

PRIORITY CONCERNS SCOPING DOCUMENT

Lake County Local Water Management Plan

Anticipated effective dates: Oct. 2015 – Oct. 2024



Lake County Soil and Water Conservation District
616 3rd Avenue
Two Harbors, MN 55616
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The following Priority Concerns Scoping Document was developed in accordance with changes to the Comprehensive Local Water Management Act; Statutes: 103B.301-103B.355. This Scoping Document identifies the priority concerns selected by the Lake County Water Plan Advisory Committee, along with a detailed account of how these concerns were identified and prioritized.

1. INTRODUCTION

Lake County is located in the middle of the northeast Minnesota Arrowhead region, bordered on the east by Cook County and on the west by St. Louis County. Lake County is the fourth largest county in Minnesota, with a total area of 2,132 square miles or 1,364,480 acres, extending approximately 36 miles east to west and 87 miles north to south along the western border with St. Louis County. The 2012 total population of Lake County was 10,818 permanent residents, slightly down (-0.4%) from the 2010 population of 10,866 residents. According to the Minnesota State Demographic Center, the population of Lake County is projected to increase slightly between 2015 and 2040, with a projected range of growth between 0 and 10%.



Lake County contains several small cities and towns, the most developed of which include Two Harbors, Silver Bay, Beaver Bay, Knife River, Finland, and Isabella. The population is concentrated in the southern area of the county along the North Shore of Lake Superior. Much of the northern third of the county lies in the Boundary Waters Canoe Area Wilderness. With a 2012 population of 3,692, Two Harbors is the largest city in the County and serves as the County seat.

2. PHYSICAL FEATURES OF LAKE COUNTY

Lake County has approximately 55 miles of Lake Superior shoreline and straddles the Laurentian divide, which separates two major watersheds. North of the Laurentian Divide, water flows through the Rainy River headwaters to Hudson Bay. South of the Laurentian Divide, water flows to the Atlantic Ocean through the Great Lakes. Approximately 25% of Lake County is classified

as "wetlands" and Lake County has approximately 98% of pre-settlement wetland area intact. Lake County is 83% publicly owned, including 58% Federal, 13% State, and 12% County tax-forfeited land. Primary large-scale land uses are logging and wood product industries. Other industries in the county include shipping, manufacturing, gravel mining, and tourism. Non-ferrous mining activities in the Stony River Township of Lake County are currently being pursued by the Twin Metals, LLC mining company. If approved, the Twin Metals mining project would introduce land use changes to the Stony River Township. These land use changes would have the potential to affect the water resources of Lake County. Other land use trends in the county are expected to remain relatively constant.

The highest point in the County is 2,067 feet above sea level, while the shores of Lake Superior are located at 602 feet above sea level. The County has 841 lakes and 418 streams, many of which are designated trout streams. There are five major HUC-8 level watersheds located in Lake County. From largest to smallest in area they are the Rainy River headwaters, South Lake Superior, North Lake Superior, Cloquet River, and St. Louis River watersheds.

3. PLAN INFORMATION

The Lake County Soil and Water Conservation District (Lake SWCD) is the local government unit (LGU) responsible for coordinating the Lake County Local Water Management Plan (Water Plan), and has filled this role since 1995. The current Water Plan, in effect from 2005 to 2015, has identified seven priority concerns, including:

1. Increased Development Pressures – Erosion Control on Construction Sites, Road Management, Cumulative Impacts, Shoreline Erosion Control
2. Enforcement of Existing Land Use Laws and Use of Best Management Practices in Development Activities and Forest Management Activities
3. Storm Water Management
4. Wastewater Management - Non-Conforming Sewage Treatment Systems, Surface and Groundwater Contamination, Drinking Water Quality
5. Natural Resources Education on Water/Land Issues
6. Lake and Stream Water Quality, Water Quantity and Biological Integrity
7. Supportive of Total Maximum Daily Load (TMDL) research project efforts on north shore streams.

This 2005 – 2015 Water Plan continued to endorse the overall goal established during 1993 water planning activities to “Maintain and improve both surface and groundwater quality and quantity through sound ecosystem management.” In 2010, the 2005 – 2015 Water Plan was amended to define and include high priority watersheds in Lake County in which proposed

action items would take precedence. These included the Beaver, Kawishiwi, Knife, and Stewart Rivers, as well as Skunk Creek. Additionally, the 2010 amendment process included the addition of several relevant plans and controls that were added for reference purposes, as well as updates to the implementation and work plan included in the Water Plan.

In 2012, additional amendments were made including the addition of Lake Superior as a high priority watershed and the decision to invite representatives from all townships and municipalities within Lake County to participate on the Water Plan Advisory Committee. The current Water Plan is due to expire December 31, 2014, and the 2015-2025 Water Plan will be in place and operational by January 1, 2015.

4. SELECTED PRIORITY CONCERNS

On October 23, 2013, the Water Plan Advisory Committee met to discuss collected priority concern input and select priority concerns to be included in the 2015 – 2025 Water Plan. During the meeting, the following four priority concerns were identified that will guide the goals, objectives, and action items as the Committee works on water planning activities in Lake County over the next 12 months. These priority concerns include:

- 1) Surface Water
- 2) Ground Water
- 3) Subsurface Sewage Treatment System (SSTS)
- 4) Aquatic Invasive Species (AIS)

5. PRIORITY CONCERNS HISTORY

The Lake County Water Planning process has completed the following steps to identify the priority concerns that will be in the Lake County Water Plan.

May 14, 2013: The Lake County Board of Commissioners resolved to update the current Local Water Management Plan, which was last updated in July, 2005 and amended in June, 2010 and November, 2012.

July, 2013: Request for input into the Lake County Water Plan process sent to Louisiana Pacific Building Products, Cliffs North Shore Mining, the Minnesota Deer Hunters Association, Minnesota chapter of Trout Unlimited, the Coldwater Coalition, the Advocates for the Knife River Watershed, Sugarloaf Natural Area, the White Iron Chain of Lake Association, Wolf Ridge Environmental Learning Center, the Cities of Two Harbors, Beaver Bay, and Silver Bay,

all Lake County townships, the North Shore Forest Collaborative, and all state review agencies (BWSR, DNR, MPCA, EQB, MDH, and MDA).

July 15, 2013: The kickoff meeting for the Lake County Water Plan revision process was held at the Two Harbors Law Enforcement Center from 9:00 am – 11:00 am. 16 participants were in attendance. This meeting introduced the Water Planning process, established the Water Plan advisory committee, presented the history of water planning in Lake County, highlighted aspects of contemporary water plans, and began the process of soliciting public and organizational input into the water planning process. A list of the initial priority concerns for Lake County identified at the July 15, 2013 kickoff meeting can be found in Appendix One.



Members of the Lake County Water Plan Advisory Committee visit about water quality issues in Lake County at the July 15, 2013 kickoff meeting in Two Harbors, MN.

July 20, 2013: Citizen input survey posted on the Lake County SWCD webpage and Facebook page, circulated through the White Iron Chain of Lakes and Advocates for the Knife River Watershed citizen groups. Survey also promoted through the various channels available to Water Plan Advisory Committee members.

