Meeting Objective

- Provide HLA members with essential CLP information.
- Decisions are not expected to be made today.

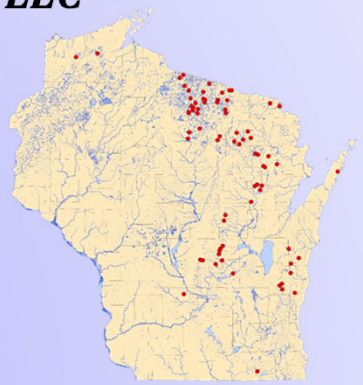
Presentation Outline

- Onterra, LLC
- CLP Life Cycle & Biology
- AIS Mapping Process
- Harris Lake CLP Population Over the Years
- CLP Management Options
- Development of an Aquatic Plant Management Plan
- Closing Thoughts

Onterra LLC
Lake Management Planning

Onterra, LLC

- Founded in 2005
- Head Quarters in De Pere, WI
- Staff
  - Three full-time ecologists
  - One part-time paleoecologist
  - Four full-time field technicians
  - Four summer interns
- Services
  - Science and planning
- Philosophy
  - Promote realistic planning
  - Assist, not direct

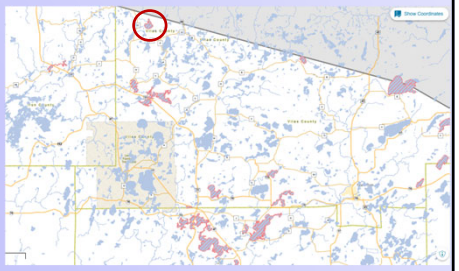


www.onterra-eco.com

Onterra LLC
Lake Management Planning

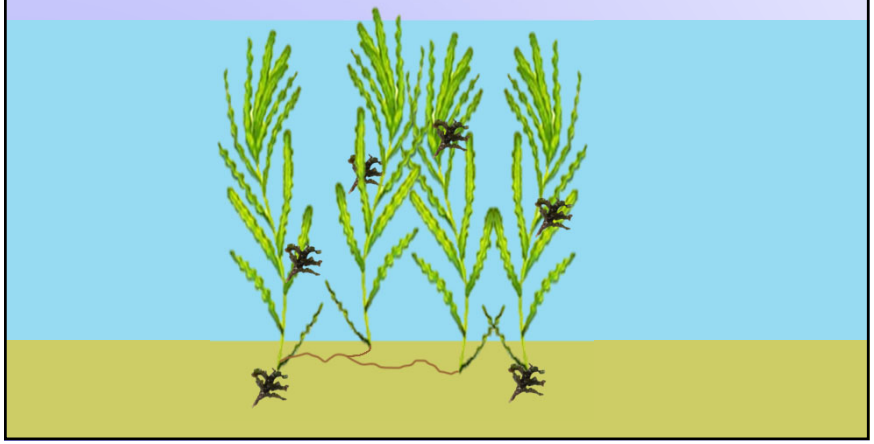
CLP Impacts

- Can be problematic in some lakes, and not in others
- Often causes localized impacts to navigation, recreation, and aesthetics
- Except in the most extreme cases, CLP is unlikely to displace native plants, at least in short term
- Mid-summer die-off can cause increased phosphorus in the water column leading to algae blooms



Onterra LLC Lake Management Planning

Curly-Leaf Pondweed Life Cycle



Curly-Leaf Pondweed Life Cycle

Summary

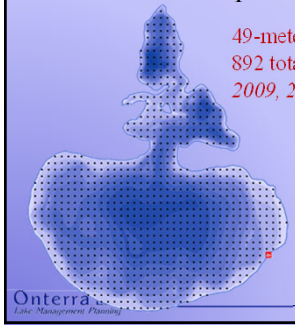
- *CLP is considered an annual with some perennial attributes*
- *It propagates via turions and rhizomes*
- *Each plant can produce tens of turions*
- *Turions can be created above and below the sediment*
- *Turions can remain viable in the sediment for at least 7-10 years*
- *Not all turions sprout plants the following year – some are "programed" to sprout years in the future*
- *Strong evidence that ice/snow cover impacts that year's growth*

Onterra LLC Lake Management Planning

Types of Aquatic Plant Surveys

Quantitative

- Point-Intercept Survey



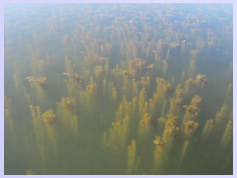
49-meter resolution
892 total points
2009, 2015, & 2023 Surveys

Qualitative

- AIS Mapping Surveys
  - Fine-scale location accuracy
  - Subjective designations

