Lake Seminole Habitat Enhancement Project Completion Report

Prepared by the
Florida Fish and Wildlife Conservation Commission
Jeff Willitzer, Biological Scientist II
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Introduction:

Lake Seminole's stabilized water levels have contributed to the increased rate of organic material (muck) deposition. The resulting accumulation of muck on the lake bottom necessitates the drying, oxidation, compaction, and removal of cattail (*Typha* spp.) and associated muck to enhance the quality of aquatic habitat for fish and wildlife. Accumulated muck in stabilized water systems has a detrimental affect on the aquatic environment. The increased depth of organic materials reduces dissolved oxygen levels during decomposition, increases turbidity, promotes excessive growth of invasive and exotic plants, promotes tussock formations, impedes the successful growth of native plants that are beneficial to fish and wildlife, and impedes the successful spawning of native fish species.

From April to May of 2002, a habitat enhancement project utilizing water-filled bladder dam technology was completed by the Florida Fish & Wildlife Conservation Commission. The project removed tussock and organic sediments from approximately 17 acres of lake bottom. The site was re-vegetated with maidencane (P*anicum hemitomon*), while giant bulrush (*Scirpus californicus*), eelgrass (*Vallisneria americana*) and pondweed (*Potamogeton illinoensis*) naturally recruited to the enhanced areas. The current project (FWC 05/06-77) is a continuation of the previous work on Lake Seminole, and is part of the Lake Seminole Watershed Management Plan and the Lake Seminole Habitat Restoration Agreement (P109 016).

Intent of Work:

Muck removal provides for improved water quality, enhanced aquatic plant communities, and promotes more desirable fish and wildlife habitat. Mechanical muck removal has proven to be the most effective way to enhance and improve aquatic habitat. The sites are located in Township 30 South, Range 15 East, Sections 22, 23, 26 of the eastern shoreline of Lake Seminole. The south site area is 5.4 acres. The north site area is 11.4 acres. If given time, demucked sites grow beneficial aquatic plants. The intent of this project is to provide areas of the lake bottom that will promote the growth of beneficial native aquatic plants, and to promote desirable fish and wildlife habitat. It is customary that if a percentage of a demucked work area has not adequately grown beneficial native plants at the one year anniversary of muck removal, the project will revegetate some of these areas to promote growth of beneficial aquatic plants.

Methods and Equipment:

A Department of Environmental Protection Aquatic Plant Management Permit issued to Pinellas County for habitat enhancement work on Lake Seminole was utilized to complete the project.

Pinellas County began drawing the lake down to 2.5 feet NGVD beginning in January 2006; however, a 100 year rain event brought the lake back to full pool in early February, and the lake was drawn down again beginning on February 8, 2006. Once the work area was dewatered and allowed to dry, heavy equipment began clearing the area. Equipment used for muck removal work was a bulldozer, excavator (track-hoe), front-end loader, two off-road dump trucks, and an air curtain incinerator. This equipment worked on the dewatered lake bottom and removed aquatic vegetation and associated muck down three feet or to mineralized soil, whichever was less. The material was wind-rowed, and then woody vegetation was separated with a root rake and burned on the lake bottom, utilizing the air curtain incinerator. The remaining organic material was loaded onto the off-road dump trucks and deposited at a predetermined upland site on Pinellas County property. The upland disposal site was 400 feet away from the lake and is separated by trees. A total of 17 acres of lake bottom was enhanced during the project. The Lake Seminole water level will be allowed to return to normal following the enhancement project.

Time Line

Pinellas County began lowering Lake Seminole in January 2006. A 100 year rain event (approximately 10 inches) in the Lake Seminole watershed did not allow the lake to reach the desired 2.5 feet NGVD until the end of February 2006. Construction on the lake bottom began on April 17, 2006 and was completed on May 15, 2006.

Figure 1. Aerial view of the enhancement site on Lake Seminole taken on February 23, 2006.

Figure 2. Photograph of the boardwalk being constructed by Pinellas County within the enhancement site taken on July 6, 2005.

Figure 3. Photograph of the completed boardwalk and final grade of the Lake Seminole Enhancement Project taken on May 15, 2006.

Figure 4. Photograph of bulldozer, track-hoe, and off-road dump truck moving tussock material into wind-rows on the northern site before being hauled to the upland disposal site.

Figure 5. Photograph of same area as Figure 4 after project completion.

Figure 6. Photograph of the air curtain incinerator used to burn the woody material from the enhancement site.

Figure 7. Photograph of final grade of the southern end of the enhancement site.

All photographs taken by Jeff Willitzer