July 26-28, 2013: Lake County SWCD hosted a table at the Blueberry Festival in Ely, Minnesota to disperse citizen input surveys and update the general public on the water planning document and process.

August 8-11, 2013: Lake County SWCD hosted a table at the Lake County fair to disperse citizen input surveys and update the general public on the water planning document and process.

August 14, 2013: Presentation to group assembled for rain garden planting in Knife River on the Water Planning process and the importance of citizen involvement in the process. Citizen surveys dispersed to participants.

August 20, 2013: Presentation to Silver Creek Township on the Water Plan process and the importance of township input into the process.

August 22, 2013: Article submitted to Trout Unlimited for inclusion in their newsletter to Stewart River watershed constituents to update public in the Lake County water planning process and request citizen participation in water plan input surveys.

October 23, 2013: Water Plan Advisory Committee meeting to identify priority concerns for Lake County at the Two Harbors Law Enforcement Center from 9:00 am – 11:00 am. Priority concerns were identified and selected based on citizen, agency, and advisory input collected via

surveys and completed priority concern input forms submitted to the Advisory Committee. This submitted information was reviewed with the Advisory Committee, and a discussion ensued on how the concerns of citizens, agencies, and organizations could be compiled and categorized in to major themes through which more detailed goals, objectives, and action items would be developed.



Over 50 participants attended the Community Conversation on water planning on November 18, 2013 in Two Harbors, MN.

October 25, 2013: Presentation to the Coldwater Coalition on the Water Planning process and the importance of Coalition member involvement.

November 8 and 15, 2013: Public meeting posted in the Lake County Chronicle and the North Shore Journal inviting all Lake County constituents to participate in the public Water Plan meeting on November 18, 2013.

November 18, 2013: Community Conversation on Lake County Water Plan priorities was facilitated at the Two Harbors Community Center. 51 participants attended to learn more about the priority concerns selected by the Lake County Water Plan advisory committee and provide input into what specific action and implementation steps may be considered to address these concerns. The community conversation was videotaped and a copy of this is available upon request by emailing dan.schutte@co.lake.mn.us. The video recording of the meeting is also available on the [Lake County SWCD Facebook page](#).

January 13, 2014: Water Plan Advisory Committee meeting in Two Harbors to approve Priority Concern Scoping Document for submittal to state review agencies, pending receipt of MPCA priority concern input into the process. Also discussed at this meeting was Lake and Cook County SWCD interest in pursuing the One Watershed, One Plan pilot project proposals through BWSR, as well as goals, objectives, and action items for aquatic invasive species (AIS) management in Lake County. Representatives from the DNR and Sea Grant participated in this meeting as consultants for AIS management strategies in Lake County.

6. PRIORITY CONCERNS IDENTIFICATION PROCESS

The following discussion describes the issues, opportunities, and concerns identified through public input process. The summary of responses from citizens that commented through online and hard-copy citizen surveys is included. Additionally, the priority concern input from each agency, business, and organization that submitted comments is summarized.

Citizen Input Survey Responses

In total, there were 34 responses from Lake County citizens on water planning priorities for the County. The survey that was provided is shown below.

Water Resources Survey
Which county is your home/land located in? (X)
☐ Lake County
☐ St. Louis County
☐ Cook County
☐ Other: _____
What are the top four water-related problems in your county? (X check 4)
☐ Failing septic systems
☐ Development pressure/impacts
☐ Lack of environmental education
☐ Natural habitat destruction
☐ Declining water clarity
☐ Erosion
☐ Over-application of fertilizers
☐ Stormwater/Drainage management
☐ Contaminated runoff
☐ Lack of regulations
☐ Groundwater contamination
☐ Other: _____
Which resource is the most threatened?
Rank 1-5, with 1 being the most threatened.
☐ Groundwater
☐ Wetlands
☐ Lakes
☐ Streams/Rivers
☐ Other: _____
Additional Comments/Suggestions:

Participants could choose four water-related issues in the county as their top issues of concern. After compiling responses, the four water-related problems in the county most commonly chosen by participants were:

- 1) Development Pressures and Impacts (17)
- 2) Aquatic Invasive Species (14)
- 3) Natural Habitat Destruction (13)
- 4) Stormwater/Drainage Management (13)

The following resources were rated by citizens in as the most threatened water resources in the county were identified. They were rated on a scale of 1-4, with one being the least threatened resource, and four being the most threatened:

- 1) Streams/Rivers (3.14)
- 2) Lakes (2.39)
- 3) Groundwater (2.25)
- 4) Wetlands (2.21)

As the Advisory Committee begins to develop the content of the Water Plan, citizen input will be used to guide our discussions and define our focus. Development pressures and impacts will be considered as they relate to surface water, ground water, subsurface septic treatment systems, and aquatic invasive species. The aquatic invasive species concerned identified by citizens is reflected in the Advisory Committee's decision to establish this issue as one of the priority concerns for the Water Plan. Natural habitat destruction and storm water and drainage management issues will be addressed in goals and objectives related to the priority concerns of surface water and ground water. Citizens identified streams, rivers, lakes, and wetlands as some of the most threatened resources in the county. The Advisory Committee reflected this input in establishing surface waters as a priority concern, as well as ground water as a separate priority concern area. The following table presents specific written comments received from the public during the survey process. These responses have been categorized based on the topic area that comments most closely relate to.

Development Pressures	<ul style="list-style-type: none"> • Protect areas from overdevelopment and increases in impervious surfaces. • Plan AHEAD for results of worse storms than we've had so far.
SSTS	<ul style="list-style-type: none"> • Program for the assessment of aged septic systems with funding resources available for septic upgrades • Failing septic systems and industrial waste/runoff abuses are the most serious or significant and we need to know the remedies for these. We also need to be made aware of other waste treatment systems besides mound septic systems. • Adopting a sanitary district to assist home owners with proper management, maintenance, and operation of their septic systems.
River/Stream Resources	<ul style="list-style-type: none"> • Get more volunteers to monitor rivers and lakes and take appropriate actions to prevent their degradation. • Reduce intensity of county forestry clear-cuts and logging in watersheds. • Streams seem to be warming, logging too close
Education	<ul style="list-style-type: none"> • Education is vital! • Increase and encourage public participation in protecting water resources. • Provide education about rain gardens. • A continual drumbeat is needed on the importance of our water resources, that they belong to all of us but are being abused for the benefit of a few. • Some kind of educational campaign for our Lake County visitors (tourists) about water resources here; something leaning toward being concise and visual with a small amount of very pointed text; posted/available at trailheads for wheelers, beaches, and other points of public access. • We need to better educate county residents, and elected officials on the impacts development can have in the watershed, i.e., we need to be aware of available resource tools in the tool box to better anticipate what may happen when we develop a certain area.
Mining	<ul style="list-style-type: none"> • I am very concerned about the possibility of sulfide mining in the area that could contaminate groundwater, our well, our stream, and other lakes and rivers! • Stop land exchanges that open forest lands to open pit mining without environmental review. Same for mineral leasing on both public and private property. The potential sulfide mines always pollute ground and surface water. Taxpayers wind up paying for the cleanup. • Please ban sulfate mining • Very concerned about sulfide mining • Very concerned about impact of proposed non-ferrous mining, especially Twin Metals' projects near Birch Lake and Spruce Road. • I wish you would list sulfide mining as a separate water-related concern in question 3. Yes, it would have an economic impact, short-term for the good. But long-term - it is NOT worth ruining our most valuable resource
AIS	<ul style="list-style-type: none"> • Block all incoming boats from reaching Lake County waters.
<p>Table One – Comments received from Lake County citizens through the Citizen Input Survey process for the Lake County Water Planning activities from July – November, 2013.</p>	

