

FWC finally issued our grass carp fish amendment which enabled us to purchase 160 fish that were released into the lake on 9/24/10.

On 14 October 2010, Seminole County Lake Management Program staff Gloria Eby (SC Senior Environmental Scientist), Thomas Calhoun (SC Assistant Scientist) and Dean Barber (SC Consultant) surveyed the aquatic plants in Spring Lake. Submersed aquatic vegetation (SAV) found in Spring Lake include; eelgrass (*Vallisneria americana*), coontail (*Ceratophyllum demersum*), stonewort (*Nitella* spp) and hydrilla (*Hydrilla verticillata*). Eelgrass continues to be the dominant aquatic plant from shallow water to a depth of 8 feet. Some of the access corridors needs to be retreated for eelgrass. Hydrilla was found during the inspection mixed in with the eelgrass (image #72) to a depth of 9ft as well as along the outfall canal shoreline (photo#35) but was found to be reduced from previous inspection.







The efforts from the SCLMP and lake front owner restorations are really starting to pay off this year. Several waterfronts, especially those that have participated in county workday events are starting to see native emergent plants take over former invasive torpedo grass habitat (photo#11). It is important that these sites be managed by both lakefront residents and herbicide contractor to keep reducing the torpedo grass. Once torpedo grass has been treated and dies it should be removed by the homeowner to make room for the beneficial plants to expand. SCLMP will recommend to the herbicide contractor to retreat access corridors, treat lilies in west cove for access and continue torpedo grass treatment. Two triploid grass carp were observed. The water elevation at the time of survey was 63.00 feet above sea level.

On 17 November 2010, Seminole County Lake Management Program staff Thomas Calhoun and Dean G Barber surveyed the aquatic plants of Spring Lake. Submersed aquatic vegetation (SAV) found in Spring Lake include; eelgrass, coontail, baby tears (*Micranthemum glomeratum*), stonewort and hydrilla. Eelgrass continues to be the dominant aquatic plant from shallow water to a depth of 8 feet, covering over 60% of the lake bottom. Eelgrass was from a depth of 5 feet to the surface with the thickest surface plants in 2-4 feet water depth. Eelgrass could potentially block access from 3 boat docks with 10 boat accesses clear to open water. The ski course was open, no eelgrass impeded navigation. The remaining SAV represents between 2-3% of the lake bottom coverage, of which hydrilla is probably the larger population however it is having difficulty establishing because of these other native SAV, especially eelgrass utilizing most of the habitat hydrilla would prefer to establish in. Hydrilla was observed sporadically throughout the lake in single strands or small medium density populations, usually with healthy plants 4-6" long and

observed in the northwest canal including the area around the boat ramp. Although it was not observed on the deep side of the eelgrass during this survey, it was on the previous survey. Typically hydrilla will re-establish in this deeper location, as it needs less light than native SAV, making it capable of growing in deeper waters. Use of biological controls, such as grass carp fish, can usually prevent it from expanding in these deeper regions. Monitoring the lake and plant communities frequently to keep invasive species like hydrilla from expanding is key in hydrilla management strategies.

Please continue to note only 2 acres of eelgrass management is listed on our aquatic weed control permit issued by the state (Florida Fish and Wildlife Conservation Commission [FWC]) for recreational access purposes; should an individual wish to reduce this native plant, for individual recreation access only, you would need to contact Amy L. Giannotti with FWC at Amy.Giannotti@myfwc.com or 407.858.6170 to obtain a permit to do so. Permit is free

Torpedo grass was effectively treated at most sites where it was established adjacent to resident's waterfront. To increase the effectiveness of these treatments it is very helpful if lakefront owners remove the treated torpedo grass and their associated roots. Having done this, it makes it more difficult for the torpedo grass to re-establish reducing long terms costs. Please note the herbicide contractor has difficulty spraying torpedo grass that is located within/directly adjacent to native plant populations, for fear of impacting these desirable and beneficial plants. Without removing this torpedo grass, it will kill the native plants and take over the site again. Therefore, it is important that homeowners hand remove torpedo grass in the vicinity of these plants. Most of the sites that have participated in county shoreline restoration events have seen significant expansion of the planted native aquatic plants. SCLMP appreciates the effort residents have done to help with this waterfront beautification and enhancement project.

One triploid grass carp was observed. Secchi (water clarity) was 3.9 feet in a depth of 11.9 feet. The grass carp barrier was without defects.

