

Common Lake – Lake Management Plan



Common Lake Rural Township Central County 2014

Prepared for:

Common Lake Homeowners Association

and

Rural Township

Prepared By:

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Introduction

Lake Description

Common Lake is a 120-acre lake located in Rural Township, Central County, Michigan (T0N, R0E, S0). Common Lake is located within the Big River Watershed, so the water from the lake eventually reaches the South Branch of the Big River and ultimately ends up in a great lake.

The shoreline is approximately 70% developed with a mixture of year-round homes, summer cottages, and recreation areas. The rest of the lakeshore is undeveloped and remains forested wetland. The lake is used for swimming, boating, fishing, and watersports. Most homes have boats or pontoons with gasoline-powered engines.



Concerns for Common Lake

During a visit with members of the Board, we learned about the issues facing the lake and the previous management methods. The major problem facing the lake is the emergence of Eurasian Watermilfoil (EWM). EWM is an invasive plant that grows very thick stands that will crowd out native plants and disrupt the natural ecosystem. Furthermore, the dense patches of EWM can impede boating and may pose a risk to swimmers. This plant was first found in 2011 but has quickly spread throughout most of the lake by 2012.

Curly-Leaf Pondweed is another invasive plant that grows in the lake. The distribution of this plant is not as extensive as the EWM and these plants naturally die off in late-June, so this plant is not a priority. Lily Pads are also growing around most of the lake and are very thick at the west end of the lake.

Another concern for the lake is the effects that various management practices will have on the rest of the lake, including the water column, the lake bottom, and the water quality. It is important to assess the impact of each management effort to understand these impacts and to manage or mitigate them.

Prior Management Practices

The lake required very little management until recent years. The only management effort undertaken was mechanical harvesting by a private resident on the lake in 2012.

Management Goals for Common Lake

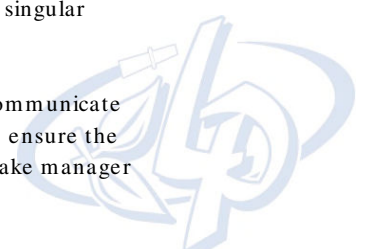
Based on the problems facing the lake, we have identified five goals for the management program at Common Lake.

1. Control the invasive Eurasian Watermilfoil
2. Control other invasive species, such as Curly-Leaf Pondweed, Purple Loosestrife, and Phragmites
3. Encourage the growth and spread of native plants in the lake, while keeping them below a nuisance level
4. Protect the lake from nutrient loading
5. Document the lake condition annually

LakePro's Management Services

In order to manage the problems facing the lake, we will utilize an Integrated Plant Management Program. This program will incorporate different management practices for the different problems facing the lake. The different parts of the plan will work together to create a solution that is more effective and beneficial than any singular solution.

This type of program requires diligence from the contractor to monitor the lake, carry out services, communicate with our client, evaluate the success of the program, and make adjustments as necessary. In order to ensure the success of the program, LakePro will assign a lead Lake Manager and an assistant to your lake. Your lake manager





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is responsible for all services and will be familiar with all aspects of the lake management plan. This ensures you have a single point of contact that can answer all of your questions and concerns. He will also be on the lake for all management activities and attend your meetings. Your lake manager will be Pete Filpansick. The assistant lake manager will assist and will also be familiar with your plan in the event you cannot reach your lake manager. Your assistant lake manager will be Paul Dominick.

Integrated Plant Management Program for Common Lake

The Integrated Plant Management Program for Common Lake is designed to manage the concerns for the lake and achieve the goals described above.

Aquatic Vegetation Assessment Surveys

In order to create a specific plan for managing the lake, we must periodically survey the lake to locate the plants in the lake, identify them, and quantify their density and distribution in the lake. These results of these surveys will direct the rest of the management program and will be included in the annual documentation of the lake condition.

Herbicide Treatments

The primary problem in the lake is the growth of Eurasian Watermilfoil. Currently, the best management practice for this plant is herbicides. Herbicides are selective for EWM, provide reliable results, and eliminate the possibility of spreading the plant through fragmentation. We recommend using herbicides early in the season to control the EWM.

There are currently three different classes of herbicides that can be used to control EWM:

Contact Herbicides can provide short-term control of the EWM through spot treatments. These products will kill the shoots, but not the roots of the plants. Therefore, these products do not accomplish any long-term management of the EWM. In some cases, EWM may need to be treated a second time during the summer. These herbicides are the least expensive and have the shortest water-use restrictions (i.e. lawn irrigation – 3 days).

