Greetings Howell Creek Residents!

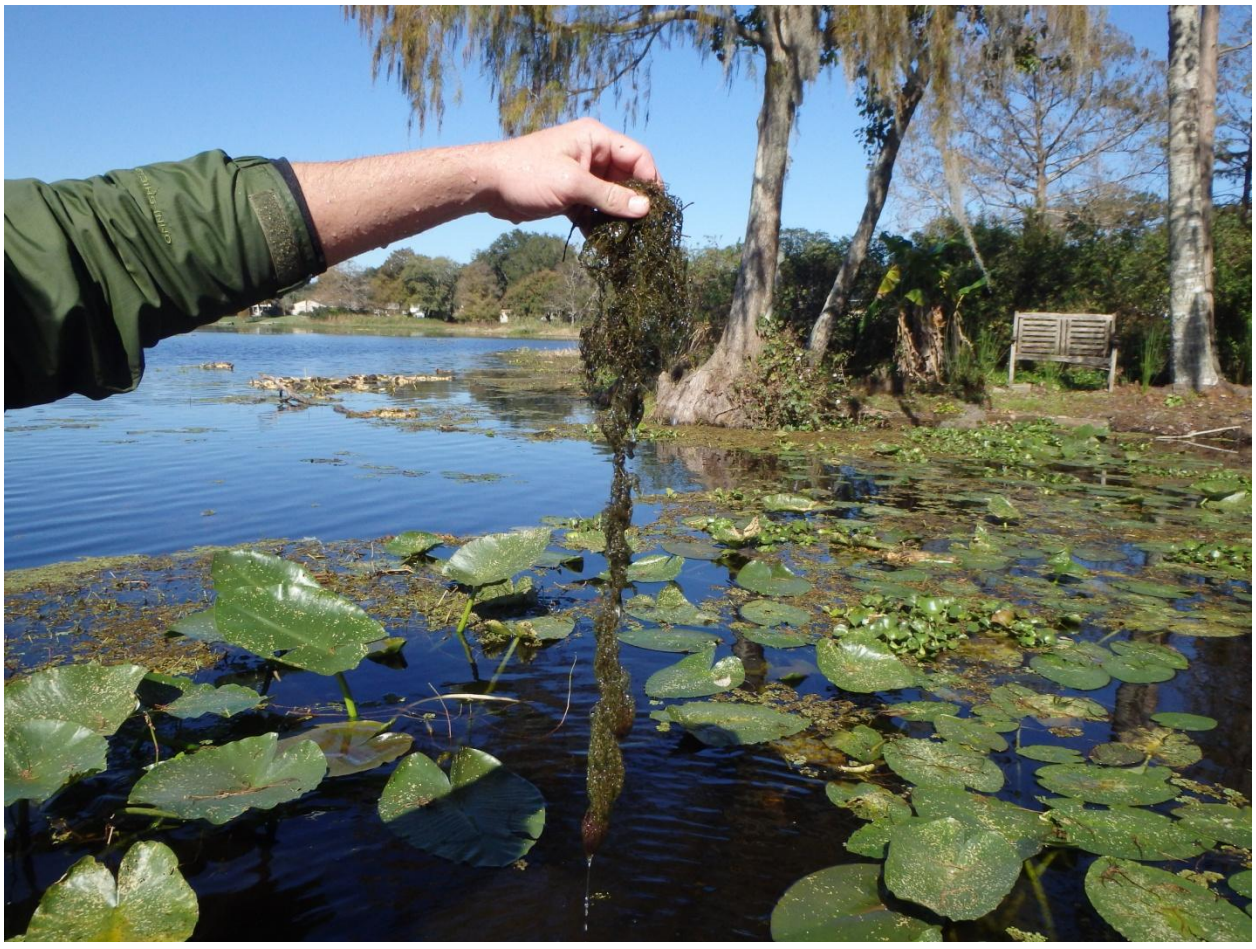
Please find the latest bioassessment report for your creek below. Some of the key highlights from this report will include:

- Submersed aquatic vegetation (SAV) update
- Emergent vegetation presence
- Erosion issues and recommendations
- Lake Waumpi vegetation status/update
- Recommendations for you and your waterbody

On **December 18th, 2013**, Thomas Calhoun (Seminole County Lake Management Program) and Joey Cordell (Seminole County Watershed Management Intern) surveyed the aquatic plants in **Howell Creek and Lake Waumpi**.

Five species of submersed aquatic vegetation (SAV) were found during the inspection. These SAV species included road grass, southern naiad, bladderwort, eelgrass, and hydrilla. The invasive species hydrilla was found in small springs only in a few regions of the creek. No treatment for hydrilla is needed at this time.

Photo: Bladderwort.