Business, Organization, and Agency Input

Appendix 3 includes a summary of the input provided from a variety of stakeholder businesses, organizations, and agencies with vested interest in Lake County water resource management. Original copies of the submitted Priority Concern Input Forms are available for review by emailing dan.schutte@co.lake.mn.us . A total of 13 businesses, organizations, and agencies submitted priority concern input for the water planning process. These comments were compiled and presented to the Water Plan Advisory Committee in conjunction with citizen input for review and inclusion in planning discussions.

Additional Priority Concerns Input

Lake County SWCD Supervisors were asked to assist with gathering input from constituents in their respective districts. The following comments were gathered from the northern half of Lake County, and represent a sampling of water resource priority concerns living in that area:

1. Protection of the Kawishiwi/Rainy River watershed from potential damage from future industrial development. Also, the St. Louis/Lake Superior watersheds from same.
2. Development of a means to provide testing or information on testing of private and public water wells for hazardous metals, e.g., manganese, nickel, arsenic, sulfates, mercury, etc. Currently, commercial wells like the several on my resort (“non-community wells”) are merely sampled annually for e coli and nitrates.
3. Other protections for ground water?
4. Proper regulation of effluent from current and future industrial development in Lake County.
5. The 2011 Minn. Dept. of Health study, **Mercury in Newborns in the Lake Superior Basin**, which found that 10% of newborns tested in the Lake Superior Watershed had toxic levels of mercury in their blood. What is being done, if anything, about this, other than recommending mothers don’t eat much fish from the lakes while pregnant? Interesting article in this week’s (October 20-27, 2014) Duluth Reader Weekly by Carla Arneson.

Additionally, following a public meeting on November 18, 2013 in Two Harbors, a constituent of the Advocates for the Knife River Watershed contacted Lake SWCD to provide the following reflections:

- 1) As to the content that got recorded, I don't think it fully captured the concerns I heard from the two water tables that the baseline info on water quality and the critter diversity needs heavy documentation for the county (more than just for WICOLA area) prior to any mining start.
- 2) The passion for our water resources threatened by acidification, metals, sulfate, and wetland loss from sulfide mining is going to be heard again and again by the counties and agencies. I would hope that SWCD might let them know the concern has legs and passion.

7. PRIORITY CONCERN SELECTION PROCESS

After public input was gathered, the information was compiled by the Lake County Water Plan coordinator and presented to the Water Plan Advisory Committee at the Priority Concern Selection Meeting on October 23, 2013. After reviewing the submitted information, the Advisory Committee held a discussion to establish areas of concerns that served to encompass a number of the individual concerns that had been presented through the process. Ryan Hughes, Duluth area BWSR Board Conservationist and member of the Lake County Water Plan Advisory Committee, noted that priority concerns may be established in a broad context to ensure that a variety of individual issues may be addressed in goals and objectives associated with priority concern areas. With this as a guiding principle for priority concerns establishment, the Water Plan Advisory Committee established four priority concern areas to serve as umbrella concerns under which a variety of more specific issues could be addressed. These priority concerns and their associated issues include:

1) Surface Water Protection

- a.** Storm Water Management
- b.** Forestry Management Practices
 - i.** Terrestrial invasive species
 - ii.** Riparian zone management
- c.** Stream Crossings
- d.** Stream Stability
- e.** Surface Source Water Protection
- f.** Surface Water Monitoring and Assessment

2) Groundwater Protection

- a.** Groundwater source protection
- b.** Well sealing
- c.** Groundwater monitoring and assessment
 - i.** Increase efforts to inventory unused and unsealed wells

3) Subsurface Septic Treatment Systems (SSTS)

- a.** Addressing systems that are failing, non-compliant, or pose an imminent threat to public health
 - i.** Increase efforts to inventory SSTS conditions in Lake County
- b.** Investigating, promoting, and utilizing alternative septic system design when appropriate

4) Aquatic Invasive Species

- a.** Monitoring
- b.** Prevention
- c.** Outreach and Education

Through the public input process, it became clear that participants in the process felt educational efforts are needed in all areas of priority concern. Additionally, more effective coordination between agencies, organizations, businesses, and other entities is necessary for water planning activities to be effective

through the long-term. Both educational activities and coordination of efforts will be incorporated into the goals, objectives, and action plans associated with the priority concern areas.

8. PRIORITY CONCERNS NOT ADDRESSED

Throughout the public input process it was clear that mining, particularly non-ferrous mineral extraction projects being proposed in the northern parts of Lake County, represent a serious concern to Lake County constituents. The video of the November 18th, 2013 Community Conversation on water planning held in Two Harbors reflects this concern as it was presented by a number of Lake County constituents. Mining has the potential to affect the water resources of Lake County, including waters of the Boundary Waters Canoe Area in the northern sections of Lake County, as well as Lake Superior. However, the planning and permitting processes related to mining activities are governed at the state (Minnesota DNR, Minnesota Department of Commerce) and federal (EPA) levels.

It was communicated to constituents that Local Water Management Plans are not necessarily the place where mining activities are able to be addressed. However, initiating or continuing monitoring and collection of baseline water data in areas that may potentially be affected by mining is within the scope of local water planning activities and will be a consideration during conversations related to surface and ground water concerns. Additionally, the Lake County SWCD will be providing information on opportunities and avenues through which the public can provide input to mining planning and permitting processes. This information will be made available to interested persons at future public meetings.

Outside of concerns directly related to mining, nearly all of the input received by the Water Plan Advisory Committee was able to be included within the scope of the four priority concerns that were established.

Appendix One - Initial Priority Concerns List developed by members of the Lake County Water Plan Advisory Committee at the July 15, 2013 Kickoff Meeting

Initial Water Concerns of Advisory Group at July 15, 2013 Meeting

Ecology

Fish diversity in river headwaters
Native species protection, not just steelhead
AIS - How to deal with threat/problem
AIS - Prevention, Education, Responsibility
Lack of active beaver ponds
Protecting N.S. streams that are not (yet?) impaired
Road Crossings - connectivity, geomorphology, capacity
Upland land practices affecting water quality
Maintaining high-quality resources
Land cover - forest management, open space, impervious surfaces
Clear cutting impacts?
Forestry mgmt. In riparian zones of the Knife River watershed
Protection of riparian zones in sensitive/high-risk sub watersheds.

