C. Babcock-Cecil M. Webb Wildlife Management Area (Babcock-Webb WMA) for approximately 6 miles (mostly Babcock Family Reserve portion; proposed Curry Lake conservation easement is contiguous for 0.75 mile) on the west, Fisheating Creek Florida Forever project for approximately 3 miles on the east, and Caloosahatchee Regional Park for approximately 1.5 miles on the south. Bright Hour Watershed conservation easement is situated approximately 12 miles to the north, Hall Ranch Florida Forever project (contiguous with Babcock-Webb WMA) is contiguous with the Babcock Family Reserve portion for approximately 3 miles (it is ca. 4 miles to the northwest of the proposed Curry Lake conservation easement), Hickey Creek Mitigation Park Wildlife and Environmental Area is located less than 1.5 miles to the south, Moya Sanctuary is located less than 1 mile east of the southeast boundary of the proposal, and the Caloosahatchee Ecoscape Florida Forever project and Okaloacoochee Slough State Forest lie 10.5 miles and 15 miles, respectively, to the southeast. **This project has been completed.**

Cost: Project size is 73,542 acres. 73,542 acres have been acquired at a cost of $350,000,000
Land Acquisition: 0 acres remaining to be acquired.

Project Schedule:
Start Date: 2001
Finish Date: 2007

Detailed Project Budget Information ($1000)

	Thru 2007	**2008**	**2009**	**2010**	**Balance to complete**	**Total**
Federal						
State*	308,461					
Tribal						
Local	41,538					
Total	**350,000**					**TBD**

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project name: **Cayo Costa**
Project ID: 2110
Lead Agency: FDEP
Authority: CARL Program

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 1,954 Acres acquired

Project Synopsis: The project area, involving 1,954 acres, includes Cayo Costa and North Captiva, both part of a small chain of barrier islands that provide protection for Charlotte Harbor, one of Florida's most productive estuaries. The natural communities within the project are in excellent condition and have high species diversity; some may be unique to these islands. This project contains several archaeological and historical sites. Cayo Costa Island is subdivided into small lots and is threatened by rapid residential development. **This project has been completed.**

Cost: Project size 1,954. All acres acquired at a cost of $29,002,346.

Project Schedule:
Start Date: 1980
Finish Date: 2004

Detailed Project Budget Information (1000s)

	Thru 2004	**2007**	**2008**	**Total**
Federal				
State	$29,002.346			29,002.346
Tribal				
Local				
Other				
Total	**$**29,002.346			29,002.346

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Dupuis Reserve Land Acquisition**
Project ID: 2116
Lead Agency: South Florida Water Management District
Authority: Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: Primary: 2.A.1

Measurable Output(s): Target 21,878 Acres

Project Synopsis: The Dupuis Reserve encompasses 21,875 acres in northwestern Palm Beach and southwestern Martin Counties. The property is interspersed with numerous ponds, wet prairies, cypress domes, pine flatwoods, and remnant Everglades marsh. Dupuis is actively managed by the District and the Florida Fish and Wildlife Conservation Commission. Numerous public use opportunities are available, including hiking, horseback riding, hunting, fishing, and bicycling. Total project acreage is 21,875 acres. **This project has been completed.**

Cost: Total $23,016,601
Project Development N/A
Land Acquisition $23,016,601
Implementation N/A
Operations and Maintenance N/A

Project Schedule:
Start Date: 1985
Finish Date: 1986

Detailed Project Budget Information ($1000)

	Through 1999	2000	2001	Balance to Complete	Total
Federal					
State	23,016.601				23,016.601
Tribal					
Local					
Other					
Total	**23,016.601**				**23,016.601**

Contact: Wanda Caffie-Simpson

Additional information available at www.sfwmd.gov under the heading "Major Projects"

Program Name: Land Acquisition
Project name: **Frog Pond/L31N**
Project ID: 2123
Lead Agency: Florida Department of Environmental Protection
Authority: CARL Program

Strategic Plan Goal(s) Addressed: 2.A.1

Measurable Output(s): 10,450 Acres acquired

Project Synopsis: Lands border Everglades National Park and are considered critical to the Park's ecosystem, particularly Shark River Slough. The project's water storage capacity helps to prevent excessive flooding and serves as a recharge area for well fields in South Dade. The area is highly vulnerable to development pressure. **This project has been completed.**

Cost: Total: Project size 2,484 acres. 2,484 acres have been acquired at a cost of $20,005,367.
Project Development
Land Acquisition: 0 acres remaining to be acquired.
Implementation
Operations and maintenance

Project Schedule:
Start Date: 1982
Finish Date: 2007

Detailed Project Budget Information (1000s)

	Thru 2007	**Total**
Federal	799	
State*	19,206.367	
Tribal		
Local		
Other		
Total	**20,005.367**	**20,005.367**

**State expenditures may include local government contributions on CARL, Florida Forever, FCT and SOR projects.*
*** A portion of the acres and costs on this project sheet overlap with Project ID 1300 in Goal 1. The Adjusted total compensates for this overlap by allocating the appropriate costs to this project.*

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Project Name: **Kissimmee Prairie Ecosystem**
Project ID: 1305
Lead Agency: Florida Department of Environmental Protection/South Florida Water Management District
Authority: CARL/Save Our Rivers

Strategic Plan Goal(s) Addressed: 1.A.3 and 2.A.1

Measurable Output(s): 38,282 Acres Acquired

Project Synopsis: This project involves acquisition and restoration of wetland and dry prairie habitat in Okeechobee County. The SFWMD and FDEP purchased 38,282 acres of land in 1997 for conservation as the Kissimmee Prairie State Preserve. Restoration has been initiated on the Preserve as well as the adjacent 7,315-acre Ordway-Whittell Kissimmee Prairie Sanctuary owned and managed by the National Audubon Society. The project will restore 13,100 acres of wetlands that were over drained or over impounded by agricultural activities. In addition, the project will enhance another 2,625 acres of wetlands and 9,500 acres of associated dry prairie habitat. Restoration will be accomplished by removing 39.3 miles of ditches and dikes to return sheet flow across the land. Enhancement will include removal of unwanted or invasive vegetation from wetland and dry prairie habitats.

The purpose of the land acquisition project is to preserve the unique wetland and dry prairie habitats that were in agriculture and cattle land use and, using a five-year federal grant, restore and enhance these lands. Approximately 5,000 acres of the project hydraulically linked with the Kissimmee River will be reconnected, thereby restoring wetland habitat to regain historical biological diversity. The remaining 40,000 acres of the project in the project area contain extensive wetland habitats and excellent examples of the dry-prairie community type, which is recognized by the Florida Natural Areas Inventory as endangered at state and global levels. Because of the conversion of similar lands to citrus and improved pasture throughout central Florida, the Kissimmee Prairie Ecosystem, in combination with the adjacent Air Force's Avon Park Bombing Range and Audubon's Kissimmee Prairie Sanctuary, will form the largest region of dry prairie in public ownership in the State. Its preservation is the most important step in the recovery of the federally endangered Florida grasshopper sparrow. The endangered whooping crane, Everglades snail kite, and the woodstork utilize the habitats of the project area. Protection of these lands will also provide habitat for the following threatened species: southern bald eagle, Audubon's caracara, Florida scrub jay, and the eastern indigo snake. In addition, the project area contains habitat that supports over 800 species of plants and animals. **This project has been completed.**

Cost: Total: Project size 38,282 acres.
38,282 acres have been acquired at a cost of $21,953,790.

