Rainy River-Rainy Lake

ONE WATERSHED ONE PLAN

Rainy River-Rainy Lake Comprehensive Watershed Management Plan

Formal Review Draft: October 2024

CLEAN WATER LAND & LEGACY AMENDMENT

ACKNOWLEDGEMENTS

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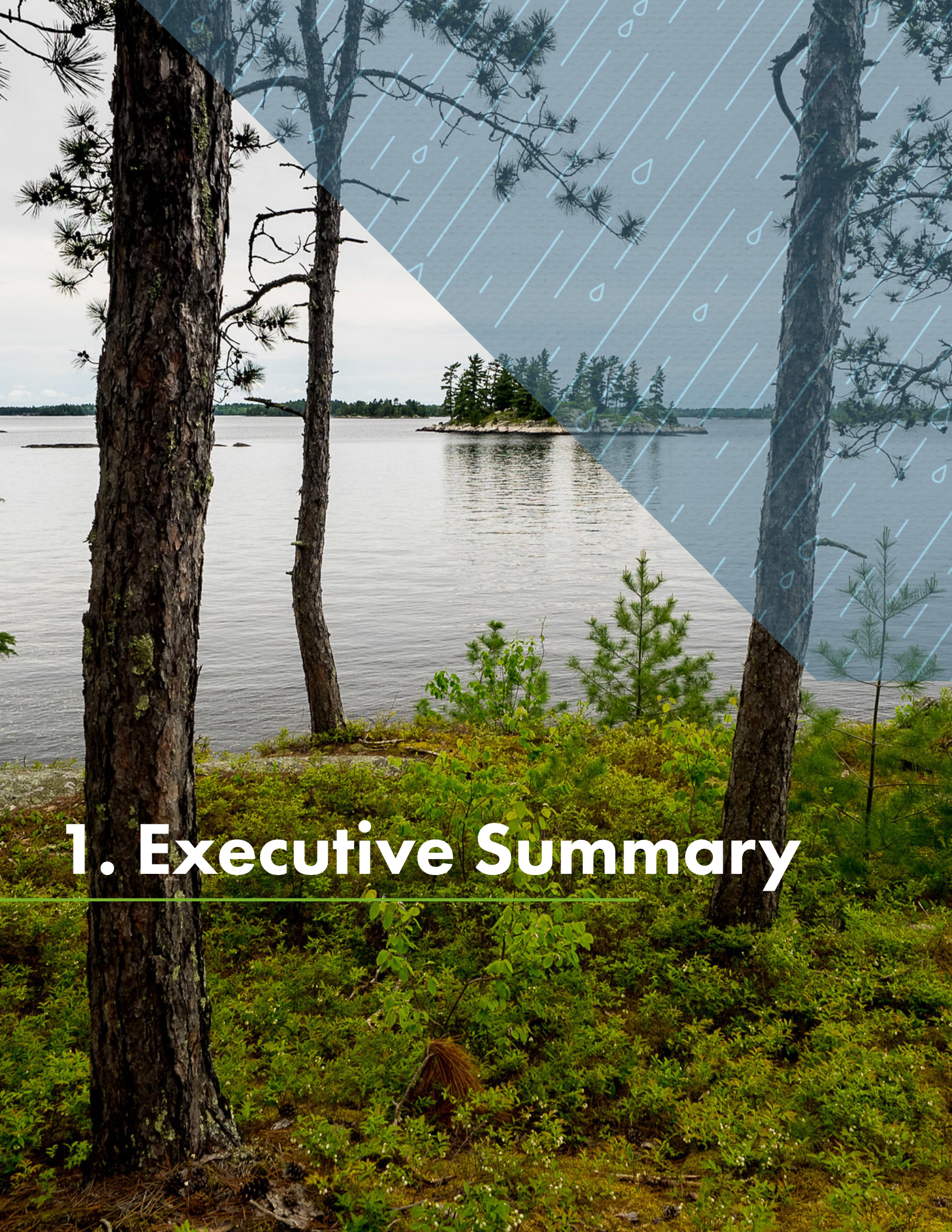
Appendices

ACRONYMS

1W1P	One Watershed, One Plan
AC	Advisory Committee
AIS	Aquatic Invasive Species
BMP	Best Management Practice
BWSR	Board of Water and Soil Resources
CO2	Carbon Dioxide
CPF	Compensation Planning Framework
CRP	Conservation Reserve Program
CSISS	Center for Spatial Information Science and Systems
CWMP	Comprehensive Watershed Management Plan
DNR	Minnesota Department of Natural Resources
DO	Dissolved Oxygen
DWSMA	Drinking Water Supply Management Area
E. coli	Escherichia coli
EAB	Emerald Ash Borer
EPA	Environmental Protection Agency
EQIP	Environmental Quality Incentives Program
FSA	Farm Service Agency
HHW	Household Hazardous Waste
HSPF	Hydrologic Simulation Program – Fortran
HUC	Hydrologic Unit Code
IJC	International Joint Commission
LGU	Local Government Unit
LSP	Landscape Stewardship Plan
MDA	Minnesota Department of Agriculture
MDH	Minnesota Department of Health
MnDOT	Minnesota Department of Transportation
MOA	Memorandum of Agreement
MPCA	Minnesota Pollution Control Agency
NLCD	National Land Cover Dataset
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
PC	Policy Committee
PFAS	Per- and polyfluorinated substances
PWS	Public Water Supply
RAQ	Risk Adjacency Quality
RIM	Reinvest in Minnesota
RIM	Reinvest in Minnesota (Easement Program)
RRRL	Rainy River-Rainy Lake / Lower Rainy River
RRRL CWMP	Rainy River - Rainy Lake Comprehensive Watershed Management Plan
SFIA	Sustainable Forest Incentive Act
SNA	Minnesota Scientific and Natural Area
SSTS	Subsurface Sewage Treatment Systems
SWCD	Soil and Water Conservation District

TMDL	Total Maximum Daily Load
TNC	The Nature Conservancy
TSS	Total Suspended Solids
USDA	United States Department of Agriculture
USFS	United States Forest Service
VNP	Voyageurs National Park
WBIF	Watershed-Based Implementation Funding
WCA	Wetland Conservation Act
WMA	Wildlife Management Areas



1. Executive Summary

SECTION 1. EXECUTIVE SUMMARY

About the Watershed

The Rainy River-Rainy Lake/Lower Rainy River (RRRL) Watershed is located on Minnesota's northern border and defined largely by the Rainy River and Rainy Lake, two significant water bodies shared with Canada. The RRRL has a unique shape, frequently described as "the butterfly," and has extensive wetlands/peatlands across the watershed. The RRRL contains a large portion of Minnesota's only National Park, Voyageurs National Park (VNP), which attracts visitors from across the state, country, and abroad.

The RRRL contains two major watersheds, the Rainy River-Rainy Lake (09030003) and Lower Rainy River (09030008). For the purposes of this RRRL Comprehensive Watershed Management Plan (CWMP) and the One Watershed, One Plan (1W1P) planning process, these two HUC-8 watersheds are joined into one watershed. This allows for smoother planning and implementation to help preserve the pristine watershed that is rich in cultural and economic resources. The RRRL's approximately 629,000 acres are mostly within Koochiching County, with only 16% of acreage in east neighbor St. Louis County and less than 1% of acreage in western neighbor Lake of the Woods County.

Current landcover in the watershed is a majority herbaceous or woody wetlands/peatlands (70%) and is relatively evenly distributed throughout the RRRL. Forests cover approximately 15% of the watershed and are concentrated in the eastern portion of the watershed. Open water covers 8% of the land. Other small land uses include agriculture, mining, developed, and some grasslands. Only 1.5% of land in the watershed is developed. Approximately 56% of the watershed is publicly owned by city, county, state, or federal entities. Most of the public land is state forested land, managed by the DNR. Additionally, there are approximately 45,000 acres, or 7% of the watershed, owned by the Red Lake Band of Chippewa on the western side of the RRRL.

Photo Credit: Jeff Kantor

Roles and Responsibilities

This RRRL CWMP was developed under a Memorandum of Agreement (MOA) between Koochiching County, Koochiching Soil and Water Conservation District (SWCD), the City of International Falls, and the City of Ranier (**Appendix A**). The agreement created the collaborative Rainy River-Rainy Lake Partnership.


Planning Meeting

As the 1W1P process uses existing authorities, representatives from each entity of the RRRL Partnership were appointed by their respective boards to serve on the Policy Committee, the decision-making body for this plan.

The plan content was developed by members of the Advisory Committee, which consisted of local government staff from entities within the RRRL Partnership, Red Lake Nation, state agencies, and local topic experts. The Steering Committee, made up of local government staff from entities within the RRRL Partnership, Board of Water and Soil Resources (BWSR) staff, and consultants guided the planning process and produced the final plan.

On approval of this plan, Koochiching County, Koochiching SWCD, the City of International Falls, and the City of Ranier entered into a formal agreement to implement this plan. The Policy, Advisory, and Steering Committees all serve roles to ensure efficient, collaborative, and effective implementation of the RRRL CWMP (see Section 6. Plan Administration).

Identifying and Prioritizing Issues

To begin the RRRL CWMP planning process, planning partners determined the most pressing issues facing natural resources in the watershed. An "issue" is defined as a risk, problem, or opportunity within the RRRL that can impact a natural resource. A "resource" is a water body that provides several services to all inhabitants of the watershed. These services include habitat, drinking water, recreation, aesthetics, refuge, and more. Figure 1.1. demonstrates the process of identifying and creating priority issues for the plan.

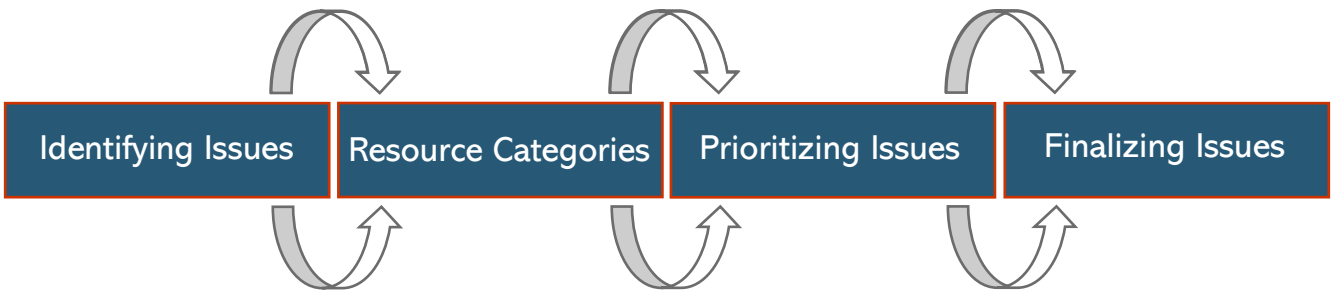


Figure 1.1 Process for identifying issues for the RRRL CWMP.

Identifying Issues

To identify plan issues, planning partners developed a comprehensive list of issues that impact resources in the watershed. The planning partners created this comprehensive list by conducting a review of existing documents authored by local experts, available data, and comprehensive studies of the region. As issues were identified, common themes for the issues were formed based on how issues impact resources. Thus, "resource categories" were created to better sort or organize identified issues important to the citizens and wildlife of the RRRL Watershed (Table 1.1).

Table 1.1 Resource categories for the RRRL CWMP.

Resource Category			
Water Quantity and Hydrology	Water Quality	Habitat and Forests	Groundwater and Drinking Water

Getting Community Feedback

Feedback was needed from the public and local experts to create a final list of plan issues and prioritize issues as a focus of the plan. A public kickoff meeting was held in early September 2023 in Ranier to gather viewpoints from citizens in the watershed about issues they think should be the focus of the plan. Community members unable to attend were able to complete an online survey. A total of 27 people contributed public input between the survey and the public kickoff meeting.

Feedback during Public Kickoff

Feedback captured during the meeting and with the online survey were valuable to the planning partners and shaped the development of the plan's issue statements. A full report with results from the kickoff meeting and survey can be found in **Appendix B**.

Following the collection of public input, the planning committees brainstormed and compiled a list of initial plan issues. These initial issues were then brought to a series of topic meetings with local experts, one for each resource category. The goal of these meetings was to further develop and establish issues related to each resource category in the RRRL Watershed. Outcomes

from these topic meetings also formed the backbone of the goals and actions summarized in this plan. Summary reports for each topic meeting are provided in **Appendix C**.

From these topic meetings, plan issues and issue statements were established. Table 1.2 below summarizes the following information: the resource category of the issue, the issue theme, a brief issue statement describing the issue, and the priority level as defined by the Policy Committee. "High" and "Medium" priority issues are the primary focus for developing plan goals and implementation actions that address these goals. It is important to note that "Low" priority issues are still important and are addressed by actions in the plan, but are not a plan focus as they are already addressed by existing, ongoing programs or will be addressed by other plan goals.

Table 1.2 Issue statements and priority issues for the RRRL plan.

Resource	Issue Theme	Issue Statement	Priority
	**Water Quality Contaminants**	Nutrient, bacteria, mercury, sediment, chloride, and stormwater runoff has the potential to decrease water quality and impact aquatic recreation and aquatic life.	High
	Point Source Contaminants	Point sources of contamination from septics, gray water discharge, and other sources impact water quality conditions.	High
	Erosion and Shoreland Management	Streambank, ditch, and shoreline erosion increases sediment loading and reduces water and habitat quality.	High
	Aquatic Invasive Species	Aquatic invasive species can degrade lake, stream, and wild rice habitat, impact aquatic recreation, and cause shifts in aquatic ecosystems.	Low
	**Altered Hydrology**	Historical ditching, damming, and stream straightening altered the natural flow of surface water and groundwater, increasing periods of low flow, backwater effects, flashiness and erosion, and degrading habitat.	Medium
	Wild Rice	Wild rice plants and beds are impacted by fluctuating water levels and other human activities.	Low
	Connectivity	Natural and human made barriers impact fish passage, water levels, sediment transport, and connectivity.	Medium
	Wetlands and Peatlands	Historically altered or drained wetlands and peatlands contribute to the loss of water storage, water quality (e.g. mercury), and biological diversity on the landscape.	Low

Resource	Issue Theme	Issue Statement	Priority
	**Drinking Water Protection**	Protection of groundwater and surface drinking water sources from contamination.	Medium
	**Forest Health and Management**	Forest health and management is required to mitigate the impacts of invasive species, changes in climate, and land use changes; it is important to protect economic viability, vulnerable forest types, wildlife, wetlands and peatlands, water quality, and water storage.	Medium

Measurable Goals

Measurable goals build upon the work of identifying priority issues by setting quantitative, measurable goals that directly address the priority issues of the plan. These measurable goals were informed by modeling, guidance from resources such as the Landscape Stewardship Plan (LSP), and knowledge of the financial resources and capacity of local staff. While goals are created to directly address priority issues, some goals address multiple issues, so there is not a direct one-to-one connection between goals and issues.

Table 1.3 Short-term and long-term goals for the RRRL CWMP.

 **Water Quality Contaminants**	
Short-term: • Treat **1,500** acres of cultivated land or pasturelands with best management practices (10% of cultivated / pastureland acres). • Develop **1** stormwater plan and implement **4** projects identified in the plan.	**Long-term:** • Implement **7,500** acres of cultivated / pasturelands in best management practices (50% of cultivated / pastureland acres). • Implement developed stormwater plans and improve management of all feasible stormwater from municipal areas.
 **Point Source Contaminants**	
Short-term: • Replace **50** failing septic systems (5 septic systems / year).	**Long-term:** • Meet TMDL *E. coli* goals.

Erosion and Shoreline Management

Short-term:	Long-term:
• Restore/stabilize **5,280** feet of streams/ditches and shoreline.	• Restore/stabilize **20,000** feet of streams/ditches. • Restore/stabilize **7,500** feet of shoreline.

Restore Hydrology

Short-term:	Long-term:
• Conduct **one** peatland restoration or potential water storage feasibility study and implement temporary or permanent storage as part of water quality contaminants and connectivity goals.	• No net increase in discharge in the Lower Rainy River major watershed. Current analysis indicates an increased **1,517 acre-feet** storage in the Rainy River – Rainy Lake major watershed is necessary to mitigate expected precipitation increases in the coming decades.

Connectivity Enhancement

Short-term:	Long-term:
• Complete and maintain culvert inventory and based on results, coordinate with local, state, and federal partners to address 2 culverts to mitigate connectivity barriers.	• Address **all** priority barriers.

Drinking Water Protection

Short-term:	Long-term:
• Seal **50** unused wells (5 unused wells / year).	• Seal **all** unused wells. • Complete International Falls Intake Protection Plan.

Forest Health

Short-term:	Long-term:
• Complete **40** plans for private forest land and implement management of **2,000** acres of privately owned forest land.	• Support completion of LSP goals: Manage **80,442** acres of privately owned forest land through **378** forest stewardship plans on private forest land. • Increase watershed protection to meet LSP goals of 75% protection in all subwatersheds.

Plan Implementation

Targeted implementation tables outline actions that will be taken during the ten-year timeframe of this plan to achieve measurable goals. Plan implementation will require a balance between four main implementation programs:

- "Manage It": Planned Landscape Management
- "Fix It": Constructed Environmental Enhancements
- "Keep It": Protected Lands Maintenance
- "Know It": Data Collection and Outreach

Each action in the plan is associated with one of the implementation programs listed above. Examples of these actions can be seen in Figure 1.2.

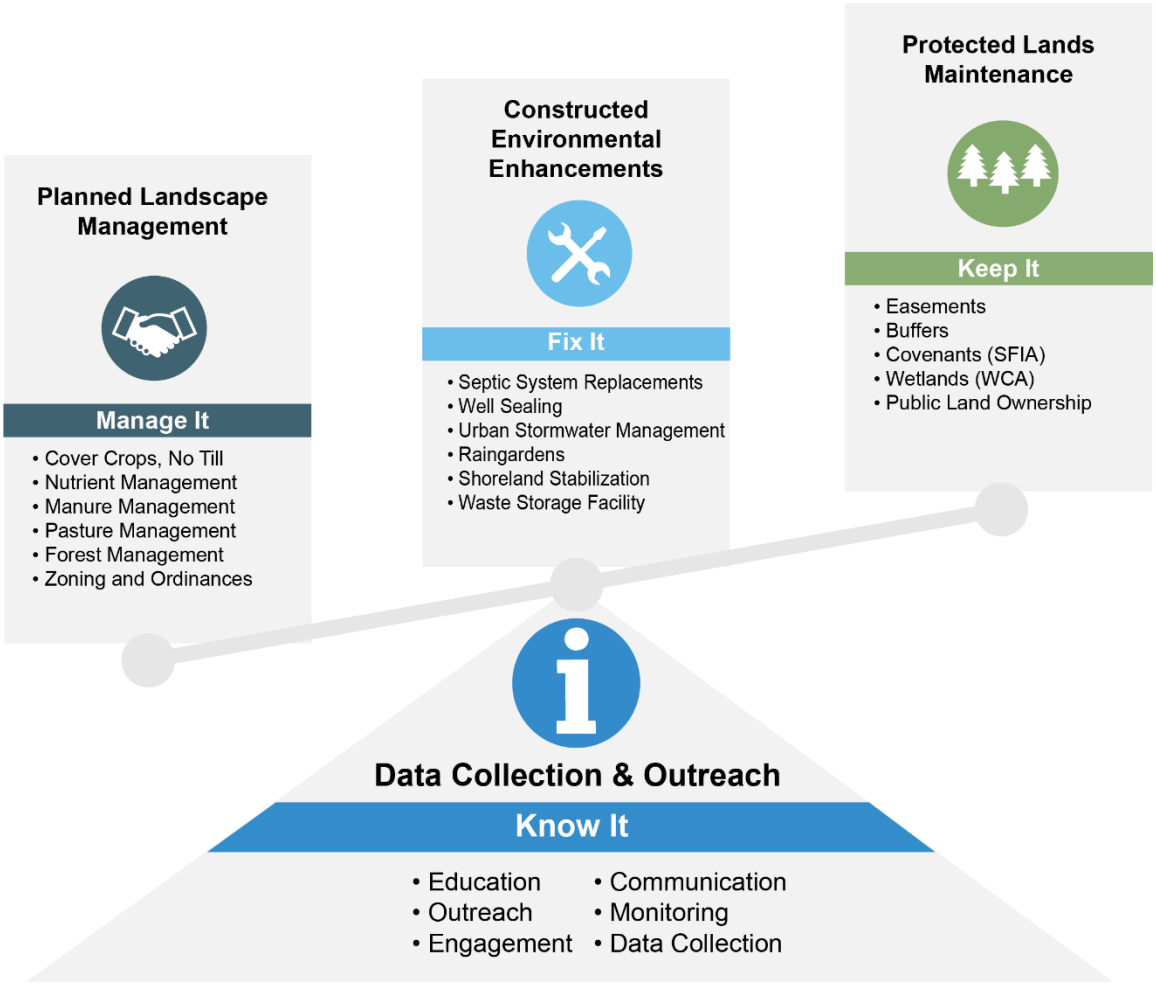


Figure 1.2 Implementation programs for the RRRL CWMP.

Each action in the implementation table also has an associated funding level (Table 1.4). "Base" funding level is the current amount of baseline funding (noncompetitive) being spent on by local partners on the protection, enhancement, and restoration practices and programs in the watershed. With approval of this RRRL CWMP, watershed partners are eligible to receive Watershed-Based Implementation Funding (WBIF) administered through BWSR. This funding is noncompetitive and can be requested biennially by watershed partners to implement this plan. Thus, the "Base and WBIF" is the primary funding level for implementing actions in the plan with plan approval.

Collaborative, partner-sponsored projects and other funding sources will also be critical in making progress toward plan goals. These actions are identified in the implementation table as being funded in part, or entirely through "Other" funding. To implement the full extent of this plan, additional funding and capacity over current levels will be necessary.

Table 1.4 Funding levels for the RRRL CWMP.

Funding Level	Description	10-Year Total
Base and WBIF	Current Baseline Funding plus Watershed Based Implementation Funding	$6,147,000
Other	Other Funding (319, Outdoor Heritage Fund, NRCS, DNR, MPCA, etc.)	$7,000,000

Photo Credit: Jeff Kantor

2. Land and Water Resources Narrative

SECTION 2. LAND & WATER RESOURCE NARRATIVE

Situated along Minnesota's northern border, the RRRL Watershed is a unique watershed compared to its neighbors. The RRRL is known for its unique shape, pristine waters, and its wetlands and peatlands that cover the landscape. The RRRL also contains much of Minnesota's only National Park, Voyageurs National Park. Although the RRRL is a sparsely populated watershed outside of International Falls, the rivers, lakes, and forests of the watershed draw residents from across the state to its natural environment.

The RRRL contains two major, HUC-8 watersheds, the Rainy River-Rainy Lake (09030003) and Lower Rainy River (09030008). For the purposes of the 1W1P program these two HUC-8 watersheds are joined to create the RRRL planning area. These two HUC-8 watersheds have similar land types and deal with similar issues that can be adequately addressed as one watershed.

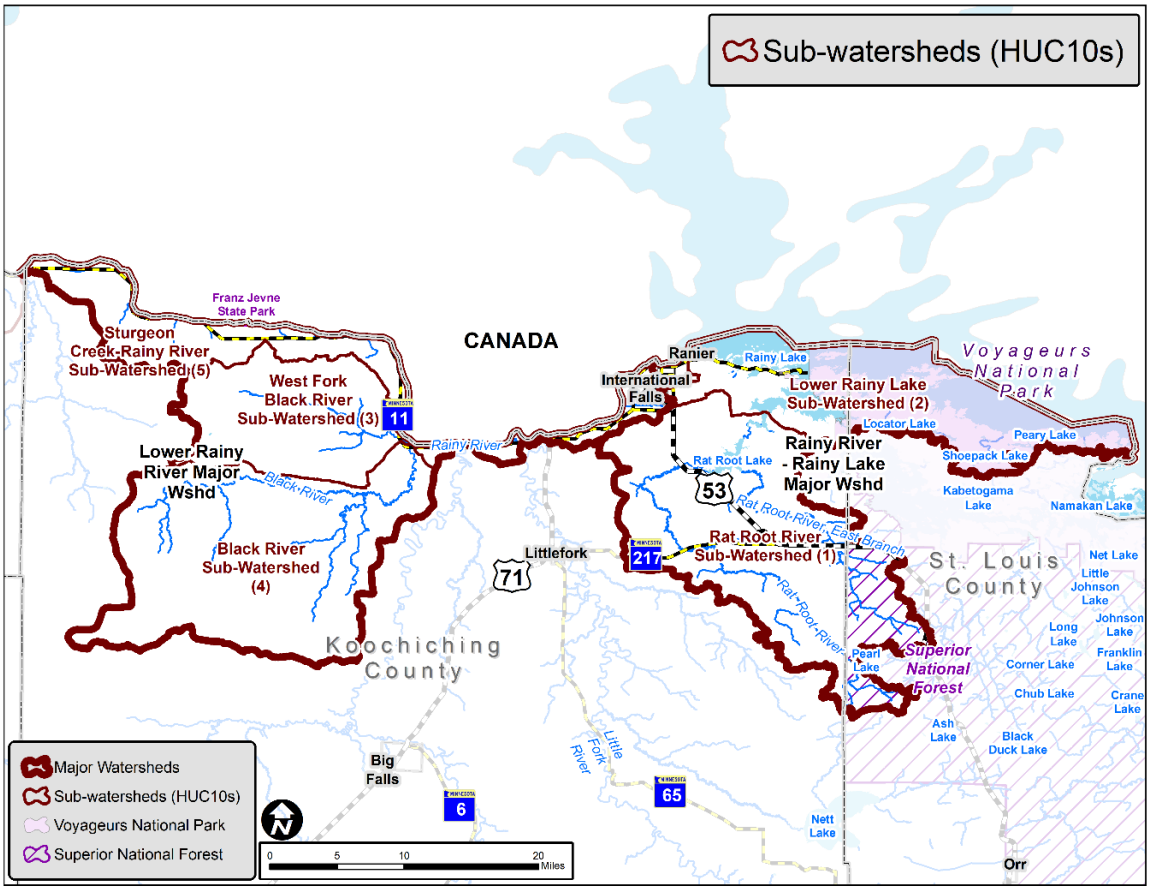
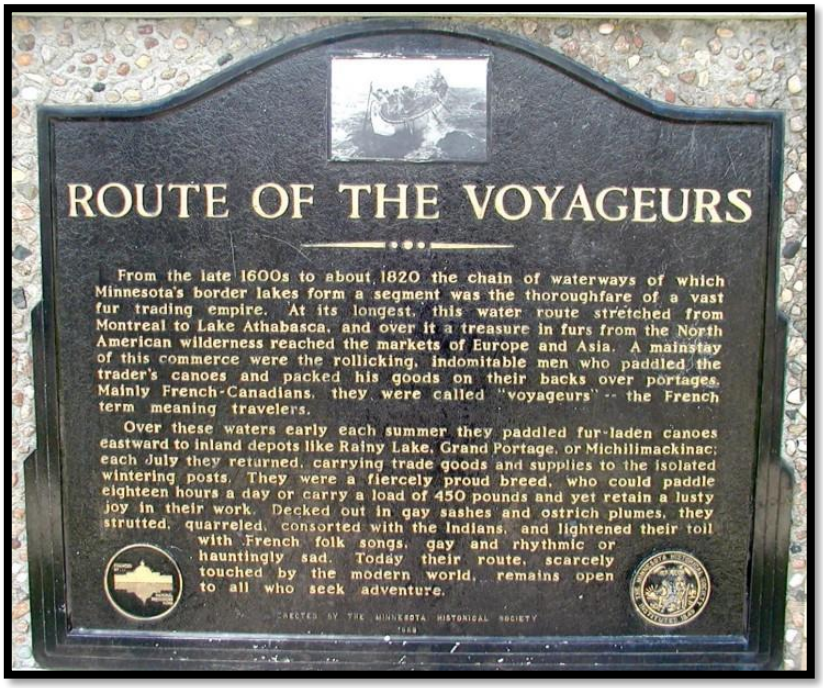


Figure 2.1 Subwatersheds, cities, and major streams in the RRRL Watershed.

The watershed drains approximately 629,000 acres. Most of the watershed (84%) is in Koochiching County, with about 16% in St. Louis County, and less than 1% in Lake of the Woods County. The only cities in the watershed are International Falls and Ranier, both located near Rainy Lake on the border with Canada.

