

APPENDIX C

Pertinent Correspondence For The Lake Okeechobee Regulation Schedule Study

U.S. Army Corps of Engineers
Jacksonville District

August 2006

Scoping Correspondence



DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
P.O. BOX 4970
JACKSONVILLE, FLORIDA 32232-0019

21 July 2005

REPLY TO
ATTENTION OF

Planning Division
Environmental Division

TO WHOM IT MAY CONCERN:

The U.S. Army Corps of Engineers (Corps), Jacksonville District, is beginning preparation of a Draft Supplemental Environmental Impact Statement (DSEIS) for the Lake Okeechobee Regulation Schedule Study (LORSS) of the Central and Southern Florida (C&SF) Project for Flood Control and other purposes, Lake Okeechobee, Florida. The DSEIS will supplement the Final Environmental Impact Statement for the LORSS prepared in 2000.

Lake Okeechobee is located in south-central Florida, about 60 miles south of Orlando, and 40 miles northwest of Miami, within Okeechobee, Glades, Palm Beach, Martin, and Hendry Counties (Figure 1, location map). The area of interest includes a large watershed north of the lake, the lake itself, and several downstream natural ecosystems (St. Lucie Estuary, Caloosahatchee Estuary, Everglades Protection Area, Lake Worth Lagoon), as well as large agricultural and urban areas that use water from the lake (Figure 2, study area map). The lake receives water from the Kissimmee River and other tributaries located to the north and west, and discharges water primarily to the west, east, and south, via drainage canals that are part of the Central and Southern Florida Flood Control Project. The lake has multiple purposes including flood control, navigation, water supply, recreation, and habitat for fish and wildlife.

The current regulation schedule, Water Supply and Environment (WSE), was the preferred alternative in the LORSS FEIS and was approved in July 2000 for the regulation of Lake Okeechobee. The WSE regulation schedule and the Operational Guidelines Decision Trees incorporate tributary hydrologic conditions and climate forecasts into guidelines for managing Lake Okeechobee discharges and water levels. This logic-driven regulation schedule balances the various purposes of flood storage, water supply, fish and wildlife resources, and water delivery to the St. Lucie and Caloosahatchee estuaries. The unusual range of weather conditions occurring since implementation of the WSE regulation schedule and the lessons learned as a result, have indicated that modifications to WSE

are needed. The regulation schedule would benefit from greater flexibility in achieving optimal lake levels and optimal discharges to various downstream parts of the C&SF system.

The DSEIS will analyze reasonable alternatives to the WSE regulation schedule, including the WSE, or "no action" alternative, to regulating lake levels and discharges to various parts of the downstream system. This study will consider operational changes to water management structures that discharge water from the lake as well as criteria used to determine those operations. Any operational changes will also consider current and planned water management activities within the Kissimmee River Basin. No new structural features will be considered except those already embedded within the South Florida Water Management Model.

Specific issues anticipated include concern for: municipal, agricultural, and industrial water supply, continued flood protection, protection of the lake's environmental resources and its downstream estuaries, water quality, fish and wildlife habitat, endangered and threatened species, and any issues identified through scoping and public involvement.

At this time, we welcome your views, comments and information about environmental and cultural resources, study objectives and important issues within the described study area. Letters of comment or inquiry should be addressed to the letterhead address to the attention of the Planning Division, Environmental Branch, Special Projects Section, and received by this office within sixty (60) days of the date of this letter.

Sincerely,


Stuart J. Appelbaum
Chief, Planning Division

Enclosure

vegetation, tussock formation and organic build-up on lake bottoms.

Scoping: Scoping public and agency comments on this work will take place from June 2005 to August 2006, by means of a scoping letter. In addition, all parties are invited to participate in the scoping process by identifying any additional concerns on issues, studies needed, alternatives, procedures, and other matters related to the scoping process. At this time, there are no plans for a public scoping meeting.

Public Involvement: We invite the participation of affected Federal, state and local agencies, affected Indian tribes, and other interested private organizations and parties.

Coordination: The proposed action is being coordinated with the Fish and Wildlife Service (FWS) under Section 7 of the Endangered Species act, and the Fish and Wildlife Coordination Act, and with the State Historic preservation Officer.

Other Environmental Review and Consultation: The proposed action would involve evaluation for compliance with guidelines pursuant to Section 404(b) of the Clean Water Act; application to the State of Florida for Water Quality Certification pursuant to Section 401 of the Clean Water Act; and certification of state lands, easements, and rights of way.

Agency Role: As non-Federal sponsor and leading local expert; the South Florida Water Management District (SFWMD) will provide extensive information and assistance on the resources to be impacted, mitigation measures, and alternatives.

DEIS Preparation: It is estimated that the DEIS will be available to the public on or about November 2006.

Dated: July 11, 2005.

Susan S. Lucas,

Acting Chief, Planning Division.

[FR Doc. 05-15295 Filed 8-2-05; 8:45 am]

BILLING CODE 3710-AJ-M

DEPARTMENT OF DEFENSE

Department of the Army; Corps of Engineers

Intent To Prepare a Draft Supplemental Environmental Impact Statement for the Lake Okeechobee Regulation Schedule Study of the Central and Southern Florida Project for Flood Control and Other Purposes, Lake Okeechobee, FL

AGENCY: Department of the Army, U.S. Army Corps of Engineers, DoD.

ACTION: Notice of intent.

SUMMARY: The U.S. Army Corps of Engineers (Corps), Jacksonville District, intends to prepare a Draft Supplemental Environmental Impact Statement (DSEIS) for the Lake Okeechobee Regulation Schedule Study (LORSS), Lake Okeechobee, FL. The DSEIS will supplement the Final Environmental Impact Statement (FEIS) for the Lake Okeechobee Regulation Schedule Study prepared in 2000. The DSEIS will address additional alternatives to the current regulation schedule in order to optimize environmental benefits at minimal or no impact to the competing project purposes, primarily flood control and water supply. This study will consider operational changes to water management structures that discharge water from the lake as well as criteria used to determine those operations. Any operational changes will also consider current and planned water management activities within the Kissimmee River Basin. No new structural features will be considered except those already embedded within the South Florida Water Management Model.

DATES: Comments and recommendations on this notice should be received by September 30, 2005.

ADDRESSES: Written comments should be addressed to Ms. Yvonne Haberer, Biologist, U.S. Army Corps of Engineers, Planning Division, Environmental Branch, P.O. Box 4970, Jacksonville, FL 32232.

FOR FURTHER INFORMATION CONTACT: Ms. Yvonne L. Haberer, at the address above, by electronic mail at Yvonne.l.haberer@saj02.usace.army.mil or telephone at (904) 232-1701.

SUPPLEMENTARY INFORMATION:

a. **Authorization:** Authority for this action is the Flood Control Act of 1948. It authorized the Central and Southern Florida (C&SF) Project, which is a multipurpose project that provides flood control, water supply for municipal, industrial, and agricultural uses; prevention of salt water intrusion; water supply for Everglades National Park; and protection of fish and wildlife resources.

b. **Study Area:** The study area considered to be most affected by the regulation schedule is Lake Okeechobee, particularly within the littoral and marsh areas of the lake, the St. Lucie Estuary, the Caloosahatchee Estuary, the Everglades Agricultural Area (EAA), and the Water Conservation Areas south of Lake Okeechobee. Lake Okeechobee lies 30 miles west of the Atlantic Ocean and 60 miles east of the Gulf of Mexico, in south central Florida. Lake Okeechobee is the largest lake in Florida covering

approximately 730 square miles with an average depth of 10 feet.

c. **Need or Purpose.** There have been various regulation schedules since authorization of the C&SF project in 1948. The current regulation schedule, Water Supply and Environment (WSE), was the preferred alternative in the LORSS FEIS and approved in July 2000 for the regulation of Lake Okeechobee. The WSE regulation schedule and the Operational Guidelines Decision Trees incorporate tributary hydrologic conditions and climate forecasts into guidelines for managing Lake Okeechobee discharges and water levels. This logic-driven regulation schedule balances the various purposes of flood storage, water supply, fish and wildlife resources, and water delivery to the St. Lucie and Caloosahatchee estuaries. The unusual range of weather conditions occurring since implementation of the WSE regulation schedule and the lessons learned as a result, have indicated that modifications to the WSE are needed. The regulation schedule would benefit from greater flexibility in achieving optimal lake levels and optimal discharges to various downstream parts of the C&SF system.

d. **Scoping Process.** The scoping process as outlined by the Council on Environmental Quality would be utilized to involve Federal, State, and local agencies, affected Indian tribes, and other interested persons and organizations. A scoping letter will be sent to the appropriate parties requesting their comments and concerns. Any persons or organizations requesting to participate in the scoping process should contact the U.S. Army Corps of Engineers (see **ADDRESSES**).

e. **Alternatives.** The DSEIS will analyze reasonable alternatives, including the "no action" alternative to regulating lake levels and downstream discharges to various parts of the system.

f. **Issues.** The work being performed for this study will consist of identifying the impacts (both beneficial and adverse) associated with alternative Lake Okeechobee regulation schedules and the approved regulation schedule currently in place, WSE. Studies and investigations will be conducted to provide the basis for determining the environmental and socio-economic impacts of any proposed modifications to the WSE regulation schedule.

Significant issues anticipated include concern for: Water supply, continued flood control, agriculture, protection of the lake's environmental resources and its downstream estuaries, water quality, fish and wildlife habitat, endangered and threatened species, and any issues

identified through scoping and public involvement. Lake Okeechobee is one of the most critical components of the C&SF project and achieving the right balance among the many, oftentimes competing demands on the lake, remains a difficult challenge.

The proposed action will be coordinated with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (NMFS) pursuant to Section 7 of the Endangered Species Act, with the NMFS concerning Essential Fish Habitat, and with the State Historic Preservation Officer concerning historic and cultural resources.

g. Agency Role. The Corps is the lead agency for this action. However, the non-Federal sponsor, and leading local expert, the South Florida Water Management District will provide extensive information and assistance on the resources to be impacted, mitigation measures, and alternatives.

h. Draft Environmental Impact Statement Availability. The DSEIS would be available on or about June 2006.

Dated: July 21, 2005.

Susan Scott Lucas,

Acting Chief, Planning Division.

[FR Doc. 05-15296 Filed 8-2-05; 8:45 am]

BILLING CODE 3710-AJ-M

DEPARTMENT OF DEFENSE

Department of the Army; Corps of Engineers

Intent To Prepare a Draft Supplemental Environmental Impact Statement (DSEIS) for the Atchafalaya Basin Floodway System, Louisiana Project, Including Flat Lake Management Unit, Beau Bayou Management Unit and Cocodrie Swamp Management Unit, and Possible Modifications or Additions to the Buffalo Cove Management Unit, Located in St. Martin, St. Mary, Iberville, and Iberia Parishes, LA

AGENCY: Department of the Army, U.S. Army Corps of Engineers, DOD.

ACTION: Notice of intent.

SUMMARY: The U.S. Army Corps of Engineers, New Orleans District (CEMVN), intends to evaluate water management features for the Atchafalaya Basin Floodway System, Louisiana Project, excluding the Henderson Lake Management Unit, to improve water quality and interior water circulation, remove barriers to reestablish north to south water flow; provide input of oxygenated low

temperature water; and reduce or manage sediment input into the interior swamp. The action is necessary due to the existing poor water quality resulting from the lack of internal circulation and oxygenated water inputs, and increased sedimentation. In addition if action is not taken, both deep-water and shallow water habitat utilized by fish and wildlife resources will continue to be lost, reduced, or degraded. The intended result of the proposed work is to prolong the life expectancy of the productive habitat (primarily aquatic and cypress tupelo habitats) that would become scarce over time by restricting or redirecting sediments, while simultaneously achieving a healthy water circulation pattern that would maintain or restore water quality and reestablish north to south water movement. This is a modification of the notice of intent posted in the **Federal Register** on July 16, 2004 (69 FR 42696).

FOR FURTHER INFORMATION CONTACT:

Questions concerning the DSEIS should be addressed to Mr. Larry Hartzog at U.S. Army Corps of Engineers, PM-RP, P.O. Box 60267, New Orleans, LA 70160-0267, phone (504) 862-2524, fax number (504) 862-2572 or by E-mail at Larry.M.Hartzog@mvn02.usace.army.mil.

SUPPLEMENTARY INFORMATION: The Corps of Engineers is initiating this DSEIS under the authority of the Flood Control Act of May 15, 1928 (Pub. L. 391, 70th Congress), as amended and supplemented. Construction of two pilot management units (Buffalo Cove and Henderson Lake) was authorized by the Supplemental Appropriations Act of 1985 (Pub. L. 99-88) and the Water Resources Development Act (WRDA) of 1986 (Pub. L. 99-662), with construction of three conditionally authorized management units—Flat Lake Management Unit, Beau Bayou Management Unit, and Cocodrie Swamp Management Unit to take place upon approval of the Chief of Engineers after evaluation of the operational success of the pilot management units. (Hereafter, the three conditionally authorized management units will be collectively referred to as “conditionally authorized management units”.) Section 601(a) of WRDA 1986 authorized the U.S. Army Corps of Engineers to carry out the recommended plan for management units as described in the Atchafalaya Basin Floodway System, Louisiana Feasibility Study and Environmental Impact Statement of January 1982, as approved by the Chief of Engineers Report dated February 28, 1983.

The Engineering Documentation Report (EDR), Buffalo Cove Pilot

Management Unit (BCMU) and supporting Environmental Assessment (EA) No. 366 and Finding of No Significant Impact (FONSI) on July 15, 2004, satisfy the requirements of the National Environmental Policy Act (NEPA) for the referenced pilot water management unit impacts. The expected results of these improvements, while beneficially effective alone, will continue to contribute to the entire comprehensive BCMU improvements in water quality and habitat that will be expanded as additional possible elements are added in the future. Because the BCMU constitutes a “pilot” management unit, both the EDR and EA No. 366 clearly identify the possibility that additional future work may be recommended in the BCMU if the analysis of the operational monitoring data supports a finding that the present EDR elements do not fully accomplish the goals and objectives of the authorized management unit project.

The preparation of the DSEIS addressed by this NOI will commence and continue concurrently with the monitored construction and operation, data collection and analysis of the BCMU water circulation improvements and sediment management initiatives (as described in EA No. 366), as well as analysis and solicitation of public and resource agency input. Monitoring of the 10 elements and the elements constructed for the Bayou Eugene Prototype Model Test Modification (“Bayou Eugene”), comprising the water circulation and sediment management initiatives (described in EA No. 366) will continue for a period of 5 years following the construction of the last of the elements described in EA No. 366. If data collected during and prior to the end of the 5 year monitoring period indicates that modifications or relocations of elements within the bounds of the original project rights-of-way or areas of influence are needed to achieve the goals and objectives for fish and wildlife enhancement, a report will be prepared and submitted for approval. The DSEIS will be prepared following the incorporation and analysis of the data from the completed construction monitoring of the 10 elements as described in the approved EDR and EA No. 366. Construction monitoring described in the approved EDR is scheduled for completion 5 years after the construction of the last of the 10 elements is completed. Based on this completion date, construction monitoring and the concurrent DSEIS are currently estimated to be completed in 2012. The DSEIS will utilize the monitoring data to evaluate the

SAI# FL200507251310C

USACE, Jacksonville District - Scoping Notice - Draft
Supplemental Environmental Impact Statement for the Lake
Okeechobee Regulation Schedule Study (LORSS) - Central and
Southern Florida Flood Control Project Area, Florida.

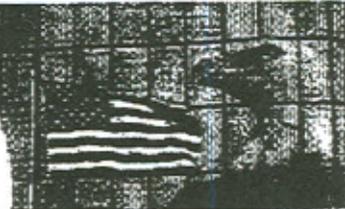
The above-referenced project was received by the Florida State Clearinghouse on 7/22/05, and has been forwarded to the appropriate reviewing agencies. The clearance letter and agency comments will be forwarded to you no later than 9/20/05, unless you are otherwise notified. Please refer to the State Application Identifier (SAI) number in all written correspondence with the Florida State Clearinghouse regarding this project. If you have any questions, please contact the Clearinghouse staff at (850) 245-2161.



