

EXECUTIVE SUMMARY

The primary objective of this study is the development of an operations and management management plan for Lake Rousseau that would improve the environmental qualities and recreational potential of the reservoir. Lake Rousseau, a 4,163-acre impoundment of the Withlacoochee River, was was created in 1909. The existing water control structures at the reservoir were constructed between 1965 and 1969 by the United States Army Corps of Engineers (USACOE) as part of the Cross Florida Barge Canal (CFBC) project. Due to environmental and water resource concerns, work on the CFBC ceased in 1971. However, the completed part of the project from the Inglis Complex to the Gulf remains authorized. That part of the project east of Inglis, including Lake Rousseau, is in the process of being deauthorized, pending enactment of appropriate legislation by the State of Florida. Upon deauthorization, it will become part of the Cross Florida National Conservation Area. The State of Florida is cooperating with the USACOE in developing a management plan for the conservation area.

Ecologically, Lake Rousseau is rapidly progressing toward a more

marsh-like system, characterized by excessive aquatic plant growth, accumulated bottom sediments, and poor water circulation. Dense stands of the aquatic weed Hydrilla and floating islands of vegetation, called tussocks, cover large areas of the reservoir. Stumps remaining in the reservoir have accelerated the expansion of the tussocks by obstructing the movement of floating vegetation through the reservoir. Water quality problems in shallow areas of the reservoir have resulted from shading and

reduced circulation caused by the dense aquatic weeds. Flocculent organic sediments have accumulated in the reservoir, adversely affecting water quality and sportfish habitat.

Since the Inglis Dam was constructed in 1909, water levels in Lake Rousseau have been largely stabilized. It has been widely reported, however, that lakes and reservoirs maintain healthier

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ecological conditions if water levels are allowed to fluctuate. ^{It} The Florida Game and Freshwater Fish Commission (FG&FWFC) has suggested that periodic extreme

extreme drawdowns would improve Lake Rousseau's habitat characteristics and sportfish production. is also the conclusion of this report that the following benefits

and long-term) should result (both immediate

from an extreme

drawdown program:

(1
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(2)

in periodic reduction accumulated plant biomass, possibly resulting in improved water quality, particularly light penetration, vertical mixing, and increased dissolved oxygen concentrations;

it would facilitate the partial removal of stumps within the reservoir, thus helping control tussock expansion;

(3) the drying and compaction of the flocculent organic
sediments; and

(4
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an increase in sportfish size and numbers.

To determine whether an extreme drawdown of Lake Rousseau would
be feasible, the following items were considered:

(1) the fresh-water inflow needs of the Withlacoochee
River

estuary;

(2)

the quantity of reservoir inflow and the time required
to refill the reservoir;

(3)

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the operation of upstream water control structures and
their effects on inflows to Lake Rousseau;

(4)

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ground-water effects (potentiometric surface response
and salt-water intrusion potential);

(5)

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navigation and reservoir access; and

(6)

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the hydraulic capacity of the USACOE water

control

structures.

After consideration of the above items, it was determined that operation of
the upstream water control structures has minimal

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effects

drawdowns

reservoir on

indicate

inflows.

Mathematical simulations of

the reservoir could be refilled within suitable periods of time while maintaining minimum flows to the lower river. Salt-water intrusion could be a potential threat to some ground-water supplies during drawdown and therefore, should be closely monitored. Navigation during a drawdown will be severely limited in the reservoir and reduced along portions of the upstream river.

Substantial modifications of the existing USACOE water control structures would be necessary to maintain flows to the lower river and estuary during a drawdown. Modifications to both the bypass facility and barge canal (lower river reconnect) were investigated. For reservoir management, the barge canal option is preferred because it would allow constant

constant flushing of the

western end of Lake Rousseau. This option would be the least expensive and would restore the original configuration of the

lower river channel. Access to Lake

to Lake Rousseau

Rousseau from

from the barge

canal would not be possible with this option, but access would become available from the lower river through the Inglis Lock

which would still be functional. Existing flood control capabilities for the lower river would be maintained with the bypass facility option. With the barge canal option, an overflow weir would be designed to limit flood flows to non-damaging levels. Finally, either option would allow better moderation of flows to the barge canal than is currently possible, providing

increased management capabilities for the estuary.

However, these modifications may not be viable because pending deauthorization of the barge canal may restrict structural

modifications of barge canal facilities.

Without modifications to the USACOE water control structures, the

current operations plan for the reservoir is the only practical alternative. However, the stabilization of water levels in the reservoir has undesirable ecological consequences and limits the potential to maximize sportfish production. Lake Rousseau is an

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important regional economic asset due to its value as a recreational and fishery resource. The implementation of drawdown capabilities should be strongly considered because of the potential benefits to the reservoir's ecology and resource value.

should be

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RECOMMENDATIONS

It is

Lake

recommended that extreme drawdown capabilities be pursued as an effective operation and management tool for

Rousseau, and that a Steering Committee be formed comprised of one representative each from the Counties of Citrus, Levy and Marion; and the Cities of Dunnellon, Inglis and Yankeetown; and the Withlacoochee River Basin Board to monitor public discussion of the drawdown question.

2.

It

is further recommended that a Technical Advisory Committee (TAC) be formed comprised of representatives from the FG&FWFC, the FDNR, the FDER, the SWFWMD, and the USACOE to present technical aspects of the drawdown to the Steering Committee and to the public. The TAC shall assist the Steering Committee in evaluating the overall feasibility of an extreme drawdown and in making a final recommendation on the matter.