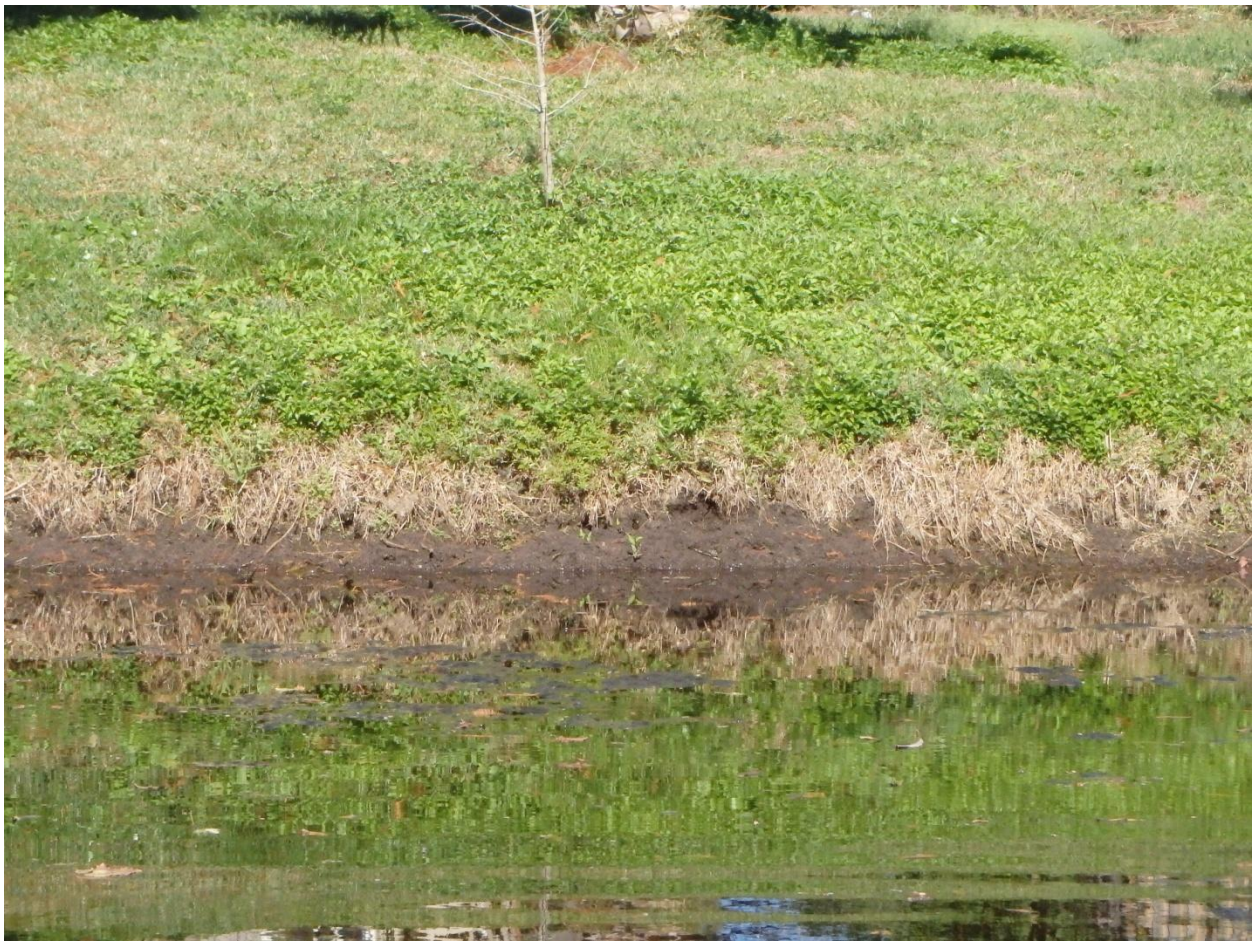


Invasive emergent vegetation found during the inspection included: alligator weed, elephant ear, and cattail. Water hyacinth, a floating invasive aquatic plant, has spread throughout the creek since the last inspection. There were several large mats of water hyacinth in the upstream portion of the creek and a few isolated water hyacinths downstream. Another floating invasive aquatic plant, salvinia, was seen in large quantities but has been impacted by the MSBU funded herbicide contractor.

Photo: Salvinia.

Now that the torpedo grass has been reduced, some of the shorelines along the north bank of the creek are bare and showing signs of erosion. It is recommended that native shoreline vegetation be planted to help reduce erosion, stabilize the shoreline, and prevent the return of torpedo grass. Recommended native species include, but are not limited to: pickerelweed (scientific name: *Pontederia cordata*), duck potato (*Sagittaria lancifolia*), golden canna (*Canna flacida*), fire flag (*Thalia geniculata*), and cord grass (*Spartina bakeri*). Native vegetation found during the inspection included yellow cow lily, pickerelweed, soft rush, and pennywort.

Photo: Bare shoreline is susceptible to erosion.



Lake Waumpi was also surveyed during this inspection. There were significantly less lily pads on Waumpi than in the previous inspection. Coontail was the only SAV found in the lake. Most of Lake Waumpi's shoreline was dominated by invasive species including: burhead sedge, primrose willow, Carolina willow, cattails, alligator weed, and salvinia. Some floating mats extending from the shoreline show signs of herbicide treatment.

