

SOUTH FLORIDA ECOSYSTEM RESTORATION
TASK FORCE

Volume 1

COORDINATING SUCCESS 2006:

Strategy for Restoration of the South Florida Ecosystem

&

TRACKING SUCCESS:

Biennial Report of the South Florida Ecosystem Restoration Task Force for
July 2004 - June 2006

To the U.S. Congress, Florida Legislature, Seminole Tribe of Florida, and
Miccosukee Tribe of Indians of Florida

September 8, 2006

DRAFT

*This is Volume 1 of a two-volume report.
Volume 1 contains the coordination strategy and biennial report of
the South Florida Ecosystem Restoration Task Force.
Volume 2 contains the Integrated Financial Plan,
including descriptions of all the individual projects that
participating entities have identified as
supporting ecosystem restoration.*

*Both volumes combine information from federal, state, tribal, and
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GLOSSARY

Acre-foot: The volume of water, 43,560 cubic feet, that will cover an area of one acre to a depth of one foot.

Adaptive management: A process for learning and incorporating new information into the planning and evaluation phases of the restoration program. This process ensures that the scientific information produced for this effort is converted into products that are continuously used in management decision-making.

Benthic: Bottom dwelling, as in organisms.

Best management practices (BMPs): Agricultural and other industrial management activities designed to achieve an important goal, such as reducing farm runoff or optimizing water use and water quality.

Decomartmentalization: Modifications to impediments of sheetflow.

Economic equity: The fair treatment of all persons regardless of color, creed, or belief in aspects of opportunities and/or diseconomies regarding economic or environmental activities.

Ecosystem: A community of organisms, including humans, interacting with one another and the environment in which they live.

El niño/la niña: Warming and cooling patterns in the Pacific Ocean that affect the earth's atmosphere.

Environmental justice: The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

Eutrophication: The natural or cultural enrichment of an aquatic environment with plant nutrients leading to rapid ecological changes and high productivity.

Exotic or invasive species: Exotic species are kinds of plants and animals not native to an area and found beyond their natural range. Exotic plants are introduced by people intentionally for social and economic reasons, and as accidental consequences of travel and commerce. Often such species are highly invasive and dominating to native forms.

Goal: Something to be achieved. Goals can be established for outcomes (results) or outputs (efforts).

Hydrology: The study of the properties, distribution, and effects of water. When used in the Task Force strategy and biennial reports, the term refers to the quantity, timing, and distribution of water in the ecosystem.

Hydropattern: Water depth and duration, along with the quantity, timing, and distribution of surface water to a specific area; critical for maintaining various ecological communities in wetlands.

Hydroperiod: Depth and duration of inundation in a particular wetland area.

Indicator: A metric that is designed to inform us easily and quickly about the conditions over time and space of an ecosystem.

Minimum flows and levels: Florida statute requires water management districts to set water levels for each major body of water "at which further withdrawals would be significantly harmful to the water resources or ecology of the area."

Nonpoint source pollution: Comes from many diffuse sources; caused by rainfall (or snowmelt in colder climates) moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters, and even underground sources of drinking water.

Nonstructural flood protection: Use of operation schedules, redirection of flows, or other operating strategies to manage water other than building new or modifying existing infrastructure.

Objective: A goal expressed in specific, directly quantifiable terms.

Outcome: An end result. When used in the Task Force strategy and biennial reports, a quality of the restored South Florida Ecosystem.

Output: Levels of work and effort. When used in the Task Force strategy and biennial reports, the products, activities, or services produced by a project or program.

Periphyton: The biological community of microscopic plants and animals attached to surfaces in aquatic environments. Algae are the primary component in these assemblages and periphyton can be very important in aquatic food webs, such as those of the Everglades.

Performance measure: A desired result stated in quantifiable terms to allow for an assessment of how well the desired result (outcome) has been achieved.

[Point source: Any discernible, confined discrete conveyance from which pollutants are or may be discharged which are regulated by federal or state issued National pollutant Discharge Elimination System \("NPDES"\) permits. \(Miccosukee Tribe edit\)](#)

Restoration: When used in the Task Force strategy and biennial reports, the recovery of a natural system's vitality and biological and hydrological integrity to the extent that the health and ecological functions are self-sustaining over time.

Seiches: Waves on the surface of a lake or other landlocked water body caused by atmospheric or seismic disturbances.

Sheetflow: Water movement as a broad front with shallow uniform depth.

South Florida Ecosystem: An area consisting of the lands and waters within the boundaries of the South Florida Water Management District and the Multi-Species Recovery Plan, including the Kissimmee Basin, Lake Okeechobee, Everglades, the Florida Keys, and the contiguous nearshore coastal waters of south Florida.

Stormwater: Surface water runoff resulting from rainfall that does not percolate into the ground or evaporate.

Subsidence: The lowering of the soil level caused by shrinkage of organic layers. This shrinkage is due to desiccation, consolidation, and biological oxidation.

Sustainability: The state of having met the needs of the present without endangering the ability of future generations to be able to meet their own needs.

Vision: An aspiration of future conditions. In this case, the results that the Task Force members intend to achieve in terms of ecosystem health and quality of life for south Florida residents and visitors.

Wetlands: Areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support a prevalence of vegetative or aquatic life that require saturated or seasonally saturated soil conditions for growth and reproduction.

ACRONYMS

ASR	Aquifer storage and recovery	MAP	Monitoring and Assessment Plan
AWS	Alternative Water Supply	μ/L	Micrograms per liter
BBRRCT	Biscayne Bay Regional Restoration Coordination Team	MGD	Million gallons per day
BMP	Best management practices	MERIT	Multi-Species/Ecosystem Recovery Implementation Team
C&SF	Central and Southern Florida Project	MFL	Minimum flows and levels
CERP	Comprehensive Everglades Restoration Plan	MISP	Master Implementation Sequencing Plan
CFS	Cubic foot per second	MRP	Master Recreation Plan
CREW	Corkscrew Regional Ecosystem Watershed	MSRP	Multi-Species Recovery Plan
CROGEE	Committee on Restoration of the Greater Everglades Ecosystem	MT	Metric ton
CSOP	Combined Structural and Operational Plan	MWD	Modified Water Deliveries to Everglades National Park Project
DACS	Florida Department of Agriculture and Consumer Services	NAS	National Academy of Science
DCA	Florida Department of Community Affairs	NEWTT	Noxious Exotic Weed Task Team
DEP	Florida Department of Environmental Protection	NMFS	National Marine Fisheries Service
DOI	U.S. Department of the Interior	NOAA	National Oceanic and Atmospheric Administration
EAA	Everglades Agricultural Area	NPDES	National Pollutant Discharge Elimination System
EAR	Evaluation and Appraisal Report	NPS	National Park Service
EFA	Everglades Forever Act	NRCS	Natural Resources Conservation Service
EIS	Environmental Impact Statement	NWR	National Wildlife Refuge
ENP	Everglades National Park	OSHA	Occupational Safety and Health Administration
EPA	Everglades Protection Area	PIR	Project Implementation Report
ERC	Florida Environmental Regulation Commission	PMP	Project Management Plan
ERN	Everglades Radio Network	PPB	Parts per billion
ERP	Environmental Resource Permit	PSTA	Periphyton stormwater treatment area
FCAT	Florida Comprehensive Assessment Test	RECOVER	REstoration COordination and VERification Team
FEMA	Federal Emergency Management Agency	SAV	Submerged aquatic vegetation
FIATT	Florida Invasive Animal Task Team	SCG	Science Coordination Group
FKNMS	Florida Keys National Marine Sanctuary	SFWM	South Florida Water Management District
FRPP	Farm and Ranch Land Protection Program	STA	Stormwater treatment area
FWS	U.S. Fish and Wildlife Service	SWIM	Surface Water Improvement and Management Act
GAO	U.S. Government Accountability Office	TMDL	Total maximum daily load
GCSSF	Governor's Commission for a Sustainable South Florida	TSP	Tentatively Selected Plan
GPD	Gallons per day	TP	Total phosphorus
IFP	Integrated Financial Plan	USACE	U.S. Army Corps of Engineers
IRL	Indian River Lagoon	USDA	U.S. Department of Agriculture
ISR	Independent scientific review	USEPA	U.S. Environmental Protection Agency
LATT	Land Acquisition Task Team	USGS	U.S. Geological Survey
LILA	Loxahatchee Impoundment Landscape Assessment	WCA	Water Conservation Area
LOER	Lake Okeechobee and Estuary Recovery	WRAC	Water Resources Advisory Commission
LOFT	Lake Okeechobee Fast Track	WRDA	Water Resources Development Act
LOPA	Lake Okeechobee Protection Act	WRP	Wetlands Reserve Program
LOPP	Lake Okeechobee Protection Plan	WY	Water year
LOST	Lake Okeechobee Scenic Trail		

EXECUTIVE SUMMARY

Progress continues in developing and coordinating the highly complex plans and initiating action to restore the quality of the South Florida Ecosystem, one of America's unique natural areas. The revised *Coordinating Success: Strategy for Restoration of the South Florida Ecosystem (Strategy)* and *Tracking Success: Biennial Report of the South Florida Ecosystem Restoration Task Force, July 2004 – June 2006 (Biennial Report)*, both included in Volume 1, summarize recent progress, ongoing challenges, and plans that guide the coordinated efforts of local, state, tribal, and federal governments as they implement their respective work. The *Strategy* and *Biennial Report* were prepared in accordance with Congressional guidance by the South Florida Ecosystem Restoration Task Force (hereinafter referred to as the Task Force), an intergovernmental group created by the Congress in 1996 to coordinate the restoration effort.

The purpose of the revised *Strategy* is to update the strategy document submitted to Congress in 2004. This *Strategy* responds to Congressional direction to outline how the restoration effort will occur, identify the resources needed, establish responsibility for accomplishing actions, and link strategic goals to outcome-oriented goals. The *Strategy* describes how the restoration effort is being coordinated among many government entities to achieve broad improvements throughout the ecosystem. The *Strategy* retains the three strategic goals first published in July 2000: (1) get the water right; (2) restore, preserve, and protect natural habitats and species; and (3) foster compatibility of the built and natural systems. (These goals and the measurable objectives are summarized in a table included in this summary.)

The overall premise of restoration is that the ecosystem must be managed from a 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 critical to maintaining a quality built environment and lifestyle for south Florida's residents and visitors.

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

The Task Force strategy is to focus the efforts of its members on a shared vision and set of strategic goals and objectives for achieving that vision, to coordinate individual member projects, to track and assess progress through indicators of success, and to facilitate the resolution of issues and conflicts as they arise.

It is important to note the significant contributions from other programs toward achievement of the Task Force's three strategic goals. While the Comprehensive Everglades Restoration Plan (CERP) is vital to accomplishing all the strategic goals, many other restoration projects are important to achieving restoration. Some of the ~~nonpre~~-CERP projects that are also critical to achieving goal one (get the water right) include the Kissimmee River Restoration, Modified Water Deliveries to Everglades National Park, Canal-111, and Everglades Construction Project. The Lake Okeechobee and Estuary Recovery program, begun in 2005, is ~~an~~ the latest action plan to help restore the ecological health of Lake Okeechobee and the St. Lucie and Caloosahatchee Estuaries. The ~~\$1.5 billion~~ Acceler8 program, with an estimated construction cost of \$1.5 billion (SFWMD edit) was launched in 2004 in efforts to expedite several projects that will help accomplish goal one. For goal two (restore, preserve, and protect natural habitats and species), the state's Florida Forever program is the lynchpin of the effort to acquire important habitat lands. For goal three (foster compatibility of the built and natural systems), state and local governments are improving the coordination between land use and water supply planning to ensure availability of

adequate water supplies to meet legislative direction to support existing development but not degrade the environment. The State of Florida's ongoing Florida Forever program increases the spatial extent of open space and multiplies its benefits by linking park, conservation, recreation, water resource, and other open space lands. These efforts help protect natural systems by providing additional habitat and serving as buffers between the natural and built environments.

The *Biennial Report* documents the activities of the Task Force and its members and progress made between July 2004 and June 2006 in achieving the strategic goals and objectives included in the Task Force *Strategy*.

Restoring the Everglades is a global, national, and state priority. The South Florida Ecosystem not only supports the economy and the high quality of life of Floridians and Native American Indians who live there, but also enriches the national legacy of all Americans. By working cooperatively and communicating with the public in this unique conservation effort, the Task Force members seeks to ensure that all interests are protected as each member works to fulfill its individual responsibilities to local residents and the nation at large.

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**STRATEGIC GOALS AND OBJECTIVES
OF THE SOUTH FLORIDA ECOSYSTEM RESTORATION TASK FORCE**

GOAL 1: GET THE WATER RIGHT

Subgoal 1-A: Get the hydrology right

- Objective 1-A.1: Provide 1.8 million acre-feet of surface water storage by 2036
- Objective 1-A.2: Develop aquifer storage and recovery systems capable of storing 1.5 billion gallons per day by 2030
- Objective 1-A.3: Modify 345 miles of impediments to flow by 2020

Subgoal 1-B: Get the water quality right

- Objective 1-B.1: Construct 91,345 acres of stormwater treatment areas by 2035
- Objective 1-B.2: Prepare locally-based plans to reduce pollutants as determined necessary by the total maximum daily loads by 2011 ([see Miccosukee Tribe comment 1](#))

GOAL 2: RESTORE, PRESERVE, AND PROTECT NATURAL HABITATS & SPECIES

Subgoal 2-A: Restore, preserve, and protect natural habitats

- Objective 2-A.1: Complete acquisition of 5.8 million acres of land identified for habitat protection by 2015
- Objective 2-A.2: Protect 20 percent of the coral reefs by 2010
- Objective 2-A.3: Improve habitat quality for 2.4 million acres of natural areas in south Florida

Subgoal 2-B: Control invasive exotic plants

- Objective 2-B.1: Coordinate the development of management plans for the top 20 south Florida invasive exotic plant species by 2011
- Objective 2-B.2: Achieve maintenance control of Brazilian pepper, melaleuca, Australian pine, and Old World climbing fern on south Florida's public conservation lands by 2020
- Objective 2-B.3: Complete an invasive exotic plant species prevention, early detection, and eradication plan by 2007

GOAL 3: FOSTER COMPATIBILITY OF THE BUILT AND NATURAL SYSTEMS

Subgoal 3-A: Use and manage land in a manner compatible with ecosystem restoration

- Objective 3-A.1: Designate or acquire an additional 480,000 acres as part of the Florida Greenways and Trails System by 2009
- Objective 3-A.2: Increase participation in the voluntary Farm Bill conservation programs by 230,000 acres by 2014
- Objective 3-A.3: Acquire an additional 2,500 acres of park, recreation, and open space lands by 2007
- Objective 3-A.4: Complete five brownfield rehabilitation and redevelopment projects by 2010
- Objective 3-A.5: Increase community understanding of ecosystem restoration

Subgoal 3-B: Maintain or improve flood protection in a manner compatible with ecosystem restoration

- Objective 3-B.1: Maintain or improve existing levels of flood protection

Subgoal 3-C: Provide sufficient water resources for built and natural systems

- Objective 3-C.1 Plan for regional water supply needs*
- Objective 3-C.2: Increase volumes of reuse on a regional basis
- Objective 3-C.3: Increase water made available through the SFWMD Alternative Water Supply Development Program

*Due to a change in state law the output for this objective has been changed

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<p>DRAFT</p> <p>STRATEGY PURPOSE AND BACKGROUND RESTORATION STRATEGY VISION AND INDICATORS OF SUCCESS STRATEGIC GOALS AND OBJECTIVES</p>	<p>COORDINATING SUCCESS 2006: STRATEGY FOR RESTORATION OF THE SOUTH FLORIDA ECOSYSTEM</p>
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COORDINATING SUCCESS 2006: STRATEGY FOR RESTORATION OF THE SOUTH FLORIDA ECOSYSTEM

STRATEGY PURPOSE AND BACKGROUND

Purpose

The purpose of *Coordinating Success 2006: Strategy for Restoration of the South Florida Ecosystem (Strategy)* is to describe how the South Florida Ecosystem Restoration Task Force (Task Force) will coordinate the intergovernmental effort to restore and sustain the imperiled South Florida Ecosystem. The American people have a strong national as well as a state and local interest in preserving this 18,000-square-mile region of subtropical uplands, wetlands, and coral reefs that extends from the Kissimmee Chain of Lakes south of Orlando through Florida Bay and the reefs southwest of the Florida Keys. The South Florida Ecosystem not only supports the economy and the distinctive quality of life of the Floridians and the Native American Indians who live there, but also greatly enriches the shared legacy of all Americans. It encompasses many significant conservation areas, including Everglades, Biscayne, and Dry Tortugas National Parks, Big Cypress National Preserve, [the Everglades in the water conservation areas](#), the Fakahatchee Strand, the Picayune Strand State Forest, the Collier-Seminole, John Pennekamp, and Jonathan Dickinson State Parks, the Rookery Bay National Estuarine Research Reserve, [the Water Conservation Areas](#), [\(Miccosukee Tribe edit\)](#) the Arthur R. Marshall Loxahatchee National Wildlife Refuge, and the Florida Keys National Marine Sanctuary.

Many federal, state, tribal, and local entities are working to address the ecological conditions in south Florida. The Task Force reports on and facilitates the coordination of the work. In 1999 Congress directed the Task Force to produce a restoration strategy that meets four requirements as recommended by the United States Government Accountability Office (GAO):

1. Outline how the restoration effort will occur
2. Identify the resources needed
3. Establish responsibility for accomplishing actions
4. Link the strategic goals established by the participants to outcome-oriented goals

This *Strategy* describes how the restoration effort is being coordinated. The Task Force members have agreed upon guiding principles for restoration and a vision for the results to be achieved; they have established three broad strategic goals and measurable objectives for the work needed to achieve the vision; they have identified the projects needed to achieve the objectives; they are coordinating those projects so that they are mutually supportive and nonduplicative; and they are tracking progress toward both the work-oriented strategic goals and the results-oriented vision. The vision, strategic goals, objectives, indicators of success, and individual project data (including cost, responsible agency, and targeted completion dates) are all specified in this *Strategy*. The project details are summarized in the Integrated Financial Plan (IFP) Summary Table provided as Appendix A. Additional information for each project is available in the complete IFP that is provided in Volume 2.

The Task Force *Strategy* is designed for planning purposes only, is subject to modification as needed, and is not legally binding on any of the Task Force members. Each Task Force member entity retains all of its

sovereign rights, authorities, and jurisdiction for implementation of the projects identified as part of the Task Force *Strategy*.

Who Is Involved: The South Florida Ecosystem Restoration Task Force

Six federal departments (twelve agencies), seven Florida state agencies or commissions, two American Indian tribes, sixteen counties, scores of municipal governments, and interested groups and businesses from throughout south Florida participate in the restoration effort. Four sovereign entities (federal, state, and two tribes) are represented. The Task Force sought extensive involvement from local agencies, citizen groups, nonprofit organizations, and other interested parties as part of its assessment for this *Strategy*.

The Task Force was created in 1993 as a federal interagency partnership with informal participation by the State of Florida, the Seminole Tribe of Florida, and the Miccosukee Tribe of Indians of Florida. In recognition of the magnitude of the restoration effort and the critical importance of partnerships with state, tribal, and local governments, the Task Force was expanded to include tribal, state, and local governments by the Water Resources Development Act of 1996 (WRDA 1996).

WRDA 1996 outlines the Task Force duties:

- Consult with, and provide recommendations to, the Secretary of the Army during development of the Comprehensive Everglades Restoration Plan (CERP)
- Coordinate development of consistent policies, strategies, plans, programs, projects, activities, and priorities for addressing the restoration, preservation, and protection of the South Florida Ecosystem
- Exchange information regarding programs, projects, and activities of the agencies and entities represented on the Task Force to promote ecosystem restoration and maintenance
- Establish a Florida-based Working Group that includes representatives of the agencies and entities represented on the Task Force as well as other governmental entities as appropriate for the purpose of formulating, recommending, coordinating, and implementing the policies, strategies, plans, programs, projects, activities, and priorities of the Task Force
- May establish advisory bodies as determined necessary to assist the Task Force in its duties, including public policy and scientific issues
- When desired, designate an existing advisory body or entity that represents a broad variety of private and public interests for additional input into their work
- Facilitate the resolution of interagency and intergovernmental conflicts associated with the restoration of the South Florida Ecosystem among agencies and entities represented on the Task Force
- Coordinate scientific and other research associated with the restoration
- Provide assistance and support to agencies and entities represented
- Prepare an integrated financial plan and recommendations for coordinated budget requests to be expended by agencies and entities on the Task Force
- Submit a biennial report to Congress that summarizes the restoration activities and progress made toward restoration

In December 2003 the Task Force revised the Working Group charter to streamline and clarify its duties. To assist the Task Force in fulfilling its obligations the Working Group was tasked to develop, for Task Force approval, a draft biennial report that summarizes the activities of the Task Force and progress made toward restoration; a draft integrated financial plan and recommendations for a coordinated budget request; a draft biennial update to the strategic plan; a draft biennial update to the total cost report; and responses to specific priority activities assigned by the Task Force.

The Task Force established a Science Coordination Group (SCG) in December 2003 to assist it in coordinating scientific and other research. This group was charged to develop, for Task Force approval, a draft science coordination plan that tracks and coordinates programmatic-level science and other research, identifies programmatic level priority science needs and gaps, and facilitates management decisions; and specific responses to priority work activities assigned by the Task Force.

The Task Force does not have any oversight or project authority, and participating agencies are responsible for meeting their own projected accomplishments. The Task Force serves as a forum in which ideas are shared and consensus is sought. This enhances the productivity of each member government or agency effort. (The Task Force charter is attached as Appendix X.)

Brief History of South Florida Ecosystem Management

Early land developers viewed the Everglades and related habitats as worthless swamps. By the late 1800s efforts were underway to "reclaim" these swamplands for productive use. These initial efforts were encouraging, and more wetlands were drained [or filled \(Miami Dade County edit\)](#) for agriculture and for residential and commercial development. Little by little, canals, roads, and buildings began to displace native habitats.

In 1934 national concern about the degradation of the South Florida Ecosystem led to the creation of Everglades National Park (ENP). The portion of the Everglades included in the park was to be permanently reserved as a wilderness with no development that would interfere with preserving the unique flora and fauna and the essential primitive character existing at the date of enactment. This mandate to preserve wilderness is one of the strongest in the national park system. The park was authorized by Congress in 1934 and opened to the public in 1947. [Other parks, preserves were subsequently authorized; see Strategic Plan Table 1 on page X. \(Miami Dade county edit\)](#)

The Miccosukee and the Seminole Indians, whose culture and way of life depend on a healthy Everglades Ecosystem, had been living and thriving in this ~~diminishing~~ natural environment, [which was being dramatically altered by human actions](#), for generations. The legislation establishing ENP specifically [clarified recognized](#) the rights of the Miccosukee Tribe to live in the park and [subsequent legislation clarified the tribe's right to live in its community along set aside land along the border of the park and for the tribe \(Miccosukee Tribe edit\)](#) to govern its own affairs in perpetuity.

The region has historically been plagued with both hurricanes and droughts. A 1928 hurricane caused Lake Okeechobee to overflow, drowning approximately 2,400 people. Droughts from 1931 to 1945 lowered groundwater levels, creating serious threats of saltwater intrusion into wells and causing damaging muck fires. In 1947 successive storms left 90 percent of south Florida – more than 16,000 square miles from south of Orlando to the Keys – under water for the better part of the year.

In 1948 the ongoing efforts to drain the Everglades, protect the region from hurricanes, and make the region habitable culminated in the Congressional authorization of the original Central and Southern Florida Flood Control Project that later evolved into the current Central and Southern Florida Project

(C&SF), a flood control project jointly built and managed by the U.S. Army Corps of Engineers (USACE) and the South Florida Water Management District (SFWMD). The C&SF Project significantly altered the region's hydrology. The primary project goal was to provide water and flood control for urban and agricultural lands. Another goal was to ensure a water supply for ENP and fish and wildlife resources in the Everglades. The first goal was achieved. The project succeeded in draining half of the original Everglades and allowing for expansion of the cities on the lower east coast of Florida and the farming area south of Lake Okeechobee known as the Everglades Agricultural Area (EAA). The second goal has not yet been accomplished. The correct quantity, quality, timing, and distribution of water to the South Florida Ecosystem have been the subject of much study. Many projects have been [authorized to begin to undertaken to](#) restore [more](#) natural water flows to this region. [\(Miccosukee Tribe edit\)](#)

The original C&SF Project water supply component for ENP was based on the understanding of the park hydrologic and ecologic needs at the time the plan was developed. Subsequent research has indicated the importance of hydroperiods to the health of natural systems as opposed to a conventional water supply delivery. Historically most rainwater flowed slowly across the extremely flat landscape, soaking into the region's wetlands and forming what became known as the "River of Grass." This natural functioning system began to be altered a century ago. The most significant alteration was the C&SF canal system, which by the year 2000 was comprised of over 1,800 miles of canals and levees and 200 water control structures and drained approximately 1.7 billion gallons of water per day into the Atlantic Ocean and the Gulf of Mexico. As a result, not enough water was available for the natural functioning of the Everglades or for the communities in the region [and at times portions of the Everglades suffered from too much water](#). Water quality also was degraded. [Phosphorus Excess phosphorus runoff](#) [\(Miccosukee Tribe edit\)](#) from agriculture and other sources polluted much of the northern Everglades and Lake Okeechobee and caused destructive changes to the food chain.

During the 1970s and 1980s public policy, in line with predominant public opinion, moved in the direction of environmental protection and restoration in south Florida. In 1972, for example, the Florida Legislature passed the Florida Water Resources Act to balance human and natural system water resource needs. In the same year the Florida Land Conservation Act was enacted to protect lands for environmental protection and recreation. In 1983, under the leadership of Governor Bob Graham, the Save Our Everglades program was initiated to protect and restore the Kissimmee River Basin, Lake Okeechobee, the state-managed water conservation areas (WCAs), Big Cypress Swamp, ENP, Florida Bay, and endangered wildlife. In 1987 the Florida Legislature passed the Surface Water Improvement and Management Act (SWIM), which directed the five water management districts to clean up the priority water bodies in the state. In 1988 Congress, with strong support from the State of Florida, passed the Big Cypress National Preserve Addition and Florida/ Arizona Land Exchange Acts, which added 146,000 acres to the Big Cypress National Preserve. This act also affirmed the rights of the Seminole Tribe and Miccosukee Tribe of Indians to customary use and occupancy in the Preserve. In 1989 Congress passed the Everglades Expansion and Protection Act, which added 107,600 acres to ENP and [authorized the Modified Water Deliveries Project to restore more natural water flows through Shark River Slough into the called for increased and improved water flows to the](#) park. [\(Miccosukee Tribe edit\)](#)

Despite progress toward restoration in the 1980s and early 1990s, dramatic growth in the population and development of south Florida kept pressure on the environment. Research at this time detected declines in many native plant and animal species and [discovered](#) [\(Miccosukee Tribe edit\)](#) heightened phosphorus pollution in the Everglades. Particularly alarming was evidence of the decline of Florida Bay, indicated by dramatic losses in seagrass habitat, algae blooms, reductions in shrimp and many fish species, and a decline in water clarity.

In 1988 the federal government sued the State of Florida, alleging that the state had failed to direct the SFWMD to require water quality permits for the discharge of water into the C&SF Project canals, thereby causing a violation of state water quality standards and causing conditions that allowed for the

replacement of native species in the Everglades marsh with invasive vegetation. After three years and much additional litigation, no settlement had been reached. In 1991 Governor Lawton Chiles agreed to reach a settlement. For several years, mediation efforts helped reduce the scope of conflict between the state and federal governments and between agricultural and environmental interests. In February 1992 a court settlement was achieved to reduce the level of phosphorus entering ENP and the Arthur R. Marshall Loxahatchee National Wildlife Refuge (NWR) by creating artificial wetlands designed to process and remove nutrients from agricultural runoff. In 1993 the sugar industry agreed to adopt best management practices (BMPs) and to pay for approximately one-third of the costs of the artificial wetlands to help reduce the phosphorous pollution in the Everglades. The settlement also called for additional measures to be implemented over the long term to meet a numeric phosphorus criterion for class III waters. ([See Miccosukee Tribe comment 2](#))

The mid-1990s saw the establishment of two important consensus building forums for Everglades issues. In 1993 the Task Force was established through a federal interagency agreement. In recognition of the magnitude of the restoration effort and the critical importance of partnerships with state, tribal, and local governments, the Task Force was formalized and expanded to include tribal, state, and local governments in WRDA 1996. In 1994 the Governor of Florida established the Governor's Commission for a Sustainable South Florida (GCSSF) "to develop recommendations and public support for regaining a healthy Everglades Ecosystem with sustainable economies and quality communities." The Task Force and the GCSSF were instrumental in formulating consensus in the early stages of Everglades restoration.

In 1996 two significant pieces of legislation were approved by the U.S. Congress. The Federal Agriculture Improvement and Reform Act (the Farm Bill) provided \$200 million to conduct restoration activities in the Everglades Ecosystem, including land acquisition, resource protection, and resource maintenance. The second piece of legislation, WRDA 1996, clarified Congressional guidance to the USACE to develop a comprehensive review study for restoring the hydrology of south Florida. This study, commonly referred to as "the Restudy," has since resulted in the CERP, a consensus plan that was approved by Congress and signed by the president as part of WRDA 2000. The CERP is designed to reverse unintended consequences resulting from the operation of the C&SF Project. The physical limitations of the existing water management system still have the potential to exacerbate resource conflicts. Implementation of the CERP should increase the system's flexibility, helping water managers avoid such conflicts. In 2000 Governor Jeb Bush proposed, and the legislature passed, the Everglades Restoration and Investment Act, which committed the state to provide \$2 billion over 10 years to implement the first 10 years of the CERP.

The Seminole and Miccosukee Tribes, which have maintained their [lifestyle-way of life](#) in this natural system, became active participants in the dialogue on restoration and were formally added to the Task Force under WRDA 1996. ~~Because the 1929~~ [In 1934, the](#) Enabling Act establishing ENP recognized the [right of the Miccosukee Tribe of Indian's-Indians right to continue to live there in their traditional homeland. In 1998,](#) Congress passed the Miccosukee Reserved Area Act which clarified the rights of the Miccosukee Tribe to live in the park and set aside 666.6 acres along ~~the-its~~ border for the tribe to govern [its own affairs](#) in perpetuity. ~~A primary purpose of this act was to clarify the right of the Miccosukee Tribe to live and govern its own affairs on the acreage set aside for the tribe by this federal action.~~ The presence of two Indian tribes living in the Everglades, whose culture and way of life depend on the health of this ecosystem, is an important reason to restore the ecosystem. ([Miccosukee Tribe edit](#))

The growing body of federal and state legislation and regulatory approvals directed at managing growth and protecting the natural environment is summarized in Strategic Plan Table 1.

Strategic Plan Table 1 – Significant Events in South Florida Ecosystem Management

1934	Everglades National Park is authorized.
1968	Biscayne National Park was established as a national monument and expanded to a national park in 1980.

- [\(Miami Dade County edit\)](#)
- 1972 Florida Water Resources Act establishes fundamental water policy for Florida, attempting to meet human needs and sustain natural systems; puts in place a comprehensive strategic program to preserve and restore the Everglades Ecosystem.
- 1972 Florida Land Conservation Act authorizes the issuance of bonds to purchase environmentally endangered and recreation lands.
- 1974 Big Cypress National Preserve is created; legislation incorporates concerns of the Seminole Tribe and the Miccosukee Tribe for access to this preserve.
- 1982 Florida Indian Land Claims Settlement Act ~~gives the Miccosukee Tribe~~ [establishes](#) a perpetual lease from the State of Florida for the [Miccosukee Tribe](#) to use and occupancy of 189,000 acres in WCA-3A, which is to be [kept preserve](#) in its natural state, and a 75,000-acre Federal Indian Reservation in the Everglades. [\(Miccosukee Tribe edit\)](#)
- 1983 Florida Governor's Save Our Everglades Program outlines a six-point plan for restoring and protecting the South Florida Ecosystem so that it functions more like it did in the early 1900s.
- 1984 Florida Warren Henderson Act authorizes the Department of Environmental Regulation (now the Department of Environmental Protection) to protect the state's wetlands and surface waters for public interest.
- 1985 Florida Local Government Comprehensive Planning and Land Development Regulation Act requires the development and coordination of local land use plans.
- 1987 Compact among the Seminole Tribe, the State of Florida, and the federal government is completed, clearly describing the Tribe's water supply and flood control rights; the goal of the compact is to harmonize state and federal water law.
- 1987 The Seminole Tribe transfers ownership to lands critical to the State of Florida's Everglades Construction Project in WCA-3.
- 1987 Florida Surface Water Improvement and Management Act requires the five Florida water management districts to develop plans to clean up and preserve Florida lakes, bays, estuaries, and rivers.
- 1988 Federal government sues the State of Florida, alleging that the state had failed to direct the SFWMD to require water quality permits for the discharge of water into the C&SF project canals.
- 1988 Land Settlement Act transfers acreage in WCA-3 and the Rotenberger tract to the State of Florida for Everglades restoration.
- 1988 Big Cypress National Preserve Addition Act expands the preserve and affirms the Seminole and Miccosukee Indian Tribes' customary use and occupancy rights in the preserve.
- 1989 Everglades National Park Expansion Act adds the East Everglades addition.
- 1990 Florida Preservation 2000 Act establishes a coordinated land acquisition program at \$300 million per year for 10 years to protect the integrity of ecological systems and to provide multiple benefits, including the preservation of fish and wildlife habitat, recreation space, and water recharge areas.
- 1990 Florida Keys National Marine Sanctuary and Protection Act establishes a 2,800-square-nautical-mile marine sanctuary and authorizes a water quality protection program.
- 1991 Florida Everglades Protection Act provides the SFWMD with clear tools for ecosystem restoration.
- 1992 Federal ~~and state parties enter into government issues~~ [a consent decree on Everglades water quality issues in federal court. The Miccosukee Tribe signs a Memorandum of Agreement with the federal government which gives it the right to seek enforcement of the Settlement Agreement entered as a Consent Decree. \(Miccosukee Tribe edit\)](#)
- 1992 WRDA 1992 authorizes the Kissimmee River Restoration Project and the C&SF Project Restudy; also provides for a fifty/fifty cost share between the federal government and the project sponsor, the SFWMD.
- 1993 Task Force is established to coordinate ecosystem restoration efforts in south Florida.
- 1993 Seminole Tribe is approved by the U.S. Environmental Protection Agency (USEPA) to establish water quality standards for reservation lands in accordance with section 518 of the Clean Water Act.
- 1994 Florida Everglades Forever Act establishes and requires implementation of a comprehensive plan to restore significant portions of the South Florida Ecosystem through construction, research, and regulation.
- 1994 Governor's Commission for a Sustainable South Florida is established to make recommendations for achieving a healthy South Florida Ecosystem that can coexist with and mutually support a sustainable economy and quality communities.
- 1994 Miccosukee Tribe is approved by USEPA to establish water quality standards for reservation lands in accordance with section 518 of the Clean Water Act.
- 1996 WRDA 1996 authorizes a comprehensive review study for restoring the hydrology of south Florida; expands the Task Force to include tribal, state, and local governments; mandates extensive public involvement.

