

**SOUTH FLORIDA ECOSYSTEM RESTORATION
TASK FORCE**

**Draft Report
August 12, 2002
Working Group**

**COORDINATING SUCCESS:
Strategy for Restoration of the South Florida Ecosystem
and
TRACKING SUCCESS:
Biennial Report for FY 2001-2002**

This document describes a coordination strategy consistent with the authorities Congress gave to the South Florida Ecosystem Restoration Task Force. It combines information from federal, state, tribal, and local agencies and therefore does not strictly follow any single agency's format.

SOUTH FLORIDA ECOSYSTEM RESTORATION TASK FORCE MEMBERS*

Clarence Anthony
Mayor, City of South Bay

Les Brownlee
Under Secretary of the Army and Acting
Assistant Secretary of the Army (Civil
Works)

Henry Dean
Executive Director, South Florida Water
Management District

Jose L. Diaz
Mayor, City of Sweetwater, State of Florida
Representative

Andrew Emrich
Environment and Natural Resources, U. S.
Department of Justice

Thomas J. Gibson
U.S. Environmental Protection Agency

Mack Gray
U. S. Department of Agriculture

*Ann Klee***
U.S. Department of the Interior

Linda Lawson
U.S. Department of Transportation

Dexter Lehtinen
Special Assistant for Everglades Issues to
the Miccosukee Tribe of Indians of Florida

Jim Shore
General Counsel to the Seminole Tribe of
Florida

*David B. Struhs****
Secretary, Florida Department of
Environmental Protection

Denver Stutler, Jr., Chief of Staff
State of Florida, Executive Office of the
Governor

Conrad C. Lautenbacher, Jr.,
Under Secretary of Commerce for Oceans
and Atmosphere
National Oceanic and Atmospheric
Administration

Advisors:

Michael Collins, Chair
Water Resources Advisory Commission

Terrence "Rock" Salt
Executive Director, South Florida Ecosystem
Restoration Task Force

*As of July 2002

**Chair

***Vice-Chair

The South Florida Ecosystem Restoration Task Force was established by section 528(f) of public law 104-303, Water Resources Development Act of 1996. The task force, its Florida-based working group and all the subgroups are charged with coordinating the development of consistent policies, plans, strategies, programs, and priorities for addressing the restoration, preservation, and protection of the south Florida ecosystem.

TASK FORCE WORKING GROUP MEMBERS*

Ernest (Ernie) Barnett
Florida Department of
Environmental Protection

G. Ronnie Best
U.S. Geological Survey

Bradford E. (Brad) Brown
National Marine Fisheries
Service

Billy D. Causey
Florida Keys National
Marine Sanctuary

Kurt Chandler
Bureau of Indian Affairs

Kathy Copeland
South Florida Water
Management District

Wayne E. Daltry
Lee County

*Truman Eugene (Gene)
Duncan*
Miccosukee Tribe of
Indians of Florida

Maureen Finnerty
Everglades National Park

Roman Gastesi, Jr.
Office of the Miami-Dade
County Manager

George Hadley
Federal Highway
Administration

Thaddeus Hamilton
U.S. Department of
Agriculture

Richard Harvey
U.S. Environmental
Protection Agency

Barbara Junge
U.S. Attorney's Office

*Col. James G. May***
U.S. Army Corps of
Engineers

Peter B. Ortner
National Oceanic and
Atmospheric
Administration

Donna Pope
Florida Department of
Transportation

Fred Rapach
Palm Beach County Water
Utilities Department

Terry Rice
Miccosukee Tribe of
Indians of Florida

W. Ray Scott
Florida Department of
Agriculture and Consumer
Services

Jay Slack
U.S. Fish and Wildlife
Service

*Richard (Rick) Smith****
State of Florida, Executive
Office of the Governor

Ron Smola
U.S. Department of
Agriculture

Steve Somerville
Broward County
Department of Planning
and Environmental
Protection

Craig D. Tepper
Seminole Tribe of Florida

*Henry E. "Sonny"
Timmerman*
Florida Department of
Community Affairs

Kenneth S. Todd
Palm Beach County Water
Resources

Joseph T. Walsh
Florida Fish and Wildlife
Conservation Commission

Advisors:

Julio Fanjul
Water Resources Advisory
Commission

Ronald D. Jones
Florida International
University

Terrence "Rock" Salt
South Florida Ecosystem
Restoration Task Force

*As of April 2002

**Chair

***Vice-Chair

Preamble

Significant progress has been made in developing plans and initiating action to restore the quality of the Everglades, and the entire South Florida ecosystem, one of America's most unique natural areas. This revised strategy and biennial report 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, an intergovernmental group created by the Congress in 1996 to coordinate the restoration effort.

The revised strategy updates the strategy submitted by the Task Force in July 2000 and addresses comments published by the General Accounting Office in March 2001. The 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 the many governmental entities in order 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.

The overall premise of restoration is that the ecosystem must be managed with a systemwide perspective. Rather than dealing with issues independently, the challenge is to seek out the interrelationships and mutual dependencies 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 overriding challenge is not to decide who gets the water, but rather, how to fulfill all the water needs by ensuring that what is built can be adequately supported within the parameters of a healthy natural system. Similarly, natural resource areas must be used 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.

The success of this comprehensive approach to a geographically large and complex ecosystem will depend upon the coordination and integration of many distinct activities carried out by various agencies at all levels of government, and with the input of all the many stakeholders. 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 goals and objectives for achieving that vision, to coordinate individual member projects so that they may be most timely and effective, to track and assess progress through indicators of success, and to facilitate the resolution of issues and conflicts whenever they arise. The goals and objectives presented in this strategy represent the combined contributions of hundreds of individual restoration projects underway or planned by the Task Force members. The indicators of success described in the strategy reflect the expected performance, in terms of ecosystem health, from all the projects when viewed collectively.

This strategy is not synonymous with the *Comprehensive Everglades Restoration Plan (CERP)*,. Rather CERP is the single largest program in the strategy. Approved by the Congress in 2000. The CERP is not a finished plan, but a framework for modifying Corps of Engineers water projects in Florida to restore, preserve, and protect the South Florida ecosystem while providing for other water-related needs of the region, including water supply and flood protection. The congressional authorizing legislation for the CERP requires a number of implementing documents, including programmatic regulations that provide for developing a suite of interim goals to assess the performance of that plan. The proposed regulations have been provided for public comment and are scheduled to be completed by the end of the year. The interim goals that will be developed pursuant to those regulations will focus on CERP performance. These will be an important subset of the performance objectives and indicators of success of described in the Task Force strategy.

It is important to note the significant contributions from other programs toward achievement of the Task Force's three strategic goals. While the CERP is vital to accomplishing all goals there are, many other restoration projects that are important in achieving restoration. For Goal 1, Get the Water Right, some of the non-CERP projects include Kissimmee Restoration, Modified Water Delivery, Canal-111, and Everglades Construction projects that are also critical to achieving goal 1. For goal 2, Restore, Preserve and Protect Natural Habitats and Species, the state's Conservation and Recreational Land (CARL) and Save Our Rivers (SOR) programs are the

lynchpin of the effort to acquire important habitat lands. For goal 3, Foster Compatibility of the Built and Natural Systems, state and local governments are now developing ways to coordinate 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 Communities Trust, Recreational Development and Assistance, and Greenways and Trails programs increase the spatial extent of open space and multiply benefits of the open space through linkages of park, recreation, 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.

Restoring the Everglades is clearly a 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 all stakeholders in the unique conservation effort, Task Force members can ensure that all interests are protected as each member works to fulfill their individual responsibilities to local residents and the nation at large.

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GLOSSARY

Terms

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.

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

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.

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. In this document the term refers to the quantity, timing, and distribution of water in the ecosystem.

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

Outcome: An end result. For purposes of this report, a quality of the restored South Florida ecosystem.

Output: Levels of work and effort. For purposes of this report, the products, activities, or services produced by a project or program.

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

Restoration: For purposes of this report, 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.

South Florida ecosystem / Greater Everglades 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

Working group meeting, Jacksonville

shrinkage is due to desiccation, consolidation, and biological oxidation.

Success indicator: A subset of performance measures selected as a good representation of overall performance.

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 A 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	MSRP	<i>Multi-Species Recovery Plan</i>
BMP	Best management practice	NEWTT	Noxious Exotic Weed Task Team
C&SF	Central and Southern Florida Project	PPB	Parts per billion
CARL	Conservation and Recreational Lands	RECOVER	Restoration Coordination and Verification Team
CERP	<i>Comprehensive Everglades Restoration Plan</i>	SFWMD	South Florida Water Management District
EAA	Everglades Agricultural Area	SOR	Save Our Rivers
EPA	U.S. Environmental Protection Agency	SWIM	Surface Water Improvement and Management
FDEP	Florida Department of Environmental Protection	STA	Stormwater treatment area
FWS	U.S. Fish and Wildlife Service	TMDL	Total maximum daily load
GAO	U.S. General Accounting Office	USACE	U.S. Army Corps of Engineers
MERIT	Multi-Species/Ecosystem Recovery Implementation Team	WCA	Water conservation area
		WRDA	Water Resources Development Act

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COORDINATING SUCCESS:
STRATEGY FOR THE RESTORATION OF THE SOUTH FLORIDA ECOSYSTEM

EXECUTIVE SUMMARY

Introduction

The South Florida ecosystem is an 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. This ecosystem not only supports the economy and the quality of life of the Floridians and the Native American Indians who live there, but also enriches the legacy of all Americans. It encompasses many significant conservation areas, including Everglades, Biscayne, and Dry Tortugas National Parks, Big Cypress National Preserve, the Fakahatchee Strand, the Arthur R. Marshall Loxahatchee National Wildlife Refuge, Loxahatchee National Wild & Scenic River, John Pennekamp State Park, and the Florida Keys National Marine Sanctuary.

This ecosystem, which is sustained by water, has been seriously degraded by disruptions to the natural hydrology. Engineered flood-control and water-distribution systems for agriculture and urban development have dewatered large areas and greatly altered the quantity, quality, timing, and distribution of water flows in other locations. Agricultural runoff and urban stormwater have introduced phosphorus and other contaminants into the water systems, polluting lakes, rivers, and wetlands. Discharges of stormwater into estuaries and coastal waters have severely degraded aquatic habitats. Groundwater is threatened by saltwater intrusion and other pollutants. These and other impacts have stressed the natural system, as evidenced by

- Fifty percent reduction in the original extent of the Everglades
- Ninety percent reduction in wading bird populations
- Sixty-nine species on the federal endangered or threatened list
- Declines in commercial fisheries in Biscayne and Florida Bays
- Thirty-seven percent loss of living corals at forty sites in the Florida Keys National Marine Sanctuary from 1996 to 2000

Purpose

The purpose of this document is to describe the existing federal and nonfederal programs designed to restore and sustain the imperiled South Florida ecosystem. Many federal, state, tribal, and local entities are working to address the ecological conditions in South Florida. The South Florida Ecosystem Restoration Task Force (the Task Force) coordinates and tracks the work. In 1996 Congress directed the Task Force to produce a restoration strategy. Additional reporting requirements include a biennial report on accomplishments, and a total cost report. This document fulfills all three of these requirements.

This document is for planning purposes only, is subject to modification, and is not legally binding on any of the Task Force members. Each Task Force entity retains all of its sovereign rights, authorities, and jurisdiction for implementation of the projects contained within this document.

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 are participating 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. Pursuant to its statutory duties, a Task Force working group of agency and tribal representatives (the working group) works to resolve conflicts among participants, coordinate research, assist participants, prepare an integrated financial plan, and report to Congress.

The Task Force does not have any oversight or project authority, and participating agencies are responsible for meeting their own targeted accomplishments. The Task Force's role as a forum in which ideas are shared and consensus is sought enhances the productivity of each member government or agency effort.

Restoration Strategy

Guiding Principles

The following principles will guide all aspects of ecosystem restoration and management:

- The ecosystem must be managed as a whole.
- The natural and built environments are inextricably linked in the ecosystem.
- Expectations should be reasonable.
- Decisions must be based on sound science.
- Environmental justice and economic equity need to be integrated into restoration efforts.
- Restoration efforts must meet applicable federal Indian trust responsibilities.

Coordination of the Restoration Effort

The Task Force provides a forum for consensus building and issue engagement among the entities involved in restoring the South Florida ecosystem. This 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. The Task Force has no overriding authority to direct its members. Instead, the members are accountable individually to their appropriate authorities and to each other for the success of the restoration.

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

Focus on Goals

This document establishes specific goals and measures that define 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 goals, be consistent with all the guiding principles, be timely, and support rather than duplicate other efforts. This document includes a master list of restoration projects and includes information about goals and objectives, start and finish dates, lead agencies, and funding.

Track and Assess Progress

The Task Force will facilitate the implementation of the individual entities' adaptive management processes to track and assess progress. The ability to anticipate problems early helps to minimize their effect on the total restoration effort. Because each participating agency is responsible for its particular programs, projects, and funding, adaptive management decisions are made by the entities involved.

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 Task Force will facilitate the prevention and resolution of conflict to the extent possible by clarifying the issue(s), identifying stakeholder concerns, obtaining and analyzing relevant information, and identifying possible solutions.

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

Vision and Goals

The participants in the Task Force share the vision of a restored South Florida ecosystem that supports diverse and sustainable communities of plants, animals, and people. To this end, hundreds of different entities have been working for over a decade 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. The past, current, and future

efforts of governmental entities in South Florida involve more than 200 projects related to three primary work goals. Subgoals and objectives have been established for each of these work goals, as follows:

GOAL 1: GET THE WATER RIGHT

Subgoal 1-A: Get the hydrology right

Objective 1-A.1: Provide 1.6 million acre-feet of surface water storage by 2036

Objective 1-A.2: Develop aquifer storage and recovery systems capable of storing 1.6 billion gallons per day by 2020

Objective 1-A.3: Modify 331 miles of impediments to flow by 2019

Subgoal 1-B: Get the water quality right

Objective 1-B.1: Construct 70,000 acres of stormwater treatment areas by 2036

Objective 1-B.2: Prepare plans, with strategies and schedules for implementation, to comply with total maximum daily loads for 100 percent of impaired water bodies by 2011

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 5.6 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: Prepare management plans for the top twenty South Florida invasive exotic plant species by 2010

Objective 2-B.2: Achieve maintenance control status for Brazilian pepper, melaleuca, Australian pine, and Old World climbing fern in all natural areas statewide by 2020

Objective 2-B.3: Complete an invasive exotic plant prevention, early detection, and eradication plan by 2005

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 an additional 60,000 acres as part of the Florida Greenways and Trails System between 2000 and 2005

Objective 3-A.2: Maintain annual increases in the acreage of agricultural lands participating in the voluntary USDA Wetland Reserve Program and other USDA conservation programs

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: Increase the regional water supply by 356 million gallons per day by 2005

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

- Objective 3-C.3: Achieve annual targets for water made available through the SFWMD Alternative Water Supply Development Program through 2020

The Task Force members believe that the efforts described in this report, managed through an adaptive management process, will achieve the restoration of the ecosystem: The region's rich and varied habitats – Biscayne Bay; Lake Okeechobee; 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. Sportsmen, farmers, 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.

The appropriate agencies will track progress toward restoring the ecosystem through approximately 200 indicators of success. These indicators, which range from the number of acres of periphyton in Everglades marshes to the frequency of water supply restrictions in urban and agricultural areas, represent the myriad physical, biological, and human elements that are all interrelated as parts of the ecosystem and are all important to ecosystem health. Many of these represent end results that may take up to fifty years to realize. Interim targets, which measure earlier indications of successional change, will allow assessment of incremental progress throughout the restoration.

The following indicators are a small representative subset of that much larger set of measures. They have been selected for inclusion in this iteration of the Task Force's strategy document and in the 1999-2001 biennial report to Congress, the Florida Legislature, and the councils of the Miccosukee and Seminole Tribes because they are currently believed to be among the most indicative of natural system functioning throughout the region as a whole and among the most understandable and meaningful to the American people and the residents of South Florida. These preliminary indicators may be refined as more information becomes available.

With the exception of the indicator for threatened and endangered species, which came from the U.S. Fish and Wildlife Service, the following indicators are from the 1999 *Baseline Report for the Comprehensive Everglades Restoration Plan*, prepared by the Restoration Coordination and Verification Team (RECOVER). The Task Force agencies that are tracking indicators of success provide data to the Task Force, which synthesizes the information for its reports. The current status of the following indicators is described in the biennial report that follows this strategy document.

- Improved status for fourteen federally listed threatened or endangered species, and no declines in status for those additional species listed by the state, by 2020
- An annual average of 10,000 nesting pairs of great egrets, 15,000 pairs of snowy egrets and tricolored herons combined, 25,000 pairs of white ibis, and 5,000 pairs of wood storks
- Urban and agricultural water supply needs met in all years up to and including those years with droughts with a one-in-ten-year return frequency
- At least 40,000 acres of total submerged vegetation, including benthic macro-algae, around the shoreline of Lake Okeechobee on an ongoing basis
- Approximately 900 acres of healthy oyster beds in the St. Lucie Estuary
- A nesting population of roseate spoonbills of at least 1,000 pairs annually distributed throughout Florida Bay, and some level of nesting by spoonbills in the coastal zone of the southwestern gulf coast
- No further degradation of tree islands, and recovery of as much as possible of the number and acreage of islands present in WCA-2 and WCA-3 in 1940.
- A 65-70 percent coverage of Florida Bay with high-quality seagrass beds
- A long-term commercial harvest of pink shrimp on the Dry Tortugas fishing grounds that equals or exceeds the 600 pounds per vessel-day that occurred during the seasons 1961-62 to 1982-83; and an amount of large shrimp in the long-term average catch exceeding 500 pounds per vessel

Overview of Major Programs and Costs

The best estimate for the total cost to restore the South Florida ecosystem is \$14.8 billion. Of the total restoration cost, \$7.8 billion (1999 dollars) represents the cost of implementing the *Comprehensive Everglades Restoration Plan (CERP)*, which will be shared equally by the federal government and the state. The CERP outlines sixty-eight components that will take more than 30 years to construct. Because ongoing congressional authorization is required for the proposed projects included in the CERP, and because individual projects must undergo additional site-specific studies and analyses, the overall cost to implement this significant component of the restoration effort could be lower or higher, depending upon future analyses and site-specific studies.

The CERP builds on other plans and projects that were authorized by Congress or the Florida Legislature prior to and independent of the CERP. Taken together, these programs and projects represent an additional \$7 billion investment, of which \$2.55 billion are federal costs and \$4.48 billion are state costs.

The project schedules and the projections of outputs included in this report span multiple decades and depend on certain planning assumptions about state and federal budget requests and funding levels, optimized construction schedules, willing sellers, and other contingencies. These assumptions are likely to change as the project progresses, and appropriate revisions to this document will be necessary. Therefore, this document does not represent a commitment by the federal, state, or local governments or the tribes to seek appropriations for specific projects and activities at the funding levels laid out in this document.

REPORT PURPOSE AND BACKGROUND

Purpose

The purpose of this document is to describe the existing federal and nonfederal programs designed 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 Fakahatchee Strand, the Arthur R. Marshall Loxahatchee National Wildlife Refuge, John Pennekamp State Park, 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 South Florida Ecosystem Restoration Task Force (the Task Force) tracks and facilitates the coordination of the work. In 1996 Congress directed the Task Force to produce a restoration strategy. Additional reporting requirements include a biennial report on accomplishments and a total cost report. This document fulfills all three of these requirements.

Congress identified four elements to be included in the Task Force's restoration strategy. They wanted it to outline how the restoration effort will occur, identify the resources needed, establish responsibility for accomplishing actions, and link the strategic goals established by the participants to outcome-oriented goals. This document describes how the restoration effort is being coordinated: The Task Force members have agreed upon a vision for the results to be achieved; they have established three broad 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 goals and the results-oriented vision. This strategy, along with the vision, goals, objectives, performance measures, and individual project data (including cost, responsible agency, and targeted completion dates) are all included in this document.

This document is for planning purposes only, is subject to modification, 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 contained within this document.

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, see appendix A).

The act expanded the role of the Task Force to include the following duties:

- 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 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.

Pursuant to its statutory duties, a Task Force working group of agency and tribal representatives (the working group) works to resolve conflicts among participants, coordinate research, assist participants, prepare an integrated financial plan, and report to Congress.

The Task Force does not have any oversight or project authority, and participating agencies are responsible for meeting their own targeted 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 included in appendix B.)

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 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 Everglades led to the creation of Everglades National Park. 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.

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 for

generations. The legislation establishing Everglades National Park specifically clarified the rights of the Miccosukee Tribe to live in the park, and set aside land along the border for the tribe 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 & Southern Florida (C&SF) Project, 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 Everglades National Park. 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 Greater Everglades ecosystem has been the subject of much study. Many projects have been undertaken to restore natural water flows to this region. The original C&SF Project water supply component for Everglades National Park was based on the understanding at the time. Subsequent research has indicated the importance of hydroperiods to the health of natural systems as opposed to a conventional water supply delivery.

Whereas historically most rainwater flowed slowly across the extremely flat landscape, soaking into the region's wetlands and forming the "River of Grass" that was the Everglades, the C&SF canal system, comprised of over 1,800 miles of canals and levees and 200 water control structures, drained an average of 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. Water quality also was degraded. Phosphorus runoff from agriculture and other sources polluted much of the northern Everglades and Lake Okeechobee and caused key 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. For example, in 1972 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, Big Cypress Swamp, Everglades National Park, 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 Miccosukee Tribe of Indians customary use and occupancy rights in the Preserve. In 1989 Congress passed the Everglades Expansion and Protection Act, which added 107,600 acres to Everglades National Park and called for increased and improved water flows to the park.

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 heightened phosphorus pollution of the Everglades. Of particular alarm 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 Everglades National Park and the Arthur R. Marshall Loxahatchee National Wildlife Refuge by creating artificial wetlands to filter agricultural wastewater. In 1993 the sugar cane industry agreed to adopt best management practices 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 final numeric water quality standards. In 1994 the agreements reached in litigation and mediation were reflected in the Everglades Forever Act adopted by the Florida Legislature.

