

**2023**

**LAKE LINDEN  
LAKE MANAGEMENT PLAN**

Annual Meeting

- 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)
  - Financial Summary
  - Historic Reports/Data
  - Roles & Responsibilities

# LAKE LINDEN: ANNUAL MEETING

Date /Time/ Location	Wednesday, February 1, 2023 /10:15 am – 11:00 am/ ZOOM - Virtual
Community Liaisons	Blair Davidson, Mark Bjerkestrand, Glenn Housman
Liaisons Present	<b>Blair Davidson, Mark Bjerkestrand</b>
Seminole County	Thomas Calhoun, Tony Cintron, Daniel Barber, Chad Day, Michael Eason, Tameka Morton, Michelle Rosa-Munger, Lynda Reaves

## General Topics & Updates

### Lake Management Program

- Welcome
- Shoreline Protection Ordinance Status
  - County Shoreline Ordinance adopted April 2021
  - Thomas to provide additional information
- Lake Status Nutrients/Habitat Scores [Bioassessment Indices - Refer to Exhibit C]
  - TSI is GOOD at 42 – More data collection will provide trend lines
  - **LVI to be conducted in 2023 season**
  - BioBase – Submersed vegetation mapping – on the SC Water Atlas [Refer to Exhibit C]
- Treatment Plans - Current & Proposed [Refer to Lake Management Plan]
  - Manage invasive vegetation
  - Keep vegetation out access corridors
  - Monitor for Hydrilla (Early Detection & Rapid Response)
  - No Spray Zone established
  - **Monitor and maintain Maidencane in open water areas**
- 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
  - Educate community on the Shoreline Protection Ordinance
  - Lakewatch volunteer – **Blair Davidson will need training**
- 2023 Shoreline Planting Event – **Liaisons to gather interest on planting events**
  - To be coordinated via Tony Cintron
  - **Need a date (interested in cypress trees)**
  - **Blair wants plant examples**
  - **Mark offered shoreline areas for planting**
- Other
  - Email Address for routine communications and important announcements **LM to gather list to send to Blair**
  - **Aeration – Mark is investigating**

### MSBU Program & Resource Management Department

- Financial Summary [Refer to Exhibit B]

# LAKE LINDEN

## LAKE MANAGEMENT PLAN

### **GENERAL PROVISIONS**

#### **Scope of Public Lake Management Services**

The scope of public lake management 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 Triploid Grass Carp Permit

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

- Chemical (herbicides)
- Biological (sterile triploid grass carp fish [TGC])
- Mechanical (harvesting)
- Physical (hand removal)

#### **Targeted Invasive/Exotic Aquatic Vegetation**

- Hydrilla, water hyacinth, torpedo grass, primrose willow, water lilies, wild taro, cattail, Cuban bulrush, bladderwort, Salvinia, and algae

#### **Frequency of Aquatic Vegetation Management Treatment (Herbicides)**

Treatment services are performed at the direction of the Seminole County LMP as per the Linden 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**

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 annual assessment is capped at \$250.00.

#### **Seminole County Employees**

Information for contacting the employees of Lake Management and the MSBU program:

**Lake Management** – Thomas Calhoun ([tcalhoun@seminolecountyfl.gov](mailto:tcalhoun@seminolecountyfl.gov)), Tony Cintron ([acintron@seminolecountyfl.gov](mailto:acintron@seminolecountyfl.gov)), Daniel Barber ([dbarber02@seminolecountyfl.gov](mailto:dbarber02@seminolecountyfl.gov)), Chad Day ([cday02@seminolecountyfl.gov](mailto:cday02@seminolecountyfl.gov))

**MSBU** – Michael Eason ([meason@seminolecountyfl.gov](mailto:meason@seminolecountyfl.gov)), Tameka Morton ([tmorton@seminolecountyfl.gov](mailto:tmorton@seminolecountyfl.gov)), Michelle Rosa-Munger ([mrosamunger@seminolecountyfl.gov](mailto:mrosamunger@seminolecountyfl.gov))

## 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. Kevin Davidson ([davidson2511@gmail.com](mailto:davidson2511@gmail.com)), Mark Bjerkestrand ([longwoodviking@gmail.com](mailto:longwoodviking@gmail.com)), and Glenn Housman ([GDH61@bellsouth.net](mailto:GDH61@bellsouth.net)).

## **COMMUNITY-BASED ACTIVITIES & EVENTS**

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

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- 1) Plant a healthy shoreline with native emergent plants;
- 2) Establishing a formal Lake Association holding at least one annual meeting with topics relevant to your lake;
- 3) Establish a backyard berm and swale system where applicable;
- 4) Continue to increase educational outreach programs i.e. Shoreline Restoration Workshops (planting days), Florida Yards and Neighborhoods (FYN), Lake Management Video mail-outs, and reduction of residential pollution such as grass clippings, Contact us at 407-665-5542 for assistance;
- 5) Fertilize wisely by using phosphorous free and slow-release nitrogen based fertilizers only. Visit [www.seminolecountyfl.gov/fertilizer](http://www.seminolecountyfl.gov/fertilizer) for more information; and
- 6) Provide content for the Seminole County Water Atlas Lake Management Webpage for your lake (such as newsletters and photos)

***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**

Lake Linden 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 treatments and waterbody bioassessment. 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**

While Hydrilla has not been noticed in Lake Linden, the timing and extent of hydrilla 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 Lake Linden, as well as current conditions observed at the lake.

