



United States Department of the Interior



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

September 15, 2003

James C. Duck
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Post Office Box 4970
Jacksonville, Florida 32232-0019

Dear Mr. Duck:

The Fish and Wildlife Service (Service) has prepared this Planning Aid Letter (PAL) for the Hillsboro Site 1 Impoundment Project to provide guidance and recommendations to the Project Delivery Team (PDT) regarding resource conservation issues. By providing input early in the planning process, we hope to identify ways to accomplish project goals while optimizing conservation opportunities. Our comments are provided in accordance with the Fish and Wildlife Coordination Act (FWCA) of 1958, as amended (87 Stat. 884; 16 U.S.C. 661 *et seq.*), and the Endangered Species Act (ESA) of 1973, as amended (48 Stat. 401; 16 U.S.C. 1531 *et seq.*). However, this PAL does not constitute the report of the Secretary of the Interior as required by section 2(b) of the FWCA, nor does it constitute a biological opinion under section 7 of the ESA.

Project Description

The Hillsboro Site 1 Impoundment is located in southern Palm Beach County adjacent to the Hillsboro Canal (Figure 1). It is bordered to the northwest by the Arthur R. Marshall Loxahatchee National Wildlife Refuge (LNWR), also known as Water Conservation Area 1 (WCA1). The Hillsboro Site 1 Impoundment project was first proposed in the Central and Southern Florida (C&SF) Project Comprehensive Review Study (Corps 1999) for the purpose of collecting stormwater runoff from the Hillsboro Basin that has been historically discharged to tide through the Hillsboro Canal. The collected water would be stored in the impoundment for future water supply uses, reducing demands on Lake Okeechobee and the WCA1. The impoundment would also serve as a potential source of water to be injected into the Florida aquifer as a part of the Hillsboro Aquifer Storage and Recovery project.

In the Water Preserve Areas (WPA) Draft Feasibility Report (Corps 2001), the proposed project is further described as an 8-foot deep impoundment providing an effective surface area of 1680 acres with a total project footprint of approximately 1800 acres. A 1500 cubic feet per

second (cfs) inflow pump (S-525A) located on the southern boundary of the impoundment is designed to capture runoff during storm events. In addition, the S-525A will be able to backpump seepage water from adjacent canals currently conveyed to the Hillsboro Canal. The proposed impoundment design consists of two internal compartments separated by a levee (L-508I) with a two-barrel-gated culvert (S-528A) to pass water between cells. A seepage canal (C-508N) is planned along the eastern boundary equipped with a fixed weir (S-527A) to maintain optimal water levels within the seepage canal. An emergency overflow spillway is designed in the southern boundary levee of the western cell near the pump station for direct discharge into the Hillsboro Canal. To accommodate this additional water supply, the Hillsboro Canal is proposed to be widened from a bottom width of 16 feet to a bottom width of 40 feet starting from the impoundment inflow structure and extending east to the Lake Worth Drainage District E-1 canal (approximately 6.75 miles). This proposed canal improvement would take place within the existing canal banks with no anticipated widening of the top bank width. The S-39A structure would be replaced with a new, larger S-527B structure which is a two-barrel gated culvert. The proposed design of the Site 1 Impoundment, however, is subject to change as the PDT further develops and evaluates alternatives.

Existing Natural Resources

The WPA Draft Feasibility Report (Corps 2001) characterized the site as having 53 acres of Red bay, 77 acres of Australian pine, 209 acres of abandoned tree nursery, 265 acres of sawgrass/melaleuca, 753 acres of improved pasture, and 348 acres of wet pasture. Potential wildlife species that may use the area were identified. These include a variety of wading birds and waterbirds, including anhinga (*Anhinga anhinga*), limpkin (*Aramus guarana*), great blue heron (*Ardea herodias*), great egret (*Ardea alba*), tricolored heron (*Ardea tricolor*), white ibis (*Eudocimus albus*), green heron (*Butorides striatus*) and others. Amphibians such as green treefrog (*Hyla cenerea*), squirrel tree frog (*H. squirella*), pig frogs (*Rana grylio*), southern leopard frog (*R. utricularia*), legless siren (*Siren lacertina*) and amphiuma salamanders (*Amphiuma means*) were also identified as likely inhabitants of areas that remain wet for most of the year. Other herpetofauna including swamp snakes, water snakes, cottonmouths (*Agkistrodon piscivorus*), red bellied turtles (*Pseudemys nelsonii*), and mud turtles (*Kinosternon subrubrum*) could also be present. Mammals such as the river otter (*Lutra canadensis*) and white-tailed deer (*Odocoileus virginianus*) commonly forage in wetlands and are known to utilize WCA1 adjacent to the project site.

