



June 9, 2016

Crooked Lakes Association
Attn: Mike Spain
67785 95th Ave
Dowagiac, MI 49047

PLM Lake & Land Management will provide a lake management program for **Little Crooked Lake for the 2017 thru 2021 seasons**. The program will (1) control exotic plant species, (2) monitor water quality, and (3) monitor the aquatic plant community.

Little Crooked Lake has responded very well to treatment in the last 10 years. Following the 2006 Sonar A.S. application, management has focused primarily on spot treatment of Eurasian watermilfoil and Curlyleaf pondweed. For the next five years, we have proposed a similar spot treatment strategy but have budgeted for another possible whole lake Sonar A.S. treatment in 2018. This treatment may or may not be required but will safeguard against any unforeseen expansion of Eurasian watermilfoil. In addition, budgets have been increased slightly based on the discovery of Starry stonewort on Big Crooked in September of 2015.

Management Program for 2017 – 2021

Products to be applied: Sonar A.S., Navigate (granular 2,4-D), Renovate, Sculpin Aquathol K, Hydrothol 191, Reward and non-water restrictive products such as Nautique, Copper Sulfate, Cutrine-Plus, Cygnet Plus and shade as a tracer.

April/May: Survey of lake to determine any possible areas of Eurasian Watermilfoil growth. If any Eurasian Watermilfoil is found, it will be treated with Navigate/Sculpin (2,4-D), Renovate and/or Reward and Cutrine-Plus. ** Algae treatments will be performed on an as needed basis. Evaluations and spot weed treatments will be conducted as needed during June, July, and August.

Unit cost per acre.

Navigate:	\$450.00
Sculpin:	\$375.00
Renovate 3:	\$350.00
Renovate Max G:	\$430.00
Renovate OTF:	\$480.00
Reward:	\$220.00
Aquathol K/Hydrothol 191:	\$215.00
Algaecides:	\$49.00
Survey:	\$215.00
Sonar Treatment:	\$21,775.00 (see description below)

2018 Sonar A.S. Treatment:

April/May of 2018: Weed treatment of entire lake, applying restrictive product Sonar A.S. "Fluridone" for the

control of exotic plant species. If required an algae treatment will be performed in conjunction with initial treatment free of charge.

Cost of Fluridone treatments at 6 ppb: \$9,100.00

A bump up treatment will be required ~2.5 weeks after the initial treatment to raise the concentration back to 6ppb (ppb=parts per billion). The actual amount needed will be based on testing results after 13 days. We estimate that a 1 to 4 ppb bump may be required. Cost per additional ppb will be \$1,520.00

Note: Additional fees will be required based on DEQ policy when using Fluridone. The DEQ requires: permit fees, fastest (measurements of ppb of Fluridone in the water body through the year, water quality, lake management plans, and surveys.) Cost per fastest: \$150.00 Cost per survey: \$215.00

Suggested budget for 2018 using Fluridone:

April/May: Fluridone treatments 6ppb:	\$9,100.00	\$9,100.00
Fluridone bump treatment (1-4ppb):	\$1,520.00	\$6,080.00
June, July/August: Algae treatment if required:	\$0.00	\$800.00
Additional requirements by DEQ: ~	\$5,775.00	\$5,775.00
Estimated total cost for treatments:	\$16,395.00	\$21,775.00

Water Quality Program:

The water quality program consists of two samples, occurring in the spring, and late summer each season. Parameter such as secchi disc, pH, D.O., conductivity, alkalinity and nutrient sampling of total nitrogen and total phosphorus give us the ability to monitor lake trends more efficiently. This information will enable us to include the trophic status of your lake. The program also tests your water for Fecal bacteria (E. Coli), in mid-summer which can determine the condition of your lake and if the water is safe for swimming. Reports will be issued annually in the fall.