Onterra Lake Management Planning

Professional AIS Mapping



Point-Based Mapping

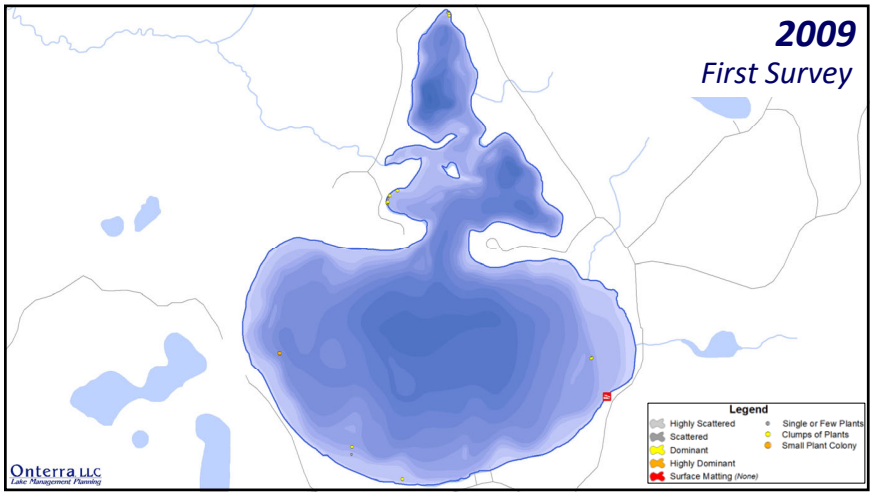
- Single or Few Plants
- Clumps of Plants
- Small Plant Colony

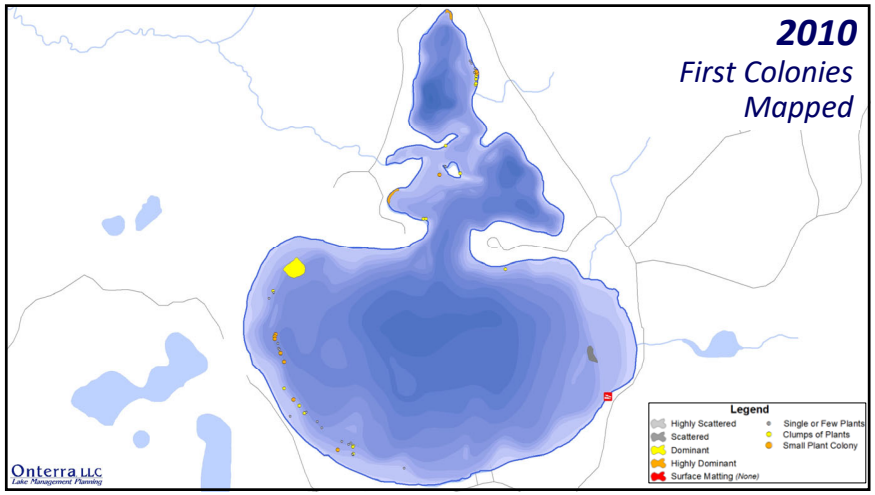
Polygon-Based Mapping

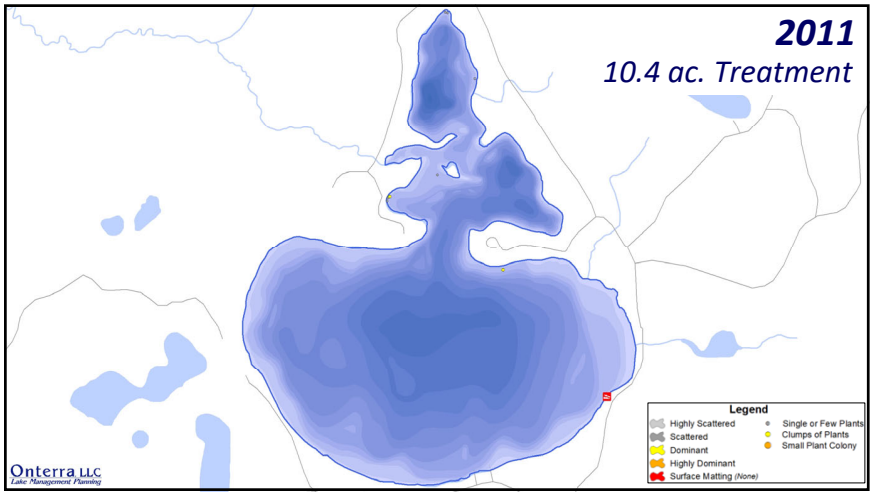
- Highly Scattered
- Scattered
- Dominant
- Highly Dominant
- Surface Matting