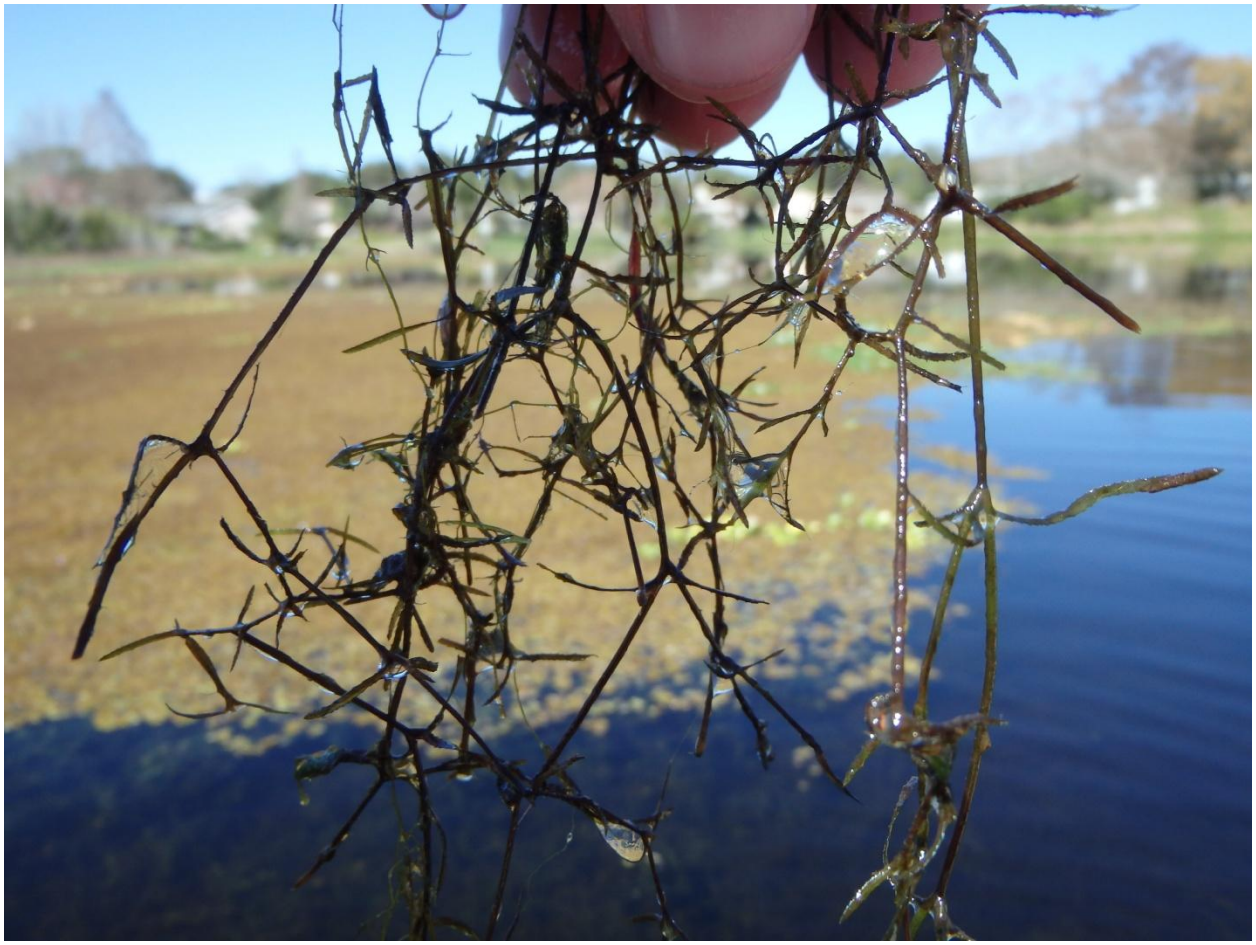
The secchi reading (water clarity) in Lake Waumpi was VOB (visible on bottom) in a depth of 4feet. One triploid (sterile) grass carp fish was observed. LakeWatch water quality data for Lake Waumpi can be found on the Seminole County Watershed Atlas at: http://www.seminole.wateratlas.usf.edu/lake/default.asp?wbodyid=151861&wbodyatlas=lake.

2/10/2014

On **February 10th, 2014**, Thomas Calhoun (Seminole County Lake Management Program) and Joey Cordell (Seminole County Watershed Management Intern) surveyed the aquatic plants in **Howell Creek and Lake Waumpi**.

Five species of submersed aquatic vegetation (SAV) were found during the inspection. These SAV species included road grass, bladderwort, eelgrass, southern naiad and coontail. The invasive species hydrilla was not found during this inspection

Photo: Southern naiad.

