Teal, Lost Land, and Ghost Lakes Aquatic Plant Management (APM)

Google Earth Image May 2020

2023 Quiet Lakes Annual Meeting July 15, 2023

What is APM?

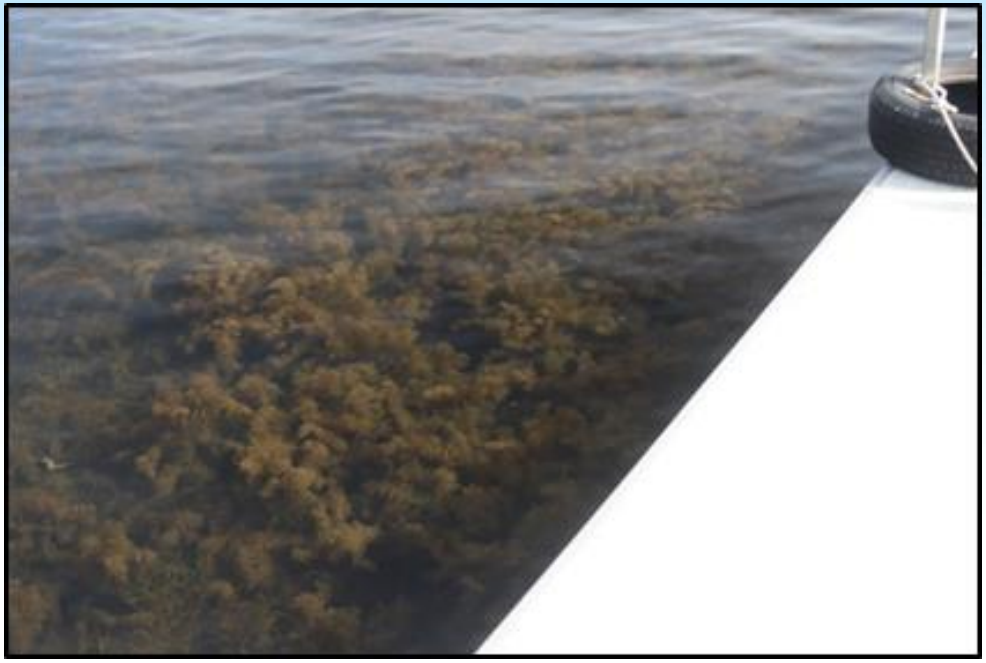
- Aquatic plant management involves the science and methodologies used to control invasive and non-invasive aquatic plant species in waterways. Methods used include spraying herbicide, biological controls, mechanical removal as well as habitat modification.
- Wikipedia definition

What necessitates APM?

- **WI-DNR (general concerns expressed by many)**
  - **Are there demonstrated ecological changes as a result of one or more specific aquatic plants (target plants)?**
    - **Aquatic plant distribution**
      - Has the target plant(s) spread?
    - **Aquatic plant density**
      - Has the target plant(s) gotten more dense?
    - **Aquatic plant diversity**
      - Has the spread and density impacted more desirable aquatic plants (non-target plants)?
  - **Is lake use restricted or obstructed?**
    - **What, When, and Where?**

Hybrid Watermilfoil
(a non-native, invasive, aquatic plant species

- A cross (hybrid) between Northern watermilfoil/Eurasian watermilfoil Aggressive strain in Lost Land and Teal Lakes
- Circa 2012 in Lost Land; after 2016 in Teal



