



Lake Vegetation Management Plan Green Lake, Kandiyohi County 2009 to 2014

Draft Plan 12 June 2008 provided by Chip Welling, MnDNR; revisions developed, Kandiyohi County September, 2008, by GLPOA Lake Management Committee and Lake residents – GLPOA Committee Chair Jill Nelson, President Greg Roverud, Executive Sec’y Terry Frazee, Lachlan Smith, Ralph Jansen, Gary Broman; Residents Bill Latham, Ann Latham.

- Variance Requested by Cooperator**
- Variance Approved (see Section VI)**

Purpose of this Lake Vegetation Management Plan

The purpose of development of this Lake Vegetation Management Plan is to provide a summary of the water quality and vegetation of Green Lake, a description of problems to be addressed, and goals for management. Also included in the plan is a description of the involvement of the public in development of the plan, conditions to be included in permits to be issued to allow control, and signatures of representatives of organizations that developed the plan.

Section I: Lake Information

Name: Green **County:** Kandiyohi **DOW Number:** 34.0079

Fisheries Area: Spicer; MnDNR Region 4 **Surface Acres:** 5,406 **Littoral Acres:** 2,054

Classification: Natural Environment Recreational Development General
Development

Cooperator(s): Green Lake Property Owners Association (GLPOA), MN DNR – Fisheries, MN DNR – Ecological Resources, Invasive Species Program, Middle Fork Crow River Watershed District, Kandiyohi County.



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Section II: Water Quality and Plant Community

A. Water Quality

Average readings GL-1: NW side of lake			
Year	TP	Secchi	Chlor-a
	(mg/L)	(ft)	(µg/L)
2004	0.014	13.2	3.8
2005	0.017	12.8	3
2006	0.014	12.8	3
2007	0.018	10	8

Average readings GL-2: SE side of lake			
Year	TP	Secchi	Chlor-a
	(mg/L)	(ft)	(µg/L)
2004	0.014	13.1	4
2005	0.016	12.3	3
2006	0.015	12.5	3
2007	0.017	10.8	7

Provided by MFCRWD

The MN Pollution Control website lists Green Lake as mesotrophic, based on phosphorus, chlorophyll a, and secchi depth data.

<http://www.pca.state.mn.us/water/clmp/lkwqReadFull.cfm?lakeid=34-0079>

Green Lake water quality concerns are addressed with the goal of protection and improvement to maintain mesotrophic standards for the lake. The Green Lake Sanitary Sewer and Water District was formed in conjunction with Kandiyohi County, and a public sewer system and treatment plant were completed in 2000-2001. Central sewer now serves the Cities of New London and Spicer and all 1st tier properties on Green Lake.

A Clean Water Partnership (CWP) Phase I Study of Upper Middle Fork, including Green Lake, was completed in 2002. The Middle Fork Crow River Watershed District (MFCRWD) was formed and approved in 2005: both the CWP Phase I and the MFCRWD Management Plan



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(2007-2017) list, as priority issues and recommendations for Green Lake, Erosion and Sediment Control, Invasive Aquatic Species (Eurasian Watermilfoil) control, Shoreland Management and Stormwater Management. (MFCRWD Mgt. Plan, Ch. 3 Pg. 12)

Water quality monitoring and vegetation monitoring have been done consistently over the past 10 years by GLPOA volunteers and MnDNR personnel. Water monitoring for secchi, phosphorus and chlorophyll-a is conducted by GLPOA volunteers in conjunction with MFCRWD for lab results and documentation into MPCA files.

B. Plant Community

During August 2007, DNR staff surveyed the aquatic plants in Green Lake. This involved assessments of the vegetation along 50 transects located perpendicular to shore around the periphery of the lake. Similar surveys also were conducted during 1994 and 2003. Milfoil was observed in 16% of transects surveyed in 2007 (Table 1). This is an increase by comparison with 2003, when the frequency of milfoil was 4%.

According to Fisheries Management, Green Lake Standard Lake Survey Report, Draft Version, dated 7/28/2008, milfoil was observed in 20% of transects (frequency of occurrence %) and 11.3% mean abundance.

