

Mount Morris Lake Management District
Small-Scale Lake Management Plan

Final Report

June 29, 2003

Submitted to:

The Wisconsin Department of Natural Resources
Northeast Region Headquarters

Submitted by:

Mount Morris Lake Management District

Introduction

The following is a preliminary Lake Management Plan developed for Mt. Morris Lake Management District (MMLMD), in response to current situations facing the lake system and its watershed. A Small-Scale Lake Planning Grant was awarded to MMLMD in 2002 to help initiate the process of developing a Comprehensive Lake Management Plan. This report includes the methodologies and results of the objectives outlined in the Planning Grant Proposal, as well as a narrative concerning those results and, the implementation of the results into a strategy for a more comprehensive lake management plan. The five goals and objectives are as follows:

- Collection and compilation of existing data.
- Lake ecosystem education & property owner involvement.
- Residents Survey.
- Planning & Implementation of a strategic mechanical plant harvesting program.
- Preparation for expanded studies.

Methodology and Results

Collection of Existing Data

A compilation of existing data was acquired from the Department of Natural Resources, and MMLMD files. A review of these files was an important aspect of the planning process; they provided critical information about the previous management practices adopted by MMLMD

Water quality data from 1983 through 1989, provided by the U.S.G.S., classified the water quality as good to very good, and moderately nutrient rich (mesotrophic). This trend continues to the present as revealed by Trophic State Index (T.S.I) data gathered from Wisconsin DNR Self-Help Lake Monitoring Program volunteers.

The earliest feasibility studies on file for Mt. Morris Lake are from 1978-79. These studies focused on developing management practices to address problems of excessive aquatic vegetation growth, silt infiltration from the surrounding watershed and water quality. As a result of these studies, the MMLMD started mechanically harvesting aquatic vegetation during the summer months.

In 1977 an Aquatic Vegetation Survey was conducted on Mt. Morris Lake. The dominant macrophytes from this survey included Najas, Ceratophyllum, Chara, Myriophyllum sp., and Elodea, and a variety of Potamogetons.

A 1992 Aquatic Plant Management Plan was prepared as a part of a grant application for an aquatic plant harvester. This plan relied specifically on the 1977 aquatic macrophyte survey data.

All of the data collected for this planning grant has been extensively reviewed and compiled in order to provide a database for comparison for future studies.

Lake Ecosystem Education & Property Owner Involvement

A preliminary meeting was conducted on May 3rd, 2003. The goal of this meeting was to provide an educational presentation about the specific geologic and ecologic conditions of Mt. Morris Lake, as well as some of the current ecological situations facing the lake. The meeting was also intended to provide an opportunity for discussion of concerns and goals of lake property owners. A residents survey was sent out to all of the Lake District members, within this survey members were informed of this meeting and asked to attend, also a space was provided to discuss any goals or concerns for those members who could not attend the meeting. A copy of the presentation is included in this report. (Appendix 1)

The May 3rd meeting attendance was unfortunately low, possibly due to good weather, and the opening weekend of fishing. The information was widely accepted by the participants in attendance and the goal setting discussion was focused mainly on the presence and required management of the invasive plant specie Potamogeton Crispus. (Appendix 2)

Due to the low attendance rate of the May 3rd meeting, the MMLMD Commissioners would like to include the presentation in the July 19th, 2003 annual meeting of the MMLMD members. This will hopefully provide a much more effective goal-setting and educational opportunity.

Resident Survey

A residents survey was conducted in order to determine property owners' values, uses and concerns of the lakes. It also provided an opportunity for property owners to communicate information they believed to be important aspects of future lake planning.

The Mt. Morris Lake Planning process was initiated in response to a general growing concern over the health and condition of the lakes. The resident survey was created in order to develop a clear problem statement that could be used to help create a comprehensive management plan for the future. The following steps were used (in order presented below) to develop a clear problem statement.

1. Create a list of users of the water body.
2. What do users consider to be the problem?
3. Group the problems into categories.
4. Condense the main categories into a problem statement¹ (Gibbons, 1994).

Copies of the planning grant outline, and the resident survey sent to all District members are included in this report. (Figure 4.) The results of the survey are as follows:

The contracted consultant sent out surveys to all 192 District members. Of the 192 sent out 4 were returned due to inadequate addresses. Out of the remaining 188 reaching the district members 130 surveys were returned, representing 70% of the members.