Project Schedule:
Start Date: 1996
Finish Date: 1997

Detailed Project Budget Information ($1000s)

	Through 2011	Total
Federal		
State	21,953.790	21,953.790
Total	**21,953.790**	**21,953.790**

Hyperlink: N/A
Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Land Acquisition
Project Name: **Lake Walk-in-Water Land Acquisition**
Project ID: 2130
Lead Agency: South Florida Water Management District
Authority: Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: Primary: 2.A.1

Measurable Output(s): Target 4,009 Acres

Project Synopsis: The Lake Walk-in-Water project covers land between the northeast shore of lake Weohyakapka (Walk-in-Water) and SR60. The retirement communities of Nalcrest and Fedhaven border the property to the west and the community of Indian Lake Estates lies to the south. The project has extensive frontage along SR60 and Lake Water-in-Water and contains a large expanse of dry prairie, interspersed with small, isolated depression marshes a very large basin marsh along the highway, and large pine stands that have grown back since being logged in the 1920s. In 1999, the District and Polk County partnered to make the initial 4,000 acre purchase. The project is historically significant Town of Sumica. Polk County actively manages the property with financial assistance from the District. The total project acreage is 4,009 acres and all have been acquired. **This project has been completed.**

Cost: SFWMD does not make cost projections on SOR projects

Project Schedule:
Start Date: 1995
Finish Date: 1999

Detailed Project Budget Information (1000s)

	Thru 1999	Total
Federal		
State	$1,975	$1,975
Tribal		
Local	$1,975	$1,975
Other		
Total	**$3,950**	**3,950**

Additional information available at www.sfwmd.gov under the heading "Major Projects"
Contact: Wanda Caffie-Simpson

Program Name: Land Acquisition
Project Name: **Loxahatchee River Land Acquisition**
Project ID: 2131
Lead Agency: South Florida Water Management District
Authority: Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: Restore, Preserve and Protect the Natural Habitat and Species

Measurable Output(s): Target 1,915 Acres

Project Synopsis: This 1,915-acre project connects to the southern end of Jonathan Dickinson State Park, and contains lands in Palm Beach and Martin Counties. The project includes the historic floodplain of the Northwest Fork of the Loxahatchee River, a National Wild and Scenic River.

The purpose of this project is to protect the outstanding natural and cultural values of Florida's first federally designated Wild and Scenic River. Public ownership of this property will prevent direct disruption of surface and groundwater flows to the northwest Fork, and increase minimum flows to the Loxahatchee River, which will affect downstream movement of the saltwater wedge during dry conditions. A total of 1,915 acres are in public ownership; the District has acquired 1,547 acres and Palm Beach County owns 367 acres within the project area. **This project has been completed.**

Project is completed.

Cost: Total $19,738,769.

Project Schedule:
Start Date: 1984
Finish Date: 2001

Detailed Project Budget Information ($1000)

	Thru 1999	2000	2001	Balance to Complete	Total
Federal					
State	$11,792.373				$11,792.373
Tribal					
Local	$7,946,396				$7,946,396
Other					
Total	**$19,738,769.**				**$19,738.769**

Additional information available at www.sfwmd.gov under the heading "Major Projects"
Contact: Wanda Caffie-Simpson

Program Name: Land Acquisition
Project Name: **Nicodemus Slough Land Acquisition**
Project ID: 2137
Lead Agency: South Florida Water Management District
Authority: Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: Primary: 2.A.1

Measurable Output(s): Target 2,231 Acres

Project Synopsis: Nicodemus Slough consists of wet prairie, broadleaf marsh, and prairie hammock south of the Herbert Hoover Dike (LD-3) and west of State Road 78. Until recently, the construction of the Herbert Hoover Dike, coupled with the maintenance of lower stages in Lake Okeechobee, resulted in a shortened hydroperiod and general lowering of water levels in Nicodemus Slough. This in turn altered vegetative patterns on the property and allowed the spread of transition and upland species. **This project has been completed.**

Cost: Total $1,894,501
Project Development N/A
Land Acquisition $1,894,501
Implementation N/A
Operations and Maintenance N/A

Project Schedule:
Start Date: 1981
Finish Date: 1988

Detailed Project Budget Information (1000s)

	Thru 1999	2000	2001	Balance to Complete	Total
Federal					
State	$1,894.5				$1,894.5
Tribal					
Local					
Other					
Total	**$1,894.5**				**$1,894.5**

Contact: Wanda Caffie-Simpson
Additional information available at www.sfwmd.gov under the heading "Major Projects"

Program Name: Land Acquisition
Project Name: **South Fork St. Lucie River Land Acquisition**
Project ID: 2153
Lead Agency: South Florida Water Management District
Authority: Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: Restore, Preserve and Protect the Natural Habitat and Species

Measurable Output(s): Target 184 Acres

Project Synopsis: This project includes 184 acres on the western shore of the upper South Fork St. Lucie River. The property begins approximately 0.75 miles south of State Road 76 and extends approximately 1.25 miles southward.

The purpose of this project is to protect the integrity of the river corridor. River water quality is best maintained when river corridor lands remain in their natural state and are restored and managed to enhance the natural community quality. Prescribed fire has successfully been used as the main restoration tool to improve the condition of degraded communities on this property. Responsibility for management of land is divided between the Department of Environmental Protection and Martin County. **This project has been completed.**

Cost:	Total	$2,480,000
	Project Development	N/A
	Land Acquisition	$2,480,000
	Implementation	N/A
	Operations and Maintenance	N/A

Project Schedule:
Start Date: 1995
Finish Date: 1996

Detailed Project Budget Information (1000s)

	Thru 1999	**Total**
Federal		
State	$2,480	$2,480
Tribal		
Local		
Other		
Total	**$2,480**	**$2,480**
Adjusted Total	**0**	

*** A portion of the acres and costs on this project sheet overlap with Project ID 1101 in Goal 1. The Adjusted total compensates for this overlap by allocating the appropriate costs to this project.*

Contact: Wanda Caffie-Simpson
Additional information available at www.sfwmd.gov under the heading "Major Projects"

Program Name: Land Acquisition
Project Name: **Tibet-Butler Preserve Land Acquisition**
Project ID: 2157
Lead Agency: South Florida Water Management District
Authority: Save Our Rivers (SOR)

Strategic Plan Goal(s) Addressed: Restore, Preserve and Protect the Natural habitat and Species

Measurable Output(s): 439 Acres

Project Synopsis: The Preserve covers 439 acres along the southwest shore of Lake Tibet-Butler in Orange County. The vegetative communities include bay swamp, pine flatwoods, cypress swamp, and smaller areas of xeric oak and freshwater marsh. The Tibet-Butler Preserve site includes approximately 4,000 feet of shoreline on Lake Tibet. Orange County Parks and Recreation Department manages Tibet-Butler Preserve as an environmental education facility. **This project has been completed**.

Cost: Total $3,601,900
Land Acquisition $3,601,900

Project Schedule:
Start Date: 1988
Finish Date: 1999

Detailed Project Budget Information (1000s)

	Through 1999	2000	Balance to Complete	Total
Federal				
State	$3,601.9			$3,601.9
Tribal				
Local				
Other				
Total	**$3,601.9**			**$3,601.9**

Contact: Wanda Caffie-Simpson

Additional information available at www.sfwmd.gov under the heading "Major Projects"

Program Name: Land Acquisition
Project Name: **Yamato Scrub**
Project ID: 2161
Lead Agency: FDEP
Authority: Florida Forever

Strategic Plan Goal(s) Addressed: Primary: 2.A.1

Measurable Output(s): Target 217 Acres

Project Synopsis: Predominantly natural communities here are sand pine scrub and scrubby flatwoods. The species richness of the scrub is considered higher than that of any other scrub on the southeast coast. A bargain shared project. **This project has been completed.**

Cost: Project size 217 acres all acquired
Land Acquisition: 217 acres acquired at a cost of $25,932,850

Project Schedule:
Start Date: 1992
Finish Date: 1996

Detailed Project Budget Information (1000)

	Thru 1999	**2000**	**2001**	**Balance to complete**	**Total**
Federal					
State	17,500				17,500
Tribal					
Local	8,432.8				8,432.8
Other					
Total	**25,932.8**				**25,932.8**

Contact: Sheryl Boutin, Sheryl.Boutin@dep.state.fl.us

Program Name: Invasive Exotic Species Management
Project Name: **Exotic Species Removal**
Project ID: 2509 (Formerly Project ID 2605)
Lead Agency: Seminole Tribe of Florida/BIA
Authority: Tribal Resolution

Strategic Plan Goal(s) Addressed: 2.B.2

Measurable Output(s): Eradication and control of exotic species.

Project Synopsis:
Control growth of exotic species on the Big Cypress and Brighton reservations.

Current Status:

Complete.