The mid-1990s saw the establishment of two important consensus building forums for Everglades issues. In 1993 the South Florida Ecosystem Restoration Task Force was established through an interagency agreement. (Refer to the discussion of the Task Force on page 9.) The Task Force was formalized and expanded to include tribal, state, and local governments by WRDA 1996. In 1994 the Governor of Florida established the Governor's Commission for a Sustainable South Florida "to develop recommendations and public support for regaining a healthy Everglades ecosystem with sustainable economies and quality communities." The Task Force and the Governor's Commission have been instrumental in formulating consensus for 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 ten years to implement the first ten years of the CERP.

The Seminole and Miccosukee Tribes, which have maintained their lifestyle in this natural system, became active participants in the dialogue on restoration and were formally added to the Task Force under WRDA 1996. Because of the proximity of the Miccosukee Tribe to Everglades National Park, 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 border for the tribe to govern 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.

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

Table 1. Milestones in South Florida Ecosystem Management

1934	Everglades National Park is authorized.
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 a perpetual lease from the State of Florida for access to and use of 189,000 acres in WCA-3A, which is to be kept in its natural state, and a 75,000-acre federal reservation in WCA-3A.
1983	Governor's Save Our Everglades Program outlines a six-point plan for restoring and protecting the Everglades 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 FDEP) 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 SFWMD is completed. The Seminole Tribe transfers claims to lands critical to the State of Florida's Everglades Construction Project in WCA-3 and the Rotenberger Tract pursuant to the Indian Claims Settlement Act.
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	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.
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.
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 ten 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	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	The Task Force is established to coordinate ecosystem restoration efforts in South Florida.

- 1993 Seminole Tribe is approved by the EPA 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 EPA 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; and allows the Task Force to address the full scope of restoration needs (in the natural and built environments).
- 1996 Section 390 of the Farm Bill grants \$200 million to conduct restoration activities in the Everglades ecosystem in South Florida.
- 1997 Seminole Tribe of Florida's water quality standards for the Big Cypress Reservation are approved by EPA.
- 1997 Miccosukee Tribe water quality standards are established for tribal lands located in WCA-3A, establishing a 10 parts per billion criteria for total phosphorus in tribal waters.
- 1997-2000 1997, 1998, 1999, and 2000 Interior Appropriations Acts provide for land acquisition by the NPS and the FWS in the Everglades ecosystem.
- 1998 Seminole Tribe of Florida's water quality standards for the Brighton Reservation are approved by EPA.
- 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 is appointed to advise the Task Force on issues relating to Everglades protection and restoration, environmental justice, and water resource protection, among other issues.
- 1999 Miccosukee water quality standards are approved by EPA.
- 1999 Miccosukee Tribe water quality standards are established for water passing through the Miccosukee Reserved Area into Everglades National Park.
- 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 ten years.
- 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 ten years.

- 2000 WRDA 2000 includes \$1.4 billion in authorizations for ten 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 standard of 10 ppb proposed by FDEP.
- 2001 Water Resource Advisory Commission is established by the SFWMD Governing Board as a representative stakeholder group to advise them on all aspects of water resource protection in South Florida.
- 2002 WRAC becomes an advisory body to the Task Force on ecosystem restoration activities.

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. Evidence of the seriousness of the problem includes

- 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 Everglades Agricultural Area
- 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 water conservation areas
- Thirty-seven percent loss of living corals at forty sites in the Florida Keys National Marine Sanctuary from 1996 to 2000

Today South Florida is home to 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 thirty state parks, numerous state forests and wildlife management areas, including seventeen state aquatic preserves, eleven federal wildlife refuges, three national parks, a national preserve, a national

marine sanctuary, and a national estuarine research reserve. Everglades National Park 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

Guiding Principles

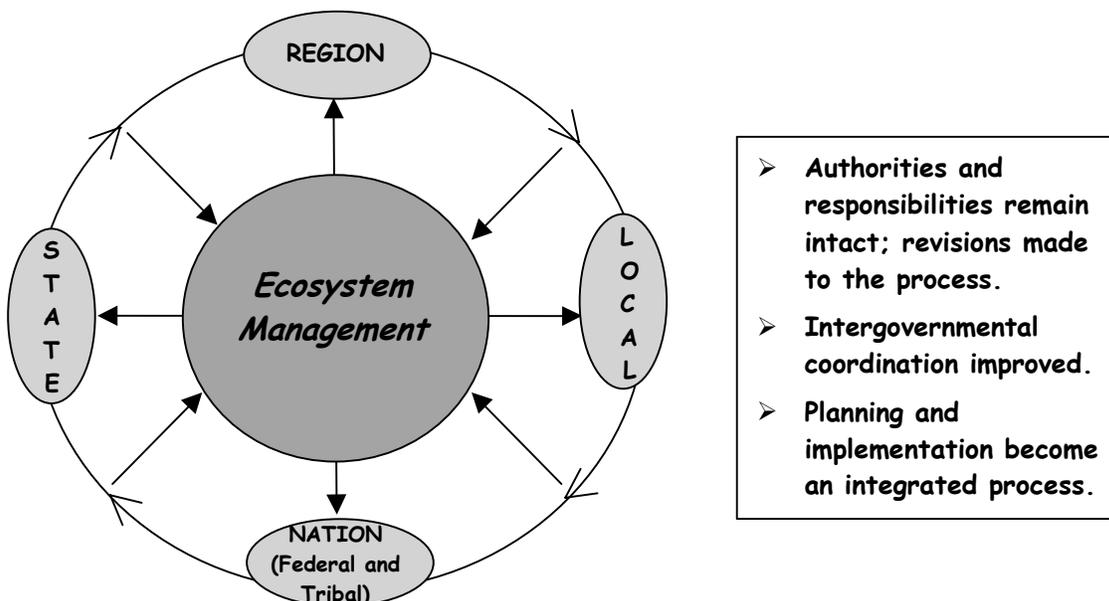
The following principles will guide all aspects of ecosystem restoration and management:

The Ecosystem Must Be Managed as a Whole

This is the overall premise that must drive ecosystem planning and management. It forces managers, scientists, and the public to 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 systemwide 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 communications 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. 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* meant 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 a healthy hydrologic regime and the improvement of habitat will not be enough to achieve the long-term sustainability of the South Florida ecosystem 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 for water supply, flood control, and recreation. 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

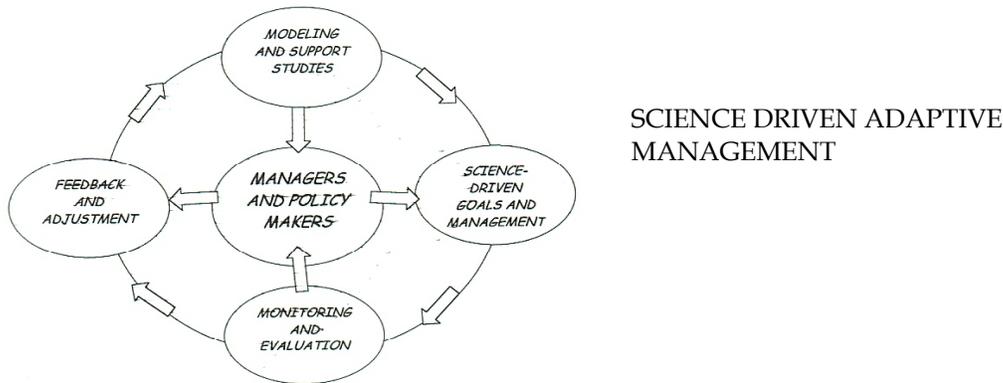
The anticipated major ecological improvements will take many years to realize. The large-scale hydrological improvements that will be necessary to stimulate major ecological improvements will depend upon and follow the implementation of those features of the CERP that are designed to substantially increase 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. The 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 members have adopted an adaptive management process that 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 interpretation that lead to a better understanding of the problem and then to the development of a series of alternative solutions. Once an alternative is selected and implemented, monitoring is used to assess the effectiveness of the action and to provide feedback on ways to modify it (if warranted). Similarly, monitoring data can be used to revise and refine the original model, thereby completing and continuing the interactive feedback loop of decision making, implementation, and assessment.



A framework for promoting the application of sound science is included in appendix D. The framework describes the tools and methods for building scientific knowledge and applying it to ecosystem restoration.

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

All the federal partners participating on 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. 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. 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, and local programs or policies. In WRDA 2000 Congress specifically recognized the importance of ensuring that small business concerns owned and controlled by socially and economically disadvantaged individuals are provided opportunities to participate in the restoration process. It also 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. Recognizing that an outreach effort that reflects the diversity of the South Florida population will be critical to long-term success, the Task Force working group has established a task team for outreach and environmental and economic equity. The team will solicit input about the effectiveness of outreach efforts to date and make written

recommendations about how outreach activities can be better coordinated and made more effective in the future.

Because, the Task Force and Working Group recognize this guiding principle of restoration as critical to long term success they are committed to ensuring that this is tracked and part of a continued discussion on their respective work plans.

Restoration Efforts 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 are responsible for meaningful consultation with the tribes under Executive Order 13175 and Secretarial Order 3206.

Coordination of the Restoration Effort

The role of the Task Force is not to manage the South Florida restoration, but to facilitate the coordination of the restoration, provide a forum for the participating agencies to share information about their restoration projects, and report on progress. Congress and other stakeholders are particularly interested in how each individual agency's efforts contribute to the larger framework of total ecosystem restoration. This document provides that information.

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. The Task Force has no overriding authority to direct its members. Instead, the members are accountable individually to their appropriate authorities and to each other for the success of the restoration.

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

Focus on Goals

This document establishes specific goals and measures that define 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 goals, be consistent with all the guiding principles, be timely, and support rather than duplicate other efforts. This document includes a master list of restoration projects and includes information about goals and objectives, start and finish dates, lead agencies, and funding.

Track and Assess Progress

The Task Force will facilitate the coordination of the individual entities' adaptive management processes to track and assess progress. Adaptive management involves constantly monitoring project contributions and indicators of success 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 this strategic plan's goals and objectives as relevant information becomes available.

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. In particular, the ability to resolve existing conflicts is complicated by (1) the large number of governmental entities involved at the federal, state, tribal, and local levels; (2) the differing, and sometimes conflicting, legal mandates and agency missions among the entities involved; and (3) the diverse stakeholder interests represented by the member agencies, 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 stakeholder concerns, obtaining and analyzing relevant information, and identifying possible solutions. The working group will regularly track issues in dispute and report to the Task Force when there are unresolved issues. Although these efforts are intended to facilitate conflict resolution, opportunities will always exist for parties to pursue conflicts through litigation. Litigation, however, is time consuming, costly, and uncertain, and it diverts resources from restoration efforts. Unfortunately, judicial resolution of legal claims does not always resolve the underlying conflict to the satisfaction of every party.

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

VISION AND INDICATORS OF SUCCESS

Vision

The participants in the South Florida Ecosystem Restoration Task Force share a 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 for over a decade 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 “Work Goals and Objectives” section of this report, 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 report, managed through an adaptive management process, will achieve the restoration of the ecosystem: 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. Fishermen, farmers, 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 predrainage 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 Ecosystem Health

The ultimate measure of Task Force success will be the restoration of the South Florida ecosystem. The appropriate Task Force agencies are tracking progress toward this end by developing and monitoring approximately 200 indicators of ecosystem health. These indicators, which range from the number of acres of periphyton in Everglades marshes to the frequency of

water supply restrictions in urban and agricultural areas, represent the myriad physical, biological, and human elements that are all interrelated as parts of the ecosystem and are all important to ecosystem health. Many of these indicators of ecosystem health represent end results that may take up to fifty years to realize. Interim targets, which focus on earlier indications of successional change, will allow assessment of incremental progress.

The following indicators are a small subset of that much larger set of measures. They have been selected for inclusion in this iteration of the Task Force's strategy document and in the current biennial report to Congress, the Florida Legislature, and the councils of the Miccosukee and Seminole Tribes because they are currently believed to be among the most indicative of natural system functioning throughout the region as a whole and among the most understandable and meaningful to the American people and the residents of South Florida. These preliminary indicators may be refined as more information is available. The selected indicators and their long-term targets are presented in this section of the strategy document, and the progress made over the past two-year period is described in the biennial report (which begins on page ~~818~~180 of this document).

Responding to Congress's direction that the restoration effort be guided by, and continuously adapted to, the best science available, a multi-agency Restoration Coordination and Verification Team (RECOVER) has been established to support the implementation of the CERP with scientific and technical information. RECOVER is developing recommendations for the majority of the performance measures that will be used to assess restoration progress and to adaptively manage the restoration effort over time. Additional scientific and technical information about areas not covered by the CERP is being developed and refined by other federal, state, and local agencies. ~~, including the U.S. Fish and Wildlife Service (FWS), which has developed and is implementing the Multi-Species Recovery Plan (MSRP).~~

Indicators of Total System Health

With the exception of the indicator for threatened and endangered species, which came from the U.S. Fish and Wildlife Service (FWS), the following indicators are from the 1999 *Baseline Report for the Comprehensive Everglades Restoration Plan*, prepared by ~~Task Force~~ RECOVER.

Threatened and Endangered Species

Significance and background. The FWS *Multi-Species Recovery Plan (MSRP)* identified more than four hundred species of plants and animals that are listed as threatened or endangered by the State of Florida, the FWS, or the National Marine Fisheries Service (NMFS). Of those, sixty-nine species are federally listed in this region. The MSRP contains information on the biology, ecology, distribution, status, trends, management, and recovery actions needed to recover the sixty-eight federally listed species under FWS authority (the sixty-ninth species is under NMFS authority). The plan also identifies the biological composition, status, trends, and management and restoration needs of the twenty-three major ecological communities that compose the South Florida ecosystem. An ecosystem-based approach to species recovery will optimize benefits to the greatest number of imperiled species and other species of concern. It will also ensure that management and planning efforts reflect the best known step-wise processes for overall restoration of the communities. To achieve the recovery and restoration actions identified in the MSRP, the FWS is developing an ecosystemwide implementation strategy with support from a multi-agency/stakeholder team.

Target. Improved status for fourteen federally listed threatened or endangered species, and no declines in status for those additional species listed by the state, by 2020.

Nesting Wading Birds

Significance and background. Large numbers of wading birds were a striking feature of the predrainage wetlands of South Florida. Single nesting colonies could contain as many as 50,000 to 100,000 pairs of birds. Although most of these colonies were decimated by plume hunters late in the nineteenth century, protective legislation and good habitat conditions during the early twentieth century allowed most of the nesting species to fully recover. The huge traditional rookery that was located along the extreme upper reaches of Shark River was estimated in 1934 to have been a mile long and several hundred feet wide. These “bird cities,” which contained an estimated 75-95 percent of all wading birds nesting in the predrainage Everglades, had largely disappeared from the southern Everglades wetlands by the 1960s.

Substantial reductions in the total area of wetlands, changes in the location, timing, and volumes of flows, and the creation of unnatural water impoundments in the Everglades have been the factors that have combined to disrupt traditional nesting patterns, leading to a 90 percent decline in the total number of birds. Colonies that have been forced to relocate to the Everglades water conservation areas have been smaller and less successful than were the colonies in the traditional estuarine rookeries such as Shark River. As a requirement for recovery, wading birds may need to reoccupy the now largely abandoned estuarine colony sites in southern and western Everglades National Park. In addition, wood storks must be able to return to more natural timing patterns for nesting (between November and January) than current water management practices allow.

Target. Recover, at a minimum, an annual average of 10,000 nesting pairs of great egrets, 15,000 pairs of snowy egrets and tricolored herons combined, 25,000 pairs of white ibis, and 5,000 pairs of wood storks.

Urban and Agricultural Water Supply

Significance and background. A regional water supply system 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.

Target. Meet urban and agricultural water supply needs in all years up to and including those years with droughts with a one-in-ten-year frequency of occurrence.

Indicators of Lake Okeechobee Health

Submerged Aquatic Vegetation

Significance and background. In shallow eutrophic lakes, submerged aquatic vegetation (plants that grow under water) plays a critical role in providing habitat for fish, wading birds, and other wildlife. When submerged aquatic vegetation is dense and widespread, water generally is clear and nutrient concentrations are low, reflecting active uptake of nutrients by the plants. Shoreline areas of Lake Okeechobee supported more of this type of vegetation in the past; however, unnaturally high lake levels are believed to have precipitated its decline. 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.

Target. Sustain at least 40,000 acres of total submerged vegetation, including benthic macroalgae, around the shoreline of Lake Okeechobee on an ongoing basis, and of that total have at least 20,000 acres of rooted plants, in particular, eelgrass and peppergrass.

Indicators of Estuary Health

Oyster Beds in the St. Lucie Estuary

Significance and background. Oysters are ecologically important as filter-feeding primary consumers, as prey for numerous higher consumers, and as habitat formers. The decline in oyster populations has contributed to ecologically damaging algal blooms in the estuary. The inability of the water body to assimilate the overabundance of algae produced by large volumes of nutrient-laden discharge is compounded by the low numbers of healthy oysters and other bivalves, which would otherwise help filter the water.

A healthy oyster population in the St. Lucie Estuary is only possible if a more stable salinity regime can be established by restoring a more natural quantity and timing of freshwater flows into the estuary. The target is based on areas with suitable substrate that will potentially recover appropriate salinity ranges as a result of CERP project implementation.

Target. Increase the extent of healthy oyster beds in the St. Lucie Estuary to approximately 900 acres.

Roseate Spoonbills

Significance and background. Although the number of nesting spoonbills in extreme southern Florida increased from 15 pairs in the late 1930s to a peak of 1,254 pairs in 1979, numbers in the 1990s have fluctuated between 500 and 750 pairs. The considerable reduction since the late 1970s in the number of nesting birds in once-large nesting colonies in northeastern Florida Bay has been due to deterioration in important feeding grounds in mainland estuaries between lower Taylor Slough and Turkey Point. Recovery of nesting in northeastern Florida Bay may depend on more natural flow volumes and patterns of freshwater into adjacent estuaries. Recovery of long-abandoned spoonbill nesting colonies along the southwestern gulf coast is more problematic, but it may also depend, at least in part, on freshwater flows necessary to recover historical salinity patterns.

Target. Two measurable targets have been set for roseate spoonbills: (1) Recover and stabilize the Florida Bay nesting population to at least 1,000 pairs annually distributed throughout the bay, including 250 pairs nesting in northeast Florida Bay (a doubling from the current 125 pairs). (2) Recover some level of nesting by spoonbills in the coastal zone of the southwestern gulf coast between Lostman's River and the Caloosahatchee River estuary.

Indicators of the Health of the Everglades Ridge and Slough

Tree Islands

Significance and background. Tree islands, which occur throughout the Everglades marshes, are small, isolated high spots, which historically have provided essential habitat for a wide variety of plants and animals. The islands serve as places of refuge for animals during periods of high water. They are sources of food and cover for wildlife and provide nesting sites for wading birds and freshwater turtles. Tree islands are highly important to the culture of both the Miccosukee and the Seminole Tribes. Hunters, fishermen, and recreational visitors to the Everglades consider tree islands to be symbolic of the health of the entire ecosystem.

Unnaturally deep water has had a devastating effect on the tree islands. In the water conservation areas, only four of the fifty-eight tree islands present in WCA-2A in 1940 were still present in 1995. Approximately half the tree islands have been lost in WCA- 3A and -3B. Exotics are contributing to the devastation of tree islands By 1997 Old World climbing fern had infested 21,000 acres of tree islands in WCA-1. While the majority of this infestation has been at the north end, the species has continued to spread through all of WCA-1 and has recently been identified in WCA-2 and WCA-3. It is not known if the tree islands can be rebuilt. Further research is needed to determine the feasibility of rebuilding lost tree islands.

Target. No further degradation of tree islands, and recovery of as much as possible of the number and acreage of the islands present in WCA-2 and WCA-3 in 1940. (Additional research will be needed to identify the potential for recovering the acreage and number of islands present in 1940.)

~~Target. Recovery of 90 percent of the acreage and number of tree islands present in WCA 2 and WCA 3 in 1940, and a tree island health index of 0.90 in those areas~~

Indicators of Florida Bay Health

Seagrass Beds

Significance and background. The seagrass beds of Florida Bay are the keystone of the entire bay ecosystem. They provide critical food and habitat for shrimp, fish, and other estuarine organisms. The grass beds also stabilize the bay's sediments, thus promoting clear water and helping to minimize ecologically damaging algal blooms.

The first quantitative survey of Florida Bay seagrasses in 1984 revealed that the beds were already adversely impacted by the diversion of freshwater flows from the mainland Everglades and by other human activities of the twentieth century. A large-scale die-off of seagrass started in 1987. The judgment of the overall quality of seagrass beds in Florida Bay is based on the diversity of species of grasses in the beds.

Target. Coverage of 65 -70 percent of Florida Bay with high-quality seagrass beds distributed throughout the bay.

Commercial Pink Shrimp Harvests

Significance and background. Pink shrimp are important both economically and ecologically in South Florida. Until the decline of the Tortugas fishery, the pink shrimp was Florida's number one fishery species in terms of value, and the bulk of the landings came from the Tortugas. In addition, pink shrimp are a major link in the food chains of many fish, such as grey snapper and other game fish species of coastal South Florida. The growth and survival of young pink shrimp is influenced by salinity. Adult shrimp abundance, as reflected in catch rates per unit of effort, is influenced by the quantity and timing of freshwater inflows to the southwest gulf coast and Florida Bay nursery grounds. Restoration of flows more similar to rainfall-driven flows, which can be predicted by the Natural System Model, should benefit the Tortugas pink shrimp fishery.

Target. A long-term average rate of commercial harvest of pink shrimp on the Dry Tortugas fishing grounds that equals or exceeds the 600 pounds per vessel-day that occurred during the seasons 1961-62 to 1982-83, and an amount of large shrimp (defined as fewer than sixty-eight shrimp per pound) in the long-term average catch exceeding 500 pounds per vessel.

Relationship between Task Force Strategy Indicators and CERP

Programmatic Regulations

Section 601(h) of WRDA 2000 requires the secretary of the army, with the concurrence of the secretary of the interior and the governor of Florida, to promulgate programmatic regulations within two years of enactment. The purpose of the programmatic regulations is to ensure that the goals and objectives of the CERP are achieved. WRDA 2000 requires that the programmatic regulations establish a process

- for the development of project implementation reports, project cooperation agreements, and operating manuals to ensure that the goals and objectives of the CERP are achieved
- to ensure that new scientific, technical, or other information such as that developed through adaptive assessment, is integrated into the implementation of the CERP
- to ensure the protection of the natural system, including the establishment of interim goals to provide a means by which the restoration success of the CERP may be evaluated throughout the implementation process

The USACE is currently developing the programmatic regulations and has begun the formal rulemaking process. It is anticipated that the *interim goals* required by WRDA 2000 will be based upon hydrologic, ecologic, and water quality performance measures, with levels of performance estimated for various time intervals during the CERP implementation process. This will provide a means by which the contributions of the CERP towards meeting Task Force goals 1 and 2-- and the success of those activities in terms of ecosystem restoration-- can be measured during the

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implementation process and reported to Congress as part of the required periodic reports to Congress.