The results of the survey questions have been compiled separately for each lake.

¹ Gibbons, Maribeth V., A Citizen's Manual for Developing Integrated Aquatic Vegetation Management Plans, WATER Environmental Services, Inc. © 1994.
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Lake A

Lake Use

- 27% of property owners reside on the lake for twelve months of the year.
- 70% use the lakes mostly for fishing.
- 31% use lakes for swimming.
- 35% use lakes for recreation/boating.
- 46% primarily enjoy lakes for beauty and esthetics.

Concerns

Nuisance plants	Usage*	Water quality	Silt
70%	35%	70%	38%

* Usage = Light, noise pollution, wake.

Chemical Application for Control of Aquatic Plants

- Support. 50%
- Oppose. 35%

Concerns, Goals, and Comments

- *Using shoreline restoration, i.e. buffers.*
- *Concerns regarding silt, weeds, and geese.*
- *Control of water sports. Amount of speedboats & horsepower.*
- *Wake management and enforcement.*
- *Sanitary District needed.*

From the Lake A residents who responded to this survey, the main user groups were fishing, and residents who enjoy the beauty and esthetic value of this lake. The primary concerns regarded nuisance aquatic plant growth, silt infiltration and management, water quality, and management of boat traffic.

Lake B

Lake Use

- 27% of property owners reside on the lake all year.
- 50% use the lakes mostly for fishing.
- 60% use lakes for swimming.
- 32% use lakes for recreation/boating.
- 45% primarily enjoy lakes for beauty and esthetics.

Concerns

Nuisance plants	Usage*	Water Quality	Silt
77%	27%	73%	55%

* Usage = Light, noise pollution, wake.

Chemical Application for Control of Aquatic Plants

- Support. 59%
- Oppose. 18%

Concerns, Goals, and Comments

- Possible dredging of shallow areas.
- Govern use of powerboats, and skiers.
- More signs showing wake restrictions.
- Control silt infiltration.
- Control size and speed of boats.
- Reduce H.P. limits on boats to 50 H.P. max.
- Control Pollution from streams.

The main use categories from the respondents on Lake D were swimming and enjoyment of the beauty and esthetic value. The main concerns were focused around management of powerboats and silt infiltration. Maintaining and improving water quality was also a primary concern.

Lake C

Lake Use

- 35% of property owners reside on the lake all year.
- 65% use the lakes mostly for fishing.
- 18% use lakes for swimming.
- 24% use lakes for recreation/boating.
- 71% primarily enjoy lakes for beauty and esthetics.

Concerns

Nuisance plants	Usage*	Water Quality	Silt
65%	35%	47%	71%

* Usage = Light, noise pollution, wake.

Chemical Application for Control of Aquatic Plants

- Support. 59%
- Oppose. 35%

Concerns, goals, and comments

- *Possible dredging.*
- *Silt control.*
- *Concerns about Personal Water Craft (PWC)*
- *Lakeshore erosion, too many mowed laws up to lakeshore.*

The main use categories from residents on Lake C are fishing and enjoyment of esthetic value. Lake C has two inlets draining the watershed from Norwegian Lake to the North, and from Porters Lake to the south. The main concern of residents is silt infiltration from these two inlets. Nuisance aquatic plant growth is also a concern.

Lake D

Lake Use

- 25% of property owners reside on the lake all year.
- 60% use the lakes mostly for fishing.
- 52% use lakes for swimming.
- 35% use lakes for recreation/boating.
- 46% primarily enjoy lakes for beauty and esthetics.

Concerns

Nuisance plants	Usage*	Water Quality	Silt
83%	44%	73%	35%

* Usage = Light, noise pollution, wake.

Chemical Application for Control of Aquatic Plants

- Support. 56%
- Oppose. 25%

Concerns, Goals, and Comments:

- *“Keep PWC off, too many large power-boats on lake at one time.”*
- *Wake violations.*
- *Longer no-wake hours.*
- *“Ban PWC”*
- *Noise, problems from water skiers.*
- *Silt build-up concerns, boat and PWC, water skier restrictions.*
- *Restrict powerboat size.*
- *Maintain vegetation buffers on lakeshore.*

The main use categories for Lake D are primarily fishing and swimming. The main concerns are nuisance aquatic plants, and water quality. Lake D has a public boat landing, and is the only lake of this system to allow waterskiing and PWC use. Management of powerboats and PWC use is one of the main comments of the respondents to the survey.

