

ANNEX B

C-111

SECTION 404(b)(1) EVALUATION

ANNEX B**SECTION 404(b)(1) EVALUATION****FINAL****SECTION 404(B) CLEAN WATER ACT EVALUATION****CANAL 111 (C-111), SOUTH DADE COUNTY, FLORIDA****I. Project Description**

a. Location. The Canal 111 (C-111) Basin, is located in southern Florida. The area of focus is located in southeastern Dade County. The study area's northern boundary is a line drawn east from S-331, the divide control structure, and west on the southern limit of the eight-and- one-half square mile area and west by Shark River Slough located in ENP. The eastern boundary varies generally along a line through the ridge structures S-194 and S-196 to Homestead and then parallels Card Sound Road. The southern boundary is Florida Bay.

b. General Description

Authority and Purpose. In 1968, the ENP-South Dade Conveyance Canals Project was authorized by PL 90-483, Flood Control Act of 1968. The Act authorized modifications to the existing Central and Southern Flood Control Project as authorized by the 1948 Flood Control Act and 1962 Flood Control Act in the interest of improved conservation and distribution of available water and extended flood protection. A major purpose of this project was for conservation and conveyance of water supplies to meet the long-term needs of urban and agricultural users and the ENP. Improvements to the L-31N borrow canal and a new pump station S-331 enabled delivery of water to Taylor Slough, via L-31W and a new pump station S-332, and the Park's eastern panhandle, via C-111, to meet minimum water deliveries to ENP mandated by PL 91-282. No improvements were required in C-111 to handle the increased water supply.

General Description of Dredged or Fill Material

(1) General Characteristics of Material. Material will be removed from existing spoil mounds along the south side of Canal 111 (C-111) and used to construct a levee-roadway that would run roughly parallel to Levee 31N (L-31N). The material is sandy with limestone inclusions. Tie-back levees will be constructed at structures. Canals

109 and 110 will be plugged. Miscellaneous fill of earth, stone and concrete will be done at structures.

(2) Quantity of Material (cu. yds.)

Tie-back levees: 567,000 cy

Backfill canals: 810,000 cy

Miscellaneous earth fill at structures: 132,400 cy

Stone fill at structures: 21,000 cy

Concrete fill: 37,400 cy

(3) Source of Material. The material was dredged from the Everglades substrate to construct C-111. It is now in mounds along the south side of C-111. Excavations will be made at structures, and suitable fill will be used for construction.

Description of the Proposed Discharge Site

(1) Location (map). The location is shown on Figures 1, 2, and 3.

(2) Size (acres). 29 acres would be filled with levees. About 200 acres will be filled around structures.

(3) Type of Site (confined, unconfined, open water). The levee construction sites are unconfined, open Everglades rocky prairie that is intermittently flooded.

(4) Type(s) of Habitat. The habitat is rocky glades. Vegetation in the rocky glades is primarily comprised of thinly scattered sawgrass (Cladium jamaicensis), spikerush (Eleocharis cellulosa), and beakrushes (Rhynchospora spp.) on marl soils in association with muhly (Muhlenbergia sp.) prairies.

(5) Timing and Duration of Discharge. Work would require 1-2 years, with discharge made preferably in the dry season.

f. Description of Disposal Method The material will be trucked to the road and levee site and dumped. Subsequently it will be moved and smoothed with earthmoving equipment. In some cases, e.g., at structure sites, excavated material will be used at the site.

II. Factual Determinations (Section 230.11)

Physical Substrate Determinations

(1) Substrate Elevation and Slope. The elevation is between 5 and 7 feet, NGVD, and there is almost no slope.

(2) **Sediment Type.** The substrate at the construction site is limestone rock overlain with marl soil.

(3) **Dredged/Fill Material Movement.** There will be no appreciable movement of material. It will rest on limestone rock.

(4) **Physical Effects on Benthos.** All benthos in the fill site will be covered, smothered and killed.

(5) **Other Effects.** An effect would be the formation of an area of upland. Natural uplands that occur in the Everglades are tree islands. The fill, however would be used as an access road, and woody vegetation would be kept from the crown.

(6) **Actions Taken to Minimize Impacts (Subpart H).** Precautions to confine the fill to the desired roadway-levee alignment will be taken. Existing access roads would be used.

b. Water Circulation, Fluctuation and Salinity Determinations

(1) **Water.** Water would flow parallel to the levee and through the water control structures.

(a) **Salinity.** The area is fresh water, and this condition would remain unchanged.

(b) **Water Chemistry.** No changes.

(c) **Clarity.** After construction ends, clarity would be as before. During construction, turbidity would be generated in the very slowly-to nonmoving water.

(d) **Color.** No effect.

(e) **Odor.** No effect.

(f) **Taste.** No effect.

(g) **Dissolved Gas Levels.** The material is essentially clean soil; there would be moderate biochemical oxygen demand, and no change in dissolved gases.

(h) **Nutrients.** Old spoil material has weathered over several years in mounds, and it contains no larger levels of nutrients than are found in existing waters and soils in the area. Material to be dredged to form canals and canal berms is limestone and marl.

(i) Eutrophication. No cause for eutrophication.

(j) Others as Appropriate. None.

(2) Current Patterns and Circulation.

(a) Current Patterns and Flow. The water now flows very slowly in a southeasterly direction, except when the S-332 pumps are operating. The levee and detention-retention area would divert water southward.

(b) Velocity. The velocity is essentially zero.

(c) Stratification. None.

(d) Hydrologic Regime. The area is characterized by an historic average hydroperiod of 6 to 7 months, but the hydroperiod now is apparently shorter.

(3) Normal Water Level Fluctuations. Two feet deep to -3 feet.