While there is a relationship between the interim goals that will be included in the programmatic regulations developed for the CERP and the indicators selected to track restoration progress as part of the Task Force strategy document and biennial plans, they are not the same. The Task Force indicators cover not only the CERP, but many additional activities, such as the MSRP, the control of invasive exotics, and the improvement of natural habitats not targeted by CERP projects – in effect aggregating indicators from all of these efforts.

WORK GOALS AND OBJECTIVES

The ultimate result of all 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 described in the preceding "Vision" section of this document.

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) 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 goals, related subgoals, and specific objectives for the work that must be done. The three 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

~~Subgoal 3-D: Achieve economic equity and environmental justice~~

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. Examples of these objectives include "develop aquifer storage and recovery systems capable of storing 1.6 billion gallons per day by 2020" and "protect 20 percent of the coral reefs by 2010."

The objectives included in this document 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 reports.

The major projects contributing to each objective are listed in this section of the document. 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 the master table at the end of this document, and many are described in detail in

appended project sheets. (See the Project Summary Table, page [727271](#), and the project data sheets in appendix E, volume 2.)

Goal 1: Get the Water Right

Getting the water right means restoring natural hydrologic functions and water quality in wetland, estuarine, marine, and groundwater systems, while also providing for the water resource needs of urban and agricultural landscapes.

Water is the lifeblood of the South Florida ecosystem. The water flows today, however, have been reduced to less than one-third of those occurring in the historic Everglades. The quality of water that does enter the ecosystem has been seriously degraded. Water does not flow at the same times or durations as it did historically, nor can it move freely through the system. The whole South Florida ecosystem has suffered. The health of Lake Okeechobee is seriously threatened. Many plants and animals that live in South Florida and the Everglades are in danger of becoming extinct because their habitats have been degraded, reduced, or eliminated. Excessive freshwater discharges in the wet season and inadequate flows in the dry season threaten the estuaries and bays that are critical nurseries and home to many fish and wildlife. Urban and agricultural areas are also adversely affected. Water shortages and water restrictions are 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 must also 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 goal is that the right quantity of water, of the right quality, gets delivered to the right places and at the right times.

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. Consequently, efforts to achieve the goal of "Getting the water right" must also incorporate a process to address concerns of environmental justice and equity. The Task Force and Working Group see this guiding principle of restoration as critical to long term success and are committed to ensuring that this is tracked and part of a continued discussion on their respective work plans.

The following statements elaborate on what the Task Force members agree is what it means to get the water right. They are the result of a consensus-building exercise that first listed goals related to ecosystem restoration included in the planning documents of all the participating agencies and many local governments throughout the ecosystem, then synthesized that information into a single list of statements that all the Task Force participants could support. 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.

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 Everglades Agricultural Area, and in Palm Beach, Broward, and Miami-Dade Counties. These areas will encompass approximately 181,300 acres and will have the capacity to store 1.6 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 (ASR). Subsurface water 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. If proven successful, wells will be located around Lake Okeechobee, in the Caloosahatchee Basin, and along the east coast. As much as 1.6 billion gallons a day may be pumped down the wells into underground storage zones. Because water does not evaporate when stored underground and less land is required for storage, aquifer storage and recovery 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 fed into existing surface water impoundments for distribution through the existing surface water delivery system. ASR components represent approximately one-fifth of the total CERP costs.

Removing barriers to sheet flow. Canals, internal levees, and other impediments to sheet flow will be removed or modified to reestablish the natural sheet flow of water through the system. The Kissimmee River Restoration Project will restore approximately forty 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 C-111 projects will restore historic hydrological patterns to the Everglades. Most of the Miami Canal in WCA-3 will

be removed, and twenty miles of the Tamiami Trail (U.S. Route 41) will be rebuilt with bridges and culverts, allowing water to flow more naturally into Everglades National Park. In the Big Cypress National Preserve, the levee that separates the preserve from the Everglades 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 water conservation areas, Everglades National Park, 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.

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

Conflicting hydrologic goals.

Text under development 7/31/02

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 gallons of water per day to two billion gallons per day, 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 goals.

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 for 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.

Specific, Measurable Objectives for Achieving this Subgoal

The objectives established for achieving this subgoal are

- Provide 1.6 million acre-feet of surface water storage by 2036.
- Develop aquifer storage and recovery systems capable of storing 1.6 billion gallons per day by 2026.
- Modify 331 miles of impediments to flow by 2019.

The key projects needed to achieve these objectives and the schedule for their implementation are shown in table 2. The outputs listed in tables 2 and 3 and the measures and targets in the project summary table reflect strategy goals and are not intended to function as an allocation or reservation of water, which must be implemented through applicable law.

Table 2. Subgoal 1-A: Get the Hydrology Right

Objective	Milestone Projects (Refer to the Project Summary Table for more information about specific project schedules, funding, responsible agencies, etc.)			
	Target Date	Project	Output (acre-feet)	Status
Objective 1-A.1: Provide 1.6 million acre-feet of surface water storage by 2036	2001	Allapattah Flats	32,000	Completed
	2003	Ten Mile Creek	5,000	
	2006	Critical Project Seminole Big Cypress Reservation Water Conservation Plan	3,389	Underway
	2007	Acme Basin B Discharge	3,800	
	2007	C-44 Basin Storage Reservoir	40,000	Underway
	2009	Everglades Agricultural Area Storage Reservoir, Phase 1	240,000	Underway
	2009	Lake Okeechobee Watershed: Taylor Creek/Nubbin Slough Reservoir and STA	50,000	
	2009	Lake Okeechobee Watershed: North of Lake Okeechobee Storage Reservoir	200,000	

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	2010	C-23/C-24/C-25/Northfork and Southfork Storage Reservoirs ¹	349,400	Underway
	2010	Seminole Tribe Comprehensive Surface Water Management System for the Brighton Reservation	10,000	Underway
	2011	Water Preserve Areas/L-8 Basin	48,000	
	2012	Seminole Tribe Water Conservation Project for Big Cypress Reservation	7,569	
	2014	Everglades Agricultural Area Storage Reservoir, Phase 2	120,000	
	2014	Bird Drive Recharge Area	11,500	
	2017	Site 1 Impoundment and Aquifer Storage and Recovery	15,000	
	2018	C-43 Basin Storage Reservoir and ASR	160,000	Underway
	2019	Palm Beach County Ag Reserve Reservoir and ASR	240	Underway
	2036	Central Lake Belt Storage	190,000	Underway
	2036	North Lake Belt Storage	90,000	Underway
Objective 1-A.2: Develop aquifer storage and recovery systems capable of storing 1.6 billion gallons per day by 2026	Target Date	Project	Output (million gpd)	Status
	2017	Site 1 Impoundment and Aquifer Storage and Recovery	150	
	2018	C-43 Basin Storage Reservoir and ASR		
	2019	Palm Beach County Agricultural Reserve Reservoir and ASR	75	
	2020	C-51 Regional Groundwater Aquifer Storage and Recovery	170	
	2026	Lake Okeechobee Aquifer Storage and Recovery	1,000	
Objective 1-A.3: Modify 331 miles of impediments to flow by 2019	Target Date	Project	Output (miles modified)	Status
	1997	Kissimmee Prairie Ecosystem	39.3	Completed
	2002	East WCA-3A Hydropattern Restoration	8.5	
	2003	Modified Waters Delivery Project	21	Underway
	2006	Florida Keys Tidal Restoration	0.6	
	2005	Canal 111 - North Spreader		Underway
	2009	Kissimmee River Restoration	22	Underway
2015	WCA-3 Decompartmentalization and Sheetflow Enhancement	240		

¹ CERP project data source - April 1999 Final Integrated Feasibility Report & Programmatic Environmental Impact Statement

Subgoal 1-B: Get The Water Quality Right

Runoff from agriculture and stormwater from urban areas has polluted much of the Everglades and Lake Okechobee and impaired ecological conditions. Phosphorus 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 already 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 and mercury appear to be of particular concern.

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 concomitant with the CERP.

How This Subgoal Will Be Implemented

Everglades Forever Act. In 1994 the Florida Legislature passed the Everglades Forever Act, which codified measures to improve water quality and supported a joint proposal by the State and federal government, approved by the U.S. District Court in 2001, to modify the 1992 federal consent decree on Everglades water quality. Implementation of phase II technology, conceived in both the state's Everglades Forever Act and the federal consent decree regarding protection of the Everglades, will be necessary to achieve the long-term standard. No phase II plan or funding has yet been identified (SFWMD 2002 Consolidated Report).² One provision established the Everglades Construction Project, a series of six stormwater treatment areas (STAs) currently under construction between the Everglades Agricultural Area and the natural areas to the south. The main purpose of these treatment areas is to reduce the phosphorus loads in waters entering the conservation areas. Additionally, the state uses regulatory programs and best management practices to reduce phosphorus from urban and agricultural discharges. These programs and practices have reduced the phosphorus loads from the Everglades Agricultural Area to the Everglades. However, the final goals have not been met. The Urban and Tributary Basins Program is being developed to ensure that all other basins impacting the Everglades meet state water quality standards.

Generally, the stormwater treatment areas and best management practices are expected to reduce overall phosphorus levels to 50 parts per billion (ppb) or lower. In December 2001 the Florida Department of Environmental Protection (FDEP) issued a proposed standard for water quality in the Everglades Protection Area. This numerical standard quantitatively interprets the narrative standard found in the Everglades Forever Act. The proposal sets forth a phosphorus criterion of 10 ppb for all predominantly freshwater portions of the Everglades Protection Area. This is an ambient standard, meaning it is the typically desirable condition for phosphorous concentrations in the water column for maintaining the natural balance of aquatic flora and fauna in the Everglades. This proposed standard is also the default numeric standard that was established by the Florida Legislature for the Everglades Protection Area in the event a standard was not adopted through normal rulemaking.

² Lehtinen June 2002 Motion T edited to reflect discussion of Task Force

Additional actions will be needed to meet the state phosphorus standard for natural areas. The SFWMD is researching advanced treatment technologies to enhance the performance of the stormwater treatment areas and potentially expand application to other tributaries of the Everglades. For the stormwater treatment areas, approximately 35,600 acres of manmade wetlands will be built to treat urban and agricultural runoff water before it is discharged to the natural areas throughout the system. Treatment areas are to be located in basins draining to Lake Okeechobee, the Caloosahatchee River basin, the St. Lucie Estuary basin, the Everglades, and the lower east coast. These are in addition to over 44,000 acres of areas already being constructed under the Everglades Forever Act. Once completed, these efforts are expected to improve water quality. All efforts to restore the ecosystem incorporate reviews required by the assurance language of WRDA to ensure that existing water resources for legal users is not damaged by restoration efforts.

Tribal water quality standards. In May 1999 the Environmental Protection Agency (EPA) 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 has also adopted its own water quality standards on other parameters that they feel will provide additional measures of protection for areas within their governance. 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 airboating), 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 Everglades ecosystem.” While tribal waters are located within the interior of WCA-3A, which has median background total phosphorus concentrations ranging from 4 to 10 µg/l (often lower than the standard), the EPA 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 EPA 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.

Other ongoing projects. Other ongoing projects include the Lake Okeechobee Protection Program, which includes a study that will identify a feasible method for reducing phosphorus loading in the lake, and a federal/state/local agency program for protecting water quality in the Florida Keys National Marine Sanctuary.

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 goal 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 FDEP, in conjunction with the SFWMD, the Florida Department of Agriculture and Consumer Services, 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. Currently there are 154 water segments listed on the state’s 303(d) list within the boundaries of the SFWMD.

The state is transitioning to a watershed management program that is based on a five-phase cycle. During the first phase, the water quality data for each basin will be assessed, and waters determined to be potentially impaired will be identified. In phase two intensive monitoring will be 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 will be 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 will include a TMDL implementation plan, will be developed during the fourth phase.

The fifth and final phase will involve the implementation of the proposed management options, 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. Once these plans have been adopted and implemented, progress will be monitored until waters are eventually certified as meeting water quality standards.

As there are nearly 800 water body segments and 2,000 parameters of concern on the current 303(d) list, it will take two rotations through the state to assess all the waters on the list. The first five-year cycle will cover those waters with a high priority, while those with a lower priority will be addressed in the second rotation.

Comprehensive Integrated Water Quality Feasibility Study. The *Comprehensive Integrated Water Quality Feasibility Study* will serve as a framework for integrating water quality restoration targets for South Florida water bodies into future planning, design, and construction activities included in the CERP. RECOVER is developing regionally specific monitoring plans that include an extensive set of water quality parameters of concern.

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.

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 the habitat restoration and preservation subgoals.

Specific, Measurable Objectives for Achieving this Subgoal

The objectives established for achieving this subgoal are

Working group meeting, Jacksonville

- Construct 70,000 acres of stormwater treatment areas by 2036.
- Prepare plans, with strategies and schedules for implementation, to comply with total maximum daily loads for 100 percent of impaired water bodies by 2011

The key projects needed to achieve these objectives and the schedule for their implementation are shown in table 3. The outputs listed in tables 2 and 3 and the measures and targets in the project summary table reflect strategy goals and are not intended to function as an allocation or reservation of water, which must be implemented through applicable law.

Table 3. Subgoal 1-B: Get the Water Quality Right

Objective	Milestone Projects (Refer to the Project Summary Table for more information about specific project schedules, funding, responsible agencies, etc.)			
	Target Date	Project	Output (acres)	Status
Objective 1-B.1: Construct 70,000 acres of stormwater treatment areas by 2036	2000	STA-2 Works and Outflow Pump Station	6,430	Completed
	2000	STA-1 West Works and Outflow Pump Station	6,700	Completed
	2002	Lake Okeechobee Water Retention/Phosphorus Removal (not in matrix under this)	1,190	Underway
	2003	West Palm Beach Canal (C-51) and STA-1E	6,500	Underway
	2003	STA-5 Works	4,118	Underway
	2004	STA-3/4 Works	16,600	Underway
	2004	STA-6	2,222	Underway
	2005	Henderson Creek/Belle Meade Restoration	10	Underway
	2006	C-9 STA and Impoundment	2,500	Underway
	2008	Western C-11 Diversion Impoundment and WCA-3A and B Levee	1,600	Underway
	2008	North Palm Beach County PIR -C-17 Backpumping and Treatment**	550	
	2008	North Palm Beach County PIR -C-51 Backpumping and Treatment**	710	
	2009	Lake Okeechobee Watershed: Taylor Creek / Nubbin Slough Reservoir and STA	5,000	Underway
	2010	Miccosukee Tribe Water Management Area	900	
	2010	Lake Okeechobee Watershed : Lake Okeechobee Watershed Water Quality Treatment Facilities	4,375	Underway
	2014	Caloosahatchee Backpumping with Stormwater Treatment	5,000	
	2015	Lake Okeechobee Watershed : North of Lake Okeechobee Storage Reservoir	2,500	
2015	Big Cypress/L-28 Interceptor Modifications	1,900		
2036	Central Lake Belt Storage Area	640		
Objective 1-B.2: Prepare plans, with strategies and schedules for implementation, to comply with total maximum daily loads for 100 percent of impaired water bodies by 2011	Target Date	Project	Output (% of waters having plans)	Status
	2011	Total Maximum Daily Load for South Florida		

** Part of North Palm Beach County ~~PIR~~ Part 1 Project

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

Natural habitats and species will be restored when the diversity, abundance, and behavior of native South Florida animals and plants in terrestrial and aquatic environs are characteristic of predrainage conditions.

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, like 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.

Today the Florida panther and sixty-eight other animal or plant species are listed by the 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 have suffered a similar decline. Altered biological communities are being overrun by invasive exotic plants and animals capable of outcompeting native species and habitats. Exotic plants now make up approximately one-third of the total plant species known in Florida. The Florida Exotic Pest Plant Council has 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 hydrological 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.

The following statements elaborate on what the Task Force members agree are what it means to restore, preserve, and protect natural habitats. They are the result of a consensus-building exercise that first listed goals related to ecosystem restoration included in the planning documents of all the participating agencies and many local governments throughout the ecosystem, then synthesized that information into a single list of statements that all the Task Force participants could support. 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 predrainage 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.

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. As of September 2001 approximately 4.7 million acres have been acquired in South Florida for habitat conservation purposes, and the Task Force interagency Land Acquisition Team has identified an additional 904,985 acres for acquisition by 2015.

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. 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. 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. Further, 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. It is a ten-year program that 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 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. When completed, these efforts will yield a total of approximately 5.6 million acres for conservation and habitat protection. These lands also provide opportunities for water supply enhancement, natural-resource-based outdoor recreation, and environmental awareness and education to 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, ecosystemwide strategy (the MSRP) 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.

The MSRP addresses the recovery needs of South Florida's sixty-nine federally listed threatened and endangered species. A major section of that plan describes twenty-three of the natural vegetative communities in South Florida and identifies management actions needed to restore South Florida's 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 show that almost 2.4 million acres will be restored and enhanced.

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 Florida Keys National Marine Sanctuary 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. Departments of Commerce and Interior and the State of Florida.

The Florida Keys National Marine Sanctuary'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 will conserve an additional 46 nautical miles of reefs and marine habitats. Combined, these two areas will encompass 197 square nautical miles, protecting more than 10 percent of the coral reefs in the Florida Keys. Reefs elsewhere in South Florida have not received any significant protection to date.

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.

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. Consequently, efforts to achieve the goal of “Restore, Preserve, and Protect Natural Habitats and Species” must also incorporate a process to address concerns of environmental justice and equity. The Task Force and Working Group see this guiding principle of restoration as critical to long term success and are committed to ensuring that this is tracked and part of a continued discussion on their respective work plans.

Specific, Measurable Objectives for Achieving this Subgoal

The objectives established for achieving this subgoal are

- Complete acquisition of 5.6 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 table 4.

Table 4. Subgoal 2-A: Restore, Preserve, and Protect Natural Habitats

Objective	Milestone Projects (Refer to the Project Summary Table for more information about specific project schedules, funding, responsible agencies, etc.) ³				
	Target Date	Project	Total Project Acres	Acres Acquired to Date	Acres Remaining To Be Acquired
Objective 2-A.1: Complete acquisition of 5.6 million acres of land identified for habitat protection by 2015		STATE/SFWMDC PROJECTS			
		Allapattah Flats/Ranch	34,221	0	34,221
		Atlantic Ridge Ecosystem	15,032	12,684	2,348
		Babcock Ranch	91,361	0	91,361
		Barfield Ranch	1,367	0	1,367
		Belle Meade	27,200	17,327	9,873
		Big Bend Swamp/Holopaw Ranch	54,425	0	54,425
		Biscayne Coastal Wetlands	2,241	0	2,241
		Bombing Range Ridge	39,073	0	39,073
		C-44 East Stormwater Treatment Area	2,400	0	2,400
		Caloosahatchee Ecoscape	15,391	0	15,391
		Camayen Ranch	5,254	0	5,254
		Catfish Creek	10,609	4,313	6,296
		Cayo Costa Island	1,932	1,890	42
		Charlotte Harbor Estuary/Flatwoods/Cape Haze	54,281	49,591	4,690
		Corkscrew Reg. Ecosystem Watershed (CREW)	59,008	24,877	34,131
		Corkscrew Regional Mitigation Bank	663	663	0
		Coupon Bight/Key Deer/Big Pine Key	3,452	1,371	2,081
		Cypress Creek/Trail Ridge	13,788	0	13,788
		Cypress Creek/Loxahatchee	4,184	0	4,184
	Dade County Archipelago	856	375	481	
	Dupuis Reserve	21,875	21,875	0	
	East Coast Buffer/Water Preserve Areas	70,883	35,836	35,047	
	Esteros Bay	16,740	7,568	9,172	
	Fakahatchee Strand	80,231	60,723	19,508	

³ Data Source:— FDEP Division of State Lands as of 9/30/01

Working group meeting, Jacksonville

Objective	Milestone Projects (Refer to the Project Summary Table for more information about specific project schedules, funding, responsible agencies, etc.) ³				
	Target Date	Project	Total Project Acres	Acres Acquired to Date	Acres Remaining To Be Acquired
		Fisheating Creek	168,360	51,475	116,885
		Florida Keys Ecosystem	7,611	1,987	5,624
		Frog Pond/L31N	10,600	9,570	1,030
		Grassy Island Ranch	10,000	9,480	520
		Hungryland Slough Natural Area	2,941	2,503	438
		Indian River Lagoon Blueway	5,136	1,332	3,804
		Juno Hills	440	336	104
		Jupiter Ridge	287	223	64
		Kissimmee Prairie Ecosystem	38,282	38,282	0
		Kissimmee River (Lower Basin)*	62,628	54,934	7,694
		Kissimmee River (Upper Basin)*	33,919	27,472	6,447
		Kissimmee-St. Johns River Connector	34,668	0	34,668
		Lake Wales Ridge Ecosystem	12,770	8,938	3,832
		Lake Walk-In-Water	4,615	4,009	606
		Loxahatchee River	1,936	1,547	389
		Loxahatchee Slough	15,200	825	14,375
		McDaniel Ranch	7,000	0	7,000
		Model Lands Basin	44,999	3,927	41,072
		New Palm Dairy	2,135	2135	0
		Nicodemus Slough	2,219	2,219	0
		North Fork of the St. Lucie River	3,800	571	3,229
		North Key Largo Hammocks	4,508	356	4,152
		North Savannas	930	0	930
		Okaloacoochee Slough	37,210	34,982	2,228
		Osceola Pine Savannas	42,291	161	42,130
		Pal-Mar	35,795	18,061	17,734
		Panther Glades	21,000	0	21,000
		Paradise Run	8,065	3,128	4,937
		Parker-Poinciana	1,970	0	1,970
		Pineland Site Complex	250	1	249
		Rookery Bay	18,721	18,579	142
		Rotenberger/Holey Land Tract	79,170	71,418	7,752
		Shingle Creek	7,655	1,281	6,374
		Six Mile Cypress	1,741	869	872
		South Fork of the St. Lucie River	184	184	0
		South Savannas	6,046	5,083	963
		Southern Glades	37,620	32,452	5,168
		Southern Golden Gate Estates	55,566	50,125	5,441
		Ten Mile Creek	1,266	911	355
		Tibet Butler Preserve	439	439	0
		Twelve Mile Slough	3,300	0	3,300
		Upper Econ Mosaic	30,471	0	30,471
		Upper Lakes Basin Watershed (ULBW)	43,500	12,574	30,926
		Water Conservation Areas - 1, 2 and 3	862,800	819,535	43,265
		Wellington/ACME Marsh	1,050	0	1,050
		Yamato Scrub	207	207	0
		<i>Sub-total of State/SFWMD Projects</i>	<i>2,397,768</i>	<i>1,531,204</i>	<i>866,564</i>
		FCT, STATE PARKS, & WMA'S			
		State Florida Communities Trust Lands	18,024	15,108	2,916
		State Park Lands	101,438	88,084	13,354
		State Wildlife Management Areas	30,260	29,970	290
		<i>Sub-total of FCT, State Parks, & WMA's</i>	<i>149,722</i>	<i>133,162</i>	<i>16,560</i>
		FEDERAL CONSERVATION LANDS			
		A.R.M. Loxahatchee NWR	149,016	145,787	3,229
		Big Cypress National Preserve	574,454	573,744	710
		Big Cypress National Preserve Addition	146,117	141,783	4,334
		Biscayne National Park	172,924	172,542	382