Table 1. Percent frequencies of occurrence of Eurasian watermilfoil and some of the more commonly encountered native submersed plants in Green Lake, Kandiyohi County observed during a survey by the Minnesota Department of Natural Resources done on 29 August 2007. This involved assessments of the vegetation along 50 transects located perpendicular to shore around the periphery of the lake. Also included are selected results from 1994, 2003 and 2008.



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	Eurasian watermilfoil	Non-vascular plants		Pondweeds				Number of species	Maximum depth (feet)
		muskgrass	stonewort	Variable-leaf	Clasping-leaf	Sago	Bushy		
1994	0	92	25	23	19	21	17	15	35
2003	4	96	32	34	16	34	16	20	30
2007	16	94	22	4	38	16	32	17	40
2008 *	20	98	50		14	16	8	25	40

* (from Spicer Fisheries, Green Lake Standard Lake Survey Report, Draft, 7/28/2008)

Among native plants, muskgrass was the most commonly observed plant with frequencies of 92-98% (Table 1). Muskgrass actually is an advanced, multi-cellular form of algae. It grows entirely below the water surface, and dense growth may cover large areas on the lake bottom. Like muskgrass, stonewort is an advanced form of algae. The frequencies of the four most commonly encountered native pondweeds varied from year to year. The numbers of species of submersed plants observed during surveys varied from 15 to 20, which is a high number when compared to many other lakes. Also, the maximum depth at which submersed plants were observed is high, ranging from 30 to 40 feet. These characteristics of the vegetation of Green Lake are what one generally would expect to see in a lake with high water clarity. Historical average water clarity is 10.8 feet and the average for 2007 was 11.5 feet.

Spicer Fisheries, Lake Management Plan dated 2003, and lake residents, have reported a perceived increase in filamentous algae (including chara algae or muskgrass) in areas of gravel rubble and firm sand. Chara has increased growth at stormwater inlets as well. This may be an indication of increased sediment deposits in the lake bed.

Two stands of bulrushes exist in littoral areas of Green Lake: at the Outlet of the Middle Fork (east end) and on the south side east of the Spicer Castle. These are highly prized and are protected by MnDNR. As of 2008 Eurasian watermilfoil has not been identified within the bulrush stands.



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C. History of Eurasian watermilfoil in Green Lake

Milfoil was first discovered in Green Lake in 2000. Shortly thereafter, the plant was observed by the DNR in about 15 acres. DNR attempts to eradicate the non-native, invasive plant through aggressive control with herbicides appeared to neither eliminate the plant nor prevent its spread within the lake. According to MnDNR Ecological Resources records, Chemical treatment (2-4D) was applied late August, 2000, to identified sites. Treatment was again applied to these sites in July 2001. In August of 2001 an area of approximately 14.5 acres was surveyed by DNR and herbicide applied early September 2001 (DNR Records – APM Permits, Report by W. Crowell). After 2001 DNR discontinued the high intensity management designation/program of milfoil control for Green Lake.

Spicer Fisheries (Bruce Gilbertson) and Kandiyohi County Environmental Services (Jeff Bredberg) viewed the treatment sites in July, 2002, and reported to the Green Lake Property Owners Association in a letter dated July 25, 2002: "We found no EWM at sites identified in the past two years as having abundant growths." And, "Several native aquatic plant species were identified at each of these sites." However, a stand was surveyed north of the fishing pier in Lion's Park about 15'X30' and was left untreated (Gilbertson, 2002). It could be concluded that the three consecutive chemical treatments by DNR did contribute to the decline of about 15 acres of EWM in Green Lake.

In 2006, the DNR received reports of milfoil fragments seen floating around the lake and growing concern among users of the lake that milfoil was spreading in Green Lake. During that year, several new stands of milfoil were observed, especially in the 5' to 15' depth zone of the lake. Though the total acreage of milfoil remained around three acres and sites with milfoil observed in 2006 were not an unavoidable hindrance to navigation, there was concern that the sites might increase in size or increase the potential for establishing new stands in the lake. This led to a meeting with concerned groups and individuals in October, when representatives of the Green Lake Property Owners Association (GLPOA), Middle Fork Crow



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River Watershed District, and the DNR toured parts of Green Lake to examine the distribution and abundance of milfoil. This effort was not a thorough or exhaustive inventory of all milfoil growing in Green Lake. We were fortunate that on the day of the tour there was plenty of sunshine and almost no wind, so visibility of milfoil in the lake was good.

