



# Lake Vegetation Management Plan

**Shaver Lake (27008600), Hennepin County**

**Draft LVMP (No Signatures)**

**Final LVMP with Signatures**

**Date Signed: 4/25/2013**

**Expiration Date: 4/25/2018**

**Summary: (EXAMPLE)** This Lake Vegetation Management Plan (LVMP) is a comprehensive plan to address recreational issues on Shaver Lake (27008600), Hennepin County specifically growth of waterlilies, chara, and cattails on the lake and in the channel between the two basins. Also allows for maintaining an open water area in both basins and individual shoreline owners may receive APM permits for submerged and floating-leaf plants for up to 50 x 50 ft. plus 15 ft. channel to open water areas.

## **Section 1: Lake Information**

Name: **Shaver (aka Shaver's)**

Surface Area: **17 acres**

County: **Hennepin**

Littoral Area: **17 acres**

DOW Number: **27008600**

Fisheries Area: **West Metro**

Classification: **Recreational Development**

Cooperator(s): *Shaver's Lake Preservation Association*

## **Section 2: Water Quality and Plant Community**

### **A. Water Quality:**

<b>Table 1. Water quality measures observed in Shaver's Lake</b>			
<b>Water Quality Measures</b>	<b>Averages (June-Sept)</b>	<b>Observations</b>	<b>Monitored Years</b>
Total Phosphorus [mg per L]	44 ppb	20	2003-2012
Chlorophyll-a [mg per L]	7 ppb	20	2003-2012
Secchi Depth [Meters]	1.0 Meters	19	2003-2012

Shaver's Lake has limited water quality data available. There are only three years of monitoring data that were collected between in the past 10 years (2005, 2006, and 2011). The lake has low Secchi depth readings however the total phosphorus and chlorophyll a measurements are relatively good. Information collected from Minnesota



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Pollution Control Agency website. More info on water quality is available here (<http://cf.pca.state.mn.us/water/watershedweb/datasearch/waterUnit.cfm?WID=27-0086-00>)

### B. Aquatic Plant Community:

- The most recent aquatic plant survey for Shaver’s Lake was completed on June 16, 2012 by Dick Osgood using a transect method at 41 locations to evaluate the plant community. Shaver’s Lake is dominated by native aquatic vegetation. White Water Buttercup and Chara dominate the aquatic plant community in the east basin. Waterlilies dominate the aquatic plant community in the west basin covering nearly the entire basin. Curlyleaf pondweed (CLP) is present however it only occurs in small sparse patches. Cattail growth was not the focus of the aquatic plant survey conducted by Osgood in 2012. Transects were not conducted in the channel between the two basins due to density of cattail growth in that area.

**Table 2a. East Basin of Shaver’s Lake. Percent of transects plants were observed.**

Growth Form	Common Name	Scientific Name	6/16/2012	Osgood Comments
<i>Submersed</i>	Muskgrass	<i>Chara spp</i>	100%	Very frequent forming surface mats
	Whitewater Buttercup	<i>Ranunculus longirostris</i>	91%	Predominant
	Curly-leaf Pondweed	<i>Potamogeton crispus</i>	82%	Occurring in small sparse patches
	Native Pondweeds	<i>Potamogeton spp</i>	64%	Several Species, none very dense
	Naiad	<i>Najas flexilis</i>	27%	
	Coontail	<i>Ceratophyllum demersum</i>	9%	
<i>Floating-leaf</i>	White Waterlily	<i>Nymphaea odorata</i>	36%	Occurring in small sparse patches
	Spatterdock	<i>Nuphar variegata</i>	36%	Looks like small waterlilies



