

LAKE MILLS LAKE BIOASSESSMENTS

DECEMBER 2014 through MAY 2015

Greeting Lake Mills residents,

Please find the latest bioassessment for your lake below. Our next lake inspection is scheduled for **July 9th, 2015**, weather permitting. Key highlights of this update include:

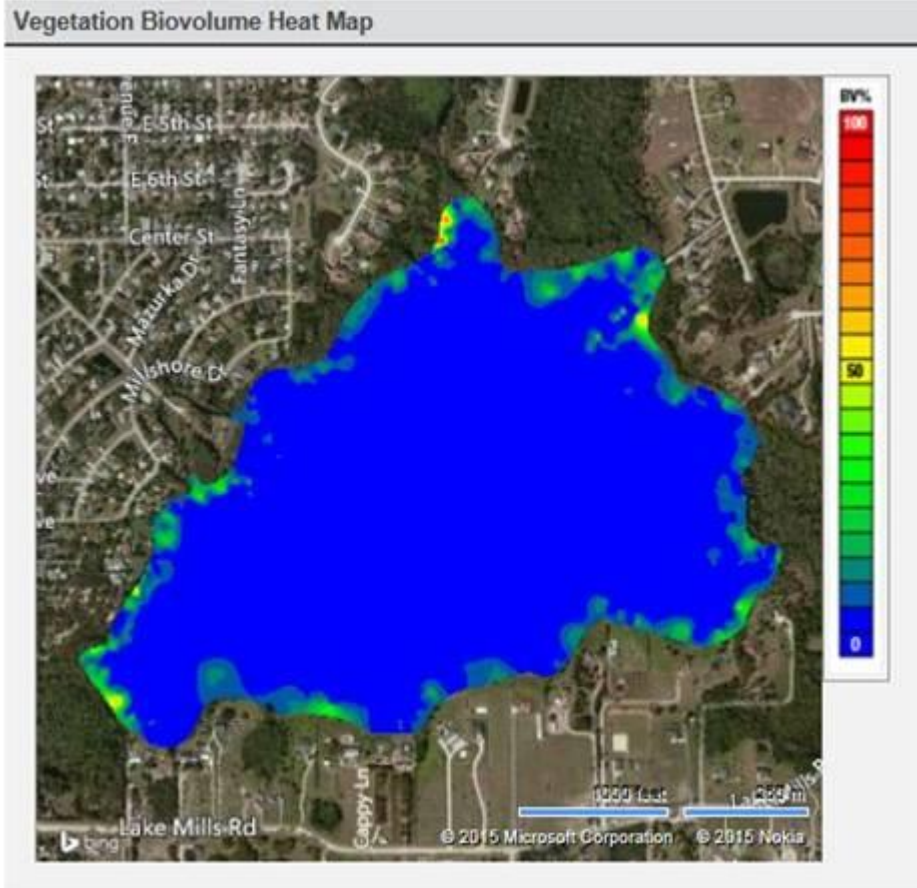
- Hydrilla treatment update
- Aquatic Plant of the Month- Factsheet Attached (may or may not be present in your waterbody)
- Native Submersed Aquatic Vegetation (SAV)
- Grass carp fish stocked on December 2014
- Emergent vegetation
- Recommendations for you and your lake

12-22-2014

On **December 22nd, 2014**, Seminole County Lake Management Program staff, Thomas Calhoun, Joey Cordell and Sophia Pengra, mapped the aquatic plants in **Lake Mills**.

The aquatic plants of Lake Mills were mapped using the Bio-base CI program. Sonar data is collected by running transects across the lake with a HDS side scan depth finder. Data is then uploaded into the CI-Biobase system where vegetation maps, bathymetry maps, and volume data are created. The objective of this system is to track aquatic plant and sediment changes in the lake over time. At the time of mapping, 12.9% of the area of Lake Mills has SAV.

Image: Vegetation map of Lake Mills 12-22-2014. Brighter colors indicate denser vegetation.



Additionally, due to the increase in hydrilla presence, an additional 243 triploid (sterile) grass carp fish were stocked into Lake Mills. This equated to a one fish per acre stocking rate.

Photos: Stocking 243 grass carp fish into Lake Mills.