Florida

Department of Environmental Protection

"More Protection, Less Process"



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Project Information	
Project:	FL200507251310C
Comments Due:	08/28/2005
Letter Due:	09/20/2005
Description:	DEPARTMENT OF THE ARMY, JACKSONVILLE DISTRICT CORPS OF ENGINEERS - SCOPING NOTICE - DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT FOR THE LAKE OKEECHOBEE REGULATION SCHEDULE STUDY (LORSS) - CENTRAL AND SOUTHERN FLORIDA FLOOD CONTROL PROJECT AREA, FLORIDA.
Keywords:	ACOE - DSEIS, LAKE OKEECHOBEE REGULATION SCHEDULE STUDY (LORSS)
CFDA #:	12.106
Agency Comments:	
COMMUNITY AFFAIRS - FLORIDA DEPARTMENT OF COMMUNITY AFFAIRS	
FISH and WILDLIFE COMMISSION - FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION	
<p>The desired area of coverage of spikerush in Lake Okeechobee is at least a minimum of 17,600 acres, based on 1973 estimates (Milleson 1987). A desirable goal is to reduce the acreage of torpedo grass to no more than 520 acres (Schardt and Nail 1982). The desired areal coverage of willow is a minimum of 10,000 acres, based on the 1973 estimate (Milleson 1987). The desired Lake Okeechobee bulrush coverage should be no less than 8,800 acres (Schardt and Nail 1982). Operational schedules should include consideration of conditions described above. Water levels in Lake Okeechobee should be kept between 12.0 feet and 15.5 feet NGVD, with these low and high water levels being met every three years. Annually, water levels within Lake Okeechobee should be dropping from November through June, stable through August, and peaking in October. This pattern is not inconsistent with that derived on an interagency basis by the Regional Evaluation Team of the Restoration, Coordination and Verification team under CERP. Discharges to the Caloosahatchee and St. Lucie rivers, and WCAs should be timed to match natural hydrologic cycles as much as possible (i.e., major discharges should occur during annual wet periods). Discharge events to the St. Lucie Estuary greater than 2,000 cfs and flows greater than 4,500 cfs to the Caloosahatchee Estuary should be avoided to minimize adverse effects on estuarine ecology. In regard to the Caloosahatchee Estuary, minimum fresh water flows of 800 cfs in the spring and 1,200 cfs in the fall are needed to maintain optimum salinities for submerged aquatic vegetation (FWC Lake Okeechobee Issue Team, unpublished data).</p>	
STATE - FLORIDA DEPARTMENT OF STATE	
No Comment/Consistent	
TRANSPORTATION - FLORIDA DEPARTMENT OF TRANSPORTATION	
<p>District One requests that the Environmental Assessment consider and address any impacts to downstream structures, as well as stormwater management systems having outfalls to the affected waterways. The study should also address both the CERP and Acceler8 projects that are currently ongoing throughout the boundaries of SPWMD. The amount of water moving through some of the systems could have a potential to impact bridges, culverts and cross drains that convey water from one side of the State Road System to the other. The bridges and culverts should be taken into consideration in the model. Future roadway improvements such as adding lanes should also be considered in the model.</p>	
ENVIRONMENTAL PROTECTION - FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION	
<p>DEP notes that the comments provided during its review of the proposed temporary deviation from the Water Supply and Environment (WSE) regulation schedule for Lake Okeechobee are still valid. DEP recommends that the specific goals and objectives for managing the Lake's resources should reflect a balance of all competing needs and uses. Staff has provided specific recommendations on lake water levels and releases to the estuaries. Future regulation schedules should include sufficient flexibility to deal with unexpected events, adequately address environmental needs, incorporate better models/tools, and anticipate the completion of future CERP projects.</p>	
SOUTH FLORIDA WMD - SOUTH FLORIDA WATER MANAGEMENT DISTRICT	
<p>The SPWMD, as a local sponsor of the Central and Southern Florida Flood Control Project, will work with the USACOE on developing an acceptable regulation schedule. Prior to transmittal of formal comments to the USACOE, SPWMD staff will be working closely with the SPWMD's Water Resources Advisory Committee, Lake Okeechobee Committee, to develop a more detailed response. Transmittal of the draft response to the USACOE is scheduled for consideration by the SPWMD's Governing Board at its October 12, 2005 Governing Board meeting.</p>	

COUNTY: ALL
SCH-CORPS
2005-7981

DATE: 7/22/2005
COMMENTS DUE DATE: 8/26/2005
CLEARANCE DUE DATE: 9/20/2005
SAI#: FL200507251310C

MESSAGE:

STATE AGENCIES	WATER MNGMNT. DISTRICTS	OPB POLICY UNIT	RPCS & LOC GOVS
COMMUNITY AFFAIRS	SOUTH FLORIDA WMD		
ENVIRONMENTAL PROTECTION			
FISH and WILDLIFE COMMISSION			
X STATE			
TRANSPORTATION			

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OIP / OLGA

The attached document requires a Coastal Zone Management Act/Florida Coastal Management Program consistency evaluation and is categorized as one of the following:

- Federal Assistance to State or Local Government (15 CFR 930, Subpart F). Agencies are required to evaluate the consistency of the activity.
- X Direct Federal Activity (15 CFR 930, Subpart C). Federal Agencies are required to furnish a consistency determination for the State's concurrence or objection.
- Outer Continental Shelf Exploration, Development or Production Activities (15 CFR 930, Subpart E). Operators are required to provide a consistency certification for state concurrence/objection.
- Federal Licensing or Permitting Activity (15 CFR 930, Subpart D). Such projects will only be evaluated for consistency when there is not an analogous state license or permit.

Project Description:

DEPARTMENT OF THE ARMY, JACKSONVILLE DISTRICT CORPS OF ENGINEERS - SCOPING NOTICE - DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT FOR THE LAKE OKEECHOBEE REGULATION SCHEDULE STUDY (LORSS) - CENTRAL AND SOUTHERN FLORIDA FLOOD CONTROL PROJECT AREA, FLORIDA.

To: Florida State Clearinghouse

AGENCY CONTACT AND COORDINATOR (SCH)
3900 COMMONWEALTH BOULEVARD MS-47
TALLAHASSEE, FLORIDA 32399-3000
TELEPHONE: (850) 245-2161
FAX: (850) 245-2190

EO. 12372/NEPA Federal Consistency

- | | |
|--|---|
| <input checked="" type="checkbox"/> No Comment | <input checked="" type="checkbox"/> No Comment/Consistent |
| <input type="checkbox"/> Comment Attached | <input type="checkbox"/> Consistent/Comments Attached |
| <input type="checkbox"/> Not Applicable | <input type="checkbox"/> Inconsistent/Comments Attached |
| | <input type="checkbox"/> Not Applicable |

From: Division of Historical Resources
Division/Bureau: Bureau of Historic Preservation

Reviewer: James Maddox Laura L. Kammur, Deputy
SHP

Date: August 29, 2005 8.30.2005

RECEIVED
BUREAU OF
HISTORIC PRESERVATION
2005 JUL 28 P 12:06

Memorandum



TO: Bob Hall, Environmental Specialist
Florida State Clearinghouse

THROUGH: Greg Knecht, Administrator
Water Quality Standards & Special Projects Program

FROM: Kim Shugar, Herb Zebuth, & John Outland

DATE: May 13, 2004

SUBJECT: Department of the Army, Jacksonville District Corps of Engineers – Scoping Notice – Proposed Temporary Deviation from the Regulation Schedule, Water Supply and Environment (WSE) for Lake Okeechobee, Central and South Florida Flood Control Project Area

SAI #: FL04-5900C

The Department has reviewed the Scoping Notice, Proposed Temporary Deviation from the Regulation Schedule, Water Supply and Environment (WSE) for Lake Okeechobee, Central and South Florida Flood Control Project Area and offers the following comments for the U.S. Army Corps of Engineers to consider when preparing the associated Environmental Assessment.

Background

Current operational decisions for Lake Okeechobee water levels and discharges are made in accordance with the Water Supply and Environment (WSE) Regulation Schedule adopted by the U.S. Army Corps of Engineers (Corps) and the South Florida Water Management District. When adopted, the WSE Regulation Schedule appeared to offer more flexibility in managing water levels in Lake Okeechobee. This flexibility was expected to reduce harmful high water level impacts to the lake's littoral zone, and high discharge impacts to the estuaries, while having little impact on available water supply. An important element of WSE is the operational flexibility provided in Zone D of the schedule. This zone allows the operational flexibility to lower lake water levels to reduce impacts to the lake littoral zone. It allows this excess water to be delivered to the estuaries through less harmful pulse releases and to the Everglades if conditions there allow. Another very important component of the WSE Schedule is the potential water management flexibility provided by the use of long-range weather forecasting information. This tool has the potential to allow lake water level management decisions to be made to benefit the lake's ecosystem in addition to providing flood protection and water supply.

Competing uses and conflicting demands placed on Lake Okeechobee for water supply, flood control, navigation, environmental protection, and recreation are well documented. Emphasis on maintaining lake water levels to provide drought protection for agriculture and urban areas has produced prolonged periods of high water levels in Lake Okeechobee that have caused impacts to the lake's littoral marsh and the fish and wildlife resources it supports. Ensuring protection from droughts that occur about once every ten years has resulted in great environmental damage during many of the intervening years.

Mr. Bob Hall
May 13, 2004
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There are a number of reasons that high Lake Okeechobee water levels are detrimental to the health of the lake's ecosystem. Most of the lake's marshes are below 15 feet NGVD in elevation. When water levels rise to about 17 feet, storm generated wave action can destroy important plant communities within the marsh. To insure a healthy, diverse marsh community, the lake stage must recede below 13 feet on a fairly regular annual basis. Many of the marsh's diverse perennial plants cannot survive constant inundation. Germination of annual and perennial plant seeds is suppressed by inundation. Germination of seeds of the rapidly expanding cattail population is enhanced by inundation. Effective use of fire as a tool to reduce the abundance of the exotic pest torpedo grass and to eliminate accumulated cattail wrack is reduced under high water conditions. In addition, for successful wading bird feeding and nesting to occur, the lake stage must be receding below 15 feet during the spring.

High stages facilitate the movement of phosphorus-laden water from the turbid center of the lake to the edge of the littoral zone where light penetration is greater and algal blooms form more easily. In the competition for available phosphorus, higher stages give a decided advantage to bloom forming algae over the far more environmentally beneficial submerged aquatic plant community. Shading from turbidity and algal blooms resulting from prolonged higher stages can lead to the decline of these important submerged aquatic plant populations. Higher lake stages also allow nutrient rich water to move further into the littoral zone causing problems similar to those occurring in the Everglades.

Because of a deviation from WSE in 2000, low volume pulse releases to mimic rainfall were conducted to benefit the lake's littoral zone and submerged aquatic vegetation (SAV) community that were severely degraded by years of high lake water stages. This was the first time discharges from the lake had been made to solely benefit the lake's ecology. The lake's littoral vegetation and SAV responded favorably. The low volume releases and low rainfall conditions that followed also provided resource managers with an opportunity to control invasive exotics in the lake. A temporary deviation from WSE will again allow lake management action needed to correct mounting environmental problems.

During periods of high rainfall, maintaining higher lake stages for water supply have also resulted in the need for ecologically damaging high volume flood control discharges to both the St. Lucie and Caloosahatchee Estuaries. Discharges to the south to the WCAs have also resulted in adverse effects to native vegetation and wildlife. In order to protect the integrity of the dike and to prevent hurricane wind driven waves from overtopping it, the maximum height of water in the lake must be limited. A higher lake regulation schedule reduces the capacity of the lake to absorb higher than normal rainfall before this critical water level is reached. To protect the dike and surrounding land, mandatory flood control releases are required by the schedule. Such releases have caused drastic swings in estuarine salinity and resulted in significant harm to sea grasses, oysters and other benthic organisms, some fish species and other wildlife. Particularly in the St. Lucie Estuary, suspended organic material carried by the discharges settled to the bottom, smothering beneficial organisms.

Comments

Since its adoption, the WSE Regulation Schedule has failed to substantially reduce the problems described above and adequately provide the expected environmental benefits. The WSE's complex decision tree with its strict decision criteria has not been sufficiently flexible to allow management decisions to adequately react in response to changing or unexpected climatic conditions, or unforeseen environmental problems. It does not give adequate consideration to factors such as the previous year's lake level and condition of the littoral zone, the potential threat to the estuaries, or the cumulative effects of long-term environmental conditions.

Mr. Bob Hall
May 13, 2004
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The Department supports the Corps efforts associated with a proposed temporary deviation from the Regulation Schedule, Water Supply and Environment (WSE) for Lake Okeechobee, FL. However, the specific goals and objectives are not clearly presented. Lake Okeechobee needs to be managed in a manner that balances all of the competing needs, primarily the ecological systems, water supply, and flood control. When determining the need for additional low-level releases, the water managers should consider estuarine, lake and water supply conditions. The current temporary deviation allows for an "Up to Level 1 Pulse Release". This temporary deviation has been very effective in being able to release water out of Lake Okeechobee without causing any adverse environmental impacts to the estuaries.

The Department suggests that the Corps, along with other water managers, determine the maximum release that can be utilized under this temporary deviation that will not cause significant harm to the estuaries. The Corps notice does not provide information regarding the anticipated rate of discharge to the estuaries or what lake water levels will trigger such releases. However, we suggest that lake water levels be managed to try to meet an annual hydrograph of 12.5 to 15.5 NGVD using low volume releases that mimic discharges during the annual wet season (May through October). Maximum flows should be less than 2000 cfs to the St. Lucie estuary and less than 4500 cfs to the Caloosahatchee Estuary to minimize adverse effects on estuarine ecology. These flow rates may need to be varied as local basin inflows vary. Salinity impacts to the estuaries result from a combination of lake and local basin discharges. Estuarine salinity monitoring should be implemented to allow real time adjustments to be made. To reduce the occurrence of damaging high salinity conditions in the Caloosahatchee Estuary, flows of 800 cfs in the spring and 1200 cfs in the fall are suggested for consideration.

Until construction of the projects within CERP that are intended to address lake level problems, the temporary deviation from the WSE Regulation Schedule is the best option to try to optimize the environmental benefits and reduce environmental damage achievable through adjustments to the lake regulation schedule. Increased flexibility is needed to allow water managers to release water from Lake Okeechobee when WSE does not call for releases for environmental benefits. This activity has the potential to benefit the lake's littoral zone, as well as lessen future damaging regulatory releases to the estuaries. Additionally, the WSE schedule should be flexible enough to allow for the incorporation and/or use of better tools as they become available, such as weather prediction models.

For the long term, revision of the WSE Regulation Schedule should be considered. Any revision should permanently add the needed flexibility to deal with unexpected events and adequately address environmental needs. This flexibility should be sufficient to eliminate the need for future "temporary deviation" from the WSE Regulation Schedule. It should also anticipate the completion of reservoir projects now in the planning stage and after completion, be able to take full advantage of their availability and adapt to changes in the water management system resulting from the implementation of CERP projects coming online.

If you have any questions regarding these comments, please feel free to contact Kim Shugar at (561) 681-6706.

cc: Kim Shugar (email)
Herb Zebuth (email)
John Outland (email)
Jose Calas (email)
Tim Gray (email)
Stacey Feken (email)

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September 15, 2005 (850)488-6861 TDD (850)488-9542
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SEP 19 2005

OIP/OLGA

Mr. Stuart J. Appelbaum
Planning Division, Environmental Branch
Special Projects Section
U.S. Army Corps of Engineers
P.O. Box 4970
Jacksonville, Florida 32232-0019

Re: FL200507251310C, Scoping Notice for
the Draft Supplemental Environmental
Impact Statement for the Lake Okeechobee
Regulation Schedule Study

Dear Mr. Appelbaum:

The Florida Fish and Wildlife Conservation Commission's Fish and Wildlife Research Institute has coordinated a review of the Draft Supplemental Environmental Impact Statement for the Lake Okeechobee Regulation Schedule Study and provides the following comments to consider in developing a draft Environmental Impact Statement under the National Environmental Policy Act.

Background and Project Description

The construction of a levee around the perimeter of Lake Okeechobee isolated the system from its historical floodplain. Today, the major lake outflows are through dredged channels that deliver water to the St. Lucie Estuary and Caloosahatchee Estuary, and into the WCAs. Anthropogenic alteration of water flow direction, timing of releases, and duration of discharges have greatly affected the ecological processes in these ecosystems. Perturbations have occurred at all trophic levels.

The detrimental environmental impacts to Lake Okeechobee and the St. Lucie and Caloosahatchee estuaries increased when water levels in Lake Okeechobee were increased by two feet in 1978 in response to implementation of a 15.5-foot to 17.5-foot National Geodetic Vertical Datum (NGVD) regulation schedule. This change in the target lake depth was "created in an effort to store a greater amount of water, available during wet periods, for use during subsequent extended dry periods" (U.S. Army Corps of Engineers [USACE] 1996). The lake levee approximately follows the 15.0-foot (15-ft) NGVD contour. Water levels above this height

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result in little increase in lake surface area, contributing primarily to increased water depth and storage. Prior to implementation of this schedule, the lake attained a stage ≥ 15.0 ft NGVD only 16% of the time; however, the two-foot schedule increase resulted in a stage ≥ 15.0 ft NGVD 54% of the time (Trimble and Marban 1988). Greater water depths have devastated woody plants, and submerged and emergent macrophytes, resulting in habitat destruction and alteration of primary production in the Lake Okeechobee ecosystem (Lake Okeechobee Littoral Zone Technical Group [LOLZTG] 1988; South Florida Water Management District [SFWMD] 2002).

Higher lake stages also result in heavy discharges that imperil the sensitive estuarine ecosystems of the St. Lucie and Caloosahatchee rivers (USACE 1999). Managed discharges south to the WCAs also have resulted in undesirable ecological changes. During dry years, water demand from the Everglades Agricultural Areas and developed areas capture water prior to it reaching the northern Everglades. This has resulted in the northern sections of WCAs-1, 2, and 3 being dryer than normal, and is manifested by undesirable vegetative changes, soil oxidation, and potentially devastating wildfires. Conversely, large-volume discharges to the WCAs during high-water periods are often combined with discharges from the EAA and urban areas resulting in too much water being delivered to the area. This can negatively impact alligator nesting, wading bird foraging and nesting success, and a variety of natural habitat conditions. These effects have been well documented and form one of the primary bases for the CERP effort.

In 2000, the USACE approved the current water regulation schedule (Water Supply and Environmental, or WSE) that governs the water levels in Lake Okeechobee and releases to the St. Lucie Estuary, Caloosahatchee Estuary, and the Water Conservation Areas (WCAs). Since that time, south Florida has experienced severe weather conditions, including two back-to-back hurricanes in 2004, that produced a pattern and amount of rainfall that had not been considered when the potential effects of WSE were modeled. Consequently, the USACE plans on revisiting WSE to investigate the possibility of adding increased flexibility to accommodate a wider range of rainfall conditions.

Potentially Affected Resources

Current water management practices for Lake Okeechobee occasionally are detrimental to the living resources in the lake itself, as well as in marshes, other lake and river systems, and estuarine systems tied to the lake by both natural and artificial connections. Fundamental problems for fish and wildlife resources are prolonged high water levels, and timing and volume of water releases that are not consistent with natural hydrological patterns. These problems can result in significant negative impacts to emergent and submerged vegetation, invertebrates (crabs, crayfish, and oysters), waterfowl, wading birds, Everglade snail kites, American alligators, turtles, West Indian manatees, and fishes. The timing, magnitude, duration, and quality of water in these discharges can also result in measurable negative effects on plants and animals in the WCAs and both estuaries. Long-term solutions rest in future projects for water storage and conveyance, including those in the Comprehensive Everglades Restoration Plan (CERP). These projects will eventually direct more water from the lake into the greater Everglades, and ultimately northern Florida Bay, rather than through the artificial canal systems connecting to the Atlantic Ocean and Gulf of Mexico estuaries. Until these projects are

Mr. Stuart J. Appelbaum

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completed and functional, short-term operational management changes to Lake Okeechobee water levels will better protect the important living resources of the lake and downstream communities.

Potential Effects of Alternatives to WSE

Lake Okeechobee

In Lake Okeechobee, water level management that mimics natural conditions will have the greatest benefits to plant communities. Enhancement of primary production will have cumulative positive effects as increased available energy moves through the various trophic levels. Expansion of desirable plant communities will provide increased habitat for fish and wildlife species.

Plant communities

Submerged aquatic vegetation. Submerged plants including hydrilla (*Hydrilla verticillata*), Illinois pondweed (*Potamogeton illinoensis*), and eelgrass (*Vallisneria americana*) provide food to waterfowl and manatees (*Trichechus manatus*), and influence fish species diversity and recruitment by providing spawning substrate and cover for adults, and foraging areas and protective habitat for larval and sub-adult fish. Also, these plants have a structural complexity that influences fish biomass, distribution, and predator-prey interactions. Submerged plant communities in Lake Okeechobee would benefit from a lake regulation schedule that fluctuates between 12.0 ft to 15.5 ft NGVD. Higher lake stages allow wave energy to uproot submerged plants, and produce higher turbidity that prevents adequate sunlight from penetrating the entire water column, thus reducing photosynthesis and seed germination (Donald Fox, FWC, personal observation). Desired acreage for pondweed and eelgrass, based on 1982 estimates, is approximately 4,800 acres and 2,900 acres, respectively (Schardt and Nall 1982).

