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Sustainable South Florida

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Governor's Commission for a Sustainable South Florida

Restudy Plan Report

January 20, 1999



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The Governor's Commission for a
Sustainable South Florida

January 27, 1999

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EXECUTIVE DIRECTOR

GREG DIEHL
DEPUTY DIRECTOR

The Honorable Jeb Bush
Governor, State of Florida
The Capitol, Room 1501
Tallahassee, Florida 32399-0001

Dear Governor Bush:

I am happy to present to you the enclosed *Restudy Plan Report* that was unanimously adopted by the Governor's Commission for a Sustainable South Florida on January 20, 1999. The report is the culmination of almost a year of work by the Commission in which members demonstrated their patience and collective commitment to finding mutual solutions to South Florida's most pressing problems.

The C&SF Project Restudy was authorized by Congress by the Water Resource Development Act of 1992. Since that time, a reconnaissance report was completed in 1994 by the Corps of Engineers (Corps) and the Commission developed its *Initial Report* in 1995 and its *Conceptual Plan for the C&SF Project Restudy* in August of 1996. In September 1996, the Congress directed that the Corps consider that *Conceptual Plan* in the Restudy and, among other things, set a rigorous schedule for completion of the Restudy. Pursuant to that schedule, the Corps, working with the South Florida Water Management District (SFWMD) released a Draft Comprehensive Plan on October 15, 1998. The Corps and the SFWMD are working toward final submittal of the Comprehensive Plan to Congress on July 1, 1999.

The purpose of the Commission's *Conceptual Plan* was to provide recommendations on how the Restudy could successfully achieve a healthy Everglades ecosystem that could coexist with a sustainable economy and quality communities. This plan accounts for the needs of the various stakeholders in the region, generalized into 13 thematic concepts covering 4 major themes: (1) Regional water storage for natural systems and water supplies, (2) Natural areas enhancement and restoration, (3) Improved water quality, and (4) Improved operation, management and implementation practices.

In March of 1998, the Commission began an intensive four month assessment of the Restudy process and products for the expressed purpose of providing broad based recommendations and comments to Governor

Chiles, the Corps, the Governing Board of the SFWMD, and the South Florida Ecosystem Restoration Task Force (Task Force) prior to release of the Draft Comprehensive Plan. The intent of our assessment was to identify and discuss issues of concern from stakeholders, and to ultimately craft a consensus-based set of recommendations to improve the Restudy review process and the ultimate outcome of the Restudy efforts. On July 24, 1998 the Commission unanimously adopted the *Interim Report on the C&SF Project Restudy*. At that time, the Commission also determined that the key components of the Restudy's analysis were generally consistent with the Commission's 1996 *Conceptual Plan for the C&SF Project Restudy*.

Following the release of the Draft Comprehensive Plan by the Corps in October 1998, the Commission obtained a second round of comments from a wide array of stakeholder groups and citizens. Following extensive input from stakeholders at our November and December meetings, Commission members again displayed their commitment to working together to find mutual solutions for the benefit of the South Florida ecosystem. To this end, the enclosed *Restudy Plan Report* was unanimously adopted on January 20, 1999. This report will also be transmitted to your Environmental Policy Coordinator, Allison DeFoor; members of the Joint Legislative Committee on Everglades Oversight; members of the Task Force and Working Group; the SFWMD Governing Board; and the Corps. Highlights of the report include: providing additional water storage through the Restudy; expansion of the scope of the restudy and coordination with other projects; improving water quality; and, providing assurances to current water users that they will not suffer loss of existing water use from the Restudy. Furthermore, the Commission recommends that once the water promised by the Restudy is delivered to the natural system that it will be maintained permanently.

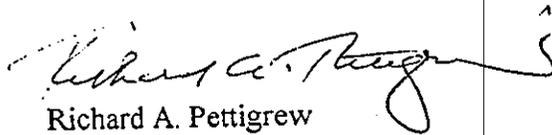
The Commission intends to continue its work relating to the Restudy at our February 4 meeting in West Palm Beach. During that meeting we will make recommendations for the Draft Restudy Implementation Plan that was released by the Corps on January 25, and work on funding options and guidelines. Both of these issues are vitally important to the Restudy effort. The Commission has also been requested by the Task Force to provide recommendations on priority land acquisition projects relating to South Florida ecosystem restoration. This will be a follow-up and re-clarification of issues previously addressed in our Priority Projects for Farm Bill Appropriations (May 1996) and our Critical Restoration Projects List (February 1997). We intend to complete these recommendations, which will focus on large acquisition projects, at our March meeting and to finalize any funding suggestions on which we have been able to agree.

The Governor's Commission for a Sustainable South Florida has been dedicated to its mission since its inception in March of 1994. Throughout these years and numerous reports, the Commission has been determined to chart a course for South Florida that improves its natural assets, while continuing to strengthen its diverse economy and improving the quality of life for its people. This *Restudy Plan Report* continues on this

course. We hope that the recommendations included in this report will help us ensure that a sustainable future for South Florida is achievable. We have advised the Task Force that our release of this report is subject to your comments, approval and directions to the Commission and that the Task Force will be fully apprised of your response.

The Commission stands ready to assist you in resolving the contentious issues that will continue to arise as this great and complex endeavor moves forward.

Sincerely,



Richard A. Pettigrew
Chairman

Enclosures

CC: Allison DeFoor
Members of the Joint Legislative Committee on Everglades Oversight
Members of the South Florida Ecosystem Restoration Task Force and Working
Group
Members of the SFWMD Governing Board
Col. Joe Miller, U.S. Army Corps of Engineers

Acknowledgements

This report would not be possible without the perseverance and dedication of the members of the Governor's Commission for a Sustainable South Florida identified below.

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Bonnie Kranzer, Executive Director
Greg Diehl, Deputy Director

The *Restudy Plan Report* is also the result of an incredible commitment made by numerous individuals and organizations. Several individuals, however, deserve special recognition for their contributions and we wish to acknowledge their efforts in a special thank you.

Sue Alspach, Miami-Dade Department of Environmental Resource Management
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William Dobson, Miami-Dade County
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John Folks, Florida Department of Agriculture and Consumer Services
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Nanciann Regalado, U.S. Army Corp of Engineers
Roy Reynolds, Broward County Department of Natural Resources
Mike Richardson, First National Bank of Homestead
Marilyn Scholl, Governor's Commission
Rick Smith, Office of the Governor
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Craig Tepper, Seminole Tribe of Florida
Roberto Torres, Governor's Commission
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CHAPTER I EXECUTIVE SUMMARY

A. AN OPPORTUNITY FOR INVESTMENT

In 1992 the U.S. Army Corps of Engineers (Corps) was authorized to undertake a re-examination or "Restudy" of the Central and Southern Florida Project (C&SF Project). This project, one of the largest in the world, consists of more than 1,000 miles of canals and levees, over 150 water control structures and pump stations, and approximately 864,640 acres of water conservation areas. This multi-purpose system provides water supply and flood protection for a 16 county region with a population of 5 million persons that is expected to more than double by the year 2050. Although it has provided for urban and agricultural uses since its inception in 1948, the C&SF Project and the collateral growth and development that has ensued have unintentionally resulted in extensive damage to the South Florida environment. The spring of 1998 episode involving over 1.4 million acre-ft of emergency Lake Okeechobee water releases to the Caloosahatchee and St. Lucie estuaries, coupled with the devastating environmental, economic, and human impacts that resulted from the releases and the subsequent needs for that lost water as the region headed into drought conditions, demonstrate the inextricable linkage between the natural and human systems in South Florida.

In the past fifty years, over half of the original Everglades has been destroyed. Current trends forecast continued loss of uplands; degradation of wetlands, estuaries and aquatic life; increased water shortages for agricultural and urban uses; increased flooding; and loss or movement of wellfields - all revolving around a dwindling supply of "inexpensive" or "traditional" water supplies. The Restudy, already underway, will result in a projected \$6 - 8 billion cost over a twenty year timeframe, benefiting all users. The benefits are immense while the consequences of inaction may be greater. Compared to other public infrastructure improvements, the cost is not unreasonable (e.g. \$0.5 billion for the 25 miles of Polk County Parkway; \$1.2 billion for the five-year Palm Beach County School District Construction Plan; \$2.8 billion for the current year of the Florida Department of Transportation's Work Program; \$4.6 billion for the Miami airport expansion over 10 years; \$10 billion for 7.5 miles of roads and tunnels in Boston; \$107 billion to implement the State's 2020 Florida Transportation Plan). In contrast, the benefits from the Restudy and the ensuing improvements would be distributed to every individual and creature in South Florida over a much longer time period.

South Florida is a low-lying flat plain, replete with rainfall rivaling most tropical climates. But increased demands on the water resources have resulted in a mismatch of not having water in the right place, time, quality or quantity to satisfy the needs of the natural system as well as those of its citizenry. More efficient use of existing water supplies, modifications to the operation of the existing infrastructure, retention of water lost from the present system, and increased water storage are key objectives. The Restudy is the opportunity to address these needs for all the users in South Florida.

Compared to the historic Everglades ecosystem, over 6 million acre-ft of annual water storage has been lost throughout the system. The Restudy aims to annually regain, for beneficial use, approximately 1.9 million acre-ft of the 2.2 million acre-ft of water currently being discharged as excess. These infrastructure improvements are needed to carry South Florida into and through the 21st century. With a federal/State cost sharing of 50/50, a massive retrofit and environmental remediation program can be realized that can satisfy the needs of the natural system and provide water supply, flood protection and quality water for the myriad of human users in South Florida.

B. THE COMMITMENT

The South Florida region sits at a critical juncture of two divergent paths. One leads to continued destruction and dismantling of the natural system, accompanied by water shortages, strife, litigation and adversity as divergent interests vie for ownership of the regions' limited natural resources (see TABLE 1). The other path leads to a collective consensus of the broad range of stakeholders in South Florida finding systematic means of restoring the natural system and at the same time, providing a logical and cost-effective strategy for providing adequate water supply, quality, and flood protection for current and future South Florida residents and visitors. This latter path is marked by unity of vision to take advantage of the collective assets the Restudy can provide. The path requires a new paradigm of decision-making and governance, exhibiting shared goals and values, ready access to information, public involvement, stewardship, and a focus on net results that must be measurable. It also signals a new spirit of involvement, commitment, trust and willingness to reconcile differences for the sake of the future. The Commission is committed to "regaining a healthy Everglades ecosystem with a sustainable economy and quality communities ... [and to develop strategies for] achieving positive change that enhances the ecological, economic, and social systems upon which South Florida and its communities depend. Once implemented, these strategies will bolster the regional economy, promote quality communities, secure healthy South Florida ecosystems, and assure today's progress is not achieved at tomorrow's expense." (Governor's Commission for a Sustainable South Florida (GCSSF), 1995: p.12).

It is in this spirit that the Commission provides the following *Restudy Plan Report* to the Corps and the South Florida Water Management District (SFWMD) as they continue development of the Comprehensive Plan for the C&SF Project Restudy (Comprehensive Plan) due to Congress on July 1, 1999. This report comprises the Commission's second periodic assessment of the Restudy process. The report ensures that a full range of stakeholder and citizen input, discussed and augmented through a Commission consensus process, is conveyed and utilized in the development of the recommended Comprehensive Plan.

C. THE MEANS

Over the past few months while developing, finalizing, and adopting this *Restudy Plan Report*, the Commission had occasion to read, review, and in a sense "re-live" many of the debates and discussions which had previously been deliberated in its *Initial Report, A*

TABLE 1
South Florida Without The Restudy: Modeled Water-Related Projections **

	Existing (1995) Condition	Future Year 2050 Condition
Population in Lower East Coast Area (LEC = Palm Beach, Broward & Miami-Dade Counties)	4.4 million people	6.7 million people
Municipal and Industrial Water Demands in Lower East Coast (LEC) Service Areas	1.0 billion gallons per day	1.3 billion gallons per day
Water Restriction Frequency in Lower East Coast (LEC) & Lake Okeechobee Service Areas (LOSA)	N. Palm Beach = 37% of years Service Area #1 = 43% of years Service Area #2 = 77% of years Service Area #3 = 30% of years LOSA = 36% of years	N. Palm Beach = 50% of years Service Area #1 = 63% of years Service Area #2 = 97% of years Service Area #3 = 50% of years LOSA = 53% of years
More Severe Phase 2-3 Water Restriction Frequency in Lower East Coast (LEC)	N. Palm Beach = 0% of years Service Area #1 = 0% of years Service Area #2 = 3% of years Service Area #3 = 0% of years	N. Palm Beach = 0% of years Service Area #1 = 0% of years Service Area #2 = 17% of years Service Area #3 = 0% of years
Everglades Agricultural Area (EAA) Supplemental Irrigation Needs Not Met	51,000 acre-feet (Mean Annual) 12% of demand	104,000 acre-feet (Mean Annual) 24% of demand
C43 & C44 Basins Regional Irrigation Needs Not Met	C43 = 12% of demand C44 = 16% of demand	C43 = 22% of demand (30,000 ac-ft) C44 = 32% of demand (9,000 ac-ft)
Lake Okeechobee: % of time levels = or > 15' NGVD % of time levels < 12' NGVD	32% of the time 18% of the time	25% of the time 30% of the time
Caloosahatchee Estuary: % of time too low flows to maintain the salinity envelope % of time too high flows to maintain the salinity envelope	29% of all months of flow 19% of all months of flow	30% of all months of flow 16% of all months of flows
St. Lucie Estuary: % of time too low flows to maintain the salinity envelope % of time too high flows to maintain the salinity envelope	41% of all months of flow 34% of all flow months	44% of all months of flow 30% of all months of flow
	% of year	% of year
LNWR *** > 2.5'	15	20
< 1.0'	0	0
WCA 2-A > 2.5'	0	0
< 1.0'	4.5	3.5
WCA 2-B > 2.5'	17	56
< 1.0'	6	5
WCA 3-A(N) > 2.5'	0	0
< 1.0'	10	4
WCA 3-A(S) > 2.5'	14	3
< 1.0'	1	3
WCA 3-A(E) > 2.5'	53	11
< 1.0'	0	2
WCA 3-B > 2.5'	2	6.5
< 1.0'	1.5	3
NE Shark River Slough: # of Dry Events	8	17
Everglades National Park: 31 year Mean NSM* hydroperiod matches	56% of areas match NSM	72% of areas match NSM
Florida Bay: % of months of too high salinity (> 40 ppt)	40% of all months	32% of all months

(SOURCE OF DATA = Restudy Internet Site: www.restudy.org)

* NSM = Natural Systems Model

** Data based on a 31-year simulation

*** Loxahatchee National Wildlife Refuge

Conceptual Plan for the C&SF Project Restudy (Conceptual Plan), and *The Interim Report on the C&SF Project Restudy (Interim Report)*. Much of the text from these earlier reports, including many of the previous recommendations, was reaffirmed by the Commission and is woven throughout this report. In some cases, previous recommendations are prominently displayed to help address the issue at hand.

In addition, the Commission prepared the following recommendations to address many of the stakeholder and interest group concerns. These recommendations range from specifics on providing for increased water storage and improving water quality assessment, monitoring and performance in the Restudy to issues such as expanding the scope of the Restudy to encompass issues such as coastal, riverine and other geographic areas and the consideration of the Restudy's impacts on minority communities. The recommendations also provide a number of assurances for water users from the land acquisition, regulatory and water supply perspectives. These recommendations are provided as guidance to the Restudy process during the development of the recommended Comprehensive Plan due to Congress on July 1, 1999.

D. RECOMMENDATIONS AND CONCLUSIONS

At this point in the Restudy process, the Commission finds that:

1. The Restudy, through the Implementation Plan, should expedite the identification and assessment of alternate water sources as a supplement to and/or in addition to direct reuse that would be of suitable quantity and quality to sustain an ecologically viable Biscayne Bay. The assessment should include, but not be limited to, technical and cost assessments of utilizing indirect reuse, diverted surface water, captured "excess" lower east coast surface water flows and groundwater from the upper Floridan as a means of minimizing reliance on direct reuse as a freshwater source for Biscayne Bay.
2. The Restudy should consider the rehydration and/or restoration of drained wetlands and the use of alternative mechanisms such as flowage easements throughout the system.
3. The EPA, the SFWMD in collaboration with other water management districts, and the Department of Environmental Protection (DEP) should jointly, and expeditiously, develop a Floridan Aquifer management plan to aid in detailed design and implementation phases of the Restudy.
4. The SFWMD and other State and federal agencies concerned should work collaboratively with local governments and agencies to:
 - A. Develop local incentive programs to promote water conservation and reuse;

- B. Promote, modify, and enforce regulations to help spur the conservation of water supplies;
 - C. Explore and establish long-term guidelines for alternative water supply opportunities, including conservation, reuse, desalinization, and others to extend the viability of the Restudy efforts well past the year 2050;
 - D. Develop coordinated public education programs emphasizing the benefits of the Restudy to regional water supply and the future need for water conservation, reuse, and alternative supplies; and
 - E. Ensure that land use management and planning is coordinated with water resource planning and development.
5. The Corps and SFWMD should develop a protocol for increased efforts to educate and work with the public regarding topics related to the Restudy. This protocol should include methods for addressing local, regional, State, and federal issues.
 6. The Restudy should expeditiously develop and fund all necessary site specific engineering and design studies required to support storage areas. Where storage areas are constructed, their performance after construction should be monitored.
 7. Where requested by the previous landowner, lands purchased by eminent domain for the purpose of implementing the Restudy should be allowed to be repurchased by their former owners at cost plus interest if these lands are later deemed not necessary for the implementation of the Restudy within a defined time period.
 8. Expeditiously fund, construct, and test seepage management pilot projects as a priority for the Restudy.
 9. The Commission supports the Lake Belt Committee's planning efforts and recommends that the integrity of the Lake Belt's study area boundaries remain intact until the completion of the Detailed Lake Belt Master Plan.
 10. As part of its currently proposed pilot studies, the Restudy should include studies on the effects of head pressure and the porosity of soils in the bottom of the proposed Lake Belt reservoirs.
 11. The ultimate outcome of the combined Restudy's and State's Lake Belt Committee efforts must be an equitable arrangement that results in public ownership of the Lake Belt area's lakes to be used for public water resource purposes after mining is completed.
 12. Additional ASR and seepage management pilot studies should be located and designed throughout South Florida in a manner so that they both minimize environmental harm during construction and operation, and have a reasonable likelihood of having their impacts reversed should they be shown to be causing significant environmental harm.

13. During the detailed design, the Corps should continue to seek improvements to the Comprehensive Plan performance, particularly with regard to the serious ecological performance shortfalls in WCA 2B, and to increase hydrological connectivity between WCAs to generally improve the ecological performance throughout the WCAs and remnant Everglades.
14. Water Schedule for WCA 3A - The goal for managing inflows and outflows in WCAs, and associated depths and stage durations, should be to maintain or restore native Everglades habitats, including tree islands and willow heads. This water management should allow annual dry downs and avoid unnaturally high water levels that adversely affect historic marsh, upland, and hardwood habitats. If ground elevations increase over time, considerations should be given to adjusting water levels to promote maintenance of these habitats and, where compatible with maintenance of these habitats, to provide water stages that would allow greater flows to Everglades National Park (ENP).
15. The Restudy should seek to ensure that there is sufficient storage to ensure delivery of the Seminole Tribe of Florida's water entitlement, pursuant to its Water Rights Compact, authorized by federal (P.L. 100-228) and State law (Section 285.16, F.S.).
16. In the design of the Lake Belt reservoir pilot project and detailed design of the components in the vicinity of the Northwest Wellfield, the Restudy shall consider the directive of the Florida Legislature that the Northwest Wellfield retain its designation as a groundwater source of water supply. The change of designation could cost in excess of \$260 million to the local government to modify the current treatment processes at the Hialeah and John E. Preston Water Treatment Plants.
17. The Commission urges the Corps to encompass within the Restudy the Corps' Miami River dredging project. In addition, the Corps should cooperate with other applicable governmental agencies to seek funding sources to help fund and implement the Miami River dredging project.
18. Project elements that will divert flows from coastal areas, estuaries, and barrier islands should only be implemented after more detailed design and evaluation of water quantity needs in these near shore coastal areas are completed or identified.
19. The Restudy process should provide special attention to project impacts on minority communities, particularly in regards to environmental justice issues in the implementation of the Comprehensive Plan. The Restudy should conform to the requirements of State and federal law with respect to inclusion of the concerns and interests of Tribes, minorities, and any workers displaced by the implementation of projects pursuant to the Restudy. The Corps should make a dedicated effort, as provided in federal policy guidelines and law, to improve the

opportunities for minority and local businesses in South Florida to receive contracts for Corps of Engineers' work resulting from the Restudy.