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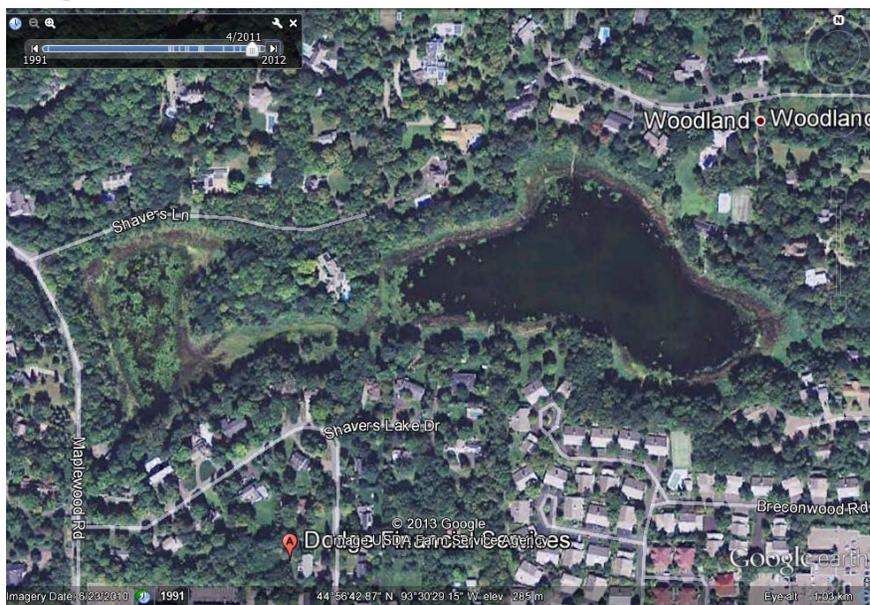
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**Table 2b. West Basin of Shaver’s Lake. Percent of transects plants were observed.**

Growth Form	Common Name	Scientific Name	6/16/2012	Osgood Comments
Submersed	Muskgrass	<i>Chara spp</i>	83%	
	Whitewater Buttercup	<i>Ranunculus longirostris</i>	50%	
	Curly-leaf Pondweed	<i>Potamogeton crispus</i>	0%	
	Native Pondweeds	<i>Potamogeton spp</i>	100%	Several Species, none very dense
	Naiad	<i>Najas flexilis</i>	0%	
	Coontail	<i>Ceratophyllum demersum</i>	33%	
Floating-leaf	White Waterlily	<i>Nymphaea odorata</i>	100%	Covers entire basin
	Spatterdock	<i>Nuphar variegata</i>	33%	Looks like small waterlilies

- Cattails were evaluated using Google Earth aerial photography to measure the thickness of the band of cattails around the shoreline of Shaver’s Lake. At times cattails have expanded on the west basin and the channel between the basins during periods of low water closing off access to those areas. However, the East basin has expanded at times but not to the same extent the west basin and channel have expanded. (see photos below)

Google Earth Aerial Photo 4/2011

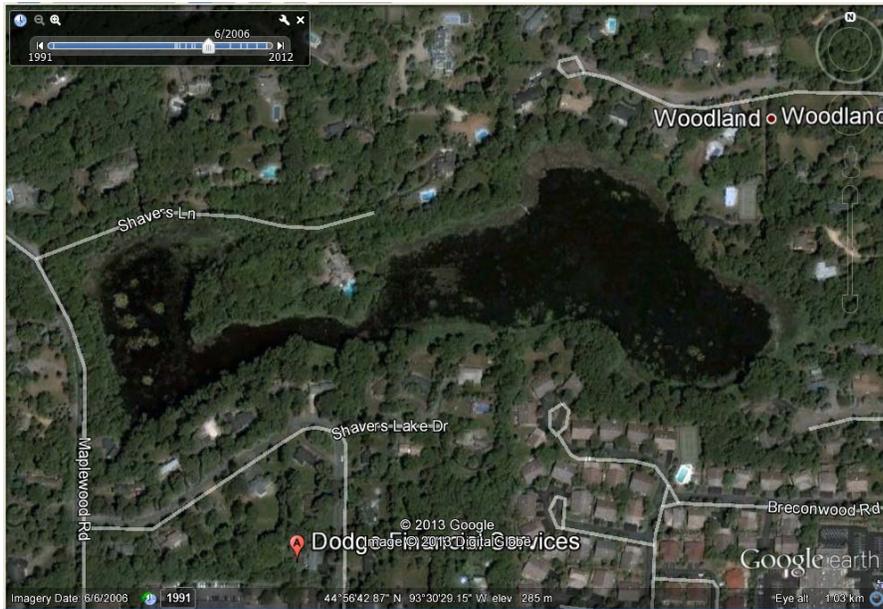




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Google Earth Aerial Photo 6/2006



