

Leech Lake River plan protects waters by cutting the (road) salt



YOUR Clean Water
Fund AT WORK

The Clean Water Fund is the sole source of Watershed-Based Implementation Funding. Thirty-three percent of sales tax revenue from the Legacy Amendment, passed by Minnesota voters in 2008, is allocated to the Clean Water Fund.

The Leech Lake River Comprehensive Watershed Management Plan (CWMP) focuses strongly on protecting lakes and rivers within the watershed from pollution. Other than the omnipresent mercury found throughout Minnesota, few impairments exist within the watershed. Improved management of forests, shorelines and stormwater are some of the identified activities in the watershed plan that will provide long-term water quality protection.

Another problem pollutant that hasn't yet shown up in water quality sampling but whose impacts can be seen in other ways is chloride. For a long time, chlorides have been used to clear paved winter roads and to protect gravel road surfaces, and to reduce dust. The effects of chloride use can be seen in salt-burned vegetation along highways, and in the impacts on insects and amphibians along gravel roads.

Less obvious is the salt that dissolves, permanently affecting the water quality of both surface and groundwater.

The main water-quality benefit is that it takes less salt to accomplish the same results. During an average winter, the Cass County Highway Department estimates using brine could cut salt use by up to 430 tons.



In extreme circumstances, that chloride can interfere with the natural mixing cycle of lakes and affect the food web within those lakes.

Cass and Hubbard county highway departments are among the road authorities gradually moving away from using salt/sand mixtures for winter safety, instead turning to the application of salt brine, a solution of salt and water. Brine starts working immediately and can be applied proactively before it snows. Brine stays on the road and doesn't bounce off like rock salt. At lower temperatures, it can be more effective than rock salt.

*Brine-making equipment, left and right, is seen at the Cass County Highway Department. Cass and Hubbard county highway departments are among those gradually turning to brine instead of the salt/sand mix applied to icy roads. Watershed-Based Implementation Funding from BWSR supports retrofitting highway department snowplow trucks with tanks and brine application equipment. **Photo Credits:** Cass County Highway Department **Center:** Lower Trelpe Lake near Longville in Cass County is among the water bodies within the Leech Lake River watershed, where efforts are underway to protect lakes and rivers from chloride pollution. **Photo Credit:** Cass SWCD*



Chloride hasn't yet appeared in water quality sampling within the Leech Lake River watershed. Watershed-Based Implementation Funding supported work to reduce road salt helps to protect the water quality of lakes such as Lower Trelipe Lake near Longville in Cass County. **Photo Credit:** Cass SWCD

While the safety benefits are easily understood, the main water-quality benefit is that it takes less salt to accomplish the same results. During an average winter, the Cass County Highway Department estimates using brine could cut salt use by up to 430 tons.

Using less salt also results in cost savings — an environmental and economic win-win.

Through the Leech Lake River CWMP, the Cass Soil & Water Conservation District (SWCD) has been actively helping to accelerate local road authorities' salt-use reductions within the Leech Lake watershed and the surrounding area.

Plan partners made Watershed-Based Implementation Funds (WBIF) — a source of Clean Water Funds from the Minnesota Board of Water and Soil Resources (BWSR) — available to help the Cass County and Hubbard County highway departments

retrofit plow trucks with tanks and brine application equipment.

The success of the initial equipment installation led to further cooperation between Cass County and Cass SWCD. In March 2024, the partnership acquired a supplemental \$77,000 WBIF award to help the county upgrade its brine production equipment.

Faster and more efficient, the new equipment enabled Cass County to use more brine versus a salt/sand mix countywide. The county can sell the brine it makes to other local road authorities, such as townships and cities, which would increase the efficiency of winter road maintenance and reduce salt use across the watershed.

Producing and applying brine is one aspect of chloride reduction. The watershed partnership also protects water quality through training and salt application certification. The CWMP partners have



funded training for salt application certification to help road authorities reduce their salt impact.

The Mississippi Headwaters watershed allocated WBIF for a class at the Leech Lake Band of Ojibwe (LLBO) Tribal Roads and Maintenance Department in Cass Lake. The LLBO Division of Resource Management coordinated the November 2023 meeting and co-hosted with the Cass SWCD. The event drew 25 people, including nine from the LLBO roads crew.

WBIF dollars from the Pine River watershed paid for an August 2024 Smart Salting training in Walker that drew 12 people.

The Cass SWCD has partnered with the LLBO

Division of Resource Management and Roads Crew to explore possibilities and identify needs for future brine use by the Leech Lake Band of Ojibwe roads crew. The Cass SWCD continues to work with the city of Walker to develop a brining program.

Chloride use is not limited to winter safety applications. Road authorities use a variety of products to maintain the integrity of gravel roads and, not incidentally, reduce dust complaints from citizens. Not all roads are treated, and treatment methods vary across jurisdictions.

Cass County recently trimmed the treated road surface area 33% by reducing the application width from 18 feet to 12 feet. Early results show promise for the environment, road integrity and budget.

BWSR staff members write and produce Snapshots, a monthly newsletter highlighting the work of the agency and its partners.