Cost:
Total $988,000
Project Development
Land Acquisition
Implementation
Operations and maintenance

Project Schedule:
Start Date: 1998
Finish Date: 2012

Detailed Project Budget Information (1000s)

	2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**Balance to complete**	**Total**
Federal	30	60	30	30	30	10	10	10	10	.5	0	213.5	434
State													0
Tribal	20	70	70	70	70	2	2	2	10	1.5	450	-213.5	554
Total	**50**	**130**	**100**	**100**	**100**	**12**	**12**	**12**	**20**	**2.0**	**450**	**0**	**988**

Contact: Cherise Maples, Director
Environmental Resource Management Department
Seminole Tribe of Florida

Program Name: Invasive Exotic Species Management
Project Name: **Estero Bay Aquatic Preserve and Buffer Enhancement and Exotic Removal Project**
Project ID: 2604
Lead Agency: FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
Authority: Chapter 403, Florida Statutes

Strategic Plan Goal(s) Addressed: 2.B.2

Measurable Output(s): Acres of exotic plants removed

Project Synopsis:
I. Melaleuca removal: Treatment, removal, monitoring and follow-up treatment of 708 acres of Melaleuca within the 10,405 acre Estero Bay Preserve State Park – **PROJECT COMPLETED**

II. Dog Key Exotic Removal: Treatment, removal, monitoring and follow-up treatment of exotic vegetation on Dog Key, a 24 acre island within the Estero Bay Aquatic Preserve and part of the Estero Bay State Buffer Preserve with documented Calusa Indian middens/mounds – **PROJECT COMPLETED**

Cost: Total: $1.05 million

Project Development:
I. Melaleuca Removal – The initial aerial treatment of 708 acres of melaleuca was completed through funding by the Bureau of Invasive Plant Management (BIPM) at a cost of approximately $100,000.00. Only the heavily infested monoculture areas were treated, leaving untreated buffers around native plant communities. It will be necessary to hand treat these buffer areas and any unsuccessful initial treatment areas. It is anticipated that $600,000.00 will be needed for this work. Monitoring and follow-up treatment of this large-scale treatment still needs funding. Smoke from a prescribed fire within these treatment areas (dead) would be a major problem in the Estero development area so actual removal of dead or live trees off site would be preferable. In this case, costs could exceed the $600,000.00 figure.

Implementation:
I - initial treatment completed in 2001. On the ground treatment of the buffer areas (edges of the treated areas) and any unsuccessful treatment areas should also occur toward the end of 2001 or beginning of 2002. Monitoring and follow-up treatment to continue through 2004 at an estimated cost of $300,000.00.
Operations and maintenance: Total =2,852 acres treated at a cost $1,129,214
Estimated at $40,000.00 through 2004.

Project Schedule:
Start Date: 1998
Finish Date: 2004

Detailed Project Budget Information (1000s)

	Thru 2003	2004	2005	Balance to complete	Total
Federal					
State	$538.5	$28.6	$20.5		
Tribal					
Local					
Other					
Total	**$538.5**	**$28.6**	**$20.5**		**$587.6**

Program Name: Invasive Exotic Species Management
Project Name: **Melaleuca Quarantine Facility**
Project ID: 2701
Lead Agency: U.S. Department of Agriculture – Agricultural Research Service
(here for reference only)
Authority: ARS
Funding Source: DOI and DOA

Strategic Plan Goal(s) Addressed: 2-B.3

Measurable Output(s): Number Biological Agents Approved. Biological control agents for effectively reversing and halting the effects of non-native species on the South Florida habitat.

Project History: *Melaleuca quinquenervia* (Melaleuca) is an invasive, exotic tree that has proliferated in Florida for approximately 100 years and now occupies more than 400,000 acres of wetland, riparian and, to a lesser degree, agricultural, systems in the state. Melaleuca is competitively superior to most, if not all, native plants and rangeland grasses, with infestations resulting in degradation of native wildlife habitats and waterways, including portions of the Everglades National Park, and of the limited grazing lands in South Florida. Biological control agents have the potential of providing greater efficiency and improved economy. Ultimately, they may prove to be the only truly effective large-scale means of reversing and halting the effects of non-native species on the South Florida habitat.

Project Synopsis: This project consisted of constructing a quarantine facility to enable the testing of candidate organisms for biological control and reversal of the spread of exotic plant species. Construction of the quarantine facility was completed after receiving an additional contribution of about $500K by USDA-ARS and $400,000 from the South Florida Water Management District. USDA took occupancy of the facility on 19 Jan 2005. It opened March 2005 and was dedicated April 8, 2005. Minor checklist items were finished up at that time. Design problems and shoddy construction by the contractor of critical subsystems are hampered full use of the quarantine areas, but funding for needed repairs had not been identified. Due to a lack of Operations & Maintenance funding, full staffing could not be achieved ($350,000/yr .estimated need).

Current Status: **COMPLETED 2005**

Cost: $ 7,100,000
Project Schedule:
1997 Start
2005 Finish

Detailed Project Budget Information (rounded):

Melaleuca Quarantine	Total Expenditures
Federal	$6,700,000
State	$400,000
Total	**$7,100,000**

Hyperlink: http://www.ars.usda.gov/is/pr/2005/050408.2.htm

Contact: Ted Center

Program Name: Infrastructure
Project Name: **E&SF: Critical Projects - Florida Keys Carrying Capacity**
Project ID: 4100
Lead Agency: USACE / FDCA
Authority: WRDA 1996

Strategic Plan Goal(s) Addressed: Other

Measurable Output(s): Report

Project History: The carrying capacity study/analysis will develop information that will improve decision-making regarding development approvals and infrastructure investments, and its impact on the ecology and natural system in the Florida Keys and Florida Bay.

Project Synopsis: The development of a decision-making tool will provide a comprehensive basis for coordinating and strengthening water and land related planning efforts by local, state and federal agencies. The Study was completed March 2003.

Current Status: **COMPLETED 2003**

Est. Cost: $ 6,000,000

Project Schedule:
1997 Start
2003 Completed

Detailed Project Budget Information (rounded)

Florida Keys Carrying Capacity	Expenditures Thru FY2005
USACE	$2,993,067
FDCA	$1,500,000
Total	**$4,493,067**

Hyperlink: http://www.saj.usace.army.mil/projects/proj4.htm

Contact: Karen Tippett, Program Execution Branch Chief
Karen.S.Tippett@usace.army.mil

CLOSED PROJECTS

Project Name: **C&SF: CERP Strazzulla Wetlands (OPE)**
Project ID: 2300 (CERP Project WBS # 39)
Lead Agency: USACE / SFWMD
Authority: Not authorized
Funding Source: Federal/DOI (WRDA 2000)/State

Strategic Plan Goal(s) Addressed: 2-A.3

Measurable Output(s): An increase of 3,335 acres of habitat extent and connectivity

April 1999 (Restudy) Project Synopsis: Water control structures and the acquisition of 3,335 acres located in Palm Beach County. Expanding wetlands will act as a buffer between higher water stages to the west and lands to the east that must be drained.

Current Project Synopsis: The purpose of this feature is to provide a hydrological and ecological connection to the Loxahatchee National Wildlife Refuge and expand the spatial extent of protected natural areas. This land will act as a buffer between higher water stages to the west and lands to the east that must be drained. This increase in spatial extent will provide habitat connectivity for species that require large un-fragmented tracts of land for survival.

WRDA 2000 dictated that the Federal share for land acquisition in the Loxahatchee National Wildlife Refuge, including the Strazzulla tract, should be funded through the budget of the Department of the Interior. The project adheres to the original concept outlined in the Restudy.

Current Status: The project has been suspended due to the potential of the project to impact lands having a significant amount of cultural resources.

Est. Cost: $ 67,390,000

Project Schedule: **Project CLOSED**

Detailed Project Budget Information (rounded):

Strazzulla Wetlands	**Expenditures Thru FY 2009**
USACE	$355,035
SFWMD	$142,831
Total	$497,866

Hyperlink: http://141.232.10.32/pm/projects/proj_39_strazzulla.aspx

Contact: Jeff Couch, Ecosystem Projects Section, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars. Actual expenditures include all federal expenditures through FY09 (Sept, 2009) and sponsor verified and recorded in kind credit through 4th quarter FY07.

Project Name: **C&SF: CERP Winsberg Farm Wetlands Restoration (OPE)**
Project ID: 2301
Lead Agency: USACE / Palm Beach County's Water Utilities District (PBCWUD)
Authority: WRDA 2000 *(Programmatic Authority < $25 M)*
Funding Source: Federal/County

Strategic Plan Goal(s) Addressed: Primary: 2-A.3

Measurable Output(s): 114 acres of improved wetlands

April 1999 (Restudy) Project Synopsis: The Winsberg Farm wetlands project was included in the Restudy as an "Other Project Element". Projects in the "Other Project Element" category were determined to be consistent with Restudy planning objectives and have a Federal interest, but were too small in scale to evaluate from a system-wide perspective. The original concept for this feature includes the construction of a 175-acre wetland east of Loxahatchee Wildlife Preserve in Palm Beach County using water that would normally be lost to deep well injection or any future beneficial use.