Objective	Milestone Projects (Refer to the Project Summary Table for more information about specific project schedules, funding, responsible agencies, etc.) ³				
			Output		
	Target Date	Project	Total Project Acres	Acres Acquired to Date	Acres Remaining To Be Acquired
		Caloosahatchee NWR	40	40	0
		Cape Romano/Ten Thousand Island NWR	35,037	35,034	3
		Crocodile Lake NWR	7,100	6,562	538
		Everglades National Park	1,399,078	1,398,617	461
		Everglades National Park Expansion	109,504	103,785	5,719
		Florida Panther NWR	26,529	26,529	0
		Great White Heron NWR	194,995	192,584	2411
		Hobe Sound NWR	1,130	980	150
		J. N. Ding Darling NWR	7,325	6,385	940
		Key West NWR	208,308	208,308	0
		Matlacha Pass NWR	393	393	0
		National Key Deer Refuge	12,133	9,149	2,984
		Pine Island NWR	602	602	0
		<i>Sub-total Federal Conservation Lands</i>	<i>3,044,685</i>	<i>3,022,824</i>	<i>21,861</i>
		GRAND TOTAL HABITAT ACQUISITION	5,592,175	4,687,190	904,985
Objective 2-A.2: Protect 20 percent of the coral reefs by 2010	Target Date	Project	Output (percent of reefs protected)		Status
	2001	Establish an ecological reserve and research natural area encompassing 197 square nautical miles of coral reefs and associated habitats in the Tortugas region	10+ percent of reefs in Florida Keys		Completed
Objective 2-A.3: Improve habitat quality for 2.4 million acres of natural areas in South Florida.	Target Date	Project	Output		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 this publication identifies in detail which projects are anticipated to achieve this objective. However, appropriate measures by project are currently being developed through the establishment of interim goals. There are some projects included in our tracking matrix that exemplify how this objective will be achieved.</i>			

Subgoal 2-B: Control Invasive Exotic Plants

The MSRP identifies the control of 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 plants and animals are in danger of being replaced in their entirety. The most widespread and serious exotic plants are listed below, along with the extent of their current infestations:

Terrestrial Species	Extent of Infestation
Melaleuca (<i>Melaleuca quinquenervia</i>)	400,000 acres
Brazilian pepper (<i>Schinus terebinthifolius</i>)	1,000,000 acres
Australian pine (<i>Casuarina</i> spp.)	200,000 acres

Old World climbing fern (*Lygodium microphyllum*) 100,000 acres

Aquatic Species

Hydrilla (*Hydrilla verticillata*)

Water hyacinth (*Eichornia crassipes*)

Water lettuce (*Pistia stratiotes*)

How This Subgoal Will Be Implemented

The Noxious Exotic Weed Task Team established by the Task Force has developed an assessment and strategy for managing invasive exotic plants. The following three actions included in that strategy are the highest priorities for ecosystem restoration. Other actions are still being developed and will be incorporated into updates of this document.

Species management plans. Species management plans, when adequately funded and implemented, have provided successful control of invasive exotic plants. These plans offer the advantage of replacing piecemeal efforts of managing exotic plants on individual sites, or controlling a few plants in broader regions, with multi-agency programs that integrate statewide invasive plant management activities, organizations, priorities, and resources. More than twenty exotic plants need attention, and developing plans for just the top twenty will take several years.

Six species in Florida (melaleuca, Brazilian pepper, Old World climbing fern, hydrilla, water lettuce, and water hyacinth) have statewide species-based management plans. Plans must be developed for each species because each has species-specific characteristics that need to be addressed.

Maintenance control. Maintenance control is an approach that applies routine, coordinated management to reduce invasive exotic plant populations and maintain them at the lowest feasible levels. Many techniques are used, including mechanical removal, chemical treatment, and predatory biological controls. The three major aquatic species (hydrilla, water hyacinth, and water lettuce) are currently in maintenance control. Achieving maintenance control for melaleuca is well underway; infestations have been reduced from approximately 500,000 to less than 400,000 acres. Additional resources are needed to completely implement the melaleuca plan. Plans for Brazilian pepper and Old World climbing fern have been minimally implemented due to lack of resources. Plans and control programs for other priority species need to be incorporated into the multi-agency management framework and invasive exotic plant strategy.

The SFWMD and the NPS Southeast Regional Office are jointly implementing Exotic Plant Control Teams for Florida national parks and natural lands within the water management district. These teams are trained to identify and remove invasive exotic plants. After locating populations of plants for control these teams move in and eradicate them, also helping the individual agency bring the species under maintenance control.

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. Florida needs to participate in this national program.

Long-Term Operations and Maintenance Needs

At no time in an exotic species control program, even when the population is under control, should resources drop below the maintenance-level requirement, or the species will expand and reinvade to precontrol levels and the program must start from zero once again. Weed management is like any other long-term program in that sufficient funds must be available on a continuous basis in order to achieve maintenance control. A reduced level of resources may be all that is needed to maintain control. However, discontinuing this funding has been a problem that has continually plagued invasive species management programs nationally.

Factors Affecting Achievement of this Subgoal

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 bring the other high priority species under maintenance control, agencies will need to organize formally to implement similarly complex management programs. Any of these factors will adversely affect success: Lack of a comprehensive plan, failure to integrate individual control programs, inadequate interagency coordination, inadequate funding and implementation, or a lack of motivation among the agencies to coordinate on a statewide level. The major impediment to success has not been the ability to control these species but the willingness to do so.

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.

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

Specific, Measurable Objectives for Achieving this Subgoal

The objectives established for achieving this subgoal are

- Prepare management plans for the top twenty South Florida invasive exotic plant species by 2010.
- Achieve maintenance control status for Brazilian pepper, melaleuca, Australian pine, and Old World climbing fern in all natural areas statewide by 2020.
- Complete an invasive exotic plant prevention, early detection, and eradication plan by 2005.

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

Table 5. Subgoal 2-B: Control Invasive Exotic Plants

Objective	Milestone Projects (Refer to the Project Summary Table for more information about specific project schedules, funding, responsible agencies, etc.)			
	Target Date	Project	Output (plans)	Status
Objective 2-B.1: Prepare management plans for the top twenty South Florida invasive exotic plant species by 2010	2010	Management plans for melaleuca, Brazilian pepper, Old World climbing fern, hydrilla, water lettuce, and water hyacinth		20% completed
		Remaining plans		Prioritization underway
Objective 2-B.2: Achieve maintenance control status for Brazilian pepper, melaleuca, Australian pine and Old World climbing fern in all natural areas statewide by 2020	Target Date	Project	Output (control)	Status
	2020	Integrated Maintenance Control Program		Underway
Objective 2-B.3: Complete an invasive exotic plant prevention, early detection, and eradication plan by 2005	Target Date	Project	Output (plans)	Status
	2005	Invasive Exotic Plant Prevention Plan		Underway

Goal 3: Foster Compatibility of the Built and Natural Systems

Compatibility of the built and natural systems will be realized when the built environment is compatible with ecosystem restoration and preservation goals.

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 and Greater Everglades ecosystems. The imbalance has contributed to a renewed focus by state, local, regional and national decision makers and citizens on addressing the unintended consequences of growth.

The following statements express Task Force members' agreement on compatibility of the built and natural systems. They are the result of a consensus-building exercise that first listed goals related to ecosystem restoration included in the planning documents of all the participating agencies and many local governments throughout the ecosystem, then synthesized that information into a single list of statements that all the Task Force participants support. 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 supply 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 has statutory goals for water supply that specifically charge water managers to ensure an adequate supply of water for protection of the natural system and the needs of the population.

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. The unique diversity of South Florida's population, with its strong representation of cultures 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.

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 Greater Everglades 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 state, regional, and local governments in Florida. These government agencies must function within the authority and appropriations for programs and activities as established by the legislature, and local governments implement activities as approved by majority vote of the appropriate elected governing body. 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. This strategy strives to set forth the goals and strategies needed to protect and restore the South Florida and Everglades ecosystem from the Kissimmee River to Florida Bay, and as such, it establishes a blueprint for action. The Task Force recognizes that these factors are the realities that affect the implementation of the restoration strategy and the achievement of its goals.

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 Act and Land Development Regulations, 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. Recognizing the critical importance of water to both the built and natural systems, the state recently passed a law that addresses growth management and alternative water supply and requires that the comprehensive plans of counties and cities be coordinated with the completed regional water supply plans of the state's water management districts. According to the new provisions of state law enacted by the 2002 Legislature, local governments are required to coordinate land use

planning with the regional water supply plans of the water management districts to ensure the availability of adequate water supplies.

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

Protect 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 of the 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 report. 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, ORV/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 2 and indirectly by goal 1, are 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 to 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 grade 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 Florida and in the Everglades 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 Everglades Agricultural Area. The program goal of achieving a 25 percent reduction in the phosphorus load from the Everglades Agricultural Area was met the first full year of implementing best management practices. 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 to prevent soil subsidence, and effective stormwater pumping operations. Adjacent to the Everglades Agricultural Area, a second regulatory program is being implemented for the C-139 basin, and a rulemaking process is being finalized for best management practices north of Lake Okeechobee. In addition, the state has embarked on an aggressive program to establish TMDLs for the Lake Okeechobee watershed,

and the SFWMD has implemented a program to clean up nutrient discharges from cattle range and other non-dairy lands north of the lake.

The Wetland Reserve Program, administered by the U.S. Department of Agriculture, Natural Resources Conservation Service, assists landowners in the restoration and/or enhancement of wetlands that have been degraded by agricultural activities. This voluntary program provides incentive payments and cost-sharing for restoration and/or enhancement of wetlands. In most cases, long-term conservation easements are obtained, ensuring that healthy functioning wetlands on agricultural lands will contribute to overall Everglades restoration goals and objectives. The program was authorized by the 1996 Farm Bill. The total budget for 1999-2004 is \$2.1 million.

Redevelopment of brownfields. Federal EPA, state, regional, and local programs are contributing to the cleanup and redevelopment of contaminated and abandoned or underused sites in urban core areas in 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 urban areas. This revitalization is expected to lessen development pressure and urban sprawl in areas to the west, needed in order to restore the Everglades ecosystem and ensure future regional water supplies.

The Eastward Ho! Brownfields Partnership, which is active in 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 U.S. Environmental Protection Agency in 1998. The EPA also has granted \$2 million to capitalize a brownfields cleanup revolving loan fund, which will be used to assist in the cleanup and reuse of brownfields in southeast Florida. More than \$1.8 million has been committed by state, regional, local, and private entities for pilot projects through September 2001. The Partnership has also been active in the Florida Brownfields Program, administered and implemented by the Florida Department of Environmental Protection. Miami-Dade County and the Cities of West Palm Beach, Opa-Locka, Miami, Miramar, Pompano Beach, Dania Beach, Miami Beach and Lauderdale Lakes have designated nineteen sites and areas, totaling 46,978 acres, under the Florida Brownfields Program. This accounts for 71 percent of the acreage designated in Florida as brownfields. The Florida Department of Environmental Protection 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.

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. Five sites have undergone remediation activities and are either undergoing redevelopment or will shortly undergo redevelopment. The brownfields program in southwest Florida has one project underway in Fort Myers.⁴

⁴ As per June Task Force decision

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 they passed the Rural and Family Lands Protection Act of 2001. This important act authorizes the responsible agencies to develop strategies to protect rural and 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.

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 kinds of development pressures it is under. The Florida Department of Environmental Protection, Natural Areas Inventory, the University of Florida, Institute of Food and Agricultural Sciences, and the Department of Agriculture and Consumer Services have all been working to implement incentive programs and to collect comprehensive data that will support efforts to retain viable and sustainable agriculture as part of the Greater Everglades ecosystem.

Factors Affecting Achievement of this Subgoal

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.

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 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.

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.

Specific, Measurable Objectives for Achieving this Subgoal

The objectives established for achieving this subgoal are

- Designate an additional 60,000 acres as part of the Florida Greenways and Trails System between 2000 and 2005
- Maintain annual increases in the acreage of agricultural lands participating in the voluntary USDA Wetland Reserve and implementation of other USDA conservation programs.
- Acquire and manage 15,000 acres of park, recreation, and open space lands through the Florida Communities Trust and Florida Recreational Development and Assistance programs.
- Complete five brownfield rehabilitation and redevelopment projects by 2006⁵

The key projects needed to achieve these objectives and the schedule for their implementation is shown in table 6.

⁵ Moved from 3-D per task force vote July 2002

Table 6. Subgoal 3-A: Use and Manage Land in a Manner Compatible with Ecosystem Restoration

Objective	Milestone Projects (Refer to the Project Summary Table for more information about specific project schedules, funding, responsible agencies, etc.)				
	Target Date	Project	Output		Status
Objective 3-A.1: Designate an additional 60,000 acres as part of the Florida Greenways and Trails System between 2000 and 2005			(additional acres)	(total acres)	
	2005	FDEP & Florida Greenways Coordinating Council Five Year Implementation Plan	62,902	198,435	135,533
Objective 3-A.2: Maintain annual increases in the acreage of agricultural lands participating in the voluntary USDA Wetland Reserve and other USDA conservation programs	Target Date	Project	Output (increase in acreage or program implementation)		Status
	2002	Economic Analysis of Agricultural Land and Water Management			
	2005	Soil Survey Updated for the EAA			
	2008	Wetland Reserve Program			
	2008	Urban Mobile Irrigation Lab			
	2009	Technical Assistance to Indian Reservations			
	2011	BMPs for Agriculture - Part 4 Everglades Program (EP)– Specifically outlines how C-139 Basin will reduce their phosphorous load	100% compliance		Permit phase
	2011	Monitoring of Organic Soils in the Everglades			
Objective 3-A.3: Acquire and manage 15,000 acres of park, recreation, and open space lands through the Florida Communities Trust and Florida Recreational Development and Assistance Programs.	Target Date	Project	Output (acres)	Status	
Objective 3-A.4: Complete five brownfield rehabilitation and redevelopment projects by 2006	Target Date	Project	Output		Status
	2006	Neighborhood Transit Center and Revitalization Project, City of Pompano Beach H&H Dagam Oil, City of Opa-Locka Konover Site, City of Fort Lauderdale Little Haiti Park Site, City of Miami Oakland Park Abandoned Gun Range Site, City of Oakland Park Liberia Area, City of Hollywood Gravity Entertainment Site, City of Lauderdale Lakes Former Palm Beach Lakes Golf Course, City of West Palm Beach Liberty City Area, Unincorporated Miami-Dade County Potential Pahokee Dump Site, Unincorporated Palm Beach County Imaginarium children’s museum site, Fort Myers	Completion of Rehabilitation and/or redevelopment of current projects underway each year.		

Subgoal 3-B: Maintain or Improve Flood Protection in a Manner Compatible with Ecosystem Restoration

The SFWMD operates and maintains the primary flood control and water supply system within its sixteen-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 CS&F Project and other 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 target levels of flood protection. The CERP, as authorized by Congress in the WRDA 2000, is the consensus plan that is to be used to modify, and improve the C&SF to benefit the Everglades 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. ~~It is important to note that this flooding was not caused by environmental restoration efforts.~~ 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.

Just as environmental protection efforts have the potential to negatively impact flood protection, flood-protection efforts have the potential to negatively impact the health of natural systems. In South Florida, the C&SF Project generally provides flood protection by maintaining pertinent design canal stages and discharging excess water into the ocean. Lowering canal stages not only drains adjacent agricultural and urban lands, but may also affect adjacent natural areas. To make

flood-protection efforts compatible with environmental protection, drainage projects need to be accomplished in a way that does not harm the ecology of protected natural areas while providing flood protection for adjacent lands. Similarly, as provided in the Savings Clause of the Water Resources Development Act of 2000, environmental protection projects, including increased canal and groundwater levels, need to be accomplished in a way that does not harm flood protection.⁶ The C-111 project will achieve this balance by providing a hydraulic barrier to groundwater seepage from Everglades National Park and rerouting seepage combined with flood flow, previously sent south to Biscayne Bay and Florida Bay, back into the park.

Maintaining flood protection can also impact water supply. The C&SF project provides flood protection by discharging water into the ocean through canals. That water therefore is made unavailable for water supply. As flood protection is provided for the agriculture 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 the loss of freshwater supplies.

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 Canal 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, 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 ensuring that new construction meets Federal Emergency Management Agency (FEMA) guidelines, land use planning, and acquiring undeveloped lands to guide development away from flood-prone areas.

Long-Term Operations and Maintenance Needs

The SFWMD has 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

⁶ Motion 5 June 2002, approved in part by Task Force

of ensuring that conveyance capacity within canals and water bodies is maintained to their original capacity.

Factors Affecting Achievement of this Subgoal

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 increase surface runoff, lowering the level of service for flood protection and increasing the intensity and duration of floods.

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

The objective established for achieving this subgoal is

- Maintain or improve existing levels of flood protection

The key projects needed to achieve this objective and the schedule for their implementation are shown in table 7.

Table 7. Subgoal 3-B: Maintain or Improve Flood Protection in a Manner Compatible with Ecosystem Restoration

Objective	Milestone Projects (Refer to the Project Summary Table for more information about specific project schedules, funding, responsible agencies, etc.)			
	Target Date	Project	Output	Status
Objective 3-B.1: Maintain or improve existing levels of flood protection	2005	C- 111 Canal project	Flood protection at 1 in 10-year level	Underway
	2004	C-4 Basin Flood Mitigation Project	Flood protection at 1 in 10-year level	Underway

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

The State of Florida has statutory goals for water supply that specifically charge water managers to ensure an adequate supply of water for protection of the natural system and the needs of the population. The goal associated with the water supply needs of the population is to meet the needs of existing and future “reasonable-beneficial” uses under conditions up to and including a

one-in-ten-year drought event, while committing appropriate water resource reservations for the natural system needs as outlined in WRDA 2000.

An additional protection for existing water uses is protected in the federal statute, WRDA 2000, through the Savings clauses that specifically says that existing water supply will not be eliminated nor transferred from an existing legal user of water until a new source of water supply of comparable quantity and quality is available to replace water that would be lost as a result of implementation of CERP.⁷

How This Subgoal Will Be Implemented

As water storage and other water supply related projects and programs are implemented (see subgoal 1-A), reliable sources of water will become available to meet target levels of service 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 goals and subgoals (for example, planning for growth is addressed under subgoal 3-A). Efforts unique to this subgoal are described below.

Develop a process of reserving water through time that will meet the needs of the natural system. In a January 2002 agreement with the federal government, Governor Jeb Bush pledged that the State of Florida would reserve the water needed for Everglades restoration, as required by WRDA 2000. Currently the SFWMD, consistent with its water management responsibilities, is working hard to fulfill that commitment. An existing Florida statute authorizes water reservations. The process to codify these reservations is under development and scheduled to be completed by December 2002.

Implement the State Water Conservation Plan. The Florida Department of Environmental Protection (DEP) has recently drafted a *State Water Conservation Plan*. This comprehensive document was developed with input from all the various user groups throughout the state. The DEP continues to refine this plan and develop strategies for implementation. The SFWMD is developing a rule that will implement some of the recommendations in this plan and assist water managers in improving the ability to meet water demands in times of flood and drought.

The Water Conservation Rule will evaluate water conservation and its practice by user groups, and consider establishing a water conservation ethic geared toward performance. The rule will assist the SFWMD in achieving conservation benefits through public outreach, cooperative grant funding, and technical assistance.

The Water Shortage Rule will update existing rules that were found inefficient during past water shortages with new recommendations for improving water efficiencies during drought periods. It will improve standardizing procedures and address new user groups whose needs were not reflected in the past rules.

⁷ Response to Ken Todd #1

Implement 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 the available water supply, (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 ground water or other available water supplies in plans for future growth and development, (5) increasing supply through water resource development projects, 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, 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 FDEP approved schedule. This will improve the efficiencies of delivering water and maximizing available resources.

Factors Affecting Achievement of this Subgoal

If population growth and/or water used for irrigation exceed projections, the supply of water currently being planned for will not be adequate. Therefore, variations in growth projections are incorporated into five-year updates to the regional water supply plans.

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

The objectives established for achieving this subgoal are

- Increase regional water supply by 356 million gallons per day by 2005.
- Increase volume of reuse on a regional basis.
- Achieve annual targets for 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 table 8. The outputs listed in table 8 and the measures and targets in the Project Summary Table reflect strategy goals and are not intended to function as an allocation or reservation of water, which must be implemented through applicable law.