(4) Salinity Gradients. None.

(5) Actions That Will Be Taken to Minimize Impacts (Subpart H). Precautions to confine the fill to the desired berm-levee alignment will be taken. Existing access roads would be used.

c. Suspended Particulate/Turbidity Determinations

(1) Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Disposal Site. Temporary, during construction. Fill material has little organics, hence very low quantities of suspendable material.

(2) Effects on Chemical and Physical Properties of the Water Column.

(a) Light Penetration. Temporary attenuation during construction. Afterward, none.

(b) Dissolved Oxygen. No effect. No BOD, and light attenuation effects would be short and negligible.

(c) Toxic Metals and Organics. None.

(d) Pathogens. None.

(e) Aesthetics. No effect, because there are few observers. Post-construction effect of visible pump stations, canals, levees. The canals would support bank vegetation, fish and wildlife

(f) Others as Appropriate. None.

(3) Effects on Biota.

(a) Primary Production, Photosynthesis. No effect, because light attenuation from very briefly suspended particulates would be negligible.

(b) Suspension/Filter Feeders. Those confined to water in solution holes of the limestone, or unable to move, would be covered with the fill. Effects on the biological communities would be essentially none.

(c) Sight Feeders. Same as above.

(4) Actions taken to Minimize Impacts (Subpart H). Precautions to confine the fill to the desired berm-levee alignment will be taken. Existing access roads would be used.

d. Contaminant Determinations. None present.

e. Aquatic Ecosystem and Organism Determinations (Subpart G)

(1) Effects on Plankton. None, except under the fill.

(2) Effects on Benthos. None, except under the fill.

(3) Effects on Nekton. None.

(4) Effects on Aquatic Food Web. None.

(5) Effects on Special Aquatic Sites. The construction area is in the Everglades, adjacent to Everglades National Park. The project effect would be restoration of historic environmental conditions to the Park.

(a) Sanctuaries and Refuges. As stated above.

(b) Wetlands. Wetland functions and form would be restored to some degree as a result of the project.

(c) Mud Flats. None.

(d) **Vegetated Shallows.** These are the marl prairies described above. Historic, natural conditions would be restored to the extent possible.

(e) **Coral Reefs.** None.

(f) **Riffle and Pool Complexes.** None.

(6) **Threatened and Endangered Species.** Coordination under the Endangered Species Act has been initiated. The project, at this stage, is in full compliance with the Endangered Species Act.

(7) **Other Wildlife.** Wading birds would benefit from significant restoration effects.

(8) **Actions to Minimize Impacts.** Precautions to confine the fill to the desired roadway-levee alignment will be taken. Existing access roads would be used.

f. Proposed Disposal Site Determinations

(1) **Mixing Zone Determination.** The mixing zone would likely be less than 10 yards, because of slow flow rate and very small fraction of suspendable material.

(2) **Determination of Compliance with Applicable Water Quality Standards** (present the standards and rationale for compliance or non-compliance with each standard). All standards will be complied with, unless a variance should be required for unforeseen reasons. A Section 401 water quality certification will be sought from the State of Florida.

(3) **Potential Effects on Human Use Characteristics.** Non-consumptive uses, such as bird watching, would be enhanced. Long-term contribution to improved sport fishing in Florida Bay.

(a) **Municipal and Private Water Supply.** No effect.

(b) **Recreational and Commercial Fisheries.** The project would contribute to long term improvement by increasing fresh water flow at correct times into Florida Bay.

(c) **Water Related Recreation.** Little to no effect.

(d) **Aesthetics.** Small direct effect, due to few observers. Long term contribution to restored wading bird populations in Everglades National Park.

(e) Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves. The project is intended to restore ecological values to the southeastern portion of Everglades National Park.

g. Determination of Cumulative Effects on the Aquatic Ecosystem. To the extent that the project for Modified Water Deliveries to Everglades National Park is implemented successfully, that project and this should interact synergistically to provide significant restoration of ecological integrity to the southeast Everglades.

h. Determination of Secondary Effects on the Aquatic Ecosystem. All benefits to flora and fauna would be secondary, in that the direct effects would be hydrological, but the secondary effects would be ecological and beneficial.

III. 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. The alternative that will be selected from among an array of practicable alternatives will be that which best meets the study objectives. It is probable that no practicable alternative is possible that will not involve discharge of fill into waters of the United States.

c. The discharge of fill materials will not cause or contribute to, after consideration of disposal site dilution and dispersion, violation of any Florida water quality standards. The discharge operation will not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.

d. The placement of fill material 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 designated under the Endangered Species Act of 1973, as amended.

e. The placement of fill materials will not result in significant adverse effects on human health and welfare, municipal and private water supplies, recreational and commercial fishing, plankton, fish, shellfish, wildlife, wetlands 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, aesthetics, and economic values will not occur.

f. Appropriate steps to maximize positive impacts on aquatic systems will be included in plans for the recommended plan.

ANNEX C

C-111

**FLORIDA COASTAL ZONE MANAGEMENT PLAN
CONSISTENCY EVALUATION**

FLORIDA COASTAL ZONE MANAGEMENT PLAN CONSISTENCY DETERMINATION

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: Construction will not be located seaward of the line of mean high water or where it might have an effect on natural shoreline processes.

2. Chapters 186 and 187, State and Regional Planning.

These chapters establish the State Comprehensive Plan which 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 studied project would enhance environmental quality, and it would not adversely affect social, economic and physical growth.

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 the project.

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; beaches and dunes; submerged grass beds and other benthic communities; swamps, marshes and other wetlands; mineral resources; unique natural features; submerged lands; dredged material disposal islands; and artificial reefs.

