

January 21, 2016

**MIRROR LAKE
LAKE MANAGEMENT PLAN**

Annual Meeting – 2016

- Agenda

Lake Management Plan

- General Provisions & Scope of Services
- Community-Based Activities & Events
- Current Fiscal Year
 - Planned Treatments &, Funding
- Next Fiscal Year
 - Projected Treatments & Funding
- Exhibits
 - Agenda & Notes (Prior Year)
 - Budget & Financial Summary
 - Historic Reports/Data
 - Roles & Responsibilities

MIRROR LAKE ANNUAL MEETING

Date, Time & Location	:	January 21, 2016, 1:00 p.m., 200 W. County Home Rd – LMP Office
Community Liaisons	:	John Culmer, Lorene Deviese, and Debbie Rodgers Linda Keene - Barrington Apartments
Liaisons Present	:	John Culmer and Debbie Rodgers
Seminole County	:	Thomas Calhoun, Joey Cordell, and Kathy Moore

Agenda

Topics carried forward from prior fiscal year activity [Meeting Notes]

- Bladderwort was added to the Aquatic Plant Management Permit issued by FWC. Isolated treatments continue to be conducted. This is a very difficult species to treat without impacted to surrounding beneficial natives
 - Scheduled for 2016
- Progress of the County ordinances - Fertilizer & Shoreline Protection
 - Documents developed and undergoing preliminary review and consideration prior to presentation to Board of County Commissioners. Targeting to present to BCC within next several months.

General Topics & Updates [Meeting Notes]

- Hydrilla treatments minimal
 - 40 carp to be stocked in spring
- Nutrients/Habitat Scores: Minimal changes in bioassessment indices
 - Refer to Exhibit C – score Good; rating Healthy
- Plans for current fiscal year
 - Refer to Page 5
 - Budget Exhibit B – Assessment reduced from \$220.00 to \$200.00
- Projections for next fiscal year
 - Refer to Page 5
 - Budget Exhibit B
- General recommendations for community consideration
 - Refer to Page 4

MIRROR LAKE LAKE MANAGEMENT PLAN

GENERAL PROVISIONS

Scope of Public Aquatic Weed/Plant Control [AWC] Services

The scope of public aquatic weed control [AWC] services funded by non-ad-valorem assessment includes those services associated with managing aquatic plant communities as deemed beneficial and/or critical to restoring, developing and/or maintaining conditions that enhance the water quality and over-all health of the waterbody; with emphasis on providing public services for public purposes which by definition of public are limited to the waterbody and respective shoreline when/where noxious and/or invasive exotic vegetation could/would threaten or impede the waterbody.

Governing documents

- Seminole County Ordinance 06-74
- FWC permit

Methods for Aquatic Weed Control as authorized via County Ordinance/Resolution

- Chemical (herbicides)
- Biological (sterile triploid grass carp fish [TGC])

Targeted Invasive/Exotic Aquatic Vegetation

- Hydrilla, water hyacinth, torpedo grass, primrose willow, water lily (greater than 4ft water depth), wild taro, cattail, Cuban bulrush, bladderwort, and salvinia.

Frequency of AWC Treatment

AWC services are performed at the direction of the Seminole County LMP as per the Mirror Lake Management Plan reviewed at the annual planning session with the expectation that the Seminole County LMP may alter anticipated treatments as merited basis per changing/evolving conditions noted during site inspections.

Herbicide Treatments - Service Provider

- As determined by Seminole County

Funding

Assessment rate may vary annually based on financial demands of changing conditions, such as cost of herbicide treatments, frequency of treatments, and other factors impacting assessment calculations. The annual assessment is capped at \$250.00.

Lake Liaisons

Property owners (or their designated representatives) provide community representation at annual planning sessions with the County and serve voluntarily as the key point of contact for community inquiries and concerns. The liaisons for Mirror Lake are: John Culmer (goodlyf@gmail.com), Lorene Deviese (lfdeviese@hotmail.com), Linda Keene (LKeene@zrsmanagement.com), and Debbie Roberts.