Table 8. Subgoal 3-C: Provide Sufficient Water Resources for Built and Natural Systems

Objective	Milestone Projects (Refer to the Project Summary Table for more information about specific project schedules, funding, responsible agencies, etc.)			
	Target Date	Project	Output (mgd)	Status
3-C.1: Increase regional water supply by 397 million gallons per day by 2005	2005	LEC Water Supply Plan	143.2	Underway
	2005	LWC Water Supply Plan	151.0	
	2005	UEC Water Supply Plan	40.9	
	2005	Kissimmee Basin Supply Plan	62.0	
3-C.2: Increase volume of reuse on a regional basis	Target Date	Project	Output	Status
		C&SF: CERP –South Miami-Dade County Reuse	131	
		C&SF:CERP – West Miami-Dade County Reuse	100	Underway
		Lower West Coast Regional Irrigation Distribution System Master Plan Study	TBD	
		Northern Palm Beach County and Southern Martin County Reclaimed Water Master Plan	TBD	
3-C.3: Achieve annual targets for water made available through SFWMD alternative water supply program	Target Date	Project	Output	Status
	2002	Alternative Water Supply Grant Program	50	Underway

LINKAGES BETWEEN 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 improvements in the ecosystem. With these two scales the Task Force distinguishes between those things that are within people's capability to manipulate and control (the work goals, subgoals, and objectives) and those things that are the responses of natural systems to their surroundings (the indicators of ecosystem health).

In setting the measurable targets for the various aspects of ecosystem health, the Task Force members assessed the major stressors on the various components of the ecosystem and considered when the projects designed to eliminate or mitigate those stressors are scheduled for completion. The Task Force assumes that the natural system will respond with improved health and vigor to efforts to reverse disruptive human influences. The monitoring and evaluations that have been conducted to date support this assumption. For example, wetland vegetation, particularly broadleaf marsh species and buttonbush, is rapidly expanding on the reflooded floodplain in response to the reestablishment of more natural flow characteristics in the Kissimmee River. 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 a peregrine falcon, a roseate spoonbill, and a whooping crane. This is one localized and general example of how the ecosystem is slowly responding to work efforts to eliminate or mitigate disruptive human influences.

Generally there is no exclusive linkage between any one work goal or objective and any one indicator of ecosystem health. Efforts on many fronts will be necessary to restore and sustain a healthy ecosystem, which will then be manifested through myriad species and processes. However, positive correlations are expected between individual indicators and groups of projects designed to restore conditions that are beneficial to that indicator. Some of these relationships are charted in table 9, below.

Table 9. Linkages between Work Efforts and Ecosystem Restoration

MEASURES OF ECOSYSTEM HEALTH		LINK AGES		MEASURES OF WORK EFFORTS	
Indicator	Measurable Target	Stressor	Restoration Action	Major Projects Related To Eliminating/Mitigating Stressor	Objective
Total System: Threatened and endangered species	Improved status for fourteen federally listed T&E species, and no declines in status for those additional species listed by the state, by 2020.	Loss, degradation, and fragmentation of habitat	Acquisition and restoration of critical habitat lands, including linkage corridors, along with restoration of more natural hydrologic functions in wetlands and maintenance and control of invasive exotic species, is expected to halt declines in species status and lead to the recovery of healthy populations.		
Total System: Nesting wading birds	Target: Recover, at a minimum, an annual average of 10,000 nesting pairs of great egrets, 15,000 pairs of snowy egrets and tricolored herons combined, 25,000 pairs of white ibis and 5,000 pairs of wood storks.	Disruptions to traditional nesting patterns caused by reduced water flows into the estuaries, which were traditionally the richest rookery sites, substantial reductions in the total area of wetlands throughout the ecosystem, and the creation of unnatural water impoundments in the Everglades	Restoring the location, timing, and volumes of water flows, particularly the flows to the estuaries, is expected to result in more traditional nesting patterns, improved reproductive success, and recovered larger populations of nesting wading birds.	2006: Modified Waters Delivery Project ⁸ 2008: C-111 N Spreader Canal 2009: Everglades Agricultural Area Storage Reservoir, phase 1 2010: L31N Seepage Management 2015: Everglades Agricultural Area Storage Reservoir, phase 2 2019: WCA-3 Decompartmentalization 2020: Lake Okeechobee Aquifer Storage and Recovery 2036: Central Lake Belt Storage Area Everglades Rainfall-driven Operations	1-A.3 1-A.3 1-A.1 None 1-A.1 1-A.3 1-A.2 1-A.1 None
Total System: Urban and Agricultural Water Supply	Target: Water provided to all users during droughts up to the level of severity of a one-in-ten-year frequency of occurrence	Loss of freshwater through discharge and seepage	Surface storage reservoirs, aquifer storage and recovery, and seepage management projects	Selected reservoir and ASR projects Add Projects from 3-C	

⁸ Congress specifically emphasized the importance of completing the Modified Water Delivery Project in the 2000 Water Resources Development Act. In the conditions section of 603 Congress said "No appropriation shall be made to construct the Water Conservation Area 3 Decompartmentalization and Sheetflow Enhancement Project "(...list of specific components within that project...)" or the Central Lakebelt Storage Project (including components S and EEE, Central Lake Belt Storage Area) until the completion of the project to improve water deliveries to Everglades National Park authorized by section 104 of the Everglades National Park Protection and Expansion Act of 1989."

MEASURES OF ECOSYSTEM HEALTH		LINK AGES		MEASURES OF WORK EFFORTS	
Indicator	Measurable Target	Stressor	Restoration Action	Major Projects Related To Eliminating/Mitigating Stressor	Objective
			are expected to recapture the water that is currently lost to the ecosystem through unnatural discharges.		
Estuaries: Oyster beds in the St. Lucie Estuary	Approximately 900 acres of healthy oyster beds.	Unnatural changes in water salinity caused by excessive freshwater flows into the estuary; also changes in water quality caused by discharges of unnaturally nutrient-laden waters	Storage projects and projects that will remove barriers to sheet flow, thus curtailing the unnatural discharges of nutrient laden freshwater into the estuary, are expected to create conditions for oyster recolonization of areas with a suitable substrate.		
Estuaries: Roseate spoonbills	At least 1,000 nesting pairs throughout Florida Bay, and some nesting pairs in the coastal zone of the southwestern gulf coast	Declines in the productivity of estuarine feeding grounds caused by too little freshwater entering the estuaries	Projects that will restore more natural flow volumes and patterns of freshwater entering the Florida Bay and gulf coast estuaries are expected to improve the productivity of feeding grounds used by roseate spoonbills and lead to population increases for this species.		
Lake Okeechobee: Submerged Aquatic Vegetation	Sustain at least 40,000 acres of healthy submerged aquatic vegetation around the shoreline of Lake Okeechobee on an ongoing basis	Unnaturally frequent and prolonged high water levels in the lake	Major surface water and aquifer storage projects in the Lake Okeechobee watershed, along with the watershed water quality treatment project, are expected to	2007: C-44 Basin Storage Reservoir	1-A.1
				2009: Lake Okeechobee ASR Pilot Project	1-A.2
				2009: Everglades Agricultural Area Storage Reservoir, Phase 1	1-A.1

MEASURES OF ECOSYSTEM HEALTH		LINK AGES		MEASURES OF WORK EFFORTS	
Indicator	Measurable Target	Stressor	Restoration Action	Major Projects Related To Eliminating/Mitigating Stressor	Objective
Everglades Ridge and Slough; Tree Islands	Target: No further degradation of tree islands, and recovery of as much as possible of the number and acreage of the islands present in WCA-2 and WCA-3 in 1940. (Additional research will be needed to identify the potential for recovering the acreage and number of islands present in 1940.)	Unnaturally frequent and prolonged flooding of tree islands Unnaturally frequent intense fires	result in lower lake levels and to significantly improve the long-term survival of large beds of submerged aquatic vegetation. Major surface water and aquifer storage projects upstream from the Everglades, along with removal of impediments to water flow through the Everglades, are expected to reduce unnatural flooding of tree islands. Rainfall-driven operations and water use restrictions are expected to reduce intense fires due to severe drought conditions	2010: Lake Okeechobee Watershed Water Quality Treatment Facilities 2012: C-43 Basin Storage, Phase 1 2015: Everglades Agricultural Area Storage Reservoir, Phase 2 2020: Lake Okeechobee Aquifer Storage and Recovery 2009: Everglades Agricultural Area Storage Reservoir, Phase 1 2010: L31N Seepage Management 2015: Everglades Agricultural Area Storage Reservoir, Phase 2 2019: WCA-3 Decompartmentalization 2020: Lake Okeechobee Aquifer Storage and Recovery 2036: Central Lake Belt Storage Area Everglades Rainfall-driven Operations Add any goal 3 water conservation projects	1-B.1 1-A.1 1-A.1 1-A.2 1-A.1 None 1-A.1 1-A.3 1-A.2 1-A.1 NA
Florida Bay: Seagrass beds	A 65-70 percent coverage of Florida Bay with high-quality seagrass beds	Disruptions of natural volume and timing of freshwater flows into the southern estuaries	Projects that increase freshwater flows into the bay, such as the projects to improve water management practices in the C-111 and Taylor Slough basin, are expected to improve conditions for seagrass beds.	2009: Everglades Agricultural Area Storage Reservoir, phase 1 2010: L31N Seepage Management 2015: Everglades Agricultural Area Storage Reservoir, phase 2 2019: WCA-3 Decompartmentalization 2020: Lake Okeechobee Aquifer Storage and Recovery 2036: Central Lake Belt Storage Area Everglades Rainfall-driven Operations	1-A.1 None 1-A.1 1-A.3 1-A.2 -A.1 None
Florida Bay: Commercial harvest for pink shrimp	A long-term average rate of commercial harvest of pink shrimp on the Dry Tortugas fishing grounds that equals or exceeds 600 pounds per	Disruptions of natural volume and timing of freshwater flows into the southern estuaries	Restoration of flows that more closely match natural hydrological patterns should benefit the		

Working group meeting, Jacksonville

MEASURES OF ECOSYSTEM HEALTH		LINK AGES	MEASURES OF WORK EFFORTS	
Indicator	Measurable Target	Stressor	Restoration Action	Major Projects Related To Eliminating/Mitigating Stressor
	vessel-day, and an amount of large shrimp in the long-term average catch exceeding 500 pounds per vessel		Tortugas pink shrimp fishery.	

OVERVIEW OF MAJOR PROGRAMS AND COSTS

The Conference Committee Report language accompanying the Department of the Interior and Related Agencies Appropriations Act for Fiscal Year 2000, Public Law 106-113, requested that the Department submit information, to be updated biennially, on the total cost of the effort to restore the South Florida ecosystem. In relevant part, the report language states:

“It would be useful to have a complete estimate of the total costs to restore the South Florida ecosystem. The House and Senate Committees on Appropriations believe that this new estimate will exceed the \$7,800,000,000 estimate that has been used over the last five years. This recalculated estimate should include all three goals of this initiative, namely, (1) getting the water right, (2) restoring and enhancing the natural habitat, and (3) transforming the built environment. The Congress and the American people are committed to this project. Over \$1,300,000,000 has been appropriated to date, however, and the public deserves to know how much this project will truly cost. This information should be submitted to the House and Senate Committees on appropriations no later than February 1, 2000 and should be updated biennially.”

The best estimate for the total cost to restore the South Florida ecosystem continues to be \$14.8 billion, as reported by the Department of the Interior in a letter to Congress dated March 8, 2000 (see appendix C). Of the total restoration cost \$7.8 billion represents the cost of implementing the CERP, which will be shared equally by the federal government and nonfederal sponsors. The CERP outlines 68 components that will take more than 30 years to construct. The CERP was approved by Congress in WRDA 2000, and is integral to achieving two of the three goals of restoration: get the water right (restore more natural flows to the ecosystem while guaranteeing regional water supplies and flood control), and restore, preserve, and protect natural habitats and species. Because ongoing congressional authorization is required for the proposed projects included in the CERP, and because individual projects must undergo additional site-specific studies and analyses, the overall cost to implement this significant component of the restoration effort could be lower or higher depending upon future analyses and site-specific studies.

The CERP builds on other plans and projects that were authorized by Congress and the Florida Legislature prior to and independent of the CERP. These include the Everglades Construction Project, the C-111 Project, the Modified Water Deliveries to Everglades National Park Project, the Kissimmee River Restoration Project, a number of smaller “Critical Projects” authorized by WRDA 1996, the MSRP, state water quality plans, state land acquisitions authorized through the Florida Forever programs which includes a variety of conservation, recreation and water resource land acquisition programs and federal land acquisitions for national parks, preserves, and wildlife refuges. Taken together these projects represent an additional \$7 billion investment. The costs for these measures have been included in the total cost of ecosystem restoration because they actively promote overall restoration goals and establish the baseline conditions for the CERP. Table 10 on page ~~7272~~71 is a tracking matrix which identifies individual projects, responsible agencies, targets, and costs.

The projections and project schedules in this report span multiple decades and depend on certain assumptions about state and federal budget requests and funding levels, optimized construction schedules, willing sellers, and other contingencies. These assumptions are likely to change as the project progresses, and appropriate revisions to this document will be necessary. Therefore, this document does not represent a commitment by the federal, state, or local governments or the

tribes to seek appropriations for specific projects and activities at the funding levels laid out in this document.

State and federal agencies have already acquired 4.9 million acres of land for ecosystem restoration purposes. As of September 2001 the state had acquired 3.5 million acres of habitat conservation land in South Florida at a cost of over \$1.5 billion.

Project Summary Table

This section provides detailed information about the restoration projects that contribute to the accomplishment of the vision, goals, subgoals, and objectives described earlier in this document. Table 10 provides a summary listing of projects with information about schedule, cost, and the goals addressed by each project.

Detailed information data sheets, which are included in appendix D in volume 2 of this report, provide further information for each of these projects, including:

Program name

Project name

Unique Task Force Project Identification Number

Lead agency

Authority

Goal(s) addressed

Measurable output(s)

Cost

Project schedule

Project synopsis

Detailed project budget information

Hyperlink or a point of contact for more detailed project information

Table 10. Project Summary Table

Goals	Project Name	Org.	Start	End	Financial Requirement	Appropriated to Date	Measurable Targets	Primary Objective	Secondary Objectives
Goal 1.	GET THE WATER RIGHT								
Sub-Goal 1.A.	GET THE HYDROLOGY RIGHT (Quantity, Timing & Distribution)								
1.A.1.	SURFACE WATER STORAGE RESERVOIR PROJECTS IN ACRE-FEET						ACRE-FT.		
1100	C&SF: CERP Acme Basin B Discharge	USACE	2002	2007	\$20,100,000	\$242,000	3,800	1.A.1	
1101	C&SF: CERP C-23/C-24/C-25/Northfork and Southfork Storage Reservoirs (UU)	USACE/SFWMD	1999	2010	\$710,223,000	\$71,242,000	349,400	1.A.1	
1102	C&SF: CERP C-44 Basin Storage Reservoir (B)	USACE/SFWMD	1999	2007	\$112,562,000	\$18,196,000	40,000	1.A.1	
1103	C&SF: CERP Everglades Agricultural Storage Reservoir Phase I	USACE/SFWMD	2001	2009	\$233,408,000	\$7,184,000	240,000	1.A.1	
1104	C&SF: CERP Everglades Agricultural Storage Reservoir Phase II (GP2)	USACE/SFWMD	2004	2014	\$203,240,000	\$356,000	120,000	1.A.1	
1105	C&SF: CERP Lake Okeechobee Watershed	USACE/SFWMD	2000	2009	\$455,827,000	\$1,618,700	250,000	1.A.1	1.B.1
1106	C&SF: CERP North Lake Belt Storage Area (Phase I & II)	USACE/SFWMD	2011	2036	\$500,346,000	\$902,000	90,000	1.A.1	
1107	C&SF: CERP Palm Beach County Agricultural Reserve Reservoir and ASR	USACE/SFWMD	2005	2019	\$121,359,000	\$216,000	20,000	1.A.1	1.A.2
1108	C&SF: CERP Site 1 Impoundment and Aquifer Storage and Recovery	USACE/SFWMD	2002	2017	\$131,379,000	\$430,000	15,000	1.A.1	1.A.2
1109	C&SF:CERP Bird Drive Recharge Area (U)	USACE/SFWMD	2004	2014	\$124,083,000	\$216,000	11,500	1.A.1	1.A.2
1110	C&SF:CERP C-43 Basin Storage Reservoir and ASR	USACE/SFWMD	2001	2018	\$440,195,000	\$5,376,000	160,000	1.A.1	1.A.2
1111	C&SF:CERP Central Lake Belt Storage Area	USACE/SFWMD	2011	2036	\$466,725,000	\$844,000	190,000	1.A.1	1.B.1
1112	Critical Ecosystems Restoration Projects - Ten Mile Creek	USACE/SFWMD	1997	2003	\$29,946,000	\$9,626,000	5,000	1.A.1	
1113	Allapattah Flats/Ranch	FDEP	1997	TBD	\$75,594,990	\$0	32,000	2.A.1	1.A.1
1.A.2.	ASR PROJECTS IN BILLION GALLONS PER DAY (BGD)						BGD		
1110	C&SF:CERP C-43 Basin Storage Reservoir and ASR	USACE/SFWMD	2001	2018	*	*	0.22	1.A.1	1.A.2
1200	C&SF: CERP C-51 Regional Groundwater Aquifer Storage and Recovery	USACE/SFWMD	2009	2020	\$127,291,000	\$328,000	0.17	1.A.2	
1201	C&SF: CERP Lake Okeechobee ASR (GG)	USACE/SFWMD	2009	2026	\$1,097,312,000	\$1,918,000	1	1.A.2	
1107	C&SF: CERP Palm Beach County Agricultural Reserve Reservoir and ASR	USACE/SFWMD	2005	2019	*	*	0.075	1.A.1	1.A.2
1108	C&SF: CERP Site 1 Impoundment and Aquifer Storage and Recovery	USACE/SFWMD	2002	2017	*	*	0.15	1.A.1	1.A.2
1.A.3.	PROJECTS REMOVING BARRIERS TO SHEETFLOW IN MILES						MILES MODIFIED		
1300	C&SF: Canal 111	USACE/SFWMD	1994	2005	\$268,200,000	\$100,062,000	4	1.A.3	3.B.1
1301	C&SF: CERP WCA -3 Decompartmentalization and Sheetflow Enhancement (AA)(QQ)(SS)	USACE/SFWMD	2001	2015	\$211,687,000	\$936,000	240	1.A.3	
1302	C&SF:CERP Florida Keys Tidal Restoration	USACE/SFWMD	2001	2006	\$1,251,000	\$990,000	0.6	1.A.3	
1303	Critical Projects Southern CREW	USACE	1999	2005	\$3,435,000	\$448,000		1.A.3	
1304	East WCA-3A Hydropattern Restoration	SFWMD	1994	2002	\$8,360,631	\$5,171,631	8.5	1.A.3	
1305	Kissimmee Prairie	FDEP/SFWMD	1996	1997	\$22,118,094	\$22,118,094	39.3	1.A.3	2.A.1

Goals	Project Name	Org.	Start	End	Financial Requirement	Appropriated to Date	Measurable Targets	Primary Objective	Secondary Objectives
1306	Kissimmee River Restoration Project	USACE/SFWMD	1994	2010	\$578,000,000	\$201,970,000	22	1.A.3	
1307	Modified Water Deliveries to Everglades National Park	NPS	1990	2005	\$190,890,000	\$160,162,000	21	1.A.3	2.A.4
1.A.4.	OTHER RELATED HYDROLOGY PROJECTS						TBD		
	Additional Water Conveyance Structures Under Tamiami Trail	FDOT	1998	2005	\$18,398,000	\$1,773,000		1.A.4	
1400	Biscayne Bay Feasibility Study	USACE/M-DADE	1996	2001	\$6,370,000	\$2,374,000		1.A.4	
1401	C&SF: Water Preserve Areas (WPA) Feasibility Study	USACE/SFWMD	1996	2002	\$19,955,000	\$19,955,000		1.A.4	
1402	C&SF: CERP Broward County Secondary Canal System	USACE/SFWMD	2001	2009	\$12,898,000	\$250,000		1.A.4	
1403	C&SF: CERP C-111N Spreader Canal	USACE/SFWMD	2000	2009	\$94,035,000	\$1,868,000		1.A.4	
1404	C&SF: CERP Dade-Broward Levee/Pennsuco Wetlands (BB)	USACE/SFWMD	2002	2009	\$18,778,000	\$236,000		1.A.4	
1405	C&SF: CERP East Coast Canal Structures (C-4)	USACE/SFWMD	1999	2002	\$3,421,000	\$3,421,000		1.A.4	
1406	C&SF: CERP Lake Istokpoga Regulation Schedule (OPE)	USACE/SFWMD	2002	2003	\$50,000	\$44,000		1.A.4	
1407	C&SF: CERP Loxahatchee National Wildlife Refuge Internal Canal Structures	USACE/SFWMD	2003	2007	\$7,669,000	\$14,000		1.A.4	
1408	C&SF: CERP North Palm Beach County PIR Part 1	USACE/SFWMD	2001	2016	*	*		1.B.1	1.A.4
1409	C&SF: CERP Seminole Tribe Big Cypress Water Conservation Plan	USACE & Seminoles	2001	2008	\$75,288,000	\$4,765,000		1.A.4	
1410	C&SF: CERP Biscayne Bay Coastal Wetlands	USACE/SFWMD	1999	2015	\$299,583,000	\$1,168,000		1.A.4	
1411	C&SF: CERP Caloosahatchee R. (C-43) Basin ASR Pilot Project	USACE/SFWMD	2001	2008	\$6,000,000	\$350,000		1.A.4	
1412	C&SF: CERP Diverting WCA-2 and WCA-3 Flows to Central Lake Belt Storage Area	USACE/SFWMD	2009	2018	\$76,921,000	\$150,000		1.A.4	
1413	C&SF: CERP Everglades Rain Driven Operations	USACE/SFWMD	TBD	TBD	TBD	\$0		1.A.4	
1414	C&SF: CERP Henderson Creek/Balle Meade Restoration	USACE	2000	2005	\$4,806,000	\$246,000		1.A.4	1.B.1
1415	C&SF: CERP L-31 N Improvements for Seepage Management and S-356 Structures	USACE/SFWMD	2006	2013	\$184,845,000	\$322,000		1.A.4	
1416	C&SF: CERP L-31 N Seepage Management Pilot Project	USACE/SFWMD	2001	2006	\$10,000,000	\$1,630,000		1.A.4	
1417	C&SF: CERP Lake Belt (In-Ground Reservoir) Technology - Pilot Project	USACE/SFWMD	1999	2011	\$23,000,000	\$2,432,000		1.A.4	
1418	C&SF: CERP Lake Okeechobee Aquifer Storage and Recovery Pilot Project	USACE/SFWMD	1999	2009	\$19,000,000	\$3,638,000		1.A.4	
1419	C&SF: CERP Lake Okeechobee Regulation Schedule	USACE/SFWMD	TBD	TBD	TBD	\$0		1.A.4	
1420	C&SF: CERP Modified Holeyland Wildlife Management Area Operation Plan	USACE/SFWMD	TBD	TBD	\$150,000	\$0		1.A.4	
1421	C&SF: CERP Modified Rotenberger Wildlife Management Area Operation Plan	USACE/SFWMD	2003	2006	\$150,000	\$0		1.A.4	
1422	C&SF: CERP Operational Modification to Southern Portion of L-31N and C-111	USACE/SFWMD	TBD	TBD	TBD	\$0		1.A.4	
1423	C&SF: CERP Site 1 Impoundment and Aquifer Storage and Recovery Pilot Project	USACE/SFWMD	1999	2009	\$9,000,000	\$2,194,000		1.A.4	