- 1996 Section 390 of the Farm Bill grants \$200 million to conduct restoration activities in the South Florida Ecosystem.
- 1997 Seminole Tribe of Florida's water quality standards for the Big Cypress Reservation are approved by USEPA.
- 1997 Miccosukee Tribe water quality standards for the Tribe's Federal Indian Reservation establish a 10 ppb criterion for total phosphorus in tribal waters.
- 1997 - 2000 Annual Interior Appropriations Acts provide for land acquisition by the National Park Service and the Fish and Wildlife Service in the South Florida Ecosystem.
- 1998 Miccosukee Reserved Area Act clarifies the rights of the Miccosukee Tribe to live in Everglades National Park and sets aside 666.6 acres along the border for the tribe to govern in perpetuity.
- 1998 Seminole Tribe of Florida's water quality standards for the Brighton Reservation are approved by USEPA.
- 1998 Miccosukee Reserved Area Act directs the Miccosukee Tribe to establish water quality standards for the Miccosukee Reserved Area (inflow points to Everglades National Park).
- 1999 WRDA 1999 extends Critical Restoration Project authority until 2003; authorizes two pilot infrastructure projects proposed in the CERP.
- 1999 Governor's Commission for the Everglades established to make recommendations on issues relating to Everglades protection and restoration, environmental justice, and water resource protection, among other issues.
- 1999 Miccosukee Tribe water quality standards are established for the Miccosukee Reserved Area on the border of Everglades National Park and they are approved by USEPA.
- 1999 Florida Forever Act improves and continues the coordinated land acquisition program initiated by the Florida Preservation 2000 Act of 1990; commits \$300 million per year for 10 years.
- 1999 Florida State Legislature passes Chapter 99-143, Laws of Florida, authorizing the SFWMD to be the local sponsor for Everglades restoration projects.
- 2000 Florida Everglades Restoration Investment Act creates a funding and accountability plan to help implement the CERP; commits an estimated \$2 billion in state funding to Everglades restoration over 10 years.
- 2000 Florida Legislature passes the Lake Okeechobee Protection Act, a phased, comprehensive program designed to restore and protect the lake.
- 2000 WRDA 2000 includes \$1.4 billion in authorizations for 10 initial Everglades infrastructure projects, four pilot projects, and an adaptive management and monitoring program; also grants programmatic authority for projects with immediate and substantial restoration benefits at a total cost of \$206 million; establishes a 50 percent federal cost share for implementation of CERP and for operation and maintenance.
- 2001 Numeric water quality criterion of 10 ppb geometric mean proposed by Florida DEP in the Everglades Protection Area.
- 2001 The Water Resources Advisory Commission (WRAC) is established by the SFWMD Governing Board as a representative public interest group to advise them on all aspects of water resource protection in south Florida.
- 2002 Task Force designates the WRAC as an advisory body to the Task Force on ecosystem restoration activities.
- 2003 Senate Bill 626 amends the Everglades Forever Act.
- 2003 Science Coordination Group is established with direct reporting responsibilities to the Task Force.
- 2003 Combined Structural and Operational Plan (CSOP) Advisory Team is established with direct reporting responsibilities to the Task Force.
- 2003 Final USACE Programmatic Regulations are issued.
- 2003 SFWMD develops (SFWMD Edit) the Long-Term Plan for achieving Everglades water quality goals.
- 2003 Environmental Regulation Commission adopts phosphorus rule for the Everglades Protection Area. (SFWMD Edit)
- 2003 State of Florida initiates early start on Southern Golden Gate Estates Project.
- 2004 Indian River Lagoon-South CERP project is approved by State of Florida under Section 373.1501.F.S.
- 2004 State of Florida unveils plan to accelerate restoration of America's Everglades (Acceler8).
- 2005 USEPA approves State's phosphorus rule for the Everglades Protection Area. [\(See Miccosukee Tribe comment 3\)](#)
- 2005 The State of Florida's Water Resource Protection and Sustainability Program requires a higher level of water supply planning and coordination between the water management districts and local governments.
- 2005 State of Florida announces the Lake Okeechobee Estuary Recovery Plan to help restore the ecological health of Lake Okeechobee and the St. Lucie and Caloosahatchee Estuaries.

What Is at Stake

Current efforts to restore the South Florida Ecosystem must address a century of changes to the environment that have put the ecosystem in jeopardy. The seriousness of the problem was fully evident during the initial strategic planning process of the Task Force in 2000. [This evidence included Problems noted at that time included:](#)

- Fifty percent reduction in the original extent of the Everglades, including important habitat and groundwater recharge areas
- Ninety percent reductions in some wading bird populations
- Sixty-nine species on the federal endangered or threatened list
- Declines in commercial fisheries in Biscayne and Florida Bays
- Loss of over five feet of organic soil in the EAA
- Decline in the clarity of water in the Florida Keys
- Infestations of exotic plant species on over 1.5 million acres
- Damaging freshwater releases into the St. Lucie and Caloosahatchee estuaries
- Loss of 40,000 acres of grass beds in Lake Okeechobee
- Loss of tree islands and damaging ecological effects in the state-managed WCAs
- Loss of 37 percent of living corals at 40 sites in the Florida Keys National Marine Sanctuary from 1996 to 2000

In 2006, south Florida is home to over 6.5 million people and the population is expected to double by 2050. The region also receives more than 37 million tourists annually. The quality of life in south Florida and the region's \$200 billion economy depend on the health and vitality of the natural system. If the coral reefs, estuaries, and shallow waters of Florida Bay cannot support populations of aquatic species, south Florida's tourism industry and associated economy will decline. The loss of fertile soil and conversion of land to nonagricultural uses will make farming and ranching harder to maintain and less profitable.

The stakes are high. The South Florida Ecosystem once supported some of the greatest biodiversity on earth. The biological abundance and the aesthetic values of the natural system warrant regional, national, and even international interest and concern. In addition to numerous local parks and private conservation areas, south Florida encompasses Federal Indian Reservations; thirty state parks; numerous state forests and wildlife management areas; seventeen state aquatic preserves; thirteen federal wildlife refuges; a national marine sanctuary; three national parks; a national preserve; and a national estuarine research reserve. ENP has been designated a world heritage site, a wetland of international significance, and an international biosphere reserve. Biosphere reserves are protected examples of the world's major ecosystem types, which are intended to serve as standards for measuring human impacts on the environment worldwide.

RESTORATION STRATEGY

The Task Force *Strategy* includes a set of guiding principles, which have been adopted by the Task Force member agencies to guide all aspects of ecosystem restoration, and a clear definition of the roles of the Task Force as a coordinating, facilitating, and reporting body. Each of these is described separately in this chapter.

Guiding Principles

The Ecosystem Must Be Managed as a Whole

This is the overall premise that guides ecosystem planning and management. It demands that managers, scientists, and the public view the natural and the built environments and the resources needed to support them as parts of a single larger system. The challenges faced in south Florida must be solved collaboratively. Rather than dealing with issues independently, the challenge is to seek out the interrelationships and mutual dependencies that exist among all the components of the ecosystem.

The Task Force advocates a system-wide approach that addresses issues holistically, recognizing that the various levels of government have distinct jurisdictions and responsibilities that can be coordinated but not shared. For example, the state retains exclusive responsibility for all land management and water use except for lands and waters specifically reserved by the federal government or the Miccosukee or Seminole Tribes.

Holistic management by a variety of jurisdictions will require broad-based partnerships, coordinated management, and considerable public outreach and communication.

Broad-based partnerships. It is critical that federal, state, local, and tribal governments and other interested and affected parties work together in broad-based partnerships. Maintaining open communication and examining different views and needs will form the basis for the respect and trust needed to work together.

Coordinated management. To be successful, governmental entities will need to coordinate their ecosystem restoration activities, including the coordination of land and water use and the development of cooperative programs. The Task Force will foster this cooperation and facilitate the resolution of conflicts and disputes among the diverse participants.

Public outreach and communication. Innovative partnerships and coordinated management will not be possible without the understanding, trust, and support of the public, including historically underserved communities and neighborhoods. Therefore, public outreach and communication will be an important part of the ecosystem restoration efforts. Outreach strategies will seek two-way communication with all public sectors to broaden understanding and to instill a sense of stewardship among all south Floridians and visitors.

The Natural and Built Environments Are Inextricably Linked in the Ecosystem

Understanding the complexities of the South Florida Ecosystem is daunting. Until recently, the term ecosystem generally referred to the natural environment. However, the ecosystem also includes people and their built environment, which is inextricably linked to the natural environment. Events in the built environment can have catastrophic consequences in the natural environment, such as the destruction of wetlands when they are drained for development. Similarly, disruptions in the natural environment can

have catastrophic consequences in the built environment, such as the unnaturally severe flooding that occurs when natural wetlands are gone.

The Task Force recognizes that the restoration of the South Florida Ecosystem is not possible if subsequent decisions about the built environment are not consistent with ecosystem health. At the same time, the solutions to restore ecosystem health must be supportive of human needs. These links make it critical that decision makers for both the natural and the built environments be involved in the restoration effort.

Expectations Should Be Reasonable

Major ecological improvements will take many years to realize in south Florida. The large-scale hydrological improvements that will be necessary to stimulate major ecological improvements will depend upon and follow the implementation of CERP features designed to substantially increase the water storage capabilities of the regional system and to provide the infrastructure needed to move the water. Other features of the CERP must be in place before the additional storage and distribution components can be constructed and operated. Substantial alteration and degradation of the South Florida Ecosystem has occurred over many decades, and it will take decades to reverse this process.

Decisions Must Be Based on Sound Science

Science plays two major roles in the restoration process. One is to facilitate and promote the application of existing scientific information to planning and decision making. The other is to acquire critical missing information that can improve the probability that restoration objectives will be met.

The Task Force has adopted an adaptive management process, authorized by Congress in WRDA 2000, which will continuously provide managers with updated scientific information, which will then be used to guide critical decisions. In this process, scientific models provide a conceptual framework and identify critical support studies. Support studies provide data and analysis that lead to better understanding of problems and the development of alternative solutions. Monitoring may be used to help establish a baseline, and once (Miami Dade county edit) an alternative is implemented, ~~monitoring is used~~ to assess the effectiveness of the action and provide feedback on ways to modify it (if warranted). Similarly, monitoring data can be used to revise and refine the original concepts and models, thereby continuing an interactive feedback loop of decision making, implementation, and assessment.

Economic Equity and Environmental Justice Need to Be Integrated into Restoration Efforts

The federal members of the Task Force are directed by federal law and executive orders to promote economic equity and environmental justice through fair treatment of all persons, regardless of color, creed, or belief.

In WRDA 2000 Congress specifically recognized the importance of ensuring that small business concerns were addressed during the implementation of CERP. Fair treatment associated with economic equity includes efforts required to expand opportunities to small business concerns, including those controlled by socially and economically disadvantaged individuals and persons with limited proficiency in English. Additional targeted efforts will be needed to provide opportunities to socially and economically disadvantaged individuals and small businesses to participate in the implementation of restoration programs and projects.

Fair treatment associated with environmental justice means that no group of people, including no racial, ethnic, or socioeconomic group, should bear a disproportionate share of any negative environmental consequences resulting from industrial, municipal, or commercial operations or the execution of federal, state, or local programs or policies.

In WRDA 2000 Congress specifically recognized the importance of ensuring to the maximum extent practicable, that public outreach and educational opportunities are provided to all the individuals of south Florida.

The unique cultural and ethnic diversity of south Florida's population, with its strong representation of peoples from all over the world, will require significant efforts on behalf of the restoration partners to ensure that projects are implemented in ways that do not result in disproportionate impacts on any communities.

The Task Force and Working Group see this guiding principle as critical to long-term success. The Working Group established a task team for outreach and environmental and economic equity. The team solicited input about the various restoration outreach efforts of member agencies and developed an inventory of these efforts.

Restoration Must Meet Applicable Federal Indian Trust Responsibilities

The restoration of the South Florida Ecosystem involves a unique partnership between the Indian tribes of south Florida and the federal, state, and local governments. In carrying out the Task Force's responsibilities laid out in WRDA 2000, the Secretary of the Interior must fulfill the obligations to the Indian tribes in Florida specified under the Indian Trust Doctrine, and other applicable legal obligations. All federal agencies have a trust responsibility and are responsible for meaningful consultation with the tribes under Executive Order 13175 and Secretarial Order 3206.

Task Force Roles in the Coordination of the Restoration Effort

The role of the Task Force is to facilitate the coordination of conservation and restoration efforts implemented through a combination of federal, state, local, and tribal initiatives in south Florida. It provides a forum for the participating agencies to share information about their restoration projects, resolve conflicts, and report on progress. Congress and the public are particularly interested in how each individual agency's efforts contribute to the larger framework of total ecosystem restoration. The Task Force *Strategy* and *Biennial Report* are critical vehicles for sharing information and coordination.

Providing a forum for consensus building and issue engagement is a collaborative role, not one in which the Task Force can dictate to its members. Because on-the-ground restoration is accomplished through the efforts of the individual Task Force member agencies, they are the ones that are ultimately responsible for their particular programs, projects, and associated funding. This is an important distinction. Each member is accountable individually to its appropriate authorities and to each other for the success of the restoration. The Task Force has no overriding authority to direct its members. Instead the Task Force role of coordination complements the implementation roles of its members.

The Task Force meets regularly to report on progress, facilitate consensus, and identify opportunities for improvement. The Task Force members coordinate and track the restoration effort as follows.

Focus on Goals

The Task Force *Strategy* establishes strategic goals and measures of success that represent the scope of the restoration initiative and answer these fundamental questions: What will the restoration partners accomplish? When will the restoration effort be done? What key indicators will signal progress and success?

Coordinate Projects

To be effective, individual projects should contribute to the vision and strategic goals, be consistent with all the guiding principles, be timely, and support rather than duplicate other efforts. The Task Force *Strategy* includes a master list of restoration projects that compiles information about goals and objectives, start and finish dates, lead agencies, and funding (see Appendix A). The IFP in Volume 2 provides additional details about all of these projects.

Track and Assess Progress

The Task Force facilitates the coordination of the adaptive management processes used by the member agencies to track and assess progress. Adaptive management, an important restoration concept, involves constantly monitoring project contributions, indicators of success, and current scientific information to determine the actual versus expected results of various actions. This process acknowledges that not all the data needed to restore the South Florida Ecosystem are available now. As project managers track incremental progress in achieving objectives, they may raise "red flags" alerting the Task Force members that a project (1) is not on schedule or (2) is not producing the anticipated results. The ability to anticipate problems early helps to minimize their effect on the total restoration effort. Management responses may involve revising the project design, evaluating changing resource needs, or working collaboratively on projects that fall behind. Projects that are not producing the anticipated results may be replaced with new projects. Because each Task Force member is responsible for its particular programs, projects, and funding, such decisions are made by the entities involved. The Task Force will modify the strategic goals and objectives as relevant information becomes available.

Recognize and Work with Conflicting Goals

As restoration activities move forward in south Florida, there may be occasional conflicts between the strategic goals described in this *Strategy* and individual agency programs or missions. When such conflicts occur, the strategic goals should prevail whenever possible, and it is the statutory duty of the Task Force to facilitate their resolution in ways that advance the strategic goals of restoring natural hydrology and ecology throughout south Florida. The Task Force recognizes that it may on occasion be appropriate to take short-term or interim management actions that are not immediately consistent with long-range strategic goals, while allowing time for other activities more consistent with strategic goals to take effect. [\(See Miccosukee Tribe comment 4\)](#) The Task Force is committed to facilitating the resolution of these issues, consistent with its statutory duties, without compromising its long-term focus on restoring natural conditions to south Florida. Where there may be conflicts between existing statutes and strategic goals, the Task Force recognizes that it may be necessary to have Congress address such issues.

Facilitate the Resolution of Issues and Conflicts

Disagreements and conflict are to be expected given the scope, complexity, and large number of sponsors and interests involved in ecosystem restoration. The ability of the Task Force to resolve conflicts is complicated by the large number of governmental entities involved at the federal, state, tribal, and local levels, the differing, and sometimes conflicting, legal mandates and agency missions among the entities involved, and the diverse public interests, which include environmental, agricultural, Native American, urban, recreational, and commercial values.

The Task Force will facilitate the prevention and resolution of conflict to the extent possible by clarifying the issue(s), identifying public concerns, obtaining and analyzing relevant information, and identifying possible solutions. Although these efforts are intended to facilitate conflict resolution, opportunities will always exist for parties to pursue conflicts through litigation. Litigation may prove to be time consuming, costly, and uncertain, and it may divert resources from restoration efforts. [\(See Miccosukee tribe comment 5\)](#)

Changes made through project coordination, adaptive management, and the conflict resolution process will be incorporated into future editions of this *Strategy*.

VISION AND INDICATORS OF SUCCESS

One of the first actions of the Task Force was to describe a vision for a resulting condition of the South Florida Ecosystem that all the member agencies could strongly support. Translating that vision into discernable and measurable terms is an ongoing process supported by intensive discussion, research, and monitoring. Teams of scientists are working to develop and refine the indicators that the Task Force will use to know when they have finally achieved their vision. The Task Force vision is presented below, followed by a discussion of the indicators of success.

Vision

The participants in the South Florida Ecosystem Restoration Task Force share this vision:

*A healthy South Florida Ecosystem that supports
diverse and sustainable communities of
plants, animals, and people.*

To this end, hundreds of different entities have been working to restore and preserve more natural hydrology in the ecosystem, to protect the spatial extent and quality of remaining habitat, to promote the return of abundant populations of native plants and animals, and to foster human development compatible with sustaining a healthy ecosystem. These efforts, which are described in detail in the "Strategic Goals and Objectives" section, will continue. The results will be continuously analyzed to provide restoration managers with increasingly comprehensive information about what remains to be done to achieve ecosystem restoration.

The Task Force members believe that the efforts described in this *Strategy*, managed through an adaptive management process, will achieve their vision. The region's rich and varied habitats – Biscayne Bay; Lake Okeechobee; the Wild and Scenic Loxahatchee River; the Caloosahatchee, St. Lucie, and other estuaries; the Everglades, mangroves, coastal marshes, and seagrass beds of south Florida; and the coral reef ecosystem of the Florida Reef Tract – will become healthy feeding, nesting, and breeding grounds for diverse and abundant fish and wildlife. The American crocodile, manatee, snail kite, Cape Sable seaside sparrow, and other endangered species will recover. The large nesting rookeries of herons, egrets, ibis, and storks will return. Commercial fishing, farming, recreation, and tourism dependent businesses and associated economies will benefit from a viable, productive, and aesthetically beautiful resource base. The quality of life enjoyed by residents and visitors will be enhanced by sustainable natural resources and by access to natural areas managed by federal, state, and local governments to provide a great variety of recreational and educational activities.

It is important to understand that the restored Everglades of the future will be different from any version of the Everglades that has existed in the past. While it is very likely to be healthier than the current ecosystem, it will not completely match the pre-drainage system. The irreversible physical changes made to the ecosystem make restoration to pristine conditions impossible. The restored Everglades will be smaller and somewhat differently arranged than the historic ecosystem. However, it will have recovered those hydrological and biological characteristics that defined the original Everglades and made it unique among the world's wetland systems. It will evoke the wildness and richness of the former Everglades.

Indicators of Success

The Task Force recognizes that restoration must be based on the best science available and that this will require use of adaptive management principles to continually incorporate new knowledge and tools. The Task Force created the SCG in December 2003 to support the Task Force in its efforts to coordinate the scientific aspects of policies, strategies, plans, programs, projects, activities, and priorities and to respond to Congressional directives to improve science coordination based on GAO's recommendations. In August 2004 the Task Force assigned this group the task of developing a proposed integrated suite of System-wide Indicators for helping assess the direction and success of the restoration efforts. This suite of System-wide Indicators replaces the indicators reported in the 2002 *Strategy and Biennial Report*.

Over the past three reporting periods (1998-2000, 2000-2002, and 2002-2004), a great deal of modeling and analysis has generated new information providing the technical and scientific basis for developing a more integrated and rigorous set of indicators than was originally included in the 2002 report. After examination of comments from an Independent Scientific Review and public comments, the SCG developed a suite of proposed system-wide indicators for 2006 and identified additional indicator gaps they hope to have developed by the 2008 reporting timeframe. There are general desired restoration trends identified for each indicator, but they are not yet well developed or refined enough to set performance targets or end points. The SCG is working on refining these restoration targets and expects to report their findings to the Task Force in 2008 when the first assessment of the entire suite of indicators is anticipated. The SCG will use the feedback from public input and an independent scientific review process to complete the indicators, targets, performance measures, and timelines used to measure success. ([See Miccosukee Tribe comment 6](#))

Strategic Plan Table 2 – Task Force System-wide Indicators for 2006	
<u>Ecological Indicators</u>	
•	Fish and Macroinvertebrates
•	Wading Birds (White Ibis, Wood Stork, and Roseate Spoonbill)
•	Florida Bay Submerged Aquatic Vegetation
•	Florida Bay Algal Blooms
•	Crocodylians (American Alligators and Crocodiles)
•	American Oysters
•	Periphyton and Epiphyton
•	Juvenile Pink Shrimp
•	Lake Okeechobee Littoral Zone
•	Invasive Exotic Species
<u>Compatibility Indicators</u>	
•	Water Volume
•	Biscayne Aquifer Saltwater Intrusion
•	Flood Protection – C-111 Basin

ECOLOGICAL INDICATORS

Fish and Macroinvertebrates

Significance and Background. Marsh and estuarine aquatic fauna, including small fishes and crustaceans, are critical in the food web as primary and secondary consumers and as prey for focal Everglades predators such as wading birds. This indicator uses the density (~~how many number of~~ animals per unit area) ([Miami Dade County edit](#)) and community composition (how many of each species per unit area) of a suite of native fishes (e.g., eastern mosquito fish, bluefin killifish, sheepshead minnows, sailfin molly) and crustaceans (slough and Everglades crayfish, riverine grass shrimp) to describe trends in their populations related to hydrology.

Fish and macroinvertebrate responses are directly related to the suitability of environmental conditions. Correlations between biological responses and environmental conditions contribute to an understanding

of the species' status and trends over time. The positive or negative trends of this indicator relative to hydrological changes permit an assessment of positive or negative trends in restoration.

Factors affecting Success. The most important factors affecting fish abundances regionally are the loss of habitat, hydroperiod, water depth, and frequency of drying events. Because of relatively dry hydrological conditions in the Everglades Ecosystem resulting from water management over the past several decades, and a loss of habitat to agricultural and urban uses, fish and macroinvertebrate densities have decreased and community structure has changed.

Toward Restoration. The broad restoration goals for this indicator are to enhance population density and community composition of fish and macroinvertebrates through hydrologic restoration and improved water management.

Wading Birds (White Ibis, Wood Stork, and Roseate Spoonbill)

Significance and Background. Extremely large numbers of wading birds were one of the defining characteristics of the pre-drainage wetlands of south Florida. Of particular relevance in understanding the population dynamics of wading birds in the pre-drainage system are the combined features of large spatial extent and highly variable hydrological conditions that created and maintained a mosaic of wetland habitats. This combination is what made it possible for the region to support large nesting colonies of wading birds with quite different foraging strategies and prey requirements.

Factors affecting Success. The drainage of extensive areas of short-hydroperiod wetlands, large-scaled alterations in water depth and distribution patterns due to compartmentalization of wetlands in the central Everglades, and the reduction of freshwater flows into the formerly more productive estuaries are the human induced stressors that have substantially impacted ibis, storks, spoonbills, and other wading birds in south Florida. The number of ibis nesting in south Florida has declined from an estimated 100,000 – 200,000 birds in the 1930s - 1940s to 20,000 – 60,000 birds since the late 1990s. The number of nesting storks has declined from 14,000 – 20,000 birds prior to 1960 to about 2,000 – 5,000 birds since the late 1990s.

Toward Restoration. The broad restoration goals for this indicator are recovering the kind of ecosystem with the spatial and temporal variability to support large numbers of these wading birds. This will include specific restoration goals for these species with targets defined for numbers of nesting pairs, location of colonies, timing of nesting, and an increase in the size and frequency of the larger nesting assemblages referred to as “super colonies.”

Florida Bay Submerged Aquatic Vegetation

Significance and Background. Florida Bay and adjacent areas of the Florida Keys and southwest Florida coastal zone contain one of the largest contiguous seagrass beds in world. Within Florida Bay, seagrasses are the dominant biological community, covering 90% of the 180,000 hectares of the bay's subtidal mudbanks and basins. Submerged aquatic vegetation (SAV) is well documented as a community that serves many critical functions within estuarine and coastal ecosystems, including habitat for higher trophic level species, a base of primary production for the food web, and a beneficial influence on water quality through sediment stabilization and nutrient retention. A conceptual ecological model of Florida Bay, developed for the Restoration Coordination and Verification Team (RECOVER), identifies the SAV community and its structure and dynamics as being central to the health of the entire Florida Bay ecosystem – the condition of this community is an essential indicator for South Florida Ecosystem restoration.

Factors affecting Success. The SAV indicator for the southern estuaries focuses only on Florida Bay as it currently has the best models available for this indicator. Changes in the seagrass community of Florida Bay have been one of the primary drivers behind a public call for Everglades restoration. Starting in 1987, a mass-mortality event or “die-off” of SAV through much of central and western Florida Bay devastated the once lush seagrass beds. This die-off initiated a cycle of changes in the Florida Bay ecosystem, likely due to increased sediment suspension, turbidity, nutrient mobilization, and phytoplankton blooms resulting in decreased light that caused additional seagrass mortality. The extent to which fish and birds will recover following a sustained recovery of these plants remains to be seen and is a major focus of ongoing research.

Toward Restoration. The broad restoration goal for this indicator is an increase in two species, *Halodule wrightii* and *Ruppia maritima*, that are [associated with relatively lower salinities and are \(Miami Dade county Edit\)](#) far less common than the dominant species, *Thalassia testudinum*, and greater species richness and density through a greater proportion of the bay. Another restoration goal is widespread SAV coverage that includes increases in species diversity and richness with moderate density with overall vegetation coverage similar to those found prior to the 1987 “die-off”.

Florida Bay Algal Blooms

Significance and Background. Algal blooms are a major concern regarding the current and future health of Florida Bay, as well as of waters near the Florida Keys and southwest Florida coastal zone. The initiation of algal blooms in Florida Bay in 1991, following the seagrass mass-mortality event of the late 1980s, has been a major element of ecological change. Algal blooms decrease light penetration through the water column and can lead to seagrass mortality, which in turn can release nutrients and stimulate more algal blooms.

Factors affecting Success. The role of nutrient inputs from the Everglades as a cause of Florida Bay algal blooms is not clear, but it has been hypothesized that these inputs are an important factor and increased fresh water flow with restoration could increase such blooms. The algal bloom indicator reflects overall water quality and is based on the assessment and evaluation of chlorophyll-a concentrations in the water column. The indicator has three components: bloom magnitude, frequency, and spatial extent.

Toward Restoration. The broad restoration goal for this indicator is to reduce or eliminate the number and extent of algal blooms in the watershed.

Crocodylians (American Alligators and Crocodiles)

Significance and Background. Crocodylians are important in south Florida wetlands and play a major role in influencing the overall health and ecological patterns of the region. Alligators and crocodiles are critical in the food web as top predators, influencing abundance and composition of prey. The American alligator's ~~behavior is an engineer creating~~ [creates](#) variations in ~~hydrological-physical~~ [\(Miami Dade County edit\)](#) conditions that otherwise would not exist in the Everglades landscape such as the holes they dig that become habitat for other species. The American crocodile is an endangered species representing the importance of freshwater inflow to estuarine health and productivity.

Factors affecting Success. Reproduction, growth, and survival of crocodylians are dependent on food availability – birds, mammals, fish, and macroinvertebrates – that, in turn, are entirely dependent on hydrologic conditions. Loss of flow and relatively dry hydrologic conditions, resulting from water management over the past several decades and a loss of habitat in the Everglades, have adversely affected alligators and crocodiles. Loss of habitat in southern marl prairies and rocky glades and reduction in depth and period of inundation of remaining areas have reduced abundance of alligators

and alligator holes in these habitats. Reduced prey availability throughout the system as a result of hydrologic alterations corresponds with lower growth rates, survival, and reproduction of alligators.

In estuaries, crocodilians of all species orient towards areas of low salinity and sources of freshwater. In mangrove estuaries, alteration of location and quantity of freshwater flow has lowered the relative density of crocodiles where freshwater has been diverted and decreased growth and survival of juvenile crocodiles throughout the estuary in areas of higher salinities. Reduced freshwater flow into the mangrove estuaries also has resulted in succession of former freshwater mangrove areas to saltwater systems, reducing American alligator populations in tidal rivers and tributaries.

Finally, a large portion of the adult alligator population in the Everglades exists in canals but does not contribute to population growth due to the combination of increased nest flooding and decreased hatchling and juvenile survival during low water periods (predation and cannibalism).

Toward Restoration. The broad restoration goal for this indicator is based on recovery of more natural hydropatterns regionally, which in turn will promote increased habitat quantity and improved habitat quality that will support healthy populations of these species. The alligator indicator uses relative density (reported as an encounter rate), body condition, nesting effort and success, and occupancy rates of alligator holes, while the crocodile indicator uses relative density, growth, and survival to describe trends in their populations related to hydrology.

For example, alligators are now largely absent from over-drained rocky glades and marl prairies, and hence are no longer creating alligator holes. As restoration proceeds the occupancy rate of alligator holes should increase, providing ecosystem services for other species. With the resumption of natural patterns of volume, timing, and distribution of flow to the Everglades, the American alligator is expected to repopulate and resume nesting in the rocky glades and the freshwater reaches of tidal rivers in the mangrove estuaries and will increase in population size and body condition throughout most of the Everglades wetlands.

American Oysters

Significance and Background. Oysters are indicative of ecosystem health as a whole. They are natural components of estuaries along the eastern seaboard of the United States as well as the Gulf of Mexico and were documented to once be abundant in the South Florida Ecosystem. The American oyster is the dominant species in these oyster reef communities. Oyster bars provide important habitat and food for numerous estuarine species including mollusks, worms, crustaceans, sponges, fish, and birds. Oysters are also an important commercial and recreational resource. The American oyster improves water quality by filtering particles from the water, serves as prey and habitat for numerous other organisms, and plays an important role in the estuarine food chain. Salinity conditions suitable for oysters also produce optimal conditions suitable for a suite of other desirable estuarine organisms. In the Caloosahatchee, Loxahatchee, and St. Lucie estuaries, oysters have been identified as a valued ecosystem component.

Factors affecting Success. Historically, rainfall on the watershed was detained in natural wetland systems and gradually percolated into the groundwater, evaporated, and/or flowed overland into tributaries. As south Florida developed, the canal network, built as a result of the C&SF Project, drastically altered the quantity, quality, timing, and distribution of fresh water entering the system. Resultant rapid changes in salinity resulted in degradation of biological integrity of the system and introduced contaminants from urban and agricultural development, including excess suspended solids, nutrients, pesticides, and other harmful pollutants. Inflows became extremely variable and tended to be too great in the wet season and too little in the dry season to support a healthy estuary. The inflow extremes and degraded water quality

(particularly suspended solids and nutrients) severely compromise the development of healthy, sustainable oyster and related estuarine communities.

Toward Restoration. The broad restoration goal for this indicator in the northern estuaries is the restoration of oyster beds within the St. Lucie, Caloosahatchee, Loxahatchee, and Lake Worth Lagoon estuaries, including the restoration of habitat function and oyster health in areas that become suitable habitat. Acre increases are identified in the 2005 RECOVER *Interim Goals and Targets Report* but these need to be further refined as to locations and definition of what an acre of oysters means (i.e. how many oysters per meter square, what quality, reproductive capacity, etc.)

Periphyton and Epiphyton

Significance and Background. Periphyton communities, comprised of algae, floating plants, and associated animals, are a common feature of Everglades marshes and respond strongly to alterations in hydrologic conditions and water quality, [especially Phosphorus](#)(Miccosukee Tribe edit). [Epiphyton communities are also comprised of algae and associated animals, but instead of floating are attached to other plants and underwater surfaces.](#) Both Periphyton [and Epiphyton are is](#) (SCG edit) important ~~both~~ as a food source and a refuge for aquatic invertebrates that are consumed by small fish, crayfish, and grass shrimp. Periphyton has been studied extensively in the Everglades because of its utility as an early warning indicator of impending ecosystem change and the significant consequences of altered periphyton communities on the rest of the food web. [Epiphyton serves much the same role as periphyton but is primarily associates with estuarine and coastal ecosystems, particularly seagrass beds.](#) (SCG edit).

Factors affecting Success. Increased nutrient delivery to natural Everglades marshes causes periphyton mats to disintegrate and collapse, resulting in a major alteration in food availability at the base of the food web. Research shows periphyton losses are initiated upon exposure to even very low nutrient enhancements. Models have been developed to determine the extent of periphyton losses throughout the South Florida Ecosystem because of nutrient enrichment. Further, hydrologic changes have strong functional and structural consequences in the periphyton community. Studies have shown that sites that are dry for a majority of the year have minimal production values, while sites that are flooded for less than six months are most productive. The timing of reflooding of previously dried periphyton mats is also important as dried periphyton releases large quantities of nutrients into the water column upon reflooding that subsequently may negatively affect downstream systems. Periphyton cover, biomass, productivity, and composition are affected by the duration and frequency of droughts. The reduction of hydroperiod resulting from long-term water and land management practices has limited the period of production for periphyton in Everglades wetlands for many decades. Recovery of this indicator will depend on hydrological restoration to improve habitat for periphyton production in both long and short hydroperiod wetlands.

Toward Restoration. The broad restoration goal for this indicator is to increase the periphyton mat cover, structure, and composition to periphyton communities that were characteristic of the spatially distinct hydroperiods and low nutrient conditions [that were present](#) in the greater Everglades wetland communities [historically](#).

Juvenile Pink Shrimp

Significance and Background. Pink shrimp are important both economically and ecologically in south Florida and are a core component of the ecologic food chain. Juvenile pink shrimp are present in coastal waters throughout south Florida and densities are highest in western Florida Bay. Biscayne Bay supports small local fisheries for food shrimp and bait shrimp. The growth and survival of young pink shrimp is influenced by salinity.

Factors affecting Success. Historically, water management practices have changed the quantity, timing, and distribution of freshwater inflow to estuaries, which have affected the frequency and rate of salinity change. Both Florida Bay and parts of Biscayne Bay have been subjected to prolonged hypersaline conditions. Eastern Florida Bay, Whitewater Bay, and Biscayne Bay experience large, rapid changes in salinity.

Restoration of flows more similar to rainfall-driven flows should benefit the Tortugas pink shrimp fishery. The potential for improving shrimp nursery habitat in Florida Bay may be greatest in the north-central bay, where water management changes associated with the CERP could potentially reduce the frequency, spatial extent, and duration of hypersaline conditions.

Toward Restoration. The broad restoration goal for this indicator is increased juvenile pink shrimp density at peak abundance during the August-October period in optimal habitat (seagrass) in three regions of Florida Bay, in Ponce de Leon Bay on the lower southwestern mangrove coast, and in western nearshore southern Biscayne Bay.

Lake Okeechobee Littoral Zone

Significance and Background. The SAV in Lake Okeechobee provides nesting habitat and food resources for economically important sport fish populations, wading birds, migratory waterfowl, alligators, and the federally-listed endangered Everglades snail kite. In addition, the SAV community stabilizes shoreline sediments and supports attached algae that help to remove phosphorus from the water. The littoral zone emergent vegetation community in the lake covers an area larger than 400 square kilometers.

Factors affecting Success. Florida has an annual rainfall cycle that can lead to prolonged or extreme high or low lake levels that in turn can stress the ecosystem. The spatial extent of the SAV in the lake has fluctuated significantly over the years according to wet and dry years and management schedules. Just after a period of low water levels in 1989 to 1991, between 43,000 and 51,000 total SAV acres were found. In 1998, after many years of high lake levels, a rough estimate indicated that only 3,000 acres of total SAV remained in the lake. In July 2002, the spatial extent of SAV was back up to 43,000 acres, though not all desirable species. In the most recent sampling, conducted in August 2004, the total acres had increased to nearly 55,000.

Toward Restoration. The broad restoration goals for this indicator include lowering average water levels in the lake, reducing frequency of extreme high water levels, and decreasing phosphorus inputs. Under those conditions, the distribution and abundance of bulrush and submerged plants are expected to increase. In addition, reducing phosphorus loads from agricultural and urban activities to 40 parts per billion in the pelagic zone (open-water area) will result in the following changes: a decrease in algal blooms; an increase in water clarity; an increase in the spatial extent and biomass of native SAV; and a decrease in the rate of nuisance and exotic plant species expansion along the edge of the littoral zone.

Invasive Exotic Species

Significance and Background. Florida is noted, along with Hawaii, California, and Louisiana, as one of the states with the greatest number of invasive non-indigenous species. Approximately one-third of the plant species in south Florida are exotic, and south Florida has more introduced animals than any other region in the United States. An estimated 26 percent of all mammals, birds, reptiles, amphibians, and fish are exotic. While invasive exotic plants may result in changes in ecological function and structure, they do not provide a measure that relates to the ecosystem's ecological condition except as it pertains to their level of invasion and adverse impacts on the ecosystem and biota. This is an indicator of the status of the

spread, spatial distribution, and dominance of invasive exotic species and an indicator of progress (or lack thereof) in the control and management of invasive exotic species. The indications provided by monitoring and assessments of invasive exotic species are an evaluation of the integrity of the natural system and native vegetation.

