



## Important 2021 Update

Spring is almost here and with it comes a sense of optimism, especially after the challenges of 2020. PLM is ready to hit the ground running. Our highly trained staff is prepared to efficiently manage and protect your waterbody using new technologies in 2021 and beyond.

In this newsletter, we will cover highlights related to new products, existing case studies, and other updates relevant to PLM customers. One of the most significant issues for the 2021 season is a result of new Michigan Department of Environment, Great Lakes & Energy (EGLE) permit changes. The new rules/restrictions are somewhat complex; therefore, a summary is required. Significant discussion and clarification took place during the fall and winter between PLM, Michigan Aquatic Managers Association (MAMA), and EGLE to ensure that these new changes could be implemented as efficiently as possible for the 2021 season. **The new permit condition does not allow the use of copper sulfate for filamentous algae control during May and June while fish spawning is taking place. The condition may also restrict the amount of shoreline algae that can be managed during May and June.** While copper sulfate cannot be used in May & June, chelated forms of copper algaecides are still allowed. Chelated forms of copper algaecides release slower into the water column providing effective control of the algae filament, while also producing less potential acute toxicity to fish spawning. In the past, PLM has used a combination of copper sulfate and other products, including chelated algaecides, to provide quick and complete control at a more affordable cost. We will still be able to control shoreline algae growth using chelated copper alone. However, the control will be slightly slower and unfortunately, more expensive. With that said, we still have the ability to manage the algae in your lake/pond during the months of May & June.

PLM understands and supports the intent of this new condition; to protect and improve our fisheries. However, we do not believe relevant scientific studies or a diverse work group was utilized to develop conditions that are in the best interest of our aquatic ecosystems and lakefront homeowners. The good news is that EGLE has implied that these conditions may be modified or eliminated in the future if they create unforeseen negative environmental impacts.

Lastly, although EGLE requires an annual permit renewal fee, most of the permits are established under a multiple-year permit structure. Multiple year permits that do not expire until the end of 2021 & 2022 are exempt from this new condition. Another exemption would be if your water body has a surface area that is less than 10 acres.

As you can see, every year there are changes and new hurdles to the permits that must be followed and adapted into our management practices. PLM remains optimistic, despite the hurdles, and will continue to tackle any new challenge to ensure that your waterbody is protected and enjoyed for years to come.

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*...over Forty years of invasive  
plant management*

### PLM Summer Hours

*Monday–Thursday*  
8:00am to 4:00pm  
*Friday*  
8:00am to 3:00pm

## Evaluation using ProcellaCOR with Contact Herbicides

PLM, in conjunction with Progressive AE, conducted an evaluation treatment on Big Pine Island Lake, utilizing the new herbicide ProcellaCOR during the 2020 season. Big Pine Island Lake is a 223 acre all-sports lake with a maximum depth of 45 ft and approximately 100 acres of potential growing area (littoral zone). The lake is located in Grattan Township, Kent County Michigan. Big Pine Island Lake has a long history of invasive plant management including Eurasian watermilfoil, Curlyleaf pondweed & Starry stonewort control.

ProcellaCOR is a new (2018) active ingredient for fast, long lasting control of Eurasian watermilfoil (EWM). It specifically targets a hormone mechanism that is unique to plants. ProcellaCOR is shown to be selective, targeting EWM with little to no impact on native plant species. Even though it targets the root system of the plant, it is also fast acting, getting control of milfoil much quicker than traditional systemic herbicides. After using ProcellaCOR successfully on EWM during the 2019 season, PLM was curious as to what else this product could do when used at lower rates and in conjunction with the commonly used contact herbicide, Diquat.

The evaluation treatment on Big Pine Island Lake compared two distinct treatment areas. The first targeted 24 acres of mixed beds of EWM and Curlyleaf pondweed (CLPW) using low rates of both ProcellaCOR and Diquat. The second area targeted 10 acres of EWM only using traditional rates of ProcellaCOR. The main objectives of the evaluation treatment were to determine if this rate and combination would achieve; 1. Systemic long-term control of EWM still be achieved, 2. Maintain selectivity for invasive species, 3. The cost be less to consumers while achieving control of two different invasive species, 4. Results in the combination area be comparable to those in the traditional treatment site, 5. There be unintentional impacts to the environment.



The treatment was performed in late May with the initial post survey conducted ~3 weeks later. At the time of the post treatment survey, there was little to no EWM or CLPW observed in either treatment area. The areas continued to be surveyed throughout the season with very little regrowth observed. In conclusion, the combination treatment area performed as well as the ProcellaCOR only area. Results also lasted longer than traditional Diquat treatments and debatably better than some granular systemic herbicides. We were also able to maintain selectivity with the year end AVAS survey suggesting an increase in the density and diversity of native plants. The unit cost was less than using these products independently. No fisheries, water quality, or wildlife were adversely affected by the treatments. Overall the combination treatment was a great success and will be incorporated into more lake management plans during the 2021 season.