COMMUNITY-BASED ACTIVITIES & EVENTS

LMP recommends/encourages homeowners to coordinate a resident-based volunteer event involving native plantings along the shoreline of Mirror Lake. The intention of such an event is to plant beneficial native aquatic plants to key areas in need along the bank. It is especially important that as the aquatic invasive plants (such as torpedo grass) are being treated, native aquatic plants should be established within these areas. The presence of the recommended native plant species along the shoreline provides habitat for fish and wildlife, helps impede invasive exotics from re-establishing, and reduces erosion of the shoreline. All of these best management practices are essential to providing the conditions that promote an environmentally stable habitat to be enjoyed by generations to come. The key to success is dependent on strong participation of the Mirror Lake community.

Continued recommendations for community initiatives are as follows:

- 1) Work together or establish a lake association, with other lakefront owners to increase native aquatic plantings along shoreline (such as pickerelweed, canna, and duck potato). Have at least one annual lake association meeting to discuss lake specific issues.
- 2) Consider funding street sweeping services during peak leaf fall to ensure this debris does not wind up in your waterways. Leaf debris contains phosphorous and nitrogen that can impact your lake.
- 3) Take advantage of free educational outreach programs i.e. Shoreline Restoration Workshops (planting days), Florida Yards and Neighborhoods (FYN), Lake Management Video mail-outs, and presentations on decreasing “pointless personal pollution” by reducing fertilizer use and only using phosphorous-free and slow-releasing nitrogen based fertilizers. Contact Seminole County Lake Management Program (407) 665-2439 to inquire about the availability of these programs. You can also visit the Water Atlas (<http://www.seminole.wateratlas.usf.edu/>) to read interesting information about your specific waterbody, and our website (http://www.seminolecountyfl.gov/pw/roadstorm/wq_lakemgt.aspx) to watch educational videos and download lake management pamphlets.
- 4) Share what YOU know with your neighbors! Encourage fellow residents to keep a functional shoreline with beneficial native aquatic plants, and to keep grass clippings out of the stormdrains that lead to the lake. All of these activities aid in protecting your waterbody! Please share newsletter with any new residents or those not currently on our email list.

***Important to Note:** When herbicides are applied along the shoreline to invasive plants (such as torpedo grass), overspray onto adjacent desirable vegetation may occur. In order to avoid damage to desired vegetation, manual (by hand) removal (by property owner) of the undesirable species from among the desirable species is advised. If the invasive plants are removed by this method, spraying the area can be reduced, thereby offering greater, protection to the desirable species. The physical removal of dead/decaying aquatic plant material will reduce the volume of decomposing vegetation on the lake bottom (muck layer) and will increase the success of the efforts to limit the re-growth of the invasive plants.*

COUNTY SERVICES – Lake Management & Supplemental Programs

Mirror Lake is monitored by LMP to assess aquatic plant growth. LMP provides continued evaluation of the aquatic plant species, such as hydrilla, and provides community updates on the status of all treatments and waterbody assessments. In addition, LMP offers free aquatic plant material (as available) for sponsored restoration events and local community volunteers coordinated through the county’s Seminole Education and Restoration Volunteer (SERV) Program. While the MSBU assessment includes a nominal charge for administering the MSBU, the amount charged does not cover all expenses incurred by the County on behalf of waterfront property owners. Many of the services provided by the LMP are made available to support community riparian stewardship without additional charges being assigned to the MSBU budget.

CURRENT FISCAL YEAR – Planned Treatment & Funding

Primary Aquatic Plant Management Expectations

Hydrilla growth in Mirror Lake has the likelihood to continue, however, the timing and extent of hydrilla re-growth is affected by multiple natural and environmental factors that cannot be controlled or predicted with certainty. While extensive growth of hydrilla is possible at any point in time; it is anticipated that routine spot treatments of hydrilla with herbicides and continuous biological control pressures from the triploid grass carp fish will be sufficient to manage hydrilla re-growth during the current fiscal year. The anticipation of spot treatments for the current fiscal year takes into consideration the historic trend of hydrilla management required at Mirror Lake, as well as current conditions observed at the lake. As with any lake with a history of hydrilla infestation, long-term planning to include financial preparation for whole lake treatment is advised.