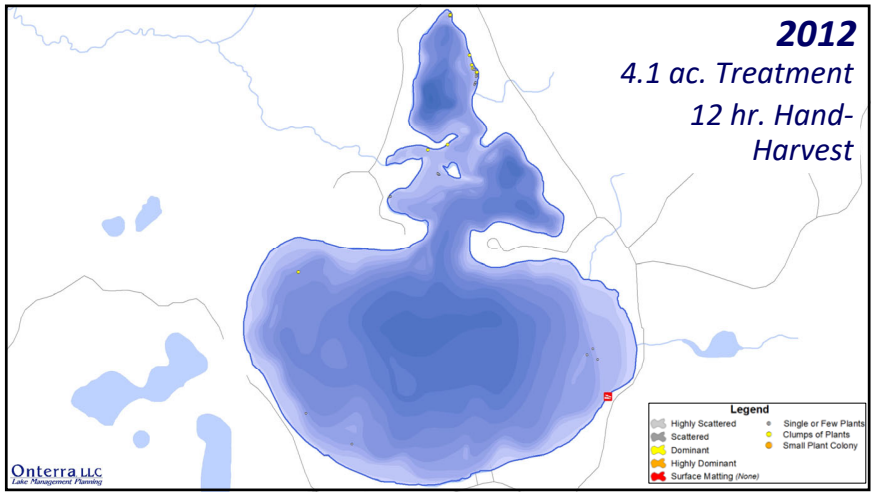
Impact Use

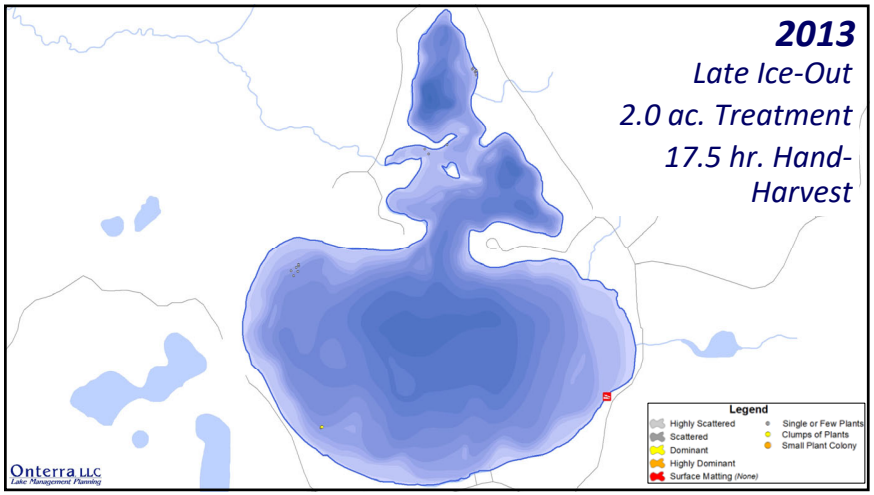
Onterra LLC
Lake Management Planning

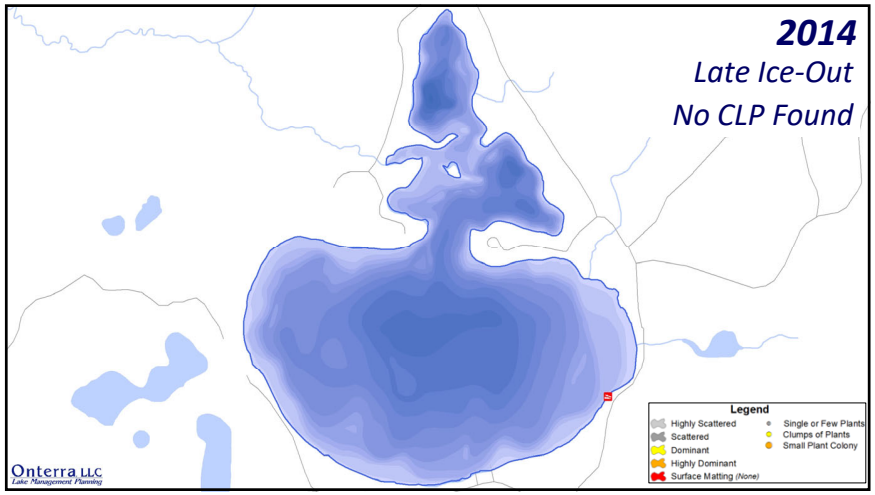


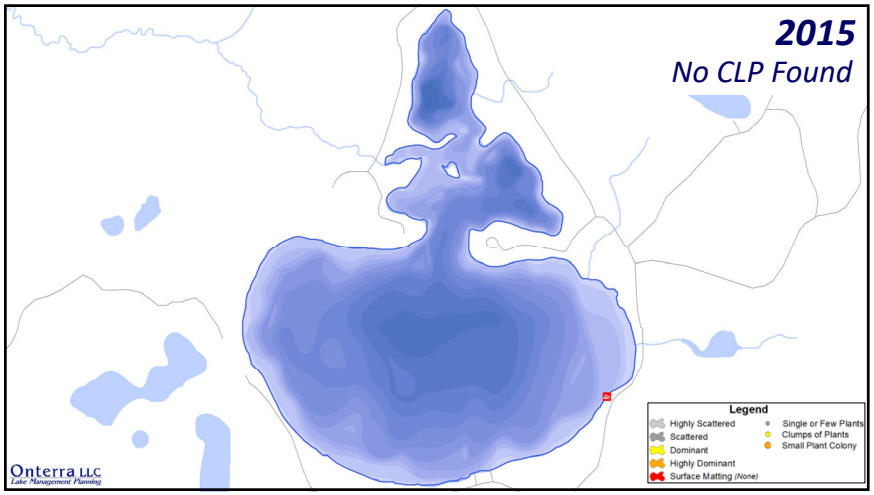


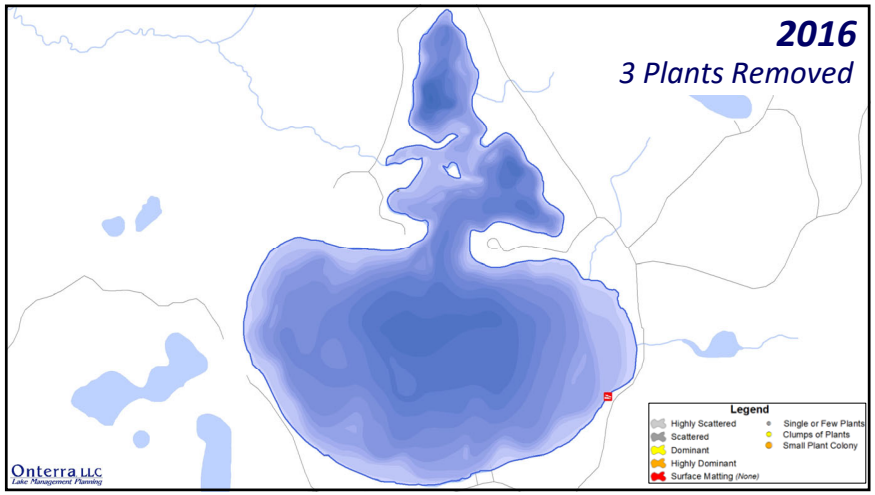


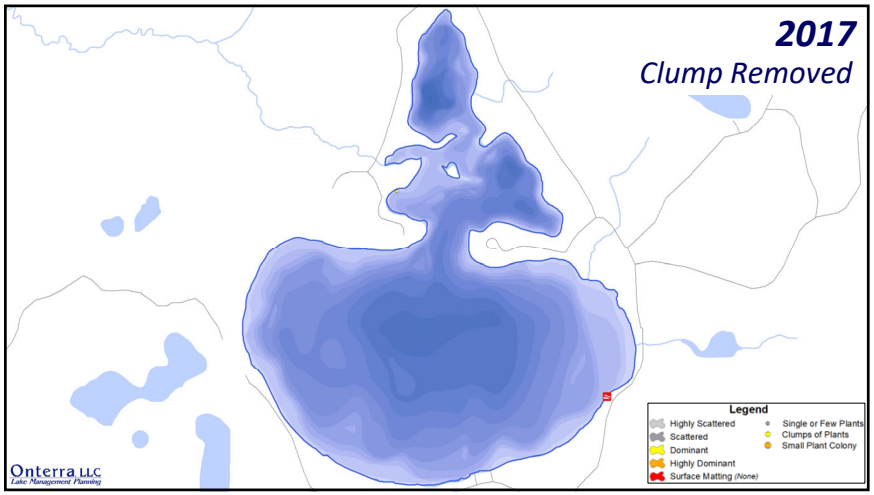

2012
4.1 ac. Treatment
12 hr. Hand-Harvest
Legend
Highly Scattered
Scattered
Dominant
Highly Dominant