Lake E

Lake Use

- 6% of property owners reside on the lake all year.
- 63% use the lakes mostly for fishing.
- 75% use lakes for swimming.
- 31% use lakes for recreation/boating.
- 50% primarily enjoy lakes for beauty and esthetics.

Concerns

Nuisance plants	Usage*	Water Quality	Silt
50%	19%	88%	25%

* Usage = Light, noise pollution, wake.

Chemical Application for Control of Aquatic Plants

- Support. 31%
- Oppose. 56%

Concerns, Goals, and Comments

- “No PWC use.”

Lake E, or Emerald Lake, is the smallest lake in the system. The main use categories are for fishing and swimming. Only 6% of the residents live on the lake for twelve months a year. The residents were concerned primarily with maintaining and improving water quality, and managing nuisance aquatic plants.

Analysis & Recommendations

Mt. Morris Lake is experiencing an over abundant growth of aquatic plants, primarily curly-leaf pondweed, (*Potamogeton crispus*). (Appendix 2). The prolific growth of curly-leaf pondweed is inhibiting swimming, fishing, and general enjoyment of Mt. Morris Lake, as well as effecting the water quality and ecological balance of the lake.

Previous land-use practices within the Mt. Morris Lake watershed have resulted in the infiltration of large amounts of silt into the lake basins. The accumulations are impacting the physical and esthetic value of the lakes. Property owners and lake users are concerned about the effect of excessive silt on the future condition of Mt. Morris Lake.

The recreational activities of residents and public lake users cause frequent opportunities for conflict of interest. There is a need to establish a recreational use planning committee, designated to researching and addressing the issue of managing recreational uses of the lakes.

Mechanical Aquatic Plant Harvesting Program

The mechanical aquatic plant-harvesting program on Mt. Morris Lake has been an effective control method of nuisance aquatic plant growth. The program is led by the volunteer efforts of Karen and Glen A. Christiansen, as well as the hard work of the harvester operator, and maintenance personal.

Every week Karen and Glen Christiansen observe the aquatic vegetation in the lake, they note the harvesting requirements and mark them on a map of the lake. A copy of the map and the required harvesting actions are compiled into an on-board harvesting schedule and given to the harvester operator on Monday of each week. The operator is also required to fill out a daily harvesting log, which records loads per lake, and areas worked on the map. (Appendix 3)

The mechanical plant harvesting volunteer program was established to provide periodic reports of the physical condition and required harvesting actions for each lake. The purpose of the volunteer committee is to involve property owners, and provide further input from residents about the harvesting operations. At least one resident per lake has expressed the desire to volunteer for the harvesting program. They were contacted and sent weekly evaluation forms. (Appendix 5) The forms are intended to accompany Karen Christiansen's weekly evaluation about the required harvesting actions.

The presence of *P. crispus* in Mt. Morris Lake has required attention to be paid to carefully harvesting of extensive beds of *P. crispus* during the 2003 season. The biological nature of this aquatic invasive allows it to form extensive mats during early spring and later in the summer. The aquatic plant harvesting operated was informed of the life cycle and invasive features of *P. crispus*, and instructed to concentrate on removing *P. crispus* and all fragments. The desired effect would be the reduction of plant matter capable of producing turions, and eventually reducing the plant's re-growth.

Preparations for Expanded Studies

The development of a comprehensive lake management plan is required for Mt. Morris Lake. The presence of an aquatic invasive species requires the need for an aquatic plant survey to be conducted in the spring, and summer of 2004. The survey would focus on cover type and density of invasive and native plant species. The management plan would also explore potential management practices for *P. crispus*, and also conducting feasibility studies for silt infiltration and management. Other objectives of the management plan would include expanded water quality, a survey of watershed and land use practices, and the development of a recreational use planning committee. The committee would research and develop methods of resolving recreational use conflicts, and creating a recreational use plan for Mt. Morris Lake.

APPENDIX

Appendix Items

1. May 3rd, 2003 Educational Presentation
2. Aquatic Plant Sample Collection Information
3. Weed Harvesting Daily Activity and Operation Log
4. Weekly Plant Harvesting Evaluation
5. Planning Grant Outline
6. Resident Survey

Appendix 1.