In June of 2007 Spicer Fisheries personnel surveyed Eurasian Watermilfoil in Green Lake and Fisheries in New Ulm created a map of GPS waypoints of milfoil locations. Actively growing milfoil stands were identified in peripheral littoral areas around the entire lake plus three sites on lakeward bars (June 27, 2007, Amended sites Map, DNR Fisheries). The June 27, 2007 survey is the most thorough survey completed to date, and the GPS waypoints became the basis for the APM Permit application of GLPOA to apply herbicides to milfoil sites in 2007.

The DNR subsequently produced an assessment of the status of milfoil and native plants in Green Lake along with possible approaches to management of milfoil (Welling et al. 2007). In the assessment, the DNR described environmental conditions in Green Lake, particularly the low fertility of the lake bottom, which appear to limit the growth of submersed plants in general and milfoil in particular. A survey of sediment characteristics by McComas and Osgood (2001) to determine the potential for abundant or "nuisance" growth of milfoil found that levels of exchangeable nitrogen were generally low. As a result, they estimated that a small portion, approximately 40 acres, of Green Lake had high potential for producing heavy growth of milfoil.

Since the 2001 McComas and Osgood evaluation at least 2 changes have occurred: in 2000 and 2005 several stormwater inlets from increased impervious surface and curb and gutter have been added by highway projects that discharge stormwater directly into Green Lake. In addition, the 2007 survey of milfoil at 53 sites identified new stands of milfoil at or near all of the sites predicted as "potential" in 2001.



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However, growth of substantial stands of Eurasian watermilfoil has also occurred on at least two rock bars, well lakeward from periphery littoral area, since 2004: the EWM sites are Hultgren's Bar and south and east of Lone Tree Bar. Historically these are mid-lake areas of large rocks and rubble that have supported little or no vegetation. The Lone Tree site has developed into approximately one-half acre by 2008, with smaller growth patches growing intermittently in rock formations considerably off shore.

DNR staff suspect that submersed plants on Green Lake may be gradually becoming more abundant in depths of eight to 20 feet, which is where the identified milfoil is growing. One cannot rule out the possibility that Green Lake may have become sufficiently fertile to support further increases in milfoil in certain areas. Further assessments of the fertility of the lake bottom where milfoil is growing might be informative.

In addition, it has been observed that many of the larger stands of milfoil are located near storm-water inlets, which supply sediment and nutrient for aquatic plant growth. Watershed initiatives that reduce the amounts of sediment and nutrients entering Green Lake, including restoration of the shore impact zone to create a buffer between the lake and developed areas, will help to limit the future abundance of milfoil and should be pursued where possible.

In a report of January 2007, the DNR also advised people who would manage milfoil that in the specific case of Green Lake, there are some concerns about potential for control in certain situations in which the milfoil grows (Welling et al. 2007). Stands of EWM are often found in offshore areas beyond the normal areas that lakeshore homeowners may treat with a permit. For example, some of the areas with dense milfoil have narrow bands, perhaps ten to fifteen feet wide, of the plant growing in depths of 7 to 15 feet. These bands are located well off shore at the edge of the littoral shelf immediately adjacent to a steep slope leading to much deeper water. If one were to treat such a band or isolated stands of milfoil with herbicide, there are concerns about potential dilution of herbicide due to movement of water through the area, which could carry the herbicide away from the milfoil plants. Such



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movement of water might be caused by winds, which are often strong on Green Lake. However effective the control may be in any one area, it is expected that milfoil will reestablish itself after treatment. As a result, control will likely need to be repeated in the future.

