

**2019**

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

### General Topics & Updates

#### Lake Management Program

- Welcome
- Fertilizer Ordinance- Passed on February 27, 2017 [www.seminolecountyfl.gov/fertilizer](http://www.seminolecountyfl.gov/fertilizer)
  - Restricted Months: no fertilizing June 1<sup>st</sup>- September 30<sup>th</sup>
  - Slow Release Nitrogen: at least 50%
  - Know How Much: [www.seminolecountyfl.gov/calculator](http://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 28<sup>th</sup>, 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.stml>
    - Updated Liaison Service Term Schedule Exhibit D to include Chuck Griffin as seat 5 Rotating and confirmed current liaisons can complete 2<sup>nd</sup> cycle. Lori and Paul confirmed 2<sup>nd</sup> 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.

# 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: **Chuck Griffin** ([grif5884@bellsouth.net](mailto:grif5884@bellsouth.net)), **Lori Frost** ([lafpt4u@bellsouth.net](mailto:lafpt4u@bellsouth.net)), **Paul Janke** ([prjankjax@aol.com](mailto:prjankjax@aol.com)), **Kimberly Kuketz** ([lady.ireland@live.com](mailto:lady.ireland@live.com)), and **Steve Searcy** ([searcy87@att.net](mailto: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) 665-2439 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 22, 2018, 9:00 AM – 11:00 AM; 200 W. County Home Rd – LMP office
Community Liaisons:	Paul Janke, Kimberly Kuketz, Lori Frost, and Steve Searcy
Liaisons Present:	Paul Janke (and guest), Kimberly Kuketz, Lori Frost, and Steve Searcy
Seminole County:	Thomas Calhoun, Joey Cordell, Gloria Eby, Kim Ornberg, Joe Saucer, Kathy Moore, Edward Bass and Bob Dallari
City of Oviedo:	Amanda Kortus and Alexis Stewart (no attendance)

## General Topics & Updates [Meeting Notes]

### Lake Management Program

- Welcome
- Fertilizer Ordinance- Passed on February 27, 2017. [www.seminolecountyfl.gov/fertilizer](http://www.seminolecountyfl.gov/fertilizer).
  - Fertilizer containing nitrogen or phosphorous cannot be applied to turf during the restricted season from June 1<sup>st</sup> – September 30<sup>th</sup>. Fertilizers containing Iron, Manganese and other "micronutrients" also referred to as "summer blends" can be applied during the restricted.
  - Fertilizer containing nitrogen that is used during the **non**-restricted season (October 1<sup>st</sup> – May 31<sup>st</sup>) must contain *at least* 50% or more slow release nitrogen. This slow release nitrogen content will increase to 65%, three (3) years after adoption of the Fertilizer Ordinance, to allow time for educational outreach to residents and retailers.
  - Fertilizer containing phosphorus cannot be applied to turf or plants unless a state certified soil or tissue test verifies that there is a phosphorus deficiency.
  - Use of deflector shields is required when applying fertilizer with a broadcast or rotary spreader.
  - No fertilizer may be applied within fifteen (15) feet of any pond, lake, stream, canal, or other waterbody, including wetlands.
- Shoreline Protection Ordinance Status
  - Awaiting FWC Rule changes- Rule change anticipated from 10 acre exemption to 160 acre exemption rendering most lakes within Seminole County without shoreline aquatic plant protection.
- Lake Status Nutrients/Habitat Scores [Exhibit C: Bioassessment Indices]
  - Lake remains in Healthy category- LVI score 44 for 2017. Request was made to include trend data on Annual Report which will be developed. How the LVI is calculated was discussed including variability.
  - NEW! LVI/BioBase data on Watershed Atlas website:  
<http://www.seminole.wateratlas.usf.edu/shared/ecology.asp?wbodyid=7576&wbodyatlas=lake>
- Treatment Plans - Current & Proposed [Refer to Lake Management Plan]
  - Monitor hydrilla/invasives and treat as necessary (early detection-rapid response) - No hydrilla observed.
  - Evaluate grass carp fish and adjust stocking rate as necessary.
- 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- Several packages were handed out during meeting and more could be made available upon request for distribution.
  - Community Educational Meeting- focus on education and fertilizer ordinance/best practices and encouraging community to move forward in a positive direction. Post meeting note: Community Education Meeting scheduled for May 1<sup>st</sup>, 2018 at Live Oak Reserve clubhouse.
  - Lakewatch samples - Steve reports sending more samples than what Lakewatch database is showing. LMP advised on the importance of the data and encouraged having back-up samplers to share the duties. Post meeting note: Lakewatch provided additional dataset verifying all samples collected by Steve were accounted for: 3 sample events in 2016 and 7 sample events in 2017.
- 2018 Shoreline Planting Event- dates available
  - To be coordinated via Thomas Calhoun. Discussed plant height and wake action impacting plantings. The request traditionally was to have 1<sup>st</sup> of the year, however that does impact the size (height) of the plants available for purchase being the plants are coming off winter season and have not had opportunity to grow. Post meeting note: Planting event is scheduled for September 29<sup>th</sup>, 2018.
- Other
  - Liaison Roles and Responsibility – Commissioner Dallari addressed need to fill 5<sup>th</sup> liaison position. LMP provided overview of Liaison Roles provided in Exhibit D.