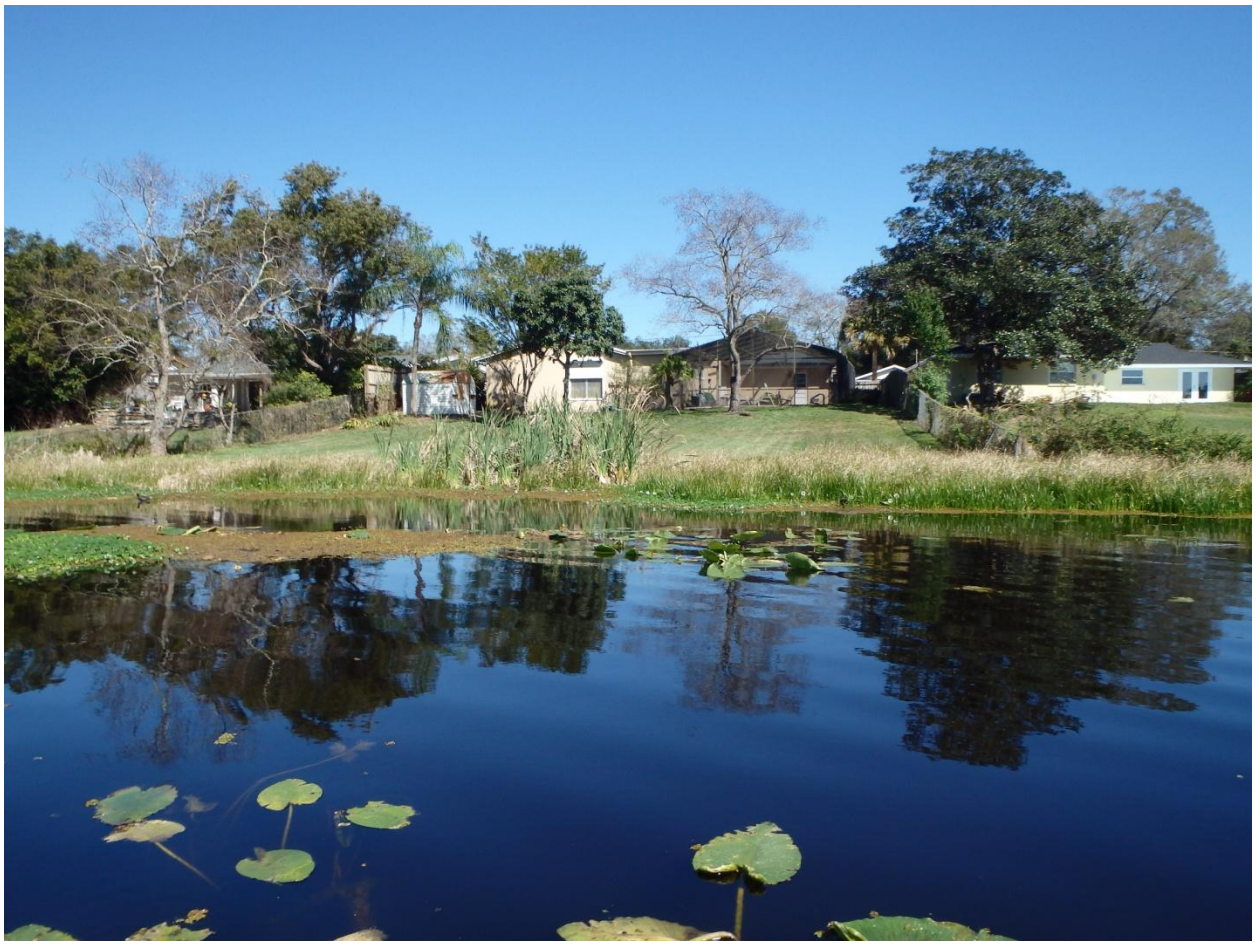


Invasive emergent vegetation found during the inspection included: alligator weed, elephant ear, and cattail. Water hyacinth was found throughout the creek. Salvinia is washing in from Lake Waumpi due to the recent rainfall. This is causing large pockets of salvinia to occur especially around the weir.

Photo: Water hyacinth.

Lake Waumpi was also surveyed during this inspection. There were significantly less lily pads on Waumpi than in the previous inspection. Coontail and hydrilla were the only SAV found in the lake. Most of Lake Waumpi's shoreline was dominated by invasive species including: burhead sedge, primrose willow, Carolina willow, cattails, alligator weed, and salvinia. Some floating mats extending from the shoreline show signs of herbicide treatment. Salvinia was found in large quantities around Lake Waumpi's shoreline

Photo: Burhead sedge and cattails on Lake Waumpi's shoreline.



The secchi reading (water clarity) in Lake Waumpi was VOB (visible on bottom) in a depth of 3feet. One triploid (sterile) grass carp fish was observed. LakeWatch water quality data for Lake Waumpi can be found on the Seminole County Watershed Atlas at: http://www.seminole.wateratlas.usf.edu/lake/default.asp?wbodyid=151861&wbodyatlas=lake.

Recommendations:

1 Work together with other lakefront owners. Have *at least* one annual waterbody association meeting, invite guest speakers (such as county or state biologists) and discuss lake specific issues, especially nutrients/lake management recommendations. Seminole County Lake Management Program 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 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.