During June 2007, the DNR received an application from the GLPOA for a permit to control milfoil by treatment with herbicide. Subsequently, DNR staff searched offshore areas of the lake and located milfoil in 53 sites, which comprised an area of about three acres in Green Lake. These sites were treated with herbicide by a contractor working for the GLPOA. During mid-September, DNR staff conducted a post-treatment inspection of these sites. Most of them appeared to be virtually the same as when they were located by DNR staff prior to treatment with herbicides in July.

A re-survey in late June 2008 indicated that milfoil was reduced in some sites and that native vegetation had replaced some milfoil. Milfoil had replaced native vegetation in at least one site, where 'mixed' (native and milfoil) vegetation occurred in 2007. Some sites required re-treatment. In some sites increased growth was documented. New infestations were identified by lake users on North Shore and Lone Tree Bar (see map, July 2008). A total of 4+ acres (11 of the EWM sites), including Indian Beach Harbor and near shore at Lion's Park, were permitted for herbicide treatment by DNR in 2008.

The 2008 MnDNR Standard Lake Survey Report for Green Lake includes the Abundance of Aquatic Plants (In Transects), Frequency of Occurrence (%) and Mean Abundance (%) of 27 species. In 2008 Eurasian watermilfoil was found to increase from 16% to 20% frequency of occurrence in one year.

YEAR	Frequency of Occurrence (%)	Mean Abundance (%)
1995	0	0
2002	Occasional *	
2004	4	1.3
2007	16	5.3
2008	20	11.3

* from McComas and Osgood 2003



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By rank, in 2008 Eurasian watermilfoil is the 4th most abundant aquatic vegetation species in Green Lake; only Muskgrass group (including chara algae) 93.3%, Stonewort group 29.3% and watermoss group 12.7% are more abundant than milfoil. In 2004 there were 14 species more abundant than milfoil.

Section III: Public Input Process

Green Lake is a valuable asset to the community and the region. The development of this LVMP incorporates comments from a variety of stakeholders including residents of the area, the Green Lake Property Owners Association, the Middle Fork Crow River Watershed District and Kandiyohi County.

The GLPOA has in previous years worked with DNR fisheries to formulate a balanced vegetation management plan. Nothing formal has been written until this document.

The following information was provided by Terry Frazee, GLPOA Executive Secretary on August 20, 2008:

The association has a membership of 66% of property owners on Green Lake. They hold 6 Board meetings per year, mail six newsletters per year, and participate in water quality monitoring and events. In 2007, 682 lakeshore owners and associate members and 19 businesses received newsletters. In 2007, the association held 6 Board of Directors meetings and 1 General Membership Meeting. Board members Chair several Committees, including Lake Management, Education, Zoning Variance and Taxation, Fisheries, and DNR/Water Monitoring, which meet as needed. The Lake Management Committee is responsible for development and implementation of the Eurasian watermilfoil Control Program subject to approval by the Board. In 2007/2008, major events included: Special Meetings – Taxation/Valuation, Phosphate Free Fertilizer, DNR Fisheries Stocking Plan, Loons, DNR Boat Access Expansion, Sewer and Water and Lake Management.

In 2007 Representatives of GLPOA and Middle Fork Crow River Watershed District provided information summaries and testified at Legislative Sessions for the Pilot Project to Control Eurasian Watermilfoil in Green Lake. The Bills were sponsored by Senator Joe Gimse and Representative Al Juhnke.



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In 2008 GLPOA contracted with Dick Osgood, Osgood Lake Management Consulting, who prepared and presented an application to LCCMR for funding the Pilot Project to Control Eurasian Watermilfoil in Green Lake.

Due to the location of Green Lake in West Central Minnesota, the size and structure of the lake bed and the early stages of rapid spread since 2004, control of milfoil in Green Lake at this time and near future is of utmost importance. Control methods could be extremely valuable to assist MnDNR Ecological Resources in decisions where new infestations occur, and for the benefit of all Minnesota water resources.

Section IV: Problems to be Addressed in this Plan

1. Interference with use of the lake caused by Eurasian watermilfoil (EWM).
2. Risk of further in-lake spread of Eurasian watermilfoil.
3. Invasion of EWM into native plant stands, resulting in replacement of native plants by EWM.
4. Risk of spread of Eurasian watermilfoil from Green Lake to other lakes.