Response: Each type of resource protected under this statute is addressed in the EIS. Full conformance and compliance with the requirements for protecting these

resources is intended.

5. Chapters 253, 259, 260, and 375, Land Acquisition.

These chapters authorize the State to acquire land to protect environmentally sensitive areas.

Response: State acquisition of lands at the eastern edge of Everglades National Park may be necessary for protection of environmentally sensitive lands within the Park.

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, and park programs management or operations.

Response: None affected.

7. Chapter 267, Historic Preservation.

This chapter establishes the procedures for implementing the Florida Historic Resources Act responsibilities.

Response: The study has been coordinated with the Florida State Historic Preservation Officer. Historic preservation compliance will be completed to meet all responsibilities under Chapter 267. The State Historic Preservation Officer has commented on the project plans (Annex A).

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: Contribution from the study area to the State's tourism economy will not be compromised by project implementation.

9. Chapters 334 and 339, Public Transportation.

This chapter authorizes the planning and development of a safe, balanced and efficient transportation system.

Response: No effect.

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 of products of fisheries; to secure and maintain statistical records of the catch of each such species; and to conduct scientific and economic studies and research.

Response: No direct effect on this State responsibility; a long term benefit is intended.

11. Chapter 372, Living Land and Freshwater Resources.

This chapter establishes the Game and Fresh Water Fish Commission and directs it to manage freshwater aquatic life and wild animal life and their habitats to perpetuate a diversity of species with densities and distribution which provide sustained ecological, recreational, scientific, educational, aesthetic, and economic benefits.

Response: The project would positively affect the specified resources.

12. Chapter 373, Water Resources.

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

Response. The plans for withdrawal, diversion, storage and consumption of water are fully coordinated with the State at this stage, and a recommendation would be made with full concurrence from the State.

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. Potential pollutants may include motor fuels and lubricants. All activities will conform with State regulations.

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: Not applicable to this project.

15. Chapter 380, Environmental Land and Water Management.

This chapter establishes criteria and procedures to assure that local land development decisions include consideration of the regional impacts of proposed large-scale development.

Response. Not applicable to this project.

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 studied project would not produce arthropod pest problems.

17. Chapter 403, Environmental Control.

This chapter authorizes the regulation of pollution of the air and waters of the State by the Department of Environmental Regulation.

Response: Full compliance with State requirements will be accomplished.

18. Chapter 582, Soil and Water Conservation.

This chapter establishes policy for the conservation of the State's 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 on site or in adjoining properties affected by the project. Particular attention will be given to projects on or near agricultural lands.

Response: The proposed action has the purpose of conserving soil and water resources in a manner that restores historic soil-forming processes in the area. Nearby agricultural interests will be protected from additional flood damages.

ANNEX D

C-111

FISH AND WILDLIFE COORDINATION ACT REPORT



United States Department of the Interior

FISH AND WILDLIFE SERVICE

P.O. BOX 2676

VERO BEACH, FLORIDA 32961-2676

May 31, 1994

Colonel Terrence C. Salt
District Engineer
U.S. Army Corps of Engineers
P.O. Box 4970
Jacksonville, FL 32232-0019

Attn: Planning Division

Dear Colonel Salt:

The U.S. Fish and Wildlife Service (Service) provides the following Interim Fish and Wildlife Coordination Report on the Integrated General Reevaluation Report and Environmental Impact Statement (GRR/EIS) for the Canal 111 project, Dade County, part of the Central and Southern Florida Flood Control Project, Florida. This report is submitted in accordance with the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and Section (7)(a)(2) of the Endangered Species Act, as amended (16 U.S.C. 1531 et seq.).

As the Canal 111 project enters Detailed Design phase, the Service will update this report, specifically regarding the environmental effects of the operational criteria established through further fish and wildlife investigations and hydrologic modeling.

The Service fully supports the current project purpose to eliminate excessive freshwater discharges into Barnes Sound and to begin the ecological restoration of Taylor Slough and the Triangle Lands by redirecting freshwater into these stressed marshes situated on the east and west sides of C-111. We view this draft GRR/EIS as a significant step towards ecosystem restoration in the southern Everglades.

BACKGROUND

In 1968, the South Dade Conveyance Canals Project was authorized by PL 90-483, Flood Control Act of 1968. The Act authorized modifications to the existing Central and Southern Florida Flood Control Project as authorized by the 1948 Flood control Act and the 1962 Flood Control Act. A major purpose of the Act was to improve the conservation and conveyance of water resources to meet the long-term needs of urban demands, agricultural users and fish and wildlife resources of the Everglades National Park and surrounding lands.

The Service's primary goal for the project is to find a long-term solution to alleviating the harmful freshwater discharges to Barnes Sound by restoring, through an iterative testing process, a more natural distribution, quantity and timing of hydrologic resources in the region. The redistribution water from this channelized condition to a broader, more naturally timed condition is viewed as a significant step to restoring the ecological integrity of the region.

STATUS OF CURRENT PLANNING

As now proposed, the project would greatly assist with the overall larger issue of ecosystem restoration of the Everglades. The Service understands that the planning schedule must be expedited. The Service supports this expedited process and provided previous comments on the preliminary draft GRR/EIS by letter dated February 7, 1994. The following comments are to supplement those comments and to assist in future project planning.

ALTERNATIVE PLAN SELECTION

While the Corps of Engineers has preliminarily selected Alternative No. 6A as the preferred alternative, final decisions on alternative plan selection will require further refinement and additional planning and testing. We are encouraged that several of the alternatives that are now being considered, specifically Alternatives Nos. 3, 4, 5, and 6, 6A would result in favorable environmental results for the overall study area by spreading water throughout the C-111 basin by structural means and, thereby, moving toward the objectives and goals of the Service for the basin, Florida Bay and adjacent Everglades National Park.

