Greetings Spring Lake Residents!

Please find the latest bioassessment of your lake below. The next scheduled inspection of your lake will be July 1st; weather permitting. Key highlights of this update include:

- Status of Submersed Aquatic Vegetation (SAV)
- Eelgrass access corridor update
- Status of shoreline emergent vegetation
- Continued encouragement to plant native aquatic plants along your shoreline
- Recommendations for you and your lake

Bioassessment:

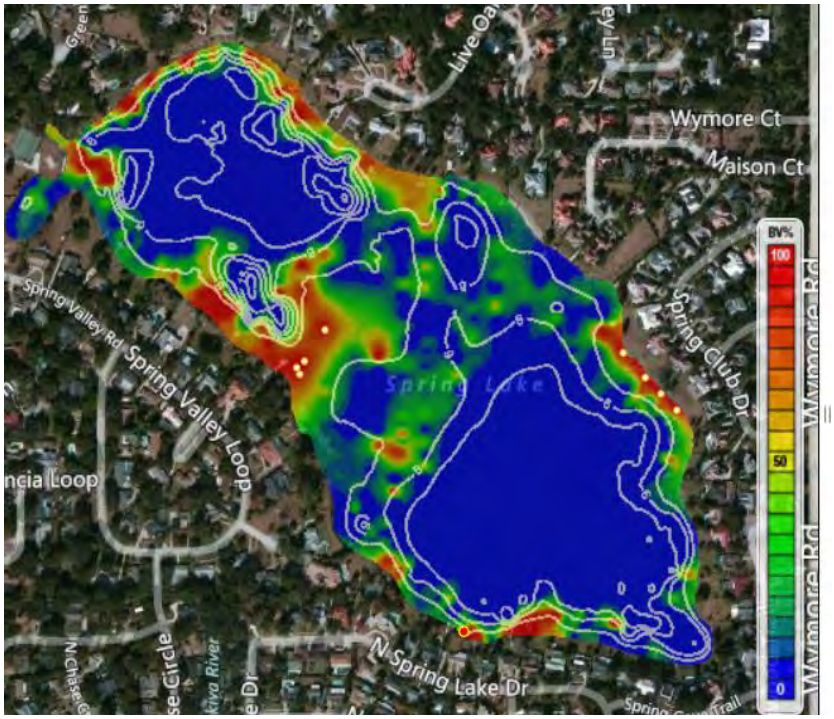
On **April 8th, 2014**, Seminole County Lake Management staff, Thomas Calhoun and Joey Cordell, surveyed the aquatic plants in **Spring Lake**.

Eelgrass was the only SAV observed during this inspection and was found to a depth of 6 feet. This is a decrease in depth from the previous inspection of 7.7 feet. Eelgrass is still found healthy in patches to 4 feet; however, in depths greater than 4 feet the biomass is reducing. The eelgrass access corridors were found in good shape with no chemical maintenance treatment required at this time. Hydrilla was not observed during this inspection.

Photo: Typical sample of eelgrass in depths less than 4 feet.

For Spring Lake, a baseline submersed aquatic vegetation (SAV) map was created utilizing sonar instrumentation mounted to our boat. The purpose of this tool is to establish "baseline" data to monitor changes and respond with recommendations to improve water quality and vegetation habitat over time. Upon completion, a report is generated giving biologists a detailed analysis of vegetation presence in your lake. This survey generated a SAV percent coverage of 42.5% (or 36.55 surface acres).

Photo: Image of SAV map produced for Spring Lake.



Native emergent vegetation (including pickerelweed, duck potato, fire flag, and canna lily) continues to thrive in the absence of torpedo grass. Through herbicide applications and the hard work of homeowners and volunteers, torpedo grass has been removed from most shorelines. The absence of torpedo grass has allowed many beneficial native plants to expand in its place. It is recommended to plant native emergent vegetation along cleared shorelines because it will help filter nutrients from runoff and aid against shoreline erosion.

The water elevation during the time of the inspection was 63.00 feet above sea level. The secchi reading (measurement for water clarity) was 2.3 feet, which was an increase from the prior survey of 2.1 feet. No grass carp fish were observed during this inspection although we are receiving reports of their presence. Thank you for submitting these, we find them very useful.

<u>Bioassessment:</u>

On **May 6th, 2014**, Seminole County Lake Management staff, Thomas Calhoun and Gloria Eby, surveyed the aquatic plants in **Spring Lake**.

Two native SAV were observed during this inspection. These species included eelgrass to a depth of 7.5 feet and southern naiad to a depth of 3 feet. Eelgrass continues to be observed in patches both inshore and offshore. This is an observable decrease in biomass since the previous inspection. The eelgrass access corridors were found in good shape with no chemical maintenance treatment required at this time.