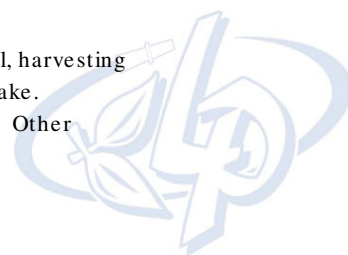
Systemic Herbicides provide long-term control of EWM through spot treatments because they kill the shoots and roots of the plant. Therefore, the plants treated will never grow again; any regrowth will be new plants from the seed bed. Usually EWM needs to only be treated once during the year with these products. These herbicides are more expensive and have slightly longer water-use restrictions (i.e. lawn irrigation – 14-28 days).

Fluridone is a specialized systemic herbicide that is utilized in whole-lake treatments. Fluridone is applied to the entire lake to achieve a specific concentration that will kill only the EWM. Whole-lake treatments should be utilized when the cost for spot-treatments exceed the cost for treating the entire lake at once. The Michigan Department of Environmental Quality allows Fluridone to be used no sooner than every third year. In order to do a whole-lake treatment with Fluridone, the MDEQ requires a “Lake Management Plan” to be completed that includes many details about the lake characteristics and condition.

Mechanical Harvesting

EWM should not be harvested. Harvesting can create fragments that float away from the harvesting machines. Fragments of EWM can find soil, grow new roots, and start a whole new colony. For this reason, harvesting can spread the EWM and negate any other management efforts, so we strongly advise against harvesting the EWM.

Mechanical harvesting does provide a tremendous benefit to the lake. By removing plant material, harvesting also removes the nutrients that are bound in the plants, reducing the overall nutrient load of the lake. Furthermore, after an herbicide treatment the EWM plants will go to the bottom and decompose. Other





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native plants will use this organic material to grow, so harvesting will help slow the accumulation of muck on the bottom of the lake.

Harvesting is also another option when the MDEQ restricts the use of herbicides. For example, the MDEQ permits usually restrict the treatment of Lily Pads with herbicides, but do not restrict the cutting of these plants with a harvester.

Algicide Treatments

Algicides can be used to treat nuisance algae growth on the shoreline of the lake. The MDEQ permit will restrict the areas that can be treated and the amount of algicides that can be used. This is another option to control algae that the harvesters cannot collect.

Water Quality Analysis

Testing the water quality of the lake is important to establish a base line for the lake. We normally test the water two times annually to ensure the management program is not causing any detrimental effects to the lake and to watch for progress from year to year.

Education

The final part of the Integrated Plant Management Program is to help educate residents around the lake. It is important that residents know how their actions around and within the lake can affect the lake condition and how they can help the program be successful. LakePro strives to educate the residents around the lake through customer service, meetings, our website, and custom publications.

4-Year S.A.D. Plan for Common Lake

2013

Meeting support during the S.A.D. process

2014 (Year 1)

MDEQ Permit for Algicide & Herbicide Treatments (20-100 Acres)

Spring Vegetation Survey

Spring Water Quality Analysis of Entire Lake

Spring Water Testing for Fluridone Lake Management Plan

8 Secchi Disk (Transparency) Readings for Fluridone Lake Management Plan

20 Acres of Eurasian Watermilfoil Control with Contact Herbicides
(Diquat)

Post-Treatment Vegetation Survey

Mechanical Harvesting native plants throughout the lake (approximately 20 Acres)

Shoreline Algae Treatment in mid-Summer (if necessary)

July 4th General Membership Meeting

Mid-Summer Vegetation Survey

10 Acres of Eurasian Watermilfoil Control for regrowth with Contact Herbicides





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(Diquat) (if necessary)

Fall Water Quality Analysis of Entire Lake

Fall Water Testing for Fluridone Lake Management Plan

Fall Vegetation Survey

Lake Management Plan for 2014 Fluridone Permit

Year-End Lake Management Report (describing the starting condition, management efforts, current condition, recommended actions, and adjustments to the Lake Management Plan)

Labor Day Association Meeting

2015 (Year 2)

MDEQ Permit for Fluridone Treatment (100+ Acres)

Spring Vegetation Survey

Spring Water Quality Analysis of Entire Lake

Whole-Lake Treatment using Fluridone for Eurasian Watermilfoil

*Actual amount may vary

Fluridone Residue Sampling (4 Samples per Test, 4 Tests)

Whole-Lake Treatment using Fluridone for Eurasian Watermilfoil (BUMP UP)