Mining

Potential water quality issues, land use, heavy metals testing data
Impacts of sulfide mining
Mineral exploration drilling impacts to ground water

Erosion

Erosion and overuse in the BWCAW
Beaver River erosion (Silver Bay golf course...?)
County/Township fill permit, grade/coordination



Stormwater

Stormwater Mngt.
City ditches and watersheds
Storm water runoff degrading streams and Lake Superior
Stormwater permit compliance
e. coli impairments in two Harbors

SSTS Compliance

Non-compliant SSTS throughout county
Enforcement of existing federal, state, local regulations
Wastewater along Lake Superior
SSTS Inventory - Finland area
SSTS non-compliance in riparian zones
Riparian zone on Knife River is too vague

This list of priority concerns was developed as part of a brainstorming activity with Water Plan Advisory Committee constituents. The intent of this activity was to start thinking about the concerns that would be identified through the agency and public input process. As the process continued over the next several months, many of these initial concerns were reiterated by organizational, agency, and public input.

Appendix Two - Public comments submitted at the November 18, 2013 public meeting for suggested goals, objectives, and action items related to the four selected priority concerns.

Surface Water

- Increase promotion of Citizen Stream Monitoring Program (CSMP) and Citizen Lake Monitoring Program (CLMP)
- Monitoring water from both surface and airborne contaminants
 - Airshed data
 - Important to have a baseline
 - Monitor biotic index in lakes and streams
 - Water chemical analysis
 - Include heavy metals in volunteer monitoring
 - Stream flow and temperature data
- Sharing stories—make a documentary to **educate** kids and adults in a more personal way.
 - e.g. Walt Sve's herring fishing stories
- Form more lake associations to monitor water and discover/raise issues more quickly
 - Schools or Wolf Ridge stream monitoring programs

Groundwater

- Complete monitoring of exploratory bore holes
- Support the creation of the Lake County Water Atlas
 - Identify Critical Areas (mining/ brackish water)
- Enhance **baseline** groundwater volume, quantity and quality data
 - Existing data is sparse
- Gleaning from other experiences regarding (sulfide) mining impacts on groundwater
 - e.g. Arizona, Wisconsin, Michigan, Utah
- Creative monitoring with exploratory bore holes
 - Close those w/ brines
 - Use others as monitoring wells
- Perform Household monitoring (include heavy metals)

Aquatic Invasive Species (AIS)

- Create user fees for inland waters to help with the cost of monitoring/prevention.
- Public education/ volunteers—who? And how often?
- Advocate for ballast water treatment systems in large boats that bring in ballast water from long distances
- Change federal laws to allow suits against USGS/USDA
- Encourage enforcement
- Create a washing station at boat landings (Two Harbors doesn't have one)

- Availability/ enforcement of using decontamination units at specific sites or during specific time periods or events.
- Invasives are here
- People are the problem (AIS are moved by people)
- Too many small lakes (to monitor/control)
- Advertise where infestations exist
- Lake service provider system works
- Involve youth and education

Septic Systems

- Increase inspections
- Revolving loan program to increase participation in septic upgrades/compliance
- Increase education (young people)
 - School classes/tours—Wolf Ridge has done this
 - Lake associations
- Infiltration/inflow moving contaminants
- Alternative Septic Systems – what kinds are available and work. Community, cluster, or other designs?
 - Look beyond 60 years, as this is the maximum life expectancy for a traditional septic system
- Satellite Imagery may help assess SSTS performance

Appendix Three – Summary of Priority Concerns Input submitted by businesses, organizations, and agencies during the public input phase of the Lake County Water Planning process.

1) Wolf Ridge Environmental Learning Center, Finland, MN

Priority Concern #1: Streambank erosion

This is a priority concern because an increase of slides on river connected with extreme rain events have resulted in the loss of land and degradation in water quality. **Needed action includes** Increase public and township supervisor awareness to the threat of property loss, along with a degradation of rivers from siltation. Increase awareness of the issues by visiting township meetings, encouraging the start up of more river associations, and reaching out to recreational visitors. In years past the water plan created an educator to address reducing water consumption. Hire or contract out for a educator to program activities about reducing water consumption in the schools of Lake Superior school district and Ely School District. Use ideas generated from River People conference. Helping agencies with monies to follow through on best practice implementation and unfunded ideas that are already out there. **Specific areas include** where rivers make contact with trails, roads, homes and businesses, and forest cuts.

Priority Concern #2: Get Lake County community on Lake Superior

This is a priority concern because a large portion of Lake County residents that have never been on the waters of Lake Superior. You can not appreciate this special resource without a trip on to it. Lake Superior will gain more of an international conservation focus which will affect the population of Lake County. **Needed actions include** Providing AFFORDABLE means for all students to get out on Lake Superior. Find a means of getting a large group of residents out over a few week period using a "big boat". Help subsidize the cost of the adventure. **Specific audiences include** area schools and North Shore residents.

Priority Concern #3: Maintain emphasis on home use and disposal of water

This is a priority concern because Caring for our fresh water resources is becoming more of an issue as fresh water resources around the world are being threatened. A public that is aware of the importance of conserving this valuable resource and actively works to conserve our freshwater resources will ensure our own water security in the future. **Needed actions include** providing the public with the tools and resources to make informed choices about how they use water will ideally change the habits of people in this region. **Specific audiences include** population centers, lake and river property owners.

2) Nadarra Forestry LLC., Finland, MN

Priority Concern #1: Pollution of shallow bedrock drinking water aquifers by salt brines from deep bedrock aquifers through ungrouted mineral exploration bore holes.

This is a priority concern because Lake County has a history of wells being contaminated by deep bedrock salt brines. The recent USFS Hardrock Mineral Prospecting EIS determined that brines exist

further north in the county, and in some places (near Birch Lake), the deep aquifer has been documented to be under high pressure and has on occasion risen to the surface through bore holes. While the MN Dept. of Health requires grout filling of abandoned drinking water wells, mineral exploration rules do not require fully grouting the exploration holes until 10 or more years after exploration. Under the USFS FEIS, drilling companies are required to randomly test for brines, and fully grout wells that exhibit brines. However, the regulations do not apply to exploration activities outside of the National Forest. There are over a thousand acres of mineral leases that the MN DNR has recent let (pending legal challenges) northwest of Lax Lake Road, outside of the National Forest. This expansion of exploratory drilling outside the National Forest necessitates action to close this regulatory loophole. **Needed action includes** Lake County should require immediate grouting of all exploratory bore holes, or, alternately, sampling of borehole for brines, requiring all boreholes that test positive for brines to be fully grouted and abandoned. A third option would be to require casings of certain wells, to isolate deep bedrock groundwater from shallow bedrock groundwater, and use these wells to conduct hydrologic studies of the bedrock aquifers at various depths. **Specific Areas include** Duluth Metals Exploration Area between Isabella and Ely, and the area Northwest of Lax Lake Road.

Priority Concern #2: Potential pollution of surface and drinking water by leachate from waste rock stock piles of proposed Duluth Metals Copper-Nickel mine south of Ely.