Factors affecting Success. During the past 400 years, Florida has been inundated with many predominantly tropical non-indigenous plants and animals. These waves of introductions accelerated during the twentieth century principally through importations by the ornamental plant and exotic pet industries. Exotic species compete with indigenous species for limited water, prey, and habitat; too often the exotics species outcompete the native. Since exotic species often drive ecological changes that may be irreversible, prevention, early detection, and removal are key to control and management. Monitoring and regular assessment of the spread of existing exotic species and the detection of new potentially invasive species is critical to effective control and management. Trends in the spread and density of invasive exotic plants, and the impacts that control and management activities have on their spread and density will be important to the assessment of management success to control and eradicate invasive species in the Everglades.

Toward Restoration. Broad restoration goals for this indicator are a reduction in spatial extent of invasive exotic plant species and populations of invasive exotic animal species in the South Florida Ecosystem. In addition, development of a comprehensive management program would address prevention, maintenance, and management of this condition.

RESTORATION COMPATIBILITY INDICATORS

Water Volume

Significance and Background. A regional volume of water can be evaluated on how well it meets reasonable and beneficial urban and agricultural demands even in drought years. In 1997 Florida established a water supply planning goal to provide water to all existing users during droughts up to the level of severity of a one-in-ten-year frequency of occurrence. This goal has been interpreted to mean at least a 90 percent probability that during any given year all of the needs of reasonable, beneficial water uses will be met while also not causing harm to the water resources and related natural environment.

The C&SF Project was originally designed to provide flood control and deliver water for municipal, industrial, and agricultural uses. Later this was modified to include prevention of saltwater intrusion and provision of adequate water to ENP. The system put in place was an attempt to meet the estimated water needs for a projected population of approximately two million residents by 2000. This population projection was significantly low as the actual population in 2000 was over six million and continues to grow rapidly.

Factors affecting Success. As south Florida's population increased, so did the demand for water and land, and the subsequent conversion of natural lands to urban and agricultural uses. The result of this conversion was:

- A reduction in the extent of the natural system
- A reduction in water available for the natural system
- Reduced water resources and recharge capability for the aquifer
- Loss of water from the natural and human systems
- Increased needs for flood protection in urban and agricultural areas
- Less water available for the human population

- Conflicts for water between the natural system and people

Under current conditions, canals and levees associated with the C&SF Project have altered the timing and distribution of water across the landscape while the regional flood control and water supply constraints create unnatural surface and groundwater stages (altered volumes) in many areas. The CERP is expected to improve the timing, volume, and distribution of water throughout the system primarily by increasing regional storage capacity, removing barriers to flow, and through a careful redistribution of water within the system that more closely matches natural cycles. The CERP’s cumulative objective is to significantly reduce the release of millions of acre-feet of water for flood control by increasing storage capacity and thus increasing the amount of freshwater available to all water users – people as well as the environment – and to meet anticipated water supply needs for the 50 year CERP planning horizon. This retained and stored water is referred to as “new” water.

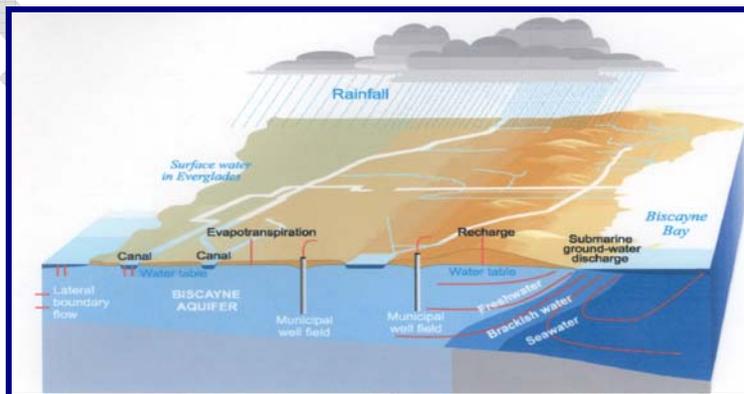
Toward Restoration. Broad restoration goals for this indicator are to distribute water across the ecosystem in a manner that reflects natural conditions while providing for the other water-related needs of the region. In addition the water supply planning goal that will support achieving this condition is to provide water to all existing users during droughts up to the level of severity of a one-in-ten-year frequency of occurrence. Though specific targets are being refined the general target is to meet predicted “new” water volume targets (in acre-feet) identified through the C&SF Restudy. Current projections for new water are outlined below.

Targets for “new” water volume	
By 2010	- 931,000 acre-feet of new water
By 2015	- 1,060,000 acre-feet of new water
Full Restoration	- 1,620,000 acre-feet of new water

Biscayne Aquifer Saltwater Intrusion

Significance and Background. The Biscayne aquifer underlying southeast Florida provides freshwater resources to both the ecosystem and most of south Florida’s human population. Saltwater intrusion poses a continuing threat to the Biscayne aquifer. In order to restrict the inland migration of the saline interface, a sufficient freshwater head must be consistently maintained within the aquifer. Both the volume and water quality in the aquifer are affected by human activities, including extractions for public and private water services, and pumping and diversion of the freshwater to restoration projects or to sea.

Factors affecting Success. Harm to the Biscayne aquifer in terms of saltwater intrusion is considered to be movement of the saltwater interface to a greater distance inland than has occurred historically as a consequence of seasonal water level fluctuations up to and including a one-in-ten-year drought event. Groundwater levels within the Biscayne aquifer are controlled by local rainfall and by the canals and structures that are regionally operated by the SFWMD. The SFWMD implements two programs, canal operations and consumptive use permitting, to prevent increases in movement of saltwater within the Biscayne aquifer.



Conceptual diagram of hydrologic system of South Florida (from Langevin, 2000).

The CERP intends to increase the storage capacity of water in the regional system for delivery to the Lower East Coast Service Area. The increase in regional storage capacity provided by the CERP will supplement regional and local sources used to prevent saltwater intrusion. CERP's water projects that may directly or indirectly affect Biscayne aquifer dynamics include surface and water storage, aquifer storage and recovery (ASR), and modifications to impediments of sheetflow (decompartmentalization).

Toward Restoration. The broad restoration goal for this indicator is for the Biscayne aquifer is to achieve a level of protection where the movement of the saltwater interface is maintained at no greater distance inland than has occurred historically as a consequence of seasonal water level fluctuations up to and including a one-in-ten-year drought event.

Flood Protection – C-111 Basin

Significance and Background. The 1948 C&SF Project was intended to help protect the public living in south Florida from flooding. As population increased the land uses changed, agricultural areas were developed for housing and natural wetlands were developed for agriculture, with increasing pressure to continue this pattern toward the Everglades. As agricultural and residential areas eventually abutted the Everglades a direct conflict related to water levels occurred.

Factors affecting Success. The water levels required for the health of Everglades wetlands and aquifer recharge are often not the same as needed for agricultural and developed areas. In south Miami-Dade County, the draining of the developed side of the levy also caused the loss by seepage of water needed for sustenance of natural wetlands drained the Everglades and ENP. of water needed for sustenance of natural wetlands. During dry seasons the C&SF project moved water into south Miami-Dade County for agriculture and the Everglades, but constant pumping drained even more water from the Everglades, exacerbating the dry conditions. This scenario particularly describes the evolution of flooding challenges in the South Dade C-111 Basin that covers approximately 100 square miles in the southernmost portion of Miami-Dade County adjacent to the ENP. The predominant land use in this basin is agricultural, although portions of Florida City and Homestead lie within the basin.

Toward Restoration. A goal of Everglades restoration and the CERP is to enhance economic values and social well being by maintaining or enhancing the current level of flood protection while restoring appropriate water levels and hydroperiods in the natural system. (Miami Dade county edits) By avoiding increased flood damages or mitigating for flood encroachment, increases to project and societal costs can be minimized.

Broad restoration goals for this indicator are to reduce conflict in the water management operations in the C-111 Basin where agricultural lands abut ENP and to achieve a one-in-ten-year level of flood protection for the C-111 Basin.

STRATEGIC GOALS AND OBJECTIVES

The ultimate result of the Task Force member agencies' efforts should be the restoration of the South Florida Ecosystem. The direct measures of success for achieving this result are addressed in the preceding "Vision" section of this *Strategy*.

Because of the complexity and the long time frame of this initiative, it is also important to measure and track the hundreds of activities (*outputs* in the language of performance management) that must be performed to achieve the result of a restored ecosystem. By measuring and tracking the contributions of individual and aggregated work efforts, or projects, the Task Force members can identify whether restoration activities are being implemented in a timely and effective manner.

To this end, the Task Force members have identified three strategic goals, related subgoals, and specific objectives for the work that must be done. The three strategic goals recognize that water, habitats and species, and the built environment are inextricably linked in the ecosystem and must be addressed simultaneously if the ecosystem is to be restored and preserved over the long term. The subgoals divide the goals into more definitive areas of concern:

- GOAL 1: GET THE WATER RIGHT
 - Subgoal 1-A: Get the hydrology right
 - Subgoal 1-B: Get the water quality right

- GOAL 2: RESTORE, PRESERVE, AND PROTECT NATURAL HABITATS AND SPECIES
 - Subgoal 2-A: Restore, preserve, and protect natural habitats
 - Subgoal 2-B: Control invasive exotic plants

- GOAL 3: FOSTER COMPATIBILITY OF THE BUILT AND NATURAL SYSTEMS
 - Subgoal 3-A: Use and manage land in a manner compatible with ecosystem restoration
 - Subgoal 3-B: Maintain or improve flood protection in a manner compatible with ecosystem restoration
 - Subgoal 3-C: Provide sufficient water resources for built and natural systems

Specific objectives for what must be done in order to achieve the subgoals and goals—and ultimately the intended result of a restored ecosystem—were developed using the best information available gained through models, outputs, or research findings.

The objectives included in this *Strategy* do not comprise the exhaustive list of everything that needs to be done to restore the South Florida Ecosystem. Rather they provide an overview of the major restoration accomplishments and whether they are proceeding on schedule, indicating whether or not the work of the Task Force member agencies is on track. The objectives, like the projects, are subject to adaptive management and may be modified as new information becomes available or when desired outcomes are not achieved. The Task Force agencies periodically provide updated data to the Task Force, which synthesizes the information for its strategy and biennial reports.

The major projects contributing to each objective are listed in this section of the *Strategy*. If more than one project is required to meet a single objective, then each project's partial contribution is identified. Not all the Task Force projects are listed in this section. However, all are listed in Appendix A and all are described in detail in the IFP project sheets provided in Volume 2.

Goal 1: Get the Water Right

Water is the lifeblood of the South Florida Ecosystem. However, by the year 2000, the water flows had been reduced to less than one-third of those occurring in the historic Everglades. The quality of water that did enter the ecosystem had been seriously degraded. Water did not flow at the same times or durations as it did historically, nor could it move freely through the system. The whole South Florida Ecosystem suffered. The health of Lake Okeechobee was seriously threatened. Many plants and animals that live in south Florida and the Everglades were in danger of becoming extinct because their habitats had been degraded, reduced, or eliminated. Excessive freshwater discharges in the wet season and inadequate flows in the dry season threatened the estuaries and bays that are critical nurseries and home to many fish and wildlife. Urban and agricultural areas were also adversely affected. Water shortages and water restrictions were occurring more frequently in some parts of south Florida.

Getting the water right must address four interrelated factors: the quantity, quality, timing, and distribution of water. More water is not always better. Alternating periods of flooding and drying were vital to the historical functioning of the Everglades Ecosystem. Getting the water right also must recognize the needs of natural systems, urban and rural communities, and agriculture. Waters need to meet applicable water quality standards, including standards to protect the natural functioning of the Everglades and those that ensure the availability of safe drinking water. The right quantity of water, of the right quality, needs to be delivered to the right places and at the right times.

A consensus-building exercise in 1999 with broad public input identified a list of statements that Task Force participants used as a foundation to develop the Task Force *Strategy*. Based on that consensus, the water will be right when the following conditions are met: Natural hydrologic functions are restored in wetland, estuarine, marine, and groundwater systems, while also providing for the water resource needs of urban and agricultural landscapes. Natural variations in water flows and levels are restored without diminishing essential levels of water supply or flood control. Compartmentalization is reduced, and natural patterns of sheet flow are recovered to the maximum extent possible. Water resources accommodate the needs of natural systems, communities, and business. Safe drinking water is available for the people of south Florida. Damage caused to water quality by pollutants and contaminants (such as from agricultural nutrients or urban related pollutants) is eliminated. Water levels and the timing of water deliveries reflect quantities resulting from natural rainfall and are distributed according to natural hydrologic patterns or patterns modified by scientific consensus. Damage to natural and human systems caused by flood and drought is minimized. Groundwater resources are protected from depletion and contamination.

Efforts to achieve goal one must incorporate a process to address concerns of environmental justice and economic equity. The unique cultural and ethnic diversity of south Florida's population, with its strong representation of peoples from all over the world, will require significant efforts on behalf of the restoration partners to ensure that projects are implemented in ways that do not result in disproportionate impacts on any communities. Additional targeted efforts will be required to provide opportunities for socially and economically disadvantaged individuals and small businesses to participate in the implementation of restoration programs and projects. The Task Force and Working Group see this guiding principle as critical to long-term success.

Subgoal 1-A: Get the Hydrology Right (Water Quantity, Timing, and Distribution)

How This Subgoal Will Be Implemented

On average 1.7 billion gallons per day (gpd) of water that once flowed through the South Florida Ecosystem is discharged via canals to the ocean or gulf. The CERP and other projects include five programs for recapturing most of this water and redirecting it to sustain natural system functioning and to supplement urban and agricultural water supplies:

Surface water storage reservoirs. Surface water storage impoundments and water control structures will allow manipulation of flows in the system to mimic the natural system. A number of water storage facilities are planned north of Lake Okeechobee, in the Caloosahatchee and St. Lucie basins, in the EAA, and in Palm Beach, Broward, and Miami-Dade Counties. These areas will encompass approximately 181,300 acres and will have the capacity to store 1.8 million acre-feet of water. Two rock mining areas in Miami-Dade County will be converted to in-ground storage areas.

Aquifer storage and recovery. Subsurface storage will be used to meet remaining water supply needs. The limestone platform that underlies Florida is honeycombed with voids and porous layers of sedimentary rock capable of holding water in storage. Water that currently leaves the ecosystem in canals can be captured, treated, and injected into these aquifers, and held in storage until the water is needed to augment surface storage supplies. The CERP envisions that more than 300 wells will be built to store water 1,000 feet underground in the upper Floridan aquifer. Pilot testing of this approach in different geologic areas is ongoing. Although ASR technology has been used successfully in Florida since 1983, concerns have been expressed about the proposed use of large-scale ASR in south Florida. Many of these concerns were outlined in a 1999 report prepared by the ASR Issue Team of the Task Force.

To address concerns about ASR, an interagency study team led by the USACE and SFWMD was formed in 2000 and included representatives from the U.S. Geological Survey, U.S. Environmental Protection Agency (USEPA), Task Force, the Florida Department of Environmental Protection (DEP), Florida Geological Survey, Florida Department of Health, and various local governments. The interagency study team was tasked with preparing Project Management Plans (PMPs) and overseeing the implementation on the three ASR Pilot Projects. In 2001, an independent scientific review panel of the National Academies of Science and the Committee for the Restoration of the Greater Everglades Ecosystem (CROGEE) reviewed the draft PMPs for two ASR Pilot Projects and subsequently issued a report that recommended additional research. The ASR Regional Study was designed to answer many of the questions concerning the feasibility of full-scale ASR implementation. CROGEE subsequently reviewed the PMP for the ASR Regional Study. The PMP was approved and the ASR Regional Study has been initiated to collect regional hydrogeologic and water quality data, and develop a regional groundwater model as well as other tools required to address regional scale technical uncertainties.

If proven successful, wells will be located around Lake Okeechobee, in the Caloosahatchee Basin, and along the east coast. As much as 1.5 billion gallons a day may be pumped down the wells into underground storage zones for subsequent recovery. Because water does not evaporate when stored underground and less land is required for storage, ASR has some advantages over surface storage. In particular, water stored in the aquifer can be made available for longer durations in years of severe drought conditions. The stored water will be pumped into the existing surface water delivery system to meet environmental, urban, and agricultural water supply demands. ASR components represented approximately one-fifth of the total CERP costs presented in the USACE 1999 *Central and Southern Florida Project Comprehensive Review Study*.

Removal of barriers to sheetflow. Canals, internal levees, and other impediments will be removed or modified to reestablish the natural sheetflow of water through the system. The Kissimmee River Restoration Project will restore approximately 40 square miles of free-flowing river floodplain and

associated wetlands, which likely will help improve the quality of water flowing into Lake Okeechobee. The Modified Water Deliveries and Canal-111 projects will restore historic hydrological patterns to the Everglades. Most of the Miami Canal in WCA-3 will be removed, and 20 miles of the Tamiami Trail (U.S. Route 41) will be rebuilt with bridges and culverts, allowing water to flow more naturally into ENP. In the Big Cypress National Preserve, the levee that separates the preserve from [the Everglades Water Conservation Area 3A \(NPS edit\)](#) will be removed to restore more natural overland water flow.

Seepage management. Millions of gallons of groundwater are lost each year as it seeps away from the Everglades towards the east coast, where groundwater levels were lowered by the C&SF Project to allow for development and all human uses. Seepage generally occurs either as underground flow or through levees (the artificial boundaries of the natural system). Three kinds of projects will reduce unwanted water loss and redirect this flow westward to the WCAs, ENP, and northeast Shark River Slough: (1) adding impervious barriers to the levees to block loss of water; (2) installing pumps near levees to redirect water back into the Everglades; and (3) holding water levels higher in undeveloped areas east of the protective levee between the Everglades and Palm Beach, Broward, and Miami-Dade Counties.

Operational changes. Changes in water delivery schedules will be made in some areas to alleviate extreme fluctuations. Lake Okeechobee water levels will be modified to improve the health of the lake. In other areas, rainfall-driven operational plans will enhance the timing of water flows. Water will be delivered, as facilities are constructed, according to schedules that match natural hydrological patterns as closely as possible. Continued research will improve understanding of the hydrology and how it can be restored while maintaining urban and agricultural water supply and flood control. All efforts in CERP to restore the ecosystem incorporate reviews required by the assurance language of WRDA 2000 (attached as Appendix X) to ensure that existing legal sources of water are not eliminated or transferred until a new source of water supply of comparable quality and quantity is available.

Long-Term Operations and Maintenance Needs

Effective management of water storage and delivery will require close coordination between the USACE and the SFWMD. Project sponsors will constantly monitor in-place storage and water flows to ensure that the storage and recovery systems are functioning properly. Wells, wellheads, and pumps will require regular maintenance to operate effectively, and long-term operating plans will be developed to ensure continued service.

Factors Affecting Achievement of this Subgoal

Population growth. The population of south Florida is expected to double by 2050, greatly increasing demands on water. Urban water supply demands could increase from approximately one billion gpd to two billion gpd, taxing the limited natural and economic resources of the Task Force participants.

Funding. A critical factor is stable and reliable funding for the timely completion of these projects. If the hydrology projects cannot be completed on schedule, the effects can cascade through the restoration effort, blocking successful completion of the water quality subgoal and delaying the habitat restoration and preservation subgoals. Delays can increase costs over the long term and, in some cases, foreclose land acquisition options, thus creating further delays or requiring project design modifications. Increasing demands on the limited natural and financial resources of the Task Force members may affect their ability to achieve their strategic goals. However, the State of Florida has committed to the expedited completion of several projects within this subgoal area through the 2004 initiation of the Acceler8 program.

Land acquisition. Many of the surface storage impoundments will be constructed on lands that have yet to be acquired. In some cases, easements are needed for impoundments and/or canals to connect an

impoundment to the system. Willingness of landowners to sell land, funds to exercise land acquisition options, and community acceptance of projects are factors that can affect completion of the objective.

Natural disasters. Severe weather, including *el niño* and *la niña* cycles, and natural disasters, such as hurricanes and forest fires, could delay completion of the restoration activities. Impoundment dikes are particularly susceptible to severe rainstorm damage during and immediately after construction. Careful construction can minimize but not eliminate project setbacks and delays due to weather events, such as hurricanes and tropical storms. Extreme weather conditions may also affect the ability to manage and maintain aquifer water storage, given the complexity of the limestone geology of Florida.

Technical Uncertainties. Although aquifer storage and recovery technology has been used for many years there are some technical uncertainties of using this technology on such a large scale. These uncertainties are being thoroughly researched through ASR pilot projects and a Regional ASR Study. In addition, an ASR Contingency Plan is being developed to identify storage and water supply options should implementation of ASR at the scale envisioned in CERP not be possible. [There is similar uncertainty associated with in-ground storage and seepage management which the CERP pilot projects will address. \(Miami Dade county comment\)](#)

Specific, Measurable Objectives for Achieving this Subgoal

Three objectives for achieving this subgoal have been adopted by the Task Force:

- Provide 1.8 million acre-feet of surface water storage by 2036
- Develop aquifer storage and recovery systems capable of storing 1.5 billion gallons per day by 2030
- Modify 345 miles of impediments to flow by 2020

The key projects needed to achieve these objectives and the schedule for their implementation are shown in Strategic Plan Table 3.

Strategic Plan Table 3 – Subgoal 1-A: Get the Hydrology Right

1-A Milestone Projects (Refer to Appendix A for more information about project schedules, funding, responsible agencies, etc.) * Some projects have been combined with others since 2004			
Objective	Project ID	Restoration Endpoint	Project
Objective 1-A.1: Provide 1.8 million acre-feet of surface water storage by 2036	1101	2025	C&SF: CERP Indian River Lagoon South, C-23/C-24/C-25/North Fork and South Fork Storage Reservoirs, and C-44 Basin Storage Reservoir (CERP Project # WBS 07)*
	1102	2015	C&SF: CERP Everglades Agricultural Area (EAA) Storage Reservoir (CERP Project # WBS 08 and 09)
	1104	2015	C&SF: CERP Lake Okeechobee Watershed (CERP Project # WBS 01)
	1105	2040	C&SF: CERP North Lake Belt Storage Area (CERP Project # WBS 25)
	1106	2020	C&SF: CERP Palm Beach County Agricultural Reserve Reservoir and ASR (CERP Project # WBS 20 and 21)
	1107	2025	C&SF: CERP Site 1 Impoundment and Aquifer Storage and Recovery (CERP Project # WBS 22 and 40)
	1109	2020	C&SF: CERP C-43 Basin Storage Reservoir and ASR (CERP Project # WBS 04 and 05)
	1110	2040	C&SF: CERP Central Lake Belt Storage Area (CERP Project # WBS 26)
	1111	2006	Critical Ecosystem Restoration Projects - Ten Mile Creek
	1112	2010	LOFT (Identified under LOER)-Taylor Creek Reservoir
	1113	2020	C&SF: CERP WPA Conveyance (CERP Project # WBS 49)
	1114	2020	C&SF: CERP ENP Seepage Management (CERP Project # WBS 27 & 43)
	1501	2009	C&SF: CERP Broward County WPA – C-9 STA/Impoundment, Western C-11 Diversion Impoundment and Canal, and Water Conservation Areas 3A and 3B Levee Seepage Management (CERP Project # WBS 45)
	1503	2020	C&SF: CERP North Palm Beach County PIR Part 1 (CERP Project #WBS 17)
2100	TBD	Allapattah Flats/Ranch	
Objective 1-A.2: Develop aquifer storage and recovery systems capable of storing 1.5 billion gallons per day by 2030	Project ID	Restoration Endpoint	Project
	1106	2020	C&SF: CERP Palm Beach County Agricultural Reserve Reservoir and ASR (CERP Project # WBS 21)
	1109	2020	C&SF: CERP C-43 Basin Storage Reservoir and ASR (CERP Project # WBS 05)
	1200	2020	C&SF: CERP North Palm Beach – Part 2 (CERP Project # WBS 18)
	1201	2030	C&SF: CERP Lake Okeechobee ASR (CERP Project # WBS 03)
Objective 1-A.3: Modify 345 Miles of impediments to flow by 2020	Project ID	Restoration Endpoint	Project
	1300	2010	Canal 111
	1301	2020	C&SF: CERP WCA-3 Decompartmentalization and Sheetflow Enhancement (CERP Project # WBS 12, 13, and 47)
	1302	2015	C&SF: CERP Florida Keys Tidal Restoration (CERP Project # WBS 31)
	1303	2005	Critical Projects Southern Crew
	1304	2012	East WCA-3A Hydropattern Restoration
	1305	1997	Kissimmee Prairie
	1306	2010	Kissimmee River Restoration Project
	1307	2009	Modified Waters Delivery to Everglades National Park

Subgoal 1-B: Get the Water Quality Right

Runoff from agriculture and stormwater from urban areas has polluted areas of the Everglades and Lake Okeechobee and impaired ecological functions in those critical ecosystems. [PExcess phosphorus \(Miccosukee Tribe edit\)](#) is a major concern, but it is not the only pollution problem. The water quality of the Caloosahatchee River, St. Lucie Estuary, Biscayne Bay, Florida Bay, the Florida Keys, and the nearshore waters off the coasts periodically show signs of significant degradation, including eutrophication, excessive salinity range, and short-term variability and introduction of anthropogenic agricultural or industrial pollutants. In marine systems, exogenous nitrogen appears to be of particular concern. Mercury is also a concern in both freshwater and marine systems in south Florida. [Potentially toxic contaminants, such as trace metals, pesticides and other synthetic organic chemicals, and emerging pollutants of concern \(EPOCs\), which occur in wastewater, certain soils and sediments, may occur in alternative sources of water or be present in former agriculture sites that are used in connection with restoration. \(Miami Dade county edit\)](#)

The Task Force is committed to working with the relevant federal, state, and local agencies to ensure that water quality problems like coastal eutrophication are not exacerbated by the altered water management and delivery achieved through CERP and other projects.

How This Subgoal Will Be Implemented

[\(See Miccosukee Tribe comment 7\)](#)

Everglades Forever Act. In 1994 the Florida Legislature passed the Everglades Forever Act (EFA), which codified measures to improve water quality within the Everglades Protection Area (EPA), defined as the Loxahatchee NWR, WCAs 2 and 3, and ENP. One provision establishes the Everglades Construction Project, a set of six stormwater treatment areas (STAs) between the EAA and the natural areas to the south. The main purpose of these treatment areas is to reduce the phosphorus loads in waters entering the EPA. Additionally, the state uses regulatory programs and landowners implement best management practices to reduce phosphorus from urban and agricultural discharges. These programs and practices have reduced the phosphorus levels discharged from the EAA and neighboring basins into the Everglades. However, the final standards have not yet been met. A plan of construction projects, source controls, and continuing scientific investigations has been developed by the SFWMD to ensure that discharges from all basins impacting the Everglades meet state water quality standards. This plan is referred to as the Long-Term Plan.

In March 2003 the SFWMD presented a conceptual plan for achieving long-term water quality goals the district strategy for meeting water quality standards. During the 2003 legislative session, the Everglades Forever Act was amended to include reference to the SFWMD Long-Term Plan as the Best Available Phosphorus Reduction Technology. The amended act required the SFWMD to implement the Long-Term Plan without delay. In July 2003 the DEP proposed a rule establishing a long-term geometric mean of 10 ppb with associated natural variability as the numeric phosphorus criterion for class III waters in the EPA. The rule also establishes moderating provisions for permits authorizing discharges into the EPA in compliance with water quality standards, including the numeric phosphorus criterion and a method for determining achievement of the numeric phosphorus criterion. The rule also establishes moderating provisions authorizing discharges above the criterion, provided measures are taken to implement the best available phosphorus reduction technologies and a compliance methodology for determining achievement of the criterion. The rule was approved by the USEPA in July 2005.

Tribal water quality standards. In May 1999 the USEPA approved the 10 micrograms per liter (10 µg/l) total phosphorus water column quality standard adopted by the Miccosukee Tribe of Indians of Florida. The tribe, which is treated as a state for purposes of the Clean Water Act, adopted water quality standards to protect the tribal Everglades under their jurisdiction on the Federal Reservation. The phosphorus

standard applies to class III-A waters within tribal boundaries, defined by the tribe as tribal water bodies used for "fishing, frogging, recreation (including air boating), and the propagation and maintenance of a healthy, well-balanced population of fish and other aquatic life and wildlife...primarily designated for preservation of native plants and animals of the natural South Florida Ecosystem." While tribal waters on the Federal Reservation are located in the area of the Everglades which has median background total phosphorus concentrations ranging from 4 to 10 µg/l (often lower than the standard), the USEPA determined that at present no data suggest that phosphorus concentrations less than or equal to 10 µg /l cause changes in flora or fauna. Citing peer reviewed publications and technical reports, the USEPA determined that the 10 µg/l standard was a "scientifically defensible value which is not overly protective" and will protect the class III-A designated use. It also states, however, that additional Everglades data are still being collected, and if further studies show that 10 µg/l is not protective of class III-A waters, then the tribe should revise its standard as necessary.

Best Management Practices. The Natural Resources Conservation Service (NRCS) provides technical assistance on a voluntary basis to private landowners and operators, Indian Tribes, and others for the planning of conservation practices and installation of needed conservation management systems with the goal of achieving natural resource sustainability. Participants associated with animal feeding, livestock grazing operations, and fruit and crop production within the South Florida Ecosystem are helped to implement practices that improve nutrient management, water quality, and water conservation. The Environmental Quality Incentives Program provides farmers and ranchers financial and technical assistance to install or implement structural and management practices on agricultural lands that will improve or maintain the health of natural resources in the area including water quality.

Water management plans. Monitoring and research will be required before outlining additional plans for improving water quality in south Florida's lakes, wetlands, estuaries, and bays. Consequently, not all the projects and outputs needed to achieve this subgoal have been identified.

Section 303(d) of the federal Clean Water Act requires states to submit lists of surface waters that still do not meet applicable water quality standards (impaired waters) after implementation of technology-based effluent limitations, and to establish total maximum daily loads (TMDLs) for these waters on a prioritized schedule. For those waters deemed impaired, the DEP, in conjunction with the SFWMD, the Florida Department of Agriculture and Consumer Services (DACS), and other appropriate entities, will develop TMDLs. The TMDL will establish the maximum amount of a pollutant that a water body can assimilate without impairing the designated use.

The state's watershed management program is based on a five-phase cycle. During the first phase, the water quality data for each basin are assessed, and waters determined to be potentially impaired are identified. In phase two, intensive monitoring is conducted to supply data needed to either verify a suspected impairment or (in cases where the impairment has previously been verified) to model the impaired waters and generate TMDLs. During the third phase, TMDLs for impaired waters are calculated and allocated to individual point sources and the major categories of nonpoint sources. After TMDLs are adopted, a consensus-based basin management action plan, which includes a TMDL implementation plan, is developed during the fourth phase. The fifth and final phase involves the implementation of the proposed management plan, including securing funding, passing local or state legislation, and writing permits that reflect the limits of the TMDLs. Implementation of TMDLs may involve any combination of regulatory, nonregulatory, or incentive-based actions that attain the necessary reduction in pollutant loading. Nonregulatory or incentive-based actions may include development and implementation of best management practices, pollution prevention activities, and habitat preservation or restoration. Regulatory actions may include issuance or revision of wastewater, stormwater, or environmental resource permits to include permit conditions consistent with the TMDL. [\(See Miccosukee Tribe comment 8\)](#) Once these plans have been adopted and implemented, progress is monitored until waters are eventually certified as meeting water quality standards.

The DEP provides annual updates to the 303(d) list. Any new water bodies identified as being impaired by pollutants will be added to the list and given a priority for TMDL development, normally as part of the next five-year cycle. In addition, each existing TMDL will be reevaluated as part of the next five-year cycle to determine progress toward meeting water quality standards and whether the TMDL needs to be revised.

Lake Okeechobee Protection Program. The Lake Okeechobee Protection Act (LOPA) committed the State of Florida to restore and protect Lake Okeechobee. This will be accomplished by achieving and maintaining compliance with water quality standards in the lake and its tributary waters. The approach is a watershed-based, phased, comprehensive, and innovative protection program designed to reduce phosphorus loads and implement long-term solutions based upon the TMDL for Lake Okeechobee developed by the DEP. This TMDL is a long-term (five-year) rolling average of 140 metric tons (mt) to be attained by 2015. The TMDL consists of 105 mt yr⁻¹ from the watershed and 35 mt yr⁻¹ from atmospheric deposition. Atmospheric deposition is defined as both wet and dry fall input directly to the lake. The LOPA also requires aggressive programs to control exotic plants and a long-term program of water quality and ecological assessment, research, and predictive model development.

Elements of the program include (1) the Lake Okeechobee Protection Plan (LOPP), (2) the Lake Okeechobee Construction Project, (3) the Watershed Phosphorus Control Program, (4) Research and Water Quality Monitoring Program, (5) the Internal Phosphorus Management Program, (6) the Exotic Species Control Plan, and (7) an Annual Progress Report. The SFWMD, in cooperation with DEP and DACS, developed the LOPP, which was submitted to the Florida Legislature on January 1, 2004. The LOPP describes in detail how water quality standards, particularly for phosphorus, will be met in Lake Okeechobee and its downstream receiving waters by 2015. The watershed phosphorus control program uses a multifaceted approach to reduce phosphorus loads through continued implementation of existing regulations and BMPs, development and implementation of improved BMPs, improvement and restoration of the hydrologic functions of the natural and managed systems, and use of alternative technologies for nutrient reduction. Projects are being implemented in a cooperative manner by the SFWMD, DEP, and DACS.

Considerable progress has been made to control the spread of exotic plants in the lake, watershed projects have been implemented to reduce phosphorus transport from agricultural lands and capture runoff water during high rainfall periods, and modifications to the lake regulation schedule are under consideration. Because of the complex nature and long history of problems, full implementation of the LOPA will require more than a decade, and improvements in lake water quality are expected to be slowed by internal nutrient recycling. Ongoing research in the watershed is helping to optimize the design of phosphorus reduction/flow attenuation measures, and research in the lake is providing guidance for adaptive management of water levels and exotic plants. Restoration of water quality and ecosystem functions in Lake Okeechobee is critical to south Florida because the lake is the central part of both the natural and man-made regional aquatic system.

Lake Okeechobee Estuary Recovery Plan. The Lake Okeechobee Estuary Recovery Plan (LOER) identifies five construction projects north of Lake Okeechobee that were specifically designed for water quality improvement as Lake Okeechobee Fast Track Projects (LOFT). The projects that have been fast tracked include Nubbin Slough STA expansion, Taylor Creek Reservoir, Lakeside Ranch STA, and rerouting runoff from the S-133 and S-154 basins to the Lakeside Ranch STA. In addition to the LOFT projects, LOER includes acceleration of TMDL development for Lake Okeechobee tributaries; implementation of mandatory fertilizer BMPs in the Lake Okeechobee, St. Lucie Estuary, and Caloosahatchee Estuary watersheds; implementation of revised Environmental Resource Permit criteria for new development; implementation of growth management programs encouraging innovative land use; elimination of land application of wastewater treatment residuals, and full implementation of the LOPP.

Florida Keys National Marine Sanctuary Water Quality Protection Program. The USEPA and the DEP conduct a comprehensive water quality monitoring and research program aimed at correcting point and nonpoint sources of water pollution within the Florida Keys National Marine Sanctuary (FKNMS). The Water Quality Protection Program, initiated in 1996, is the first such program developed for a national marine sanctuary. All state waters within the sanctuary boundary were designated a no-discharge zone in 2002.

Comprehensive Integrated Water Quality Feasibility Study. The USACE and the DEP developed a PMP for the Comprehensive Integrated Water Quality Feasibility Study in February 2004 and are currently coordinating a draft design agreement. The study is consistent with the goals and purposes of CERP and will:

- Identify links between water quality and ecosystem functions
- Identify degraded ecosystems and quantify the types and sources of pollution
- Develop targets for ecosystem restoration
- Inventory and evaluate a suite of structural and other measures capable of improving water quality
- Integrate planned and existing water quality restoration and management programs with CERP projects and with other federal, state, tribal, and local programs and projects
- Recommend additional programs and projects needed to achieve ecosystem restoration
- Identify appropriate funding sources

The study area encompasses approximately 17,500 square miles from Orlando to the Florida Reef Tract. The Kissimmee River, Lake Okechobee, and the Everglades are the dominant watersheds included in the study area connecting a mosaic of wetlands, uplands, coastal systems, and marine areas within all or portions of 19 counties.