Emergent vegetation: Periodic dewatering of the shallow marsh (lake level \leq 13.0 ft NGVD) would permit increased germination and expanded coverage by moist soil annual seed producers such as smartweed (*Polygonum hydropiperoides*), water grasses (millets; *Echinochloa* spp.), rushes (*Juncus* spp.), and sedges (*Carex* spp. and *Cyperus* spp.), and when coupled with gradual inundation to approximately 14.5 ft NGVD during the fall and winter, would provide enhanced waterfowl feeding opportunities. Another important shallow marsh plant community that would benefit from a similar regime is spikerush (*Eleocharis cellulosa*). Spikerush seeds germinate only under moist soil conditions and thrive under shallow inundation. Spikerush is important fish spawning and nursery habitat, and is important to wading birds, waterfowl, and the Florida snail kite as foraging habitat. Spikerush marshes are deemed important habitat for the Florida snail kite due to the abundance and accessibility there of Florida apple snails. We note that dewatering of the shallow marsh zone would also provide opportunity for torpedo grass (*Panicum repens*) control activities. Torpedo grass is an invasive exotic that has out competed much of the spikerush community and has little documented value to fish and wildlife.

Mr. Stuart J. Appelbaum

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Bulrush (*Scirpus californicus* and *S. validus*), a native emergent plant, supports high abundance and biomass of important recreational fish species such as largemouth bass (*Micropterus salmoides floridanus*), bluegill (*Lepomis macrochirus*), and redear sunfish (*Lepomis microlophus*). The bulrush community is most prevalent along the interface of the littoral zone and open water. High lake stages (>15.5 ft NGVD) permit high-energy waves to move into the bulrush community, uprooting the plants and destroying the community (Donald Fox, FWC, pers. obs.). Bulrush communities function as breakwaters, dissipating waves before they reach the more fragile submerged plants such as pondweed, celgrass, and hydrilla; however once the bulrush community in an area is eliminated, the submerged plants receive the full brunt of wave energy and are rapidly eradicated. Also, by slowing water movement, bulrush benefits submerged plants by reducing turbidity, allowing increased sunlight penetration into the water column.

Woody vegetation: A decline in willow tree (*Salix caroliniana*) communities has resulted in a decrease in available nesting sites for colonial-nesting birds and Everglades snail kites. Several active wading bird rookeries have been lost since the higher water level schedule was implemented in 1978. An increase in willow abundance would provide wading birds and Florida snail kites with stable nesting habitat. When coupled with lake levels of 13.0 ft to 15.5 ft NGVD, increased willow habitat should result in increased nesting success and fledgling numbers due to increased availability of foraging habitat and access to flooded, woody nesting vegetation.

Invertebrates

More robust and diverse plant communities should result in increased relative abundance of epiphytic and benthic macroinvertebrates. Macroinvertebrates are important food items to the American alligator (*Alligator mississippiensis*), juvenile and adult fishes, turtles, wading and shorebirds, and waterfowl. Florida applesnail (*Pomacea paludosa*) production and availability is critical to the Everglade snail kite (*Rostrhamus sociabilis plumbeus*). Staff estimates that the desired future conditions would include an increase in the relative abundance of midges (*Chironomidae*), scuds (*Amphipoda*), and other desirable species with a concomitant relative abundance decline in segmented worms (*Oligochaeta*) to < 50%, and no documented declines in macroinvertebrate species diversity.

Reptiles

A water level regime that maximizes the extent and natural diversity of the emergent marsh would be beneficial to the American alligator. A fluctuating lake level that mimics the natural hydroperiod is desirable. A relatively stable lake level from June through August would probably increase nesting success. To enhance nesting and hatchling survival of other herpetofauna, primarily freshwater turtles, in Lake Okeechobee, a lake level that follows the pre-1978 historical fluctuations from April through early-September would be optimal.

Manatees

Lake Okeechobee habitats are important to manatees, especially in summer months. High water-level differentials between the lake and surrounding canals prevent manatees from re-entering the lake through structures. Manatees that are entrapped in canals may not survive winter water

Mr. Stuart J. Appelbaum

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temperatures and can succumb to cold stress. Additionally if manatees cannot freely access the lake in summer months, gene flow between east and west coast populations may be restricted. A substantial reduction of submerged plants in Lake Okeechobee could reduce manatee food resources in the lake, and may directly affect manatee movements by forcing manatees to roam greater distances in search of food.

Estuaries

Prolonged discharges of large volumes of water to the St. Lucie and Caloosahatchee estuaries should be minimized. To reduce the potential of fish lesions in estuarine fish species in the St. Lucie Estuary, maximum discharge volumes should not exceed 2,000 cubic feet per second (cfs) at S-80 (St. Lucie Lock and Dam), or result in prolonged salinity levels below 12 parts per thousand (ppt) in the middle St. Lucie Estuary (FWC/Fish and Wildlife Research Institute [FWRI], unpublished data.). During May/June, the surface salinity at A1A bridge should not be less than 18 ppt in order to maximize the spawning activity and gamete/larval survivorship of spotted seatrout, sand seatrout, snook, and other early summer spawners. Marine/estuarine seagrasses (*Halodule wrightii*, *Halophila johnsonii*, *H. decipiens*, *H. englemanni*, *Syringodium filiforme*, *Thalassia testudinum*) should occur year-round downstream of A1A bridge (with allowable consideration for localized dry season losses of halophilid species). Sustained discharges should be minimized to lessen impacts to shellfish populations. A reduction in sustained flows also may result in an increase in sea turtle nesting in beach areas near the St. Lucie Inlet. Large volume water discharges to the Caloosahatchee Estuary can result in the loss of submerged aquatic vegetation. Of particular concern is the submerged aquatic vegetation near manatee thermal refuges. In addition to the direct loss of food resources, increased movement as the manatees search for food increases the potential for mortality associated with boat collisions and water control structure operations. To lessen fish health concerns, maximum discharge volumes should not exceed 4,500 cfs at S-79 (W.P. Franklin Lock and Dam), or result in prolonged salinity levels below 12 ppt in the middle Caloosahatchee River. Economically and ecologically crustaceans such as blue crab and shrimp use estuaries as nursery areas for juvenile development. Untimely fresh-water input into the system could wash the juveniles out of their preferred habitats into higher salinity waters or upset their osmoregulation; either case will disturb proper juvenile development. Although blue crabs can be found in low-salinity or even fresh waters, acclimation is required to maintain normal osmoregulation, and a sudden decrease in salinity can be detrimental even to adult crabs. Alternatively, withholding fresh-water release during times when the bay is expected to freshen can drive blue crabs into the rivers in search of lower salinity waters, thereby decreasing their area of available habitat; increasing their population densities, which can lead to increased aggression, mortality, and disease; and shifting fishing pressure into already congested river areas, resulting in increased user conflicts between fishermen, homeowners, and recreational boaters (Dr. Anne McMillen-Jackson, FWC/FWRI, pers. comm.).

Water Conservation Areas

The WCAs were part of the natural outflow conduit for Lake Okeechobee water, and water from the lake is essential to the health of the WCA ecosystem. Currently, flow patterns out of Lake Okeechobee have shifted from natural wet season flows in response to rainfall, to dry season flows in response to urban and agricultural demands. Impacts to the WCAs from lake flows are

Mr. Stuart J. Appelbaum

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dependant on existing hydrological conditions in the WCAs, which are heavily influenced by additional factors (i.e. ability to discharge to Everglades National Park (ENP), inflows from the EAA and urban areas, etc.). Therefore, the timing and duration of lake discharges are very important. Discharges should not occur when water levels are above the WCA regulation schedule, as determined by SFWMD. Discharges to the WCAs during the dry season (November-April) should not be large enough to cause a reversal in marsh drying patterns, which is necessary for wading bird nesting success. High phosphorus loadings resulting from man-induced hydrologic and land use modifications have degraded the water quality of Lake Okeechobee (Florida Department of Environmental Protection 2001). An additional concern is that the high nutrient load in water flowing from Lake Okeechobee and the EAA has been deemed to be detrimental to the WCAs and Everglades National Park (Davis 1994; SFWMD 1992).

Recreation

Boating access to Lake Okeechobee is best when water levels are between 12.0 ft to 15.5 ft NGVD (Donald Fox, FWC, pers. obs.). Boat ramps and access are more directly affected by low water; however, high water conditions result in boat ramps being clogged with floating vegetation, and may make floating courtesy docks at boat ramps inoperable.

Recommendations

The desired area of coverage of spikerush in Lake Okeechobee is at least a minimum of 17,600 acres, based on 1973 estimates (Milleson 1987). A desirable goal is to reduce the acreage of torpedo grass to no more than 520 acres (Schardt and Nall 1982). The desired areal coverage of willow is a minimum of 10,000 acres, based on the 1973 estimate (Milleson 1987). The desired Lake Okeechobee bulrush coverage should be no less than 8,800 acres (Schardt and Nall 1982).

Operational schedules should include consideration of conditions described above. Water levels in Lake Okeechobee should be kept between 12.0 feet and 15.5 feet NGVD, with these low and high water levels being met every three years. Annually, water levels within Lake Okeechobee should be dropping from November through June, stable through August, and peaking in October. This pattern is not inconsistent with that derived on an interagency basis by the Regional Evaluation Team of the Restoration, Coordination and Verification team under CERP. Discharges to the Caloosahatchee and St. Lucie rivers, and WCAs should be timed to match natural hydrologic cycles as much as possible (i.e., major discharges should occur during annual wet periods). Discharge events to the St. Lucie Estuary greater than 2,000 cfs and flows greater than 4,500 cfs to the Caloosahatchee Estuary should be avoided to minimize adverse effects on estuarine ecology. In regard to the Caloosahatchee Estuary, minimum fresh water flows of 800 cfs in the spring and 1,200 cfs in the fall are needed to maintain optimum salinities for submerged aquatic vegetation (FWC Lake Okeechobee Issue Team, unpublished data).

We are pleased to have the opportunity to provide input on efforts to improve the current water regulation schedule for Lake Okeechobee, and look forward to working with you to ensure benefits to Florida's fish and wildlife resources. If you or your staff would like to coordinate further on the recommendations contained in this report, please feel free to contact me at

Mr. Stuart J. Appelbaum

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850-488-6661 or e-mail me at maryann.poole@MyFWC.com, and I will be glad to help make the necessary arrangements. If your staff has any specific questions regarding our comments, please contact Ann Forstchen our FWRI office in St. Petersburg (727-896-8626; e-mail ann.forstchen@MyFWC.com).

Sincerely,



Mary Ann Poole, Director
Office of Policy and Stakeholder Coord.

map/af/tgw

ENV 1-3-2

u:\traci.wallace\FL200507251310c

cc: Lauren Milligan, Florida State Clearinghouse, FDEP
Dr. Barry Rosen, FWS, Vero Beach

Mr. Stuart J. Appelbaum
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September 15, 2005

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- USACE. 1999. Lake Okeechobee regulation schedule study: Final environmental impact statement. United States Army Corps of Engineers, Jacksonville District, FL.



Jeb Bush
Governor

Department of Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Colleen M. Castille
Secretary

September 20, 2005

Mr. Stuart J. Appelbaum, Chief
Planning Division, Jacksonville District
U.S. Army Corps of Engineers
Post Office Box 4970
Jacksonville, FL 32232-0019

RE: Department of the Army, Jacksonville District Corps of Engineers -- Scoping Notice -- Draft Supplemental Environmental Impact Statement for the Lake Okeechobee Regulation Schedule Study (LORSS) -- Central and Southern Florida Flood Control Project Area. SAI # FL200507251310C (Reference SAI # FL200404145900C)

Dear Mr. Appelbaum:

The Florida State Clearinghouse, pursuant to Presidential Executive Order 12372, Gubernatorial Executive Order 95-359, the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended, and the National Environmental Policy Act, 42 U.S.C. §§ 4321, 4331-4335, 4341-4347, as amended, has coordinated a review of the referenced scoping notice.

The South Florida Water Management District (SFWMD), as a local sponsor of the Central and Southern Florida Flood Control Project, will work with the U.S. Army Corps of Engineers (USACOE) on developing an acceptable regulation schedule. Prior to transmittal of formal comments to the USACOE, SFWMD staff will be working closely with the SFWMD's Water Resources Advisory Committee, Lake Okeechobee Committee, to develop a more detailed response. Transmittal of the draft response to the USACOE is scheduled for consideration by the SFWMD's Governing Board at its October 12, 2005, Governing Board meeting.

The Florida Department of Environmental Protection (DEP) notes that the comments provided during its review of the proposed temporary deviation from the Water Supply and Environment (WSE) regulation schedule for Lake Okeechobee are still valid. DEP recommends that the specific goals and objectives for managing the Lake's resources should reflect a balance of all competing needs and uses. Staff has provided specific recommendations on lake water levels and releases to the estuaries. Future regulation schedules should include sufficient flexibility to deal with unexpected events, adequately address environmental needs, incorporate better models/tools, and anticipate the completion of future CERP projects. Please refer to the enclosed DEP memorandum for additional information.

The Florida Fish and Wildlife Conservation Commission (FWC) recommends that the proposed operational schedules include consideration of the desired minimum areal coverage of spikerush and bulrush and reductions in areal coverage of willows and torpedo grass in Lake

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Mr. Stuart J. Appelbaum
 September 20, 2005
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Okeechobee. Water levels in the lake should be kept between 12.0 feet and 15.5 feet NGVD, with these low and high water levels being met every three years. FWC has also provided specific recommendations on the range, timing and pattern of water releases from the lake – derived on an interagency basis by the Regional Evaluation Team of the Restoration, Coordination and Verification team under CERP and the FWC Lake Okeechobee Issue Team. Please refer to the enclosed FWC letter for further information and details.

The Florida Department of Transportation (FDOT), District One requests that the draft supplemental environmental impact statement consider and address any impacts to downstream structures, as well as stormwater management systems having outfalls to the affected waterways. The study should also address both the CERP and Acceler8 projects that are currently ongoing throughout the boundaries of the SFWMD. The amount of water moving through some of the systems could potentially impact bridges, culverts and cross drains that convey water from one side of the State Road System to the other. Bridges and culverts should be taken into consideration in the model. Future roadway improvements such as adding lanes should also be considered in the model.

Based on the information contained in the public notice and the comments provided by our reviewing agencies, the state has determined that, at this stage, the above-referenced project is consistent with the Florida Coastal Management Program (FCMP). All subsequent environmental documents prepared for this project must be reviewed to determine the project's continued consistency with the FCMP. The state's continued concurrence with the project will be based, in part, on the adequate resolution of issues identified during this and subsequent reviews. The state's final concurrence of the project's consistency with the FCMP will be determined during the environmental permitting stage.

Thank you for the opportunity to review the proposed project. If you have any questions regarding this letter, please contact Ms. Lauren P. Milligan at (850) 245-2170.

Sincerely,



Sally B. Mann, Director
 Office of Intergovernmental Programs

SBM/lm
 Enclosures

cc: Greg Knecht, DEP, MS 3560
 John Outland, DEP, MS 45
 Tim Gray, DEP, Southeast District
 Jim Golden, SFWMD
 Mary Ann Poole, FWC
 Charlotte Hand, FDOT

Memorandum



TO: Florida State Clearinghouse

THROUGH: Kim Shugar, Administrator
Water Resource Management and Environmental Planning

FROM: John Outland & Kim Shugar

DATE: September 22, 2005

SUBJECT: Department of the Army, Jacksonville District Corps of Engineers - Scoping Notice - Draft Supplemental Environmental Impact Statement for the Lake Okeechobee Regulation Schedule Study (LORSS) - Central and Southern Florida Flood Control Project Area

SAI #: FL05-1310C

The Department has reviewed the Draft Scoping Notice and offers the following comments:

The Department remains supportive of the proposed evaluation of the WSE to provide more environmental benefits to Lake Okeechobee and reduce the high volume discharges to the St. Lucie and Caloosahatchee estuaries. The Department believes that there needs to be a better balance among all of the management objectives.

The Department recommends that the following items be evaluated:

- Inclusion of other lake inflow structures into the calculation of inflows;
- Incorporation of actual evapotranspiration rates to calculate net rainfall;
- Addition of triggers to the hydrologic conditions that reflect the rate of lake level increase; and,
- Modification of the stage elevations that correspond to each release zone, including the consideration of lowering all zones by one foot. Need to describe the benefits to the lake's littoral zone. Along with this item, the USACE should evaluate the potential impact to water supply and some potential mechanisms for protecting the appropriate amount of water supply.

If any structural modifications are evaluated, such as forward pumps, for providing water supply, an operational plan should be established that is protective of the lake's littoral zone.

One significant Department comment that was not addressed in the environmental assessment was our suggestion that estuarine salinity monitoring be implemented to allow for real time adjustments to be made. It seems that the CLA implementation is primarily based on flows that

Florida State Clearinghouse
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are expected to correspond to key estuarine salinity ranges. We suggest that the model be supplemented with estuarine salinity monitoring to ensure that the water releases are not causing harm to the biological resources of the estuaries.

Future modifications to the regulation schedule should allow water managers more flexibility to make real time decisions to release water from Lake Okeechobee to provide lake and estuary benefits and to incorporate improved long range weather forecasting.

If you have any questions regarding these comments, please feel free to contact Ms. Kim Shugar in the Department's Southeast District office at (561) 681-6706.

cc: Kim Shugar (email)
John Outland (email)
Tim Gray (email)
Stacey Feken (email)



Jeb Bush
Governor

Department of Environmental Protection

Marjory Stoneman Douglas Building
3900 Commonwealth Boulevard
Tallahassee, Florida 32399-3000

Colleen M. Castille
Secretary

September 26, 2005

Mr. Stuart J. Appelbaum, Chief
Planning Division, Jacksonville District
U.S. Army Corps of Engineers
Post Office Box 4970
Jacksonville, FL 32232-0019

RE: Department of the Army, Jacksonville District Corps of Engineers – Scoping Notice –
Draft Supplemental Environmental Impact Statement for the Lake Okeechobee
Regulation Schedule Study (LORSS) – Central and Southern Florida Flood Control
Project Area.
SAI # FL200507251310C (Reference SAI # FL200404145900C)

Dear Mr. Appelbaum:

The enclosed comments provided by the Florida Department of Environmental Protection were received after our prior correspondence of September 20, 2005. Please be advised that these comments do not change the state's determination that, at this stage, the proposed project is consistent with the Florida Coastal Management Program.