- TGC Fish Barrier/Stocking – FWC letter exempting the S. Horseshoe barrier. Discussed location of new barrier and approval process for both City of Oviedo and Live Oak Reserve HOA. Discussed existing (current) barrier location, that conditions do not meet FWC standards, and reported several trees that had fallen on the structure from the storm. Steve expressed concerns about rights to maintain the grass carp/barrier with a do it yourself approach costing less than contracted services. LMP advised, as the permittee, the liability of the barrier requires established maintenance services. Discussed new location was better access and lower costs for the long term maintenance that is required by the permittee (Seminole County). Steve acknowledged the trees that have fallen on barrier and are an easy task for him to clear. It is important for the area to be free and clear of debris for proper water flow. FEMA reimbursement funding for the barrier was discussed by MSBU where the total possible percent was addressed and funding mechanism for the current replacement could be upwards of 85%, however FEMA reimbursement process is lengthy and actuals are still pending. An update on the construction of the barrier was provided- it was out for bid following County procurement and selection process. Thereafter a vendor would be awarded the contract and begin fabrication and installation.
- Email Addresses for routine communications and important announcements -ensuring we have most up-to-date list as some new folks have move onto the lake.
- Shoreline unauthorized clearing and SJRWMD intervention – report any clearing to SJRWMD and Seminole County. Reiterated Seminole County is not the regulatory agency for violations however we work closely with our agencies.
- Lori reported that a resident had contacted the county herbicide applicator to personally treat hyacinth along their shoreline and inquired if this would be an additional cost to the MSBU. LMP reassured there have not been and will not be any unauthorized treatments by AAM unless directed by Seminole county. Vendor’s treatment plan is directed by Seminole County only, as well the area mentioned does not contain hyacinth as per inspections conducted.
- Email “no spray zone” map to Lori (a hardcopy was provided at meeting). Post meeting note: document was emailed to Liaisons.
- LMP requested that all correspondence by the liaisons to be inclusive of each other to ensure the messaging is as intended and that all are aware of the distribution (including County).

MSBU Program

- Budgets – Prior, Current, Proposed and Projected
  - Refer to Exhibit B; Assessment Update
    - Funding deficiency; rate increase merited to ensure funding for future hydrilla per budget projections provided by LM Program and depletion [2017] of contingency held for hydrilla management.
    - LM Program and Liaisons requested no rate increase.
      - *LMP statement: Per 2 year warranty and low dose treatment successes, new products becoming avail on the market for hydrilla treatments and future grass carp stockings.*
  - Anticipating Administrative Fee increase FY19-20; tax year 2019
  - Liaison Term Schedule approved by District Commissioner 2/23. Added to Exhibit D
- Tentative date for next annual meeting: January 31, 2019 9:00AM