Needed Action includes establishing baseline groundwater quality, hydrology and aquifer connectivity data for the area of the proposed mine. Boreholes that are cased for hydrologic studies (see issue #1) can be used for monitoring wells and pumping studies. **Specific Areas include** Duluth Metals exploration area between Isabella and Ely.

3) Minnesota Board of Water and Soil Resources

Priority Concern #1: Forest land management for private landowners

This is a priority concern because forest land management has a direct influence on water quality. Forest land management can be connected to trout stream impairments (turbidity, temperature, nutrient loading, etc.), habitat/degradation (land fragmentation) and soil loss (erosion). In addition, forest species management can play a role in snow melt duration and retention of water on the land. **Needed action includes** assisting private landowners with forest management planning and practice implementation. Targeting private landowners within riparian or shoreland zones and prioritize properties in a watershed with an impaired water body. Providing educational materials to private landowners on forestry options. Considering private landowner riparian and shoreland zone easements to promote water quality protection. **Specific audiences include** Riparian and shoreland owners within a watershed containing an impaired waters.

Priority Concern #2: Failing Subsurface Sewage Treatment Systems

This is a priority concern because addressing SSTs issues, specifically imminent public health threats and failing systems, will reduce pollutants from entering local rivers, streams, lakes and groundwater. In many instances this concern may have a direct correlation with private drinking

water supplies. **Needed actions include** developing a GIS based SSTS inventory. This could be coordinated with Lake County. Prioritizing developed lakes and riparian areas to complete SSTS inventories to identify imminent public health threats and failing systems. **Specific areas include** developed riparian and shoreland areas.

Priority Concern #3: Stormwater management to address non-point soil erosion

This is a priority concern because Recent historical weather trends indicate more frequent flooding and erosion, such as the severe storms and flooding associated with the June 2012 event. Targeting, prioritizing and implementing resilient activities to address stormwater management will prevent future erosion and damage associated with these severe events. **Needed actions include** assisting municipalities and landowners in culvert installation to ensure proper sizing of culverts. Consider utilizing increased engineering design standards to address high rainfall events. Consider utilizing natural channel design methodologies when addressing shoreline and streambank stabilization. Pursue funding and development of stormwater management plans for municipalities within the Lake Superior Coastal Zone. **Specific areas include** Lake Superior Coastal Zone

4) Advocates for the Knife River Watershed

Priority Concern #1: Riparian Management Zone (RMZ) management and practices which eliminate water quality and habitat degrading impacts that include sedimentation, rapid run-off and loss of streamside canopy and cover

This is a priority concern because It is crucial that the health of watershed ecosystems be protected by adopting and enforcing effective restrictions on land use activities within the riparian zone. This protection requires us to define the RMZ scientifically but conservatively and enforce the regulations on soil disturbance and tree harvesting within the RMZ to prevent the aforementioned harmful impacts to the watershed. **Needed actions include** coordination between stakeholders (e.g. county land departments, planning commissions, SWCD's, private land owners, townships, citizen's groups, conservation groups, DNR Fisheries and Eco Waters, MPCA) who will be held accountable for abiding by the county's or a specific watershed's recommendations and restrictions on RMZ activities. The stakeholders need to be part of the process of defining the RMZ by adoption of a particular scientifically derived, relevant set of best practices for that watershed, an excellent example of which is found in the Knife River TMDL Implementation Plan. **Specific areas include** streams and rivers with existing identified problems.

Priority Concern #2: Improving management planning in our watersheds to establish outcomes and clear lines of accountability.

This is a priority concern because improved watershed health and water quality, and stakeholder commitment to and confidence in the process of watershed management, go hand in hand. Clearly defined and coordinated watershed management planning that is credible and relevant to the area managed is needed to achieve that. **Needed actions include** coordinating a watershed framework for stewardship, to engage all stakeholders from the beginning of the process. The framework depends on all parties actively participating in developing and agreeing to follow the plan, with clear consequences for non-compliance.

Bring high level management stakeholders together and provide a venue and framework to hold regular meetings. Agree on what a healthy watershed would look like in Lake County (e.g.: bio-diversity, replanting density, selected replanting tree species, definition and clarification of RMZ and restricted activities within it). If possible the developed watershed plan should not be simply advisory, but rather it will likely only make a real difference if it is an enforceable plan, with understood consequences for disregarding or violating the core tenets of watershed protection. **Specific areas include** all watersheds in Lake County.

Priority Concern #3: Manage watersheds to optimize biodiversity

This is a priority concern because There is a need to enhance and improve biodiversity, which is an indicator of ecosystem health. The inadvertent or intentional removal of keystone species and/or a focus on propagating high numbers of a single species may lead to a serious unbalancing of the ecosystem, i.e. the elimination of habitat types that may harbor a wide range of native species. Managing for multi-uses and user groups can satisfy certain stakeholders but overly deplete biodiversity. It is important to know what species certain activities are most likely to disrupt and how to ensure that we protect to the greatest reasonable extent the native/adapted animals or plants in existing niches and habitats in each watershed. **Needed actions include** establishing biodiversity as a key objective and guiding principle that is applied in the coordinated management principles/framework addressed in Priority #2. Water resource managers should create educational opportunities/materials on biodiversity for watershed residents and user group stakeholders. A focus on maintenance and restoration of native plant communities in watersheds, and vigilant efforts to address aquatic invasive species, will be essential to improve biodiversity within the watersheds of Lake County. **Specific areas include** all watersheds in Lake County.

5) Lake County Soil and Water Conservation District

Priority Concern #1: Storm water management planning and practices

This is a priority concern because storm water runoff and management systems dramatically affect the health and stability of North Shore streams and lake, including Lake Superior, an Outstanding Resource Value water body. Storm water runoff increases sediment and pollutant loading in receiving bodies of waters, and correctly designed and installed storm water infrastructure is critical to ensuring hydrological connectivity and protecting municipal assets and infrastructure. **Needed actions include** coordinating increased educational efforts on the effects of impervious surfaces on water management and promoting best management practices to deal with runoff from impervious surfaces. Markings or signage on rain gutters that note “Drains to Lake”. Strong enforcement of storm water permit regulations, shoreland buffers, riparian management zones, and other zoning ordinances related to storm water management and runoff. **Specific areas include** streams and rivers with existing identified problems.

Priority Concern #2: Improving compliance, conditions, and options for subsurface sewage treatment systems

This is a priority concern because non-compliant or failing septic systems pose a threat to both natural resources and public health. BWSR reports that in Lake County, 11% of SSTS systems are failing or non-compliant, and 8% pose an imminent threat to public health. Trends in lakes in the northern parts of

Lake County show an increase in nutrient loading that correlates with development and septic system densities. **Needed actions include** educational efforts on the importance of septic maintenance and inspections. Completing a thorough county-wide inventory of septic system condition. A more regular and standardized regime for septic inspections, and providing design requirements for alternative types of septic systems such as community or cluster treatment systems. Pursuit of grants to assist with unfunded projects. **Specific areas include** all watersheds where SSTs are present.