Primary expectations are as follows:

- 1) Monthly aquatic herbicide maintenance for non-native vegetation skipping the months of January and February and conducting hydrilla treatments (as needed)
- 2) Aquatic vegetation maintenance for two 20ft corridors
- 3) Reduce biomass of lilies in depths greater than 4ft
- 4) Monitor hydrilla, other submersed aquatic plants, and grass carp fish effects
- 5) Future grass carp stockings if deemed necessary, pending permit amendment

Funding Expectations

Refer to current fiscal year budget data provided in Exhibit B.

NEXT FISCAL YEAR – Projected Treatment & Funding

Primary Aquatic Plant Management Expectations

The projected treatment plans for the next fiscal year remain consistent with the plans and expectations noted for the current fiscal year. Primary expectations are as follows:

- 1) Continued monthly aquatic herbicide maintenance for non-native vegetation skipping the months of January and February and conducting hydrilla treatments (as needed),
- 2) Aquatic vegetation maintenance for two 20ft corridors,
- 3) Reduce biomass of lilies in depths greater than 4ft,
- 4) Continued monitoring of hydrilla, other submersed aquatic plants, and grass carp fish effects,
- 5) Future grass carp stockings if deemed necessary, pending permit amendment.

Funding Expectations

Refer to next fiscal year budget data provided in Exhibit B.

Exhibits

A – Agenda & Notes (Prior Year Planning Session)

B – Budget/Financial Summaries

C – Historic Reports/Data

D – Roles & Responsibilities

Exhibit A – Agenda & Notes (Prior Year Planning Session)

ANNUAL MEETING

Date, Time & Location	:	January 21, 2015, 1:00 p.m., 200 W. County Home Rd – LMP Office
Community Liaisons	:	John Culmer, Lorene Deviese, and Debbie Rodgers Linda Keene - Barrington Apartments
Liaisons Present	:	John Culmer and Lorene Deviese
Seminole County	:	Thomas Calhoun, Gloria Eby, and Carol Watral

Agenda

Topics carried forward from prior fiscal year activity

- County encourages additional shoreline restoration events.
- Scheduled aquatic plant control monthly treatments (as determined by County staff) continue along shoreline areas. Monthly treatments continue along shoreline areas, skipping January & February.
- Due to expansion, the following vegetation was specifically targeted for treatment during the fiscal year: lily pads, American lotus, torpedo grass and alligatorweed.
- Few areas of hydrilla are present and potential of increasing hydrilla growth due to re-growth of tubers exists. Large-scale herbicide treatments for hydrilla may be required every two to three years. Product rotation is required to reduce potential for resistant hydrilla.
- Encourage property owners to communicate comments/concerns through the liaison group, who will provide consolidated request/comments to the MSBU Project Manager (Carol Watral).

General Topics & Updates

- Hydrilla management and costs
- Potential planting events
- Continue pricing available via state contract established with herbicide service provider
- Plans for current fiscal year
- Projections for next fiscal year
- General recommendations for community consideration

Meeting Notes:

- Liaison John Culmer announced a new resident is interested in becoming a liaison; MSBU will forward welcoming and educational information to the new property owner
- LMP announced that hydrilla was found recently but only at the boat ramp
- Bladderwort is at 7 to 8 feet depth
- Liaisons will set up a community meeting and invite County staff, as there are new property owners that could benefit from such a meeting
- New FWC regional biologist: Kris Campbell, at 6830 Shadowridge Dr., Suite 201, Orlando, FL 32812, 407-858-6170.
- Progress of the County fertilizer ordinance was discussed