Although we appreciate that your planning process requires you to select a specific alternative, the differences between alternatives have not been completely ecologically tested from an operational mode with additional water delivery. Also, the difference in environmental benefits generated by each alternative as presented in the report does not appear to be significant. Therefore, it appears that it is premature to select a final alternative until an operational plan and testing with additional water deliveries has been completed. The Service concurs with the Corps of Engineers' finding that full environmental benefits cannot be realized from any of the alternatives until additional water supplies are made available.

The Service believes that features found in Alternatives Nos. 3 through 6A and 8 should be considered further as planning progresses. There are indications that several of the features of a given alternative may be combined with another alternative(s) before a final plan is selected, thus maximizing environmental benefits.

RECOMMENDATIONS

The Service, therefore, recommends the following considerations be included in future project planning to enhance environmental benefits and meet the overall goals of ecosystem restoration:

* LOWER C-111 BASIN: Backfilling the lower C-111 Canal below S-18C appears to provide benefits through direct restoration of wetlands and would also help disperse water by sheetflow. The Service recommends that this project feature be fully considered. Also the capacity of the S-332E pump should be enlarged to 250 cfs rather than 50 cfs as a way of eliminating dependency on the lower C-111 basin, and instead reestablishing sheetflow to the marshes south of C-111N.

* TRIANGLE LANDS: The "spreader canal" feature designed to restore hydroperiod to the hypersaline Triangle Lands east of U.S. Highway 1 should be extended under U.S. Highway 1 in order to maximize environmental benefits (enhancement/restoration of approximately 8,000 to 10,000 acres of wetlands) from this project feature. The spreader canal should be positioned as far to the north as possible to maximize this benefit. The Florida DOT originally included provisions for the "spreader canal" in their U.S. Highway 1 widening proposal with the Federal Highways Administration. The spreader canal was to be located at the site of an underpass for the Florida panther, proposed for Mile Marker 122.5.

The Service understands that FDOT is interested in cooperating with the Corps in extending the "spreader canal" under U.S. 1 to the Triangle Lands. Therefore, the Department recommends the Corps continue to investigate opportunities to include this significant ecological restoration component as a project feature.

* WATER QUALITY: Other features should be considered to ensure adequate water quality is maintained prior to discharge into Everglades National Park and waters of the State. Concepts such as "storage treatment areas" should be actively considered.

* LAND ACQUISITION: Several critical areas currently being drained by the L-31N and C-111 systems should be prioritized for acquisition to fully maximize ecosystem benefits. These critical areas include the Frog Pond, Rocky Glades Agricultural Area and the 8-1/2 square mile area. The Department recommends the Corps of Engineers consider the public acquisition of these lands.

* FROG POND: The Department believes that additional improvements can be made in the Frog Pond area to reestablish higher stages in the headwater marshes of Taylor Slough. This should consider a north-south detention area in the central portion of the "Frog Pond". Facilities to cause detention and retention with outflow along the west side, which would provide outflow overbank flow along the west side of the north South portion of L-31W canal. This would require that pumping station S-332D be located at the north end of this detention retention area.

* MONITORING PLAN: The Department notes no clear distinction between the initial predictions of environmental responses that were conducted as part of the pre-construction planning and the follow-up evaluations and monitoring that occur during and following the construction phase. It is essential that a systematic and comprehensive hydrological and ecological monitoring plan be put in place prior to initial construction. We recommend that, at a minimum, an outline of a monitoring plan, with responsible parties identified, be provided in the Final GRR/EIS for review.

The Service recognizes that the success of the C-111 project will depend on the combination of structural and operational changes that are made and on the process by which operational decisions are implemented. The Service proposes that a three-party agreement between the Corps, Interior (NPS and FWS), and the Local Sponsor be required and used to assure that the new structures are operated to maximize ecological restoration to Everglades National Park and the Triangle Lands, and assure that the project has no adverse impacts on endangered and threatened species in the area.

The Service further requests that plans for evaluating and selecting operational plans and implementing monitoring programs during and following the construction phases be jointly developed for Taylor Slough, the C-111 basin and Shark River Slough. This process needs to be elaborated upon in more detail in the final C-111 GRR.

The Service believes that the lack of strong positive ecological benefits among the alternative plans is because the assessments were made for proposed changes in structural design alone. The ultimate potential for of this project for restoring more natural hydrological and ecological conditions will depend on the operational changes that are made. The Corps and cooperating agencies must soon determine what these operation changes will be, and begin the process of evaluating potential ecological responses to the different operational alternatives considered.

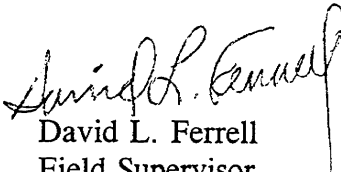
ENDANGERED SPECIES

For the above reasons, the Fish and Wildlife Service, concurred with the Corps of Engineers' December 9, 1993 "no effect" determination for the snail (Everglade) kite, wood stork, bald eagle, Eastern indigo snake, American crocodile, and the Florida panther under Section 7(a)(2) of the Endangered Species Act for the footprint of the structural changes and operational features. However, the Service is unable to evaluate effects on the Cape Sable sparrow at this time, except for construction features, and a Biological Opinion may be necessary when operational plans are developed.

CONCLUSIONS

The Service continues to view the C-111 project as an essential step for bringing about ecological restoration of the freshwater marshes and estuaries in Everglades National Park and Triangle Lands. We remain pleased with the recent rapid pace in planning for these improvements for Taylor Slough, Florida Bay and Barnes Sound.