Surface Matting (None)
Single or Few Plants
Clumps of Plants
Small Plant Colony
Onterra LLC
Lake Management Planning

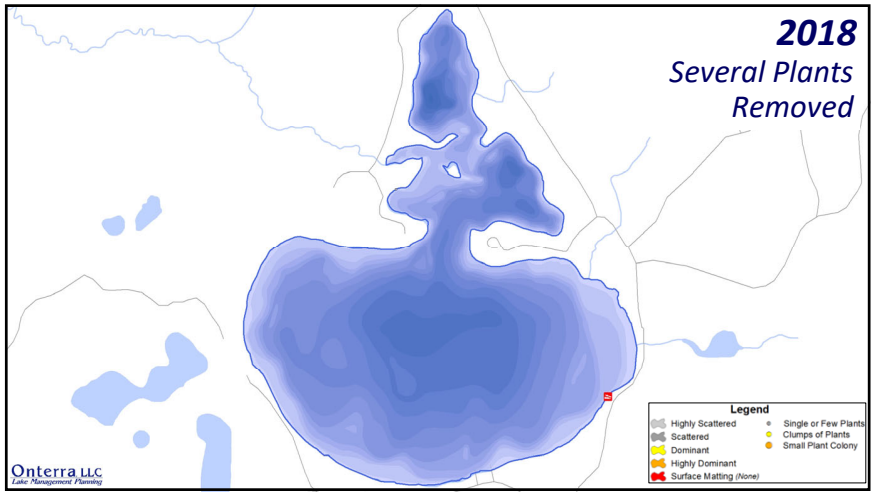

2013
Late Ice-Out
2.0 ac. Treatment
17.5 hr. Hand-Harvest
Legend
Highly Scattered
Scattered
Dominant
Highly Dominant
Surface Matting (None)
Single or Few Plants
Clumps of Plants
Small Plant Colony
Onterra LLC
Lake Management Planning

