

2020

**HORSESHOE LAKE NORTH
LAKE MANAGEMENT PLAN**

Annual Meeting

- Agenda

Lake Management Plan

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

HORSESHOE LAKE NORTH

ANNUAL MEETING

Date // Location	Tuesday, March 3, 2020 /9:45am – 11:10am/ 200 W. County Home Rd – LMP office
Community Liaisons	Mike Dathe, Chuck Griffin, Lori Frost, Kimberly Kuketz and Steve Searcy
Liaisons Present	Mike Dathe, Lori Frost, Kimberly Kuketz and Patty Searcy (in Steve Searcy's place)
Seminole County City of Oviedo	Thomas Calhoun, Tony Cintron, Joey Cordell, Gloria Eby, Kathy Moore, Kim Ornborg

General Topics & Updates

Lake Management Program

- Welcome

MSBU Program & Resource Management Department

- Financial Summary [Refer to Exhibit B]
- County recently provided additional information to the State per their last request. Payment support documentation will be provided to the State by the Clerk of Court. Reimbursement is anticipated shortly after the State receives and reviews the documentation. Updated cost sharing yields the following remittance expectations: Federal 90%, State 5%, MSBU 5%. BCC Resolution - MSBU Program Administrative Fee – 7% of Budgeted Assessment Revenue
- County Service Cost (WMDiv) allocation for “enhanced” service level cost
- Status Update: Administrative Code [22.10] and Consolidated Ordinance development

Lake Management Program

- Shoreline Protection Ordinance Status
 - FWC Rule change removes permit requirements on lakes smaller than 160 acres
 - Current permit null
 - SJRWMD still able to send notification to property owners
 - HOA has some capability but refer to SJRWMD for more enforcement capability
 - Currently drafting County Shoreline Ordinance
 - Intended to cover gap of no oversight, hopefully within the next year. Shoreline ordinance to cover below the normal mean water line.
 - Tina McIntyre with UF/IFAS extension agent can do educational outreach and present Fertilizer workshops. Lawn Care Service checkoff list flyer has been created to help deter practices that add nutrients (grass clippings blown onto street or into lake, etc). She also does FFL (Florida Friendly Landscape) workshops lakeside or traditional way. Encouraged utilizing her resources for community educational outreach.
- Lake Status Nutrients/Habitat Scores [Bioassessment Indices - Refer to Exhibit C]
 - LVI score increased but is still the impaired category (38) 2019, (37) 2018
 - Phosphorus feeds algae, rainfall increase correlates with spikes in phosphorus
 - LVI/BioBase data on Watershed Atlas website:
<http://www.seminole.wateratlas.usf.edu/shared/ecology.asp?wbodyid=7576&wbodyatlas=lake>
 - Significant decrease of submersed vegetation to 0.3% from 11% in 2018. Indicates carp are working.
 - In 2014, FDEP revised the Standard Operation Procedures for conducting the LVI. These metric calculations changed the LVI.
 - Rules changed by FDEP in selection of plants for scoring: At your lake, since the dominant plant saw palmetto is not a frequently found aquatic plant in lakes throughout Florida, DEP changed ruling (in 2014) about being able to include it. We can no longer select saw palmetto although it is dominant. The other types of species on your shores are holly tree and a vines. Vines are the dominant plant and is native but weight for scoring is not as high as the saw palmetto or holly which are sensitive scoring plants. We would like to try planting cypress trees (another sensitive scoring plant) on steep shorelines to improve LVI number.

