

## **Clearwater Lake - Lake Management Plan**

The Lake Management Plan for Clearwater Lake identifies goals and action items for creating, protecting and/or maintaining property owners' and lake visitors' desired conditions in Clearwater Lake and its watershed at this moment in time and will be reviewed and updated on a regular or as needed basis.

It also provides a framework for future lake Board members and property owners as to what issues have been addressed, how successful previous efforts were, and serves as a guide on how to address any new lake issues.

The Lake Management Plan includes these priorities:

- Water quality and shoreline protection
- Aquatic species (vegetation) management
- Aquatic invasive species management/control
- Wildlife/fishery management

The following are to be monitored and addressed when any issues arise:

- Nutrient budgeting
- Recreational management
- Development management
- Watershed awareness

## Mission Statement

The purpose of the Clearwater Lake Association is:

1. *To preserve, protect and promote the general welfare of Clearwater Lake located in Crow Wing County, MN.*
2. *To educate Clearwater Lake homeowners and others who use the lake to be fit stewards of the lake and surrounding areas and to teach proper lakeshore management practices and the impact of invasive species on the waters and wildlife.*

## What this means

**Preserve**, understand the current ecosystem of the lake and the surrounding watershed. Look to the MN DNR, County and State authorities to define proper lake and lakeshore management practices. Work to control, as best as possible invasive species that may enter under the guidance of experts and accept the inevitable. Work to insure invasive treatment do not harm the lake in whole. Conduct lake and water studies to establish a base line of water quality, biomass diversity and use it as our guide in future management decisions.

**Protect**, understand lake and watershed stewardship and teach it to all homeowners. Monitor the lakeshore and water quality against the water quality base line to identify potential risks to the lake. Work with government agencies to promote compliance to current ordinances regarding fish and game, lakeshore management and Planning and zoning.

**Promote** a community environment and encourage property owner to become engaged in the various social activities and volunteer opportunities.

**Educate**, engage all homeowners to participate in lake stewardship awareness. Create a communication pipeline to teach basic principles and update the participants on issues and topics as they arise.

## Our Guiding Principles

- Promote responsible stewardship of the water and land resources by all property owners that affects Clearwater Lake and other downstream bodies of water to benefit the Mississippi River Watershed.
- Provide timely information to our property owners, members and lake visitors on best water and land management practices as well as responsibilities and actions related to lake management activities.
- Coordinate and work with other associations, organizations, government agencies and subject matter experts to share experiences and opinions.
- Use fact and science-based data utilizing academic, state and federal agencies, local units of government, and other subject matter experts to help guide our planning and decision-making process.

## **Clearwater Lake Management Plan on a Page**

### **Lake Management Goals for Clearwater Lake**

1. Minimize impact of aquatic invasive species (AIS)
2. Protect and improve fish and wildlife habitat
3. Protect and preserve native aquatic vegetation
4. Ensure lake water quality is adequate for recreation, fishing, and wildlife

### **Key Priority Actions**

- Communicate to property owners our Lake Management Plan and encourage them to assess on a regular basis the impact their property is having to the health and quality of the lake.
- Explore joint research projects with U of M researchers to have a better understanding of rusty crayfish and issues related to aquatic vegetation loss (both native and invasive) and reductions of pan fish population.
- Continue discussions with DNR on fish limits / catch and release to help control rusty population, maintain/increase aquatic vegetation, and maintain/improve lake water quality.
- Control milfoil spread and assess impact/effectiveness of new test chemical (assess value for future treatments) and hand-pulling by divers.

## Goal #1 - Minimize Impact of Aquatic Invasive Species (AIS)

### Objectives:

- Understand and communicate current state of aquatic invasive species.
- Determine best approach for our lake to coexist with aquatic invasive species while minimizing impact to property owner's and visitor's access to and enjoyment of the lake.

