

Lake Management Plan  
for  
Camp Lake

Wright County, Minnesota  
December 31, 2007

Healthy Lakes & Rivers Partnership Committee

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## **Introduction**

In March 2007 the Camp Lake Association was invited to participate in the Initiative Foundation's Healthy Lakes and Rivers Partnership program along with seven other Lake Associations in Wright County. Under the coordination of Joe Jacobs (Wright County Water Planner) representatives of each group attended two days of training on strategic planning, communication, and nonprofit group leadership.

Representatives of many state and local agencies, as well as nonprofit organizations also attended the training sessions in order to offer their assistance to each group in developing a strategic Lake Management Plan. The Camp Lake Association was represented at the Healthy Lakes & Rivers training sessions by: Paul Johnson (Association President), Anne Floy, Kent Floy, Wally Johnson, Steve Metzler, Shawn Smith, and Gene Steven.

Following the training sessions, Camp Lake Association held an inclusive community planning/visioning session designed to identify key community concerns, assets, opportunities, and priorities. The Camp Lake Association held this planning session on July 19, 2007 at the Mt. Hermon Lutheran Church located .25 mile from the Camp Lake public access. Details of the public input received at this session are provided within this plan.

This document is intended to create a record of historic and existing conditions and influences on Camp Lake, and to identify the goals of the Camp Lake community. Ultimately it is meant to also help prioritize goals, and guide citizen action and engagement in the priority action areas. Clearly state agencies and local units of government also have vital roles and responsibility in managing our surface waters and other natural resources, but above all else this Lake Management Plan is intended to be an assessment of what we as citizens can influence, what our desired outcomes are, and how we will participate in shaping our own destiny.

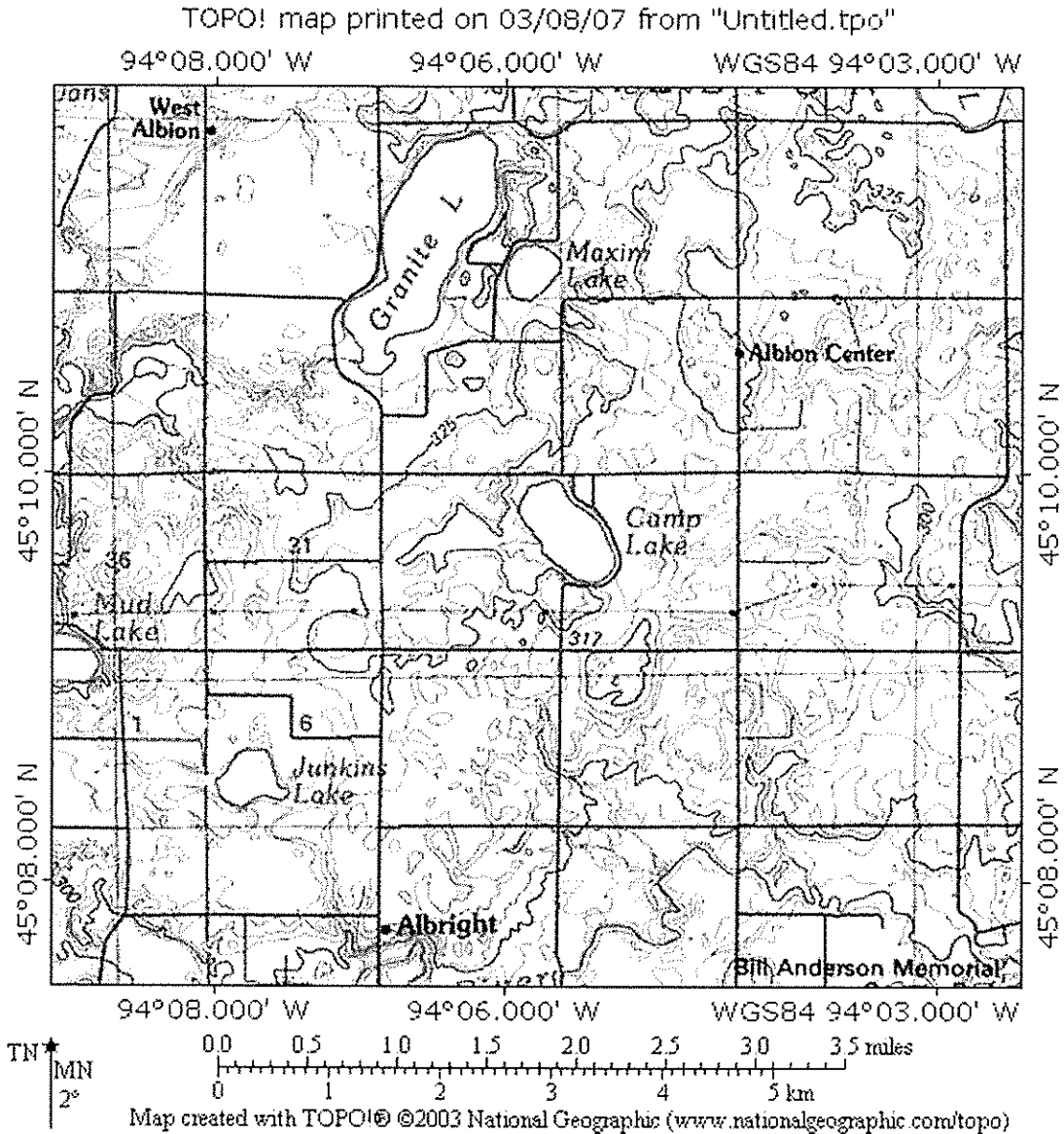
The Camp Lake Management Plan is intended to be a "living document;" as new or better information becomes available, as we accomplish our goals or discovered that alternative strategies are needed, it is our intent to update this plan so that it continues to serve as a useful guide to future leaders.

In discussing lake management issues, it is impossible to avoid all scientific or technical terms. We have tried to express our goals, measures of success, and other themes as simply and clearly as possible, but have included a glossary of common limnological terms at the end of the plan to assist the reader. Limnology is the state of lake conditions and behavior.