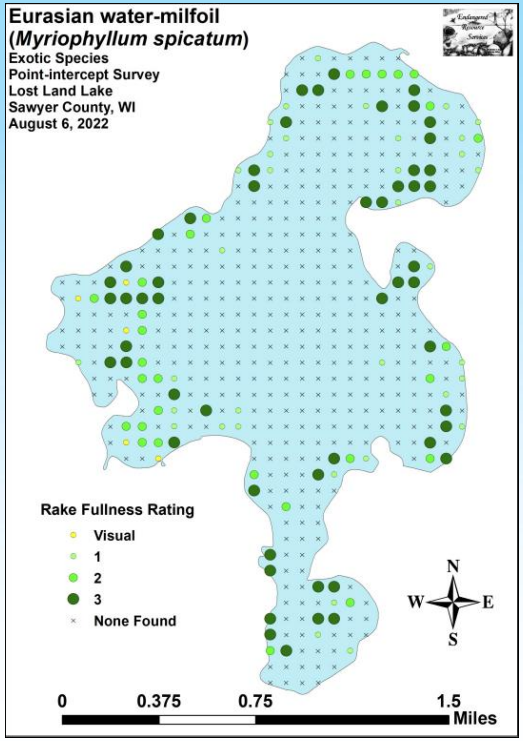
Eurasian/Hybrid Watermilfoil (HWM)

- **Land Land Lake - Aquatic Plant Surveys**
  - 2006 – no HWM
  - 2012 – no HWM
  - 2016 – 3 points
    - 180 pts w/vegetation (1.7% w/HWM)
    - 232 pts in littoral zone (1.3% w/HWM)
    - **Rake fullness = 1.0/3**
  - 2022 – 118 points
    - 243 pts w/vegetation (48.6% w/HWM)
    - 337 pts in littoral zone (35% w/HWM)
    - **Rake fullness = 2.16/3.0**

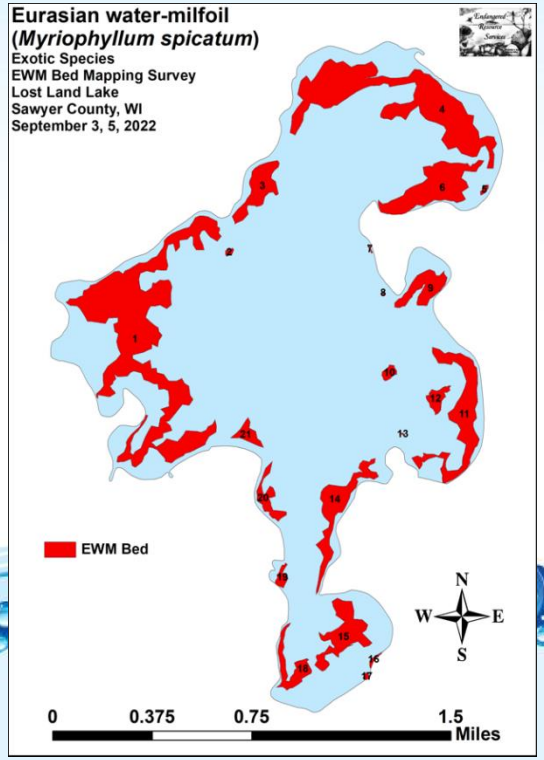
- **Teal Lake - Aquatic Plant Surveys**
  - 2006 – no HWM
  - 2012 – no HWM
  - 2016 – no HWM
  - 2022 – 24 points
    - 142 pts w/vegetation (16.9% w/HWM)
    - 247 pts in the littoral zone (9.7% w/HWM)
    - **Rake fullness = 1.63/3.0**

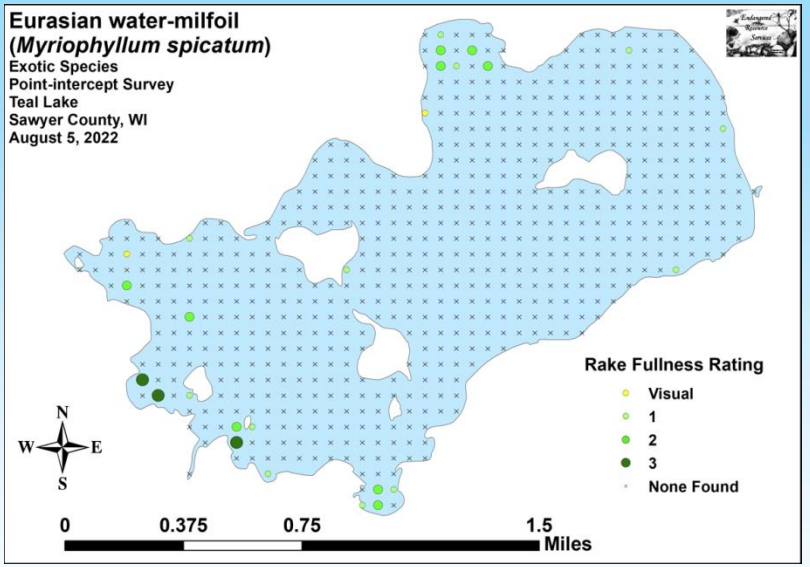
Lost Land: 18,23,29,38(ERS) **DIVERSITY** **Teal 18, 33,28,38(ERS)**

