RAINY RIVER HEADWATERS WATERSHED

Continental Divides Determine Where The Water Flows

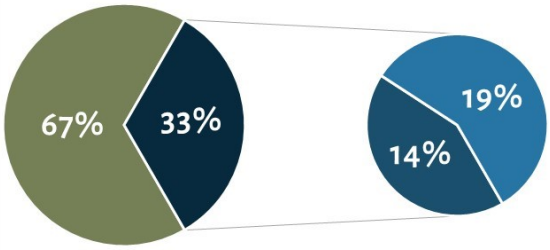
There are six continental divides in North America, two make appearances in Minnesota, both in the northern part of the state. Heading north on the Gunflint Trail from Grand Marais, you will encounter the Laurentian Divide in just over 30 miles, marked by a wayside rest and overlook of Birch Lake. The Laurentian Divide is a geographic line that starts at a rather rare hydrologic feature in Montana called the Triple Divide Peak. It is the center point of three headwaters and the continental divides separate the watershed basins. A watershed is an area of land where all the surface water and precipitation drains to the same place. So, rain and snow that falls on the northern side of the Laurentian Divide flows to the Hudson Bay in Canada.

Here in Cook County, the Laurentian Divide separates the Lake Superior North and Rainy River Headwaters Watersheds (RRHW). Only 11% of the RRHW is in Cook County, encompassing lakes and waterways north and west of Brule and Sawbill Lakes on up to Saganaga Lake on the Gunflint Trail. The majority of the RRHW is within the Boundary Waters (BWCA) and the greater Superior National Forest. State and federal lands make up 85% of this undeveloped watershed, contributing to the prevalence of high water quality.

Map Source: Laurentian Divide - Wikipedia

Rainy River Headwaters Watershed

Total Acres : 1,890,689



Land	1,260,817 acres
Wetlands	362,218 acres
Lakes	267,654 acres

The RRHW has been being assessed through the watershed restoration and protection strategies (WRAPS) process developed by the Minnesota Pollution Control Agency (MPCA). Through this watershed approach to water resource monitoring and management, the process becomes a more efficient and effective use of public resources. Many reports have been produced through this process, primarily the stressor identification, and monitoring and assessment reports.

Results of this watershed assessment process show overall water quality conditions are good to excellent and can be attributed to the forest and wetlands that dominate the watershed's landscape. Many stream resources have exceptional biological, chemical, and physical characteristics and should be protected to preserve their high quality. Due to remoteness, there are many streams and lakes that were not assessable. The highest quality stream resource based on aquatic life, habitat, and water chemistry, within RRHW and located in Cook County, is the Cross River.

Cross River Subwatershed

The Cross River Subwatershed drains 63.28 square miles of Cook County and is the tenth smallest subwatershed within the Rainy River Headwaters Watershed. The most significant tributary within this subwatershed is the Cross River, which starts at the outlet of Ham Lake and flows 3.8 miles before exiting into Gunflint Lake. Intensive water chemistry sampling was conducted at the outlet on the Gunflint Trail. As a result of quality habitat and good water quality, a relatively diverse fish and macroinvertebrate community was present. The low amount of disturbance almost assured excellent biological integrity. Other tributaries include Extortion, Ham Creek, and numerous unnamed streams. There are 58 lakes greater than 10 acres, with the most prominent being Long Island, Cherokee, Round, Tucker, Gordon, Kiskadinna, Karl, Ham, and Snipe. Fires (prescribed and wild) have burned portions of this subwatershed, with the most notable being the Famine Fire (2006), Ham Lake Fire (2007), Dawkins Fire (2010), and Lizard Lake Fire (2010).

WATERSHED PROTECTION STRATEGIES

In February 2020, a Core Team met and identified general priority resources within the RRHW and specific priorities for restoration and protection. The Core Team is comprised of members from the Minnesota Pollution Control Agency (MPCA), Minnesota Department of Natural Resources (MnDNR), Board of Water and Soil Resources (BWSR), Minnesota Department of Agriculture (MDA), Minnesota Department of Health (MDH), United States Fish and Wildlife Service (USFWS), Voyageurs National Park (VNP), 1854 Treaty, St. Louis County, Lake County Soil and Water Conservation District (SWCD), North St. Louis County SWCD, Cook County SWCD, and the White Iron Chain of Lakes Association (WICOLA).
Input from the meeting was used to develop strategy types and prioritization criteria that will be used to generate maps for spatial prioritized targeting of implementation within the watershed. Specific actions will be identified in the RRHW WRAPS document.

Strategy Type	Description
Drinking Water Protection	Drinking water protection incorporates both the risk of near surface pollution sensitivity and the quality of Class 1 Drinking Water Lakes.
Forestry Management	Forested watersheds have been proven to be protective to coldwater fisheries and drinking water sources by the MnDNR and MDH. Forestry management is targeted around numerous qualities including coldwater fisheries, Class 1 Drinking Water Lakes, and designated trout streams. Forestry risks include the percentage of young forest in a catchment, which can identify areas of disturbance including forestry practices and forest fires, School Trust Lands at risk of being sold, and the results of modeling scenarios for forest disturbance.
Habitat and stream connectivity management	Qualities used to identify in-stream habitat management includes Designated Trout Streams and Exceptional Use waters in the Tiered Aquatic Life Uses framework (TALU). Connectivity scores can be used to identify specific stream stretches. Localized information on specific stream barriers will be provided by the Stressor Identification Report and the Core Team.
Lake Management	Lake Management is prioritized for restoration and improvement by risk criteria and for protection by quality criteria. This includes managing lakes for wild rice and coldwater fisheries (Cisco and Trout).
Recreational Management	Both the BWCAW and VNP are in the RRHW. The Core Team identified issues with campsite impacts and garbage in these areas.
Septic system and waste management improvement	Septic system improvement is targeted around water bodies that are at risk of contamination from bacteria (Class 1 Drinking Water Lakes) and additional nutrient inputs.
Stormwater runoff control	The RRHW does not have any large urban areas, but there are developed areas focused around lakes and streams. Because of this localized stormwater focus, the criteria used to target these practices include identifying water bodies that are at risk to additional nutrient inputs and that have a high disturbance or development density in their catchment. In addition, modeling scenarios for increased development can be used to target locations where improvements will best enhance water quality.
Streambank, bluff, & ravine protection and restoration	Streambank, bluff, and ravine projects can be targeted around waterbodies that are impaired, nearly/ barely, and altered rivers and streams.

MPCA RRHW website:
www.pca.state.mn.us/water/watersheds/rainy-river-headwaters

RRHW—One Watershed One Plan:
www.co.lake.mn.us/soil-and-water-conservation-district/rainy-river-headwaters/

Questions or for more information:
Cook County Soil & Water Conservation District
411 W. 2nd St., Grand Marais, MN 55604
218.387.3647 www.cookswcd.org

Prepared by Cook SWCD, highlighting components of a healthy watershed, using Clean Water Land & Legacy Amendment funds awarded through the Minnesota Pollution Control Agency for Watershed Restoration and Protection Strategies (WRAPS). Public outreach efforts are a key component in the WRAPS process to continue to present and assess water resource concerns at the watershed level.

COOK SOIL & WATER CONSERVATION DISTRICT

CLEAN WATER LAND & LEGACY AMENDMENT

MINNESOTA