Appendix 2

Aquatic Plant Sample Collection Information

Date: 12/16/02

Collector's Name: Clayton Pietsch

Specimen: Potamogeton Crispus

Location: Mt. Morris Township, Waushara County, Wisconsin

Name and Location of Water Body: Mt. Morris Lake C.. Sec.16 & 17, T19N, R 11 E

Depth of water: 3'

Flow Rate of Water: <0.1 cfs

Emergent, submersed, or floating: submersed

Names of plant species associated with specimen: Elodea Canadensis, Myrophyllum

Specie

Substrate: Silty, Mucky.

Available plant sample: No

Sample identified by Scott Provost, WI DNR Regional Center, Wautoma WI 12/19/02

Appendix 3

Figure 1: Appendix 4

Weekly Plant Harvesting Evaluation

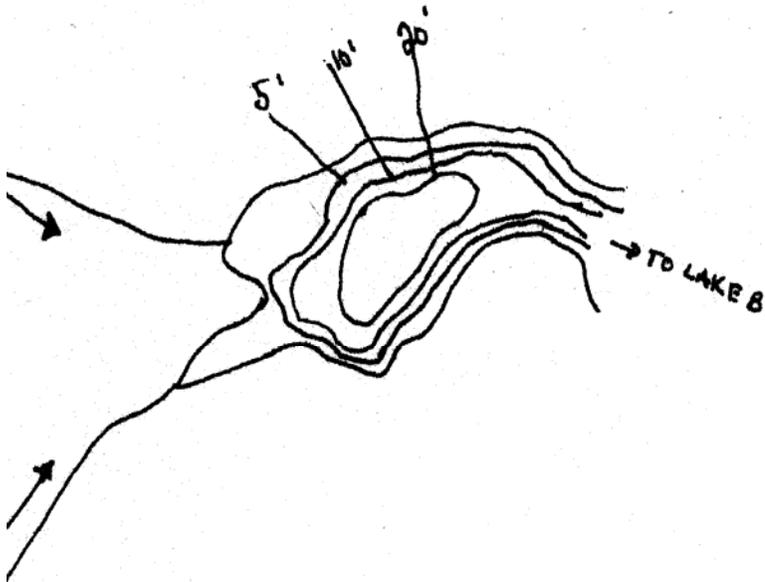
Volunteer Name:

Lake: A

Date:

Observations:

Required Harvesting Actions:



Additional comments, property owner requests /concerns.

Appendix 5

Mt. Morris Lake Management District
Small-Scale Lake Planning Grant 2002-2003
Introduction

The WI. Department of Natural Resources (DNR) offers financial assistance for the development of a Lake Management Plan. The small-scale planning grant is the first step in the development of a Lake Management Plan. Up to \$3,000 may be awarded for use in obtaining and disseminating basic lake information, education, and developing management goals. The grant is a cost share, 75% of which is covered by the DNR, the Mt. Morris Lake Management District is responsible for the remaining 25%.

A small-scale grant application was submitted to the DNR on behalf of the Mt. Morris Lake Management District before the deadline of Aug. 1st, 2002. Copies of the grant proposal are available. A brief summary follows:

Goals and Objectives:

- Collection and Compilation of existing data.
Much of the existing data concerning the lakes will be analyzed and compiled.
- Lake ecosystem education & property owner involvement.
Property owner involvement is an important aspect of the planning grant. Goals and concerns will be discussed and incorporated into the final report and future management plans. A meeting will be scheduled in 2003, its' purpose will be to discuss residents' concerns and goals, and provide lake ecosystem education.
- Resident survey.
A resident survey will be distributed to all District members, and property owners. The information collected will be used to implement future lake planning.
- Mechanical Aquatic Plant Harvesting Program.
The program will consist of a volunteer led committee established for each individual lake. Each committee will be responsible for completing periodic reports about the physical condition and required harvesting action for each lake. The reports will also summarize property owners' ideas and requests.
- Preparations for expanded studies.
Further studies must be conducted in order to develop a more comprehensive management plan for the future. The proposed studies include but are not limited to the following: Aquatic vegetation survey, Survey of watershed and land use practices, and Expanded water quality monitoring.

The information gathered will be compiled and incorporated into a Preliminary Lake Management Plan. A final report will be sent to the DNR, copies will be available for all District members.

Enclosed is a survey covering certain topics that will be used to gather information and opinions concerning Mt. Morris Lake. Property owner involvement is very important and will be incorporated into the management actions in the future. Please take the time to complete the survey and return it to me by April 1st. I thank you in advance for your cooperation.

Sincerely,



Appendix 6