Current Project Synopsis: The project involves restoration of approximately 114 acres of wetlands on former agricultural lands. Wetlands would reduce the amount of treated wastewater coming from the Palm Beach County's Water Utilities District (PBCWUD) Southern Region Water Reclamation Facility (SRWRF) lost to deep injection wells by further treating and recycling the water. Treated wastewater will instead be reused to recharge the local aquifer system, create a new ecologically significant wildlife habitat and extend the function of the nearby Wakodahatchee Wetland. The initial configuration would include a Phase 1 design and construction with approximately 72 acres of wetlands created in the western half of the project. The remaining 42 acres of the project on the eastern half , considered Phase 2, would work similarly. As a result of the 2003 real estate purchase agreement (175 acres) between PBCWUD, the non-federal sponsor and the Winsberg family, PBCWUD completed construction of Phase 1 in 2004. This included 72 acres of wetlands, plus a parking lot, visitor center, and recreational access features and was completed without Federal funds. The local sponsor refers to this portion of the project as "Green Cay Wetlands".

The 2005 Tentatively Selected Plan (TSP), presented at AFB, was configured assuming constant inflow of water to maintain continuous inundation. Refinements during the formulation process provide for the project to be located on approximately 165 acres of farmland just east of the Southern Region Water Reclamation Facility (SRWRF). Approximately 114 of the 165 acres would be hydrated using treated wastewater from the SRWRF resulting in the creation of a wetland system approximately three times the size of the adjacent Wakodahatchee Wetlands, and its location and proximity would leverage the recently created ecosystem restoration benefits by expanding the constructed wetland into an integrated system having even greater regional significance. Water levels will be allowed to fluctuate seasonally, within a 1- to 2-foot range throughout the entire project, in response to the natural seasonal variation of rainfall. This variation in the depth of project hydration will influence the growth and distribution of various plant species within the wetland area.

Effluent enters the site from the western half of the project (Phase 1). To circulate flow throughout the project, several control structures and pumps would be integrated in various locations and can be operated to allow flow in three ways:

1. To the eastern half of the project (Phase 2), or

2. Circulate flow in the eastern half of the project by a 15-hp recirculation pump, or
3. Send flow to deep well injection by a 250-hp discharge pump in the event pool elevations rise beyond a set point due to direct rainfall.

A draft PIR was completed in February 2008 and released for public and agency comment. The draft report recommended credit for PBCWUD's share of the project, and was submitted to the Secretary of the Army to authorize Federal funds to construct the Phase 2 portion of the project (approximately 42 acres to be constructed to the same design elevations as Phase 1).

Current Status: During summer 2008, the sponsor declined to continue support of the project; in part based on the requirement made to revise embankment heights to the new Federal standards and the need to remove landscaping on sections of the Phase 1 embankment that otherwise sacrifices its structural integrity. Such a removal was also viewed as potentially impacting existing habitats or disrupting to public recreational use. Project close out was announced by Public Notice in 2009. CLOSED OUT 2009.

Est. Cost: $ 16,736,000

Project Schedule:

2009 Discontinued; **CLOSED OUT**.

Detailed Project Budget Information (rounded):

Winsberg Farms Restoration	**Expenditures Thru FY 2009**
USACE	$1,855,670
PBCUD	$1,978,110
Total	**$3,833,780**

Hyperlink: http://141.232.10.32/pm/projects/proj_91_winsberg.aspx

Contact: Jeff Couch, Ecosystem Projects Section, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999). Actual expenditures include all federal expenditures through FY09 (Sept, 2009) and sponsor expenditures on design.

Project Name: **C&SF: S-169/Nine Mile Canal Basin**
Project ID: 2311
Lead Agency: USACE / SFWMD
Authority: Central and Southern Florida Project; Section 203 Flood Control Act (1948)
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 2-A.3

Measurable Output(s): Improved structures

Current Project Synopsis: The S-169 project, located in Hendry County, was to include enlarging culverts, an access bridge, converting 5 flap-gates telemetric-controlled gates, stabilizing canal banks, replacing two pump stations and installing a manatee protection barrier. This effort was related to high water stages of HHD that required operational discharges and an effort to moderate discharges to an industrial canal used for agricultural purposes.

A draft General Reevaluation Report/EA (2005) was completed, but was discontinued. The study phase was also completed.

Current Status: A determination was made that the project had "no further Federal interest". The project has been 'closed out'.

Est. Cost: $ 13,600,000 (*for the original project (Oct 2007 dollars)*

Project Schedule:
2001 Start
2009 Discontinued; Closeout completed.

Detailed Project Budget Information (rounded):

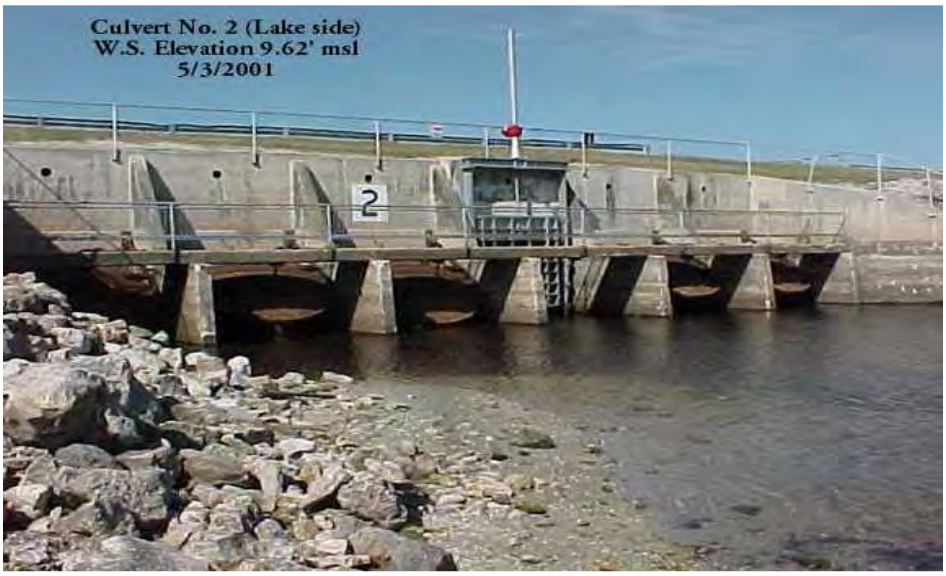
S-169/Nine Mile	Expenditures Thru 2008
USACE	$1,200,000
SFWMD	$0
Total	**$1,200,000**

Hyperlink:

Contact: Jeff Couch, Ecosystem Projects Section, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description is summarized from the *DRAFT General Reevaluation Report and Environmental Assessment (2005).* Initial cost estimate was based on the GRR description and was last calculated for inflation in October 2007 dollars.

Additional Information:



Project 2311 C&SF: S-169/Nine Mile Canal Basin Page 2 of 2

Inactive Projects

Program Name: Lake Okeechobee and Estuary Recovery (LOER)
Project Name: **Seminole Tribe Brighton Reservation Aquifer Storage and Recovery (ASR) Pilot Project**
Project ID: 1206
Lead Agency: SFWMD, Seminole Tribe of Florida

Strategic Plan Goal(s) Addressed: 1-A.2, Get the hydrology right

Measurable Output(s): A 1-well ASR pilot facility that is permitted, designed, constructed and tested.

Project Synopsis: The Seminole Tribe of Florida and the SFWMD have partnered on construction of a pilot Aquifer Storage and Recover Pilot (ASR) system at the Brighton Reservation, north of Lake Okeechobee. The objective of the project is to assure the Tribe of an alternative water supply during times when low lake levels make delivery to that part of the system difficult. The project involves permitting, design, construction and testing of the ASR system, the costs of which will be shared by the Tribe and the SFWMD.

Current Status:

Based on cost benefit analysis and due to lack of infrastructure, the Tribe does not plan to move forward with construction of this project at this time. The project has been inactive since 2010. The project status may be revisited in the future, when funding becomes available.