Priority Concern #3: Source water protection

This is a priority concern because all residents in coastal communities in Lake County receive their water from Lake Superior, and there are numerous threats to this Outstanding Resource Value water body including nutrients, sediment, e.coli impairments, and heavy metals. Inland residents of Lake County use well-water from groundwater aquifers as their source water. These source waters are threatened by industrial contamination and impacts from exploratory well drilling. As water is one of the most abundant and valuable resources in our area, protecting it needs to be a priority. **Needed actions include** requiring an environmental assessment for exploratory drilling. Identifying wells, trout streams, and known private wells in the area and contacting stakeholder individuals, organizations, and agencies to appraise them of the drilling plans. Educational activities associated with source water protection. Providing resources for well testing – funding, information on testing procedures/businesses, could someone provide the water testing kits and send them out for testing? **Specific areas include** all areas of Lake County

6) Izaak Walton League

Priority Concern #1: Maintaining improved and consistent base stream flow levels

This is a priority concern because most of our north shore streams are spate streams that are greatly affected by precipitation. In recent years the streams have been extremely low in the summer providing poor trout habitat and enabling stream temperatures to increase to levels that are stressful or lethal for trout. Large rain events produce excessively high flows that are destructive to property and trout habitat. Low winter flows result in streams freezing to the bottom except in the few areas in which a seep or spring provides some thermal stability. **Needed actions include** Ensure that wetlands are protected and maintained in all watersheds and that logging is managed in such a way to prevent creating more flashiness in streams. In addition, a large riparian buffer of at least 200 feet should never be logged. In areas where large scale clearcuts have occurred, reforestation efforts must be made using a wide variety of trees. Explore other options for slowing runoff into streams and directing it into wetlands that release the water into the streams more slowly and through springs and seeps. **Specific areas include** any trout stream or tributary.

Priority Concern #2: Maintaining cold water temperatures in trout streams and their tributaries

This is a priority concern because optimally, trout need stream temperatures to be between 50 and 65 degrees and never more than 68 degrees, although brown trout may tolerate somewhat higher temperatures for short periods of time. The low flows during dry summer periods of drought - which have been much more frequent in recent years - cause elevated stream temperatures that are stressful or, at

times, lethal for trout. Keeping streams cold is directly related to maintaining a more consistent base flow - especially during periods of drought. In addition, it is extremely important that trout streams and their tributaries are shaded by a tree canopy to limit solar warming. **Needed actions include** the same actions as for priority 1 above, in addition to tree plantings in riparian zones where there is insufficient stream shading and stream temperatures are in an unacceptable range for trout **Specific areas include** any trout stream or tributary.

Priority Concern #3: Ensuring Fish Passage

This is a priority concern because perched culverts are frequent culprits in preventing the passage of fish from one area of a stream to another. Such barriers to passage prevent fish from moving to areas that provide thermal protection during periods of low flow and from reaching their optimal spawning areas. **Needed actions include** ensuring that culverts are properly installed and frequently inspected and maintained. Whenever possible, bridges, rather than culverts, should be installed on trout streams and their tributaries. **Specific areas include** any trout stream or tributary.

7) Louisiana Pacific Building Products

Priority Concern #1: Storm water runoff

This is a priority concern because our rivers and lakes should be preserved to stimulate ecosystems to flourish and provide a variety of fabulous recreation for future generations. **Needed actions include** maintaining and promoting areas that prevent erosion and contaminated stormwater run-off from reaching rivers and lakes. Improve areas that currently contribute to the degradation of surface waters because of erosion and contamination. Educate the public to know why clean surface water is important and how to maintain and or improve the areas where they live, work and play. **Specific areas include** all areas are important but specifically the surface waters that directly affect Lake Superior.

8) Sugarloaf: The North Shore Stewardship Association

Priority Concern #1: Inclusion of terrestrial invasive species control in the water plan discussions.

Associated Comments: Because the SWCD works directly with landowners, Sugarloaf believes they are more effective than the DNR. Also, currently the DNR's main focus is on aquatic invasive species. Any additional group or agency that can help private landowners with terrestrial invasive work is desperately needed.

9) Lake Superior Steelhead Association

Priority Concern #1: Ensuring fish passage

Needed actions include fish passage is considered prior to any construction project. Design and maintain all stream crossings to insure adequate fish passage **Specific areas include** any trout stream or tributary.

Priority Concern #2: Riparian Zone Management

Needed actions include managing the riparian zone for diverse shrub and tree species, limiting timber harvest in riparian zone to diseased trees or tree stands, controlling invasive plant species when applicable, and limiting riparian zone degradation from construction projects and beaver impacts.

Specific areas include any trout stream or tributary.

Priority Concern #3: Stream Restoration

Needed actions include pursuing grants to restore impacted streams and supporting grants from other organizations looking to restore impacted streams. **Specific areas include** impacted streams and rivers.

10) Minnesota Department of Agriculture (MDA)

The MDA has built a webpage to present the agency priority concerns to be included in local water management plans around the state. This website can be found at:

<http://www.mda.state.mn.us/protecting/waterprotection/waterplanning.aspx>

While several of the agency's priority concerns are focused on agriculture-specific activities, the MDA offers input in areas of [wetlands and water retention](#), [land management in wellhead protection areas](#), and [targeting best management practices to critical areas on the landscape](#) pertinent to Lake County water resources. The linked pages above provide the validation for these concerns, needed actions related to these concerns, and specific areas where these actions should be implemented.

11) Minnesota Department of Health

Priority Concern #1: Source water protection for the cities of Two Harbors, Silver Bay, and Beaver Bay

This is a priority concern because the public drinking water supply for these three cities is primarily from Lake Superior and its adjacent watersheds. Beaver Bay and Silver Bay share a protection area that includes the lower portion of the Williams Creek watershed and the lower portion of the Beaver River watershed. The City of Two Harbors protection area includes upper Skunk Creek watershed and the Stewart River watershed. These surface water-based drinking water systems are highly susceptible to potential contaminants entering the public water supply at a level that may result in an adverse human health impact. Additional information regarding these cities' drinking water supply can be found at: <http://www.health.state.mn.us/divs/eh/water/swp/swa/index.htm>. **Needed actions include** developing and implementing a comprehensive source water protection plan, perhaps as a component of broader, county-wide water resource/land use management plans.

1. Conduct watershed protection strategies that result in clean water contributions to Lake Superior.
2. Support landuse controls that result in groundwater protection.
3. Conduct unused well inventories and actively promote their sealing.
4. Educate the public and elected officials about the importance of source water protection.

Specific areas include Watersheds that contribute surface water to Lake Superior and areas where inappropriate land use can contribute to, or result in water contamination.

Priority Concern #2: Protect groundwater-based drinking water sources within Lake County

This is a priority concern because with the exception of the cities cited above, and private residences adjacent to Lake Superior that utilize the lake for their drinking water source, the remainder of Lake County's residents depend on ground water for drinking water. Wellhead protection efforts result in public water suppliers developing and implementing wellhead protection plans. All public water suppliers within the county should be listed within Lake County's management plan (see the above referenced web address for a complete listing of public water suppliers in Lake County). As of July 22, 2013, there were 103 public water suppliers in Lake County - 94 utilize groundwater, 6 utilize surface water, and 3 utilize both as their primary drinking water source.