- Treatment Plans - Current & Proposed [Refer to Lake Management Plan]
 - Monitor hydrilla and treat as necessary (early detection-rapid response); If you see it, let us know ASAP!
 - Evaluate grass carp fish and adjust stocking rate as necessary
 - Hard to see carp in the dark lake water. Not finding any submersed aquatic vegetation in the deeper areas which is an indication of need to restock the carp.
 - Carp barrier
 - Inspected bi-monthly and treated monthly for invasives surrounding barrier
 - Water hyacinth treatments have been successful
 - Inspections and treatments in the beginning of the month instead of at the end of the month. Goal is routine maintenance and keeping the invasives low. Payoff for consistency is lower cost, lower chemical usage, and lower biomass turning into organic material.
- General recommendations for lake-community [Refer to Lake Management Plan]
 - Increase native aquatic plantings in areas devoid of vegetation
 - Promote “welcome packages” to new lakefront homeowners
 - Encouraged Community Educational Meeting in 2020
 - Lakewatch samples-
 - In addition to Lakewatch, County samples quarterly
 - Steve to provide Lakewatch update
- 2020 Shoreline Planting Event- dates available
 - To be coordinated via Thomas Calhoun
 - Lori to host at pavilion on 9/19
- Other
 - Email Addresses for routine communications and important announcements
 - New homeowner names/emails to be sent to LMP for database
 - Shoreline unauthorized clearing - SJRWMD intervention – report any clearing
 - Barrier cost is pending FEMA reimbursement
- New Business
 - Liaison service terms: Ordinance 2017-19 detailing terms of service, available on SC MSBU Program website: <http://cdn.seminolecountyfl.gov/departments-services/resource-management/municipal-service-benefit-unit-msbu-pr/activeestablished-msbus/index.stml>
 - Updated Liaison Service Term Schedule Exhibit D
 - Communication- How are we doing?
 - LMP sends inspection report to liaisons
 - LMP working on quarterly newsletter coming out in March
 - LMP communicates with applicator prior to planting events and monthly services
 - Herbicide spray is very specific, 24 hour uptake
 - Thomas sends email to all liaisons to alert when applicator is spraying; Lori offers to send her a text and she will help send notification to other liaisons

HORSESHOE LAKE NORTH 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 2012-15; 2017-19
- Interlocal Agreement [IA] with City of Oviedo
- FWC Permit

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

- Chemical (herbicides)
- Biological (sterile triploid grass carp fish [TGC])
- Mechanical (harvesting, cutting, etc.)

Targeted Invasive/Exotic Aquatic Vegetation

- Hydrilla, water hyacinth, torpedo grass, alligator weed, wild taro, primrose willow, duckweed, salvinia, Cuban burhead sedge, and coinwort.

Frequency of AWC Treatment

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

Herbicide Treatments - Service Provider

- As determined by Seminole County staff

Funding

Financial management of the MSBU fund is provided by the Seminole County MSBU Program. Financial plans developed by the MSBU Program include eligible expense funding requests submitted by the Lake Management Program and other cost and revenue components typical to MSBU funds. Financial information inclusive of prior year actual outcome, current year working budget and next year budget proposal data is reported annually. Assessment levy is subject to Board approval and the standard procedures associated with non-ad valorem assessment. The financial plans may be adjusted by the County as merited per changing/evolving essential services as directed by the County and per financial planning considerations. The governing ordinance does not include assessment restrictions specific to annual adjustment amounts and/or assessment cap.

Lake Liaisons

Designated 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 Horseshoe Lake North are: Mike Dathe (mike@dataimaged.com), Chuck Griffin (grif5884@bellsouth.net), Lori Frost (lafpt4u@bellsouth.net), Kimberly Kuketz (lady.ireland@live.com), and Steve Searcy (searcy87@att.net).

COMMUNITY-BASED ACTIVITIES & EVENTS

LMP recommends/encourages homeowners to coordinate a resident-based volunteer event involving native plantings along the shoreline of Horseshoe Lake North. 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 Horseshoe Lake North community. Continued recommendations for community initiatives are as follows:

- 1) Continue to 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. LMP staff would be glad to present our bioassessment and surveys.
- 2) Continue to establish a beneficial native shoreline for Horseshoe Lake North, especially in locations that are devoid of emergent aquatic plants. LMP recommends planting in new locations that are shallower and have more sunlight.
- 3) Natives will grow and contain non-natives (and vice-versa) that become difficult to treat. Unless hand pulled, a directed herbicide treatment targeting the non-natives (which will expand otherwise) will impact the adjacent natives. Everyone must become stewards of the lake, in that they should assist and facilitate the removal of non-natives in close proximity to the natives and replant the area with beneficial natives for greater overall success.
- 4) Utilize the valuable educational outreach programs that are available, i.e. Shoreline Restoration Workshops, Florida Yards and Neighborhoods (FYN) interactive presentations, and Lake Management Video mail-outs. Implement a media campaign within the community to reduce personal pollution by: decreasing fertilizer usage, using only phosphorous free and slow-release nitrogen fertilizers, keeping a functional shoreline with beneficial native aquatic plants, and keeping grass clippings out of your lake and the storm drains that lead to the lake. All of these activities aid in protecting your lake! Contact Seminole County Lake Management Program (407) 665-5542 for more information regarding the free educational programs available.
- 5) LAKEWATCH volunteers provide valuable water quality data for your lake. Obtain monthly samples and establish a back-up volunteer for consistent data collection.
- 6) Help spread the word! Obtain email addresses from neighbors not currently on the distribution list. Valuable information is contained within these assessments.