Finally, we would like to thank the funders of the Healthy Lakes & Rivers Partnership program for Wright County, including The McKnight Foundation, Laura Jane Musser Trust, U.S. Environmental Protection Agency, McDowell Company, the Wright County Water Plan, Lake Hubert Conservation Association, Portage-Crooked Lakes Association, and the Sibley Lake Association of Crow Wing County, the Ann Lake Sportsmen's Club of Kennebec County, various staff from the Initiative Foundation, and over thirty generous individuals.

## Physical Characteristics and location of Camp Lake

Camp Lake (#86-0221) is located near Maple Lake in Wright County. The lake surface area is 108 acres, of which 41 acres (38 percent) is in the littoral zone (the area where depth is 15 feet or less). The maximum recorded depth is 52 feet, and water clarity on Camp Lake averages around 3.0 feet.



### Precipitation

Based on State Climatology records, precipitation averaged 28-30 inches (0.72-0.76 m) annually in this part of the state with about 18-19 inches of that amount in May through September.

Evaporation typically exceeds precipitation in this part of the state and averages about 36 inches (0.91 m) per year. Runoff averages about 5 inches with 1-in-10 year low and high values (low and high runoff values which might occur with a frequency of once in ten years) of 1 inch and 8.0 inches, respectively for this area (Guard, 1985).

### Soils

The soils around Camp Lake consist of primarily clay loam.

### Watershed

The immediate watershed of the lake has been mapped and land use practices identified. The watershed is small, 622 acres, and the land to water ratio is 5:1. The percent land use is 3% residential, 71% agricultural, 14% grassland, 7% forest, and 5% water/wetland. The high agricultural use in the watershed may contribute to the water quality problems evidenced in Camp Lake.

### Water Level

The Minnesota Department of Natural Resources, Division of Waters has very limited data on lake elevation for Camp Lake. Based on only two measurements, lake level has varied 1.66 feet based on 2 readings (between Oct. 7, 1999 and Dec. 4, 2001).

Highest Recorded (feet/date)	Lowest Recorded (feet/date)	Average reading (feet)	Ordinary High Water (feet)
1,039.06 (Oct. 7, 1999)	1,037.4 ft (Dec. 4, 2001)	1,038.23	1,039.1

## **History of Camp Lake Association**

Camp Lake is a 108 acre lake located about 9 miles southwest of the town of Maple Lake in Wright County, Minnesota. Set amidst agricultural land, it is a small recreational lake used primarily for fishing by lake landowners, local residents, and visitors.

Concerned for the water quality of the lake, and hoping to preserve its fishery, several local residents established the Camp Lake Association in 1999. The association provides for both social networking opportunities and lake stewardship actions. The Camp Lake Association currently has 45 members including the majority of the 23 property owners on the lake in addition to other nearby residents. See the appendix for the association bylaws.

The Association has an annual meeting/picnic where issues are discussed and plans for follow-up actions are made. Although no newsletter is published, minutes are sent to all members. Additional informational mailings are made regarding any further meetings planned or actions taken.

Lake Association members are involved in monitoring water quality through the Citizen Lake Monitoring Program sponsored by the Minnesota Pollution Control Agency.

The Association has also been responsible for several lake improvements over the years. For example, in 2000 the Association initiated an effort to address lake bank erosion by teaming with DNR to lower the lake level.

Currently the biggest concerns are exotic invasive vegetation and the excessive amount of nutrients in the lake water, primarily phosphorus. The association has studied the situation, discussed options with experts, and sought to develop action plans that are realistic and would have a long term positive impact upon water quality.

## 1. Water Quality

Citizen volunteers from the Camp Lake Association have participated in the Minnesota Pollution Control Agency's (MPCA) Citizen Lake Monitoring Program (CLMP) since 2003, recording secchi disc transparency – a measure of water clarity. Jenny Moe and Eric Young have been the primary volunteers in the CLMP from Camp Lake Association.

On the MPCA's web-site link, "Lake Water Quality Database," secchi data are reported. The MPCA web site also provides a summary of average concentrations of total phosphorous (the primary nutrient found in lakes in this region) and chlorophyll *a* (the pigment in plants that photosynthesizes, and thus a good measure of plant concentration or "productivity").

One application of secchi disc transparency data is to convert the clarity measurements into a Carlson Trophic Status Index (TSI) score. The Carlson Trophic Status Index (TSI) is a tool used to summarize several measurements of water quality into one index value, which can be used to compare a lake to other lakes, or to historic/future data as a measure of degradation or improvement. In many ways, the index can be viewed as a measure of the potential for algal productivity. Since most people value lakes with low algae productivity, the lower the TSI value the healthier the lake. Specifically:

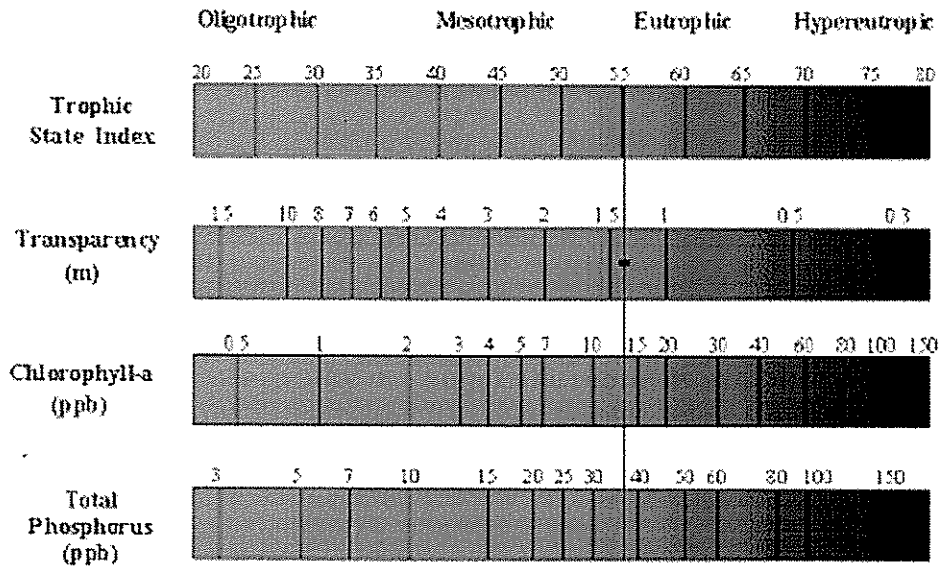
<u>TSI Range</u>	<u>Trophic Status</u>	<u>Characteristics</u>
0-40	Oligotrophic	Clean Lake
41-50	Mesotrophic	Temporary algae & aquatic plant problems
50-70	Eutrophic	Persistent algae & aquatic plant problems
Greater than 70	Hypereutrophic	Extreme algae & aquatic plant problems

Based on the data provided on the MPCA website, an average concentration (or depth) for the key TSI parameters can be determined, and the associated TSI score calculated.