If you have any questions or need further assistance, please don't hesitate to contact me at (850) 245-2170.

Sincerely,

Lauren P. Milligan
Environmental Consultant
Office of Intergovernmental Programs

/lpm
Enclosure

cc: Greg Knecht, DEP, MS 3560
John Outland, DEP, MS 45
Tim Gray, DEP, Southeast District

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August 2, 2005



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County**

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Suite 4700
Kissimmee, FL 34741-5488
(407) 343-2200 Fax (407) 343-2210

Stuart J. Appelbaum, Chief Planning Division
Department of the Army
Jacksonville District Corps of Engineers
P.O. Box 4970
Jacksonville, Florida 32232-0019

Subject: Kissimmee Basin and Lake Okeechobee EIS

I have received your notices regarding the Environmental Impact Statements (EIS) for the Kissimmee Basin Structure Operating Criteria and the Lake Okeechobee Regulation Schedule Study. As you've indicated, both of these projects are part of the Central and Southern Florida (C&SF) Flood Control Project.

Flood Control is a critical concern in Osceola County. The lake regulation schedules in the Upper Kissimmee Watershed have changed very little since the original C&SF Flood Control Project in the 1950's and 60's. The South Florida Water Management District is routinely challenged to prevent flooding in our area. When we receive heavy rainfall, our lakes fill-up quickly. Many days or weeks usually pass before the District is able to regain "control" of our lakes and return them back to the mandated elevations. Our near-lake citizens are directly affected by high lakes stages. High lake stages also cause water to back-up in many of our stormwater systems, which effects the efficiency of systems well upstream and far away from our lakes.

The environmental health of our lakes is also of primary importance to our community. The C&SF Flood Control Project has had the unintended consequence of preventing our lakes from "flushing". It has been suggested that this restriction in natural lake-stage fluctuation, may be the primary cause of adverse water quality trends, the proliferation of exotic species, and other ecological deterioration. I look forward to future regulation schedules that address these concerns.

I sincerely appreciate your attention to these important projects. Please continue to keep me informed as to your progress.

Sincerely,



Edwin J. Hunzeker
Osceola County Manager

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ADA Coordination
Agenda Coordination
Art in Public Places
Audit and Management Services
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General Services Administration
Historic Preservation
Homeless Trust
Housing Agency
Housing Finance Authority
Human Services
Independent Review Panel
International Trade Consortium
Juvenile Assessment Center
Medical Examiner
Metropolitan Planning Organization
Park and Recreation
Planning and Zoning
Police
Procurement Management
Property Appraiser
Public Library System
Public Works
Safe Neighborhood Parks
Seaport
Solid Waste Management
Strategic Business Management
Team Metro
Transit
Urban Revitalization Task Force
Vizcaya Museum and Gardens
Water and Sewer

August 10th, 2005

Mr. Stuart Applebaum, Chief Planning Division
Department of the Army
Jacksonville District Corps of Engineers
Environmental Branch, Special Projects Section
PO Box 4970
Jacksonville, Florida 32232-0019

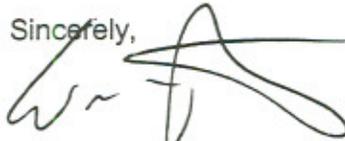
Re: Notice of Intent to publish a Draft Supplemental Environmental Impact Statement (DSEIS) for Lake Okeechobee Regulation Schedule.

Dear Mr. Applebaum:

Miami-Dade County is pleased to have the opportunity to provide input on the upcoming Lake Okeechobee Draft Supplemental Environmental Impact Statement (DSEIS). Miami-Dade County looks forward to participating in the DSEIS development process to ensure that deliveries from the Lake to Miami-Dade County for natural system, agricultural, industrial and municipal water supplies are sustained, while maintaining the appropriate levels of flood protection. Miami-Dade County also supports the installation of forward pumps to ensure continued delivery of water supplies during drought conditions, while maintaining the Lake at optimal stages.

I look forward to working with you and your staff. Please contact Roman Gastesi, Jr. in the Office of Water Management at 305-375-1260 should you have any questions regarding Miami-Dade County's concerns and issues regarding the DSEIS.

Sincerely,



William M. Brant, P.E.
Director

cc: George M. Burgess
Joseph A. Ruiz, Jr.
Roman Gastesi, Jr.
John W. Renfrow

Delivering Excellence Every Day



FLORIDA INLAND NAVIGATION DISTRICT

August 17, 2005

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ASSISTANT EXECUTIVE DIRECTOR

Ms. Yvonne Haberer, Biologist
Planning Division
U.S. Army Corps of Engineers
P.O. Box 4970
Jacksonville, Florida 32232-0019

Dear Ms. Haberer:

RE: Federal Register Notice on the Intent to Prepare a Draft
Supplemental Environmental Impact Statement for the Lake
Okeechobee Regulation Schedule

The District is in receipt of the referenced notice and would like to provide these initial comments. The District was recently established by the Florida Legislature as the "local sponsor" to the Corps of Engineers for navigation on the Okeechobee Waterway in Martin and Palm Beach Counties. Therefore, the District is now a stakeholder in decisions that affect the volume of water in Lake Okeechobee and the release of sediment laden water to the Okeechobee Waterway system, both of which could affect the navigability of the waterway.

The District would recommend that the water level of Lake Okeechobee not be lowered to less than 12.56 feet. We would also request that we be placed on your mailing list for this project so that we can remain informed of the decisions that will be made in this matter.

I would like to thank you in advance for your cooperation with our request and recommendation. Please contact me should you have questions concerning this matter.

Sincerely,

David K. Roach
Executive Director



13081 MILITARY TRAIL
DELRAY BEACH, FLORIDA 33484 -1105

1915 Celebrating 90 Years 2005

Board of Supervisors
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C. David Goodlett
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Secretary/Manager
William G. Winters
Assistant Manager
Ronald L. Crone
Attorney
Perry & Kern, P.A.

August 26, 2005

Stuart J. Appelbaum
Planning Division
Environmental Branch
Special Projects Section
Dept. of the Army
Jacksonville District USACE
P.O. Box 4970
Jacksonville, FL 32232-0019

Re: DSEIS for Lake Okeechobee Regulation Schedule Study

Dear Mr. Appelbaum:

The Lake Worth Drainage District has received your July 21, 2005 notice of the above. LWDD supports the study of the Lake schedule. The notice mentioned how the Lake serves as a multi-use water body.

LWDD again supports a schedule that may aid in the environmental health of the Lake. This measure, however, must be carefully balanced with the other uses the Lake provides, specifically, water supply.

LWDD also supports the proposed study because it is an 'operational change' and not a 'structural change' study. This implies reversibility if needed.

LWDD looks forward to reviewing future documentation and the various alternatives the USACE proposes.

If you have any questions, please contact Mr. Patrick A. Martin, P.E. of my office @ 561-819-5580.

Sincerely,

LAKE WORTH DRAINAGE DISTRICT

William G. Winters
Manager

WGW:PAM:kjr



Southwest Florida Regional Planning Council

1926 Victoria Avenue, Fort Myers,

(239)338-2550 FAX (239)338-2560 SUNCOM (239)748-2550

September 8, 2005

Planning Division, Environmental Branch, Special Projects Section
Jacksonville District Corps of Engineers, Department of the Army
P.O. Box 4970
Jacksonville, FL 32232-0019

Ladies and Gentlemen:

Thank you for the opportunity to learn about and provide comments on the measures being considered as changes to the Lake Okeechobee Regulation Schedule (WSE). Your letter of July 21st and the presentation made by your representative at the August 31st meeting of the South Florida Water Management District's Lake Okeechobee Committee have led to a number of discussions amongst Southwest Floridians who want to be involved as the process to change the regulation schedule proceeds. Thoughts at this juncture follow.

- Despite many attempts to acquire information in recent years, we do not yet have data that allows us to understand the water budget of Lake Okeechobee.
- Since the current schedule is based on 31 and 36 years of historic rainfall and associated tributary inflows into Lake Okeechobee, most of the historic data used to model Lake Okeechobee behavior is from what climatologists consider a "dry cycle." Climatologists now believe we are approximately 10 years into a 30 year "wet cycle" of the Atlantic Multi-decadal Oscillation. Given this fact, climatic cycles should to be addressed when the regulation schedule is modified.
- Historic tributary contributions to Lake Okeechobee have certainly changed over time due to land use changes in the basin. The modeling efforts must reflect current and future land uses.
- In a similar vein, agricultural water use requirements should be projected on the basis of actual water use during draught periods, rather than through the use of crop production models that do not reflect current and expected irrigation uses.
- How will the proposed forward pumps will be factored into the regulation schedule?

- While some of the possible changes to the regulation schedule (such as 'rate of lake level rise' triggers and using smaller time periods than the currently used 30 day rainfall calculation) have potential for improving the health of the Lake without compromising flood control or the health of the estuaries, others don't appear to have merit. The idea of changing the schedule lines by decreasing all zones by one foot will not provide additional storage for storm flows – something that is desperately needed to avoid damaging releases to the estuaries. Expanding Zone D by one foot (as has been discussed at public meetings as a measure to complement the forward pumping concept) would offer the needed flexibility for storage while reducing the potential for damaging releases to the estuaries. Having an additional foot of storage available, if necessary, would make the goal of a 12 foot Lake level at the end of each dry season feasible while keeping the 15.5 foot storage target at the end of each wet season.

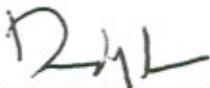
- What provisions can be made to allow for Lake water to be discharged into the Everglades Agricultural Area to prevent the Lake from approaching or exceeding the level that causes water managers to become concerned about public safety.

- What provisions can be made to allow for Lake water to be discharged into the Everglades Agricultural Area to prevent the Lake from approaching or exceeding the level that causes water managers to become concerned about public safety. It is our understanding that it is the discharge of excess water in this 700,000 acre area that causes the unbalance in the overall storage equation for the Everglades system. If property owners were required to meet the same one inch rainfall storm event retention test that is required of current development, and storage of excess water occurred within the basin in which it originated, there would be more storage options for Lake water.

Staff looks forward to participating in the process to improve the regulation schedule for Lake Okeechobee during the coming year.

Sincerely,

SOUTHWEST FLORIDA REGIONAL PLANNING COUNCIL



David Y. Burr, AICP
Executive Director

Cc: Carol Wehle, Executive Director, SFWMD
Alice Carlson, SFWMD Governing Board

Sugar Cane Growers Cooperative of Florida

POST OFFICE BOX 666

33430-0666

BELLE GLADE, FLORIDA

September 13, 2005

Mr. Stuart J. Appelbaum, Chief
Planning Division, Jacksonville District
U. S. Army Corps of Engineers
P.O. Box 4970
Jacksonville, FL 32232-0019

RE: Lake Okeechobee Regulation Schedule

Dear Mr. Appelbaum:

This is in response to the July 21st, 2005 letter concerning the Supplemental Environmental Impact Statement related to potential changes to the Lake Okeechobee Regulation Schedule. As we stated in a response to the most recent change to the schedule less than a year ago, we support the effort to make the operating rules for the Lake more flexible as long as the Lake's ability to supply water to agriculture is not impaired. Based on our review of the Environmental Assessment we have some doubt whether that is the case for this proposal.

According to a presentation made by Richard Dasher, project manager for the U.S. Army Corps of Engineers out of Jacksonville on August 31, 2005, the Corps' goal is to operate the Lake at lower pool elevations while meeting water supply requirements. It is worth noting that changes in the Lake's operations are expected to impact lake health, water quality and water supply. Furthermore, based on preliminary modeling prepared by the South Florida Water Management District operational changes to the Lake's schedule will result in larger releases to the St. Lucie and Caloosahatchee estuaries causing significant and adverse impacts as well as to Water Conservation Area-3A. The releases made south to the Everglades may be beyond the treatment capacity of Stormwater Treatment Area 3-4 potentially resulting in violations to state water quality standards.

Last fall your agency approved a "temporary planned deviation" that resulted in a change to the WSE schedule that will remain in place indefinitely. Your Environmental Assessment concluded that water supply would not be affected by that change even though your analysis showed that the change would result in a reduction of almost 200,000 acre-feet of water supply for agriculture in years where agricultural irrigation is already being rationed. By any measure, that is a significant effect on agriculture.

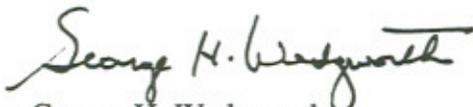
Enclosed for your review is a report on the economic impacts to agriculture resulting from the 2001 water shortage. Agricultural losses were on the order of \$100 million in that event. It is worth noting that the 2001 event included, for the first time, pumped

outflow from the Lake for water supply. Your letter states "No new structural features will be considered except those already embedded within the South Florida Water Management Model." We have no idea if the use of temporary forward pumps is embedded in the model; however, we do know that the experience in 2001 showed us all that any future change to the Lake schedule must include permitted outflow pumps at key locations to avoid catastrophic impacts to agriculture. Confirmation from the U.S. Fish and Wildlife Service that these pumps will be used as part of the Lake regulation process must be obtained prior to any lower schedule being implemented.

We have previously expressed the position with the Corps of Engineers, and the South Florida Water Management District, that any plan to modify the Lake schedule must include a revised Water Shortage Plan and the ability to secure agricultural water requirements when the Lake drops to very low levels. Without those, the changes to the Lake schedule that are contemplated will not be possible.

Based on the preliminary analysis that has already been done, we believe that a full-fledged Environmental Impact Statement under NEPA would have to be completed before modifications to the schedule can be implemented. We are happy to meet with you or your staff to discuss these issues further. Thank you for considering these comments.

Sincerely,



George H. Wedgworth
President & C.E.O.

GHW:BJM:swd

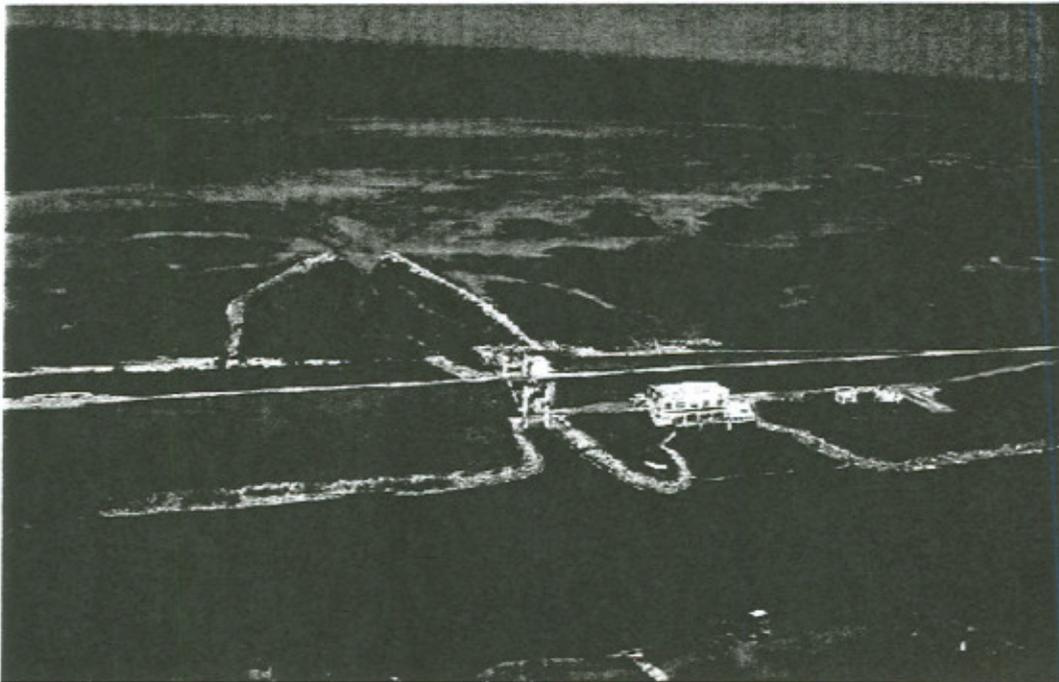
© 2005 by 2005GHW/BJM/SCC response to 7-2005 scoping letter1.doc

Enclosure

cc w/out enclosure: Ms. Carol Wehle, Executive Director
Mr. Bob Howard, Director, Operation Control
Ms. Susan Gray, Director, Lake Okeechobee Division
Mr. Kevin McCarty, SFWMD Governing Board, Chair
Ms. Irela Bague', SFWMD Governing Board, Vice-Chair
Ms. Pamela D. Brooks-Thomas, SFWMD Governing Board Member
Ms. Alice J. Carlson, SFWMD Governing Board Member
Mr. Michael Collins, SFWMD Governing Board Member
Mr. Nicolas J. Gutierrez, Jr., SFWMD Governing Board Member
Mr. Lennart E. Lindahl, SFWMD Governing Board Member
Mr. Harkley R. Thornton, SFWMD Governing Board Member
Mr. Malcolm W. Wade, Jr., SFWMD Governing Board Member

Economic Impact to Agriculture as a Result of Water Use Restrictions in 2000-2001

A summary of revenue losses experienced by growers in the Lake Okeechobee Water Service Area due to the drought and water use restrictions during the winter and spring of 2000-2001.



Aerial view of the S-135 structure complex during the water shortage. The structure, located on the east side of Lake Okeechobee, is used to make irrigation releases to agricultural users downstream. Because of the low level of the Lake (seen in the background) the structure was no longer hydraulically connected to the Lake.

MacVicar, Federico & Lamb, Inc.
Published in May, 2004
Based on Data Compiled in October, 2002

Executive Summary

The extreme water shortage during the first six months of 2001 was the direct result of a combination of environmental water management decisions by the South Florida Water Management District and severe drought in the Lake Okeechobee watershed. The decision to lower the lake level to 13.0 feet by June 2000 to improve the habitat in the lake caused the District to release a half million acre-feet of water during one of the driest spring seasons ever recorded. In spite of predictions of above normal wet season rainfall, the dry weather continued through the summer, and the lake, which had fallen to a 12-foot stage by June, was still at 12.0 feet in early November. The entire wet season passed without any additional water being stored in the lake. There are over 700,000 acres of irrigated agriculture dependent on supplemental water from the lake during dry periods. The low lake level, culminating in a record low level of 8.97 feet on May 23, 2001, required rationing of the available supply from November 2000 to June 2001.