The flowering portion (seeds) of eelgrass could be seen floating on the water's surface lake wide appearing like an algae bloom. One small sprig of hydrilla was found floating during this inspection.

Photo: Sonar image of eelgrass (highlighted) observed in patches.

Native emergent vegetation (including pickerelweed, duck potato, fire flag, and canna lily) continues to thrive in the absence of torpedo grass. Invasive emergent vegetation to be targeted during herbicide treatments includes: alligator weed, torpedo grass, and elephant ear.

Photo: Beneficial pickerelweed along the shoreline.

The water elevation during the time of the inspection was 63.08 feet above sea level. The secchi reading (measurement for water clarity) was 1.5 feet, which was an increase from the prior survey of 2.3 feet. No grass carp fish were observed during this inspection.

Recommendations for your lake:

1 Work together with other lakefront owners. Have *at least* one annual lake association meeting, invite guest speakers (such as county or state biologists) and discuss lake specific issues, especially nutrients/lake management recommendations. SCLMP staff would be glad to present our findings from this and other surveys. Continue to increase native aquatic plantings along the shoreline (such as pickerelweed, duck potato, and canna).

2 Consider increasing street sweeping services during times of peak leaf fall to ensure that this debris does not enter your waterways. Leaf debris contains phosphorous that can negatively impact your lakes.

3 Increase educational outreach programs i.e. Shoreline Restoration Workshops (planting days), Florida Yards and Neighborhoods (FYN), Lake Management Video mail-outs. Spread the word about reducing personal pollution through 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 leading to the lake. All of these activities aid in protecting your waterbody! Contact Seminole County Lake Management Program (407) 665-2439 to find out about the free educational programs available to you.

4 Help spread the word! Obtain email addresses from neighbors not currently on the distribution list so that these reports can be shared with everyone. Valuable information is contained within these assessments.

Greetings Spring Lake Residents!

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

- Lake Condition Index Information
- Hydrilla status
- Status of Submersed Aquatic Vegetation (SAV)
- Eelgrass corridor update
- Status of shoreline emergent vegetation
- Continued encouragement to plant native aquatic plants along your shoreline
- Recommendations for you and your lake

On **December 4th, 2013**, Seminole County Lake Management and Water Quality Program staff (Thomas Calhoun, Marie Lackey, and Michelle Shelton) surveyed the aquatic plants and conducted a Lake Condition Index (LCI) in **Spring Lake**.

The Lake Condition Index (LCI) was developed by the Florida Department of Environmental Protection to monitor and assess the biological condition of Florida lakes. The LCI assesses the biological condition of a lake by using benthic macroinvertebrate communities as biological indicators to identify trends within similar lake systems. Samples taken by Seminole County Water Quality Program from 2006 to 2013 have ranged from the very good to the poor categories. More info on macroinvertebrate data and sampling can be found on our Water Atlas website at: http://www.seminole.wateratlas.usf.edu/shared/ecology.asp?wbodyid=7659&wbodyatlas=lake.

Photo: Ekman grab (on left) is a benthic invertebrate sampling device used to sample the bottom of the lake.

Hydrilla was not observed during this inspection. The very low level of this invasive plant in 2013 (only a few sprigs found this year) was likely due to the combined effects of consumption by grass carp and competition from native SAV.

Photo: Hydrilla sprig found during July's bioassessment.

A healthy diversity of native SAV (4 species) was observed during the inspection including: eelgrass to a depth of 6 feet, water hyssop to 1 foot, baby's tears to 1 foot, and southern naiad to 4 feet. Eelgrass was still the dominant species of SAV; however, the amount of eelgrass was reduced compared to the previous inspection.

Native SAV plays an important role in the ecosystem of the lake by providing habitat for wildlife, taking-up nutrients, and competing for space with exotics species such as hydrilla. The eelgrass corridors were found to be in good condition, especially with elevated lake levels. Eelgrass corridor treatments were executed in December.

Photo: Eelgrass at the outfall canal.

Native emergent vegetation, including pickerelweed, duck potato, fire flag, and canna lily, continues to thrive in the absence of torpedo grass. Through herbicide applications and the hard work of homeowners and volunteers, torpedo grass has been removed from most shorelines. The absence of torpedo grass has allowed many beneficial native plants to expand in its place. It is recommended to plant native emergent vegetation along cleared shorelines because it will help filter nutrients from runoff and aid against shoreline erosion.

Photo: Shoreline with native emergent vegetation pickerelweed.

The water elevation during the time of the inspection was 62.93 feet above sea level. The secchi reading (measurement for water clarity) was 1.9 feet, which was a decrease from the prior survey of 2.8 feet. No grass carp fish were observed during this inspection.