The following activities have been completed
- Constructed an exploratory/test well
- Evaluated location and project site
- Completed preliminary design and geotechnical evaluations
- Completed draft USEPA permit applications

Total Estimated Project Cost: $2,500,000 (to be split 50-50 with the Seminole Tribe)

Project Schedule:
Start Date: January 2007
Finish Date: January 2017

Actual Expenditures to Date by SFWMD:

	2008	2009	2010	Total to Date
SFWMD	$100,000	$100,000	$250,000	$450,000

Contact: Bob Verrastro, SFWMD

Seminole Tribe Brighton Reservation ASR Location Map

Program Name: Lake Okeechobee and Estuary Recovery (LOER)
Project Name: **Taylor Creek Aquifer Storage and Recovery (ASR) Project**
Project ID: 1207
Lead Agency: SFWMD

Strategic Plan Goal(s) Addressed: 1-A.2, Get the hydrology right

Measurable Output(s): A 1-well ASR pilot facility that is permitted, designed, constructed and tested.

Project Synopsis: This project consists of reactivating an existing ASR system that was constructed and operated 30 years ago by the SFWMD. Since that time, the system has been inactive. Project tasks will include mechanical evaluations of the existing system, permitting, design studies, construction of new appurtenances and eventual operation and maintenance of the system.

Current Status: This project has been inactive since 2011 due to lack of funding. The project status may be revisited in the future, when funding becomes available.

The following activities have been completed:

- Tested mechanical integrity of the well system
- Completed pilot water treatment design studies
- Completed permit applications for construction of an ASR system
- Constructed a new Floridan aquifer monitoring well, in compliance with new regulatory criteria
- Finalized design for the reactivation components
- A petition for Aquifer Exemption is currently pending with the USEPA.

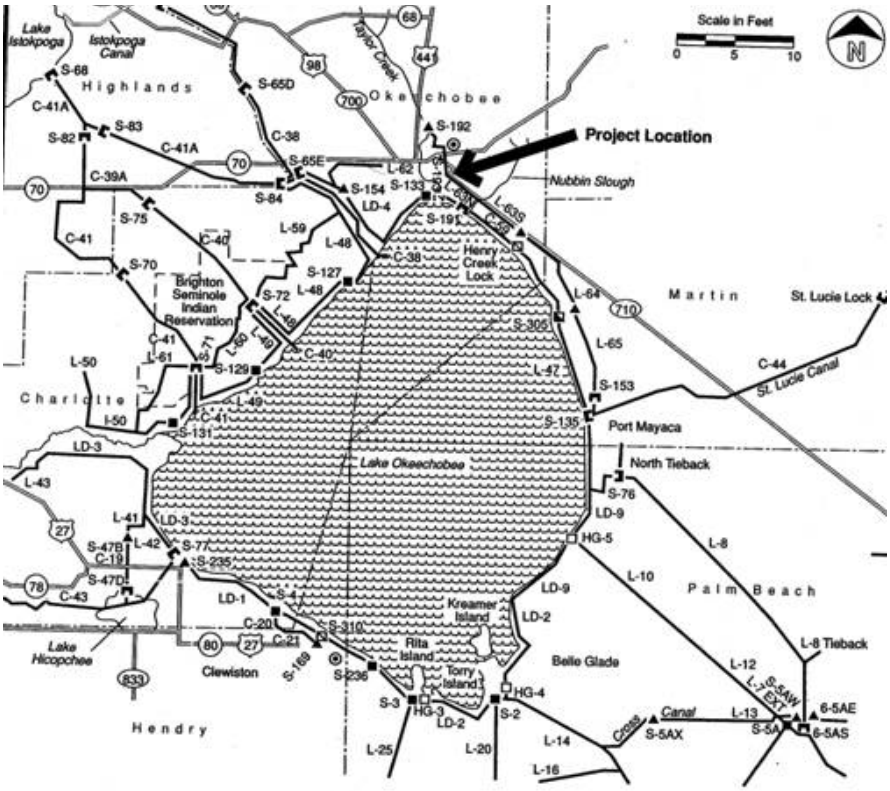
Total Estimated Project Cost: $2,000,000

Project Schedule:
Start Date: June 2006
Finish Date: June 2017

Actual Expenditures to Date by SFWMD:

	2008	2009	2010	Total to Date
SFWMD	$350,000	$300,000	$200,000	$850,000

Contact: Bob Verrastro, SFWMD



Taylor Creek ASR Project Location Map.

Program Name: Northern Everglades and Estuaries Protection Program
Project Name: **Fisheating Creek Feasibility Study**
Project ID: 1208
Lead Agency: SFWMD, State of Florida
Funding Source: Lake Okeechobee Trust Fund

Strategic Plan Goal(s) Addressed: 1-A.2, Get the hydrology right

Measurable Output(s): Complete a feasibility study to improve hydrology and water quality through storage and treatment features in Fisheating Creek (FEC) sub-watershed.

Project Synopsis: The Coordinating Agencies (SFWMD, FDEP and FDACS) initiated the feasibility study in Fisheating Creek sub-watershed, which is one of the major sources of phosphorus loading to Lake Okeechobee, under the Northern Everglades and Estuaries Protection Program. The purpose of the feasibility study is to identify the best mix of storage and water quality features to improve the hydrology and water quality within the sub-watershed.

Current Status: Through extensive involvement with stakeholder groups and interagency coordination, preliminary planning targets for achieving storage and water quality improvements (phosphorus-load reduction) have been established by the planning team. Phase I was completed. **Phase II is on hold and will be reevaluated in the upcoming year.**

Total Estimated Project Cost: $ 1,036,230 (Phase I and II)

Project Schedule:

Start Date:	Phase I	August 30, 2008
	Phase II	May 1, 2009
Finish Date:	Phase I	February 27, 2009
	Phase II	TBD

Actual Expenditures to Date by SFWMD:

	2008	2009	2010	2011	2012*	2013*	2014*	2015 *	Total to Date
Phase I	$120,005	$144,913						0	$264,918
Phase II		$214,073	$135,645	$136,249	$10,771	$21,777	$9,488	0	$528,003
									$792,921

*** Total and projected expenditures as of June 12, 2015 per SFWMD fiscal year (October 1st through September 30th)**

Contact: **Eric Gonzalez, SFWMD**

Project Name: **C&SF: CERP Florida Keys Tidal Restoration (OPE)**
Project ID: 1302 (CERP Project WBS # 31)
Lead Agency: USACE / SFWMD
Authority: WRDA 2000 *(Programmatic Authority < $25 M)*
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: 1-A.3

Measurable Output(s): 0.6 miles of impediments removed

April 1999 (Restudy) Project Synopsis: The purpose of this feature is to restore the tidal connection that was eliminated in the early 1900s during the construction of Flagler's railroad. Restoring the circulation to areas of surface water that have been impeded and stagnant for decades will significantly improve water quality, benthic floral and faunal communities, larval distribution of both recreational and commercial species (i.e. spiny lobster), and the overall hydrology of Florida Bay.

The project includes the use of bridges or culverts to restore the tidal connection between Florida Bay and the Atlantic Ocean in Monroe County. The four locations are as follows: (1) Tarpon Creek, just south of Mile Marker 54 on Fat Deer Key (width 150 feet); (2) Unnamed Creek between Fat Deer Key and Long Point Key, south of Mile Marker 56 (width 450 feet); (3) tidal connection adjacent to Little Crawl Key (width 300 feet); and (4) tidal connection between Florida Bay and Atlantic Ocean at Mile Marker 57 (width 2,400 feet).

Current Project Synopsis: Since issuance of the Restudy, various studies and other projects have refined this project's scope.

This project provides for the removal of approximately 0.6 miles of impediments and will restore an historic flow way between the Atlantic Ocean and the Gulf of Mexico that were blocked during the early construction of US Highway 1. An existing tidal creek restoration project near the proposed restoration project was fully successful.

A tidal creek near Marathon, Florida was selected for restoration. Culverts to maximize flow will be located, sized, and placed under U.S. 1 between Fat Deer Key and Long Point Key (MM56) to allow tidal exchange and flushing. Monitoring of water quality, benthic community composition, and sediment particle size will be performed before construction, at six months, and one year after construction completion. Additional tidal flow way restoration projects will be subsequently identified based upon the results.

Current Status: Suspended.