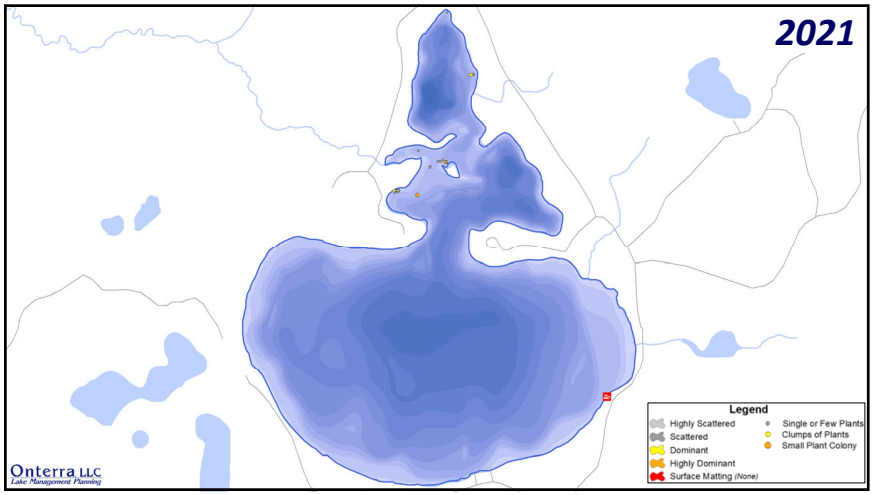

2014
Late Ice-Out
No CLP Found
Legend
Highly Scattered
Scattered
Dominant
Highly Dominant
Surface Matting (None)
Single or Few Plants
Clumps of Plants
Small Plant Colony
Onterra LLC
Lake Management Planning

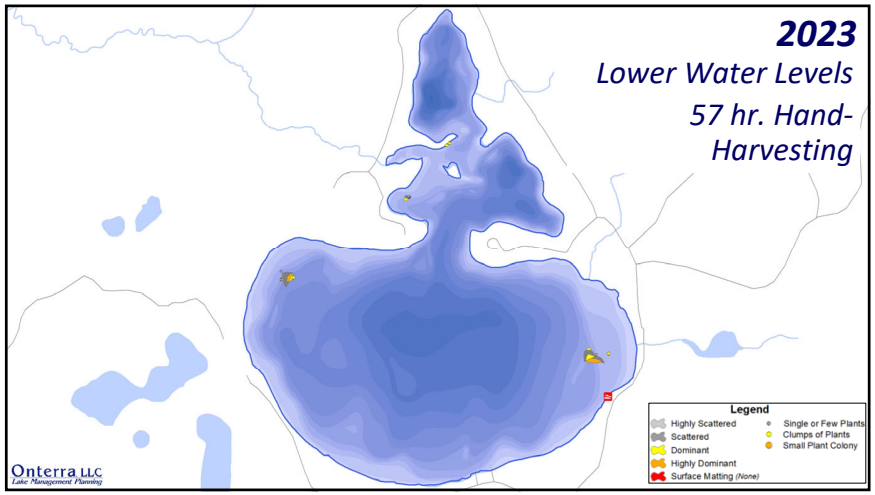

2015
No CLP Found
Legend
Highly Scattered
Scattered
Dominant
Highly Dominant
Surface Matting (None)
Single or Few Plants
Clumps of Plants
Small Plant Colony
Onterra LLC
Lake Management Planning

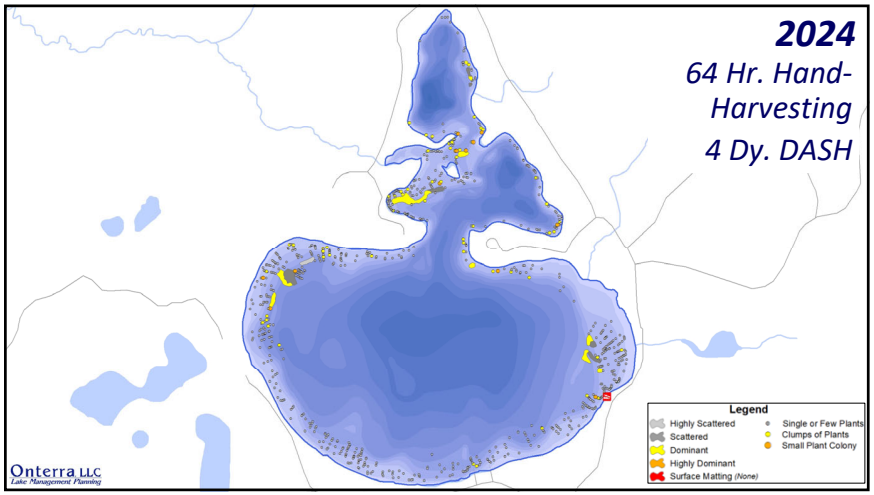

2016
3 Plants Removed
Legend
Highly Scattered
Scattered
Dominant
Highly Dominant
Surface Matting (None)
Single or Few Plants
Clumps of Plants
Small Plant Colony
Onterra LLC
Lake Management Planning