Goals	Project Name	Org.	Start	End	Financial Requirement	Appropriated to Date	Measurable Targets	Primary Objective	Secondary Objectives
1425	C&SF:CERP Southern Golden Gates Estates Restoration	USACE/SFWMD	1999	2006	\$45,654,000	\$5,266,000		1.A.4	
1426	C&SF:CERP Wastewater Reuse Technology Pilot Project	USACE/SFWMD	2001	2013	\$30,000,000	\$1,030,000		1.A.4	
1427	Critical Projects Seminole Big Cypress Reservation Water Conservation Plan	Seminoles & USACE	1997	2008	\$57,558,938	\$6,598,822		1.A.4	
1428	Florida Bay and The Florida Keys Feasibility Study	USACE	2000	2005	\$4,569,000	\$2,478,000		1.A.4	
1429	Herbert Hoover Dike Stabilization	USACE/SFWMD	2001	2008	\$234,400,000	\$5,380,000		1.A.4	
1430	Indian River Lagoon Restoration Feasibility Study	USACE/SFWMD	1996	2002	\$6,150,000	\$6,150,000		1.A.4	
1432	Northern L-8 Basin Improvements	SFWMD	1994	2006	\$25,277	\$25,277		1.A.4	
1433	Rotenberger Restoration	SFWMD	1994	2000	\$5,031,101	\$3,387,101		1.A.4	
1434	Southwest Florida Feasibility Study	USACE	1999	2005	\$12,000,000	\$3,724,000		1.A.4	
1435	WCA-2A Hydropattern Restoration	SFWMD	1994	1999	\$5,895,440	\$5,553,440		1.A.4	
1436	West WCA-3A Hydropattern Restoration	SFWMD	1994	2006	\$10,909,917	\$7,122,799		1.A.4	
Sub-Goal 1.B	GET THE WATER QUALITY RIGHT								
1.B.1.	STORMWATER TREATMENT AREAS (STA) PROJECTS						STORAGE AREA (ACRES)		
1105	C&SF: CERP Lake Okeechobee Watershed	USACE/SFWMD	2000	2009	*	*	11,875	1.A.1	1.B.1
1500	C&SF: West Palm Beach Canal (C-51) and STA-1E	USACE/SFWMD	1999	2003	\$272,900,000	\$151,052,000	6,500	1.B.1	
1501	C&SF: CERP Big Cypress/L-28 Interceptor Modifications (CCC)	USACE/SFWMD	2005	2015	\$42,751,000	\$74,000	1,900	1.B.1	
1502	C&SF: CERP C-9 STA and Impoundment	USACE/SFWMD	2002	2006	\$89,146,000	\$32,369,000	2,500	1.B.1	
1503	C&SF: CERP Miccosukee Tribe Water Management Plan	USACE & Miccosukee	2003	2010	\$24,459,000	\$0	see page 71	1.B.1	
1409	C&SF: CERP North Palm Beach County PIR Part 1	USACE/SFWMD	2001	2016	\$393,678,000	\$3,188,400	1,260	1.B.1	1.A.4
1504	C&SF: CERP - Western C-11 Diversion Impoundment & WCA-3A&B Levee Seepage Management	USACE/SFWMD	2002	2008	\$224,544,000	\$824,000	1,600	1.B.1	
1505	Stormwater Treatment	USACE/SFWMD	2005	2014	\$82,895,000	\$144,000	5,000	1.B.1	
1111	C&SF:CERP Central Lake Belt Storage Area	USACE	2011	2036	*	*	640	1.A.1	1.B.1
1415	C&SF:CERP Henderson Creek/Belle Meade Restoration	USACE	2000	2005	*	*	10	1.A.4	1.B.1
1506	Lake Okeechobee Water Retention/ Phosphorus Removal	USACE/SFWMD	1997	2004	\$16,948,000	\$9,208,000	940	1.B.1	
1507	Miccosukee Tribe Water Management Area	Miccosukee	TBD	TBD	\$42,113,000	\$0	900	1.B.1	
1508	STA-1 West Works and Outflow Pump Station (G-310)	USACE/SFWMD	1994	2000	\$99,370,678	\$76,149,678	6700	1.B.1	
1509	STA-2 Works and Outflow Pump Station (G-335)	SFWMD	1994	2002	\$110,606,858	\$97,088,858	6430	1.B.1	
1510	STA-3/4 Works	SFWMD	1994	2004	\$213,213,534	\$129,114,302	16600	1.B.1	
1511	STA-5 Works	SFWMD	1994	2003	\$48,056,114	\$36,204,253	4118	1.B.1	
1512	STA-6 (includes sections 1 and 2)	SFWMD	1994	2004	\$21,807,026	\$10,354,727	2222	1.B.1	
1.B.2.	DEVELOPMENT OF TOTAL MAXIMUM DAILY LOAD (TMDL) PLANS								
1600	Total Maximum Daily Load (TMDL) for South Florida	FDEP	2000	TBD	\$3,400,000	\$1,000,000		1.B.2	
1.B.3.	OTHER RELATED WATER QUALITY PROJECTS								

Goals	Project Name	Org.	Start	End	Financial Requirement	Appropriated to Date	Measurable Targets	Primary Objective	Secondary Objectives
	1700 Chapter 298 Districts/Lease 3420 Improvements	SFWMD	1994	2004	\$17,642,865	\$17,402,872		1.B.3	
	1701 Comprehensive Integrated Water Quality Plan	USACE	2001	2006	\$8,100,000	\$3,726,000		1.B.3	
	1702 Critical Projects Lake Trafford	USACE	1999	2004	\$15,408,000	\$12,296,000		1.B.3	
	1703 Critical Projects Western C-11 Water Quality Treatment	USACE	1997	2003	\$13,300,000	\$14,813,000		1.B.3	
	1704 Development of Best Management Practices Related to the Land Application of Residuals and Chicken Manure in the Lake Okeechobee Watershed	SFWMD	2000	2003	\$657,000	\$357,000		1.B.3	
	1705 Everglades National Park Water & Wastewater	NPS	1997	TBD	\$18,965,000	\$12,485,000		1.B.3	
	1706 Everglades Stormwater Program	SFWMD	1998	2006	TBD	\$15,200,000		1.B.3	
	1707 Floridan Aquifer Restoration	NRCS	2002	2007	\$1,200,000	\$0		1.B.3	
	1708 Lake Okeechobee Sediment Removal Feasibility Study and Pilot Project	SFWMD	2000	2003	\$1,953,035	\$1,529,393		1.B.3	
	1709 Lake Okeechobee Tributary Sediment Removal Pilot Project	SFWMD	2000	2002	\$420,000	\$354,200		1.B.3	
	1710 Micosukee Water Resources Management	Micosukee	1997	TBD	25,200,000	0		1.B.3	
	1711 New Palm Dairy Land Acquisition	SFWMD	2000	TBD	*	*		2.A.1	1.B.3
	1712 Outfall (Military) Canal Remediation	AFBCA	1999	2002	TBD	\$1,900,000		1.B.3	
	1713 Pollution Prevention	NRCS/FDACS	2002	2006	\$890,000	\$162,000		1.B.3	
	1714 S-5A Basin Runoff Diversion Works	SFWMD	1994	2014	\$14,243,205	\$11,123,435		1.B.3	
	1715 Seminole Tribe Best Management Practices for the Big Cypress Reservation	Seminoles	1996	2004	\$4,779,000	\$955,800		1.B.3	
	1716 Seminole Tribe Best Management Practices for the Brighton Reservation	Seminoles	1998	2004	\$338,000	\$96,000		1.B.3	
	1717 Seminole Tribe Comprehensive Surface Water Management System for the Brighton Reservation	Seminoles	1999	2010	\$15,818,000	\$8,707,000		1.B.3	
	1718 Seminole Tribe Water Conservation Project for Big Cypress Reservation	Seminoles	2002	2012	\$22,452,000	\$0		1.B.3	
	1719 South Florida Water Quality Protection Program and CERP Numeric Targets and Loading Analyses	FDEP	1999	TBD	\$851,510	\$464,260		1.B.3	
	1720 STA-1 Inflow and Distribution Works	SFWMD	1994	2003	\$11,223,396	\$10,074,968		1.B.3	
Goal 2.	RESTORE, PRESERVE AND PROTECT NATURAL HABITATS AND SPECIES								
Sub-Goal 2.A.	RESTORE, PRESERVE AND PROTECT NATURAL HABITATS								
2.A.1.	HABITAT PROTECTION LAND ACQUISITION PROJECTS								
	STATE ACQUISITIONS								
	1113 Allapattah Flats/Ranch	FDEP	1997	TBD	*	*	34,221	2.A.1	1.A.1
	2101 Atlantic Ridge Ecosystem	FDEP/SFWMD	1995	TBD	TBD	\$51,300,000	15,032	2.A.1	
	2102 Babcock Ranch	FDEP	2001	TBD	\$52,527,237	\$0	91,361	2.A.1	
	2103 Barfield Farms	SFWMD	1998	TBD	TBD	TBD	1,367	2.A.1	
	2104 Belle Meade	FDEP	1993	TBD	\$47,700,000	\$32,800,000	27,200	2.A.1	
	2105 Big Bend Swamp/Holopaw Ranch	FDEP	2000	TBD	\$28,190,776	\$0	54,425	2.A.1	
	2106 Biscayne Coastal Wetlands	SFWMD/M-DADE	1998	TBD	\$2,961,668	TBD	2,241	2.A.1	
	2107 Bombing Range Ridge	FDEP	1998	TBD	\$13,674,995	\$0	39,073	2.A.1	

Goals	Project Name	Org.	Start	End	Financial Requirement	Appropriated to Date	Measurable Targets	Primary Objective	Secondary Objectives
2108	Caloosahatchee Ecoscape	FDEP	1998	TBD	TBD	\$0	15,391	2.A.1	
2109	Cattfish Creek	FDEP	1990	TBD	TBD	\$9,100,000	10,609	2.A.1	
2110	Cayo Costa	FDEP	1980	TBD	TBD	\$27,600,000	1,932	2.A.1	
2111	Charlotte Harbor Flatwoods	FDEP	1986	TBD	TBD	\$52,600,000	54,281	2.A.1	
2112	Corkscrew Regional Ecosystem Watershed	FDEP	1991	TBD	TBD	\$22,800,000	59,008	2.A.1	
2113	Corkscrew Regional Mitigation Bank	SFWMD	1995	1999	\$2,600,000	\$2,600,000	633	2.A.1	
2114	Coupon Bight/ Key Deer Big Pine Key	FDEP	1985	TBD	TBD	\$17,300,000	3,452	2.A.1	
2115	Cypress Creek/Trail Ridge	SFWMD	1997	TBD	TBD	\$0	13,788	2.A.1	
2116	Dupuis Reserve	SFWMD	1985	1986	\$23,016,601	\$23,016,601	21,875	2.A.1	
2117	East Coast Buffer/Water Preserve Areas	FDEP/SFWMD	1994	TBD	TBD	\$111,900,000	70,883	2.A.1	
2118	Estero Bay	FDEP	1985	TBD	TBD	\$40,100,000	16,740	2.A.1	
2119	Everglades Agricultural Area (EAA) / Talisman	SFWMD/DOI	1997	1999	\$133,584,552	\$133,584,552	50,719	2.A.1	
2120	Fakahatchee Strand	FDEP	1980	TBD	\$24,800,000	\$20,200,000	80,231	2.A.1	
2121	Fisheating Creek	SFWMD/FDEP	1999	TBD	TBD	\$46,500,000	168,360	2.A.1	
2122	Florida Keys Ecosystem	FDEP	1992	TBD	TBD	\$35,200,000	7,611	2.A.1	
2123	Frog Pond/L-31 N	FDEP/SFWMD	1994	TBD	TBD	\$80,700,000	10,600	2.A.1	
2124	Indian River Lagoon Blueway	FDEP	1998	TBD	TBD	\$19,500,000	5,136	2.A.1	
2125	Juno Hills	FDEP	1994	TBD	TBD	\$15,000,000	440	2.A.1	
2126	Kissimmee - St. John Connector	FDEP	2001	TBD	\$28,065,896	\$0	34,668	2.A.1	
1305	Kissimmee Prairie	FDEP	1996	1997	*	*	38,282	2.A.1	1.A.3
2127	Kissimmee River (Lower Basin)***	SFWMD	1985	2007	see page 24	see page 24	62,628	2.A.1	
2128	Kissimmee River (Upper Basin)***	SFWMD	1990	2007	see page 24	see page 24	33,919	2.A.1	
2129	Lake Wales Ridge Ecosystem	FDEP	1992	TBD	\$25,200,000	\$19,100,000	12,770	2.A.1	
2130	Lake Walk-In-Water	SFWMD	1995	TBD	TBD	\$3,950,000	4,615	2.A.1	
2131	Loxahatchee River Land Acquisition	SFWMD	1984	2001	\$11,927,120	\$11,927,120	1,936	2.A.1	
2132	Loxahatchee Slough Land Acquisition	SFWMD	1996	2002	TBD	\$21,000,000	15,200	2.A.1	
2133	McDaniel Ranch Land Acquisition	SFWMD	2000	TBD	TBD	TBD	7,000	2.A.1	
2134	Miami-Dade County Archipelago	FDEP	1994	TBD	\$9,900,000	\$8,200,000	866	2.A.1	
2135	Model Lands	SFWMD/M-DADE	1994	2007	TBD	\$6,023,984	44,999	2.A.1	
1711	New Palm Dairy Land Acquisition	SFWMD	2000	TBD	\$48,000,000	\$48,000,000	2,135	2.A.1	1.B.3
2136	Nicodemus Slough	SFWMD	1981	1988	\$1,744,500	\$1,744,500	2,219	2.A.1	
2137	North Fork St Lucie River	FDEP/SFWMD	1988	TBD	TBD	\$4,400,000	3,800	2.A.1	
2138	North Key Largo Hammocks	FDEP	1983	TBD	TBD	\$5,900,000	4,508	2.A.1	
2139	North Savannas	SFWMD	1997	2002	\$5,000,000	\$500,000	930	2.A.1	
2140	Okaloocoochee Slough	FDEP/SFWMD	1996	TBD	TBD	\$20,000,000	37,210	2.A.1	
2141	Okeechobee Battifield	FDEP	2001	TBD	\$113,970	\$0	55	2.A.1	
2142	Osceola Pine Savannas	FDEP	1995	TBD	TBD	\$310,000	42,291	2.A.1	
2143	Pal-Mar	FDEP/SFWMD	1992	TBD	TBD	\$10,200,000	35,795	2.A.1	
2144	Panther Glades	FDEP	2001	TBD	\$3,947,680	\$0	21,000	2.A.1	
2145	Paradise Run	SFWMD	1998	2001	TBD	\$4,908,582	8,065	2.A.1	
2146	Parker-Poinciana	SFWMD	1996	TBD	TBD	TBD	1,970	2.A.1	
2147	Pineland Site Complex	FDEP	1996	TBD	TBD	\$280,000	250	2.A.1	3
2148	Rookery Bay	FDEP	1980	TBD	\$46,240,000	\$46,200,000	18,721	2.A.1	
2149	Rotenberger/Holey Land Tract	FDEP	1984	TBD	TBD	\$18,100,000	79,170	2.A.1	
2150	Shingle Creek	SFWMD	1987	TBD	TBD	\$1,344,400	7,655	2.A.1	
2151	Six Mile Cypress Land Acquisition	SFWMD	1987	TBD	TBD	\$2,098,000	1,741	2.A.1	

Goals	Project Name	Org.	Start	End	Financial Requirement	Appropriated to Date	Measurable Targets	Primary Objective	Secondary Objectives
2152	South Fork St. Lucie River Land Acquisition	SFWMD	1995	1995	\$2,480,000	\$2,480,000	184	2.A.1	
2153	South Savannas	FDEP/SFWMD	1981	TBD	TBD	\$16,900,000	6,046	2.A.1	
2154	Southern Glades	SFWMD/M-DADE	1984	TBD	TBD	\$13,741,347	37,620	2.A.1	
2155	Southern Golden Gate Estates	FDEP	1984	TBD	TBD	\$58,100,000	57,200	2.A.1	
2156	Tibet-Butler Preserve	SFWMD	1998	1999	\$3,601,900	\$3,601,900	439	2.A.1	
2157	Twelve Mile Slough	SFWMD	1998	TBD	TBD	TBD	3,300	2.A.1	
2158	Upper Lakes Basin Watershed	SFWMD	1995	2002	TBD	\$10,093,957	47,300	2.A.1	
2159	Water Conservation Areas 1,2, and 3	SFWMD	1948	2010	TBD	\$9,252,882	819,535	2.A.1	
2160	Yamato Scrub	FDEP	1992	1996	\$17,500,000	\$17,500,000	207	2.A.1	
FEDERAL ACQUISITIONS									
2161	A.R. M. Loxahatchee National Wildlife Refuge	USFWS	1955	2005	\$30,119,000	\$129,000	149,016	2.A.1	
2162	Big Cypress National Preserve Addition	NPS	1997	2004	\$49,560,000	\$49,560,000	6,113	2.A.1	
2163	Big Cypress National Preserve Private Inholdings** Complete Land Acquisition for Biscayne National Park	NPS	1998	2010	\$207,061,269	\$184,961,000	878	2.A.1	
2164	Parik	NPS	2003	2008	\$2,930,000	\$430,000	172,924	2.A.1	
2165	Crocodile Lake National Wildlife Refuge	USFWS	1979	2003	\$14,319,000	\$13,093,000	7,100	2.A.1	
2166	East Everglades Addition to Everglades National Park	NPS	1990	2000	\$113,149,000	\$113,149,000	109,504	2.A.1	
2167	Florida Keys National Wildlife Refuge Complex	USFWS	1960	2005	\$63,017,000	\$30,232,000	415,436	2.A.1	
2168	Florida Panther National Wildlife Refuge	USFWS	1989	1989	\$10,682,000	\$10,682,000	61,563	2.A.1	
2169	Hobe Sound National Wildlife Refuge	USFWS	1968	2004	\$5,818,000	\$18,000	1,130	2.A.1	
2170	J.N. "Ding" Darling National Wildlife Refuge	USFWS	1945	2005	\$31,252,000	\$7,252,000	8,360	2.A.1	
2.A.2. CORAL REEF PROTECTION PROJECTS									
2200	Planning and Implementation of the Tortugas Ecological Reserve	NOAA	1998	2001	\$873,552	\$0		2.A.2	
2.A.3. IMPROVE HABITAT QUALITY									
Note – The April 1999 USACE Central and Southern Florida 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 this publication identifies in detail which projects are anticipated to achieve this objective. However, appropriate measures by project are currently being developed through the establishment of interim goals. There are some projects included in our tracking matrix that exemplify how this objective will be achieved.									
2300	C&SF: CERP Protect and Enhance Existing Wetland Systems along LNW (Strazzulla Tract)	USACE/SFWMD	2002	2007	\$52,772,000	\$292,000	10,000	2.A.3	
2301	C&SF: CERP Winsburg Farms Wetland Restoration	USACE	2000	2005	\$14,140,000	\$855,000	175	2.A.3	
2302	C&SF: CERP Lake Park Restoration	USACE/Lee Co.	1999	2004	\$5,166,000	\$78,000	40	2.A.3	
2303	C&SF: CERP Restoration of pineland and hardwood hammocks in C-111 Basin	USACE	2003	2009	\$600,000	\$0	50	2.A.3	
2.A.4. OTHER NATURAL HABITAT PROJECTS									
2400	Big Cypress National Preserve Mineral Rights	NPS	2000	2003	TBD	\$0		2.A.4	
2401	C&SF: CERP- Flow to Northwest and Central WCA - 3A (IJ)(RR)	USACE/SFWMD	2001	2011	\$30,877,000	\$444,000		2.A.4	
1307	Modified Water Deliveries to Everglades National Park	NPS	1990	2005	*	*		1.A.3	2.A.4
2402	South Florida Multi-Species Recovery Plan	USFWS	1994	2010	\$329,950,000	\$141,470,000		2.A.4	
2403	WCA-2A Regulation Schedule Review	USACE	TBD	TBD	\$500,000	\$0		2.A.4	