Cost for Water Quality Program: \$600.00
Cost for Chlorophyll sampling: \$70.00/ sample (3 samples)

Budget 2017 thru 2021:

Estimated cost for management thru 2020:
2017 year: \$7,500.00 - \$8,000.00
2018 year: \$16,395.00 - \$21,775.00
2019 year: \$6,000 – \$7,000.00
2020 year: \$7,000.00 - \$8,000.00
2021 year: \$7,500.00 - \$8,500.00

Estimated cost for treatments 2017 thru 2021: \$44,395.00 to \$53,275.00

Note: We estimate that the cost to monitor and treat your lake will fall within these ranges. Please note that the budget is an estimate. You will only be charged for the actual amount of control required, at the unit prices listed above. Treatment will be based on pre-surveys and will be executed only with prior approval.

Contract Period:

Multiple Year Treatment Program: As an incentive to establish a multiple year agreement we will treat your lake or pond at the same price structure as 2017 for 2018!!! The remaining three years (2019, 2020, 2021) will have cost increases of (3%) three percent per year or less. If total chemical cost increases 10% from the previous year a new agreement will have to be mutually acceptable. If during the life of the contract the DEQ or other regulatory agencies significantly change the approved treatment procedures, either party may terminate this agreement upon giving ninety (90) days advance written notice thereof. This management program will be subject to yearly review by the Keeler Township Board.

One Year Treatment Program: Pricing is based on the type and the amount of vegetation or algae present at the time of treatment, as well as, the products applied. Unlike the multiple year program, an agreeable price structure is not contracted into a one-year program. Therefore, an increase in the cost of products, labor, or changes made by the DEQ or other regulatory agencies may have a drastic effect on the pricing for following years.

Permit Fee:

PLM Lake & Land Management is responsible for completing and submitting aquatic nuisance permit applications. PLM Lake & Land Management will send an invoice or statement for the yearly DEQ permit application fee. It is your responsibility to send a check made out to the "State of Michigan" to our office. We must include this check with the DEQ permit application. A non-refundable fee of \$200.00 will be applicable if lake is not treated after obtaining the DEQ permit.

Posting of Treatment Areas:

Posting of shoreline treatment areas is the responsibility of PLM Lake & Land Management and will be conducted according to MIDEQ regulations. Signs will be attached to thick barked trees, posts or other suitable fixtures already on site. If homeowners wish to have signs posted in designated areas or on specific fixtures they must notify PLM Lake & Land Management, providing lake address, location of property, and where the signs are to be posted. Pictures are the most informative way to relay this information. Notification of alternate posting must be made at least 14 days prior to treatment and additional fees may apply. The removal of posting signs after the restrictions have expired is the responsibility of the homeowner.

Notification of Treatments:

It is your responsibility to notify each resident within **100 feet** of the treatment area **at least seven days** in advance, **but no more than forty-five days** prior to the first treatment date, that products will be applied to the lake. This notification requirement **must** be administered to each and every property owner within 100 feet of any treatment area. PLM Lake & Land Management will provide a tentative treatment schedule and the **Notice** of proposed products to be used during the spring of each year. We will also notify resident within 100 feet of the treatment areas on the day of treatment.

Non-Target Species:

Please be aware that we only control weeds and algae **present** at time of treatment. Emergent vegetation (cattails, bulrush, purple loosestrife), lily pads, eel grass and sago pondweed require separate programs for control and are not addressed unless specifically mentioned in the management program. We have no control over future weed or algae growth based on the current chemicals registered for aquatic use in Michigan.

Invoicing and Payments:

PLM Lake & Land Management will submit an invoice following treatment that will include the following information; lake and/or pond(s) treated, date of treatment and type of treatment or acres treated. Monies will be due net fifteen (15) days after each treatment. Interest of 1.25% will be added to your bill for each additional sixty (60) days that payment is not received.

Liability Issues:

We are responsible for workman's compensation and liability insurance for the duration of the contracted period.

PLM Lake & Land Management is not responsible for fish loss due to low oxygen levels caused during warm water conditions. Please sign, check multiple or one year program and return one copy of this proposal as our contract.

For further clarification or modifications please contact.

Andy Tomaszewski, Ecologist
Southern Lake Manager
PLM Lake & Land Management Corp

For **Little Crooked Lake**

Multiple-Year Program _____

One-Year Program _____

Print Name

Date

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