On 11 January 2011, Seminole County Lake Management Program staff Thomas Calhoun and Dean G Barber surveyed the aquatic plants of Spring Lake. Submersed aquatic vegetation (SAV) found in Spring Lake include; coontail to a depth of 2 feet, hydrilla to 2 feet, baby tears (*Micranthemum glomeratum*) and eelgrass to 8.5-9 feet. Eelgrass continues to be the dominant aquatic plant reaching the surface from a depth of 6 feet, with no other aquatic plant present in its population except the two lilies, spatterdock and fragrant water lily. However, all of the eelgrass leaves were stressed with filamentous algae, except the new plants. Twelve boat accesses were not blocked by eelgrass. The two that were blocked, one was not being used and the other was questionable whether it was used. Only four hydrilla plants were observed. One in the north discharge creek, two in Spring Valley cove, one of which was floating and one in the lake. Two of these were healthy, short strands with viable growth tips. This is less hydrilla than was observed on the previous survey. The baby tears plant was also a floating fragment. No other SAV was observed on the deep side of the eelgrass.

Torpedo grass has been impacted both by the cold weather and recent SCLMP contractor treatments. However this invasive aquatic plant is still the most abundant emergent aquatic plant in the lake. Hopefully with efforts by waterfront owners and SCLMP contractor, this exotic plant can be reduced significantly this year. Other emergent plants impacted by the cold weather include pickerelweed and duck potato but we are expecting them to fully recover once the cold season is over.

No triploid grass carp were observed. Secchi (water clarity) was 5.9 feet in a depth of 11.8 feet compared to the previous reading of 3.9 feet.



Example of Coontail found in Spring Valley Cove



Example of treated Torpedo grass and cold impacted Duck Potato:

On 8 March 2011, Seminole County Lake Management Program (SCLMP) staff Thomas Calhoun and Dean G Barber surveyed the aquatic plants of Spring Lake. Overall the lake looks good. The shoreline (emergent) aquatic plants, primarily the native pickerelweed and duck potato, are greening, showing signs of spring. These will be a key factor in helping to prevent the invasive grass, torpedo grass, from expanding in this same habitat. Few hydrilla plants were observed, being controlled by the triploid grass carp and competing for space with native submersed aquatic vegetation (SAV). SAV found included; coontail to a depth of 4 feet, muskgrass, the invasive hydrilla to 2 feet, southern naiad to 4 feet, stonewort and eelgrass 8 feet. This SAV consist of 5 native and 1 exotic, good native plant diversity. Plant diversity is a key factor in the management plan for the lake. Although, presently coontail, southern naiad, and stonewort represent less than an acre of SAV, if these species and other native SAV continue to expand and establish, they will compete with eelgrass and hydrilla for space, hopefully reducing the eelgrass population and preventing hydrilla from re-establishing.

Eelgrass continues to be the dominant aquatic plant reaching just below the surface from a depth of 6 feet, and extending to a depth of 8 feet. The eelgrass is healthy, thick plants that are starting to send the flower stems to the water surface. A review of waterfront owners boat accesses found 13 accesses were open and 8 needed to be cleared. The SCLMP contractor will be scheduled to treat the eelgrass blocked accesses. Over 90% or less than an 0.2 acres of the hydrilla was observed in the northern discharge canal. Additional plants were observed on both the eastern and western side of the lake. These plants were small (2-6") with about 50% viable growth tips. No other SAV was observed on the deep side of the eelgrass, therefore, the hydrilla continues to not be able to establishing at this depth.

Torpedo grass and the primrose willow were recently treated and impacted by the cold weather. It is possible with continued expansion of the native emergent aquatic plants, that torpedo grass will lose its dominants to these beneficial emergent aquatic plants. Most of the residential planting sites had significant new growth of the native aquatic plants. No triploid grass carp were observed. Secchi (water clarity) was 5.1 feet in a depth of 9.7 feet compared to 5.9 feet in January 2011.

On April 12 and May 10th, 2011, Seminole County Lake Management Program (SCLMP) staff Gloria Eby, Thomas Calhoun and Dean G Barber with Carol Watral (MSBU Program), surveyed the aquatic plants of Spring Lake. The shoreline (emergent) aquatic plants, primarily native pickerelweed and duck potato, from previous restoration events have expanded greatly and look great. These will be a key factor in helping to prevent invasive torpedo grass from expanding in this same habitat which the county herbicide contractor continues to treat.