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Section V: Goals for Management of Aquatic Plants

The primary goal is to control invasive species, esp. Eurasian Watermilfoil, to maintain a healthy lake ecosystem dominated by native plant species.

The Eurasian watermilfoil present in Green Lake can be controlled but not eliminated. The control desired will be one in which the Eurasian watermilfoil does not dominate in any one particular area.

1. Maintain a current assessment of the distribution and abundance of Eurasian watermilfoil in Green Lake.
2. Provide an aggressive control program for the identified Eurasian watermilfoil sites before growth becomes unmanageable and control becomes more costly.
3. Reduce interference with use of the lake caused by Eurasian watermilfoil
4. Prevent spread of Eurasian watermilfoil from Green Lake to other lakes.
 - a. There are six (6) public accesses on Green Lake, which makes boat monitoring to prevent spread of invasive species unrealistic.
 - b. Green Lake receives heavy public boating traffic from pleasure boaters and fishing; seven fishing tournaments were permitted on the lake in both 2007 and in 2008, including statewide tournaments. Heavy boat traffic produces extensive milfoil motor cuts that produce in-lake spread, and increases the risk of boats carrying milfoil to other lakes.
 - c. Minimal boat access monitoring increases the risk of spread to other lakes.
 - d. Adjacent lakes Nest and Calhoun are particularly vulnerable to spread, and the proximity and boating traffic in MFCRWD lakes make Diamond, George and North Long Lakes also vulnerable to milfoil infestation.
5. Reduce spread of EWM in Green Lake thereby preventing infestations from invading and replacing native plants.
6. Maintain a diverse native plant community; ensure that Eurasian watermilfoil removal efforts do not harm native plants.



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Section VI: Operational Treatment Plan

The control of Eurasian watermilfoil, hereafter called "milfoil" that the GLPOA proposed to do is different from most proposals for control of aquatic plants in Minnesota. In Minnesota, control of aquatic plants usually is proposed to enable the applicant to gain access to the lake from the lakeshore property that they own. Offshore removal of aquatic vegetation is generally permitted when dense stands cover substantial portions of a lake or an area of a lake, and prevent riparian landowners or the general public from gaining access to large areas of the lake.

In the case of the GLPOA proposal to control Eurasian watermilfoil in Green Lake, Kandiyohi County where the vegetation is predominantly milfoil, which does not interfere with access, the DNR will allow chemical treatment by a local cooperator such as the GLPOA, providing they have an APM permit. It is expected that the local cooperator will cover the expense of control. Sites with milfoil proposed for treatment would be identified by local cooperator, delineated with GPS, and described in an application to be submitted to the DNR for review and approval to treat. The composition of the vegetation in areas proposed for treatment would be verified by APM inspection. It is required that selective herbicides be used to promote the growth of native vegetation.

For the reasons described above, this permit constitutes a variance from Minnesota Rules prohibiting the application of herbicides to control dense growths (M.R. 6280.1000, Subp. 5) of aquatic macrophytes that do not interfere with watercraft use, swimming, or other traditional recreational uses (M.R. 6280.0250, Subpart 2, A, (2))

A. Monitor the distribution and abundance of Eurasian watermilfoil.

1. MnDNR and GLPOA will develop a mutually agreed upon GPS technology and methodology for identification of EWM locations. GLPOA will conduct spring and fall surveys annually to identify EWM locations and monitor its spread. Surveys will be completed utilizing surface and/or underwater observation. Landowners and lake users will be asked to report observations which will be collected and recorded by GLPOA. Collected data will be kept in a GPS format compatible with DNR GPS and GIS protocols.

2. The DNR plans to continue to provide technical assistance to the GLPOA in its efforts to monitor the distribution and abundance of Eurasian watermilfoil by periodic inspections or surveys of Green Lake, including mapping of sites.



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B. DNR APM Permit Application

1. GLPOA will prepare the permit application annually, the application will be sent to the DNR Fisheries office in New Ulm by March 1 of each year. The permit will be issued within two weeks of receipt of the permit application. GPS coordinates of the proposed nearshore (within 150 feet of shoreline) and offshore (greater than 150 feet from shore) Eurasian watermilfoil treatment areas, in a format compatible with DNR GPS, are submitted by GLPOA one week prior to the proposed treatment date.