20. The Commission recommends that the Corps encompass within the C-111, Modified Water Deliveries project or early in the Restudy, the acquisition of accurate, comprehensive and precise land elevation and topography data of lands (i.e. agriculture, urban and natural areas) in South Miami-Dade County and this data's input and use in the modeling of all authorized projects in South Miami-Dade County.
21. In order to address all water quality pollutants and issues at the most appropriate stage of project planning, design, development, permitting and construction, a water quality implementation plan for the Restudy should be developed with DEP as the lead agency, along with EPA, SFWMD, the Tribes, the Corps, and local permitting programs. The Corps should strive to maximize opportunities to improve water quality wherever possible within the C&SF Project within its authority.
 - A. The water quality implementation plan should include elements that assure that existing water quality data from all federal, Tribal, State, regional and local agencies are consolidated and made available in a common format that makes data comparison/analysis possible and simplifies the identification of problems. Future water quality monitoring programs should be fully coordinated with one another to eliminate duplication, fill existing data gaps, and to provide the most useful information possible. All water quality information should be coordinated with the Restudy process to assure future design efforts incorporate necessary water quality considerations and to assure that appropriate water quality data are available to assess conditions once components are on-line and operational.
 - B. The water quality implementation plan should identify studies and monitoring needed to identify effects upon the quality of water delivered downstream resulting from Restudy modifications.
 - C. In the water quality implementation plan, water quality data and applicable existing water quality programs and regulations, should be analyzed to determine the source (both point and nonpoint) of water quality problems and to identify responsible entities. Where needed, regulatory requirements should be enforced and opportunities for coordination/implementation between the Project and other water quality programs should be identified. Any necessary C&SF Project design changes should be coordinated with and incorporated into the Restudy.
 - D. One of the primary components of the water quality implementation plan should be pollutant total maximum daily loads (TMDLs) and concentrations established for South Florida ecosystem water bodies by DEP. Establishment of these TMDLs is necessary to restore impaired water bodies and to protect those water bodies that can currently support

their designated use. Regulatory agencies should revise regulations and standards as required to protect the designated uses of South Florida ecosystem water bodies.

- E. Phasing of Restudy components in the implementation plan should be consistent with requirements included in the Everglades Forever Act, and should support restoration efforts in the Lower Western Basin.

22. The Restudy should include in the IFR/PEIS recognition of the problem of water quality data fragmentation, inconsistency, and incompleteness. The IFR/PEIS should assure that the water quality improvement is included in all future Restudy actions and provides the adaptive Restudy components and long term monitoring necessary to assure ecosystem restoration goals are being met.

- A. The IFR/PEIS should provide a basis for a cooperative effort to develop an adequate integrated, detailed monitoring and evaluation program to include in later project development documents. This cooperative effort should include local, regional, State, Tribal and federal agencies involved with the protection of natural resources and the permitting and operation of the C&SF Project. In the future, a detailed environmental monitoring program will be essential for the adequate application of the principle of adaptive management. This principle must be an essential element throughout the entire Restudy process.

- B. At this time, it is essential that the Restudy provide the framework for identification of all water quality issues that can be dealt with at this stage of project development. For water quality problem issues that cannot be dealt with, the issues and possible solutions should clearly be identified in the Restudy for further analysis. Relative to water quality planning and remediation, the Restudy should consider water quality issues for the entire South Florida ecosystem to the extent possible, and consistent with the authorizing legislation of the Restudy. It is important that the Restudy consider the source of the water, quality of the water, and the ultimate use of the water when selecting the appropriate storage system, location, and necessary treatment for water included in the Restudy. Special water quality considerations necessary to protect natural areas, public water supplies, agricultural irrigation supplies and estuarine flows should be included. The IFR/PEIS should recognize the critical need to deal with all water quality issues at the most appropriate stage of project planning, design development, permitting and construction. It should include an identification of appropriate mechanisms to address all remaining water quality issues during future stages of project design and development. An adaptive management commitment should be made in the IFR/PEIS that will allow water quality problems identified during future work on the project to be adequately addressed.

- C. A report should be provided to the Commission outlining the specific actions being proposed in the Restudy to address the issues raised.

23. As part of an Ecosystem Monitoring and Adaptive Management Program, efforts to identify "baseline areas," characteristic of historical Everglades ecology and water quality, should continue. Once identified, the characteristics (i.e. physical, ecological, and water quality characteristics) of the "baseline area" should be used to define restoration targets. Moreover, research efforts and any subsequent activities within the "baseline area" should be designed to not/minimally affect initial conditions within the "baseline area."
24. The Governor, the Task Force, and the Tribes should actively support the inclusion of language in future WRDA legislation which would, as a means of reducing the impact of the C&SF Project on the South Florida ecosystem, add water quality restoration and improvement as a stated purpose of the C&SF Project. In conjunction with enforcement of State, Tribal and local water quality regulatory requirements, the federal government should contribute to the improvement of water quality through implementation of public works to facilitate this goal. The cost of C&SF Project modifications needed to eliminate water quality impacts caused by operation of the C&SF Project should be cost shared on a 50/50 basis.
25. Regional, State and federal agencies, the Tribes, and local governments and the public should work to bring together existing water resource assessment efforts and identify critical water quality problems. Under the Clean Water Action Plan, local, regional, State, federal, and Tribal agencies, in cooperation with stakeholders, should develop unified watershed assessments which identify watersheds in need of restoration and watersheds that need preventative action to sustain water quality using on-going State, federal, and Tribal programs.
26. The Corps should assure that all proposed modifications include sufficient water quality treatment components so as to meet all applicable State, local, Tribal and federal laws.
27. The Corps should seek improvements to the Draft Comprehensive Plan that improve the water quality conditions in the natural areas of the ecosystem and that would contribute to better public health and safety in the built areas.
28. In the Restudy's Draft Comprehensive Plan, a significant portion of freshwater flows to central and southern Biscayne Bay are supplied by the South Miami-Dade reuse component. However, due to significantly high construction, operation and maintenance costs, and potential water quality implications, the Corps should investigate all potential sources of water for providing freshwater flows to central and southern Biscayne Bay.
29. The Corps, assisted by the SFWMD, DEP, EPA, Tribes and other appropriate federal, State and local agencies, should expeditiously conduct a parallel, follow-on feasibility study to assess and address opportunities to improve water quality in

South Florida to meet all applicable State and federal standards, in order to achieve ecosystem restoration goals in the region.

30. Priority for implementation should be given to areas of the Florida Keys that have been identified as "hot spots" by the WQPP. In addition, because increased development presents an additional threat to the quality of water in Florida Bay and the Florida Keys, enhanced wastewater treatment must not inadvertently increase development pressure in the Keys. Recognizing the national interest in the protection of the Keys marine resources, federal resources should be used to supplement State and local initiatives to improve water quality in the Florida Keys.
31. DEP, in consultation with the U. S. Department of Interior, EPA, the National Oceanic and Atmospheric Administration, and the Florida Game and Fresh Water Fish Commission, should develop as soon as possible, appropriate numeric water quality criteria for the OFWs of the ENP, Big Cypress National Preserve, Biscayne National Park, FKNMS and for all other OFWs in the South Florida ecosystem, and a salinity criterion for Florida Bay, which is a part of ENP. All information should be coordinated with the Restudy process to assure future design efforts incorporate necessary water quality considerations.
32. DEP, EPA, the Florida Department of Health and appropriate Tribal agencies should review the adequacy of existing numeric water quality criteria and, if necessary, revise or develop new standards which protect the quality of water recharging public wellfields from potential adverse impacts associated with the Restudy's recommended plan. Recharge water supplied by WPAs and storage reservoirs, particularly those receiving back-pumped water which may contain synthetic organic chemicals and inorganic metals, must not significantly degrade the existing quality of water withdrawn at the wellfield or violate groundwater quality standards.
33. The SFWMD should proceed as rapidly as possible to fulfill the requirements of the ECP, Non-ECP, and Corps Permits. As part of this effort, the Corps and SFWMD should fund and complete the S-9 Basin Critical Project. In addition, the permitting agencies should make a concerted effort to expedite the issuance of permits once the requirements of such permits are met. All information should be coordinated with the Restudy process to assure future design efforts incorporate necessary water quality considerations.
34. Appropriate federal, State, regional and local agencies should develop and undertake a study of selected plant and animal species that are key indicator components of the food chain to determine ecosystem health and the presence and bioaccumulation of any toxic substances. Sediment standards should be developed and problem areas addressed. All information should be incorporated into the Restudy process. Such a program should become a part of an on-going ecosystem monitoring effort.

35. As a part of the detailed design, in compliance with federal laws and regulations, the Corps will test for contamination of material proposed to be used for construction and fill. During the final process for placement of Restudy water storage and treatment facilities, existing good quality functioning wetlands should be protected, where possible, from impacts caused by filling, dredging, water storage, poor water quality and construction activities.
36. Within the water quality certification issued for construction of modifications to the C&SF Project, regulatory agencies should require copies of results of Corps testing for contamination for all material to be used for backfilling canals and creating wetlands.
37. In the process of installing Restudy components and acquiring land for each of the components identified in the Restudy, location specific environmental site assessments should be prepared prior to on-location construction activities. The results of such assessments should be used to complement existing regional information, already included in the Restudy, to further assess the potential for hazardous substances to exist within the footprint of the Restudy components. As the Restudy indicates, numerous facilities have been identified in environmental quality databases. Hazardous substances associated with the identified facilities have the potential to adversely affect surficial and subsurface (i.e. in the case of injection wells that might be present) environmental quality. In the event that surficial and/or subsurface contamination with hazardous substances is found in the vicinity of proposed components (i.e. ASR and surficial water storage reservoirs), the contamination should be further assessed to evaluate the potential affects of observed hazardous substances on proposed components. If it is found that the contamination is likely to affect the proposed operation and/or performance of a component, the hazardous substances should be cleaned to meet applicable federal, State, and Tribal requirements prior to the installation of the component. In the event that the location cannot be cleaned in a timely fashion and the component and/or its location is vital to the operation/performance of the Restudy, a permanent physical barrier should be installed to prevent the contamination of the component by hazardous substances.
38. All water quality considerations and components included in the Restudy should be integrated into the C-111 and Modified Water Deliveries Projects.
39. The SFWMD and the Corps should work with all stakeholders to develop appropriate water user assurances to be incorporated as part of the Restudy authorizations. These water user assurances should be based on the following principles:
 - A. Physical or operational modifications to the C&SF Project by the federal government or the SFWMD will not interfere with existing legal uses and

will not adversely impact existing levels of service for flood management or water use, consistent with State and federal law.

- B. Environmental and other water supply initiatives contained in the Restudy shall be implemented through appropriate State (Chapter 373 F.S.) processes.
 - C. In its role as local sponsor for the Restudy, the SFWMD will comply with its responsibilities under State water law (Chapter 373 F.S.).
 - D. Existing Chapter 373 F.S. authority for the SFWMD to manage and protect the water resources shall be preserved.
40. Subject to the principles of adaptive management, there should be an implementation plan that clearly outlines the timing, order, and anticipated benefits of the C&SF Project modifications.
41. The SFWMD and the Corps should design the implementation plan so as to maintain the balance of benefits across all users and the natural system, to the extent permitted by law, and to assure a sustainable South Florida ecosystem, including the natural systems existing in the urban areas where consistent with ecosystem restoration goals. Initial implementation should be directed to projects that ensure benefits consistent with WRDA 1996 and the Commission's *Conceptual Plan*.
42. The Governor, Florida Legislature, the President, and Congress should support the recommended Comprehensive Plan as the framework and guide for the Restudy.
43. The initial authorization increment should include a request for specific authorization of the listed pilot projects whose expeditious funding, construction, and implementation is a critical step in determining the feasibility of proposed technologies and providing assurance to water users.
44. The initial authorization increment should be reviewed through a consensual stakeholder process and transmitted to the Governor and Florida Legislature for action on those elements of the implementation plan for which the SFWMD is the local sponsor. Any review, modification, endorsement or other action by the State with respect to the initial authorization increment should be addressed in the appropriate WRDA.
45. The components from the Restudy that are not authorized in the initial authorization increment or fall within the program authorization will be considered for authorization following a similar process as described above as the more detailed engineering analyses for these components are completed.
46. State and federal land acquisition programs should continue to acquire lands needed in the Restudy from willing sellers.

47. Land acquisition necessary for the Restudy implementation and contemplated for the 50/50 State and federal cost share, as defined in WRDA 1996, should be acquired by the SFWMD in accordance with national Corps policy, which in the case of the Restudy would be undertaken through State condemnation protocols, in the absence of willing sellers.
48. When specific project components are approved, eminent domain should be authorized under State law to acquire needed lands not available from willing sellers.
49. The SFWMD and other State agencies purchasing land in the Restudy should expeditiously develop land management plans for the transition period of lands procured for restoration to allow the maximum beneficial use consistent with State law. These plans should prevent degradation of the properties, such as an invasion of exotic species and dumping of solid waste, whose occurrence would be inconsistent with the ultimate planned use of the property.
50. During the implementation of the Restudy, State and federal regulators should aggressively use their existing waiver and temporary operating permit authorities, when use of such waivers and permits can be demonstrated to have no significant negative environmental consequences.
51. Regulatory agencies should commit to Ecosystem Management Agreements for the Restudy and each of its components that would outline common principles and desired outcomes that all agencies can support.
52. Federal, State, regional, and local planning efforts need to be integrated. Restudy component sequencing efforts need to be integrated with regional and local government agency efforts to ensure that there are no conflicts of interest concerning resource allocation, construction schedules, and/or long term planning efforts.
53. The SFWMD should use the tools in Chapter 373 F.S. to protect water supplies necessary for a sustainable Everglades ecosystem. This should include early planning and adoption of reservations. These reservations for the natural system should be conditioned on providing a replacement water source for existing legal users which are consistent with the public interest. Such replacement sources should be determined to be on line and dependable before users are required to transfer.
54. The SFWMD should expeditiously develop a "recovery plan" that identifies timely alternative water supply sources for existing legal water users. The recovery plan should consist of water supply sources that can reliably supply existing uses and whose development will not result in a loss of current levels of service, to the extent permitted by law. To assure that long term goals are met,

the State and federal governments should agree on specific benefits to water users, including the natural system, that will be maintained during the recovery.

55. In the short term, the Restudy should minimize adverse effects of implementation on critical and/or imperiled habitats and populations of State and federally listed threatened and/or endangered species. In the long term, the Restudy should contribute to the recovery of threatened species and their habitats.
56. The Corps and the SFWMD should develop timely contingency plans that incorporate the above guidelines.
57. The Corps and the SFWMD should continue to use the principles of adaptive management in the development of contingency plans with broad involvement of the public.
58. The SFWMD and the Corps should acknowledge the important role of urban natural areas as an integral part in the restoration of a functional Everglades system. As a part of the implementation plan, the SFWMD and the Corps should develop an assurance methodology in conjunction with the detailed design and modeling processes, such as the WPA Feasibility Study, to provide the availability of a water supply adequate for urban natural systems and water level maintenance during both implementation and long term operations.
59. Expand and accelerate implementation of the WPAs. Accelerate the acquisition of all lands within the WPA footprint to restore hydrologic functions in the Everglades ecosystem, and ensure hydrologic connectivity within the WPA footprint. The WPA Feasibility Study process should be given a high priority. The WPA concept should be expanded into other SFWMD planning areas such as the Upper East Coast.
60. The Restudy should assure that the ecological functions of the Pennsuco wetlands are preserved and enhanced.
61. The implementation process should recognize the importance of existing and planned infrastructure and public services to the ongoing quality of life and economic well being of South Florida. The implementation activities should provide processes for early coordination with public service providers to ensure that safe, reliable, and cost effective services continue to be provided. The processes should include protections for property rights as provided by State law.

The aforementioned recommendations are hereby transmitted to assist the Corps and the SFWMD in improving the recommended Comprehensive Plan that will be finalized by July 1, 1999. The Commission looks forward to assisting the Corps and the SFWMD in the Restudy effort by providing additional review, dialogue, and comment on the Restudy product and processes and will continue to assist this important process however needed.

CHAPTER II BACKGROUND

A. INTRODUCTION

On March 3, 1994, Governor Lawton Chiles created the Governor's Commission for a Sustainable South Florida through Executive Order 94-54. The Commission's charge was to make recommendations that will move South Florida toward a healthy ecosystem that can coexist with, and be mutually supportive of, a sustainable South Florida economy and quality communities. Toward this end, the Commission unanimously adopted three successive documents: the *Initial Report*, October 1, 1995 containing overall recommendations for a sustainable South Florida; *A Conceptual Plan for the C&SF Project Restudy (Conceptual Plan)*, August 28, 1996, which provided initial recommendations to the U. S. Army Corps of Engineers (Corps) and the South Florida Water Management District (SFWMD) as they developed the Central and Southern Florida Project Comprehensive Review Study (Restudy); and *The Interim Report on the C&SF Project Restudy (Interim Report)*, August 11, 1998, which provided interim recommendations to the Corps and SFWMD on the draft alternative prior to their completion of the recommended Comprehensive Plan.

Past water management activities in South Florida, geared predominantly toward satisfying urban and agricultural demands for water supply and flood control, have often ignored the many needs of the natural system, particularly in drought conditions. To address this issue, the Commission developed 110 recommendations (*Initial Report*) aimed at regaining a healthy Everglades ecosystem while bolstering the regional economy, promoting quality communities, securing healthy South Florida ecosystems, and assuring today's progress is not achieved at tomorrow's expense. The acknowledgement that hydrologic restoration is the key and a prerequisite to ecosystem restoration led to the development of the *Conceptual Plan*: the vehicle to specifically address water resource issues and natural system restoration. That document provided a framework for the formulation and evaluation of alternative plans for the Restudy.

In March 1998, the Commission began an intensive four month assessment of the Restudy Comprehensive Plan alternatives in order to identify and discuss issues of concerns from stakeholders, and to ultimately craft a consensus-based set of recommendations for improving the Restudy review process and the ultimate outcome of the Restudy efforts. This effort provided interim guidance and recommendations to the Corps and the SFWMD as they evaluated alternative components for inclusion in the Comprehensive Plan, due to Congress on July 1, 1999. This interim assessment was the first of a series of periodic assessments intended to ensure that a full range of stakeholder and citizen input is both conveyed and utilized in the identification of a Comprehensive Plan. On July 24, 1998 the Commission unanimously adopted the *Interim Report*, containing 35 recommendations addressing 7 major issue areas: (1) Increasing water storage, (2) Land procurement and connectivity, (3) Improving water quality, (4) Assurance to water users, (5) Water supply level of service, (6) Southwest Florida issues, and (7) Coordination of activities. The Commission found that the key components of the

Restudy, thus far, were generally consistent with the Commission's *Conceptual Plan*. The report was accepted and approved by the Governor on September 4, 1998.

A similar process resulting in this unanimously adopted *Restudy Plan Report* following the *Interim Report*. This fourth report is the Commission's next step in addressing the region's long-term water resource needs. This *Restudy Plan Report* provides an additional and expeditious assessment of the October 15, 1998 Draft Integrated Feasibility Report for the Central and Southern Florida Project Review Study (draft Comprehensive Plan) which underwent public comment between October 15 and December 31, 1998. In undertaking this *Restudy Plan Report*, the Commission endeavored to identify new or outstanding concerns by convening stakeholder panels at its November and December 1998 meetings to deliberate and resolve these issues in the form of further recommendations to the Corps and the SFWMD. This *Restudy Plan Report*, along with its recommendations, will be provided to the Governor and Lieutenant Governor of the State of Florida for their consideration and as input to the South Florida Ecosystem Restoration Task Force. As the Commission serves as the official advisory body to that Task Force, this report represents the unanimous consensus of the voting members of the Governor's Commission for a Sustainable South Florida on how to proceed in meeting the water-related needs of the South Florida region.