Factors Affecting Achievement of the Subgoal

Natural disasters. Severe weather, including *el niño* and *la niña* cycles, and natural disasters, such as hurricanes and forest fires, will adversely affect water quality.

Land acquisition. Many of the stormwater treatment areas will be constructed on lands that have yet to be acquired. Willing land sellers, funds to exercise land acquisition options, and community acceptance of projects are factors that can affect completion of the objective.

Funding. Funding is always a critical factor. If the water quality projects cannot be completed on schedule, the effects can cascade through the restoration effort, delaying progress toward meeting the habitat restoration and preservation subgoals. Although Acceler8 is primarily focused on water storage, a few water quality projects are also being funded and expedited through this program.

Specific, Measurable Objectives for Achieving this Subgoal

Two objectives for achieving this subgoal have been adopted by the Task Force:

- Construct 91,345 acres of stormwater treatment areas by 2035
- Prepare locally-based plans to reduce pollutants as determined necessary by the TMDL by 2011

The key projects needed to achieve these objectives and the schedule for their implementation are shown in Strategic Plan Table 4.

Strategic Plan Table 4 – Subgoal 1-B: Get the Water Quality Right

1-B Milestone Projects (Refer to Appendix A for more information about project schedules, funding, responsible agencies, etc.)			
Objective 1-B.1: Construct 91,345 acres of stormwater treatment areas by 2035	Project ID	Restoration Endpoint	Project
	1101	2025	C&SF: CERP Indian River Lagoon South, C-23/C-24/C-25/North Fork and South Fork Storage Reservoirs and C-44 Basin Storage Reservoir (CERP Project # WBS 07)
	1104	2015	C&SF: CERP Lake Okeechobee Watershed (CERP Project # WBS 01)
	1110	2035	C&SF: CERP Central Lake Belt Storage Area (CERP Project # WBS 26)
	1112	2010	LOFT (Identified under LOER) - Taylor Creek Reservoir
	1500	2025	C&SF: CERP Big Cypress/L-28 Interceptor Modifications (CERP Project # WBS 10)
	1501	2009	C&SF: CERP - Broward County WPA - C-9 STA/ Impoundment, Western C-11 Diversion Impoundment and Canal, and WCAs 3A and 3B Levee Seepage Management (CERP Project # WBS 45)
	1502	2020	C&SF: CERP Miccosukee Tribe Water Management Plan (CERP Project # WBS 90)
	1503	2020	C&SF: CERP North Palm Beach County PIR Part 1 (CERP Project # WBS 17)
	1505	2020	C&SF: CERP Caloosahatchee Backpumping with Stormwater Treatment (CERP Project # WBS 06)
	1506	2006	Critical Projects: Lake Okeechobee Water Retention/Phosphorus Removal
	1508	2000	STA-1 West Works and Outflow Pump Station (G-310)
	1509	2000	STA-2 Works and Outflow Pump Station (G-335)
	1510	2005	STA-3/4 Works
	1511	2005	STA-5 Works
	1512	2006	STA-6 (includes sections 1 and 2)
	1513	2008	C&SF: STA-1E/C-51 West
	1514A	2010	ACCELER8 Project Includes Everglades Agricultural Area (EAA) Stormwater Treatment Areas (STAs) Expansion
	1515	2009	LOFT (Identified under LOER) - Lakeside Ranch STA
	1516	2007	LOFT (Identified under LOER) - Nubbin Slough STA Expansion
	1517	2009	C&SF: CERP C-111 Spreader Canal (CERP Project # WBS 29)
	1518	2015	Henderson Creek/Belle Meade Restoration (CERP Project # WBS 93)
Objective 1-B.2: Prepare locally-based plans to reduce pollutants as determined necessary by the TMDL by 2011	Project ID	Restoration Endpoint	Project
	1600	2011	Total Maximum Daily Load (TMDL) for south Florida

Goal 2: Restore, Preserve, and Protect Natural Habitats and Species

Before European settlement the natural habitats of south Florida covered an area of about 18,000 square miles. This enormous space encompassed a rich mosaic of ponds, sloughs, sawgrass marshes, hardwood hammocks, and forested uplands. In and around the estuaries, freshwater mingled with salt to create habitats supporting mangroves and nurseries for wading birds and fish. Beyond, nearshore islands and coral reefs provided shelter for an array of terrestrial and marine life. The vast expanses of habitat were large enough to support far-ranging animals, such as the Florida panther, and super colonies of wading birds, such as herons, egrets, roseate spoonbills, ibis, and wood storks. For thousands of years this

resilient ecosystem withstood and repeatedly recovered from the effects of hurricanes, fires, severe droughts, and floods, retaining some of the greatest biodiversity found on earth.

By the year 2000, the Florida panther and sixty-eight other animal or plant species were listed by the U.S. Fish and Wildlife Service (FWS) as threatened or endangered. Many additional species are of special concern to the State of Florida. Super colonies of wading birds no longer nest in the Everglades. The wetland habitats that supported these species have been reduced by half, fragmented by roads, levees, and other structures, dewatered by canals, and degraded by urban and agricultural pollutants. The marine environments of the bays and coral reefs have suffered a similar decline. Altered biological communities are being overrun by invasive exotic plants and animals capable of outcompeting native species and habitats. By the year 2000, exotic plants made up approximately one-third of the total plant species known in Florida. At that time, the Florida Exotic Pest Plant Council identified 125 of these as serious risks to Florida's natural areas and its threatened and endangered native plants and animals.

A combination of connectivity and spatial extent created the range of habitats and supported the levels of productivity needed for the historic diversity and abundance of native plants and animals. The original Everglades and other south Florida environments formed hydrologically integrated systems from boundary to boundary. Restoring natural habitats and species will require reestablishing the hydrologic and other conditions conducive to native communities and piecing together large enough areas of potential habitat. Exotic species must be managed, and the escape of new exotics must be prevented. Then it will require time for native plants and animals to reestablish populations and communities. The intended result will be self-sustaining populations of diverse native animal and plant species. This must take into account that populations that have adapted to current conditions may be impacted.

A consensus-building exercise in 1999 with broad public input identified a list of statements that Task Force participants used as a foundation to develop the Task Force *Strategy*. Based on that consensus, the habitats will be restored, preserved, and protected when the following conditions are met: The diversity, abundance, and behavior of native south Florida animals and plants and their terrestrial and aquatic habitats are characteristic of pre-drainage conditions. The spatial extent of wetlands and other natural systems is sufficient to support the historic functions of the greater Everglades Ecosystem. Important wildlife corridors are identified, enhanced, and preserved. Endangered and other federal and state listed species recover self-sustaining levels, and sufficient habitats for maintaining healthy numbers are restored and protected. Invasive exotic plant and animal species are substantially eliminated or reduced to manageable levels.

Efforts to achieve goal two must incorporate a process to address concerns of environmental justice and economic equity. The unique cultural and ethnic diversity of south Florida's population, with its strong representation of peoples from all over the world, will require significant efforts on behalf of the restoration partners to ensure that projects are implemented in ways that do not result in disproportionate impacts on any communities. Additional targeted efforts will be required to provide opportunities for socially and economically disadvantaged individuals and small businesses to participate in the implementation of restoration programs and projects. The Task Force and Working Group see this guiding principle as critical to long-term success.

Subgoal 2-A: Restore, Preserve, and Protect Natural Habitats

How This Subgoal Will Be Implemented

Land acquisition. Land acquisition is critical to South Florida Ecosystem restoration efforts. Land is needed to preserve habitat for native plants and animals and to act as a buffer to existing natural areas. Land is also needed for water quality treatment areas, water storage reservoirs, and aquifer recharge areas that will help restore natural hydrology. Federal, state, and local governments have all played important roles

in land acquisition. The most efficient use of resources may not be fee simple purchase of land, nor is it always desirable. Many alternative tools to meet restoration land use needs are being implemented to maximize the benefits of these limited resources. The Task Force supports the use of less than fee acquisitions or the use of other tools. Some examples of the tools being used include:

- Easements
- Temporary lease agreements
- Mitigation banks
- Public private partnerships

Over the past several decades, the federal government has acquired title to lands for conservation and public enjoyment of national parks, national preserves, and national wildlife refuges. Using existing land use plans and priorities, and based upon the availability of annual appropriations, federal land managers will continue to acquire lands within authorized boundaries of existing national wildlife refuges and national parks and preserves in the South Florida Ecosystem. The completion of these areas will provide additional habitat for threatened, endangered, and other species, as well as recreational opportunities for the people of south Florida. The federal government also has provided financial support to state land acquisition programs, such as the \$200 million provided by the 1996 Farm Bill for acquisition in support of ecosystem restoration. Based upon the availability of annual appropriations, federal land managers will continue to look for opportunities to assist the State of Florida in preserving the highest priority areas for implementation of the CERP.

The Florida Forever Program is Florida's primary land acquisition program. The 10 year program, passed in 1999 as an extension of the successful Florida Preservation 2000 Act, will raise approximately \$3 billion (\$300 million per year) for land acquisition. The program identifies and acquires lands from voluntary sellers through a process described under Chapters 259 and 373 of the Florida Statutes. The state also partners with local governments and other entities to identify and jointly acquire conservation lands. All of the state laws governing the acquisition of land with public funds for the purposes of conservation, recreation, or fish and wildlife management ensure that the public will be provided access.

In recent years local governments have initiated, voted, and approved land acquisition programs for hundreds of millions of dollars that are helping to protect and restore the South Florida Ecosystem. Interest is growing for many counties to undertake similar initiatives. These programs have the potential to complement and support the CERP as well as to foster compatibility of the built and natural systems.

State Florida Forever lands, federal parks and preserves, state water preserve areas, county and private conservation lands, conservation easements and other agreements with private landowners, and other lands acquired for South Florida Ecosystem restoration will help expand and connect a mosaic of upland, wetland, coastal, and marine habitats that will support the recovery of many currently imperiled species. These lands also provide opportunities for water supply enhancement, natural-resource based outdoor recreation, and environmental awareness and education for the state's residents and visitors.

Protection of critical habitat for threatened and endangered species. As part of the South Florida Ecosystem restoration initiative, in 1995 the FWS was directed to prepare a comprehensive, ecosystem-wide strategy to recover threatened and endangered species and to restore and maintain the extremely high biodiversity of native plants and animals in the upland, wetland, estuarine, and marine communities of the South Florida Ecosystem. This extensive effort is known as the Multi-Species Recovery Plan (MSRP).

The MSRP addresses the recovery needs of south Florida's federally listed threatened and endangered species. As of 2000, there were sixty-nine federally listed threatened and endangered species within the South Florida Ecosystem. A major section of that plan describes 23 of the natural vegetative communities

in south Florida and identifies management actions needed to restore the South Florida Ecosystem. Protecting critical habitat for threatened and endangered species will involve major coordination between the aggressive land acquisition programs of the state and the land acquisition plans for the national wildlife refuge system and the national park system. The Task Force has appointed a Multi-Species/Ecosystem Recovery Implementation Team (MERIT) to prioritize actions included in the recovery plan.

Wetlands enhancement. The CERP calls for removing barriers to sheetflow, restoring more natural hydroperiods to wetlands, and providing natural system water flows to coastal waters. These projects will restore hydrological connections to large portions of the remnant Everglades marsh, improve water quality, and increase the extent of wetlands, thus enhancing fish and wildlife habitat. Habitat heterogeneity will also be improved as upland and transitional areas experience more natural hydroperiods. Modeling of CERP project components shows that almost 2.4 million acres will be restored and enhanced.

Wetlands enhancement is also achieved through the Wetlands Reserve Program, a voluntary conservation program funded by the Farm Bill through which the U.S. Department of Agriculture (USDA) provides incentive payments and cost-sharing to restore, enhance, and protect degraded wetlands on agricultural lands.

Restoration and preservation of coral reefs. Other major efforts to restore and preserve habitat involve the designation of an ecological reserve and a research natural area to protect critical coral reef communities in the western portion of the FKNMS and Dry Tortugas National Park. The Tortugas region in the Straits of Florida has near-pristine marine resources, including one of the best-developed tropical coral reef systems on the continent. It is the epicenter of marine productivity for the region. Ensuring its long-term protection and appropriate public use will require cooperation among multiple and overlapping jurisdictions, including the U.S. Department of Commerce, the U.S. Department of the Interior (DOI), and the State of Florida.

The FKNMS's Tortugas Ecological Reserve fully protects 151 square nautical miles of coral reefs and associated communities. The Dry Tortugas National Park's research natural area protects an additional 46 nautical miles of reefs and marine habitats. Combined, these two areas encompass 197 square nautical miles, protecting more than 10 percent of the coral reefs in the Florida Keys. Reefs [in Biscayne National Park are also protected, and reefs in state parks and other portions of the FKNMS are managed for conservation elsewhere in south Florida have not received any significant protection to date.](#) [\(Miami Dade county Edit\)](#)

Factors Affecting Achievement of this Objective

Progress in acquiring lands needed for habitat protection will depend upon the availability of land from willing sellers, land values, the rate of development, and annual federal and state legislative appropriations.

Specific, Measurable Objectives for Achieving this Subgoal

Three objectives for achieving this subgoal have been adopted by the Task Force:

- Complete acquisition of 5.8 million acres of land identified for habitat protection by 2015
- Protect 20 percent of the coral reefs by 2010
- Improve habitat quality for 2.4 million acres of natural areas in south Florida

The key projects needed to achieve these objectives and the schedule for their implementation are shown in Strategic Plan Table 5.

Strategic Plan Table 5 – Subgoal 2-A: Restore, Preserve, and Protect Natural Habitats

2-A Milestone Projects (Refer to Appendix A for more information about project schedules, funding, responsible agencies, etc.)			
Objective 2-A.1: Complete acquisition of 5.8 million acres of land identified for habitat protection by 2015	Project ID	Project Endpoint	Project Name
	STATE/SFWMDC PROJECTS		
	2100		Allapattah Flats/Ranch
	2101		Atlantic Ridge Ecosystem
	2102		Babcock Ranch
	2104		Belle Meade
	2105		Big Bend Swamp/Holopaw Ranch
	2106		Biscayne Coastal Wetlands
	2107		Bombing Range Ridge
	2108		Caloosahatchee Ecoscape
	2109		Catfish Creek
	2111		Charlotte Harbor Estuary/Flatwoods/Cape Haze
	2112		Corkscrew Regional Ecosystem Watershed (CREW)
	2114		Coupon Bight/Key Deer/Big Pine Key
	2115		Cypress Creek/Trail Ridge
	2172		Cypress Creek/Loxahatchee
	2185		Devils Garden
	2117		East Coast Buffer/Water Preserve Areas
	2118		Esterio Bay
	2119		Everglades Agricultural Area/Talisman
	2120		Fakahatchee Strand
	2121		Fisheating Creek
	2122		Florida Keys Ecosystem
	2123		Frog Pond/L31N
	2174		Half Circle L Ranch
	2124		Indian River Lagoon Blueway
	2125		Juno Hills /Dunes
	2176		Jupiter Ridge
	2127		Kissimmee River (Lower Basin)*
	2128		Kissimmee River (Upper Basin)*
	2126		Kissimmee-St. Johns River Connector
	2129		Lake Wales Ridge Ecosystem
	2132		Loxahatchee Slough
	2133		McDaniel Ranch
	2134		Miami Dade County Archipelago
	2135		Model Lands Basin
	2138		North Fork of the St. Lucie River
	2139		North Key Largo Hammocks
	2140		North Savannas
	2141		Okaloacoochee Slough
	2142		Okeechobee Battlefield
	2143		Osceola Pine Savannas
	2144		Pal-Mar
	2145		Panther Glades
	2146		Paradise Run
	2147		Parker-Poinciana/Lake Hatchineha Watershed
			Pine Island Slough Ecosystem
	2148		Pineland Site Complex
	2178		Ranch Reserve
	2149		Rookery Bay
	2150		Rotenberger/Holey Land Tract
	2151		Shingle Creek
	2152		Six Mile Cypress I & II
	2154		South Savannas
	2155		Southern Glades
	2156		Southern Golden Gate Estates
	1508-1512		STA 1 W, 2, 3/ 4, 5 and 6
	2158		Twelve Mile Slough
	2159		Upper Lakes Basin Watershed (ULBW)
	2160		WCAs 2 and 3

2-A Milestone Projects (Refer to Appendix A for more information about project schedules, funding, responsible agencies, etc.)		
Project ID	Project Endpoint	Project Name
STATE COMPLETED PROJECTS		
2110		Cayo Costa Island
2113		Corkscrew Regional Mitigation Bank
2116		Dupuis Reserve
1305		Kissimmee Prairie
2130		Lake Walk-In-Water a/k/a Sumica
2131		Loxahatchee River Land Acquisition
2137		Nicodemus Slough
2153		South Fork St. Lucie River Land Acquisition
1513		STA 1 E
2180		Ten Mile Creek
2157		Tibet-Butler Preserve
2161		Yamato Scrub
FCT, STATE PARKS, & WMA'S		
		State Florida Communities Trust Lands
		State Park Lands
		State Wildlife Management Areas
FEDERAL CONSERVATION LANDS		
2162		A.R.M. Loxahatchee NWR
2163		Big Cypress National Preserve
2164		Big Cypress National Preserve Addition
2165		Biscayne National Park
2166		Crocodile Lake NWR
2167		Everglades National Park Expansion
2169		Florida Panther NWR
2168		Florida Keys NWR
2170		Hobe Sound NWR
2171		J. N. Ding Darling NWR
Objective 2-A.2: Protect 20 percent of the coral reefs by 2010	Project ID	Project Name
		2006 Florida Keys National Marine Sanctuary Zoning Action Plan
Objective 2-A.3: Improve habitat quality for 2.4 million acres of natural areas in south Florida.	Project ID	Project Name
	<i>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 that would be improved through implementation of the CERP projects. Table 7-18 of that 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 and are listed below.</i>	
	1101	2025 C&SF: CERP Indian River Lagoon South, C-23/C-24/C-25/North and South Fork Storage Reservoirs and C-44 Basin Storage Reservoir (CERP Project # WBS 07)
	1104	2015 C&SF: CERP Lake Okeechobee Watershed (CERP Project # WBS 01)
	1107	2025 C&SF: CERP Site 1 Impoundment and ASR (CERP Project # WBS 22 and 40)
	1111	2003 Critical Ecosystems Restoration Projects - Ten Mile Creek
	1306	2010 Kissimmee River Restoration Project
	1501	2009 C&SF: CERP Broward County WPA - C-9 Stormwater Treatment Area/Impoundment and Western C-11 Diversion Impoundment and Canal and WCAs 3A and 3B Levee Seepage Management (CERP Project # WBS 45)
	2300	2015 C&SF: CERP Strazzulla Wetlands (CERP Project #WBS 39)
	2301	2008 C&SF: CERP Winsburg Farms Wetlands Restoration (CERP Project #WBS 91)
	2302	2009 C&SF: CERP Lake Park Restoration (CERP Project #WBS 94)
	2303	2025 C&SF: CERP Restoration of Pineland and Hardwood Hammocks in C-11 Basin (CERP Project #WBS 92)
	2304	Ongoing A.R.M. Loxahatchee NWR Prescribed Fire Program
	2306	2007 C&SF CERP Acme Basin B Discharge (CERP Project #WBS 38) (was 1100)

2-A Milestone Projects (Refer to Appendix A for more information about project schedules, funding, responsible agencies, etc.)			
	Project ID	Project Endpoint	Project Name
	2307	2009	C&SF: CERP Southern Golden Gates Estates Restoration (CERP Project #30) (was 1424)
	2606	2017	Hole-in-the-Donut
	3802	2020	C&SF: CERP Wastewater Reuse Technology Pilot Project (CERP #WBS 37)

Subgoal 2-B: Control Invasive Exotic Plants

The Multi Species Recovery Plan (MSRP) identifies the control of invasive exotic species as integral to the restoration of the ecosystem and to the recovery of threatened and endangered and other imperiled species. Some invasive exotic plants have spread in natural areas to the extent that the native plant and animal communities are being replaced. The most widespread and serious exotic plants are listed below, along with the extent of their current infestations.

How This Subgoal Will Be Implemented

Invasive exotic plant management strategies. In 1993 the Florida Legislature charged the DEP with establishing a plan to control invasive exotic plants on public conservation lands (§369.252, *Florida Statutes*). The DEP Bureau of Invasive Plant Management has developed a comprehensive interagency strategy for elimination or control of the highest priority species and management to control and minimize the spread of other pest plant species.

The Noxious Exotic Weed Task Team (NEWTT) established by the Task Force has completed an assessment and strategy, *Weeds Won't Wait*, for managing invasive exotic plants and is working with all the agencies to implement the strategy. The following three actions, management plans, maintenance control, and prevention, were identified in *Weeds Won't Wait* as the highest priorities for ecosystem restoration. Other actions are still being developed and will be incorporated into updates of an implementation plan based on the *Weeds Won't Wait* strategy.

Management Plans. Comprehensive management plans, when adequately funded and implemented, have provided successful control of invasive exotic plants. These plans offer the advantage of replacing piecemeal efforts to manage exotic plants – typically by controlling them on individual sites or by controlling only one or a few species in broader regions – with coordinated multi-agency programs that integrate invasive plant management activities, organizations, priorities, and resources statewide.

Six species in Florida (melaleuca, Brazilian pepper, Old World climbing fern, hydrilla, water lettuce, and water hyacinth) already have statewide species-based management plans. More than 20 exotic plants need urgent attention, and developing plans for just the top 20 will take several years. Plans must be developed for each species because each has species-specific characteristics (biology, method of reproduction, life form, etc.) that need to be addressed.

The DEP has developed and is implementing the Upland Invasive Exotic Plant Management (Upland Weeds) Program. This is a statewide strategy to coordinate the efforts of federal, state, and local agencies and nongovernmental organizations in prioritizing needs and developing the methods, research, public education, technology transfer, oversight, and funding needed to conduct an efficient and cost-effective statewide maintenance control program for the control of upland weeds.

Maintenance control. Maintenance control is defined in the Florida Statutes as “a method for the control of exotic plants in which control techniques are utilized in a coordinated manner on a continuous basis in

order to maintain the plant population at the lowest feasible level" (§369.22, Florida Statutes). Many techniques are used in an integrated approach and they include mechanical removal, chemical treatment, and biological controls. The three major aquatic species (hydrilla, water hyacinth, and water lettuce) are currently under a maintenance control program for Florida's 1.25 million acres of public water bodies. Achieving maintenance control for melaleuca is well underway through mechanical and chemical treatment. In 1993 the SFWMD estimated more than 252,008 acres of melaleuca within its boundaries (melaleuca also occurs outside the district). Of these total acres 52 percent were public lands and 48 percent private lands. In 2002 the estimated acreage was 154,423 acres, of which 22 percent were public lands. The decrease of 97,071 acres has been made possible by funding from many agencies, especially the DEP and the SFWMD.

The state is funding research to determine the best approaches for chemical treatment and biological control of Brazilian pepper and Old World climbing fern. Although the climbing fern has only recently been recognized as a serious ecological threat, between 1998 and 2004 the state expended over \$6 million to control 32,000 acres of infestations.

Plans for other priority species need to be developed and incorporated into the state's multi-agency management framework and invasive exotic plant implementation plan and strategy.

The DEP and the National Park Service (NPS) have jointly implemented Exotic Plant Management Teams for Florida natural areas. An additional team for national wildlife refuges is being planned and funded by the FWS. These teams are trained to identify and remove invasive exotic plants and to help the land-managing agencies bring the species under maintenance control. [Miami-Dade County develops management plans and removes exotic vegetation in natural areas within parks and conservation lands.](#) [Miami-Dade County has a voluntary program offering owners of environmentally sensitive lands a reduction in taxes in exchange for managing the natural areas to remove invasive exotic vegetation.](#) [Miami-Dade County also requires removal of exotic vegetation from all sites as a condition of approval of development, and prohibits planting or propagation of invasive species.](#) [Additionally, removal of exotics and perpetual maintenance of wetlands and other natural areas is generally achieved or required in mitigation banks and other mitigation lands, such as Hole-in-the-Donut in ENP. \(Miami Dade county edit\).](#)

Prevention. The reasons some species become invasive and some ecosystems seem more readily invaded are not well understood. However, if a species becomes widely invasive it is difficult and expensive to manage. Preventing the introduction of invasive species is the only absolute means to control them, but absolute prohibitions and exclusions are impractical. An early warning program for potentially invasive species, a risk assessment for evaluating possible invasiveness prior to introduction, methods for early detection of incipient populations of new species, predictive tools to assist in determining where plants may invade, and the ability to eradicate incipient populations are needed. The Federal Interagency Committee for the Management of Noxious Exotic Weeds is planning a national early-warning information system for invasive exotic plants.

Long-Term Operations and Maintenance Needs

Weed management is like any other long-term program in that sufficient funds must be available on a continuous basis to achieve and then sustain maintenance control. If resources necessary to support management drop below the maintenance level requirement, the species will expand and reinvade to pre-control levels, and the program must start from zero again. The only exception is when adequate maintenance control is being achieved exclusively through biological control organisms and even in those instances, minimal monitoring is needed to ensure that the biocontrol organisms are continuing to work.

Discontinuing funding once maintenance control has been achieved is a problem that has continually plagued invasive species management programs nationally.

Factors Affecting Achievement of this Subgoal

Management complexity. The control programs for water hyacinth, water lettuce, and hydrilla have been successful because good management plans were developed for each species that included prioritizing sites for control, assessing the extent of infestations, directing essential research to understand the biology of the species, and specifying proven control techniques. The plans had multi-agency coordination and adequate funding.

To ensure success in bringing other high priority species under maintenance control, agencies will need to build upon the foundation of coordination and cooperation that has been established as part of their collective planning and control efforts to date. Collective efforts sufficient to manage invasive species throughout Florida will require formal agreements supporting the multi-agency approach and the formal designation of a lead agency to direct cooperative planning, project integration, and integrated budgets and resource requests. Identifiable elements from the strategies developed by the DEP and the Task Force NEWTT need to be integrated to expand policy setting, planning, prioritization, funding, and management to the ecosystem level.

Interface with infested landscapes. Continuing degradation of the natural environment may enhance the spread or rate of spread of exotic species. Adjacent landowners will impact the success of controlling exotics if these lands remain infested or if the landowners are not interested in land acquisition.

Importation of new exotics. The unregulated importation of new plant species continues to increase the potential for infestations of exotic plants.

Specific, Measurable Objectives for Achieving this Subgoal

Three objectives for achieving this subgoal have been adopted by the Task Force:

- Coordinate the development of management plans for the top 20 south Florida invasive exotic plant species by 2011
- Achieve maintenance control of Brazilian pepper, melaleuca, Australian Pine, and Old World climbing fern in south Florida's public conservation lands by 2020
- Complete an invasive exotic plant species prevention, early detection, and eradication plan by 2007

The key projects needed to achieve these objectives and the schedule for their implementation are shown in Strategic Plan Table 6.

Strategic Plan Table 6 – Subgoal 2-B: Control Invasive Exotic Plants

2-B Milestone Projects (Refer to Appendix A for more information about project schedules, funding, responsible agencies, etc.)			
Objective 2-B.1: Coordinate the development of management plans for the top 20 south Florida invasive exotic plant species by 2011	Project ID	Project Endpoint	Project Name
	2500	2011	Coordinate the development of management plans for the top 20 south Florida exotic pest plants
Objective 2-B.2: Achieve maintenance control of Brazilian pepper, melaleuca, Australian Pine, and Old World climbing fern on south Florida's public conservation lands by 2020	Project ID	Project Endpoint	Project Name
	2600	2020	Achieve maintenance control status for Brazilian pepper, melaleuca, Australian pine, and Old World climbing fern in all natural areas statewide
	2601	2005	Integration of federal, state, and local agency invasive exotic control programs into Florida-wide strategy
	2602	2009	C&SF: CERP – Melaleuca Eradication Project and other Exotic Plants (CERP Project # WBS 95)
	2603	2004	Estero Bay Aquatic Preserve and Buffer Reserve Enhancement and Exotic Removal Project
	2604	TBD	Everglades National Park Exotic Control Program
	2605	2010	Exotic Species Removal
	2606	2017	Hole-in-the-Donut
	2607	TBD	Exotic Vegetation Control (Critical) Big Cypress National Preserve
	2608	TBD	Aquatic and Upland Invasive Plant Management
Objective 2-B.3: Complete an invasive exotic plant species prevention, early detection, and eradication plan by 2007	Project ID	Project Endpoint	Project Name
	2700	2007	Invasive Exotic Plant Prevention, Early Detection, and Eradication Plan
	2701	2008	Melaleuca Quarantine Facility

Goal 3: Foster Compatibility of the Built and Natural Systems

Balmy weather, vibrant communities, beautiful scenery, and abundant natural habitats at the land/sea interface offer south Florida residents a unique choice of lifestyles and visitors a variety of destinations. The diversity of landscapes, including some of the most intensively developed and densely populated areas in the state, has contributed to the economic success and high quality of life enjoyed by Floridians and experienced by visitors from around the world.

This lifestyle has not come without a price. Tremendous population growth and the subsequent need for public services have resulted in adverse impacts on natural ecological systems. These impacts include loss of marine, wetland, and upland habitat, severe drawdown of freshwater resources, intrusion of saltwater into freshwater aquifers, loss of open space, and degradation of water quality. The rapid rate and volume of growth and the accompanying sprawl development patterns have reduced the spatial extent and vitality of the natural system. Its declining health has become more apparent as symptoms of stress have developed in the South Florida Ecosystem. The imbalance has caused state, local, regional,

and national decision makers and citizens to focus on addressing the unintended consequences of growth.

A consensus-building exercise in 1999 with broad public input identified a list of statements that Task Force participants used as a foundation to develop the Task Force *Strategy*. Based on that consensus, the compatibility of the built and natural systems will be achieved when the following conditions are met: The people of south Florida understand the connections between a healthy environment and a healthy community. Development patterns—development, redevelopment, and infrastructure—are complementary to ecosystem restoration and compatible with a restored natural system. Development practices support conservation of significant and special natural areas and reduce habitat fragmentation. Flood-protection level of service and water resources are maintained at existing levels, or augmented where appropriate. The quality of life of people in south Florida is enhanced through the ability to reside in areas with fishable, drinkable, and swimmable water and clean air. Park, open space, and recreation lands, blueways, greenways, and roadways are compatible with and complementary to getting the water right and enhancing and preserving the natural system. Land, water, wastewater, and transportation planning are coordinated and supportive of ecosystem restoration. Agriculture is an environmentally and economically sound component of the landscape, consistent with ecosystem restoration. In agricultural and urban areas, stormwater and wastewater are reclaimed when possible. The ecosystem is not damaged by improper disposal of wastes.

The same issues that are critical to the natural system—getting the water right and restoring, preserving, and protecting diverse habitats and species—are equally critical to maintaining a high quality of life for south Florida's residents. Like the future of south Florida's natural systems, the future of its human communities is dependent on getting the water right. The appropriate quantity, quality, timing, and distribution of water is essential to meeting the future water supply needs generated by projected population growth and by continuing economic productivity, most notably in tourism and agriculture (the two largest sectors of the economy). The overriding issue is not who gets the water, the natural system or the built system, but how to fulfill all water needs by ensuring that what is built can be adequately supported within the parameters of a healthy natural system. Failure to achieve this compatibility would likely be detrimental for both future residents and the environment. Recognizing this relationship, the State of Florida's guiding statute, Chapter 373.016, in the Declaration of Policy, promotes the availability of sufficient water for all existing and future reasonable-beneficial uses and natural systems.

Similarly, in order to maintain a high quality of life for south Florida's residents, the built environment must be planned and managed in a manner that both supports the social and economic needs of communities and is compatible with the restoration, preservation, and protection of natural habitats and species. This will require development patterns, policies, and practices that serve both built and natural systems. Urban, suburban, and rural development utilizes lands that would otherwise be available to support natural system functioning. To the extent that development patterns in these areas are sensitive to the critical needs of both community residents and the natural system, south Florida's communities can be a sustainable part of a healthy ecosystem.

Providing the land for suitable development and human habitation will continue to require considerable flood protection, since without such protection most of south Florida would be unsuitable for existing urban and agricultural uses. Given the population growth projections for south Florida, there will be an ongoing need for monitoring and balancing the flood-protection needs of urban, natural, and agricultural lands as part of restoration.

Providing sufficient water resources, using and managing land, and maintaining and improving flood protection—all in a manner compatible with restoration of the South Florida Ecosystem—are important subgoals for fostering compatibility of the built and natural systems. The land use planning, flood

control, environmental regulation, and similar activities needed to accomplish these subgoals are primarily the responsibility of the tribal, state, regional, and local governments in Florida. These government agencies must function within the authorities and appropriations for programs and activities established by the Florida Legislature and the local elected governing bodies. Constitutionally protected private property rights and the freedom of movement of the American people are also factors that affect the growth and development patterns in a given state and in localities.

The Task Force members recognize that these factors affect implementation of the restoration *Strategy* and achievement of the strategic goals. Efforts to achieve goal three must incorporate a process to address concerns of environmental justice and economic equity. The unique cultural and ethnic diversity of south Florida's population, with its strong representation of peoples from all over the world, will require significant efforts on behalf of the restoration partners to ensure that projects are implemented in ways that do not result in disproportionate impacts on any communities. Additional targeted efforts will be required to provide opportunities for socially and economically disadvantaged individuals and small businesses to participate in the implementation of restoration programs and projects. The Task Force and Working Group see this guiding principle as critical to long-term success.

Subgoal 3-A: Use and Manage Land in a Manner Compatible with Ecosystem Restoration

How This Subgoal Will Be Implemented

Compatible land use policies and practices. State, regional, and local agencies are using a variety of planning tools to foster increased compatibility of the built and natural systems. Over the past several decades Florida has enacted several pieces of legislation regarding comprehensive planning and growth management, including the Local Government Comprehensive Planning and Land Development Regulation Act, which provide an integrated framework of planning at the state, regional, and local levels. However, growth continues to stress both public infrastructure and the natural environment. The Governor's Growth Management Study Commission has reported that although the processes established by the existing growth management laws were well intended, improvements to the process should still be made.

Recognizing the critical importance of water to both the built and natural systems, the Florida Legislature passed a law in 2002 that addresses growth management and alternative water supply. The law requires that the comprehensive land use plans of counties and cities be coordinated with the completed regional water supply plans of the state's water management districts to ensure the availability of adequate water supplies.

An initiative by the Florida Department of Community Affairs (DCA) involves the review and analysis of existing and future land use designations adjacent to lands identified for acquisition for ecosystem restoration and associated buffers. DCA anticipates working with local governments as they develop the criteria for this review process.

Protection of a wide range of compatible recreational uses. People's enjoyment of nature is arguably the strongest impetus for the broad public support of ecosystem restoration. Many of the cultural traditions of the residents of south Florida have been shaped by people's access to expansive wetland, upland, and marine habitats harboring abundant populations of fish, birds, and other wildlife, and to exceptionally beautiful landscapes where they could lose themselves for days or a few moments. As citizens and their governments work to restore and protect the unique South Florida Ecosystem, they must not lose sight of the importance of public access to natural areas. At the same time the public must respect the sensitivities of the natural system and ensure that their activities do not unduly stress the wildlife and the landscapes that are such an important part of their heritage.

The Task Force members are working to protect opportunities for a wide range of compatible outdoor recreational activities for all residents of south Florida and their visitors. The acquisition of rural and urban park, recreation, and other open space lands, and efforts to link these natural areas through a system of greenways, blueways, and trails, are specifically addressed in this section of the Task Force *Strategy*. So are the efforts to help ensure that agricultural lands, which provide valuable open space and wildlife habitat, remain undeveloped. Other efforts include the improvement of recreational areas with appropriate facilities, including boat ramps, off road vehicles/airboat ramps, hiking trails, and horse trails, and the management of canals to enhance fishery habitat. The work to improve the health and productivity of habitats, addressed directly by goal two and indirectly by goal one, is expected to restore a sustainable natural system that south Floridians may continue to enjoy for generations to come. Local, state, and federal efforts to ensure a variety of opportunities for people's access to this natural system are a critically important complement to this work.