Private wells also need protection from potential contaminant sources. This can be accomplished by identifying potential contaminant sources, maintaining proper setbacks to potential contaminant sources, and related land use educational efforts. **Needed actions include** acknowledging and supporting public water supply wellhead protection areas within Lake County. Consider wellhead protection areas when making land use decisions. Work with community and non-community public water suppliers in the development and implementation of wellhead protection activities. When requested by a public water supplier, provide assistance in locating wells for ground water modeling efforts undertaken in wellhead protection. Develop a water quality data base to track contaminants of concern in the ground water. The MDH may be able to offer technical assistance in this effort. **Specific areas include** As community and noncommunity nontransient public water suppliers complete wellhead protection plans, there will be designated "Drinking Water Supply Management Areas". As these areas are approved by the MDH they are posted on the website referenced above. All noncommunity transient public water suppliers have a 200-foot radius surrounding the well that is designated as the wellhead protection area.

Priority Concern #3: Sealing unused, unsealed wells

This is a priority concern because proper well abandonment is an effective means of protecting ground water from potential contaminants that may be transported into an aquifer. Also, unused, unsealed wells can pose a safety hazard to children or animals and a potential liability to the well owner. **Needed actions include** conducting unused, unsealed well inventories. Maintaining or developing a cost share program to financially assist property owners in sealing unused, unsealed wells on their property. **Specific areas include** established Drinking Water Supply Management Areas are highest priority. Based upon the details of an inventory, all unused, unsealed wells that reach or penetrate to the same aquifer used by a public water supply system should have highest priority for sealing. A secondary priority is to seal any other known or discovered unused, unsealed wells in Lake County.

12) White Iron Chain of Lakes Association

Priority Concern #1: Continued water monitoring to identify issues quickly, with focus on prevention

This is a priority concern because based on KWPP data and previous baseline water monitoring data, the water quality in Kawishiwi Watershed is generally good, although water samples adjacent to existing mining operations have different physical and chemical characteristics. It is important to continue and expand water monitoring with focus on prevention. **Needed actions include** Continued support of existing water monitoring programs (e.g. WICOLA's). Expansion of water monitoring by approaching and training additional citizen groups in not just secchi monitoring, but also monitoring for nutrients (phosphorus, nitrogen). Continuing to gather and coordinate/share all water monitoring that is being done to avoid duplication and to coordinate efforts to collect baseline data. Continued heavy metals testing for ongoing collection of baseline data **Specific areas include** areas (including our chain and upstream) in relatively "good health" continue to receive attention for prevention. Don't just focus and provide funding for lakes, rivers, and streams on the TMDL list.

Priority Concern #2: SSTS

This is a priority concern because Inventories of SSTS done as part of KWPP revealed that 45-65% of septic systems in the watershed fail to adequately protect groundwater with specific data identifying areas that pose the greatest risk to water quality in the Kawishiwi Watershed. **Needed actions include** enforcement of current SSTS regulations to ensure compliance, and maintain stringent standards/regulations (and continue to computerize records to ensure better tracking of SSTS permits, inspections, and required inspections as property changes ownership, etc. Continued monitoring of lakes with the highest density of SSTS and add bacteria testing. Completion of Community Assessment Reports. Monitoring lakes with the highest density of SSTS for impacts to wells. Educating property owners on operation and maintenance of their septic systems and the importance to the health of our waters. **Specific areas include** [see inventory of SSTS done as part of KWPP and the analysis identifying high priority areas](#) - there were nine service areas identified that pose the greatest risk to water quality

Priority Concern #3: Aquatic Invasive Species

This is a priority concern because in a 2012 AIS survey done as part of KWPP, one third of property owners in the Watershed feel that AIS is a "big or medium" problem. Although rusty crayfish has been in the only AIS identified in the watershed, spiny water flea, Mystery snail, Zebra mussels and Eurasian water milfoil have been found in nearby lakes. This makes prevention efforts even more important. **Needed actions include** continued education and training to lake users, outfitters, about AIS, procedures for prevention, and infected lakeks. Continued monitoring for spiny water flea and trapping rusty crayfish. **Specific areas include** areas where AIS have already been identified or that are in close vicinity of infected lakes. For example, in the vicinity of WICOL, Burntside and Shagawa Lakes (and inevitably Fall Lake since it is connected) have spiny water flea. WICOL is encouraging WICOL users to use particular caution after boating and/or fishing in these lakes and follow procedures for disinfecting (drying boats and equipment thoroughly for up to 6 hours) in the case of spiny water fleas.

Priority Concern #4: Shoreland Management

This is a priority concern because properly managed shorelines help to prevent the contamination of our waters. **Needed actions include** enforcement of regulations as an imperative. WICOLA sees their role

as educating property owners about best practices and to inform them about the harmful effects of actions off water that effect water quality. **Specific areas include** developed lakes in Lake County.

13) Minnesota Pollution Control Agency

Priority Concern #1: Impaired Waters/Total Maximum Daily Load (TMDL) Studies

This is a priority concern because the Federal Clean Water Act requires states to adopt water quality standards to protect the nation’s waters. These standards define how much of a pollutant can be in a surface waters and/or groundwater while still allowing it to meet its designated uses, such as for drinking water , fishing, swimming, irrigation or industrial purposes. **Needed actions include** ensuring counties consider how their LWM Plans address impaired waters, as identified on the “Final List of Impaired Waters” available on MPCA’s website at: <http://www.pca.state.mn.us/lupg1125>. It is suggested the LWM Plan:

- Identify the priority the County places on addressing impaired waters, and how the County plans to participate in the development of TMDLs for impaired waters.
- Include a list of impaired waters and types of impairment(s).
- Identify the pollutant(s) causing the impairment (see MPCA website).
- Address the commitment of the County to submit any data it collects to MPCA for use in identifying impaired waters, provide plans, if any, for monitoring as yet unmonitored waters for a more comprehensive assessment of waters in the County.
- Describe actions and timing the County intends to take to reduce the pollutant(s) causing the impairment, including those actions that are part of an approved implementation plan for TMDLs.

Specific area information: Regional TMDL reports for mercury have received approval from the U.S. Environmental protection Agency (EPA) and MPCA will lead efforts in studies for those mercury impairments not approved through this process , as well as for polychlorinated biphenyls (PCBs). Therefore, waters listed as impaired for a pollutant/stressor other than mercury and PCBs are recommended to be addressed in the LWM Plan.

The following table presents impaired waters in Lake County. An additional 72 lakes in Lake County are impaired for mercury in fish tissue and have an approved TMDL, and 41 more lakes are impaired and require a TMDL. A full list of the Lake County impaired waters is available at the MPCA website.