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 along the shoreline 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. The presence of submerged aquatic vegetation (“SAV” such as hydrilla) should be communicated to your lake liaison for their reporting to the County so appropriate treatment of SAV can be provided.

COUNTY SERVICES – Lake Management & Supplemental Programs

While the MSBU assessment includes a nominal charge for administering the MSBU, the amount charged does not cover all the expenses incurred by the County on behalf of the waterfront property owners. Horseshoe Lake North is monitored by LMP to assess the aquatic plant growth. LMP provides continued evaluation of the aquatic plant species, such as hydrilla, and provides community updates on the status of treatments and waterbody bio-assessment. 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. 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

Seminole County [MSBU/LMP] is tasked with managing the invasive-exotic species within the lake, and does so per accepted best lake management practices supported by lake management professionals. LMP/MSBU Programs affirmed that aquatic vegetation management services will continue to be rendered per these standards. Invasive growth in Horseshoe Lake North has likelihood to continue; however, the timing and extent of invasive re-growth is affected by multiple natural and environmental factors that cannot be controlled or predicted with certainty.

Funding Expectations

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

Next Fiscal Year – Projected Treatment & Funding

Primary Aquatic Plant Management Expectations

- 1) Continued aquatic herbicide maintenance for invasive vegetation per FWC permit (as needed),
- 2) Future grass carp stockings if deemed necessary, pending permit authorization,
- 3) Increase contingency reserve funds for extended herbicide management and/or other issues that may develop and require immediate treatment.

Funding Expectations

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

Exhibits

- A** – Agenda & Notes from Prior Year Meeting
- B** – Financial Summary
- C** – Historic Reports/Data
- D** – Role & Responsibilities

Exhibit A – Agenda & Notes from Prior Year Planning Session

Date/Time/Location:	February 20, 2019 10:00am – 12:10pm	200 W. County Home Rd – LMP office
Community Liaisons:	Lori Frost, Paul Janke, Kimberly Kuketz, Chuck Griffin, and Steve Searcy	
Liaisons Present:	Lori Frost, Paul Janke, Steve Searcy	
Seminole County:	Thomas Calhoun, Joey Cordell, Gloria Eby, Kim Ornberg, Kathy Moore (via teleconference), and Joe Saucer	
City of Oviedo:	Amanda Kortus and Alexis Stewart (no attendance)	

