

Mt. Morris Lakes Management District
Special Drawdown Newsletter

Our lakes are maturing. As with most living creatures, this aging process demands modification in the care and day-to-day activities to optimize the long-term health and vitality of our lakes. Our lakes district board was formed in 1976 to insure successful management of our lake's long term health.

This is the first of two newsletters to be posted on the lakes district website over the next few months in an effort to better inform and prepare you for an upcoming vote regarding the prospect of doing a drawdown on the level of our lakes, This communication effort is designed to educate each of the property owners on Morris Lakes with the facts concerning the two primary issues affecting the quality of our lakes; Aquatic Invasive Species proliferation and Silt reduction as a means of slowing the lake aging process.

We will explore the pros and cons of a lake drawdown and its duration as a potential solution to these issues. **The separate motions to be considered and voted on at the 7/18/2020 annual meeting are a) An overwinter, October 2020 through May 2021, 6' drawdown to the lake level specifically to reduce populations of AIS and b) An 18 month, October 2020 to May 2022, 6' drawdown to the lake level to facilitate both AIS control and silt reduction in our lakes.**

Each of our usage of the lakes varies, as will the questions each of you may have regarding the implications of the drawdown options. Please read the special newsletters posted over the next few months carefully, along with additional articles that will be posted on the website to provide further reading on the subject of drawdowns published by industry experts.

Regardless if your Mt. Morris property is your primary residence, a summer getaway, or an investment, actively managing the long-term quality of our lakes will impact yours and your family's enjoyment of the lakes and the value of your property for generations to come. Please get educated over the next months, so that when the opportunity to vote in July 2020 comes, you can make an informed decision regarding the future health of our lakes and can cast your vote in favor of your interests.

We had tentatively planned a special meeting on Saturday, May, 9, in Wautoma to reiterate last year's special meeting content and facilitate a Q&A session with attendees. Due to the Covid 19 mandate of no meetings of more than 10 people we are cancelling this meeting. In lieu of this meeting we will be posting comprehensive information on the drawdown subject on our website in an attempt to thoroughly inform property owners and answer any questions you may have.

Thank you,

Dave Murphy-Drawdown Subcommittee Chairman

Rob Adams-Mt. Morris Lakes District Commissioner

Overview

The Mt. Morris chain-of-lakes is one of the most studied watersheds in Central Wisconsin. Formal study of our lakes began in 2004 and has been a joint effort between MMLMD, the Wisconsin DNR, Waushara County and our renowned water quality consultant- Onterra, LLC. Annual water quality monitoring occurs on our lakes with formal updates to the original lake management plan approximately every four years, most recently in 2013 and 2017. There are currently two primary issues threatening the long term health and vitality of our lakes...Aquatic Invasive Species (AIS) proliferation and the corresponding build-up of silt. The two phenomena are related. These concerns will be discussed in detail in two separate newsletters. This one will specifically address AIS control. The second, to be published sometime in March, will address the opportunity to use drawdown techniques to reduce silt levels in the lake. Again, these are the topics we will address with the July 2020 vote by MMLMD property owners.

AIS Control

A diverse population of aquatic plants are required to maintain a healthy and functional lake ecosystem. Our consultant, Onterra, has worked with us to measure our plant diversity over a 16 year period to insure that it stays healthy. When the natural balance of aquatic vegetation is upset, changes in lake health may occur which limit recreational use by interfering with navigation, swimming, and fishing activities. Our lakes have been infested with two aquatic invasive plant species which are significantly impacting the health of our lake ecosystem; Eurasian Water Milfoil (EWM) and Curly Leaf Pondweed(CLP).

These AIS upset the balance of our lake ecology by out-competing native plants and reducing native species diversity. These invasive plants can form dense stands that are a nuisance to humans, inhibiting our recreational use of the lake and creating low-value habitat for fish and other wildlife. Their removal must be addressed to maintain our water's recreational and financial viability. Historically we have controlled these invasives through herbicide treatments and hand harvesting at an annual cost of between \$10,000 and \$35,000 per year. Chemical treatment has become ineffective and cost prohibitive for reasons discussed below.