Exhibit B - Budget/Financial Overview

MSBU: MIRROR LAKE

Date: January 1, 2016

Tax Year	2013	2014	2015	2016
Assessment	\$250.00	\$245.00	\$220.00	\$200.00
Fiscal Year	FY13-14	FY14-15	FY15-16	FY16-17
REVENUE				
	Actual	Actual	Working Budget	Proposed Budget
Beginning Fund Balance	\$ 17,182	\$ 27,976	\$ 36,078	\$ 41,908
Assessments	\$ 13,002	\$ 12,759	\$ 11,405	\$ 10,368
Other	\$ 62	\$ 111	\$ -	\$ -
MSBU Program Fund Advance	\$ -	\$ -	\$ -	\$ -
TOTAL	\$ 30,246	\$ 40,846	\$ 47,483	\$ 52,276
Cost Sharing Lake Management Program				
TOTAL	\$ 30,246	\$ 40,846	\$ 47,483	\$ 52,276
EXPENDITURE				
	Actual	Actual	Working Budget	Projected Budget
County Administrative Fee	\$ 875	\$ 1,075	\$ 1,075	\$ 1,075
Fund Advance Repayment	\$ -	\$ -	\$ -	\$ -
Contracted Services	\$ 1,395	\$ 3,693	\$ 4,500	\$ 9,400
<i>Routine Services</i>	\$ 1,395	\$ 3,693	\$ 2,000	\$ 6,000
<i>Hydrilla</i>	\$ -	\$ -	\$ 2,500	\$ 3,000
<i>Torpedo Grass</i>	\$ -	\$ -	\$ -	\$ -
<i>Labor</i>	\$ -	\$ -	\$ -	\$ -
<i>Carp</i>	\$ -	\$ -	\$ -	\$ 400
<i>Other</i>	\$ -	\$ -	\$ -	\$ -
Contingency Reserve	\$ 27,976	\$ 36,078	\$ 41,908	\$ 41,850
TOTAL	\$ 30,246	\$ 40,846	\$ 47,483	\$ 52,325
Cost Sharing Lake Management Program	\$ -	\$ -	\$ -	\$ -
TOTAL	\$ 30,246	\$ 40,846	\$ 47,483	\$ 52,325
Fund Advance BB Payment	\$ -	\$ -	\$ -	\$ -
Fund Advance EB	\$ -	\$ -	\$ -	\$ -

Exhibit C - Historic Reports/Data

Additional information for Mirror Lake can be found on the Seminole County Water Atlas website at:

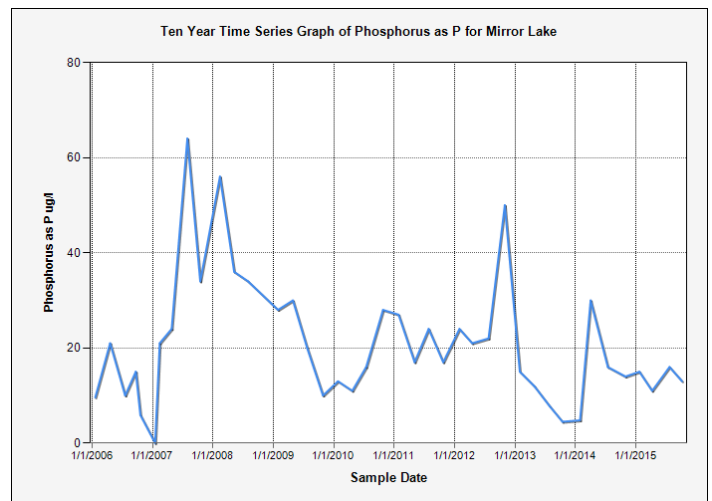
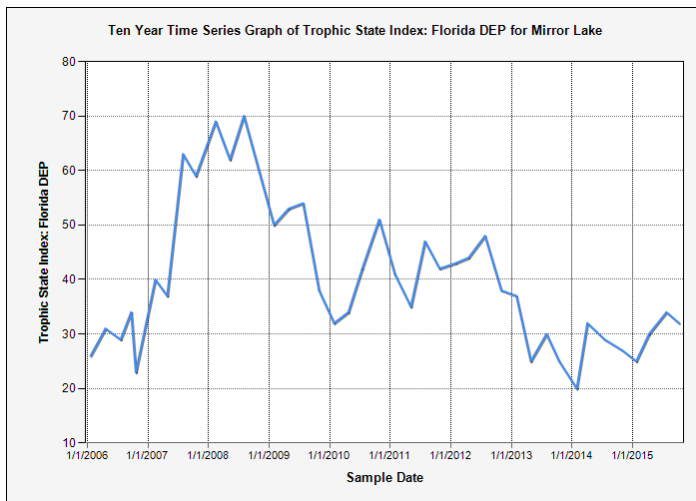
<http://www.seminole.wateratlas.usf.edu/lake/waterquality.asp?wbodyid=7616&wbodyatlas=lake>