The Service and Florida Fish and Wildlife Conservation Commission (FWC) biologists visited the site on June 13, 2003. Current land uses observed in the area included livestock grazing and a plant nursery. The biologists observed several species of birds using the project area including osprey (*Pandion haliaetus*), red-shouldered hawk (*Buteo lineatus*), great egret, green heron, tricolored heron, loggerhead shrike (*Lanius ludovicianus*), red-bellied woodpecker (*Melanerpes*

carolinus), mourning dove (*Zenaida macroura*), blue jay (*Cyanocitta cristata*), and northern cardinal (*Cardinalis cardinalis*). In addition, an aquatic turtle nest that had been depredated was observed.

Fish and Wildlife Resource Issues to be Considered During Project Planning

A. Federally Listed Species

Federally listed species that could potentially be affected by the Hillsboro Site 1 Impoundment Project include the endangered West Indian manatee (*Trichechus manatus*), endangered Florida panther (*Puma concolor coryi*), endangered Everglade snail kite (*Rostrhamus sociabilis*) and its designated critical habitat, endangered wood stork (*Mycteria americana*), threatened bald eagle (*Haliaeetus leucocephalus*) and threatened eastern indigo snake (*Drymarchon corais couperi*). Based on the best available information, there are no confirmed nest sites, rookeries, or den sites for federally listed species within the proposed project boundaries. However, construction activities and infrastructure associated with the proposed impoundment could affect some or all of these species. Issues identified for individual species are described below.

Eastern indigo snake

According to the South Florida Multi-Species Recovery Plan (Service 1999), the eastern indigo snake is associated with habitats identified in the Site 1 Impoundment Project area. Construction of the impoundment and inundation of upland habitats may impact indigo snake habitat. However, levees constructed as part of the project can provide habitat for indigo snakes after completion of the impoundment.

Wood stork

The federally endangered wood stork forages regularly in WCA1 and WCA2 adjacent to the project site. Construction activities are proposed within the 18.6 mile core foraging habitat (Service 1999) for wood stork colonies located in WCA1 and WCA2. Prolonged construction may disturb the foraging patterns of nesting birds at these locations. This impact may be avoided by performing construction activities during June-November when wood storks are not nesting.

Everglades snail kite

Snail kites do not nest in the footprint of the project. However, construction activities associated with the project may disturb foraging kites on adjacent natural areas. Snail kites forage in WCA1 to the north and WCA2 to the south of the project area. If the Hillsboro Site 1 Impoundment or its infrastructure provide habitat for apple snails (*Pomacea paludosa*), snail kites may be attracted to the site.

B. Soil/Sediment Quality

The Site 1 Impoundment footprint encompasses former agricultural lands. Residual contaminants such as metals, pesticides, and petroleum by-products may be present due to past agricultural practices at levels that could be harmful, particularly once the property is flooded. Important natural areas (WCA1 and WCA2) supporting diverse wildlife populations including foraging wading birds, snail kites, and other trust resources may be attracted to the impoundment. To address concerns about the potential for wildlife exposure to contaminants that are mobilized or biomagnified up the food chain, a Phase I/II Environmental Site Assessment may be warranted. We recommend coordination with the Service's Environmental Contaminants Program (ECP) in our South Florida Field Office to assess the potential for residual contaminants to be present at levels of concern. The ECP staff can be reached at 772-562-3909, extension 242.

Opportunities

A. Improve Wildlife Habitat in WCA1

The Site 1 Impoundment is designed to store water that has been historically discharged to tide through the Hillsboro Canal. This stored water is proposed for use in meeting future water supply demands, thereby relieving pressure from WCA1 during drought. The potential also exists for the Site 1 Impoundment to relieve environmental pressures caused by high water levels.