HWM in the Lakes (2022)

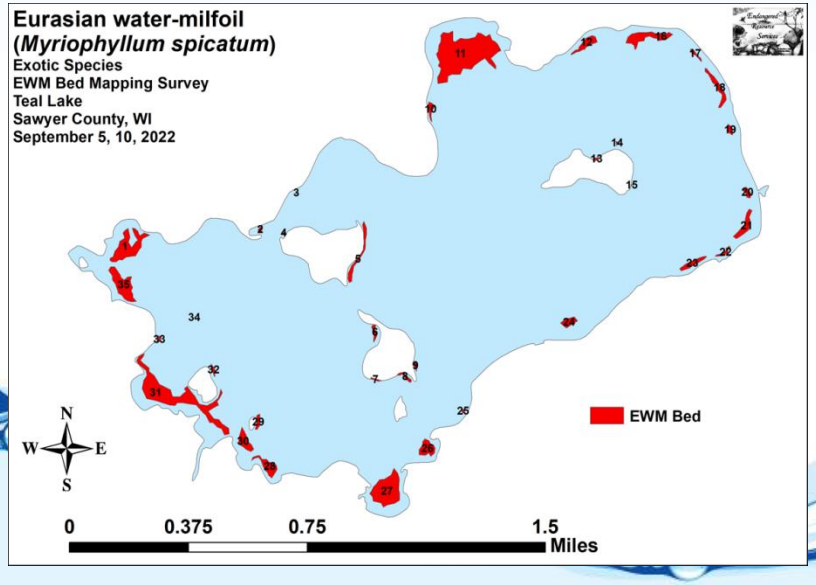


264 acres



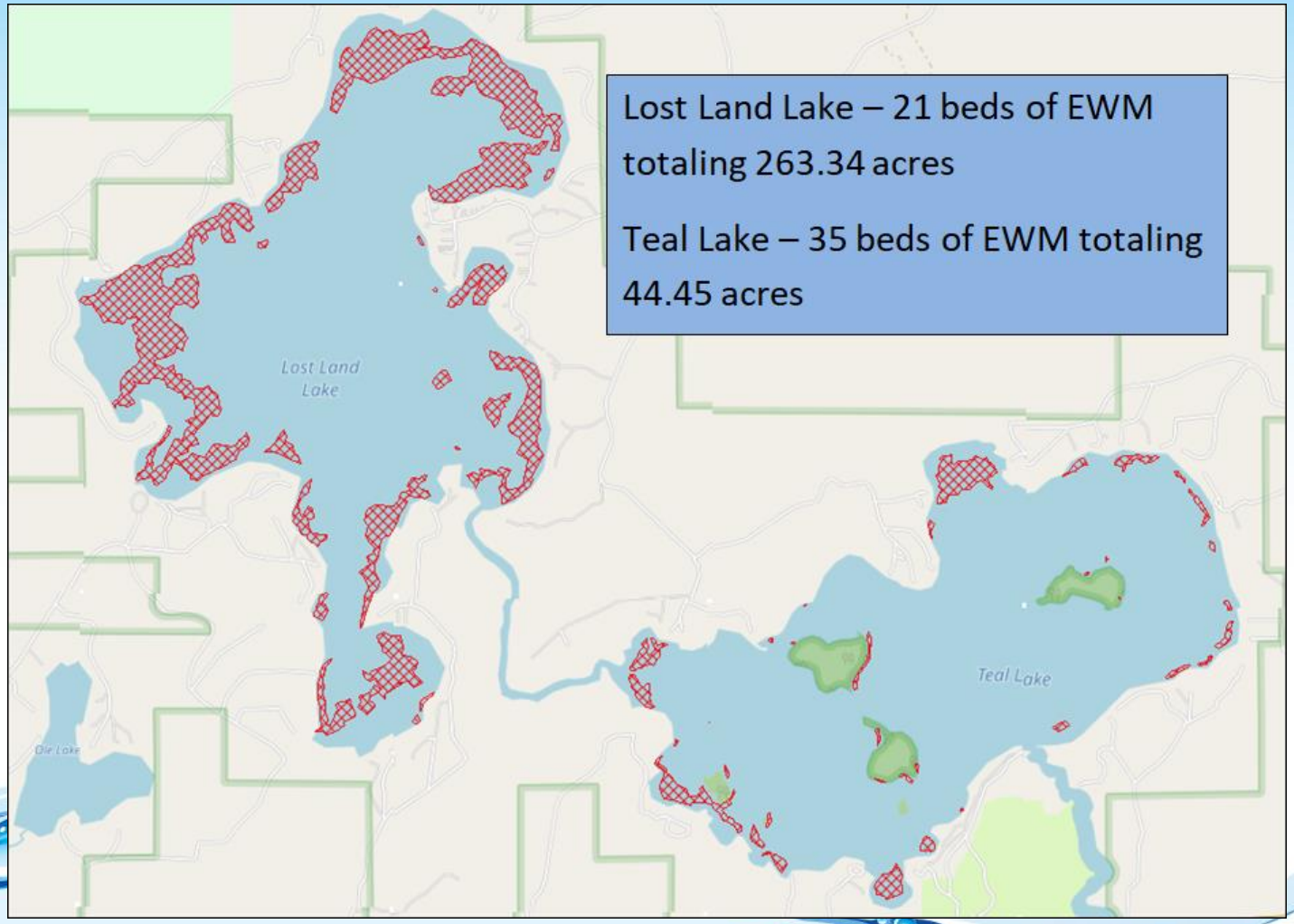


44.5 acres



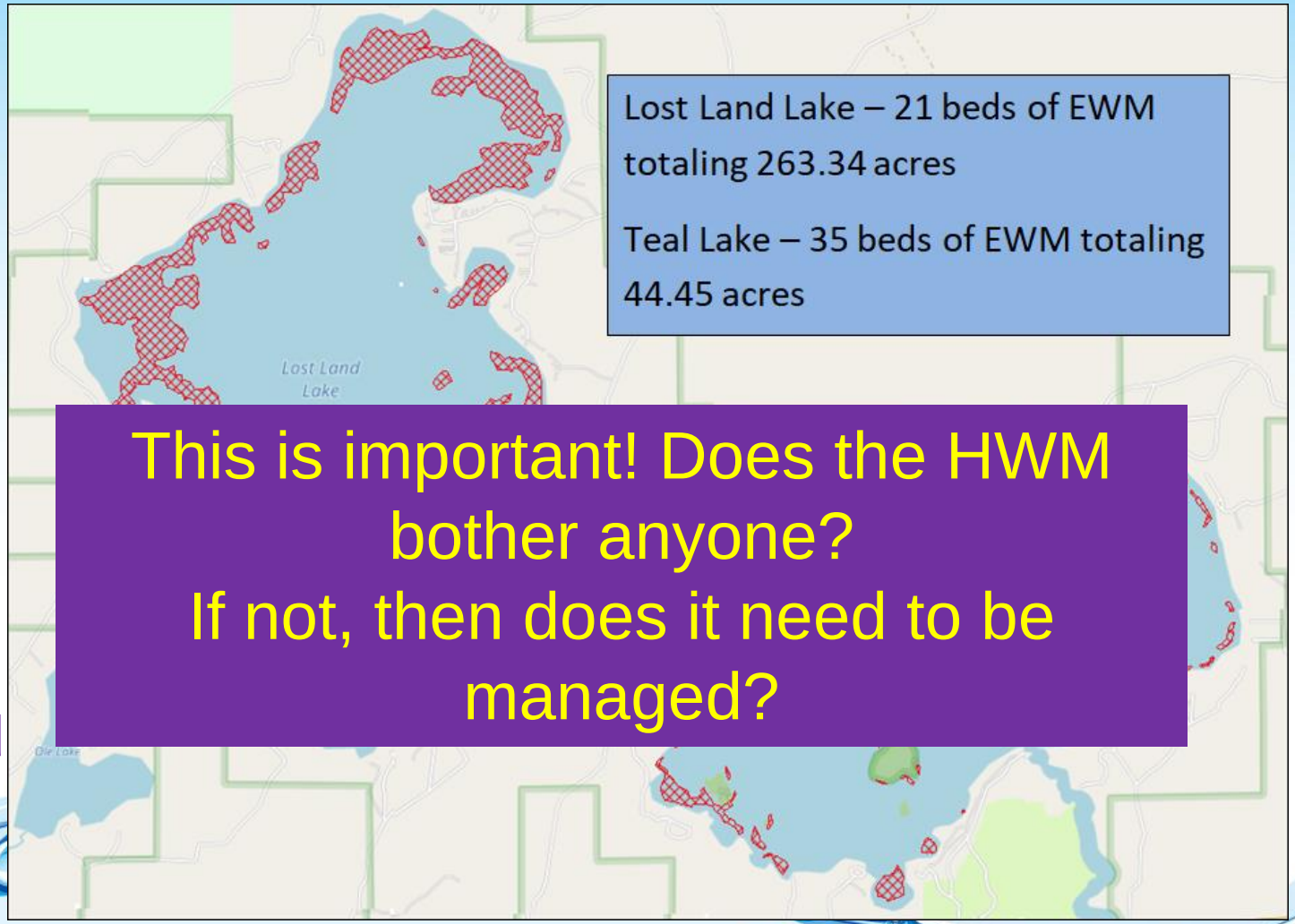
Is HWM restricting or obstructing lake use?

- Lake access
- Tourism
- Fishing
- Swimming
- Boating
- Navigation
- Pontoon Tours
- Kayak, canoe, paddleboard
- Other?



Is HWM restricting or obstructing lake use?

- Lake access
- Tourism
- Fishing
- Swimming
- Boating
- Navigation
- Pontoon Tours
- Kayak, canoe, paddleboard
- Other?



Assuming the answer is yes.

- **Management is forever!**
  - Eradication of an invasive species like HWM is generally considered impossible.
  - Even if some desired level of control is achieved, HWM will come back again.
  - How much should be managed and where?
    - It will cost money! Even if it doesn't work.