Human History

Archeological evidence shows the first peoples of the watershed entered the region following the retreat of glaciers (approximately 10,000 years ago) and became more established with the draining of glacial Lake Agassiz. During the 1600s, the Cree, Assiniboine, Ojibwe, and Dakota peoples inhabited the region. The Ojibwe were the main indigenous peoples in the area until European voyageurs moved into the region.



As early as 1688, European/American voyageurs moved into the area, many as fur trappers (Koochiching County, 2023). These voyageurs created strategic alliances with the indigenous peoples of the region, allowing trade to flow freely throughout the region. Over the next few decades, strong demand continued in the European market for furs. To transport these furs, voyageurs traveled across the Great Lakes and Northern Minnesota into Canada, through the border lakes and the northern waters of the RRRL Watershed. Voyageurs National Park, named after these people, was a main passageway in this journey. These voyageurs traveled eastward as the lakes thawed in the spring, paddling in *canot de nord,* 25-foot-long canoes crafted by the Ojibwe people made from cedar, spruce, and birch trees (NPS, 2020).

Logging in the region began in the late 1800s, and most of the original white and Norway pine were cut by the 1930s (Koochiching County, 2023). Ditching also began during this time, with hopes of establishing agricultural land in the region. Much of the ditching was not successful enough to establish agriculture, due the low slopes and dense peatlands. The citizens of the watershed became more dependent on timber resources (Mason, 1940). While some residents continued to live in homesteads around the watershed, more population consolidated in the developed areas, such as International Falls.

Topography, Soils, and Geology

Many of the morphological features of the RRRL Watershed are a result of repeated glaciation. During the most recent glacial period, the Wisconsin glaciation, a large ice sheet covered present day northern Minnesota. When the ice sheet retreated for the final time, its melt generated a water body known as Lake Agassiz (Figure 2.2), which remained for around 4,500 years before draining. The RRRL is contained entirely within the footprint of the historic Lake Agassiz, and this shaped much of the landscape of the region. Generally, the region has a flat landscape. The fine, silty clay soils are a direct result of sediment from that settled in Lake Agassiz (MPCA, 2022b). Additional parent material for soils is lake modified till, ground moraines, and peat soils (MPCA, 2022b).

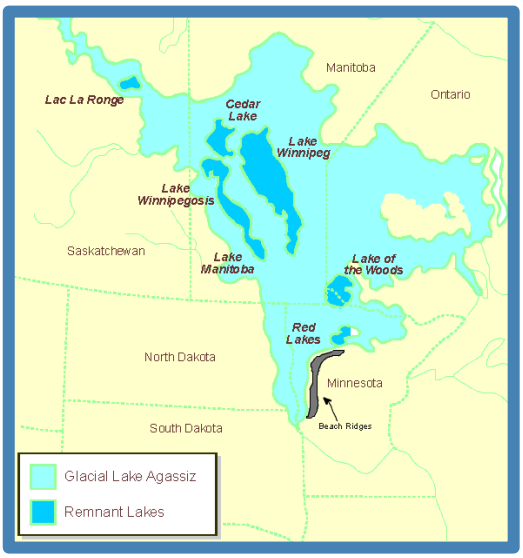


Figure 2.2 Extent of glacial Lake Agassiz following glacial retreat approximately 10,000 years ago.

Precipitation

27.4 inches
of annual precipitation

On average, the RRRL Watershed receives 27.4 inches of precipitation annually (1993-2022), of which 7.46 inches fall between November-April (DNR, 2022). This roughly represents winter precipitation. Precipitation has generally increased over the past century, increasing on average about 1.5 inches between the 1890s to present day (DNR, 2022). The Department of Natrural Resources (DNR) expects warmer temperatures in the coming decades, as well as more intense and damaging rains (DNR, 2023). Increasingly intense rainfall events will increase flooding and erosion in the watershed. Warmer temperatures are also becoming more common, with the Minnesota Pollution Control Agency (MPCA) and DNR estimating that the state has lost between 10 to 14 days of ice lake over the past 50 years (MPCA, 2021).

Land Uses

Forest and Wetlands

Prior to European settlement, the watershed was mostly conifer forests and peatlands (DNR, 1988). Compared to many regions in the state, landscape alteration in the watershed is minimal (DNR, 2017a, 2017b). A majority (70%) of the landcover in the RRRL Watershed is classified as either herbaceous (12%) or woody (58%) wetlands (USGS, 2019; Figure 2.3), much of which would be classified as peatlands. Peatlands contain partially decomposed organic material, unable to fully decompose due to saturated conditions. Generally, peatlands are not economically productive, but provide valuable ecosystem services, store water, sequester carbon, and improve water quality. Many of Minnesota's peatlands were drained, but drainage in the RRRL has been minimal as the land proved challenging for growing crops.

Mixed forests cover approximately 15% of the land cover and is concentrated on the eastern side of the watershed. Open water covers 8% of the land cover with a large majority of that being Rainy Lake.

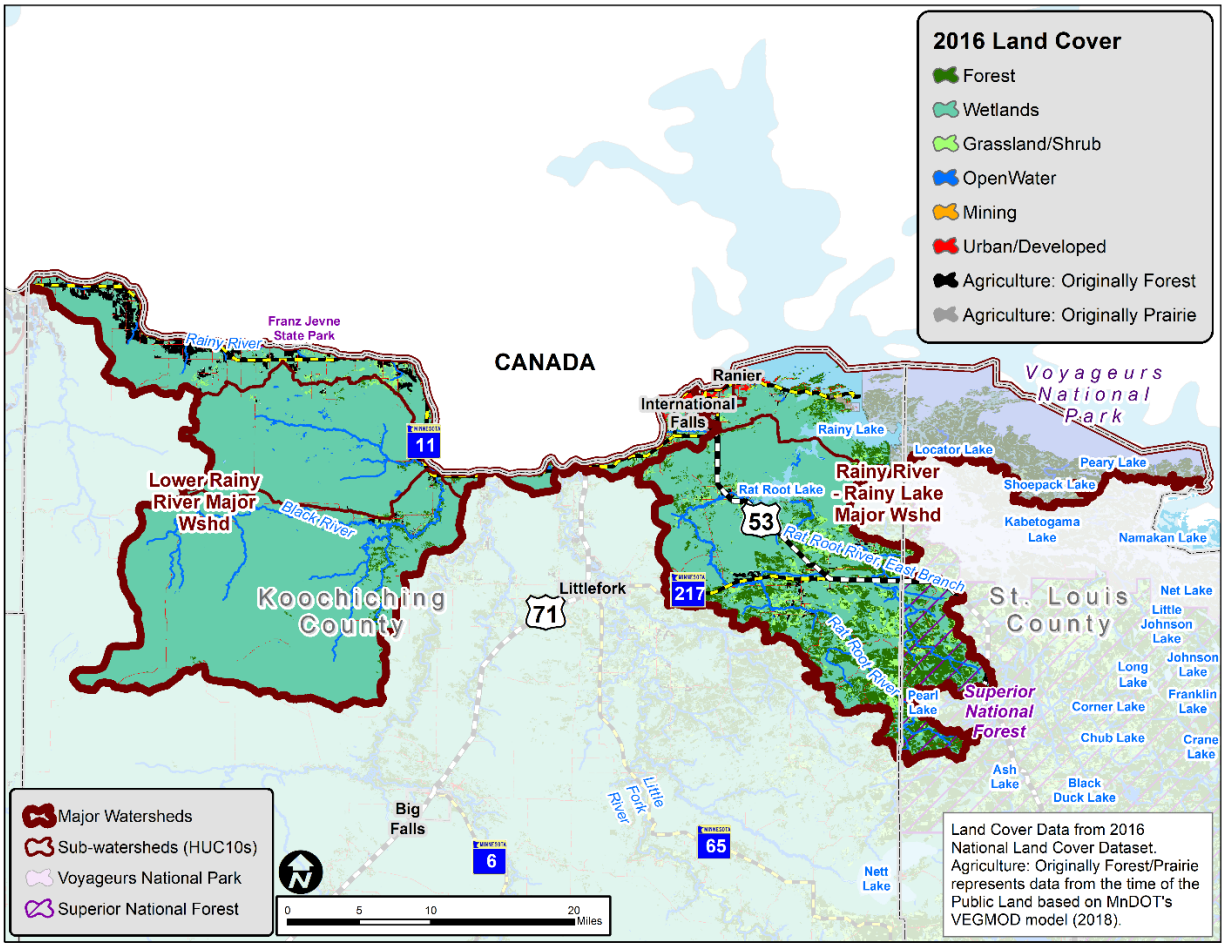


Figure 2.3 NLCD landcover in the Watershed.

Agriculture and Development

Development is minimal in the RRRL Watershed, with only 1.5% of land developed. This developed land is concentrated around International Falls and along roads and highways. Small developments are also present east of International Falls near Rainy Lake.

Only 1.5% of land in the watershed is developed

Pastureland makes up approximately 1.6% of land cover and cropland is 0.8% of land cover, both most predominant in the northwest area of the watershed near the Canadian border. The predominant crops are soybeans, alfalfa/hay, and wheat (CSISS, 2023).

Water Resources

Surface Water

The Rainy River, which flows from east to west along the northern edge of the RRRL, forms the backbone of the watershed. In the Rainy River – Rainy Lake major watershed, the Rat Root River is the major surface water system, which flows into Black Bay and Rainy Lake adjacent to Voyageurs National Park. In the Lower Rainy River major watershed, the Black River system is a large river system with branches and tributaries. The Black River and the West Fork Black River flow into the Rainy River near Loman, MN at the United States – Canada Border. The Rainy River drains into Lake of the Woods.

The International Dam, completed in 1910, spans the Rainy River between Fort Frances and International Falls, just below the former Koochiching Falls. Since 1949, the International Joint Commission (IJC) has employed rule curves to regulate water levels, updating them to ensure that they reflect current science and stakeholder benefits. The rule curves were last updated in 2018, following the release of the International Rainy and Namakan Lakes Rule Curves Study Board report of 2017. Changes from the previous 2000 rule curves to the 2018 rule curves added conditional spring flood reduction targets for Rainy Lake in years with high spring flood risk and reduced over-winter drawdown for broad ecological benefits in both lakes. Waters within the RRRL are also heavily influenced by the Little Fork and Big Fork Rivers that discharge into the Rainy River.

Many of the streams in the RRRL have been ditched, although this varies by region. In the Lower Rainy River major watershed, 45% of total stream length has been altered, where only 12% has been altered in the Rainy River –Rainy Lake major watershed (Figure 2.4). In the early 20th century, settlers attempted to drain wetlands and peatlands, building ditches, and permanently altering the landscape but most of the altered landscape was not economically viable for agriculture.

Photo Credit: Jeff Kantor

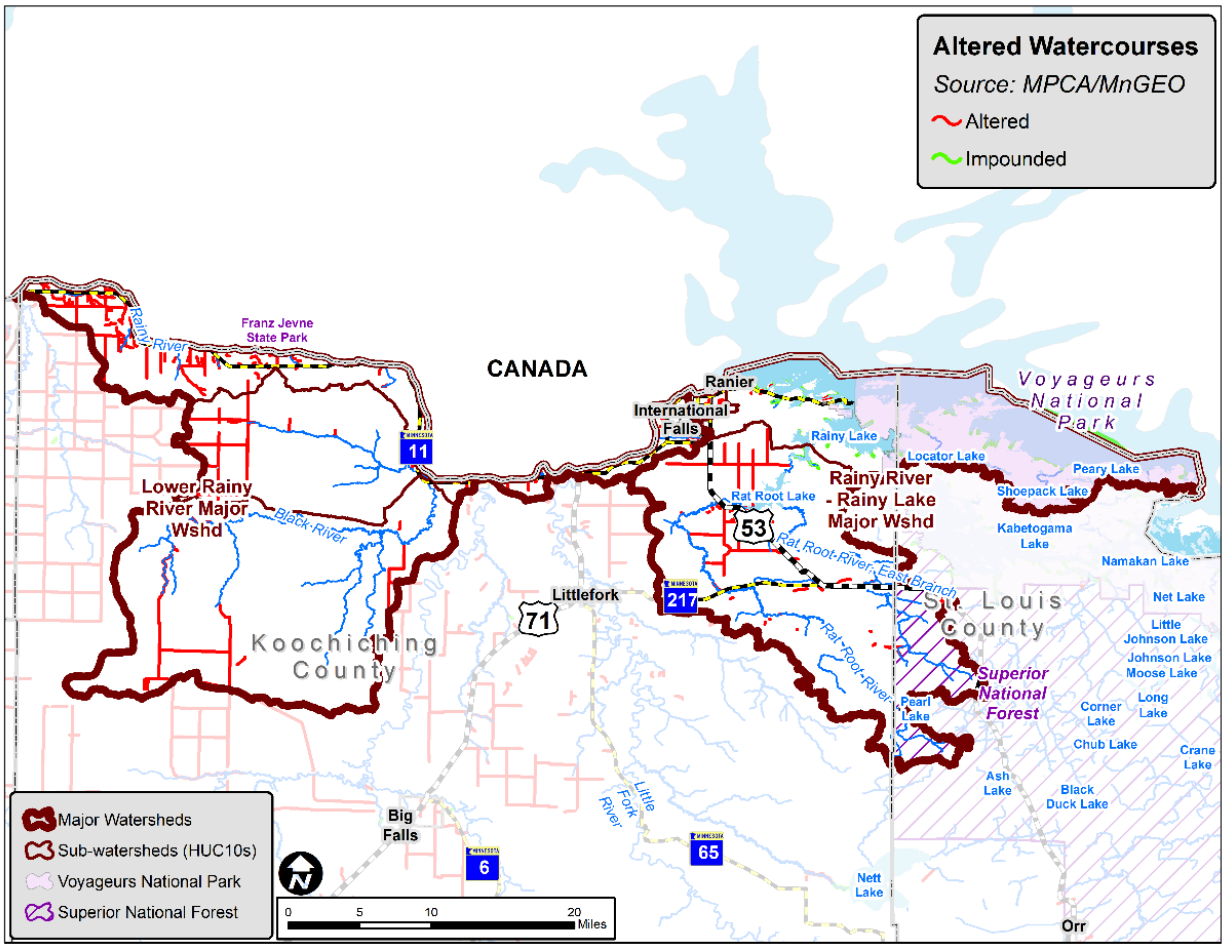


Figure 2.4 Altered streams in the RRRL Watershed.

Water quality in the watershed is generally good with few pollutants. However, there are impaired streams in the watershed (Figure 2.5). In the Lower Rainy River major watershed, there are two impaired streams (MPCA, 2022b) for bacteria:

- West Fork Black River (-543), between the headwaters to the Black River
- Black River (-547), between Unnamed Creek to West Fork Black River

In the Rainy River – Rainy Lake major watershed, there are no streams that are impaired (MPCA, 2022b). Throughout the RRRL, many stream segments demonstrated high TSS and low DO at times throughout the year, even if not impaired (MPCA, 2022a, 2022b).

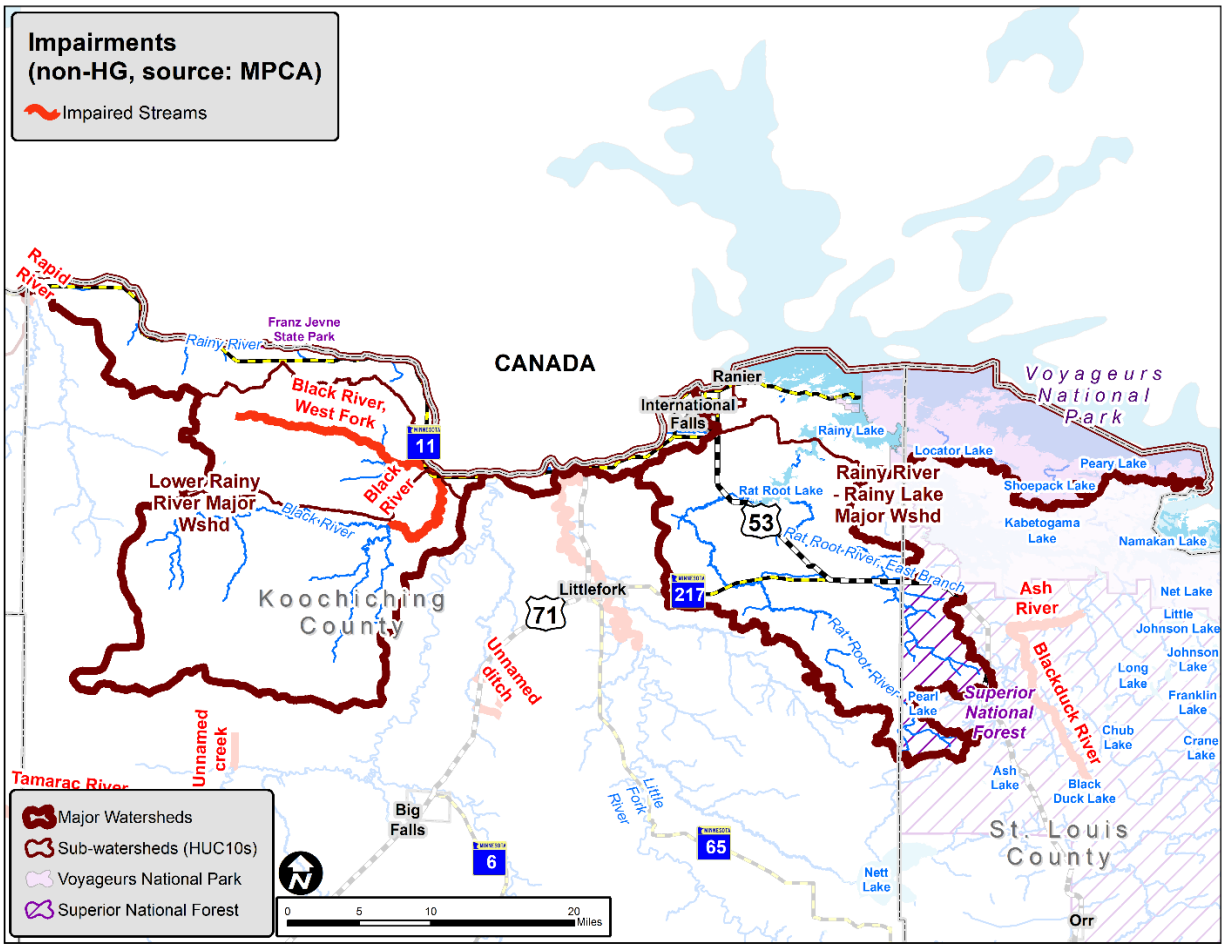


Figure 2.5 Impaired streams in the Watershed.

The largest lake in the watershed is Rainy Lake, which lies along the northeastern portion of the watershed. Black Bay, a large bay in southern Rainy Lake, and Rat Root Lake are both significant water bodies. There is only one lake in the Lower Rainy River major watershed. In the Rainy River – Rainy Lake major watershed, there are thirteen lakes that have mercury impairments (MPCA, 2022b):

- Boot (69-0868-00)
- Brown (69-0839-00)
- Fishmouth (69-0834-00)
- Locator (69-0936-00)
- Loiten (69-0872-00)
- Moose (36-0008-00)
- Oslo (69-0838-00)
- Peary (69-0833-00)
- Quill (69-0871-00)


Rainy Lake

- Rainy (69-0693-00)
- Shoepack (69-0870-00)
- Unnamed (69-0835-00)
- and War Club (69-0937-00).


Rainy River

Of the eight streams assessed for water clarity trends, only the downstream reach of Moonlight Creek had an improving transparency trend, while the other streams had no trend (MPCA, 2022a, 2022b). There was only one lake assessed for water clarity trends, which had no trend. Between 2010 and 2019, Rainy River had increasing trends in inorganic nitrogen and total suspended solids (MPCA, 2022b).

Aquatic invasive species are an emerging threat in RRRL. In 2021, the DNR identified zebra mussels in Rainy Lake (MPCA, 2022b). Additionally, wild parsnip (a terrestrial invasive), hybrid cattails, and spiny waterflea have also been found in Koochiching County water bodies (Koochiching Soil and Water Conservation District, 2018).

Throughout the RRRL, both nonpoint and point sources of pollution contribute nutrients to waterways. Models demonstrated that for phosphorus, nitrogen, and sediment loading, 58, 50, and 3% respectively came from point sources compared to nonpoint sources (MPCA, 2022a). There are 10 permitted point sources in the watershed, mostly wastewater, industrial, or commercial industries (MPCA, 2022a, 2022b). Nonpoint sources which make up 42, 50, and 97% of loads for phosphorus, nitrogen, and sediment, come mainly from watershed runoff, wetland export, altered hydrology, streambank erosion, the fine silty clay soils, and industry, particularly timber harvesting (MPCA, 2022a, 2022b).

Algal blooms are also of concern in the watershed. Black Bay has recently been experiencing annual algal blooms, which flow into the adjacent Voyageurs National Park. Additionally, Lake of the Woods, downstream of the RRRL has been experiencing algal blooms from sediment loading upstream. An important resource in the RRRL is wild rice, known as manoomin to many Indigenous groups. Manoomin is an important resource due to its cultural significance and economic value for Indigenous groups. It is traditionally harvested in lakes. Threats to water quality or fluctuating water levels in those lakes can potentially damage or erase this cultural resource. In the RRRL, Rainy Lake and Rat Root Lake are both traditional wild rice lakes.

Groundwater and Drinking Water

The RRRL Watershed relies on a mix of groundwater and surface water drinking sources. International Falls has a public water supply (PWS) and relies on surface water sources, while many other areas throughout the watershed rely on private wells (there are 257 total historical wells in the watershed, with 142 being active and unsealed). Additionally, Rainy Lake and Rainy River are surface drinking water sources for many in the watershed (MPCA, 2022b). There are no Drinking Water Supply Management Areas (DWSMAs) in the watershed.

There are six groundwater provinces in Minnesota based on bedrock and glacial geology. Most of the RRRL Watershed is in the Arrowhead Province Groundwater Province (69%, western and northern portion) and partially in the Western Province (31%, southwest portion; DNR 2017a, 2017b).

The pollution sensitivity of near surface materials varies throughout the watershed. In the eastern portion of the watershed, bedrock is near or at the surface, limiting infiltration of water, but increasing the risk that contaminants may flow over the surface into lakes and streams (DNR, 2017b; Figure 2.6). Moving westward, pollution sensitivity is either very low, low, or moderate (moderate in the northwest corner of the watershed; DNR, 2017a).

In terms of quantity, the DNR defines no areas of concern in the watershed (DNR, 2017a, 2017b). However, eastern portions of the watershed have limited sand and gravel aquifers. The western portion has shallow hard rock areas. Both of these can limit groundwater withdrawal and quantity.

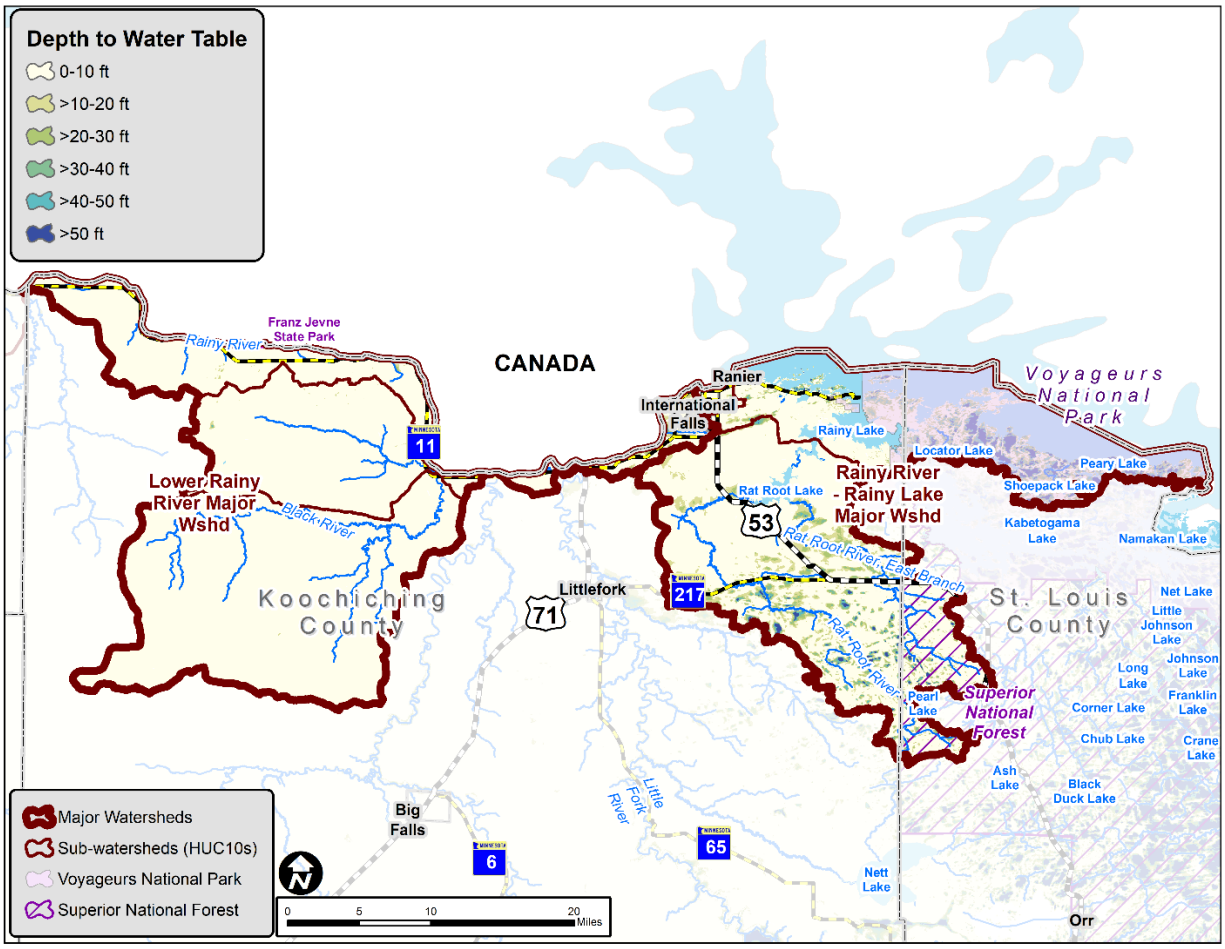


Figure 2.6 Depth to water table.

Habitat

There are a variety of unique habitats in the region due to the varying land cover. In Minnesota's State Wildlife Action Plan, 16 key habitats were identified for land planning (Figure 2.7). A large portion of the RRRL would be considered Forest-Lowland Coniferous, with much smaller portions as Forest-Upland Deciduous habitat (DNR, 2023b).


Short-eared Owl

The dominant habitat in the watershed is the peatlands, which are home to many unique species found only in this area of the state. Unique species include the northern bog lemming, yellow rail, short-eared owl, and Wilson's phalarope (DNR 2023c). Northern

peatlands provide refuge for endangered, threatened, or species of special concern including the English sundew, coastal sedge, bog rush, twig rush, linear-leaved sundew, sooty colored beak-rush, and montane yellow-eyed grass (DNR 2023c).

There are seven lakes of biological significance in the watershed, all located on the eastern side of RRRL (Figure 2.7). Five are categorized as “outstanding” Rainy, Rat Root, Boot, Locator, and Shoepack (highest level of significance); two, Moose and an Unnamed Lake, are “Moderate” (lowest level).

