

Lake Mills 2009-2010

On **21 October 2009**, Seminole County Lake Management Program staff Gloria Eby, Dean G Barber and Thomas Calhoun surveyed the aquatic plants in Lake Mills. No hydrilla was found. The dominant submersed aquatic vegetation (SAV) was filamentous algae which covers the bottom to a depth of 5 feet with a thick coat of algae. This is advantageous in that it will help prevent the germinating hydrilla tubers from get through the algae and reaching sunlight. However, it will also impede native submersed aquatic plants from establishing in this same zone, which with the triploid grass carp fish will be key factors in preventing the hydrilla from returning. The native SAV observed were: lemon bacopa, road grass, algae, both species of babytears (*Micranthemum glomeratum*, *M. umbrosum*), stonewort, and eelgrass. Road grass was observed to a depth of 6-7 feet. Hopefully other SAV will establish on the deep side of the filamentous algae to impede the hydrilla from returning. Also the dominant aquatic plant in the large northern canals was coontail. The most extensive coontail populations in the lake continue to be in the eastern and western side of the lake. However, these coontail populations were not as extensive and dense as previously reported.

The water level was 41.1 feet above sea level. The secchi (water clarity) reading was 4.5 feet in a depth of 6.2 feet.

On **15 December 2009**, Seminole County Lake Management Program Gloria Eby, Dean G Barber (consultant) and Thomas Calhoun (consultant) surveyed the aquatic plants in Lake Mills. No hydrilla was found. Filamentous algae, which had been the dominant submersed aquatic vegetation (SAV) on the previous survey, 21 October 2009, and had covered the bottom like a thick moss to a depth of 5 feet, was significantly reduced. The co-dominant SAV were coontail and baby tears (*Micranthemum glomeratum*).

As on the last several surveys, coontail has been most prevalent adjacent to the western shore and the NE corner of the lake to a depth of 3-4 feet. Baby tears has been near the shore throughout the lake and in the canals. Other native SAV observed were lemon bacopa, road grass (3-5 feet), the other baby tears (*Micranthemum umbrosum*) and stonewort. Both lemon bacopa and coontail were dense in the northern canals, but do not impede navigation.

No water hyacinth were observed, although about 0.1 acres were previously observed behind cattails on the southern side of the lake. These were reported to the lake management company and were subsequently treated.

The water level was 41.0 feet above sea level. The secchi (water clarity) was 6.7 feet in a depth of 7.5 feet. This is a significant improvement from 4.5 feet on the previous survey.

On **23 February 2010**, Seminole County Lake Management Program Gloria Eby, Dean G Barber (Consultant) and Thomas Calhoun (Assistant Scientist) surveyed the aquatic plants in **Lake Mills**. One healthy hydrilla plant was found in 5-7 feet on the southwest side of the lake which we removed. This was a new plant with three 2-4 inch strands, with roots, no tuber or turions. This is the first hydrilla plant that has been observed in the lake since the 3 September 2009 survey. Coontail which has been seen dominantly in the western and eastern ends of the lake to a depth 5 feet for the last several months was observed on this survey throughout the lake in 3-6 feet, being the dominant SAV (photo attached). Other SAV observed included: lemon bacopa, road grass (4 feet) and baby tears (*Micranthemum umbrosum*). Baby tears (*Micranthemum glomeratum*), which the previous month was co-dominant submersed plant with

coontail, was not observed. Filamentous algae, more prevalent in the shallower water 3-5 feet, are continuing to decline.

The water level was 41.1 feet above sea level, compared to 41.0 feet on 15 December 2009. The secchi (water clarity) was 7.5 feet in a depth of 8.5 feet, an improvement from the previous reading of 6.7 feet.