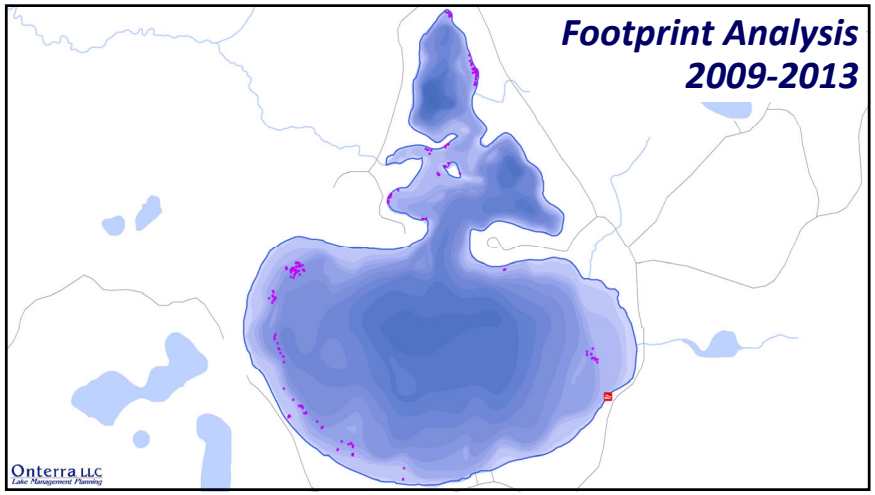

2017
Clump Removed
Legend
Highly Scattered
Scattered
Dominant
Highly Dominant
Surface Matting (None)
Single or Few Plants
Clumps of Plants
Small Plant Colony
Onterra LLC
Lake Management Planning

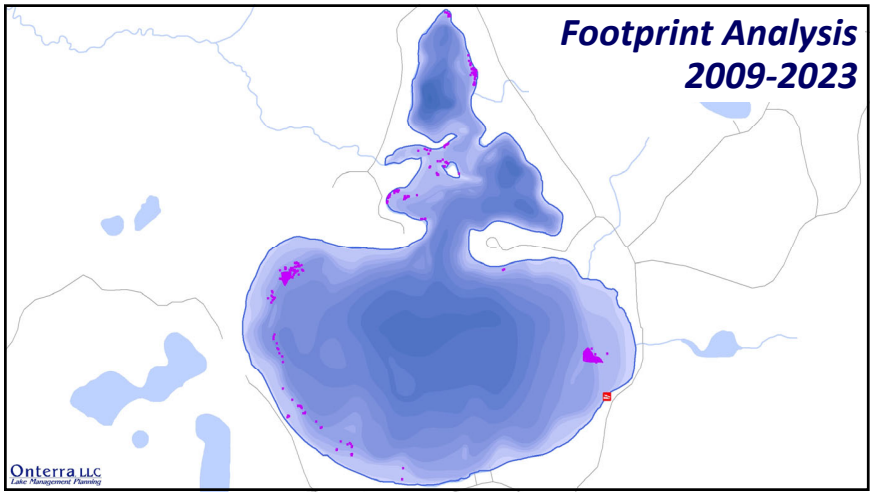

2018
Several Plants Removed
Legend
Highly Scattered
Scattered
Dominant
Highly Dominant
Surface Matting (None)
Single or Few Plants
Clumps of Plants
Small Plant Colony
Onterra LLC
Lake Management Planning

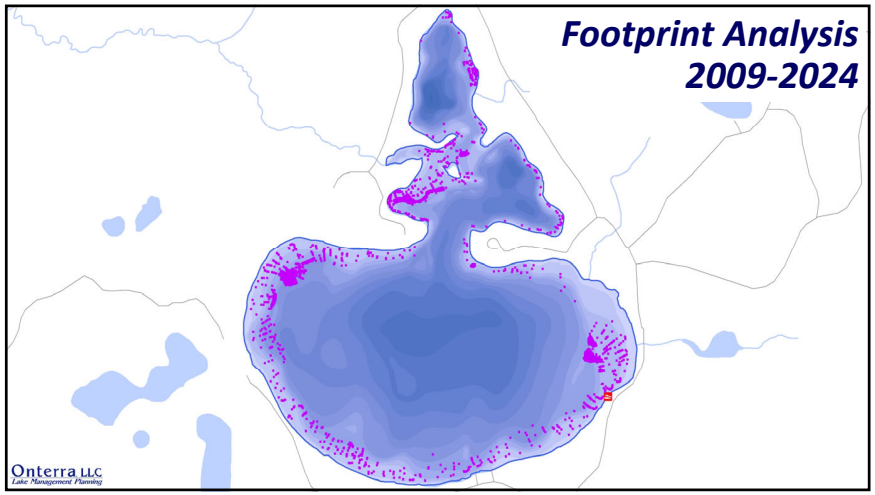

2021
Legend
Highly Scattered
Scattered
Dominant
Highly Dominant
Surface Matting (None)
Single or Few Plants
Clumps of Plants
Small Plant Colony
Onterra LLC
Lake Management Planning