Thank you for the opportunity to provide input on this water resources and ecosystem restoration project. We look forward to continued close coordination throughout all phases of project planning, construction and evaluation.


David L. Ferrell
Field Supervisor

cc:

NPS, Homestead, FL
SFWMD, West Palm Beach, FL
USFWS, Atlanta, GA
NMFS, St. Petersburg, FL
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United States Department of the Interior

OFFICE OF THE SECRETARY OFFICE OF ENVIRONMENTAL POLICY AND COMPLIANCE

Richard B. Russell Federal Building
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May 13, 1994

ER-94/176

A. J. Salem, Chief
Planning Division
Jacksonville District
U. S. Army Corps of Engineers
P. O. Box 4970
Jacksonville, Florida 32232-0019

Dear Mr. Salem:

This letter provides the comments of the U.S. Department of the Interior on the "Draft Integrated General Reevaluation Report and Environmental Impact Statement" for the Canal 111 (C-111) project (February 1994) in south Dade County, Florida. We call your attention to earlier comments on a preliminary draft GRR and EIS for the C-111 project, contained in a letter from the Department dated February 7, 1994. These comments supplement those in the February letter.

The Department supports the adoption and expedited implementation of the recommended alternative plan 6A, contingent on the inclusion of several refinements to the structural design. These refinements include: (1) the extension of the water detention/retention area on a north-south alignment through the central portion of the Frog Pond, (2) a connector canal to convey water from L-31W to C-111 below S-175 and S-177, and (3) an increase in the size of the S-332E pump station, and the careful placement of the C-111N spreader canal. We believe that alternative plan 6A, refined as indicated, is superior to other alternative plans evaluated by the Corps of Engineers for the C-111 project. It has much greater potential for meeting the objectives for Everglades restoration, including re-establishing higher stages in headwater marshes of Taylor Slough, eliminating damaging flood control releases through S-197 into Manatee Bay, and improving the volume, distribution and timing of freshwater flows into eastern Florida Bay.

The addition of a detention/retention cell in the central Frog Pond area is necessary to meet the project's objective of restoring more natural water levels in the Taylor Slough headwaters while providing the authorized level of flood control in the developed areas east of the C-111 canal. We recommend that the L-31W borrow can be retained between S-174 and S-332, so it can be used as an outflow system to the upper detention/retention cell. In this way, excess runoff could be released as overbank flow along the entire

reach of the north-south portion of L-31W, or be discharged through the existing S-332 pump station. The proposed S-332D pump station should be located at a point where it can discharge into the top end of this lower (Frog Pond) detention/retention cell. The excess outflow from this cell would be released via S-175 and the existing lower L-31W canal. Much of the land in the western three sections of the Frog Pond represent the original central flow-way of the Taylor Slough watershed. The L-31W canal was aligned in its present location to restore water levels to this area. Removing the L-31W levee system, but retaining the north-south reach of the canal, will allow the delivery of water directly into this original trough, and restore sheetflow along the natural topographic gradients in the upper Taylor Slough basin.

The primary route of canal flow to the lower C-111 basin should be via the lower (Frog Pond) detention/retention cell and the new connection canal between L-31W and C-111. This will provide the same benefits of improved flow timing and water quality to the wetlands of the lower C-111 basin, as is proposed for the Taylor Slough basin. C-111N should be located far enough north as possible to restore public lands north of the new canal without flooding private lands closer to Florida City. The plan for a levee immediately north of the spreader canal should be re-examined, since this will limit the ability to spread water into the public wetlands upstream of the spreader canal. This levee could be better located at the northern extent of the public lands, as a way of protecting the developed areas south of Florida City. Backfilling the lower C-111 Canal below S-18C appears to provide benefits through direct restoration of wetlands and would also help disperse water by sheetflow. The Department recommends that this project feature be fully considered. Also, the capacity of the S-332E pump should be enlarged to 250 cfs rather than 50 cfs as a way of eliminating dependency on the lower C-111 basin and instead reestablishing sheetflow to the marshes south of C-111N.

The Department requests that additional improvements be evaluated during the detail design and operational planning stages of the C-111 project. These include: (1) redesign of the eastern end of C-111N so that water can be delivered east of U.S. Highway One into the "Triangle lands" (contingent upon public acquisition of these lands and the location of new culverts under the highway), (2) permanently severing the connection to the lower portion of C-111 if the enlargement of S-332E can replace the existing gravity drainage, and (3) connecting the L-31W tieback levee and the levee system proposed for the 8.5 square mile area. The "spreader canal" feature designed to restore hydroperiod to the hypersaline Triangle Lands east of U. S. Highway 1 should be extended under U. S. Highway 1 in order to maximize environmental benefits (enhancement/restoration of approximately 8,000-10,000 acres of wetlands) from this project feature. The spreader canal should be positioned as far to the north as possible to maximize this benefit. The Florida DOT originally included provisions for the

"spreader canal" in their U. S. Highway 1 widening proposal with the Federal Highways Administration. The spreader canal was to be located at the site of an underpass for the Florida panther, proposed for Mile Marker 122.5. The Department understands that FL DOT is interested in cooperating with the Corps in extending the "spreader canal" under U. S. 1 to the Triangle Lands. Therefore, the Department recommends the Corps continue to investigate opportunities to include this significant ecological restoration component as a project feature.

The adoption of plan 6A may require a relatively small boundary adjustment to Everglades National Park immediately north of the Frog Pond. The National Park Service would support such an adjustment. We feel there is merit in conforming the Park boundary to the western edge of the structures incorporated in the final C-111 GRR. We would like to discuss this possibility with the Corps once final action has occurred on the GRR.