Exhibit B - Financial Summary

February 2019

Tax Year	2017	2018	2019
Assessment	\$ 165.00	\$ 165.00	\$ 200.00
Fiscal Year	FY17-18	FY18-19	FY19-20
REVENUE	Actual	Working Budget	Proposed Budget
Beginning Fund Balance	\$ 3,556	\$ 8,729	\$ 6,691
Assessments	\$ 7,943	\$ 7,920	\$ 9,600
Other	\$ 106	\$ 110	\$ 110
MSBU Program Fund Advance [FEMA]	\$ 5,700	\$ -	\$ 5,130
<b>TOTAL</b>	<b>\$ 17,305</b>	<b>\$ 16,759</b>	<b>\$ 21,531</b>
Cost Sharing	\$ -	\$ -	\$ -
Lake Management Program	\$ -	\$ -	\$ -
<b>TOTAL</b>	<b>\$ 17,305</b>	<b>\$ 16,759</b>	<b>\$ 21,531</b>
EXPENDITURE	Actual	Working Budget	Proposed Budget
County Administrative Fee	\$ 1,200	\$ 1,380	\$ 1,380
Fund Advance Repayment	\$ 0	\$ 3,090	\$ 5,700
Contracted Services	\$ 7,376	\$ 5,598	\$ 7,300
<i>Routine Services</i>	\$ 926	\$ 1,500	\$ 1,500
<i>Hydrilla</i>	\$ -	\$ 1,000	\$ 2,000
<i>TGC Fish</i>	\$ -	\$ 98	\$ 800
<i>Fish Barrier Services</i>	\$ 750	\$ 3,000	\$ 3,000
<i>Fish Barrier Replace/Repair</i>	\$ 5,700	\$ -	\$ -
<i>Nutrient Abatement (NAV)</i>	\$ -	\$ -	\$ -
<i>Harvesting</i>	\$ -	\$ -	\$ -
<i>Other</i>	\$ -	\$ -	\$ -
<i>Carryforward from prior FY</i>	\$ -	\$ -	\$ -
Reserve/Contingency	\$ 8,729	\$ 6,611	\$ 7,151
<i>Operating Contingency</i>	\$ 8,729	\$ 6,611	\$ (16,550)
<i>Reserve: Hydrilla (Whole Lake)</i>	\$ -	\$ -	\$ 18,000
<i>Reserve: Barrier Replace/Repair</i>	\$ -	\$ -	\$ 5,700
<i>Reserve: Admin Code &amp; Ord Amnd</i>	\$ -	\$ -	\$ -
<b>TOTAL</b>	<b>\$ 17,305</b>	<b>\$ 16,759</b>	<b>\$ 21,531</b>
Cost Sharing	\$ -	\$ -	\$ -
Lake Management Program	\$ -	\$ -	\$ -
<b>TOTAL</b>	<b>\$ 17,305</b>	<b>\$ 16,759</b>	<b>\$ 21,531</b>
Fund Advance BB	\$ 8,700	\$ 8,700	\$ 5,700
Payment (Principal)	\$ -	\$ 3,000	\$ 5,700
Fund Advance EB	\$ 8,700	\$ 5,700	\$ 0
MSBU Program Administration Cost	\$ 1,326	\$ 23,326	
LM Program Administration Cost	\$ 18,000		
Restoration Event Cost	\$ 4,000		

## Exhibit C - Historic Reports/Data

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

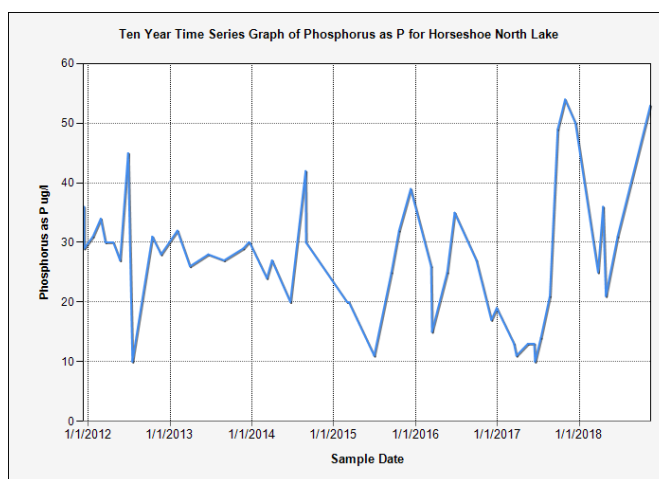
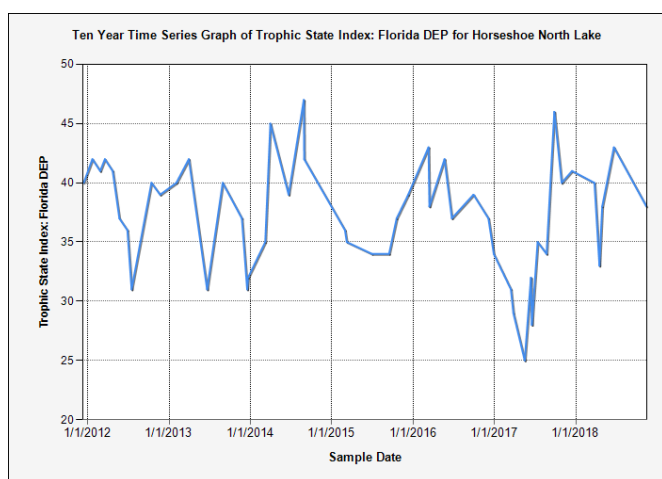
<http://www.seminole.wateratlas.usf.edu/resourceprogram.aspx?aid=15&wbodyid=7576>  
<http://www.seminole.wateratlas.usf.edu/lake/waterquality.asp?wbodyid=7576&wbodyatlas=lake>