The U.S. Army Corps of Engineers (Corps) and the South Florida Water Management District implement a water management schedule for WCA1 (Figure 2) which defines monthly maximum and minimum water levels that accomplish water supply goals while maintaining ecosystem function. Ideally, water levels in WCA1 would not fall outside of the scheduled depths. However, if rainfall during a given period is above average, temporary deviations from the regulation schedule may be necessary to alleviate flooding. When rainfall results in water levels that exceed the specified regulation schedule for WCA1, water is typically discharged south to WCA2 and WCA3, eventually flowing into Everglades National Park or sent east down the Hillsboro Canal to the Lake Worth lagoon estuary. However, high water levels in WCA1 can occur at times when the entire system is above regulation schedule and the release of water from WCA1 downstream to the other water conservation areas is not feasible. Downstream water releases may also be suspended if they are determined to pose a potential threat to nesting Cape Sable Seaside Sparrows. Excessive water releases east to the estuary can cause fish kills and damage other marine resources such as seagrass beds.

High water levels in WCA1 are particularly problematic during April through July, when water should be receding prior to the onset of the wet season. Fish and wildlife resources are particularly sensitive to high water levels at this time as it is the reproductive season for

alligators, wading birds, and other wildlife. Sudden large increases in water levels can flood alligator nests and tree islands, and disperse prey that is critical for nesting wading birds. Prolonged periods of high water stresses tree islands and may result in tree death or infestation of weakened trees by parasites.

The Service recommends evaluating the feasibility of sending excess water to the Site 1 Impoundment during times when WCA1 is above scheduled water levels and discharges south or east are not possible. This could provide additional management options for the LNWR to maintain natural resources in the interior of WCA1. Enabling water levels to remain under the regulation schedule would significantly benefit tree islands and other important wildlife habitat within the interior of the refuge.

B. Increase Fish and Wildlife Habitat

Several opportunities may exist for impoundment design modifications that would increase the availability of fish and wildlife habitat. We recommend the Corps coordinate with the Service and FWC staff to evaluate the possibility of including features such as those described below:

- Design the impoundment to provide areas of deep open water to serve as refugia for aquatic wildlife during dry periods. Providing refugia may also prevent mortality of mosquito fish (*Gambusia affinis*) which help control mosquito (*Anopheles* spp.) populations.
- Increase the spatial extent of wetlands and/or fish and wildlife habitat by including littoral shelves in the impoundment or seepage canal. Consider sloping and/or terracing levees and planting native trees and other vegetation where possible. A portion of the levee could be closed to traffic and designed as transitional habitat with terraces and littoral shelves allowing emergent vegetation, herbaceous shrub vegetation, and trees. The Service understands that the structural integrity of the levees cannot be compromised. However, we encourage the design team to work with the Service and FWC to incorporate innovative alternatives in project design for increasing wildlife habitat.
- Incorporate wildlife habitat into the project such as small islands constructed within the impoundment and planted with native vegetation to provide habitat for wildlife including mammals, alligators, turtles, wading birds, and shorebirds.

C. Increase Recreational Use

Opportunities for recreation should be considered when developing design and operational plans. Recreational activities in the impoundment and on associated levees could include wildlife

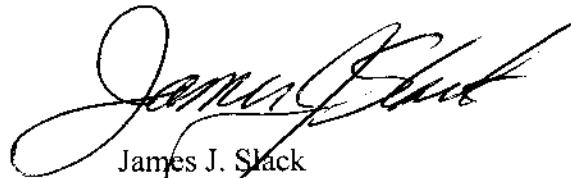
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viewing, fishing, boating, hiking, and biking. Depending on recreational activities recommended by the public and the PDT, access, parking, and boat ramps may be designed. In addition, recreational areas along levees and canals could include shade trees, shrub vegetation, informational signs, and pavilions to increase public use and positive public perception. Shade trees and vegetation may also serve as wildlife habitat. We recommend the Corps also discuss recreational opportunities with the FWC.

Closing Comments

The Service appreciates this opportunity to provide planning guidance to the Corps in support of the Site 1 Impoundment Project planning effort. As a member of the PDT, we look forward to providing technical support to the Corps during all phases of this important project. If you have questions or comments, please feel free to contact Stefani Melvin, Fish and Wildlife Biologist, at 772-532-7140.