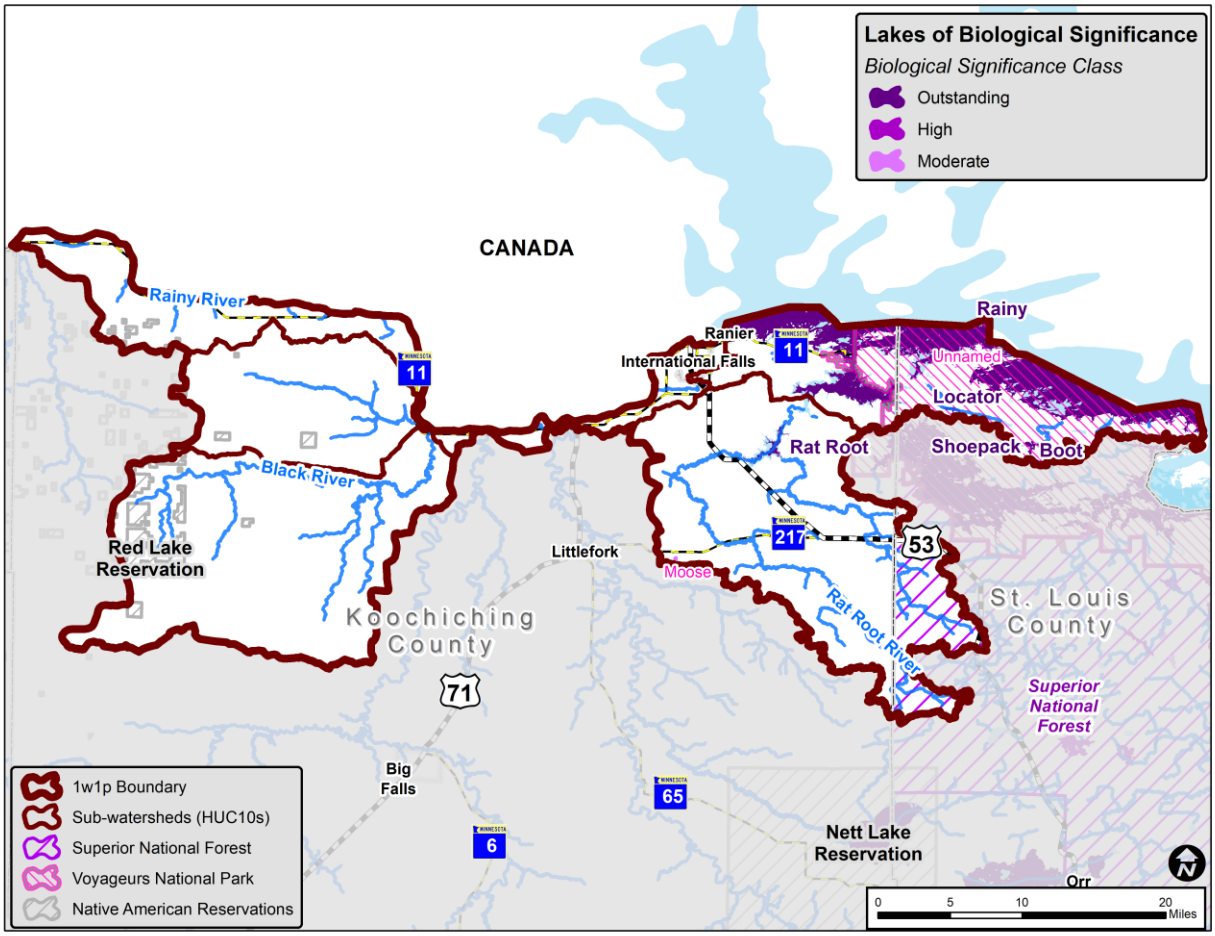


Figure 2.7 Lakes of biological significance.

Much of the public land in the region is forested land, managed by the DNR. There are five Scientific and Natural Areas in the Watershed: the North Black River Peatland, South Black River Peatland, West Rat Root River Peatland, East Rat Root River Peatland, and Watrous Island (Figure 2.8). There is one Wildlife Management Area, Gold Portage located adjacent to Voyageurs National Park.

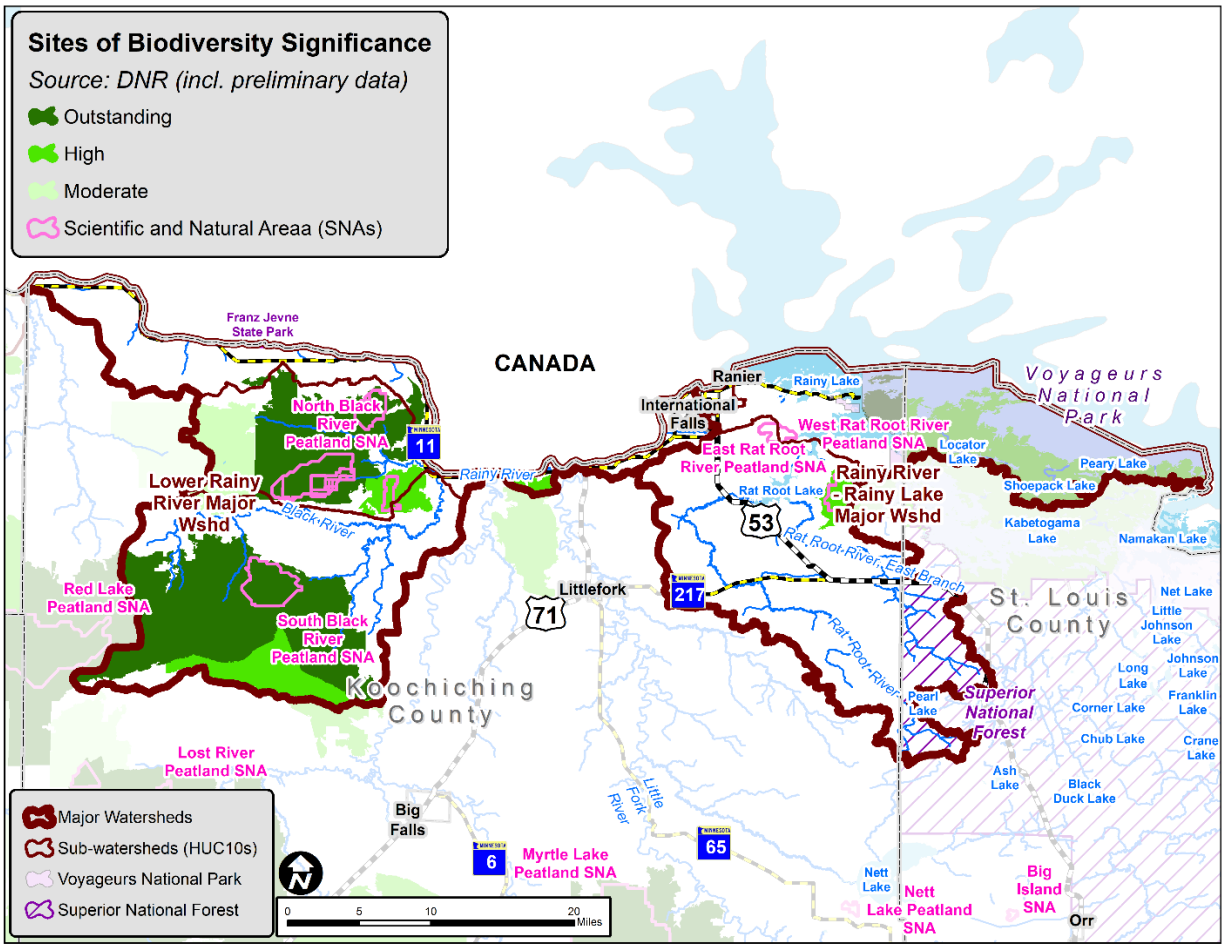
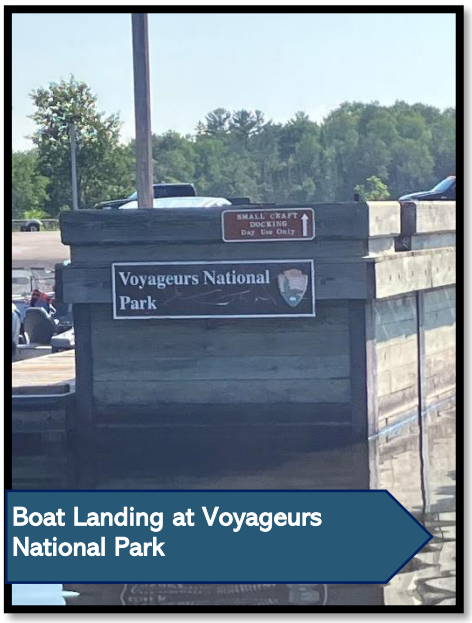


Figure 2.8 Sites of biological significance and SNAs.

Recreation Areas

The RRRL Watershed has a unique set of recreation areas that attract both residents of the watershed and citizens from surrounding areas. A portion of Voyageurs National Park lies on the eastern side of watershed, a large attraction for visitors from across the world. The park is best known for its excellent canoeing, boating, and camping, and in the winter, skiing, and snowshoeing. Additionally, the RRRL Watershed contains Minnesota's smallest State Park, Franz Jevne, known for its fishing, hiking, and as a park for spotting wildlife. Additionally, a small portion of the Superior National Forest is in the southeastern portion of the Watershed.

The watershed also contains four State Forest lands. Koochiching and Pine Islands cover large portions of the RRRL's eastern and western lands, respectively.



Boat Landing at Voyageurs National Park

Kabetogama and Smokey Bear State Forest are also in the Watershed, however a larger portion of those forests lie in other watersheds.

Visitors to the watershed enjoy the hundreds of small lakes for recreation, such as fishing and swimming. Rat Root River and Rat Root Lake are popular fishing spots, and the Rainy River is a popular canoeing and fishing location.

Socio-Economic Information

Much (approximately 56%) of the watershed is publicly owned by city, county, state, or federal entities (Figure 2.9). Most of the public land is state forested land, managed by the DNR (Figure 2.9). Additionally, there are approximately 45,000 acres, or 7% of the watershed, owned by the Red Lake Band of Chippewa on the western side of the RRRL.

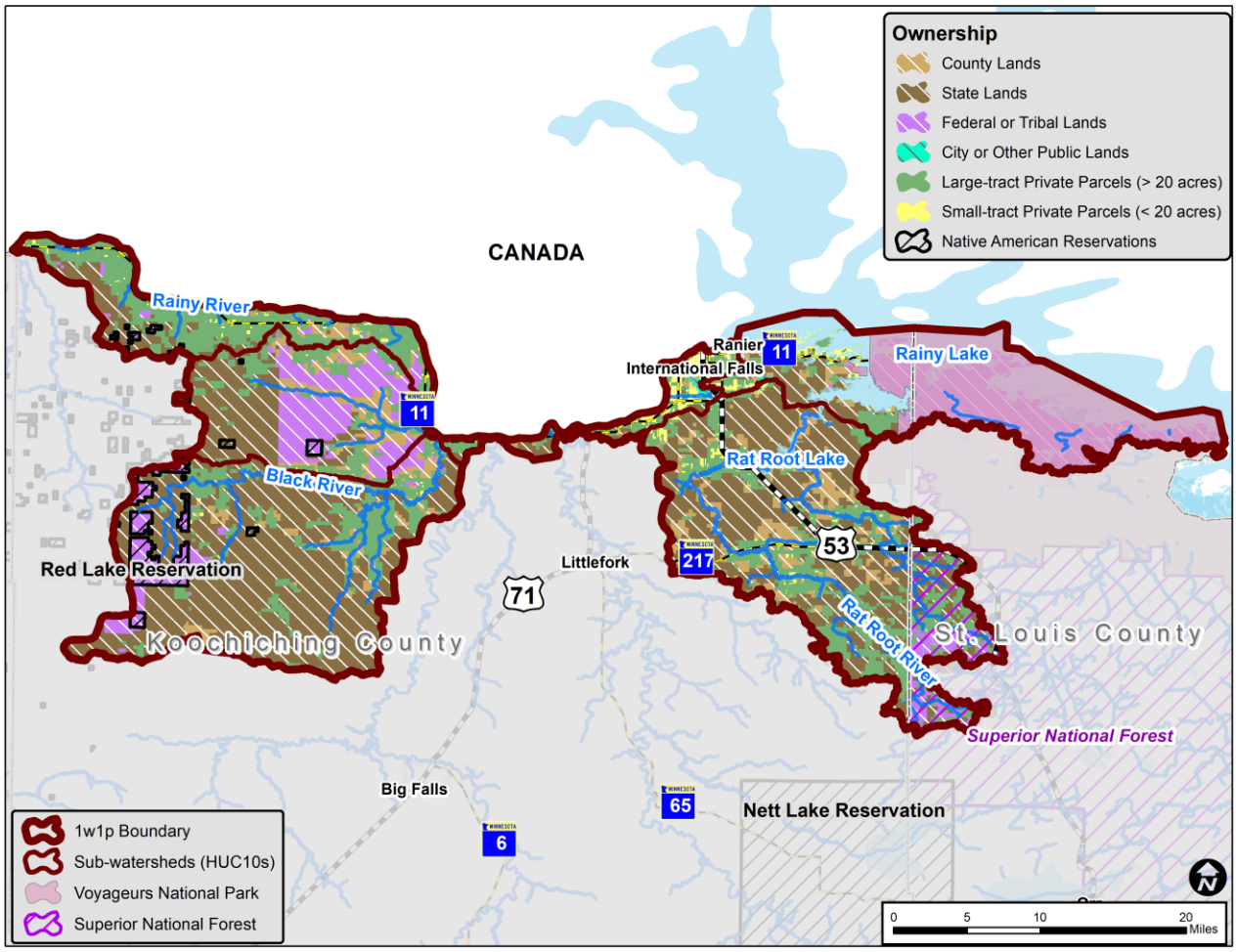


Figure 2.9 Land ownership in the RRRL Watershed

In 2020, Koochiching County had a total population of 12,062 (United States Census Bureau, 2021). The employment rate was 55.2% in 2021 with a median income of $54,708 (United States Census Bureau, 2021) and 11.4% of residents below the poverty line in Minnesota (9.3% is the rate in Minnesota). Approximately 26.4% of the county is 65 years or older, compared to 16.8% in Minnesota as a whole.

12,062
population in Koochiching County

The top industries in Koochiching County are:

- educational services, health care, and social assistance (18.9% of all employed residents)
- manufacturing (16.0%)
- retail trade (12.6%)
- arts, entertainment, and recreation (9.9%)
- construction (7.55%)
- and transportation, warehousing, and utilities (6.3%).

$54,708
median income in Koochiching County

Summary

Overall, the RRRL is a watershed filled with high quality natural resources that are important to maintain. Rivers, lakes, and forests in the watershed provide space for hiking, fishing, and canoeing which bring people “up north” from all of Minnesota and beyond. With thoughtful planning and precise implementation goals, this plan can take a large step towards improving and preserving the valuable resources of the watershed.

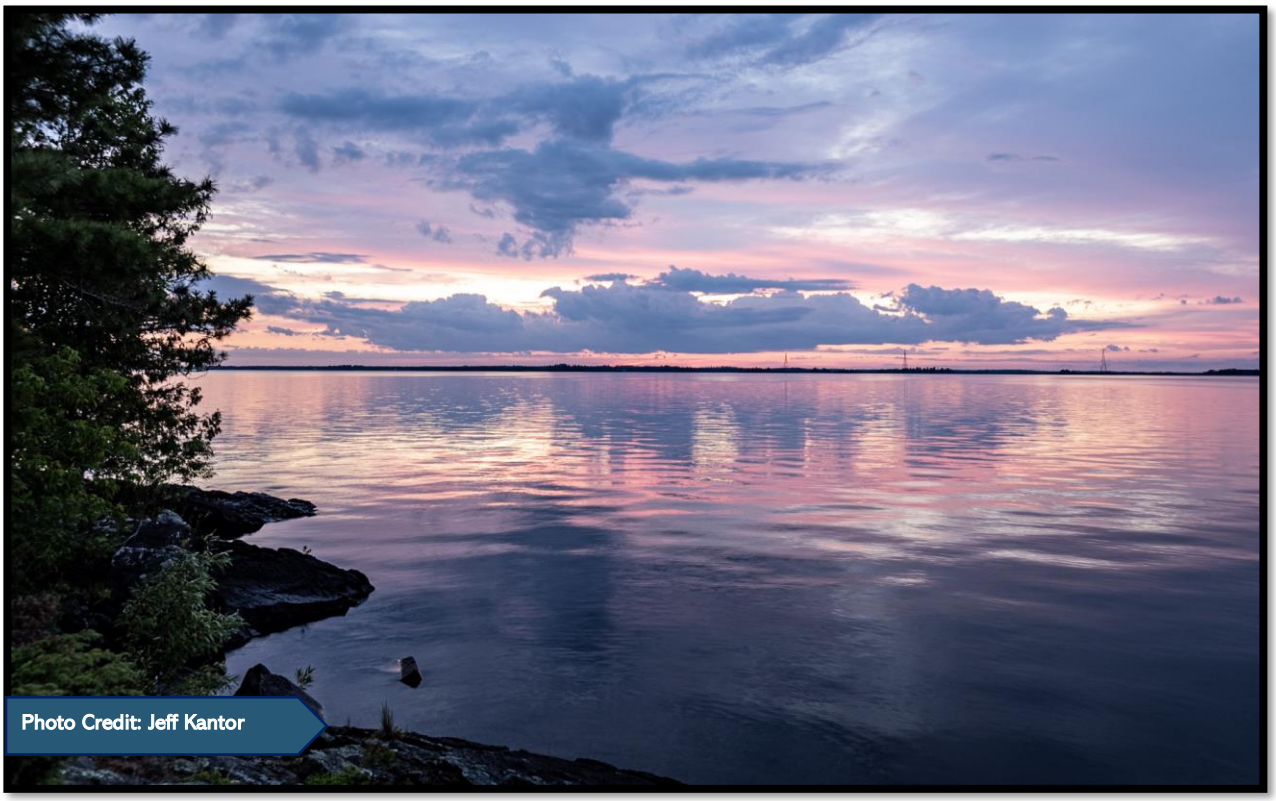
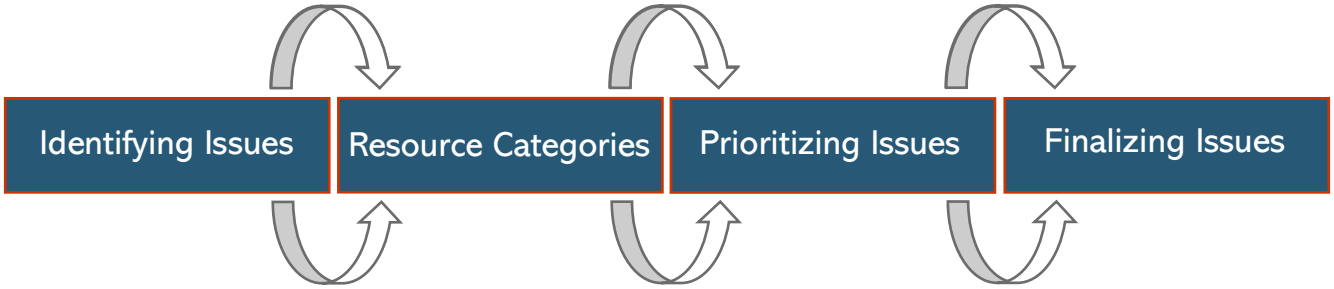


Photo Credit: Jeff Kantor

3. Priority Issues

SECTION 3. PRIORITY ISSUES

To begin the planning process, the planning partners worked to determine the largest and most pressing issues facing natural resources in the RRRL Watershed. In this plan, an "issue" is a risk, problem, or opportunity within the watershed that can impact a resource. A "resource" is a feature that provides drinking water, habitat, food, recreation, aesthetics, or refuge to the people and/or wildlife of the watershed. The process of prioritization takes these issues and classifies those that can be addressed in this plan and beyond. This plan section summarizes the process used to identify and prioritize issues that will then be addressed through the planning process and implementation.



Identifying Issues

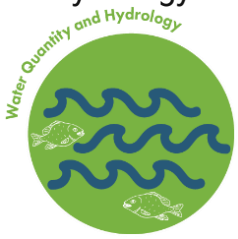
To identify issues, the planning partners first developed a comprehensive list of issues that impact the land, water, and other resources in the watershed. The planning partners catalogued this comprehensive list by conducting a thorough review of existing documents authored by local experts, available data, and comprehensive studies of the region. The main materials used to develop this list were:

- Koochiching County local plans
  - Koochiching County Comprehensive Local Water Management Plan (2018)
  - Long Range Plan for the management of Tax-Fortified Land and Forest Resources of Koochiching County (2021)
- Other local plans
  - Ranier Community Plan (2022)
  - City of International Falls Comprehensive Plan (2020)
- MPCA reports
  - Lower Rainy River Watershed Total Maximum Daily Load (2022)
  - Rainy River-Rainy Lake Watershed Restoration and Protection Strategy Report (2022)
  - Lower Rainy River Lake Watershed Restoration and Protection Strategy Report (2022)
  - Lake of the Woods Watershed Total Maximum Daily Load Study (2020)

- DNR reports
  - Rainy Lake-Lower Rainy River Landscape Stewardship Plan (2022)
  - Watershed Health Assessment Framework, Watershed Report Card: Rainy River-Manitou (2015)
  - Watershed Health Assessment Framework, Watershed Report Card: Rainy River-Rainy Lake (2015)
  - Watershed Context Report, Rainy River-Manitou (2017)
  - Watershed Context Report, Rainy River-Rainy Lake (2017)
- NRCS reports
  - Rapid Watershed Assessment (2006)
- Other reports
  - Rainy-Lake of the Woods State of the Basin Report (2022)
  - A Local Management Plan for the Little Fork & Rat Root Rivers (1995)
- Comment letters and supporting materials from local interest groups and state agencies
- Local knowledge from planning partners who manage the resources of the watershed, including the Steering and Policy Committees

As issues were identified, common themes for the issues began to emerge, based on how issues impact resources. In light of this, "resource categories" were created to better sort or organize inventoried issues important to the citizens and wildlife of the RRRL Watershed (Table 3.1).

Table 3.1 Resource categories for the RRRL plan.

Resource Category			
Water Quantity and Hydrology	Water Quality	Habitat and Forests	Groundwater and Drinking Water
			

Prioritizing Issues

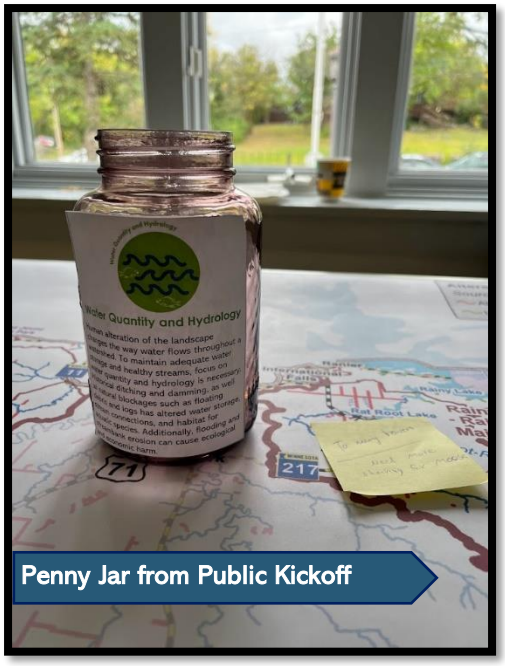
Getting Community Feedback

A public kickoff meeting was held in early September 2023 in Ranier, Minnesota. Ranier was the chosen location for the meeting because it is the closest location to most of the watershed population. This meeting was held to gather viewpoints from citizens in the watershed, and to capture their priorities for this plan. Community members unable to

attend were able to complete an online survey. A total of 27 people contributed public input between the survey and the public kickoff meeting.

At the public kickoff meeting, citizens were given an overview of the One Watershed, One Plan process and the resources and issues within the RRRL Watershed. Additionally, attendees were given the opportunity to demonstrate their priorities in the watershed. They were able to do this in three ways:

- Placing a pin where they live in the watershed
- Using pennies, voting on which resources (Surface Water Quality, Water Quality and Hydrology, Groundwater and Drinking Water, Habitat and Forests) should be the focus of plan energy and resources to fix or protect
- Post resources that are important to them, or where they believe there is a problem location in the watershed



Penny Jar from Public Kickoff

Feedback captured during the kickoff meeting and with the online survey were valuable to the planning partners, and shaped the development of the plan's issue statements. A full report with results from the meeting, these activities, and the online survey can be found in **Appendix B**.

Committees and Topic Meetings

Both the Steering and Advisory Committee were central to issue development and prioritization during the planning process. Following the collection of community input, the Steering Committee brainstormed and compiled a list of initial issues. These potential issues were then brought to a series of topic meetings with local experts on each topic.

The four "topic meetings" covered the four resource categories shown in Table 3.1. The goal of these meetings was to brainstorm issues related to each resource category in the RRRL Watershed. Each meeting following the same format:

- Overview of One Watershed, One Plan purpose and planning process
- Introduction to topic meeting data (information provided to all participants that reviewed key data related to the topic meeting)
- Brief presentations by local experts
- Brainstorming issues and opportunities to consider for the topic
- Organize and group issues to form issue statements
- Prioritize issue statements
- Develop action items that address issue statements

Topic meeting reports were distributed after the meeting. Outcomes from these topic meetings formed the backbone of the goals and actions summarized in this plan. Topic meeting summary reports are provided as reference in **Appendix C**.

Priority Issues

From these topic meetings, priority issues were established. The priority issues for this plan are listed in Table 3.2. "High" and "Medium" priority issues are the primary focus for developing plan goals and implementation actions that address these goals.

The table below provides the following information: the resource category of the issue, the issue theme, a brief issue statement describing the issue, and the priority level as defined by the Policy Committee. It is important to note that "Low" priority issues are still important and addressed by actions in the plan but are not a plan focus as they are already addressed by existing, ongoing programs or will be addressed by other plan goals.

Table 3-2 Issue statements and priority issues for the RRRL plan.

Resource	Issue Theme	Issue Statement	Priority
	**Water Quality Contaminants**	Nutrient, bacteria, mercury, sediment, chloride, and stormwater runoff has the potential to decrease water quality and impact aquatic recreation and aquatic life.	**High**
	Point Source Contaminants	Point sources of contamination from septics, gray water discharge, and other sources impact water quality conditions.	**High**
	Erosion and Shoreland Management	Streambank, ditch, and shoreline erosion increases sediment loading and reduces water and habitat quality.	**High**
	Aquatic Invasive Species	Aquatic invasive species can degrade lake, stream, and wild rice habitat, impact aquatic recreation, and cause shifts in aquatic ecosystems.	Low
	**Altered Hydrology**	Historical ditching, damming, and stream straightening altered the natural flow of surface water and groundwater, increasing periods of low flow, backwater effects, flashiness and erosion, and degrading habitat.	Medium
	Wild Rice	Wild rice plants and beds are impacted by fluctuating water levels and other human activities.	Low
	Connectivity	Natural and human made barriers impact fish passage, water levels, sediment transport, and connectivity.	Medium
	Wetlands and Peatlands	Historically altered or drained wetlands and peatlands contribute to the loss of water storage, water quality (e.g. mercury), and biological diversity on the landscape.	Low

Resource	Issue Theme	Issue Statement	Priority
	**Drinking Water Protection**	Protection of groundwater and surface drinking water sources from contamination.	Medium
	**Forest Health and Management**	Forest health and management is required to mitigate the impacts of invasive species, changes in climate, and land use changes; it is important to protect economic viability, vulnerable forest types, wildlife, wetlands and peatlands, water quality, and water storage.	Medium

Emerging Issues and Local Considerations

Emerging issues and local considerations have a similar scope to other prioritized issues in the RRRL Watershed, however they are outside the scope of the plan. They still impact the resources outlined above and should be considered and monitored throughout the lifespan of the plan. These issues may become prioritized issues in future watershed planning or considered during plan implementation and collaboration with local partners.

Contaminants of Emerging Concern

Several contaminants have not historically been addressed in watershed plans due to their relatively new standing as concerns. These contaminants include microplastics, per- and polyfluoroalkyl substances (PFAS), estrogenic compounds, pharmaceuticals, nanomaterials, and more (EPA, 2023; Koelmans et al., 2019). These contaminants don't have well defined standards set by the Environmental Protection Agency (EPA), and research continues to define their impact on human health. While active monitoring of these contaminants is not within the scope of this plan, planning partners and local agencies can be aware of their potential risks and integrate them into future plans as needed.

Influence of Big Fork and Little Fork Rivers

The Rainy River, which runs along the northern edge of the RRRL Watershed, has two major tributaries that are not a part of this plan's defined watershed. These two rivers are the Big Fork and Little Fork Rivers. At the time of this planning process, neither watershed had begun the process of creating a comprehensive watershed management plan through BWSR's One Watershed, One Plan program. Because of these major tributaries entering the Rainy River, the planning partners in this watershed will work closely with agency members in the neighboring watersheds to ensure preservation of natural resources for all.

Railroads

The area around International Falls and Ranier is home to industrial rail traffic. Both the Canadian National Railway and BNSF Railway have presences in the region. Additionally, there are two bridges that connect Canada and the United States that have rail traffic: the Fort Frances Toll Bridge in International Falls and the Ranier Railroad Bridge in Ranier. Both are entry points for natural resources being extracted in Canada and traveling to ports in the United States, such as Duluth. These railroads often carry hazardous freight and with an aging rail infrastructure, as well as the proximity of rail to important watershed resources, careful monitoring of the potential risks of rail transportation in the watershed should be considered.

