



3088 Hottis Rd. Hale, MI 48739 Hale: 989.728.2200 Clare: 989.386.0600 Fax: 989.516.5900

November 12, 2020

Walled Lake Improvement Board and Property Owners,

It has been a pleasure managing Walled Lake this year. Every year seems to bring a unique set of challenges and we welcome the opportunity to meet these challenges every single year. We hope that you continue to feel that your lake was managed professionally, economically, and effectively.

With so many negative things going on in the world today. I am happy to report that things went well on Walled Lake this year. We continue to see overall improvement in the ecology of the lake year after year. It has really been a great pleasure being involved, watching the transformations, and knowing the progress that has been made over the years. I have prepared a brief summary, descriptive timeline of services rendered, and all the treatment maps from this year and attached them to this document.

Please keep in mind that we are a fully integrated lakes management company offering solutions including but not limited to mechanical harvesting, herbicide control, dredging, bio-augmentation, and aeration. Savin Lake Services also offers a complete range of water quality testing, depth contour mapping, individual property solutions, and even aquatic plant density reporting.

We look forward to continuing as the Lakes Management service provider for Walled Lake again next year. We are hopeful for another great year and an even healthier diversity of native plants to outcompete the invasive plant communities. Until then; if you have any questions, comments, or require additional information, feel free to contact us.

Sincerely,

Paul Barber - Operations Manager

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Summary:

This year, we saw a phenomenal decrease in the amount of Curly Leaf Pondweed present this Spring compared to previous years. Early season treatments have been very successful and by doing these treatments we are able to treat the Curly Leaf Pondweeds before they produce their reproductive turions. However, I believe part of the for the significant decrease we seen this year was also due to the Eurasian/Hybrid Watermilfoil making a vast resurgence early, which outcompeted the Curly Leaf Pondweed not allowing it to grow.

Spring treatments with contact herbicides successfully controlled the Milfoil and Curly Leaf Pondweed and allowed the natives to outcompete and prevent Milfoil regrowth in most areas. Which resulted in less areas and acreage that needed to be treated in the Fall. We continue to decrease acreages of Milfoil and see improvements in the native plant diversity plant each year.

Starry Stonewort is still present in the lake but appeared later in the season than normal. Currently, early detection followed by frequent treatments with herbicides/algaecides is the best way to keep Starry Stonewort under control. Vast amounts of research efforts are currently being done right now to create a better management solution to combat Starry Stonewort. Until a better solution is found, we will continue as we have been and do our best to contain it.

We plan to approach next year with a very similar management strategy as we have in the past. We will be monitoring the lake regularly, aggressively managing the invasive plants throughout the entire lake, and manage nuisance natives in near shore developed areas. We will continue to monitor the native plants offshore and implement vegetation harvesting if they reach the nuisance level threshold. Currently there hasn't been a need for harvesting but there may possibly be in the future. Depending on the amount of Milfoil present during next year's spring survey, we may possibly complete systemic Milfoil treatments in the Spring and then again in the fall if necessary. We feel this plan is the most effective and efficient way to keep Walled Lake clean and desirable for use by the Walled Lake residents.

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Timeline of Services Rendered:

May 11th, 2020

- Spring Water quality data collected
 - Water quality monitoring program collects data and monitors 9 different parameters relating to water quality at 3 sites on the lake in both the Spring and Fall each year
 - Parameters monitored are Conductivity, Total Dissolved Solids, Alkalinity, Phosphorus, Chlorophyll A, Secchi Disk, Temperature, Dissolved Oxygen, and pH.
- Spring Visual Survey
 - We traversed the lake in its entirety for vegetation.
 - There was still a lot of tanning in the water at this time and vegetation could not be seen visually in the areas deeper than 5 ft. but could be seen on our Sonar Equipment
 - Vegetation was present at the drop off around most of the lake. Most of the vegetation seen on Sonar equipment showed the weed growth ranged from 2- 5 ft. from the bottom of the lake.
 - Rake tosses confirmed vegetation growing was Curly Leaf Pondweed and Eurasian/Hybrid Milfoil
 - Spring Alga Blooms were present in many areas of the lake in small masses floating around below the water surface and laying on the lake bottom some shallow areas of the lake.
 - Based on survey results, water temperature, and slow weed growth treatment was scheduled for the first week in June.