2. Written permission must be obtained by GLPOA for control of EWM in nearshore areas including Indian Beach Harbor and City of Spicer, and also for areas where EWM may develop within 150' of public and/or private ownership. Signatures for permission to treat will be supplied to DNR with permit application and will be required every 3 years or on change of ownership. Treatment of Eurasian watermilfoil may exceed 100 shoreline feet per landowner.

3. Treatment for the control of Eurasian watermilfoil is allowed during the spring and fall. Spring treatments will be completed by mid-July and fall treatments will be conducted after fall surveys (late August/September surveys) and by October 31st, weather permitting.

4. Permit issuance for herbicide and/or hand removal control of Eurasian watermilfoil will be by the DNR Fisheries Office in New Ulm. One permit will be issued for the control of aquatic invasive species but may be issued in two or more parts. Refer to #1 above – the permit will be issued within two weeks of receipt of application (application sent by March 1), with specific treatment areas in GPS format provided one week prior to proposed treatment date.

5. Control of milfoil in 'Commons Areas' (>150' from shore) and near shore areas with landowner permission (<150' from shore)

Herbicide Control:

Product(s): 2,4-D or triclopyr; or any other MnDNR Approved Herbicides

Rate of Application: Maximum rate

Timing of Application: Spring and Fall applications

Hand Removal by Divers:

Volunteer and/or Approved Contractor

In Permitted Areas: according to Section VI B. 6



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6. Hand removal of EWM by divers: If the DNR receives a proposal to use divers to remove milfoil from offshore areas of Green Lake, then the DNR will have general considerations for any diving project that may be permitted. While removing milfoil from the lake is a satisfactory outcome, we need to ensure that there is no inadvertent damage to or removal of native submersed vegetation. Therefore, permit conditions may include some or all of the following:

- 1) Removal will only be permitted in areas confirmed by DNR staff to have milfoil, and included on a permit. A map and waypoints will be included with the permit.
- 2) Only a licensed harvester may remove milfoil in any areas where native vegetation coexists with the milfoil.
- 3) If volunteer divers are used, they may only remove milfoil in areas identified by the DNR to be monocultures of milfoil. They must display the ability to navigate to GPS locations provided by the DNR and to identify milfoil.
- 4) Volunteer divers will be required to attend a short workshop by DNR staff to discuss identification of milfoil and the permit conditions prior to removing milfoil.
- 5) Volunteer divers who have completed a workshop by DNR staff (described in 4) above), are permitted to remove Eurasian watermilfoil in areas identified by divers as monocultures of milfoil. Prior to removing milfoil, GPS site location will be reported to DNR and GLPOA.
- 6) DNR staff may observe dive operations to ensure no damage to native vegetation occurs.

MnDNR Permit No. 08F-4106 (and amended Permit dated July 9, 2008) includes "And/or hand removal of Eurasian watermilfoil."

On July 22, 2008, seven volunteer divers completed a required DNR workshop at the Fisheries office in Spicer. Subsequently, volunteer divers did remove milfoil plants in a permitted site. From the report submitted (Spilseth, 2008):

"In our battle against the spread of Eurasian milfoil the association has been aware of the method of hand removal which is labor intensive but an effective control measure.

Unfortunately, the hiring of professional eradicators which involves trained industrial divers is quite expensive. Some concerned "North Siders" who are divers decided to investigate the possibility of diving and pulling using our own or rented equipment. The DNR 2008 milfoil control permit for Green Lake included hand removal of plants at identified sites, and with the help of Ann Latham the DNR required training of volunteer divers took place July 22. We were told that our group would be the first volunteer scuba extraction team that they knew of in the state.



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We received training, and actually a fair amount of encouragement from D.N.R. representative Jacquelyn Bacigalupi. The training agenda included identification of the weed so desirable water plants would not be pulled and the nature of the weed with precautions to keep the particles from spreading. Global position maps of the permitted spots were distributed.