Photo: Grass carp barrier.

Recommendations for your lake:

1 Work together with other lakefront owners. Have *at least* one annual lake association meeting, invite guest speakers (such as county or state biologists) and discuss lake specific issues, especially nutrients/lake management recommendations. SCLMP staff would be glad to present our findings from this and other surveys. Continue to increase native aquatic plantings along the shoreline (such as pickerelweed, duck potato, and canna).

2 Consider increasing street sweeping services during times of peak leaf fall to ensure that this debris does not enter your waterways. Leaf debris contains phosphorous that can negatively impact your lakes.

3 Increase educational outreach programs i.e. Shoreline Restoration Workshops (planting days), Florida Yards and Neighborhoods (FYN), Lake Management Video mail-outs. Spread the word about reducing personal pollution through 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 leading to the lake. All of these activities aid in protecting your waterbody! Contact Seminole County Lake Management Program (407) 665-2439 to find out about the free educational programs available to you.

Greetings Spring Lake!

Below please find the latest bioassessment for your lake. Key highlights of this update will include:

- LVI results
- Hydrilla observations- no hydrilla plants found during this inspection
- Eelgrass corridor maintenance- treatments on hold due to higher water elevation
- Increase in water elevation- easier navigation as result
- Recommendations for you and your lake

On **August 6th**, **2013**, Seminole County Lake Management Program (SCLMP) staff, Gloria Eby, Thomas Calhoun, Marianne Pluchino and Joey Cordell surveyed the aquatic plants in **Spring Lake** and conducted a Lake Vegetation Index (LVI).

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.

Spring Wood Lake is 84 surface acres with a mean depth of 6 ft and a maximum depth of 19 ft located in the Little Wekiva watershed. Scores for Spring Lake have ranged from 32 to 53. LVI score for 2013 was 52 in the healthy range.

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

Hydrilla was not present during the inspection. Native submersed aquatic plants observed during the inspection included; eelgrass to a depth of 6.5 feet, water hyssop to 1 feet baby's tears to 1 foot, and southern naiad to 3.5 feet. Eelgrass continues to be the dominant SAV with blades reaching the surface from a depth of 6 feet. The eelgrass corridors were found in good condition especially with elevated lake levels. Eelgrass corridor treatment will assessed again during cooler water temperatures.

Photo: Eelgrass topping out near shore.

The water elevation during the time of the inspection was 63.23 feet above sea level; an increase from the previous survey of 63.45 feet. The secchi reading (measurement for water clarity) was 3.3 feet which is a decrease from the prior survey of 3.6 feet. No grass carp fish were observed during this inspection.

On **October 7th**, **2013**, Seminole County Lake Management Program (SCLMP) staff, Thomas Calhoun and Beth Stephens surveyed the aquatic plants in **Spring Lake**.

Hydrilla was not present during the inspection.

A good diversity of 5 native SAV were observed during the inspection including; eelgrass to a depth of 6 feet, water hyssop to 1 feet baby's tears to 1 foot, muskgrass to a depth of 4 feet and southern naiad to 4 feet. Eelgrass continues to be the dominant SAV with blades reaching the surface from a depth of 6 feet however other native SAV are expanding. Native SAV play an important role in the ecosystem of the lake by providing habitat, up taking nutrients and competing for space with exotics species such as hydrilla. The eelgrass corridors were found in good condition especially with elevated lake levels. Eelgrass corridor treatment will assessed again during cooler water temperatures.

Photo: Muskgrass mixed in with eelgrass.

Native emergent vegetation including; pickerelweed, duck potato, fire flag and canna lily continue to thrive in the absence of torpedo grass. Through herbicide applications and the hard work of homeowners and volunteers torpedo grass is clear of most shorelines. This has allowed many beneficial native plants to expand in its place.

Photo: Shoreline with native emergent vegetation pickerelweed.

The water elevation during the time of the inspection was 63.14 feet above sea level; a decrease from the previous survey of 63.23 feet. The secchi reading (measurement for water clarity) was 2.8 feet which is a decrease from the prior survey of 3.3 feet. No grass carp fish were observed during this inspection.

Recommendations for your lake:

1 Work together with other lakefront owners. Have *at least* one annual lake association meeting, invite guest speakers (such as county or state biologists) and discuss lake specific issues, especially nutrients/lake management recommendations. SCLMP staff would be glad to present our findings from this and other surveys. Continue to increase native aquatic plantings along shoreline (such as pickerelweed, duck potato and canna).

2 Consider increasing street sweeping services during times of peak leaf fall to ensure this debris does not wind up in your waterways. Leaf debris contains phosphorous that can impact your lakes.