In response to the crisis, the Water Management District set up an interactive management process to make weekly decisions on how much water would be made available to agriculture and when and where it would be released. They also took the unprecedented step of installing large capacity pumps at the three primary outlet structures from the lake to the Everglades Agricultural Area to force water out of the lake when the level was too low to allow sufficient gravity flow. The aggressive action by the District in employing new management strategies and installing new equipment in ways that had never been tried averted an economic catastrophe for the thousands of people involved in the agricultural economy of south Florida.

This report summarizes economic information provided by many of the growers after the 2002 harvest in an attempt to estimate the total regional economic impact to sugar cane farmers and citrus growers caused by water shortage. Other crops also suffered losses but sufficient data were only available to provide specific impact estimates for the two dominant crops, citrus and sugar cane. Growers controlling 70% of the cane acreage reported loss information. The resulting analysis indicated a 6.4% reduction in yield caused by the water shortage. This amounts to \$54 million in lost revenue to the growers. The annual report provided by the USDA confirms the reduction.

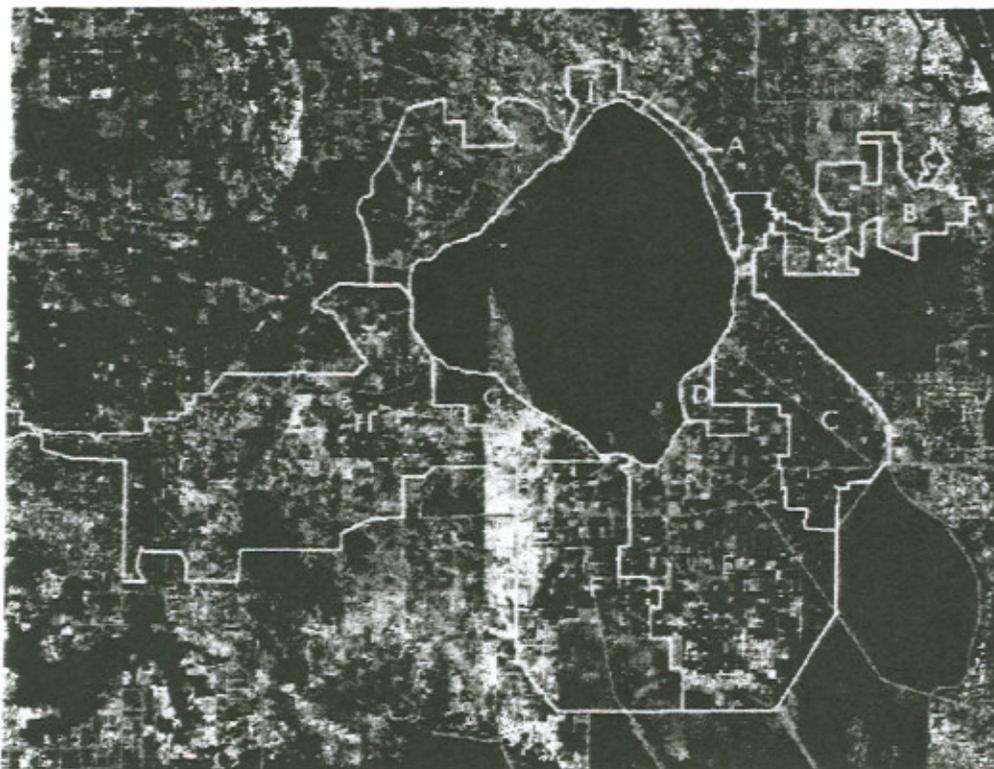
The estimate of the impact to citrus growers was based on the best available data reported by the growers who responded. This information was used to estimate the impact to the citrus acreage dependent on the Lake for irrigation. Different varieties of citrus mature at different times of the year and were affected differently by the water shortage. A conservative analysis of the information indicates revenue losses to citrus growers in excess of \$34 million.

Losses that could not be quantified include those incurred by juice and cane processors who produced less product, vegetable and rice growers who either could not plant or could not follow normal cultivation practices which lowered the value of both the 2001 and 2002 crops, and increased operational expense for all farmers who had to adapt to the changing irrigation requirements that evolved during the shortage.

The Study Area

This report is limited to the agricultural area whose supplemental irrigation needs are supplied from Lake Okeechobee. The figure below was taken from the SFWMD Water Shortage Web site. The table is based on the final acreage breakdown utilized by the District to divide the weekly water allocations.

Sub Area	Sub-Area Name	Crop Acreage		Primary Soil Type
		Citrus	Row Crops	
A	Northeast Lake Shore	420	7,289	Sand
B	St. Lucie Canal (C-44)	47,575	8,776	Sand
C	West Palm Beach Canal & L-8	7,590	123,537	Peat
D	East Beach & East Shore Water Control Districts	0	13,054	Peat
E	North New River & Hillsboro Canals	234	230,146	Peat
F	Miami Canal	2,426	113,325	Peat
G	C-21 & S-236 Basins	0	34,122	Sand
H	Caloosahatchee River (C-43)	68,219	58,311	Sand
I	Northwest Lake Shore	4,362	2,101	Sand
J	North Lake Shore	117	1,060	Sand



Water Conditions

The climate and water management conditions leading up to the declaration of a water shortage and the imposition of water use restrictions by the South Florida Water Management District in November 2000 were truly unique. The south Florida climatic pattern is characterized by its wet summer and fall seasons and dry winter and spring. Extremes on the wet side usually result from heavier than normal tropical system related rainfall in the summer and fall (which was the case in 1994 and 1995), or el nino events that bring heavy rain in the winter (which was the case in 1998). Significant regional water shortages occur when the wet season produces very little excess rainfall (rainfall in excess of evapotranspiration) so regional storage facilities, such as Lake Okeechobee, do not receive enough inflow to provide supply for the following dry season. When the winter and spring following a dry summer are also dry, Lake Okeechobee recedes to a low level and water use restrictions are imposed. This has been the case in 1981, 1989 and 2000.

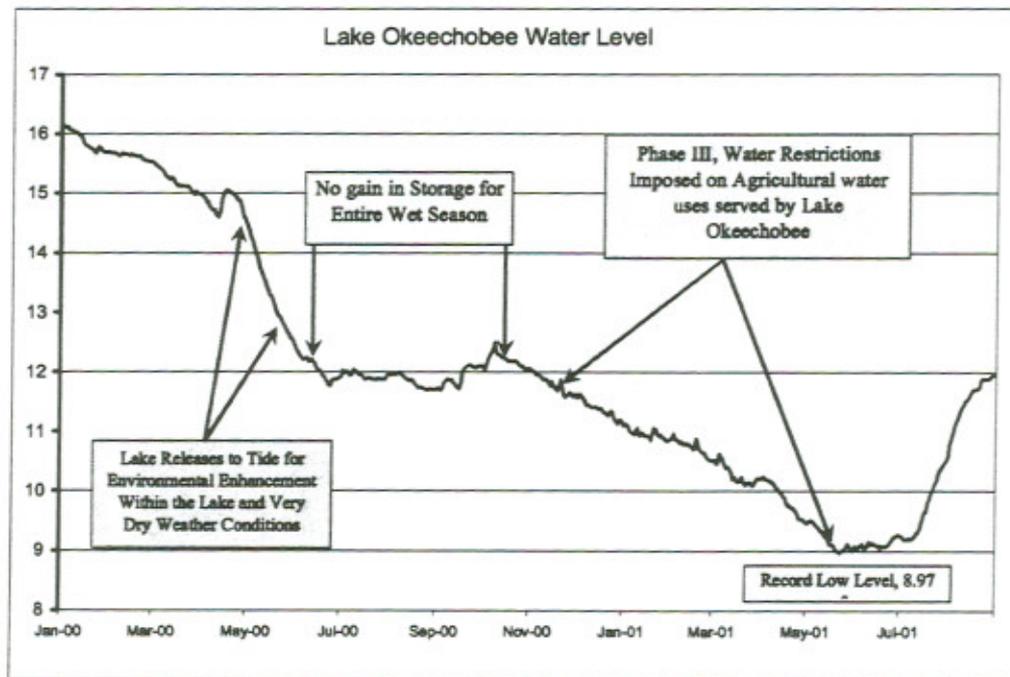


Figure 1. Water Level in Lake Okeechobee from January 2000 through July 2001

An additional complication was added to the 2000-2001 water shortage because of management decisions to improve the ecology of Lake Okeechobee. The wet conditions from 1994 through 1998 resulted in sustained above normal water levels in the Lake and a

subsequent reduction in shoreline vegetation that provides habitat for fish and wildlife. In an effort to encourage the re-establishment of the vegetation, the Water Management District began a deliberate course of action to lower the Lake level by discharging large quantities of water to the Atlantic Ocean and the Gulf of Mexico. This occurred during a very dry period. The result was that, through the release of water to tide, evaporation from the Lake surface and the release of water for agricultural irrigation, the Lake stage fell over three feet from April 15th through July 1st, a reduction of over 1.2 million acre feet.

Water Allocations to Agriculture

Every farm in south Florida must have a permit to use water for irrigation. The allocation for an agricultural project, calculated and authorized through a consumptive use permit issued by the South Florida Water Management District, is the volume of water needed to meet irrigation demands during a moderate drought, and is dependent on factors such as crop, soil type, local rainfall conditions, the irrigation method, number of plantings, and number of acres. However, during a severe drought, the District's Water Shortage Plan supersedes the allocations in the Water Use permits, and the water available for irrigation is specified through use restrictions in Water Shortage orders issued by the SFWMD Governing Board.

In November 2000 the South Florida Water Management District declared a Phase 3 Water Shortage for irrigation uses dependent on water from Lake Okeechobee, and implemented what the District refers to as the Supply-Side Management Plan to ration water to individual farms.

Supply-Side Management was developed as an allocation method to "manage a limited surface water supply and recognize the need to hold water in reserve for anticipated high-demand periods, yet be flexible and responsive enough to allow for short-term fluctuations of supply and demand." (SFWMD Supply Side Management Report, 1991) The allocation for individual farms is determined weekly based on two independent sets of calculations. The first calculation is to determine how much water could be released weekly from Lake Okeechobee for irrigation purposes and the second is to determine how to divide the available water among the users dependent on the Lake.

The first calculation is based on historical rainfall and seasonal demands for Lake Okeechobee supply (for example, irrigation demands are higher in April/May compared to January/February due to higher temperatures and longer daylight. The resulting increase in crop water need must be offset through additional irrigation in those months). The variability

in rainfall and crop demand is evaluated against the available storage in Lake Okeechobee, with the goal of managing the weekly allocation so that water remains available to meet irrigation demands throughout the dry season.

The second calculation is to determine how to equitably divide the available water between the users. The Lake service area was divided into 10 sub-basins, based on the water control structures used by the District to release Lake Okeechobee water to each area. The monthly demand for each sub-basin was calculated using the Blaney-Criddle equation (which is used by the District in permitting to determine monthly supplemental irrigation demands), based primarily on the crop type and irrigated acreage for each permitted project. The monthly demands were used to determine the percentage of available water that should be supplied to each sub-basin, not the actual amount that would be delivered. Each week, the District posted on its web site the amount of water that could be used by an individual farm depending on its location and crop.

Based on discussions with the affected growers, adjustments were made to the calculated distributions to allow for water demands in specific areas without increasing the amount released from the Lake. For example, more water went to citrus-dominated sub-basins during the period when the next year's fruit was being set, and water was shared with cane-dominated sub-basins during the month of February when the Blaney-Criddle equation calculated an almost-zero supplemental crop allocation for sugar cane.

Due to the extremely low water levels in Lake Okeechobee, Supply-Side Management remained in effect from November 26th 2000 through October 10, 2001. Once the rains resumed in early June the rationing of water for irrigation was not needed.

As a result of the water rationing, less than 50% of the calculated crop demands were supplied to the farms in the Lake service area (Figure 2). Figure 2 shows estimated demands during a one-in-ten-year drought compared to the actual water made available to growers. The 2000/2001 water shortage was more severe than a one in ten in many areas.

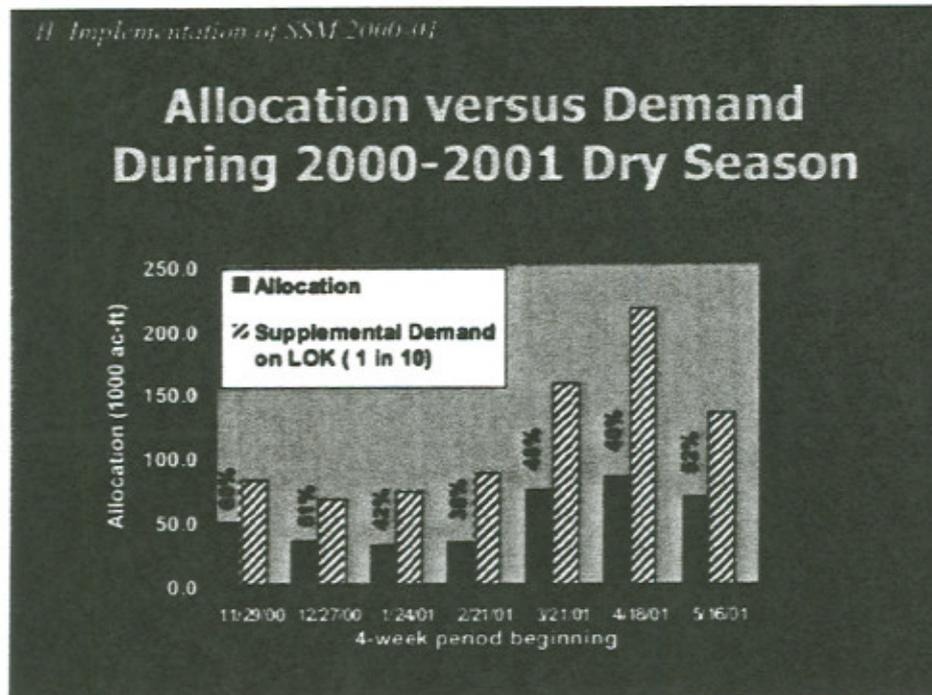


Figure 2. Chart from WMD presentation of percent of demand met.

Economic Impacts

Methodology

The information on drought impacts to crop production and the economic consequences of those impacts was obtained from large agricultural producers in the area served by Lake Okeechobee. Data were compiled for citrus and sugar cane and reduced to a per-acre impact for each crop. The Everglades Agricultural Area (EAA) is characterized by muck soil. The muck soil has a high water holding capacity that, combined with the ability to manage the water table, improves crop performance during droughts. Sugar cane is the dominant crop in the EAA, but rice, sod, sweet corn and winter vegetables are also important. The other agricultural areas served by the lake have predominantly sandy soils with both citrus and sugar cane occupying large areas. The crops grown on sandy soils were more difficult to manage during the shortage because of the reduced water holding capacity of the soil, the seepage losses experienced in the conveyance canals between the lake and the farms, and the inability to maintain the water table near the root zone of the crops.

Once the data were obtained for each crop and each major area, the economic impact per acre was calculated. The value was then applied to all the irrigated acres in the respective areas to develop the total estimated drought induced revenue loss for the service area.

Citrus. At the time of the 2000-2001 water shortage, there were 130,000 acres of citrus in cultivation in the areas dependent on Lake Okeechobee for irrigation. The water shortage was in force for most of the 2000-2001 harvest season, and was especially severe for the period when fruit were expected to be set in the spring of 2001. The impact of the shortage showed up initially with smaller fruit and slightly reduced yield during the 2000-2001 season and a more severe impact the following year due to the stress caused during fruit set in the spring of 2001.

After the water shortage, several of the larger growers provided specific information related to the economic impact of the drought on citrus production. One grower and processor reported a loss of \$2 million due to smaller fruit in 2001 and \$6 million in 2002 due to lower production. Another grower provided detailed, specific information that isolated the impacts of the water shortage on the specific citrus varieties grown in the area. This grower had significant acreage planted in early and mid-season varieties and in valencias, which mature later in the season, along with a small amount of grapefruit. The property holdings were such that most of the production was from groves not served by Lake Okeechobee. These groves were irrigated from groundwater wells and were not subject to the water use cutbacks that were imposed on the users of Lake water. Approximately 1500 acres, with the same fruit varieties, were dependent on lake water for irrigation. The trees were the same age and variety, and, since they were in the same area and exposed to the same rainfall and climate conditions, these acres provided useful comparative information that allowed the impact of the water shortage to be identified.

For the early and mid-season varieties, the acreage irrigated with groundwater showed a 7.4% increase in yield while that subject to the water restrictions experienced a 27% decline in production from 2001 to 2002. For valencias, there was a 3.6% increase for the groundwater grove and a 5.6% decrease for the grove dependent on Lake Okeechobee. Grapefruit production increased by 22% on the grove without water use restrictions and decreased by 33% on the grove subject to the restrictions. The difference in yield between the 2001 crop and the 2002 crop for the groves under water use restrictions and those irrigated from groundwater was 34% for the early and mid season varieties, 9.2 % for valencias, and 55% for grapefruit.

Combining the information submitted by the growers indicates a per acre revenue impact of approximately \$630 per acre for early/mid season oranges and \$310 per acre for Valencias. The 55% reduction figure cited for grapefruit was based on only one report and was not considered statistically significant enough to use for the basin wide grapefruit acreage. For the purposes of this report, grapefruit impacts were estimated to be the same per acre as the Valencia oranges.

Estimating the regional impact to citrus. With only a limited number of growers providing economic information, the following methodology was developed to estimate the regional impact to the citrus growers affected by the water shortage:

The Gulf Citrus Growers Association collects data on the Caloosahatchee region's citrus industry and identifies grove acreage by crop type. According to their figures for 2001/2002, 88% of the acreage was in oranges (with 12 percent of that amount not in production because the trees were less than 3 years old). Of the remainder, 8% was planted in Grapefruit (with 5% of that area not yet producing). The remaining 4% was in other citrus crops. Applying these percentages to the 68,219 acres of citrus in the Caloosahatchee Basin served by the Lake yields 61,240 acres of oranges irrigated from the Lake with 54,260 in production during the water shortage. A similar exercise shows 4,430 acres of grapefruit with approximately 4,180 in production.

Since the early/mid season oranges suffered more severe impacts, the acreage of each was treated separately. Data provided by the Gulf Citrus Growers Association indicated that the production from early/mid season varieties made up 45% of the production while valencias accounted for 55%. Therefore, of the 54,260 acres of oranges in production, 24,380 are assumed to be early/mid season and 29,880 are assumed to be valencias. **Table 1** summarizes the total lost revenue estimated for citrus variety in the Caloosahatchee basin. The total revenue impact is estimated to be \$25,917,000.

Table 1. Summary of revenue impacts to citrus growers in the Caloosahatchee Basin.