*Actual amount may vary

Post-Treatment Vegetation Survey

Mechanical Harvesting native plants throughout the lake (approximately 20 Acres)

Shoreline Algae Treatment in mid-Summer (if necessary)

July 4th General Membership Meeting

Mid-Summer Vegetation Survey

Fall Water Quality Analysis of Entire Lake

Fall Vegetation Survey

Year-End Lake Management Report (describing the starting condition, management efforts, current condition, recommended actions, and adjustments to the Lake Management Plan)

Labor Day Association Meeting

2016 (Year 3)

MDEQ Permit for Algicide & Herbicide Treatments (20-100 Acres)

Spring Vegetation Survey





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Spring Water Quality Analysis of Entire Lake

5 Acres of Eurasian Watermilfoil Control with Systemic Herbicides
(Renovate OTF or Generic)

Post-Treatment Vegetation Survey

Mechanical Harvesting native plants throughout the lake (approximately 20 Acres)

Shoreline Algae Treatment in mid-Summer (if necessary)

July 4th General Membership Meeting

Mid-Summer Vegetation Survey

Fall Water Quality Analysis of Entire Lake

Fall Vegetation Survey

Year-End Lake Management Report (describing the starting condition, management efforts,
current condition, recommended actions, and adjustments to the Lake Management Plan)

Labor Day Association Meeting

2017 (Year 4)

MDEQ Permit for Algicide & Herbicide Treatments (20-100 Acres)

Spring Vegetation Survey

Spring Water Quality Analysis of Entire Lake

5 Acres of Eurasian Watermilfoil Control with Systemic Herbicides
(Renovate OTF or Generic)

Post-Treatment Vegetation Survey

Mechanical Harvesting native plants throughout the lake (approximately 20 Acres)

Shoreline Algae Treatment in mid-Summer (if necessary)

July 4th General Membership Meeting

Mid-Summer Vegetation Survey

Fall Water Quality Analysis of Entire Lake

Fall Vegetation Survey

Year-End Lake Management Report (describing the starting condition, management efforts,
current condition, recommended actions, and adjustments to the Lake Management Plan)

Labor Day Association Meeting





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The actual cost of the 4-year program will vary from this plan. There are many variables that have been estimated that will most likely change based on the conditions found during our vegetation surveys and other factors.

- Year 1 – The acreage for treatment with contact herbicides for Eurasian Watermilfoil may change. It has been estimated that up to 40 acres of EWM existed in 2012.
- Year 1 – The acreage for treatment with contact herbicides for EWM regrowth may change. This number will depend on the mid-summer vegetation survey.
- Year 2 – The amount of Fluridone necessary for the whole-lake treatment will be determined through the Lake Management Plan for Fluridone Use and may be different than the amount described here.
- Year 2 – The amount of Fluridone necessary for the Bump-Up will be based on the original amount applied and the results of the residue sample tests. The amount may be different than the amount described here.
- Years 3 & 4 – The acreage for treatment with systemic herbicides may change based on the amount of milfoil that emerges in the spring of 2015. Also, we may be able to use a less-expensive product in some areas of the lake. Therefore, the price for the EWM treatment with systemic herbicides may change.
- All Years – The prices for mechanical harvesting is an estimate. Should you decide to move forward with harvesting native plants after treating the EWM, LakePro will help you put the harvesting out to bid to firms that are reputable, qualified, licensed, and insured. There will be a minimal cost for office time, office supplies, and postage.

Also, there are other options that are not included in this plan, such as Herbicide Treatments for Curly-Leaf Pondweed, Herbicide Treatments for Lily Pads, and Mechanical Harvesting for Lily Pads. If you would like these included in the plan, we can quote them separately.

The price quoted above is an estimate and is meant to be a starting point for developing a budget for your S.A.D. Generally, you should budget as much as possible so you can afford to manage your lake under worst-case-scenario conditions. However, your assessment must be realistic for all residents around the lake. However, if your budget is significantly different than this estimated amount, your expectations must be adjusted to fit the services we are able to provide.

Summary

LakePro appreciates the opportunity to help restore your lake and to improve its condition. The plan above is a combination of our education, experience, and expertise that will take care of the most important issues facing the lake, while ensuring our actions will maintain the lake in the future.

The Lake Management Plan will change based on the success of various management methods and the response of the lake to our efforts. We hope this description serves as a starting point for your S.A.D. and starts you down a path to responsibly managing your lake and improving its condition.

If you have any questions or concerns, please feel free to contact us by phone, fax, or e-mail.

Thank you for considering LakePro,

Pete Filpansick