3 Increase educational outreach programs i.e. Shoreline Restoration Workshops (planting days), Florida Yards and Neighborhoods (FYN), Lake Management Video mail-outs, and reduction of 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 waterbody! Contact Seminole County Lake Management Program (407) 665-2439 for free educational programs available.

Greetings Spring Lake Residents!

Please find the latest bioassessment of your lake below. The next scheduled inspection of your lake will be April 10th; weather permitting. Key highlights of this update include:

- Annual MSBU Meeting with liaisons conducted in January 2014 with link to Annual Report
- Status of Submersed Aquatic Vegetation (SAV)
- Eelgrass corridor update
- Status of shoreline emergent vegetation
- Continued encouragement to plant native aquatic plants along your shoreline
- Recommendations for you and your lake

Annual Planning Session with Liaisons:

The annual Lake Management meeting (which is conducted for each MSBU waterbody) with your liaisons was held on January 23rd, 2014. The agenda for this meeting included review of: (1) prior year lake management and fiscal activity (FY12-13), (2) current conditions and lake management plan for balance of current fiscal year (FY13-14), and (3) projected plans for the next fiscal year (FY14-15), along with a review of the roles and responsibilities of the County and the liaisons. Summary of the Spring Lake Aquatic Weed Control MSBU can be found on the MSBU Program website at:
http://www.seminolecountyfl.gov/fs/pdf/2014%20Spring%20Lake%20Report.pdf

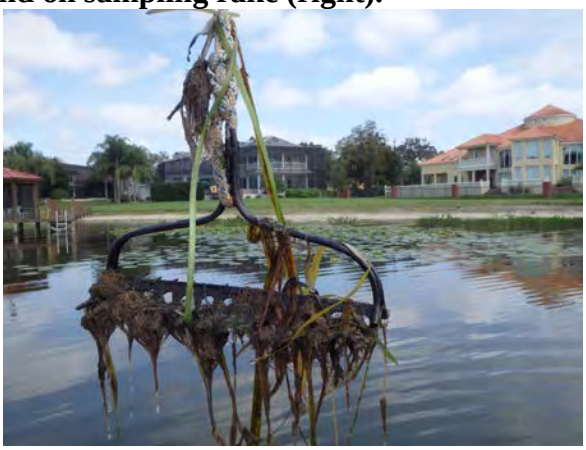
Bioassessment:

On **March 4th, 2014**, Seminole County Lake Management staff (Thomas Calhoun and Gloria Eby) surveyed the aquatic plants in **Spring Lake**.

Hydrilla was not observed during this inspection. The low level of this invasive plant being observed is likely due to the combined effects of consumption by grass carp fish and competition from native submersed aquatic vegetation (SAV).

Eelgrass was the only SAV observed during this inspection and was found to a depth of 7.7 feet; however the biomass was observably reduced compared to the previous 2 inspections. Eelgrass is healthy and robust to a water depth of 3-4 feet. Eelgrass was observed in sporadic patches (rather than a "meadow") at the 4-7 foot depth range. We will continue to closely monitor the density of eelgrass to evaluate if this plant population is being impacted. Some variables that can contribute to changes in eelgrass population are reduced water clarity in the lake (providing less sunlight to the plants in deeper water), seasonal effects/changes, and or grass carp fish effects.

Photo: Images of eelgrass on sonar (left) and on sampling rake (right).



Native SAV plays an important role in the ecosystem of the lake by providing habitat for wildlife, taking-up nutrients, and competing for space with exotics species such as hydrilla. The eelgrass corridors were found to be in good condition, especially with elevated lake levels. Eelgrass corridor treatments were executed in December and will be scheduled in June; weather permitting.

Native emergent vegetation (including pickerelweed, duck potato, fire flag, and canna lily) continues to thrive in the absence of torpedo grass. Through herbicide applications and the hard work of homeowners and volunteers, torpedo grass has been removed from most shorelines. The absence of torpedo grass has allowed many beneficial native plants to expand in its place. It is recommended to plant native emergent vegetation along cleared shorelines because it will help filter nutrients from runoff and aid against shoreline erosion.

The water elevation during the time of the inspection was 63.03 feet above sea level. The secchi reading (measurement for water clarity) was 2.1 feet, which was an increase from the prior survey of 1.9 feet. The apparent color of the water was green to brown with an algae bloom present. No grass carp fish were observed during this inspection although we are receiving reports of their presence. Thank you for submitting these, we find them very useful.

Recommendations for your lake:

1 Work together with other lakefront owners. Have *at least* one annual lake association meeting, invite guest speakers (such as county or state biologists) and discuss lake specific issues, especially nutrients/lake management recommendations. SCLMP staff would be glad to present our findings from this and other surveys. Continue to increase native aquatic plantings along the shoreline (such as pickerelweed, duck potato, and canna).

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