## Spotlight Lake: Morrison Lake, Ionia County

Morrison Lake is a 330-acre lake located near Clarksville, Ionia County, Michigan. The lake is impaired for phosphorus pollution and has a history of harmful algal blooms (HABs) and the associated cyanotoxins that threaten human health, pets, and wildlife. The lake has received two alum treatments in the past as a way to mitigate the high levels of phosphorus in the lake.

In 2019, the Michigan Department of Health and Human Services issued warnings to avoid contact with the lake water. PLM implemented algaecide applications throughout the summer to help control the harmful algae blooms and to allow for recreational use of the lake. Based on the continued algae problems and the increased phosphorus concentrations observed in the lake over the last couple of seasons, nutrient mitigation/management was required in 2020. After lengthy discussions with several industry professionals including GVSU, EGLE, & SePRO Corp., the use of Phoslock to mitigate the phosphorus was chosen as the best plan for Morrison Lake.

Phoslock is a bentonite clay product containing lanthanum, a naturally occurring low toxicity earth element. Phoslock has the ability to permanently and rapidly remove (strip) phosphorus from the water column. Phoslock is environmentally friendly and is commonly used throughout the United States, Canada, and many other countries throughout the world.

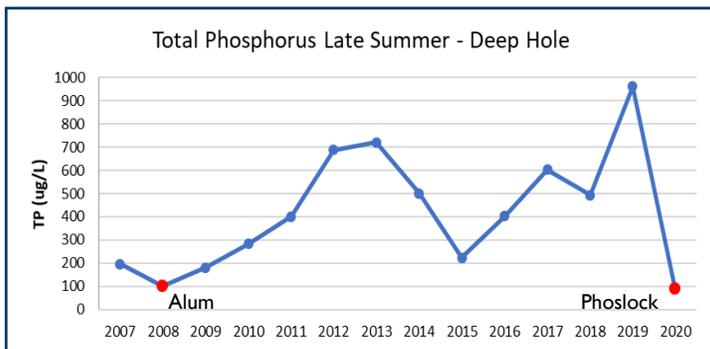
In the fall of 2019 a team of scientists from PLM and EutroPHIX proposed a low-dose Phoslock® program to reduce in-water phosphorus levels, begin the process of restoring the lake, and reduce impacts caused by poor water quality.

The Morrison Lake Association committed to a three-year program to evaluate the effectiveness of Phoslock and to gain information for planning longer-term mitigation and management. In 2020, a series of low-dose Phoslock applications were made over the course of the summer (June-August) to help reduce in-water phosphorus concentrations at the surface as well as hypolimnetic (deep water) phosphorus levels that are a major contributor to the annual phosphorus load of Morrison Lake.

The results of the 2020 program provided an 80% reduction in the mean summer hypolimnetic phosphorus concentration. The data suggests the low-dose Phoslock program is having a significant positive impact on water quality. Morrison Lake did not experience late-season HABs in 2020.

The Morrison Lake project will continue in 2021 and 2022 using data to guide adaptive management. In addition to Phoslock, a new technology called EutroSORB™ will be considered for 2021 to reduce the phosphorus load entering Morrison Lake from external sources.

The initial success of this program is very exciting and will be a tool that may be used for other lakes and ponds that suffer from high nutrients or as an option for annual algae control. Stay tuned!



## Impacts of Wake Boats and Best Practices:

The popularity of wake sports has been on the rise over the past several years and with it the number of “wake boats” operating on lakes. Whether wake boarding or wake surfing, these boats are designed to produce large waves. Hull shape, ballast tanks, adjustable plates, and horse power are some of the technologies used. These waves are often equal to or greater than most major storm events which can increase shoreline erosion. Unlike old school/conventional “ski” boats which typically push thrust parallel to the waters surface, wake boats tend to push thrust at a downward angle and therefore have a greater potential to disrupt bottom sediments in addition to shoreline eroding shoreline.

PLM staff often field inquiries about impacts of wake boats on lakes. The honest answer is that there is a shortage of research on the subject but new studies currently being done suggest that larger waves may increase the potential for shoreline erosion and deeper thrust may disrupt/resuspend sediments at the lake bottom.

**PLM would like to provide a few guidelines that can reduce the potential for adverse effects to your lake.**

- **Waves decrease in size the longer they travel. Therefore, PLM recommends operation of wake boats at least 500 ft from shore whenever possible.**
- **Studies conducted on different wake boat models suggest that thrust (depending on the trim angle) will typically reach a depth of ~12 feet. Therefore, PLM recommends that wake boats be operated in depths greater than 12 ft whenever possible.**

As time goes on there is certain to be more research done in this area and/or regulation. For the time being, be aware of potential effects on your lake and adapt boating practices to minimize impacts.



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