Fort Frances Toll Bridge (Credit USGS)

Marina and Pier

The RRRL Watershed includes the lakeside border community of Ranier, Minnesota. It contains one of the busiest rail ports on the northern border of the United States and is also the bottleneck of the entire RRRL, where Rainy Lake becomes Rainy River. All flow must pass under the cantilever train bridge in Ranier. Ranier is slated to begin construction on a multi-million-dollar pier in 2025 that is set to allow for a large increase in boat traffic and water activity. Consideration for aquatic invasive species prevention, sewage pump spills (future), and hydrology changes should be considered.

International Jurisdiction

The RRRL Watershed planning region's northern border is shared with Canada and a large portion of the larger watershed lies in Canada. Because of this, international collaboration is needed to ensure sufficient protection for shared land and water resources. The International Joint Commission, an effort between the U.S. and Canadian governments, deals with issues affecting waters between the two countries. Due to the 1909 Boundary Waters Treaty, it is agreed that both sides ensure water quality to their best abilities (International Joint Commission, 1909). While this commission is not part of the planning process, the international border between the two countries should be considered in the planning process.

Planning Lenses

Throughout plan development, issue lenses were used to enhance the planning process. These lenses are based on local knowledge and data, and are considerations to help develop and implement issue, goal, and action development. These lenses are not issues, but instead provide a different perspective to view the issues in the watershed. Utilizing these lenses will allow for the plan partners to better implement the plan during its ten-year lifespan.


Rainy River

Environmental Justice

All citizens in the RRRL Watershed are impacted by water quality and other environmental concerns. These concerns can have economic and social issues for citizens of the watershed and should be considered during the planning process. This plan will focus on promoting equity for everyone who deserves access to clean water and access to the other resources in the watershed. Traditional equities are also considered in this plan for plan implementation. Additionally, inclusion of all groups in the planning process is necessary to ensure input from all groups in the watershed.

Climate Resilience

Climate variability will put the resources of the RRRL Watershed at greater risk over the coming decades. This will also make plan implementation more difficult, as actions will be needed to address the rising temperatures and irregular precipitation patterns expected to occur in the watershed. A changing climate can impact many aspects of water quality and considering these impacts will be necessary to achieve the goals laid out in this plan. Building climate resilience to anticipate and prepare for changes to climate in the coming decades has been an important factor in goal development and plan implementation actions. Building climate resilience in implementation will be essential for plan success. During the midpoint review process, the planning partners will consider if climate impacts require a greater allocation of resources.

4. Goals and Implementation

SECTION 4. GOALS AND IMPLEMENTATION

Generating specific, measurable goals with associated implementation actions is an essential step for effective resource management. This section builds upon the previous sections in this plan: the *Land and Water Resource Narrative* provides the contextual information for understanding and establishing issues; the *Priority Issues* section further defines the issues that will be addressed by goals and supporting actions as part of this plan. This section establishes quantitative goals that will guide the implementation of the plan and identifies the actions necessary to address those goals over the next ten years. Future desired conditions for each goal are also established to provide a guiding vision for resource management.

In this section, goals are presented in tandem with their actions to provide clarity for implementation. Information is presented in the following format:

- Measurable goal fact sheets that state quantitative goals, identify the priority issues addressed by each goal, and summarize plan outcomes;
- Targeting maps that will help guide and focus implementation efforts to the right place, and;
- Action tables that include specific information for each action, including outcomes, lead entities for implementation, timeline of implementation, implementation costs, and funding necessary.

Measurable Goals

Good watershed management – and the ability to demonstrate progress– relies on setting good measurable goals for priority issues. Measurable goals were developed as part of this plan to directly address all priority issues. These goals were developed based on models as well as input from the planning committees and are summarized in goal fact sheets.

Each goal fact sheet contains the following information:

- Description: Description and background context for the goal
- Issues Addressed: Which plan issues are addressed by the goal
- Metrics: Measurable metrics that determine goal progress/success
- Outcomes: General outcomes that occur when the goal is achieved
- Short-Term Goals: Goal for the 10-year planning period
- Desired Future Condition: Long-term condition not bound by the 10-year planning period

Targeted Implementation

Action tables outline activities that will be implemented during the 10-year plan to achieve measurable goals. Each table contains the following information:

- Action: Description of implementation action
- 10-Year Outcome: Predicted outcome from action implementation
- Priority Areas: Areas targeted for implementation
- Leads: Who is leading (bold) and who is supporting implementation action
- Timeline for Implementation: What years implementation will occur
- Output for Goal Tracking: If the action provides direct or indirect progress towards plan short-term goals
- Cost: 10-year cost for implementation of the action

Plan implementation will require a balance between four main implementation programs summarized in this plan:

- "Manage It": Planned Landscape Management
- "Fix It": Constructed Environmental Enhancements
- "Keep It": Protected Lands Maintenance
- "Know It": Data Collection and Outreach

Each action in the action tables is associated with one of the implementation programs below (Figure 4.1). These programs are further described in **Section 5- Implementation Programs**.

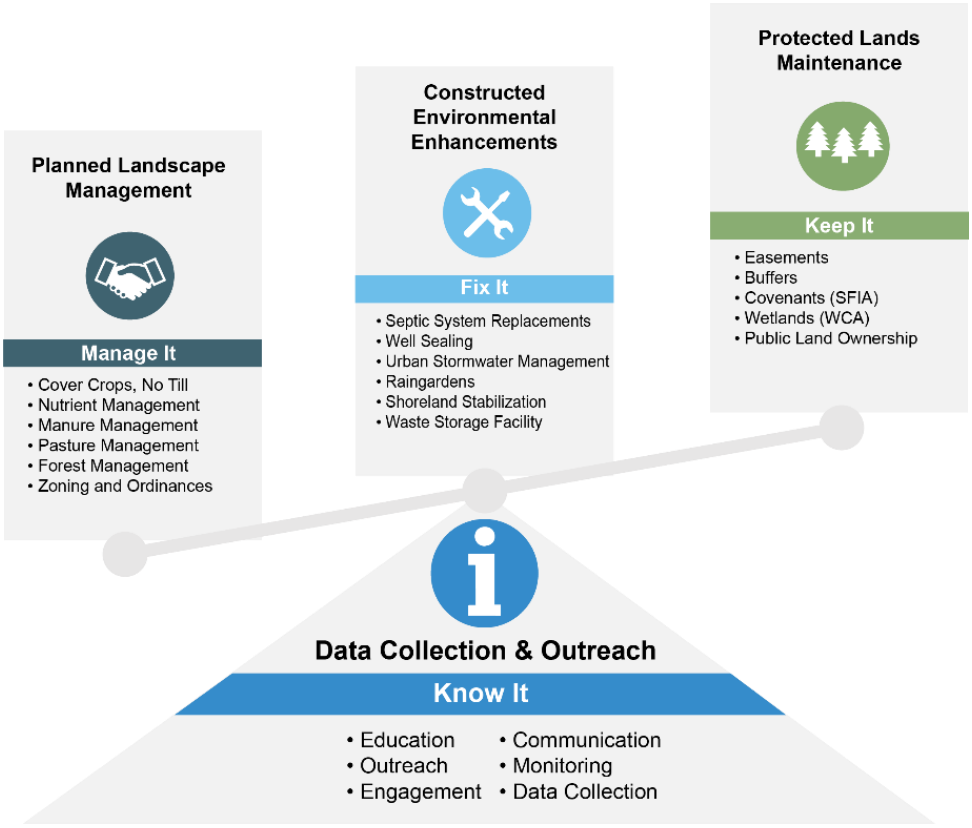


Figure 4.1 Implementation programs for the RRRL

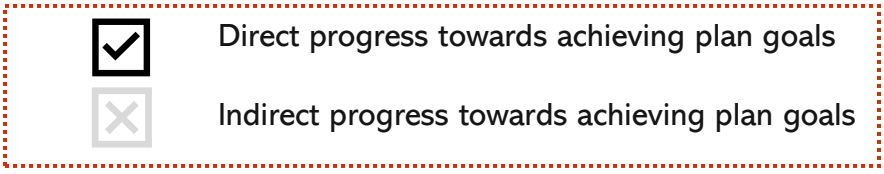
Each action in the action table also has an associated funding level (Table 4.1), depicting if the action will be funded by existing baseline dollars, Watershed-Based Implementation Funding, other competitive dollars, or a combination of funding sources.

Table 4.1 Funding levels for the RRRL Watershed Plan.

Funding Level	Description
Base and WBIF	Current Baseline Funding plus Watershed Based Implementation Funding
Other	Other Funding (319, Outdoor Heritage Fund, NRCS, DNR, MPCA, VNP, etc.)

Each action in the action table has a 10-year output. While each of these actions is important in improving resource conditions, some actions make direct progress towards the short-term goal, while others address the goal but do not make direct progress towards the quantitative goal. The actions are marked as direct or indirect.

An example of direct versus indirect progress towards goal can be found in the Drinking Water Protection action table. The action "Seal Abandoned Wells" makes direct progress towards the Drinking Water Protection short-term goal of "seal 50 unused wells", while the action "Drinking (Source) Water Protection Plans" helps support drinking water quality but does not directly impact progress towards the goal.



Plan actions require voluntary participation, site verification, and adequate funding, and therefore prioritized projects may not be possible or feasible. In that case, the next highest priority projects should be targeted. It is also likely projects may emerge that are not identified in the action tables as priorities shift over the 10-year implementation period. These projects should be pursued if the benefits are comparable to those identified during the planning process. Several factors will determine if an implementation project occurs, which includes (but is not limited to):

- Funding available for implementation actions
- Readiness of practices and projects for implementation
- Emerging data on resource conditions
- Field verification of a certain practice type and location
- Participation by landowners and residents
- Emerging land management practices
- Effectiveness of outreach and education events, as well as research initiatives.

Resource Prioritization and Management Strategies

BWSR's Nonpoint Priority Funding Plan for Clean Water Implementation Funding and Minnesota's Clean Water Roadmap outlines the following priorities for resources:

- Restore "barely impaired" waters that are close to meeting state water quality standards;
- Protect "nearly impaired" water at greatest risk of becoming impaired; and
- Restore and protect water resources for public health, use, and drinking water.

However, few resources in the RRRL Watershed are impaired or nearly impaired. Because of this, four management strategies were identified for prioritizing streams, lakes, and lands in the RRRL that could more appropriately guide implementation efforts. There are commonly used management strategies for maintaining well-protected resources in Northern Minnesota. These strategies are described further in Figure 4.2 and shown on the map in Figure 4.3. These resources also appear in goal targeting maps within this plan section.

	VIGILANCE	PROTECT	ENHANCE	RESTORE
Definition and Examples	**Land is already >75% protected; Keep Protected** *"Protected" defined as: public land, public water, easements, SFIA, wetlands*	**Good quality but want to increase protection** *<25% Disturbance* *<75% Protected*	**Focus area for addressing issues even if they are not degraded** *Waters that are nearly impaired or experiencing algae blooms, declining trend, and/or >25% disturbance (or past disturbance)*	**Focus area for addressing degraded conditions** *Impaired waters*
Resources	Any lakes / streams in Voyageurs National Park, DNR protected land, public land, etc.	Any Lakes of Biological Significance, Wild Rice Lakes that are <75% protected	Rainy River downstream of International Falls (past disturbance); Rat Root River	Black River (*E.coli*) West Fork Black River (*E.coli*)

Figure 4.2 Resource prioritization for the plan with descriptions and criteria.

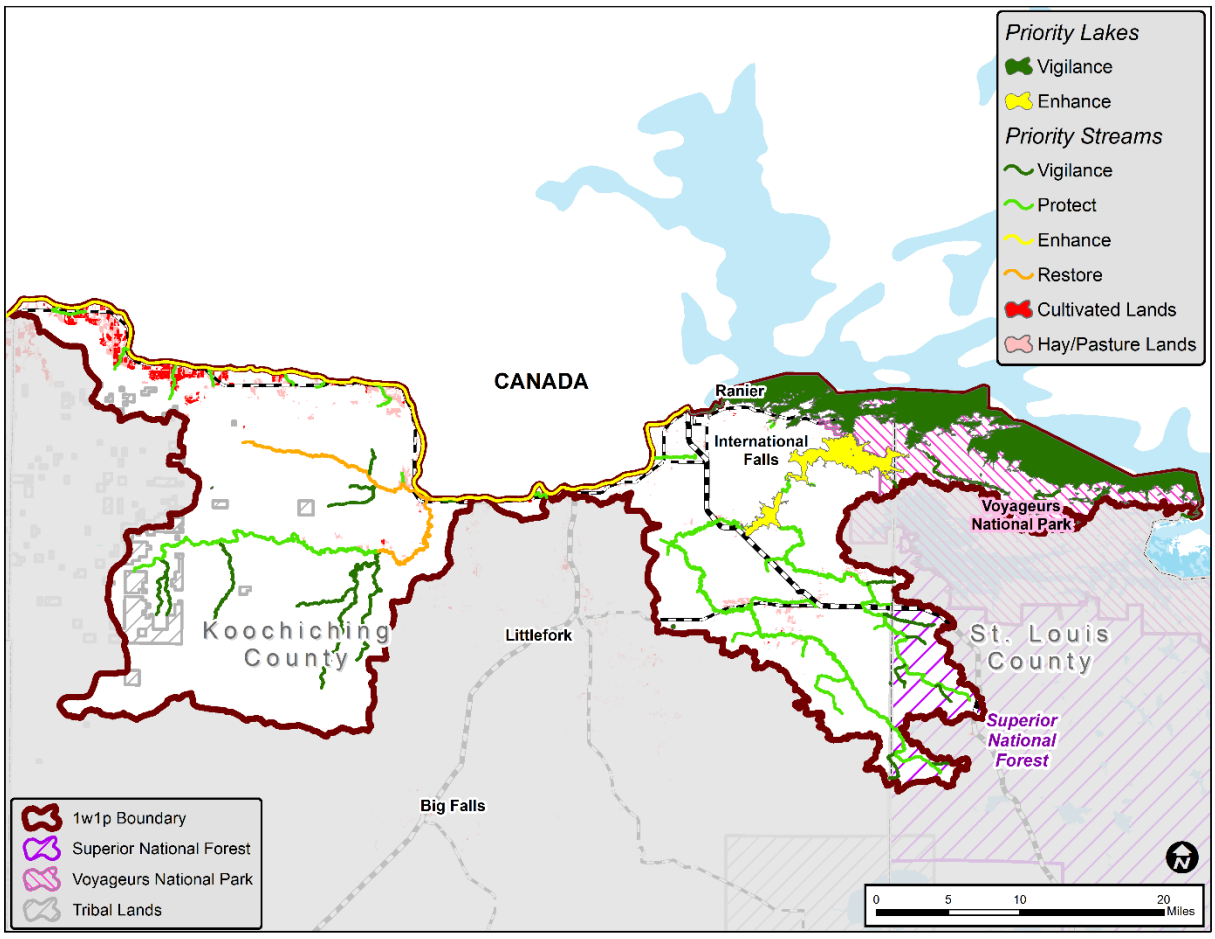
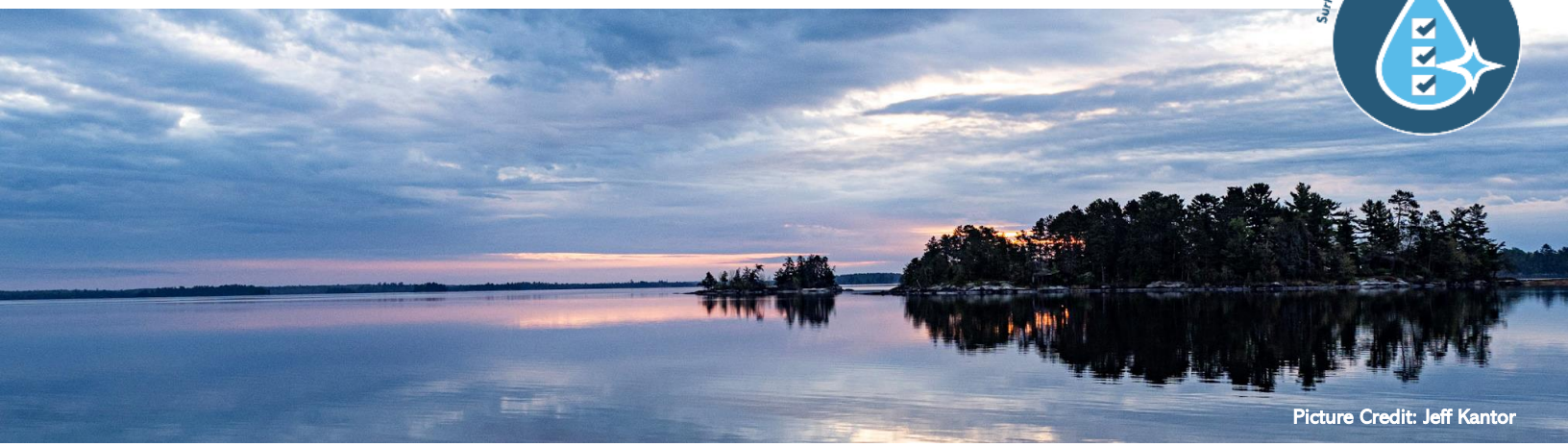


Figure 4.3 Resource prioritization for lakes and streams in the RRRL Watershed.

WATER QUALITY CONTAMINANTS



Picture Credit: Jeff Kantor

Description

Water quality in the RRRL Watershed is generally good with few pollutants, which is important for maintaining the ecological and economic health of the watershed. The cities of International Falls and Ranier and other noncommunity public water suppliers also depend on surface water for their drinking water source. While water quality conditions are generally good, surface waters are still vulnerable to contamination from a variety of sources, including agricultural runoff, stormwater, and landfill contamination. Activities such as the implementation of best management practices (BMPs) on agricultural lands and stormwater plans and projects can help protect surface water and are thus the focus of this goal. The agricultural BMPs in the plan would also have positive climate impacts: meeting this plan's short-term goal for treating land with agricultural BMPs would reduce carbon emissions by 368 tons of CO_2.

Issues Addressed

- Water quality contaminants
- Aquatic Invasive Species

Metrics

- Agricultural BMPs
- Stormwater Plans
- Stormwater Projects

Outcomes

- Reduce contaminants entering groundwater
- Safer drinking water

GOALS

Short-Term Goals

Treat **1,500** acres of cultivated land or pasturelands with best management practices (10% of cultivated / pastureland acres).

Develop **1** stormwater plan and implement **4** projects identified in the plan.

Desired Future Condition

Treat **7,500** acres of cultivated / pasturelands with best management practices (50% of cultivated / pastureland acres).

Implement developed stormwater plans and improve management of all feasible stormwater from municipal areas.

Targeting Map

Resource prioritization allows for targeted implementation of actions. Figure 4.4 below identifies the locations for targeting actions aimed at the water quality contaminants goal. Priority for implementing BMPs will be given to cultivated land and pastureland contributing to priority "restore" and "enhance" streams and lakes. Priority will also be given to urban areas contributing to "restore" and "enhance" streams and lakes.

The "restore" prioritization category includes the two impaired streams in the watershed: the Black River and West Fork Black River are both impaired for *E. coli*. Implementation efforts, particularly those that mitigate bacteria impairments such as livestock BMPs, will be prioritized to help reverse impairments in these streams.

Figure 4.4 below also includes the Outer Source Water Management Area for International Falls. The Outer Source Water Management Area is defined as the area where the impacts to drinking water from point and nonpoint sources of contamination can be minimized by preventive management. This area is also a priority to protect surface drinking water.

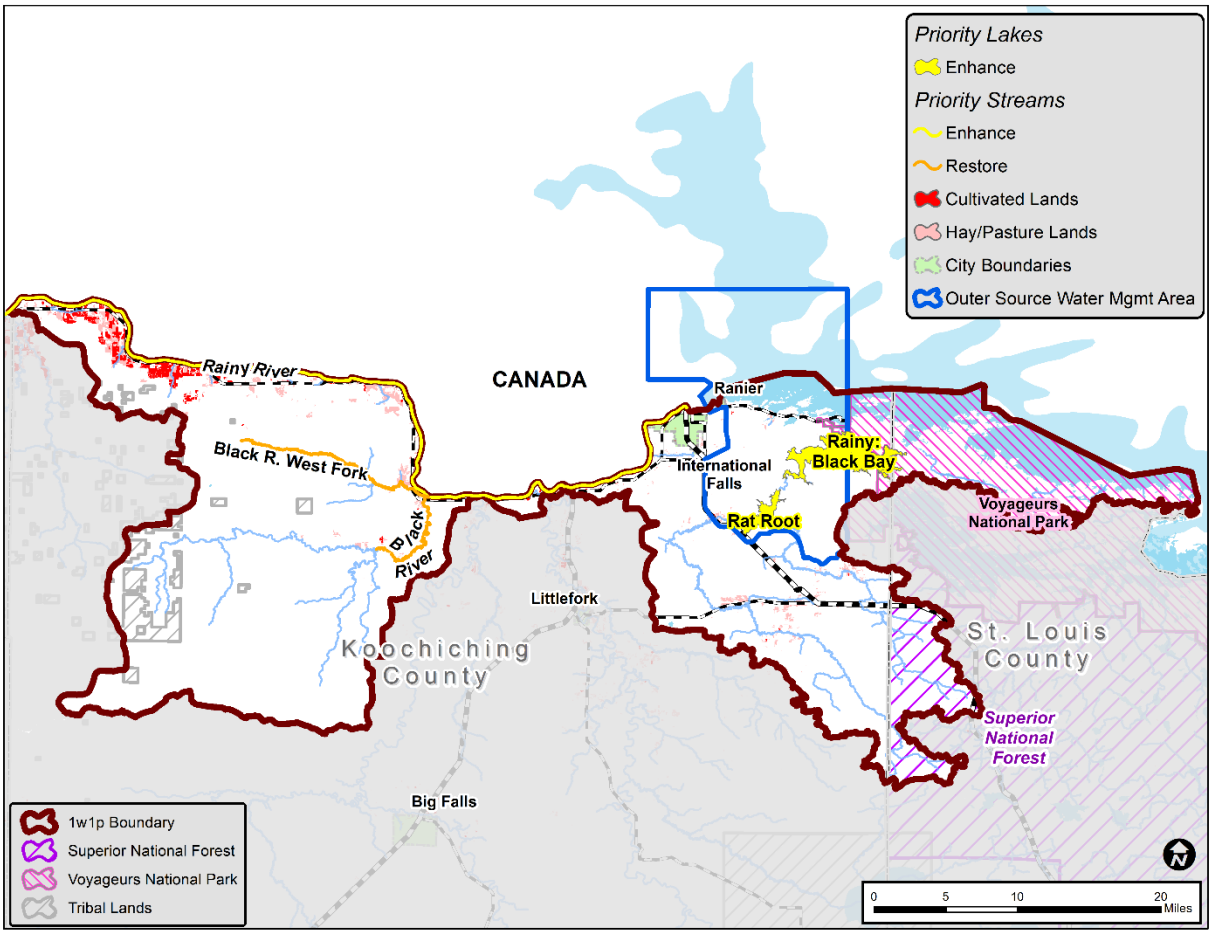
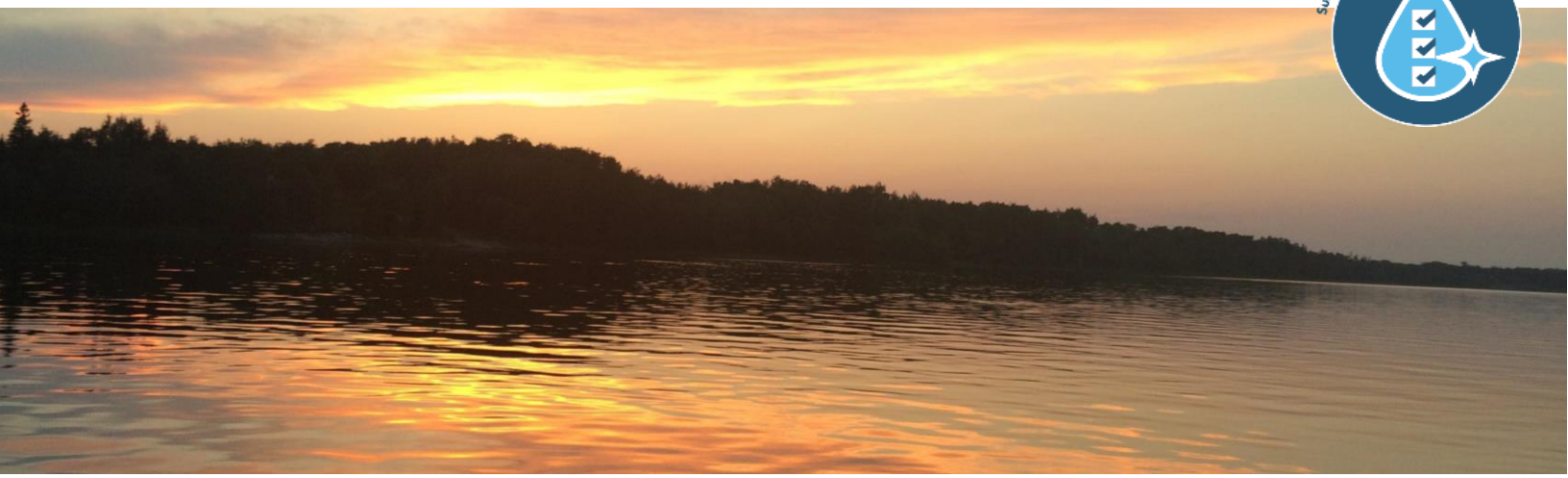


Figure 4.4: E. coli impairments, cultivated lands, pasture lands, and city boundaries in the RRRL Watershed. These are focus areas for the water quality contaminants goal.

Goal: Water Quality Contaminants

What			Where	Who	When					How	Cost	
Action	Program	10-Year Outcome	Priority Areas	Lead(s)	25-26	27-28	29-30	31-32	33-34	Output for Goal Tracking	Primary Funding	Total 10-Year Cost
Stormwater Plan Stormwater management plans for cities and concentrated development		1 stormwater plan	City of Ranier	**Ranier, County, SWCD**		●	●	●	●	☑	Base & WBIF	$50,000
Municipal Stormwater Projects Stormwater plan projects; stormwater treatment, retention basins, biofiltration, smart road projects, street sweeping, etc.		4 stormwater projects	International Falls & Ranier, County	**Cities, County, SWCD,** other developed areas				●	●	☑	Base & WBIF Other	$1,250,000 $1,250,000
Stormwater Permits Provide technical assistance for stormwater design		Assistance provided for 10 designs	Cities, County	**Cities, County**		●	●	●	●	☒	Base Other	$25,000 $75,000
Chloride Management Smart salting, salt storage facility BMP, education, demonstrations, chloride alternatives		Assist cities with plans and cost share for salt use	Cities, County	**Cities, County,** SWCD		●	●	●	●	☒	Base & WBIF	$100,000
Non-Municipal Stormwater Projects Implementation of landowner stormwater BMPs e.g. raingardens, home drainage and low interest loans, sewer lateral projects, etc.		50 projects	Cities, County	**County, SWCD, Cities, MPCA**	●	●	●	●	●	☒	Base & WBIF Other	$450,000 $50,000
Livestock BMPs Stream bank stabilization, nutrient management, stream crossings and fencing, pasture management, etc.		1,500 acres treated *together with "Agricultural BMPs" action*	Pasture/Hay Lands (Figure 4.4)	**SWCD, NRCS**	●	●	●	●	●	☑	Base & WBIF Other	$75,000 $75,000
Agricultural BMPs To reduce nutrient runoff; cover cops, reduced tillage, nutrient management, buffer strips, etc.		1,500 acres treated *together with "Livestock BMPs" action*	Cultivated cropland (Figure 4.4)	**SWCD, NRCS**	●	●	●	●	●	☑	Base & WBIF Other	$112,500 $112,500
Emergency Response Plans Reviewing and updating emergency response plans (as needed) for hazardous spills, railroad corridors, fires suppressants, etc.		Implement County Emergency Response Plans	Watershed-wide	**County, HSEM, MPCA**	●	●	●	●	●	☒	Base	$10,000
Aquatic Invasive Species Continue to implement local AIS program, hybrid cattail coordination		Ongoing programs implemented	Priority Lakes/ Streams	**SWCD, VNP,** County, DNR	●	●	●	●	●	☒	Base	$296,000
Outreach & Education Outreach to private landowners, smart salting, workshops, youth education, etc.		One workshop per year	Watershed-wide	**County, SWCD**	●	●	●	●	●	☒	Base & WBIF	$10,000

WASTEWATER MANAGEMENT



Description

Subsurface sewage treatment systems (SSTS) or septics can be a threat to public health and can contribute *E. coli* to surface and groundwater. Koochiching County has an estimated 1,200 to 2,220 SSTSs (the exact number within the RRRL is not known), with the MPCA estimating that 40% are failing to protect groundwater (MPCA, 2022c). By replacing failing septic systems, a significant risk for surface water and groundwater contamination can be mitigated and is thus the focus of this goal. Education and incentives to reach private landowners will be important to achieving this goal. Koochiching County and the City of Ranier have extended sewer lines to Rainy Lake and Rainy River. There are still areas within the watershed that need additional solutions for managing sewers. Additionally, graywater in the watershed is a special consideration.