1) Biology and the Mt Morris Lakes

- a) Seepage lakes, like many in Waushara County, those with no inlet or outlet , e.g., Big Silver, Big Hills, Gilbert, Long Lake, etc. have naturally occurring lake level fluctuations. We have seen this in the recent decade where a couple of years ago many of these seepage lakes were at historic lows, exposing much of their shoreline. Last summer many were full to overflowing due to historically high rainfall. Science has shown that this natural fluctuation is beneficial to the long term health of a lake and its aquatic plant ecosystem. Impoundment lakes, such as ours, don't fluctuate naturally so doing so manually is the appropriate means of replicating this natural process.

- b) Water quality is measured using 3 tests; phosphorus levels, chlorophyll levels, and clarity (Secchi disk values). The sum of these values equals what's called the Trophic State Index (TSI), the measurement of the age of our lakes. As Dave Murphy presented at this year's annual meeting, young lakes are labelled oligotrophic, middle aged lakes mesotrophic, and old aged lakes eutrophic. The aesthetics of a lake deteriorates as it ages. Currently our lakes are at the high end of the mesotrophic state at a 50 TSI, bordering on a eutrophic state. We have collected this data over a 33 year period and archive the information on the Wisconsin DNR website. You can access the data at <https://dnr.wi.gov/lakes/clmn/>. Click on Waushara County and you will see our lakes listed as Lake Morris and then the various basins and their historic data.
 - c) Eurasian Milfoil (EWM) and Curly Leaf Pondweed (CLP) are the two AIS contributing to the increased plant growth in our lakes over the past decade. While our chemical treatment efforts have been successful at stemming the proliferation of these invasive species they have not eradicated them.
 - d) A native species in our lakes, Northern Water Milfoil, has cross-bred with the invasive species, Eurasian Water Milfoil (EWM), to create a hybrid, Hybrid Watermilfoil (HWM). We now have many of these plants in our lakes. They have the same life cycle as EWM and will out-compete other species in the lake to become a predominant nuisance species. No effective herbicide treatment has been found to kill the hybrid plant in high silt environments like in Lake C. It is, however, effected by over winter freezing conditions.
 - e) Growth of EWM, CLP, and HWM increases the overall population of plants in the lake which increases silt levels as they die in the fall. In addition, when they die they release absorbed nutrients, phosphorus and nitrogen, that contribute to algae growth. Algal species feed on the increased nutrients and proliferate causing "algae blooms". The reason we measure chlorophyll levels in our lakes is that increased chlorophyll levels means algae are growing, correspondingly decreasing water clarity. As most of us know the water clarity on our lakes was not good last summer when compared to historic numbers. Left uncontrolled AIS will continue to destroy the plant diversity, aesthetics and water quality of our lakes, accelerating the aging process.
- 2) **AIS control treatment options we've deployed thus far** (herbicide, and manual harvesting) must kill the root and root crowns of the target plants to be effective. Results to date on our lakes using these methods have been mixed depending on the basin treated. In higher silt level basins, like Lake C, herbicide treatment has been ineffective and manual removal impractical leaving few control alternatives. Lake C has the highest concentration of EWM, HWM and CLP in our lakes.

3) **Other Factors Influencing Consideration of a Drawdown to Control AIS:**

a) **Recreation**

- i) As the population of AIS increases there will be more surface plant growth inhibiting pier access and swimming aesthetics on the lakes. Increased plant growth on the surface will reduce available acreage for recreational use, boating, skiing, etc.

- ii) Increased plant growth and die off causes oxygen depletion at the deeper levels of the lake increasing the risk of fish kills, a common occurrence in eutrophic lakes. It's unlikely this would occur in our lakes due to the water exchange from influent streams.

b) Stewardship

- i) Allowing AIS to proliferate uncontrolled will dramatically decrease the aesthetic value and recreational use of our lakes. Our lake management strategy over the 40 plus year history of the management district is to maintain or improve the quality of our lakes.

c) Property Value

- i) We can measure the relative property values on the lakes in our area. Oligotrophic lakes like Long Lake, Big Hills, and Gilbert command prices approaching \$300/sq. ft. Mesotrophic lakes like ours and Napawon prices are in the \$200/ sq. ft. range. Eutrophic lakes like Alpine property values are \$150/sq. ft., or lower. Successful management of aquatic plants and corresponding aging of our lakes is critical to maintaining or increasing property values.