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

**TSI SCORE: 38 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.



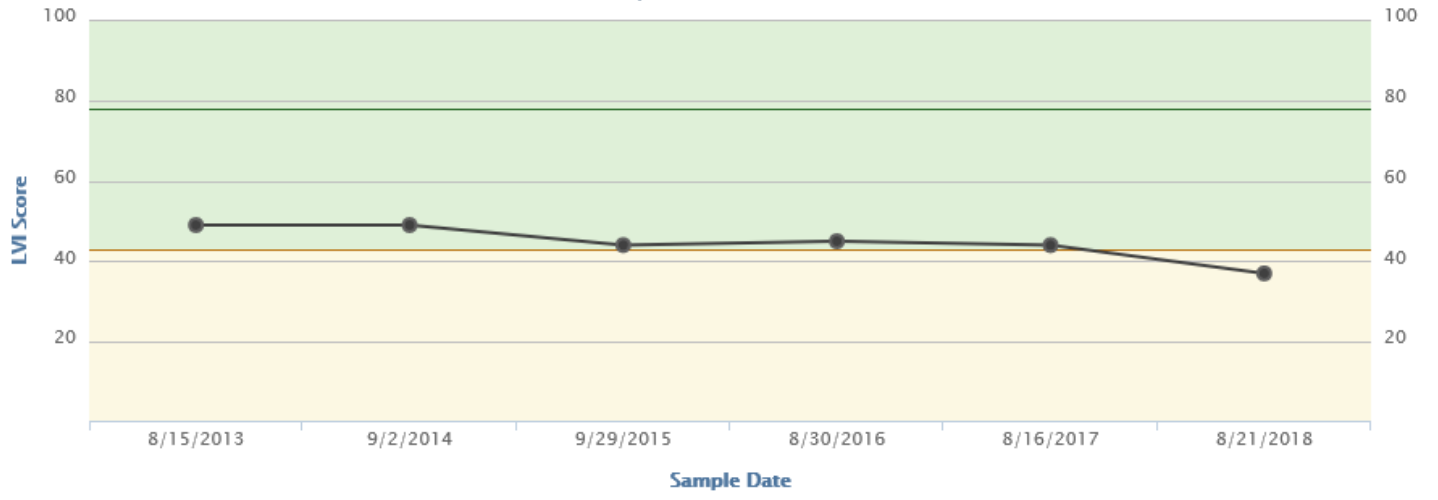
### Lake Vegetation Index Bioassessment (LVI): How Does My Lake Rank?

**37 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, 2018) scored a **37** which is in the **Impaired** category. This is a decrease from the 2017 LVI score of **44 Healthy**. This reduction is due to a shift in dominance from a sensitive tree to a vine.

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.

### LVI Score History for Horseshoe North Lake



# 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	1st Cycle		Liaison	2nd Cycle		
		Term Start	Term Ends		Term Start	Term	Term Ends
1 Unincorporated Liaison A	Frost	2017	12/31/2019	Frost	1/1/2020	3 yrs	12/31/2022
2 Unincorporated Liaison B	Searcy	2018	12/31/2020		1/1/2021	3 yrs	12/31/2023
3 City Liaison A	Janke	2017	12/31/2019	Janke	1/1/2020	3 yrs	12/31/2022
4 City Liaison B	Kuketz	2018	12/31/2020		1/1/2021	3 yrs	12/31/2023
5 Rotating Liaison*	Griffin	2018	12/31/2018*	Griffin	1/1/2019	3 yrs	12/31/2021

\*Reduced term to establish staggered terms

\*1<sup>st</sup> Cycle is Unincorporated; 2<sup>nd</sup> is City