Google Earth Aerial Photo 4/1991





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### **Section 3: Public Participation Process** *(Narrative)*

There are approximately 25 shoreline landowners surrounding Shaver's Lake. Representatives from the Shaver's Lake Preservation Association met with Sean Sisler and Dick Osgood on June 26, 2012. The lake was inspected and the plan for control of native aquatic plants was discussed to allow up to 5 acres of control including individual shoreline treatments and open water areas in both basins. An addition meeting was held on March 15, 2013 with Fisheries Chief Dirk Peterson, APM program coordinator Steve Enger, APM Specialist Sean Sisler, and Representatives from Shaver's Lake Preservation Association to discuss a variety of issues that Shaver's Lake was experiencing such as water quality, sedimentation, eutrophication, and cattail encroachment. At the meeting we discussed that the vegetation issues could be addressed through the development of this LVMP.

### **Section 4: Problem[s] to be addressed in the LVMP**

1. Cattail fringe around the lake and channel between the two basins has expanded to the point that it is impeding recreational use of Shaver's Lake.
2. Abundant native plant growth is impeding recreational use of Shaver's Lake.
3. Monitor invasive species (CLP) to ensure that they do not become more of a problem, because if large areas of aquatic plants are removed then it may open areas for the expansion of invasive species.

### **Section 5: Goals & Measureable Objectives for Management of Aquatic Plants**

**Goal 1:** Allow recreational access through cattail fringe around lake and channel between the two basins of Shaver's Lake.

Objective 1: Reduce the thickness of the cattail fringe by removing the lakeward portion the stand leaving at least a 20 ft wide buffer of cattails along the shoreline. Maintain a 10 ft wide buffer along each shore in the channel between the two basins. An annual aquatic plant management (APM) permit will be required to do this work.

Objective 2: Allow 15 ft wide channels through the buffer for the purposes of accessing the lake. An aquatic plant management permit will be required to do this work. If this channel is maintained using mechanical means only then a perpetual, non-transferable permit is possible. There are some properties that have had existing opening greater than 15' wide and can maintain a larger area. An annual aquatic plant management permit will be required to do this work. See Appendix 1.



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**Goal 2:** Improve recreational access through abundant native plants

Objective 1: Maintain an open water area in each basin if needed. An annual aquatic plant management permit will be required to do this work.

Objective 2: Allow each property owner to maintain an area of submerged and floating-leaf plants up to 50 feet or half the frontage whichever is less, by 50 feet lakeward plus a 15 ft. wide channel to open water area. An annual aquatic plant management permit will be required to do this work.

**Goal 3:** Monitor invasive species to ensure they do not become more of a problem.

Objective 1: The lake association will conduct an annual plant survey and provide results to the DNR and interested parties.

### **Section 6: Proposed Actions to Achieve Plant Management Goals**

**A.  Comprehensive Cattail Control.**

Mechanical and/or herbicide control of the lakeward fringe of cattails leaving at least a 20 ft. wide buffer of cattails along the shoreline. Maintain a 10 ft. wide buffer along each shore in the channel between the two basins to allow access between the two basins.