<http://www.seminole.wateratlas.usf.edu/resourceprogram.aspx?aid=15&wbodyid=7616>

Mirror Lake 2015 Water Quality Report: How Does My Lake Rank? TSI SCORE: 32 GOOD

The Trophic State Index (TSI) is a classification system designed to "rate" individual lakes, ponds and reservoirs based on the amount of biological productivity occurring in the water. Using the index, one can gain a quick idea about how productive a lake is by its assigned TSI number. A "Good" quality lake is one that meets all lake use criteria (swimmable, fishable, and supports healthy habitat).

The two graphs below indicates nutrient levels (measured by TSI and/or Total Phosphorous [TP]) for your lake. A TSI score of 60 or above is considered impaired (or polluted) lake. Continued reduction of TP sources (personal pollution, run-off, landscaping practices, shoreline erosion) can help reduce phosphorous in your lake that is abundantly available, potentially creating algae blooms.



Lake Vegetation Index Bioassessment (LVI): How Does My Lake Rank? 49 Healthy

The Lake Vegetation Index is a rapid bioassessment tool created by the Florida Department of Environmental Protection (FDEP) to assess the biological condition of aquatic plant communities in Florida lakes. The most recent LVI bioassessment for Mirror Lake (sampled on August 18, 2015) scored a **49** which is in the **Healthy** category. The decrease from the 2014 score (56) can be attributed to the presence of hydrilla in one section and a decrease in sensitive taxa (plant types).

Aquatic Life Use Category	LVI Range	Description
Category 1 "exceptional"	78–100	Nearly every macrophyte present is a species native to Florida, invasive taxa typically not found. About 30% of taxa present are identified as sensitive to disturbance and most taxa have C of C values >5.
Category 2 "healthy"	43–77	About 85% of macrophyte taxa are native to Florida; invasive taxa present. Sensitive taxa have declined to about 15% and C of C values average about 5.
Category 3 "impaired"	0–42	About 70% of macrophyte taxa are native to Florida. Invasive taxa may represent up to 1/3 of total taxa. Less than 10% of the taxa are sensitive and C of C values of most taxa are <4.

Exhibit D – Roles & Responsibilities

ROLES & RESPONSIBILITY

General Outline

COUNTY

Seminole County will

- ✓ Govern the MSBU
- ✓ Provide financial management of MSBU fund
- ✓ Ensure activities conducted with assessment funding align with the scope of services documented in the governing ordinance
- ✓ Ensure the lake is monitored and services are appropriately rendered
- ✓ Maintain decision-making authority relative to lake management activities and aquatic vegetation management and will defer to best lake management practices when making such decisions
- ✓ Provide an ongoing lake management plan based on the defined service scope, permitting, conditions at the lake, funding parameters, and best lake management practices. The Lake Management Plan will be developed and maintained by the Lake Management Program with liaison participation.
- ✓ Initiate and manage service contracts, monitor results, and communicate updates on a routine basis
- ✓ Conduct annual meetings that offer opportunity for liaison discussion as to prior, current, and future action plans
- ✓ Encourage liaisons and assist with educational outreach efforts to protect the health and water quality of the waterbody

LIAISONS

Liaisons will

- ✓ Encourage communitywide awareness and participation relative to environmental stewardship recommendations and opportunities
- ✓ Provide communitywide communication and assist the County in the distribution of relevant lake information
- ✓ Attend annual lake management and budget planning sessions conducted by the County
- ✓ Serve as representatives of the community on lake issues; representing the respective lake community as a whole
- ✓ Monitor lake conditions and provide feedback to the County as to observations