Sincerely yours,



James J. Slack
Field Supervisor
South Florida Ecological Services Office

cc:
Corps, Jacksonville, Florida (Jeff Couch, Rebecca Weiss)
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FWC, Vero Beach, Florida (Yvette Alger)
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Literature Cited

- U. S. Army Corps of Engineers. 1999. Central and South Florida project comprehensive review study. Final integrated feasibility report and programmatic environmental impact statement. Jacksonville District Office; Jacksonville, Florida.
- U. S. Army Corps of Engineers. 2001. Central and Southern Florida project water preserve areas feasibility study. Draft integrated feasibility report and supplemental environmental impact statement. Jacksonville District Office; Jacksonville, Florida.
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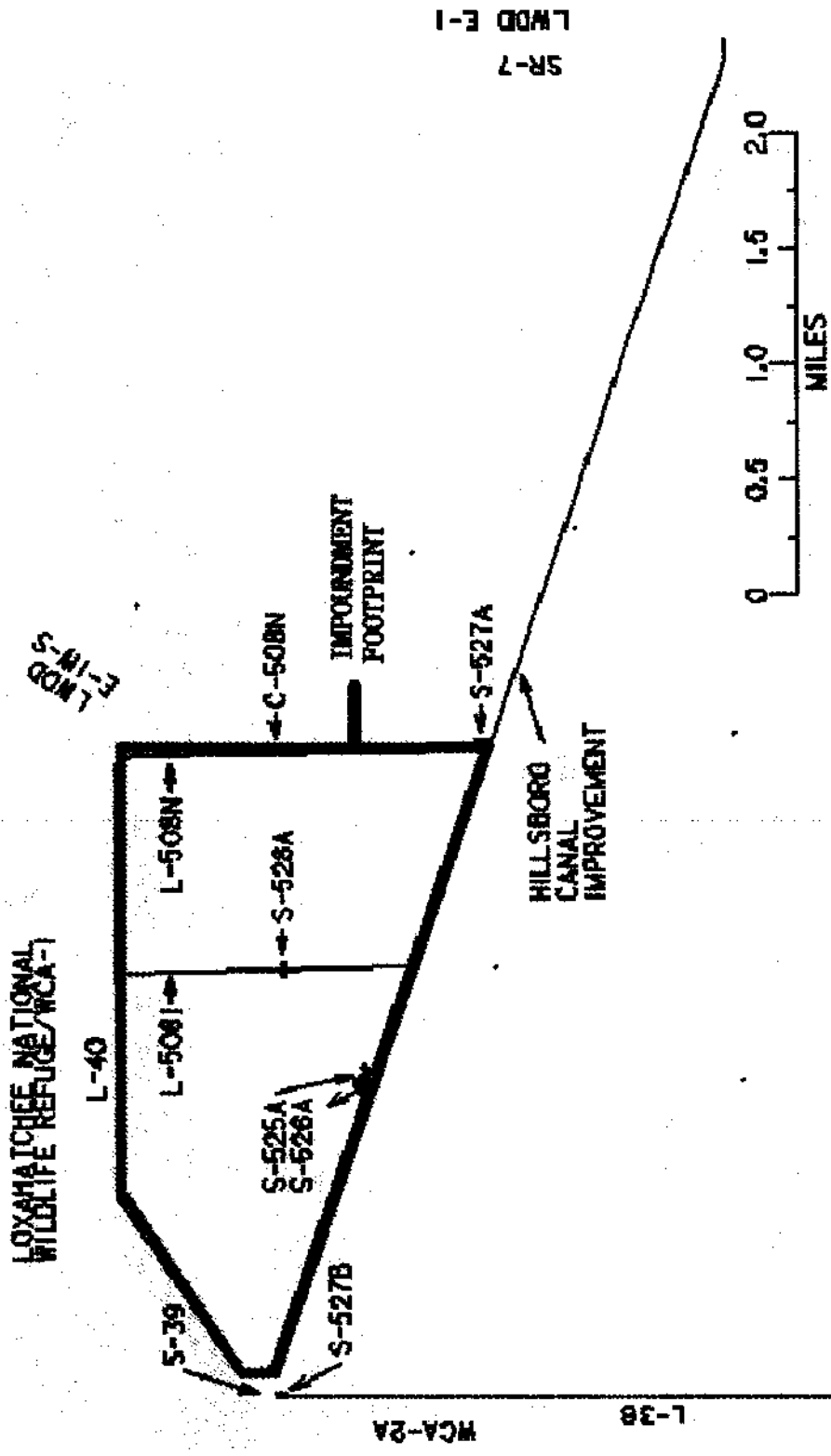


Figure 1. Location of the Hillsboro Site 1 Impoundment and proposed infrastructure (map courtesy Corps).