B. THE C&SF PROJECT RESTUDY

The Central and Southern Florida (C&SF) Project, authorized by Congress in 1948, consists of a thousand mile network of canals, levees, storage areas, and water control structures that provide flood control and water supply for urban, industrial, and agricultural uses and the natural system. The region's hydrology is now largely governed by a manmade system superimposed on the natural one. Although the C&SF Project has performed its originally intended purposes effectively, it has also unintentionally resulted in extensive damage to South Florida's environment. Over half of the Everglades' original wetlands have been destroyed and natural areas continue to suffer additional casualties, including the severe degradation of wetlands, estuaries and aquatic life, and the loss of valuable uplands. South Florida's population is expected to more than double by the year 2050. Without proper planning this can lead to continued deterioration of the natural and manmade systems.

The decline of South Florida's environment led to the Congressional authorization to reexamine the C&SF Project. The Restudy was authorized by Section 309(l) of the Water Resources Development Act (WRDA) of 1992 (Public Law (P.L.)102-580) which stated:

(1) CENTRAL AND SOUTHERN FLORIDA - The Chief of Engineers shall review the report of the Chief of Engineers on Central and Southern Florida, published as House Document 643; 80th Congress, 2nd Session, and other pertinent reports, with a view to determining whether modifications to the existing project are advisable at the present time due to significantly changed physical, biological, demographic, or economic conditions, with particular reference to modifying the project or its operation for improving

the quality of the environment, improving protection of the aquifer, and improving the integrity, capability, and conservation of urban water supplies affected by the project or its operation.

This study was also authorized by two resolutions of the Committee on Public Works and Transportation, United States House of Representatives, dated September 24, 1992. The first resolution stated:

Resolved by the Committee on Public Works and Transportation of the United States House of Representatives, that the Board of Engineers for Rivers and Harbors, is requested to review a report of the Chief of Engineers on Central and Southern Florida, published as House Document 643, 80th Congress, 2nd Session, and other pertinent reports, to determine whether modifications of the recommendations contained therein are advisable at the present time, in the interest of environmental quality, water supply and other purposes.

The second resolution stated:

Resolved by the Committee on Public Works and Transportation of the United States House of Representatives, that the Board of Engineers for Rivers and Harbors, is requested to review the report of the Chief of Engineers on Central and Southern Florida, published as House Document 643, 80th Congress, 2nd Session, and other pertinent reports, to determine whether modifications of the recommendations contained therein are advisable at the present time, in the interest of environmental quality, water supply, and other purposes for Florida Bay, including a comprehensive, coordinated ecosystem study with hydrodynamic modeling of Florida Bay and its connections to the Everglades, the Gulf of Mexico, and the Florida Keys coral reef ecosystem.

The existing C&SF Project is a complex, multipurpose project. The existing authorized purposes of the Project include water control; water supply for Everglades National Park deliveries; flood control; regional water supply for agricultural, urban, and natural areas; prevention of saltwater intrusion; conservation of fish and wildlife; recreation; and navigation. The Restudy, authorized by Congress, provides a timely mechanism for formulating, evaluating, and implementing modifications to the C&SF Project needed to restore the health of the natural system and provide for a sustainable South Florida ecosystem. To better evaluate the Project in the context of all these purposes, consistent with Congressional direction for the Restudy, the Corps completed a Reconnaissance Report in November 1994. Following that effort, the Corps and the SFWMD jointly developed a Project Study Plan for the Restudy, which was approved by the SFWMD's Governing Board in July 1995, to provide guidance for all subsequent phases of the Restudy. The Project Study Plan was further amended in May 1997 following WRDA 1996.

Partly in response to recommendations, including those of the Governor's Commission to further expedite the Restudy process, Congress included in Section 528 of WRDA 1996 several key provisions that affect how the Corps should accomplish the C&SF Restudy:

(b) RESTORATION ACTIVITIES. -

1. COMPREHENSIVE PLAN. -

(A) DEVELOPMENT. -

(i) PURPOSE. - The Secretary shall develop, as expeditiously as practicable, a proposed comprehensive plan for the purpose of restoring, preserving and protecting the South Florida ecosystem. The comprehensive plan shall provide for the protection of water quality in, and the reduction of the loss of fresh water from, the Everglades. The comprehensive plan shall include such features as are necessary to provide for the water-related needs of the region, including flood control, the enhancement of water supplies, and other objectives served by the Central and Southern Florida Project.

(ii) CONSIDERATIONS - The comprehensive plan shall -

(I) be developed by the Secretary in cooperation with the non-Federal project sponsor and in consultation with the Task Force; and

(II) consider the conceptual framework specified in the report entitled 'Conceptual Plan for the Central and Southern Florida Project Restudy' published by the Commission and approved by the Governor.

(B) SUBMISSION. - Not later than July 1, 1999, the Secretary shall -

(i) complete the feasibility phase of the Central and Southern Florida Project comprehensive review study as authorized by Section 309(1) of the Water Resources Development Act of 1992 (106 Stat. 4844), and by 2 resolutions of the Committee on Public Works and Transportation of the House of Representatives, dated September 24, 1992; and

(ii) submit to Congress the plan developed under subparagraph (A)(i) consisting of a feasibility report and a programmatic environmental impact statement covering the proposed Federal action set forth in the plan.

Other significant provisions of the Act related to Restudy issues such as:

- Use of existing authority for unconstructed project features
- Critical Restoration Projects
- Water Quality
- Integration with other on-going State and federal restoration efforts
- Cost Sharing
- Establishment of the South Florida Ecosystem Restoration Task Force and Working Group

- Public Participation, Advisory Bodies and non-applicability of the Federal Advisory Committee Act

The above quotation from WRDA 1996 makes clear that the Comprehensive Plan must include both a feasibility report and a programmatic environmental impact statement (see sub-paragraph (b)(1)(B)(i)). In correspondence to Senator Connie Mack's staff at the time WRDA 1996 was considered by Congress, Michael L. Davis, Deputy Assistant Secretary of Civil Works of the Department of the Army, wrote on 11 September, 1996:

As requested, Mr. Earl Stockdale and I have reviewed the proposed legislation for environmental restoration in South Central Florida and the Everglades. In particular, we considered the requirement in provision (b)(1)(B)(i) that the Comprehensive Plan be completed, by the Army Corps of Engineers, not later than July 1, 1999. We believe that the Corps can accomplish this action by this date without substantively diminishing the engineering, environmental, or public involvement aspects of our study process.

The involved parties will have to work together closely to address any issues which may arise, properly scope study efforts, and find ways to expedite the planning process. I expect that the Jacksonville District of the Corps will be able to rely heavily on lessons learned from their experience producing the Kissimmee River Restoration feasibility report, in 1992, under similar circumstances. Using this example as a model, we believe that a high quality feasibility-level product can be produced by July 1999. (Davis, 1996)

A "high quality feasibility-level product" is a report that "develops the most promising alternatives and recommends a plan that can be implemented." In accordance with Section 905 of WRDA 1986, a feasibility report must describe, with reasonable certainty, the economic, environmental, social, and engineering benefits and costs of the recommended and alternative plans. A feasibility report serves as a complete decision-making document that presents the results of both study phases in such a manner to allow readers and decision-makers to judge the recommended solutions (U.S. Army Corps of Engineers, 1994; p. 203).

Given the scope and extent of the Restudy efforts, and the need to quickly provide a Comprehensive Plan to Congress, the Corps, in internal correspondence to the South Atlantic Division Command, recognized that:

Due to the need to complete a Comprehensive Plan report in a timely manner and the broad geographic extent of the study area, the level of analysis and engineering detail will be sufficient for preliminary plan selection and cost estimating, but will not necessarily be as detailed and comprehensive as more traditional projects recommended for Congressional authorization....

The Comprehensive Plan presented in the feasibility report will be similar in scope to the 1948 Comprehensive Report for the Central and Southern Florida Project. The original plan provided a framework from which all subsequent planning and design could follow. The plan was general in nature and did not identify precise locations of project features. Further, minimal alternative analysis was accomplished. At that time, it was understood that more detailed alternative analysis would be accomplished during subsequent planning and design. Hence, a phased implementation of a comprehensive plan for south Florida was recommended and implemented.

The Comprehensive Plan feasibility report will not necessarily be as detailed and comprehensive as more traditional projects recommended for congressional authorization. The report must document the analyses that were done and assumptions that were made to support the recommendations. The Comprehensive Plan will identify components needed to restore the south Florida ecosystem and the formulation process that produced them. The report must demonstrate that the components are effective with design details to be developed in subsequent design documents. The report must also document the uncertainties in plan selection and future tasks that would be needed to minimize these uncertainties. The report should also include a section that defines what must be done in the future to improve confidence and implementation of the project features. Finally, an integrated programmatic EIS must be developed for the Comprehensive Plan. The NEPA strategy being proposed by the district should be disclosed in the feasibility report in a similar manner to the Kissimmee River Restoration Project EIS completed in 1992. (Fuhrman, 1997)

In order to comply with the July 1, 1999, deadline for submittal of the Comprehensive Plan to Congress, the Corps and SFWMD established a series of interagency Restudy teams that began developing and commenting on Restudy alternatives. This effort started in September 1997 and culminated in June 1998 with the selection of an Initial Draft Plan. On October 15, 1998, the draft Comprehensive Plan and Programmatic Environmental Impact Statement (PEIS) was released and the Corps and the SFWMD immediately began a series of 12 public meetings throughout the region to actively solicit public comment on the plan. The recommended Comprehensive Plan and PEIS will be completed in April 1999 and submitted to Congress by July 1, 1999. See TABLE 2 for the Comprehensive Plan milestones.

TABLE 2
Comprehensive Plan Milestones

Feasibility Study Initiated	August 1995
<i>Initial Report</i>	October 1995
<i>Conceptual Plan</i>	August 1996
Complete Component Development	March 1997
Complete Initial Plan Screening	July 1997
Focus Group Meetings	September 1997
Complete Comprehensive Plan Evaluation	May 1998
Initial Draft Plan	June 1998
<i>Interim Report</i>	August 1998
Release Draft Report and EIS	October 1998
Begin Public Comment Period until December 31	October 1998
Public Meetings	November 1998
SFWMD Governing Board Letter of Intent	February 1999
Release Final Report and EIS	April 1, 1999
Washington Level Review of Report: Including 30-day State and agency review and comment period on final EIS.	April 15, 1999 (approximate beginning)
Submit Report and EIS to Congress	July 1, 1999

C. THE SOUTH FLORIDA ECOSYSTEM RESTORATION TASK FORCE AND WORKING GROUP

In an effort to ensure the coordination of Everglades restoration efforts at the federal level, in 1993 U.S. Interior Secretary Bruce Babbitt created, through an interagency agreement, the South Florida Ecosystem Restoration Task Force (Task Force). Establishment of the Task Force at the Cabinet level led in turn to the formation of a more local, federal manager-level South Florida Ecosystem Restoration Working Group (Working Group) to help assist the Task Force in technical issues and actual implementation of restoration efforts. Subsequently, the Task Force and Working Group were expanded to include Tribal and State members and were formally established by the WRDA 1996 (WRDA; P.L. 104-303, Section 528(f), 110 Statutes 3658). The Task Force

now includes seven federal members, the Miccosukee Tribe of Indians, the Seminole Tribe of Florida, two State representatives, the SFWMD, and two representatives of local governments in South Florida. The Working Group is larger and more broadly based, consisting of 14 local federal members, two Tribes, five State agencies, the Governor's Office, the SFWMD, and five representatives of local governments and regional planning councils.

Under WRDA 1996 and resulting Task Force Charter, a few of the duties of the Task Force include:

- To consult with, and provide comments to the Secretary of the Army and the SFWMD during the development of the Restudy Comprehensive Plan;
- To coordinate the development of consistent policies, strategies, plans, programs projects, and priorities for addressing the restoration, preservation, and protection of the South Florida ecosystem, including determinations of whether critical restoration projects will be generally consistent with the August 1996 *Conceptual Plan* prepared by the Governor's Commission;
- To facilitate the resolution of interagency and intergovernmental conflicts associated with the restoration of the South Florida ecosystem;
- To coordinate scientific and other research associated with the restoration of the South Florida ecosystem; and
- To prepare an integrated financial plan and recommendations for coordinated budget requests for funds intended for the restoration, preservation and protection of the South Florida ecosystem.

Additionally, the Task Force was specifically empowered to select broad-based private and public interest groups as official advisory bodies to the Task Force, and subsequently selected the Governor's Commission to undertake this role for both the Task Force and the Working Group on August 4, 1997.

Under their charter, a few of the duties of the Working Group include:

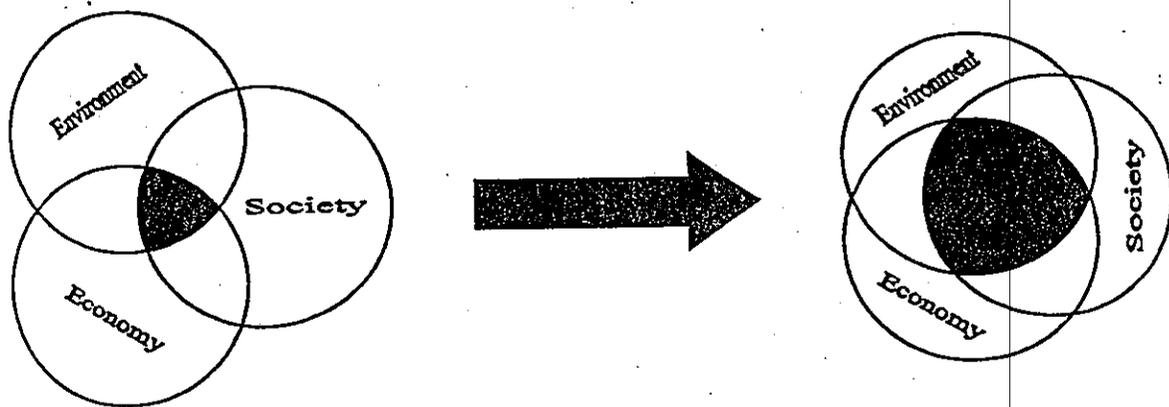
- To generally support and assist the Task Force in undertaking its many duties, especially the development of the Restudy Comprehensive Plan;
- To develop for Task Force approval, strategic plans for: (a) restoring and sustaining the South Florida ecosystem; (b) controlling and eradicating exotic species; and (c) public outreach and participation regarding the restoration activities of the Task Force and Working Group;
- To support other agencies in the development and implementation of: (a) a comprehensive conservation, permitting and mitigation strategy for wetlands and other sensitive habitats; and (b) a multi-species recovery plan for threatened and endangered species in the South Florida ecosystem; and
- To assist the Task Force in its duty to 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.

D. THE GOVERNOR'S COMMISSION INVOLVEMENT WITH THE RESTUDY

Initial Report Recommendations

The Commission's *Initial Report* (October 1, 1995) contained 110 recommendations with a central theme of sustainability – meeting the needs of the present without endangering the ability of future generations to meet their needs – revolving around the management of water. In that report, the South Florida ecosystem was defined as a community of organisms, including humans, interacting with one another and the environment in which they live. The Commission recognized that “Our quality of life is inextricably linked to the health and viability of natural systems” and “A healthy Everglades system is vital to natural plant, animal and human population alike.” The Commission also unanimously agreed that the South Florida ecosystem is not sustainable on its present course.

The Commission's *Initial Report* identified three broad concepts - society, the economy and the environment - that must be fully integrated and balanced to achieve sustainability in South Florida. These components encompass a variety of human and natural system issues that are closely intertwined and require a holistic approach.



Many of the recommendations in the *Initial Report* addressed the need to integrate all elements of water resource management including: water supply, flood protection, water quality, and natural resources restoration, protection and management. In addition, the *Initial Report* also addressed a number of Restudy-related recommendations and action steps (see TABLE 3).

TABLE 3
Initial Report: Restudy Recommendations

- "The Corps and the SFWMD should regain lost water storage capacity where adequate flood protection for existing development and agricultural activities allows...without significant adverse environmental consequences" (Recommendation 6 – Action step a)
- The Corps and the SFWMD should "assure that the Restudy addresses the need to achieve a sustainable South Florida economy by identifying and evaluating projected 2050 demands of urban and agricultural users and proposing reliable, cost-effective measures to provide the necessary water supply." (Recommendation 11 – Action step a)
- "The Commission should provide a mechanism to enable input and integration of the State's concerns and interests with the U.S. Army Corps of Engineers and the South Florida Ecosystem Restoration Task Force in the Restudy and other federal activities." (Recommendation 12)
- The Corps and the SFWMD should: (1) address water supply needs for urban and agricultural users; (2) address natural water level fluctuations within the natural system and restoration of natural water quality, timing, volumes, and distribution to the Everglades; and (3) expedite the Restudy schedule without sacrificing thoroughness or quality of the final product. (Recommendation 13 – Action steps a, d and f)
- "The Restudy should integrate all elements of water management (water supply, flood protection, water quality protection, and natural systems management). Redesign should provide for sustainability for human and natural system requirements." (Recommendation 15)
- "All plans, and especially the Restudy, should assure that new demands do not adversely affect the sustainability of human and natural systems." (Recommendation 16)
- "In the Restudy, the SFWMD and the Corps should ensure that the redesign of the system allows for resilience for a healthy natural system." (Recommendation 17)
- The SFWMD, the Seminole Tribe, the Miccosukee Tribe of Indians, the U.S. Army Corps of Engineers, public water supply entities, and other interested parties should "redesign and develop new operations for the South Florida water management system at all levels to conserve and sustain the natural system, to maximize the capture of stormwater, and to conserve water for the benefit of all users." (Recommendation 23)
- The Corps and the SFWMD "should reduce the extent of damage from flooding to human and natural systems." (Recommendation 27)

A Conceptual Plan for the Restudy

As described in the *Conceptual Plan*, the Commission envisioned the Restudy as an important component of sustainability and recognized it as the vehicle to address many of the regional water resource issues identified in its *Initial Report*. The Commission, in introducing its *Conceptual Plan*, also noted that it wished to ensure that the *Initial Report* objectives for sustainability and the interests of all South Florida are addressed during the Restudy.