With tank sets rented from St. Cloud, a neighborhood paddle boat which was commandeered, and lots of sun screen applied, we ventured off-shore. The divers were armed with spades to dig the roots and found the footing to be tough. As the rooted plant was brought to the surface the harvesters loaded the weed on board and used the pool skimmer to capture any stray particles. We worked over four days and went through four tanks of air. The work was slower than we'd hoped and our methods could be improved but we learned a few things that might help others if they are interested in attempting this method. We would all be willing to spend some more time pulling if the equipment was more accessible." (Spilseth, 2008)

Volunteer divers were observed by DNR Aquatic Habitat Specialist.

C. Variance Approval

Variance: Permits for the Green Lake Lake Vegetation Management Plan constitute a variance from Minnesota Rules , M.R. 6280.1000, Subp. 5 and M.R. 6280.0250, Subp.2,A, (2). Variance may also be required for permit to control nearshore areas greater than 100 shoreline feet and/or undeveloped shoreline in private and/or public ownership.

Variances are allowed for the purpose of control of Eurasian watermilfoil in Green Lake to protect native plant species and to maintain a healthy ecosystem and water quality in Green Lake.

Section VII: Funding

A. Green Lake Property Owners Association (GLPOA) will be responsible for obtaining the necessary funds for implementation of the Eurasian watermilfoil control in Green Lake. The GLPOA may apply to the DNR for State of Minnesota reimbursement of eligible costs for the Eurasian watermilfoil control.

B. If areas of dense and matted milfoil develop in in 'public-use' areas of the lake such as sites adjacent to public water accesses or off-shore from developed shoreline, then the lake could be eligible for a grant from the DNR.

C. Funding provided by GLPOA may include Grant monies from Middle Fork Crow River Watershed District, Kandiyohi County and the State of Minnesota as received.



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Section XIII: Signatures

This Lake Vegetation Management Plan is in effect for 5 years from date of Regional Fisheries approval.

It may be necessary to make minor adjustments to this Plan in any one year. This may be done by mutual agreement.

This 5 year Plan, 2009 – 2014, may be reviewed on the request of either party and may be renewed by mutual agreement.

DNR Approval

Submitted By: Chip Welling

Title: Coordinator, Eurasian Watermilfoil Program

Date: 31 May 2008

*Area Fisheries Supervisor

Date

Regional Fisheries Approval

Date

Regional Ecological Services Approval

Date

I affirm that I am an authorized representative of the Green Lake Property Owners Association and acknowledge our participation in the development and implementation of this lake vegetation management plan.

*Green Lake Property Owners Association, Name & Title Date



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Maps

Map of GPS EWM sites June 27, 2007 Amended

Map of GPS EWM sites July 1, 2008 Amended July 9, 2008 – for Permit '08

Reports cited

Ecological Resources (Formerly Ecological Services) selected Records: Map of EWM, 2000; APM Permits, 2001; Report of survey, Wendy Crowell, Aug. 2001

Letter dated July 25, 2002, Spicer Fisheries

McComas, S., and D. Osgood. 2001, 2003. The potential nuisance growth of Eurasian watermilfoil based on lake soil fertility for Green Lake, Kandiyohi County, Minnesota. Unpublished report prepared for the Green Lake Association and Kandiyohi County by Blue Water Science, 550 So. Snelling Ave., Saint Paul, MN 55116.

Middle Fork Crow River Watershed District Mgmt Plan. 2007. Ch.3, P.12.

MnDNR Spicer Fisheries Lake Management Plan. 2003, pp. 2,3.

MnDNR Spicer Fisheries Standard Lake Survey Report, Draft, 7/28/2008

Spilseth Diver Report. 2008

Welling, C., B. Gilbertson, and J. Bacigalupi. 2007. Green Lake, Kandiyohi County, Minnesota: Distribution and abundance of submersed vegetation and Eurasian watermilfoil, and possible approaches to management of Eurasian watermilfoil. Unpublished report prepared the Minnesota Department of Natural Resources, 500 Lafayette Rd. Saint Paul, MN 55155 (18 January).