Est. Cost: $ 18,926,335

Project Schedule: TBD

Detailed Project Budget Information (rounded):

Florida Keys Tidal Restoration	Obligations Thru FY 2013
USACE	$846,818
SFWMD	$548,930
Total	$1,395,748

Hyperlink: http://141.232.10.32/pm/projects/proj_31_fl_keys_tidal.aspx

Contact: Jeff Couch, Ecosystem Projects Section Chief, Programs and Project Management Division, USACE, Jeffery.D.Couch@usace.army.mil

Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars. Actual expenditures include all federal expenditures through FY09 (Sept, 2009) and sponsor verified and recorded in kind credit through 4th quarter FY07.

Additional Information:

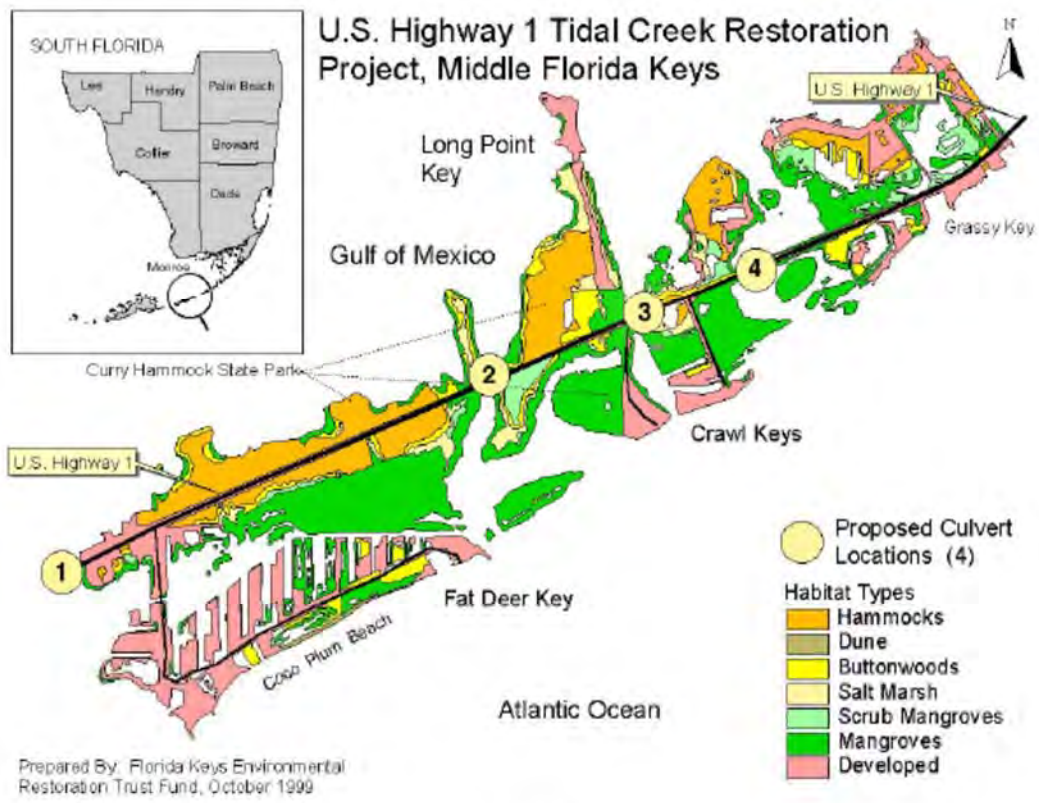


Figure 1
Florida Keys Tidal Restoration Project Area

Project Name: **C&SF: CERP C-43 Aquifer Storage and Recovery Pilot**
F/k/a *Caloosahatchee (C-43) River ASR Pilot*
Project ID: 1411 **(**CERP Project WBS # 33)
Lead Agency: USACE / SFWMD
Authority: WRDA 2000 *(pilot project);* WRDA 2007 *(modified cost)*
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Other – supports 1-A.2

Measurable Output(s): Pilot *(output is temporary)*

April 1999 Project Synopsis: Included Aquifer Storage and Recovery (ASR) wells to maximize the benefits associated with the Caloosahatchee River Storage Reservoir. A pilot project for these wells is necessary to evaluate and reduce the technical and regulatory uncertainties of implementing the full-scale Caloosahatchee ASR Project. The pilot will identify the most suitable sites for the aquifer storage and recovery wells near the reservoir and determine the optimum configuration of those wells. It will provide information regarding the characteristics of the aquifer system within the Caloosahatchee River Basin as well as determine the hydro-geological and geotechnical characteristics of the upper Floridan Aquifer. The pilot will also determine the specific water quality characteristics of waters to be injected and the water quality characteristics and the amount of water to be recovered from the receiving aquifer.

Current Project Synopsis: This pilot was initially sited just west of LaBelle, along the Caloosahatchee River, on SFWMD-owned land in western Hendry County. The pilot includes the construction of one five-million gallons per day ASR well and associated monitoring wells and surface facilities. The full-scale project includes the construction of up to 220 mgd of ASR capacity (approximately 44 ASR wells) and a surface water reservoir (impoundment). The full-scale system will store excess water from the Caloosahatchee River Basin when available (typically in the wet season) and release water into the Caloosahatchee River during dry periods.

The project was refined to include information regarding the hydro-geological and geotechnical characteristics of the Hawthorn Aquifer. A Pilot Project Design Report (PPDR) was completed in September 2004 and an exploratory well drilled. However, geological formations including a sand aquifer at the site were not appropriate for open-hole high-capacity ASR wells. The well has been plugged.

WRDA 2007 amended section 601 (b) (2) (B) of WRDA 2000 and increased the authorization for pilot implementation to $8.2 Million (previously $6.0 M).

Current Status: This project is currently on hold.

Est. Cost: $ 5,915,641

Project Schedule:

2002	Start of feasibility work
2013	Construction completed

Detailed Project Budget Information (rounded):

C-43 ASR Pilot	Obligations Thru FY 2013
USACE	$1,206,637
SFWMD	$2,048,879
Total	$3,255,516

Hyperlink:
http://www.saj.usace.army.mil/Missions/Environmental/EcosystemRestoration/AquiferStorageandRecovery(ASR)RegionalStudy.aspx