June 3rd, 2020

- Initial treatment
 - 100 acres treated for Curly Leaf Pondweed and Eurasian Watermilfoil utilizing Diquat Dibromide and Chelated Copper.
 - All areas containing Curly Leaf Pondweed and Eurasian Watermilfoil were not treated during the June 3rd treatment.
 - Acreages requiring treatment were larger than we anticipated
 - Pre-approved acreages in 2020 recommendations were exhausted and we wanted to seek approval before treating the rest
- Observations during treatment
 - No presence of Starry Stonewort was found
 - Water Clarity was the best I have ever seen it on the lake for this time of year. Which was a vast improvement when compared to Clarity during Survey.
 - Allowed us to visually see the vegetation growing in the water
 - Allowed Sunlight penetration in deeper water resulting in weed growth in depths up to 19 ft.
 - Milfoil and Curly Leaf Pondweed was present in deeper water areas that showed no growth during Spring Survey
 - Vegetation was 1-3 ft. below the surface in most areas

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- Vast resurgence of Eurasian/Hybrid Milfoil this year.
 - Many areas of lake contained extremely dense Milfoil beds including areas treated systemically in 2018.
 - The Milfoil in the lake may have developed herbicide tolerance/resistance to 2,4-D
 - Treatments have resulted in the Milfoil treated dying and not returning that season and we see reduction the following year. However, 2 seasons after the treatment it seems to return in the same areas requiring treatment again.
 - Other Systemic Herbicide options for Milfoil are available and could potentially provide better control for longer periods of time.
 - Before continuing with additional 2,4-D applications I think we should discuss and evaluate other systemic herbicide options because we are no longer achieving the same results as we did when we first began treating the lake

June 22nd, 2020

- Second Treatment
 - We returned to lake to treat remaining areas containing Milfoil and Curly Leaf Pondweed that didn't get treated during initial application
 - 50 acres of the lake was treated with same herbicide/algaecide as initial treatment
 - All remaining areas of the lake containing Milfoil and Curly Leaf Pondweed were treated
- Observations during treatment
 - Initial treatment was very successful
 - Still no Starry Stonewort presence found this year

July 17th, 2020

- Mid-Summer Survey
 - Weather conditions were perfect for surveying
 - The first two treatments for Eurasian Water Milfoil and Curly Leaf were very effectively
 - Treated areas contained no Curly Leaf Pondweed
 - Native weeds were present to outcompete the Milfoil and prevent regrowth
 - Approximately 15% of treated areas contained new growth of Milfoil
 - Increase in Native plants species and diversity
 - Wild Celery (Eel Grass) could be found in most areas and was successfully outcompeting the Milfoil
 - Starry Stonewort was present on the North and West side of the lake
 - You could find most of the Starry Stonewort at the drop off and was well below the water's surface
 - New locations contained Starry Stonewort, but it seems to be staying isolated to the same portions of the lake

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July 22nd, 2020

- Third Treatment
 - Treatment for Starry Stonewort, Milfoil, and nuisance natives near shore
 - 20 acres was treated for Starry Stonewort
 - 27.5 acres was treated Eurasian Watermilfoil and nuisance natives

August 31st, 2020

- Forth Treatment
 - Returned for second Starry Stonewort treatment and nuisance natives near shore
 - 20 acres of Starry Stonewort treated
 - 17.5 acres of nuisance natives

September 18, 2020

- Fall Survey
 - Weather conditions were ideal for the survey
 - Partly cloudy and slight wind speed
 - Water Clarity was good
 - Clear visibility of weeds
 - Water temperature was 67 degrees at the surface
 - Native vegetation began naturally senescing
 - Pondweeds and Wild Celery seen laying on lake bottom or laying over getting ready to drop
 - Invasive plants were present
 - Starry Stonewort was collapsed, and no additional treatment was needed for the season
 - Hybrid/Eurasian Watermilfoil was present
 - Approximately 45 – 50 acres of the lake contained Hybrid/Eurasian Watermilfoil
 - 30 acres needed immediate attention
 - Fall systemic Milfoil treatment was scheduled
 - Only 2 areas contained vast densities of Milfoil that were bigger than 5 acres other the rest of the were smaller patches and sporadic
 - Milfoil was in a very active growth cycle