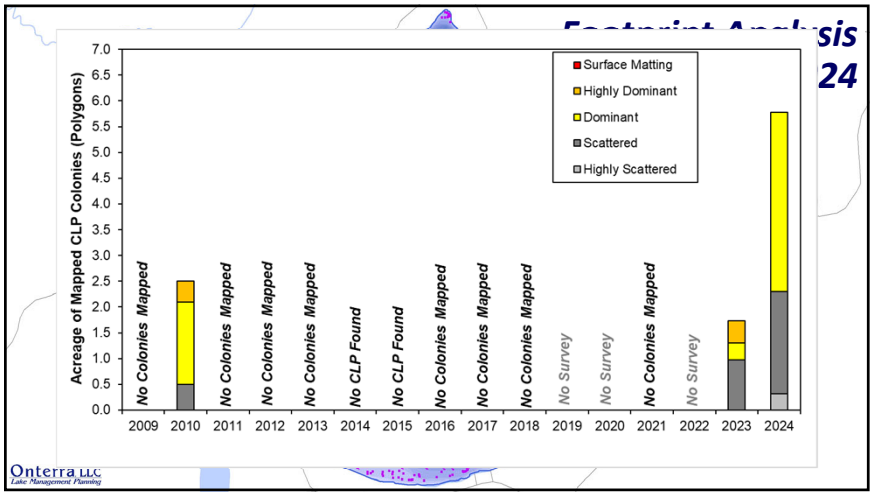

2023
Lower Water Levels
57 hr. Hand-Harvesting
Legend
Highly Scattered
Scattered
Dominant
Highly Dominant
Surface Matting (None)
Single or Few Plants
Clumps of Plants
Small Plant Colony
Onterra LLC
Lake Management Planning


2024
64 Hr. Hand-Harvesting
4 Dy. DASH
Legend
Highly Scattered
Scattered
Dominant
Highly Dominant
Surface Matting (None)
Single or Few Plants
Clumps of Plants
Small Plant Colony
Onterra LLC
Lake Management Planning


Footprint Analysis
2009-2013
Onterra LLC
Lake Management Planning


Footprint Analysis
2009-2023
Onterra LLC
Lake Management Planning



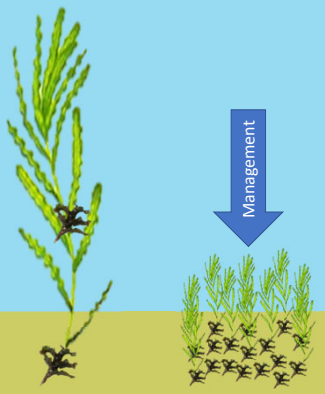


AIS Management Perspectives

1. **No Coordinated Active Management (Let Nature Take its Course)**
   - Group does not organize or fund nuisance manual removal efforts
2. **Reduce AIS Population on a lake-wide level (Population Management – "Control")**
   - Will not "eradicate" AIS
   - Early populations may be targeted with manual removal efforts, established populations may need to entertain herbicide treatment (risk assessment)
   - Set triggers (thresholds) of implementation and develop a tolerance of the AIS
   - May not be consistent with regulatory framework
3. **Minimize navigation and recreation impediment (Nuisance Control)**
   - Hand-harvesting alone is not able to accomplish this goal during high populations of AIS, herbicides and/or mechanical harvester may be required

Onterra LLC
Lake Management Planning

Control Strategy Philosophy



- CLP responds well to herbicides (*easy to kill*)
- Management strategy requires repetition (*5-7+ years in a row*)
- Unless documented ecological impacts, established populations not targeted for lake-wide management
- Hand-harvesting is analogous to single treatment (*ineffective for established populations)*

Hand-Harvesting

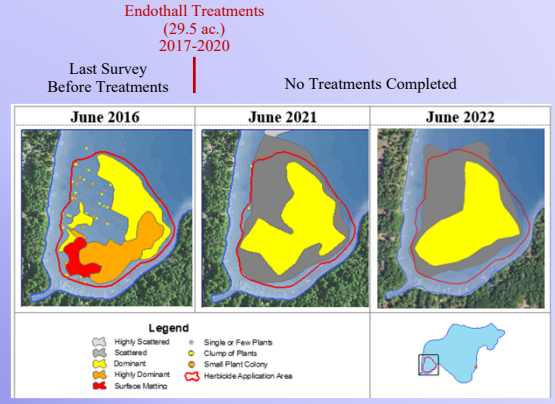
- **Goal – to manage the CLP population or nuisance control**