General Topics & Updates

Lake Management Program

- Welcome
- Fertilizer Ordinance- Passed on February 27, 2017 www.seminolecountyfl.gov/fertilizer
 - Restricted Months: no fertilizing June 1st- September 30th
 - Slow Release Nitrogen: at least 50%
 - Know How Much: www.seminolecountyfl.gov/calculator
 - Buffer Zone: 15 feet from all waterbodies
- Shoreline Protection Ordinance Status
 - FWC Rule change removes permit requirements on lakes smaller than 160 acres
 - Current permit due to expire in 2 years for N Horseshoe Lake
 - SJRWMD still able to send notification to property owners
 - HOA has some capability but refer to SJRWMD, for more enforcement capability
 - Currently drafting County Shoreline Ordinance
 - No date set yet for work session but anticipate drafts within the next 6 months, liaisons will be notified for input
- Lake Status Nutrients/Habitat Scores [Bioassessment Indices - Refer to Exhibit C]
 - Post hurricane effects
 - Correlation between amount of rain and nutrients; May to June 2018 we had 18” rainfall
 - LVI score reduced to impaired category (37)
 - LMP picks the dominant species used in score; invasive species normally drives down score
 - Dominant plant species changed from tree to vine; vine has a lower score thus lower score for 2018
 - Pulling vines would benefit the score but not the lake
 - Exercise was conducted by LMP- removing vine as dominant plant adjusted score back to 43
 - LVI/BioBase data on Watershed Atlas website:
<http://www.seminole.wateratlas.usf.edu/shared/ecology.asp?wbodyid=7576&wbodyatlas=lake>
 - In 2014, FDEP revised the Standard Operation Procedures for conducting the LVI. These metric calculations changed the LVI.
- Treatment Plans - Current & Proposed [Refer to Lake Management Plan]
 - Monitor hydrilla and treat as necessary (early detection-rapid response)
 - If you see it, let us know ASAP
 - Evaluate grass carp fish and adjust stocking rate as necessary
 - Monitor carp by monitoring hydrilla to know if stock should be increased
 - Triploid grass carp stocked (10)
 - Thomas was present when carp released in October 2018, all carp were from 10” – 12” long and released in the same place
 - Liaisons want to be advised when the next carp are released so they can attend
 - Carp barrier treated monthly
 - Carp barrier has tree down
 - Possible HOA/community ‘chainsaw party’ for removal of tree and hyacinths
 - Once tree removed, LMP can treat hyacinth around old carp barrier
- General recommendations for lake-community [Refer to Lake Management Plan]
 - Increase native aquatic plantings in areas devoid of vegetation
 - Promote “welcome packages” to new lakefront homeowners
 - Packets with fertilizer info given to liaisons at end of meeting
 - Community Educational Meeting

- Liaisons to email LMP dates for meeting
- Lakewatch samples
 - In addition to Lakewatch, County samples quarterly
 - Steve provided Lakewatch samples collected for 2018: 6 sample events were March, April, August (2), November, and December.
- 2019 Shoreline Planting Event- dates available
 - To be coordinated via Thomas Calhoun
 - Date selected is September 28th, 2019
 - Liaisons to advise of host for planting event
- Other
 - Email Addresses for routine communications and important announcements
 - New homeowner names/emails to be sent to LMP for database
 - Shoreline unauthorized clearing - SJRWMD intervention – report any clearing
 - There appears to be a new house coming in the next 6 – 9 months
 - Barrier on south side removed
 - Material still remains in LMP warehouse, permission received from Ken to dispose of material, LMP suggested for email confirmation
 - Sonar treatment warranty expires April 2019
 - In this upcoming budget year spot treatments go back to MSBU charged funds, have utilized SePro product under warranty for north portion by Lori and inflow canal
 - Barrier cost is pending FEMA reimbursement
- New Business
 - Liaison service terms: Ordinance 2017-19 detailing terms of service, available on SC MSBU Program website: <http://cdn.seminolecountyfl.gov/departments-services/resource-management/municipal-service-benefit-unit-msbu-pr/activeestablished-msbus/index.html>
 - Updated Liaison Service Term Schedule Exhibit D to include Chuck Griffin as seat 5 Rotating and confirmed current liaisons can complete 2nd cycle. Lori and Paul confirmed 2nd cycle seat from 2019 to 2022
 - Roadwork and drainage upgrades
 - Do we foresee upgrades on north end of lake?
 - Stormwater from Langford Dr directed to swale now, if water passes swale it goes to clump of trees for improved treatment
 - Communication- How are we doing?
 - Lori Frost joined LMP during last inspection and discussed lake management activities
 - Thomas to get last inspection report to liaisons
 - Thomas working on quarterly newsletter coming out in March
 - LMP communicates with applicator prior to planting event
 - Herbicide spray is very specific, 24 hour uptake, no drift after applied
 - Thomas to send email to all liaisons to alert when applicator is spraying; Lori offered to send her a text and she will help send notification to other liaisons
 - Applicator sprayed hyacinths from airboat in February; hyacinth is several no spray areas are expanding

MSBU Program

- Financial Summary [Refer to Exhibit B]: Assessment increase from \$165 to \$200.