Impaired Stream Segments, Beaches, and Lakes:

Streams	Year Listed	Segment ID #	Affected Use	Pollutant/Stressor	Impaired Status
Beaver	2014 (draft)	04010102-501	Aquatic Life	Fish Bioassessments	TMDL Required
Beaver	2002	04010102-501	Aquatic Life	pH	TMDL Required
Beaver	1996	04010102-501	Aquatic Life	Turbidity	TMDL Required
Beaver, West Branch	2014 (draft)	04010102-577	Aquatic Life	Fish Bioassessments	TMDL Required
Beaver, West Branch	2014 (draft)	04010102-577	Aquatic Life	Macroinvertebrate Bioassessments	TMDL Required
Knife River	1996	04010102-504	Aquatic Life	Turbidity	TMDL Approved
Little Knife River, East Branch	2008	04010102-840	Aquatic Life	Dissolved Oxygen	TMDL Required
Little Knife River, East Branch	2008	04010102-840	Aquatic Life	Turbidity	TMDL Required
Skunk Creek	2014 (draft)	04010102-528	Aquatic Recreation	Escherichia coli data	TMDL Required
Skunk Creek	2010	04010102-528	Aquatic Life	Turbidity	TMDL Required

Beach	Year Listed	Segment ID #	Affected Use	Pollutant/Stressor	
Burlington Bay Beach	2014 (draft)	04010102-C30	Aquatic Recreation	Escherichia coli data	TMDL Required

The District should continue participating with other units of government to develop and implement TMDL Implementation Plans once TMDL studies receive final approval from EPA. Grant funding applications for TMDL impaired water implementation projects may request citation from local water plans identifying water bodies as County priorities. This documented commitment by a county may improve a proposals ranking and ultimately the County's ability to secure implementation funding.

Priority Concern #2: Watershed Restoration and Protection Strategies (WRAPS) Approach

This is a priority concern because the MPCA uses a Watershed Approach process for monitoring and assessing the condition of Minnesota's waters (<http://pca.state.mn.us/irypf30>). The Watershed Approach is being implemented at the major watershed scale, in which MPCA and its partner organizations work on each of the state's 81 major watersheds to evaluate conditions, establish priorities and goals for improvement, and take actions designed to restore and protect water quality. The MPCA and its partners began implementing this approach in 2007, at the recommendation of the Clean Water Council and as directed by the Minnesota Legislature.

The Watershed Approach focuses on the watershed's condition as the starting point for water quality assessment, planning, implementation, and measurement of results. This approach may be modified to meet local conditions, based on factors such as watershed size, landscape diversity, and geographic complexity (e.g., the Twin Cities Metropolitan Area). This Watershed Approach will ultimately lead to a more comprehensive list of impaired and non-impaired waters. This list will be used to develop TMDLs and restoration strategies for impaired waters as well as strategies to protect and maintain the water

quality of non-impaired waters. The development of protection strategies will rely greatly on county participation and counties will likely be asked to provide priority areas to target restoration and protection activities. Targeted priorities will be an important step toward receiving funding for implementation activities. Communication and coordination between counties located in watersheds with completed WRAPS will be essential to develop a comprehensive and effective implementation plan.

Needed actions include:

- **Monitor and gather data and information.** The MPCA employs an intensive watershed monitoring schedule that will provide comprehensive assessments of all of the major watersheds on a 10-year cycle. This schedule provides intensive monitoring of streams and lakes within each major watershed to determine the overall health of the water resources, to identify impaired waters, and to identify those waters in need of additional protection to prevent future impairments. It is suggested that the LWM Plan address Surface Water Assessment Grants (SWAGs) and additional monitoring within Lake County that may be used in the WRAPS process.
- **Access the data.** Based on results of intensive watershed monitoring in step on, MPCA staff and its partners conduct a rigorous process to determine whether or not water resources meet water quality standards and designated uses. Waters that do not meet water quality standards are listed as impaired waters. It is suggested that the LWM Plan address data submittal and representation to participate in the assessment process for use in the WRAPS. The MPCA uses a database called EQuIS (Environmental Quality Information system) to store water quality data from more than 17,000 sampling locations around the state. EQuIS contains information from Minnesota streams and lakes dating back to 1926. EQuIS replaces an older system, STORET, which was in use until September 2009. All data previously housed in STORET has been moved to EQuIS.
- **Establish implementation strategies to meet standards.** Based on the watershed assessments, a TMDL study with restoration and/or protection strategies is completed. Existing local water plans and water body studies are incorporated into the planning process. It is suggested that the LWM Plan address participation in development of restoration and protection strategies developed through the WRAPS study area as well as priority management zones.
- **Implementation of water quality activities.** Included in this step are all traditional permitting activities, in addition to programs and actions directed at nonpoint sources. Partnerships with state agencies and various local units of government, including watershed districts, municipalities, and Soil and Water Conservation Districts will be necessary to implement these water quality activities. It is suggested that the LWM Plan address implementation of restoration and protection strategies once they are developed through the WRAPS process.
- **MPCA Environmental Data Access (EDA) System.** The water quality section of MPCA's EDA system allows visitors to find and download data from surface water monitoring sites located throughout the state. Where available, conditions of lakes, rivers or streams that have been assessed can be viewed. This site may be useful with LWM planning efforts:
(<http://www.pca.state.mn.us/r0pgda5>)

14) Minnesota Department of Natural Resources

Priority Concern #1: Stream Stability and Stream Crossings

This is a Priority Concern because maintaining stream stability and providing adequate stream crossings for fish and wildlife are important to consider. Knowledge of the watershed along with adequately sized stream crossings will help to better maintain stream functions and prevent structural damage. Many streams have undersized culverts and bridges that do not adequately pass water to support natural stream water velocities and transport of sediment. Many culverts are also perched, further reducing channel stability and preventing aquatic organism passage. Replacing these crossings with culverts and bridges that are sized to match the channel bankfull width, that are buried below the stream bed and that match the stream slope and alignment is important to maintain stream stability as well as maintaining stream ecological functions that support fishery and wildlife habitats. Some crossings being undersized likely contributed to structural and stream damage in 2012. In cases where greater capacity is needed, floodplain culverts should be installed to increase flood capacity, provide aquatic organism passage during large floods and to improve durability and safety of the crossings in large flood events by reducing the amount of woody debris in the main channel. Minimizing the number of smaller openings will also reduce the likelihood of culverts being blocked by debris and failing in large floods.

Needed actions include:

1. If not already doing so, have Lake County adopt General Permit language for stream crossings that follows the above described principles.
2. Employ methods to design stream crossings to mimic shape, slope, alignment and stream bed material of natural stream channel.
 - 2A. Establish Relationships for Bankfull Discharge as a function of watershed drainage area.
 - 2B. Conduct physical surveys at each crossing, measuring channel profiles, riffle cross sections and channel material for use in design, in accordance with DNR recommendations.
3. Assessment of current and expected land use coverage that may impact streamflow such as, development or forest conversion in the watershed.
4. Consider wildlife friendly crossings at busier highway traffic sites to minimize fatalities to small mammals, amphibians and reptiles from crossing over the road. This may involve using larger or offset openings and/or including construction materials that are easier for animals to pass under the road.

DNR Ecological Water Resources is a resource that can be used to accomplish these items, and **North Shore Streams** are areas of particular concern.