### Action Steps:

- Establish regular and systematic monitoring, testing and reporting to property owners on aquatic invasive species.
- Seek input and use resources of the Minnesota Aquatic Invasive Species Research Center (MAISRC) to help us in the prevention, detection and control of AIS in Clearwater Lake.
- Coordinate with Crow Wing County's stated 2020 AIS Plan and their 2013 to 2023 Water Plan.
- Maintain current control measures and explore enhancement measures to prevent new species from being introduced.
- Maintain and increase public access control points by maintaining signage, weekend/holiday County inspectors, assessing if additional inspection dates and funding are needed, and potentially add decontamination station at public access.
- Maintain healthy native aquatic vegetation population using strategies outlined in **Protect Native Aquatic Vegetation** section.
- Continue with regular chemical treatment methods (that do not appreciatively harm native vegetation) and continue to explore new technologies and approaches to minimizing lake impact.
- Invertebrates (rusty crawfish): Encourage trapping with proper disposal (eat, bury, donate). Consider and research inviting commercial harvesting.
- Protect smallmouth bass - seek catch and release designation from DNR.
- Zebra mussels – continue to monitor annually for veligers and adults. Develop proactive response and on-going management plan should they take hold.
- Where appropriate, contract with experienced and reputable consultants to help us with aquatic invasive species management plans.
- Budget for any contracted services and seek grants from available sources to mitigate cost to property owners.

## **Goal #2 - Protect and Improve Fish and Wildlife Habitat**

### **Objectives**

- Develop a comprehensive fish management plan that maintains a healthy fish population while providing property owners and visitors with a quality fishing experience.
- Protect wildlife population and environment to benefit the loons, eagles, ducks, deer, grouse, beavers, muskrat, otters, frogs, etc.

### **Action Steps**

- Use historical lake fish surveys to identify and trend fish populations and monitor every year; consider stocking fish populations if necessary and approved by DNR.
- Communicate no-wake zones during nesting season. Consider purchasing additional buoys if deemed necessary.
- Continue annual placement and management of artificial loon nesting structures around the lake (private homeowner initiative).
- Encourage shoreline habitat protection and restoration to improve water quality and fish and wildlife habitat.
- Coordinate with other lake associations and government bodies to learn about best practices to protect and promote our fisheries and wildlife.
- Where appropriate, contract with experienced and reputable consultants to help us with fish and wildlife management plans.
- Budget for any contracted services and seek grants from available sources to mitigate cost to property owners.

### **Goal #3 - Protect Native Aquatic Vegetation**

#### **Objectives:**

- Understand current state of native aquatic vegetation and how to preserve and foster re-growth of lost vegetation to properly support the water quality and variety of fish species and wildlife.
- Determine root causes for any loss of aquatic vegetation.
- Determine mitigation strategies for reducing or minimizing loss of aquatic vegetation.

#### **Action Steps:**

- Establish regular and systematic monitoring, testing and reporting to property owners on native aquatic vegetation.
- Continue regular aquatic vegetation surveys. Recommend 3-year frequency until native vegetation stabilizes. Web page has 1995, 2015, 2018 and 2021 surveys: <http://www.clearwaterlakemn.org/lake-reports.html>
- Communicate to property owners the impact human influence can have on native vegetation and the watershed (sewage runoff, agricultural runoff, etc.) and provide information on action steps they can take to reduce that impact.
- Minimize use of chemicals or alternative technologies that would harm native vegetation if, and when, treating invasive weeds that compete and overtake native vegetation.
- Determine impact of rusty crawfish on native aquatic vegetation.
- Where appropriate, contract with experienced and reputable consultants to help us with aquatic vegetation management plans.
- Budget for any contracted services and seek grants from available sources to mitigate cost to property owners.

## Goal #4 - Protect and Improve the Lake Water Quality

### Objectives

- Identify and document any watershed issues or characteristics that currently are impairing or could potentially impair the water quality through nutrient or sediment loading issues into Clearwater Lake and create action plan to help mitigate any adverse effects.
- Establish regular and systematic monitoring, testing and reporting to property owners on water quality and trends.
- Maintain and/or improve water quality values to provide property owners and visitors with a quality experience for recreating and fishing (on-going).
- Maintain water quality values within the average range of the Northern Lakes and Forests Ecoregion as outlined by the Minnesota Pollution Control Agency. Those values and ranges are:
  - Total phosphorus (nutrient level): <30 or 40 ug/L (state); RMB Environment Labs says Clearwater Lake levels have historically been between 14-27 ug/L
  - Chlorophyll-a concentrations (algae level): <10 ug/L; RMB Environmental Labs says Clearwater Lake level is 5 ug/L
  - Secchi depth (transparency): 8-15 feet but will vary during open-water season; RMB Environmental Labs says Clearwater Lake secchi depth was 12.3' in 2016
- Establish and communicate to property owners best practices for promoting healthy shorelines and for protecting our watershed.
- Establish benchmark of ideal water levels to protect shorelines, reduce erosion and provide proper outflow for downstream bodies of water.
- Ensure aquatic vegetation, fish and wildlife community structure is adequate for healthy lake populations and contributes positively to overall lake water quality.
- Provide transparent communication to property owners on any issues and possible solutions using Association website, emails, annual meeting or other appropriate methods.