3-10-2015

On **March 10th 2015**, Seminole County Lake Management Program staff, Thomas Calhoun and Joey Cordell, surveyed the aquatic plants in **Lake Mills**.

Hydrilla was observed in all the eastern coves, from the Mills Creek cove up to the northern point, as well as the southern west canal. December's treatment has reduced the presence of hydrilla, though not to the expected extent. Some treated hydrilla was found with evidence of new growth. This could be an indicator that the hydrilla will survive. However, there was also indication that recently introduced grass carp are consuming hydrilla. We will continue to closely monitor the hydrilla population.

Photo: Hydrilla (invasive)



Eight species of native SAV were observed during the inspection. These species included: lemon bacopa to a depth of 5 feet, coontail to 8 feet, eelgrass to 3 feet, southern naiad to 6 feet, roadgrass to 6 feet, baby's tear to 8 feet, milfoil to 6 feet, and bladderwort to 6 feet. There has been a reduction in lemon bacopa since the previous assessment.

Parrot feather (an invasive SAV) was found in small quantities, in the northern west canal. Navigation in the canal is not being affected by the parrot feather.

Photo: Milfoil (native)



Native emergent vegetation observed during inspection included: sawgrass, swamp lily, yellow cow lily, banana lily, fragrant water lily, maidencane, pickerelweed, duck potato, carolina willow, fireflag, cattail, aster, and pipewort. Most of these native species are expanding around the lake. Pickerelweed is not as healthy as seen in previous inspections. This may be due to the treatment of hydrilla.

Invasive emergent vegetation seen during the inspection include: alligator weed, torpedo grass, salvinia, and creeping oxeye.

Photo: Pickerelweed (native)



The Secchi (water clarity) value was 7.7 feet out of a total depth of 12 feet. The grass carp barrier was operational and free from debris. No grass carp were observed during the inspection. The water elevation at the time of inspection was 41.0 feet above sea level.

4-22-2015

On **April 13th 2015**, Seminole County Lake Management Program staff, Thomas Calhoun and Gloria Eby also joined by Seapro representatives Michael Shaner, Kelly Gladding and FWC regional biologist Kris Campbell surveyed the hydrilla in **Lake Mills**.

The chemical treatment from December is showing good results. The hydrilla sprigs left are showing impact from the treatment and should not survive. Stocked grass carp will play a role in preventing hydrilla from returning.

5-13-2015

On **May 13th 2015**, Seminole County Lake Management Program staff, Thomas Calhoun and Joey Cordell, surveyed the aquatic plants in **Lake Mills**.

Hydrilla was the only invasive SAV observed during the inspection. December's chemical treatments are showing good results. Small hydrilla sprigs were found in the eastern coves; although, these sprigs were sparse and many had signs of grass carp consumption. The northern west canal contained hydrilla. This is the only place on the lake that hydrilla exists in dense patches.

Photo: Hydrilla (invasive)



Nine species of native SAV were observed during the inspection. These species included: lemon bacopa to a maximum depth of 6 feet, muskgrass to 4 feet, roadgrass at 6 feet, baby's tears to 6 feet, milfoil to 4 feet, southern naiad to 6 feet, stonewort to 4 feet, bladderwort to 6 feet, and eelgrass to 6 feet. Areas left bare by recent hydrilla treatments are being filled in bladderwort, baby's tears, and lemon bacopa. Bladderwort is currently the dominant species in these treated areas, but both baby's tears and lemon bacopa are showing strong indications of growth.

Photo: Bladderwort (native)



Native emergent vegetation observed during inspection included: buttonbush, swamp lily, pennywort, primrose willow, yellow cow lily, fragrant water lily, pickerelweed, duck potato, carolina willow, fireflag, and cattail. Most of these native species are expanding around the lake.

Invasive emergent vegetation seen during the inspection include: alligator weed, wild taro, torpedo grass, and creeping oxeye. Overall abundance of invasive species was reduced since the previous inspection.

Photo: North shoreline



The Secchi (water clarity) value was 10.2 feet out of a total depth of 16 feet. The grass carp barrier was operational and free from debris. One grass carp was observed during the inspection. The water elevation at the time of inspection was 40.8 feet above sea level.