The Department recognizes that the success of the C-111 project will depend on the combination of structural and operational changes that are made and on the process by which operational decisions are implemented. The Department proposes that a three-party agreement between the Corps, Interior (NPS and FWS), and the Local Sponsor be required and used to assure that the new structures are operated to maximize ecological restoration to Everglades National Park and the Triangle Lands, and assure that the project has no adverse impacts on endangered and threatened species in the area. Any operation of the system that causes unnatural hydrological effects (for example, seepage from Park marshes to the east caused by low canal stages, or dumps of fresh water into the estuaries), or that prevents cross-basin transfers of water that may be required to meet restoration requirements (as may be the case with northward pumping of 8.5 sq. mile seepage water) will contribute to long term ecological damage to the Park and related wetlands.

The Department notes no clear distinction between the initial predictions of environmental responses that were conducted as part of the pre-construction planning and the follow-up evaluations and monitoring that occur during and following the construction phase. It is essential that a systematic and comprehensive hydrological and ecological monitoring plan be put in place prior to initial construction. We recommend that, at a minimum, an outline of a monitoring plan, with responsible parties identified, be provided in the Final GRR/EIS for review. Output from hydrological models recently used in the assessment of the C-111 project alternatives have shown hydrological effects as far west as Shark Slough, and it must be assumed that the Modified Water Deliveries project is equally as likely to affect hydropatterns in Taylor Slough and the C-111 basin.

A plan for conducting environmental evaluations of alternative operational plans, and for monitoring environmental responses during and following the construction phases, must be elaborated in more detail during operational planning. Future C-111 project planning documents should show a clear distinction between the predictions of environmental responses among alternative plans, which are developed as part of pre-construction planning, and the follow-up evaluations and monitoring that occur during and following the construction process. It is our view that although the species and community models and other assessment protocols are essential tools for predicting environmental responses during the planning phases of the project, they do not provide definitive measures of these environmental responses. It is essential that a systematic and comprehensive hydrological and ecological monitoring program be put in place prior to the completion of operational plans, and that improvements in design and operational plans be treated as an on-going process, based upon ecological responses detected during regular evaluations of the monitoring data. The Department would like to work closely with the Corps of Engineers to develop and implement the required monitoring program.

The Fish and Wildlife Service has concurred with the Corps of Engineers' December 9, 1993 "no effect" determination for the snail (Everglades) kite, wood stork, bald eagle, Eastern indigo snake, American crocodile, and the Florida panther under Section 7(a)(2) of the Endangered Species Act, for the footprint of the structural changes and operational features thus far evaluated. However, the Service is unable to evaluate effects on the Cape Sable sparrow at this time, except for construction features, and a Biological Opinion may be necessary when operational plans are developed. The Corps of Engineers and other cooperating agencies must soon determine what these operational changes will be, and begin the process of evaluating potential ecological responses to the different operational alternatives.

The Fish and Wildlife Service will submit a Fish and Wildlife Coordination Act Report, fully coordinated with the National Marine Fisheries Service and the State of Florida, upon receipt of the results of the environmental investigations of the National Park Service. In accordance with the Scope of Work between the Corps of Engineers and the National Park Service, these peer reviewed scientific studies will form the basis of the Secretary of the Interior's report to Congress as required by Sec. 2(b) of the Act.

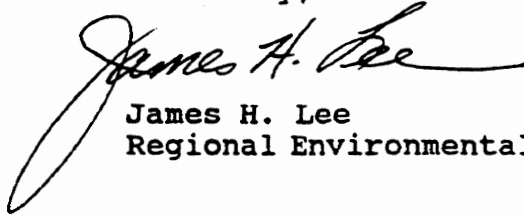
The Department continues to view the C-111 project as an essential step for bringing about ecological restoration in the freshwater marshes and estuaries, including Florida Bay, in Everglades National Park. We remain pleased with the rapid pace in planning for the improvements in the Taylor Slough/C-111 basin.

The staff contact within the Department for questions regarding the Endangered Species Act and the Fish and Wildlife Coordination Act

is David Ferrell, Fish and Wildlife Service, Vero Beach, FL (407-562-3909), and for hydrological and ecological issues affecting Everglades National Park is Robert Johnson and John Ogden, respectively, National Park Service, Homestead, FL (305-242-7800).

Thank you for the opportunity to comment on this water resources and ecosystem restoration project. We look forward to continued close coordination throughout all phases of project planning, construction and evaluation.

Sincerely,



James H. Lee
Regional Environmental Officer

CC: FWS, RO, ATL
NPS, RO, ATL
Everglades NP, FL
FWS, Vero Beach, FL
FWS, Jacksonville, FL
USGS, Tallahassee, FL
NBS, Gainesville, FL
OEPC, Washington. DC



United States Department of the Interior

OFFICE OF THE SECRETARY

Office of Environmental Affairs
Richard B. Russell Federal Building
75 Spring Street, S.W.
Atlanta, Georgia 30303

February 3, 1994

ER-94/15

Mr. A. J. Salem
Chief, Planning Division
Jacksonville District
U. S. Army Corps of Engineers
P. O. Box 4970
Jacksonville, Florida 32232-0019

Dear Mr. Salem:

This letter provides the combined comments of the Agencies of the U. S. Department of the Interior on the Preliminary Draft of the "Integrated General Reevaluation Report and the Environmental Impact Statement" for the Canal 111 (C-111) Project, submitted to the Department by letter dated December 22, 1993.