Park, recreation, and other open space lands. Park, recreation, and other open space lands protect natural systems and/or serve as buffers between natural and built environments. They often improve water quality and help attenuate flood waters after significant storm events. Public access to these areas fosters an appreciation for the natural system. When residents of urban areas have access to natural areas and a variety of resource-based recreational opportunities, it increases the potential that they will appreciate the importance of protecting a healthy natural system.

The Florida Communities Trust program provides grants to local governments in the state to help implement the natural resource, conservation, coastal, and recreation elements of the statutorily mandated Local Government Comprehensive Plan. These grant funds are primarily used for the acquisition of green and open space and park and recreation lands at the local level. In addition, many localities use grant funds appropriated by the Florida Legislature to acquire and develop local park and recreation areas under the Florida Recreational Development and Assistance Program.

Linked open space and buffers. Greenways, blueways, and trails multiply the benefits of open spaces and natural systems by linking those spaces together, and they enrich the quality of life of community residents and visitors by facilitating access to the state's natural and cultural heritage sites and by enhancing people's sense of place. In some cases, the greenway system also offers opportunities to improve the water quality of stormwater runoff.

The Florida Greenways and Trails System is guiding a statewide initiative to create a system of greenways and trails connecting communities and conservation areas. When completed, the system will connect one end of the state to the other, from Key West to Pensacola. One goal of the program is to work with land managers to add an additional 10 percent per year to the total lands designated. 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. The 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.

Protecting and preserving sustainable agriculture. Agriculture is Florida's second leading industry, producing \$18 billion in economic value each year. A large portion of agricultural land can be viewed as open space that benefits the natural system through buffering, augmentation of natural habitats, water storage and filtration, and aquifer recharge. It is of great concern that Florida is losing its farms and ranches because of declining profitability, land valuation, import/export and trade issues, and urban sprawl. Statewide almost 150,000 acres of productive agricultural lands are converted to other land uses each year. In the past some agricultural practices have impaired the functioning of natural systems,

sometimes with adverse effects on native plants and animals, and sometimes to the detriment of the ability of the land to sustain agricultural uses over the long term. Several regulatory and voluntary programs are underway in the South Florida Ecosystem and other areas in Florida to enhance environmental quality and the natural resource base upon which the agricultural economy depends.

The Everglades Best Management Practices Program, required by the 1994 Everglades Forever Act, specifically addresses the EAA and the C-139 Basin. The program goal of achieving a 25 percent reduction in the phosphorus load from the EAA has been met for each water year since the first full year of implementing BMPs (water years 1996 – 2003). EAA farmers have implemented a variety of practices to reduce the levels of phosphorus coming from their farms, including efficient fertilizer application, control of erosion and sediment loss, and effective stormwater management. Similar BMPs are implemented in the C-139 Basin, which is located adjacent to the EAA. The goal in this basin is to maintain phosphorus loads at or below historic levels.

The federal Farm Bill of 2002 provides several voluntary conservation programs through the USDA to assist landowners in protecting and preserving their natural resources. The USDA provides incentive payments and cost-sharing to restore, enhance, and protect degraded wetlands on agricultural lands, including the purchase of easements through the Wetland Reserve Program. The Farm and Ranch Land Protection Program (FRPP) helps farmers and ranchers keep their land in agriculture through the purchase of conservation easements in partnership with local and state governments and nonprofit entities. The Environmental Quality Incentive Program promotes agricultural production and environmental quality as compatible goals. Financial and technical assistance is provided to landowners to implement best management practices to improve water quality or enhance natural resource values. The Wildlife Habitat Incentives Program encourages the creation of high-quality wildlife habitats that support wildlife populations important to the ecosystem. Financial assistance is provided to develop upland, wetland, riparian, and aquatic habitats on private lands. Implementation of these programs will contribute significantly to the strategic goals for South Florida Ecosystem restoration. The Grassland Reserve Program helps landowners and operators restore and protect grassland, including rangeland and pastureland, while maintaining the areas as grazing lands.

Strategies for implementing the 2001 Rural and Family Lands Protection Act. The conversion of rural lands to higher density and more intense uses is having a profound effect on Florida's ability to maintain a balance between population growth and the natural resources necessary to support that growth. The development of previously isolated rural landscapes is fragmenting and degrading the quality and character of Florida's natural and agricultural lands. The prevailing development patterns threaten the state's ability to meet the needs of its citizens through adequate delivery of services and the maintenance of an agricultural economy. Additionally, these growth patterns interrupt the natural hydrological and biological functions that support not only sustainable agriculture and healthy ecosystems, but also the quality of life enjoyed by south Floridians.

The Florida Legislature recognized the importance of maintaining a healthy agriculture industry when it passed the Rural and Family Lands Protection Act of 2001. This important act authorizes the responsible agencies to develop strategies to protect rural, agricultural, and timber lands. Implementation strategies and appropriations for this effort are currently being developed, and appropriations continue to be sought for the program.

One such strategy is to secure conservation easements or protection agreements to compensate property owners for restrictions on the future use of their land. One of the biggest challenges in administering these programs is identifying economic resources to fund the program each year in a growing state struggling with many fiscal challenges. Recognizing these challenges in Florida and elsewhere, the NRCS FRPP provides matching funds to state, tribal and local governments and nongovernmental

organizations with existing farm and ranch land protection programs to purchase conservation easements that help keep land in agriculture.

Concerned with the rapid rate at which agricultural lands are being converted into an urban environment in south Florida, federal and state agriculture agencies are implementing a number of incentive programs to decrease that rate. An effort is underway to assess how much land is in productive agriculture and what kind of development pressure it is under. The DEP, DACS, and the University of Florida Institute of Food and Agricultural Sciences have been working together to implement incentive programs and to collect comprehensive data that will support efforts to retain viable and sustainable agriculture as part of the South Florida Ecosystem.

Redevelopment of brownfields. Federal (USEPA), state, regional, and local programs are contributing to the cleanup and redevelopment of contaminated and abandoned or underused sites in urban and rural areas of south Florida. Actual or perceived environmental contamination in urban infill sites – along with the risks and costs associated with cleanup – is a significant barrier to redevelopment. The remediation of this problem is contributing to the revitalization of south Florida’s historic developed areas. This revitalization is expected to lessen development pressure and urban sprawl in areas to the west, needed in order to restore the South Florida Ecosystem and to ensure future regional water supplies.

The Eastward Ho! Brownfields Partnership, which includes Miami-Dade, Broward, and Palm Beach Counties, is a good example of how local, regional, state, and federal agencies are working with private nonprofit and community organizations to facilitate the redevelopment of brownfields. The partnership received a National Brownfields Showcase Community designation from the USEPA in 1998. The USEPA also has granted \$2 million to capitalize a brownfields cleanup revolving loan fund, which is being used to assist in the cleanup and reuse of brownfields in southeast Florida.

The Partnership has also been active in the Florida Brownfields Program, administered and implemented by the DEP. The DEP has delegated the administration and implementation of the Florida Brownfields Program in their respective jurisdictions to Miami-Dade and Broward Counties. This results in streamlining of the review and implementation of assessment and cleanup activities. Miami-Dade and Broward Counties are the only counties in the state of Florida to receive this delegation.

Community Understanding of Restoration Projects. The USACE and the SFWMD coordinated an intensive public involvement process during the development of CERP, which culminated in more than 1,500 people attending 12 public meetings in the fall of 1998. The agencies remain committed to involving the public in all aspects of CERP implementation. Their *Public Outreach Program Management Plan*, completed in 2001, defines the general scope, schedules, costs, products, and funding requirements necessary for the first five years of outreach activities. The major elements of the plan are summarized below:

- General public awareness: Information about the CERP will be provided to the general population through media stories, participation by CERP outreach staff at community events, and distribution of informative print, electronic, and other materials.
- Minority community outreach: Special efforts will be made to inform and involve African-American, Haitian, and Hispanic residents of south Florida about CERP – groups that historically have been underrepresented in environmental programs.
- Environmental education: Appreciation of the Everglades and other natural resources by the youth of today is extremely important because they will benefit from, and perhaps even participate in, CERP and other related restoration efforts as adults. Curricula and teachers’ guides will be developed and distributed in K-12 schools throughout the 16-county south Florida region, often in partnership with the Newspapers in Education program.

- Small business outreach: Many CERP components will be handled by the private sector through contracts. Outreach activities will seek to empower and enable south Florida's small businesses to do business with the USACE and its partners. Staff will proactively engage and assist small businesses through business forums, workshops, and training sessions, development of web sites, distribution of printed materials, and other means.
- Project-level Involvement: Hundreds of public meetings, public workshops, and public meetings have already been held to involve local residents in the development of CERP projects. These have been widely publicized, planned in locations convenient to the public, and often featured an open house for staff to meet with residents. This form of one-on-one communication is essential to the success of CERP.

The Working Group also participates in a public-private partnership between the Task Force and the Museum of Discovery and Science. The success of this collaborative effort will result in environmental education programs, enhanced outdoor exhibitry, and an informative kiosk about the South Florida Ecosystem restoration effort, which will provide information to the half million people who visit the museum annually.

Factors Affecting Achievement of this Subgoal

Unanticipated growth. Accelerated growth in south Florida over predicted levels will significantly increase the loss of open space to other land uses, particularly development. Government agencies are preparing long-term plans and setting priorities based on assumptions about levels of growth and demand for services, which if eclipsed will seriously challenge the ability of local governments and agencies to respond in ways that adequately protect the natural system.

Management complexity. Fostering development patterns that are compatible with natural systems requires close coordination of multiple jurisdictions with authority over the built environment. Without such coordination, gains in compatibility on lands within one jurisdiction (in habitat connectivity, for example) might be negated by incompatible development in a neighboring jurisdiction. Because many development issues involve corridors such as roads, transit routes, or greenways that cross multiple jurisdictions, unilateral actions by individual communities are often impossible.

Coordination is also required between jurisdictions with authority over the built environment and jurisdictions with authority over natural systems. The strategic goal is compatibility, and any efforts that undermine the sustainability of either the built or the natural system could further harm the ecosystem. Potential regulations on agriculture pose a good example. On the one hand, any federal, state, or local agricultural policy intended to protect natural systems but that does not sufficiently provide for economic stability of the industry may result in such unintended consequences as a long-term reduction in open space and wildlife habitat as agricultural land is converted to other land uses. On the other hand, agricultural practices that degrade the natural environment may also ultimately prove catastrophic to agriculture. If awareness of and respect for these interrelationships lags behind other considerations, the success of ecosystem restoration may be delayed.

Funding. Local and regional jurisdictions will need adequate revenues and possibly supplemental funding to develop plans for a better pattern of protection by acquiring land, or less-than-fee interests in land, to link park, recreation, open space, and other significant land and water areas, and to enforce environmental regulations for the protection of those areas. Changes in local, state, or federal economic conditions may change the priorities of projects needed to implement this subgoal.

Environmental Justice. Early and sustained participation in community affairs by all segments of the community is critical. This may not occur unless policies and activities designed to involve all segments of the community are institutionalized so that they may continue beyond the timeline of the Working

Group. Environmental ombudsmen located in restoration partner agencies would aid in getting community issues to the appropriate person and responsible agency. In addition, trained volunteers who continually improve the knowledge base of restoration in the community will be important.

Specific, Measurable Objectives for Achieving this Subgoal

Five objectives for achieving this subgoal have been adopted by the Task Force:

- Designate or acquire an additional 480,000 acres as part of the Florida Greenways and Trails System by 2009
- Increase participation in the Voluntary Farm Bill conservation programs by 230,000 acres by 2014
- Acquire an additional 2,500 acres of park, recreation, and open space lands by 2007
- Complete five brownfield rehabilitation and redevelopment projects by 2010
- Increase community understanding of ecosystem restoration

The key projects needed to achieve these objectives and the schedule for their implementation are shown in Strategic Plan Table 7.

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WRDA 2000 clearly states that implementation of the CERP shall not reduce levels of service for flood protection that were in existence on the date that the law was enacted and in accordance with applicable law. The Savings Clause states that CERP environmental protection projects, including increased canal and groundwater levels, need to be accomplished in a way that does not harm flood protection.

The SFWMD operates and maintains the primary flood control and water supply system within its 16-county jurisdiction. The major portion of that system is comprised of the federally designed and constructed C&SF Project. The SFWMD operates and maintains the multipurpose C&SF Project and projects within the Big Cypress Basin pursuant to regulation schedules and operational guidelines established by the USACE. This primary regional system is complemented by secondary and tertiary systems that are operated and managed by local governments, drainage districts established by Chapter 298 of the Florida Statutes, and private interests to ensure that the drainage and surface waters are routed to the primary drainage system.

The C&SF Project was originally authorized by the Flood Control Act of 1948, and most of the originally authorized project facilities were constructed during the period from 1950 to 1972. Some modifications to the primary system have occurred since the original authorization. Larger than predicted population growth and different development patterns from those projected in 1948 have, over time, challenged the ability of the primary, secondary, and tertiary drainage systems to meet the original goals of maintaining flood protection for urban and agricultural lands.

Maintaining efficiencies in a combination of primary and secondary drainage systems is needed to achieve and maintain original design flood protection planning goals for south Florida. Further modifications, updates, and upgrades are needed in many of the existing water control facilities in order to support the current restoration endpoint levels of flood protection. The CERP, as authorized by Congress in WRDA 2000, is the consensus plan that is to be used to modify and improve the C&SF Project to benefit the South Florida Ecosystem and to help provide for the water needs of the south Florida region, including water supply and flood protection.

Severe flooding occurred within areas of Miami-Dade County as a result of Hurricane Irene in October 1999 and intense rainfall in October 2000. In response to the October 2000 flood, the executive director of the SFWMD appointed a Recovery Task Force under the auspices of the Emergency Operations Center to develop a list of proposed flood mitigation projects for the impacted areas of Miami-Dade County. This Task Force has recommended that mitigation projects be considered on a basinwide basis and include improvements to both the primary and secondary stormwater conveyance systems. A Miami-Dade County Flooding Task Force, which also was created in response to these events, made recommendations that included the expeditious completion of the Modified Water Deliveries and C-111 Projects to help alleviate the flooding risk. Although none of the recommendations are designed to "flood-proof" the basins in which they are constructed, the projects should provide for increased primary system conveyance, which will then allow flood mitigation benefits from secondary system improvements provided by local communities.

Maintaining flood protection can also impact water supply. The C&SF Project provides flood protection by discharging water into the [coastal waters](#) through canals ([Miami Dade County edit](#)). That water therefore is made unavailable for water supply. As flood protection is provided for the agricultural and urban areas bordering the Everglades, there is the potential for increasing the loss of freshwater supplies. Some components of the CERP are designed to decrease this loss.

How This Subgoal Will Be Implemented

Public works construction. Capital improvements, modifications, and repairs to water control and conveyance facilities will help maintain and improve flood protection. The CERP consists of numerous

projects that may provide incidental improvements to flood protection while decreasing the loss of freshwater supplies. Other large-scale projects, such as the C-111 Project, consist of structural and nonstructural modifications to existing works intended in part to maintain flood protection. Opportunities to provide greater levels of flood protection or to provide flood protection in areas where there is currently no flood protection may be considered during implementation of the CERP, provided that the greater level of protection or the provision of new flood protection is consistent with the goals and purposes of the CERP and is economically justified.

Additional flood protection is provided by projects funded by the Federal Emergency Management Agency (FEMA), including the C-4 Basin Flood Mitigation Project. This project, which is administered by the SFWMD, will improve canals in the C-4 basin and provide an emergency water impoundment to hold excess canal water when canals reach critical capacity.

Nonstructural flood protection. Numerous nonstructural options for flood protection exist for the built environment. These include, but are not limited to, ensuring that new construction meets FEMA guidelines, land use planning to guide development away from flood-prone areas, and acquiring undeveloped lands from willing sellers.

Long-Term Operations and Maintenance Needs

The SFWMD implements an ongoing Canal Conveyance Capacity Program to evaluate the maintenance, dredging, and bank stabilization requirements of the C&SF Project. This program is intended to restore the original design capacity of the canals as constructed. SFWMD's Capital Maintenance Program evaluates and implements refurbishment and/or replacement of existing water control structures and pumping stations that have reached the end of their design life. Exotic and aquatic plant control, through herbicidal, mechanical, and biological control methods, is another means of ensuring that conveyance capacity within canals and water bodies is maintained to their original capacity.

Factors Affecting Achievement of this Subgoal

Unanticipated growth. Population growth and changes in land use, especially if different from what is projected, will continue to affect the capability of state and federal agencies to provide flood protection for natural, urban, and agricultural lands. Land conversions to different uses are particularly stressful to the flood protection system, since the flood protection requirements may vary greatly among different uses.

The increase in developed areas to accommodate population growth within the drainage basin of the C&SF Project [will may \(Miami Dade edit\)](#) increase surface runoff, lowering the level of service for flood protection and increasing the intensity and duration of floods.

Funding. Continued financial support from Congress and the Florida Legislature will be necessary to complete projects for timely achievement of flood protection goals.

Specific, Measurable Objectives for Achieving this Subgoal

One objective for achieving this subgoal has been adopted by the Task Force:

- Maintain or improve existing levels of flood protection

The key project needed to achieve this objective and the schedule for its implementation is shown in Strategic Plan Table 8.

Strategic Plan Table 8 – Subgoal 3-B: Maintain or Improve Flood Protection in a Manner Compatible with Ecosystem

Restoration			
3-B Milestone Projects (Refer to Appendix A for more information about project schedules, funding, responsible agencies, etc.)			
Objective 3-B.1: Maintain or improve existing levels of flood protection	Project ID	Project Endpoint	Project
	3600	2007	C-4 Basin Flood Mitigation Projects
	1300	2010	Canal 111

Subgoal 3-C: Provide Sufficient Water Resources for Built and Natural Systems

The State of Florida has statutory goals and responsibilities to ensure an adequate supply of water for protection of the natural system and for existing and future “reasonable-beneficial” potable, industrial, and agricultural uses. For protection of the natural system, Florida law directs the SFWMD to set minimum flows and levels (MFLs) to prevent significant harm to water resources. MFLs have been established for ENP, the WCAs, Lake Okeechobee, and the northern Biscayne aquifer (except that portion of the aquifer located in southern Miami-Dade County). MFLs also have been established for the Caloosahatchee River and Estuary, Lake Istokpoga, Lower West Coast Aquifer System, St. Lucie River and Estuary, and the Northwest Fork of the Loxahatchee River.

WRDA 2000 (attached as Appendix X) requires water reservations for the protection of fish and wildlife in natural systems pursuant to state and federal laws associated with implementation of the CERP. Additionally, WRDA 2000, through the Savings Clause, prohibits the elimination or transfer of existing legal sources of water until a new source of water supply of comparable quantity and quality as that available on December 11, 2000 is available to replace the water that will be lost as a result of CERP implementation.

How This Subgoal Will Be Implemented

As water storage and other water supply related projects and programs are implemented, reliable sources of water identified for human supplies will become available to meet projected demands on a regular basis. The potential for water shortages will be reduced as projects are completed.

Restoration partners support the state’s strong commitment to achieving its water supply goals through a variety of additional state and local efforts. Some of these efforts are reflected under other strategic goals and subgoals. Efforts unique to this subgoal are described below.

Implement a process of reserving water through time that will meet the needs of the natural system. WRDA 2000 requires the State of Florida to reserve the water generated by the CERP and needed for Everglades restoration. The SFWMD, consistent with its water management responsibilities, is working to fulfill that commitment.

The SFWMD will also identify existing water supplies for the protection of fish and wildlife for key natural systems (e.g. Everglades, ~~and~~ WCAs, ~~and~~ estuaries) ([Miami Dade county edit](#)). This will provide information needed to make future decisions about consumptive use permits.

The SFWMD Governing Board has developed guiding principles for reviewing permit applications dependent upon C&SF Project deliveries and recharge to ensure consistency with the CERP. These will complement the “B” list consumptive use permitting rules that limit permit durations for increased withdrawals that affect the regional system water supplies. This document was accepted by the SFWMD Governing Board in June 2003. A Guidance Memoranda, required by the Federal Programmatic

Regulations, are being developed which further details the process and methodology for identifying water to be managed and reserved for the natural system.

Implement the Recommendations of the 2002 Water Conservation Initiative Report. The SFWMD is updating the 1993 Water Conservation Rule for Public Water Supplies to bring Rule 40E-2, F.A.C. Basis of Review for Water Conservation in line with Chapter 62-40, F.A.C. at the request of the DEP. The rule will establish a goal-based water conservation approach for water utilities. An analytical "web based" tool has been developed by the DEP and the water management districts to assist utilities in creating water conservation plans, which through the new rule will become part of the utility's Consumptive Use Permit. These plans will be designed to be both cost effective and tailored to the use characteristics of the individual utility's service area. The rule will enhance the SFWMD's ability to achieve efficient levels of water use and enhance other ongoing conservation efforts focused on public outreach, cooperative grant funding, and technical assistance.

Implement and update regional water supply plans. Regional water supply plans with twenty-year planning horizons, which reassess base assumptions and current technologies every five years, have been completed for each of the four SFWMD regional water supply planning areas: Lower East Coast, Upper East Coast, Kissimmee Basin, and Lower West Coast. The goal of each plan is to meet the water supply needs of the region during a one-in-ten-year drought while not causing harm to the environment. The water supply plans include strategies for (1) increasing supply for natural systems and the human population through water resource development projects, (2) promoting the use of alternative water supply sources and conservation, (3) protecting water quality at the source of supply, (4) accurately reflecting limitations of the available groundwater or other available water supplies in plans for future growth and development, (5) increasing the available water supply, and (6) protecting natural systems from harm through the consumptive use permitting process, from significant harm through establishment of minimum flows and levels, and from serious harm through proper implementation of water shortage plans.

Improve water conservation and reuse. The SFWMD regional water supply plans outline the planning and permitting efforts needed to encourage water conservation and lower consumptive use rates over time. Strategies to improve conservation and reuse incorporate different approaches for public, commercial, landscape, and agricultural consumers. These strategies include limits on the time of day irrigation is allowed, inverted rate structures, xeriscape landscaping using native plants, establishment of mobile irrigation labs, grants to implement conservation projects, and feasibility analyses for using reclaimed water. A strong public education program supports these strategies.

Increase water resources through alternative water supply development and water resource development projects. The SFWMD has implemented programs with goals to increase the amount of available water. These programs have been in place for some time and are often in addition to the projects in the CERP. The Alternative Water Supply Development Program awards grants to local water providers to develop additional water supply through alternative technologies. Through its Water Resource Development Projects, the SFWMD attempts to increase the regional water resources available for natural and built environment needs.

Establish minimum flows and levels for priority water bodies. The SFWMD is working to establish minimum flows and levels for priority water bodies according to the annual DEP approved schedule. This will improve the efficiencies of delivering water and maximizing available resources.

Factors Affecting Achievement of this Subgoal

Unanticipated growth. If population growth and/or water used for irrigation exceed projections, variations in growth projections will be incorporated into the five-year updates of the regional water supply plans.

Funding. Adequate funding will be required to accomplish water storage and other water supply related projects. Likewise, adequate funding of public outreach and education will be critical to achieving water conservation strategies and reduced consumption rates. Efforts to encourage partnerships that promote and enhance local government programs to develop and implement alternative water supply resources will be important to achieving water supply goals.

Specific, Measurable Objectives for Achieving this Subgoal

Three objectives for achieving this subgoal have been adopted by the Task Force:

- Plan for regional water supply needs
- Increase volumes of reuse on a regional basis
- Increase water made available through the SFWMD Alternative Water Supply Development Program

The key projects needed to achieve these objectives and the schedule for their implementation are shown in Strategic Plan Table 9.

Strategic Plan Table 9 – Subgoal 3-C: Provide Sufficient Water Resources for Built and Natural Systems

3-C Milestone Projects (Refer to Appendix A for more information about project schedules, funding, responsible agencies, etc.)			
	Project ID	Restoration Endpoint	Project
3-C.1: Plan for regional water supply needs	3704	2008	Lower East Coast Water Supply Plan Lower West Coast Water Supply Plan Upper East Coast Water Supply Plan Kissimmee Basin Water Supply Plan
	Project ID	Restoration Endpoint	Project
3-C.2: Increase volumes of reuse on a regional basis	3800	2025	C&SF: CERP – South Miami-Dade County Reuse (CERP Project #WBS 98)
	3801	2025	C&SF:CERP – West Miami-Dade County Reuse (CERP Project #WBS 97)
	3802	2020	C&SF: CERP Wastewater Reuse Technology Pilot Project (CERP Project # WBS 37)
	2301	2003	C&SF: CERP Winsburg Farms Wetland Restoration (CERP Project # WBS 91)
	2306	2007	C&SF: CERP Acme Basin B Discharge (CERP Project # WBS 38)
	Project ID	Restoration Endpoint	Project
3-C.3: Increase water made available through the SFWMD Alternative Water Supply Development Program	3900	Ongoing	Alternative Water Supply Grant

Linkages between Strategic Work Efforts and Ecosystem Restoration

The Task Force members measure progress on two complementary scales: (1) scales that measure the satisfactory completion of work and (2) scales that measure ecosystem health (in terms of either stressors, ecological conditions, or other water-related needs). With these two scales the Task Force distinguishes between those things that are within people's capability to manipulate and control (the strategic goals, subgoals, and objectives) and those things that are the responses of natural systems (indicators and restoration endpoints) to the Task Force agencies' efforts.

No exclusive linkage exists between any one strategic goal or objective (let alone, any one specific project) and any one indicator of ecological conditions. Efforts on many fronts will be necessary to restore and sustain a healthy ecosystem, which will then be manifested through a myriad of species and processes. However, positive correlations are expected between individual indicators of ecological conditions and groups of projects designed to eliminate or mitigate stressors that are detrimental to those indicators. Some of these relationships were charted in the 2004 Strategy (table D-1 in Appendix X). This table will be revised.

The Task Force believes that the ecosystem will respond with improved health and vigor to efforts to reverse disruptive human influences. Due to the complexity and large scope of this effort, the agencies involved in restoration continue to improve their understanding of how restoration will occur. This understanding is critical to the ability to accurately assess the major stressors on the various components of the ecosystem and consider how the physical improvements expected to result from projects designed to eliminate or mitigate stressors will affect ecological conditions and other water-related needs. Relationships between projects and the elimination or mitigation of stressors will be more direct than relationships between projects and resulting ecological conditions; however, even these relationships cannot yet be accurately predicted with current ecological models.

The monitoring and assessment complexities cited above pose challenges, but the monitoring conducted to date has provided good information that has been useful in assessing the success of early restoration efforts. For example, in response to the reestablishment of more natural flow characteristics in the Kissimmee River, accomplished through the implementation of the Kissimmee River Restoration Project, wetland vegetation, particularly broadleaf marsh species and buttonbush, is rapidly expanding within the re-flooded floodplain. Recent observations indicate that the reconstructed section of river channel has received increased use by wading bird species, particularly snowy egrets, white ibis, tricolored herons, wood storks, and black crowned night herons. Other notable bird observations in this region include roseate spoonbills and whooping cranes. This is one localized and general example of how the ecosystem is responding to work efforts that eliminate or mitigate disruptive human influences.

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BIENNIAL REPORT BACKGROUND AND PURPOSE
ACTIVITIES, PRIORITIES, POLICIES, STRATEGIES, PLANS, PROGRAMS,
AND PROJECTS: JULY 2004 THROUGH JUNE 2006
MEASURING PROGRESS TOWARD RESTORATION

TRACKING SUCCESS:

BIENNIAL REPORT OF THE SOUTH FLORIDA ECOSYSTEM TASK FORCE

July 2004 – June 2006

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TRACKING SUCCESS:
BIENNIAL REPORT OF THE SOUTH FLORIDA ECOSYSTEM
RESTORATION TASK FORCE

July 2004 - June 2006

BIENNIAL REPORT BACKGROUND AND PURPOSE

Background

The Water Resources Development Act (WRDA) of 1996 established the intergovernmental South Florida Ecosystem Restoration Task Force (Task Force). It consists of 14 members from four sovereign entities: seven federal agency representatives at the assistant secretary or equivalent level, five state representatives, and two Native American Indian representatives. Among other duties, WRDA 1996 requires the Task Force to:

- Coordinate the development of consistent strategies, policies, projects, and programs to address the restoration, preservation, and protection of the South Florida Ecosystem
- Exchange information on Everglades restoration efforts
- Coordinate scientific research
- Facilitate the resolution of interagency and intergovernmental disputes
- Facilitate participation by the public

The Task Force facilitates the coordination of conservation and restoration efforts implemented through a combination of federal, state, local, and tribal initiatives in south Florida. The Comprehensive Everglades Restoration Plan (CERP) is the single largest initiative. The Programmatic Regulations for the CERP require consultation with the Task Force on specific program and project activities. The Task Force also provides opportunities to improve cohesion among public interest groups on the disparate elements and programs of the South Florida Ecosystem restoration (land acquisition and conservation; water quality improvement; water infrastructure development; habitat protection).

A Working Group and Science Coordination Group (SCG) have been established to assist the Task Force in accomplishing its duties in general. Advisory groups, such as the Water Resources Advisory Commission (WRAC) and the Combined Structural and Operational Plan (CSOP) Advisory Team, provide the Task Force with recommendations on specific issues. Each year the Task Force establishes priorities to guide these efforts. The intergovernmental Task Force is the only forum that provides strategic coordination and a system-wide perspective to guide the separate restoration efforts being planned and implemented in south Florida.

Purpose

This report summarizes the activities, priorities, policies, strategies, plans, programs, and projects of the Task Force for the reporting years July 2004 – June 2006.¹ WRDA 1996 directs the Task Force to report to the Congress biennially on:

- The activities of the Task Force for the reporting years
- Policies, strategies, plans, programs, projects, activities, and priorities planned, developed, or implemented for South Florida Ecosystem restoration
- Progress made toward restoration

The *Biennial Report* documents activities and progress, and describes how funds are targeted for restoration. It satisfies the WRDA requirements by providing the following information: First, it summarizes the activities and major accomplishments of the reporting period in terms of the activities, priorities, policies, strategies, plans, programs, and projects that were developed or conducted to carry out the specific strategic goals and objectives adopted by the Task Force members and the Task Force. Second, it tracks the progress made toward restoration during the reporting period in terms of selected measurable indicators of ecosystem health.

The indicators of success tracked in previous biennial reports have been revised and are outlined in this document.

This *Biennial Report* is intended for four principal audiences:

- United States Congress
- Florida Legislature
- Seminole Tribe of Florida
- Miccosukee Tribe of Indians of Florida

This information will be broadly shared with state and federal agencies, local governments, regional agencies, industries, private interest groups, and private citizens interested in South Florida Ecosystem restoration.

¹ The Task Force member agencies operate within various fiscal year periods. All the federal agencies and the South Florida Water Management District operate within a fiscal year that begins on October 1 and ends on September 30 of each year. The State of Florida agencies operate within a fiscal year that starts on July 1 and ends on June 30 of each year. Any annual dollar amounts included in this report apply to each agency's fiscal year. Pertinent footnotes are provided for these data.

ACTIVITIES, PRIORITIES, POLICIES, STRATEGIES, PLANS, PROGRAMS AND PROJECTS: JULY 2004 THROUGH JUNE 2006

Intergovernmental Coordination

A comprehensive discussion of the principles and strategies adopted by the Task Force, along with the major plans, programs, and projects of the various Task Force member agencies, is provided in *Coordinating Success: Strategy for Restoration of the South Florida Ecosystem (Strategy)*. The *Strategy* identifies strategic goals, subgoals, and measurable objectives that have been adopted by the Task Force member agencies, along with schedules for their accomplishment.

The *Biennial Report (Tracking Success)* summarizes the major activities of the Task Force and its members during the past two years. It describes progress made toward each strategic goal and objective during the two-year reporting period and outlines how progress will be measured through a suite of proposed System-wide Indicators.

Each year the Task Force publishes an *Integrated Financial Plan (IFP)*. The IFP provides more detailed information about the federal, state, tribal, and local restoration projects that contribute to the accomplishment of the vision, goals, subgoals, and objectives of the Task Force found in Volume 1.

In 2003 the Task Force began publishing an annual *Land Acquisition Strategy*. This document describes the strategy for land acquisition needed for ecosystem restoration projects that are funded in part or wholly by the federal government. In 2006 the Task Force also prepared a *Natural Lands Report* that identified and prioritized the natural attributes of lands associated with four key CERP projects and identified potential funding sources, potential creative partnerships, and acquisition timeframes.

During the reporting period there were 30 consultations on CERP issues with the Task Force regarding programmatic requirements, such as the Master Implementation Sequencing Plan, and the projects at three different stages (scoping, alternative development, and final draft). In May 2005 the Task Force delegated project consultations at the scoping and alternative development phases to the Working Group.

Coordination of Strategic Science Issues

In 2004 the Task Force approved its first biennial *Plan for Coordinating Science*. The plan coordinates system-wide or programmatic science and complements the ongoing science coordination conducted by the CERP Restoration Coordination and Verification (RECOVER) group and by the agencies. A key feature of the plan's approach is the identification of strategic science needs and gaps through a systematic review of the Conceptual Ecological Models used to understand the cause and effect relationships in the ecosystem.

During the reporting period the Task Force assigned the SCG the task of developing a proposed integrated suite of System-wide Indicators to help assess the direction and success of the restoration efforts. Over the past three reporting periods (1998-2000, 2000-2002, and 2002-2004) a great deal of modeling and analysis has generated new information that was used to improve the initial set of indicators and to identify more accurate measures of restoration success. After examination of peer review and public comments, the SCG has selected a proposed suite of system-wide indicators. These indicators are incorporated into the 2006 *Strategy* and *Biennial Report*.

Invasive species were identified by the Task Force as an important restoration concern at the beginning of the Everglades restoration initiative. The Task Force's two exotic species organizations, the Noxious

Exotic Weed Task Team (NEWTT) and the Florida Invasive Animal Task Team (FIATT) have worked on two key initiatives for the reporting period, which are described below. In addition, FIATT is developing a non-native animal report to provide a broad picture of the status of exotic animal species in south Florida. It will focus on the agencies, along with their respective departments, that are represented on the Working Group. FIATT has established draft invasive animal lists by taxonomic groups developed from previous reports (e.g., Carole Goodyear's 2000 Exotic Animal Report), peer review, input from FIATT members, survey results, and interviews with member agencies and natural area managers throughout south Florida.

The National Invasive Species Council. The National Invasive Species Council (NISC) has recognized the work of the NEWTT and FIATT groups by establishing a south Florida regional budget initiative that will be used to help coordinate invasive species funding and activities in south Florida and to develop a model for other invasive species activities and regions nationwide.

Invasive Species Website (www.ecostems.org). NEWTT followed up their 2002 invasive exotic plant assessment and strategy, *Weeds Won't Wait*, with the development of a comprehensive web-based information sharing and project-tracking database for all invasive species projects (all agencies) associated with Everglades restoration.

Exchange of Information

Exchanging information is a key aspect of intergovernmental coordination. At each of their regularly scheduled meetings, the Task Force and the Working Group receive detailed updates on CERP and other projects and programs. These updates help maintain a common understanding of the restoration activities being planned or implemented by its members. Beginning in October 2004 Acceler8 updates were provided at each regularly scheduled Task Force and Working Group meeting.

To make this information available on the broadest possible basis the Task Force website has been completely updated during the reporting period. The new website format explains the purpose of the Task Force and provides easy navigation to current and historic meeting information.

Facilitation and Conflict Resolution

In 2003 the Task Force began developing tailored approaches to the most difficult restoration challenges that were not under judicial review. The CSOP Advisory Team is the most comprehensive example of this approach during the reporting period. The CSOP Advisory Team was chartered by the Task Force on October 15, 2003 for the purpose of providing recommendations to the U.S. Army Corps of Engineers (USACE) during key phases in the CSOP process. The CSOP is the combined operating schedule for two critical Everglades restoration projects, the Modified Water Deliveries (MWD) project and the C-111 project. The CSOP Advisory Team brought together representatives of disparate viewpoints with the goal of seeking their input, reducing conflict, and building consensus on a challenging effort. It was assisted by neutral facilitators.