Issues Addressed

- Wastewater Management

Metrics

- Septic Systems
- *E. coli* levels

Outcomes

- Reduce contaminants entering groundwater
- Safer drinking water

GOALS

Short-Term Goals

Replace **50** failing septic systems (5 septic systems / year).

Desired Future Condition

Meet TMDL *E. coli* goals.

Targeting Map

The map below (Figure 4.5) shows two important data sets for targeting implementation efforts focused on the wastewater management goal. First, point source discharges from the MPCA are shown. Most of these discharge locations are near International Falls, but others are located near Rainy Lake, Rainy River, and Rat Root Lake. Also shown is well and septic density. While this issue will be addressed watershed-wide, targeting high density areas for septic replacements can help reduce the impact of wastewater contaminants.

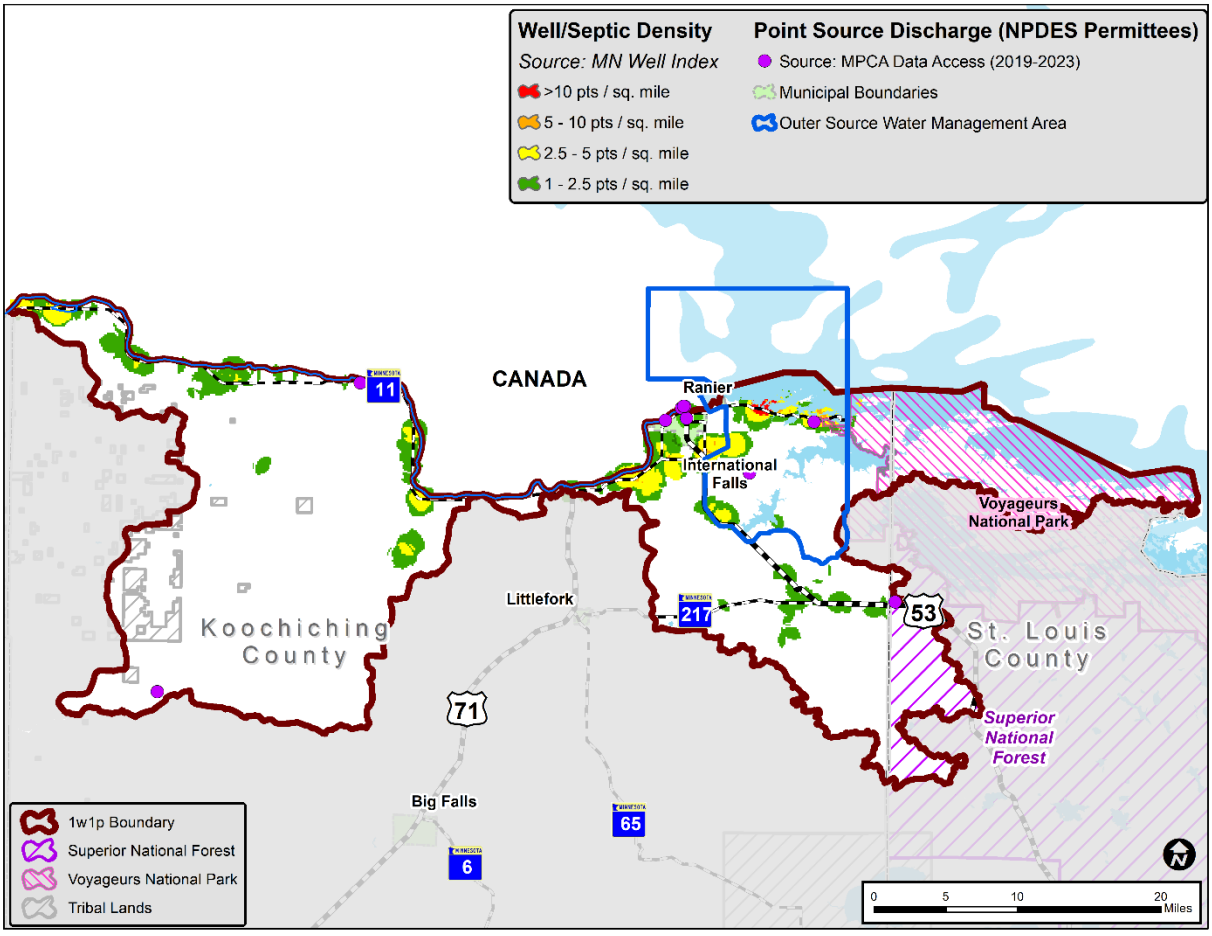
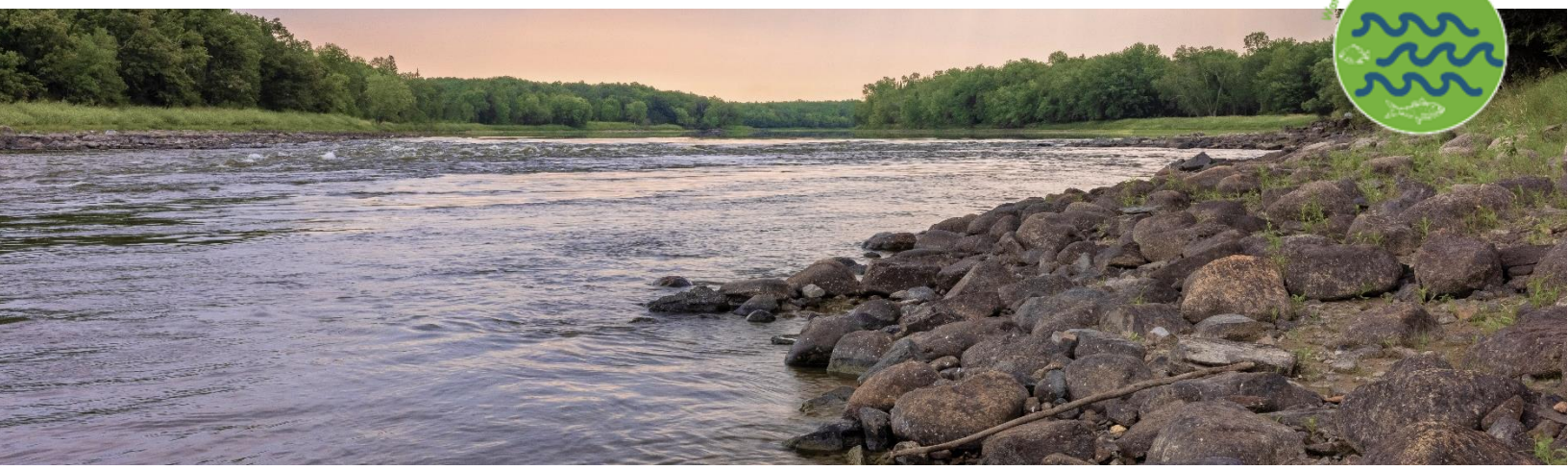


Figure 4.5 Point source discharges and well/septic density in the RRRL Watershed.

Goal: Wastewater Management

What			Where	Who	When					How	Cost	
Action	Program	10-Year Outcome	Priority Areas	Lead(s)	25-26	27-28	29-30	31-32	33-34	Output for Goal Tracking	Primary Funding	Total 10-Year Cost
Wastewater Management Systems Cost share and low interest loans to replace non-compliant septic systems, grey water systems, dumping stations (e.g. for ice houses, sewer)		Replace 50 septic systems	Figure 4.5	**County, MPCA, MDH**	●	●	●	●	●	☑	Base & WBIF Other	$200,000 $1,050,000
Graywater Feasibility Study Study for graywater management in Rainy Lake		1 feasibility study completed	Rainy Lake	**County, MPCA**			●	●	●	☒	Base & WBIF Other	$50,000 $50,000
Wastewater Ordinance Enforce and update (as relevant) SSTS and wastewater ordinances for enhanced compliance		Implement and update (as relevant) City and County Ordinance(s)	Figure 4.5	**County, City, MPCA**	●	●	●	●	●	☒	Base	$10,000
Outreach & Education Graywater outreach program, workshops for SSTS, sewer system design		One workshop per year	Watershed-wide	**County, MPCA, MDH**	●	●	●	●	●	☒	Base & WBIF	$10,000
Data Collection and Prioritization SSTS inventory and prioritization		One inventory completed	Figure 4.5	**County, MPCA, MDH**	●	●	●	●	●	☒	Base & WBIF	$15,000

EROSION AND SHORELAND MANAGEMENT



Description

Human activity has reduced bank stability both along streambanks and along lake shoreline. Common causes of reduced stability include removal of native vegetation and livestock grazing. Unstable streambanks and shorelines contribute increased sediment loading into receiving waterbodies, reducing water and habitat quality. The WRAPS identified generally low erosion rates across the watershed due to low gradient streams and well vegetated banks, however localized areas of streambank erosion (particularly in the Rat Root system) and sediment loading into streams along streams were noted. Local expertise has also identified erosion issues around Rainy Lake, primarily due to fluctuating water levels and high water events. As such, the focus of this goal is on increasing stability in watershed streambanks and shoreline to increase resiliency to future erosive conditions.

Issues Addressed

- Erosion and Shoreland Management

Metrics

- Length of stream stabilization
- Length of shoreline restored

Outcomes

- Decreased shoreline loss
- Increased natural vegetation on lakeshores
- Reduced nutrients entering water bodies

GOALS

Short-Term Goals

Restore/stabilize **5,280** feet of streams/ditches and shoreline.

Desired Future Condition

Restore/stabilize **20,000** feet of streams/ditches.

Restore/stabilize **7,500** feet of shoreline.

Targeting Map

The two targeting maps for the erosion and shoreline management goal (Figure 4.6 and 4.7) identify places for potential shoreline and streambank stabilization on the eastern and western sides of the watershed, respectively. Local expertise has indicated that the tributaries to the Rainy River are responsible for much of the streambank erosion in the river. Areas are particularly prone to erosion if slopes near streams or lakes are steep, increasing the velocity of water being routed to the receiving waterbody. Some of these areas, including the Shorewood Drive development in International Falls, are threatened by flooding due to these conditions.

Rainy Lake is the primary resource focus for shoreline erosion, with areas with steep and very steep slopes shown (Figure 4.6). Figure 4.6 identifies areas that should be targeted for streambank stabilization in the eastern extent of the watershed. This map highlights steep and very slopes, as well as specific locations recommended for stream projects as part of the Rainy River-Rainy Lake Stressor Identification Report. Survey efforts included a Bank Assessment for nonpoint source Consequences of Sediment (BANCS) which identified several areas with higher erosion rates. The survey also identified potential ravine stabilization opportunities, although further investigation is needed to assess the sediment impacts of these features.

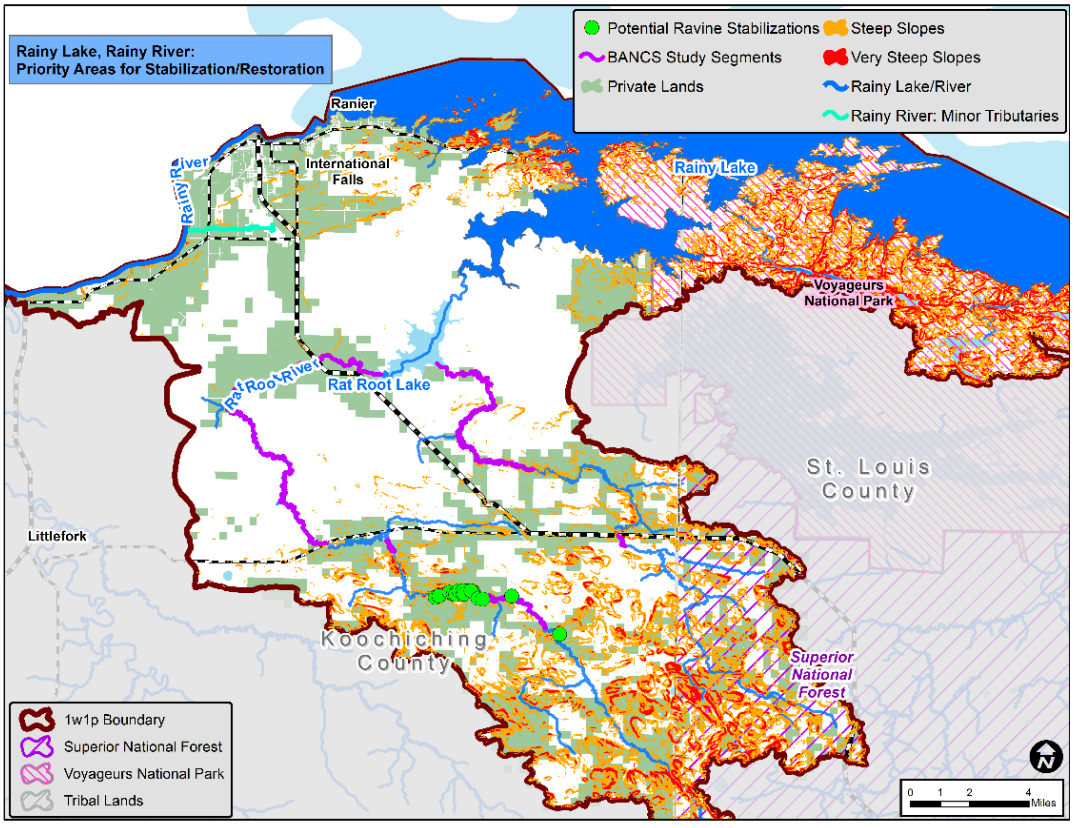


Figure 4.6 Potential shoreline and streambank stabilization focus areas in the eastern extent of the RRRL watershed. Also highlighted are steep and very steep slopes.

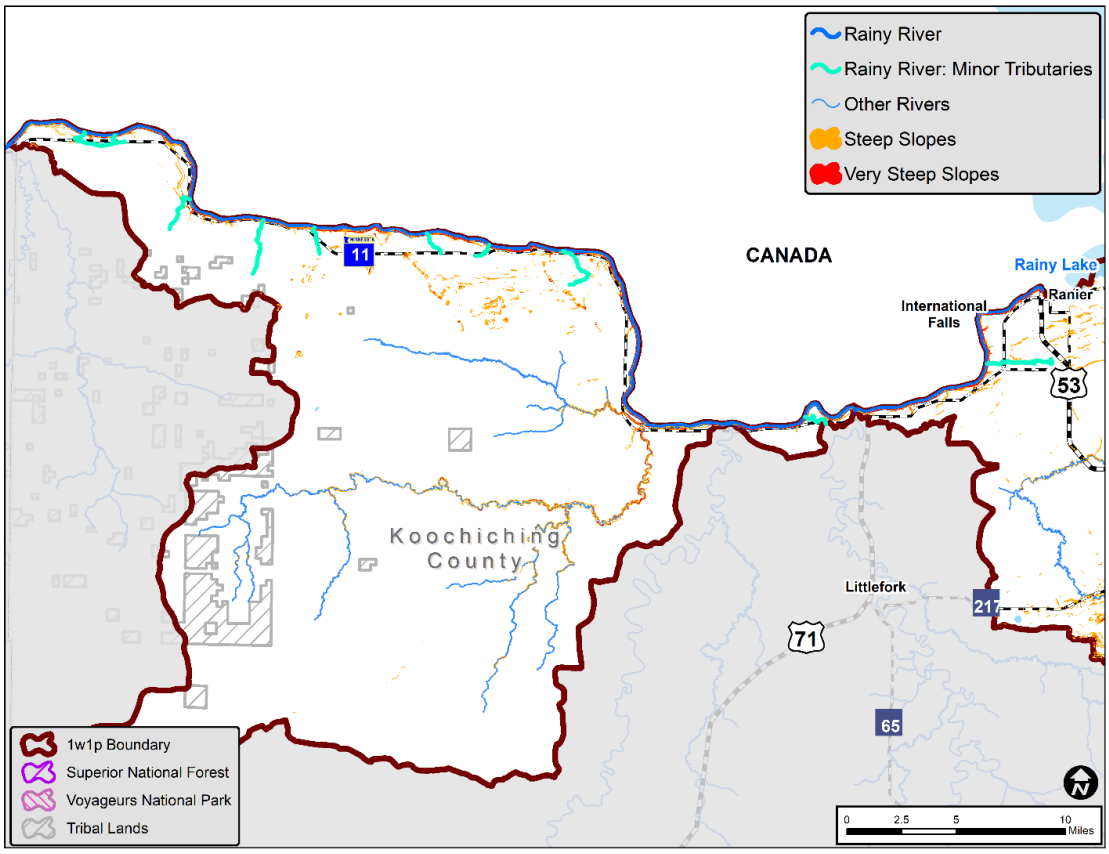


Figure 4.7 Potential streambank stabilization focus areas in the western extent of the RRRL watershed. Also highlighted are steep and very steep slopes.

Rat Root Lake (Left, Credit: Rat Root River Enterprises) **and Shorewood Drive Damages** (Right)

Goal: Erosion and Shoreland Management

What			Where	Who	When					How	Cost	
Action	Program	10-Year Outcome	Priority Areas	Lead(s)	25-26	27-28	29-30	31-32	33-34	Output for Goal Tracking	Primary Funding	Total 10-Year Cost
Streambank and Shoreline Stabilization Stabilize streambanks and shorelines, drainage, and gullies; natural vegetation, in-channel stabilization, shoreline BMPs, aquatic vegetation, tree planting including considerations for Emerald Ash Borer, riparian shading, grade control		5,280 feet of enhancement	Figures 4.6 and 4.7	**SWCD, County, NRCS, Cities,** DNR		●	●	●	●	☑	Base & WBIF Other	$514,000 $2,626,000
Ordinance Implement ordinances and increase funding, ordinance updates as needed (shoreland, floodplain, P&Z)		Implement ordinances	Watershed-wide	**County,** DNR	●	●	●	●	●	☒	Base	$10,000
Buffer Law Perennial vegetative buffers of up to 50 feet along lakes, rivers, and streams and buffers of 16.5 feet along public ditches		100% compliance	Watershed-wide	**County, SWCD,** BWSR, Cities	●	●	●	●	●	☒	Base	$10,000
Ground Truthing and Survey Stream, ditch, and shoreline prioritization, stabilization and restoration		Ground truth 10 miles in the watershed	Watershed-wide	**SWCD, County,** DNC, MPCA	●	●	●	●	●	☒	Base & WBIF	$50,000
Outreach & Education Erosion prevention outreach events for relators, youth, landowners, renters etc. aimed at protecting and maintaining shorelines / streambanks; recognition and promotion of landowner protected areas		One outreach event per year	Watershed-wide	**SWCD, County, DNR, MPCA, Cities**	●	●	●	●	●	☒	Base & WBIF	$20,000

RESTORE HYDROLOGY

Description

Water quantity and hydrology impact each of the other resource concerns addressed by this plan and require careful consideration throughout the unique watershed. The RRRL Watershed has several waterbodies that are impacted by either low flow (such as the Rat Root River) or high water levels (such as flooding along Rainy Lake or impacts to wild rice beds- note that significant investment is already in place for wild rice protection). Several factors can impact the hydrology of a watershed, including changing precipitation trends, peatland/wetland draining, stream channelization, and logging which have increased runoff in the region. In addition, increased discharge from expected precipitation in the coming decades is a major concern due to flooding. Water storage or peatland restoration projects can help increase storage on the landscape and maintain discharge levels from the watershed even with increased precipitation. The focus of this goal is to build resilience to protect the economic and recreational resources of the RRRL Watershed.

Issues Addressed

- Altered Hydrology
- Wetlands and Peatlands
- Wild Rice

Metrics

- Study completed
- Acre-feet temporary or permanent storage

Outcomes

- Wetlands for water storage
- Reduced peak flow
- Improved wildlife habitat

GOALS

Short-Term Goals

Conduct one peatland restoration study or potential water storage feasibility study and implement temporary or permanent storage as part of water quality contaminants and connectivity goals.

Desired Future Condition

No net increase in discharge in the Lower Rainy River major watershed. Current analysis indicates an increased 1,517 acre-feet storage in the Rainy River – Rainy Lake major watershed is necessary to mitigate expected precipitation increases in the coming decades.

Targeting Map

Flows from the Rainy River and Rainy Lake Hydrological Simulation Program – FORTRAN (HSPF) model were extracted and compared to investigate the portion of flow coming from the Rat Root River to Rainy Lake and the flow from the Black River to the flow in the Rainy River at the outlet of the Black River (**Appendix D**). These comparisons show the impacts storage practices in these watersheds might have on the discharge in the watershed. The modeled output indicates that on average, the Rat Root River accounts for 1.52% of the outflow from Rainy Lake. Therefore, the impact of storage practices in the Rat Root River subwatershed will have minimal impact at the outlet of Rainy Lake. Similarly, the Black River accounts for 2.9% of the flow in the Rainy River. The impact of storage practices in the Black River subwatershed will have minimal impact on the flow in the Rainy River.

As storage practices will have minimal impact on the downstream resources of Rainy Lake or Rainy River, this goal instead focuses on building resilience to changing precipitation patterns. The decadal trend in annual rainfall depths for the Rainy River-Rainy Lake major watershed for the last 50 years (1974-2023) is an increase of 0.47 inches per decade. The decadal trend for the Lower Rainy River Watershed for the last 50 years is a decrease of 0.06 inches per decade. Additional water storage in the landscape is beneficial for mitigating the impact of heavy rain events that are becoming more common.

A storage goal can be created to offset the increases in annual rainfall. A storage volume of 1,517 acre-ft is needed to offset an increase of 0.47 inches of rainfall over 10 years in the Rainy River-Rainy Lake Watershed- Rat Root Subwatershed (Figure 4.8) and is therefore the desired future condition goal. No storage volume is needed in Lower Rainy River Watershed to offset increases in annual rainfall.

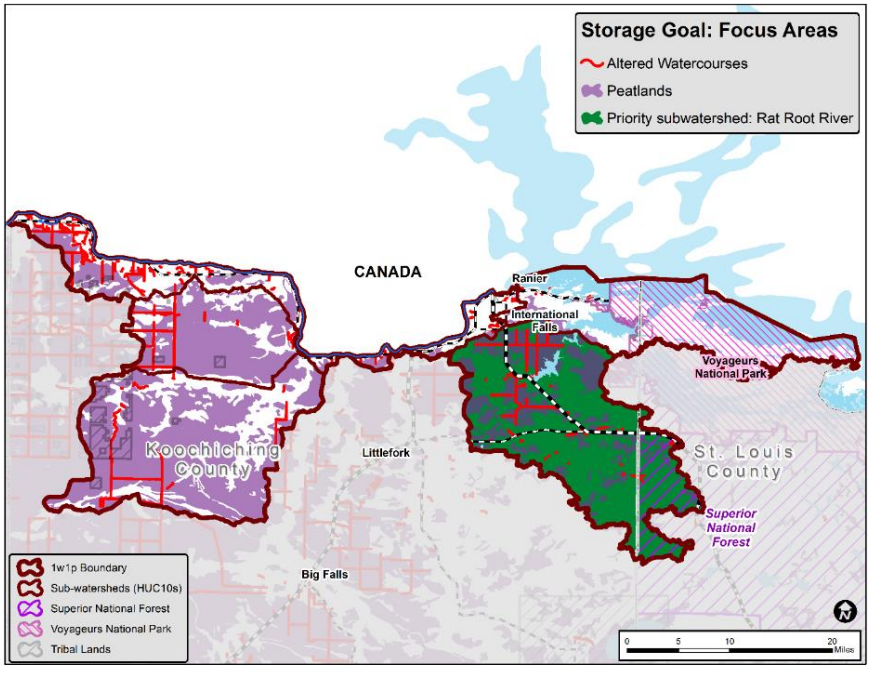
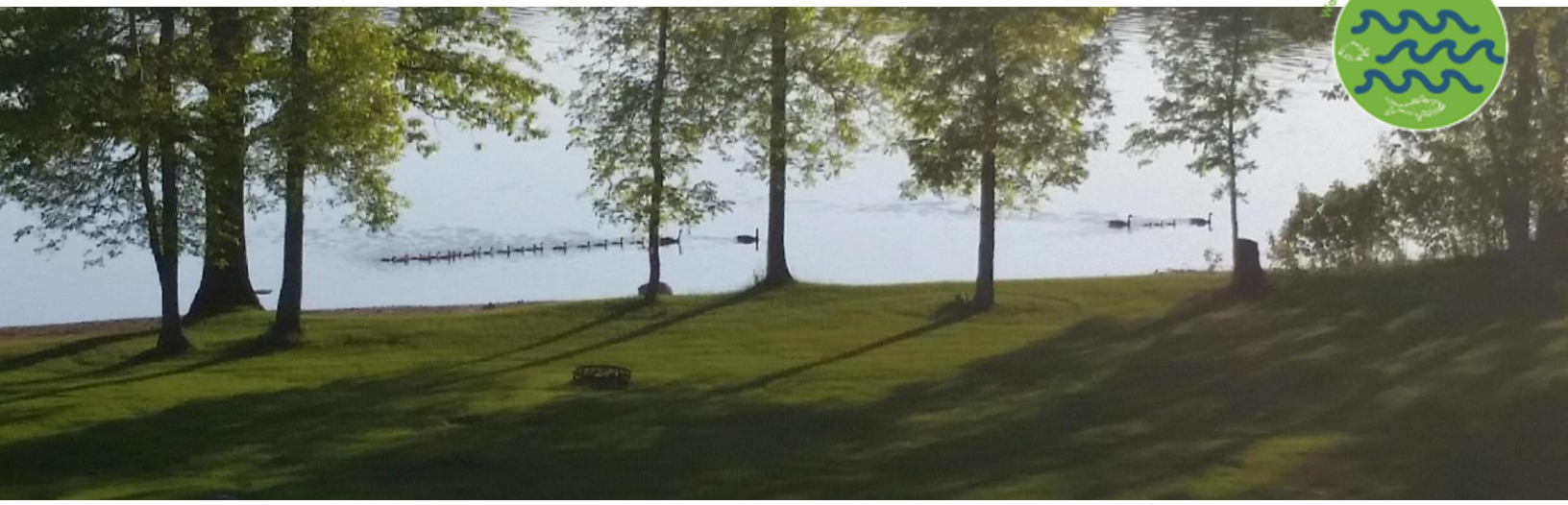


Figure 4.8 Focus subwatershed for storage efforts in the RRRL, the Rat Root River Subwatershed.

Goal: Restore Hydrology

What			Where	Who	When					How	Cost	
Action	Program	10-Year Outcome	Priority Areas	Lead(s)	25-26	27-28	29-30	31-32	33-34	Output for Goal Tracking	Primary Funding	Total 10-Year Cost
Peatland Restoration Feasibility Study Feasibility of peatland restoration watershed-wide to determine acre-feet storage capabilities		One study	Watershed-wide	**County, DNR,** SWCD				●	●	☑	Base & WBIF	$100,000
Wetland Conservation Act (WCA)		Implement Program	Watershed-wide	**BWSR, SWCD, County, Municipalities,** DNR	●	●	●	●	●	☒	Base	$100,000
Outreach & Education Education on wetlands, wetland banking, peatlands, water storage		One outreach event(s) per year	Watershed-wide	**SWCD, County**	●	●	●	●	●	☒	Base & WBIF	$10,000
Stream Inventory Inventory small streams that feed into Rainy River, data collection of timing and flows for wild rice, water level monitoring		Complete Inventory, data collection	Watershed-wide	**SWCD, County**	●	●	●	●	●	☒	Base	$50,000
Wild Rice Protection Reduce hybrid cattails that have created a monoculture (currently within VNP)		Increased protection of wild rice	Wild rice lakes and streams	**SWCD, VNP, County,** BWSR	●	●	●	●	●	☒	Base, Other	$25,000 $250,000

CONNECTIVITY ENHANCEMENT



Description

Problematic culverts can block fish passage in streams. This limits connectivity and habitat, which can impact fish populations and water quality. There has been no watershed-wide culvert inventory, so the number of problematic culverts is not widely known. Completing an inventory would help identify and address connectivity issues within the watershed.