The Department's last response on the C-111 project was in 1988, when the Jacksonville District issued a Draft General Design Memorandum and Environmental Impact Statement. The C-111 project at that time was primarily designed for agricultural flood damage reduction, prevention of damaging flows to Barnes Sound/Manatee Bay, and increased water flows to the park's panhandle. The report did not address restoration of Taylor Slough because the basin's problems had not been fully defined.

The Department is pleased and fully supports the current project purpose to eliminate these damaging fresh water releases, and to begin the ecological restoration of Taylor Slough, the C-111 basin, the U.S. Highway One/Card Sound triangle and eastern Florida Bay. And as now proposed, the project would greatly assist in the overall larger issue of ecosystem restoration of the Everglades.

The Department understands that the Corps' planning schedule must be expedited so that a report can be released for public comment in February, 1994. We support this expedited process, and offer the following comments to assist in future project planning, and to insure that the project will provide the maximum level of ecological restoration for this region.

We are encouraged that several of the alternative plans, specifically numbers 4 and 6, and the National Park Service's number 8, contain structural requirements with the potential to produce favorable environmental results, by spreading water throughout the C-111 basin and

by creating a hydrological transition zone between areas that must be managed as natural wetlands and the eastern developed areas.

Of these three alternative plans, the Department considers that plan 8 has by far the greatest potential for meeting the ecosystem restoration goals for the region in question, including the full length of Taylor Slough and eastern Florida Bay. Only plan 8 combines the structural features of (1) a transition zone of water detention/retention areas along the L-31N and L-31W alignments, (2) a series of relatively small capacity pumps along L-31N for spreading water across the Taylor Slough headwaters, and (3) the elimination of C-109, C-110 and C-111 below C-111E. The creation of a hydrological transition zone, to provide transition of water levels from high stages in the Everglades to lower stages in the eastern developed areas, may be essential for meeting the restoration objectives set for eastern Everglades National Park including eastern Florida Bay. The Department also suggests that the elimination of lower C-111 will require a 500 cfs pump at the western end of the proposed East-West Spreader Canal at C-111E.

Additional information on the characteristics of the proposed plan 8 are contained in the technical report from Everglades National Park, SFNRC 93-4, submitted to the Corps of Engineers as part of the Park's evaluation of alternative plans 1 through 7. Because this NPS report contains an important assessment of hydrological alternatives 1-7, and it proposes an improved plan (number 8) the Department requests that it be cited as a supporting reference to these comments in the February, 1994, revision of the draft C-111 report.

Important features of plan 8 include structural and operational modifications outside of the study area of the C-111 project, and within the region of the Modified Water Deliveries to Everglades National Park project. Because ecological restoration in both of these areas may require cross basin water transfers, and an integrated plan of operations, the Department requests that the Corps take the lead in creating an inter-agency team to address issues associated with the integrated management of these two projects.

The success of Plan 8, or any other structural plan, will depend on the development of revised operational criteria for the northeast Shark Slough, Taylor Slough and C-111 basins. For example, the National Park Service's hydrological assessment of the alternative plans shows that plans 2 through 6 lower wet season water levels in the L-31N canal, and throughout much of the eastern developed areas, to levels well below those predicted for the base condition. Water budget computations indicate that this practice leads to continued over-drainage of the Rocky Glades and northern Taylor Slough wetlands, which in turn reduces the volume of water that can flow naturally into the lower Taylor Slough and Florida Bay systems. Low wet season water levels in the L-31N, C-111, and coastal canals also cause massive seepage losses to the east.

These changes in the structural capacities and canal design conditions must proceed without delay. Significant changes in operational policies must follow to assure success. Larger pump capacities must be balanced by increases in normal canal operational stages in order to avoid drainage beyond the authorized levels of flood protection, and risk increased damage to natural resources in the Taylor Slough and eastern Florida Bay regions. Increased

canal operational stages will allow more of the wet season runoff to be stored in the adjacent aquifer, which will reduce dry season supplemental demands. Higher wet season canal stages also reduce seepage losses from the wetlands, which provides for higher water levels in the adjacent marshes and helps to create the hydrological gradient necessary for moving sheet flow into the estuaries.

The success of the C-111 project will depend on the combination of structural and operational changes that are made, and on the process by which operational decisions are made. The Department proposes that a three-party agreement process be required and used to assure that the new structures are operated to maximize ecological restoration to the Park and other natural wetlands in the region. We should not build or operate a system that can increase flood protection east of the Park if that increased protection causes any ecological damage to the Park or to other regional wetlands (for example, seepage from Park marshes to the east caused by low canal stages; dumps of fresh water into the estuaries), or that prevents cross basin transfers of water that may be required to meet restoration requirements (as may be the case with northward pumping of 8 1/2 sq. mile seepage water).

An intensive ecological and hydrological assessment of a range of alternative operational criteria will be evaluated by the National Park Service during 1994, as part of the C-111 project planning process. We should expect to propose possible structural refinements and the development of an initial set of operational criteria based upon the results of these assessments. The Department further suggests that we must be able to continue to refine operational criteria for the L-31 and C-111 systems as our ecological understanding of the region improves. An iterative process based on a three party agreement will allow operational criteria to evolve as our knowledge improves.

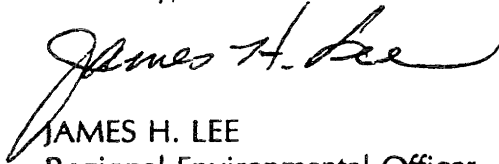
The Fish and Wildlife Service will provide specific recommendations on this project in accordance with the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 S.S.C. 661 et seq.) and Section (7) (a) (2) of the Endangered Species Act, as amended (16 U.S.C. 1531 et seq.) in their Fish And Wildlife Coordination Act report anticipated to be completed this spring. The Fish and Wildlife Service concurs with the Corps of Engineers' December 9, 1992 "no effect" determination for the snail (Everglades) kite, wood stork, bald eagle, Eastern indigo snake, American crocodile, and the Florida panther under Section 7(a) (2) of the Endangered Species Act at this time. While the Fish and Wildlife Service anticipates minimal effects on the Cape Sable sparrow, a Biological Opinion may be required when operational plans are developed in the future.