Goals	Project Name	Org.	Start	End	Financial Requirement	Appropriated to Date	Measurable Targets	Primary Objective	Secondary Objectives
Sub-Goal 2.B.	CONTROL INVASIVE PLANTS								
2.B.1	INVASIVE EXOTIC PLANTS MANAGEMENT PLAN DEVELOPMENT								
2500	Prepare management plans for top 20 south Florida exotic pest plants	NEWTT	2001	2011	\$600,000	\$0		2.B.1	
2.B.2.	EXOTIC SPECIES MAINTENANCE CONTROL PROJECTS								
2600	Achieve "Maintenance Control" status for Brazilian Pepper, Melaleuca, Australian pine and Old world climbing fern in all natural areas statewide by 2020	NEWTT	2002	2020	\$100,000,000	\$0		2.B.2	
2601	Integration of Federal, State, and Local Agency Invasive Exotic Control Programs into Florida-wide Strategy	FDEP	2000	2005	TBD	\$76,418,000		2.B.2	
2.B.3.	INVASIVE EXOTIC PLANTS PREVENTION PLAN DEVELOPMENT								
2700	Complete an Invasive Exotics Plant Prevention, Early Detection and Eradication Plan by 2005	NEWTT	2001	2004	\$5,000,000	\$0		2.B.3	
2701	Detecting Invasive Exotic Plants: A Workshop and Symposium to Develop and Apply Uniform Approaches Across the Florida Landscape.	NEWTT	2003	2003	\$50,000	\$0		2.B.3	
2702	Melaleuca Quarantine Facility	USDA/ARS	1997	2003	\$6,200,000	\$1,600,000		2.B.3	
2.B.4	OTHER RELATED EXOTIC SPECIES PROJECTS								
2800	C&SF:CERP- Melaleuca Eradication Project and other Exotic Plants	USACE	2006	2011	\$5,772,000	\$0		2.B.4	
2801	Estero Bay Aquatic Preserve and Buffer Reserve Enhancement and Exotic Removal Project	FDEP	1998	2004	\$668,000	\$143,000		2.B.4	
2802	Everglades National Park Exotic Control Program	NPS	2002	TBD	\$2,150,000	\$1,300,000		2.B.4	
2803	Exotic Species Removal	Seminoles	1998	2010	\$988,000	\$152,000		2.B.4	
2804	Hole-in-the-Donut	NPS	1994	2017	\$75,000,000	\$11,582,000		2.B.4	
2805	Melaleuca Control (Critical) Big Cypress National Preserve	NPS	1998	2005	\$1,400,000	\$1,050,000		2.B.4	
GOAL 3.	FOSTER COMPATIBILITY								
Sub-Goal 3.A.	USE AND MANAGE LAND COMPATIBLE WITH RESTORATION								
3.A.1	DESIGNATE 60,000 ACRES AS PART OF THE FLORIDA GREENWAYS AND TRAILS SYSTEM BY 2005								
3.A.2	SUSTAINABLE AGRICULTURE								
3200	Agriculture Land Stewardship	NRCS/FDACS	2002	2014	\$10,920,000	\$910,000		3.A.2	
3201	BMPs for Agriculture	NRCS	1997	2011	\$65,245,000	\$15,000,000		3.A.2	
3202	Monitoring of Organic Soils in the Everglades	NRCS	1998	2012	TBD	\$136,000		3.A.2	
3203	Soil Survey Update for the Everglades Agricultural Area	NRCS	2002	2005	\$1,500,000	\$0		3.A.2	

Goals	Project Name	Org.	Start	End	Financial Requirement	Appropriated to Date	Measurable Targets	Primary Objective	Secondary Objectives
	3204 Technical Assistance to Seminole and Miccosukee Indian Reservations	NRCS	1998	2009	\$3,850,000	\$200,000		3.A.2	
	3205 Urban Mobile Irrigation Lab	NRCS	1998	2011	\$2,860,000	\$480,000		3.A.2	
	3206 Wetland Reserve Program	NRCS	1997	2008	\$2,135,000	\$610,000		3.A.2	
Sub-Goal 3.B	FLOOD PROTECTION COMPATIBLE WITH ECOSYSTEM RESTORATION								
3.B.1	MAINTAIN OR IMPROVE EXISTING LEVELS OF FLOOD PROTECTION								
	3400 C-4 Flood Mitigation Projects	SFWMD	2001	2004	\$40,300,000	\$25,900,000		3.B.1	
	1300 C&SF: Canal 111	USACE/SFWMD	1994	2005	*	*		1.A.3	3.B.1
Sub-Goal 3.C	PROVIDE SUFFICIENT WATER RESOURCES FOR BUILT AND NATURAL SYSTEMS								
3.C.1	COMPLETE WATER RESOURCE DEVELOPMENT IDENTIFIED IN THE REGIONAL WATER SUPPLY PLAN FOR EACH AREA AND APPROVED EACH BUDGET YEAR.						MGD		
	3500 Kissimmee Basin Water Supply Plan	SFWMD	2002	2006	\$4,205,000	\$1,620,000	62	3.C.1	
	3501 Lower East Coast Water Supply Plan	SFWMD	2002	2006	\$23,209,000	\$3,457,000	143.2	3.C.1	
	3502 Lower West Coast Water Supply Plan	SFWMD	2002	2006	\$19,784,000	\$1,564,000	151	3.C.1	
	3503 Upper East Coast Water Supply Plan	SFWMD	2002	2006	\$3,783,000	\$903,000		3.C.1	
3.C.2	INCREASE VOLUME OF REUSE ON A REGIONAL BASIS						MGD		
	3600 C&SF:CERP-South Miami-Dade County Reuse	USACE/M-DADE	2011	2020	\$363,024,000	\$0	131	3.C.2	
	3601 C&SF:CERP-West Miami-Dade County Reuse	USACE/M-DADE	2011	2020	\$437,237,000	\$0	100	3.C.2	
	3602 Lower West Coast Regional Irrigation Distribution System Master Plan Study	SFWMD	2002	2006	see page 207			3.C.2	
	3603 Northern Palm Beach County and Southern Martin County Reclaimed Water Master Plan	SFWMD	2002	2002	see page 206			3.C.2	
	3604 Orlando/Kissimmee Area Regional Reclaimed Water Optimization Plan	SFWMD	2002	2005	see page 205			3.C.2	
	3605 Winsberg Wetlands Water Reclamation Project	PBCo.	1999	2003	\$14,500,000	\$3,000,000		3.C.2	
3.C.3	ACHIEVE ANNUAL TARGETS FOR WATER MADE AVAILABLE THROUGH SFWMD ALTERNATIVE WATER SUPPLY PROGRAM.						MGD		
	3700 Alternative Water Supply Grant	SFWMD	1996	TBD	\$4,000,000		50	3.C.3	
3.C.4	OTHER RELATED PROJECTS								
	3800 Critical Projects - Florida Keys Carrying Capacity	USACE/DCA	1997	2002	\$6,000,000	\$6,000,000		3.C.4	

Legend:

GOAL 1: GET THE WATER RIGHT

Subgoal 1-A: Get the hydrology right

Objective 1-A.1: Provide 1.6 million acre-feet of surface water storage by 2036

Objective 1-A.2: Develop aquifer storage and recovery systems capable of storing 1.6 billion gallons per day by 2020

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Objective 1-A.3: Modify 331 miles of impediments to flow by 2019

Subgoal 1-B: Get the water quality right

Objective 1-B.1: Construct 70,000 acres of stormwater treatment areas by 2036

Objective 1-B.2: Prepare plans, with strategies and schedules for implementation, to comply with total maximum daily loads for 100 percent of impaired water bodies by 2011

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 5.6 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: Prepare management plans for the top twenty South Florida invasive exotic plant species by 2010

Objective 2-B.2: Achieve maintenance control status for Brazilian pepper, melaleuca, Australian pine, and Old World climbing fern in all natural areas statewide by 2020

Objective 2-B.3: Complete an invasive exotic plant prevention, early detection, and eradication plan by 2005

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 an additional 60,000 acres as part of the Florida Greenways and Trails System between 2000 and 2005

Objective 3-A.2: Maintain annual increases in the acreage of agricultural lands participating in the voluntary USDA Wetland Reserve Program and other USDA conservation programs

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: Increase the regional water supply by 356 million gallons per day by 2005

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

Objective 3-C-3: Achieve annual targets for water made available through the SFWMD Alternative Water Supply Development Program through 2020

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

REPORT PURPOSE [838382](#)
MAJOR ACCOMPLISHMENTS OF 2001 through July 2002 [838382](#)
PROGRESS MADE TOWARD RESTORATION, 2001 through July 2002 [959589](#)

REPORT PURPOSE

This biennial report summarizes the progress made in 2001 through July 31, 2002 to restore the South Florida ecosystem.

The 1996 Water Resources Development Act (WRDA) directs the South Florida Ecosystem Restoration Task Force (the Task Force) to report biennially on the following Task Force activities:

- Policies, strategies, plans, programs, projects, and activities and priorities planned, developed, or implemented for South Florida ecosystem restoration
- Progress made toward restoration

This report satisfies the WRDA requirements by providing the following information: First, it summarizes the major accomplishments of the reporting period in terms of policies, strategies, plans, programs, projects, and activities. Second, it tracks the progress made toward restoration during the reporting period in terms of selected measurable indicators of ecosystem health.

This report is intended for four principal audiences:

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

This report is intended to demonstrate to the above authorities that progress is being made and that funds targeted for restoration are being spent in logical and accountable ways. The information included here will also be broadly shared with state and federal agencies, local governments, regional agencies and industries, private interest groups, and private citizens interested in South Florida ecosystem restoration.

POLICIES, STRATEGIES, PLANS, PROGRAMS, PROJECTS, ACTIVITIES: MAJOR ACCOMPLISHMENTS - 2001 THROUGH JULY 2002

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* (the preceding report in this larger document). This biennial report, *Tracking Success*, addresses only the Task Force member agencies' activities during the past two years, and it covers only the highlights of those activities. More complete and detailed discussions of the recently completed and ongoing projects can be found in reports produced by the participating agencies, particularly the USACE, the SFWMD, and the FDEP.

Coordination and Adaptive Management of the Restoration Effort

Revision of July 2000 Task Force Strategy Document

The Task Force and working group revised *Coordinating Success: Strategy for Restoration of the South Florida Ecosystem* for submittal to Congress in September 2002. This revision incorporated new information on restoration and responded to the March 2001 comments of the General Accounting Office. The revised strategy maintains the three broad goals identified in the original document and expands on the measurable objectives for Goal 3: Foster Compatibility of the Built and Natural Systems.

Presidential/Gubernatorial Agreement

WRDA 2000 requires a binding agreement between the governor of Florida and the president of the United States "...under which the state shall ensure, by regulation or other appropriate means, that water made available by each project in the plan shall not be permitted for a consumptive use or otherwise made unavailable by the State until such time as sufficient reservations of water for the reservation of the natural system are made under State law..." This agreement was signed by the president and the governor January 9, 2002.

To complement the recently signed (January 9, 2002) President-Governor Agreement to ensure that water produced by the Comprehensive Plan will be allocated appropriately under state law to restore the Everglades natural system, the Army Corps will continue to work with its federal, state, tribal and non-governmental partners on the programmatic regulations. These regulations must be issued by December 11, 2002 and require the concurrence of the Secretary of the Interior and the Governor of Florida. Although largely procedural, the programmatic regulations will define the relationships and the processes to be utilized among all the parties to ensure that the goals and objectives of the Comprehensive Everglades Restoration Plan are achieved.

Designation of Water Resources Advisory Commission

On March 15, 2001 the South Florida Water Management District adopted a resolution that created a multi-stakeholder Water Resources Advisory Commission (WRAC) as a means of obtaining stakeholder input on the SFWMD efforts to manage South Florida's critical water resources. The main purpose of WRAC, an advisory body to the Governing Board of the SFWMD, is to develop consensus based recommendations regarding future water resources activities needed to restore, preserve and protect the greater South Florida ecosystem while providing for other water-related needs of the region, including water supply and flood protection.

In January 2002 the Task Force formally selected the WRAC as an advisory body to the Task Force.

Implementation of Analytical Tools to Track Ecosystem Health

The specific, measurable work objectives and indicators of ecosystem health adopted by the Task Force allow the member agencies to systematically track the progress of the restoration effort.

Work has been underway in this reporting period to begin establishing the base lines and monitoring systems that will make this possible.

In May 2001 the Restoration Coordination and Verification Team (RECOVER) finished a management plan with recommendations to guide ecosystem monitoring and adaptive management of the programs and projects included in the CERP, an important subset of the restoration effort. The recommendations of RECOVER will be used by the Corps of Engineers in its process for adopting interim performance measures pursuant to the CERP Programmatic regulations. Also in 2001 the RECOVER team developed a conceptual ecological model for the region covered by CERP total ecosystem and launched a centralized data base that will enable scientists to quickly access information about multiple agency restoration projects. The team has developed an initial set of recommended performance measures for the CERP that may be used to monitor ecosystem health, and scientists have begun gathering the base line data that will be used to assess progress toward recovery.

Goal 1 Accomplishments: Getting the Water Right

State and Federal CERP Funding Commitments

The president's and the state of Florida budgets for this reporting period both reflect continued prioritization to restore America's Everglades. The budgets each propose future funding that will build upon past efforts and improve collaborative interagency efforts to restore the Everglades, which are recognized both domestically and internationally as like no other place on earth.

The federal and state governments have strongly supported restoration efforts during this biennial reporting period. In keeping with this continued joint commitment; Congress enacted over \$665 million and the State of Florida funded over \$1.3 billion for CERP projects, non-CERP Everglades Ecosystem restoration projects and non-CERP Everglades Ecosystem restoration program support activities.⁹

In early summer 2002 the Florida Legislature enacted, and Governor Jeb Bush signed into law, House Bill 813, which provides for a dedicated source of funds to pay the state share of the costs to implement the CERP through 2010. The act establishes the Everglades Restoration Bonding Program and authorizes the FDEP to issue revenue bonds of up to \$100 million per year, or more if the need to acquire land or to implement CERP projects is documented, for the period of state fiscal years 2002-03 through 2009-10. The revenues from the issuance of the Everglades Restoration Bonds must be used to implement the CERP

CERP Pilot Project Implementation

Project management plans for three of the six authorized CERP pilot projects were completed in 2001. These were the Hillsboro ASR Pilot Project, Lake Okeechobee ASR Pilot Project, and Caloosahatchee River Basin ASR Pilot Project. Aquifer storage and recovery is a significant water resource component of the CERP. The pilot projects will address technical and regulatory

⁹ Please see Table 11 for discussion of different reporting periods for the state and federal governments.

uncertainties and demonstrate the viability of storing partially treated surface water or groundwater in the brackish Floridan Aquifer for subsequent recovery. Draft Project Management plans for the three other pilot projects were completed and circulated for review. These pilot projects address seepage management, wastewater reuse, and Lakebelt storage.

Water Quality Standards

In December 2001 the FDEP issued a proposed standard for phosphorus in the Everglades Protection Area of 10 parts per billion (10 ppb) for all predominantly freshwater portions of the Everglades Agricultural Area. As the state identifies additional projects to improve water quality, the USACE will evaluate whether the projects are essential to the successful implementation of the CERP and whether the federal government should participate in them and share their costs. The participants have agreed that future project authorization proposals will reflect the cumulative changes to the CERP in terms of projects and costs and indicate the progress being made toward implementing the CERP.

Update on Ongoing Projects Predating the CERP

Kissimmee River Restoration Project

The Kissimmee River Restoration Project, authorized in the 1992 Water Resources Development Act, is under construction. The project, which is being jointly implemented and cost-shared by the SFWMD and the USACE, will restore over forty square miles of river/floodplain ecosystem, including forty-three miles of meandering river channel and 27,000 acres of wetlands. Reach 1, which involves backfill of the first 7 miles of canal, was completed in August 2001. This project is moving forward at a steady pace with design underway for Railroad Bridge, the US 98 bridge, and various flood proofing components.

Everglades Construction Project

In 1999 and 2000 the SFWMD completed construction on three additional stormwater treatment areas (STA-1 West, STA-2, and STA-5), bringing the total effective treatment area in operation to over 18,000 acres in four stormwater treatment areas. Following construction, a start-up process was initiated that included inundation of the areas to target depths and establishment of desired vegetation. Due to exceptional phosphorus removal performance observed in the prototype Everglades Nutrient Removal Project, portions of the new stormwater treatment areas are being managed for submerged aquatic vegetation; the remainder is being managed for cattails and other emergent vegetation. The phosphorus removal performance of the stormwater treatment areas has exceeded expectations, with discharges from STA-1W, STA-2, and STA-6 consistently below 30 parts per billion (ppb). Although still considered a young wetland system, STA-5 has been able to reduce inflow concentrations averaging 245 ppb to about 80 ppb. Construction began on STA-1 East in 2000 (with five construction contracts underway to build the 6200 acre stormwater treatment area and the two major inflow and discharge pump stations) and on STA-3/4 (the largest) in 2001. Start-up operations are expected to begin in the fall 2003 for both STAs. Since 1994 the STAs have removed almost 200 tons of phosphorus that would have otherwise entered the Everglades.

Reducing phosphorus levels to around 50 ppb will not be sufficient to achieve the long term phosphorus standard for the Everglades. Implementation of phase II technology (as conceived of in both the State of Florida Everglades Forever Act and in the federal Consent Decree) will be necessary to achieve the long-term standard, likely to be 10 ppb.¹⁰ The SFWMD has continued small-scale research on several advanced treatment technologies that will be utilized to lower phosphorus to achieve the long-term Everglades standard. Some of the key technologies evaluated include submerged aquatic vegetation, periphyton-based stormwater treatment areas, chemical treatment, and optimization of the stormwater treatment areas.

Critical Restoration Projects

In January 2000, the Corps executed project cooperation agreements to implement nine ecosystem restoration projects under the Critical Restoration Projects authority provided in the 1996 Water Resources Development Act. Congress authorized the Critical Restoration Projects to provide ecosystem restoration benefits prior to the completion of the Comprehensive Everglades Restoration Plan that was under development at the time of this authorization. WRDA-1996 specified that each Critical Project must produce immediate, substantial and independent benefits and must be consistent with the conceptual framework for Everglades restoration included in the Governor's Commission's "Conceptual Plan for the Central and Southern Florida Project Restudy". Progress on these projects as of July 2002 is as follows:

- East Coast Canal Structures: Construction of a water control structure in the western reach of the C-4 canal is nearly complete. This project will help to reduce seepage losses from the Everglades, increase aquifer recharge and enhance habitat in the Pennsuco Wetlands.
- Western C-11 Basin Water Quality Treatment: Construction of a pump station to house four new seepage return pumps is nearing completion. Design of a new divide structure for the C-11 canal is underway; construction is scheduled to start in early 2003. During non-flood conditions, these new features will separate seepage from stormwater runoff, allowing return of relatively clean seepage waters to WCA-3A.
- Tamiami Trail Culverts: This project involves the installation of approximately 80 culverts under Tamiami Trail and Loop road to help restore more natural hydropatterns and improve sheetflow of surface water within Ten Thousand Islands National Wildlife Refuge, Big Cypress National Preserve and Everglades National Park. Design is 60% complete; construction is scheduled to start in mid-2003.
- Construction of the Phase I Conveyance Canal System, managed by the Seminole Tribe, is 35% complete. These canals will transport water to the project's water management features to be constructed in Phase II. The Corps of Engineers is contracting for the detailed design of Phase II, a system of water storage cells and water resource areas. This project will restore the Big Cypress Reservation's water storage capacity, bring back native vegetation, remove exotics, and reduce the concentration of phosphorus from water flowing off the Reservation. Outflows from the project will be routed southward to rehydrate the Reservation's undeveloped Native Area and the Big Cypress National Preserve.

¹⁰ (Language added from June 2002 task force response to Lehtinen Motion S)

- Seminole Big Cypress Reservation Water Conservation Plan: Construction of the Phase I Conveyance Canal System, managed by the Seminole Tribe, is 35% complete. These canals will transport water to the project's water management features to be constructed in Phase II. The Corps of Engineers is contracting for the detailed design of Phase II, a system of water storage cells and water resource areas. This project will restore the Big Cypress Reservation's water storage capacity, bring back native vegetation, remove exotics, and reduce the concentration of phosphorus from water flowing off the Reservation. Outflows from the project will be routed southward to rehydrate the Reservation's undeveloped Native Area and the Big Cypress National Preserve.
- Southern CREW Addition/Imperial River Flowway: This project involves acquisition of approximately 4,600 acres and restoration of historic sheetflow. Benefits include restoration of historical storage potential in the project lands, reduced freshwater discharges to Estero Bay during the rainy season, reduced loading of nutrients to the Imperial River and Estero Bay and reduced flooding of homes and private lands west of the project area. Real estate acquisition is over 50% complete; construction of modifications to the Kehl Canal Weir has been completed.
- Lake Okeechobee Water Retention/Phosphorus Removal: This project involves construction of two stormwater treatment areas and restoration of isolated wetlands on privately owned agricultural lands. Project benefits include attenuation of peak flows and improvement water quality discharged to Lake Okeechobee. Design is 60% complete; construction is scheduled to start in late-2003.
- Ten Mile Creek Water Preservation Area: This project involves construction of a 550-acre water preserve area and a 134-acre stormwater treatment area to attenuate flows and improve water quality to the St. Lucie Estuary and Indian River Lagoon. Design is complete; construction is scheduled to start in late-2002.
- Lake Trafford Restoration: This project will improve water quality and enhance fish and wildlife habitat in Lake Trafford by removing approximately 8.5 million cubic yards of organic sediments that blanket the bottom of the lake. Currently, alternative designs and methodologies are being evaluated in order to maximize cost-effectiveness.
- Florida Keys Carrying Capacity Study (FKCCS) Working with stakeholders to ensure final product has addressed ITR comments provided by NAS. Note that some comments could not be addressed due to lack of data or science. Primary goal of Government is to ensure that FKCCS provides a useable model to address original need and goal of study, to provide local planners and decision makers with a tool to determine if and how their comprehensive plans should be amended

Modified Water Deliveries to the Everglades National Park Project ¹¹

The Modified Waters Delivery (MWD) Project was authorized as a part of the Everglades Expansion Act of 1989. It involves modifications to the C&SF Project water management system and related operational changes to provide improved water deliveries to Everglades National Park. The purpose of the project is to improve water deliveries into the park and, to the extent practicable, take steps to restore the natural hydrological conditions within the park. In 1994, Congress amended the 1989 Act. All funding for planning, design, construction, and real estate acquisition is provided through the Department of Interior.

¹¹ Language from Lehtinen (Motions K, L,O, P) a Corp comments from June Task Force decision

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A General Reevaluation Report and Supplemental Environmental Impact Statement is underway for the Tamiami Trail to examine the impacts of increased water levels on the existing roadway. A draft report has been released for public comment, and the final report is currently being prepared. In response to the FWS biological opinion of February 1999 on the effects of project operations on the Cape Sable seaside sparrow, the USACE has been working on an accelerated schedule to complete sufficient project features to allow hydropattern restoration by December 2003. On July 11, 2002, the U.S. District court for the Southern District of Florida entered judgment against the United States, setting aside the Corps' plan on grounds that Alternative 6(d) falls outside statutory authority.

Congress has clearly expressed their desire that the long-delayed MWD Project be completed. The linkage between completion of the project and the implementation of the CERP was expressed in WRDA 2000 [section 601(b)(2)(iv)]. This section states that "No appropriation shall be made to construct Water Conservation Area 3 Decompartmentalization and Sheetflow Enhancement Project" and certain other components "until the completion of the project to improve water deliveries to Everglades National Park authorized by Section 104 of the Everglades National Park Protection and Expansion Act of 1989 (16 U.S.C. 410r-8)."