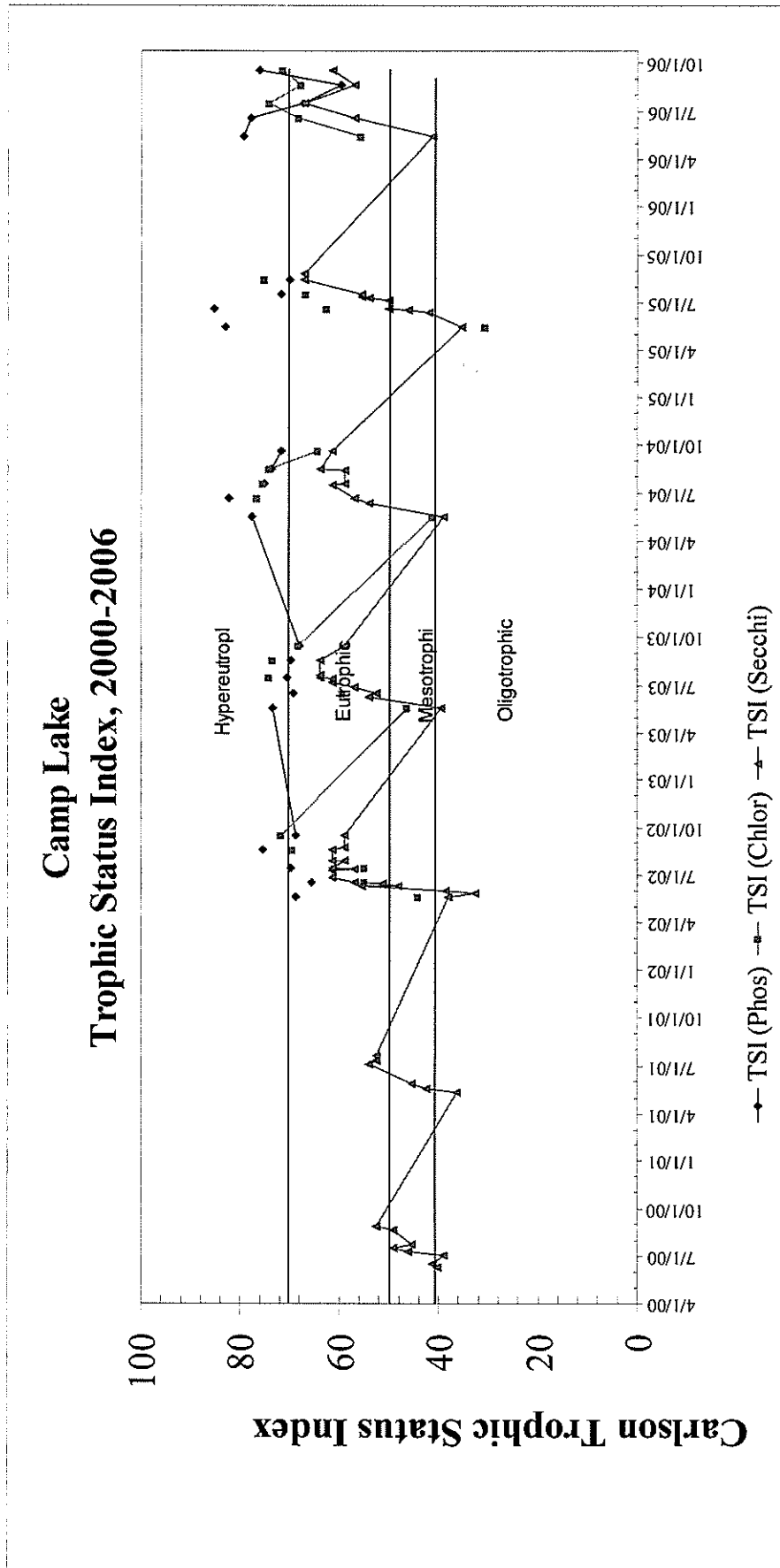
**Average TSI Measurements for Camp Lake, 2000-2006.**

Year	Chlorophyll <i>a</i> ( $\mu\text{g/L}$ )	Total Phosphorus ( $\mu\text{g/L}$ )	Secchi Depth (feet)	Average TSI
2000	---	---	9.5	45.4
2001	---	---	8.8	47.2
2002	29.6	96.6	6.3	55.7
2003	47.2	98.2	5.2	59.0
2004	65.0	151.6	4.8	63.2
2005	40.0	180.0	7.5	54.4
2006	50.6	124.4	5.0	65.4

**These data suggest that water quality in Camp Lake routinely exhibits “eutrophic” conditions** (a TSI score above 50 but below 70). The graphic below (from the MPCA’s website: <http://www.pca.state.mn.us/water/clmp/lkwqReadFull.cfm?lakeid=86-0221>) shows a similar range (based entirely on secchi measurements).



The figure below shows the long-term trends in Trophic Status Index values for Camp Lake for the years for which data are available. The variation observed within a single year reflects naturally occurring impacts of temperature, precipitation and water level; the important "take home message" of this graph is that the secchi data range within mesotrophic or eutrophic conditions since data were first collected in 2000, while chlorophyll *a* and total phosphorus secchi indicate nutrient levels that could lead to even higher conditions.