September 22, 2020

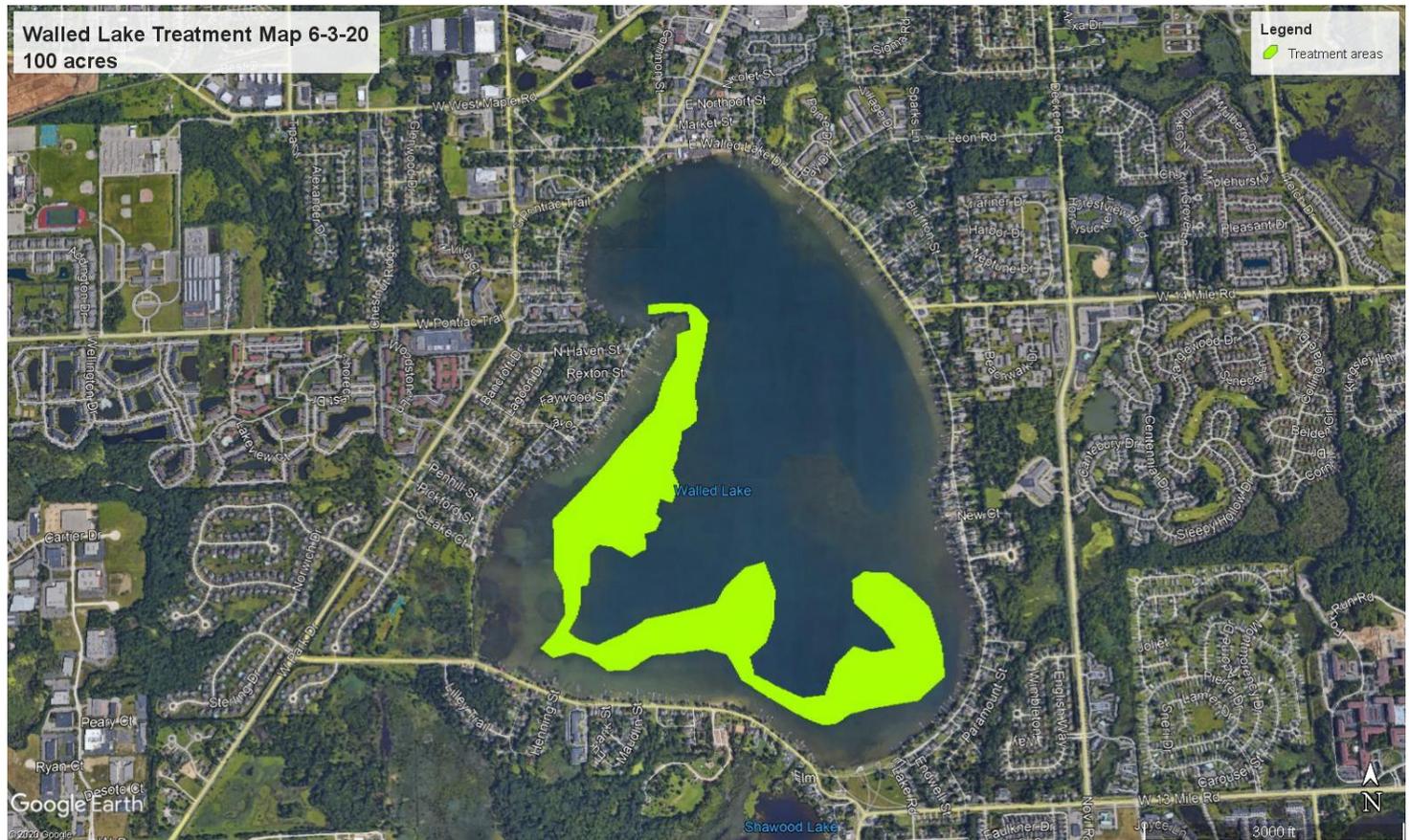
- Fall water quality data collected
 - Samples were taken and data collected at the same 3 sites as we did in the spring

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- Fall systemic Milfoil treatment
 - 34 acres treated
 - Worst areas were treated in their entirety
 - Some Sporadic areas did not get treated
 - Approved budget did not allow for all Milfoil within lake to be treated
 - Areas that weren't treated posed no immediate imminent threat

Treatment Maps:

June 3rd, 2020





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June 22nd, 2020



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September 24th, 2020



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