References

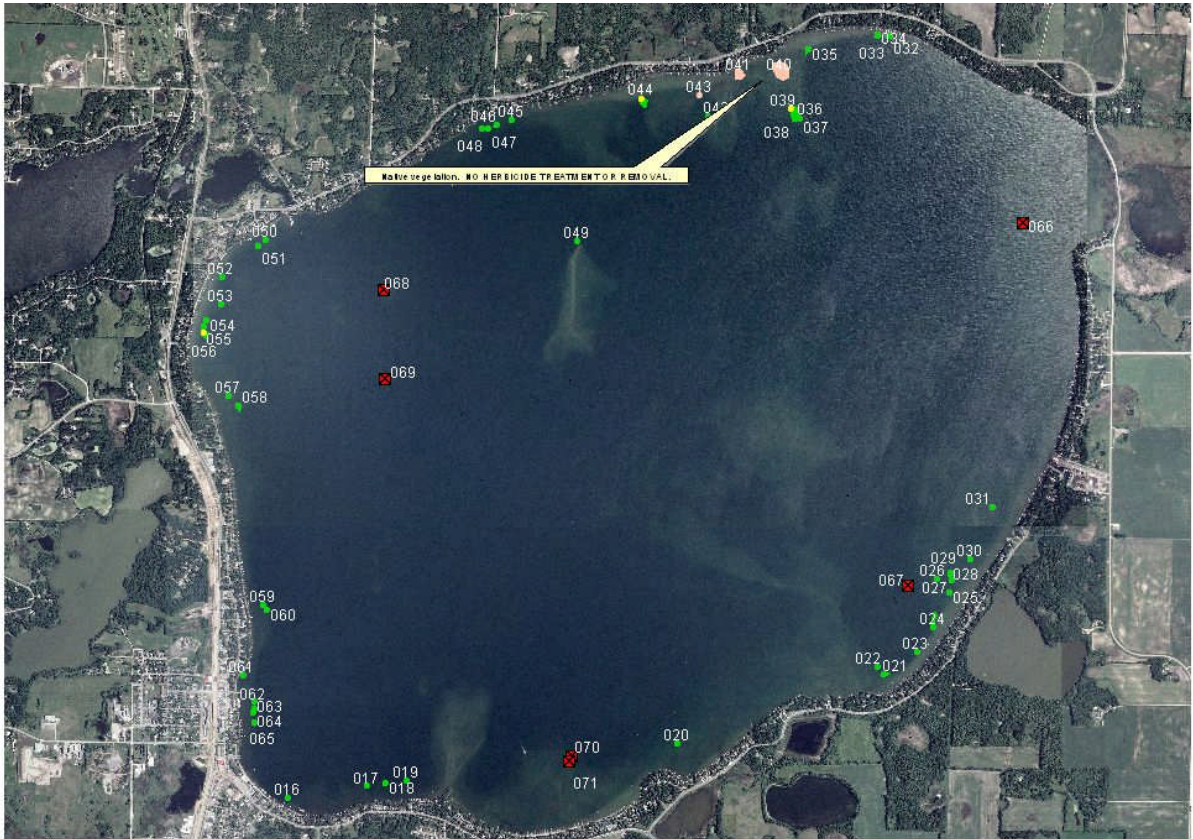
Bay Lake Aquatic Vegetation Management Plan. 2004.

Lake Alexander Aquatic Plant Management Plan 2006-2011.



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- Amended sites EWM 30 July 2007
- Eurasian Watermilfoil (EWM) 27 June 2007
- EWM & Native Submerged Vegetation
- Native Submerged Vegetation



0 1 2 Miles

Green Lake, Kandiyohi County
Enumeration of Offshore EWM, 27 June 2007
Vegetation mapping and map creation by DNR Fisheries, New Ulm.



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Green Lake, Kandiyohi County Permit 08F-4106A
Permitted Offshore Eurasian Watermilfoil, June 30, 2008 = 0.90 Acres;
Amended 7/9/08 New Total = 1.52 Acres
Waypoints collected by and Vegetation Map created by DNR Fisheries, Jacquelyn Bacigalupi, Bruce Gilbertson, and Gary May