  - Some level of collateral damage will occur.
    - Non-target plant species
    - Loss of habitat for fish and wildlife
    - Damage to fish, fish eggs, and other critters in the water
    - Tolerant strains of the target species could develop
    - Water quality impacts
  - Is it worth the risk?

"No Management" has consequences as well!

Management Planning

- **Planning**
  - **Determines goals**
  - **Sets up situations where when management actions are implemented they are expected to achieve their desired outcome with minimal negative consequences.**
- **That is the process of developing an Aquatic Plant Management Plan!!!**

So, What are your goals?

Possible Goals

- ~~Get rid of all the HWM~~
- Reduce the HWM by “x”% right now.
- Reduce the HWM by “x”% over time.
- Leave it alone.
- Reduce it to low levels and maintain it at that level in perpetuity (population management).
- Reduce it to low levels, and accept that it may be back to where it was in a few years, then manage it again (nuisance management).
- Other?

Management Strategies

- **Slow and deliberate**
  - Physical removal
  - Biological control
  - Mechanical pulling (Eco-harvesting)
  - Diver Assisted Suction Harvest (DASH)
  - Staged herbicide application
- **Fast (immediate relief)**
  - Whole-lake or whole-basin application of herbicides
  - Mechanical harvesting

What will the WDNR and other entities "permit" you to do?

What resources can you bring to bear to support management?

Generally, an integrated approach to management is most supported by the WDNR, although a large-scale management action or combination of actions will likely have to be completed first.