On **19 May 2010**, Seminole County Lake Management Program staff Gloria Eby, Marianne Pluchino, Dean G Barber (Consultant), and Kathy Moore (MSBU Coordinator) conducted a LVI (Lake Vegetation Index) and surveyed the aquatic plants in **Lake Mills**. Hydrilla was observed at two locations, one was in the east side of the northern canal and has been subsequently treated since. Total amount was a trace, but naturally this invasive will be monitored for possible expansion. Coontail is still the dominant SAV, with most of the plant located to a depth of 5 feet in the western and eastern ends of the lake. Other SAV observed included: lemon bacopa, musk grass, road grass, bog-mat ludwigia (*Ludwigia arcuata*), southern naiad, both baby tears species (*Micranthemum umbrosum*) and (*M. glomeratum*), water thread pondweed (*Potamogeton diversifolius*) and eelgrass.

As much as this represents very good diversity of SAV, none of these were very abundant, hopefully they will expand, especially the musk grass, road grass, southern naiad and eelgrass. All of these species have historically been a contributing percent of the lake's SAV and plays a significant role in up-taking nutrients from the water column. Presently, filamentous algae covers a portion of the lake bottom. Hopefully this will continue to decrease as the native SAV expands. A few water hyacinth plants were observed on the southwestern side of the lake.

Monthly treatments continue to maintain emergent invasives such as torpedo grass and the western canals. Additionally the cattails along the southern shoreline have been treated over the last several months and is successfully reducing these stands within the lake.

The water level was 41.1 feet above sea level, the same as the 23 February reading. The secchi (water clarity) was 4.4 feet in a depth of 16.2 feet, compared to 7.5 feet on the previous date. The grass carp barriers (both inflow and outflow) were inspected and found to be free of debris. Effective April 2010, The Lake Mills Aquatic Weed Control has contracted services for barrier cleaning/repair services twice a month to ensure the grates are free from debris and flowing.

Recommendations:

- 1 Work together or establish a lake association, with other lakefront owners to increase native aquatic plantings along shoreline (such as pickerelweed and duck potato). Have at least one annual lake association meeting to discuss lake specific issues.
- 2 Increase educational outreach programs i.e. Florida Yards and Neighborhoods (FYN), Lake Management Video mail-outs, and reduction of pointless personal pollution by using low fertilizer use; phosphorous free fertilizers; keeping a functional shoreline with beneficial native aquatic plants; keeping grass clippings out of your storm drains leading to the lake. All these

activities aid in protecting your lake! Contact Seminole County Lake Management Program (407) 665-2439 for free educational programs available.

On **28 July 2010**, Seminole County Lake Management Program staff Gloria Eby, Marianne Pluchino, Dean G Barber, Thomas Calhoun, Kathy Moore (MSBU Coordinator) and lake resident Dave Axel surveyed the aquatic plants in **Lake Mills**. Hydrilla was observed throughout the lake to a depth of 7 feet. However, plants were generally stressed, small (6-10 inches in length), and mostly covered with algae. The most extensive hydrilla was found in the two western canals. Of the over 40 bottom grabs, hydrilla was obtained 1 out of 4 times in the plant sample.

The most abundant submersed aquatic vegetation (SAV) was filamentous algae observed to a depth of 5 feet, followed by coontail to 9 feet and road grass to 7 feet. Coontail and road grass was more prevalent throughout the lake than previous surveys. Other SAV observed included: lemon bacopa, creeping primrose willow (*Ludwigia repens*) to 1 foot, baby tears (*Micranthemum umbrosum*), southern naiad to 4 feet, stonewort to 6 feet, sago pondweed (*Potamogeton pectinatus*) and eelgrass to 2-3 feet. As previously stated, none of these SAV, with the exception of the filamentous algae, are very abundant however, all of the SAV, especially the coontail road grass and stonewort, are expanding while the filamentous algae is starting to decrease. This expansion is especially true on the eastern bank that goes to 7-8 feet before dropping off into deeper water. This previously had a significant population of SAV, especially coontail, road grass, southern naiad and stonewort. This native plant population is starting to re-establish. Treatment of the cattails has been successful with several stands significantly reduced or eliminated. No water hyacinths were observed.

The water level was 41.06 compared to 41.1 feet above sea level on May 19, 2010. The secchi (water clarity) was 6.0 feet in a depth of 9.6 feet compared to the previous reading of 4.4 feet. The grass carp barriers (both inflow and outflow) were inspected and found to be free of debris.