Additionally, the RRRL faces other barriers to passage in streams from debris and beavers. While instream wood can often benefit stream ecology, thoughtful management of these blockages is essential to mitigate low flows. Roads also can be obstacles for wildlife. Identifying areas where this occurs and working with road authorities can maintain habitat in the watershed.

Issues Addressed

- Connectivity

Metrics

- Priority barriers addressed

Outcomes

- Improved wildlife habitat
- Improved fish habitat
- Improved water quality

GOALS

Short-Term Goals

Complete and maintain culvert inventory and based on results, coordinate with local, state, and federal partners to **address 2 culverts** to mitigate connectivity barriers.

Desired Future Condition

Address **all** priority barriers.

Goal: Connectivity Enhancement

What			Where	Who	When					How	Cost	
Action	Program	10-Year Outcome	Priority Areas	Lead(s)	25-26	27-28	29-30	31-32	33-34	Output for Goal Tracking	Primary Funding	Total 10-Year Cost
Enhance Stream Connectivity Culvert repair and replacement to reduce sediment transport, maintain fish passage, compensate for climate change impacts by building climate resiliency, stream crossing stabilization, wetland connectivity, trail crossing improvements, etc.		Implement 2 projects	Watershed-wide	**County, DNR,** MNDOT, SWCD,		●	●	●	●	☑	Base & WBIF Other	$50,000 $450,000
Beaver Management Manage dams where affecting public infrastructure and ditches, installation of pond levelers		Ongoing management	Watershed-wide	**DNR, County**	●	●	●	●	●	☒	Other	$50,000
Analysis of Infrastructure Projects Comprehensive analysis of infrastructure projects (such as rail bridge) to determine impacts on water quality		Ongoing analysis	Watershed-wide	**County, MNDOT**	●		●		●	☒	Base & WBIF	$20,000
Culvert and Crossings Inventory Begin culvert and crossings inventory in the watershed, address issue culverts		Complete inventory in watershed	Watershed-wide	DNR, SWCD, County	●	●	●			☑	Base & WBIF	$50,000
Coordinate with Road Authorities On road, ditch, and culvert replacement projects		Biennial trainings	Watershed-wide	**DNR, SWCD, County**		●		●		☑	Base	$1,000

DRINKING WATER PROTECTION

Description

Drinking water is an essential resource in any watershed. Many residents in the RRRL Watershed utilize private wells or groundwater for their drinking water. These wells require screening for contamination from nitrates, bacteria, arsenic, and more. Additionally, there are likely many unused wells across the watershed that require sealing. Outreach and education for both of these actions will be essential to maintaining safe drinking water for all residents in the watershed.

Surface drinking water sources also require protection. Residents in International Falls and Ranier source their drinking water from the Rainy River which flows from Rainy Lake. Actions from both this goal and previous goals (water quality contaminants, wastewater management) will all help create safer drinking water.

Issues Addressed

- Drinking Water Protection

Metrics

- Unused wells sealed
- Number of groundwater BMPs

Outcomes

- Reduce contaminants entering groundwater
- Safer drinking water
- Replace infrastructure

GOALS

Short-Term Goals

Seal **50** unused wells (5 unused wells / year).

Desired Future Condition

Seal **all** unused wells.

Complete International Falls Intake Protection Plan.

Targeting Map

Private wells are used by many residents in the RRRL Watershed. Additionally, surface water sources such as Rainy Lake and Rainy River are drinking water sources for other residents (Figure 4.9). The map below identifies both these drinking water sources, as well as DNR Water Appropriation Permits and places with potential groundwater vulnerability. Protecting surface water sources for drinking water is primarily addressed by the water quality contamination goal. As such, the focus of this drinking water protection goal and implementation activities is in areas with a more concentrated density of private wells and areas with shallower and more vulnerable soils.

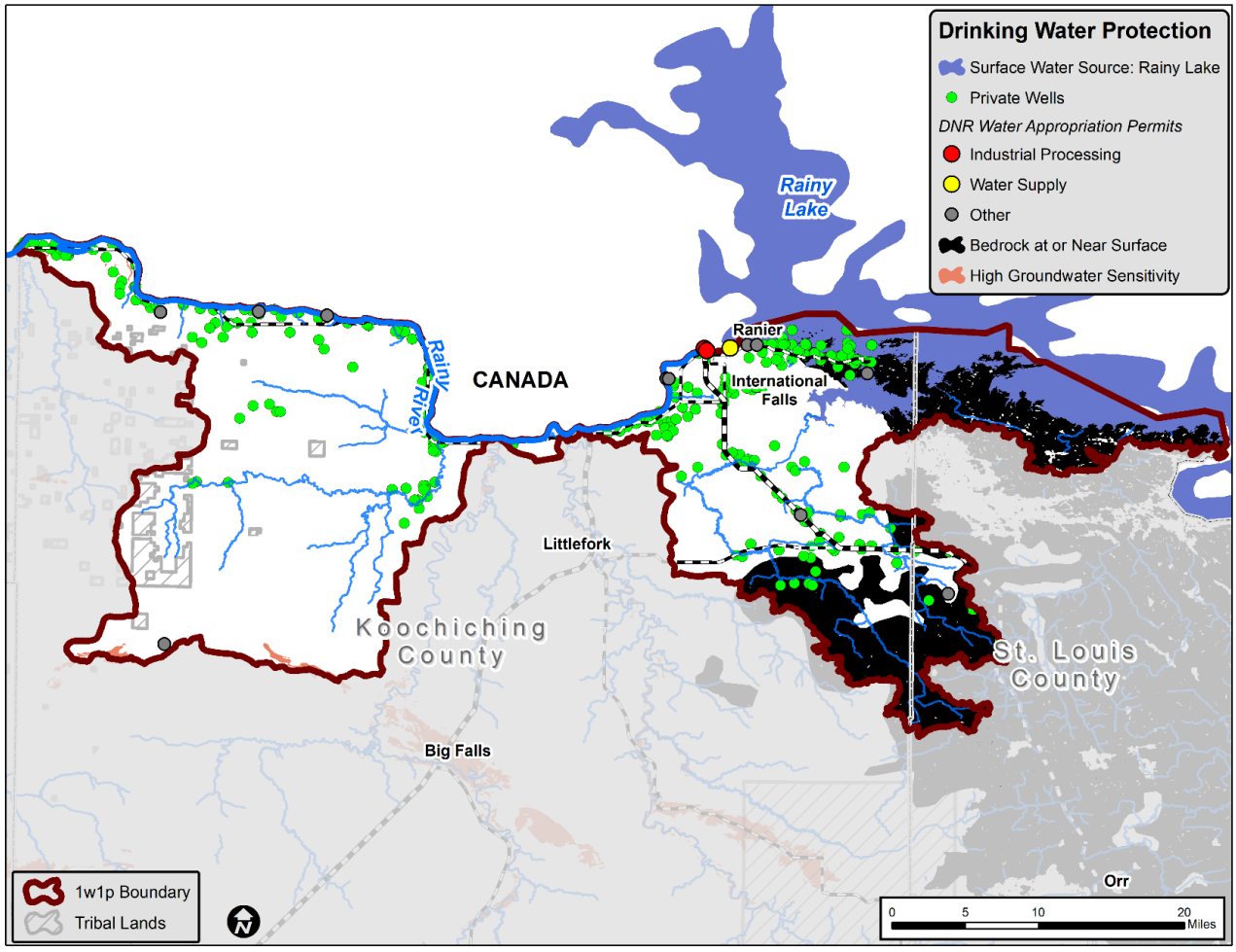


Figure 4.9 Private wells, industrial processing, and water supply locations in the RRRL Watershed. Also included are areas vulnerable to drinking water contamination with surficial bedrock or high groundwater sensitivity.

Goal: Drinking Water Protection

What			Where	Who	When					How	Cost	
Action	Program	10-Year Outcome	Priority Areas	Lead(s)	25-26	27-28	29-30	31-32	33-34	Output for Goal Tracking	Primary Funding	Total 10-Year Cost
Seal Abandoned Wells Through cost share programs and outreach to increase watershed participation		Seal 50 unused wells	Figure 4.9	**MDH, SWCD, County,** NRCS	●	●	●	●	●	☑	Base & WBIF	$60,000
Screen Private Wells for Contamination Testing clinics for nitrate, bacteria, arsenic, manganese, chloride		One well testing clinic per year	Figure 4.9	**County, MDA, SWCD,** MDH	●	●	●	●	●	☒	Base & WBIF	$10,000
Drinking (Source) Water Protection Plans Assist with development of Source Water Assessment and Source Water Intake Protection Plan.		MDH Intake Protection Plan	International Falls	**MDH, City**		●	●			☒	Base & WBIF	$25,000
Outreach & Education Septic system maintenance, wellhead protection, solid waste, household hazardous waste, outreach on surface water drinking safety, septic system maintenance in relation to private drinking wells, coordination with Canadian partners		One workshop per year	Watershed-wide	**County, SWCD, MDH**	●	●	●	●	●	☒	Base & WBIF	$10,000
Data Collection Inventory active and abandoned wells in the watershed		Completed inventories	Watershed-wide	**County, MPCA**	●	●	●	●	●	☒	Base & WBIF	$50,000
Solid Waste Management Improvement Projects Implementation of projects for landfill management		2 projects implemented	Watershed-wide	**County, MPCA**		●		●		☒	Base & WBIF Other	$125,000 $375,000

FOREST HEALTH

Description

Forest land is another important resource for residents in the RRRL. Forests provide habitat, store carbon, and are an economic and natural resource for Northern Minnesota. As weather patterns continue to shift, building forests resilient to the threats of invasive species and wildfires will be important. Managing those acres by preparing forest stewardship plans, climate assisted migration, and invasive species management will all help promote forest health in the watershed. Forests are also protected through enrolling land in easements or in the Sustainable Forest Incentive Act (SFIA), where landowners receive incentive payments to keep wooded areas undeveloped. The Rainy Lake-Lower Rainy River Landscape Stewardship Plan (LSP) guides the protection and management of working forests on private lands on a watershed basis to strategically protect working forest lands and promote private forest stewardship to enhance both private and public benefits that forests provide. The LSP and local expertise has indicated a need to increase forest diversity and wildlife management to promote forest health, particularly along riparian corridors.

This plan's short-term forest health goal aims to complete 40 forest stewardship plans, based on what is feasible for SWCD staff in the next 10 years. Completing and implementing 40 forest stewardship plans to manage 2,000 acres will have a substantial impact: these forests store approximately 400 more acre-feet of water than if they were converted to agriculture or developed land. These acres also store approximately 156,000 tons of carbon.

Issues Addressed

- Forest Health and Management

Metrics

- Acres protected
- Forest plans completed

Outcomes

- Resiliency to invasive species and climate variability
- Improve habitat, water quality and carbon storage

GOALS

Short-Term Goals

Complete **40** plans for private forest land and implement management of **2,000** acres of privately owned forest land.

Desired Future Condition

Support completion of LSP goal: Manage **80,442** acres of privately owned forest land through **378** forest stewardship plans on private forest land.

Increase watershed protection to meet LSP goals of **75%** protection in all subwatersheds.

Targeting Map

With increased development, the parcelization of forested land is a potential threat to water quality in the watershed (Figure 4.10). Parcelization can harm forest health and water quality as it can enable increased development and reduce habitat connectivity through forest fragmentation. There are approximately 1,800 private parcels less than 20 acres in the watershed (totaling approximately 6,000 acres). These areas should be targeted around riparian areas for shading and increased plant diversity.

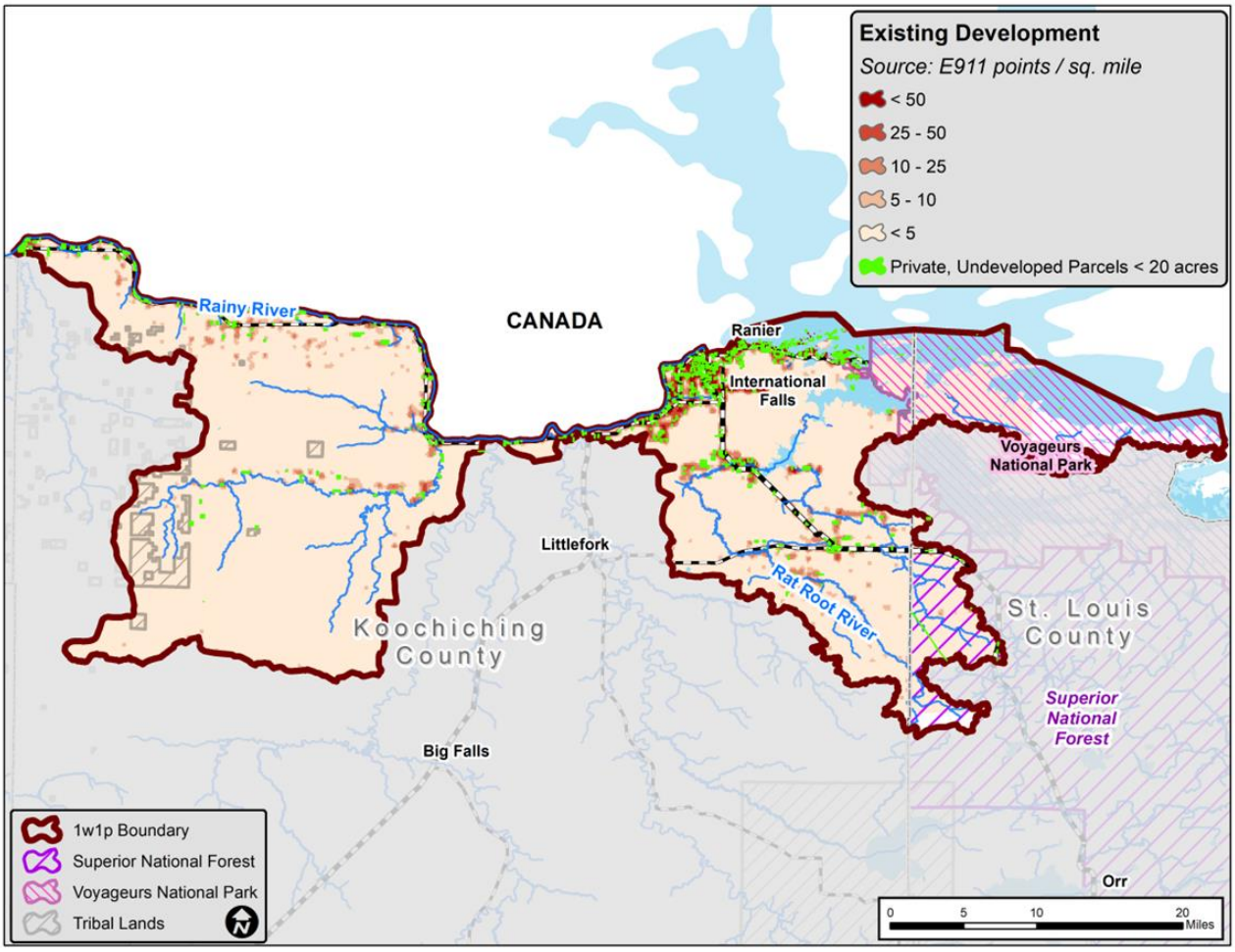


Figure 4.10 Density of development in the RRRL watershed.

For parcels greater than 20 acres (Figure 4.11), enrolling acres that have medium or high Riparian, Adjacency, Quality (RAQ; assessment of adjacency to water, public lands, and habitat/biodiversity of a parcel) scores for SFIA or other conservation easements should be a focus. There are 825 parcels greater than 20 acres in the watershed (totaling approximately 39,250 acres).

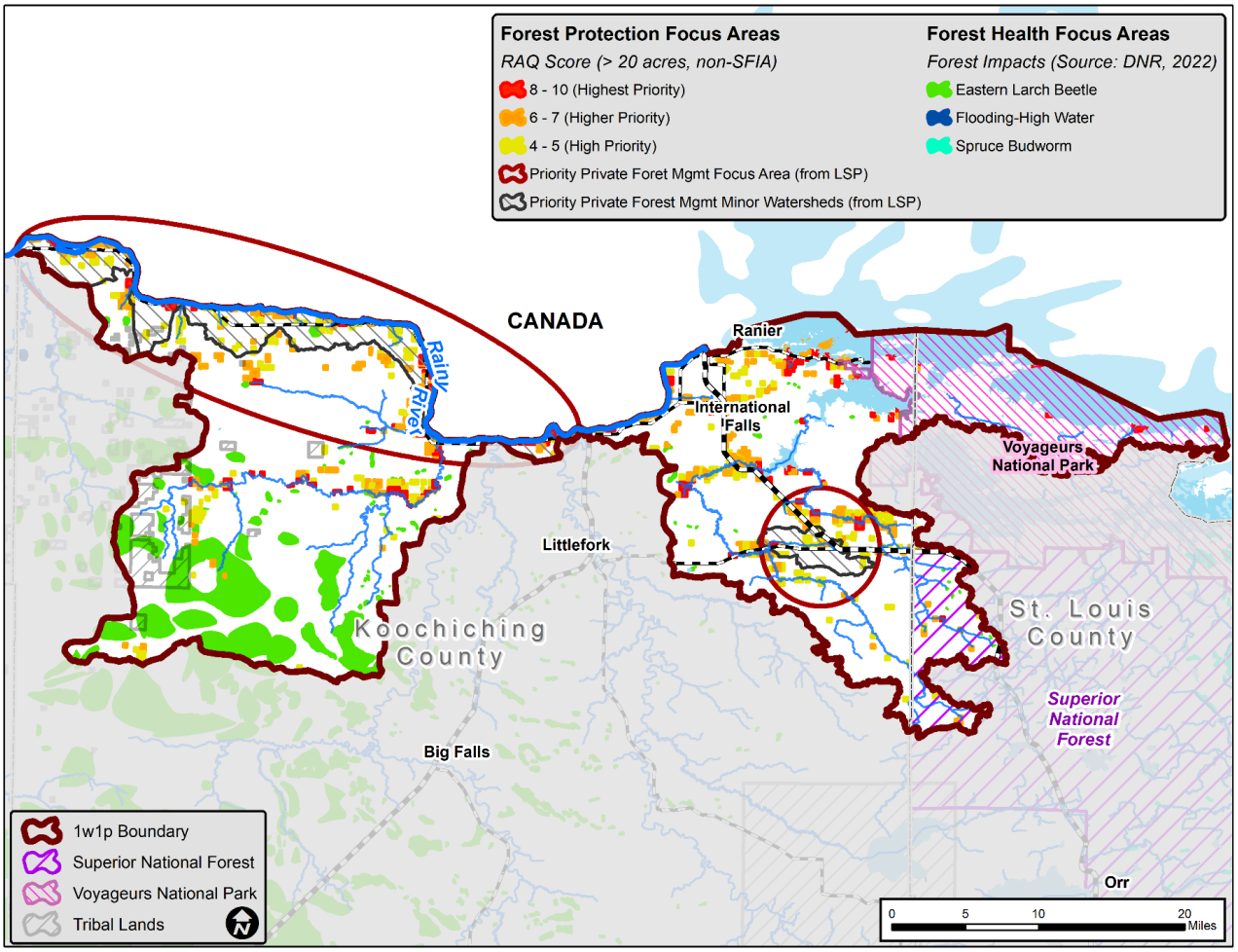


Figure 4.11 Riparian, Adjacency, Quality (RAQ) scores of parcels in the RRRL. Also identified are forest health focus areas and priority forest management focus areas.

Goal: Forest Health

What			Where	Who	When					How	Cost	
Action	Program	10-Year Outcome	Priority Areas	Lead(s)	25-26	27-28	29-30	31-32	33-34	Output for Goal Tracking	Primary Funding	Total 10-Year Cost
Forest Health Management/Manage Private Forests Technical assistance and cost-share for practices such as Forest Stand Improvement, tree planting, Climate Assisted Migration, prescribed burning, erosion control, forest pest response, EAB and ELB risk planning and mitigation, wildfire response, coordinate harvesting for forest age diversity		1,000 acres managed	Figure 4.11	**NRCS, DNR, SWCD, Cities**	●	●	●	●	●	☐	Other	$500,000
Noxious Weeds and Terrestrial Invasive Species Management Coordinate invasive species management activities on private land, Noxious Weed Program		Maintain current programs	Watershed-wide	**SWCD, DNR, County,** NRCS, Cities	●	●	●	●	●	☐	Base & WBIF	$10,000
Coordination of Public Land Management		Enhanced Coordination	Watershed-wide	**SWCD, County, DNR**	●	●	●	●	●	☐	Base	$5,000
Forest Stewardship Plans Management plans on private parcels, small parcel management including riparian areas		40 plans written; 2,000 acres managed	Figure 4.10	**SWCD,** DNR, Consultants, BWSR, Cities	●	●	●	●	●	☑	Base & WBIF	$70,000
Forest and Land Conservation SFIA, conservation easement, RIM, 2C, easements on priority private land, implementation of MFRC site level BMPs		100 conserved acres	Figure 4.11	**SWCD,** BWSR, DNR, Cities	●	●	●	●	●	☐	Other	$91,000
Expand and Increase Habitat Planting trees, pollinator habitat, conservation cover, etc., focusing on marginal agricultural lands		100 acres of planting	Watershed-wide	**SWCD, NRCS, County, Cities**	●	●	●	●	●	☐	Base & WBIF	$50,000
Outreach & Education Local foresters, workshops, tourism, stewardship programs		One outreach event per year	Watershed-wide	**SWCD, DNR,** NRCS, BWSR, County, Cities	●	●	●	●	●	☐	Base	$10,000

5. Implementation Programs

SECTION 5. IMPLEMENTATION PROGRAMS

The Implementation Program section of the plan describes the programs that will be used for implementing this plan. There are four main categories: Planned Landscape Management ("Manage It"), Constructed Environmental Enhancements ("Fix It"), Protected Lands Maintenance ("Keep It"), and Data Collection and Outreach ("Know It"). These programs balance differently in different watersheds. For this watershed, the "Keep It" program is lighter because of the higher percentage of public land. The "Manage It" and "Fix It" have more of the focus (Figure 5.1). All programs are balanced on "Know It", which is collecting and distributing information.

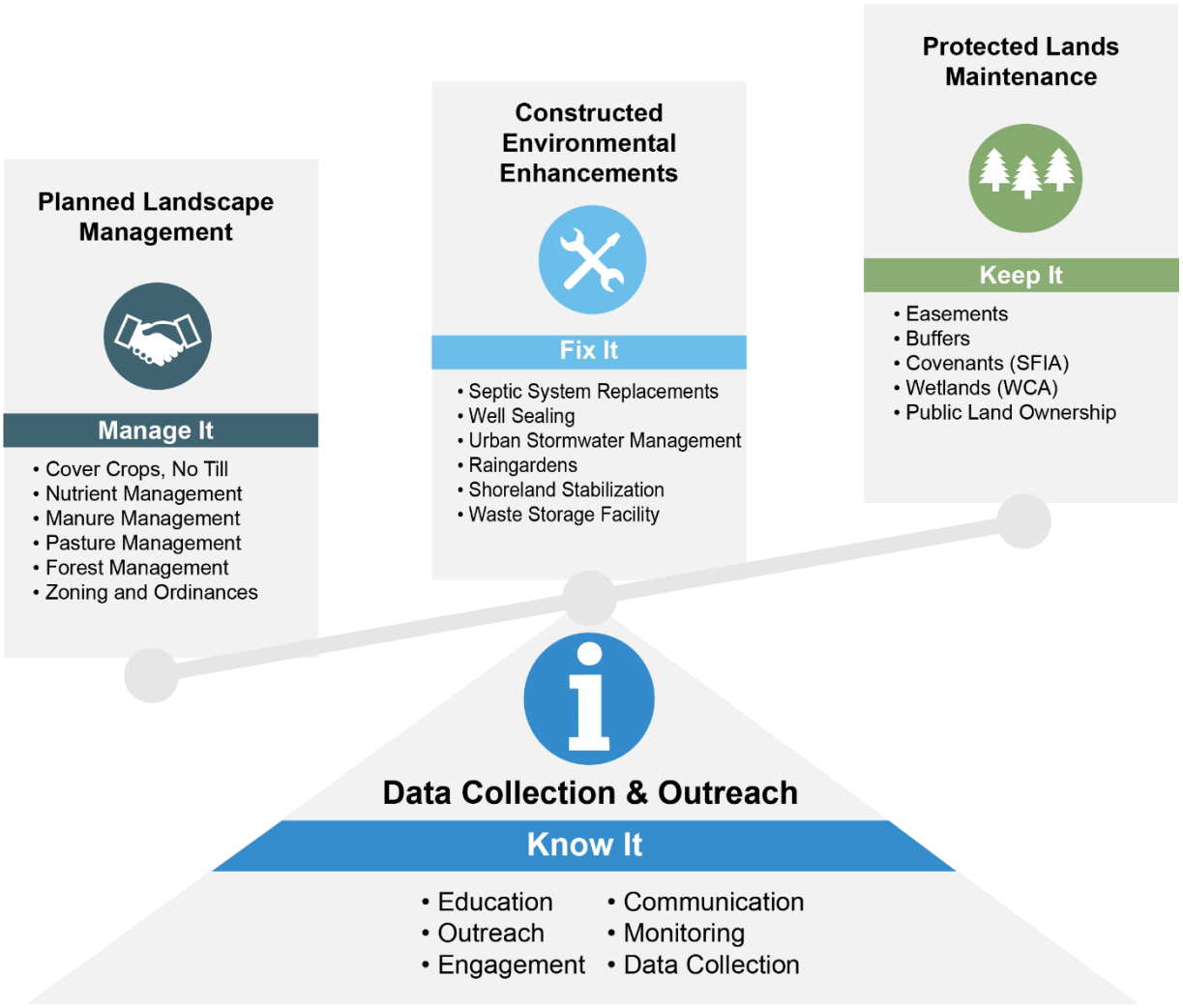


Figure 5.1 Implementation programs for the RRRL Watershed.

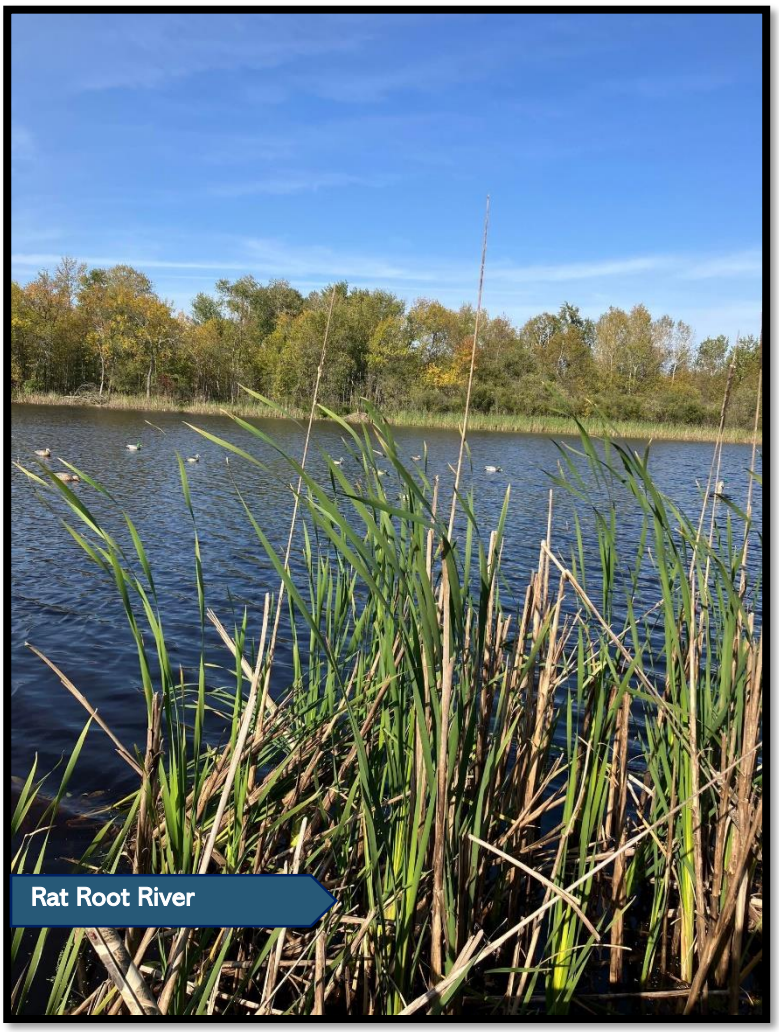
Planning Lenses

In Section 3. Priority Issues, several planning lenses were described. These lenses are extra considerations that have helped shape the prioritization, goal setting, and implementation process throughout the plan. These lenses provide the plan implementers with different perspectives to consider when planning and adopting measures to improve water quality in the RRRL Watershed.