**Justification:**

Cattails have expanded as storm water inputs and sedimentation have reduced the water depth of the lake. The expansion of cattails is most evident on the west basin and the channel between the basins. Removal of the lakeward portion of the cattails will allow for an increased recreational area of the lake and leaving the 20 ft. buffer will protect the shoreline and provide wildlife habitat value of the emergent plants. There may be soft sediments that will be exposed and subject to erosion if the cattails are removed. Caution should be taken that the removal of the cattails does not result in altering the cross section of the lake bottom.

**B.  Offshore Control of Submerged Plants.**

Chemical Control: Allow up to a maximum of 5 acres annually total of herbicide control for submerged aquatic plant control. Allow for an open water area in both basins. The total amount of chemical control will not exceed 5 acres annually including near shore areas.



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Mechanical Control and Total control: The total amount of mechanical control and chemical of aquatic plants will not exceed a total of 8.5 acres annually. Example: If 5 acres are chemically treated then 3.5 acres would be left for mechanical control therefore the total amount of control will not exceed 8.5 acres annually. Harvested aquatic plants that are placed below the Ordinary High Watermark may be considered fill. Authorization for excavation or fill would be needed to be obtained from the watershed district.

### Justification:

Dense aquatic plants have become a recreational nuisance on Shaver's Lake. The amount of control laid out above should allow recreational access while retaining the water quality and habitat benefits that aquatic plants provide. Caution should be taken because aggressive removal of the aquatic plants could flip the plant community to an algae dominated state or the areas where native aquatic plants are removed may allow for the expansion of invasive species (curlyleaf pondweed currently only occurs in sparse small patches).

### **C. Conditions for Individual Near-Shore APM Permits**

Chemical or Mechanical Control: Chemical or mechanical treatment of submerged and floating leaf plants shall be limited to 50 feet or half the frontage whichever is less, and 50 feet lakeward plus a 15 foot channel to open water.

Allow 15 ft wide channels through the emergent plant buffer for the purposes of accessing the lake. An aquatic plant management permit will be required to do this work. If this channel is maintained using mechanical means only then a perpetual, non-transferable permit is possible. If there are properties that have an existing opening greater than 15' wide they will be identified if they wish to maintain a larger area. An annual aquatic plant management permit will be required to do this work. See Appendix 1.

### Justification:

Permit applications received from riparian landowners for chemical or mechanical control of native submerged and floating leaf plants will be considered on an individual basis. Removal of native submerged and floating leaf plants will be limited to that area necessary to allow reasonable use. Permit requests are subject to inspection and the aforementioned limits are maximums allowed for native species control.



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### Section 7: Signatures

*This Lake Vegetation Management Plan is in effect for 5 years from date of Regional Fisheries approval. If the plan is not renewed, then permits will be issued according to the standards listed in MR6280.*

This LVMP was prepared and submitted by:

Submitted By: Sean Sisler  
 Title: APM Specialist  
 Date: \_\_\_\_\_

Bredford Parsons \_\_\_\_\_ 4-24-13 \_\_\_\_\_  
 Regional Fisheries Manager Date

Juni Yarwood \_\_\_\_\_ 04-25-2013 \_\_\_\_\_  
 Regional Ecological & Water Resources Manager Date

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I affirm that I am an authorized representative of **Shaver Lake (2700860), Hennepin County** and acknowledge participation in the development and implementation of this lake vegetation management plan.

Pete Daves \_\_\_\_\_ 4/18/2013 \_\_\_\_\_  
 President of Shaver's Lake Preservation Association Date

Charles Wiseman \_\_\_\_\_ 4/18/13 \_\_\_\_\_  
 Signature and Title of Cooperator 2 Secretary Date

*Either party may terminate participation in this plan at any time, with or without cause, upon 30 days' written notice to the other party. If participation is terminated, permits will be issued according to standards listed MR6280.*



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### Section 8: Appendices

A.

<i>Appendix 1: Properties with existing openings greater than 15' on Shaver's Lake.</i>	
<b>Address</b>	<b>Area Allowed to Maintain</b>
17737 Maple Hill Rd.	<b>50 feet</b>
18125 Shavers Lane	<b>50 feet</b>