Greetings Bear Lake, Little Bear Lake and Cub Lake residents!

Please find the latest bioassessment for your lake below. Key highlights of this update include:

- Fertilizer Ordinance update
- Submersed Aquatic Vegetation (SAV)
- Hydrilla status: none present
- Native and invasive vegetation
- FWC permit for vegetation removal

**Bear Lake**

Seminole County recently passed a fertilizer ordinance in an effort to reduce nutrient loading of waterbodies like the Bear Lake chain. The new ordinance places restrictions on the type of fertilizers used, time of fertilization, and placement of fertilizers. For more information about Seminole County’s fertilizer ordinance please visit [Seminolecountyfl.gov/fertilizer](http://Seminolecountyfl.gov/fertilizer)

On **February 28th, 2017**, Seminole County Lake Management personnel, Thomas Calhoun, Joey Cordell and Gloria Eby, also joined by FWC regional biologist Kris Campbell, surveyed the aquatic plants in **Bear Lake**.

Two species of submersed aquatic vegetation (SAV) were observed during the inspection. Eelgrass was found to a depth of 9 feet and stone wort was found to a depth of 14 feet. No hydrilla was found during the inspection.

**Photo: Eelgrass bloom.**
Native emergent vegetation included: bur marigold, sawgrass, pennywort, spatterdock, fragrant water lily, pickerelweed, Carolina willow, and cattail.

Photo: Bur marigold (native).
Exotic emergent vegetation observed included: alligator weed, wild taro, umbrella grass, dwarf papyrus, primrose willow, torpedograss, Brazilian pepper tree, and creeping oxeye. Water hyacinth was found in the canal along Linneal Beach Dr.

Please remember that in order to alter your shoreline or treat exotic vegetation with an herbicide, you must apply for a free aquatic plant removal permit through the Florida Wildlife Conservation Commission [http://www.myfwc.com/license/aquatic-plants](http://www.myfwc.com/license/aquatic-plants) or contact FWC Regional Biologist Kristine Campbell (Kristine.Campbell@myfwc.com, 321-246-0682).

**Photo:** Example of alligator weed (invasive).
The Secchi (water clarity) reading was 8.5 feet at a depth of 13 feet. Water elevation above sea level was 103.19 at the time of inspection. No triploid sterile grass carp were observed during the inspection. More information about Bear Lake is available on the Seminole County Water Atlas:  
[http://www.seminole.wateratlas.usf.edu/lake/?wbodyid=7514&wbodyatlas=lake](http://www.seminole.wateratlas.usf.edu/lake/?wbodyid=7514&wbodyatlas=lake)

5-8-2017

On May 8th, 2017, Seminole County Lake Management personnel, Thomas Calhoun and Joey Cordell surveyed the aquatic plants in Bear Lake.
Two species of submersed aquatic vegetation (SAV) were observed during the inspection. Eelgrass was found to a depth of 7 feet and stone wort was found to a depth of 6 feet. No hydrilla was found during the inspection.

**Photo: Stonewort (native).**

Many shorelines were found with little to no emergent vegetation. However, we did observe the following native emergent species: bur marigold, sawgrass, pennywort, spatterdock, fragrant water lily, pickerelweed, Carolina willow, and cattail. Emergent vegetation plays an important role in the lake ecosystem by: reducing nutrients from runoff, reducing erosion and providing habitat for aquatic species. Seasonal times of low water elevation present a good opportunity to plant beneficial emergent native species such as duck potato, pickerel weed, canna lily and fire flag.

**Photo: Example of shoreline planted with pickerel weed and canna lily.**
Exotic emergent vegetation observed included: alligator weed, para grass, wild taro, umbrella sedge, dwarf papyrus, primrose willow, torpedograss, brazilian pepper tree, chinese tallow tree and creeping oxeye. Water hyacinth was found in canal along Linneal Beach Dr.

Photo: Water Hyacinth (invasive).
The Secchi (water clarity) reading was 8.6 feet at a depth of 11 feet. Water elevation above sea level was 102.19 at the time of inspection. No triploid sterile grass carp were observed during the inspection. More information is available on the Seminole County Water Atlas. [http://www.seminole.wateratlas.usf.edu/lake/?wbodvid=7514&wbodvatlas=lake](http://www.seminole.wateratlas.usf.edu/lake/?wbodvid=7514&wbodvatlas=lake)

**Little Bear Lake**

5/25/2017

On **May 25th, 2017**, Seminole County Lake Management personnel, Thomas Calhoun and Joey Cordell surveyed the aquatic plants in **Little Bear Lake**.

Four species of submersed aquatic vegetation (SAV) were observed in abundance during the inspection. Eelgrass was found to a depth of 4 feet, southern naiad to a depth of 12 feet, roadgrass to a depth of 4 feet and stone wort was found to a depth of 7 feet. Southern naiad and stone wort were the dominant species. No hydrilla was found during the inspection.