Environmental Justice and Equity

Environmental justice surrounds the effort to ensure that the effects of pollution and climate variability do not disproportionally impact one group more than others. The MPCA has mapped areas throughout the state as either having a high percentage of people living in poverty, people of color, limited English proficiency, and tribal areas. These areas should be given special consideration to assure the impact of environmental problems are not disproportionately impacting these populations, which has historically led to disparities in environmental conditions and public health.

Figure 5.2 highlights areas to focus on environmental justice in the RRRL. The MPCA and MDH have additional information available at the links below.


Rat Root River

https://www.pca.state.mn.us/about-mpca/environmental-justice

https://www.health.state.mn.us/communities/equity

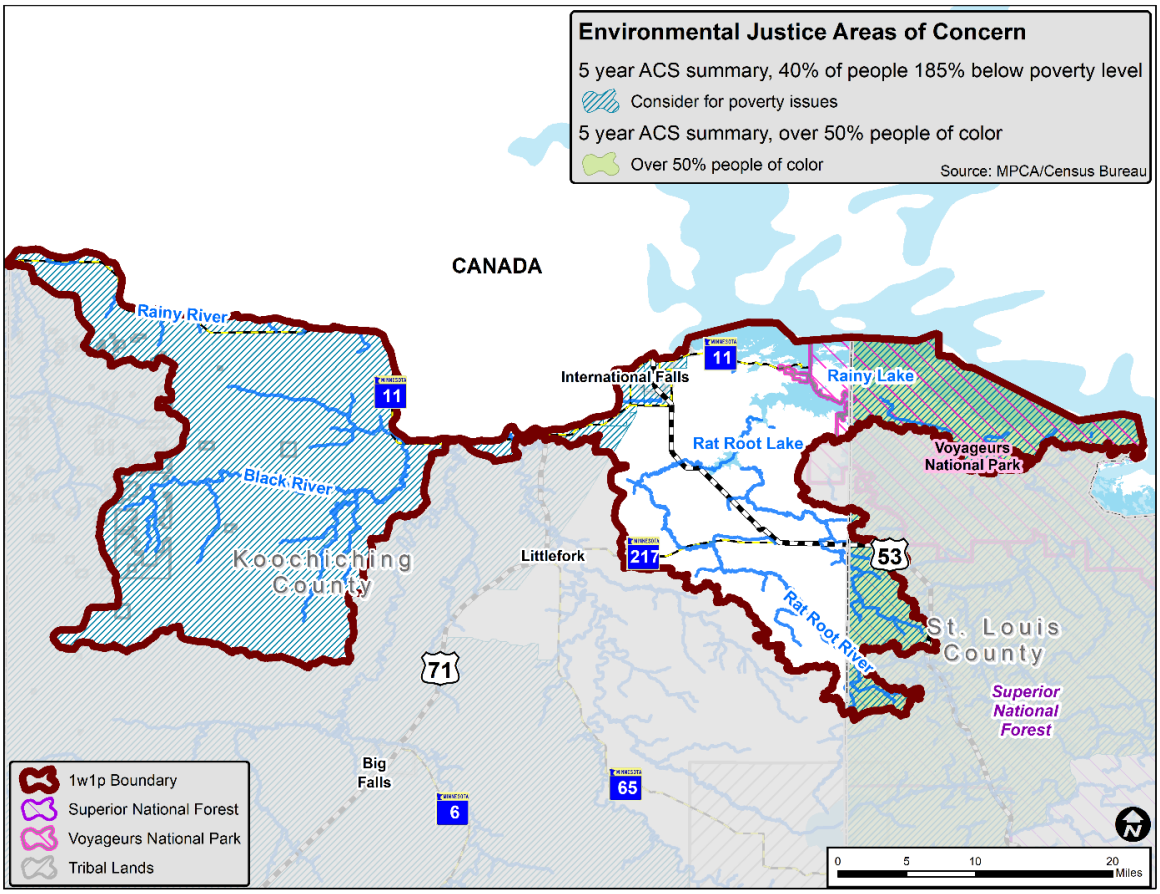


Figure 5.2 Environmental Justice Areas of Concern in RRRL.

Climate Variability and Resilience

"Resilience" is the ability to experience change but mitigate the impacts of that change. Local plan writers viewed issues and goals through the lens of climate variability expected to impact the RRRL in the coming decades. To do this, the plan writers build in actions that build both social and ecological resilience. Social resilience can come from organization and regulation. Ecological resilience includes forest protection, water retention, and BMPs. For example, protecting forests at the watershed and landscape scale provides resilience to increasing precipitation trends. This plan includes actions and programs that build both social and ecological resilience.

Cultural Resources

Cultural resources are very important in the RRRL Watershed. The watershed contains waters, species, and people that are unlike any others throughout the State. Because of this, plan actions have identified specific methods for preserving important cultural resources. Examples of this include the protection of wild rice beds from fluctuating water levels or from invasive species such as hybrid cattails. By doing this, these resources will remain protected in the watershed.

Social Capacity

Plan implementation requires careful planning, coordination, and a desire to integrate programs that can positively impact the watershed. In this plan, dozens of important actions are laid out that will require citizens from across the watershed to come together and coordinate. From LGU staff to individuals on the ground, capacity is essential for implementation.


Public Kickoff Event

Because planning lenses impact each implementation program, these call-out boxes will be used throughout this plan section to demonstrate how each program intends to consider planning lenses during implementation.

Manage It

"Manage It" programs involve continual management of the landscape. In the RRRL, management largely occurs on forested and agricultural lands. Examples of "Manage It" programs include forest stewardship plans, agricultural easements, and shoreline ordinances.

Implementation of this plan will involve programs that will be actively targeted to prioritized areas for management. Non-priority areas will be considered on an opportunity basis.

Management of the following programs, plans, and ordinances deals with the relationship between people and land. These will be managed with a focus on equity, building resilience for climate variability, building social capacity, and protecting cultural resources.

Cost-Share and Incentive Programs

Cost-share programs are those in which the cost of implementing or installing a project is shared with the landowner. Incentive programs provide payment to encourage landowners to implement practices. Implementing agricultural or livestock best management practices, forest management, or SSTS replacement are applicable examples that meet plan goals.

Private Forest Management

Forest Stewardship Plans

Forest owners can manage their lands through Woodland Stewardship Plans through coordination with the DNR's Forest Stewardship Program. Forest goals can be developed in coordination with foresters to create wildlife habitat, increase natural beauty, enhance environmental benefits, or harvest timber. Use of voluntary site level guidelines is encouraged. Plans will be prepared by a DNR-approved plan writer, which may include SWCD staff, private foresters, or DNR foresters. Additionally, the LGUs will explore options for managing forest parcels smaller than 20 acres.

Forest 2C Designation

Landowners with DNR-registered Woodland Stewardship Plans are then eligible for 2C Classification, which is a state tax classification that provides a reduced tax rate to forested property of 20 acres or more. This is an annual program.

Cost-share for Woodland Owners

The DNR operates a cost-share program that provides financial assistance to owners of private woodlands for several forest management practices. Typical projects are between 3 to 20 acres and can help achieve many goals, such as maintain habitat, promote biodiversity, or prevent wildfires.

US Department of Agriculture Programs

The Farm Service Agency (FSA) of the United States Department of Agriculture (USDA) oversees several voluntary conservation programs. These programs include the Conservation Reserve Program, Conservation Reserve Enhancement Program, Emergency Conservation Program, Emergency Forest Restoration Program, Farmable Wetlands Program, Grassland Reserve Program, and the Source Water Protection Program.

Regulatory Programs

The county and cities will meet once a year to discuss ordinances. Activities will be tracked by the county. Efforts will be made to compile information watershed-wide. Watershed partners will explore ways to better integrate this plan into comprehensive land use plans. Koochiching County zoning rules provide overarching regulation on land use and building, which are further discussed in the following pages.

> *Planning partners reviewing or enforcing ordinances will consider the MPCA environmental justice regions (Figure 5-2) to work towards improving equity through regulatory programs.*

Aggregate Management

The MPCA oversees air permits, hazardous waste licenses, stormwater and wastewater management, and storage tanks (https://www.pca.state.mn.us/regulations/aggregate-sand-and-gravel). The DNR suggests LGUs consider using existing land use ordinances to create mining districts that include BMPs for developing and redeveloping mining operations and associated water use. This could help build or retain the economic benefits of mining while minimizing long-term impacts to water quality and habitat. Additionally, there may be opportunities within the watershed to reclaim abandoned aggregate pits to protect water quality and enhance habitat value.

- Regulations: Minnesota Statutes 298.75, 394.25

Bluffland Protection

Blufflands are managed under several state programs, including programs for shoreland management and Wild and Scenic Rivers. Minimum structure setbacks from bluffs and related development standards apply to land in shoreland for this watershed. The Statewide shoreland program includes land within 1,000 feet of any public water body, 300 feet of any public water river or stream, or the landward extent of their floodplains.

Construction Soil Erosion

Temporary construction erosion control is the practice of preventing or reducing the movement of sediment from a site during construction. All construction projects should follow construction BMPs, but projects disturbing one acre or more of land will require a National Pollutant Discharge Elimination System (NPDES) Permit from the MPCA.

- Regulations: Minnesota Rules, Chapter 7090.

Groundwater Use

The DNR administers groundwater appropriation permits for all users who withdraw more than 10,000 gallons of water per day or 1 million gallons per year. SWCDs, counties, and municipalities cooperate with the state and are offered the opportunity to comment on landowners' permit applications.

- Regulations: Minnesota Statute 103G for appropriation; 103H, 1989 Groundwater Act

Hazard Management

Hazard mitigation may be defined as any action taken to eliminate or reduce the future risk to human life and property from natural and human-caused hazards. Climate adaptation also plays a part in hazard management. These requirements direct the state to administer cost-sharing. Hazard Mitigation Plans/Emergency Management Plans are deployed in Koochiching County as well as Federal Emergency Management Agency (FEMA) hazard mitigation programs. To stay eligible for federal funding, the development of a local government plan is required.

- Regulations: Minnesota Statute, Chapter 12
- 2021 Koochiching County Multi-Hazard Mitigation Plan

Invasive Species

Aquatic and terrestrial invasive species can cause ecological and economic damage to water resources, forests, and human health. The DNR has regulatory authority over aquatic plants and animals as well as terrestrial animals. For aquatic species, permits are required by the public for transporting lake water and invasive species and for treating invasive species. Koochiching County and Koochiching SWCD administer AIS programs. Terrestrial invasive species are managed by a County wide initiative within Koochiching County. Koochiching SWCD manages the Cooperative Weed Management Area partnership whose mission is to work together to mitigate, prevent, and eradicate invasive terrestrial species in Koochiching County.

- Regulations: Minnesota Statute 84D

Noxious Weed Law

Noxious weeds affect the natural, native balance of ecological functions. The Noxious Weed Law in Minnesota is administered by the MDA through SWCDs. The State maintains noxious weed lists of those species to eradicate, control, and restrict.

- Regulations: Minnesota Statutes 18.75-18.91

Public Drainage Systems: Establishment, Improvement, Re-routing, Repairs, and Impoundments

Minnesota Drainage Law enables multiple landowners to collectively construct, improve, and repair drainage systems across property boundaries and governmental boundaries. These drainage systems can be open ditches and/or subsurface tile. Drainage systems have their own laws and requirements that LGUs must uphold..

- Regulations: Minnesota Statute 103E

Public Waters

Public waters include lakes, watercourses, and wetlands over which DNR has regulatory jurisdiction. Minnesota Statute 103G.005, Subd.15 defines a public water. The DNR maintains the Public Waters Inventory, which is a map that can viewed to see if a water is public. If a watercourse or basin is a public water, no work may be done on it without a permit.

- Regulations: Minnesota Statute 103G

Shoreland Management

Minnesota has shoreland management rules that are administered by the DNR. LGUs are required to have land use controls that protect shorelands along lakes and rivers, and they can adopt stricter ordinances than the state's requirements, if desired. Koochiching county follows the state's shoreland ordinances. DNR published an Innovative Shoreland Standards Showcase website that may be helpful to local governments as they implement this plan: https://www.dnr.state.mn.us/waters/watermgmt_section/shoreland/innovative-standards.html.

- Regulations: Minnesota Statute 103F and Minnesota Rules 6120.2500-3900

Table 5.1 Comparison of Shoreline Ordinances in Koochiching County, City of Ranier, and City of International Falls

	General Development	Recreational Development	Natural Environment
Definition (DNR)	Generally large, deep lakes with high levels and mixes of existing development. These lakes often are extensively used for recreation and are heavily developed around the shore.	Generally medium-sized lakes characterized by moderate levels of recreational use and existing development. Development consists mainly of seasonal and year-round residences and recreationally oriented commercial uses.	Generally small, shallow lakes. They often have adjacent lands with substantial constraints for development such as wetlands and unsuitable soils. These lakes usually do not have much existing development or recreational use.
Minimum Water Frontage and Lot Width (Single lot)	**Koochiching Co:** 100 ft. / 75ft. **International Falls:** 100 ft. / 75 ft. **Ranier**: 75 ft./ 75 ft.	**Koochiching Co:**150 ft / 75ft.	**Koochiching Co:** 200 ft. / 125 ft.

Minimum Lot Area (single home)	**Koochiching Co:** 20,000 sq. ft. / 15,000 sq. ft **International Falls:** 20,000 sq. ft. / 15,000 sq ft. **Ranier:** 20,000 sq ft. / 15,000 sq. ft.	**Koochiching Co**: 40,000 sq. ft. / 20,000 sq. ft.	**Koochiching Co:** 80,000 sq. ft. / 40,000 sq. ft.
Minimum Setback from Ordinary High-Water Level	**Koochiching Co:** 75 ft. / 50 ft. **International Falls:** 75 ft. / 50 ft. **Ranier:** 50 ft. / 75 ft.	**Koochiching Co:**100 ft. / 75 ft.	**Koochiching Co**: 150 ft. /150 ft.

It is stated in International Falls shoreland management that the public waters of the city are limited to the Rainy River, which is classified as General Development by the DNR. Stated in the Ranier Unified Land Use Ordinance No. 153, Rainy Lake and Rainy River are classified at General Development, Unnamed Creek is classified as Tributary.

Minimum Lot Sizes and Dwelling Density

Minimum lot sizes and dwelling densities for subdividing parcels also varies per county. Larger tracts of land (20-40 acres) could be protected by forest stewardship, while smaller lot sizes (one acre or less) have the potential for future subdivision for development.

Subsurface Sewage Treatment Systems

SSTS programs are required by Minnesota State Statute to protect public health and environment. Counties are required to have an ordinance that regulates and enforces SSTSs at the county level. Cities and townships may administer their own programs but it must be as strict as their county's ordinance. Low-interest loans and low-income grants are available through the SWCD or county. Koochiching County has a SSTS Ordinance.

- Regulations: Minnesota Statutes 115.55 and 115.56; Minnesota Rules Chapters 7080, 7081, 7082, and 7083

Waste Management

Koochiching County is part of the Northeast Minnesota Regional Solid Waste Management Plan (10-year plan), combining the individual County and Western Lake Superior Sanitary District solid waste management plans required by the MPCA into one regional solid waste management plan. Solid Waste Management in Minnesota is managed at the county level and includes programs related to mixed municipal solid waste, industrial waste, and non-landfill programs such as recycling to include paper, plastics, metal, tires, electronics, appliances, and other recyclable items. As part of this plan, each county that is part of the Northeast Minnesota Regional Solid Waste Management Plan sponsors the Regional Household Hazardous Waste program that receives some state funding to implement.

- Regulations: Minnesota Statutes 115.55; Minnesota Rules Chapters 7001, 7035, 7045, 7150, 7151, 9215, and 9220

Wellhead Protection

The purpose of the Wellhead Protection Program is to prevent contamination of public drinking water supplies by identifying water supply recharge areas and implementing management practices for potential pollution sources found within those areas. MDH is responsible for statewide administration. The program has since expanded to Source Water Protection to include supplies that rely on surface water. Wellhead Protection is mostly administered at the city level.

- Regulations: Minnesota Statutes, Chapter 103I; Minnesota Rules, Chapter 4720; Federal Safe Drinking Water Act, US Code, Title 42, Chapter 6A, Subchapter XII, Part E, Section 300j-13; Minnesota Rules, Chapter 4725

Well Construction Standards

Well construction standards are an MDH Program.

- Regulations: Minnesota Well Code/ Minnesota Rules Chapter 4725

Comprehensive Plans

County/City comprehensive plans are required to implement land use regulatory ordinances and provide the framework of the ordinance requirements. Current comprehensive land use plans in the RRRL Watershed include:

- City of International Falls Comprehensive Plan (2020)
- Ranier Community Plan (2022)
- Koochiching County Comprehensive Land Use Plan (2001)

Logging in Koochiching County

Keep It

"Keep It" programs involve permanent landscape protection, such as Sustainable Forest Incentive Act lands (SFIA), conservation easements, aquatic management areas, and other easements.

Implementation of this plan will involve programs that will be actively targeted to prioritized areas for protection. Non-priority areas will be considered on an opportunity basis.

Protected lands will help with climate resilience and help protect culturally important species and lands.

Conservation Easements

Conservation easements are voluntary, legal agreements between a landowner and governmental or nonprofit organization, whereby land use and development are limited on a property while conserving natural values of that landscape. Reinvest in Minnesota (RIM) has many options for easements including habitat, forestry, and grasslands. The easements are individually tailored agreements with organizations such as BWSR, DNR, Minnesota Land Trust, or The Nature Conservancy (TNC).

Sustainable Forest Incentive Act (SFIA)

SFIA provides annual incentive payments for a landowner that enters a covenant taking away some of the rights of the land (development and farming, for example). Private landowners can receive a payment for each acre of qualifying forest land they enroll in SFIA. In return, they follow the covenant for a set period: either 8, 20, or 50 years. Data on current enrollees shows that landowners who start with an 8-year covenant commonly move up to a 50-year covenant (DNR), which is why this program is considered under "Keep It."

Wetlands

Wetlands are protected by the Minnesota Wetland Conservation Act (WCA). The overall goal of the act is no net loss of wetlands. Draining, filling, and in some cases excavating in wetlands is prohibited unless (a) the drain, fill, or excavation activity is exempt from requiring replacement or (b) wetlands are replaced by restoring or creating wetland areas of at least equal public value. Replacement can be buying credits or creating/restoring a wetland (usually credits are encouraged over an on-site replacement). Counties enforce the WCA, while SWCDs work with landowners to restore wetlands.

- Regulations: Minnesota Rules, part 8420.0105

Buffers

In 2015, Minnesota enacted legislation requiring buffers of perennial vegetation of an average of 50 feet with a minimum of 30 feet on public waters and 16.5 feet for public drainage systems. This program is regulated by BWSR and implemented at the county level. Each county has an ordinance for buffer management, and SWCDs conduct buffer compliance checks.

- Regulations: Minnesota Statutes 103B and 103F.48 Subd. 4

Land Acquisition

For areas with unique and important resources that meet state goals, the DNR, USFWS, counties, cities, townships, and other entities may purchase and manage the land. Examples include Aquatic Management Areas that are used for fish spawning habitat and Wildlife Management Areas (WMAs) that are used for small game hunting and waterfowl migration.

Fix It

"Fix It" programs are constructed environmental enhancements. These programs include enhancements and installations on the landscape such as septic system upgrades, riparian enhancement, and well sealings.

These programs will build infrastructure to help mitigate climate variability. Additionally, they will maintain habitats for culturally important species, and create equity through targeting areas.

Low-Interest Loans

Low-interest loans may be made available for septic system replacement, small community wastewater treatment systems, agricultural BMPs, and other projects that meet eligibility criteria for funding.

Cost-Share Programs

Cost-share programs can also be used for structural practices. Implementing fencing and water sources for grazing cattle away from streams, shoreline enhancements on lakeshore, and well sealing are examples that meet the goals of this plan. Implementation of this plan will involve cost-share programs that will be actively targeted to prioritized areas for projects. Non-priority areas will be considered on an opportunity basis.

Capital Improvements

Capital improvements are large projects that require significant investment and have a longer lifespan than cost-share programs. These types of projects and activities often require feasibility studies before design and construction can proceed. Capital improvement projects often involve collaboration amongst multiple public and private organizations or governmental departments and are often good candidates for state or federal grant funding. Urban stormwater control projects are an example of capital improvement projects within the plan boundary.

Operation and Maintenance

After BWSR-funded projects are installed, the BWSR Grants Administration Manual requires regular on-site inspections and maintenance to ensure the project's continued function and success. These details, along with records, including notes and photos, should be included with each project's Operations and Maintenance Plan. BWSR's recommended inspection plans for capital improvement projects with a minimum effective life of 25 years, according to the Grants Administration Manual, includes inspection after years 1, 8, 17, and 24.

Know It

"Know It" programs are the backbone of the plan and instrumental for achieving the plan's goals. These programs include inventories, educational events, and monitoring, all of which are essential for understanding the watershed.

Data Collection and Analysis

Data collection, inventories, and monitoring are crucial for determining where projects are needed, investigating problems, and tracking progress towards the measurable goals of this plan. Current data collection and monitoring efforts are described, along with data gaps that have actions for implementation.

Current Data Collection and Monitoring Efforts

Currently, a wide variety of monitoring is carried out on multiple government and local organization levels (Table 5.2, Figure 5.3).

These existing data helped determine the current conditions of surface water, groundwater, and habitat in this plan and developed a starting point for measuring progress toward goals moving forward. Because these are already established programs, they don't cost additional funds during plan implementation.

Table 5.2 Summary of ongoing water quality and quantity monitoring programs. RS= rivers and streams, L= lakes, W= wetlands, GW= groundwater

Parameters	MPCA	DNR	MDH	MDA	County & SWCD	VNP	USFS
Nutrients	RS, L, W	RS, L	RS, L, W	RS, GW	GW	L	L
Suspended Solids	RS, L, W	RS	GW	RS	RS		
Productivity	RS, L	RS				L	
Pesticides			RS, L, GW	RS, L, W, GW			
Bacteria	RS, L		GW		RS		L
Biology	RS, L, W	RS, L				L, W	L
Water level/ Flow	RS, L	RS, L	GW		L, RS	L	
Algal Toxins	L					L	L
Invasive Species		RS, L			L, RS	L	L
Fish Contaminants	RS	L				L	L
Chlorides	RS, L, W	RS	RS, L, GW			L	
Sulfates	RS, L, W	RS, L	RS, L, GW			L	

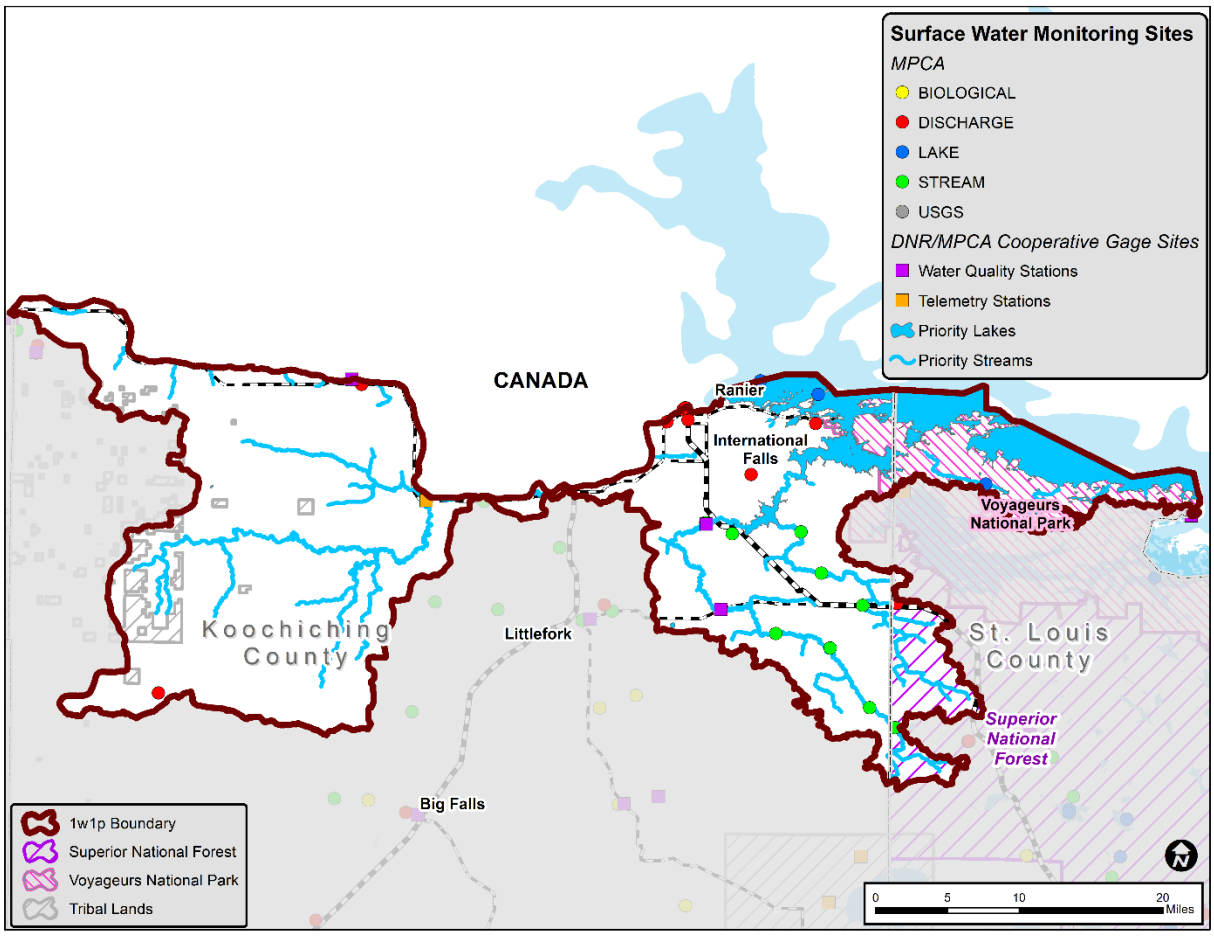


Figure 5.3 MPCA Monitoring sites on the RRRL that have collected water quality data in the last 10 years.

Below is a summary of current monitoring and data collection, organized by resource.

Lake Monitoring

As part of the Watershed Approach, the MPCA conducts intensive lake monitoring in each major watershed on a 10-year cycle. Water chemistry is collected and results are assessed against water quality standards. The RRRL is scheduled for monitoring in 2028. VNP also conducts wide monitoring of lakes.

To track pollutant reductions from plan implementation actions and point source improvements, it would be beneficial to continue monitoring sites in focus lakes.

River Monitoring

As part of the Intensive Watershed Approach, the MPCA conducts stream intensive stream monitoring in each major watershed on a 10-year cycle. Water chemistry and biological parameters are collected, and results are assessed against water quality standards. The RRRL is scheduled for monitoring in 2028.

The MPCA Watershed Pollutant Load Monitoring Network (WPLMN) provides funding to local partners to assist with intensive water quality monitoring at long-term sites. Monitoring at these sites can be used to track progress towards reduction of phosphorus, sediment, nitrogen, and water outflow during plan implementation (Figure 5.3).

During the MPCA's intensive monitoring cycle, the rivers in the watershed are tested for biological parameters. The DNR monitors fish and MPCA monitors macroinvertebrates (Figure 5.3). Any biological impairments are assigned a stressor that is likely causing the reduction in diversity. Stressors include loss of habitat, loss of connectivity, sediment, dissolved oxygen, and altered hydrology.

To track pollutant reductions from plan implementation actions and point source improvements, it would be beneficial to continue monitoring sites in focus streams. Monitoring could include water chemistry, littoral zone studies that assess habitat quality, and more.