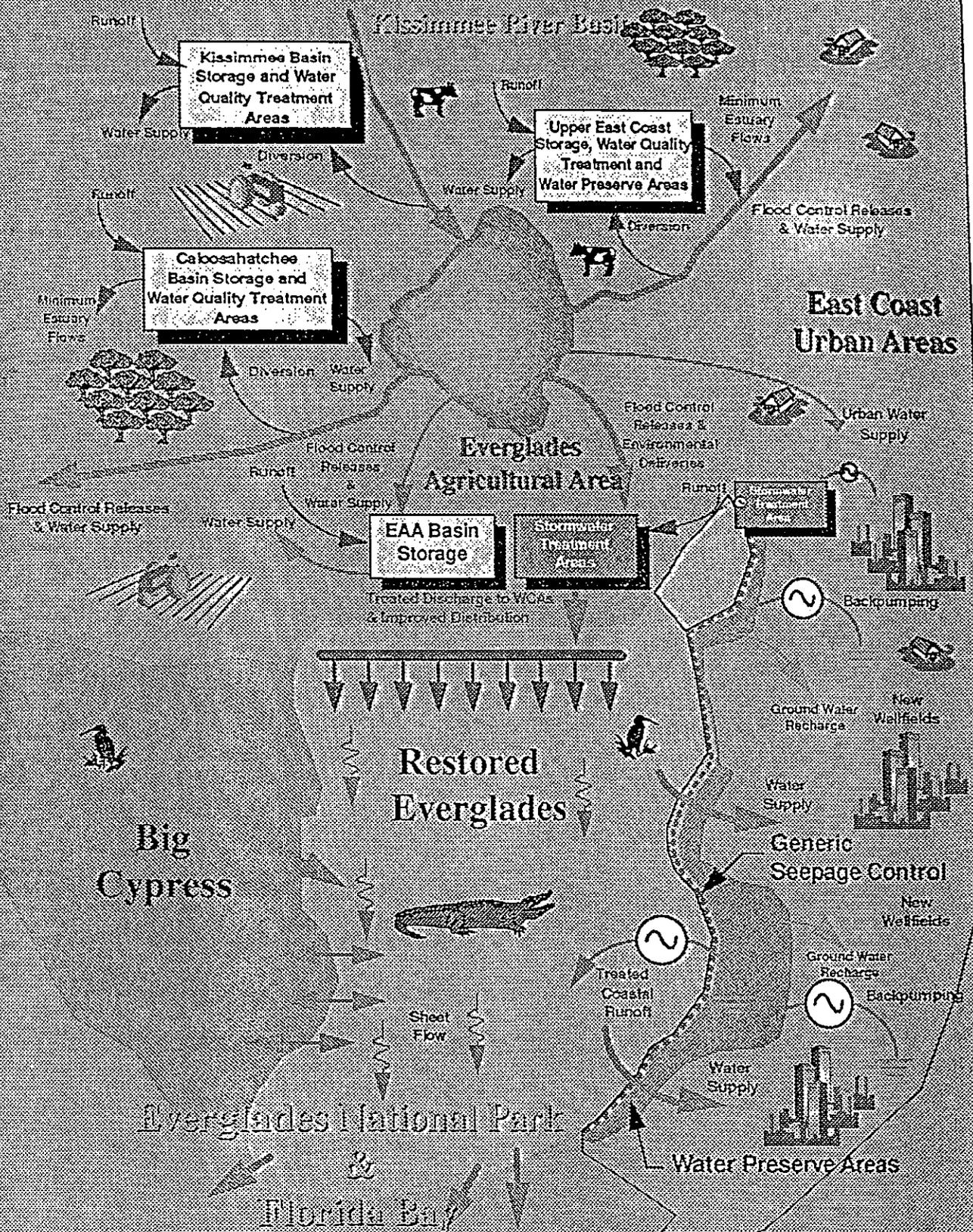
In developing the *Conceptual Plan*, the Commission formulated a number of planning objectives ranging from restoring fish and wildlife, to increasing water supply for urban, agricultural and natural areas, to improving coastal and marine conditions. As described in the *Conceptual Plan*, the goals are:

- To create a restored Everglades system; one that is sustainable over the long term and that has high values in critical areas, such as abundant wading birds, more plentiful numbers of now endangered species, clean and clear water, and healthy bays. (p. 57)
- To restore a sustainable South Florida ecosystem that preserves the valued properties of South Florida's natural system and supports productive agriculture, fisheries, and tourist-based economics and a high quality of urban life. (p. 62)

For the purpose of developing a broad-based *Conceptual Plan* for the Restudy that accounted for the needs of the stakeholders, the Commission developed thirteen thematic concepts, listed below. The thirteen concepts broadly covered four major themes: regional storage for natural systems, water supply and flood protection; natural areas enhancement and restoration; improved water quality; and improved operation, management and implementation practices. FIGURE 1 is a schematic map of the *Conceptual Plan* that depicts the various recommended options within the overall thematic concepts:

- Regional storage within the Everglades headwaters and adjacent areas
- Lake Okeechobee operational plan
- Everglades agricultural area storage
- Water preserve areas
- Natural areas continuity
- Water supply and flood protection for urban and agricultural areas
- Adequate water quality for ecosystem functioning
- Increase spatial extent and quality of wetlands beyond the Everglades
- Invasive plant control
- Aquifer storage and recovery
- Protection and restoration of coastal, estuarine, and marine ecosystems
- Conservation of soil
- Operation, management, and implementation of the C&SF Project modifications and related lands

GCSSF's Conceptual Plan Schematic



Concepts Not Shown

- ▶ Lake Okeechobee Operational Plan
- ▶ Aquifer Storage and Recovery
- ▶ Control Invasive Plants
- ▶ Control Soil Subsidence
- ▶ Protect and Restore Coastal & Marine Ecosystems
- ▶ Increase Spatial Extent of Wetlands

As these water-related concepts were being finalized, the Commission developed three fundamental concepts to accompany their utilization. These fundamental concepts were: (1) Water quality and treatment should be addressed and optimized throughout the system; (2) The burden and responsibility for water storage should be shared across the system; and (3) The Commission supports projects in general that salvage, clean up, and reuse water.

The 13 thematic concepts along with an additional set of specific recommendations aimed at hastening the process and broadening it to involve a greater South Florida voice and participation, were then forwarded to the Governor, Lieutenant Governor, and members of the SFWMD Governing Board.

Highlights of the *Conceptual Plan* development process included: its unanimous adoption by voting members present; creative and intensive consensus building; breadth of scope (inland uplands through the reef systems of the Florida Keys); breadth of recommendations (ranging from specific engineering "fixes" to institutional recommendations concerning federal/State partnership responsibilities); and, range of opportunities for implementation from private to local, regional, State and federal entities.

Water Resources Development Act of 1996

Following the completion of the Commission's *Conceptual Plan*, Congress passed WRDA 1996. The Act directed the Corps to "develop, as expeditiously as possible, a proposed Comprehensive Plan for the purpose of restoring, preserving, and protecting the South Florida ecosystem" by no later than July 1, 1999, two years earlier than outlined in the Corps' original timeline. WRDA 1996 also stated that "the Comprehensive Plan shall include such features as are necessary to provide for the water-related needs of the region, including flood control, the enhancement of water supplies, and other objectives served by the Central and South Florida Project." In developing the Comprehensive Plan, Congress directed the Corps to "consider the conceptual framework specified in the report entitled 'Conceptual Plan for the Central and Southern Florida Project Restudy', published by the [Governor's] Commission."

Congress cemented the strong federal/State partnership to restore the Everglades ecosystem in WRDA 1996 by requiring the Corps to "take into account the protection of water quality" as it develops the Comprehensive Plan and by committing the federal government to become an equal funding partner in restoration projects within the Restudy. The inclusion of water quality as a funded purpose for the federal government, usually the sole fiscal responsibility of the State, and the establishment of a 50/50 cost sharing with the State of Florida, were historic and unprecedented.

Implementation of the Conceptual Plan

The Governor's Commission presented the *Conceptual Plan for the C&SF Project Restudy* to the SFWMD Governing Board on October 9, 1996. The Governing Board

unanimously endorsed the plan on October 10, 1996, and Governor Lawton Chiles subsequently adopted it on November 13, 1996. With the Governor's adoption of the report, the Commission then embarked on a public outreach effort to inform and educate the South Florida citizenry and elected officials about the *Conceptual Plan* and the Restudy. Outreach efforts to the citizens of South Florida have embodied numerous speaking engagements by Commission members throughout the region urging their participation in the Restudy process through public input. The Commission also recognized the importance of the impacts of local government decisions on Restudy efforts. As a result, the Commission undertook an initiative to educate elected officials and their staffs about the *Conceptual Plan* and to obtain local government resolutions supporting the *Conceptual Plan* as the vision for the Restudy. This effort also emphasized to the elected officials the importance of their continued participation in and support for the Restudy process.

Members of the Commission, with technical support from the SFWMD and the South Florida, Southwest Florida, and Treasure Coast Regional Planning Councils, met with and obtained resolutions of support from each of the following visited counties, cities, and townships:

- | | | |
|-------------------|------------------------|------------------|
| Miami-Dade County | St. Lucie County | City of Parkland |
| Palm Beach County | City of Miramar | City of Weston |
| Martin County | City of Pembroke Pines | |

In addition, the City of South Miami, the Greater Miami Chamber of Commerce, and Chamber South have recently passed resolutions in support of the Restudy. The Lee and Collier County Commissions have also recently passed resolutions in support of the Restudy and the feasibility study for the Southwest region. The Commission intends to continue this outreach effort by visiting with elected officials in Monroe, Broward, and Southwest Florida counties.

The Interim Report on the C&SF Project Restudy

As described earlier, the Restudy is being conducted in a multi-step approach with a draft Comprehensive Plan released on October 15, 1998. In order for the Commission to provide input and formal recommendations on the development of this document, the Commission embarked on an intensive schedule of obtaining stakeholder and citizen input during the months prior to its release. At its February 1998 meeting in Dania, Florida, the Commission adopted an ambitious schedule aimed at providing recommendations and comments on the Restudy's alternative development process to the Governor, Lieutenant Governor, and the South Florida Ecosystem Restoration Task Force before late July. This was essential because the Corps and the SFWMD were scheduled to present their Initial Draft Comprehensive Plan to the Task Force in late July.

Beginning with its March meeting in Homestead, and continuing through its April and May meetings in Ft. Myers and West Palm Beach respectively, the Commission undertook a series of stakeholder panels and discussions designed to focus on the broadest range of stakeholder concerns. By the close of the May meeting, the Commission had heard

from the following stakeholder representatives: the environmental community, the Miccosukee Tribe of Indians, the Seminole Tribe of Florida, agriculture, county and city water utilities, local government environmental agencies, an electrical power utility, and the limestone mining industry as well as a number of individual citizens who stated their concerns during the public comment portions of the meetings. The Commission simultaneously received monthly updates from the Corps on their iterative steps toward developing and assessing various alternatives in the Restudy.

The Commission's intent was to glean and categorize from the range of expressed issues of concern, specific issue areas that could be assigned to individual Commission subcommittees (Restudy Issue Teams). Beginning in March, the Steering Committee for the Commission assessed the areas of stakeholder and Commission concern and charged eight Restudy Issue Teams with the responsibility to develop consensus recommendations that addressed their assigned issue(s). These teams met consistently for a period of several months to address their charge. The full Commission frequently reviewed the work products of each Restudy Issue Team whose memberships consisted of both Commission and non-Commission members.

The products of the Issue Teams were examined and discussed by Commission members in both plenary and issue team meetings (all open to the public). As a result of those deliberations, the Commission unanimously adopted *The Interim Report on the C&SF Project Restudy* on July 24, 1998, containing 35 recommendations addressing 7 major issue areas: (1) Increasing water storage, (2) Land procurement and connectivity, (3) Improving water quality, (4) Assurance to water users, (5) Water supply level of service, (6) Southwest Florida issues, and (7) Coordination of activities. The Commission found that the key components of the Restudy, thus far, were generally consistent with the Commission's *Conceptual Plan*. The report was presented to the Task Force on July 27, 1998 (with simultaneous distribution to the Governor and Lieutenant Governor). It was accepted and approved by the Governor by letter dated September 4, 1998. Appendix I includes a summary of the *Interim Report* recommendations and the Governor's letter approving and commenting thereon. Appendix II includes a status report for implementation action for each of the recommendations.

E. DEVISING THE RESTUDY PLAN REPORT

At the time the *Interim Report* was approved by the Commission, it was acknowledged that there were still some issues that required further deliberation and reconciliation, and that additional issues might arise after the draft Comprehensive Plan was released. Of particular concern was the issue of assurance to water users. A commitment was made to gather additional stakeholder concerns after the October release of the draft Comprehensive Plan to ascertain the general efficacy, feasibility, and acceptability of the draft plan. The stakeholders would also provide further input to the Commission as it developed additional recommendations for the Corps and the SFWMD to use in finalizing the recommended Comprehensive Plan during the late winter of 1999.

Like the previous spring, a series of stakeholder panels were convened at the November and December 1998 Commission meetings in Coral Gables and Naples, respectively. Commission members heard input from the environmental community, the Miccosukee Tribe of Indians, the Seminole Tribe of Florida, agriculture, county and city water utilities, local government environmental agencies, the limestone mining industry, and a panel of technical professionals as well as a number of individual citizens who stated their concerns during the public comment portions of the meetings. During November and December, at least one Commission member attended each of the 12 public meetings being held by the Corps and the SFWMD to solicit public comment on the draft Comprehensive Plan.

The Commission's draft Comprehensive Plan evaluation process was designed to gather, examine, deliberate and resolve stakeholder concerns and outstanding issues and to articulate the resolution of these issues into recommendations to the Governor, the Task Force, the Corps, and the SFWMD. Beginning in November, Restudy Issues Teams were reconvened with the responsibility to develop consensus recommendations that addressed their assigned issue(s). The teams met consistently for a period of a few months, their products were periodically reviewed by the full Commission, and on January 20, 1999, the Commission unanimously adopted its *Restudy Plan Report*.

The Florida Conflict Resolution Consortium provided capable leadership in facilitating the entire consensus process – from the initial description of the issues of concern and recommendation development, to facilitated sessions of preliminary approval and ultimately to the final approval of this document and the contents therein.

CHAPTER III RESTUDY RECOMMENDATIONS

A. INCREASE WATER STORAGE

Providing Additional Water Storage through the C&SF Project

Today, the greatest constraints of the C&SF Project are the lack of sufficient water storage and the inability to adequately use existing storage because of seepage losses, evaporation, and the limitation on management flexibility. These constraints interfere with Everglades restoration and the provision of other water-related needs of the region. The historical greater Everglades depended on a large natural storage capacity within the system that helped slow down the rate of water loss, ensuring that wet conditions and extended hydroperiods were maintained well into most dry seasons (typically, November through April). The wet season (May through October) experiences about 70-75% of the region's annual rainfall, and this natural dynamic storage capability of the Kissimmee-Okeechobee-Everglades system helped maintain not only the long hydroperiod sawgrass wetlands of the central Everglades, but also the dry season's inflows of freshwater to the area's rivers, estuaries and mangroves.

A century of efforts to drain and manage water for human uses has resulted in the loss of approximately 6 million acre-ft of annual water storage from the system. Today, an extensive network of canals, channels, drainage ditches and water control structures quickly drains the over 50 inches of annual rainfall that the region receives. This ends up sending "to tide" much of the wet season water that used to be naturally stored within an Everglades ecosystem that was twice the size of the system that remains today. This inability to store water has resulted in both wet and dry season impacts to the remaining natural system in South Florida.

As the system is managed today, during wet seasons, excess water frequently needs to be released from Lake Okeechobee. Water management requirements send damaging freshwater releases to the Caloosahatchee and St. Lucie estuaries. During the dry season, when tourism and winter visitations are at their peak, human water supply demands within the region are at their highest, often depending upon water supply deliveries from Lake Okeechobee or the Water Conservation Areas (WCAs). Some dry periods are extensive enough to result in local or regional water shortages, sometimes resulting in water use restrictions. Neither Lake Okeechobee nor the WCAs can store enough water to adequately meet all dry season needs of both the human and natural systems, without harming their own ecologies. The result is that the existing natural system suffers by receiving less freshwater than it did historically. In general terms, the rivers, lakes, wetlands, and estuaries of South Florida experience, to their detriment, much greater wet season peak flows, and much lower dry season inflows, than they did historically.

It is necessary to create additional water storage sources and flexibility within the system to ensure that regional water supply needs of both the human and natural systems can be more routinely provided. The key is regaining lost water storage capacity within the system. The Restudy has identified a series of ways that this could be accomplished:

- Flood releases from Lake Okeechobee could be used to fill regional storage facilities prior to allowing discharges to the Caloosahatchee and St. Lucie estuaries, and the WCAs.
- Storage facilities could be used to capture water prior to entering Lake Okeechobee.
- Operational and structural modifications to existing project features, along with establishing desired estuarine target discharges and constructing new features such as reservoirs, reuse facilities, Water Preserve Areas (WPAs), seepage barriers, and Aquifer Storage and Recovery (ASR), could enhance stormwater storage for environmental, urban, and agricultural uses including water supply and flood control.
- Increased water levels and stormwater storage adjacent to the WCAs in Miami-Dade and Broward Counties could prevent excessive seepage loss from the Everglades and provide increased flows to Shark River Slough, Florida Bay, and Biscayne Bay.
- Taking advantage of the seasonal nature of water availability from the regional system, and the greater use of local sources for meeting the demands of urban water supply, could allow greater use of the regional water supply system for enhancing the ecologic health of the Everglades and Florida Bay.

Clearly, increased water storage is at the heart of the Restudy. Unless the Restudy can provide for sufficient, additional water storage with the proper characteristics of location, storage volume, water quality and availability when needed, both the human and natural systems in South Florida will be harmed. The Restudy must assure adequate water supplies for all existing legal users while protecting the health of South Florida's Everglades and other wetlands, estuaries and marine systems. This must include additional storage that captures all excess water currently released to tide, excepting that quantity necessary for maintaining the health of the coastal ecosystem. The spring 1998 episode involving over 1.4 million acre-ft of emergency Lake Okeechobee water releases to the Caloosahatchee and St. Lucie estuaries, coupled with the devastating environmental, economic, and human impacts that resulted from the releases, and the subsequent needs for that lost water as the region headed into drought conditions, demonstrate the inextricable linkage between the natural and human systems in South Florida. Therefore, it is crucial that the storage facilities developed by the Restudy allow for the attenuation of currently damaging regulatory releases from Lake Okeechobee by redirecting excess wet season flows to new storage areas for both human and environmental water supply needs during the dry season.

Likewise, the storage facilities proposed by the Restudy must contain sufficient water storage capacity to avoid a situation where the natural system is significantly harmed by human water supply needs during periods of drought. In order to achieve the

balance of being able to provide adequate water supplies to sustain both human and environmental needs, the necessary structures and improvements to provide this additional water storage capacity are essential. Otherwise, the past and current water woes of South Florida will only continue to become more extreme as the region's population continues to increase into the future.

ASR facilities have been in operation in the United States for about thirty years, and ASR is generally defined as "the storage of water in a suitable aquifer through a well during times when water is available, and recovery of the water from the same well during times when it is needed" (Pyne, 1995). In essence, the technology allows aquifers to be used as underground water storage reservoirs. The first ASR facility in Florida was permitted in 1982 and the State currently has seven operational ASR facilities, with an additional eight under construction as of February 1998 (Lou Devillon, personal communication). Many of these facilities have multiple wells, with the largest currently operating systems (Peace River/Manasota Regional Water Supply Authority; City of Cocoa) able to recover about 8 million gallons/day (mgd) or about 25 acre-ft/day (GCSSF, 1996b). These facilities utilize either treated surface water or treated groundwater as their supply source. Even larger ASR facilities have recently been permitted in Florida to use reclaimed water as their source water. Some of the twenty-two applications identified for ASR (Pyne, 1995), that may be applicable for South Florida, include:

- **SEASONAL STORAGE.** Storage during wet months for recovery during dry months or when needed.
- **LONG-TERM STORAGE.** Storage during wet years for recovery during drought years.
- **RESTORE GROUNDWATER LEVELS.** Reverse groundwater level declines by incorporating ASR systems.
- **AGRICULTURAL WATER SUPPLIES.** Provide seasonal storage of water for agricultural irrigation purposes.
- **ENHANCE WELLFIELD PRODUCTION.** Wellfields are usually designed to operate within their long-term safe, sustained yield. When these same wellfields are converted to ASR mode, it is often possible to produce water at higher rates during peak demand months, counting on artificial recharge during off-peak months to restore water levels before the next peak season.
- **COMPENSATE FOR SURFACE SALINITY BARRIER LEAKAGE LOSSES.** In South Florida, salinity barriers are located on major drainage channels discharging to saltwater. With ASR, wells could be located adjacent to these barriers, recharging water into deep brackish aquifers during wet months; stored water would be recovered during drought months to compensate for leakage losses.
- **RECLAIMED WATER FOR REUSE.** High quality reclaimed water may be stored seasonally in brackish aquifers for recovery to meet irrigation demands, eliminating the need for expensive aboveground storage.

ASR's application is increasing nationally since, with appropriate quality of the injected water, it creates few environmental impacts, is cheaper than many other water storage options, and can efficiently store water for later retrieval, even across multiple years. However, the use of large-scale ASR for supplying the huge amounts of water in regional water storage facilities like those the Restudy is proposing (i.e. a total of 1,775 mgd or 5,100 acre-ft/day) has never been attempted at this scale, and therefore is currently unproven as a reliable large-scale technology. This uncertainty is a major concern for water users, such as in the Everglades Agricultural Area (EAA) and by the Miami-Dade, Palm Beach, Broward and Lee County utility interests, who are proposed in the Restudy to have to rely upon this regional ASR storage for a significant portion of their water needs. This uncertainty prompted the Commission in its *Interim Report* to recommend that "The Corps should accelerate the design and implementation of demonstration and pilot ASR projects at selected sites around Lake Okeechobee and Southeast Florida. Information from these projects will assist in determining the feasibility of ASR for major water storage projects." (GCSSF, 1998; p. 7). Since the July 1998 adoption of the Governor's Commission's *Interim Report*, the Restudy has committed to quickly undertaking demonstration projects, including ASR pilot projects at the northern end of Lake Okeechobee and on the Hillsboro Canal.

In the Restudy's recently released Draft Integrated Feasibility Report and PEIS, approximately 300 ASR wells are proposed throughout South Florida with an average level of injected water recovery of 70%. ASR is intended to provide water that meets all applicable federal and State water quality standards during extended drought conditions, even though these wells represent only about 8% of the water resources generated by the Restudy. However, because current Environmental Protection Agency (EPA) standards require that pre-injection water quality complies with primary drinking water standards, ASR treatment costs constitute a disproportionately high percentage of the Restudy's overall cost even though most water quality problems associated with ASR appear to currently center around coliform bacteria issues. The Restudy sponsors are working with EPA to obtain a "limited" aquifer exemption for coliform standards, particularly for the Lake Okeechobee ASR component where pre-treatment is estimated to cost about \$1 billion. Public utilities in Miami-Dade, Broward, and Palm Beach Counties implementing raw water ASR projects have filed Limited Aquifer Exemption applications to save on pretreatment costs. Alternative methods of microbe removal should be researched for applicability.

Also in the Restudy's recently released Draft Integrated Feasibility Report and Programmatic Environmental Impact Statement (IFR/PEIS) are two proposed advanced wastewater reuse facilities for western and southern Miami-Dade County. The western Miami-Dade County facility would provide 100 mgd to meet water demands for the Bird Drive Recharge Area, the South Dade conveyance system and northeast Shark River Slough. The southern Miami-Dade County facility would provide 131 mgd to provide additional water supply to south Biscayne Bay and the coastal wetlands enhancement project. The estimated Restudy cost for these two facilities, including associated pretreatment and membrane treatment facilities, is over \$800 million. The Feasibility Report recognized the high cost and other potential problems associated with these proposed reuse facilities and recommended for the southern Miami-Dade reuse facility that "other

potential sources of water to provide required freshwater flows to southern and central Biscayne Bay should be investigated before pursuing the reuse facility" (IFR/PEIS, 1998; p. 9-21).

The Florida Legislature created the Lake Belt Committee in 1992 "to develop a plan which: (1) Enhances the water supply for Miami-Dade County and the Everglades; (2) Maximizes efficient recovery of limestone while promoting the social and economic welfare of the community and protecting the environment; and (3) Educates various groups and the general public of the benefits of the plan." The Governor's Commission supports this effort and these stated social, economic, and environmental goals. As the Restudy has proposed to build onto to this State effort and utilize portions of the resulting lake system as part of the Restudy's restoration efforts, the Commission feels that it needs to provide some guidance on a few outstanding issues involving these interconnected efforts.

PREVIOUS COMMISSION GUIDANCE

The Commission feels that clear guidance on several water storage concerns has already been provided in its *Conceptual Plan* and *Interim Report*. TABLE 4 below represents a portion of the water storage guidance previously developed in the *Interim Report* that the Commission feels remains important for the Task Force and the Restudy team to take into consideration as the recommended Comprehensive Plan continues to be developed:

TABLE 4
Water Storage Guidance in the *Interim Report* (1998)

RECOMMENDATIONS

- The Restudy should ensure that a sufficient flexibility of alternative water storage options is maintained throughout all planning, in order to allow for substitution of plan components for ASR, in ground curtain wall reservoirs, or any other major water storage feature including seepage control management, should substitution become desirable for cost or performance reasons. (Recommendation 1)
- The Holey Land and Rotenberger tracts should not be developed into storage reservoir areas, as they consist of important remnants of the northern sawgrass plains of the historic Everglades. (Recommendation 2)
- The Comprehensive Plan should develop a specific contingency plan for the potential need to substitute plan components for the major operational and structural storage components proposed in the Restudy. (Recommendation 3)
- In the event that there is a shortage or excess of water for existing storage, all systems should share in the adversity resulting from the imbalance in storage. However, the Restudy should provide sufficient facilities that protect natural systems such that natural systems will not have to accept a water storage adversity in either wet or dry periods that would cause significant harm to native vegetative or faunal communities, nor should water user groups have to accept adversity that significantly impacts human health and safety. (Recommendation 4)

However, the Commission has also identified several new water storage issues that are not sufficiently covered by the guidance provided by the earlier *Conceptual Plan* and *Interim Report*. These new recommendations are presented below.

RECOMMENDATIONS

1. The Restudy, through the Implementation Plan, should expedite the identification and assessment of alternate water sources as a supplement to and/or in addition to direct reuse that would be of suitable quantity and quality to sustain an ecologically viable Biscayne Bay. The assessment should include, but not be limited to, technical and cost assessments of utilizing indirect reuse, diverted surface water, captured "excess" lower east coast surface water flows and groundwater from the upper Floridan as a means of minimizing reliance on direct reuse as a freshwater source for Biscayne Bay.
2. The Restudy should consider the rehydration and/or restoration of drained wetlands and the use of alternative mechanisms such as flowage easements throughout the system.
3. The EPA, the SFWMD in collaboration with other water management districts, and the Department of Environmental Protection (DEP) should jointly, and expeditiously, develop a Floridan Aquifer management plan to aid in detailed design and implementation phases of the Restudy.
4. The SFWMD and other State and federal agencies concerned should work collaboratively with local governments and agencies to:
 - A. Develop local incentive programs to promote water conservation and reuse;
 - B. Promote, modify, and enforce regulations to help spur the conservation of water supplies;
 - C. Explore and establish long-term guidelines for alternative water supply opportunities, including conservation, reuse, desalinization, and others to extend the viability of the Restudy efforts well past the year 2050;
 - D. Develop coordinated public education programs emphasizing the benefits of the Restudy to regional water supply and the future need for water conservation, reuse, and alternative supplies; and
 - E. Ensure that land use management and planning is coordinated with water resource planning and development.
5. The Corps and SFWMD should develop a protocol for increased efforts to educate and work with the public regarding topics related to the Restudy. This protocol should include methods for addressing local, regional, State, and federal issues.

6. The Restudy should expeditiously develop and fund all necessary site specific engineering and design studies required to support storage areas. Where storage areas are constructed, their performance after construction should be monitored.
7. Where requested by the previous landowner, lands purchased by eminent domain for the purpose of implementing the Restudy should be allowed to be repurchased by their former owners at cost plus interest if these lands are later deemed not necessary for the implementation of the Restudy within a defined time period.
8. Expeditiously fund, construct, and test seepage management pilot projects as a priority for the Restudy.
9. The Commission supports the Lake Belt Committee's planning efforts and recommends that the integrity of the Lake Belt's study area boundaries remain intact until the completion of the Detailed Lake Belt Master Plan.
10. As part of its currently proposed pilot studies, the Restudy should include studies on the effects of head pressure and the porosity of soils in the bottom of the proposed Lake Belt reservoirs.
11. The ultimate outcome of the combined Restudy's and State's Lake Belt Committee efforts must be an equitable arrangement that results in public ownership of the Lake Belt area's lakes to be used for public water resource purposes after mining is completed.
12. Additional ASR and seepage management pilot studies should be located and designed throughout South Florida in a manner so that they both minimize environmental harm during construction and operation, and have a reasonable likelihood of having their impacts reversed should they be shown to be causing significant environmental harm.
13. During the detailed design, the Corps should continue to seek improvements to the Comprehensive Plan performance, particularly with regard to the serious ecological performance shortfalls in WCA 2B, and to increase hydrological connectivity between WCAs to generally improve the ecological performance throughout the WCAs and remnant Everglades.
14. Water Schedule for WCA 3A - The goal for managing inflows and outflows in WCAs, and associated depths and stage durations, should be to maintain or restore native Everglades habitats, including tree islands and willow heads. This water management should allow annual dry downs and avoid unnaturally high water levels that adversely affect historic marsh, upland, and hardwood habitats. If ground elevations increase over time, considerations should be given to adjusting water levels to promote maintenance of these habitats and, where compatible with maintenance of these habitats, to provide water stages that would allow greater flows to Everglades National Park (ENP).

15. The Restudy should seek to ensure that there is sufficient storage to ensure delivery of the Seminole Tribe of Florida's water entitlement, pursuant to its Water Rights Compact, authorized by federal (P.L. 100-228) and State law (Section 285.16, F.S.).
16. In the design of the Lake Belt reservoir pilot project and detailed design of the components in the vicinity of the Northwest Wellfield, the Restudy shall consider the directive of the Florida Legislature that the Northwest Wellfield retain its designation as a groundwater source of water supply. The change of designation could cost in excess of \$260 million to the local government to modify the current treatment processes at the Hialeah and John E. Preston Water Treatment Plants.

B. RESTUDY SCOPE EXPANSION AND COORDINATION

Restudy Scope Expansion

The Commission received many comments from stakeholders that certain issues were not sufficiently addressed in the Restudy. After review of the expressed concerns, the Commission concluded that the following issues have not been adequately addressed in the Restudy.

--Miami River

The Restudy currently has a component dealing with the Miami River/Canal. There is an existing Corps navigation project for dredging the Miami River. This project would protect Biscayne Bay from the significant threat of pollution from contaminated sediment in the Miami River.

RECOMMENDATION

17. The Commission urges the Corps to encompass within the Restudy the Corps' Miami River dredging project. In addition, the Corps should cooperate with other applicable governmental agencies to seek funding sources to help fund and implement the Miami River dredging project.

--Coastal Areas

The Restudy, through its changes in the timing and magnitude of water flows in South Florida, will have significant impacts---such as on the ecology, geology (sedimentation), hydrology, and water quality---of coastal areas, estuaries and barrier islands. The Commission recognizes that the Restudy is recommending a feasibility study for Southwest Florida; however, the Restudy should heighten its attention to project impacts on coastal areas, estuaries, and barrier islands.

RECOMMENDATION

18. Project elements that will divert flows from coastal areas, estuaries, and barrier islands should only be implemented after more detailed design and evaluation of water quantity needs in these near shore coastal areas are completed or identified.

--Impacts on Minority Communities

The geographic range of the Restudy will encompass many minority and under served communities. A project of this magnitude will have numerous and significant impacts on these communities. These communities require special attention in the drafting of the project to ensure that it does not adversely affect them. After review of the Restudy the Commission has determined that the Restudy currently does not adequately address these impacts.

RECOMMENDATION

19. The Restudy process should provide special attention to project impacts on minority communities, particularly in regards to environmental justice issues in the implementation of the Comprehensive Plan. The Restudy should conform to the requirements of State and federal law with respect to inclusion of the concerns and interests of Tribes, minorities, and any workers displaced by the implementation of projects pursuant to the Restudy. The Corps should make a dedicated effort, as provided in federal policy guidelines and law, to improve the opportunities for minority and local businesses in South Florida to receive contracts for Corps of Engineers' work resulting from the Restudy.

--South Miami-Dade County

Accurate, comprehensive, and precise land elevation and topography data of lands (i.e. agriculture, urban and natural areas) is lacking for South Miami-Dade County. This data is essential to the modeling necessary to determine how, where, and how much water moves between canals, structures, differing elevations, oolitic limestone, transition soils and marl soil areas. Without this data, the proper design and subsequent management of the entire C-111 basin and the Modified Water Deliveries project would be jeopardized because the effects of increased water levels resulting from these projects could not be predicted and appropriate remedies modeled and implemented.

RECOMMENDATION

20. The Commission recommends that the Corps encompass within the C-111, Modified Water Deliveries project or early in the Restudy, the acquisition of accurate, comprehensive and precise land elevation and topography data of lands (i.e. agriculture, urban and natural areas) in South Miami-Dade County and this data's input and use in the modeling of all authorized projects in South Miami-Dade County.

Optimizing Coordination of Proposed or On-going Studies with the Restudy

In its *Interim Report*, the Commission provided the following guidance (TABLE 5) on the coordination of activities with the Restudy. The Commission believes these recommendations remain important for the Task Force and the Restudy team to take into consideration as the recommended Comprehensive Plan continues to be developed:

Table 5
Coordination of Activities with the Restudy
Guidance in the *Interim Report* (1998)

RECOMMENDATIONS

- The Task Force should ensure that proposed and on-going projects related to the Restudy are monitored, and coordinated with the Restudy, to ensure efficiency, eliminate duplication of effort, and ensure efficient use of State and federal funds. (Recommendation 33)
- The Governor's Commission for a Sustainable South Florida should continue to advise the Task Force consistent with WRDA 1996. (Recommendation 34)
- Congress and the Florida Legislature should develop a partnership for authorizing, implementing, and supporting the C&SF Project Restudy. (Recommendation 35)

Many proposed or on-going projects already exist in South Florida that directly link to, and therefore potentially impact, the Restudy. These projects address a variety of issues, including water quality, water storage, habitat restoration, hydrological modeling, land acquisition, and geology; as well as physical, chemical, and biologic processes. The Commission developed a matrix as part of the *Interim Report* that identifies many of these projects and their existing level of coordination with the Restudy. Correspondingly, gaps are identified where linkages need to occur.

Because the Restudy will be implemented over the next twenty years, this matrix should continue to be updated, and will serve as an important tool in the continued monitoring and coordination of on-going projects with the Restudy. Efficient coordination between these on-going projects and the Restudy should prove highly beneficial over the long term by minimizing duplicative efforts and ensuring compatibility of project planning and implementation.

C. IMPROVING WATER QUALITY

Providing for Water Quality with the Restudy

Natural systems in South Florida evolved under very low levels of nutrients and in the absence of man-made pollutants. As South Florida has developed, degradation of the Everglades ecosystem and most coastal estuaries has occurred. Diverse activities

associated with urban development, recreational activities, agricultural activities, and other activities such as mosquito control and vegetation control, have contributed to water quality degradation. In addition to nutrients, impacts have been caused by pesticides, heavy metals such as mercury, and other chemicals. As South Florida continues to grow, so do the threat of increased water pollution and the need for protection of both the natural system and the human population of South Florida.

Construction of the C&SF Project has been instrumental in providing the primary flood control system that allowed the full extent of current development. That flood control system initially brought about major changes to the ecosystem by altering water movement patterns, which continue to impact most remaining natural areas. One of the continuing impacts results from the fact that the original C&SF Project did not anticipate pollutant levels currently being introduced. As the Project is modified, it is essential that all associated problem areas related to the operation of the C&SF Project be addressed. To adequately deal with these water quality issues in the future, additional State, regional, and local action will be required if real ecosystem restoration is to occur. A number of issues concerning water quality problems and the adequacy of the Restudy's response to those problems have been raised. These concerns can be found in Appendix III.

Because of the nature of historical impacts to the Everglades and the difficulty in finding a concise, yet comprehensive, water quality data set addressing the entire system, phosphorus has been the Restudy's primary water quality focus. Stormwater Treatment Areas (STAs), and to some extent WPAs and reservoirs, can provide treatment for pollutants in addition to phosphorus. However, understanding is incomplete about the types, concentrations, and loads of pollutants that are causing existing ecological problems and likely to create future ecological problems at critical locations.

This lack of complete understanding exists in spite of a significant monitoring effort. A number of regulatory agencies and non-regulatory agencies routinely collect large quantities of water quality data in the region, yet this data is seldom collected in conjunction with important events such as agricultural pesticide and fertilizer applications, major stormwater discharges or pumping activities. Much of the collected data is not consolidated into a comprehensive database, nor analyzed or cross-correlated with other related information. Many monitoring programs are piecemeal efforts routinely collecting data at fixed locations at scheduled times which are then stored in hard-to-access data bases and, therefore, seldom used. When pollution impacts do become evident, monitoring efforts are often unable to identify the source or cause of the impacts.

Existing regulatory programs have not been comprehensive enough at preventing pollution or impairment of designated uses of some water bodies. The DEP's "305B Report" (DEP, 1996) to the EPA is one source of information about water bodies whose water quality is insufficient to support their designated uses. Many regulations have rules based on "presumptive" technology. This "presumption" assumes that water quality standards will be met if specified actions are undertaken by the regulated interest. While, in some instances, it may be logical to start with a "presumptive" technology based approach, monitoring to verify compliance should generally be required. For instance, if

the "presumptive" technology consists of a combination of Best Management Practices (BMPs) and STAs, a research and monitoring program should be initiated to evaluate the effectiveness of the BMPs and STAs as they are implemented in improving water quality. Where it is determined to be necessary to assure full compliance with water quality standards, supplemental technologies, with appropriate monitoring, should be used. Such an iterative approach has been implemented in the EAA for discharges to the Everglades Protection Area.

Currently, the Restudy Team is modeling a very limited number of water pollutants. For Lake Okeechobee, the WCAs and ENP, phosphorus is the primary focus of attention. Past monitoring efforts have indicated that other water quality concerns exist, and in some areas such as the S-9 Basin, future development may create new water quality concerns. Furthermore, some of the proposed Restudy actions have the potential to cause additional water quality problems.

Current modeling for most of the Restudy's proposed alternatives indicates that the planned diversion of 80% of the drainage discharges from the multiple 298 Drainage Districts and Closter Farms from Lake Okeechobee to the STAs does not fully occur. Additional backpumping into Lake Okeechobee is included in some of the alternatives. No treatment is provided for the new backpumping facility in the L-8 Basin, which includes agricultural drainage. Although greatly reduced, backpumping of untreated drainage to Lake Okeechobee from the major pump stations in the EAA still occurs. Even with additional treatment facilities included at other locations, the Restudy's modeling results predict little change in the Lake's eutrophic state. Current model inadequacies account for only a portion of the problem. Water quality conditions in Lake Okeechobee are not likely to significantly improve unless substantial lake inflow pollution load reductions occur, and action is taken to reduce in-lake nutrient levels. The Restudy should emphasize restoration of the Lake Okeechobee ecosystem, including its water quality.

For the WCAs and ENP, the requirements of the Everglades Forever Act and the federal/State Settlement Agreement are included as base conditions in the Restudy and are assumed to be in place as legally required. This includes final Phase II phosphorus concentration requirements which are assumed to be the default value of 10 parts per billion (ppb), as DEP has not yet adopted a final standard. A treatment method capable of producing the expected water quality required for Phase II has also not yet been identified for implementation. Other WCA issues include the potential high flow bypass of the STAs resulting from Restudy actions, and the additional treatment facilities needed for both increased Lake Okeechobee flows for Everglades restoration and to meet increased year 2050 Lower East Coast (LEC) water supply demands.

Some current Restudy strategies dealing with these water quality concerns include various mechanisms to minimize LEC water supply deliveries from Lake Okeechobee and the WCAs. An evaluation of the effect of the Restudy alternatives on water and phosphorus budgets in the Everglades Construction Project (ECP) and the Everglades Protection Area was finished in July 1998. Consideration will be given to the effects of

proposed EAA reservoirs, other water storage areas included in the technically preferred alternative plan, agricultural BMP performance, alternative phosphorus settling rate values and water movement on ECP effectiveness and treatment design requirements. Complete results will be available by October 15, 1998.

A major effort has been made in the development of the Restudy, to store excess water from the LEC that is currently lost to tide. Most of this water will be backpumped into the WPAs and into Lake Belt storage reservoirs. Much of the LEC is heavily developed and some of the canals contain water that has been polluted. The Restudy is proposing to separate cleaner canal water from canals affected by urban pollution. In some cases, treatment areas have been added or separate storage areas used for this urban affected water. In other areas, water of poorer quality that is released to recharge the aquifer and local canals is proposed to be routed back through the canals from which it was taken in order to avoid impacts to wellfields and other areas of better water quality. As development increases, it will be important to assure that water quality does not continue to deteriorate, especially in currently unimpacted areas.

In the draft Comprehensive Plan, water from a variety of sources including ground water, surface water, and agricultural and urban runoff are proposed for storage in wetlands, reservoirs and ASR facilities. Water released from these storage areas will have a number of uses, including the maintenance of groundwater levels, wellfield recharge, Everglades water supply, and estuarine water supply. It is understood that the Restudy's Integrated Feasibility Report And Programmatic Environmental Impact Statement (IFR/PEIS) will include a monitoring plan that is consistent with the plan's conceptual level of detail. A detailed environmental monitoring program will be necessary to adequately apply the principle of adaptive management and assure that water quality impacts are considered during the later phases of the design process for such facilities.

In current modeling, pollutant discharges to the estuaries are considered to be primarily a matter of excessive or insufficient freshwater flows. Other potential pollutants such as pesticides, nutrients, and heavy metals have not always been addressed in the modeling. In the Restudy's Draft Comprehensive Plan, a significant portion of freshwater flows to central and southern Biscayne Bay are supplied by the South Miami-Dade reuse component. However, due to significantly high construction, operation and maintenance costs, and potential water quality implications, the Corps should investigate all potential sources of water for providing freshwater flows to central and southern Biscayne Bay.