A second method of assessing water quality and determining whether your water body is the “best that it can be” is to compare it to other lakes of similar morphology, geology, and land uses. Listed below are ranges of common measures of water quality based on many years and locations of water quality. The tables below are adapted from the MN Pollution Control Agency and show common water quality ranges for lakes within the Central Hardwood Forest Eco-region.

### Average Summer Water Quality and Trophic Status Indicators

Parameter	Typical Range: Central Hardwood Forest Eco-region (25 <sup>th</sup> -75 <sup>th</sup> Percentile)	Average & Standard Deviation for Camp Lake
Total Phosphorus (µg/L)	23 – 50	128.1 ± 56.5
Chlorophyll <i>a</i> (µg/L) mean	5 – 22	46.8 ± 34.5
Chlorophyll <i>a</i> (µg/L) maximum	7 – 37	109
Secchi disc (feet)	4.9 – 10.5	6.61 ± 4.7
Total Kjeldahl Nitrogen (mg/L)	< 0.60 – 1.2	ND
Nitrite + Nitrate Nitrogen (mg/L)	< 0.01	ND
Alkalinity (mg/L)	75-150	ND
Color (Pt-Color units)	10 – 20	ND
pH	8.6 – 8.8	ND
Chloride (mg/L)	4 – 10	ND
Total Suspended Solids (mg/L)	2 – 6	ND
Conductivity (µmhos/cm)	300 – 400	ND
Total Nitrogen/Total Phosphorus ratio	25:1 – 35:1	ND

ND = No Data

\* No standard deviation is presented because only a single value has been recorded.

A third application of these data is to compare phosphorus concentrations to the Minnesota Pollution Control Agency water quality criterion for swimming and other recreational contact.

Full-support of swimmable use is set at slightly lower phosphorus concentration of 40 micrograms per liter, which ensures that conditions associated with "impaired swimming" would occur less than ten percent of the summer. Phosphorus concentrations above criteria levels would result in greater frequencies of nuisance algal blooms and increased frequencies of "impaired swimming." The upper threshold for partial-support of swimmable use was set at 57 Carlson TSI units for the CHF ecoregion.

The Central Hardwood Forests eco-region phosphorus criteria level of 45-50 micrograms per liter (µg/L) serves as the upper threshold for full-support (partial) swimmable use. This concentration corresponds to Carlson's TSI values of 57-59.

Phosphorus levels above 50 mg/L would result in a classification of “non support” for the swimmable classification.

Name	Mean Total Phosphorus (µg/l)	Carlson's Trophic Stratus Index (secchi)	MPCA Swimming Criterion
Camp Lake	No data considered by the MPCA	52.0	Full Support

**If we were to apply these criteria to the phosphorus data collected between 2002 and 2006, Camp Lake was frequently in a “non support” mode, with only a single measurement (out of 24 samples analyzed) below the 50 mg/L threshold.**

## 2. Fisheries:

Status of the Fishery (as of August 26, 2002) according to the MN Dept. of Natural Resources fisheries summary:

Camp Lake is located in Wright County near the town of Maple Lake. It has a surface area of 108 acres and a maximum depth of 52 feet. A public access is located on the north end of the lake. Camp Lake is part of a statewide study of largemouth bass length limits and has been surveyed for bass by electrofishing every fall since 1996. The lake is primarily managed for largemouth bass and northern pike. The last full lake survey was in 1992 and a resurvey was conducted in summer 2002 to update information on the fishery.

Largemouth bass are abundant in the lake. During fall electrofishing 132 bass were captured in 64 minutes, a catch rate well above average for the Montrose management area. Most adults were between 12 and 15 inches long; the largest bass was 19.5 inches and weighed 4.4 pounds. Northern pike numbers have increased since the last survey and their catch rate was above the normal range for this lake type. The average length (23 inches) and weight (3 pounds) were also desirable. Yellow perch are a favorite prey of northern pike and perch numbers have decreased, probably as a result of an increasing pike population. Perch size was in the expected range; average length was 7.1 inches and the largest perch was 10.2 inches.

Black crappie numbers and size were below the expected range for lakes similar to Camp. The catch rate was low in both 1992 and 2002, but the average weight was higher in 1992. Mean length in 2002 was 7.3 inches and the largest individual was 9.7 inches. Black crappie growth was above average compared to other Minnesota lakes. Fewer bluegill were caught than in 1992, but the catch rate was still within the expected range in 2002. The average length for bluegill was 5.7 inches and the largest fish was 7.6 inches.

Camp Lake is not well suited for walleye and none have been stocked in the last twenty years. However, one walleye (24.8 inches) was caught in 2002. Other species captured during the survey included yellow bullhead, carp, golden shiner, green, hybrid and pumpkinseed sunfish.

For Wright County the DNR Area Fisheries Manager is Paul Diedrich, MN DNR Fisheries 7372 SW State Hwy 25, Montrose, MN 55363, and phone: 763-675-3301, e-mail: [paul.diedrich@dnr.state.mn.us](mailto:paul.diedrich@dnr.state.mn.us).

The DNR Fisheries Management Plan for Camp Lake lists the following management goals:

<b>Long Range Goal:</b> Provide a bass-panfish fishery where 50% of sunfish harvested are greater than seven inches; and largemouth bass are taken at a rate of 40 per electrofishing hour.
<b>Operational Plan:</b> Conduct a resurvey 2012 to include an assessment of the largemouth bass population by electrofishing.  Electrofish for bass each fall as Camp Lake is a control lake for the statewide experimental regulations study.  Conduct a winter fish house count every third year.
<b>Mid Range Objective:</b> Evaluate fish populations and monitor trends in largemouth bass.

The DNR report also identifies the following limiting factors for fisheries:

Algal blooms are heavy and average size of sunfish is small. **The lake has poor water quality.** The results of water testing in 2002 showed total phosphorous, chlorophyll a, and secchi disc were 0.137 ppm, 12.7 ppm, and 3', respectively. Carlson's trophic status indices for the parameters were 74, 53, and 59, respectively.

**Finally, the DNR Fisheries Management Plan recommends that interested parties:  
Work with local units of government to reduce non-point pollution sources. That is a primary goal of this Camp Lake Management Plan**

The Wright County Planning and Zoning Office has local authority to regulate septic systems. The Wright County Soil and Water Conservation District can suggest best management practices for area agriculturalists.