The CSOP Advisory Team conducted 23 meetings for the purpose of developing a thorough understanding of the issues and providing consensus recommendations to the Task Force, which in turn provided recommendations to the USACE. In May 2006 the team provided its final consensus recommendations to the Task Force on the Tentatively Selected Plan (TSP). The team expressed support for the Corps' adaptive management approach and provided recommendations to help improve the

performance of the TSP in key areas. The Task Force conveyed the recommendations to the USACE. Where performance improvements were beyond the scope of the CSOP the Task Force asked that these issues be taken into account in the development of subsequent CERP and other related projects.

Public Participation and Access

The Task Force took a number of steps to improve public participation and access during the reporting period. The Task Force and its subgroups conducted 67 publicly noticed meetings during the reporting period that included opportunities for the public to share their views on current issues. As previously mentioned the new website format makes current and historic meeting information available to anyone with internet access and meetings are available to the public through a webcast.

Regional Project Delivery Team Meetings

From January to July 2006 the Corps and the South Florida Water Management District (SFWMD) conducted Regional Project Delivery Team meetings before each Working Group meeting. These meetings provided the public and the members with an informal opportunity to discuss the projects in detail with project managers.

CSOP Advisory Team

In addition to resolving conflict the CSOP Advisory Team increased public participation during the development of the CSOP. The team consisted of voting members representing the public interests of residents, recreation, environment, and agriculture; and non-voting members representing federal, state, local, and tribal entities.

Biscayne Bay Regional Restoration Coordination Team

One of the primary purposes of the Biscayne Bay Regional Restoration Coordination Team (BBRRCT) is to provide a forum for public involvement and outreach for activities, programs, and projects affecting Biscayne Bay. The team consists of members representing the public interests and agencies. During the reporting period the team achieved its initial goal of developing an Action Plan for improving the health of Biscayne Bay through coordination and cooperation of the members of the team. This was accepted by the Working Group in May of 2006.

Water Resources Advisory Commission

The SFWMD Governing Board appointed the 48-member WRAC in March 2001 to provide a forum for discussion of critical water resource issues in south Florida and to provide consensus recommendations to the Governing Board. The Task Force designated the WRAC as a public interest advisory body in 2002. The WRAC has met every month, except August, since its creation and has met annually with the Task Force to discuss issues of mutual interest. In addition, the WRAC hosts "Issues Workshops" each month on a wide variety of water resource, water supply, and South Florida Ecosystem restoration topics. Recommendations from the issues workshops are made to the full WRAC.

In 2004, the WRAC: recommended significant improvement to the State's Long-Term Plan for Achieving Water Quality Goals (concurrent with by the Governing Board); recommended a comprehensive Recreational Use and Public Access Policy for SFWMD-owned lands (adopted by the Governing Board); recommended interim policy guidelines to conserve water in the administration of Consumptive Use Permitting while considering the water needs of CERP projects; initiated a series of issues workshops on

alternative water supply; and initiated a series of workshops on Biscayne Bay Minimum Flows and Levels (MFLs).

In 2005, the WRAC: recommended consensus comments to the SFWMD Governing board on CERP Guidance Memoranda and the CERP Master Implementation Sequencing Plan for communication to the USACE; initiated a series of workshops and WRAC updates on initial reservations of water for the natural system; initiated a series of workshops on each SFWMD Acceler8 project; provided consensus comments to the Task Force regarding C-111 Project design as related to the CSOP; created a 30-member Lake Okeechobee committee to recommend measures to help restore Lake Okeechobee and the Caloosahatchee and St. Lucie estuaries (this committee meets monthly); recommended that the USACE expedite revisions to the Lake Okeechobee Water Control Plan and Schedule to achieve a more refined balance between the competing needs of the land and estuarine ecosystems, the Everglades ecosystem, flood control, and water supply; recommended to the Governing Board that the Lake Okeechobee Fast Track Plan (LOFT) for north of the lake projects should move forward, including evaluation of temporary and permanent forward pumps; recommended new or improved program components for the recovery of Lake Okeechobee and the estuaries that became the Lake Okeechobee and Estuary Recovery Plan (LOER); held a series of Alternative Water Supply workshops that resulted in 57% of south Florida utilities creating alternative water supply projects to help meet water supply demands over the next 20 years; and supported expansion of recreational opportunities on SFWMD lands.

In 2006, the WRAC: requested the Governing Board, based on monitoring of salinities and seagrasses in the estuaries, recommend that the USACE continue pulse releases to the estuaries to continue to lower water levels in Lake Okeechobee for lake recovery; and supported expansion of recreational opportunities on SFWMD lands.

CERP Programs and Projects

CERP Programmatic Regulations

The USACE, with the concurrence of the Governor of Florida and the U.S. Department of the Interior (DOI), and in consultation with the Seminole Tribe of Florida, the Miccosukee Tribe of Indians of Florida, the U.S. Environmental Protection Agency (USEPA), the U. S. Department of Commerce, and other federal, state, and local agencies, published the final rule for the “Programmatic Regulations for the Comprehensive Everglades Restoration Plan” in the *Federal Register* on November 12, 2003. The Programmatic Regulations are required by WRDA 2000 to define

- CERP implementation processes, including the development of project implementation reports, project coordination agreements, and operating manuals that ensure that the CERP goals and objective are achieved
- Processes to ensure that new information, resulting from new or unforeseen circumstances, new scientific or technical information, or from adaptive management, is integrated into CERP implementation
- Processes to ensure the protection of the natural system consistent with CERP goals and purposes, including the establishment of interim goals needed to evaluate success throughout the implementation process

The Programmatic Regulations direct the USACE and the SFWMD, in consultation with the U.S. Department of the Interior (DOI), the Miccosukee Tribe of Indians of Florida, the Seminole Tribe of

Florida, the U.S. Environmental Protection Agency (USEPA), the Department of Commerce, the Florida Department of Environmental Protection (DEP), other federal, state, and local agencies, and the Task Force, to develop:

- A pre-CERP baseline
- Six program-wide guidance memoranda
- A master implementation sequencing plan
- Periodic CERP updates

The Programmatic Regulations also require the establishment of interim goals and endpoints. The progress made toward these requirements during the reporting period is summarized below.

Pre-CERP Baseline. The final draft of the pre-CERP baseline was completed in April 2005. This baseline is defined in the Programmatic Regulations as the hydrologic conditions in the South Florida Ecosystem on the date of enactment of WRDA 2000, as modeled by using a multiyear period of record based on assumptions such as land use, population, water demand, water quality, and assumed operations of the C&SF Project. The pre-CERP baseline is used, along with other analyses, to determine if an existing legal source of water has been eliminated or transferred or if a new source of water is of comparable quality to that which has been transferred. Also, each Project Implementation Report (PIR) includes appropriate analyses and consider the operational conditions included in the pre-CERP baseline to demonstrate that the project will not reduce levels of service for flood protection that (1) were in existence on the date of enactment of WRDA 2000 and (2) are in accordance with applicable law.

Six Program-Wide Guidance Memoranda. These guidance memoranda, currently in draft form, provide guidance on the general format and content of PIRs; formulation and evaluation of alternatives developed for PIRs; general content of operating manuals; general direction for the assessment activities of RECOVER; instructions for identifying in PIRs the appropriate quantity, timing, and distribution of water to be dedicated and managed for the natural system; and instructions for identifying in PIRs if an elimination or transfer of existing legal source of water will occur as a result of implementation of CERP. The process to develop the Guidance Memoranda, which are required by the Programmatic Regulations, has been a cooperative effort between the federal and state partners. There have been some challenges in getting agreement from all parties, however the six Guidance Memoranda are expected to be completed and approved by the end of 2006.

Master Implementation Sequencing Plan. The Master Implementation Sequencing Plan (MISP), which is required by the Programmatic Regulations, was finalized March of 2005. The five-year preliminary draft time bands of the MISP for CERP projects have been incorporated into the Task Force *Strategy* and the integrated financial plan. The MISP includes the sequencing and scheduling of all the CERP projects, including pilot projects and operational elements, based on the best scientific, technical, funding, contracting, and other information available. The MISP identifies a framework for restoration of the South Florida Ecosystem by defining the order in which the many projects within the South Florida Ecosystem restoration program will be planned, designed, and constructed. The MISP will be reviewed at least every five years.

[Initial CERP Update. Preliminary drafts of the Initial CERP Update were prepared in 2004 and 2005. USACE and SFWMD are working through technical issues associated with updating the modeling. This evaluation of the CERP is intended to use new or updated modeling that includes the latest scientific, technical, and planning information. It will occur whenever necessary to ensure that the goals and purposes of the CERP are achieved, but not any less often than every five years. As part of these evaluations the USACE and the SFWMD shall determine the total quantity of water that is expected to be generated by the plan, including the quantity expected to be generated for the](#)

natural system to attain the Task Force strategic goals, as well as the quantity expected to be generated for use in the human environment. (USACE edit)

Initial CERP Update. The initial CERP update was completed in October 2005. This is the first in a series of periodic reports fulfilling requirements of WRDA 2000. The report provides members of Congress and other interested parties with an update on the progress of CERP over the first five-year period of its implementation. The Secretary of the Army and the Secretary of the Interior, in consultation with the USEPA, Department of Commerce, and the State of Florida, jointly submit this report to Congress every five years.

The Comprehensive Everglades Restoration Plan 2005 Report to Congress. This report is the first in a series of periodic reports fulfilling requirements of the Water Resources Development Act of 2000 (WRDA 2000). This Report provides members of Congress and other interested parties with an update on the progress of the CERP over the first five-year period of its implementation. It is submitted jointly by the Secretary of the Army and the Secretary of the Interior. The Report summarizes the progress made to date and the accomplishments expected over the next five years. Expenditures for the first five years are included, along with forecasts for funding requirements for the next five years. (USACE edit)

Such an evaluation of the CERP using new or updated modeling that includes the latest scientific, technical, and planning information will occur whenever necessary to ensure that the goals and purposes of the CERP are achieved, but not any less often than every five years. As part of these evaluations the USACE and the SFWMD shall determine the total quantity of water that is expected to be generated by the plan, including the quantity expected to be generated for the natural system to attain the Task Force strategic goals, as well as the quantity expected to be generated for use in the human environment.

CERP Interim Goals and Targets. The Programmatic Regulations require the establishment of interim goals to provide a means for evaluating restoration success of the CERP at specific time intervals during implementation, and the establishment of interim targets to evaluate progress in providing for other water-related needs of the region. The interim goals and targets shall be consistent with each other.

In October 2002 a RECOVER subteam developed a process for identifying and establishing numeric measures for indicators of ecosystem restoration (referred to as interim goals) and measures for indicators of other water-related needs (referred to as interim targets). In February 2003 the subteam published *Proposed Indicators for Interim Goals and Interim Targets for the CERP*. Because of the importance placed on the interim goals in WRDA 2000 and the CERP Programmatic Regulations, the RECOVER subteam determined that the proposed indicators and the methods for setting specific goals and targets should be vetted through a public and agency review process and submitted to an independent peer review panel.

RECOVER's recommendations for interim goals and interim targets were transmitted to the DOI, the USACE, and the State of Florida in February 2005 and will be submitted for peer review ed in June 2004. The RECOVER Team's *Recommendations for Interim Goals and Interim Targets for the Comprehensive Everglades Restoration Plan* describes twenty-two hydrologic, water quality, and biological indicators and five indicators for other water-related needs (including water supply and flood protection). Once an Interim Goals Agreement and an Interim Targets Agreement are executed, the indicators contained within will be used for system-wide assessment of CERP projects to support planning and adaptive management. The suite of Task Force System-wide Indicators is intended to be both complimentary to CERP Indicators and to also assess restoration goals more broadly and cover other non-CERP restoration aspects. However, because the Task Force Indicators have been developed in concert with RECOVER, and by continuing to work closely with RECOVER to develop and assess their suite of System-wide Indicators, the Task Force is able to ensure that these indicators are not in conflict with the larger RECOVER sets of indicators (SCG edit), and the set of indicators reported by the Task Force will be

~~revised accordingly (recognizing that the Task Force may also report on other indicators not covered by the CERP). (See Miccosukee Tribe comment 9)~~

CERP Adaptive Management Program

This program developed by the USACE and SFWMD, in consultation with the Seminole Tribe of Florida, the Miccosukee Tribe of Indians of Florida, the USEPA, the U. S. Department of Commerce, and other federal, state, and local agencies will assess responses of the South Florida Ecosystem to implementation of the CERP. Periodic CERP updates will ensure that the goals and purposes of the plan are being achieved. A CERP *Adaptive Management Strategy* was submitted by RECOVER to the agencies in April 2006. A final draft *Adaptive Management Implementation Guidance Manual* is anticipated to be completed in August 2006.

CERP Monitoring and Assessment Plan

The *CERP Monitoring and Assessment Plan (MAP)* is the primary tool by which the RECOVER program will assess the performance of the CERP. Part one (February 2004) describes the monitoring components and supporting research of the MAP and summarizes the assessment process. Part two, the *Assessment Strategy for the MAP* (final draft April 2006), fully describes an assessment process for interpreting the information to be collected under the plan.

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. The four broad objectives for the MAP are to

- Establish a pre-CERP reference state ("baseline"), including variability for each of the performance measures
- Assess system-wide responses of the ecosystem to CERP implementation
- Detect unexpected responses of the ecosystem to changes in stressors resulting from CERP activities
- Support scientific investigations designed to increase ecosystem understanding, establish cause-and-effect relationships, and interpret unanticipated results

The first assessment report, termed a *System Status Report*, which reports on baseline data collected since the MAP's implementation, is anticipated to be completed in the fall 2006.

Independent Scientific Review

On June 14, 2004, the DOI, USACE, and SFWMD signed an intergovernmental agreement to engage the National Academy of Science (NAS) in the implementation of Everglades restoration. This agreement addresses requirements established by the Programmatic Regulations (33CFR Part 385). The NAS have convened an Independent Science Review Panel composed of a diverse team of internationally recognized experts in restoration science who have begun their work during seven meetings around the country during this reporting period. Their first report is anticipated in September 2006.

Goal 1 Accomplishments: Getting the Water Right

The first strategic goal of the Task Force focuses on the lifeblood of the Everglades: water. The Task Force has adopted the following for this goal:

GOAL 1: GET THE WATER RIGHT

Subgoal 1-A: Get the hydrology right

- Objective 1-A.1: Provide 1.8 million acre-feet of surface water storage by 2036
- Objective 1-A.2: Develop aquifer storage and recovery systems capable of storing 1.5 billion gallons per day by 2030
- Objective 1-A.3: Modify 345 Miles of impediments to flow by 2020

Subgoal 1-B: Get the water quality right

- Objective 1-B.1: Construct 91,345 acres of stormwater treatment areas by 2035
- Objective 1-B.2: Prepare locally-based plans to reduce pollutants as determined necessary by the total maximum daily loads by 2011. ([See Miccosukee Tribe comment 10](#))

The major projects planned to meet these objectives are listed in the Task Force *Strategy* in part one of this volume ("Coordinating Success"), along with a schedule for their implementation. The projects or activities that were ongoing or completed during the July 2004 – June 2006 reporting period are described below in the context of progress toward meeting each of the Task Force objectives. The Critical Restoration Projects and Acceler8 contribute to various objectives but are grouped together in this *Biennial Report* to provide an overview of the progress associated with these early efforts.

ACCELER8 Program

The Acceler8 Program began on October 1, 2004 as an effort to expedite several Everglades restoration projects. The projects range in construction value from \$14 million to \$480 million. Several of the projects include multiple components or sub-projects for a total of 18 independent projects. This initiative expects to expend over \$1.5 billion in additional state funds above the \$200 million per year already planned for CERP. The goal of the Acceler8 initiative is to complete the design and construction of the identified projects by 2011. It is anticipated that through close coordination with federal agencies the state will design and construct Acceler8 projects that are consistent with all or part(s) of the recommended plan for the corresponding CERP components. It is also anticipated that Acceler8 projects that are consistent with CERP recommended plans will be proposed to Congress for crediting authorization.

The design phase is complete for four projects and these projects currently are under construction. Design of the remaining projects is ongoing with overall progress at approximately 32 percent complete. Several projects will be constructed in phases with scheduled construction start dates between July and September, 2006. Design of these early phases is nearing completion.

Permits have been received for all construction currently underway. Permit applications have been submitted for upcoming construction and are in the review and approval stage of the permitting process.

The four projects currently under construction are approximately 28 percent complete. All four projects are on schedule. In order to guide final design, minimize risk, minimize cost and maximize efficiency for the reservoir and impoundment projects, three sets of full-scale test cells are included as part of the Acceler8 Program. Construction and testing of one set of test cells located at the EAA Reservoir site is complete. Construction of test cells at the C-44 Reservoir and C-43 Reservoir sites will be completed by the end of June, 2006. Monitoring and testing will be complete in mid 2007.

To date (June 2006), construction of the initial phase of the EAA Compartment B Stormwater Treatment Area (STA) Cell 4 project is complete. The remainder of STA Cell 4 and three other projects are under

construction: EAA Compartment C STA 6 Section 2, Compartment C STA 5 Flowway 3, and Compartment C USSC C-139 Annex Pump Station.

[Everglades Forever Act](#)

In March 2003 the SFWMD presented a conceptual plan for achieving long-term water quality goals the district strategy for meeting water quality standards. During the 2003 legislative session, the Everglades Forever Act was amended to include reference to the SFWMD Long-Term Plan as the Best Available Phosphorus Reduction Technology. The amended act required the SFWMD to implement the Long-Term Plan without delay. In July 2003 the DEP proposed a rule establishing a long-term geometric mean of 10 ppb with associated natural variability as the numeric phosphorus criterion for class III waters in the Everglades Protection Area (EPA). ([See Miccosukee Tribe comment 11](#)) The rule also establishes moderating provisions for permits authorizing discharges into the EPA in compliance with water quality standards, including the numeric phosphorus criterion and a method for determining achievement of the numeric phosphorus criterion. The rule also establishes moderating provisions authorizing discharges above the criterion, provided measures are taken to implement the best available phosphorus reduction technologies and a compliance methodology for determining achievement of the criterion. The rule was submitted to the USEPA for approval. The USEPA approved the rule, with the exception of one provision, in January 2005. The DEP initiated rulemaking to revise the rule and the revised rule was adopted by the Florida Environmental Regulation Commission (ERC) in May 2005. The revised rule was submitted to the USEPA in June 2005 and approved by the USEPA in July 2005.

[Critical Restoration Projects](#)

The progress made on the nine Critical Restoration Projects authorized under WRDA 1996 to produce immediate, substantial, and independent benefits prior to the CERP is summarized below. Seventy-five million dollars in federal funds was authorized for appropriation to be matched by local sponsors, while the maximum federal expenditure on any one project was capped at \$25 million. To assist with implementation of these Critical Projects, \$7 million in federal funds for land acquisition was transferred to the state through a grant administered by the DOI. Under current federal appropriation authority, federal contributions will not be sufficient to share construction costs with the SFWMD on Southern Corkscrew Regional Ecosystem Watershed (CREW), Lake Trafford, and Tamiami Trail Culverts. The SFWMD is proceeding with construction on all or a portion of these projects with its own funding. Recently introduced WRDA bills include language that would raise the federal program cap from \$75 million to \$95 million and per-project cap from \$25 million to \$30 million. Raising federal contribution caps on the program and its projects would allow the USACE to share increased project costs.

Western C-11 Basin Water Quality Treatment. Construction of the S-9A pump station was previously completed. Construction for S-381 was completed in 2005. During nonflood conditions, these new features will separate seepage from stormwater runoff, allowing the return of seepage waters to WCA-3A. ([See Miccosukee Tribe comment 12](#))

Seminole Big Cypress Reservation Water Conservation Plan. 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. The USACE completed the designs for Phase II in April 2004 and plans to award contracts to construct by September 2006. This project will enhance the Big Cypress Reservation's water storage capacity, improve wetland hydrology, enhance flood protection, and reduce the concentration of phosphorus from water flowing off reservation lands. Outflows from the project will be routed southward and to the current West Feeder Canal system on the reservation to rehydrate the undeveloped native area and the Big Cypress National Preserve.

Lake Okeechobee Water Retention/Phosphorus Removal. Construction of the Taylor Creek and Nubbin Slough STAs was completed in 2006. This project reestablished wetlands that were previously drained for agriculture and constructed STAs to reduce phosphorus loading to Lake Okeechobee.

Ten Mile Creek Water Preservation Area. A ribbon-cutting ceremony was held in April 2006 celebrating the completion of this reservoir and associated STA. Detailed monitoring of the reservoir will give practical information about how well the reservoir can capture nutrients on its own, prior to treatment in the STA, and about fish and wildlife use of the reservoir and whether species can persist under the greatly fluctuating hydrologic regime. This project will attenuate flows and improve water quality to the St. Lucie Estuary and Indian River Lagoon.

Lake Trafford Restoration. The Lake Trafford Restoration Project was initiated in 2004. The containment facility and dredging have been completed. This project will improve water quality and enhance fish and wildlife habitat in Lake Trafford by removing approximately 2.85 million cubic yards of organic sediments that blanket the bottom of the lake. The cost estimates for completion of this project in combination with the other eight Critical Projects exceed the USACE appropriation cap for the Critical Projects (\$75,000,000) set by WRDA 1996. The SFWMD assumed 100% of the cost of detailed design and construction with the intent of receiving credit and/or reimbursement from the USACE if Congress authorizes the increase in the federal cap for Critical Projects.

Tamiami Trail Culverts. Construction of the western portion of the project (Phase I), located south of the Picayune Strand (Southern Golden Gate Estates) Restoration Project, started in June 2004 and was completed in March 2006. Implementation was accomplished with SFWMD (culvert construction) and Florida Department of Transportation (road resurfacing) funds. Construction of the eastern portion of the project (Phase II) is dependent upon additional funding. For purposes of improving water quality, this project will help restore more natural hydropatterns and improve sheetflow of surface water within the Ten Thousand Islands National Wildlife Refuge, Rookery Bay Estuarine Research Reserve and Aquatic Preserve, Big Cypress National Preserve, and ENP. The cost estimates for completion of this project in combination with the other eight Critical Projects exceed the USACE appropriation cap for the Critical Projects (\$75,000,000) set by WRDA 1996. Congress is considering draft legislation that would raise the cap so that this project may move forward with federal cost-share.

Southern CREW Addition/Imperial River Flowway. This project was approximately 80 percent complete at the end of the reporting period, with construction proceeding. Land acquisition is on hold pending DOI review and approval of an application and grant cost-share agreement submitted by SFWMD under which the DOI would provide matching funds for acquisition of the lands needed for this project. This project will restore historical sheetflow in the project area, reduce freshwater discharges to Estero Bay during the rainy season, reduce loading of nutrients to the Imperial River and Estero Bay, and reduce flooding of homes and private lands west of the project area. The cost estimates for this project in combination with the other eight Critical Projects exceed the USACE appropriation cap for the Critical Projects (\$75,000,000) set by WRDA 1996. Congress is considering draft legislation that would raise the cap so that this project may move forward with federal cost-share.

Previously Completed Critical Projects. Two of the Critical Projects were completed during the previous reporting period. The user's manual for the *Florida Keys Carrying Capacity Study* was made available in March 2003. The manual provides local planners and decision makers with an impact assessment model and planning tool to determine if and how their comprehensive plans should be amended. Additionally, construction of the *East Coast Canal Structures (C-4 Structure)* was completed in July 2003 and the project is now operational. This project will help reduce seepage losses from the Everglades, increase aquifer recharge, and enhance habitat in the Pensucco Wetlands.

Objective 1-A.1: Provide 1.8 million acre-feet of surface water storage by 2036

At the end of the reporting period, six of the projects contributing to objective 1-A.1 were underway, along with a technology pilot to determine the feasibility of the two Lake Belt storage projects, and the Ten Mile Creek project was completed.

Biennial Report Table 1 – Surface Water Storage

1-A1 Table reflects June 2006 Status of Projects to Provide 1.8 million Acre-Feet of Surface Water Storage by 2036				
Project ID	Project Endpoint	Project Name	Output (acre-feet)**	Status
1101	2025	C&SF: CERP Indian River Lagoon South, C-23/C-24/C-25/North Fork and South Fork Storage Reservoirs, and C-44 Basin Storage Reservoir (CERP Project # WBS 07)*	165,000	Underway
1102	2015	C&SF: CERP Everglades Agricultural Area (EAA) Storage Reservoir (CERP Project # WBS 08 and 09)*	360,000	Underway
1104	2015	C&SF: CERP Lake Okeechobee Watershed (CERP Project # WBS 01)	250,000	Underway
1105	2040	C&SF: CERP North Lake Belt Storage Area (CERP Project # WBS 25)	90,000	
1106	2020	C&SF: CERP Palm Beach County Agricultural Reserve Reservoir and ASR (CERP Project # WBS 20 and 21)	20,000	
1107	2025	C&SF: CERP Site 1 Impoundment and Aquifer Storage and Recovery (CERP Project # WBS 22 and 40)	13,280	Underway
1109	2020	C&SF: CERP C-43 Basin Storage Reservoir and ASR (CERP Project # WBS 04 and 05)	160,000	Underway
1110	2040	C&SF: CERP Central Lake Belt Storage Area (CERP Project # WBS 26)	190,000	
1111	2006	Critical Ecosystem Restoration Projects - Ten Mile Creek	6,000	Complete
1112	2010	LOFT (Identified under LOER)-Taylor Creek Reservoir	32,000	
1113	2020	C&SF: CERP WPA Conveyance (CERP Project # WBS 49)	90,000	
1114	2020	C&SF: CERP ENP Seepage Management (CERP Project # WBS 27 & 43)	11,500	
1501	2009	C&SF: CERP Broward County WPA – C-9 STA/Impoundment, Western C-11 Diversion Impoundment and Canal, and Water Conservation Areas 3A and 3B Levee Seepage Management (CERP Project # WBS 45)	13,280	
1503	2020	C&SF: CERP North Palm Beach County PIR Part 1 (CERP Project #WBS 17)	48,000	
2100	TBD	Allapattah Flats/Ranch	32,000	Underway
* Some projects have been combined with others since 2004				
** The outputs listed in Biennial Table 1 and the measures and restoration endpoints in Appendix A (the Integrated Financial Plan Summary table) reflect the strategic goals and are not intended to function as an allocation or reservation of water, which must be implemented through applicable law.				

Everglades Agricultural Area Storage Reservoir, Phase I

The preliminary survey and geotechnical work on the expedited reservoir was completed in May 2004; 30 percent design commenced in June 2004 with a restoration endpoint finish date of February 2005. In late April 2004, the U.S. Sugar Corporation agreed to vacate leased, state-owned land (former Talisman Sugar Company property) just south of Lake Okeechobee, allowing the SFWMD to expedite work on this large reservoir and stormwater treatment area. Work on the PIR is proceeding.

C-43 Basin Storage Reservoir and ASR

The SFWMD initiated the 30 percent design of the reservoir at Berry Groves during the prior reporting period. Subsequent technical uncertainties with associated potentially high rates of seepage are currently being investigated with the construction of two test cells on-site employing a variety of seepage barrier technologies. The results of this pilot project, along with the ASR Regional Study, will form the basis for future feasibility studies or PIRs concerning high-capacity ASR.

Lake Belt In-Ground Reservoir Technology Pilot

Work on this project is currently suspended as of June 3, 2006 due to resource constraints. A site (“North Stairstep”) with similar geology to the full-scale in-ground reservoir site was selected to test whether installing a barrier around a rock-mined area used as a reservoir can adequately protect against potential adverse impacts associated with seepage. The technology pilot is required to determine whether the two full-scale Lake Belt Storage Area CERP components can be successfully constructed and operated to supply environmental and water supply deliveries.

Indian River Lagoon South (IRL)

The *Indian River Lagoon Feasibility Study* was completed in October 2002 and the final PIR for the IRL Project was published in the *Federal Register* on May 7, 2004. During this reporting period, the Chief’s Report was approved August 6, 2004 and the Record of Decision was signed November 2005. It currently awaits Congressional authorization. The project will also restore approximately 90,000 acres of wetland/upland mosaic and 4,000 acres of estuary within the St. Lucie River and Southern IRL.

The Loxahatchee Impoundment Landscape Assessment

The U.S. Fish and Wildlife Service (FWS) has a cooperative agreement with the SFWMD to conduct long-term research on two impoundments on the Arthur R. Marshall Loxahatchee National Wildlife Refuge (NWR). This research is needed to inform the development of several CERP performance measures of a healthy South Florida Ecosystem. The Loxahatchee Impoundment Landscape Assessment (LILA) was constructed to include the key Everglades landscape features: tree islands, saw grass ridges, and open-water sloughs. Since June 1, 2004 LILA has served as a research platform used to explore the response of those landscapes as well as wading birds to differing hydrologic regimes. The Biennial Report Table 2 outlines the projects and investigators that have conducted research in LILA during the time covered in this report.

Biennial Report Table 2 – Research conducted at LILA

(June 2004 to June 2006)

Title of Research Project	Tree Island Seedling Analysis	The Response of the Slough Crayfish to Water Recession	Prey Vulnerability to Avian Predation	Measurement of Flock Transport in the Everglades
Organization Affiliation of Researchers	Iowa State University	South Florida Water Management District	Florida Atlantic University	South Florida Water Management District

Lake Okeechobee and Estuary Recovery Plan During the Reporting Period, the state initiated LOER, a comprehensive plan consisting of a combination of capital projects and numerous interagency initiatives designed to provide measurable and meaningful improvements to water quality and water quantity in Lake Okeechobee and the St. Lucie and Caloosahatchee Estuaries. Key state agencies charged with carrying out the plan include SFWMD, DEP, the Florida Department of Agriculture and Consumer Services (DACS), and the Florida Department of Community Affairs (DCA). Components of the plan that will improve hydrology include revisions to the Lake Okeechobee regulation schedule, evaluation of alternative storage and/or disposal options for excess surface water in the watershed, implementation of growth management programs encouraging innovative land use planning, revisions to Environmental Resource Permit (ERP) criteria for new development, implementation of growth management programs encouraging innovative land use planning, elimination of land application of wastewater treatment residuals, and full implementation of the Lake Okeechobee Protection Program (LOPP).

The excessive loads of phosphorus to Lake Okeechobee originate from agricultural and urban activities that dominate land use in the watershed. Total phosphorus (TP) loading averages more than four times

higher than the recently established Total Maximum Daily Load (TMDL) considered necessary to achieve the target in-lake TP goal of 40 parts per billion (ppb). The loadings from Water Year 2005 (WY2005) were extremely high, at 950 mt of phosphorus, and directly related to the exceptional 2004 summer season that included three hurricanes (Charley, Frances, and Jeanne), and the remnants of a fourth (Hurricane Ivan), which impacted the Lake Okeechobee watershed. Large amounts of phosphorus-laden sediments were resuspended from the central region of the lake and distributed throughout the lake. The high water levels and high suspended sediments resulted in reduced light availability within the lake's nearshore and littoral zones that resulted in a significant decline of submerged aquatic vegetation (SAV). Efforts were made to reduce water levels in the lake by constant discharges into the St. Lucie and Caloosahatchee rivers from September to mid-November 2004.

Although there is a long history of regulatory and voluntary incentive-based programs to control phosphorus inputs to Lake Okeechobee, there has not been any substantial reduction in loading during the last decade. Consequently, the lake continues to exhibit signs of hyper-eutrophication, including blooms of noxious blue-green algae (cyanobacteria), loss of benthic invertebrate diversity, and spread of cattail (*Typha* spp.) in shoreline areas. The response of the lake to load reductions, when they occur, is expected to take 20 to 30 years because of an internal sediment buffer. However, new technologies for targeted sediment removal are being investigated due to hurricane impacts and heightened concerns about in lake sediment resuspension.

In August 2004, there were 54,857 acres (222 km²) of SAV in Lake Okeechobee, the maximum coverage encountered since annual mapping surveys were instituted in 1999. The impacts of Hurricanes Frances and Jeanne, which included storm surges (seiches) of up to 10 ft (3 m), wind-driven waves, strong currents and a rapid increase in lake stage, resulted in immediate uprooting and damage to much of the lake's emergent and submerged aquatic vegetation. Ongoing research using models, laboratory studies, and monitoring of SAV beds in Lake Okeechobee will aid in the assessment of long-term impacts of these storms on lake recovery and management of lake levels.

Independent of the extraordinary events of September 2004, the SFWMD and USACE are in the process of refining the operating schedule for the lake, developing release rules that will be more favorable to maintaining its long-term ecological health, and reducing large discharges to downstream ecosystems while also reducing the impact on water supply. Until there are large alternative storage projects, this will be a difficult balancing act. Because the lake receives water from a large watershed, it provides the main source of irrigation water in drought and its major outlets are to estuarine systems that are impacted by large releases of fresh water.

Restoration of natural habitats for fish and wildlife continues, following the removal of the 4.84 miles (7.8 km) of perimeter agricultural berms surrounding Ritta Island at the south end of the lake. This restoration was fulfilled by the removal of exotic vegetation and backfilling the adjacent ditches with the berm material to reestablish natural hydrologic connections between the island's wetland habitat and the lake. A 100-acre (0.4 km²) section of degraded wetland on Torry Island, which was replanted in native pond apple as part of this restoration effort, was destroyed by the recent hurricane events.

Objective 1-A.2: Develop aquifer storage and recovery systems capable of storing 1.5 billion gallons per day by 2030

At the end of the reporting period, two of the projects were underway and two are scheduled in later bands.

Biennial Report Table 3 – ASR Water Storage

1A-2 Table reflects June 2006 Status of Projects to
Develop Aquifer Storage and Recovery Systems Capable of Storing 1.5 Billion Gallons per Day by 2030

Project ID	Project Endpoint	Project Name	Output (Billion gpd)**	Status
1106	2020	C&SF: CERP Palm Beach County Agricultural Reserve Reservoir and ASR (CERP Project # WBS 21)	.075	
1109	2020	C&SF: CERP C-43 Basin Storage Reservoir and ASR (CERP Project # WBS 05)	.220	Underway
1200	2020	C&SF: CERP North Palm Beach – Part 2 (CERP Project # WBS 18)	.170	
1201	2030	C&SF: CERP Lake Okeechobee ASR (CERP Project # WBS 03)	1	Underway

**The outputs listed in Biennial Report Table 3 and the measures and restoration endpoints in Appendix A (the Integrated Financial Plan Summary table) reflect the strategic goals and are not intended to function as an allocation or reservation of water, which must be implemented through applicable law.

Aquifer Storage and Recover Projects

The design and permitting of the Hillsboro ASR Pilot Project was finalized and a surface facility construction contractor was procured by the SFWMD. It is anticipated that construction of that system will commence in August 2006. The design and permitting of the Kissimmee River ASR Pilot project was also finalized and the procurement of a surface facility construction contractor was initiated by the USACE. The exploratory program at the Caloosahatchee ASR Pilot Project indicated that the Floridan aquifer might not yield water at the quantities anticipated by the CERP, so the design was frozen and additional deep geotechnical investigations at Berry Groves were initiated.

Tasks completed for the ASR Regional Study included geophysical surveys of Lake Okeechobee, a well siting evaluation, development of a preliminary hydrogeologic framework in association with the U.S. Geological Survey (USGS), an engineering assessment of the potential to induce formation fracturing, and an evaluation of modeling codes for development of Floridan aquifer groundwater model(s) to evaluate the potential regional and local-scale impacts of CERP ASR operation. Baseline water quality and environmental monitoring was initiated at each of the pilot ASR project locations so that the ecological effects of cycle testing can be determined when the pilot projects become operational. An interim report for the ASR Regional Study will be published in mid-2007.

Although ASR has been used for many years, there are some technical uncertainties of using this technology on such a large scale. These uncertainties are being thoroughly researched through the ASR pilot projects currently underway and an ASR Contingency Plan being prepared to identify storage and water supply options should implementation of ASR at the scale envisioned in CERP not be possible.

Lake Okeechobee and Estuary Recovery Plan (LOER)

Feasibility studies for deep well injection and re-activation of the Taylor Creek ASR well will begin in June 2006. Siting evaluations and conceptual design for a Brighton Reservation ASR well and a 10 well Okeechobee system will also begin in June 2006.