## Action Steps

- Seek guidance, advice and, where appropriate, contract with experienced and reputable consultants to help us with water quality management plans.
- Contract with experienced and reputable water quality testing labs or State Agencies on an as-planned and budgeted basis to monitor, sample and assess the lake water quality.
- Using data from previous and future water quality reports, identify if any metrics are not in desired range after allowing for reasonable year-to-year variabilities caused by climate or other natural sources. Attempt to identify root causes and develop corrective action plans.
- Keep outbound creek flowing by monitoring and removing any impediments (remove/destroy beaver dams, continue to clear the culvert under Nokay Lake Road/County Road 8, etc.).
- Inform property owners and visitors when water levels are elevated to exercise boat wake control during open water seasons; lower water levels in fall help reduce/minimize ice heave damage to lake shorelines.
- Encourage shoreline restoration and creating buffer zones/strips to reduce nutrients entering the lake. Post shoreline restoration education resources on website.
- Contract with reputable company on a 5-year rotation to survey shoreline erosion and lake nutrient levels (i.e., septic leaching, possible overuse of phosphorus-based fertilizers, etc.). Provide property owners with possible solutions to correct and encourage implementation of any solutions.
- Budget for any contracted services and seek grants from available sources to mitigate cost to property owners.



## Property Owners – What You Can Do to Help Protect and Preserve Clearwater Lake

- Take active role in trapping rusty crawfish.
- Plant native grasses, wildflowers, shrubs and trees along shorelines and slopes. These provide good habitat for fish and wildlife but also act as a buffer that soaks up runoff carrying harmful nutrients into the lake from grass clippings, driveways and other organic matter.
- Install rain gardens, rain barrels, berms, or natural depressions.
- Don't burn brush or leaves on a slope where ashes can wash into the lake.
- Remove ash from any firepits and dispose of properly so none of it can wash into the lake after a rain storm.
- Regularly aerate your lawn to reduce soil compaction and improve water infiltration.
- Use non-phosphorous fertilizers and dishmachine detergents.
- Check your water softener to make sure system is not leaking.
- Maintain septic system and look for leaking system once every other year. If you are installing new or upgrading construction, consider installing holding tanks, composting toilets, gray water systems. Don't use a garbage disposal – could plug drain fields.
- Wash only full loads of dishes or clothes; use water-saving showers and toilets.
- Test your water. MN Dept of Health recommends annual testing for coliform bacteria, nitrates testing every other year, arsenic and lead testing at least once, and manganese testing before a baby drinks the water. As a private well owner, you are responsible for regularly testing your well water. Minnesota Department of Health (MDH) recommends:



<https://www.health.state.mn.us/communities/environment/water/wells/waterquality/tips.html>

Purchase kits locally (A.W. Research Laboratories near the Brainerd airport has these for sale).

## Lake Health Calendar

Action Item	Purpose	Frequency	Timing	Owner	Cost
Nokasippi River Headwaters Management	Keep outbound water flowing by monitoring and removing any impediments (boggs, beaver dams and trapping)	Monthly	April - Oct	Lake volunteer	\$500
Loon Nesting	Provide safe habitat for loons	Annual	April - June	Lake volunteer	\$0
Secchi depth readings	Record water clarity / depth	Annual	July	Lake volunteer	\$0
Water Quality	3rd party lab testing; chemical composition and temperature readings; assess issues; trend analysis	5 years; 2011, 2016, 2021		RMB Labs, Brainerd	\$500
Fisheries Catch Summary	Trend analysis	2019		DNR	\$0
Aquatic Vegetation	Aquatic plant mapping	10 years; 1995, 2015		DNR	\$0
	Identify aquatic plants, % frequency and distribution throughout lake. Establish baseline	3 years; 2018, 2021	Aug/Sept	RMB Labs, Brainerd	\$2,500
Invasives/Milfoil Survey	Identify extend of invasive vegetation	Annual	July/Aug	Freshwater Scientific Services	\$1,450
Invasive Vegetation Treatment	Treat invasive vegetation	Annual or selective (when needed)	Sept/Oct		\$0-40k based on treatment area
Shore Survey	Lakeshore habitat identifying sensitive lakeshore and shoreland	2011, 2015		DNR	\$0
	Shoreline erosion; lake nutrient levels; septic leakage	2009, recommend every 5 years?	Winter	TBD	TBD