The entire DNR Fisheries Management Plan for Camp Lake is included as Appendix II.

### 3. Aquatic Vegetation

In 2002 the DNR Fisheries Department surveyed Camp Lake and mapped emergent vegetation, including bulrush, cattail and lily communities. A copy of this map is included within this LMP in Appendix III. A second map prepared by the DNR Fisheries Department shows the distribution of submersed vegetation (Appendix IV).

A relatively low proportion of Camp Lake shoreline is bordered by maintained lawns or artificial beaches. Several property owners have indicated an interest in “lakescaping” in a way that would benefit wildlife and water quality. As part of our grant request, the Association plans to purchase 2 copies of “Lakescaping for Wildlife and Water Quality” (Henderson, Dindorf and Rozumalski). One copy will be available to loan to Association members and one will be donated to the Annandale branch of the Great River Library system as they do not have a copy despite serving hundreds of patrons who live on lakes.

### 4. Wildlife

The “Blue Book,” *Developing a Lake Management Plan* notes that:

“Minnesota’s lakes are home to many species of wildlife. From our famous loons and bald eagles to muskrats, otters, and frogs, wildlife is an important part of our relationship with lakes. In fact, Minnesota’s abundant wildlife can be attributed largely to our wealth of surface water. From small marshes to large lakes, these waters are essential to the survival of wildlife.

The most important wildlife habitat begins at the shoreline. The more natural the shoreline, with trees, shrubs and herbaceous vegetation, the more likely that wildlife will be there. Just as important is the shallow water zone close to shore. Cattail, bulrush, and wild rice along the shoreline provide both feeding and nesting areas for wildlife. Loons, black terns and red-necked grebes are important Minnesota birds that are particularly affected by destruction of this vegetation. Underwater vegetation is also important to wildlife for many portions of their life cycle, including breeding and rearing of their young.

The primary agency charged with the management of Minnesota’s wildlife is the Department of Natural Resources, Division of Fish and Wildlife, Wildlife Section. For Camp Lake, the DNR Wildlife contact is: Fred Bengtson, Assistant Wildlife Manager, St. Cloud, Phone: 320-255-4279, e-mail: [fred.bengtson@dnr.state.mn.us](mailto:fred.bengtson@dnr.state.mn.us)

Camp lake exhibits diverse birds and other wildlife. An observer may see the common Canada geese and various ducks as well as loon, blue heron, osprey, pelicans, and cormorant. The recent increase of last two water birds has caused some concern because the Lake Association stocked the lake with 1000 Northern fingerlings in the summer of 2007. Hopefully, this effort will benefit more than just the pelicans and cormorant! Other birdlife is also abundant. Residents have observed red winged blackbirds, pheasant, cardinals, red bellied woodpeckers, purple and gold finches and many others. Beaver have established a lodge at one end of the lake. Turtles and frogs plop into the water as one cruises by in a canoe or boat. Rabbit, squirrel, raccoon, deer and coyote are also evident in the lake area. Association members wish to see the diversity continue and recognize the importance of habitat.

## 5. Invasive Species

### Background

"Exotic" species -- organisms introduced into habitats where they are not native -- are severe world-wide agents of habitat alteration and degradation. A major cause of biological diversity loss throughout the world, they are considered "biological pollutants."

Introducing species accidentally or intentionally, from one habitat into another, is risky business. Freed from the predators, parasites, pathogens, and competitors that have kept their numbers in check, species introduced into new habitats often overrun their new home and crowd out native species. In the presence of enough food and favorable environment, their numbers will explode. Once established, exotics rarely can be eliminated.

Most species introductions are the work of humans. Some introductions, such as carp and purple loosestrife, are intentional and do unexpected damage. But many exotic introductions are accidental. The species are carried in on animals, vehicles, ships, commercial goods, produce, and even clothing. Some exotic introductions are ecologically harmless and some are beneficial. But other exotic introductions are harmful to recreation and ecosystems. They have been caused the extinction of native species -- especially those of confined habitats such as islands and aquatic ecosystems.

### Eurasian watermilfoil (*Myriophyllum spicatum*)

Eurasian watermilfoil was accidentally introduced to North America from European ships when infested ballast water was discharged into the Great Lakes.. Spread westward into inland lakes primarily by boats and also by water birds, it reached Midwestern states between the 1950s and 1980s.

In nutrient-rich lakes it can form thick underwater stands of tangled stems and vast mats of vegetation at the water's surface. In shallow areas the plant can interfere with water recreation such as boating, fishing, and swimming. The plant's floating canopy can also crowd out important native water plants.

Eurasian watermilfoil has difficulty becoming established in lakes with well established populations of native plants. Removing native vegetation creates perfect habitat for invading Eurasian watermilfoil.

A key factor in the plant's spread is its ability to reproduce through stem fragmentation and runners. A single segment of stem and leaves can take root and form a new colony. The mechanical clearing of aquatic plants for beaches, docks, and landings creates thousands of new stem fragments.

Likely means of spread: Milfoil may become entangled in boat propellers, or may attach to keels and rudders of sailboats. Stems can become lodged among any watercraft apparatus or sports equipment that moves through the water, especially boat trailers.

**At present, Eurasian watermilfoil has not been identified in Camp Lake.** Signs at the public access warn boaters to clean their trailer and boat to avoid spreading the invasive species.

### Purple loosestrife (*Lythrum salicaria*)

Purple loosestrife is a wetland plant from Europe and Asia. It was introduced into the

East Coast of North America in the 1800s. First spreading along roads, canals, and drainage ditches, then later distributed as an ornamental, this exotic plant is in 40 states and all Canadian border provinces.

Purple loosestrife invades marshes and lakeshores, replacing cattails and other wetland plants. The plant can form dense, impenetrable stands which are unsuitable as cover, food, or nesting sites for a wide range of native wetland animals including ducks, geese, rails, bitterns, muskrats, frogs, toads, and turtles. Many are rare and endangered wetland plants and animals and are also at risk.