Objective 1-A.3: Modify 345 miles of impediments to flow by 2020

At the end of the reporting period, one of the projects contributing to objective 1-A.3 was completed and the rest were underway.

Biennial Report Table 4 – Impediments to Flow

1-A.3 Table reflects June 2006 Status of Projects to Modify 345 Miles of Impediments to Flow by 2020				
Project ID	Project Endpoint	Project Name	Output (miles modified)	Status
1300	2010	Canal 111	4.75	Underway

1-A.3 Table reflects June 2006 Status of Projects to Modify 345 Miles of Impediments to Flow by 2020				
Project ID	Project Endpoint	Project Name	Output (miles modified)	Status
1301	2020	C&SF: CERP WCA-3 Decentralization and Sheetflow Enhancement (CERP Project # WBS 12, 13, and 47)	240.00	Underway
1302	2015	C&SF: CERP Florida Keys Tidal Restoration (CERP Project # WBS 31)	0.60	Underway
1303	2005	Critical Projects Southern Crew Southern Crew		Completed
1304	2012	East WCA-3A Hydropattern Restoration	8.50	Underway
1305	1997	Kissimmee Prairie	39.30	Completed
1306	2010	Kissimmee River Restoration Project	31.00	Underway
1307	2009	Modified Waters Delivery to Everglades National Park	21.00	Underway

Foundation Projects

Kissimmee River Restoration Project

Approximately 12,000 acres of river floodplain and wetlands were reestablished as a result of continuous flows being restored along a 15 mile section of the river during the reporting period (following the backfilling of 7 miles of the C-38 Canal in 2001). All 102,061 acres needed for restoration have been acquired.

The project, which is being jointly implemented and cost-shared by the SFWMD and the USACE, will eliminate two major water control structures and restore over 40 square miles of river/floodplain ecosystem, including 43 miles of meandering river channel and 27,000 acres of wetlands. Upon completion of the construction phase, a five year comprehensive restoration evaluation study is required to be performed by the SFWMD to determine the success of restoration and allow for adaptive management of the system. River floodplain conditions are expected to stabilize in 2017.

In addition, the SFWMD in cooperation with the USACE and many other local, state, and federal entities, with public input, are developing a Kissimmee Watershed Operational Modeling Study to better balance the Upper and Lower Kissimmee Basins resource needs for the Kissimmee Chain of Lakes and the Kissimmee River restoration; maintain existing levels of service for flood control; determine water supply availability; and create a coordinated and adaptive operations plan for the Kissimmee Watershed.

Modified Water Deliveries to Everglades National Park Project

This project was initially authorized by the ENP Protection and Expansion Act in 1989 to improve water deliveries to the expanded ENP. [It was also intended to benefit the Everglades wetlands in WCA 3A and WCA 3B. \(Miccosukee Tribe edit\)](#) Due to concerns over delays and the development of the larger CERP in WRDA 2000, Congress made the appropriation of funds for construction of components of the CERP WCA-3 Decentralization and Sheetflow Enhancement Project and the Central Lakebelt Storage Project contingent on the completion of the MWD. [\(See Miccosukee Tribe comment 13\)](#)

The Final General Reevaluation Report and Supplemental Environmental Impact Statement for the Tamiami Trail modifications component of the MWD Project was completed in November 2005. The Record of Decision was signed in January 2006 and a real estate supplement was prepared in March 2006. The selected plan (Alternative 14) includes constructing approximately three miles of bridges and raising the remaining road to allow conveyance of higher water stages expected to occur under the CSOP for the MWD ENP and C-111 Canal projects. The western bridge (two miles) starts approximately one mile east of S-333. The eastern (one mile) bridge ends approximately one mile west of S-334. The USACE has

initiated design of the bridges and road raising and has completed the initial geotechnical investigation and boundary surveys. In addition, the USACE constructed the 500 cfs (cubic foot per second) temporary S-356 pump station and removed four miles of the L-67 extension levee. The S-333 pump station modifications construction contract is scheduled to be awarded in late FY 2006.

The USACE completed engineering and design for the 8.5 Square Mile Area Alternative 6D features (pump station S-357, a seepage canal and levee, and an STA) in May 2004. The construction contract bid solicitation closed in July 2005 and was awarded in September 2005. Construction began in November 2005 and is scheduled for completion in March 2007. Of the 842 tracts of land required for the project, 695 have been acquired. Remaining real estate acquisitions require orders of possession and are scheduled for completion by September 2006. Demolition of structures on tracts of land owned by the government within the construction footprint was 78 percent complete at the end of the reporting period.

Canal 111 Project

The land exchange for this project of approximately 1,000 acres between ENP and the SFWMD was approved by Congress and executed in 2005. The USACE will prepare an Integrated CSOP Decision Document with Environmental Impact Statement (EIS) for the MWD ENP and C-111 projects to authorize extending the S-332B North detention area. This extension will increase the S-332B North detention area and contain discharges of the 8.5 SMA STA component of the MWD ENP. The C-111 Project will help restore flows to Taylor Slough, reduce damaging discharges to Florida Bay, and maintain drainage.

[\(See Miccosukee Tribe comment 14\)](#)

Other Related Hydrology Projects

Seepage Management Pilot

The purpose of this project is to investigate seepage management technologies to control seepage from ENP and to provide necessary information to determine the appropriate amount of wet season groundwater flow to return to the park while minimizing potential impacts to Miami-Dade County's west wellfield and freshwater flows to Biscayne Bay. In early 2005, after further study of the L-31 North site, it was determined that a seepage management feature located along L-31 North would reduce some seepage, but due to modifications under CERP (ENP Seepage Management Project) it would be less useful for long term effects. Therefore, the project team was asked to review seepage management on the L-30. The team is in the process of developing the Pilot Project Design Report. They are using as much information as possible from the investigations done on the L-31 North site and are collecting some additional data on the L-30 site.

Objective 1-B.1: Construct 91,345 acres of stormwater treatment areas by 2035

At the end of the reporting period, five of the projects contributing to objective 1-B.1 were completed, and ten were underway.

Biennial Report Table 5 – Acres of Stormwater Treatment Areas

1-B.1 Table reflects June 2006 Status of Projects to Construct 91,345 Acres of Stormwater Treatment Areas by 2035				
Project ID	Project Endpoint	Project Name	Output (acres)	Status
1101	2025	C&SF: CERP Indian River Lagoon South, C-23/C-24/C-25/North Fork and South Fork Storage Reservoirs and C-44 Basin Storage Reservoir (CERP Project # WBS 07)	6,200	Underway

1104	2015	C&SF: CERP Lake Okeechobee Watershed (CERP Project # WBS 01)	11,875	Underway
1110	2035	C&SF: CERP Central Lake Belt Storage Area (CERP Project # WBS 26)	640	
1112	2010	LOFT (Identified under LOER) - Taylor Creek Reservoir	4,000	
1500	2025	C&SF: CERP Big Cypress/L-28 Interceptor Modifications (CERP Project # WBS 10)	1,900	
1501	2009	C&SF: CERP - Broward County WPA - C-9 STA/ Impoundment, Western C-11 Diversion Impoundment and Canal, and WCAs 3A and 3B Levee Seepage Management (CERP Project # WBS 45)	3,500	Underway
1502	2020	C&SF: CERP Miccosukee Tribe Water Management Plan (CERP Project # WBS 90)	900	Underway
1503	2020	C&SF: CERP North Palm Beach County PIR Part 1 (CERP Project # WBS 17)	1,150	Underway
1505	2020	C&SF: CERP Caloosahatchee Backpumping with Stormwater Treatment (CERP Project # WBS 06)	5,000	Underway
1506	2006	Critical Projects: Lake Okeechobee Water Retention/Phosphorus Removal	940	Underway
1508	2000	STA-1 West Works and Outflow Pump Station (G-310)	6,700	Completed
1509	2000	STA-2 Works and Outflow Pump Station (G-335)	6,430	Completed
1510	2005	STA-3/4 Works	16,600	Completed
1511	2005	STA-5 Works	4,118	Completed
1512	2006	STA-6 (includes sections 1 and 2)	2,222	Section 1 completed
1513	2008	C&SF: STA-1E/C-51 West	6,500	Underway
1514A	2010	ACCELER8 Project Includes Everglades Agricultural Area (EAA) Stormwater Treatment Areas (STAs) Expansion	5,960	Underway
1515	2009	LOFT (Identified under LOER) - Lakeside Ranch STA	2,700	
1516	2007	LOFT (Identified under LOER) - Nubbin Slough STA Expansion	800	
1517	2009	C&SF: CERP C-111 Spreader Canal (CERP Project # WBS 29)	3,200	
1518	2015	Henderson Creek/Belle Meade Restoration (CERP Project # WBS 93)	10	Underway

Everglades Construction Project

As of June 2006, over 35,000 acres of STAs had been constructed by the SFWMD. Almost 30,000 acres were in flow-through operation and removing total phosphorus that otherwise would have gone into the EPA. During water year (WY) 2005², STA-1W, STA-2, STA-3/4, STA-5, and STA-6 Section 1 removed more than 189 metric tons of total phosphorus, bringing the total removal to over 617 tons since 1994. Inflow concentrations averaged 147 ppb, while the outflow concentrations averaged 41 ppb. ([See Miccosukee Tribe comment 15](#)) STA performance varied, ranging from 13-20 ppb for STA-2, STA-3/4 and STA-6, to 81 ppb for STA-5 and to 98 ppb for STA-1W. Portions of the stormwater treatment areas were being managed for submerged aquatic vegetation, and the remainder for cattails and other emergent vegetation. The STAs sustained damages from two hurricanes in 2004, and portions of the STAs were undergoing major enhancement projects during WY2005. Both of these factors contributed to the less than optimal performance observed in the WY2005 STA performance data. ([See Miccosukee Tribe comment 16](#))

Everglades restoration is now focused on developing biologically based (“green”) technologies to the maximum extent possible. This approach is based on manipulating hydrology together with selective vegetation management to create a wetland plant community dominated by emergent plants, submerged aquatic vegetation (SAV), or periphyton (algae). Research has indicated that SAV and periphyton-based STAs (PSTA) have the potential to reach restoration endpoint total phosphorus levels on a consistent

² A “water year” is from May 1 through April 30 of the following calendar year. This period is used instead of calendar year because it more closely matches South Florida weather patterns – wet season and dry season.

basis. One scenario for improving performance in the STAs envisions that these wetlands would be reconfigured internally to contain sequences of cells dominated by emergent plants followed by cells dominated by SAV. Another possible scenario would sequence cells dominated by emergent plants followed by SAV followed by PSTA. The SFWMD and the DEP will continue to investigate ways to exploit green technologies for use in Everglades restoration.

The most significant milestone during this last reporting period was completion of construction of STA-1E and the initiation of flow-through for two of the flow-ways. The Everglades Forever Act (EFA) and National Pollutant Discharge Elimination System (NPDES) final permits were issued by the DEP on August 30, 2005. On September 20, 2005, DEP officially concurred with the SFWMD's submittal which documented that start-up compliance tests for phosphorus and mercury, as outlined in the EFA and NPDES permits, were achieved for the western (treatment cells 5, 6, and 7) and central flow-ways (treatment cells 3, 4N, and 4S) of STA-1E. The eastern flow-way, representing about 20% of the treatment area, currently remains off-line and is under the control of the USACE for a PSTA demonstration project. The construction and monitoring of a PSTA demonstration project by the USACE will limit the hydraulic and treatment capacity of STA-1E through at least October of 2008, subject to delays due to weather and other external conditions. After completion of the demonstration project, an undetermined amount of time will be required to remove the test cell levees and structures, and return the eastern flow-way to full flow capability. The Corps has provided no schedule indicating when the Eastern Flow-way will achieve net improvement following the completion of the PSTA demonstration project. For the purpose of forecasting a performance schedule, it is assumed that flow-through in the eastern flow-way will occur by June 2009; the actual time frame is subject to vegetation establishment and other factors outside the control of the SFWMD.

Lake Okeechobee and Estuary Recovery Plan (LOER)

In addition to the water quantity projects detailed under objective 1-A, LOER will accomplish multiple improvements to water quality in the region as well. The SFWMD completed design of an 800 acre expansion of the Nubbin Slough STA which is anticipated to remove about 15-16 metric tons of phosphorus per year. Construction activities will commence in the fall of 2006. A Basis of Design Report has been initiated for Lakeside Ranch STA and two associated projects which will re-route water from the S-154 and S-133 Basins to the Lakeside Ranch STA. The Lakeside Ranch STA will be approximately 2,700 acres and will remove about 39-48 metric tons of phosphorus per year.

Objective 1-B.2: Prepare locally-based plans to reduce pollutants as determined necessary by the total maximum daily loads by 2011

By the end of the reporting period, the project contributing to objective 1-B.2 was underway.

Biennial Report Table 6 – Plans for Impaired Waters to Comply with TMDLs

1-B.2 Table reflects June 2006 Status of Project to Prepare locally-based plans to reduce pollutants as determined necessary by the Total Maximum Daily Loads by 2011				
Project ID	Project Endpoint	Project Name	Output (% of waters having plans)	Status
1600	2011	Total Maximum Daily Load for south Florida		Underway

Total Maximum Daily Loads

The Watershed Restoration Act and the rules DEP has subsequently adopted are intended to identify Florida's surface waters impaired by pollutants; establish scientifically-based pollutant reduction objectives (TMDLs); develop locally-based plans [\(See Miccosukee Tribe comment 17\)](#)

to reduce pollutants as determined necessary by the TMDL; and promote the physical and financial mechanisms necessary to implement those plans.

DEP has developed a phased approach to implementing the law. DEP's comprehensive "watershed management" strategy views the state based on its natural boundaries, like river and estuary basins, rather than political boundaries. These naturally bounded areas have been organized into five "groups" of basins. In 2000, DEP began addressing the first group of basins (Group 1) and continues to initiate activities in a new group (Groups 2 through 5) each year over a five-year cycle to cover the entire state. The five-year cycle will then begin again in the Group 1 basins and continue through Groups 2-5 to re-evaluate the status of impaired waters, determine the successes and problems associated with ongoing activities, make necessary changes, and consider and address new circumstances associated with growth and development. The cycle will be repeated methodically and continuously over time.

The status of TMDLs for waters of the South Florida Ecosystem are located in Groups 1-5 and can be found by visiting <http://www.dep.state.fl.us/water/tmdl/index.htm>.

[Comprehensive Integrated Water Quality Feasibility Study. The USACE and the DEP developed a Project Management Plan for the Comprehensive Integrated Water Quality Feasibility Study in February 2004 and are currently coordinating the cost share agreement.](#)

Goal 2 Accomplishments: Restoring, Preserving, and Protecting Natural Habitats and Species

The second strategic goal of the Task Force concerns natural habitats and species. The Task Force has adopted the following for this goal:

GOAL 2: RESTORE, PRESERVE, AND PROTECT NATURAL HABITATS AND SPECIES

Subgoal 2-A: Restore, preserve, and protect natural habitats

- Objective 2-A.1: Complete acquisition of 5.8 million acres of land identified for habitat protection by 2015
- Objective 2-A.2: Protect 20 percent of the coral reefs by 2010
- Objective 2-A.3: Improve habitat quality for 2.4 million acres of natural areas in south Florida

Subgoal 2-B: Control invasive exotic plants

- Objective 2-B.1: Coordinate the development of management plans for the top 20 south Florida invasive exotic plant species by 2011
- Objective 2-B.2: Achieve maintenance control of Brazilian pepper, melaleuca, Australian pine, and Old World climbing fern on south Florida's public conservation lands by 2020
- Objective 2-B.3: Complete an invasive exotic plant species prevention, early detection, and eradication plan by 2007

The major projects planned to meet these objectives are listed in the Task Force *Strategy* in part one of this volume (*Coordinating Success*), along with a schedule for their implementation. The projects or activities that were ongoing or completed during the reporting period of July 2004 to June 2006 are described below in the context of progress toward meeting each of the Task Force objectives.

Objective 2-A.1: Complete acquisition of 5.8 million acres of land identified for habitat protection by 2015

By the end of the reporting period, state and federal agencies had acquired a total of approximately 4.9 million acres of land identified for habitat protection. As of June 2006 the state had acquired 3.6 million acres of habitat conservation land in south Florida at a cost of over \$2.3 billion.

Biennial Report Table 7 – Land Acquisition for Habitat Protection

2-A.1 Table reflects June 2006 Status of Projects to Complete Acquisition of 5.8 Million Acres of Land Identified for Habitat Protection by 2015					
Project ID	Project Endpoint	Project Name	Total Project Acres	Acres Acquired to Date	Acres Remaining To Be Acquired
STATE/SFWMD PROJECTS					
1508-1512		STA 1 W, 2 ,3/4, 5 and 6	41,089	41,043	46
2100		Allapattah Flats/Ranch	35,999	21,407	14,592
2101		Atlantic Ridge Ecosystem	16,002	11,764	4,238
2102		Babcock Ranch	91,361	0	91,361
2104		Belle Meade	28,506	18,238	10,268
2105		Big Bend Swamp/Holopaw Ranch	59,123	4,151	54,981
2106		Biscayne Coastal Wetlands	2,241	144	2,097
2107		Bombing Range Ridge	44,439	6,357	38,082
2108		Caloosahatchee Ecoscape	18,497	3,180	15,317
2109		Catfish Creek	14,901	10,184	4,717
2111		Charlotte Harbor Estuary/Flatwoods/Cape Haze	15,054	10,603	4,451
2112		Corkscrew Reg. Ecosystem Watershed (CREW)	69,500	26,271	43,229
2114		Coupon Bight/Key Deer/Big Pine Key	4,014	1,519	2,495
2115		Cypress Creek/Trail Ridge	13,788	3,285	10,503
2117		East Coast Buffer/Water Preserve Areas	66,809	21,947	44,862
2118		Estero Bay	14,378	9,149	5,229

2-A.1 Table reflects June 2006 Status of Projects to Complete Acquisition of 5.8 Million Acres of Land Identified for Habitat Protection by 2015					
Project ID	Project Endpoint	Project Name	Total Project Acres	Acres Acquired to Date	Acres Remaining To Be Acquired
2119		Everglades Agricultural Area/Talisman	51,210	50,794	416
2120		Fakahatchee Strand	80,332	60,993	19,339
2121		Fisheating Creek	176,876	59,910	116,966
2122		Florida Keys Ecosystem	8,566	2,374	6,192
2123		Frog Pond/L31N	10,450	9,741	709
2124		Indian River Lagoon Blueway	5,136	1,619	3,517
2125		Juno Hills /Dunes	590	576	14
2127		Kissimmee River (Lower Basin)*	68,332	55,684	12,648
2128		Kissimmee River (Upper Basin)*	36,763	34,981	1,782
2126		Kissimmee-St. Johns River Connector	9,463	0	9,463
2129		Lake Wales Ridge Ecosystem	13,848	11,037	2,811
2132		Loxahatchee Slough	15,200	15,056	144
2133		McDaniel Ranch	7,000	0	7,000
2134		Miami Dade County Archipelago	884	505	379
2135		Model Lands Basin	42,402	15,925	26,477
2138		North Fork of the St. Lucie River	3,800	474	3,326
2139		North Key Largo Hammocks	5,048	3,538	1,510
2140		North Savannas	930	0	930
2141		Okaloacoochee Slough	37,210	34,982	2,228
2142		Okeechobee Battlefield	211	145	66
2143		Osceola Pine Savannas	1,374	1,333	41
2144		Pal-Mar	36,745	18,986	17,759
2145		Panther Glades	57,604	21,724	35,880
2146		Paradise Run	4,265	3,328	937
2147		Parker-Poinciana/Lake Hatchineha Watershed	6,437	0	6,437
2148		Pineland Site Complex	206	57	149
2149		Rookery Bay	18,721	18,636	85
2150		Rotenberger/Holey Land Tract	79,170	70,833	8,337
2151		Shingle Creek	7,655	1,588	6,067
2152		Six Mile Cypress I & II	1,966	1,864	102
2155		Southern Glades	37,620	33,587	4,033
2156		Southern Golden Gate Estates	55,247	54,442	805
2158		Twelve Mile Slough	15,653	7,486	8,167
2159		Upper Lakes Basin Watershed (ULBW)	47,300	12,550	34,750
2160		WCAs 2 and 3	721,433	670,844	50,589
2172		Cypress Creek/Loxahatchee	4,347	4,276	71
2174		Half Circle L Ranch	11,269	0	11,269
2176		Jupiter Ridge	287	271	16
2178		Ranch Reserve	2,217	67	2,150
2185		Devils Garden	82,508	0	82,508
		Pine Island Slough Ecosystem	21,583	0	21,583
STATE COMPLETED PROJECTS					
1111		Ten Mile Creek	913	913	0
1305		Kissimmee Prairie	38,282	38,282	0
1513		STA 1 E	6,503	6,503	0
2110		Cayo Costa Island	1,954	1,954	0
2113		Corkscrew Regional Mitigation Bank	633	633	0
2116		Dupuis Reserve	21,875	21,875	0
2130		Lake Walk-In-Water a/k/a Sumica	4,009	4,009	0
2131		Loxahatchee River Land Acquisition	1,936	1,936	0
2137		Nicodemus Slough	2,231	2,231	0
2153		South Fork St. Lucie River Land Acquisition	184	184	0
2157		Tibet-Butler Preserve	439	439	0
2161		Yamato Scrub	207	207	0

2-A.1 Table reflects June 2006 Status of Projects to Complete Acquisition of 5.8 Million Acres of Land Identified for Habitat Protection by 2015					
Project ID	Project Endpoint	Project Name	Total Project Acres	Acres Acquired to Date	Acres Remaining To Be Acquired
FCT, STATE PARKS, & WMA'S					
		State Florida Communities Trust Lands	25,197	25,197	0
		State Park Lands	101,438	88,599	12,839
		State Wildlife Management Areas	126,867	126,620	247
FEDERAL CONSERVATION LANDS					
2162		A.R.M. Loxahatchee NWR	145,567	143,874	1,693
2164		Big Cypress National Preserve Addition	146,117	143,436	2,681
2163		Big Cypress National Preserve	574,449	573,614	835
2165		Biscayne National Park	172,924	172,590	334
2166		Crocodile Lake NWR	7,100	6,696	404
2167		Everglades National Park Expansion	109,504	108,797	707
2169		Florida Panther NWR	61,573	61,563	10
2168		Florida Keys NWR	415,433	410,045	5,388
2170		Hobe Sound NWR	1,130	1,034	96
2171		J. N. Ding Darling NWR	10,275	8,767	1,508
		Dry Tortugas National Park	64,701	64,701	0
		Everglades National Park	1,399,078	1,398,617	461
TOTAL HABITAT ACQUISITION			5,773,013	4,887,943	885,070

Land Acquisition Strategy and Database

The Task Force Land Acquisition Task Team (LATT) updated the 2004 *Land Acquisition Strategy* with 2005 data and the Task Force accepted it on December 7, 2005. The 2006 document is currently being prepared and approval is anticipated by year's end. The associated database includes local government programs, as well as state and federal land acquisition programs, providing a broad picture of the combined effort for conservation and restoration in the South Florida Ecosystem.

The first *Land Acquisition Strategy* was accepted by the Task Force in February 2003. It was developed as a response to a GAO recommendation for a land acquisition plan that identifies and prioritizes additional lands needed to achieve restoration goals. The GAO highlighted the importance of acquiring as much land as possible, and quickly, because undeveloped land in south Florida is becoming increasingly scarce and costly.

Habitat Acquisition

The federal, state, and local accomplishments in land acquisition during the reporting period are shown in *Biennial Report* Table 8.

Biennial Report Table 8 – Land Acquisition Expenditures Summary

2004-2006**

Funding Source	Amount (\$ millions)	Acres
Florida Forever	169.6	29,027.74
Save Our Everglades Trust Fund	149.8	13,898.08
State, Local & Other Funding Sources ¹	130.6	29,055.41
Land & Water Conservation Fund ²	35	618
TOTALS	\$485.8	72,599.23

¹ The following funding sources are captured in this category: SFWMD ad valorem, county, mitigation, special state appropriations, Preservation 2000, Land Acquisition Trust Fund, and Water Management Lands Trust Fund.
² The Land and Water Conservation Fund is administered by the DOI.
 ** The fiscal year for the DEP is July 1 through June 30. The fiscal year for the SFWMD, the FWS, and the NPS is October 1 through September 30.

Southern Golden Gate Estates (Picayune Strand) CERP Restoration Project

The State of Florida initiated an early start on this hydrologic restoration project in October 2003. Prairie Canal Early Start, Phase 1 backfilled the northern two miles of the canal. [\(See Miccosukee Tribe comment 18\)](#) Phases 2 and 3 of the Early Start work will remove the roads adjacent to the canal and backfill the southern five miles resulting in restored sheetflow. This first phase has reduced drainage of the adjacent Fakahatchee Strand State Preserve and restored habitat for threatened and endangered species. The PIR and Chief’s Report are complete. The Chief’s Report was signed September 15, 2005 and the PIR and Chiefs Report are under Administration review. The recommended plan will restore and enhance over 50,000 acres of wetlands in the former Southern Golden Gate Estates 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 includes a combination of spreader channels, canal plugs, road removal, and pump stations in the Western Basin and Big Cypress, Collier County, south of I-75 and north of US 41 between the Belle Meade Area and the Fakahatchee Strand State Preserve.

Objective 2-A.2: Protect 20 percent of the coral reefs by 2010

At the end of the reporting period, the initial project contributing to objective 2-A.2 was completed. Additional efforts will be required to expand the protected areas from 10 percent to 20 percent by 2010.

Biennial Report Table 9 – Protect Coral Reefs

2-A.2 Table reflects June 2006 Status of Projects to Protect 20 Percent of the Coral Reefs by 2010				
Project ID	Project Endpoint	Project Name	Output (percent of reefs protected)	Status
	2010	Florida Keys National Marine Sanctuary Zoning Action Plan		Underway

Florida Keys National Marine Sanctuary Zoning Plan

The Florida Keys National Marine Sanctuary (FKNMS) has implemented a marine zoning action plan that includes a network of fully protected areas, including two ecological reserves (Western Sambo and Tortugas Ecological Reserves), eighteen sanctuary preservation areas, and four research only areas. Combined, these areas fully protect 10 percent of the coral reef resources in the Sanctuary. The Sanctuary

has met the initial objective of protecting 10 percent of the coral reefs in this region by 2006. It is currently monitoring the biological, ecological, and socioeconomic changes resulting from the full protection of these areas and will use the information learned to extend protection to 20 percent of the coral reefs by 2010.

Objective 2-A.3: Improve habitat quality for 2.4 million acres of natural areas in south Florida

At the end of the reporting period, one project was complete, three were underway, and one was ongoing in support of objective 2-A.3.

Biennial Report Table 10 – Improve Habitat Quality

2-A.3 Table reflects June 2006 Status of Projects to Improve Habitat Quality for 2.4 Million Acres of Natural Areas in South Florida				
Project ID	Project Endpoint	Project Name	Output Acres of Habitat	Status
<i>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 that would be improved through implementation of the CERP projects. Table 7-18 in that publication identifies which projects are anticipated to achieve this objective. However, specific measures for each project are still being developed. The projects listed below do not constitute an exhaustive list to accomplish this measurable objective, but exemplify how this objective will be achieved. The list includes CERP projects as well as other habitat quality improvement efforts.</i>				
1101	2025	C&SF: CERP Indian River Lagoon South, C-23/C-24/C-25/North and South Fork Storage Reservoirs and C-44 Basin Storage Reservoir (CERP Project # WBS 07)	152,329	
1104	2015	C&SF: CERP Lake Okeechobee Watershed (CERP Project # WBS 01)	3,500	
1107	2015	C&SF: CERP Site 1 Impoundment and ASR (CERP Project # WBS 22 and 40)	114	
1111	2006	Critical Ecosystems Restoration Projects - Ten Mile Creek	2,740	Complete
1306	2010	Kissimmee River Restoration Project	27,000	
1501	2009	C&SF: CERP Broward County WPA - C-9 Stormwater Treatment Area/Impoundment and Western C-11 Diversion Impoundment and Canal and WCAs 3A and 3B Levee Seepage Management (CERP Project # WBS 45)	4032	
2300	2015	C&SF: CERP Strazzulla Wetlands (CERP Project # WBS 39)	3,335	
2301	2008	C&SF: CERP Winsburg Farms Wetlands Restoration (CERP Project #WBS 91)	114	Underway
2302	2009	C&SF: CERP Lake Park Restoration (CERP Project #WBS 94)	40	Underway
2303	2025	C&SF: CERP Restoration of Pineland and Hardwood Hammocks in C-11 Basin (CERP Project #WBS 92)	50	Underway
2304	Ongoing	A.R.M. Loxahatchee NWR Prescribed Fire Program	84.5	Ongoing
2306	2007	C&SF CERP Acme Basin B Discharge (CERP Project #WBS 38) (was 1100)	365	
2307	2009	C&SF: CERP Southern Golden Gates Estates Restoration (CERP Project #30) (was 1424)	55,000	
2606	2017	Hole-in-the-Donut	6,000	
3802	2020	C&SF: CERP Wastewater Reuse Technology Pilot Project (CERP #WBS 37)	3,500	

Loxahatchee National Wildlife Refuge Prescribed Burn Program

In December 2005, several Arthur R. Marshall Loxahatchee NWR impoundments were prescribe burned to provide suitable foraging habitat for birds (figure 1). Wading bird and shorebird use increased in the impoundments as a result. Further, staff identified over 100 ducks including mottled, blue-winged teal, green-winged teal, and hooded mergansers using the impoundment as recently as two weeks after burning where few used the impoundment before treatment (figure 2).



Figure 1. Prescribed fire at A.R.M. Loxahatchee National Wildlife Refuge.



Figure 2. Wading bird use increased dramatically after the prescribed fire.

The Loxahatchee Impoundment Landscape Assessment

The FWS has a cooperative agreement with the SFWMD to conduct long-term research on two impoundments on the Arthur R. Marshall Loxahatchee NWR. The Loxahatchee Impoundment Landscape Assessment (LILA) is needed to inform the development of several CERP performance measures of a healthy South Florida Ecosystem. LILA will serve as a pilot study for hydrologic regimes proposed under the CERP. The approach will be to sculpt key Everglades landscape features, overlay controlled hydrologic regimes with flow rates that simulate historic flows, and measure responses by wading birds, tree islands, and ridge and slough communities. LILA provides a unique opportunity to fill key information gaps of the CERP and to provide the public with a rare opportunity to see restored Everglades habitats.

Other Natural Habitat and Species Projects

South Florida Multi-Species Recovery Plan

A draft implementation schedule for the Multi-Species Recovery Plan (MSRP) was announced in the Federal Register in 2004 and is being finalized by the FWS. The MSRP and the implementation schedule are intended to be used by state and federal agencies, tribes, nongovernmental organizations, and other partners who are committed to endangered and threatened species conservation and to restoration of the South Florida Ecosystem. The implementation schedule prioritizes certain recovery actions in the MSRP, as well as providing time and cost estimates for those actions. Participants to complete those actions are also identified.

American Crocodile Reclassification in Florida

The American crocodile, which occurs only in south Florida in the United States, was listed as endangered in 1975. Loss of nesting habitat, killing for sport, nest predation by raccoons, and disturbance to individuals, nest sites, and habitat led to widespread population decline. In 1976, the crocodile population in Florida was estimated to be 200-300 individuals, with only 10-20 breeding females estimated in 1975. Today, the population in Florida is estimated to be 1,400-2,000 individuals (excluding hatchlings), including greater than 90 nesting females. The nesting range has expanded to include Key Largo, Biscayne Bay, Florida Bay, and occasional nests on the southwest coast. Approximately 95 percent of the remaining habitat in south Florida has been acquired by federal, state, or county agencies and is now protected from development.

The American crocodile population in Florida has increased since listing and has met the criteria for reclassification in the MSRP. On March 24, 2005, the FWS published the proposed rule in the Federal

Register to reclassify the American crocodile in Florida from endangered to threatened and requested public comment and review. The final rule is anticipated to be published in 2006.

Florida Panther Recovery Plan

The Florida Panther Recovery Plan was updated during this reporting period. The latest draft was completed by the FWS’s South Florida Ecological Services Office in concert with the Panther Recovery Team, composed of the Florida Fish and Wildlife Conservation Commission, National Park Service, and many other local, state, federal, tribal, and non-government partners. The draft was made available for public comment and underwent peer review in early 2006. The latest draft includes specific recovery objectives and criteria to be met in order to reclassify the panther from endangered to threatened, and eventually to remove the panther from Endangered Species Act protection. A final version of the plan is anticipated at the end of 2006.

Key Deer Recovery

As part of the FWS recovery program, consistent with the MSRP, Key deer were translocated from Big Pine Key to Sugarloaf and Cudjoe Keys from 2003 through 2005. The National Key Deer Refuge hired a deer biologist in September 2003 for project oversight and continuity.

Objective 2-B-1: Coordinate the development of management plans for the top 20 south Florida invasive exotic plant species by 2011

At the end of the reporting period, the planning efforts contributing to objective 2-B.1 were underway.

Biennial Report Table 11 – Plans to Manage Invasive Exotic Plant Species

2-B.1 Table reflects July 2006 Status of Projects to Coordinate the Development of Management Plans for the Top Twenty South Florida Invasive Exotic Plant Species by 2011				
Project ID	Project Endpoint	Project Name	Output (plans)	Status
2500	2011	Coordinate the development of management plans for the top 20 south Florida exotic pest plants	20	

Noxious Exotic Weed Task Team

The Noxious Exotic Weed Task Team (NEWTT) has been coordinating on three primary projects. The first project is the development and implementation of an exotic plant indicator as part of the System-wide Indicators for the Task Force. This includes the development of a performance measure, conceptual ecological model, and communication tool for invasive exotic plant indicators. The second task has been the development of a PIR with the USACE and the SFWMD for biological control of plants. The third is working with the USACE and the SFWMD to develop a master plan for invasive exotic species (plants and animals). The exotic plant indicator will be completed for the 2008 Task Force *Biennial Report* and is presented in draft form in the 2006 indicator report. The bio-control PIR will be completed in late 2006. The master plan development committee, which includes representatives from NEWTT (all Task Force agencies) and is led by the USACE and SFWMD, will have its initial kickoff meeting in the fall of 2006.

Objective 2-B.2: Achieve maintenance control of Brazilian pepper, melaleuca, Australian pine, and Old World climbing fern on south Florida's public conservation lands by 2020

At the end of the reporting period, the project contributing to objective 2-B.2 was underway.

Biennial Report Table 12 – Maintenance Control of Invasive Species on Public Lands

2-B.2 Table reflects June 2006 Status of Projects to Achieve Maintenance Control of Brazilian Pepper, Melaleuca, Australian Pine, and Old World Climbing Fern on South Florida's Public Conservation Lands by 2020				
Project ID	Project Endpoint	Project Name	Output (control)	Status
2600	2020	Achieve maintenance control status for Brazilian pepper, melaleuca, Australian pine, and Old World climbing fern		Underway

Current efforts on melaleuca have achieved remarkable success in the use of chemical control on public lands within the EPA. Since the development and release of two biological control insects and the anticipated release of two additional insects, monitoring information indicates that melaleuca may well be a species that will no longer be a serious pest of natural areas in Florida by 2020.

In contrast, the control programs for Brazilian pepper are severely lacking in support and coordination. The state's biological control program has been slow to find and research possible biocontrols, and the control organism that is nearing preparation appears to be held up in administrative regulatory procedures. Brazilian pepper is still and will continue to be an extremely widespread and serious threat to natural areas of Florida.

Australian pine control efforts are not coordinated among all the agencies and areas. However, where control is being conducted, it is quite successful. It appears that this species is relatively simple to control, and once controlled reinvasion can easily be prevented so long as occasional detection is undertaken. It is this latter element that seems to be preventing this species from being controlled at most sites.

Old World climbing fern (*Lygodium*) is still considered the most serious recent invader. Less is known about how to control it than is known about the other high-priority species. Research is being conducted to determine the efficacy of biological and chemical control methods. Recent revisions to the *Lygodium* management plan spell out the next round of needed research initiatives. While sparsely funded, the biological control program is progressing, and the first biocontrol agent for *Lygodium* was released in 2005. In addition, two more insects are under development for release in the near future.