MSBU FUND:

HORSESHOE N (LAKE)

	Tax Year	2018	2019	2020
	Assessment	\$ 165	\$ 200	\$ 220
	Fiscal Year	FY18-19	FY19-20	FY20-21
Revenue		Actual	Working	Proposed
Beginning Fund Balance	\$	8,737	\$ 7,983	\$ 9,803
Assessment Revenue	\$	7,941	\$ 9,600	\$ 10,560
Other (Interest)	\$	260	\$ 100	\$ 52
Other				\$ 5,130
MSBU Program Fund Advance				
TOTAL Revenue	\$	16,938	\$ 17,683	\$ 25,545
Expenditure & Reserves		Actual	Working	Proposed
Application Fee Recoupment	\$	-	\$ -	\$ -
MSBU Program Administrative Fee [7% Rev FY20-21]	\$	1,380	\$ 1,380	\$ 739
Other County Services (Service Entity)	\$	-	\$ -	\$ -
Fund Advance Repayment	\$	3,090	\$ -	\$ 5,700
Contracted Services	\$	4,485	\$ 6,500	\$ 4,500
<i>AWC Services (via AAM)</i>	\$	1,136	\$ 3,500	\$ 3,000
<i>Chemicals (Non-AAM)</i>	\$	-	\$ -	\$ -
<i>FAS/GEN Testing</i>	\$	-	\$ -	\$ -
<i>Shipping (Test Samples)</i>	\$	-	\$ -	\$ -
<i>TGC Fish</i>	\$	98	\$ -	\$ -
<i>Fish Barrier Inspection/Minor Repair</i>	\$	3,250	\$ 3,000	\$ 1,500
<i>Fish Barrier Replace/Major Repair</i>	\$	-	\$ -	\$ -
<i>Other</i>	\$	-	\$ -	\$ -
<i>Carryforward from prior FY</i>	\$	-	\$ -	\$ -
<i>Reserve/Contingency¹</i>	\$	7,983	\$ 9,803	\$ 14,606
<i>"Operating" Contingency [Indicator of "Reserve" Goals (+ Surplus; - Deficit)]</i>	\$	7,983	\$ (13,897)	\$ (9,094)
<i>Reserve: Hydrilla (Whole Lake)</i>	\$	-	\$ 18,000	\$ 18,000
<i>Reserve: Barrier Replace/Repair</i>	\$	-	\$ 5,700	\$ 5,700
<i>Reserve: Other</i>	\$	-	\$ -	\$ -
TOTAL Expenditures & Reserves	\$	16,938	\$ 17,683	\$ 25,545
Fund Advance BB	\$	5,700	\$ 5,700	\$ 5,700
Payment (Principal)				\$ (5,700)
Payment (Financing Fees)				
Fund Advance EB	\$	5,700	\$ 5,700	\$ -
LM Program Enhanced Services Cost			Pending development & confirmation	

¹ Note: These funds are secured (1) for maintaining rate stability as annual cost are known to fluctuate, (2) in preparation of planned or anticipated future expenses, (3) to provide response to emergency and/or urgent needs for which planning was not feasible. These funds are not intended for expenditures that could be planned and included in annual budget planning processes.

Reserve/Contingency Funds

The financial summary [Exhibit B] of the Annual Report was updated in 2019 to include additional information about contingency fund status. The MSBU Program has provided this additional information to improve transparency respective to the reason and intended purpose for these funds.

The primary purpose for establishing operating contingency funding is twofold – (1) To have funding on hand to accommodate unexpected essential aquatic weed control emergencies that cannot be reasonably foreseen, planned or identified in routine budget planning & forecasting and (2) To provide rate stability as costs for ongoing services often vary from year to year. By establishing contingency and reserve funds, such funding may be allocated temporarily from these funds to operating expenditures to avoid periodic spikes in assessment.

Contingency funds are developed by financial management planning decisions and by default when actual expenditures are less than budgeted expenses. Although reserve/contingency funds are not expected to be expended in any given year, these values are included under expenditures because they are “on hold” for future needs and are classified by accounting practices as expenditures.

In the financial summary (Exhibit B) the total dollars in reserve/contingency are identified in the expenditure section on a single line (darker shading). The total dollars in contingency are calculated by subtracting the other expenditures (typically “contracted services” and “administrative fee”) from the total revenue. Contingency funds may be used as deemed essential to meeting emergency needs of the waterbody; however, the overall intention of use is as per the noted sub-categories.

When a negative value is displayed in the sub-category labeled “operating contingency”, it is an indication that the other subcategories reflect targeted sub-category values that have not been fully developed. For the other sub-categories to be fully developed, the “operating contingency” sub-category must be zero or a positive value.