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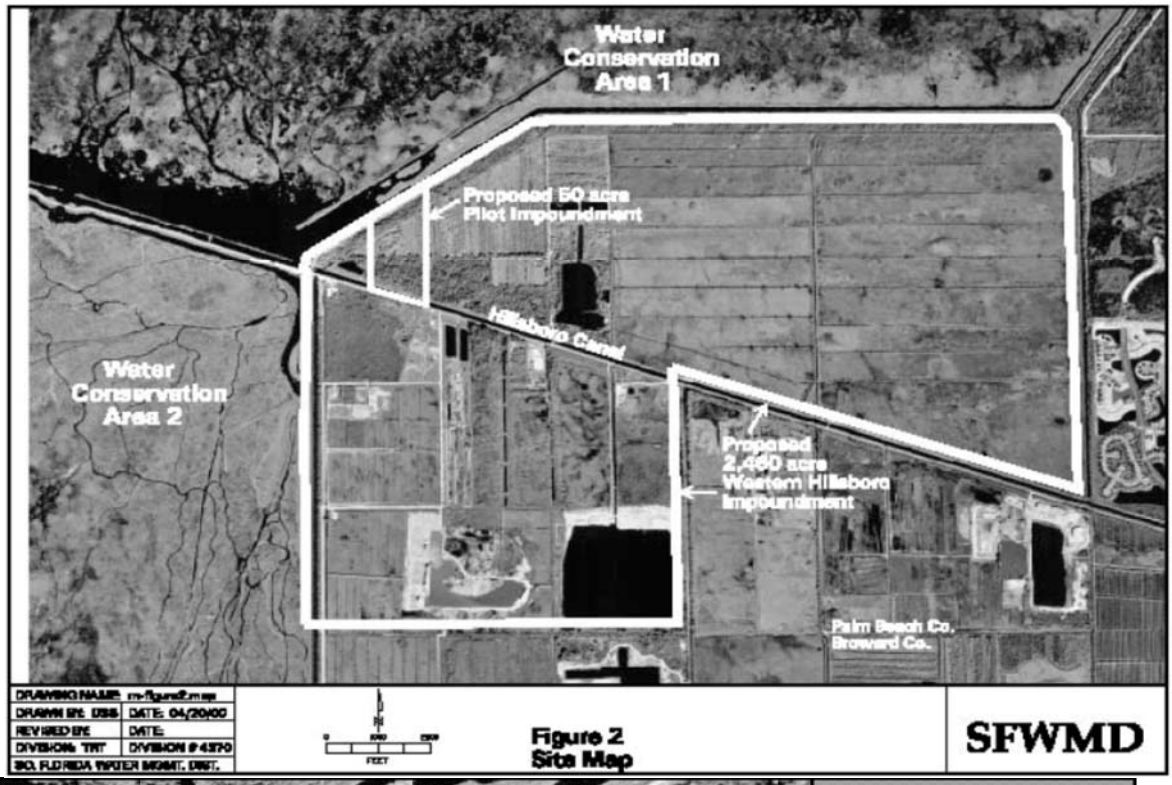
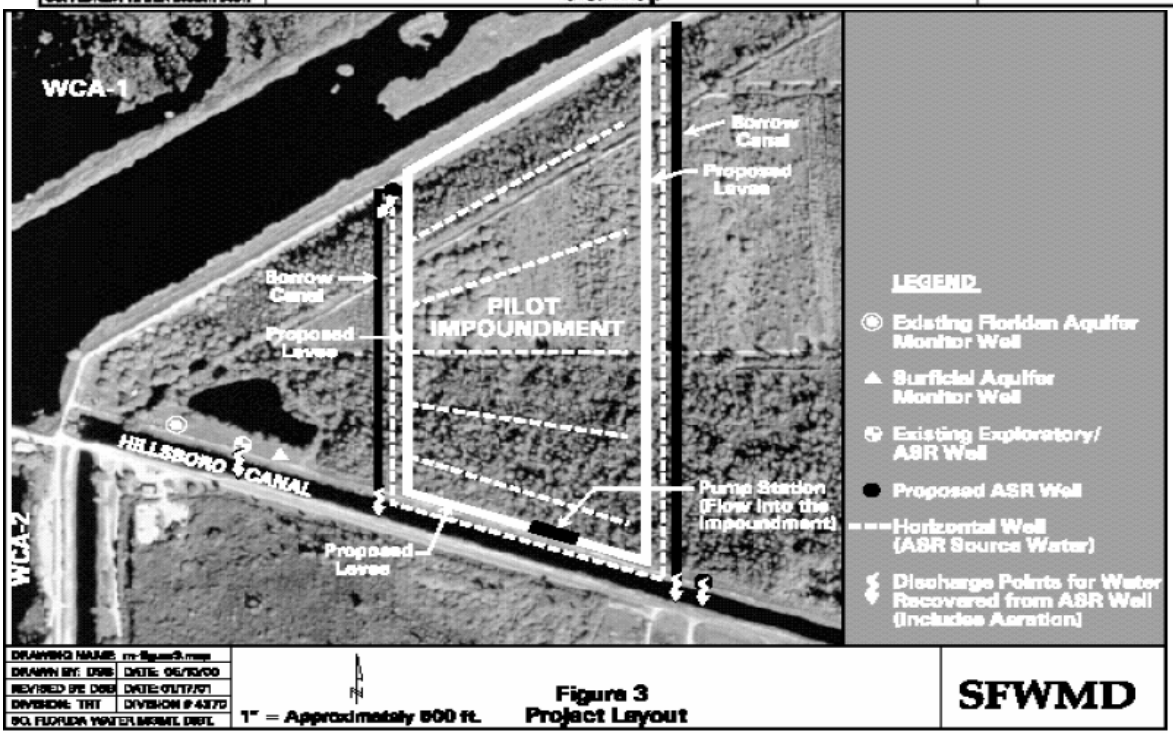
Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Cost estimate information is updated to reflect current price levels in October 2009 dollars. Actual expenditures include all federal expenditures through FY09 (Sept, 2009) and sponsor verified and recorded in kind credit through 4th quarter FY07.


Water Conservation Area 1
Proposed 50 acre Pilot Impoundment
Hillsboro Canal
Water Conservation Area 2
Proposed 2,400 acre Western Hillsboro Impoundment
Palm Beach Co.
Broward Co.
Figure 2
Site Map
SFWMD


WCA-1
Borrow Canal
Proposed Levee
Borrow Canal
Proposed Levee
PILOT IMPOUNDMENT
HILLSBORO CANAL
WCA-2
Proposed Levee
Pump Station (Flow into the Impoundment)
LEGEND
Existing Floridan Aquifer Monitor Well
Surficial Aquifer Monitor Well
Existing Exploratory/ ASR Well
Proposed ASR Well
Horizontal Well (ASR Source Water)
Discharge Points for Water Recovered from ASR Well (Includes Aeration)
1" = Approximately 600 ft.
Figure 3
Project Layout
SFWMD

Project Name: **C&SF: CERP L-31N (L-30) Seepage Management Pilot**
F/k/a *L-31N Seepage Management Pilot*
Project ID: 1416 (CERP Project WBS # 36)
Lead Agency: USACE / SFWMD
Authority: WRDA 2000 *(pilot project)*
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Primary: Other – supports 1-A.2 and 2-A.3

Measurable Output(s): Pilot *(output is temporary)*

April 1999 (Restudy) Project Synopsis: The purpose of the L-31N Levee Improvements feature is to reduce levee seepage flow across L-31N adjacent to Everglades National Park (ENP) via a levee cutoff wall. Additionally, the feature was designed to reduce groundwater flows during the wet season by capturing groundwater flows with a series of groundwater wells adjacent to L-31N, then back-pumping those flows to ENP. The pilot project for this feature is necessary to determine the appropriate technology to best control seepage from ENP. The pilot will also provide necessary information to determine the appropriate amount of wet season groundwater flow to return that will minimize potential impacts to Miami-Dade County's West Well field and groundwater flows to Biscayne Bay.

Current Project Synopsis: After further study of the L-31N site, it was determined that a seepage management feature at this location might be rendered obsolete with implementation of the full-scale ENP Seepage Management project. The USACE Jacksonville District proposed further study for a feature located along a portion of the L-30 levee, north of U.S. Highway 41, in Miami-Dade County, Florida. The change in study area was endorsed by the Quality Review Board (October 2005). As a follow up, the Jacksonville District requested official approval to prepare a Pilot Project Design Report (PPDR) for the L-30 site, from the USACE South Atlantic Division (SAD).

The L-31N (L-30) Seepage Management Pilot Project will help resolve critical uncertainties associated with seepage management. These include the characterization of the Biscayne Aquifer hydrodynamics, constructability in south Florida geology, reliability of materials and technologies, implementability of a seasonally flexible operating system, appropriateness of monitoring to evaluate effects on seepage, and cost and time requirements necessary for implementation. The pilot will also help answer questions on overall effectiveness of seepage management technologies. The recommended plan will test structural seepage reduction technologies and ability to seasonally manage seepage flows through pumping operations with the use of extraction and injection wells. Field tests, seepage reports and historical data independently showed that this is one of the most transmissive parts of the Biscayne Aquifer.

Current Status: A detailed monitoring plan has been developed to determine the effectiveness of the seepage management system. In December 2008, intermediate plans and specifications were reviewed by the SFWMD. Independent Technical Review and public and agency review of the draft Pilot Project Design Report (PPDR) were completed by January of 2009. Following Independent External Peer Review in March, the PPDR was approved by the Assistant Secretary of the Army for Civil Works in November 2009.

Est. Cost: $ 16,161,976

Project Schedule:
Project is currently inactive.