Purple loosestrife thrives on disturbed, moist soils, often invading after some type of construction activity. Eradicating an established stand is difficult because of an enormous number of seeds in the soil. One adult plant can disperse 2 million seeds annually. The plant is able to re-sprout from roots and broken stems that fall to the ground or into the water.

**At present, purple loosestrife has not infested the Camp Lake area** possibly because of little construction activity in the past 20 years.

**Curly-leaf pondweed (*Potamogeton crispus*)** is an exotic plant that forms surface mats that interfere with aquatic recreation. The plant usually drops to the lake bottom by early July. Curly-leaf pondweed was the most severe nuisance aquatic plant in the Midwest until Eurasian watermilfoil appeared. It was accidentally introduced along with the common carp.

**Camp Lake is infested with a significant amount of curly-leaf pondweed.**

During the Visioning session sponsored by the Camp Lake Association on July 19, 2007 concerns about aquatic vegetation and invasive species focused on curly-leaf pondweed. The primary concerns were, number one, how much does curly-leaf pondweed contribute to the significant amount of phosphorus in the lake resulting in the excessive amount of algae impacting the quality of the lake water and, number two, what can we do to reduce the amount of curly-leaf in the lake.

The short term 90- day action plans were to gather information regarding harvesting the curly-leaf and verifying that proper signage is in place cautioning boaters to be sure their boat is free of all weeds before entering the lake and before departing the access.

The long-term action plan was to harvest the weeds in the spring of 2008 if warranted and feasible.

Several experts were consulted regarding the curly-leaf situation. Joe Jacobs, Water Planner for the Wright Soil and Water Conservation District, Wendy Crow, an aquatic invasive species specialist with the Minnesota DNR, and Audrey Kuchinski, DNR Division of Fisheries were queried about the impact and life cycle of curly-leaf, as well as treatment options, and potential cost and benefits of chemical treatments and harvesting.

Two companies, Lake Restoration and Midwest Weed Harvesting were consulted and treatment plans and costs were determined.

After considering the high cost of professional treatment and considering Wendy Crow's recommendation that it would be better to focus our time and money on controlling

sediment from the entering the lake, the Association choose to follow her recommendation. At the same time, information on curly-leaf control by individual property owners has been communicated to members so that they may choose to deal with the invasive on part of their frontage. See attachment dated August 20, 2007 in the appendix for further details.

**Other Midwestern Aquatic Exotics**

**Flowering rush (*Botumus umbellatus*)** is a perennial plant form Europe and Asia that was introduced in the Midwest as an ornamental plant. It grows in shallow areas of lakes as an emergent, and as a submersed form in water up to 10 feet deep.

**Round goby (*Neogobius melanostomus*)** is a bottom-dwelling fish, native to Eastern Europe that entered the eastern Great Lakes in ballast water.

**Rusty crayfish (*Orconectes rusticus*)** are native to streams in the Ohio, Kentucky, and Tennessee region. Spread by anglers who use them as bait, rusty crayfish are prolific and can severely reduce lake and stream vegetation, depriving native fish and their prey of cover and food.

**White perch (*Morone americana*)** are native to Atlantic coastal regions and invaded the Great Lakes through the Erie and Welland canals.

**None of these exotics are known to exist in Camp Lake**

**6. Land Use and zoning**

The water quality of a lake or river is ultimately a reflection of the land uses within its watershed. While the specific impacts to a lake from various land uses vary as a function of local soils, topography, vegetation, precipitation, and other factors, it is ultimately the land uses which citizens have the most control over through prudent zoning

Many zoning regulations are based upon the Shoreland Management Act and/or the Minnesota Department of Natural Resources (DNR) classification of a given lake. The DNR has classified all lakes within Minnesota as General Development (GD), Recreational Development (RD), or Natural Environmental (NE) lakes, and assigned a unique identification number to the lake for ease of reference. Counties in turn have used these classifications as a tool to establish minimum lot area (width and setbacks) that is intended to protect and preserve the character reflected in the classification.

The Wright County web-site provides a link to the Planning and Zoning ordinances for the county: <http://www.co.wright.mn.us/departement/pandz/forms>. On any shoreland the permissible density and setbacks for virtually all new use are determined by the lake or river classification standards established by the Department of Natural Resources.

The Wright County zoning standards for each of the respective classifications are:

<b>Standards:</b>	<b>General Development</b>	<b>Recreational Development</b>	<b>Natural Environment</b>	<b>River – Agriculture</b>
Structure setback from NOHW	75 feet	100 feet	200 feet	100 feet
Structure setback from Bluff Height	30 feet	30 feet	30 feet	30 feet
Lot Size	--	--	2 acres	--
Lot Width	--	--	200 feet	150 feet
Lot Depth	--	--	200 feet	--

Side Yard Setback	--	--	20 feet	--
Height	2 1/2 stories (35 feet)	2 1/2 stories (35 feet)	2 1/2 stories (35 feet)	2 1/2 stories (35 feet)
Elevation of lowest floor above highest known water level	4 feet	4 feet	4	4 feet
Water Oriented Accessory Structure setback from NOHW	10 feet	10 feet	Not permitted	10 feet

Clearly any local municipal jurisdiction may have additional (and usually more restrictive) standards as well.

Most lakes have numerous properties that are “grand fathered,” or developed prior to the establishment of these restrictions. In general, these pre-existing uses are allowed to remain unless they are identified as a threat to human health or environment.

**Camp Lake is designated a Recreational Development Lake.**

There are approximately 23 property owners on the lake with a split between full time and part-time residents. Many of the full time residents have deep historical roots in the neighborhood as do others in its watershed. Most of the “second home” owners reside not more than an hour away and spend considerable time at Camp Lake, usually year round. This commitment to the Camp Lake area can be seen in the broad representation of members in the Camp Lake Association. There are no homes on the north and south shores of the lake and less than 10 homes abutting the lake, due, in part, to a road that runs quite close to the lake along part of its perimeter. There have been only two new homes have built next to the lake since 1980. Little lakeside land is available for development although several small cabins could be “redeveloped”.