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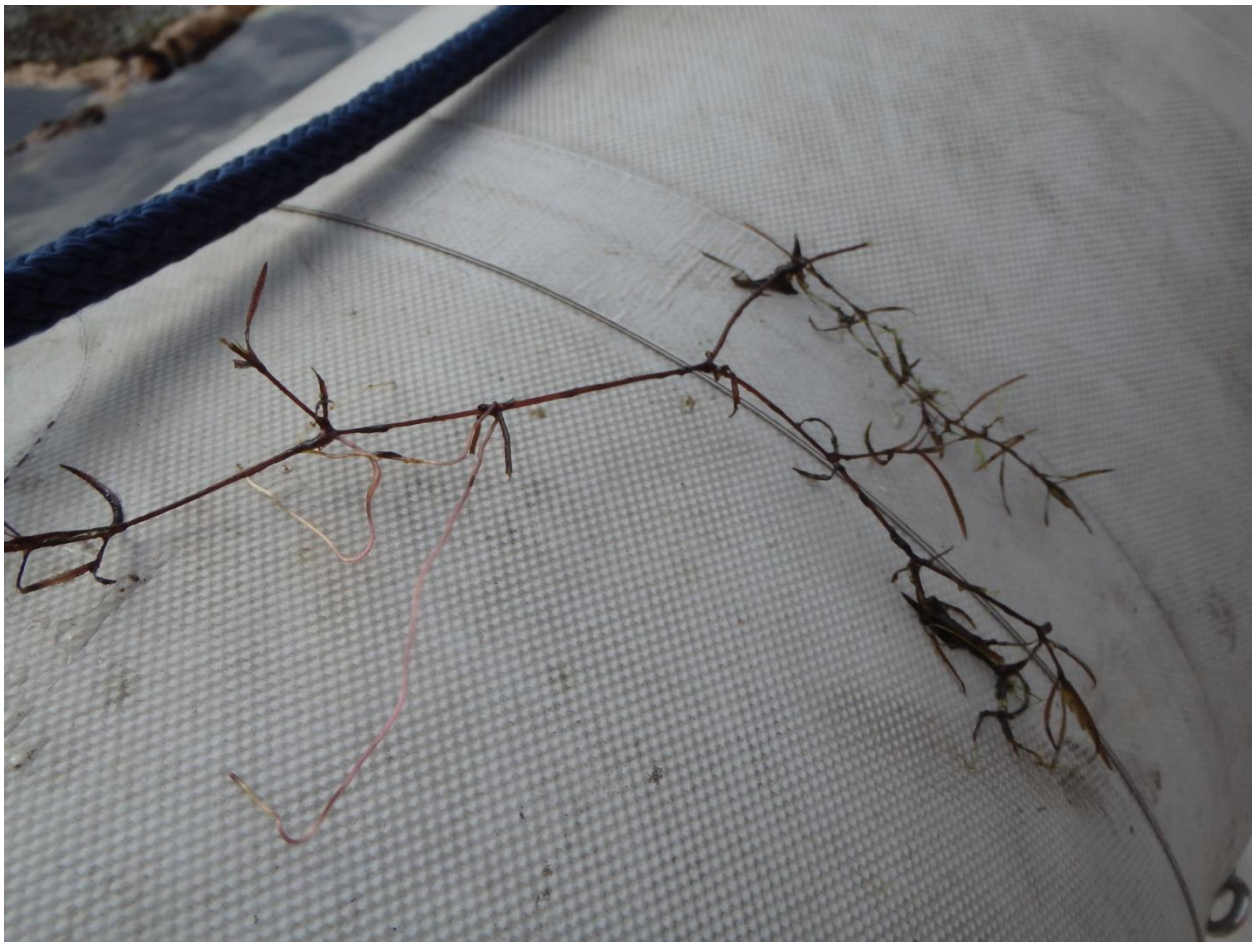
On **October 9th, 2013**, Thomas Calhoun (Seminole County Lake Management Program) and Joey Cordell (Seminole County Watershed Management Intern) surveyed the aquatic plants in **Howell Creek and Lake Waumpi**.

Four species of submersed aquatic vegetation (SAV) were observed during the inspection. These SAV species included road grass, southern naiad, coontail, and eelgrass. Hydrilla was not observed during this inspection. This was a reduction in hydrilla from the previous inspection in which only a few sprigs were found.

Photo: Southern naiad found in creek.



Invasive emergent vegetation found during the inspection included: alligator weed, elephant ear, torpedo grass, and cattail. Torpedo grass was found in a very small amount. The MSBU-funded herbicide contractor continues to do a good job eradicating torpedo grass within the MSBU boundary of Howell Creek. Water hyacinth, a floating invasive aquatic plant, was observed slightly more often than in the previous inspection.

Native vegetation found during the inspection included: yellow cow lily, pennywort, and water paspalum. Some shorelines along the north bank of the creek had visible erosion issues. It is recommended that native shoreline vegetation be planted to help reduce erosion and stabilize this shoreline. Recommended native species include, but are not limited to: pickerelweed (scientific name: *Pontederia cordata*), duck potato (*Sagittaria lancifolia*), golden canna (*Canna flacida*), fire flag (*Thalia geniculata*), and cord grass (*Spartina bakeri*).

Photo: Native water paspalum plant found in Howell Creek.

Lake Waumpi was also surveyed during this inspection. It appeared that some of the lily pads in the lake had been treated. However, the entrance to the creek was stilled blocked with lily pads. No SAV was found in Lake Waumpi; there was only detritus (organic sediment) along the lake bottom. Most of Lake Waumpi's shoreline was dominated by invasive species including: burhead sedge, primrose willow, Carolina willow, cattails, alligator weed, and salvinia. Many of

these invasives were beginning to form large floating mats. Without management, these mats will eventually sprawl into the open waters of the lake.