Detailed Project Budget Information (rounded):

L-31N (L-30) Seepage Management Pilot	Obligations Thru FY 2013
USACE	$6,695,115
SFWMD	$1,416,020
Total	$8,111,135

Hyperlink: http://141.232.10.32/pm/projects/proj_36_l31n_seepage.aspx

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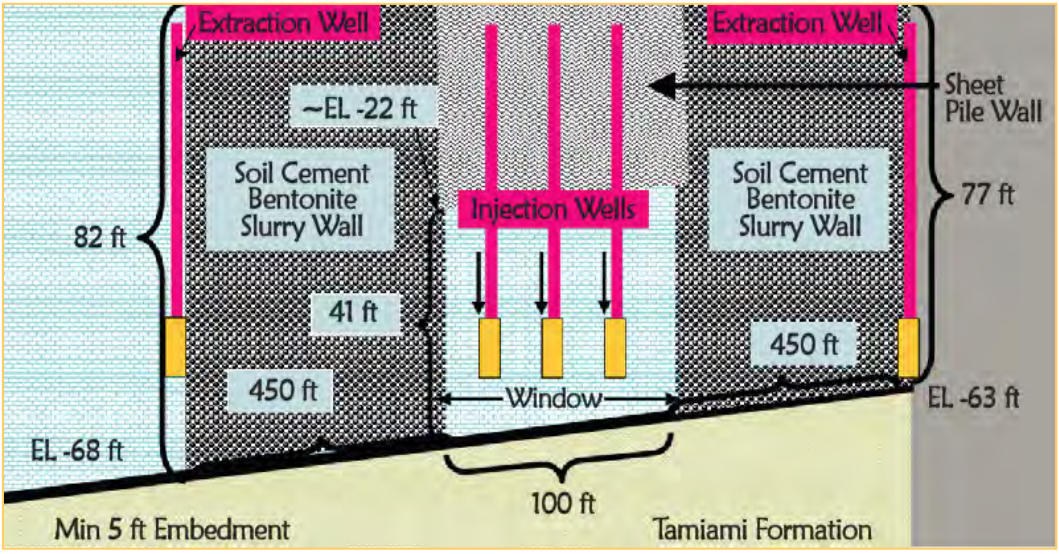
Source: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (Restudy) (1999).* Actual expenditures include all federal expenditures through FY11 and sponsor verified and recorded in kind credit through 4th quarter FY11. Schedule is updated based on the approved *Integrated Delivery Schedule Through 2020.*

Additional Information: *(see next page)*

UNDER GROUND VIEW



Project Name: **C&SF: CERP Florida Bay Florida Keys Feasibility Study (FBFKFS)**
Project ID: 1426
Lead Agency: USACE / SFWMD
Authority: WRDA 1996
Funding Source: Federal/State

Strategic Plan Goal(s) Addressed: Other – supports 2-A.3

Measurable Output(s): Recommendations

April 1999 (Restudy) Project Synopsis: Construction of Flagler's railroad to Key West and subsequent conversion into U.S. Highway 1 (US-1) involved the placement of fill material in wetlands and open water to build the numerous causeways between keys. These causeways altered tidal flows between Florida Bay and the Atlantic Ocean, resulting in adverse water quality and fish and wildlife habitat impacts.

One of the House of Representatives Committee on Public Works and Transportation resolutions of September 24, 1992 requested that the USACE conduct a study of Florida Bay, including a comprehensive, coordinated ecosystem study with hydrodynamic modeling of Florida Bay and its connections to the Everglades, the Gulf of Mexico, and the Florida Keys Coral Reef ecosystem. The Plan recognized that more thorough investigations of regional water resource problems was needed, and directed these to be conducted under the authority of WRDA 1996 that allows for the continuation of studies and analyses necessary. A comprehensive feasibility study was recommended to evaluate Florida Bay and to determine the types of modifications needed to restore water quality and ecological conditions of the Bay.

Current Project Synopsis: The study goal is to "Evaluate Florida Bay and its connections to the Everglades, the Gulf of Mexico and the Florida Keys marine ecosystem to determine the modifications that are needed to successfully restore water quality and ecological conditions of the Bay, while maintaining or improving these conditions in the Keys' marine ecosystem."
Similarly, the PDT has determined that the objectives of the FB&FK FS are:
Determine the quantity, timing, distribution and quality of freshwater that should flow to Florida Bay and provide recommendations for any modifications of water deliveries that will result from current CERP plans for Everglades' wetlands.
Determine the nutrient sources and loads to the study area, evaluate their impacts to reef and bay ecosystems, and recommend restoration targets and implementation plans.
Establish water quality and ecological performance measures.
Evaluate the effects of restoring historical connectivity between Florida Bay and the Atlantic Ocean.
Evaluate management alternatives in a holistic manner employing, where necessary, hydrodynamic, water quality and ecological models.

Various models were completed in 2006 and early results of these models were reviewed by the PDT. The focus was on refinement and documentation of the models for reevaluation of the issues in a holistic manner. No Tentatively Selected Plan has been chosen. A draft "letter" report was completed to document the work completed as of January 2007 and the project was suspended.

Current Status: Suspended. The project is planned for the future.
Est. Cost: $ 6,500,000

Project Schedule: TBD

Detailed Project Budget Information (rounded):

Florida Bay Florida Keys		**Obligations Thru FY 2013**
USACE	Recon (100%)	$155,712
	Feasibility (50/50)	$1,843,391
SFWMD		$4,517,767
Total		$6,516,870

Hyperlink: http://141.232.10.32/pm/studies/fl_bay.aspx

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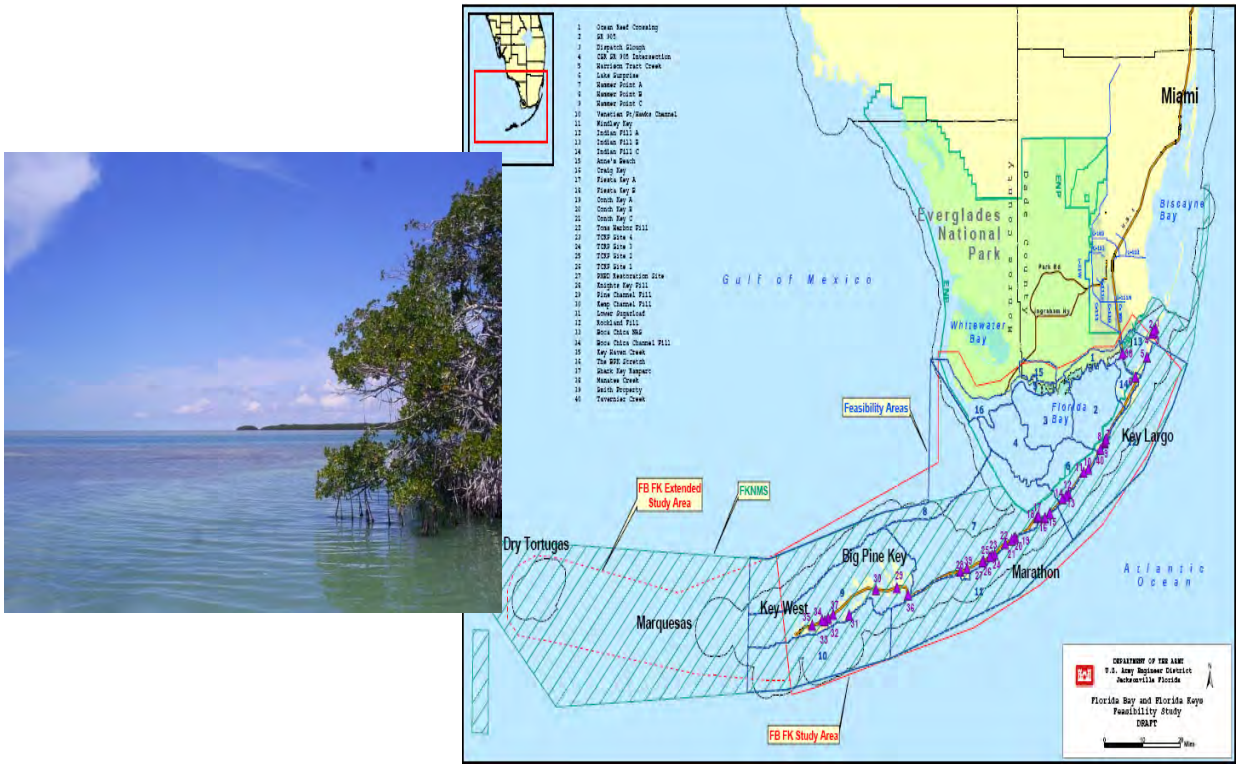
Sources: Original project description summarized from the *Central and Southern Florida Project Comprehensive Review Study (1999).* Current Description summarized from the *Florida Bay / Florida Keys Feasibility Study Project Management Plan (PMP), Feb 2002 – Final.* Cost estimate information is updated to reflect current price levels in October 2009 dollars. Actual expenditures include all federal expenditures through FY09 (Sept, 2009) and sponsor verified and recorded in kind credit through 4th quarter FY07.

Additional Information: