

**ANNEX F  
COASTAL ZONE MANAGEMENT PROGRAM  
CONSISTENCY EVALUATION  
AND  
SECTION 404(B)(1) EVALUATION**

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**F.0 COASTAL ZONE CONSISTENCY AND SECTION 404(B)(1) EVALUATIONS****F.1 FLORIDA COASTAL ZONE MANAGEMENT PROGRAM FEDERAL CONSISTENCY EVALUATION PROCEDURES****F.1.1 Chapter 161, Beach and Shore Preservation**

The intent of the coastal construction permit program established by this chapter is to regulate construction projects located seaward of the line of mean high water and which might have an effect on natural shoreline processes.

Response: The proposed plans and information will be submitted to the state in compliance with this chapter. No work is proposed seaward of the mean high water line in beach areas.

**F.1.2 Chapters 186 and 187, State and Regional Planning**

These chapters establish the State Comprehensive Plan that sets goals that articulate a strategic vision of the State's future. Its purpose is to define in a broad sense, goals and policies that provide decision-makers directions for the future and provide long-range guidance for an orderly social, economic and physical growth.

Response: The proposed project has been coordinated with various Federal, State and local agencies during the planning process. The proposed project would achieve the goals of this chapter by contributing to a long-range master plan for south Florida's water resources, which would support the continued orderly social, economic and physical growth of the region.

**F.1.3 Chapter 252, Disaster Preparation, Response and Mitigation**

This chapter creates a state emergency management agency, with the authority to provide for the common defense; to protect the public peace, health and safety; and to preserve the lives and property of the people of Florida.

Response: This statute is not applicable to this project.

**F.1.4 Chapter 253, State Lands**

This chapter governs the management of submerged state lands and resources within state lands. This includes archeological and historical resources; water resources; fish and wildlife resources; near shore reefs; beaches and dunes; submerged grass beds and other benthic communities; swamps, marshes and other wetlands; mineral resources; unique natural features; submerged lands; spoil islands; and artificial reefs.

Response: The proposed project would make a positive contribution to preserving cultural, water, fish and wildlife, wetland and estuarine resources. The proposed project would comply with the intent of this chapter.

#### **F.1.5 Chapters 253, 259, 260, and 375, Land Acquisition**

This chapter authorizes the state to acquire land to protect environmentally sensitive areas.

Response: The property proposed for this project is already in public ownership. The proposed project would comply with the intent of this chapter.

#### **F.1.6 Chapter 258, State Parks and Aquatic Preserves**

This chapter authorizes the state to manage state parks and preserves. Consistency with this statute would include consideration of projects that would directly or indirectly adversely impact park property, natural resources, park programs, management or operations.

Response: The Caloosahatchee River and Estuary are at the head of a vast estuarine and marine ecosystem that includes aquatic preserves managed by the State of Florida (e.g., Matlacha Pass, Estero Bay, and Pine Island Sound Aquatic Preserves), the Charlotte Harbor National Estuary Program, and the J. N. Ding Darling National Wildlife Refuge (NWR) Complex which includes the Caloosahatchee, Matlacha Pass, Pine Island, and Island Bay NWRs; along with numerous other state and local parks and recreation areas. The aquatic preserves are also outstanding Florida water bodies. The proposed project would improve the timing and delivery of water to the Caloosahatchee River which will have a positive effect on these areas. The proposed project would comply with the intent of this chapter.

#### **F.1.7 Chapter 267, Historic Preservation**

This chapter establishes the procedures for implementing the Florida Historic Resources Act responsibilities and for implementing the Section 106 of the National Historic Preservation Act of 1966, as amended; and the National Environmental Policy Act of 1969, as amended.

Response: Cultural resource surveys have been completed for the Caloosahatchee River (C-43) West Basin Storage Reservoir. Three isolated prehistoric artifacts, one isolated historic artifact, one prehistoric archeological site (8HN129), and four modified historic buildings were identified. All except the prehistoric archeological site were determined to lack integrity and determined not eligible for listing on the National Register of Historic Places, the prehistoric archeological site (8HB129) is located near the edge of the

proposed project and will be avoided by project design. The USACE has determined that the project will not affect historic properties eligible for listing on the National Register of Historic Places. The Florida State Historic Preservation Officer concurred with this determination (Florida State Department of Historic Preservation numbers 2004-8676 and 2006-07757). The project will be consistent with the goals of this chapter.

#### **F.1.8 Chapter 288, Economic Development and Tourism**

This chapter directs the state to provide guidance and promotion of beneficial development through encouraging economic diversification and promoting tourism.

Response: The proposed project would achieve the goals of this chapter by contributing to a long-range master plan for South Florida's water resources, which would support economic diversification and tourism.

#### **F.1.9 Chapters 334 (Transportation Administration), 335 (State Highway System), 338 (Intrastate Highway System and Toll Facilities) and 339 (Public Transportation)**

These chapters authorize the planning and development of a safe, balanced and efficient transportation system.

Response: No public transportation systems would be impacted by this project.

#### **F.1.10 Chapter 370, Saltwater Living Resources**

This chapter directs the state to preserve, manage and protect the marine, crustacean, shell and anadromous fishery resources in state waters; to protect and enhance the marine and estuarine environment; to regulate fishermen and vessels of the state engaged in the taking of such resources within or without state waters; to issue licenses for the taking and processing products of fisheries; to secure and maintain statistical records of the catch of each such species; and to conduct scientific, economic, and other studies and research.

Response: The proposed project is consistent with the goals of this chapter. Implementation of the project will provide direct positive impacts on saltwater resources within the Caloosahatchee Estuary by attenuation of freshwater flows during the wet season, provision of freshwater flows during the dry season, and improvement of the salinity balance. This will benefit seagrass, oysters, fisheries, and wildlife.

**F.1.11 Chapter 372, Living Land and Freshwater Resources**

This chapter establishes the Game and Freshwater Fish Commission (now called the Florida Fish and Wildlife Conservation Commission) and directs it to manage freshwater aquatic life and wild animal life and their habitat to perpetuate a diversity of species with densities and distributions that provide sustained ecological, recreational, scientific, educational, aesthetic, and economic benefits.

Response: The project will have a long-term beneficial effect on freshwater aquatic life and wild animal life within the Caloosahatchee River through attenuation of high flows during the wet season and provision of flows during the dry season. The proposed project is consistent with the intent of this chapter.

**F.1.12 Chapter 373, Water Resources**

This chapter provides the authority to regulate the withdrawal, diversion, storage, and consumption of water.

Response: The non-federal sponsor for this project is the South Florida Water Management District, which is the state agency responsible for implementing this statute. Coordinated planning has been done with this agency to ensure compatibility with established policies. The project is consistent with the goals of this chapter.

**F.1.13 Chapter 376, Pollutant Spill Prevention and Control**

This chapter regulates the transfer, storage, and transportation of pollutants and the cleanup of pollutant discharges.

Response: The contract specifications will prohibit the contractor from dumping oil, fuel, or hazardous wastes in the work area and will require that the contractor adopt safe and sanitary measures for the disposal of solid wastes. A spill prevention plan will be required.

**F.1.14 Chapter 377, Oil and Gas Exploration and Production**

This chapter authorizes the regulation of all phases of exploration, drilling, and production of oil, gas, and other petroleum products.

Response: This project does not involve the exploration, drilling, or production of gas, oil or petroleum product and therefore, this chapter does not apply.

**F.1.15 Chapter 380, Environmental Land and Water Management**

This chapter establishes criteria and procedures to assure that local land development decisions consider the regional impact of proposed large-scale development on natural systems.

Response: The proposed project includes development of the site for an above-ground reservoir with pump stations and other related features. Operation of the reservoir would benefit and the Caloosahatchee River Region by reducing the number and severity of events where harmful amounts of freshwater from basin runoff and Lake Okeechobee releases are discharged into the estuary system. The project also helps to maintain a desirable minimum flow of fresh water to the estuary during dry periods. These two primary functions help to moderate unnatural changes in salinity which is extremely detrimental to estuarine communities. The project is consistent with the intent of this chapter.

**F.1.16 Chapter 388, Arthropod Control**

This chapter provides for a comprehensive approach for abatement or suppression of mosquitoes and other pest arthropods within the state.

Response: The project would not further the propagation of mosquitoes or other pest arthropods.

**F.1.17 Chapter 403, Environmental Control**

This chapter authorizes the regulation of pollution of the air and waters of the state by the Florida Department of Environmental Regulation (now a part of the Florida Department of Environmental Protection).

Response: An Environmental Impact Statement addressing project impacts has been prepared and will be reviewed by the appropriate resource agencies including the Florida Department of Environmental Protection. Environmental protection measures will be implemented to ensure that no lasting adverse effects on water quality, air quality, or other environmental resources will occur. Water Quality Certification will be sought from the State prior to construction. The project complies with the intent of this chapter.

**F.1.18 Chapter 582, Soil and Water Conservation**

This chapter establishes policy for the conservation of state soil and water through the Department of Agriculture. Land use policies will be evaluated in terms of their tendency to cause or contribute to soil erosion or to conserve, develop, and utilize soil and water resources both onsite or in adjoining

properties affected by the project. Particular attention will be given to projects on or near agricultural lands.

Response: Project construction and implementation will include appropriate erosion control plans and measures to ensure compliance with the intent of the chapter.

## **F.2 CLEAN WATER ACT SECTION 404(B)(1) EVALUATION**

### **1. Project Description**

#### **a. Location.**

The study area consists of the proposed project site, the Caloosahatchee River (C-43 Canal), Caloosahatchee Estuary, and the affected drainage basins. The study area extends approximately 70 miles from Lake Okeechobee to the lower Charlotte Harbor Basin at San Carlos Bay. The Caloosahatchee River watershed constitutes the northern portion of the SFWMD Lower West Coast planning area. The Caloosahatchee River watershed covers an area of 1,125,000 acres in parts of Lee, Glades, Charlotte, and Hendry Counties. The watershed can be further subdivided into seven drainage basins based on their hydrologic characteristics, hydrologic control features, and topography. Moving from east to west these basins are the C-21, East Caloosahatchee, West Caloosahatchee, Orange River, S-236, Telegraph Swamp, and the Tidal Caloosahatchee Basin.

The Caloosahatchee River watershed (or C-43 Basin) drains an area of about 1,758 square miles and was originally a shallow meandering river. Prior to human disturbance, water moved slowly from the uplands and wetlands to the river and then downstream to the estuary. The population of the four counties that make up the Caloosahatchee River Basin was 630,000 in 2000 and is expected to nearly double to 1,220,000 by 2050. Major land uses in the area include agriculture (dominated by citrus, sugar cane, vegetables, sod, and cattle production), urban and municipal development, and natural areas.

#### **b. Alternatives Considered and Rejected**

Both structural and non-structural management measures were developed to ensure the achievement of an overall CERP goal that the proposed project would provide environmental restoration benefits as outlined in the Restudy. In order to develop and select a plan that will reasonably maximize ecosystem restoration benefits while addressing the water supply issues and opportunities in the basin, restoration of estuarine and riverine health were sought by improving hydrologic conditions. This could be done by evaluating two objectives: providing additional water to augment low or no flows over S-79 during the dry season/dry periods and reducing damaging peak flows by providing adequate storage during

high flow conditions. The following measures were identified and subsequently screened for the reasons identified in parenthesis:

- Restoration of natural areas (few locations able to provide significant natural storage)
- Stormwater treatment areas (does not help meet the goals and objectives of the project)
- Backpumping with stormwater treatment (potentially insufficient water supply; does not meet the goals and objectives of the project)
- Aquifer storage and recovery (lack of information on this technology; pilot projects currently researching this possibility)

The above analysis of management measures reaffirmed that above ground reservoir storage areas along with operations of the reservoir(s) met the goals and objectives as outlined in the Restudy. The final array of alternatives for this project were then developed using the Restudy alternative as a starting point. The final array of alternatives included:

- Alternative 1 – no action
- Alternative 2 – 100,000 ac-ft reservoir with 1500 cfs pumping capacity
- Alternative 3B – 170,000 ac-ft reservoir with 1500 cfs pumping capacity
- Alternative 3C – 170,000 ac-ft reservoir with 3800 cfs pumping capacity
- Alternative 4A – 220,000 ac-ft reservoir with 3800 cfs pumping capacity

A benefits analysis and CE/ICA were performed, as well as other factors considered as discussed in Section 5 of the attached PIR/EIS, which resulted in Alternative 3B as the preferred alternative.

c. General Description.

The recommended plan for the C-43 West Storage Reservoir would consist of approximately 10,700 acres (approximately 10,480 acres of fee and 20 acres of perpetual channel easement. Approximately 200 additional acres will be required on a temporary basis during project construction for staging areas). This includes an above-ground reservoir with two cells totaling approximately 9,400 acres providing a normal maximum storage capacity of approximately 170,000 acre-feet surrounded by an embankment and perimeter canals. Major features of the recommended plan include the following:

- External (dam) embankments varying in height between 32 and 37 ft. above existing grade;
- Soil-Bentonite slurry walls within and beneath the external embankments;

- An internal (dam) embankment separating the two cells with an approximate height of 31 ft. above existing grade ;
- An inflow pump station consisting of diesel-powered pumps with a total pumping capacity of 1,500 cfs;
- A perimeter canal;
- A perimeter canal pump station consisting of electric-powered pumps with a total pumping capacity of 195 cfs;
- Numerous spillways, culverts, perimeter canal structures, an internal cell balancing structure, and outlet structures;

d. Authority and Purpose.

The Caloosahatchee River (C-43) West Basin Storage Reservoir Project was authorized by Section 601 the Water Resources Development Act (WRDA) of 2000, Public Law 106-541. The purpose of the project is to capture and store excess regulatory releases from Lake Okeechobee; capture and store excess Caloosahatchee River (C-43) basin storm-water run-off; provide environmental benefits for a better salinity balance in the downstream Caloosahatchee Estuary by attenuating high flows in the wet season and releasing essential flows during the dry season; provide groundwater recharge; provide some water supply for irrigation needs, and environmental and urban demands and prevention of saltwater intrusion.

e. General Description of Dredged or Fill Material.

(1) General Characteristics of Material: Fill material for the embankments will be dredged and excavated material that will be removed within the immediate project area. The material will consist primarily of poorly-graded sand and clayey sand above the limestone rock layer.

(2) Quantity of Material: Approximately 4,500,000 cubic yards of material would be excavated to construct the perimeter canal and suitable excavated material will be used to construct the embankments.

(3) Source of Material: The fill material will be material removed *in situ* during excavation of the perimeter canal, but mainly from excavating the upper few feet of material over several hundred feet from within the reservoir interior.

f. Description of the Proposed Discharge Site.

(1) Location: The fill material will be used to construct the perimeter embankments and internal levee between Cell 1 and Cell 2. Any excess material excavated or dredged or material that is unsuitable for levee construction will be spread throughout the interior reservoir.

(2) Size: The project area is approximately 10,700 acres in size (approximately 10,480 acres of fee and 20 acres of perpetual channel easement). Approximately 200 additional acres will be required on a temporary basis during project construction for staging areas). The project would consist of 16.3 miles of perimeter embankment with an adjacent 14.7 miles of perimeter canal and an interior embankment to divide the reservoir into two cells. The perimeter canal would have a top width of approximately 110 feet, bottom width of 10 feet, and the side slopes would be 1 Vertical on 2.5 Horizontal (1V:2.5H). Dam height of the perimeter embankment would vary from 32 feet to 37 feet with a crest width of 14 feet. The reservoir would be approximately 9,400 acres in size with a storage capacity of 170,000 acre feet and average water depth ranging from 17 feet to 19 feet.

(3) Type of Site: The disposal site is developed as a citrus grove and includes a dense network of irrigation and drainage ditches and canals that serve the groves. Additionally there are wetlands scattered throughout the grove.

(4) Type of Habitat: Citrus groves, row crops and improved pasture with scattered cypress and mixed wetland hardwoods flank the project area to the north, east, and south. The area to the north of the project site also contains some low-density residential areas. Forested uplands (parceled into low-density residential lots, various stages of development) such as pine flatwoods, longleaf pine-xeric oak, sand pine, and xeric oak are adjacent to the west of the project. At a landscape level, the C-43 West Storage Reservoir Project is surrounded by a matrix of agricultural, forested, and wetland land covers with pockets of urban land use. Urban areas are present to the southwest and northeast of the project area with small parcels along the Caloosahatchee River. Regions to the northwest and southeast of the project area are generally undeveloped.

The project site is an active citrus grove. Upland habitats associated with the grove include citrus trees, grove maintenance roads, small berms, brush piles, and other features related to citrus grove operations. There are no natural upland areas within the project site. The project site includes approximately 994.53 acres of jurisdictional Waters of the United States in the form of canals/ditches and/or wetlands. As a result of the recommended plan, most of the site would be converted to an above-ground reservoir with attendant features and would primarily consist of open water habitat after construction. Jurisdictional areas impacted as a result of the project include 899.59 acres of man-made ditches and canals which serve as irrigation and drainage conveyances for the citrus operation and 125 acres of wetlands.

(5) **Timing and Duration of Discharge:** Project construction is scheduled to begin in 2008 under the SFWMD Acceler8 program (pending receipt of all required permits and authorizations) and take approximately 3 years to complete.

g. **Description of Disposal Method.** Conventional earth moving equipment would be used during construction to excavate the perimeter canal including Townsend Canal improvements. Excavated material will be placed adjacent to the perimeter canal to construct the embankment, using only suitable excavated material.

## 2. Factual Determinations

### a. Physical Substrate Determinations.

(1) **Substrate Elevation and Slope:** The perimeter embankment includes a 14-foot wide crest, with the soil cement protection, and 3 horizontal to 1 vertical side slopes. Crest elevations have been established at +57 NAVD88 for both Cell 1 and Cell 2, respectively. The embankment would be constructed largely of random fill, but would also include a low permeability soil-bentonite (SB) slurry wall, an internal drain, and upstream soil cement slope protection. The SB slurry wall would extend from an elevation 5 feet above the normal pool elevation to 5 feet below the top of a clay layer which underlies the project site at depths generally in the range of 20 to 25 feet below existing surface grades. The interior dam between Cells 1 and 2 would be a homogenous embankment with a crest elevation of +50 NAVD88. It would not include any SB wall or internal drain. The side slopes of the separator dam would be covered on both sides with soil-cement.

(2) **Sediment Type:** The material to be excavated and used as fill includes a combination of sand, clayey sand, silty sand, and some fine sediments.

(3) **Dredge/Fill Material Movement:** Suitable material excavated from the perimeter canal will be used to construct the earthen embankment. Any excess material or material not suitable for levee construction would be spread throughout the interior of the reservoir. There will be no deposition of material in unconfined waters where it would be subject to movement.

(4) **Physical Effects on Benthos:** Existing benthic organisms within the footprint of the levees would be covered by fill material.

### b. Water Circulation, Fluctuation and Salinity Determination.

(1) **Water Column Effects:** During dredging operations to widen the existing Townsend Canal the water column would become temporarily more turbid. The

use of turbidity curtains may be required to confine the turbidity to the immediate vicinity of dredging.

(2) Current Patterns and Circulation: Dredging would not affect current patterns or circulation. Construction of the embankments would not affect current patterns or circulation.

(3) Normal Water Level Fluctuations and Salinity Gradients: Construction activities would not affect normal water level fluctuations and salinity gradients. Implementation of the project would reduce the number and severity of events where harmful amounts of freshwater from basin runoff and Lake Okeechobee releases are discharged into the estuary system. The project also helps to maintain a desirable minimum flow of fresh water to the estuary during dry periods. These two primary functions help to moderate unnatural changes in salinity which is extremely detrimental to estuarine communities.

c. Suspended Particulate/Turbidity Determinations.

(1) Expected Changes in Suspended Particulates and Turbidity Levels in the Vicinity of the Disposal Site: Construction of the embankment would require deposition of fill over wetlands permanently converting these areas to upland sites. Temporary increases in suspended particulates can be expected during construction at the embankment fill sites as well as the dredging location in the Townsend canal. All appropriate measures to reduce and contain turbidity will be employed so state Water Quality Standards would not be violated.

(2) Effects on Chemical and Physical Properties of the Water Column: In general, any short-term impacts to water quality associated with construction of the project will be ameliorated by construction sequencing, best management practices for erosion and sedimentation control and monitoring during construction. Longer-term impacts to water quality associated with the operation of project features will be addressed through operational monitoring and adaptive management actions, if potentially adverse affects are observed or predicted.

(a) Light penetration: During dredging operations there would be a temporary reduction in light penetration in the immediate vicinity of dredging. Once construction is completed, light penetration is expected to return to pre-construction levels.

(b) Dissolved Oxygen: During dredging operations there could be a temporary reduction in the dissolved oxygen content in the water column in the immediate vicinity of dredging. Once construction is completed, dissolved oxygen is expected to return to pre-construction levels.

(c) Toxic Metals, Organics and Pathogens: No toxic metals, organics, or pathogens would be released by project construction. Reservoir operations will also incidentally improve water quality in the Caloosahatchee Estuary, since some of the nutrient-laden runoff and lake water will be stored in the reservoir, allowing for the settling of nutrients and other pollutants within the reservoir cells prior to delivery to the estuary.

(d) Aesthetics: During construction, visual aesthetics would be negatively impacted. After completion, aesthetics would improve once new vegetation becomes established.

(3) Effects on Biota:

(a) Primary Productivity and Photosynthesis: Disposal of excavated materials would adversely affect wetlands within the project footprint destroying vegetation and smothering biota. The perimeter canals are being designed to include littoral shelves within the corners and along some of the canal banks. These shelves will be colonized by wetland, emergent plant species. The reservoir footprint will likely be too deep to support any wetland vegetation except during drawdowns, but floating vegetation may colonize the reservoir.

(b) Suspension/Filter Feeders: During dredging operations there would be a temporary increase in turbidity and possibly a decrease in suspension/filter feeders due to construction activities. This temporary increase in turbidity will be short-term and should not have any long-term negative impact on these highly fecund organisms. These organisms would return to current levels after construction is completed.

(c) Sight Feeders: During dredging operations there would be a temporary increase in turbidity and possibly a decrease in sight feeders due to construction activities. No significant impacts on these organisms are expected as the majority of sight feeders are highly mobile and can move outside the affected area. These organisms would return to current levels after construction is completed.

d. Contaminant Determinations.

Currently the SFWMD has restricted the use of copper on the site and plans to conduct all required corrective actions as recommended by the U.S. Fish and Wildlife Service (USFWS) prior to initiating any construction. Deposited fill material would not introduce, relocate, or increase contaminants. Dredging of the Townsend Canal is limited to side slopes for widening; therefore, material on the bottom of the canal which may contain toxic materials would not be dredged.

e. Aquatic Ecosystem and Organism Determinations.

(1) Effects on Plankton: No adverse affects on plankton are expected. Long-term effects on plankton should be beneficial with an improvement of salinity balance in the Caloosahatchee Estuary.

(2) Effects on Benthos: A temporary decrease in benthos in the project area may occur during widening of the Townsend Canal. It is expected that the benthos would return to current levels after construction is completed. Effects to benthos outside the project area are not anticipated.

(3) Effects on Nekton: Small forage fish may be displayed during construction; however, these effects are short-term. The project provides deepwater habitat within the reservoir, including refugia (created by embankment excavation and from existing agricultural ditches) for fish and other aquatic animals during extremely dry periods. Long-term effects to fish in the Caloosahatchee Estuary should be beneficial as a result of the project operation and subsequent improvement in salinity balance, attenuation of peak flows, and provision of flows during the dry season.

(4) Effects on the Aquatic Food Web: No adverse impacts on aquatic organisms are anticipated. A relatively minor temporary effect on the aquatic food web due to construction activities is anticipated; however, this effect is short-term. Long-term effects to aquatic food web as a result of operation should be beneficial through improving the salinity balance in the downstream Caloosahatchee Estuary for oysters, seagrasses, and wildlife.

(5) Effects on Special Aquatic Sites:

(a) Hardground and Coral Reef Communities. There are no hardground or coral reef communities within the project footprint. Oysters once flourished within the Caloosahatchee Estuary but with damaging pulse freshwater flows and lack of suitable substrate populations have declined. With the addition of hard substrate attenuation of high flows, oyster reef/recruitment would occur as a result of project implementation.

(b) Sanctuaries and Refuges. The Caloosahatchee River and Estuary are at the head of a vast estuarine and marine ecosystem that includes aquatic preserves managed by the State of Florida (e.g., Matlacha Pass, Estero Bay, and Pine Island Sound Aquatic Preserves), the Charlotte Harbor National Estuary Program, and the J. N. Ding Darling National Wildlife Refuge (NWR) Complex which includes the Caloosahatchee, Matlacha Pass, Pine Island, and Island Bay NWRs; along with numerous other state and local parks and recreation areas. The aquatic preserves are also outstanding

Florida water bodies. Improvement of the timing and delivery of water to the Caloosahatchee River will have a positive effect on these areas.

(c) Wetlands. The project site includes 125 acres of jurisdictional wetlands. The wetland communities include mixed wetland hardwoods, willow and elderberry, exotic wetland hardwoods, cypress, wetland shrub, and freshwater marsh. As a result of the project, all onsite wetlands would be eliminated. Adverse impacts include destruction of wetland habitat and adverse affects to the biological productivity of wetlands ecosystems by smothering, by dewatering, by permanently flooding, or by altering substrate elevation or periodicity of water movement. Through implementation of CERP, the quality, quantity, timing, and delivery of water to the south Florida ecosystem will be improved. This coupled with the increase in spatial extent of protected wetland acreage in the region will offset adverse impacts to wetlands associated with project implementation. The current design of the reservoir perimeter canal includes approximately 109 acres of wetland i.e., littoral habitat within the corners and along some of the canal banks.

(d) Mud Flats. Mud flats are present within the Caloosahatchee Estuary but none would be adversely impacted by the project. Regulation of the timing of water delivered to the estuary may benefit mud flats by returning inundation patterns toward natural system targets and ameliorating rates of erosion and accretion.

(e) Vegetated Shallows. Vegetated shallows are present in the Caloosahatchee River and Estuary but none would be adversely impacted as a result of the project. Excessive variation in discharges and salinity to the Caloosahatchee River and Estuary result in a flux of biota from those favoring higher salinities to those favoring lower salinities. As a result of project implementation, the timing and delivery of water to the Caloosahatchee River and salinity balance would be improved. This would sustain a variety of species of freshwater, estuarine, and marine submerged aquatic beds that once flourished historically.

(f) Riffle and Pool Complexes. There are no riffle and pool complexes within the study area.

(6) Threatened and Endangered Species: Formal consultation with the USFWS for the Florida panther, Audubon's crested caracara, and eastern indigo snake is ongoing and a Biological Opinion that the project will not jeopardize the existence of these species is anticipated. The CERP Band 1/Acceler8 projects will collectively provide for the preservation and restoration of approximately 100,492 acres in the panther core area, including 59,294 acres in the Primary Zone and 41,198 acres in the Other Zone. These "core area" lands include the majority of home ranges of the current population of the Florida panther. This

includes over 548,000 panther habitat units (PHUs) that can be used to offset the loss of panther habitat anticipated as a result of conversion of the citrus grove lands within the project footprint to open water. Additionally, the USACE has determined that the implementation of this project will either benefit, or not adversely affect, a number of other endangered and/or threatened species in the project area or areas affected by the project. Informal consultation remains open with the USFWS and the National Marine Fisheries Service. Special protection measures will be implemented during construction to minimize impacts to any listed species present.

f. Proposed Disposal Site Determinations.

(1) **Mixing Zone Determination:** The dredged material will not cause unacceptable changes in the mixing zone water quality requirements as specified by the State of Florida's Water Quality Certification permit procedures. No adverse impacts related to depth, current velocity, direction and variability, degree of turbulence, stratification, or ambient concentrations of constituents are expected from implementation of the project.

(2) **Determination of Compliance with Applicable Water Quality Standards:** The project would comply with Federal and State water quality standards.