Management approaches for Lost Land Lake

- **Large-scale application of aquatic herbicides**
  - One large application targeting all HWM, or
  - Several smaller applications over several years targeting portions of the HWM
- **Follow-up management actions**

Estimated costs of herbicide application on Lost Land Lake (Sonar or 2,4D Amine 4)

- **Whole-lake Sonar AS (4 ppb)**
  - All applications in one year.
  - 73 gallons applied
  - **$168,000.00 to $220,000.00** for herbicide application only
  - 60-90 days contact time with target species
  - WDNR, at present, lacks confidence in this herbicide.
- **Whole-lake 2,4D Amine 4 (335 ppb)**
  - All applications in one year
  - 3,357 gallons applied
  - **$125,888.00 to $167,850.00**

***We could do a 3-yr approach but we risk building up a tolerance in the target species.**

Estimated costs of herbicide application on Lost Land Lake (ProcellaCOR)

- **All HWM treated with ProcellaCOR (1 pdu/acft)**
  - **All 264 acres in one year**
  - **52 gallons applied**
  - **$115,875.00 to $154,500.00** (could be double this!)
- **3-yr ProcellaCOR application (2 pdu/acft)**
  - 88 acres (1/3) managed in each of 3 years
  - 34 gallons applied each year
  - **$77,220.00 to $102,960.00 each year** (could be more!)
  - Multiplied by 3 years
- **At present, not much known about how much ProcellaCOR would be needed for whole-lake management.**

Estimated costs of herbicide application on Lost Land Lake (ProcellaCOR)

- **All HWM treated with ProcellaCOR (1 pdu/acft)**
  - **All 264 acres in one year**
  - **52 gallons applied**
  - **$115,875.00 to $154,500.00** (could be double this!)
- **3-yr ProcellaCOR application (2 pdu/acft)**
  - 88 acres (1/3) managed in each of 3 years
  - 34 gallons applied each year
  - **$77,220.00 to $102,960.00 each year** (could be more!)
  - Multiplied by 3 years
- **At present, not much known about how much ProcellaCOR would be needed for whole-lake**

Buy a Mechanical Harvester with a 10-12 foot cutting head and harvest the HWM.

- **Purchase cost: $275,000.00 to $350,000.00**
- **Annual operation costs: $33,000.00 (guesstimate)**

Estimated costs of herbicide application on Teal Lake (ProcellaCOR)

- All HWM treated with ProcellaCOR (4.5 pdu/acft)
  - All 44.5 acres in one year
  - 30 gallons applied
  - **$67,585.00 to $90,113.00**
- A combination of Shredder Amine 4 and ProcellaCOR could be used
  - Would be cheaper
  - May not provide relief for as many years
- Only treat certain areas (larger beds)
  - Would be cheaper

Other Supporting Actions

- Consultant costs for management planning, implementation support, and evaluation
- Pre and post aquatic plant survey work
- HWM bed mapping
- Herbicide concentration testing
- Water quality monitoring
- AIS education
- Watercraft inspection

Funding

- **AIS Large-scale Population Control Grants**
  - Up to $150,000.00 State Share per project
  - Requires a 25% Sponsor Match
  - Could be applied for on each lake separately
  - Could have multiple AIS PC Grants over several years
- **Lake District vs. Lake Association**
  - Association: Voluntary, dues and donations, grant eligibility requirements
  - District: Mandatory (within established boundaries), tax and donations, grant-eligible

Ghost Lake

- Very little has been done in Ghost Lake other than water quality monitoring.
- AIS monitoring should be completed regularly.
- Aquatic plant survey work should be completed to establish a baseline for the lake.

Draft APM Plan

- Currently being written!
- Conversations with the WDNR and herbicide companies to determine the best way forward.
- Your input is important!
- Look for a draft APM Plan to review by the end of July.
- Preliminary grant applications are due September 15, 2023 to fund projects in 2024.

QUESTIONS?

Dave Blumer, Owner
Lake Education and Planning Services (LEAPS)
Email: dblumerleaps@gmail.com