Crop	Acres in Production	Lost Revenue per acre	Total Lost Revenue
Early/mid oranges	24,380	\$630	\$15,360,000
Valencia oranges	29,880	\$310	\$9,262,000
Grapefruit	4,177	\$310	\$1,295,000
Losses to Citrus in Caloosahatchee Basin			\$ 25,917,000

The other large concentration of citrus acreage dependent on the Lake for irrigation is located along the St Lucie Canal. During the 2001 water shortage, the SFWMD estimated the citrus area in that basin at 47,575 acres. Another 12,000 acres were located northwest of the lake or in the L-8 basin in Palm Beach County. No specific production data are available for these areas. Based on grower communications during the drought, it appears that impacts in the Caloosahatchee basin were more severe than in other areas. Many of the groves in that basin are located several miles from the Caloosahatchee River and a significant fraction of the water made available to growers was lost during conveyance from the canal to the grove. This condition was not as difficult in the other basins. For the purpose of this report, it was assumed that the impacts to citrus production in the other basins was one half of the blended per acre impact calculated for the Caloosahatchee Basin and that the blend of citrus varieties and percent of the cultivated acres were the same. The data from **Table 2** yields a blended impact in the Caloosahatchee Basin of \$443 per acre. Therefore, a rate of \$221 per acre was used to estimate the revenue lost in the other citrus areas.

Table 2. Summary of revenue impacts to citrus growers in the Lake service area

Crop	Acres in Production	Lost Revenue per acre	Total Lost Revenue
Estimate for Other Basins	53,150	\$221	\$11,746,000
Calculated Losses to Citrus in Caloosahatchee Basin			\$ 25,917,000
Total Revenue Losses to Citrus in 2001/2002			\$36,663,000

Sugarcane. To obtain information on impacts to the sugar cane crop, the large growers in the area were contacted and asked to report any information on yield reduction associated with the 2001-2002 crop year. Although the water shortage occurred the previous year, the damage occurred to the crop growing during the critical months of the shortage, which were March, April and May of 2001. This crop was harvested in the fall and winter of 2001-2002. The data reported in **Table 3** includes almost 70% of the cane acreage cultivated during the water shortage. The 6.4 percent reduction in yield is comparable to that reported by the USDA Economic Research Service in its official 2002 Sugar and Sweetener Yearbook.

To determine the total economic impact, the average reduction in yield was calculated and applied to the total acreage in sugar cane. This results in an estimated loss to the cane crop of \$54 million (**Table 4**). All growers also incurred significant increases in operating costs associated with changes to irrigation practices necessitated by the water shortage restrictions.

Table 3. Reductions in yield for the 2001-2002 crop year reported for various sugar cane operations affected by the Water Shortage Operations of the SFWMD.

Company	Acres	Reduction in Yield (tons of cane / acre)	Reduction in Yield (%)
Reporting Unit A	71,457	2.37 tons	5.2 %
Reporting Unit B	70,000	1.93 tons	4.8 %
Reporting Unit C	64,189	1.18 tons	2.9%
Reporting Unit D	81,197	4.13 tons	12.6%
Single Company	11,258	3.19 tons	8.7 %
Single Farm	5,000	3.15 tons	9.5 %
Total Acres Reporting	303,101	Average Reduction in Yield	6.43 %

Table 4. Estimated reduction in revenue attributable to the water shortage induced yield reduction in sugar cane for the 2001-2002 crop year.

Total Acres in Cane	Total reduction in yield (tons)	Estimated Sugar Content	Estimated Raw Sugar Price (per pound)	Total Lost Revenue
445,000	1,126,374	12 %	\$.20	\$ 54,065,973

Other Crops and Costs

Several other important crops were also affected by the water shortage, including sod, sweet corn, other vegetables and rice. No specific lost revenue estimates are available for these crops. In the case of sweet corn and rice, several growers simply decided not to plant many areas in the spring of 2001. The acreage planted in rice was estimated by growers to be down by 25 to 50 percent. All growers cited increased costs for irrigation because of the need to mobilize special equipment and crews to comply with the limited availability of water. Several also identified increase pressure from certain pests and problems in following years due to the inability to flood fallow fields during the water shortage.

These other impacts could easily amount to \$5 million to the economic impact over the 723,000 acres of irrigated agriculture subject to the water use restrictions.

Summary

This report was an attempt to quantify the lost revenue to agriculture as a result of the water use restrictions imposed as part of the 2000/2001 water shortage. It is not meant to be a rigorous economic impact assessment, but rather an estimate of the financial impact farmers incurred because of the lack of water. The conclusion on the impacts to sugar cane growers is considered reliable based on the high percentage of the irrigated acreage that is covered by reports from growers and the fact that the total impact as a percentage reduction in production matches the annual crop report provided by the USDA. The data on the impact to citrus growers is less certain, because fewer growers supplied detailed estimates and the geographic diversity between the groves west of the Lake in the Caloosahatchee Basin and to the east along the St. Lucie Canal.

It is clear that the Water Shortage of 2000/2001, and the accompanying water use restrictions imposed on irrigated agriculture during the event, had a severe impact on both the revenue growers received and the additional costs to grow the crops under those conditions. While this report is based on an imperfect data set, it produces a credible estimate of approximately \$90,000,000 of economic impact due to lost revenue to growers. With the uncertainties associated with the estimating methodology and the available data, it seems appropriate to conclude that the total negative impacts associated with the water shortage were in range of \$75,000,000 to \$120,000,000.

Table 1. Summary of economic impacts to irrigated agriculture served by Lake Okeechobee.

Total Revenue Loss for 2001/2002 Sugar Cane harvest	\$54,066,000
Total Revenue Loss for 2001/2002 Citrus harvest	\$36,660,000
Revenue Loss to other crops in 2001/2002 and to all crops in 2000/2001 and 2002/2003	\$5,000,000
Revenue lost to processors for Sugar and Citrus	Unknown
Additional cost to operate during the water shortage	Unknown
Lost opportunity cost for rice and sweet corn in 2001	Unknown

LANDERS & PARSONS, P.A.

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September 15, 2005

Mr. Stuart J. Appelbaum, Chief
Planning Division, Jacksonville District
U.S. Army Corps of Engineers
P.O. Box 4970
Jacksonville, FL 32232-0019

Re: Lake Okeechobee Regulation Schedule

Dear Mr. Appelbaum:

I am writing on behalf of the Grower and Processor members of the Florida Sugar Cane League in response to the July 21, 2005 notice of possible changes to the Lake Okeechobee Regulation Schedule. In past correspondence relating to this Schedule, we have expressed concern that changes to the authorized Regulation Schedule for Lake Okeechobee may impair water supply for agriculture and other uses.

It is our understanding that your Environmental Assessment of the earlier "temporary planned deviation" shows a significant reduction in available water supply for agriculture. For this reason, we recommended earlier that any modification of the existing "WSE" schedule that lowers lake levels should be implemented together with a new Water Shortage Plan and forward pumps to provide for agricultural needs during very low lake levels. Without forward pumps and the ability to operate them, past economic analysis shows there will be unacceptable impacts to agriculture.

Your letter indicates that no new structural features will be considered except those already embedded in the South Florida Water Management Model. Even if forward pumps are "embedded" in the model, there is no confirmation for the U.S Fish and Wildlife Service that operation of the pumps will not be restricted..

We believe also that a full Environmental Impact Statement under NEPA must be completed prior to any permanent change to the existing Regulation Schedule.

Sincerely,



Philip S. Parsons

Watershed Council

Southwest Florida Watershed Council, Inc.

P.O. Box 61063, Fort Myers, FL 33906-1063

www.swfwc.org

September 15, 2005

Planning Division, Environmental Branch, Special Projects Section
Jacksonville District Corps of Engineers, Department of the Army
P.O. Box 4970
Jacksonville, FL 32232-0019

Ladies and Gentlemen,

Thank you for the opportunity to learn about and provide comments on the measures being considered as changes to the Lake Okeechobee Regulation Schedule (WSE). Your letter of July 21st and the presentation made by your representative at the August 31st meeting of the South Florida Water Management District's Lake Okeechobee Committee have led to a number of discussions amongst Southwest Floridians who want to be involved as the process to change the regulation schedule proceeds.

The Southwest Florida Watershed Council is a grass-roots, multi-county coalition of individuals, organizations, agencies and businesses that have come together during the last two years to address issues affecting the Caloosahatchee and Big Cypress watersheds. The purpose of the Council is to ensure that the interests and concerns of all stakeholders are addressed, and that long term management strategies balance the needs of this region's growth and the natural systems upon which our economy and quality of life depend. We submit the following comments on the opportunities to improve the Regulation Schedule for your consideration.

- Despite many attempts to acquire information in recent years, we do not yet have data that allows us to understand the water budget of Lake Okeechobee, and this leads us to believe that it is managed to provide a two year supply for agricultural and utility water users, rather than the one in ten year drought event that we believe is provided for by law.
- Since the current schedule is based on 31 and 36 years of historic rainfall and associated tributary inflows into Lake Okeechobee, most of the historic data used to model Lake Okeechobee behavior is from what climatologists consider a "dry cycle." Climatologists now believe we are approximately 10 years into a 30 year "wet cycle" of the Atlantic Multi-decadal Oscillation. Given this fact, we believe that climatic cycles need to be addressed when the regulation schedule is modified.

The mission of the Southwest Florida Watershed Council is to protect, conserve, manage and/or restore the land and water resources of the Caloosahatchee and Big Cypress Watersheds. Through increased awareness, participation and cooperation among all stakeholders in consensus building, planning and decision making, we are working to meet the economic, natural and cultural needs for this and succeeding generations.

- In a similar vein, we believe that agricultural water use requirements should be projected by incorporating figures of actual water used during draught periods, rather than solely through the use of crop production models that do not reflect current and expected irrigation uses.
- We are very interested in learning how the proposed forward pumps will be factored into the regulation schedule.
- While some of the possible changes to the regulation schedule (such as 'rate of lake level rise' triggers and using smaller time periods than the currently used 30 day rainfall calculation) have potential for improving the health of the Lake without compromising flood control or the health of the estuaries, others don't appear to have merit. The idea of changing the schedule lines by decreasing all zones by one foot will not provide additional storage for storm flows – something that is desperately needed to avoid damaging releases to the estuaries. We believe that expanding Zone D by one foot (as has been discussed at public meetings as a measure to complement the forward pumping concept) would offer the needed flexibility for storage while reducing the potential for damaging releases to the estuaries. Having an additional foot of storage available, if necessary, would make the goal of a 12 foot Lake level at the end of each dry season feasible while keeping the 15.5 foot storage target at the end of each wet season.
- We'd like to know what provisions can be made to allow for Lake water to be discharged into the Everglades Agricultural Area to prevent the Lake from approaching or exceeding the level that causes water managers to become concerned about public safety. It is our understanding that it is the discharge of excess water in this 700,000 acre area that causes the unbalance in the overall storage equation for the Everglades system. If property owners were required to meet the same one inch rainfall storm event retention test that is required of current development, and storage of excess water occurred within the basin in which it originated, there would be more storage options for Lake water.

We look forward to participating in the process to improve the regulation schedule for Lake Okeechobee during the coming year.

Sincerely,



Susan E. Brookman



Audubon OF FLORIDA

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September 16, 2005

Stuart J. Appelbaum, Chief, Planning Division
Environmental Division
Jacksonville District Corps of Engineers
P. O. Box 4970
Jacksonville, FL 32232-0019

Dear Mr. Appelbaum:

Audubon of Florida is pleased to submit these comments in response to the Corps' July 21, 2005, request for comments on its Draft Supplemental Environmental Impact Statement (DSEIS) for the Lake Okeechobee Regulation Schedule Study (LORSS). We commend the Corps for moving forward in an evolving effort to manage Lake Okeechobee, and its associated systems, in better ways. Although WSE has shown some improvement over the previous schedule, the need for deviations from it in the past two years demonstrates there remains room for improvement in water level management.

Audubon has had full time staff working on Lake Okeechobee since 1936. In 1938, the Trustees of the Internal Improvement Fund designated two areas of the lake as Wildlife Sanctuaries, to be managed by Audubon in cooperation with the Florida Game and Fresh Water Fish Commission. The "Observation Shoal Sanctuary" covers about 7,400 acres (2,816 ha) around Observation Shoal in the lake. The 21,210 acre (8,484 ha) "Okeechobee Sanctuary" essentially covers the western marsh from the Kissimmee River southward to the Harney Pond Canal. Obviously, water level management on Lake Okeechobee affects the Sanctuaries for better, or worse.

The Restudy (USACE 1999) described Lake Okeechobee's ideal water level fluctuations for a healthy littoral zone to be a high of about 15 feet at the end of the wet season (about November 1) to a low of about 12 feet at the end of the dry season (about June 1). Because dropping to 12 feet with current infrastructure could create severe water cutbacks during drought years, somewhat higher levels than envisioned in the Restudy have been considered a reasonable compromise. Water level management on Lake Okeechobee is balanced most strongly between the competing demands of water supply (don't get too low), flood control (don't get too high), and environmental concerns in the lake (need fluctuating water levels in the littoral zone). The bottom line of Zone D, 13.5-15.5 feet, often is considered a reasonable compromise level, as noted in recent deviations from WSE.

Zone D protocols

WSE protocols intentionally push Lake Okeechobee water levels toward Zone D, the bottom line of which is the 13.5'-15.5', compromise level, noted above. Unfortunately, Zone D can extend 2 feet above the bottom line, and Lake Okeechobee can be harmfully deep while in Zone D. Adding to the problem that Zone D has harmful levels, is the fact that modeling indicates that lake-lowering regulatory releases occur only about 17% of the time while in Zone D, thus tending to leave the lake too deep most of the time. The Corps and SFWMD recently adopted Class Limit Adjustments (CLA) to WSE, which increased regulatory releases while in Zone D to about 34% of the time. While CLA offered some improvements, they also tend to leave the lake too deep too often. Closer examination of the release protocols also reveals that many of the Zone D releases only occur during periods of rainfall and the releases often are smaller than projected inflows, which also keeps the lake from attaining more desirable levels. And, as has been experienced recently, when the lake is deep, the estuaries are vulnerable to massive harmful releases following sudden jumps in lake levels.

The Corps can correct the problem of Zone D "inactivity" that allows the Lake to remain above desired levels, by changing Zone D protocols to *require* up to Level I pulse releases, until the lake reaches the bottom of Zone D. This requirement could be tempered somewhat if forecasts predict drought conditions such that the lake would reach the line without releases within a month. Further, reducing releases for oyster and fish spawns in the estuaries, and for heavy rain in the estuary watersheds, should be worked into this framework. For biological reasons explained below, we also recommend running a model that changes the lowest level of Zone D from 13.5 feet, to 13.0 feet.

Recommendation: Change Zone D protocols to make regulatory releases whenever the lake is above the bottom line of Zone D, with adjustments for downstream needs or drought predictions, and model an annual low of 13.0 feet.

Lake levels and estuary releases

Massive releases are triggered to the estuaries when Lake Okeechobee reaches the top of Zone D. If the lake is managed to tend toward the bottom of Zone D, these releases are less likely in any given year. We recognize that during extreme weather patterns, such as experienced in the past year with summer hurricanes in 2004 and heavy rainfall in March and June of 2005, that keeping the lake lower on average cannot prevent all high levels. However, lower average levels maintained by persistent low level releases (~Level I), can reduce the number of massive discharges somewhat. There are proposals to lower the upper line of Zone D by as much as a foot. We are concerned that would continue harmful estuary releases on a regular pattern and think a Zone D with a lower bottom line, and the same upper line, might provide benefits for both the lake and estuaries.

Recommendation: Compare the number of harmful estuary releases predicted between present WSE protocols and Audubon's recommended protocols of trying to follow a Zone D bottom line of 13-15.5 feet, with the upper line remaining where it is.

Biological features of the lake

Wading birds and Okeechobee water levels

Lake Okeechobee's water level patterns affect wading bird breeding profoundly. The lake hosts 4 Species of Special Concern (as designated by FWC): Tricolored Heron, Little Blue Heron, Snowy Egret, and White Ibis. These birds stand less than 24" tall, have legs about 6-8" long, and prefer feeding in water less than 6" deep (Powell 1987, Gawlik 2002). By this measure, Lake Okeechobee cannot offer optimal feeding conditions until it drops to at least 14.5 feet, when about 5% (~5,000 acres) of the littoral zone is less than 6" deep (Table 1). The breeding cycle for these small waders requires at least 3 months to complete, and abundant food supplies throughout (DeAngelis et al. 2002, very roughly--a month for feeding, courtship, and nest building, a month for egg-laying and incubation, and a month to grow fledglings). Therefore, at a minimum, Lake Okeechobee should reach a suitable feeding level (at least 14.5 feet) before March 1, to allow 3 months of low water before the wet season. Reaching 14.5 feet by March 1 will send Lake Okeechobee to about 13.5 feet by June 1, in average years, and is close to the 14.26 level the 13.5-15.5 foot line of Zone D yields.

However, we think the 13.5 low remains too high for optimal wading bird breeding and considerable benefit would result from dropping six more inches to 13 feet. First, dropping to 13 feet allows the lake to be suitable for wading bird breeding somewhat earlier, allowing more time to finish their nesting effort before the summer rains come. Additionally, when Lake Okeechobee is at 13.5 feet, only 19% of its marsh is exposed (Table 1). At 13 feet, about 42% of the marsh is exposed, an increase of about 23,000 acres of exposed marsh, and an additional 20,000 acres of marsh that are 6 inches or less deep (between 12.5 and 13 feet). Therefore, a change in the low level goal of six inches yields large potential benefits.

The relationship of wading bird breeding success and low water levels has been documented empirically on Lake Okeechobee. Numbers of nesting wading birds on Lake Okeechobee declined between 1957 and 1988 (David 1994a). A detailed study of the causes of this decline found nesting numbers dropped from 6000 nests during a relatively low-water period (1987-1988) to between 725-1812 during the following 5 years of higher water levels (David 1994b). Short-legged species (such as those above) suffered the greatest declines. David (1994b) concluded that high water levels were a major factor in these declines. The wading bird survey by GFC on Lake Okeechobee during the year 2000 (after years of deep water) noted that none of the traditional colonies were active. Subsequent studies have confirmed that high water levels, and lack of "natural water recession rates," on Lake Okeechobee contribute to lower nesting success and reduced feeding efforts (Smith 1995, Smith and Collopy 1995, Smith et al. 1995).

The importance of the potential for 6000 pairs of wading birds (David 1994b) to breed on Lake Okeechobee can be seen when one considers that from 1979-1998 an average of 17,600 wading birds nested in the Everglades between Lake Okeechobee and Florida Bay (Frederick and Ogden 2001). Indeed, recent maximum single day counts of feeding non-Cattle Egret waders have been as high as 20,000 to 50,000 birds (Zaffke 1984, David 1994, Smith et al. 1995). Such numbers lead Smith et al. (1995) to state that the Lake is important not only for wading birds in south Florida, but for birds throughout the southeastern United States.