4) Concluding Points that Support a Proposed Winter Lake Drawdown for Remediation of AIS:

- a) The DNR rarely subsidizes herbicide treatments for AIS control due to the perceived low return on investment. If chemical treatment or manual removal were pursued as an alternative we would be on our own financially.
- b) As stated earlier, herbicide treatment, even if we fund it on our own, is not effective in high silt conditions for controlling EWM or HWM.
- c) **Doing an over winter drawdown is an inexpensive alternative that has a strong track record of AIS control on other Wisconsin lakes that have deployed this method of control.**
- d) **Because of the timing, October to May, the impact to the recreational use of the lake would be minimal.**

Questions and answers:

[Notes / questions from July 20, 2019 Mt Morris Lake Assn meeting](#)

Sub-committee member, Jeff Morzinski, was kind enough to capture questions relating to the drawdown at this year's annual meeting. The questions asked and answers we have so far are included below:

1) Is it the amount of chemicals... should we be using more? The flow / turnover is 11 days... AIS are in all 5 lakes... used to cost \$35K to do just lakes D and C... As pointed out in the presentation at the annual meeting by Rob Adams, the effectiveness of chemical treatment in Lake C was negligible due to high silt content in that basin. Increasing the concentration would exceed limits allowed by the DNR for such treatments. In addition, we cannot get the boats used for chemical treatment into Lake E because of their size.

2) Winter season drawdown would be Oct 1 to May 1. For EWM, hard freeze / low snow would be best, but we get what we get and measure the consequences. The tentative plan is to pursue a DNR grant for the costs of measuring drawdown results for two years post drawdown. Onterra's belief is that such a grant request will have a high probability of success. Update 2/20: We were successful at getting a grant for this summer's monitoring. We will apply for a second grant in the fall for year two monitoring.

3) The aquatic weevil and its potential impact on EWM control. Has anyone studied that? Recent research from UW on milfoil weevils indicates high background populations of native weevils in most lakes. Stocking of weevils has had insignificant impact on EWM reduction. The weevils are preyed on by certain species, particularly stunted sunfish, which are predominant in our lakes. They may get consumed by our sunfish population before they can do their work at EWM control. For more information connect to this article, <https://www.goldensandsrwd.org/biological-control-research>

4) Is there a plan to stop silt from coming into the system? Beaver dam helped limit silt on Rattlesnake Creek. There is a benefit to healthy wetland maintenance in our watershed in terms of it absorbing run off solids during high rainfall events. Manual control usually takes the form of storm sewers which wouldn't be practical in our case. A large majority of the solids in our lakes are due to plants growing and then dying leaving behind their skeletons. The solids reporting to our lakes from run-off is a comparatively small part of the total solids in our lakes.

5) What is effect of chemical treatment on the ecosystem / other aquatic life in the system? The concentrations at which approved herbicides are applied they have a minor effect on other plant or animal species. Historically, we treat in early spring when invasive species are already germinating, (That's one of the things that makes AIS heinous, they start growing before any of the other aquatic plants.). Other aquatic plants are still dormant during this time of year and are, consequently less impacted by the treatments. There is some effect none-the-less. If you review our 2013 Comprehensive Lake Management plan you will note that during the years of chemical treatment northern water milfoil populations dropped significantly. That is likely due to the herbicide treatment. Those native milfoil populations have since rebounded.

6) Would DNR allow shore repairs during a drawdown? We have posted a DNR publication on this subject on the Morris Lakes website, <https://www.mtmorrislakes.org/>. Each property owner is allowed to remove 100 square feet of lake bottom sediment without a permit. Beyond that

amount a permit is required including a number of other requirements, e.g., soil testing, etc.. Dave Murphy is investigating whether we can apply for a manual dredging permit as a lake district, avoiding individual property owners from having to make individual applications. We will report our findings.

7) What could be impact of drawdown on fishery? It's been documented that during drawdowns the loss of aquatic plant habitat makes smaller fish more vulnerable to predation by larger fish, due to the loss of places to hide. It has been further documented that this is beneficial in lakes with large populations of stunted sunfish, which we have. In essence, the big fish will get bigger and the small fish populations will decline.

8) What would be impact on crawfish... (says they are currently plentiful and are main bass food). While there is little quantified data in publication, the short answer is yes they will be impacted, for the over summer drawdown. The loss of habitat, rocky shoreline for example, would make them more vulnerable to predation. For the over winter drawdown, likely less impact as they move to deeper water in the winter, naturally, to avoid freezing in the ice as crawfish do not hibernate. We would refill the lake before they move into the shallows to breed in the spring at +50 degrees F, which occurs in late May or early June.

