

2010-2011 Lake Mobile Assessments

On June 30 2010, Gloria Eby (Seminole County [SC] Senior Environmental Scientist), Marianne Pluchino (SC Senior Environmental Scientist), Dean G Barber (SC Consultant) and Thomas Calhoun (Assistant Scientist), surveyed the aquatic plants and conducted a Lake Vegetation Index (LVI) of Lake Mobile. The LVI was created by the Florida Department of Environmental Protection as a rapid screening tool (bioassessment) for ecological condition; it determines how closely a lake's flora (aquatic plants) resembles that of an undisturbed lake.

Lake Mobile is 24 surface acres with a mean depth of 10 feet, maximum depth of 17 feet, located in the Little Wekiva watershed. The Secchi (water clarity) was 8.5 ft in a depth of 9.5 ft. The range of this reading from 1982-2010, 26 samples, has been 1.0 to 13.2 ft. The Water Quality Index (Trophic State) was 35 (Good) taken 4/22/2010. The water quality range for 24 samples taken from 2004 to 2010 has been 35 (Good) to 54 (Good).

During the LVI 4 native submersed aquatic vegetation (SAV) were observed: musk grass (*Chara* spp.), stonewort (*Nitella* spp.), baby's tears (*Micranthemum glomeratum*) and eelgrass (*Vallisneria americana*). Both musk grass and stonewort were observed to a depth of 13 feet while eelgrass was found to 5 feet. These 3 species are the most abundant plants in the lake. Three invasive plants continue to be the most dominant shoreline plants which include; cattails (*Typha* spp.), torpedo grass (*Panicum repens*) and Peruvian water primrose (*Ludwigia peruviana*). We are happy to report that the 2 May 2009 Rosenwald School plantings are re-establishing better than expected after last year's accidental mowing, with minor invasive plants coming in. Those invasive species could be easily removed with a few man-hours. All the planted species have survived with the exception of bulrush (*Scirpus validus*) and planted trees. Secchi reading (water clarity) was 6 feet in a depth of 13 feet.

During our inspection of the lake, these exotics were prevalent in the restoration zone, likely establishing from the cutback of natives of which are recovering (except the trees). With minor scheduled maintenance, such as the upcoming June 11th event, natives should be able to re-establish to the previous extent reducing invasives. As the facility progresses into its future role, management of this area should be included whether community leaders host a cleanup or services are provided. 2 hand removal events per year should sustain the investment of the project long term as long as natives continue to flourish.

Consequence Kids (from the Seminole County Sheriff's Office) will be pulling invasives located within the restoration zone (specifically torpedo grass, cattail, and alligator weed) on August 11th starting around at 9am.

On 18 November 2010 Seminole County Lake Management Program (SCLMP) staff Dean G Barber and Thomas Calhoun surveyed the aquatic plants of Lake Mobile.

Four native submersed aquatic vegetation (SAV) were observed: musk grass to a depth of 9 feet, road grass to 2.5 feet, large stonewort to 10 feet and eelgrass to 8 feet. Baby tears (*Micranthemum glomeratum*), which was previously observed on the 30 June 2010 survey, was not observed on this survey. Musk grass, stonewort and eelgrass are the most abundant plants of the lake. Three invasive plants that continue to be the most dominant along the shoreline include; cattails to a depth of 8 feet,

torpedo grass and water primrose. The cattails are the most prevalent aquatic plant on the western side of the lake, consisting of over 70% of the shoreline coverage.

The most invasive tree adjacent to the lake is Brazilian pepper, which is most prevalent on the eastern side of the lake. The most prevalent grass on the eastern side is maidencane grass, which is coming to the surface from a depth of 8 feet, a significant accomplishment!

The 2 May 2009 Rosenwald School plantings are doing remarkably well. There are some invasive plants in this population that do need to be managed, especially torpedo grass and primrose willow. The torpedo grass on the Rosenwald site is expanding the most on the deep side of the planting area. All the planted species have survived with the exception of bulrush (*Scirpus validus*) and trees. Secchi (water clarity) was 6.8 feet in a depth of 15.9 feet compared to 6 feet on the previous survey. Water elevation was 78.69 feet.



Photo of Rosenwald Restoration site

On 31 May 2011 Seminole County Lake Management Program (SCLMP) staff Dean G Barber and Thomas Calhoun surveyed the aquatic plants of Lake Mobile. The most positive aquatic plant observation was the success of the plantings at Rosenwald School. All species that were planted were still present, healthy and expanding with the exception of bulrush (*Scirpus validus*) and the holly trees. Torpedo grass was present offshore in locations where there was no native spikerush present (a sign of

competition). Attached are photos from the Lake Restoration Event held on February 12th where approximately 40 volunteers from Summit Church worked for 4 hours to remove exotic vegetation from Rosenwald School on Lake Mobile. Approximately 100 bags of torpedo grass, cattails, primrose and ground debris was collected from the 350 ft of restored shoreline. Thank you Cathy Loyd for your assistance!!!

The most prevalent aquatic growth was filamentous algae, which was a monoculture (one species) from 12 feet in depth to shallow water (1-2 feet), where it was found competing with other submersed aquatic vegetation (SAV). The next most abundant SAV was musk grass to a depth of 7 feet and large stonewort to a depth of 5 feet. Both of these SAVs were present in thick, healthy populations covering the lake bottom. In the past, musk grass has been observed in the north and northwest portion of the lake. During this survey, more musk grass was present on the southern side of the lake than had been previously noted. Other SAV observed included: submersed road grass to a depth of 3 feet and eelgrass to 6 feet.

The most abundant emergent aquatic plant continues to be cattail, followed by torpedo grass. These invasive are most prevalent on the western shore, the populated side of the lake, where as with most lakes, residents have unknowingly removed desirable native vegetation allowing invasive exotics such as torpedo grass to establish. The eastern side of the lake remains dominated by beneficial native aquatic plants such as maidencane grass, spatterdock lily and fragrant water lily of which are established to a depth of 8 feet.

Three invasive exotic trees are still present adjacent to the lake: Brazilian pepper, camphor and Chinese tallow. The Secchi reading (measurement for water clarity) was 7.9 feet in a depth of 13.9 feet, compared to 6.8 feet of the previous survey, 18 November 2010. Water elevation was 77.96 feet above sea level compared 78.69 feet on the last survey.