Primary expectations are as follows:

- 1) Aquatic herbicide maintenance for non-native vegetation
- 2) Monitor Hydrilla, other submersed aquatic plants, and grass carp fish effects
- 3) Evaluate tussocks removal when they appear

### **Funding Expectations**

*Refer to current fiscal year 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 aquatic herbicide maintenance for non-native vegetation and conducting hydrilla treatments (as needed),
- 2) Future grass carp stockings if deemed necessary, pending permit amendment.
- 3) Evaluate tussocks removal when they appear

### **Funding Expectations**

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

## **Exhibits**

**A – Notes from Prior Year Meeting (Not Included/No Prior Meeting)**

**B – Financial Summary (Not Included)**

**C – Historic Reports/Data**

**D – Roles & Responsibilities**

## **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 Lake Linden can be found on the Seminole County Water Atlas website at:

<https://www.seminole.wateratlas.usf.edu/waterbodies/lakes/7594/>

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

### **Lake Linden Water Quality Report: How Does My Lake Rank?    TSI SCORE: 42**

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?    Has not had an LVI yet**

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. LVI has not been conducted on this lake. LVI to be conducted in 2023.

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.



# Lake Linden

## Trend Report

2022



**TSI Score: 42**

(Trophic State Index)

**Good**

**FDEP Status**

(Florida Dept of Environmental Protection)

**Not Impaired**

**TMDL Status**

(Total Maximum Daily Load)

**No TMDL**

**BMAP**

(Basin Management Action Plan)

**Wekiva**

Little Wekiva Watershed

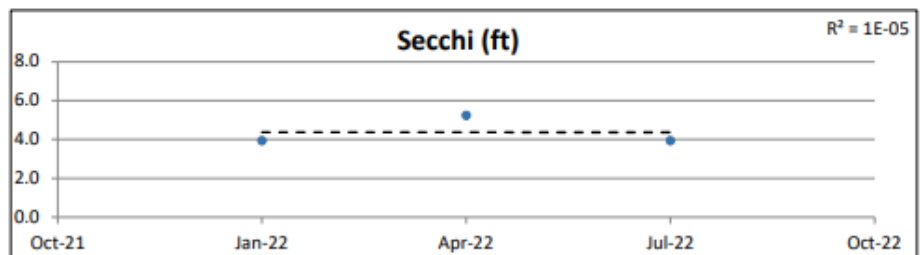
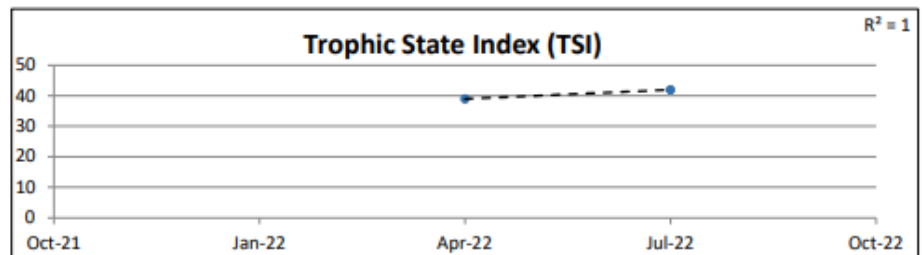
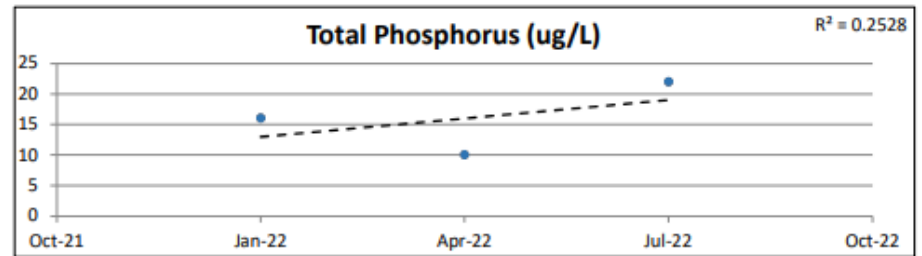
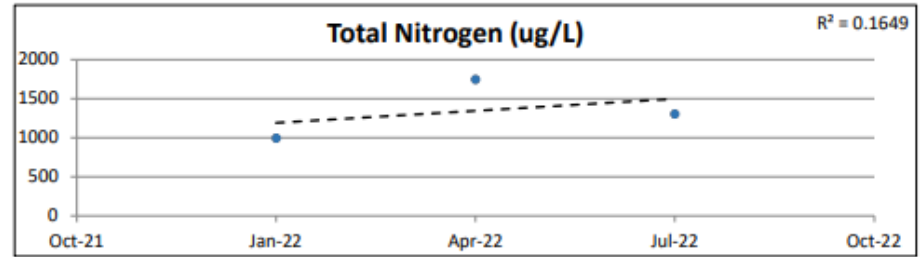
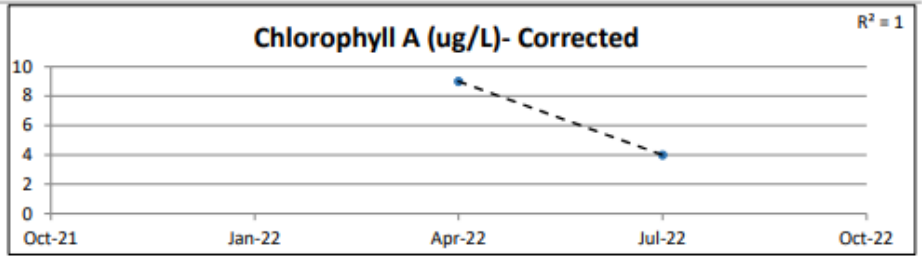
12 acres

Lat 28° 45' 19.5078" N  
Lon 81° 22' 47.1396" W

WBID 2956A1

For more information please visit:

[seminole.wateratlas.usf.edu/](http://seminole.wateratlas.usf.edu/)



## **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 public services 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