Recommendation for wading birds: As part of the DSEIS evaluation, the Corps should create a simple wading bird performance measure, based upon available foraging habitat during the breeding season, to help evaluate different alternatives. In addition, the Corps could create a graphic that shows the amount of marsh that is 6 inches deep or less, at each 6 inch contour on the lake (using the increments in Table 1).

Snail Kites

Lake Okeechobee is designated as critical habitat for Snail Kites. Unfortunately, Snail Kites have been declining rapidly in Florida, and have not been able to breed effectively on Lake Okeechobee for about 10 years (Martin et al. 2003). Previous EIS's have simply failed to accurately predict the effects of the proposed regulation schedules on Kite nesting on Lake Okeechobee.

Recommendation: This DSEIS should significantly expand its analysis on Snail Kites in Lake Okeechobee, in full consultation with Kite experts, to restore Kite nesting on Lake Okeechobee.

Littoral zone health

Littoral zones (marshes on Okeechobee) require seasonally fluctuating water levels to maintain health and function. Since 1978, the practice of keeping Lake Okeechobee deeper and reducing the periods of time when low lake levels were maintained created significant changes in lake marsh communities, including large losses in short-hydroperiod plant communities, spread of cattails on the marsh fringe (presumably fueled by nutrient invasion into the marsh with high water), and almost complete loss of submerged plants at times (Pesnall and Brown 1977, Milleson 1987, Richardson and Harris 1995, Havens 2003). Dropping to 13 feet each year will create beneficial fluctuations that increase decomposition of old plant material, stimulate germination of new plants, increase the variety of plant communities on the lake, increase feeding opportunities for waterfowl (and shorebirds, wading birds, etc.), facilitate exotic plant control, particularly torpedograss, and reduce flows into the marsh of high-nutrient water from the center. We recognize that Lake Okeechobee fluctuates more widely than a simple 13-15.5 foot plan due to drought and flood, and those fluctuations (at least the lower water excursions) will benefit the lake beyond a simple 2.5 foot annual fluctuation.

Recommendation: In conjunction with the wading bird model and lake contour analysis, predict hydroperiods of the various depths of the littoral zone to enable plant specialists to predict plant community response to a new regulation schedule.

Atlantic Multidecadal Oscillation (AMO)

This long-term weather pattern is used in forecasting for the WSE schedule. The AMO appears to have about a 30-year cycle of relatively higher, and lower, hurricane and wet weather activity for Florida, with almost twice as much rain in the summer during active periods. Most of the present 36-year period of record used to model Lake Okeechobee water levels occurred during the lower AMO rain pattern for summer. This can lead to erroneous conclusions about how any given schedule is likely to work during the present and coming wetter periods.

Recommendation: Modeling should explicitly use wet AMO-type weather patterns to evaluate schedule performance on Lake Okeechobee.

Caloosahatchee MFL

To prevent salinity problems in the estuary, the Caloosahatchee Estuary should maintain water flows of about 800 cfs. The minimum flow level (MFL) for the Caloosahatchee estuary is 300 cubic feet per second (cfs). The MFL is the level that "significant harm" (harm that takes several years to recover from) is deemed to occur. To prevent harm altogether, about 600 cfs is needed. Unfortunately, when WSE is in Zone E, there is no scheduled release of water to the Caloosahatchee, and MFL violations have occurred in the past few years. Restricting releases to the Caloosahatchee in Zone E is inequitable because while in Zone E, all water supply interests around the lake are receiving 100% of the water they need. Therefore, when in Zone E (when other users are obtaining 100% of their water supply needs), the Caloosahatchee should receive enough water to ensure the optimal 800 cfs flow to the estuary.

Recommendation: Design a schedule to supply at least 800 cfs flow to the Caloosahatchee unless water rationing is being imposed, whereupon the estuary would be rationed as well.

Water supply considerations

A major consideration in managing Lake Okeechobee for lower average levels (i.e., dropping to 13 feet each year) is the effect those levels could have on water supply deliveries during drought. Trying to ensure reliable water supply is a primary reason the Lake has been kept deep recently, with attendant harm to it and the estuaries. Only through coordinating rationing protocols with lake management during normal to wet years, can this DSEIS achieve a truly balanced lake level management plan.

Stuart Appelbaum
Page 6
September 16, 2005

Recommendation: Although the Corps is not responsible for water rationing, we recommend the Corps request the SFWMD develop its new "Supply-side Management" plan (rationing plan) in conjunction with this DSEIS.

Audubon realizes developing a new schedule for Lake Okeechobee is an incremental process that creates changing goals as new model runs shed information on various lake management theories. We look forward to working with the Corps and SFWMD throughout the process to develop a schedule that more fully meets the varying needs of society, and the lake and ecosystems around it.

Sincerely,

Paul N. Gray, Ph.D., Science Coordinator
Lake Okeechobee Watershed Program

Table 1. Water levels and exposure of marsh bottom for Lake Okeechobee. Data taken from Fig. 11 of Lake Okeechobee MFL (SFWMD 1998). Marsh area is presumed to be 100,000 acres total. At elevations between 11.5 to 14 feet, large areas of Lake Okeechobee are shallow enough (less than 6 inches deep) for high quality wading bird foraging.

Water depth (feet)	Area of "dry" marsh (acres)	Area between 1-6 inches deep (acres)	Area deeper than 6 inches (acres)
15.5	0	0	100,000
15	0	1,000 (?)	99,000
14.5	1,000 (?)	4,000-5,000 (?)	95,000
14	5,000	14,000	81,000
13.5	19,000	23,000	58,000
13	42,000	20,000	36,000
12.5	62,000	12,000	26,000
12	74,000	9,000	17,000
11.5	83,000	11,000	6,000
11	94,000	3,000	3,000
10.5	97,000	2,000	1,000
10	99,000	1,000	Marsh entirely dry

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-----Original Message-----

From: Gray, Paul N. [mailto:Audubon@Okeechobee.com]

Sent: Monday, September 19, 2005 1:21 PM

To: Gray, Susan; Rosen, Barry; Ritter, Gary J.; Fox, Don

Cc: Woody, Theresa; Valido, Agustin; Unsell, Dave; Turner, Beth A SAJ; Sylvester, Susan B SAJ; Sofia, Suzanne C SAJ; Sharfstein, Bruce; Schubert, Steve; Obeysekera, Jayantha; Hornung, Lewis; Doering, Peter; Brooks, Jerry

Subject: Audubon comments on WSE scoping

Hi All,

FYI, attached are our comments to the Corps on their Scoping request for Lake Okeechobee's WSE revisions. In a nutshell, we recommend:

1. Change Zone D protocols to do up to Level I releases whenever above the bottom line of Zone D (in other words, follow the bottom line of Zone D, the 13.5-15.5 line), with accommodations for spawns in the estuary, droughts or localized rainfall.
2. Run a model that changes the lowest level of Zone D from 13.5 to 13.0, while leaving the high end at 15.5 and keeping the top line of Zone D the same.
3. Develop better wading bird, Snail Kite, and littoral zone hydrological (plant community) performance measures.
4. Supply up to 800 cfs to the Caloosahatchee Estuary unless water rationing is declared.
5. Conduct model runs that simulate weather conditions during AMO periods (i.e., model the present "wet" summer cycle we appear to be in).
- 6) Develop the WSE revisions concurrent with the SFWMD development of new rationing protocols for the Lake Okeechobee Service Area.

I expect many refinements after we see model runs. This is our first stab at "what should they look at."

I genuinely appreciate any thoughts or comments you have on this.

Thanks

Paul

~~Collier County~~

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September 29, 2005

Ms. Yvonne L. Haberer, Biologist
U.S. Army Corps of Engineers,
Planning Division, Environmental Branch
P.O. Box 4970
Jacksonville, FL 32232-0019

RE: Intent to Prepare a Draft Supplemental Environmental Impact Statement for the Lake Okeechobee Regulation Schedule Study of the Central and Southern Florida Project for Flood Control and Other purposes, Lake Okeechobee, FL

Dear Ms. Haberer:

Thank you for the opportunity to provide comments on the proposed measures being considered for the Lake Okeechobee Regulation Schedule (WSE). We are writing on behalf of our 6,000 members, many of whom live near and/or enjoy the attributes of the Caloosahatchee River and Estuary.

Overall, we are supportive of Lake Okeechobee being managed in such a way as to balance the ecological health of the Lake with the ecological health of the downstream systems it discharges to. In addition, the collective ecology of these systems need to be weighed equally with flood protection and water supply as factors influencing Lake Okeechobee's management. Managing the Lake without creating more storage outside of the Lake leaves only a palette of poor choices that will cause environmental harm to some segment of the whole system. Therefore, the solution is to create storage outside of Lake Okeechobee so that it can be managed more akin to a natural lake than a reservoir, and maintained at a lower level in order to avoid situations where damaging flows are released. We fully support the Florida Fish and Wildlife Commission's recommendation that Lake Okeechobee be managed between 12 feet and 15.5 feet. The amount of harm that results, if any, should be distributed among all segments and not disproportionately burden any one segment the system. Such a management schedule would protect and improve the ecological health of both the Lake and the Caloosahatchee and the St. Lucie Estuaries.

Our specific comments are as follows:

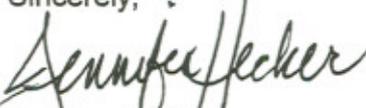
- The supply side management and the WSE (Water Supply/Environmental) need to be developed concurrently. Supply side management is lagging behind the WSE development, so the efforts on the supply side should be doubled up in order for it to catch up with WSE development.

- When reviewing the 2002 Lake Okeechobee Supply-Side Management Plan, it appears that it is managed to provide a two year supply for agricultural and utility water users, rather than the one in ten year drought event provided for by law.
- The current schedule is based on the 1965-1995 historical rainfall period, which climatologists consider to be within a "dry cycle" of precipitation levels over time. Climatologists now believe we are approximately 10 years into a 30 year "wet cycle" of the Atlantic Multi-decadal Oscillation. The modeling of the new schedule needs to adjust rainfall to more accurately reflect what should be anticipated for the next 20 years.
- Land use conversions are happening frequently and many of the historic tributary contributions to Lake Okeechobee have changed since the initial modeling used for the current Regulation Schedule. In reevaluating the Lake Okeechobee Regulation Schedule, the modeling needs to be rerun utilizing current and anticipated future land uses.
- The amount of water budgeted for agricultural water use should be based on actual usage rather than the permitted availability for use. Likewise, water use permits should be issued based on the permitted limit reflecting the actual water need with a *slight* buffer, rather than the 45% inflated permitted amount for the Lake Okeechobee Service Area (LOSA) for 722,664 acre/feet when the actual usage for LOSA is approximately 500,000 acre/feet according to the Supply-Side Plan.
- Some of the proposed possible changes to the regulation schedule (such as using smaller time periods than the currently used 30 day rainfall calculation) have potential for improving the health of the Lake without compromising flood control or the health of the estuaries, and we would support such changes.
- Changing the schedule lines by decreasing all zones by one foot will not provide additional storage for storm flows nor will it provide ecological improvements or flood protection; therefore, we do not support such a change. We believe that expanding Zone D by one foot would offer the needed flexibility for storage while reducing the potential for damaging releases to the downstream estuaries. Having an additional foot of storage available, if necessary, would make the goal of a 12 foot Lake level at the end of each dry season feasible while keeping the 15.5 foot storage target at the end of each wet season.
- We support initiatives that incentivize lake water discharge and storage on Everglades Agricultural Area lands, such as using Recyclable Water Containment Areas (RWCAs) [Refer to *Using Recyclable Water Containment Areas (RWCAs) to Treat Agricultural Stormwater Runoff For Watersheds: A Concept Paper* by E.A. Hanlon at <http://edis.ifas.ufl.edu/SS447>] in order to prevent exceeding the level that causes water managers to become concerned about public safety and causes harmfully high discharges to the Caloosahatchee and St. Lucie. More stormwater runoff should be retained in the basins it originates from, as current development is required to do with the one inch stormwater retention and treatment standard. This would provide more storage options for water outside of the Lake itself.

- When Zone E conditions are occurring, the Caloosahatchee and St. Lucie Rivers should get the delivery of the minimum flows it needs in order to maintain the ecological health of the river and estuary. The minimum flows should become "Type II entitlement allocation accounts", which are managed independently of changes in the overall allocable volumes and already represent the minimal reduced volume necessary. The estuarine ecological optimal delivery levels should be considered as Type I accounts, equal with all other permitted users of the system. The proposed forward pumps should be considered for delivering water to the downstream systems for ecological benefit in periods where the minimum flows and levels necessary for the downstream systems health are not being met.
- Earlier drawdown of water, designed to discharge most of the water early in the dry season to avoid releases during critical spring time period, offers significant ecological benefits with only a very slight increase in the risk of water restrictions if there was a drought in Late May. We would advocate that this be seriously considered when devising a revised regulation schedule for the Lake.

To conclude, we respectfully request the Army Corps of Engineers to consider incorporating our recommendations when preparing a Draft Supplemental Environmental Impact Statement for the Lake Okeechobee Regulation Schedule Study. The premise behind optimizing the environmental benefits of the WSE schedule is to manage Lake Okeechobee between 12 feet and 15.5 feet, per the recommendation of the Florida Fish and Wildlife Commission. We look forward to participating in the process to improve the regulation schedule for Lake Okeechobee during the coming year and would appreciate if you would add us as a stakeholder into e-mail and mail distribution lists regarding this. If you have any questions, please call me at (239) 262-0304x250 and thank you for your consideration of our comments.

Sincerely,



Jennifer Hecker
Environmental Policy/Water Resources Specialist
jenniferh@conservancy.org

Bond, Carrie L SAJ

From: Colon, Nelson R SAJ
Sent: Friday, September 30, 2005 9:10 AM
To: Bond, Carrie L SAJ
Subject: FW: DSEIS for Lake Okeechobee Regulation Schedule Study

More comments for the summary.

Nelson

From: Dasher, Richard SAJ
Sent: Friday, September 30, 2005 8:50 AM
To: Colon, Nelson R SAJ
Subject: FW: DSEIS for Lake Okeechobee Regulation Schedule Study

Hi Nelson,

I am forwarding Lee County, FL's comments re: LORSS DEIS.

Thanks

-----Original Message-----

From: Roland Ottolini [mailto:OTTOLIRE@leegov.com]
Sent: Thursday, September 29, 2005 2:16 PM
To: Dasher, Richard SAJ
Cc: DT Minich; James Lavender; David Owen; Tamara Pigott; Wayne Daltry; jfumero@llw-law.com
Subject: DSEIS for Lake Okeechobee Regulation Schedule Study

Mr Dasher,

We look forward to working with the Corps and the SFWMD in developing modifications to the current WSE schedule. As you may be aware, Lee County has made its position known in various forums including participation in WRAC and its LO subcommittee of our concern regarding the impacts of Lake Okeechobee discharges to the health of the Caloosahatchee River and estuary. We have also made clear our needs for public water supply withdrawals at the Olga water plant. We are hoping that a revised schedule will result in a more dependable reservation of low flows for water supply and the environment. At the other end of the spectrum, we are seeking a significant reduction in the volume and frequency of harmful high discharges. The desired flow regimes and performance measures for salinity are well documented in the Caloosahatchee Water Management Plan and draft documents of the Southwest Florida Feasibility Study.

We are also supportive of management of Lake O at an overall lower level with the understanding that it would result in more releases during the dry season for environmental and supply flows and less releases during flood conditions by providing additional storage within the lake, or at least reducing the necessity of high releases to protect the structural integrity of the H. Hoover Dike.

We understand it will be necessary to gain improved hydraulic capacity to the south of the lake as well as additional storage and water quality improvements within the system to achieve recovery of the estuary. However recognizing these improvements will be several years away, we must stress the importance of this effort to our regions health and economy.

Thank you for giving us the opportunity to comment and staff is available to discuss in detail.

Sincerely,
Roland Ottolini
Director, Lee County Natural Resources



LEWIS, LONGMAN & WALKER, P.A.
ATTORNEYS AT LAW

Reply To: West Palm Beach

November 28, 2005

VIA USPS PRIORITY MAIL

Ms. Yvonne Haberer
U.S. Army Corps of Engineers
Planning Division
Environmental Branch
P.O. Box 4970
Jacksonville, Florida 32232

RE: Notice of Intent to prepare draft supplemental environmental impact statement for Lake Okeechobee regulation schedule, August 3, 2005 Federal Register.

Dear Ms. Haberer:

This firm represents the Seminole Tribe of Florida in many of its environmentally related issues. Reference is made to the above Notice of Intent concerning the Lake Okeechobee regulation schedule. The Tribe has commented on this issue in the past but wishes to emphasize the following general request.

As part of your scoping process the Tribe requests the Corps consider the South Florida Water Management District's obligations to provide the Seminole Tribe it's surface water entitlement (See Agreement Between the South Florida Water Management District and Seminole Tribe of Florida Providing for Water Quality, Water Supply and Flood Control Plans for the Big Cypress Seminole Indian Reservation and the Brighton Seminole Indian Reservation, Implementing Sections V. C. and V.I.D. of Water Rights Compact, page 12, section D.2.b.) Understand that the South Florida Water Management District has an obligation to mitigate for any increased frequency of water supply demands not being met on the Big Cypress or Brighton Reservations which would occur if the lake regulation schedule is dropped.

Please feel free to contact me should you have any questions regarding the above.

Sincerely,

Kenneth W. Dodge

Cc: Craig Tepper, Director
Seminole Water Resource Management Department

I:\Client Documents\SEMINOLE\776-004-Brighton\Corr\Haberer Ltr re Lake Okeechobee scoping comment.doc

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Bob Janes
District One November 29, 2005

Douglas R. St. Cerny
District Two

Ray Judah
District Three

Tammy Hall
District Four

John E. Albion
District Five

Donald D. Stilwell
County Manager

David M. Owen
County Attorney

Diana M. Parker
County Hearing
Examiner

Colonel Carpenter
US Army Corps of Engineers
Jacksonville District
701 San Marco Blvd.
Jacksonville, FL 32207

Dear Colonel Carpenter:

Lee County is pleased to submit these comments in response to the Corps July 21, 2005, request for comments on its Draft Supplemental Environmental Impact Statement (DSEIS) for the Lake Okeechobee Regulation Schedule Study (LORSS). As you know, Lee County is very concerned about the considerable discharges from Lake Okeechobee into the Caloosahatchee Estuary. The County's significant ecotourism economy is intrinsically linked to the health of this ecosystem. Although the Water Supply and Environment ("WSE") Regulation Schedule has shown some improvement over the previous regulation schedules for Lake Okeechobee, the deviations from it over past several years demonstrates a continuing need for improvement in management of Lake Okeechobee water levels.