In summary, a number of water quality problem areas currently exist within the system, and additional problems will potentially be created by Restudy modifications. Some of the major water quality problem areas involving multiple pollutants include:

- Discharges to the Kissimmee River; Inflows to Lake Okeechobee;
- Outflows from Lake Okeechobee to the St. Lucie and Caloosahatchee estuaries, and the EAA;
- Ecosystem restoration deliveries from Lake Okeechobee to the Everglades Protection Area;
- Discharges from the EAA to Lake Okeechobee and the Everglades Protection Area;
- Flows from the C-139 Annex area and the Western Basin;
- Flows to WCA-3 from all Tribal lands;
- S-9 Pump Station discharges from the C-11 Basin;
- Reservoirs receiving water contaminated by stormwater runoff or atmospheric deposition;
- ASR discharges to the Floridan Aquifer and ASR discharges to surface waters;
- Sewage treatment plant reuse water discharges to natural areas;
- Discharges from the Modified Water Deliveries Project;
- Discharges from the C-111 Canal Project;
- Discharges to estuaries including the Indian River Lagoon, Lake Worth, the Intracoastal Waterway, Biscayne Bay, Barnes Sound, Florida Bay, and Southwest Coastal estuaries; and
- Urban runoff contribution to water quality impairment: Florida Keys; Lake Okeechobee; St. Lucie estuary; and Caloosahatchee estuary.

Water quality treatment facilities currently included in Alternative D of the Restudy include:

<u>COMPONENT</u>	<u>FACILITY/SIZE</u>
D5 Caloosahatchee ASR	Treatment prior to injection
K6 Southern L-8 ASR	Treatment prior to injection
M6 Site 1 ASR	Treatment prior to injection
Q5 WPA C-11	1,600 acre STA/Impoundment
R4 WPA C-9	2,500 acre STA/Impoundment
S6 Central Lake Belt	640 acre STA
W2 Taylor Creek Storage/STA	5,000 acre STA
X6 C-17 Backpumping	550 acre STA
Y6 C-51 Backpumping	600 acre STA
GG4 Lake Okeechobee ASR	Treatment prior to injection
LL6 C-51 ASR	Treatment prior to injection
VV6 P.B. Co. Ag Reserve ASR	Treatment prior to injection
WW5 C-111 Spreader Canal	Unspecified acre STA
XX6 North Lake Belt C-6 Flows	Unspecified acre STA
BBB6 S. Miami-Dade Reuse	Treatment to meet standards
CCC6 L-28I Modifications	1,100 acre and 800 acre STA
DDD5 Caloos. River Backpumping	5,000 acre STA
HHH6 W. Miami-Dade Reuse	Treatment to meet standards

Components providing incidental water quality benefits in Alternative D include:

<u>COMPONENT</u>	<u>FACILITY/SIZE</u>
A6 North Storage Reservoir	20,000 acre reservoir
B2 C-44 Storage Reservoir	10,000 acre reservoir
D5 C-43 Storage Reservoir	20,000 acre reservoir
G5 EAA Storage Reservoirs	{20,000 acre drainage reservoir} {40,000 acre lake release reservoir}
K6 Southern L-8 Storage Reservoir	1,200 acre reservoir
M6 Site 1 Storage Reservoir	2,460 acre reservoir
S6 Central Lake Belt Storage	5,200 acre reservoir
U6 Bird Drive Recharge Area	2,877 acre recharge area
UU6 C-23& 24/St. Lucie Storage Reservoirs	35,200 acre reservoir
VV6 P.B. Co. Ag. Storage Reservoir	1,660 acre reservoir
WW North Lake Belt Storage	4,500 acre reservoir
GGG6 C51 Storage Reservoir	1,200 acre reservoir

RECOMMENDATIONS

21. In order to address all water quality pollutants and issues at the most appropriate stage of project planning, design, development, permitting and construction, a water quality implementation plan for the Restudy should be developed with DEP as the lead agency, along with EPA, SFWMD, the Tribes, the Corps, and local permitting programs. The Corps should strive to maximize opportunities to improve water quality wherever possible within the C&SF Project within its authority.
 - A. The water quality implementation plan should include elements that assure that existing water quality data from all federal, Tribal, State, regional and local agencies are consolidated and made available in a common format that makes data comparison/analysis possible and simplifies the identification of problems. Future water quality monitoring programs should be fully coordinated with one another to eliminate duplication, fill existing data gaps, and to provide the most useful information possible. All water quality information should be coordinated with the Restudy process to assure future design efforts incorporate necessary water quality considerations and to assure that appropriate water quality data are available to assess conditions once components are on-line and operational.
 - B. The water quality implementation plan should identify studies and monitoring needed to identify effects upon the quality of water delivered downstream resulting from Restudy modifications.
 - C. In the water quality implementation plan, water quality data and applicable existing water quality programs and regulations, should be analyzed to determine the source (both point and nonpoint) of water

quality problems and to identify responsible entities. Where needed, regulatory requirements should be enforced and opportunities for coordination/implementation between the Project and other water quality programs should be identified. Any necessary C&SF Project design changes should be coordinated with and incorporated into the Restudy.

- D. One of the primary components of the water quality implementation plan should be pollutant total maximum daily loads (TMDLs) and concentrations established for South Florida ecosystem water bodies by DEP. Establishment of these TMDLs is necessary to restore impaired water bodies and to protect those water bodies that can currently support their designated use. Regulatory agencies should revise regulations and standards as required to protect the designated uses of South Florida ecosystem water bodies.
- E. Phasing of Restudy components in the implementation plan should be consistent with requirements included in the Everglades Forever Act, and should support restoration efforts in the Lower Western Basin.

22. The Restudy should include in the IFR/PEIS recognition of the problem of water quality data fragmentation, inconsistency, and incompleteness. The IFR/PEIS should assure that the water quality improvement is included in all future Restudy actions and provides the adaptive Restudy components and long term monitoring necessary to assure ecosystem restoration goals are being met.

- A. The IFR/PEIS should provide a basis for a cooperative effort to develop an adequate integrated, detailed monitoring and evaluation program to include in later project development documents. This cooperative effort should include local, regional, State, Tribal and federal agencies involved with the protection of natural resources and the permitting and operation of the C&SF Project. In the future, a detailed environmental monitoring program will be essential for the adequate application of the principle of adaptive management. This principle must be an essential element throughout the entire Restudy process.
- B. At this time, it is essential that the Restudy provide the framework for identification of all water quality issues that can be dealt with at this stage of project development. For water quality problem issues that cannot be dealt with, the issues and possible solutions should clearly be identified in the Restudy for further analysis. Relative to water quality planning and remediation, the Restudy should consider water quality issues for the entire South Florida ecosystem to the extent possible, and consistent with the authorizing legislation of the Restudy. It is important that the Restudy consider the source of the water, quality of the water, and the ultimate use of the water when selecting the appropriate storage system, location, and necessary treatment for water included in the Restudy. Special water quality considerations necessary to protect natural areas, public water supplies, agricultural irrigation supplies and estuarine flows should be included. The IFR/PEIS should recognize the critical need to deal with all

water quality issues at the most appropriate stage of project planning, design development, permitting and construction. It should include an identification of appropriate mechanisms to address all remaining water quality issues during future stages of project design and development. An adaptive management commitment should be made in the IFR/PEIS that will allow water quality problems identified during future work on the project to be adequately addressed.

- C. A report should be provided to the Commission outlining the specific actions being proposed in the Restudy to address the issues raised.
23. As part of an Ecosystem Monitoring and Adaptive Management Program, efforts to identify "baseline areas," characteristic of historical Everglades ecology and water quality, should continue. Once identified, the characteristics (i.e. physical, ecological, and water quality characteristics) of the "baseline area" should be used to define restoration targets. Moreover, research efforts and any subsequent activities within the "baseline area" should be designed to not/minimally affect initial conditions within the "baseline area."
24. The Governor, the Task Force, and the Tribes should actively support the inclusion of language in future WRDA legislation which would, as a means of reducing the impact of the C&SF Project on the South Florida ecosystem, add water quality restoration and improvement as a stated purpose of the C&SF Project. In conjunction with enforcement of State, Tribal and local water quality regulatory requirements, the federal government should contribute to the improvement of water quality through implementation of public works to facilitate this goal. The cost of C&SF Project modifications needed to eliminate water quality impacts caused by operation of the C&SF Project should be cost shared on a 50/50 basis.
25. Regional, State and federal agencies, the Tribes, and local governments and the public should work to bring together existing water resource assessment efforts and identify critical water quality problems. Under the Clean Water Action Plan, local, regional, State, federal, and Tribal agencies, in cooperation with stakeholders, should develop unified watershed assessments which identify watersheds in need of restoration and watersheds that need preventative action to sustain water quality using on-going State, federal, and Tribal programs.
26. The Corps should assure that all proposed modifications include sufficient water quality treatment components so as to meet all applicable State, local, Tribal and federal laws.
27. The Corps should seek improvements to the Draft Comprehensive Plan that improve the water quality conditions in the natural areas of the ecosystem and that would contribute to better public health and safety in the built areas.
28. In the Restudy's Draft Comprehensive Plan, a significant portion of freshwater flows to central and southern Biscayne Bay are supplied by the South Miami-

Dade reuse component. However, due to significantly high construction, operation and maintenance costs, and potential water quality implications, the Corps should investigate all potential sources of water for providing freshwater flows to central and southern Biscayne Bay.

29. The Corps, assisted by the SFWMD, DEP, EPA, Tribes and other appropriate federal, State and local agencies, should expeditiously conduct a parallel, follow-on feasibility study to assess and address opportunities to improve water quality in South Florida to meet all applicable State and federal standards, in order to achieve ecosystem restoration goals in the region.

The goals of the study should be to:

- Include an assessment of all opportunities to improve water quality in the region, including those that are not the responsibility of the Corps;
- Assess the cost benefit and effectiveness of source controls versus regional controls for the various project elements and expeditiously resolve water quality problems by the best combination of the two approaches. (This assumes the State applies its regulations to minimize source pollutants before the project element treats that water.);
- Seek ways to assure that water from non-natural sources (e.g. urban, industrial and agricultural sources) meet all water quality performance measures that are designed for restoration of the natural system prior to being discharged to the natural system;
- Integrate other on-going water quality initiatives (e.g., S-9/C-11, Florida Keys, etc.) that are being developed parallel to the Restudy process, assuring that neither process (Restudy or local initiative) conflicts in development or timing of each other;
- Consider alternative methods for water treatment, such as periphyton-based STAs (PSTAs). To the extent possible, "natural" methods of stormwater treatment (i.e. PSTAs) should be used in the Restudy. If it is found that natural methods of stormwater treatment are not capable of treating water to meet required water quality standards, alternative methods (e.g., limited chemical dosing) should be considered to assist "natural" methods of stormwater treatment. These alternative methods should not contribute to the degradation of the environment, and the chemicals used should have no noticeable presence beyond the extent of the STA;
- Encourage new BMP approaches (agricultural and urban) to reduce the sources of water quality problems;
- Coordinate with the drainage districts that discharge stormwater into the Everglades Protection Area and other waters of the State, including but not limited to the C-11 basin, to develop and implement BMPs and other appropriate water quality improvement procedures;
- Monitor BMPs worldwide to research information on topics related to reducing contaminants in urban and agricultural runoff (i.e. total nutrients, pesticides, herbicides, and metals, etc.) and practices that increase uptake of phosphorus, nitrogen and mercury;
- Identify new approaches to deal with phosphorus-laden sediments in the Kissimmee basin, lakes, canals and the Kissimmee River, including removal and/or through the

use of drawdowns whenever feasible. Additionally, restoration efforts should protect the river corridor and associated prairies from nutrient-rich runoff generated by adjacent pasturelands and agriculture. Natural areas in the Kissimmee River corridor, prairie, adjacent native upland communities, and all "downstream" environments should be protected during restoration efforts;

- Coordinate with the State Lake Okeechobee Dredging Feasibility Analysis Project. The Restudy should investigate the feasibility of dredging lake sediments to reduce phosphorus loads, and to restore the lake bottom to a more sandy condition;
- Assure that the quality of sediments and water in waterways that discharge into estuaries in South Florida is drastically improved to ensure ecological restoration. Cleanup priority should be given to highly contaminated canals and sources to assure that all water entering the estuaries meets all applicable water quality standards to achieve restoration goals;
- Restore pre-drainage flows, water quality and timing via Taylor Slough, Shark River Slough, the C-111 system, additional discharge mechanisms (e.g., spreader canals and sheet flow through the Model Lands) to Florida Bay, Card Sound and other estuaries in the southern Everglades;
- Improve hydrologic connectivity between Florida Bay and the Atlantic Ocean, Biscayne Bay, and Barnes Sound via culverts or other flow-through conveyances under US Route 1 (note: support for culverts/conveyances should not be construed as support for the widening of US Route 1); and
- Investigate ways to partially block the upstream movement of the salt wedge in the southern end of the system (e.g., the canal along Card Sound Road).

The Water Quality Protection Program (WQPP) of the Florida Keys National Marine Sanctuary (FKNMS) is complete, was developed in accordance with the National Environmental Policy Act of 1969, has been reviewed by Congress, and approved by the Governor and Cabinet of the State of Florida. Water quality concerns in the Sanctuary and the recommended corrective actions, as identified by the WQPP document, should clearly be a part of the South Florida system-wide water quality plan recommended by the Comprehensive Plan. However, because pollution of near shore waters in the Florida Keys poses an immediate threat to the nationally significant marine resources of the Keys, funding and implementation of wastewater and stormwater improvements proposed in the WQPP action plan and approved by the WQPP Steering Committee should begin as soon as possible without waiting for the system-wide water quality plan to be completed and approved. Implementing wastewater and stormwater improvements to improve water quality to meet ecosystem needs beyond those required to protect human health carries an additional financial burden, which represents an insurmountable burden to the permanent residents of the Florida Keys. The Corps supports and recognizes this action as a critical component of South Florida ecosystem restoration. The Corps will cooperate with EPA, DEP, the FKNMS, and State and local governments to identify and secure funding through sources parallel to the Restudy to help implement wastewater and stormwater improvements.

RECOMMENDATION

30. Priority for implementation should be given to areas of the Florida Keys that have been identified as "hot spots" by the WQPP. In addition, because increased development presents an additional threat to the quality of water in Florida Bay and the Florida Keys, enhanced wastewater treatment must not inadvertently increase development pressure in the Keys. Recognizing the national interest in the protection of the Keys marine resources, federal resources should be used to supplement State and local initiatives to improve water quality in the Florida Keys.

Water Quality Standards for WCAs, Everglades National Park and OFWs

The Water Conservation Areas (WCAs) and Everglades National Park (ENP) are both designated by the State of Florida as Class III water bodies - designating them for recreation and the propagation and maintenance of a healthy, well-balanced population of fish and wildlife. State water quality standards require that "in no case shall nutrient concentrations of a body of water be altered so as to cause an imbalance in natural populations of aquatic flora or fauna." In the federal lawsuit settlement agreement with the State and the SFWMD for failure to enforce State standards, different intermediate and long-term numeric phosphorus limits were established for the WCAs and ENP. Under the Everglades Forever Act: phosphorus limits were included in State law; research and monitoring activities were specified; and a time frame was set for adoption of the final numeric phosphorus standard for the Everglades (Dec. 31, 2003). The Everglades Forever Act also required that compliance with the new numeric phosphorus standard, and all other water quality standards, be achieved by December 31, 2006.

Everglades National Park, Big Cypress National Preserve, Biscayne National Park, and the FKNMS are all designated as Outstanding Florida Waters (OFWs) and afforded "the highest protection". This allows, with a few exceptions, for a "no degradation of water quality" standard for these areas. Water quality standards for an OFW are based on non-degradation of the ambient water quality that existed during the year prior to designation (in most cases, no earlier than March 1, 1979). Until the water quality is established for this baseline year, exact numeric OFW standards are unknown. In recognition of the critical ecological condition of Florida Bay, it is imperative that a numeric salinity criterion for the Bay be developed by the DEP.

RECOMMENDATIONS

31. DEP, in consultation with the U. S. Department of Interior, EPA, the National Oceanic and Atmospheric Administration, and the Florida Game and Fresh Water Fish Commission, should develop as soon as possible, appropriate numeric water quality criteria for the OFWs of the ENP, Big Cypress National Preserve, Biscayne National Park, FKNMS and for all other OFWs in the South Florida ecosystem, and a salinity criterion for Florida Bay, which is a part of ENP. All information should be coordinated with the Restudy process to assure future design efforts incorporate necessary water quality considerations.

32. DEP, EPA, the Florida Department of Health and appropriate Tribal agencies should review the adequacy of existing numeric water quality criteria and, if necessary, revise or develop new standards which protect the quality of water recharging public wellfields from potential adverse impacts associated with the Restudy's recommended plan. Recharge water supplied by WPAs and storage reservoirs, particularly those receiving backpumped water which may contain synthetic organic chemicals and inorganic metals, must not significantly degrade the existing quality of water withdrawn at the wellfield or violate groundwater quality standards.

WCA Stormwater Treatment Areas

Construction of STAs in the EAA and the western C-51 Basin is required by the Everglades Forever Act and the Everglades Construction Project (ECP) Permit issued to the SFWMD by DEP. STA 1W is to be completed by January 1, 1999; STA 2 by February 1, 1999; STA 3/4 by October 1, 2003; STA 5 by January 1, 1999; and STA 6 by October 1, 1997. The final phosphorus criterion is to be met by December 31, 2006. The EFA does not specify treatment mechanisms for other areas that discharge to the Everglades. Those areas are covered by the Non-ECP Permit issued to the SFWMD by DEP. This permit requires the evaluation of existing programs, permits and water quality data; the development of schedules and strategies for achieving and maintaining water quality standards; and, among other things, the acquisition of land and construction and operation of water treatment facilities.

Objections have been raised about both the long period of time before the last STA becomes operational (October 1, 2004) and the date final phosphorus and other water quality standards must be achieved (December 31, 2006). The SFWMD does not believe it is possible to accelerate the STA construction schedule. They are also working to develop, as rapidly as practical, the supplemental technology necessary to meet the final phosphorus standards.

RECOMMENDATION

33. The SFWMD should proceed as rapidly as possible to fulfill the requirements of the ECP, Non-ECP, and Corps Permits. As part of this effort, the Corps and SFWMD should fund and complete the S-9 Basin Critical Project. In addition, the permitting agencies should make a concerted effort to expedite the issuance of permits once the requirements of such permits are met. All information should be coordinated with the Restudy process to assure future design efforts incorporate necessary water quality considerations.

Maintain Healthy Food Chain and Monitoring for Toxicity and Bio-accumulation

In South Florida, numerous water quality problems abound that threaten the biota and food chain. For example, mercury contamination of the food chain in the Everglades is a serious problem – signs are often posted warning fishermen to limit their consumption for health purposes. Pesticide contamination has also been detected in

several locations. Because sediments accumulate many types of pollutants, these pollutants are often transported to downstream locations as sediments are transported under high flow conditions. Sediments are also a source of pollutants that are transferred into the ecosystem's food chain through bio-accumulation and bio-magnification. Heavy metals, pesticides, and other pollutants have been measured in sediments in a number of locations. The Commission recognized the seriousness of this problem and included recommendations 28 and 29 specifically addressing these concerns in its *Initial Report*.

RECOMMENDATIONS

34. Appropriate federal, State, regional and local agencies should develop and undertake a study of selected plant and animal species that are key indicator components of the food chain to determine ecosystem health and the presence and bioaccumulation of any toxic substances. Sediment standards should be developed and problem areas addressed. All information should be incorporated into the Restudy process. Such a program should become a part of an on-going ecosystem monitoring effort.
35. As a part of the detailed design, in compliance with federal laws and regulations, the Corps will test for contamination of material proposed to be used for construction and fill. During the final process for placement of Restudy water storage and treatment facilities, existing good quality functioning wetlands should be protected, where possible, from impacts caused by filling, dredging, water storage, poor water quality and construction activities.
36. Within the water quality certification issued for construction of modifications to the C&SF Project, regulatory agencies should require copies of results of Corps testing for contamination for all material to be used for backfilling canals and creating wetlands.
37. In the process of installing Restudy components and acquiring land for each of the components identified in the Restudy, location specific environmental site assessments should be prepared prior to on-location construction activities. The results of such assessments should be used to complement existing regional information, already included in the Restudy, to further assess the potential for hazardous substances to exist within the footprint of the Restudy components. As the Restudy indicates, numerous facilities have been identified in environmental quality databases. Hazardous substances associated with the identified facilities have the potential to adversely affect surficial and subsurface (i.e. in the case of injection wells that might be present) environmental quality. In the event that surficial and/or subsurface contamination with hazardous substances is found in the vicinity of proposed components (i.e. ASR and surficial water storage reservoirs), the contamination should be further assessed to evaluate the potential affects of observed hazardous substances on proposed components. If it is found that the contamination is likely to affect the proposed operation and/or performance of a component, the hazardous substances should be cleaned to meet

applicable federal, State, and Tribal requirements prior to the installation of the component. In the event that the location cannot be cleaned in a timely fashion and the component and/or its location is vital to the operation/performance of the Restudy, a permanent physical barrier should be installed to prevent the contamination of the component by hazardous substances.