(3) **Potential Effects on Human Use Characteristics:**

(a) **Municipal and Private Water Supply:** No municipal or private water supplies would be adversely impacted by the implementation of the project. The reservoir may provide a source for water supply during the dry season once environmental deliveries have been made.

(b) **Recreational and Commercial Fisheries:** Construction activities would not significantly affect recreational or commercial fisheries.

(c) **Water Related Recreation:** No recreation resources would be adversely affected by the project.

(d) **Aesthetics:** During construction, the visual appearance of the new impoundment and levees may be somewhat unattractive. The levees would be grassed to prevent erosion and help blend them into the landscape background as unobtrusively as possible. The existing landscape characteristics would be replaced with views of levees and open water within the impoundment areas.

(e) **Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves:** There are no such

designated areas present within the area proposed for construction of project features. Aquatic preserves and NWRs comprise the downstream area that will be positively affected by project implementation.

g. Determination of Cumulative Effects on the Aquatic Ecosystem

The implementation of CERP is anticipated to convert large areas within the Caloosahatchee River basin, the Everglades Agricultural Area, and around Lake Okeechobee to reservoirs for increasing water storage for the overall gain and long-term benefit of the regional system. This will cause some adverse consequences to agricultural land uses - permanently removing tens of thousands of acres from agricultural production. These impacts may be felt locally and/or regionally as the economic base derived from agriculture is incrementally reduced relative to other sectors of the economy. As these features occur disparately across the landscape within different hydrologic basins, and as distinct units rather than multiple features within a single watershed, they will not likely result in a significantly detrimental cumulative effect.

The overall benefit to the regional system is expected to be far greater than the localized adverse effects. The restoration of hydrology of the greater Everglades ecosystem and the increase in spatial extent of protected wetland acreage in the region will produce extensive cumulative beneficial effects. These beneficial effects are expected to substantially outweigh the cumulative adverse effects produced by the aquatic ecosystem alterations that may be necessary to construct some of the project components.

h. Determination of Secondary Effects on the Aquatic Ecosystem

There will be no adverse secondary impacts on the aquatic ecosystem as a result of the construction. During construction the site will be contained enclosing the construction areas with sedimentation barriers. Erosion will be controlled by compaction of soils, construction of ditches, and embankments, maintenance of relatively flat grades, and other appropriate erosion control techniques. Sedimentation will be controlled during construction by use of sediment controls basins and traps, filter berms, straw bales, etc. Although construction will likely include several mobilizations associated with the perimeter canal and embankment, impacts will be localized and wildlife will be able to utilize undisturbed portions of the site, particularly the interior. An ecological and water quality monitoring plan would be implemented during and after construction and specific environmental commitments, engineering and design commitments, and operational commitments will be incorporated to avoid, minimize, and/or mitigate for adverse effects.

Implementation of this project would beneficially affect the aquatic ecosystem in the Caloosahatchee Estuary by regulating the timing and delivery of water. Through attenuation of peak flows during the wet season, providing essential flows during the dry season, and improving the salinity balance, oyster, seagrass, and wildlife will benefit.

3. Findings of Compliance or Non-Compliance with the Restrictions on Discharge

- a. No significant adaptations of the guidelines were made relative to this evaluation.
- b. No practicable alternative exists which meets the study objectives that does not involve discharge of fill into waters of the United States.
- c. No practicable alternative exists which would have less adverse impact on the aquatic ecosystem which does not also have other significant adverse environmental consequences
- d. The discharge of fill materials will not cause or contribute to violations of any applicable State water quality standards for Class III waters. The discharge operation would not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.
- e. The placement of fill materials in the project area will not jeopardize the continued existence of any species listed as threatened or endangered or result in the likelihood of destruction or adverse modification of any critical habitat as specified by the Endangered Species Act of 1973, as amended.
- f. The placement of fill materials will not result in significant adverse effects on human health and welfare, including municipal and private water supplies, recreational and commercial fishing, plankton, fish, shellfish, wildlife, and special aquatic sites. The life stages of aquatic species and other wildlife will not be adversely affected. Significant adverse effects on aquatic ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values will not occur.
- g. On the basis of the guidelines, the proposed disposal site for the discharge of fill and/or dredged material is specified as complying with the requirements of these guidelines.

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