The sub-category labeled “Reserve: Other” is included for improved transparency as use of these funds is on hold for purposes that are subject to Board confirmation and subsequent evaluation of ordinance provisions (potentially ordinance amendment) before these funds can be budgeted and utilized for the proposed purposes.

Exhibit C - Historic Reports/Data

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

<http://www.seminole.wateratlas.usf.edu/resourceprogram.aspx?aid=15&wbodyid=7576>

<http://www.seminole.wateratlas.usf.edu/lake/waterquality.asp?wbodyid=7576&wbodyatlas=lake>

Horseshoe Lake North Water Quality Report: How Does My Lake Rank?

TSI SCORE: 42 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 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?

38 Impaired

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 Horseshoe Lake North (sampled on August 21, 2019) scored a **38**, which is in the **Impaired** category. This is a small increase from the 2018 LVI score of **37 Impaired**. The dominance of vines is still negatively affecting the LVI score.

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.



Trend Report

2019



NNC

(Numeric Nutrient Criteria)

Pass

GeoMean Color: 155.43

GeoMean Alkalinity: 10.74

TSI Score: 42

(Trophic State Index)

Good

LVI Score: 38

(Lake Vegetation Index)

Impaired

MSBU:

(Municipal Service Benefit Unit)

Yes

Big Econlockhatchee Watershed

65.33 acres

Lat 28° 38' 15"

Lon 81° 08' 14"