The Miami-Dade County Flooding Task Force has also found that the completion of the long-delayed MWD Project would have lessened the flooding impacts of Hurricane Irene and the No Name 2000 storm, and it has recommended that both the MWD and C-111 Projects be implemented expeditiously. It is vital to the future of Everglades restoration that these Projects be completed as a high priority.

C-111 Project/Taylor Slough Bridge Project

The C-111 Project was initially authorized by the Flood Control Act of 1962 and modified by several authorizations since that time. A General Reevaluation Report completed in 1994 detailed the current plan to improve water deliveries to ENP while maintaining flood control in the system. Restructuring this project will help restore flows from Taylor Slough to Florida Bay. In January 2001 a second *General Reevaluation Report and Supplemental Environmental Impact Statement* addressing the addition of features for water quality improvement, land exchange between the ENP and SFWMD, and cost sharing was released to the public. The entire project is scheduled for completion in 2006.

Two components of the revised C-111 project have been constructed. The Taylor Slough Bridge (the entry road to Everglades National Park) was redesigned and constructed by the Army Corps of Engineers, with technical assistance from the Department of the Interior, and now allows more natural water flow from the C-111 basin into the Taylor Slough section of Everglades National Park. The C-111 "spoil removal" project is complete, allowing for a more natural sheet flow of water in the eastern panhandle area of the park.

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Plan. The progress towards meeting these goals, which include bringing all exotic infestations under maintenance control by 2017, will be publicly reviewed every five years.

The District and the FWS believe that this agreement will contribute to the state and federal partnership dedicated to the restoration of the Everglades ecosystem in south Florida.

Coral Reef Protection

In July 2001 the National Oceanic and Atmospheric Administration, National Marine Fisheries Service, created the Tortugas Ecological Reserve within the Florida Keys National Marine Sanctuary. The reserve fully protects 151 square nautical miles of coral reefs and associated communities. By the end of 2001 the National Park Service had completed planning for a research natural area designation within Dry Tortugas National Park that will fully protect an additional 46 square nautical miles of coral reefs and marine habitats. Once the regulation phase is completed for the research natural area, full protection will be extended to a total of 197 square nautical miles of coral reefs and more than 10 percent of the coral reefs in the Florida Keys.

Biscayne Bay Regional Restoration Coordination Team

This advisory team of federal, state, local and non-governmental members, was formed in September 2001 to focus on the restoration of Biscayne Bay. The team's 2001 *Annual Report* provided a detailed description of the bay's needs and was forwarded to the Florida Legislature by the SFWMD. Based on this report, the legislature allocated \$3.5 million for Biscayne Bay projects.

Strategies for Species Recovery

Florida Panther Landscape Conservation Strategy

In 2001 a Florida panther subteam completed the mapping and analysis needed to develop a landscape conservation strategy for that species. The information from this analysis will be used to develop guidance for project planning and restoration for these ecological communities at the landscape level.

Cheeca Lodge Safe Harbor Agreement

The first safe harbor agreement for Florida was signed between the FWS and the owner of Cheeca Lodge in Islamorada of the Florida Keys in September 2001. It will provide expanded habitat for the endangered Schaus Swallowtail butterfly. Under the agreement, the FWS provided funds to the Cheeca Lodge for the purpose of planting native plants and other rare species to expand habitat of the butterfly. FWS will continue dialogue with Cheeca Lodge staff to assess the effectiveness of the conservation activities.

Strategies and Activities for Managing Invasive Exotic Plants

Weeds Won't Wait

In 2001 the Noxious Exotic Weed Task Team (NEWTT) completed an assessment of invasive exotic plants in Florida and a strategy for managing them. The strategy, called *Weeds Won't Wait*, presented to the Task Force in 2002, includes four key principles: prevention, early detection and rapid response, management and control, and integration and coordination. NEWTT is currently developing an implementation plan for the strategy that will highlight individual tasks, agency leads, timetables, and estimated costs.

Loxahatchee National Wildlife Refuge Exotic Management

In keeping with the recent agreement between the SFWMD and the FWS, the FWS is developing a management program for the Refuge to address infestations of Old World climbing fern, melaleuca, and other serious invasive exotic plants. Loxahatchee serves as point of infestation for surrounding lands. The refuge staff is accelerating efforts to remove invasive exotics.

Exotic Species Quarantine Facility

Construction is now underway on the Invasive Plant Quarantine Facility in Fort Lauderdale, Florida. A commemorative ceremony was held at the site on Earth Day 2002 where leaders from the congress, DOI, USDA, and USACE were on hand to recognize the importance of this successful example of interagency coordination and cooperation. Design and construction of the invasive Plant Control Facility is a cooperative effort funded by the U. S. Department of the Interior, developed and built by the Corps of Engineers, and will be operated and maintained by the US Department of Agriculture.

The facility is situated on University of Florida property leased to the U. S. Department of Agriculture/Agricultural Research Service, Fort Lauderdale Invasive Plant Research Management Laboratory. The center is a 100-acre campus that supports research and instruction related to environmental horticulture, water use, and weed/urban pest control.

Melaleuca Control Program

The fourth revision and update of the *Melaleuca Management Plan for Florida* was completed in 2001. The efforts of many agencies directed through this comprehensive plan have prioritized the expenditure of over \$24 million and removed almost 70 million melaleuca plants (over 100,000 acres) from the Everglades Protection Area. This program was implemented with integrated strategies and long-term systemwide approaches that included the development of biological control agents. Since the release of the first insect, the melaleuca snout beetle (*Oxyops vitiosa*), their populations have increased enormously, and in several of the release sites beetle populations have had dramatic effects on the melaleuca.

In 2002 a second insect was released to address melaleuca, a very small bug the melaleuca Psyllid (*Boreioglycaspis melaleucae*). This sap-sucking species imported from Australia stunts the melaleuca's growth with toxins in their saliva. Scientists believe the combination of the two

natural enemies of the melaleuca will help reduce further damage of this invasive exotic plant species.

Removal of Exotic Plants from Big Cypress National Preserve

The Big Cypress National Preserve has been working on removal of exotic plant species, including casuarina, Brazilian pepper, and melaleuca. During 2001, 21,498 acres of exotic vegetation were treated and inspected. The preserve has achieved 90 percent elimination of melaleuca. The preserve staff works in partnership with the Florida State Exotic Pest Management Team and the Dade County Submerged Area Management Team, who have provided approximately \$600,000 to the project. In 2001 the National Park Service contributed \$280,000 towards removal of exotics.

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

Compatible Land Use

Acquisition of Parklands

In 2001 the Florida Communities Trust Program provided an estimated \$153 million in grants to the sixteen SFWMD counties, and the cities within those counties, to acquire park, recreation, and open space lands.

Designation of Greenways and Trails

In fiscal year 00-01 the state added an additional 132,563 acres to the Florida Greenways and Trails System, bringing the total acreage of designated greenways and trails to 135,533 acres. Over the next year, land managers in the Everglades area will be contacted and asked to designate their greenways and trails. The designation of greenways, blueways, and trails multiplies the benefits of open spaces to natural systems and the human environment by ensuring that those spaces will remain linked together for purposes of habitat connectivity and public access.

Integrated Land Use and Water Supply Planning

Recognizing the critical importance of water to both the built and natural systems, the state recently passed a law in 2002 that addresses growth management and alternative water supply and requires the comprehensive plans of counties and cities are coordinated with the regional water supply plans of the state's water management districts.

Flood Control and Water Supply

State Funding Commitments

The Florida Legislature appropriated \$20 million in 2001 and 2002 to finance flood control projects in Southeast Florida counties.

In 2002, in addition to funding through the state revolving funds for wastewater and drinking water programs, and the funding of projects by the SFWMD in partnership with local governments, the sixteen counties in the SFWMD received legislative appropriations of \$49 million, or 45 percent of the Florida Legislature's \$107 million statewide appropriation for surface water, stormwater, and wastewater improvement projects.

Flood Control

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 to develop a list of proposed flood mitigation projects for the impacted areas of Miami-Dade County. The Task Force, comprised of SFWMD staff with expertise in engineering, geographic information systems (GIS), emergency management, operations, planning, and local flooding issues, reviewed previous recommendations contained in Miami-Dade County, SFWMD, and USACE reports, and recommended that mitigation projects should be considered on a basinwide basis and include improvements to both the primary and secondary stormwater conveyance systems. 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 in local communities.

Water Supply

Regional water supply plans with twenty-year planning horizons were completed for each of the four SFWMD regional water supply planning areas. Lower East Coast, Upper East Coast, Kissimmee Valley, and Lower West Coast. A regional water supply planning advisory committee composed of representatives of all interest groups was convened for each planning region to assist in plan development. Funding and implementation schedules for the projects are included in the plans. All plans will be updated every five years.

Strengthened Public Outreach

CERP Outreach and Regional Coordination

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 twelve 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,

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defines the general scope, schedules, costs, products, and funding requirements necessary for the first five years of outreach activities.

In 2001 - 2002 the USACE and the SFWMD moved forward with public outreach activities on both the programmatic and project levels. Program level outreach included efforts in public information, environmental education, and outreach to those communities specifically referenced in WRDA 2000 (i.e., small and minority owned businesses, socially and economically disadvantaged communities and those communities that do not have a high proficiency in the use of the English language.)

On the project level, the USACE and SFWMD outreach activities focused on providing project specific information in forms and through venues that would most effectively meet the needs of interest groups, stakeholders and the public at large. Efforts to build a database of individuals who might be affected by or interested in each of the individual CERP projects were begun during the 2001-2002 period. Project information was posted regularly on the "evergladesplan.org" web site and project fact sheets were developed and delivered electronically as well as posted on the web. Project level public involvement efforts intensified as project management plans were completed and work initiated on project implementation reports.

In 2001 the working group collaborated with the USACE and the SFWMD to conduct two regional workshops, one in southwest Florida and one in the Kissimmee River basin. Regional Restoration Coordination Teams were formed for these two regions and for Biscayne Bay.

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

The working group made significant progress in the implementation of the public-private partnership between the Task Force and the Museum of Discovery and Science. The first of three phases of an outreach plan has been successfully initiated, and several projects are being implemented, while the foundation is being built for implementing phases II and III of the plan.

In 2001 significant progress was made on the following components: information dissemination, electronic outreach, school-based education, museum-based education, retrofit of displays and exhibits, and outdoor exhibitry. Maximum use was made of in-kind contributions for information dissemination, electronic outreach, and school- and museum-based education initiatives. Funding for partnership projects was provided through the collaboration of several partners: Task Force Office of the Executive Director, Florida Department of Environmental Protection, U.S. Geological Survey, Everglades National Park, South Florida Water Management District, Broward County Department of Planning and Environmental Protection, and the Florida Keys National Marine Sanctuary.

PROGRESS MADE TOWARD RESTORATION, 2001-2002

The ultimate measure of Task Force success will be the restoration of the South Florida ecosystem. The appropriate Task Force agencies are tracking progress toward this end by developing and monitoring approximately 200 indicators of ecosystem health. These indicators, which range from the number of acres of periphyton in Everglades marshes to the frequency of

water supply restrictions in urban and agricultural areas, represent the myriad physical, biological, and human elements that are all interrelated as parts of the ecosystem and are all important to ecosystem health. Many of these indicators of ecosystem health represent end results that may take up to fifty years to realize. Interim targets, which focus on earlier indications of successional change, will allow assessment of incremental progress.

The following indicators are a small subset of that much larger set of measures. They have been selected for inclusion in this biennial report because they are currently believed to be among the most indicative of natural system functioning throughout the region as a whole and among the most understandable and meaningful to the American people and the residents of South Florida. These preliminary indicators will be refined as more information is available to identify the best possible measures of ecosystem health for reports to Congress, the state legislature, the councils of the tribes, and the public.

Responding to Congress's direction that the restoration effort be guided by, and continuously adapted to, the best science available, a Restoration Coordination and Verification Team (RECOVER) has been established to support the implementation of the CERP with scientific and technical information. The RECOVER team is developing the majority of the performance measures that will be used to assess restoration progress and to make recommendations over time for adapting to new information. Additional scientific and technical information about areas not covered by the CERP is being developed and refined by other federal, state, and local agencies, including the FWS, which has developed and is implementing the Multi Species and Recovery Plan. The Task Force agencies that are tracking indicators of success provide data to the Task Force, which synthesizes the information for its reports. With the exception of the indicator for threatened and endangered species, which came from the U.S. Fish and Wildlife Service, the following indicators are from the 1999 *Baseline Report for the Comprehensive Everglades Restoration Plan*, prepared by RECOVER.

The following scale has been used to grade progress toward targets for the selected indicators of ecosystem health:

Red = No improvement towards target

Yellow = Intermediate status

Green = Reached / close to target

Progress in these indicators and the hundreds of other measures of ecosystem health will reinforce the current scientific judgments about what actions are needed to restore health to the ecosystem. If these indicators do not show incremental progress, the efforts will need to be reevaluated. That is the essential link between the ultimate result of ecosystem restoration and the specific work goals and subgoals established by the Task Force.

Indicators of Total System Health

Threatened and Endangered Species

Target

Improved status for fourteen federally listed threatened or endangered species, and no declines in status for those additional species listed by the state, by 2020.

Recent Status and Trends

One particular species benefiting from recent acquisition efforts is the endangered American crocodile. Acquisitions have increased the amount of potential habitat such that, in addition to many other factors that are considered as a species improves, the crocodile is being proposed to have its status reclassified from endangered to threatened.

Grade

Yellow

Nesting Wading Birds

Target

A minimum annual average of 10,000 nesting pairs of great egrets, 15,000 pairs of snowy egrets and tricolored herons combined 25,000 pairs of white ibis, and 5,000 pairs of wood storks.

Recent Status and Trends

In 2001 the total number of nesting pairs for the five species in the Everglades was

- 5,450 great egret pairs
- 3,600 snowy egret pairs
- 2,200 tricolored heron pairs
- 17,300 white ibis pairs
- 2,050 wood stork pairs
- 30,600 total pairs

The total numbers of nesting birds in the Everglades for the past three years, 1999 – 2001, has been higher than for almost any year from the late 1970s through 1998. The total numbers for these three years were about 40-60 percent of the CERP restoration goal. Nesting success in 2001, however, was poor. Exceptionally dry conditions during the late dry season resulted in high levels of nesting failures in WCA-2 and WCA-3; for example, there were 65 percent and 80 percent failures among ibis and storks. No progress was made in 1999-2001 in recovering the traditional estuarine nesting colonies; only 1.6 to 4 percent of the wading birds that nested in the Greater Everglades used the estuarine sites. No storks nested at Corkscrew Swamp Sanctuary in 2001, the major stork nesting site in South Florida. Storks in the Everglades in 2001, presumably stimulated by the rapid drying, began nesting in January and February.

Grade

Yellow: Although not influenced by CERP, the total number of nesting pairs for the five indicator species in 2001 was substantially higher than the number of pairs during a base line period, 1986-1995. Little progress was made in 2001 towards meeting the goals for colony location and timing patterns for nesting birds.

Urban and Agricultural Water Supply

Target

Meet urban and agricultural water supply needs in all years up to and including those years with droughts with a one-in-ten-year return frequency.

Recent Status and Trends

For the most recent nineteen-year period, the regional water supply system has been unable to meet all reasonable, beneficial demands. Water use restrictions have been imposed during five of the nineteen years in the Lake Okeechobee and Upper East Coast service areas, and during four of those years in the Lower East Coast service area. Although rainfall deficiencies during some of these years were at levels that were more severe than a one-in-ten-year frequency event, the total number of years with water restrictions was greater than the targeted frequency.

Grade

Yellow: Interpretation of the most recent nineteen-year period of years is made uncertain by the fact that some years during the early 1990s experienced very low rainfall amounts, and by the difficulties in determining the level of a drought at large regional scales. Also, a nineteen-year period is insufficient to show the full range of water supply conditions that may exist with current management practices. Nevertheless, the nineteen-year record and the modeling predictions suggest that the current water supply system is not meeting the one-in-ten-year level of service target in some areas. Additional storage is needed.

Indicators of Lake Okeechobee Health

Submerged Aquatic Vegetation

Target

Sustain at least 40,000 acres of total submerged vegetation, including benthic macro-algae, around the shoreline of Lake Okeechobee on an ongoing basis, and of that total have at least 20,000 acres of rooted plants, in particular, eelgrass and peppergrass.

Recent Status and Trends

When the spatial extent of the submerged aquatic vegetation was measured coincident with a low lake stage and regional drought in 1989-90, over 50,000 acres was found. By 1992 the spatial extent had declined somewhat, and after many years of high lake depths, only 3,000 acres remained. A detailed survey in 2000, conducted immediately after a managed lake drawdown, indicated that the community had recovered to nearly 45,000 acres. Much of the submerged vegetation was lost when an extreme drought in 2001 dried up most of the lakeshore and dropped water levels below nine feet, a historic low for this lake. However, in late summer 2001,

approximately six weeks after lake levels increased to over twelve feet, the submerged community began to recover. At the end of the 2001 summer growing season (September) the lake supported approximately 34,000 acres of submerged plants.

Grade

Red: The indicator grade was red until 2000, when the SFWMD lowered the lake in a managed drawdown, allowing the vegetation to recover. Projects are not yet in place to ensure long-term survival of large beds of submerged aquatic vegetation in the lake.

Indicators of Estuary Health

Oyster Beds in the St. Lucie Estuary

Target

Increase the aerial extent of healthy oyster beds in the St. Lucie Estuary to approximately 900 acres.

Recent Status and Trends

A field survey conducted in 1997 identified approximately 209 acres of oyster beds remaining in the St. Lucie Estuary. Large freshwater discharges from the watershed create stressful conditions for the remaining oysters on an almost annual basis. Regulatory releases from Lake Okeechobee, which can turn the estuary into a virtually freshwater system and kill up to 90 percent of the remaining oyster beds in the mid-estuary, occur on an average of every six to seven years.

Grade

Red: No elements of the CERP have been implemented, and no increase in oysters has occurred.

Roseate Spoonbills

Target

(1) Recover and stabilize the Florida Bay nesting population to at least 1,000 pairs annually distributed throughout the bay, including doubling of the number of pairs nesting in northeast Florida Bay from the current 125 to 250 pairs. (2) Recover some level of nesting by spoonbills in the coastal zone of the southwestern gulf coast between Lostman's River and the Caloosahatchee River estuary.

Recent Status and Trends

While lower than the peak number of nesting spoonbills in the late 1970s, the number of nesting birds in Florida Bay has fluctuated in the range of 500-750 pairs during most of the 1990s, with no

obvious trend either of increase or decline. No nesting spoonbills have returned to the southwestern gulf coast.

Grade

Red: No elements of the CERP have been implemented, and no improvements in nesting patterns by spoonbills are apparent.

Indicators of the Health of the Everglades Ridge and Slough

Tree Islands

Target

No further degradation of tree islands, and recovery of as much as possible of the number and acreage of islands present in WCA-2 and WCA-3 in 1940

Recent Status and Trends

Comparisons of the number, size, and distribution of tree islands between 1940 and 1995 in WCA- 2A show that only four of the original fifty-eight tree islands have survived the past fifty-five years. Three of the four remaining islands are stressed and continue to lose trees. Similar comparisons for WCA-3A and WCA-3B show a reduction from 1,041 to 577 tree islands (a 45 percent reduction), and a reduction in total acreage of tree islands from 24,700 to 8,600 acres (a 65 percent reduction).

The relatively high water conditions from 1995 to 1999 were a stress on tree islands. The relatively dry years of 2000 and 2001 could have been catastrophic. Despite the 2001 drought, levels in the water conservation areas were actually .4 to .7 feet higher than the 32 year average. ~~However, tree islands did not burn and none were destroyed during the drought. Individual islands appear healthy despite the drought of 2001.~~ This was due to the fact that the dry conditions were good for hardwood seed germination and sapling development. Sapling survival will depend upon the amount of tree island soil oxidation (and hence elevation loss) relative to the return of high waters during the 2001-2002 wet season.

Grade

Red: Currently, there is no evidence of that the decline in tree islands has abated.

Indicators of Florida Bay Health

Seagrass Beds

Target

Coverage of 65-70 percent of Florida Bay with high quality seagrass beds distributed throughout the bay.

Recent Status and Trends

Annual seagrass surveys began in 1994. Little improvement occurred until 1998-1999, when the overall health of the seagrass beds was better. During the past two years the baywide coverage has improved to approximately 40 percent. The recent improvement included some recovery from the die-off and was partly due to increased freshwater inflows from the mainland because of high rainfall and to improved water management practices in the C-111 and Taylor Slough basin.

Grade

Yellow: Seagrass beds are showing evidence of recovery to 40 percent of the bay.

Commercial Pink Shrimp Harvests

Target

A long-term average rate of commercial harvest of pink shrimp on the Dry Tortugas fishing grounds that equals or exceeds 600 pounds per vessel-day, and an amount of large shrimp in the long-term average catch exceeding 500 pounds per vessel.

Recent Status and Trends

A severe decline in Tortugas pink shrimp catches and catch rates occurred during the 1980s and 1990s. Landings declined sharply beginning in 1985-86 and remained at historic lows through 1992-93. Catch per unit effort was greater than 500 pounds per vessel-day in every year prior to 1983-84, but from 1983-84 through 1991-92, the catch rate was less than 500 pounds per vessel day in five out of nine years. The long-term average catch of large sized shrimp declined from 480 pounds per vessel for the years 1961-1981 to 340 pounds for the years 1985-1995. The shrimp harvest has partially recovered since the mid-1990s, probably in response to several years of above average rainfall.

Grade

Yellow: The current status of the pink shrimp harvest on the Tortugas fishing grounds is mid-way between the low harvests of 1984-1991 and the higher harvests prior to 1984. Elements of the CERP expected to affect this status have not yet been implemented.

Working group meeting, Jacksonville

For further information on this document please contact:
South Florida Ecosystem Restoration Task Force
Office of the Executive Director
c/o Florida International University
OE Building, Room 148, University Park Campus
Miami, Florida 33199

Phone: (305) 348-1665 Fax: (305) 348-1667

For more information on the South Florida Ecosystem Restoration Program or to view this document on-line please visit
<http://www.sfrestore.org>