

## Lake Sarah Herbicide Treatment Proposal for CLP and/or EWM 2012

The following is a proposal of a treatment plan for Curlyleaf Pondweed and Eurasian Watermilfoil on Lake Sarah for the 2012 season. It includes the beginning steps of the process all the way to the treatment and post treatment monitoring.

### Planning Section

#### Identify Areas to be controlled

- Proposed treatment would be approximately 40 acres and may include onshore and offshore areas
- Treatment sites will be a combination of Curlyleaf Pondweed (CLP) only, and CLP and Eurasian Watermilfoil (EWM) combo
- Sites will be identified based upon discussion with the LSIA board.
- One possibility would be to do four 10 acre plots, two could be CLP only and the other two would be a combo treatment of CLP and EWM.

#### Chemicals Used

- Aquathol K will be used for the CLP
- DMA-4 (liquid 2,4-D) will be used for the EWM.
- Note: Aquathol K and DMA-4 would need to be applied separately, they cannot be mixed together in a tank

Note: Granular 2,4-D vs. Liquid 2,4-D – it has been accepted lately that both granular and liquid 2,4-D have about same effectiveness. When choosing between the two, the determining factors are avg. depth, costs and ease of applying. It is determined because of the ease of applying and equipment needed, liquid 2,4-D would be the way to go for Lake Sarah in 2012.

#### Costs of chemicals

- Costs for each chemical will be detailed in the chart on the last page of this document.
- If you go with the proposed treatment option **(Two 10 acre plots for CLP only) (Two 10 acre plots for CLP and EWM combo)** – the price is scenario is listed below

#### **CLP only sites – Aquathol K (\$78/gallon) (Rate: 0.75 to 1.0 ppm)**

Avg. Depth	4	4	5	5	6	6	7	7
Acres	20	20	20	20	20	20	20	20
Rate (ppm)	0.75	1.0	0.75	1.0	0.75	1.0	0.75	1.0
<b>Total Cost</b>	<b>\$3042</b>	<b>\$4056</b>	<b>\$3802.50</b>	<b>\$5070</b>	<b>\$4563</b>	<b>\$6084</b>	<b>\$5323.50</b>	<b>\$7098</b>
Price/acre	\$152.10	\$202.80	\$190.13	\$253.50	\$228.15	\$304.20	\$266.18	\$354.90

#### **CLP and EWM combo sites – (Aquathol K, \$78/gallon) (DMA-4, \$27/gallon)**

Avg. Depth	4	5	6	7
Acres	20	20	20	20
Aquathol K rate (ppm)	1.0	1.0	1.0	1.0
DMA-4 rate (ppm)	1.0	1.0	1.0	1.0
<b>Total Cost</b>	<b>\$5589.60</b>	<b>\$6987</b>	<b>\$8384.40</b>	<b>\$9781.80</b>
Combo price/acre	\$279.48	\$349.35	\$419.22	\$489.09

### Dosage

- If we go with the four 10 acre plots
- CLP only sites (0.75 to 1 ppm Aquathol K)
- CLP and EWM combo sites (1 ppm Aquathol K and 1 ppm DMA-4)

### Creation of treatment map

- A map of the lake showing the treatment sites, including acreage and avg. depth, will be needed to send along with the permit.
- Along with a hard copy of the map, the computer files of the treatment sites may be needed as well.

### Permit

- Once treatment map is completed, permit can be sent in to the MN DNR
- Permit fee is to be paid by the LSIA
- There will be one permit for all the offshore areas
- There will be another permit for the onshore areas that will include signatures of homeowners that fall within the treatment sites.

### The three main goals of the LSIA with the treatments are:

1. **Experience** (applicators and using equipment) – Aquatic Solutions of MN has agreed upon buying herbicide from them, that they will train LSIA applicators on using equipment and performing the actual treatment.
2. **No harm to environment** – When herbicides are used according to the label, they are perfectly safe and provide no direct harm to fish or other aquatic organisms. If a fish kill occurs, it is more likely due to oxygen depletion from dying plants than to the actual chemical. Fish kills can also occur from normal environmental stressors, such as extreme heat and oxygen depletion due to algae blooms. See label for Aquathol K and DMA-4 for use restrictions such as irrigation and drinking. There are no restrictions on fish consumption.
3. **Effectiveness** – A pre-treatment inspection of the individual treatment sites using random sample points will show where the CLP and/or EWM are, along with the density of the plants in those areas. This will be done one week prior to treatment. A post-treatment inspection will be done 3 weeks after treatment, using the same random sample points, to determine effectiveness of treatment. 3 weeks should be sufficient time to see results. The pre and post treatment inspection will both be documented on a map provided to LSIA.

## **Treatment Section**

### **Treatment Process Timeline**

- a)** Once permit is received, review permit and verify when it expires
- b)** Once ice is off of Lake Sarah, we will need to monitor water temperature using a thermometer, once temperature reaches 50 degrees F, the treatment can be made. (Monitoring of water temp is easiest done by a volunteer homeowner on Lake Sarah)
- c)** Before treatment is made and once water temps are close to 50 degrees F, a pre-treatment inspection will be made and avg. depth will be verified in each site. The pre-treatment inspection of the individual treatment sites using random sample points will show where the CLP and/or EWM are, along with the density of the plants in those areas.
- d)** Once pre-treatment inspection is completed, the actual treatment can begin at any time.
- e)** Favorable conditions should be chosen for treatment date (low wind, sunny). LSIA should coordinate treatment with herbicide supplier.
- f)** Treatment sites need to be posted properly per the MN DNR; Aquatic Solutions will get the appropriate signs from the DNR prior to treatment. The signs are placed on buoys which then will surround the perimeter of each treatment site. Buoys will be picked up once the restrictions on the treatment sign expire.
- g)** 3 weeks after treatment, a post-treatment inspection will be performed. The post-treatment inspection will be done 3 weeks after treatment, using the same random sample points, to determine effectiveness of treatment.
- h)** Pre-treatment inspection and post-treatment inspection can then be analyzed and compared to determine the effectiveness of the treatment.

**Lake Sarah 2012**

Aquathol K

<u>Depth</u>	4	5	6	7
Aquathol \$/gal	78	78	78	78
Gal/acre/ft	0.65	0.65	0.65	0.65
rate	1	1	1	1
Depth	4	5	6	7
Area	40	40	40	40
Final cost	\$8,112.00	\$10,140.00	\$12,168.00	\$14,196.00
Price/acre	\$202.80	\$253.50	\$304.20	\$354.90

Depth

Aquathol \$/gal	78	78	78	78
rate	0.75	0.75	0.75	0.75
Depth	4	5	6	7
Area	40	40	40	40
Final cost	\$6,084.00	\$7,605.00	\$9,126.00	\$10,647.00
Price/acre	\$152.10	\$190.13	\$228.15	\$266.18

4	5	6	7
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DMA4 \$/gal	27	27	27	27
rate	1	1	1	1
Gal/acre/ft	0.71	0.71	0.71	0.71
Depth	4	5	6	7
Area	40	40	40	40
Total cost	\$ 3,067.20	\$ 3,834.00	\$ 4,600.80	\$ 5,367.60
	\$ 76.68	\$ 95.85	\$ 115.02	\$ 134.19

Gal used

DMA4	113.6	142	170.4	198.8
AK	104	130	156	182

4	5	6	7
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Final price AK .75ppm w/DMA4	\$ 228.78	\$ 285.98	\$ 343.17	\$ 400.37
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Final price AK 1ppm  
w/DMA4

\$ 279.48 \$ 349.35 \$ 419.22 \$ 489.09