Recommendations for your lake:

1. Continue to work together with other lakefront owners to control and if possible, eliminate invasive plants observed during this survey and 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. Utilize the valuable educational outreach programs that are available, i.e. Shoreline Restoration Workshops, Florida Yards and Neighborhoods (FYN) interactive presentations, and Lake Management Video mail-outs. Implement a media campaign within the community to reduce personal pollution by: decreasing overall fertilizer usage, **using only phosphorous free and slow-release nitrogen fertilizers**, keeping a functional shoreline with beneficial native aquatic plants, and keeping grass clippings out of your lake and the

storm drains that lead to the lakes. All of these activities aid in protecting your lake! Contact Seminole County Lake Management Program (407) 665-2439 for more information regarding the free educational programs available.

3. Control of aquatic and wetland plants could require a Florida Fish and Wildlife Conservation Commission (FWC) aquatic plant control permit (such as the water hyacinth in Cub). Contact Kris Campbell at (321) 246-0682 or Kristine.Campbell@myfwc.com for a permit and recommendations.
4. Help spread the word! Obtain email addresses from neighbors not currently on the distribution list in order to share this information with others. Valuable information is contained within these reports.

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Eelgrass (*Vallisneria americana*): A Florida Native

Eelgrass, also known as tapegrass, is native to the state of Florida.

Identification

Eelgrass is a submersed, perennial plant that can be found throughout the state in both still and flowing waters. Eelgrass leaves often resemble tape or ribbon. They are about an inch wide with raised veins and rounded tips. The leaves can grow several feet in length and their upper parts can often be found floating along the water surface. Eelgrass produces both male and female flowers, however, the small, white female flowers are most often seen, as their long, corkscrew-like flower stalks reach the surface of the water.

Wildlife Value

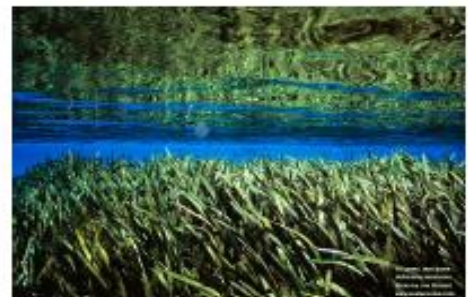
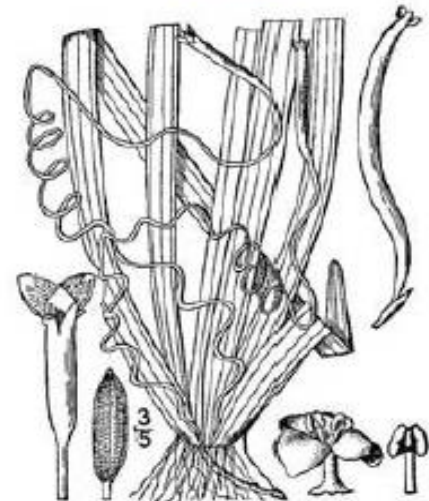
Eelgrass is an important food source for the endangered West Indian manatee (*Trichechus manatus*) and various species of waterfowl. Additionally, eelgrass provides important habitat, protection, and nursery grounds for fish.

Native submersed aquatic plants provide habitat for several micro- and macroinvertebrate species, which in turn provide a source of food for fish and other aquatic wildlife species including reptiles, amphibians, and waterfowl. Once aquatic plants die, their decomposing parts provide food (referred to as "detritus") for several aquatic invertebrates.

Additionally, native submersed plants play an important role in the aquatic ecosystem by reducing nutrients within the waterbody and by competing with invasive species for space.

Control

Although native, eelgrass may impede recreational access. For questions concerning control of eelgrass or to apply for a free aquatic plant removal permit, please contact your state agency, the Florida Fish and Wildlife Conservation Commission, online at: <http://myfwc.com/license/aquatic-plants> or by calling 407-858-6170.



Sources:

- NOAA. (2012, October 22). *Eelgrass-Habitat of the Month*. Retrieved from <http://www.habitat.noaa.gov/about/habitat/eelgrass.html>
- US/IFAS. (2014). *Eel-grass: tape-grass*. Retrieved from <http://plants.ifas.ufl.edu/node/465>
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- Washington State Department of Ecology. (n.d.). *Vallisneria Americana*. Retrieved from <http://www.ecy.wa.gov/programs/wq/plants/plantid2/descriptions/vallame.html>