Forest Management

The County's strategic approach for land and resource management is addressed in the Long-Range Plan for the Management of Tax-Forfeited Land and Forest Resources of Koochiching County Plan. The Rainy Lake-Lower Rainy River Landscape Stewardship Plan (LSP) is a 10-year tactical plan focused on guiding the protection and management of working forests on private lands on a watershed basis.

The USDA Forest Service manages the Superior National Forest in the watershed.

Groundwater Monitoring

The DNR monitors groundwater availability and ecological impacts through the Cooperative Groundwater Monitoring network.

The MDA monitors groundwater for agricultural chemicals and fertilizer contamination.

The MDH monitors wells and drinking water supplies for public health, including bacteria, nitrates, and arsenic.

Wetlands

Wetlands in the watershed are protected by the WCA. Koochiching County and the City of International Falls monitor and enforce WCA.

Federal wetland regulations apply where applicable.

Outreach and Project Development

Public participation and engagement are essential for successfully implementing this plan. The implementation of actions in this plan is voluntary and require willing landowner participation.

Landowners have varying levels of understanding of conservation practices, programs, and funding opportunities available. Many times, the first step towards adopting conservation practices is outreach. Outreach can be conducted in a variety of ways, including mailings, workshops, and social media. It can be targeted to landowners in priority areas to help

target conservation practices in those areas to reach plan goals. Outreach can also be identifying and educating decision-makers who support implementation work, such as commissions, state officials, or other local government officials. Examples of outreach include WCD Area VIII Envirothon, Outdoor Education Days, climatology monitoring, household hazardous waste collections, and buckthorn removal.

The second step is knowledge exchange, including site visits, technical assistance, peer-to-peer networks, and demonstration plots. Sometimes the outreach and knowledge exchange can take years before landowners adopt the practices. Once the landowner is interested in adopting practices, incentives and cost-share programs can help them get started.

Outreach will consider environmental justice as well as building capacity for plan implementation.

Achieving Plan Goals

Overall plan progress towards goals will be tracked by watershed partners. The Steering Committee will develop ranking criteria to develop projects during work planning, with the assumption that projects identified in this plan will be prioritized for funding.

There will be different levels of measuring progress for this plan. Projects will be tracked during implementation with the system chosen by the watershed. This will include:

- ✓ Tracking: gathering and compiling data on practices, miles, and other quantitative goals.
- ✓ Reflecting: comparing work activities completed to those in the plan.
- ✓ Evaluation: comparing the results to the stated goals in the plan.
- ✓ Sharing: maintain support through communication about local implementation geared towards stakeholders and the citizens of the watershed.

6. Plan Administration and Coordination

SECTION 6. PLAN ADMINISTRATION

The Plan Administration and Coordination section describes the process for plan implementation, how plan partners collaborate, how funding will move between partners, and which partners will execute administrative processes during implementation.

Formal Agreements

The Rainy River-Rainy Lake Partnership is a collaboration between Koochiching County, Koochiching SWCD, the City of International Falls, and the City of Ranier (Figure 6.1). These entities previously entered a MOA for purposes of drafting this plan (**Appendix A**). Upon plan approval, these entities entered into a formal agreement to implement this plan.

There are other local partners that will be important collaborators during implementation. Due to the small number of acres in the watershed, St. Louis County and North St. Louis SWCD declined to participate in the RRRL planning and implementation formal agreements. There are also portions of the watershed that are owned by the Red Lake Band of Chippewa on the western side of the RRRL. The plan's intention is not to place undue burden on Tribal government or Band members, but to enter into cooperative working relationships and agreements so plan goals can be achieved on Tribal lands and waters only if they serve and meet Tribal goals and regulations. As such, St. Louis County and North St. Louis SWCD and the Red Lake Band of Chippewa will be important local collaborators outside of the formal agreement.

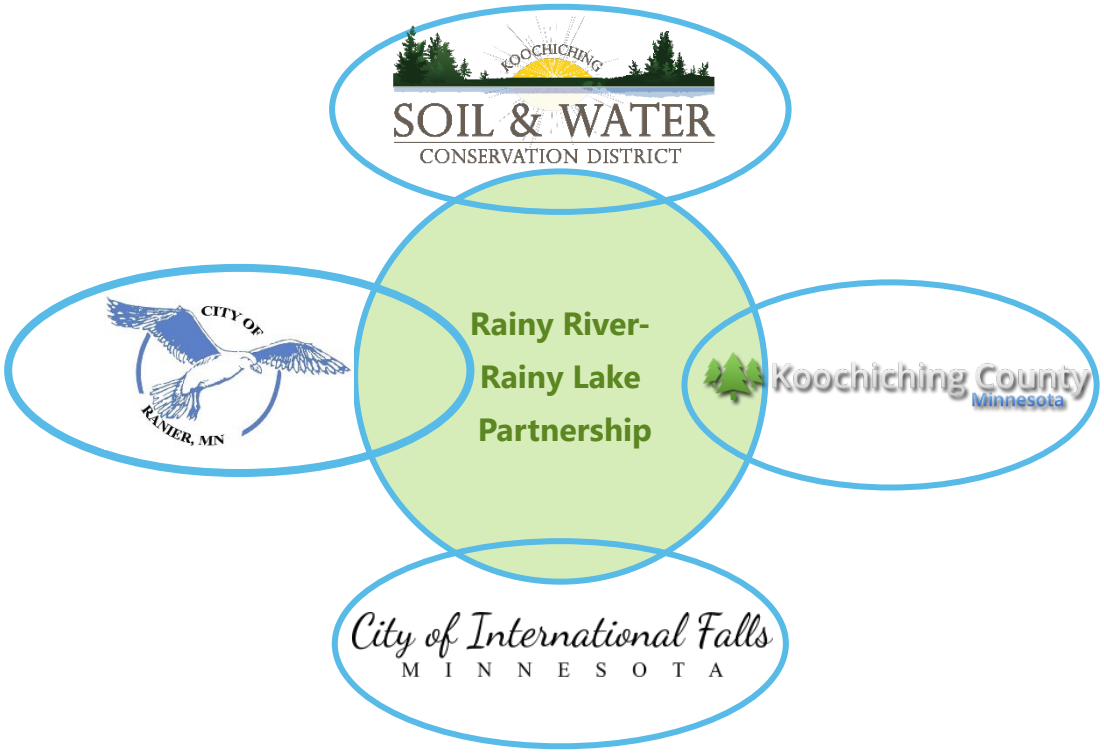


Figure 6.1 Implementation entities for the RRRL.

Decision-Making and Staffing

Plan implementation in the RRRL will require increased capacity of plan partners, including increased staffing, funding, and coordination from current levels. Successful implementation will require generating active interest and increasing partnerships within the watershed.

The decision-making process and staffing for implementing the RRRL CWMP will be conducted based on the concepts outlined in this section of the plan. The probable roles and functions related to plan implementation are outlined in Figure 6.2. Expectations are that the roles of each committee will shift and change during implementation to best meet the needs of the RRRL Partnership. Fiscal and administrative duties for plan implementation will be assigned to an LGU through a Policy Committee decision as outlined in the formal agreement. Responsibilities for work planning and serving as the central fiscal agent will be revisited by the Policy Committee on a biennial basis.

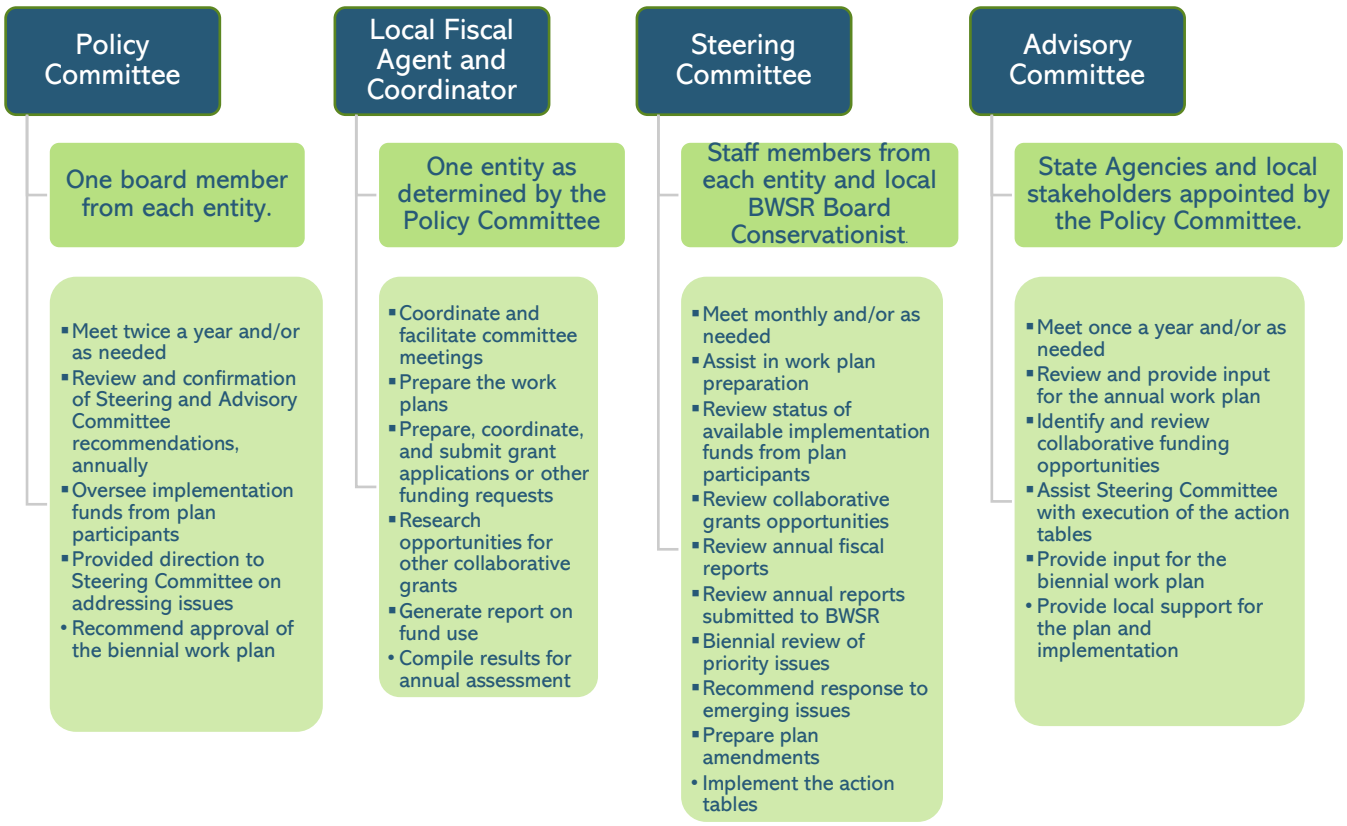


Figure 6.2 Roles for RRRL implementation. The LGUs will be collectively referred to as the RRRL Partnership.

Collaboration

Collaboration between Planning Partners

The RRRL Partnership acknowledges the need for planning partners to collaborate to successfully implement the plan. Successful collaboration will generate consistent implementation of actions watershed-wide, increased chances of project funding, as well as resource efficiencies gained.

Collaboration already exists between the LGUs in the RRRL Watershed. The County and SWCD collaborate on implementing the Aquatic Invasive Species Program, including monitoring, inspections, and outreach. Moving forward, the Partnership will continue to pursue opportunities between LGUs to gain the benefits described above- resource efficiencies, increased funding opportunities, technical assistance, and streamlined implementation. The RRRL Partnership will also review similarities and differences in local regulatory administration to identify local successes and identify changes needed in the future to make progress towards goals outlined in this plan.

Collaboration with Other Units of Government

The RRRL Partnership will continue to coordinate and cooperate with other governmental units at all levels. Coordination with state agencies will continue as their cooperation is essential for plan implementation and many have been participants in the planning process on the Advisory Committee (and will continue to do so on the implementation timeline).

Inter-agency cooperation will also be essential with other LGUs, cities, and Counties, particularly as many programs are best implemented through collaborative methods. Examples of collaborative programs in the watershed include the State Cost-Share (SWCD/BWSR), Wellhead Protection for Community Water Supply DWSMAs (Minnesota Rural Water Association (MRWA) and MDH, and Forest Stewardship Program (SWCD) and WRAPS (MPCA). The US Forest Service works with counties on forest management (good neighbor authority). The Voyageurs National Park Clean Water Joint Powers Board is a collaboration between Koochiching and St. Louis Counties and was established to address the need for improved wastewater treatment in the area, as well as for AIS prevention.

Picture Credit: Jeff Kantor

Collaboration with International Partners

Canada and the United States created the IJC to manage and protect the lakes and river systems along their border. The main purpose of the IJC is to review projects that affect water levels and flows across the boundary and investigate transboundary issues and recommend solutions. In 2013, IJC created the International Rainy Lake-Lake of the Woods Watershed Board to assist with binational coordination of water quality efforts for the entire transboundary watershed and coordinate the management of water levels on the Rainy River and Rainy Lake. The members of the IRLWWB include federal, provincial, state, municipal, and Indigenous representatives. Water level management decisions are based on all available facts from public engagement activities, meteorological forecasts from Meteorological Service of Canada and U.S. National Weather Service and well as hydrological measurements taken by the Water Survey of Canada and U.S. Geological Survey and snow surveys produced by the U.S. Army Corps of Engineers St. Paul District. In addition to the IJC, collaboration also occurs between the RRRL Partnership and Canadian cities (Fort Frances, Rainy River Ontario, etc.) and First Nations. International Partnership will continue to engage, work with, support, collaborate, and share knowledge with Canadian partners during plan implementation to manage natural resources and water quality.

Collaboration with Others

Support from local groups and citizens as well as partnerships will be a primary driver of success for the final outcomes of the plan. Many of the plan's actions focus on voluntary practices and engaging with landowners, therefore collaborations with landowners in the watershed are essential for successful plan implementation. Many actions in the plan require working directly with landowners and providing cost share and technical assistance for implementing. Many of the existing partnerships in the RRRL Watershed have been integral to plan development and are committed to furthering promotion of these collaborations. Potential partners for collaboration include (but are not limited to) Ducks Unlimited, Sportsman's Clubs Ranier Recreation Club, Koochiching Economic Development Authority, International Joint Commission, Canadian National Railroad, Minnesota Dakota & Western short-line railroad, North Koochiching Area Sanitary District, Lake of the Woods Water Sustainability Foundation, Voyageurs National Park, International Rainy-Lake of the Woods Watershed Board, Minnesota Forest Resources Council, Clean Water Joint Powers Board, and lake and river associations.

Funding

The RRRL Partnership will pursue funding opportunities to implement the actions described in the plan. Current county, SWCD, and city budgets make up baseline funding and will not be enough to implement the actions described in this plan. Successful plan implementation will require reliable non-competitive Watershed-Based Implementation Funding in addition to competitive state, federal, and private grants. The RRRL Partnership acknowledges that additional staffing may be necessary to complete plan goals and action tables. LGUs in the RRRL will be responsible for hiring additional staff as needed.

Base funding (Table 6.1) is based on the annual revenue and expenditures of Koochiching County, Koochiching SWCD, City of International Falls, and City of Ranier, apportioned to the percentage of each jurisdictional area in the RRRL plan area. The current level of funding by each LGU is expected to remain consistent during the 10-year life of this plan. It includes local funds such as county allocations for SWCDs, state funds such as conservation delivery grounds, and other grants.

Table 6.1 Base funding for the RRRL.

Funding Level	Annual Local Estimate	Annual State Estimate	Annual Federal Estimate	Annual Total Estimate
Base	$218,500 (83%)	$44,500 (17%)	$0	**$263,000**

Upon completion of this plan, the RRRL Partnership is eligible to receive Watershed-Based Implementation Funding (WBIF). This is non-competitive funding from Minnesota's Clean Water Fund (Clean Water Land and Legacy Amendment). The estimate for WBIF in this watershed is $280,000 per year at the time this plan was written.

Overall cost of implementing the plan is summarized in Table 6.2. To successfully implement the actions in this plan, time and expenses will be incurred for plan administration and for technical and engineering assistance which is not included within the action tables in Section 4. Because of this, it is anticipated that an additional $71,500 will be needed per year (or $715,000 over the 10-year plan) beyond base, WBIF, and other dollars to implement actions in the plan.

Other funding needed to implement the plan consists of funding that is administered outside of the RRRL Partnership, including projects implemented by the 319 grant, Outdoor Heritage Fund, NRCS and other state agencies. There is likely to be more project funding occurring in the watershed above these totals, as it is difficult to document projects by all entities, including private landowners.

Table 6.2 Estimated funding sources needed to fully implement plan

Funding Level	Description	10-Year Total
Base and WBIF	Current Baseline Funding plus Watershed Based Implementation Funding	$6,147,000
Other	Other Funding (319, Outdoor Heritage Fund, NRCS, DNR, MPCA, etc.)	$7,000,000

Total funding that is directed specifically towards actions in the action tables can be summarized by implementation program type (Figure 6.3). Much of the funding is going towards "Fix It" (57%) and "Manage It" (23%) programs, but in this watershed these fixes are mainly for protection since there are very few impairments. The "Keep It" program (3%) has a small percentage of the budget because so much of the watershed is already permanently protected. Overall, 17% of implementation dollars are being used for outreach, monitoring, feasibility studies, and data collection ("Know It" program).

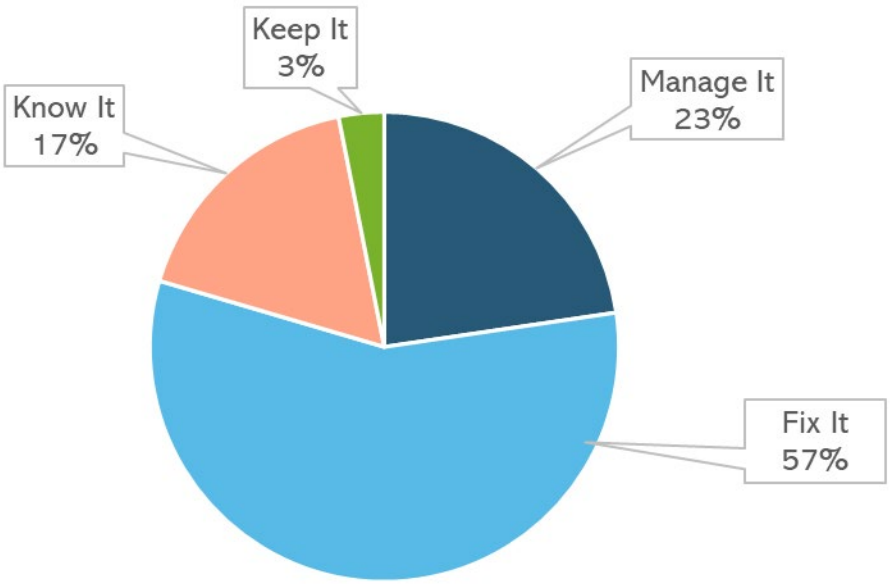


Figure 6.3 Funding spent per program (Base and WBIF) for the 10-year plan.

Table 6.3 lists commonly used programs and grants for executing implementation programs described by this plan and used within the action tables. The funding grants and programs are cross-referenced to plan implementation programs, showing potential sources of revenue for implementation. Programs will be coordinated uniformly throughout the watershed when possible.

Table 6.3 Funding sources available for plan implementation.

	Agency	Program/Fund Name	Type of Assistance	Form of Assistance				
STATE FUNDING	BWSR	Clean Water Fund	Financial	Grant				
	BWSR	Natural Resources Block Grant	Financial	Grant				
	State of Minnesota	SWCD Aid	Financial	Grant				
	BWSR	Erosion Control & Management Program	Financial	Grant				
	DNR	Conservation Partners Legacy	Financial	Grant				
	DNR	Aquatic Invasive Species Control	Financial/ Technical	Grant				
	DNR	Forest Stewardship Program	Technical	Cost Share				
	DNR	Aquatic Management Area, Wildlife Management Area	Financial	Fee Title Acquisition				
	DNR	ReLeaf Community Forestry						
	DNR	Prioritize Stream Restoration Projects Scoring Worksheet						
	DNR/Revenue	Sustainable Forest Incentive Act	Financial	Incentive payment				
	MPCA	Clean Water Partnership and Section 319 Grant Program	Financial	Grant				
	MPCA	State-Revolving Fund	Financial	Grant				
	MPCA	Climate Resilience Stormwater						
	MPCA	Surface Water Assessment Grant	Financial	Grant				
	MDH	Source Water Protection Grant	Financial	Grant				
	MDA	Nitrate Testing	Technical	Monitoring				
	MDA	Agricultural BMP Loan Program	Financial	Loan				
	LSOHC	Outdoor Heritage Funds	Financial	Grant				
	LCCMR	Environmental Trust Fund	Financial	Grant				
	Legislature	Bonding	Financial	Bond				
FEDERAL	FSA	Conservation Reserve Program	Financial	Cost Share				
	NRCS	Conservation Innovation Grant	Financial	Grant				

	Agency	Program/Fund Name	Type of Assistance	Form of Assistance				
	NRCS	EQIP	Financial	Cost Share				
	USGS	Stream Gaging Network	Technical	Monitoring				
	USACE	Planning Assistance	Technical	Planning				
	EPA	State Revolving Fund	Financial	Loan				
	EPA	319	Financial	Grant				
	USFWS	Fish Passage Grants	Financial	Grant				
	NFWF	General grants	Financial	Grant				
OTHER FUNDING	Voyageurs National Park		Financial/ Technical	Easement/Cost Share				
	Minnesota Forest Resources Council		Financial/ Technical	Easement/Cost Share				
	Ducks Unlimited		Financial	Easement/Cost Share				
	Koochiching Economic Development Authority		Financial	Easement				

Local Funding

Funding from local property tax or in-kind services of any personnel funding from the local tax base is considered local funding. This excludes general operating funds from BWSR, fees for operating services and grants, or partnership agreements with other conservation organizations or the federal government.

Local funds will be used for programs focused on local issues where opportunities for federal or state funds are lacking due to a program's outcomes not aligning with federal or state objectives. These funds will also be used for grant matching where statutory authority already exists. Some examples include:

Water Planning Authority for Special Projects (Minnesota Statute 103B.355):

- Counties have the authority to levy funds for priority projects and assist SWCDs with program implementation.

Road Authorities:

- Counties can provide limited local funding to assist with the local share of road retention.

State Funding

The Nonpoint Priority Funding Plan was created by state agencies that work to protect and restore Minnesota's important water resources. This Plan set high-level state priorities that

align programs and actions that reduce nonpoint source pollution across the state. The high-level priority criteria include:

- Restoring waters that are closest to meeting state water quality standards
- Protecting high-quality unimpaired waters at the greatest risk of becoming impaired
- Restoring and protecting water resources for public use and public health, including drinking water

State funding includes funds from State tax base for state cost-share and regulatory purposes. This funding excludes general operating funds obtained from BWSR, counties, fees for service and grants, or partnership agreements with the federal government or other conservation organizations.

Collaborative Grants

The fiscal agent will apply for collaborative grants on behalf of the RRRL Partnership, which may be competitive or non-competitive. This assumes that future base support for implementation will be provided to the Partnership as one or more non-competitive implementation watershed-based funding allocations. Where the purpose of an initiative aligns with the objectives of various state, local, non-profit, or private programs, these dollars will be used to help fund the implementation programs described by this plan. Funding sources that are currently available at the time of developing this plan are listed in Table 6.3.


Picture Credit: Jeff Kantor

Federal Funding

Federal funding includes all funds derived from the federal tax base. This includes programs such as EQIP, administered by NRCS. Federal funding does not include general operating funds obtained from BWSR, counties, fees for service and grants or partnership agreements with state government or other conservation organizations.

Federal agencies will be engaged following the approval of this plan and prior to implementation, to access federal resources for implementation. Opportunities may exist to leverage state dollars through some form of federal cost-share program. Where the purpose of an implementation program aligns with the objectives of various federal agencies, federal dollars will be used to help fund the implementation programs described by this plan.

Other Funding Sources

Foundations, nonprofit organizations, and private contributions (including landowners and corporate entities) will be sought for plan implementation activities. Local foundations may fund education, civic engagement, and other local priority efforts. There are conservation organizations active in the watershed, such as Ducks Unlimited, Whitetails Unlimited, river and lake associations, and Sportsman's Clubs. These organizations acquire funding of their own and may have project dollars and technical assistance that can be leveraged. Major cooperators and funding sources are private landowners who typically contribute 25% of project costs and many donate land, services, or equipment for projects or programs.

Work Planning

This plan envisions collaborative implementation. Biennial work planning will be completed to align with the priority issues addressed, the availability of funds, and the roles and responsibilities for implementation. There will also be an annual review of the biennial work plan. This review will be comprehensive, including both WBIF reporting in eLINK and Other funding (additional funding including SFIA, Section 319, USFS, etc.).

Local Work Plan

The RRRL Steering Committee will be responsible for completing a biennial work plan based on the action tables. The process for approval of work plans will be explained in the formal agreement between the partners and adopted bylaws. These biennial work plans will help to obtain BWSR watershed-based implementation funding, maintain collaborative progress towards completing the action tables, and reach the outcomes prescribed in the plan.

Funding Request

The RRRL Steering Committee will collaboratively develop, review, and submit a watershed-based funding request from this biennial work plan. The Partnership will approve of this request as per their formal agreement and bylaws prior to submittal to BWSR. The watershed-based funding request will be developed based on the priority projects outlined in the action tables and any adjustments made through self-assessments.

Assessment, Evaluation, and Reporting

Accomplishment Assessment

The Steering Committee will provide the Policy Committee with an annual update on the progress of the plan's implementation. A tracking system will be used to measure progress based on measurable goals and will serve as a platform for plan constituents and the public. Tracking these metrics will also make them available for supporting future work plan development, progress evaluation, and reporting.

Partnership Assessment

Biennially, the Steering Committee, with the help of the Advisory Committee, will review the plan goals and progress toward implementation, including fulfillment of committee roles, efficiencies in service delivery, collaboration with other units of government, and success in securing funding. During this review process, feedback will be solicited from the boards, Policy Committee, and partners such as state agencies and non-governmental organizations. This feedback will be presented to the Policy Committee to set the coming biennium's priorities for achieving the plan's goals and to decide on the direction for grant submittals. Also, this feedback will be documented and incorporated into the mid-point evaluation. The RRRL Partnership intends to pursue watershed-based funding to meet goals and plan action tables.

Mid-Point Evaluation

Beginning in 2025, this plan will be in effect for 10 years. Over the course of the plan's life cycle, progress toward reaching goals and completing the action tables may vary. New issues may emerge as the plan progresses, and/or new monitoring data, models, or research may become available. Additionally, the next intensive watershed monitoring cycle begins in 2025 (and the next MPCA WRAPS will be released after). Therefore, in 2029-2030, a mid-point evaluation will be undertaken. This plan will determine if the current course of actions is sufficient to reach the goals of the plan, or if a change in actions is necessary.


Picture Credit: Jeff Kantor

Reporting

LGUs have several annual reporting requirements. Some of these reporting requirements will remain a responsibility of the LGUs. Reporting related to grants and programs developed collaboratively and administered under this plan will be reported by the plan's fiscal agent. In addition to annual reporting, the Steering Committee will also develop a biennial Watershed Report to present to the Policy Committee and the RRRL Partnership. This report will document progress toward reaching goals and completing the action tables and will describe any new emerging issues of priorities. The information needed to biennially update the Watershed Report will be developed through the annual evaluation process.

The fiscal agent is responsible for submitting all required reports and completing annual reporting requirements for plan as required by state law and policy. The Steering Committee will assist in developing the required reports and roles and responsibilities will be defined in the bylaws.

Plan Amendments

The CWMP is effective through 2035 per the BWSR order approving it. Activities described in this plan are voluntary, not prescriptive, and are meant to allow flexibility in implementation. Amendments to this Plan will follow the most current BWSR 1W1P Operating Procedures. This provision for flexibility includes changes to the activities.

During the time this plan is in effect, it is likely that new data giving a better understanding of watershed issues and solutions will be generated. Administrative authorities, state policies, and resource concerns may also change. New information, significant changes to the projects, programs, or funding in the plan, or the potential impact of emerging concerns and issues may require activities to be added to the plan. If revisions are required or requested, the Policy Committee will initiate a plan amendment process following their formal agreement bylaws.

Picture Credit: Jeff Kantor