Our concerns are three fold:

- 1) Adequate high and low seasonal flows to sustain the estuary
- 2) Flow water quality that does not exceed the capacity of the estuary to assimilate
- 3) Adequate flows to meet our public water supply utility

1. High and Low Seasonal Flows - The WSE Regulation Schedule, the protocol governing Lake Okeechobee levels throughout the year, needs to promote an operating schedule that can drop the Lake elevation to 12 feet MSL (define MSL) by end of dry season to achieve the target above, and not exceed 15.5 feet for dry sustained period. Relative to the operation of the WSE, the Kissimmee Basin optional drawdown needs to be closely reviewed so that it will not cause additional discharges above the 2800 cfs target for Lake Okeechobee Discharges to the Caloosahatchee Estuary. Specific to the Caloosahatchee Estuary, when operating the WSE Regulation Schedule, discharges from Lake Okeechobee must promote a Lake management regime that does not cause maximum flows to exceed 2,800 cubic feet per second ("cfs") at the Franklin Lock, as an average, for any sustained period (commonly considered a 30 day period), nor drop below 500 cfs for any sustained period.

2. Water Quality - The high and low lake regime mentioned above should help improve the Lake's assimilative capacity, which is critical for reducing pollutant loads away from the Lake to the river. Specifically, the higher levels are of concern since unexpected storms or sustained wet seasons increase discharges, which harm the salinity balance, harms the grass beds, reduces assimilative capacity, and carries more pollutant loads. So the high flows need further management options for disposal. To that end, the LORSS needs to be coordinated with more disposal options than the current immediate system of solely discharging to the Caloosahatchee and St. Lucie. Reducing high discharges also has the public health benefit of reducing and preventing algae outbreaks as documented by the Department of Health.

3. Utility Needs - Lee County maintains a water plant on the Caloosahatchee. It is the sole remaining public facility on the River, as compared to the numerous public utilities being supplied by the Lake on the east coast. Based upon volume demands of CSFFCD overall, our need volumes are trivial but of vital importance for our regional water supply planning. Just as critical are our evolving plans for a surficial water desalination plant, which depends upon a reasonable salinity mix of the supplying volumes. We would like you to keep the County's utility plan needs (10 cfs, up to 50 cfs) in your assessment of LORSS through the DSEIS.

We appreciate the opportunity to submit these comments regarding the County's goals for Lake Okeechobee management. We view the process of revising the WSE Regulation Schedule as an opportunity to benefit the Lake and the Estuaries. We also view the process of revising the WSE Regulation Schedule as an interim measure until the planned storage and treatment projects planned as a part of the State's Accelerate program, the Comprehensive Everglades Restoration Plan ("CERP") and other initiatives are implemented. Only then will there be significant relief for the Lake Okeechobee and Estuary ecosystems.

Sincerely,



Commissioner Tammara Hall,
Lee County BoCC, Chairwoman

cc: BoCC Districts 1, 2, 3, & 5
Donald D. Stilwell, County Manager
Wayne Daltry, SmartGrowth Director
Roland Ottolini, Natural Resources Manager
John Fumero, Esq.

August 5, 2005

Planning Division
Environmental Branch
Special Projects Section
Department of the Army
P.O. Box 4970
Jacksonville, FL 32232-0019

RE: Lake Okeechobee Regulation Schedule Study

Dear Sir or Madam:

We are gravely concerned that proposed amendments to the exiting Lake Okeechobee Regulation Schedule (WSE) will not be adequate to deal with major public safety and environmental issues. These concerns, along with related questions, are listed below.

We would appreciate your response to the questions that accompany each paragraph.

1. The WSE schedule is based on 31, and later 36, years of historic rainfall and associated tributary inflows into Lake Okeechobee. Most climatologists now believe we are approximately 10 years onto a roughly 30 year "wet cycle" of the Atlantic Multi-decadal Oscillation. This means nearly all of the historic data used to model Lake Okeechobee behavior is "dry cycle" data. We apparently have 20 years of "wet cycle" rainfall coming. How will this modeling deficiency be addressed?
2. Historic tributary contributions to Lake Okeechobee may have changed over time due to basin alterations. Significant evidence of this is offered by the most rapid Lake level rise in August/September in recorded history in 2004, despite very dry antecedent conditions and actual August/September rainfall being below record levels. Additional evidence is provided by the SFWMD Lake Okeechobee position analysis issued June 1 2005, followed again with less than record rainfall, and the Lake level rose above the highest level predicted by early July 2005. How will this predictive modeling deficiency be addressed?
3. The South Florida Water Management Model is used to evaluate Lake Okeechobee regulation options. This model is designed to operate the EAA under "optimum" soil moisture conditions, meaning maintaining the EAA water table 18" below land surface. Under excess rainfall conditions this results in pumped discharges to the WCA's and Lake Okeechobee up to at least 15,000 cfs, and average annual drainage volumes of 1 to 1.2 M acre-feet during the period of record 1979-95. At the same time, average annual supplemental irrigation

demand estimates call for around 0.8M acre-feet of storage in Lake Okeechobee. The WCA's are not allowed to provide supplemental irrigation to the EAA in the model. Operating 600,000 acres of land so that it is provided 2' per year pumped drainage and 1.5' per year storage in Lake Okeechobee, and organizing the rest of the SFWMM model around the EAA to model the Lake O regulation schedule with these parameters is absurd. How will the modeling process be amended to assure the EAA shares climatic adversity with the rest of the system?

4. SFWMD continues to predict irrigation supply requirements in the EAA using theoretical models of crop production rather than comparing actual water usage during droughts to actual crop production figures. This inflates the water storage requirements for Lake Okeechobee and increases the public safety risk that errors in predictive models will result in unacceptable danger of dike failure. How will this be addressed?
5. Given the ingrained bias of the SFWMM toward producing perfect drainage and perfect water supply in the EAA, will the Corps consider using another model for evaluation Lake O regulation schedules that treats all land areas in SFWMD more evenly?
6. The environmental damage done to Lake Okeechobee, the Caloosahatchee and St. Lucie Estuaries is no longer intermittent, it has become chronic and perhaps irreversible in some respects. How will the next regulation schedule go beyond reducing the damages and actually create improvements in these resources?
7. The modeling used to evaluate the WSE schedule treated the Kissimmee Valley and other tributaries to Lake Okeechobee as a "black box", with historic tributary inflows treated as unalterable facts. In fact, there are many operable structures in tributary basins and operational options as well. How will these be utilized to improve the next Lake O schedule?
8. Forward pumps are being touted by some interests as the solution to achieving lower average Lake O levels without reducing water supplies. Will the Corps independently evaluate the size and efficacy of forward pumps, or rely solely upon SFWMD and water users' requests for forward pumping capacity?
9. Modwaters was originally presented as a major solution to capacity issues preventing moving water south out of Lake Okeechobee. It now appears the actual limits to moving water south are STA treatment capacity; and drainage of the EAA since 2001 uses up all the storage in the WCA's. How will these limits be addressed in the next schedule study?
10. Running the Lake at lower average levels will require continuous discharge of water most of the time. This option was considered and discarded during the Lake schedule evaluations that eventually led to the minor schedule adjustment "Class Limits", due to slightly increased risk of water shortage in extreme

droughts. Is the Corps going to establish a drought protection criteria, such as 1 in 5 year frequency, and adhere to it for the next regulation study?

We appreciate your consideration of these issues and look forward to answers to our questions. Please advise if we can be of further assistance.

Sincerely,

F. D. Bud Jordan
President, St. Lucie River Initiative, Inc.



United States Department of the Interior



FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960

September 19, 2005

Stuart J. Appelbaum
Chief, Planning Division
U.S. Army Corps of Engineers
Post Office Box 4970
Jacksonville, Florida 32232-0019

Dear Mr. Appelbaum:

On August 3, 2005, the U.S. Army Corps of Engineers (Corps) published in the Federal Register a Notice of Intent to prepare a Draft Supplemental Environmental Impact Statement (EIS) for the Lake Okeechobee Regulation Schedule Study (Department of Interior ER Number 05/693). A July 21, 2005, letter from the Corps was sent to interested parties briefly describing the proposed study and requesting views, comments, and information regarding this project. The Fish and Wildlife Service (Service) is pleased to submit for your consideration the following discussion of our views and issues regarding the Lake Okeechobee Regulation Schedule.

The Service is aware of the multiple, and often conflicting, environmental objectives for managing water levels in Lake Okeechobee. We will continue to take a broad system-wide perspective in reviewing the ecological effects on the lake's littoral zone, the St. Lucie and Caloosahatchee estuaries, and the remnant Everglades to the south in the Water Conservation Areas.

Despite our continued commitment to taking an ecosystem-level approach in our review of Lake Okeechobee regulation, the Service has an overriding concern regarding the effects of water levels on the survival and recovery of the endangered Everglade snail kite (*Rostrhamus sociabilis plumbeus*) in the Kissimmee/Okeechobee/Everglades watershed in south Florida. Please refer to our letter dated January 20, 2005, in which we expressed the need for the Corps to initiate formal consultation on this species. On August 22, 2005, the National Wildlife Federation and the Florida Wildlife Federation filed a complaint against the Corps on this issue. This recent court filing underscores the need for a reinitiation of formal consultation. As we stated in our January 20, 2005, letter, the only previous formal consultation in 1978 was written prior to the 1982 amendment to the Endangered Species Act allowing incidental take. The Service needs to assist the Corps to identify, descriptively and numerically, the level of incidental take of snail kites under the existing and any proposed future regulation schedule for Lake Okeechobee.

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Snail kite survey data over the past several years have shown an almost complete abandonment of Lake Okeechobee as a breeding area, when it historically was one of the most important breeding grounds for the snail kite in all of Florida. This substantial reduction in foraging and breeding may be directly related to unsuitable water levels. Water levels affect the vegetative composition and structure of the lake's littoral zone (breeding habitat for the apple snail [*Pomacea paludosa*], the snail kite's primary food source), and the availability of suitable snail kite nesting habitat. Since the Corps first consulted with the Service on the regulation schedule back in 1978, the Service has consistently favored a regulation schedule with lower average water levels than currently in use.

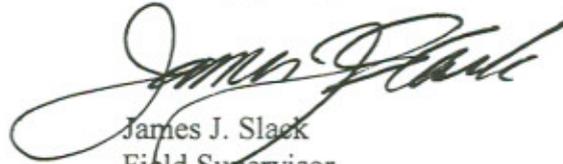
In addition to our concerns for the snail kite, we are also troubled by the increasingly negative effects of water releases from the lake (including, but not limited to, events this year) on the St. Lucie and Caloosahatchee estuaries. Undesirable water releases (in both timing and quantity) have damaged these sensitive ecological systems. As indicated in the Corps' July 21, 2005, letter, the unusual (though predicted) weather conditions in the past several years have demonstrated a significant weakness in the current regulation schedule when it comes to protecting the natural resources of the estuaries and the lake itself.

One specific aspect of the regulation schedule which needs close scrutiny is the release decision tree. As the Service has recommended in the past, the decision tree must include ecological considerations as part of its logic flow. Although, much text has been written in previous studies about consultation with estuarine experts prior to making releases to the estuaries, this consultation has not been added as a requirement within the decision tree. While we recognize the advantages of maintaining a certain level of flexibility in the decision tree (adaptive management to particular circumstances), adaptive changes in water release decisions make it difficult to compare modeled alternatives to what is done in the real world. In the past, the Service generally supported what the Corps had termed "temporary deviations" when these appeared to be beneficial based on the particular circumstances facing the lake and the estuaries at the time. However, the "temporary" deviations to the Water Supply and Environmental regulation schedule have extended to the point where the model runs the agencies formally evaluated in 1999 prior to the EIS bear little resemblance to what has happened. We want to be reasonably certain that the modeling of alternatives is close to what will actually take place under a revised schedule.

The Service is very interested in contributing staff and expertise for the development of new and more effective performance measures that will be used for the evaluation of the lake's water level modeling, and for the monitoring and assessment of post-project management decisions. Regarding the modeling of project alternatives, it is necessary for all alternatives to be modeled both with and without the proposed forward pumps for agricultural interests to the south of the lake. Only by seeing the effects that these proposed pumps have on overall water recession and recovery rates can the Service properly evaluate their inclusion in any restoration plan or regulation schedule for the lake and surrounding watershed.

Thank you for this opportunity to provide early comments on this very important and timely project. The Service greatly appreciates your efforts in helping to protect the fish and wildlife resources of south Florida. If you have questions regarding this letter, please call Doug Chaltry at 772-562-3909, extension 320, or Robert Pace at extension 239.

Sincerely yours,

A handwritten signature in black ink, appearing to read "James J. Slack". The signature is fluid and cursive, with a large loop at the end.

James J. Slack
Field Supervisor
South Florida Ecological Services Office

cc:

District, West Palm Beach, Florida (Dr. Susan Gray)
FWC, Vero Beach, Florida (Dr. Joseph Walsh)
Audubon of Florida, Lorida, Florida (Dr. Paul Grey)
Service, Jacksonville, Florida (Miles Meyer)
Service, Atlanta, Georgia (Jeff Weller)
Florida Wildlife Federation, Tallahassee, Florida
National Wildlife Federation, Reston, Virginia



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
263 13th Avenue South
St. Petersburg, Florida 33701

September 16, 2005

Ms. Marie Burns
Planning Division, Environmental Branch
Jacksonville District
Department of the Army, Corps of Engineers
P.O. Box 4970
Jacksonville, Florida 32232-0019

Dear Ms. Burns:

The National Marine Fisheries Service (NMFS) has reviewed the Notice of Intent to prepare a Draft Supplemental Environmental Impact Statement (DSEIS) for the Lake Okeechobee Regulation Schedule Study (LORSS) of the Central and Southern Florida Project. The DSEIS will supplement the Final Environmental Impact Statement for the LORSS that was prepared in 2000. The area of interest includes Lake Okeechobee, a large watershed north of the lake, and several downstream estuaries (St. Lucie Estuary, Caloosahatchee Estuary, the Everglades Protection Area, and the Lake Worth Lagoon). The purpose of the study is to examine alternative modifications to the lake's current regulation schedule. The study will consider operational changes to the water management structures that discharge water from the lake as well as criteria used to determine those operations. The study also will consider municipal, agricultural, and industrial water supply, continued flood protection, protection of the lake's environmental resources and its downstream estuaries, water quality, fish and wildlife habitat, endangered and threatened species, and other issues identified during the scoping process.

Lake Okeechobee is hydrologically connected to downstream estuarine waters that support NMFS' trust resources. Therefore, we recommend that the DSEIS include an evaluation of potential impacts to essential fish habitat (EFH), including, but not limited to estuarine waters, mangroves, seagrasses, and live bottom communities. The evaluation may include anticipated benefits to these resources as well as any potential detrimental impacts the project may have on these resources. If significant detrimental impacts are anticipated, then mitigation would be needed.

If the proposed action might adversely impact EFH or other living marine resources, those impacts and any related mitigation should be fully described in the environmental impact statement for the project. Requirements concerning EFH coordination and management are contained in the Magnuson-Stevens Fishery Conservation and Management Act, as amended by

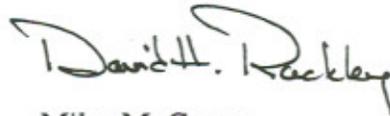


the Sustainable Fisheries Act of 1996 (P.L. 104-267). The regulations for implementing coordination are found at 50 CFR 600.920. EFH is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." If there are foreseeable direct and/or indirect impacts to EFH associated with the proposed project, an EFH assessment should be prepared. The EFH assessment must include 1) a description of the proposed action; 2) an analysis of anticipated direct, indirect, and cumulative impacts of the proposed action on EFH, Federally managed species, and associated species by life history state; and 3) the federal agency's views regarding the effects of the proposed project on EFH.

We appreciate the opportunity to provide these comments. Related correspondence should be addressed to the attention of Audra Livergood at our Miami Office. She may be reached at 11420 North Kendall Drive, Suite #103, Miami, Florida 33176, or by telephone at (305) 595-8352.

Sincerely,

Jez



Miles M. Croom
Assistant Regional Administrator
Habitat Conservation Division

cc:

EPA, West Palm (Attn. Ron Miedema)
SFWMD, West Palm (Attn. Ron Peekstock)
F/SER4, Mark Sramek
F/SER47, Livergood



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
263 13th Avenue S.
St. Petersburg, FL 33701
(727) 824-5312, FAX 824-5309
<http://sero.nmfs.noaa.gov>

SEP 13 2005

F/SER31: SN

Mr. Stuart Appelbaum
Chief, Planning Division
U.S. Army Corps of Engineers
P.O. Box 4970
Jacksonville, FL 32232-0019

Dear Mr. Appelbaum:

This correspondence responds to the Department of the Army's (Army) letter requesting comments on potential resource issues for the Lake Okeechobee Regulation Schedule Study (LORSS) and Central and Southern Florida (C&SF) Study. The Army is beginning preparation of a Draft Supplemental Environmental Impact Statement (DSEIS) for the LORSS and C&SF studies. The DSEIS will supplement the Final EIS for the LORSS prepared in 2000.

The LORSS and C&SF studies involve watersheds north of Lake Okeechobee and several downstream ecosystems (St. Lucie Estuary, Caloosahatchee Estuary, Everglades Protection Area, and Lake Worth Lagoon). The LORSS and C&SF studies involve developing flood control and water supply from Lake Okeechobee to areas downstream.

Johnson's seagrass (*Halophila johnsonii*) and its critical habitat are located along the east coast of Florida between Sebastian Inlet and Biscayne Bay. The smalltooth sawfish (*Pristis pectinata*) was listed as endangered on April 1, 2003. Mote Marine Laboratory's sightings data indicate the current distribution of smalltooth sawfish has contracted to peninsular Florida.

We recommend that the Army evaluate the potential impact that freshwater discharges may have on Johnson's seagrass, Johnson's seagrass critical habitat, and smalltooth sawfish.

We look forward to continued cooperation with the Army in conserving our endangered and threatened resources. If you have any questions regarding these comments, please contact



Ms. Shelley Norton, natural resource specialist, at (727) 824-5312, or by e-mail at shelley.norton@noaa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "D. Bernhart", with a long horizontal flourish extending to the right.

David Bernhart
Assistant Regional Administrator
for Protected Resources

File: 1514-22.f.1.FL
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