SAV found includes: native coontail to a depth of 4 feet, native musk grass to a depth of 3 feet, invasive exotic hydrilla to 7 feet, native southern naiad to 4 feet, and native eelgrass to 8 feet. This SAV composition (4 natives to 1 exotic) represents good native plant diversity.

Eelgrass continues to be the dominant aquatic plant reaching just below the surface from a depth of 6 feet, and extending to a depth of 8 feet. The plant is healthy, with thick leaves, sending its curling flower stems to the water's surface.

Upon inspection of the treated eelgrass boat access corridors, most were open with 3 needing re-treatment. There were new access corridors observed of which will be added for treatment; this does include an area in the cove to allow boat passage to the main lake. The county contractor is scheduled to treat eelgrass in the designated access corridors upon next service date.

No other SAV was observed on the deep side of the eelgrass. This is a good indication that the grass carp stockings have deterred hydrilla from being able to re-establish at this depth. 3 triploid grass carp were observed. Secchi (water clarity) was 7 feet in a depth of 13.5 feet compared to 5.1 feet in March 2011.



Photo: Eelgrass and southern naiad found during inspection.



Photo: Eelgrass blocking access.

Greetings Spring Lake!

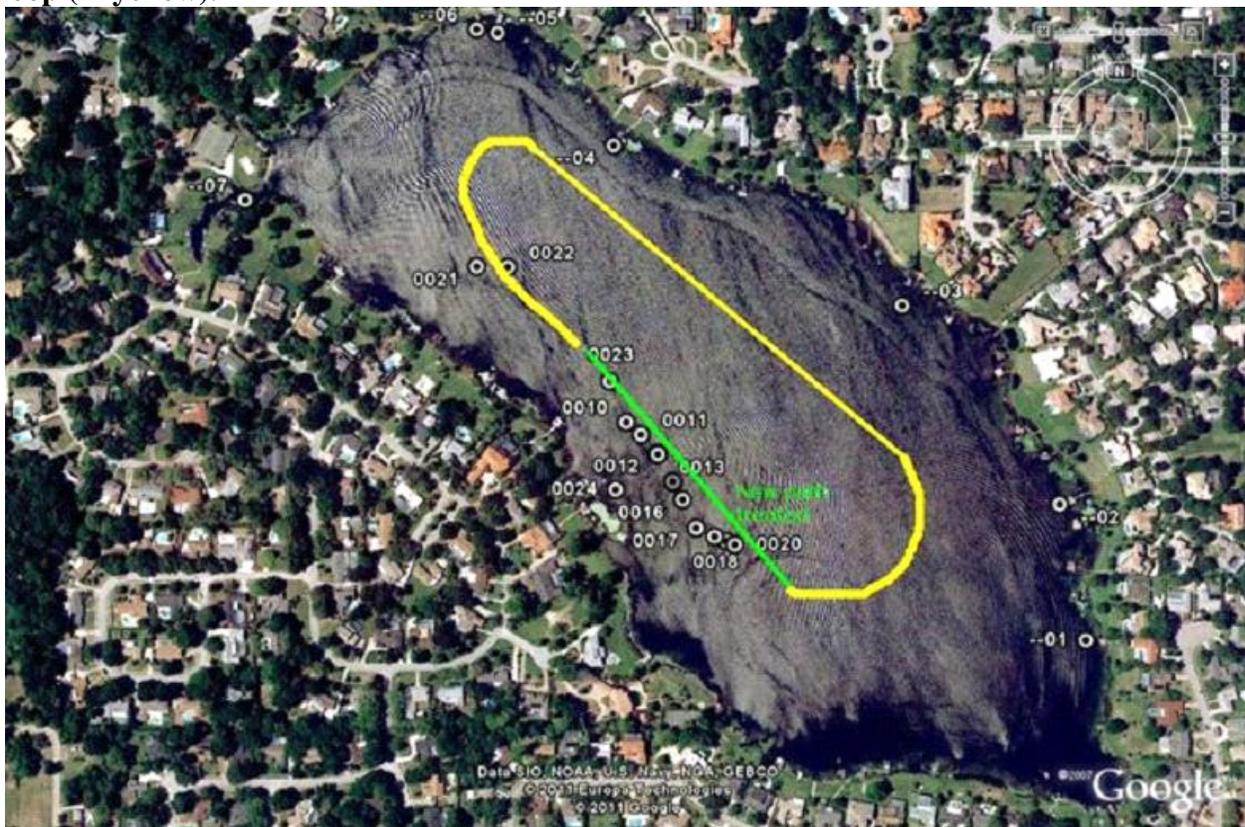
Below please find the latest lake assessments for your lake. Key highlights of this update will include:

- Reminder of new eelgrass access corridor
- Hydrilla update & Grass Carp Stocking
- Monthly herbicide treatment status
- Continued encouragement of planting native aquatic plants along your shoreline
- Recommendations for you and your lake

On **September 16th, 2011**, Seminole County Lake Management Program (SCLMP) staff Gloria Eby and Thomas Calhoun surveyed the aquatic plants of **Spring Lake**.

The navigational corridor is currently open and navigable. This corridor (as indicated on map below in green and marked with buoys in lake) has been created connecting the two deeper lobes of Spring Lake. This access corridor is currently being treated for eelgrass and is located in the shallow area along the south side of the lake. In conjunction with the slalom course to the north, this should provide a navigable loop for traversing around the lake. *Please continue to use corridor and proceed in the shallow areas with caution.*

Map: New eelgrass access corridor under management (in green) and illustrated navigable loop (in yellow).



Other than the recreational impedances of eelgrass, Spring Lake has a good diversity of SAV. Submersed species found during inspection includes: hydrilla to 3 ft, stonewort to 5 ft, musk grass to 5 ft, eelgrass to 8 ft and filamentous algae. Along some shorelines in the lake, stonewort is beginning to mix in and compete for space with the eelgrass. Hydrilla was not found in the outfall canal on the NW side of the lake. In order to impact hydrilla growth in the deeper portions of the lake 50 triploid grass carp (sterile) were stocked on August 26th.

Photo: Stonewort mixed with eelgrass.



Photo: Grass carp stocking.



Torpedo grass continues to be treated by the Seminole County Lake Management contractor. Native vegetation has expanded and has become the dominant vegetation along many shorelines. Although these plantings have been a huge success, there are several shorelines with no vegetation; a violation of state aquatic plant permitting regulations. Having a healthy ecosystem of shoreline plants plays a vital role in the health and quality of your lake.

3 triploid grass carp was observed during our inspection. The secchi reading (measurement for water clarity) was 3.7 feet in a depth of 11.9 feet.

On **12 July 2011**, Seminole County Lake Management Program (SCLMP) staff Gloria Eby, Thomas Calhoun and Marianne Pluchino surveyed the aquatic plants and conducted a Lake Vegetation Index (LVI) assessment of **Spring 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.

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 51. The LVI score for 2011 was 51 in the healthy range.

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

Eelgrass is still the major concern for the lake- blocking access in some areas. In efforts to address navigational concerns, SCLMP in conjunction with the liaisons of Spring Lake, have set forth creating a new access corridor via the MSBU/County herbicide contractor. This corridor (as indicated on map below in green only) has been created connecting the two deeper lobes of Spring Lake. This access corridor is currently treated and is located in the shallow area along the south side of the lake. In conjunction with the slalom course to the north, this should provide a navigable loop for traversing around the lake.

Other than the recreational impedances of eelgrass, Spring Lake has a good diversity of SAV. Submersed species found during inspection includes; Hydrilla, stonewort, pondweed, eelgrass and filamentous algae. This SAV consist of 4 native and 1 exotic. With the continued presence of hydrilla within the deeper region of Spring Lake, an additional stocking of 50 grass carp will be scheduled for August 26th.

Photo: Example of access blocked by eelgrass.



Torpedo grass has been reduced to the point where it is no longer the dominant shoreline plant. This is due to the lake management plan developed by SCLMP and executed in cooperation with Spring Lake resident efforts (stewardship), MSBU/herbicide contractor, and previous Shoreline Restoration Events. Although these plantings have been a huge success, there are several shorelines with no vegetation; a violation of state aquatic plant permitting regulations. Having a healthy ecosystem of shoreline plants plays a vital role in the health and quality of your lake.

3 triploid grass carp was observed during our inspection. The secchi reading (measurement for water clarity) was 3.8 feet in a depth of 4.4 feet.

Recommendations for waterbodies:

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 Increase educational outreach programs i.e. Shoreline Restoration Workshops (planting days), 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 waterbody! Contact Seminole County Lake Management Program (407) 665-2439 for free educational programs available.