WCA 1 WATER REGULATION SCHEDULE

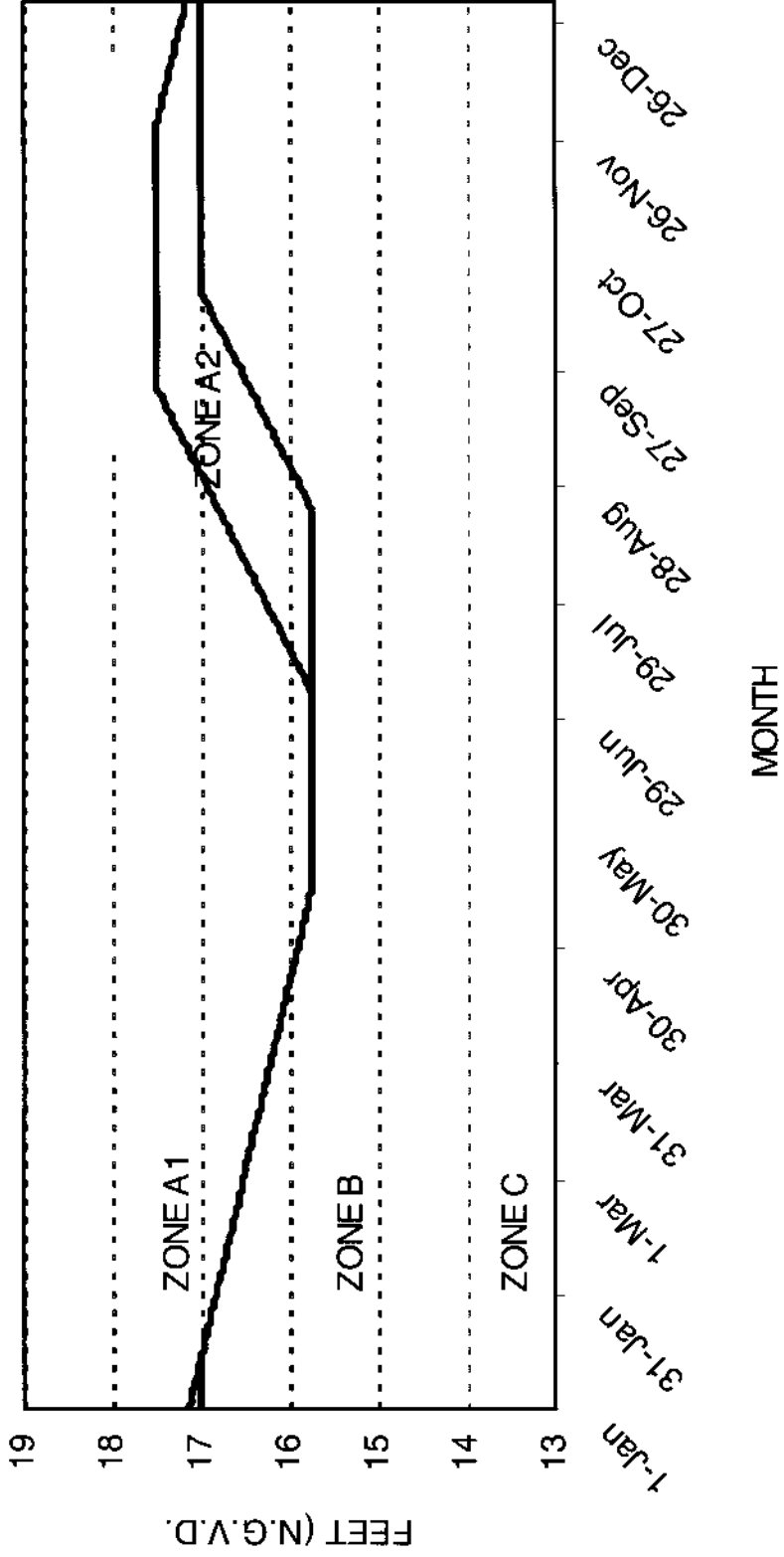


Figure 2. Water regulation schedule for WCA1, approved by the Corps.

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