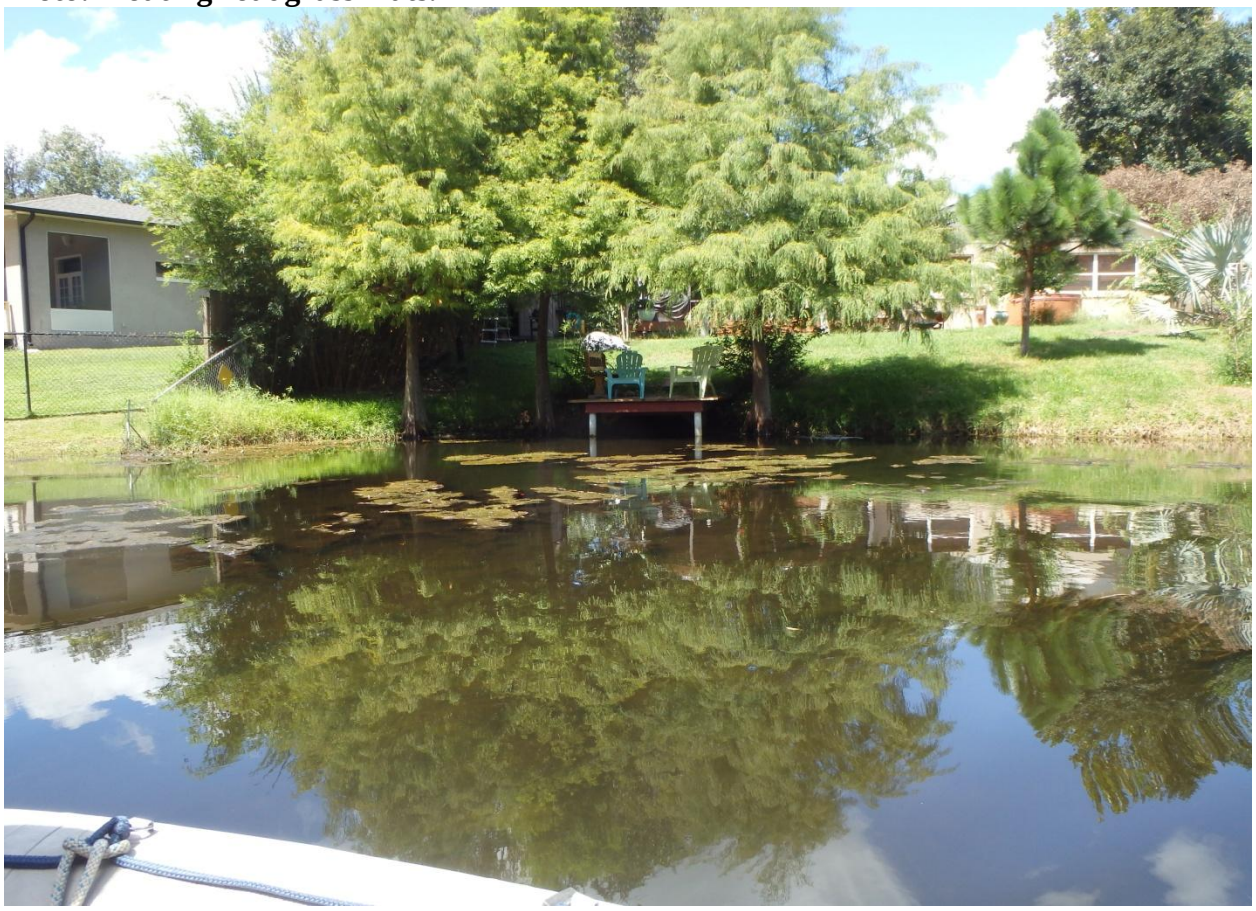
The secchi reading (water clarity) in Lake Waumpi was 3.8 feet in a depth of 4 feet. No triploid (sterile) grass carp fish were observed. LakeWatch water quality data for Lake Waumpi can be found on the Seminole County Watershed Atlas at: http://www.seminole.wateratlas.usf.edu/lake/default.asp?wbodyid=151861&wbodyatlas=lake.

9-17-2013

On **September 17, 2013**, Thomas Calhoun (Seminole County Lake Management Program) and Joey Cordell (Seminole County Watershed Management Intern) surveyed the aquatic plants in **Howell Creek and Lake Waumpi**.

Five species of native submerged aquatic vegetation (SAV) were observed during the inspection. These SAV species included: coontail, roadgrass, southern naiad, bladderwort, and eelgrass. The eelgrass had grown enough to top out (reach the surface) in 2 feet of water close to Lake Waumpi. Several floating mats of roadgrass had formed just downstream from the canopied bend of Howell Creek. The carp had continued to eat the hydrilla and only one sprig was found in the creek.

Photo: Floating roadgrass mats.