9) What impact on zebra mussels? While there are no studies to quantify the effects of drawdown on zebra mussel populations, they are known to be susceptible to freezing and ice scouring that occurs over the winter. It's been noted that populations have declined in the Great Lakes where shoreline has been exposed over the winter. There is no other practical means of reducing zebra mussel populations that has been found to date.

10) Why not allow a Proxy vote... Would need to start the process of changing the bylaws... township / then county would need to change. In researching this we learned that as a Lake District we are controlled under Chapter 33 of Wisconsin state law. This requirement is integrated into our by-laws but we do not have the prerogative of changing our by-law language to allow proxy voting. In Chapter 33.30(2)(b), specifically relating to Lakes District legal protocol, it states that neither proxy or absentee voting is allowed at annual or special meetings of any Lake District. District property owners must be present at annual or special meetings to vote.

11) Some have invested in native species at our shoreline. "shoreline was naturalized". Plantings are now protecting lake-action. "nothing (no research found by this person) addresses (drawdown's impact on) shore plantings". This would likely be less impacted by a partial year drawdown. According to Onterra, an over winter drawdown would likely have minimal or no impact on near-shore plantings as they are dormant at that time of year. For over summer drawdown they would require periodic watering if natural rainfall is inadequate. According to Onterra, these near shore plants do not have to have their "feet in the water" and can consequently be kept alive with periodic watering.

12) Why not a third option (on ballot) of “no drawdown” This can be accomplished with a “no” vote on the drawdown proposals to be presented at next year’s annual meeting.

13) What’s to stop these species from coming back. They will come back. Our hope is that the over-winter drawdown proves effective such that when they do come back, above a certain threshold, we will do another drawdown.

14) Will my property taxes come down – cause my property won’t be worth as much (due to drawdown)? No

15) Tons of mosquitos and really really stunk when dam went out. Whether an over-winter or over-summer drawdown is approved, the process will begin in the fall of 2020. Mosquitoes and the bacteria that cause obnoxious odors are less prevalent that time of year and won’t be an issue over the winter. The following spring enough dehydration of the solids and killing of the odor causing bacteria should occur such that neither is an issue. A rainfall that re-hydrates the soil during warmer weather may be a source of increased mosquito populations but probably not odor causing bacteria.

16) Could informational meeting be later than March (due to difficulty getting here)? We have it scheduled for Saturday, May 9, 2020, at the Waushara World War II Memorial in Wautoma. Time and an agenda will follow.

17) Why doing the “testing” if not doing EWM treatment? It’s important to keep tabs on population densities of invasive species so we know when some form of remediation is necessary whether it’s chemical treatment, manual removal, or a drawdown.

18) Could we do more expansion of harvesting? Yes. We intend to expand harvesting to a five day a week schedule in 2020, a plan that is endorsed by Onterra. Invasive species have populated our lakes to a point where concerns over spreading them through harvesting are diminished. The belief is that the natural reproduction of these plants is no longer accelerated by harvesting as was previously the case. Every plant we remove from the lake is one that can’t contribute to silt accumulation or release its nutrients to the environment.

19) What are costs of dredging? Tim Dahlstrand presented some cursory information on wet dredging costs at the 2018 Annual Meeting, showing the cost to be prohibitive. Dave Murphy is doing research on our latitudes to remove solids while the lake is drawn down. We will report those findings in the second newsletter in March.

20) If we have drawdown and lose 40% of water – that would impact Geese... same amount of excrement from a goose as from a 160 lb man! Why not get rid of them? Drawdown would concentrate to a smaller water surface. We speculate that if we do a summer drawdown the geese may go elsewhere to nest as there will be no nearshore habit. This might be wishful thinking.

The winter drawdown will probably not have an effect. We did get a permit to kill the geese several years ago but didn't proceed because of the cost to the district.

21) Does this committee have the power to assess? The drawdown subcommittee can only make recommendations to the Lake District Board. The Lake District has the authority to assess, the subcommittee does not.

22) If one person owns more than one property – would that person have more than one (set of) vote/s? Theoretically, yes. By statute it's up to two votes per parcel, one per joint property owner. We will publish more definitive voting guidelines for presentation at the special meeting in May.

23) Informational meetings – stream them for those a long distance away. We will either post the Onterra presentation from last March's meeting on our website or live stream it on a date to be determined. Please visit the website periodically for updates.

Notes as collected during the meeting by Jeff Morzinski

Please look for the second newsletter sometime in March. It will report on the prospect of doing a full year drawdown to reduce silt volume and control AIS.