Integrate Water Quality of C-111 and Modified Water Deliveries Projects with the Restudy

Authorized C-111 and Modified Water Deliveries Projects currently exist. They were developed a number of years ago and may not address all current issues. As a result of the Federal Settlement Agreement with the State, limits were established on the concentration and load of nutrients that could be discharged to ENP and the Loxahatchee National Wildlife Refuge. Regulatory agencies cannot permit discharges that would exceed these limits without violating the Settlement Agreement. Some of the projects' discharge points raise concerns since general designs were developed before the Corps included water quality as a project component.

A generally acceptable solution to the 8.5 Square Mile Area problem is also lacking. Endangered species concerns were not completely addressed; and an agreement on the acceptability of the design for all project components was not reached, especially with the funding agency. A number of design modifications were proposed for both projects during the Restudy process. Some of those revisions address the issue of water quality. Although some funding exists, the projects have been delayed until a resolution of outstanding issues is achieved.

RECOMMENDATION

38. All water quality considerations and components included in the Restudy should be integrated into the C-111 and Modified Water Deliveries Projects.

D. ASSURANCES TO WATER USERS

Assurances are needed for existing legal users during the period of plan implementation. It is an important principle that has helped gain consensus for the Restudy that human users will not suffer from the environmental restoration provided by the Restudy. At the same time, assurances are needed that, once restored, South Florida's natural environment will not again be negatively impacted by water management activities. Getting "from here to there" is a challenge. The implementation plan will be the key to assuring predictability and fairness in the process.

Protecting Current Levels of Service (Water Supply and Flood Protection) during the Transition from the Old to the New C&SF Project.

The goal of a sustainable South Florida is to have a healthy Everglades ecosystem that can coexist with a vibrant economy and quality communities. The current C&SF Project has generally provided most urban and agricultural water users with a level of

water supply and flood protection adequate to satisfy their needs. In fact, if properly managed, enough water exists within the South Florida system to meet restoration and future water supply needs for the region. However, past water management activities in South Florida, geared predominantly toward satisfying urban and agricultural demands, have often ignored the many needs of the natural system (GCSSF, 1995; transmittal letter to Governor Chiles, p. 2). Specifically, water managers of the C&SF Project historically discharged vast amounts of water to tide to satisfy their mandate to provide flood protection for South Florida residents, oftentimes adversely impacting the region's estuarine communities.

The Commission recommended that in the Restudy, the SFWMD and the Corps should ensure that the redesign of the system allows for a resilient and healthy natural system (GCSSF, 1995; p. 51) and ensure an adequate water supply and flood protection for urban, natural, and agricultural needs (GCSSF, 1996a; p.14). In response to the need to restore South Florida's ecosystem, and in light of the expected future increase of urban and agricultural water demands, the Restudy aims to capture a large percentage of water wasted to tide or lost through evapotranspiration for use by both the built and natural systems. In order to maximize water storage, the Restudy intends to use a variety of technologies located throughout the South Florida region so that no one single area bears a disproportionate share of the storage burden. This direction reinforces the Commission's recommendation that water storage must be achieved in all areas of the South Florida system using every practical option (GCSSF, 1996a; p. 25).

However, concerns have been expressed that a water user would be forced to rely on a new water storage technology before that technology is capable of fully providing a water supply source or that existing supplies would otherwise be transferred or limited, and that the user would thereby experience a loss of their current legal water supply level of service. Any widespread use of a new technology certainly has potential limitations; however, the Restudy should address technical uncertainties prior to project authorization and resolve them before implementation in the new C&SF Project. With the addition of increased water storage capabilities, water managers will likely shift many current water users to different water sources.

Additionally, stakeholders are concerned that a preservation of the current level of service for legal uses would not encompass all the urban uses, some of which are not incorporated in the term "legal" and covered by permit. Specifically, an adequate water supply is needed to address urban environmental preservation efforts as well as water level maintenance to reduce the impact of salt water intrusion.

The Commission believes that in connection with the Restudy, the SFWMD should not transfer existing legal water users from their present sources of supply of water to alternative sources until the new sources can reliably supply the existing legal uses. The SFWMD should implement full use of the capabilities of the new sources, as they become available, while continuing to provide legal water users as needed from current sources. It is the Commission's intent that existing legal water users be protected

from the potential loss of existing levels of service resulting from the implementation of the Restudy, to the extent permitted by law.

The Commission also recognizes that the SFWMD cannot transfer the Seminole Tribe of Florida from its current sources of water supply without first obtaining the Tribe's consent. This condition exists pursuant to the Seminole Tribe's Water Rights Compact, authorized by Federal (P.L. 100-228) and State Law (Section 285.165, F.S.).

However, the issues surrounding the development of specific assurances to water users are exceedingly complex and will require substantial additional effort to resolve.

RECOMMENDATIONS

39. The SFWMD and the Corps should work with all stakeholders to develop appropriate water user assurances to be incorporated as part of the Restudy authorizations. These water user assurances should be based on the following principles:
- A. Physical or operational modifications to the C&SF Project by the federal government or the SFWMD will not interfere with existing legal uses and will not adversely impact existing levels of service for flood management or water use, consistent with State and federal law.
 - B. Environmental and other water supply initiatives contained in the Restudy shall be implemented through appropriate State (Chapter 373 F.S.) processes.
 - C. In its role as local sponsor for the Restudy, the SFWMD will comply with its responsibilities under State water law (Chapter 373 F.S.).
 - D. Existing Chapter 373 F.S. authority for the SFWMD to manage and protect the water resources shall be preserved.

Balancing the Benefits between Stakeholders in the Implementation of the Comprehensive Plan.

Given the fact that the recommended Comprehensive Plan must represent a balance of interests, it is important that the implementation of the Comprehensive Plan reinforce that balance. With a project this size, implementation will take ten to twenty years and occur in phases. Although the entire project, once completed, must provide the full range of agricultural, environmental, and water supply benefits as envisioned during the development of the Restudy, there is a risk that the implementation of the plan will unduly benefit or burden certain stakeholders compared to others. A basic principle of the implementation should be that each phase implemented must continually reflect the balance of interests that make up the entire Comprehensive Plan. For instance, while the individual components of the plan will be multi-purpose, they may provide more benefits to a particular stakeholder group over another. It is important that each phase of implementation include components that provide a balance of benefits to different stakeholders to further the broad-based consensus that has supported the development of the Comprehensive Plan.

RECOMMENDATIONS

40. Subject to the principles of adaptive management, there should be an implementation plan that clearly outlines the timing, order, and anticipated benefits of the C&SF Project modifications.
41. The SFWMD and the Corps should design the implementation plan so as to maintain the balance of benefits across all users and the natural system, to the extent permitted by law, and to assure a sustainable South Florida ecosystem, including the natural systems existing in the urban areas where consistent with ecosystem restoration goals. Initial implementation should be directed to projects that ensure benefits consistent with WRDA 1996 and the Commission's *Conceptual Plan*.

The Initial Authorization Increment for the Restudy

The federal process requires that before the Corps can construct any components contained in the recommended Comprehensive Plan for the Restudy, it must first obtain Congressional authorization and, subsequently, funding. Lacking either of these two requirements, a project and/or its components will not be constructed.

A Congressional authorization for a project is oftentimes mistaken for the final procedural requirement prior to construction. However, detailed planning and design will continue even after authorization. NEPA requirements must be met prior to construction. Only after the completion of the detailed design and planning, with the necessary technical and economic analyses, can the Corps obtain funding from Congress. The Corps determines when the appropriate levels of detailed planning and supporting analyses justify its request for appropriations. If Congress appropriates funding for the authorized project and/or its components, the remaining procedural step prior to construction is the signing of a Project Cooperation Agreement (PCA) with the local sponsor.

The State Legislature has authorized the SFWMD to be the local sponsor for various Corps projects. In the case of the Restudy, the Florida Legislature should also have a role to protect the State's interests at a level equivalent to Congress by giving statutory approval. This consideration by both the Florida Legislature and Congress is essential if the Restudy and Everglades restoration is to succeed.

The Army is considering the following general strategy for securing the initial authorization increment from Congress for the Restudy:

- An endorsement of the recommended Comprehensive Plan as the framework and guide for the Restudy.

- A program authorization for Restudy components/separable elements for which the federal cost share is up to \$35 million (\$70 million total project with State cost share).
- A request for specific authorization of an initial set of components/separable elements with project costs greater than \$70 million.

The specific initial authorization increment will be developed in time to be included in WRDA 2000. It is important that the Corps and the SFWMD seek input through a broad stakeholder consensus process prior to submitting the proposed authorizations to the Governor, the Legislature, and Congress.

The proposed components of the Comprehensive Plan contain differing levels of detailed design and the required technical and economic analyses. Specifically, many of the water storage features rely heavily on technologies which are unproven for the scale at which the Corps and the SFWMD envision their use. The uncertainty surrounding these technologies can be addressed through the development and implementation of pilot projects. The timely construction and use of these pilots should resolve many of the uncertainties about the widespread use of these technologies. Pilot projects should have specific Congressional authorization and Legislative approval.

By creating a process that fully involves the Governor and the Florida Legislature, as well as the President and Congress, full advantage can be taken of the current opportunity to restore the Everglades ecosystem and provide for water supply and flood protection needs in a fair and cost-effective manner. This opportunity, including the 50/50 federal/State cost sharing, represents the best hope for realizing a restored Everglades and providing for water supply and flood protection needs.

RECOMMENDATIONS

42. The Governor, Florida Legislature, the President, and Congress should support the recommended Comprehensive Plan as the framework and guide for the Restudy.
43. The initial authorization increment should include a request for specific authorization of the listed pilot projects whose expeditious funding, construction, and implementation is a critical step in determining the feasibility of proposed technologies and providing assurance to water users.
44. The initial authorization increment should be reviewed through a consensual stakeholder process and transmitted to the Governor and Florida Legislature for action on those elements of the implementation plan for which the SFWMD is the local sponsor. Any review, modification, endorsement or other action by the State with respect to the initial authorization increment should be addressed in the appropriate WRDA.

45. The components from the Restudy that are not authorized in the initial authorization increment or fall within the program authorization will be considered for authorization following a similar process as described above as the more detailed engineering analyses for these components are completed.

Land Acquisition

Throughout the history of project implementations by the Corps, the local sponsor of a particular project has been required to provide all lands, easements, rights of way, and relocations needed for a project. In fulfilling this responsibility, the local sponsor procures land in a manner consistent with its required protocols. Further, the local sponsor must comply with the provisions of P.L. 91-646 during land acquisition efforts for any lands incorporated in the federal project. In essence, the law requires the local sponsor to pay fair market value for needed lands and to provide relocation assistance for displaced property owners. This approach signifies the cosmopolitan practice throughout the 50 states. Just as the local sponsor is responsible for land acquisition, the Corps holds the responsibility for construction of project components.

In Florida, property owners are guaranteed "full" compensation if their property is taken in public ownership. The only exception to this practice has been the recent decision to employ Federal condemnation protocols in the implementation of the Kissimmee River restoration efforts. This exception remains the anomaly for Florida. With respect to Everglades restoration efforts and the Restudy, the Commission recognizes that land acquisition costs may be higher as a result of employing State condemnation protocols and may increase the funding share of its federal partners. Nevertheless, in instances where State monies are used for land procurement in the absence of willing sellers, the Florida Constitution requires that property owners receive full compensation.

In light of the understanding that State condemnation protocols may heighten land acquisition costs, the Commission also recognizes the State's funding commitment and responsibility to its federal partner in the event of cost overruns for project construction. Each partner's financial responsibilities, in part, depends on the legal and procedural processes of the other. Historically, only 5% of land acquisition efforts by the SFWMD has required State condemnation protocols.

The Commission has continually advocated that it is preferable to acquire lands needed for restoration efforts from willing sellers. Further, the Commission has unanimously recommended that all lands identified as essential to restoration efforts be expeditiously procured to prevent the foreclosure of future restoration options. The Commission affirms these positions. In light of these recommendations, all lands necessary for projects will be obtained prior to the project's construction. When lands acquired from willing sellers are not immediately needed, the SFWMD should use the maximum flexibility to allow the best interim use of those lands consistent with State law.

RECOMMENDATIONS

46. State and federal land acquisition programs should continue to acquire lands needed in the Restudy from willing sellers.
47. Land acquisition necessary for the Restudy implementation and contemplated for the 50/50 State and federal cost share, as defined in WRDA 1996, should be acquired by the SFWMD in accordance with national Corps policy, which in the case of the Restudy would be undertaken through State condemnation protocols, in the absence of willing sellers.
48. When specific project components are approved, eminent domain should be authorized under State law to acquire needed lands not available from willing sellers.
49. The SFWMD and other State agencies purchasing land in the Restudy should expeditiously develop land management plans for the transition period of lands procured for restoration to allow the maximum beneficial use consistent with State law. These plans should prevent degradation of the properties, such as an invasion of exotic species and dumping of solid waste, whose occurrence would be inconsistent with the ultimate planned use of the property.

Common Sense Regulatory Approach

State and federal laws allow significant flexibility in permitting process. In 1996, the Florida Legislature passed legislation that created a new alternative permitting process called Ecosystem Management Agreements (EM). The EM agreements are designed to give multiple agencies the ability to provide regulatory flexibility to applicants in exchange for a net ecosystem benefit. The net ecosystem benefit is defined as an environmental result that is better than that required by the traditional regulatory process. All standards must still be met. The State has several EM agreements underway statewide.

Federal regulators are also trying to apply more flexible regulations as an outgrowth of the President's reinventing government initiative. Rigid adherence to traditional rules may produce results that are damaging to restoration efforts. For example, the Corps built pump station 332-D in 1997 to provide flood control and restoration benefits for west Miami-Dade County. To date, this pump has not operated as a result of the inability to secure the necessary State/federal regulatory permits.

It is important for all the regulating agencies to assist the Corps and the SFWMD in the planning and design of the Restudy components. Early involvement by these regulatory agencies can ensure that the projects are designed and constructed in ways that are consistent with State and federal regulations. It is also important for the regulating agencies to have a conceptual buy-in of the Comprehensive Plan for the Restudy while still maintaining their authority and jurisdiction as required by both federal and State law.

This approach would still allow the agencies to execute their individual permits, but there would be a clearly defined common set of objectives outlined up front to assure that the restoration stays on track.

RECOMMENDATIONS

50. During the implementation of the Restudy, State and federal regulators should aggressively use their existing waiver and temporary operating permit authorities, when use of such waivers and permits can be demonstrated to have no significant negative environmental consequences.
51. Regulatory agencies should commit to Ecosystem Management Agreements for the Restudy and each of its components that would outline common principles and desired outcomes that all agencies can support.
52. Federal, State, regional, and local planning efforts need to be integrated. Restudy component sequencing efforts need to be integrated with regional and local government agency efforts to ensure that there are no conflicts of interest concerning resource allocation, construction schedules, and/or long term planning efforts.

Water Supply for Natural Systems

Concerns have been raised about long term protection of the Everglades ecosystem. According to WRDA 1996, the C&SF Project is to be rebuilt "for the purpose of restoring, preserving, and protecting the South Florida ecosystem" and "to provide for all the water-related needs of the region, including flood control, the enhancement of water supplies, and other objectives served by the C&SF Project."

Environmental benefits achieved by the Restudy must not be lost to future water demands. When project implementation is complete, there must be ways to protect the natural environment so that the gains of the Restudy are not lost and the natural systems, on which South Florida depends, remain sustainable.

A proactive approach which includes early identification of future environmental water supplies and ways to protect those supplies under Chapter 373 F.S. will minimize future conflict. Reservations for protection of fish and wildlife or public health and safety can be adopted early in the process and conditioned on completion and testing of components to assure that replacement sources for existing users are on line and dependable. The SFWMD should use all available tools, consistent with Florida Statutes, to plan for a fair and predictable transition and long term protection of water resources for the natural and human systems.

Apart from the more general goals of the Restudy, there are specific expectations on the part of the joint sponsors - the State and the federal government. The more

discussion that goes into an early agreement on expected outcomes, the less conflict there will be throughout the project construction and operation.

RECOMMENDATIONS

53. The SFWMD should use the tools in Chapter 373 F.S. to protect water supplies necessary for a sustainable Everglades ecosystem. This should include early planning and adoption of reservations. These reservations for the natural system should be conditioned on providing a replacement water source for existing legal users which are consistent with the public interest. Such replacement sources should be determined to be on line and dependable before users are required to transfer.
54. The SFWMD should expeditiously develop a "recovery plan" that identifies timely alternative water supply sources for existing legal water users. The recovery plan should consist of water supply sources that can reliably supply existing uses and whose development will not result in a loss of current levels of service, to the extent permitted by law. To assure that long term goals are met, the State and federal governments should agree on specific benefits to water users, including the natural system, that will be maintained during the recovery.
55. In the short term, the Restudy should minimize adverse effects of implementation on critical and/or imperiled habitats and populations of State and federally listed threatened and/or endangered species. In the long term, the Restudy should contribute to the recovery of threatened species and their habitats.

Contingency Plans

Select components in the recommended Restudy plan have associated with them varying levels of technical and cost uncertainty. These uncertainties can be viewed as a question of whether an uncertain component will achieve the desired level of performance within the estimated cost. If a component fails to achieve the desired level of performance, the feasibility of implementing an alternative component along with or as a replacement to the uncertain component will need to be considered to assure that the recommended plan meets its stated objective of ecosystem restoration, flood control, water supply, and other benefits. The time and effort needed to plan for contingencies is inextricably linked to the level of risk in any of the recommended components. As more information is gained through such things as pilot projects, the contingency planning effort will either decrease or increase, depending upon the results of the pilot studies. The Commission believes that the following guidelines should be followed in developing contingency plans for the Restudy:

- Pilot projects should first be initiated for the uncertain components to determine their effectiveness. Pilot projects should begin as early as possible, should be designed and constructed based upon the best technical information, and should include aquifer storage and recovery, seepage management, lake belt technology, and water reuse.

- Contingency plans to replace or enhance the performance of the component should rely on proven technologies, if results from the pilot projects prove that the uncertain technologies will either not be viable or will not perform as anticipated.
- Contingency plans should not have unintended consequences on the natural system, create severe local economic impacts, or interfere with plan implementation.
- Contingency plans should be compatible with the overall recommended plan and with the goals and objectives contained within the plan.
- Where water storage plans fail to achieve their desired level of performance, the shortfall should be made up by other storage alternatives.
- Alternatives considered in contingency planning should be cost-effective and 50/50 State and federal cost shared.

RECOMMENDATIONS

56. The Corps and the SFWMD should develop timely contingency plans that incorporate the above guidelines.
57. The Corps and the SFWMD should continue to use the principles of adaptive management in the development of contingency plans with broad involvement of the public.

Protecting Urban Natural Systems and Water Levels

Water supply for the urban environment is connected to water supply for the Everglades and other natural areas targeted for restoration and preservation under the Restudy.

It is essential that the Restudy projects proposed to restore and preserve the environment of the Everglades do not reduce the availability of water to such an extent in urban areas that the maintenance of water levels and the preservation of natural areas becomes physically or economically infeasible.

The successful restoration of Everglades functions is dependent not only upon the establishment of correct hydropatterns within the remaining Everglades, but also upon the preservation and expansion of wetlands, including those within urban natural areas that once formed the eastern Everglades. Some of the westernmost of these areas have been incorporated in the Restudy as components of the WPAs. However, the on-going preservation efforts of local governments have acquired hundreds of millions of dollars worth of additional natural areas for protection both inside and outside of the WPA footprint.

Water supplies for these urban wetlands are not covered by existing permits or reservations and are therefore, not adequately protected. Efforts are underway at both the SFWMD and the local level to preserve these vital areas and assure their continuing function as natural areas and in ecosystem restoration.

Detailed design for the Restudy, in particular the detailed modeling associated with the WPA Feasibility Study, will make possible plans to protect these urban wetlands from damage and to assure maximum integration with Restudy components.