The Department notes that the preliminary GRR/EIS lacks an ecological monitoring plan. We recommend that, at a minimum, an outline of a monitoring plan, with responsible parties, be provided in the Draft GRR/EIS for review.

Everglades National Park has been assigned the lead responsibility to coordinate the preparation of comments for the Department of Interior. Please do not hesitate to contact the park with any questions regarding these comments.

Thank you for the opportunity to comment on this water resources and ecosystem restoration project. We look forward to continued close coordination as project plans progress.

Sincerely,



JAMES H. LEE
Regional Environmental Officer

cc: Bill Ott
Bureau of Indian Affairs
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United States Department of the Interior

FISH AND WILDLIFE SERVICE
P.O. BOX 2676
VERO BEACH, FLORIDA 32961-2676

January 19, 1994

Colonel Terrence C. Salt
District Engineer
U.S. Army Corps of Engineers
P.O. Box 4970
Jacksonville, FL 32232-0019

Attn: Planning Division

RE: C-111

Dear Colonel Salt:

The U.S. Fish and Wildlife Service (Service) has preliminarily reviewed the alternative project plans for the revised Canal-111 project as part of the Central and Southern Florida Flood Control Project. We are aware of the progress made thus far on this renewed study. This report is submitted in accordance with the provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

We have had a representative working with the Environmental Evaluation Team for the C-111 for the past several months. The Team is composed of representatives from the Corps of Engineers, Fish and Wildlife Service, National Park Service, Florida Game and Freshwater Fish Commission, National Audubon Society, and the local sponsor, the South Florida Water Management District.

While we would normally review Federal projects after completion of environmental studies and as operational plans were being finalized, we concur with the evaluation methodology employed for this study. These methods are based on previous biological research results undertaken in Everglades National Park.

Several of the alternatives presented in the latest Corps of Engineers plans (alternatives 3 through 6) are consistent with the original environmental objectives the Service has for this project, specifically:

- 1) reduce freshwater discharges to Barnes Sound as much as possible;
- 2) establish sheetflow across the marshes from the area south of Florida City southward across C-111 and the panhandle of Everglades National Park to Florida Bay; and,
- 3) restore or augment flows to northeast Florida Bay by delivering water to Taylor Slough in Everglades National Park.


We appreciate the incorporation of the Service's proposal to place a "spreader canal" at the north end of "triangle" basin for flow dispersion. We also support National Park Service efforts to raise water levels in the Context Road area of the East Everglades.

While we have not made a determination on the effects of these alternatives on the endangered Cape Sable sparrow, preliminary results indicate that any changes to that endangered species' habitat are likely to be minimal. This could change if other sources of water were directed to Taylor Slough.

We would be pleased to consider any other design options, but believe several of the alternative plans presented could achieve our original environmental objectives. These alternatives will be further evaluated by the Service as they are further refined and as operational plans using more refined modeling results become available. Our final recommendations will be presented in a Fish and Wildlife Coordination Act report later this Spring.

We hope this letter satisfies your current needs pending completion of our Fish and Wildlife Coordination Report on this project. If you have further questions on this matter, please contact Joseph D. Carroll of my staff (407-562-3909).

Sincerely yours,


David L. Ferrell
Field Supervisor

ANNEX E

C-111

CULTURAL RESOURCES COORDINATION



FLORIDA DEPARTMENT OF STATE

Jim Smith
Secretary of State

DIVISION OF HISTORICAL RESOURCES

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Director's Office Telecopier Number (FAX)

January 20, 1994

(904) 488-1480

(904) 488-3353

Ms. Janice L. Hatter, Director
State Clearinghouse
Executive Office of the Governor
Room 1603, The Capitol
Tallahassee, Florida 32399-0001

In Reply Refer To:
Denise M. Breit
Historic Sites
Specialist
(904) 487-2333
Project File No. 940057

RE: Cultural Resource Assessment Request
SAI# FL9401051559C
Central and Southern Florida Project - Preliminary Draft:
Integrated General Reevaluation Report and Environmental
Impact Statement - Canal 111 (C-111)
Dade County, Florida

Dear Ms. Hatter:

In accordance with the provisions of Florida's Coastal Zone Management Act and Chapter 267, Florida Statutes, as well as the procedures contained in 36 C.F.R., Part 800 ("Protection of Historic Properties"), we have reviewed the referenced project(s) for possible impact to historic properties listed, or eligible for listing, in the National Register of Historic Places, or otherwise of historical or architectural value.

A review of the Florida Site File indicated that there are several tree islands in the general vicinity of the project area. It is the recommendation of this office that if the tree islands will be impacted by any construction activities (i.e., new canals, pump stations, detention pools, etc.), they should be subjected to a systematic, professional archaeological survey prior to the commencement of such activities. In addition, changes in the water volumes and levels should be monitored to determine if any tree islands or oak hammocks are being affected by the flooding. If it is evident at this time or becomes evident in the future that the referenced topographical features will be impacted, they should be subjected to a survey such as that described above. The purpose of these surveys will be to locate and assess the significance of historic properties present. The resultant survey report must be forwarded to this agency in order to complete the process of reviewing the impact of this proposed project on historic properties. We note that the above stipulations are cited in the project document.