Initial populations Low density & isolated occurrences Follow-up after treatments	In riparian footprint Navigation lanes or small areas

- **Population control requires CLP to be removed prior to turion formation.**
- **Diver-Assisted Suction Harvest (DASH) can increase efficacy**
- **Scale limitations, not for large or dense areas (typically an acre or less)**
- **Success expectation – population reduction in YOT, not elimination**
- **Limitations**
  - –Density of CLP & native plants, clarity of water
  - –Sediment type, Obstructions

Onterra LLC Lake Management Planning

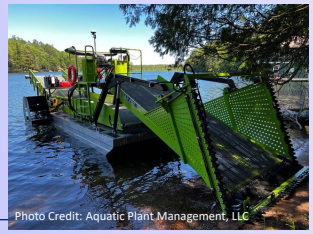
Example Herbicide Treatments: Lost Lake, Vilas County



Onterra LLC Lake Management Planning

Mechanical Harvesting

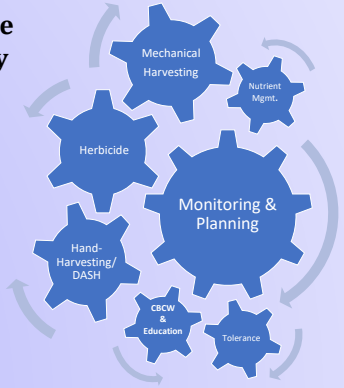
- **Goal – to restore aspects of use and aesthetics**
- **Cuts and removes CLP biomass; does not cause mortality**
- **Suitable for large and dense CLP**
- **Applied as clear-cutting or confined to lanes**
- **Risk of bi-catch**
  - –Native plants
  - –Fish & amphibians
  - –Insects, small animals



Onterra LLC Lake Management Planning

Integrated Pest Management (IPM)

Using a combination of methods that are more effective when applied collectively as part of defined strategy than when conducted separately



Onterra LLC Lake Management Planning

Management Plan and Grants

- WDNR recommends lake groups conducting active plant management update aspects of the plan every 5 years (***APM Plan***)
  - Focuses largely on aquatic plants within a lake
  - Whole-lake point-intercept survey needs to have been completed within last 5 years
  - Particularly for grants/permits related to aquatic plant management (AIS control grants, NR107, NR109)
  - Annual AIS Control Plan within an AIS Grant needs to be supported by Plan
- Annual AIS Control Plan
  - Consistent with the framework outlined in APM Plan
  - Includes specific plans, delineated prioritized areas and quantity of effort
- WDNR recommends ***Comprehensive Management Plans*** generally get updated every 10 years
  - Aquatic Plant Management (APM) Plan is one component of a Comprehensive Plan, along with water quality, watershed, shoreland, fisheries, etc.

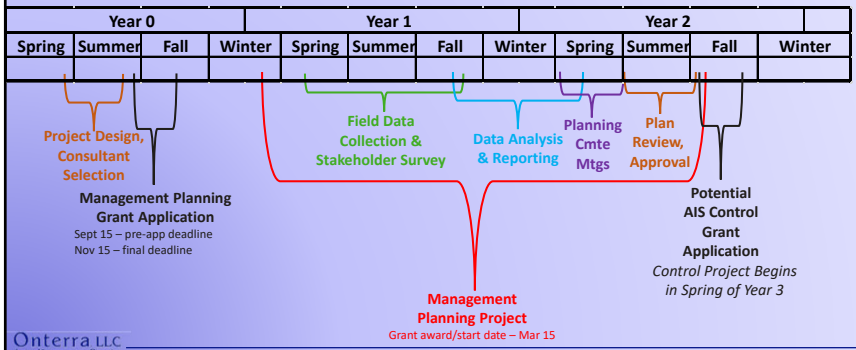
Onterra LLC Lake Management Planning

Why Create a Lake Management Plan?

- Preserve/restore ecological function
- To create a better understanding of lake's positive and negative attributes.
- To discover ways to minimize the negative attributes and maximize the positive attributes.
- Snapshot of lake's current status or health.
- Foster realistic expectations and dispel any misconceptions.

Onterra LLC Lake Management Planning

Management Planning Timeline



Onterra LLC Lake Management Planning

Closing Thoughts

- *Population management of CLP on Harris Lake is unrealistic*
  - *CLP is established and turion base is widespread*
  - *Longevity of CLP throughout much of the summer complicates its control tremendously*
- *Any plan developed for the lake will need to use IPM and be very flexible*
  - *CLP population is dynamic in the lake and likely largely controlled by ice and snow cover the previous winter*
- *Nuisance relief is the best course of action currently*

Onterra LLC Lake Management Planning