Individual well water and septic systems are in place. Wright County Planning and Zoning is not aware of any septic systems located near the lake that are causing problems. Mound septic systems are in place at several homes.

Steep slopes are natural features along part of the shoreline, usually abutting the road, not around homes, that could be subject to erosion. However, these areas are not cleared so vegetation helps keep erosion in check. The Association, along with DNR, did address shoreline erosion in an earlier project.

**7. Managing water surface use conflicts**

A goal of lake management is to ensure that the lake can continue to provide benefits that attract homeowners and users. However, conflicts among uses and users may arise. Successful resolution of conflicts lies in the ability of the users to work collaboratively to arrive at acceptable compromises.

An advantage of Camp lake being small is that few of the uses that often cause conflict, typically noisy watercraft and loud parties, occur here. Camp Lake is not a very attractive place for large boats and their sometimes rowdy occupants. While we get an occasional jet skier, there are more appealing places to water ski or jet ski. Canoes, kayaks, and peddle boats belonging to lake residents are far more common on Camp Lake. Residents are courteous and voluntarily limit late night noise.

Most of the folks that come to our public access are fishermen in small to medium size boats

and, aside from occasional loud swear words, trespass, or improperly placed trash, do not cause problems and are usually off the water by dark. The lake is popular with local ice fishermen who will be required to comply with the new ice house licensure requirements this season.

**At this point in time, there are no surface use conflicts to resolve.**

### **8. Public water access**

Research has shown that Minnesotans rely heavily upon public access sites to access lakes and rivers. A 1988 boater survey conducted by the University of Minnesota showed that three-fourths of the state's boat owners launch a boat at a public water access site at least once a year. In addition, over 80 percent of boat owners report using public water access sites for recreation activities other than boating.

The primary agency responsible for public water accesses in Minnesota is the Minnesota Department of Natural Resources, Trails and Waterways Unit. They are responsible for the acquisition, development and management of public water access sites. The DNR either manages them as individual units or enters into cooperative agreements with county, state, and federal agencies, as well as local units of government such as townships and municipalities. The DNR's efforts to establish and manage public water access sites are guided by Minnesota Statutes and established written DNR policy. The goal of the public water access program is free and adequate public access to all of Minnesota's lake and river resources consistent with recreational demand and resource capabilities to provide recreation opportunities.

**According to the Minnesota Department of Natural Resources, Division of Fisheries Surveys, there is one point of public access on Camp Lake, as shown below:**

#### **Public Access Information**

<b>Ownership</b>	<b>Type</b>	<b>Description</b>
Minnesota DNR	Concrete	The state owned public access is located on the north end of the lake in Section 32.

The public access is on the northeast corner of the lake and has parking for 4-5 vehicles. It is easily accessed from Wright County Highway 6. No facilities are provided. Signage regarding cleaning boats and trailers is in place. In addition to this official access point, some fishermen use an "unofficial" access at the other end of the lake.

### **9. Organizational Development and Communication**

#### **Self Assessment of the Camp Lake Association**

Individual and group assessment of the assets and challenges of the Camp Lake Association resulted in the following summary by the group attending the March '07 workshop.

Assets:

- People who care
- Shared concern about the lake
- No discord
- Good information about the lake

Communication through meetings and minutes

Members include lakeshore and non-lakeshore owners, long time area residents and newcomers

Members skills and knowledge are varied and broad

Challenges:

Need vision and strategic plan

Recruit volunteers to carry out projects

Money to fund needed lake projects

### **Summary of Visioning/Planning Session**

The Camp Lake Association held a visioning session on Thursday July 19, 2007 at the Mount Hermon Lutheran Church which is located near Camp Lake. All residents of the area were invited to the meeting.. A total of 33 people participated in the visioning session. Attendees reflected a cross section of ages and occupations and included part-time and full-time residents. Long time lake area residents and several that have only recently moved to the area participated. Some in attendance are CLA members, some are not. The meeting was facilitated by Ed Failer of the Minnesota DNR. The meeting summary is included, see appendix 4.

Participants were asked to vote on focus areas of concern to them. The group selected Water Quality, Aquatic Vegetation, and Fisheries Management as the most important focus areas. The group split into three subgroups to discuss these areas including specifically:

- Identification of Problem areas
- Identification of Causes
- Determining Measurable Actions
- Volunteer Recruitment and Time Tables

Much discussion ensued and consensus was that the areas overlapped significantly.

**Participants wanted to see improvement in water quality, a decrease in invasive aquatic vegetation (especially curly-leaf pondweed) and improved fishery including a decrease in carp.**

Many ideas for actions were identified. Quite a few people volunteered to gather more information, meet as committees, or consult with local representatives of DNR, Wright County Soil and Water, and others to get information needed to determine feasibility of ideas so that priorities could be determined and a long-term Lake Plan could be developed.

**Follow-up on each area did occur.**

Extensive efforts were made to work out a plan to decrease farm run off on the west side of the lake by creating either a CRP restored wetland or a Wright County filter strip area using funds from several government sources, CLA, and Pheasants Forever to compensate the farmer-land owners. However, the project was unable to proceed due to the landowner choosing not to participate. See appendix 6.

An alternate proposal to help contain run off phosphorous and sediment will be pursued. That will be a pond to hold sediment coming from the creek that the previously discussed farm's drain tile flows into. The land owners that the proposed pond will be on are Camp Lake Association

members and have agreed, in principal, to have the pond on their properties. See appendix 6.

Information on “lakescaping” was obtained. Part of our proposal will be to purchase two books on the subject and disseminate information on ways that residents can positively impact water quality.

The invasive aquatic plant situation also received follow-up. Please see the previous discussion under “Curly-leaf Pondweed on page 16. After much investigation it was determined that this was not an appropriate effort for CLA to undertake but individual property owners will be given information on how they may attempt to control the invasive on their lakeshore. See appendix 5.

Ideas on fisheries enhancement have been investigated resulting in proposals to install a gate to keep Northern Pike in the lake and to keep Carp from re-entering the lake once they leave it.

Overall, the Visioning Session was an excellent opportunity for many residents to get together and share their concern and support for Camp Lake and to initiate plans to address those concerns.