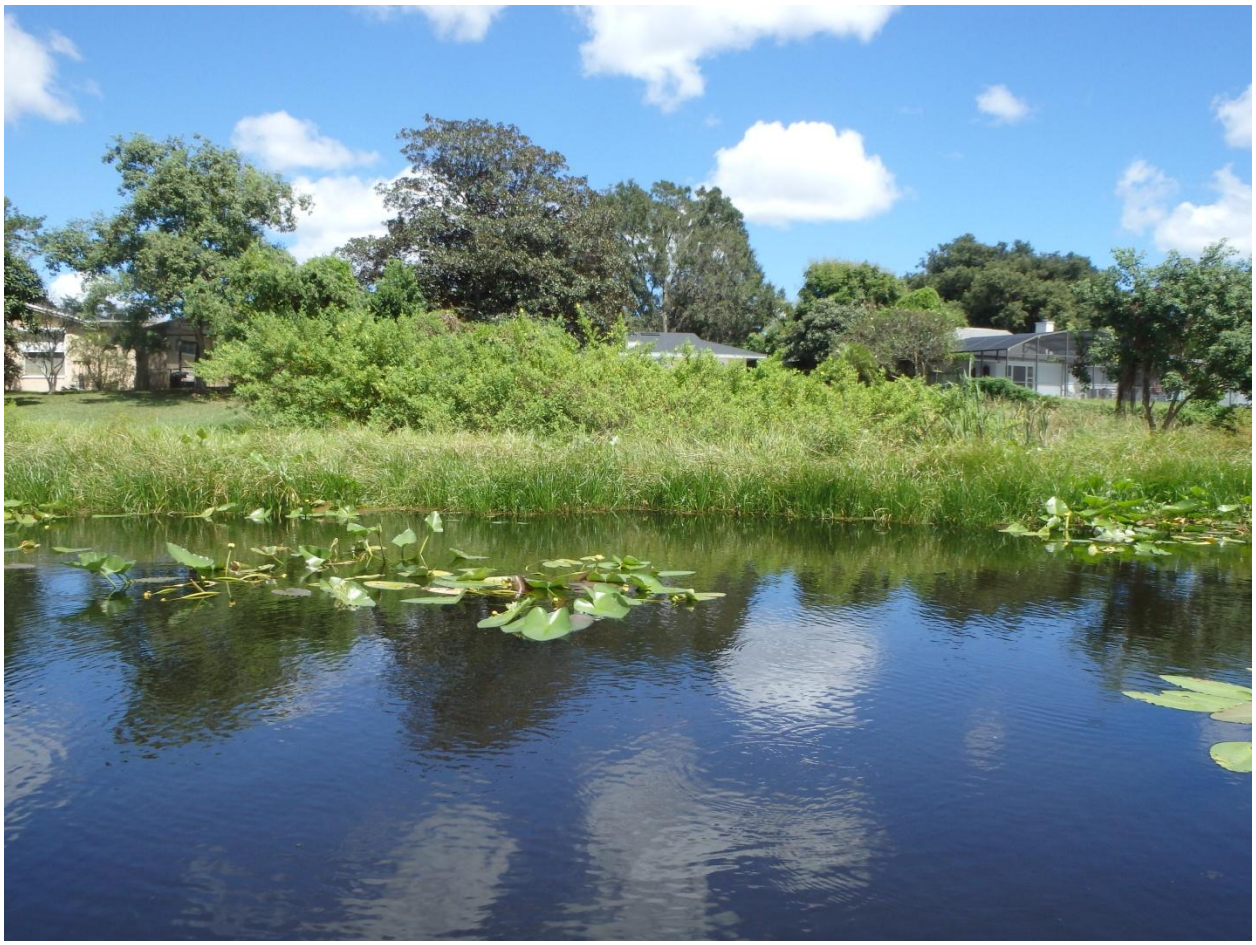


The inspection resulted in the identification of four invasive emergent vegetation species in Howell Creek: alligator weed, elephant ear, torpedo grass, and cattail. The alligator weed expanded since the previous inspection. Invasive species observed in the creek also included two floating species: water hyacinth and salvinia. A few large clusters of water hyacinth had formed along the shoreline of the creek near the lake. After last month's herbicide treatment of lilies, the plants' large rhizomes had floated to the surface.

Photo: Yellow cow lily rhizome.

Lake Waumpi had many invasive species around its perimeter. These species included: Carolina willow, Mexican primrose, burhead sedge, cattail, alligator weed, and salvinia. Large floating mats along the shoreline were reducing the area of the lake. No submerged vegetation was found in Lake Waumpi.

Photo: Floating mat on Lake Waumpi



The secchi disk (tool for measuring water clarity) in Lake Waumpi was visible on the bottom at a depth of 4 feet. No triploid (sterile) grass carp fish were observed.