**Photo:** Stonewort (native).
Native emergent vegetation included: sawgrass, pennywort, spatterdock, fragrant water lily, yellow cow lily, pickerelweed, fire flag, duck potato, rush fuiyrena, southern water grass, Carolina willow, and cattail. There was a healthy abundance of native shoreline emergent vegetation; however, there are still many bare areas that could benefit from native vegetation. Emergent vegetation plays an important role in the lake ecosystem by: reducing nutrients from runoff, reducing erosion and providing habitat for aquatic species. Seasonal times of low water elevation present a good opportunity to plant beneficial emergent native species such as duck potato, pickerel weed, canna lily and fire flag.

**Photo:** Fragrant water lily (native).
Exotic emergent vegetation observed included: primrose willow, torpedograss, brazilian pepper tree and creeping oxeye.

Photo: Torpedo grass (invasive).
The Secchi (water clarity) reading was 7.7 feet at a depth of 15.1 feet. Water elevation above sea level was 101.56 at the time of inspection. No triploid sterile grass carp were observed during the inspection. More information about Bear Lake is available on the Seminole County Water Atlas. [http://www.seminole.wateratlas.usf.edu/lake/?wbodvid=7514&wbodyatlas=lake](http://www.seminole.wateratlas.usf.edu/lake/?wbodvid=7514&wbodyatlas=lake)

**Cub Lake**

5/25/2017

On May 25th, 2017, Seminole County Lake Management personnel, Thomas Calhoun and Joey Cordell surveyed the aquatic plants in **Cub Lake**.

Five species of submersed aquatic vegetation (SAV) were observed during the inspection. Muskgrass was found to a depth of 5 feet, roadgrass to a depth of 7 feet, stone wort was found to a depth of 7 feet and 2 types bladderwort to a depth of 7 feet. No hydrilla was found during the inspection.

**Photo: Bladderwort (native).**
Native emergent vegetation included: sawgrass, pennywort, spatterdock, fragrant water lily, yellow cow lily, pickerelweed, fire flag, duck potato, rush fuirena, southern water grass, Carolina willow, and cattail. There was a healthy abundance of native shoreline emergent vegetation; however, there are still many bare areas that could benefit from native vegetation. Emergent vegetation plays an important role in the lake ecosystem by; reducing nutrients from runoff, reducing erosion and providing habitat for aquatic species. Seasonal times of low water elevation present a good opportunity to plant beneficial emergent native species such as duck potato, pickerel weed, canna lily and fire flag.

Photo: Treated cattails (native).
Many of the cattails were showing signs of a recent herbicide treatment. Exotic emergent vegetation observed included: wild taro, water hyacinth, primrose willow, dwarf papyrus, torpedo grass, brazilian pepper tree and creeping oxeye.

The grass carp barrier was found to be in need of repair.

**Photo:** Grass carp barrier at Cub Lake.
The Secchi (water clarity) reading was 6.1 feet at a depth of 13.3 feet. Water elevation above sea level was 99.49 at the time of inspection. No triploid sterile grass carp were observed during the inspection. More information about your waterbody is available on the Seminole County Water Atlas. [http://www.seminole.wateratlas.usf.edu/lake/?wbodvid=7514&wbodyatlas=lake](http://www.seminole.wateratlas.usf.edu/lake/?wbodvid=7514&wbodyatlas=lake)

**Recommendations for your waterbody:**

1. Continue to work 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, maidencane, and duck potato). Have at least one annual lake association meeting, invite guest speakers (such as county or state biologists), and discuss lake-specific issues, especially lake management recommendations. Seminole County Lake Management staff would be glad to present our findings from this and other surveys.

2. Treat invasive torpedo grass, melaleuca, and other invasive aquatic plants along your waterfront. Either do it yourself by hand removal or obtain the necessary aquatic herbicide (we can provide some sources) or hire a contracted aquatic herbicide application company (we can provide a list of vendors from the state). Control of aquatic and wetland plants will in most
cases requires a free Florida Fish and Wildlife Conservation Commission (FWC) aquatic plant control permit. Contact Kristine Campbell at (321-246-0682) or Kristine.Campbell@myFWC.com for a permit.

3. These recommendations could be managed by Seminole County by establishing a Municipal Service Benefit Unit (MSBU); a funding format for aquatic weed control services via a special assessment. For additional information contact Kathy Moore at (407) 665-7179 or KMoore@seminolecountyfl.gov or http://www.seminolecountyfl.gov/fs/msbu/.

4. Increase educational outreach programs, i.e. Shoreline Restoration Workshops (planting days), Florida Yards and Neighborhoods (FYN), and Lake Management Video mail-outs. Provide information about reduction of pointless personal pollution, reducing total fertilizer use, using only phosphorous-free fertilizers, keeping a functional shoreline with beneficial native aquatic plants, and keeping grass clippings out of your storm drains that lead to the lake. All these activities aid in protecting your waterbody! Contact Seminole County Lake Management Program (407) 665-2439 about available, free educational programs.

5. 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.