### **Prioritized Goals and Action Plan**

The final chapter of our Camp Lake management plan summarizes the conclusions and priority action we have chosen to work on at this time. Specifically, for each priority action we have done our best to answer :

- What are the criteria for measuring success (measured as outcomes, not effort)?
- What is our schedule for implementation (What needs to happen in the next 30 days, 60 days, one-year out)?
- Who is responsible for implementation or measurement.
- What is the budget for this action/goal?
- Is this an on going action/goal, or a one-time effort? If on-going will we require additional funds for full implementation?

Following this format, the remaining pages identify our top priorities, what our goals for each priority are, and how, who, and when we will implement action for each of these priorities.

## Grantee Action Plan and Evaluation Form

<b>Grantee Organization:</b>	Camp Lake Association
<b>Project Coordinator:</b>	Paul Johnson, President
<b>Phone/Email:</b>	(320) 963-5586
<b>Project Title:</b>	Camp Lake Water and Fisheries Improvement Project

<b>Summary of Project</b>	The members of the Camp Lake Association are concerned about the impaired condition of water in the lake and would like to see improvements in the fishery. Actions will be taken with the goal of measurably decreasing the amount of sediment and phosphorous that enters Camp Lake. A settlement and filtering pond will be constructed and lakeshore owners will be provided information on the benefits of maintaining native vegetation or installing "lakescaping". Actions will be taken to improve the fishery by installing barriers that will encourage Northern Pike and reduce the numbers of Carp in the lake.
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**\*Objective #1**  
(must be measurable results, not just effort)

Reduce the amount of sediment and phosphorus entering Camp Lake at the lake inlet by installation of a settlement and filtering pond.

**Action Plan-**

What steps need to be done to achieve this objective:

Action	By When	Person Responsible
<b>1. Camp Lake Association (CLA) will continue to consult with Paul Diedrich ( DNR), Joe Jacobs (WCSWCD), and Kerry Saxton (WCSWCD) in the planning and implementation of this project.</b>	<b>On-going</b>	<b>CLA President or designee</b>
<b>2. Cost estimates for construction will be gathered, final plans will be determined and approvals received from state and local agencies and the land owners.</b>	<b>6/30/08</b>	<b>Same</b>
<b>3. Construction will be supervised and completed. Resulting soil will be properly disposed of and surrounding areas that are disturbed will be appropriately planted to avoid erosion.</b>  <b>Some labor will be purchased, some will be provided by CLA volunteers.</b>	<b>10/30/08</b>	<b>Same</b>
<b>4. Water quality samples were taken 10/26/2007 by WCSWCD. Samples will be taken again in the spring of 2008 and twice a year for 4 years.</b>	<b>5/1/08 – 5-1-12</b>	<b>Same and WCSWCD</b>

**Expected Result:**

Water quality measurements Taken 2 and 3 years after pond completion will be averaged and compared to those taken prior to pond installation. An improvement will be seen.  
Water quality will be improved four years after installation of the pond. Phosphorus level will be below 90 mg/L, secchi depth above 6 feet and average TSI below 50.

**Results:** \*Please note: the remaining questions are to be filled out at mid term (if grant exceeds \$5,000) and at end of grant period for evaluation purposes.

**Objective #1**

**Mid-point Result** (fill out at mid-point ONLY if grant exceeds \$5,000)

**Objective #1**

**Actual Result** (to be completed at end of grant period for final report)

	Initiative Foundation use only

**Grantee Action Plan and Evaluation Form\* Objective**

# 2 (must be measurable results, not just effort)

**Action Plan-**

What steps need to be done to achieve this objective:

Camp Lake Association members will demonstrate an increased awareness of the value of shoreline buffers and lakescaping as well as actions they can take that may impact water quality.

Action	By When	Person Responsible
<p><b>1. CLA will purchase two copies of "Lakescaping for Wildlife and Water Quality". One will be placed in the Annandale library for use of all area residents and one will be retained by CLA to loan to members. Members will be encouraged to refer to it and incorporate lakescaping on their property.</b></p>	<p><b>5/30/08</b></p>	<p><b>Anne Floy</b></p>
<p><b>2. CLA will include information in each Association mailing or meeting on steps that property owners in the watershed can take to promote better water quality. Information will be gleaned from materials provided at the Initiative Foundation training and "Landscaping for Wildlife and Water Quality".</b></p>		<p><b>Anne Floy</b></p>

**Expected Result:**

Documentation of purchase and provision of information will be provided. Members will report increased awareness of the value of buffers and other measures. A survey will be taken at the annual meeting September 2009 regarding awareness and actions that will demonstrate that the above efforts increased awareness and that at least 5 landowners took a positive action or decreased a negative practice.



**Action Plan**-What steps need to be done to achieve this objective:

Action	By When	Person Responsible
<p><b>1. The CLA will continue to consult with Paul Diedrich of DNR and other involved parties to finalize our management plan. Preliminary approval has been given for the following projects.</b></p>	<p><b>continuous</b></p>	<p><b>CLA President and designees</b></p>
<p><b>2. A fence will be placed in front of the lakeside outlet to prevent Northern from leaving Camp Lake. Posts have already been placed and the fence will be installed as soon as weather permits.</b></p> <p><b>The barrier will be monitored on a regular basis by the CLA.</b></p> <p><b>Note: the Camp Lake Association stocked the lake with 1,000 Northern fingerlings in 2007.</b></p>	<p><b>3/30/2008</b></p>	<p><b>Same</b></p>
<p><b>3. A swing gate will be placed at the culvert access so as to allow spawning carp to leave the lake but not to re-enter. The gate will be closed May 1<sup>st</sup> and will be opened or removed before freeze-up in the fall.</b></p>	<p><b>5/1/2008</b></p>	<p><b>Same</b></p>
<p><b>Expected Result:</b> A report on the implementation and results of the fisheries efforts will be made at each annual CLA meeting and as needed. Evaluation of the success of the installation and operation will be made by the CLA president and involved members and reported to the group. The 2012 DNR fish survey will show that the Northern population has stabilized or increased.</p>		