

Greetings Residents of The Bear Chain of Lakes!

Below please find the latest bioassessment for your lake. The next bioassessment will be conducted on April 1st (weather permitting). Key highlights of this update will include:

- Lake Vegetation Index (LVI) bioassessment results
- Submersed aquatic vegetation (SAV)- reduced diversity continues to be observed
- Shoreline vegetation observed
- Reduced exotic vegetation in the Linneal Beach Dr. Canal
- Water hyacinth found in Cub Lake- recommend to treat
- Grass clippings observed in the lakes
- Recommendations for you and your lake

On **October 3rd, 2013**, Seminole County Lake Management and Water Quality Program staff (Thomas Calhoun, Gloria Eby, and Marianne Pluchino) surveyed the aquatic plants in **Bear Lake**.

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.

Bear Lake is 311 surface acres in size with a mean depth of 12.4 feet, maximum depth of 36.7 feet, and is located in the Little Wekiva watershed. Historical LVI scores range from 26 to 40 with 39 being the most current and in the healthy category (2 points above Impaired ranking).

LVI Range	Description
78-100	Exceptional
38-77	Healthy
0-37	Impaired

We found one species of submersed aquatic vegetation (SAV) during the inspection which was eelgrass to 10 feet. This was a decrease in diversity since the previous inspection, which had a total of 2 SAV species. Eelgrass remained the dominant plant in the lake, including along the shoreline. There was a decrease in the maximum depth where eelgrass was found compared to the previous inspection (12 feet to 10 feet). No stonewort was found during this inspection.



Many of the shorelines of Bear Lake possessed no aquatic vegetation or were only established with invasive exotic species. This is problematic because there are not enough appropriate shoreline plants to reduce shoreline erosion and affects the LVI score. Having native aquatic plants along the shoreline can also protect and improve the ecological health of your waterbody and simultaneously provide a great view. Please note that control of aquatic and wetland plants requires a Florida Fish and Wildlife Conservation Commission (FWC) aquatic plant control permit (which is free). Please contact FWC regional biologist Alicia Knecht at (321) 246-0682 or Alicia.Knecht@myfwc.com for your free permit. For more information please visit FWC's website at <http://www.myfwc.com/license/aquatic-plants/>.

Photo: Example of bare shoreline with erosion.



A small amount of water hyacinths were observed in the canal off of Linneal Beach Drive. Residents of the canal have done a great job of managing this exotic plant!

Photo: Linneal Beach Drive Canal.



The Secchi (water clarity) was 13.6 feet in a depth of 18.9 feet at the time of inspection. The water elevation was 103.79 feet; higher than the previous month's reading of 103.59 feet above sea level. No (sterile) grass carp were observed during the inspection.

Little Bear Lake

On **October 30th, 2013**, Seminole County Lake Management and Water Quality Program staff (Thomas Calhoun, Gloria Eby, and Marianne Pluchino) surveyed the aquatic plants in **Little Bear Lake** and conducted a **LVI**.

Little Bear Lake is 28 surface acres in size with a mean depth of 7.8 feet, maximum depth of 19.6 feet, and is located in the Little Wekiva watershed. Historical LVI scores range from 28 to 39 with 39 being the most current and in the healthy category (2 points above Impaired ranking).

LVI Range	Description
78-100	Exceptional
38-77	Healthy
0-37	Impaired

Submersed aquatic vegetation (SAV) found in Little Bear Lake during this inspection included road grass to a depth of 2 feet and smooth water hyssop to a depth of 1 foot. Filamentous algae was also present during the inspection.

Photo: Submersed aquatic vegetation- smooth water hyssop.



Some of the observed invasive shoreline plants included: elephant ear, water primrose, alligator weed, torpedo grass, Brazilian pepper, and cattails. Some of the beneficial native shoreline plants included: water pennywort, saw grass, pickerelweed, and duck potato.

At the time of inspection a large amount of fresh grass clippings were found floating in Little Bear Lake. Grass clippings can add nutrients to the lake which will cause algae blooms. Instead of blowing clippings into the lake, blow them back into your lawn, which will provide nutrients for your lawn.

Photo: Grass clippings in Little Bear Lake.



The Secchi (water clarity) was 6.3 feet in a depth of 9.4 feet at the time of inspection. The water elevation was 102.7 feet above sea level. No triploid (sterile) grass carp were observed during the inspection.

Cub Lake

On **October 30th, 2013**, Seminole County Lake Management and Water Quality Program staff (Thomas Calhoun, Gloria Eby, and Marianne Pluchino) surveyed the aquatic plants in **Cub Lake** and conducted a **LVI**.

Cub Lake is 14 surface acres in size with a mean depth of 7.1 feet, maximum depth of 16.8 feet, and is located in the Little Wekiva watershed. Historical LVI scores range from 43 to 49 with 45 being the most current and in the healthy category.

LVI Range	Description
78-100	Exceptional
38-77	Healthy
0-37	Impaired

A healthy diversity of native submersed aquatic vegetation (SAV) was observed during the inspection. These species included: lemon bacopa to a depth of 4 feet, road grass to 2 feet, stonewort to 6 feet, musk grass to 3 feet, bladderwort to 6 feet, and eelgrass to 8 feet. Bladderwort was the dominant species of SAV found in Cub Lake. Filamentous algae was also found during the inspection.

Photo: Bladderwort found in Cub Lake.



Invasive exotic species found during the inspection included: torpedo grass, alligator weed, wild taro, primrose willow, and dwarf papyrus. These continue to be the most abundant emergent aquatic plants and were present throughout the lake. A large size patch of water hyacinth was also found at the Cub Lake inflow canal. We highly recommend removing these plants by physical means or by treating with herbicides. If using herbicides, please be sure to obtain your free aquatic plant management permit from FWC prior to treating.

Photo: Water hyacinth found at Cub Lake inflow canal.



Photo: Grass carp fence.



The Secchi (water clarity) was 6.9 feet in a depth of 10.9 feet. The grass carp barrier was free from debris and operational.

Recommendations:

- 1 Continue to work together or establish a lake association, 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 Increase educational outreach programs i.e. Florida Yards and Neighborhoods (FYN), Lake Management Video mail-outs, and reduction of pointless personal pollution (contact Seminole County Lake Management Program, Gloria Eby, (407) 665-2439 for assistance.
- 3 These recommendations could be managed by Seminole County by establishing an MSBU, Municipal Service Benefit Unit, for aquatic weed control/enhancement. For additional information contact Carol Watral at (407) 665-7164 or cwatral@seminolecountyfl.gov or <http://www.seminolecountyfl.gov/fs/msbu/>.

4. Control of aquatic and wetland plants could require a Florida Fish and Wildlife Conservation Commission (FWC) aquatic plant control permit (such as the lilies in Cub). Contact Alicia Knecht at (321) 246-0682 or Alicia.knecht@myfwc.com for a permit and recommendations.