WBID: 2991 D1

North Horseshoe

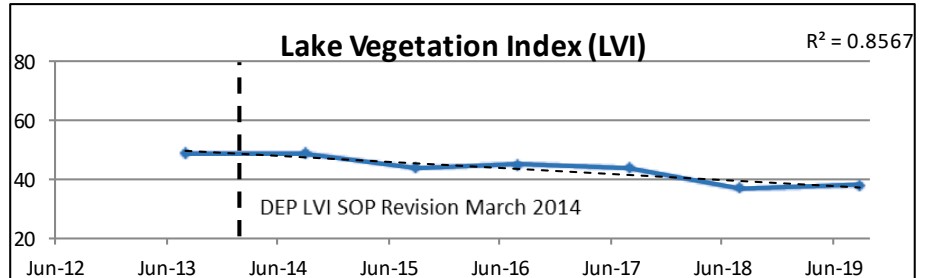
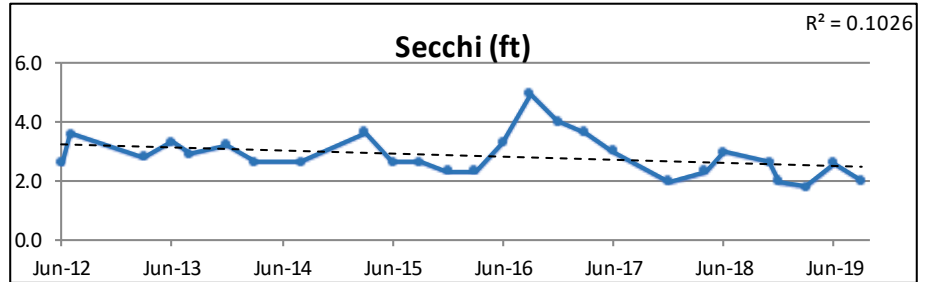
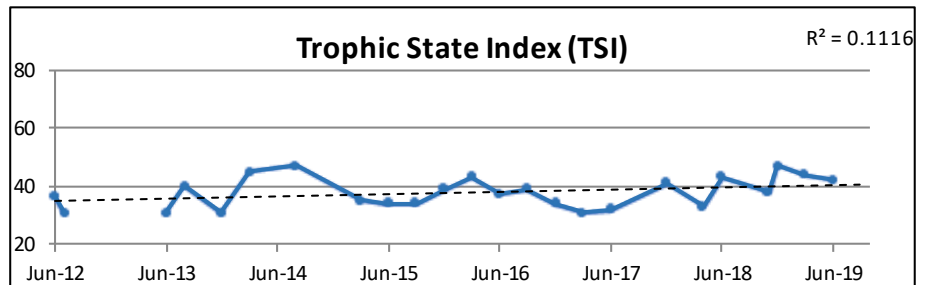
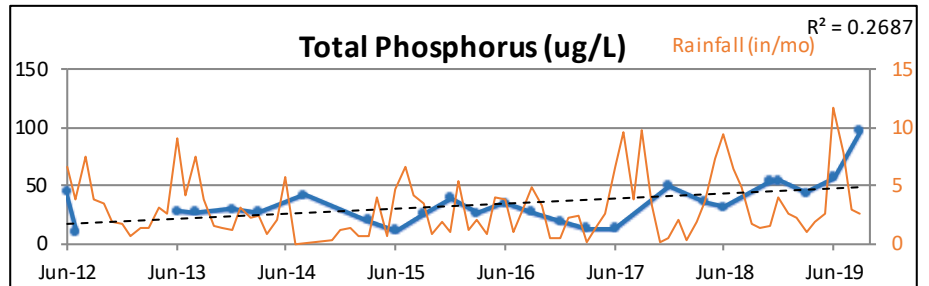
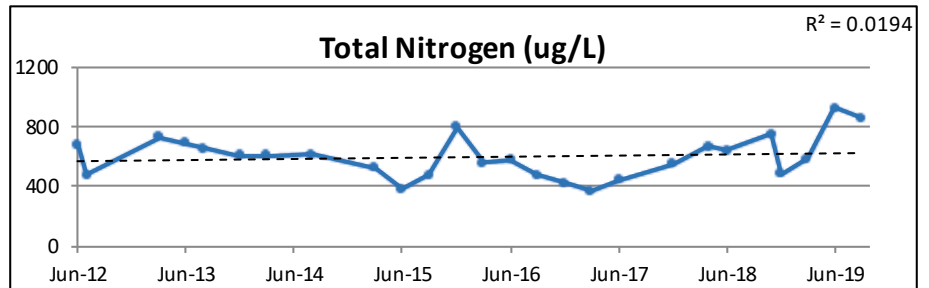
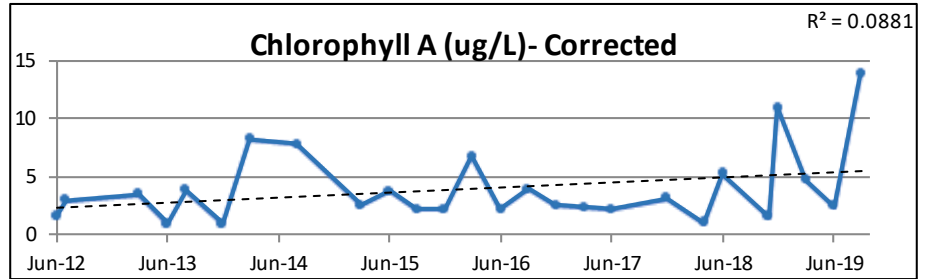


Exhibit D
ROLES & RESPONSIBILITY
General Outline

COUNTY

Seminole County will

- ✓ Govern the MSBU
- ✓ Provide financial management of MSBU fund and assessment levy
- ✓ 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

Liaison Service Term Schedule

	By Ordinance	Liaison	Term Start	Term Ends	Term
1	Unincorporated Liaison A	Frost (1 st term)	2017	12/31/2019	3 yrs
2	Unincorporated Liaison B	Searcy (1 st term)	2018	12/31/2020	3 yrs
3	City Liaison A	Janke (1 st term)	2017	12/31/2019	3 yrs
4	City Liaison B	Kuketz (1 st term)	2018	12/31/2020	3 yrs
5	Rotating Liaison	Griffin (1 st term)	2018	12/31/2018*	1 yr*
1	Unincorporated Liaison A	Frost (2 nd term)	1/1/2020	12/31/2022	3 yrs
2	Unincorporated Liaison B	Pending start date	1/1/2021	12/31/2023	3 yrs
3	City Liaison A	Dathe (1 st term)	1/1/2020	12/31/2022	3 yrs
4	City Liaison B	Pending start date	1/1/2021	12/31/2023	3 yrs
5	Rotating Liaison*	Griffin (2 nd term)	1/1/2019	12/31/2021	3 yrs

*Unincorporated 1st, then City

*Reduced term to establish staggered terms