8-28-2013

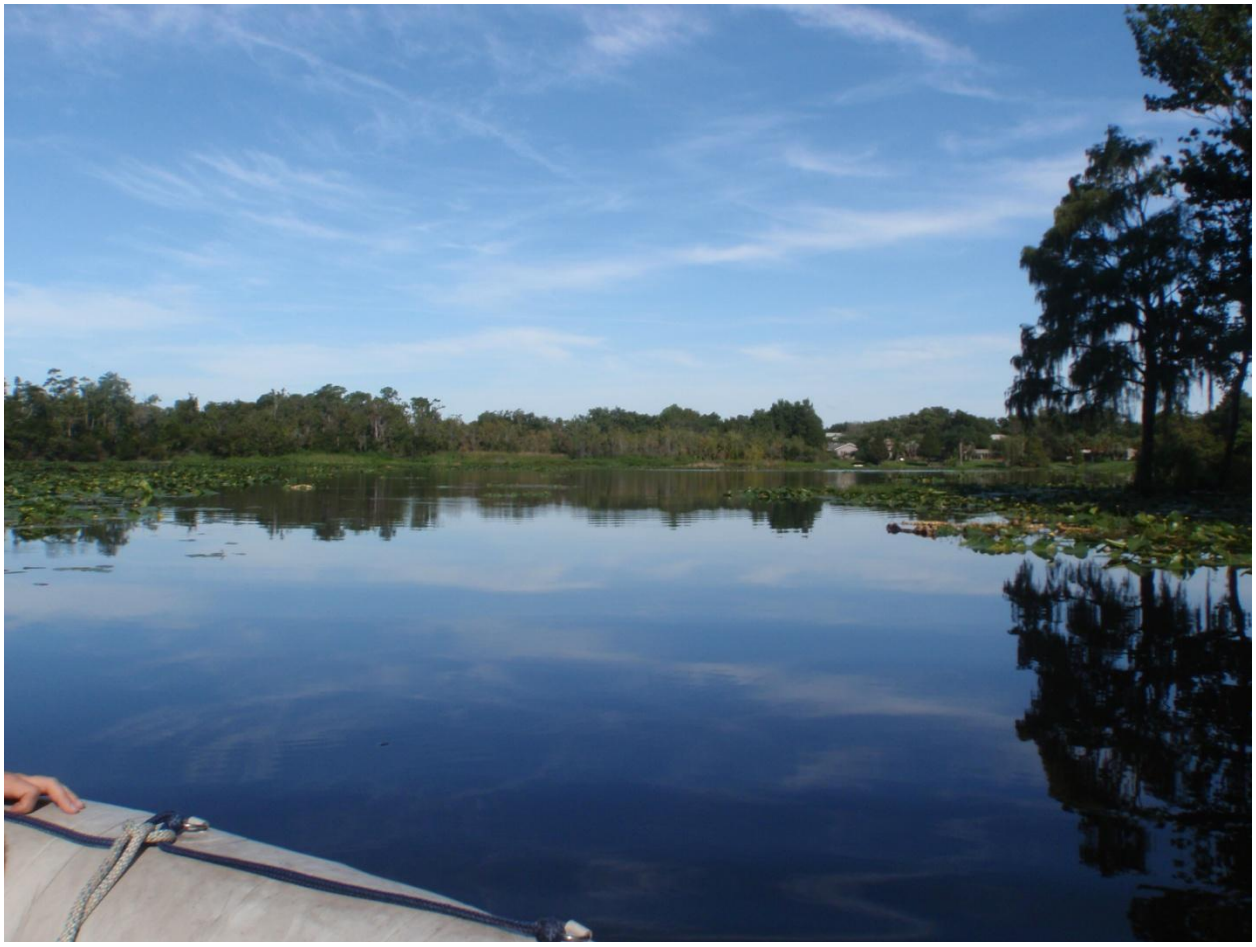
On **August 28th, 2013**, Thomas Calhoun (Seminole County Lake Management Program) and Joey Cordell (Seminole County Watershed Management Intern) surveyed the aquatic plants in **Howell Creek and Lake Waumpi**.

Four species of native submerged aquatic vegetation (SAV) were observed during this inspection. These species included: coontail, bladderwort, eelgrass, and roadgrass, each to a depth of 2 feet. One patch of hydrilla was found, but it was evident that grass carp had been eating it.

Photo: Bladderwort.

Invasive emergent vegetation observed during the inspection included: alligator weed, elephant ear, Mexican primrosewillow, wild rice, and torpedo grass. The torpedo grass was notably scarce in the creek. The yellow cow lilies that clump at the mouth of Howell Creek were killed back by the MSBU-funded herbicide contractor. Native vegetation observed during the inspection included pickerelweed and yellow cow lily.

Photo: View of Lake Waumpi from Howell Creek.



Entry into Lake Waumpi from Howell Creek was easier during the last inspection because of a reduction in yellow cow lilies. Vegetation in the middle of the lake had been reduced, but the invasive plants on the shoreline were still prominent. The most prominent species were: burhead sedge, primrose willow, Carolina willow, cattails, alligator weed, and salvinia. These invasive species reduce the size of the lake as they grow out away from the shoreline as floating mats. No submerged vegetation was found in Lake Waumpi.

The secchi disk was visible on the bottom of Lake Waumpi at a depth of 4.7 feet. One triploid (sterile) grass carp fish was observed.

Recommendations:

1 Work together with other lakefront owners. Have *at least* one annual waterbody association meeting, invite guest speakers (such as county or state biologists) and discuss lake specific issues, especially nutrients/lake management recommendations. Seminole County Lake Management Program 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 Increase educational outreach programs i.e. Shoreline Restoration Workshops (planting days), Florida Yards and Neighborhoods (FYN), Lake Management Video mail-outs, and spread the word about reducing personal pollution by reducing 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 of these activities aid in protecting your waterbody! Contact Seminole County Lake Management Program (407) 665-2439 for free educational programs available.