RECOMMENDATIONS

58. The SFWMD and the Corps should acknowledge the important role of urban natural areas as an integral part in the restoration of a functional Everglades system. As a part of the implementation plan, the SFWMD and the Corps should develop an assurance methodology in conjunction with the detailed design and modeling processes, such as the WPA Feasibility Study, to provide the availability of a water supply adequate for urban natural systems and water level maintenance during both implementation and long term operations.
59. Expand and accelerate implementation of the WPAs. Accelerate the acquisition of all lands within the WPA footprint to restore hydrologic functions in the Everglades ecosystem, and ensure hydrologic connectivity within the WPA footprint. The WPA Feasibility Study process should be given a high priority. The WPA concept should be expanded into other SFWMD planning areas such as the Upper East Coast.
60. The Restudy should assure that the ecological functions of the Pennsuco wetlands are preserved and enhanced.

Coordination with Public Service Providers

Care needs to be taken to continue to balance the competing public interests that exist in the area of the Restudy.

RECOMMENDATION

61. The implementation process should recognize the importance of existing and planned infrastructure and public services to the ongoing quality of life and economic well being of South Florida. The implementation activities should provide processes for early coordination with public service providers to ensure that safe, reliable, and cost effective services continue to be provided. The processes should include protections for property rights as provided by State law.

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INTERIM RESTUDY RECOMMENDATIONS

A. INCREASE WATER STORAGE

Providing Additional Water Storage through the C&SF Project

RECOMMENDATIONS

1. The Restudy should ensure that a sufficient flexibility of alternative water storage options is maintained throughout all planning, in order to allow for substitution of plan components for ASR, in ground curtain wall reservoirs, or any other major water storage feature including seepage control management, should substitution become desirable for cost or performance reasons.
2. The Holey Land and Rotenberger tracts should not be developed into storage reservoir areas, as they consist of important remnants of the northern sawgrass plains of the historic Everglades.
3. The Comprehensive Plan should develop a specific contingency plan for the potential need to substitute plan components for the major operational and structural storage components proposed in the Restudy.
4. In the event that there is a shortage or excess in water for existing storage, all systems should share in the adversity resulting from the imbalance in storage. However, the Restudy should provide sufficient facilities that protect natural systems such that natural systems will not have to accept a water storage adversity in either wet or dry periods that would cause significant harm to native vegetative or faunal communities, nor should water user groups have to accept adversity that significantly impacts human health and safety.
5. The Corps should accelerate the design and implementation of demonstration and pilot ASR projects at selected sites around Lake Okeechobee and Southeast Florida. Information from these projects will assist in determining the feasibility of ASR for major water storage projects.

B. LAND PROCUREMENT AND CONNECTIVITY

Employing Innovative Methods of Land Procurement

RECOMMENDATIONS

6. During implementation of the Restudy, innovative solutions to surface water storage should be considered, such as leasing private land to store public water.

7. The State of Florida as well as the federal government should explore and implement a fair and equitable dedicated funding source for the long-term restoration of the South Florida ecosystem.
8. Accelerate land acquisition in the Water Preserve Areas and from willing sellers in other areas identified by the Restudy. In the interim, all agencies and jurisdictions should discourage land use density, permitting, and infrastructure decisions that create impacts to areas within and immediately adjacent to the WPA footprint that may be incompatible with restoration goals.
9. Procured lands should be managed for compatible multiple uses consistent with Florida law. Use and management activities on these lands must be compatible with overall restoration and conservation goals.

Restoring Connectivity and Spatial Extent to the Everglades Ecosystem

RECOMMENDATION

10. The Corps should continue to refine the Initial Draft Plan to seek improved hydrologic connectivity and sheetflow in the remnant Everglades.
11. In refining its Initial Draft Plan, the Corps should seek to expand the spatial extent and quality of wetlands in the Bird Drive Basin, located in west-central Miami-Dade County.

C. IMPROVING WATER QUALITY

Providing for Water Quality with the Restudy

RECOMMENDATIONS

12. In order to address all water quality pollutants and issues at the most appropriate stage of project planning, design, development, permitting and construction, a water quality implementation plan for the Restudy should be developed with DEP as the lead agency, along with EPA, SFWMD, the Tribes the Corps and local permitting programs. The Corps should strive to maximize opportunities to improve water quality wherever possible within the C&SF Project within its authority.
 - a. The water quality implementation plan should include elements that ensure that existing water quality data from all federal, Tribal, State, regional and local agencies are consolidated and made available in a format that makes analysis possible and simplifies the identification of problems. Future water quality monitoring programs should be fully coordinated with one another to eliminate duplication, fill existing data gaps, and to provide the most useful information possible. All water

- quality information should be coordinated with the Restudy process to ensure future design efforts incorporate necessary water quality considerations and to ensure that appropriate water quality data is available to assess conditions once components are on-line and operational.
- b. The water quality implementation plan should identify studies and monitoring needed to identify effects upon the quality of water delivered downstream resulting from Restudy modifications.
 - c. In the water quality implementation plan, water quality data and applicable existing water quality programs and regulations, should be analyzed to determine the source (point or nonpoint) of water quality problems and to identify responsible entities. Where needed, regulatory requirements should be enforced and opportunities for coordination/implementation between the project and other water quality programs should be identified. Any necessary C&SF Project design changes should be coordinated with and incorporated into the Restudy.
13. The Restudy should include in the Integrated Feasibility Report and Programmatic Environmental Impact Statement (IFR/PEIS), recognition of the problem of water quality data fragmentation, inconsistency and incompleteness. The IFR/PEIS should ensure that the water quality improvement is included in all future Restudy actions; and to provide for the adaptive Restudy components and long term monitoring necessary to ensure ecosystem restoration goals are being met.
- a. The IFR/PEIS should provide a basis for a cooperative effort to develop an adequate integrated, detailed monitoring and evaluation program to include in later project development documents. This cooperative effort should include local, regional, State, Tribal and federal agencies involved with the protection of natural resources and the permitting and operation of the C&SF Project. In the future, a detailed environmental monitoring program will be essential for the adequate application of the principle of adaptive management. This principle must be an essential element throughout the entire Restudy process.
 - b. At this time, it is essential that the Restudy provide the framework for identification of all water quality issues that can be dealt with at this stage of project development. For water quality problem issues that cannot be dealt with, the issues and possible solutions should clearly be identified in the Restudy for further analysis. Relative to water quality planning and remediation, the Restudy should consider water quality issues for the entire South Florida ecosystem to the extent possible, and consistent with the authorizing legislation of the Corps' Restudy. It is important that the Restudy consider the source of the water, quality of the water, and the ultimate use of the water when selecting the appropriate storage system, location, and necessary treatment for water included in the Restudy. Within the IFR/PEIS should be the recognition of the critical need to deal

with all water quality issues at the most appropriate stage of project planning, design development, permitting and construction. It should include an identification of appropriate mechanisms to address all remaining water quality issues during future stages of project design and development. An adaptive management commitment should be made in the IFR/PEIS that will allow water quality problems identified during future work on the project to be adequately addressed.

- c. A report should be provided to the Commission outlining the specific actions being proposed in the Restudy to address the issues raised.
14. The Task Force, the Governor, and the Tribes should actively support the inclusion of language in the proposed WRDA 1998 which would "add water quality protection, restoration and improvement as a stated purpose of the Central and Southern Florida Project".
15. Regional, State and federal agencies, the Tribes, and local governments and the public should work to bring together existing water resource assessment efforts and identify critical water quality problems. Under the Clean Water Action Plan, local, regional, State, federal, and Tribal agencies, in cooperation with stakeholders, should develop unified watershed assessments which identify watersheds in need of restoration and water sheds that need preventative action to sustain water quality using ongoing State, federal, and Tribal programs.
16. The Corps should ensure that all proposed modifications include sufficient water quality treatment components so as to meet all applicable State, local, Tribal and federal laws.
17. The Corps should seek improvements to the Initial Draft Plan that improve the water quality conditions in the natural areas of the ecosystem and that would contribute to better public health and safety in the built areas.
18. In the Restudy's Initial Draft Plan, a significant portion of freshwater flows to central and southern Biscayne Bay are supplied by the South Miami-Dade reuse component. However, due to significantly high construction, operation and maintenance costs, and potential water quality implications, the Corps should investigate all potential sources of water for providing freshwater flows to central and southern Biscayne Bay.

Water Quality Standards for WCAs, Everglades National Park and OFWs

RECOMMENDATION

19. DEP, in consultation with the U. S. Department of Interior, EPA, the National Oceanic and Atmospheric Administration, and the Florida Game and Fresh Water Fish Commission, should develop as soon as possible, appropriate numeric water quality standards for the OFWs of the Everglades National Park, Big Cypress

National Preserve, Biscayne National Park, Florida Keys National Marine Sanctuary and for all other OFWs in the South Florida ecosystem, and a salinity criterion for Florida Bay, which is a part of Everglades National Park. All information should be coordinated with the Restudy process to ensure future design efforts incorporate necessary water quality considerations.

WCA Stormwater Treatment Areas

RECOMMENDATION

20. The SFWMD should proceed as rapidly as possible to fulfill the requirements of the ECP, Non-ECP, and Corps Permits. As part of this effort, the Corps and SFWMD should fund and complete the S-9 Basin Critical Project. All information should be coordinated with the Restudy process to ensure future design efforts incorporate necessary water quality considerations.

Maintain Healthy Food Chain and Monitoring for Toxicity and Bio-accumulation

RECOMMENDATIONS

21. Appropriate federal, State, regional and local agencies should develop and undertake a study of selected plant and animal species that are key indicator components of the food chain to determine ecosystem health and the presence and bio-accumulation of any toxic substances. Sediment standards should be developed and problem areas addressed. All information should be incorporated into the Restudy process.
22. As a part of the detailed design, in compliance with federal laws and regulations, the Corps will test for contamination of material proposed to be used for construction and fill.
23. Within the water quality certification issued for construction of modifications to the C&SF Project, regulatory agencies should require copies of results of Corps testing for contamination for all material to be used for back-filling canals and creating wetlands.

Integrate Water Quality of C-111 and Modified Water Deliveries Projects with the Restudy

RECOMMENDATION

24. All water quality considerations and components included in the Restudy should be integrated into the C-111 and Modified Water Deliveries Projects.

D. ASSURANCE TO WATER USERS

Protecting Current Levels of Service (Water Supply and Flood Protection) during the Transition from the Old to the New C&SF Project

RECOMMENDATION

25. In connection with the construction of alternative water storage facilities pursuant to the Restudy, the SFWMD should not transfer existing legal water users from their present sources of supply of water to such alternative facilities until the new facilities can reliably supply the existing legal uses. The SFWMD should implement full use of the capabilities of new systems, as they become operational, while continuing to provide legal water users as needed from current sources. It is the Commission's intent that existing legal water users be protected from the potential loss of existing levels of service resulting from the implementation of the Comprehensive Plan, to the extent permitted by law.

Balancing the Benefits between Stakeholders in the Implementation of the Comprehensive Plan

RECOMMENDATIONS

26. Subject to the principles of adaptive management, there should be an implementation plan that clearly outlines the timing and order of the C&SF Project modifications.
27. The SFWMD and the Corps should design the implementation plan so as to maintain the balance of benefits across all users and the natural system and to assure a sustainable South Florida ecosystem, including the natural systems existing in the urban areas where consistent with ecosystem restoration goals. Initial implementation should be directed to projects that ensure benefits consistent with WRDA '96 and the Commission's Conceptual Plan for the Restudy.

Providing for Continued Opportunities for Public Input and Adaptive Management

RECOMMENDATION

28. The Corps should clearly articulate in the Comprehensive Plan for the C&SF Project Restudy opportunities for continued public input and adaptive management in the Restudy process following authorization.

E. THE ROLE OF THE RESTUDY IN WATER SUPPLY LEVEL OF SERVICE

Maintaining a Reliable Water Supply Level of Service

RECOMMENDATION

29. The Restudy represents an opportunity for joint federal/local sponsor achievement of project purposes contained in the WRDA 1996. To ensure maximum utilization of this opportunity, the SFWMD, which must legally meet the requirements of 373.0361, Florida Statutes, should, as a local sponsor, ensure that the Restudy makes every effort, consistent with WRDA 1996, to attain a 1-in-10 level-of-certainty in water supply. The SFWMD may sponsor a Restudy that does not meet the 1-in-10 year level-of-certainty planning goal; however, where this cannot be achieved, the SFWMD should acknowledge its obligation under state law to: a) take the lead in identifying, implementing and securing funding for water resource development projects; and b) identify options in the regional water supply plans to meet the 1-in-10 level-of-certainty planning goal.

F. SOUTHWEST FLORIDA ISSUES

Southwest Issues and the C&SF Restudy

RECOMMENDATIONS

30. Southwest Florida Feasibility Study – The Corps should continue to review the authorized Central and Southern Florida Project including the recommendations of the Restudy and other pertinent reports to develop a comprehensive data base and water resources plan for the entire area of Southwest Florida, including Lee, Collier, Charlotte, Henry and Glades Counties. This study would provide for ecosystem and marine/estuary restoration and protection, environmental quality, flood protection, water supply, and other purposes. The study should provide a framework for achieving the following objectives and should also include applicable measurable performance measures:
- a. Monitor and evaluate biological, chemical and hydrological indicators of healthy and productive river and estuarine systems.
 - b. Improve quality, quantity, timing and duration of water flows. Such improvements shall be realized through greater emphases on the integrity of system-wide analyses that link riverine, estuarine and marine research to Lake Okeechobee releases with other land use/flood control, water supply and stormwater drainage efforts.
 - c. Manage and maintain healthy wildlife, biological diversity and natural habitat. Identify and monitor key biological indices.
 - d. Establish and meet minimum and maximum water flows to maintain a healthy natural system, and protect water supply as mandated by Florida Statutes.

- e. Enhance the regions economic viability, vitality and social diversity by ensuring overall economic net benefits through wise and informed natural resource management decision-making.
 - f. Ensure protection of individual property rights.
 - g. Preserve existing legal municipal, industrial, and agricultural water supplies and sources until reliable alternatives are made available.
 - h. Incorporate Tribal interests and concerns.
 - i. Develop and maintain pro-active and diverse citizen involvement and commitment. This would include improved public outreach and education activities throughout the broad range of Southwest Florida citizenry and visitors.
 - j. Link with efforts to refine and streamline the federal, state, regional and local permit processes so as to generate improved efficiency, effectiveness and certainty.
 - k. Preserve significant regional historical and cultural resources of the region.
 - l. Utilize "non-structural or passive" flowways and other hydrological alternatives, where feasible.
 - m. Maximize flexible use of lands (multi-purpose uses) to maximize regional benefits including hydrologic, natural and economic.
 - n. Improve or maintain flood control from a basin-wide or region-wide scale.
 - o. Ensure consistency with adopted Local Government Comprehensive Plans, water management plans, projected population for the region and other regional or resource-based planning initiatives.
 - p. Improve water quality to meet State and federal water quality standards and to improve the overall physical, biological and aesthetic values of the region.
 - q. Enhance community understanding of the critical interdependence of the environment and the economy.
 - r. Protect the water quality resources of Big Cypress National Preserve.
31. Authorization should be obtained to accelerate land acquisition from willing sellers and build a demonstration project for water storage in the Lake Okeechobee Service Area, including the Caloosahatchee and St. Lucie basins. This should be pursued in accordance with the alternatives being considered by the Restudy and consistent with the 13 thematic concepts of the Conceptual Plan. The Demonstration Project would focus on acquisition of lands from willing sellers in order to expedite water storage and restoration activities.
32. Through more detailed design and through operational schedules, the Corps should continue to refine the Initial Draft Plan to achieve zero damaging discharges to the Caloosahatchee and the St. Lucie Estuaries without adverse impacts to other areas of the Restudy. Where discharges are unavoidable, damage should be shared equally.

G. COORDINATION OF ACTIVITIES

Optimizing Coordination of Proposed or On-going Studies with the Restudy

RECOMMENDATIONS

33. The South Florida Ecosystem Restoration Task Force should ensure that proposed and on-going projects related to the Restudy are monitored, and coordinated with the Restudy, to ensure efficiency, eliminate duplication of effort, and ensure efficient use of State and federal funds.
34. The Governor's Commission for a Sustainable South Florida should continue to advise the Task Force consistent with WRDA '96.
35. Congress and the Florida Legislature should develop a partnership for authorizing, implementing, and supporting the C&SF Project Restudy.

**RELATED ACTION TAKEN ADDRESS INTERIM REPORT
RECOMMENDATIONS**

Interim Report**Recommendation****Implementation Action/Status**

	Implementation Action/Status	
1	Section 7 of draft Comprehensive Plan includes contingency elements. Special investigations conducted to assess sensitivity of components.	
2	Plan includes ecologic improvements to these areas	
3	Information provided in Section 7 of draft Comprehensive Plan	
4	Storage facilities to maximize capture of available water	
5	Pilot projects recommended for initial authorization and early implementation	
6	Will be done	
7	Legislative and Congressional action	
8	To be considered in implementation plan	
9	Implementation action	
10	Development and analysis of refinements to the draft Comprehensive Plan are underway	
11	The Draft Comprehensive Plan indicates that the enhancement of wetlands within the Bird Drive Recharge Area will be pursued in the final design of the component.	
12	Feasibility study recommended to develop comprehensive water quality plan	
13	Improved language being developed by Working Group committee	
14	Task Force/Governor's Commission action	
15	Non-restudy action: TBD	
16	Draft Comprehensive Plan includes water quality components and report acknowledges need to meet applicable water quality standards	
17	Water quality team addressing refinements	
18	Draft Comprehensive Plan discusses need to investigate alternatives	
19	Non-restudy action: TBD	
20	Outside of restudy. Critical project underway	
21	Outside of restudy: TBD	
22	Design phase activity	
23	Pre-construction activity	
24	Outside of restudy: TBD	
25	Language included in draft report. Final language awaiting Governor's Commission action.	
26	Implementation Plan under development	
27	Implementation Plan under development	
28	Discussed in draft report implementation plan; to be further developed in final implementation plan	
29	Plan improves water supply. Some areas achieve 1-to-10; remaining areas are close to 1-to-10. LEC 2000 plan should address remaining needs.	
30	Southwest Florida Study will be initiated this fiscal year. Scope of Work for the study will consider these objectives	
31	WRDA 98 would have authorized a project. Ten-mile Creek project has been approved. Initial authorization packet is under development.	

32	Comprehensive Plan refinement will continue
33	Task Force action: TBD
34	Ongoing
35	Should be addressed by Legislature and Congress in 2000 after submission of final draft Comprehensive Plan.

WATER QUALITY ISSUES

A number of issues regarding water quality problems and the adequacy of the C&SF Project Restudy's response to those problems have been raised by representatives of public interest groups, as well as being previously described in the Commission's *Conceptual Plan* and *Initial Report*. These concerns which were addressed in the Commission's *Interim Report* included questions such as:

- How extensively is water quality issues being addressed in the Restudy?
- Should the Restudy expand its water quality component?
- How do we integrate water quality source issues into storage siting?
- Is adequate water quality monitoring being considered for return water from storage in the Caloosahatchee basin?
- Should water quality concerns focus on other pollutants in addition to phosphorus?
- If yes, what are the measures to be undertaken to adequately rectify possible pollution problems?
- How do we determine and allocate responsibility for water quality improvement?

Additional issues have been raised by various groups during the November and December Commission meetings, some of which have already been addressed by recommendations in the *Interim Report*. These issues include:

- A. Identify and expeditiously implement a comprehensive state water quality plan.
- B. Identify existing water quality in areas of South Florida.
- C. Ensure restudy components will be permitable after construction.
- D. Include total maximum daily loads (TMDLs).
- E. Explain Restudy water quality components.
- F. Ensure Lake Belt owners are not responsible for a decrease in water quality resulting from the mixing of off-site water with existing high water quality of Lake Belt water.
- G. Integrate water quality planning with water quantity planning in the Restudy.
- H. Make polluters pay for water quality improvements.
- I. Make polluters build the necessary treatment areas on their own lands and use the STA areas for water reservoirs instead.
- J. Monitor biota for toxic compounds.
- K. Recognize that all water quality concerns are not within the scope of the Restudy.

- L. Ensure water conservation areas are not subjected to water quality violations from the implementation of the Restudy.
- M. Include water quality projects of the Florida Keys into the Restudy.
- N. Water quality should be a purpose of the C&SF Project with a 50/50 cost sharing formula.
- O. Portions of the draft implementation plan are not consistent with requirements contained in some state laws.
- P. Good quality wetlands could be destroyed by the placement of water treatment and storage facilities.
- Q. Water quality needs of urban water supply have not been addressed.
- R. Assure that water of poor quality is not discharged into Lake Belt waters.