Loxahatchee National Wildlife Refuge Exotic Management

During the 2004-2006 reporting period, 7,600 acres of the Arthur R. Marshall Loxahatchee NWR interior were treated for both melaleuca and *Lygodium*. Approximately 2,000 acres of *Lygodium* were aerially treated on heavily infested islands in the northern interior. An additional 1,442 acres were covered and treated for *Lygodium* by ground crews. State funding specifically allotted for melaleuca control enabled 15,000 acres of re-treatment and 7,000 acres of initial treatment.

Melaleuca Control Program - Melaleuca Eradication & Other Exotic Plants Project

The USACE and the SFWMD amended the CERP design agreement to include this project. The PIR is being developed by the Project Delivery Team (SFWMD edit) with the feasibility scoping meeting anticipated for August of 2006 (USACE edit). The PIR is focusing on the mass rearing and controlled release of biological agents to control melaleuca, Brazilian pepper, Australian Pine, and Old World climbing fern. PIR approval is scheduled for September 2008 with a recommendation for congressional authorization in WRDA 2009.

Special Report on Invasive Species

The USACE contracted with the DOI invasive species specialist to produce a special report on the federal role in invasive species management for Everglades restoration and to make recommendations on further federal involvement.

Removal of Exotic Plants from Big Cypress National Preserve

In 2003 Big Cypress National Preserve completed initial treatment of melaleuca in the originally estimated 150 square miles infested with this invasive exotic tree. Follow-up treatments in areas of previous control have been ongoing, and were continued each of the years since. With initial treatments of melaleuca completed, more resources have been applied to control Brazilian pepper. The Preserve's strategy has been initially to eliminate some of the largest seed-source populations to reduce exotic propagule introduction from these densely populated areas, and to allow these areas to be restored to native biological communities. Treatment of *Lygodium* has been underway for several years and all known populations have been treated or are now being treated. [Surveillance for *Lygodium* continues and because of its prolific ability to spread, additional discoveries and treatment strategies are needed. \(NPS edit\)](#)

Many other exotic trees and shrubs are routinely eliminated during exotic management treatments. Since 2004 through June of 2006, 282.3 square miles of the Preserve has been surveyed for melaleuca resulting in a canopy area treatment of 0.9 square miles. For Brazilian pepper the Preserve has conducted initial treatment along 52 miles of roadside, surveyed 3.9 square miles, and treated 1.9 square miles of canopy area. For *Lygodium*, work was initiated in 2005 resulting in canopy area treatment of 0.2 square miles.

Objective 2-B.3: Complete an invasive exotic plant prevention, early detection, and eradication plan by 2007

At the end of the reporting period, the project contributing to objective 2-B.3 was underway.

Biennial Report Table 13 – Invasive Exotic Plant Prevention, Early Detection, and Eradication

2-B.3 Table reflects June 2006 Status of Project to Complete an Invasive Exotic Plant Prevention, Early Detection, and Eradication Plan by 2007				
Project ID	Project Endpoint	Project Name	Output (plans)	Status
2700	2007	Invasive Exotic Plant Prevention, Early Detection, and Eradication Plan	Plans	Underway

Exotic Species Quarantine Facility

The Melaleuca Quarantine Facility was completed in Early 2005 (Jan/March). The Melaleuca Research and Quarantine Facility, now known as the Invasive Plant Research Laboratory, was ready for staff use on January 19, 2005, with a well-attended dedication ceremony held on April 8, 2005. The Laboratory was certified on December 1, 2004 as meeting the USDA Animal Plant and Health Inspection Service guidelines for anthropod containment.

Goal 3 Accomplishments: Fostering Compatibility of the Built and Natural Systems

The third strategic goal of the Task Force is “foster compatibility of the built and natural systems.” The Task Force has adopted the following subgoals and objectives for this goal:

GOAL 3: FOSTER COMPATIBILITY OF THE BUILT AND NATURAL SYSTEMS

Subgoal 3-A: Use and manage land in a manner compatible with ecosystem restoration

- Objective 3-A.1: Designate or acquire an additional 480,000 acres as part of the Florida Greenways and Trails System by 2009
- Objective 3-A.2: Increase participation in the Voluntary Farm Bill conservation programs by 230,000 acres by 2014
- Objective 3-A.3: Acquire an additional 2,500 acres of park, recreation, and open space lands by 2007
- Objective 3-A.4: Complete five brownfield rehabilitation and redevelopment projects by 2010
- Objective 3-A.5: Increase community understanding of ecosystem restoration

Subgoal 3-B: Maintain or improve flood protection in a manner compatible with ecosystem restoration

- Objective 3-B.1: Maintain or improve existing levels of flood protection

Subgoal 3-C: Provide sufficient water resources for built and natural systems³

- Objective 3-C.1: Plan for regional water supply needs
- Objective 3-C.2: Increase volumes of reuse on a regional basis
- Objective 3-C.3: Increase water made available through the SFWMD Alternative Water Supply Development Program

The major projects planned to meet these objectives are listed in the Task Force *Strategy* in part one of this Volume (*Coordinating Success*), along with a schedule for their implementation. The projects or activities that were ongoing or completed during the reporting period of July 2004 to June 2006 are described below in the context of progress toward meeting each of the Task Force objectives.

Subgoal 3-A: Use and manage land in a manner compatible with ecosystem restoration

Integrated Land Use and Water Supply Planning

The Florida DCA, DEP, and water management districts are implementing 2005 legislation that requires local government to address current and future water supply needs of their communities. The statutory changes require local governments to ensure that future land use plans are based on the availability of adequate water supplies and the necessary public treatment and distribution facilities. Local governments must also amend their comprehensive plans to identify and incorporate alternative water supply projects, and include a 10-year water supply facilities work plan that shows a commitment to the construction, operation, and financing of the identified projects. Currently the same agencies are completing guidelines for local governments in adopting comprehensive plan amendments to implement the new requirements.

In November 2002 the Florida DCA, DEP, and the five water management districts released a report, *Agency Coordination of Comprehensive Planning and Water Supply Planning in Florida*, outlining an improved interagency coordination process to improve the integration of land use comprehensive planning and water supply planning. The new process includes technical assistance and the review of comprehensive plan amendments and evaluation and appraisal reports (EARs).

³ The legal authority and requirements for water supply planning are included in Chapters 373,403, and 187 Florida Statutes. During the State of Florida’s 2005 legislative session, lawmakers revised state water law. This has led to the SFWMD reporting increased water supply in objective 3-C.2 in the alternative water supply program and deleting the Objective 3-C.1 as a measurable output of increased water. The regional water supply plans are still being done but the increased supply is being funded through the Alternative Water Supply Development program.

Objective 3-A.1: Designate or acquire an additional 480,000 acres as part of the Florida Greenways and Trails System by 2009⁴

Biennial Report Table 14 – Florida Greenways and Trails Program

3-A.1 Table reflects June 2006 Status of Projects to Designate or Acquire an additional 480,000 acres as part of the Florida Greenways and Trails System by 2009				
Project ID	Project End Date	Project Name	Output (additional acres)	Status
3100	2009	Florida Greenways and Trails Program	480,000	Ongoing

Florida Greenways and Trails Designation Program

At the end of the reporting period, the Florida Statewide System of Greenways and Trails contained 298,774 acres plus an additional 147 linear miles of greenways and trails land in the 16-county area corresponding in whole in the SFWMD.⁵ The primary mission of this program is to provide a recreational trail or greenway experience within 15 minutes of every residence and business within the state.

Lake Okeechobee Scenic Trail State Park

Design and construction of the Lake Okeechobee Scenic Trail (LOST) began in 2003. This project will create a 100-mile multi-purpose trail around Lake Okeechobee. November 22, 2005 marked the official opening for Phases 1 and 2, consisting of 26 and 36 miles, respectively, of 11 foot wide asphalt multipurpose trail with an adjacent three foot hiking tread. Phases 1 and 2 were constructed by the Florida Department of Transportation using \$12.5 million of the state’s federal enhancements funds. The DEP’s Office of Greenways and Trails submits annual requests for funding to complete the remaining 48 miles of trail, which is expected to cost an additional \$12.5 million. Completion is contingent upon funding.

The project will make Lake Okeechobee accessible to pedestrians, backpackers, bicyclists, equestrians, sightseers, naturalists, skaters, picnickers, campers, and fishermen, allowing the surrounding communities to appreciate this great natural resource.

Objective 3-A.2: Achieve participation in the voluntary Farm Bill conservation programs by 230,000 acres by 2014

At the end of the reporting period, the two projects contributing to objective 3-A.2 were both underway.

Biennial Report Table 15 – Participation in Voluntary Farm Bill Conservation Programs

3.A-2 Table reflects June 2006 Status of Projects to Increase Participation in the Voluntary Farm Bill Conservation Programs by 230,000 Acres by 2014				
Project ID	Project End Date	Project Name	Output (annual additional acres)	Status
3201	2011	Technical Assistance to Indian Reservations	107,000	Underway
3202	2007	2002 Farm Bill Conservation Programs	1,106,108	Underway

⁴ This is a statewide goal; a regional breakout was not available from the reporting agency at the time this goal was established by the Task Force.

⁵ The SFWMD encompasses all of Broward, Collier, Glades, Hendry, Lee, Martin, Miami-Dade, Monroe, Palm Beach, and St. Lucie Counties, as well as portions of Charlotte, Highlands, Okeechobee, Orange, Osceola, and Polk Counties.

Farm Bill Conservation Programs

In 2004-2006, a total of 229,716 acres in the 16-county south Florida region were enrolled in Farm Bill conservation programs at an obligated cost of \$ 29 million. Biennial Report Table 16 reflects the achievement during this reporting period by specific programs.

Biennial Report Table 16 – Farm Bill Accomplishments

2004-2006		
Program	Dollar Amount	Acreage Enrolled
Wetlands Reserve Program	\$10.1 million	7,953 acres
Farm Land Protection Program	\$ 3.97 million	2,432 acres
Environmental Quality Incentive Program	\$ 13.7 million	210,525 acres
Wildlife Habitat Incentives Program	\$ 0.44 million	8,367 acres
Grassland Reserve Program	\$ 0.84 million	439 acres
TOTALS	\$ 29.04 million	229,716 acres

In FY 2006, the first two Grassland Reserve Program (GRP) easements were acquired in Florida. The GRP is a voluntary program offering landowners the opportunity to protect, restore, and enhance grasslands on their property. More than \$800,000 were obligated to Collier and Highlands Counties to help landowners restore and protect rangeland and pastureland. The program will conserve 438.9 acres of vulnerable grasslands from conversion to cropland or other uses, while helping to maintain viable ranching operations. These conservation easements will provide essential habitat for grassland dependent wildlife species in perpetuity.

Objective 3-A.3: Acquire an additional 2,500 acres of park, recreation, and open space lands by 2007⁶

At the end of the reporting period, the project contributing to objective 3-A.3 were underway.

Biennial Report Table 17 – Additional Park, Recreation, and Open Space Land

3-A.3 Table reflects June 2006 Status of Projects to Acquire an Additional 2,500 Acres of Park, Recreation, and Open Space Lands by 2007				
Project ID	Project End Date	Project Name	Output (acres/miles)	Status
	2007	Florida Communities Trust Grant Program	1,000 acres	Underway

Florida Communities Trust Grant

In the 2005-2006 state fiscal year, \$24.8 million of state funds and \$18.6 million of local funds were spent through this program to acquire 474 acres in the South Florida Ecosystem. The local governments in the South Florida Ecosystem have been taken advantage of this program with regular applications for resources to increase open space in this region.

⁶ This is a statewide goal: a regional breakout was not available from the reporting agency at the time this goal was established by the Task Force.

CERP Master Recreation Plan

The draft PMP for the CERP Master Recreation Plan (MRP) was released for public comment on February 23, 2004. Recreation performance measures development was completed May of 2006. When completed the MRP will guide a system-wide approach to identifying, evaluating, and addressing the recreation aspects of CERP project implementation. This will include not only existing recreation use within the South Florida Ecosystem, but also potential new recreation, public use, and public educational opportunities. The MRP will coordinate CERP recreation with other known public and private recreation plans.

Objective 3-A.4: Complete five brownfield rehabilitation and redevelopment projects by 2010

At the end of the reporting period, 18 individual brownfield rehabilitation and redevelopment projects were underway through the Eastward Ho! Brownfields Partnership. This partnership, which includes Miami-Dade, Broward, and Palm Beach Counties, is a good example of how local, regional, state, and federal agencies are working with private nonprofit and community organizations to facilitate the redevelopment of brownfields. The partnership received a National Brownfields Showcase Community designation from the USEPA in 1998. The Partnership has also been active in the Florida Brownfields Program, administered and implemented by the DEP.

Biennial Report Table 18 – Brownfield Projects

3-A.4 Table reflects June 2006 Status of Projects Contributing to the Completion of Five Brownfield Rehabilitation and Redevelopment Projects by 2010				
Project ID	Project End point	Project Name	Output	Status
3400	2002	The Wynwood Project – Miami	Completion of rehabilitation and/or redevelopment of current projects underway each year.	All of these projects are at varying states moving toward final completion of both cleanup (if needed) and redevelopment
	2003	Former Palm Beach Lakes Golf Course – West Palm Beach		
	2005	CFC Multifamily Northwest - West Palm Beach		
	2005	DR Lakes, Inc. Parcel II - West Palm Beach		
	2005	Biscayne Commons Site – North Miami Beach		
	2005	DR Lakes Multifamily Northside - West Palm		
	2006	Konover Site - Fort Lauderdale		
	2006	Little Haiti Park Site - Miami		
	2006	Stiegel Gas & Oil Corp – Miami		
	2006	Former Gipson's Service Station – Miami		
	2006	Former JG Shamrock/Supreme Service Station- Miami		
	2006	McArthur Dairy Site – Lauderhill		
	2006	Corinthian Multifamily Apts. - Miami		
	2006	Los Suenos Multifamily Apts. - Miami		
	2007	Liberia Area - Hollywood		
	2007	Gravity Entertainment Site – Lauderdale Lakes		
	2007	DR Palm Beach Hotel Complex - Brownfield Site WPB		
	2007	DR Palm Beach Residential Complex Brownfield Site - WPB		
	2007	Dedicated Transportation - Miami-Dade County		
	2007	Harbour Cove Associates – Hallandale Beach		
2007	Dania Motocross Brownfield Area – Dania Beach			
2007	Wagner Square Project - Miami			
2007	Potamkin Properties – Miami Beach			
2008	Pompano Beach Multi-Purpose Project			
2008	Liberty City Area – Miami			
2008	Mid-Town Miami - Miami			
2009	Beacon Lakes – Miami Dade County			

Miami-Dade County and the cities of West Palm Beach, Opa-Locka, Miami, Miramar, Pompano Beach, Dania Beach, Miami Beach, Lauderdale, Hollywood, North Miami Beach, Hialeah, Lake Worth, Hallandale Beach, Homestead, Deerfield Beach, and Lauderdale Lakes have designated 39 sites and areas, totaling 49,450 acres, under the Florida Brownfields Program. This accounts for 64 percent of the acreage designated in Florida as brownfields. The DEP has delegated the administration and implementation of the Florida Brownfields Program in their respective jurisdictions to Miami-Dade and Broward Counties. This results in streamlining of the review and implementation of assessment and cleanup activities. Miami-Dade and Broward Counties are two of the three counties in the state of Florida to receive this delegation.

Of the approximately 2,100 estimated brownfield sites in the three-county southeast Florida area, some 390 sites have received various levels of environmental assessment review. Approximately 75 sites need no further assessment and will not require remediation. Approximately 30 sites have undergone remediation activities and are either undergoing redevelopment or will shortly undergo redevelopment. The redevelopment activities will create at a minimum 2,000 jobs and 600 very low to moderate income housing units. The South Florida Regional Planning Council and the Eastward Ho! Brownfields Partnership received a \$2.2 million grant from the USEPA to capitalize a Brownfields Cleanup Revolving Loan Fund that is being used to assist in the cleanup and reuse of brownfields sites in southeast Florida. Loans totaling \$1.41 million dollars have been awarded under this program to date to two local businesses to assist in remediation activities.

Objective 3-A.5: Increase community understanding of ecosystem restoration

At the end of the reporting period, the projects contributing to objective 3-A.5 are underway.

Biennial Report Table 19 – Increase Community Understanding

3-A.5 Table reflects June 2006 Status of Projects to Increase Community Understanding of Ecosystem Restoration				
Project ID	Project Endpoint	Project Name	Output	Status
3502	Ongoing	USACE Outreach Program		Underway
3503	Ongoing	SFWMD Outreach Program	Public Meetings, Stakeholders Meetings, Schools and Teacher Education, Job Training, Symposiums, Media Exposure, Groundbreakings, Special Events, Awards and Recognitions	Underway

CERP Outreach and Regional Coordination

The USACE and SFWMD continued to make much progress during this reporting period to raise awareness of south Florida’s public-at-large and minority communities about CERP, and continued some of these efforts at the state or national level. Innovative products, unique delivery methods, and public involvement all helped ensure that CERP was better understood and that the public had opportunities to participate in decision-making. Highlights from the reporting period are summarized below.

General Public Awareness. Many successful outreach efforts took place to raise awareness of and encourage involvement in CERP. The CERP logo – The Journey to Restore America’s Everglades – continued to be incorporated on many CERP materials. An innovative interactive computer kiosk program to bring the CERP message to non-traditional audiences was expanded, with seven kiosks in use by the summer of 2006. The website (www.evergladesplan.org) continued to be an important source of information on CERP for all audiences and was updated regularly. Fact sheets, newspaper inserts, and promotional

items were widely distributed throughout the 16-county south Florida region, and to other areas of Florida and the nation in select cases. In 2005, the first five-year Report to Congress on CERP was completed, with related public information materials on the “first five years” produced. In April 2006, a billboard campaign was launched with a new message: Restoring America’s Everglades for our Future. A pre-recorded nationwide toll-free line (1-877-CERP-USA) was introduced at that time as well.

Minority Community Outreach. Special efforts continued to reach south Florida’s African American, Hispanic, and Haitian American residents with the CERP message. This included participating at community events with a display, materials and team members; developing creative and culturally-sensitive public information products and programs; translating materials to Spanish and Creole; continuing an electronic newsletter (CERP Report) and newspaper insert (Community Outreach in Action); producing television and radio programs; and holding special events (such as for Earth Day) in minority communities. The kiosks were placed in cities with high populations of minority residents, such as Belle Glade, when possible.

Environmental Education. A major environmental education product was introduced this plan period. The “Journey of Wayne Drop to the Everglades” is a story about a water drop that travels through the greater South Florida Ecosystem with his friends and teacher, and they learn valuable lessons along the way. The storybook and companion teacher guide with lesson plans were distributed to fourth grade classes throughout the 16-county south Florida region in the fall of 2005. In 2006, the curriculum materials were placed online for national downloading and use. USACE staff attended state and national science teacher conferences to introduce the curriculum to teachers. The student storybook was translated into Spanish and Creole in 2006. The storybook is also being used to help readers of all ages better understand Florida’s Everglades in a fun, imaginative manner.

The SFWMD, in conjunction with the School Board of Palm Beach County and other partnering bodies, has redeveloped the Newspaper in Education (NIE) curriculum for middle and high school students: “The Everglades: An American Treasure.” This environmental educational material provides a history of the Everglades, educates students on goals of CERP, and discusses current and future plans for restoring the ecosystem. The curriculum includes a student newspaper along with a teacher’s guide that has Florida Comprehensive Assessment Test (FCAT) structured questioning and benchmark reading for 7th and 9th graders. It is distributed to more than 200,000 students throughout the 16-county region of the SFWMD.

As a complement to the NIE, the SFWMD also offers an Everglades Teacher Workshop where teachers are provided hands-on training on how to teach their students about the Everglades using our curriculum. The SFWMD offers one workshop per region on an annual basis where more than 100 teachers participate in these sessions.

The SFWMD has also purchased five CERP kiosks that will be strategically placed within the District’s region to further showcase the goals, objectives, and progress on CERP.

Small Business Outreach. Many efforts were made to reach south Florida’s small and minority-owned businesses with information on how to participate in CERP. This included holding workshops, distributing printed materials, updating materials, participating in small business related conferences and fairs, and other efforts to ensure small business owners and representatives understand the separate federal and state contracting processes.

As part of CERP’s mission to reach out to socially and economically disadvantaged communities, the SFWMD has partnered with Palm Beach Community College, SW Education Center, and other local bodies to develop and implement a workforce development program. Residents and contractors in areas

where CERP projects will be built are being trained in skills such as masonry, carpentry, plumbing and rigging, and construction site safety to carry out future Acceler8 construction projects. Ultimately, this effort will assist firms in being better technically positioned to participate in contracts at the prime and subcontract levels. In May 2006, 17 students from Belle Glade, Florida, graduated from this training, making them the first class trained to work on Everglades restoration. Graduates received an Acceler8 certificate Occupational Safety and Health Administration (OSHA) [10 certification, employability skills, small tool identification, site orientation, blue print reading, etc.] along with a uniform, hard hat, tools, and other accessories required for the trade.

In addition to the jobs training, several symposiums have been offered to local communities to increase their awareness, provide skill assessments, and promote workforce training. To date, the SFWMD has held five symposiums in Hendry County, LaBelle, Belle Glade, Okeechobee, and Martin County along with face-to-face meetings with more than 450 individuals/businesses for potential partnership and participation in this workforce effort. (SFWMD edit)

Project-Level Involvement. Many public meetings and workshops were held to inform and include the public in the planning of CERP projects. 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, all meeting documents were posted online. Comments were taken online, in addition to those taken in person at the meetings and workshops. Fact sheets were developed for individual CERP projects, with some translated into Spanish.

Since the launching of the Acceler8 initiative in 2004, the SFWMD has held numerous public workshops to encourage the exchange of ideas and information from stakeholders and the general public on the design phases of specific projects. Since 2004, four Construction Symposiums and 13 WRAC Issues Workshops/Public Meetings have been held. These meetings and workshops are held in locations in close proximity to the projects in order to offer greater public and stakeholder attendance and participation. As the Acceler8 projects move from design into construction, the SFWMD has invited the public to participate in groundbreaking ceremonies to share the accomplishments of 'turning dirt' on these projects. To date, 12 groundbreakings have been held for Acceler8 projects. (SFWMD edit)

(SFWMD edit)*Economic Benefits.* The Acceler8 initiative has provided the south Florida economy with new job opportunities on various projects. Below is a breakdown on the progress to date:

- C-43 Test Cells (Hendry County region)
 - 33 local businesses
 - \$3,000,000 in expenditures to date (29.3%)
 - 55 new jobs
- C-44 Test Cells (Martin/St. Lucie County region)
 - 42 local businesses
 - \$4,800,000 in expenditures to date (53.5%)
 - 20 new jobs
- Compartment B -- STA-2, Cell 4
 - 19 local businesses
 - \$700,000 in expenditures to date (21.6%)
 - 19 new jobs
- Over 3,000 local businesses in database
- Local business participation – provides variety of services
 - Excavating
 - Construction materials

- Heavy Equipment Rental
- Food services

Honors and Recognition. The SFWMD's Department of Public Information efforts were recognized recently when they received nine awards from the National Association of Government Communicators. These Blue Pencil/Gold Screen Awards underscore the high standards of professionalism in public service. The SFWMD also received eight awards from the 2006 Communicator Print Media Awards, an international awards competition based in Arlington, Texas, that recognizes outstanding work in the communication field.

The Museum of Discovery and Science and the Task Force Collaboration Committee

The Museum of Discovery and Science continued to serve as the interpretive site for Everglades restoration by educating south Florida's residents and visitors about the quality, quantity, timing, and distribution of water in the Everglades. During the reporting period, the *Florida Ecoscapes* exhibit was visited by over 450,000 visitors including 95,000 school children. Museum programming focused on a unique combination of engaging hands-on demonstrations, labs, and live animal encounters. These presentations were delivered at the Museum and in the community. By visiting community centers, churches, schools, fairs, and festivals the Museum staff served over 10,000 individuals in underserved communities in south Florida. Additional Everglades programming was delivered during the Museum's camp-ins, day camps, summer camps, and via school, public, and BECON television programs. The Museum brought nearly 2,000 *Water Matters* public programs to over 60,000 visitors, thanks to DEP funding. Generous support from the Division of Forestry provided 10 at-risk high school students with job experience and the opportunity to learn and teach the public about the importance of trees. The Waste and Recycling Department increased visibility for its recycling exhibit through new signage, and the *Florida Ecoscapes* exhibit was freshened with updated graphic panels as a result of a SFWMD grant. The SFWMD also supported the razing of an old Museum structure to help clear the way for the Museum's building expansion. Outside foundation support assisted the Museum's collaborative initiative with the South Florida National Parks Trust and Florida Aquarium (Tampa) on a model outreach program that trains public school teachers how to bring Everglades education into the classroom. The USACE supported the public education component of this initiative through the generous loan of an informational kiosk.

Everglades Radio Network

The Everglades Radio Network (ERN) was launched on February 23, 2004. The ERN is a low-power, 24/7 FM transmission along Alligator Alley that informs travelers about the South Florida Ecosystem and the progress toward restoration. It is broadcast from WGPU located on the campus of the Florida Gulf Coast University in Fort Myers.

Signage is now in place inviting drivers on I-75 from Naples to Fort Lauderdale (Alligator Alley) to tune in to ERN on 98.7 WFLP-LP and FM 107.9 WFLU-LP. The radio programs cover the history, heritage, natural beauty, and environmental challenges facing the Everglades, and the wildlife that live there. The ERN can also be accessed via the internet at www.evergladesradionetwork.org.

OBJECTIVE 3-B.1: MAINTAIN OR IMPROVE EXISTING LEVELS OF FLOOD PROTECTION

At the end of the reporting period, one project contributing to objective 3-B.1 is ongoing and one is underway.

Biennial Report Table 20 – Flood Protection

3-B.1 Table reflects June 2006 Status of Projects to
Maintain or Improve Existing Levels of Flood Protection

Project ID	Project Endpoint	Project Name	Output	Status
3600	2007	C-4 Flood Mitigation Projects	Flood protection at 1 in 10-year level	Ongoing
1300	2010	C&SF: Canal C-111	Flood protection at 1 in 10-year level	Underway

C-4 Basin Flood Mitigation Project (06 UPDATE SFWMD)

The project was under construction during the reporting period and is scheduled to be completed in March 2007. The C-4 Emergency Detention Basin Phase 1 is completed and operational. The C-4 Emergency Detention Phase 2 is completed and operational. Phase 3 involves the selective dredging of the C-4 to improve conveyance capacity at SW 137th Avenue and the Florida Turnpike. This project is in the solicitation process and the contract is expected to be awarded in July 2006. The construction period for this contract is six months.

Objective 3-C.1: Plan for regional water supply needs⁷

At the end of reporting period updates of the four regional water supply plans within the South Florida Ecosystem that contribute to objective 3-C.1 were all underway and nearing completion.

Biennial Report Table 21 – Regional Water Supply

3-C.1 Table reflects June 2006 Status of Regional Water Supply Plans				
Project ID	Project Endpoint	Project Name	Output (plans)	Status
3704	2007	Regional Water Supply Plans	Plan	Underway

Regional Water Supply Plans

(Project Sheet) Updates of the Upper East Coast, Kissimmee Basin, Lower East Coast, and Lower West Coast Water Supply plans are scheduled for completion in July 2006. The updated plans will reflect the Water Resource Protection and Sustainability Program, created by Senate Bills 444 and 332 and enacted in the 2005 state legislative session. The Water Resource Protection and Sustainability Program requires a higher level of water supply planning and coordination between the water management districts and local governments and ensures that permitted water supply and potable water facilities are available before new development is approved.

The legal authority and requirements for water supply planning are included in Chapters 373, 403, and 187 of the Florida Statutes. During the State of Florida’s 2005 legislative session, lawmakers revised state water law. Several growth management-related bills were signed into state law and the Water Resource Protection and Sustainability Program was created. This program is intended to reduce competition between users and natural systems for available water by encouraging the development of Alternative Water Supply (AWS).

⁷ The legal authority and requirements for water supply planning are included in Chapters 373,403, and 187 Florida Statutes. During the State of Florida’s 2005 legislative session, lawmakers revised state water law. This has led to the SFWMD reporting increased water supply in objective 3-C.2 in the alternative water supply program and deleting the Objective 3-C.1 as a measurable output of increased water. The regional water supply plans are still being done but the increased supply is being funded through the Alternative Water supply program.

The new statutory provision strengthens the link between regional water supply plans and the potable water provisions contained within each local government’s comprehensive plan. The program is intended to ensure permitted water supply and potable water facilities are available for new development in a timely manner. All local governments within the regional planning areas are now required to prepare 10-year Water Supply Facility Work Plans and adopt revisions to their comprehensive plans within 18 months following the approval of the regional water supply plan updates.

The Water Resource Protection and Sustainability Program provides annual state revenues and matching SFWMD funds to support AWS development, such as construction of desalination, reclaimed water and new storage facilities. This combination of state and SFWMD funds are specifically for cost-sharing AWS project construction costs. The program also adds permitting incentives for water providers selecting projects recommended by the water supply plans.

Objective 3-C.2: Increase volumes of reuse on a regional basis

Biennial Report Table 21 – Water Reuse

3-C.2 Table reflects June 2006 Status of Projects to Increase the Volumes of Reuse on a Regional Basis				
Project ID	Project Endpoint	Project Name	Output (mgd)	Status
3800	2025	C&SF: CERP – South Miami-Dade County Reuse (CERP Project # WBS 98)	131	
3801	2025	C&SF:CERP – West Miami-Dade County Reuse (CERP Project # WBS 97)	100	

Wastewater Reuse Technology Pilot

The Technology Pilot project has been on hold since 2004. The PMP was approved in November 2003. As part of initial efforts during the PIR, the site-selection process narrowed the number of potential sites to receive discharge from eight to four. The scope of this project was changed to include two main efforts.

The first is the preparation of a Technology Report to evaluate various treatment alternatives, the performance of these alternatives in obtaining the desired water quality to be discharged to a pristine environment, and the capital and operating costs associated with these technologies for full-scale implementation. This Technology Report has been completed. The second is the monitoring and evaluation of the presence of emergent pollutants of concern in the existing wastewater treatment facility in south Miami-Dade County. Presently, there are ongoing coordination efforts between Miami-Dade County Water and Sewer Department, DEP, and the SFWMD to restart the Technology Pilot project in the near future.

Objective 3-C.3: Increase water made available through the SFWMD Alternative Water Supply Development Program

At the end of the reporting period, the project contributing to objective 3-C.3 was underway and ongoing.

Biennial Report Table 22 – Alternative Water Supplies

3-C.3 Table reflects June 2006 Status of Project to Increase Water Made Available through the SFWMD Alternative Water Supply Program				
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Project ID	Project Endpoint	Project Name	Output (mgd)	Status
3900	Ongoing	Alternative Water Supply Grant Program	172	Ongoing

Alternative Water Supply Grant Program

The Alternative Water Supply Development Program awards grants to local water providers to develop additional water supply through alternative technologies.

The DEP continued to work with the water management districts, public water suppliers, and other public interests to implement the recommendations of the 2002 State Water Conservation Initiative Report, now called Conserve Florida. The legislature affirmed this effort in the 2004 legislative session with the passage of HB 293. Several key products have been developed through the effort: establishment of standards and procedure, a web based program development software for utilities, and a clearing house for data sharing on successful water conservation projects and programs.

The annual targets and the actual alternative water supplies for each region are listed in Biennial Report Table 22. The 2005 achievements were lower than the annual water targets by 35.61 million gallons per day (mgd). The 2005 targets were based on the 2004 achievements of 34 funded projects. The Alternative Water Supply Funding Selection Committee recommended that 28 projects receive funding for fiscal year 2005. In fiscal year 2005 the SFWMD contributed \$6.0 million to 28 water supply projects as part of the Alternative Water Supply Funding Program.

Biennial Report Table 23 – SFWMD Alternative Water Supply Program Achievements, 2004

Region	2005 Targets (mgd)	2005 Achievements (mgd)
Lower East Coast	55.11	39.19
Lower West Coast	30.59	11.24
Upper East Coast	8.33	5.02
Kissimmee Basin	7.70	10.67
TOTALS	101.73	66.12

MEASURING PROGRESS TOWARD RESTORATION

The appropriate Task Force agencies are tracking progress toward the restoration of the South Florida Ecosystem by developing and monitoring specific indicators of ecosystem health. Over the past three reporting periods a great deal of modeling and analyses has created new information that has been used to revise the initial set of indicators and to identify more accurate restoration endpoints that will aide in measuring restoration success.

In compliance with the Programmatic Regulations discussed in this *Biennial Report*, RECOVER is vetting indicators to be used to assess restoration progress and to adaptively manage the CERP portion of the restoration effort over time. Additional scientific and technical information about issues and efforts outside of CERP is being developed and refined by federal, state, and local agencies, including the FWS, which has developed and is implementing the *Multi-Species Recovery Plan*. The Task Force has also developed, in coordination with RECOVER, a suite of System-wide Indicators to provide the Task Force with a “top-of-the-mountain” perspective to help assess restoration success. Because this is being done in coordination with RECOVER, both the Task Force and RECOVER will continue to provide input and guidance on the refinement an use of the Task Force System-wide Indicators to ensure correspondence among the sets of indicators. (SCG edit) The Task Force will also report on some of the indicators identified through these efforts. Thus, although there has been and likely will continue to be a strong correlation between the indicators tracked in the reports of the Task Force and the reports of RECOVER, they will not necessarily be identical.

As noted in the *Strategy*, the Task Force has charged the SCG with recommending a comprehensive set of system-wide indicators and restoration endpoints that the Task Force will report on in the future. The SCG began this process by designing an open process that provided ample opportunity for peer review and public input in the selection of a comprehensive set of system-wide indicators.

Indicators are a prerequisite to a series of tasks to accurately predict progress toward restoration. These tasks include: identifying what will be tracked (indicators), the baseline for those indicators, what the indicators will look like when restoration is successful (restoration endpoints), and a system-wide monitoring plan. The baseline will define the condition of the indicators prior to restoration efforts as a basis for determining whether changes that are measured are due to the natural variability of the indicator or due to real change that may be linked to restoration or other changes in the environment. Finally a process will be implemented to synthesize and report on interim progress on a periodic (annual/biennial) basis that includes a period of public input and peer review.

The 13 strategic System-wide Indicators, are listed in Biennial Report Table 23 and described in more detail in the *Strategy*. Ten of these are ecological indicators that assess the biologic and ecologic features of the ecosystem in response to environmental improvements and benefits provided by restoration. [\(See Miccosukee Tribe comment 19\)](#)

Biennial Report Table 24 – Task Force System-wide Indicators for 2006	
<u>Ecological Indicators</u>	
•	Fish and Macroinvertebrates
•	Wading Birds (White Ibis, Wood Stork, and Roseate Spoonbill)
•	Florida Bay Submerged Aquatic Vegetation
•	Florida Bay Algal Blooms
•	Crocodylians (American Alligators and Crocodiles)
•	American Oysters
•	Periphyton and Epiphyton
•	Juvenile Pink Shrimp
•	Lake Okeechobee Littoral Zone
•	Invasive Exotic Species
<u>Compatibility Indicators</u>	
•	Water Volume
•	Biscayne Aquifer Saltwater Intrusion
•	Flood Protection – C-111 Basin

Three compatibility indicators relate to the built system and projects that receive some benefits from restoration, such as flood protection, and assess the compatibility of these benefits with the natural system.

Work of the SCG will continue over the next reporting period to refine the System-wide Indicators and how they will be assessed based on input from peer review. Some of the areas of work will include possible refinements of the current list based on detailed comments from independent scientific review (ISR) of the first indicator report and will also consider the addition of other indicators identified as gaps in the system-wide suite (mercury, cattails, contaminants, and exotic animals). ([See Miccosukee Tribe comment 20](#)) Additional suggestions by the ISR include the development of an Integrated Index of Ecological Health or Integrity, establishment of a Bureau of Ecological Information for Restoration, and statistical testing of data correlations among the indicators to determine if the indicators are integrative of ecological conditions.

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APPENDICES

REMOVED FOR INSERTION LATER

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