CHLORIDE IN COMMUNITIES & WATERSHEDS

Chloride levels in many surface waters are increasing and pose an emerging environmental concern, since elevated chloride levels are harmful to aquatic life. Minnesota has 50 lakes, rivers, and streams with chloride water quality impairments, and chloride levels in groundwater are also increasing, particularly in urban areas.

Many communities in Minnesota are facing chloride issues, including impaired waters and elevated chloride in their wastewater treatment. It is very costly to remove chloride from water and wastewater, and there are no feasible means to remove it from the environment.

Communities and watersheds can take steps to manage their salt use and reduce their chloride inputs to the environment.

- Communities with elevated chloride in their wastewater treatment plant discharge will look to municipal sources, such as households, industries, and commercial organizations. Infiltration of road salt may also be a chloride source.
- Communities with water impairments can also examine nonpoint sources, particularly road salt, but also dust suppressant, potash fertilizer, and livestock operations.

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IDENTIFYING SOURCES

Most commonly used salts contain chloride.

Contact city or county public works officials for estimates on road salt and dust suppressant use.

Find out if there are wastewater treatment plants or industries that are discharging to the water body.

Identify any major industries that discharge chloride and estimate their loading using monitoring data.

Find out the water hardness from the water utility.

If the water is very hard (>10 grains per gallon), water softeners may be an important chloride source. Estimate how many households soften by conducting a survey or contacting water quality professionals.

CHLORIDE MANAGEMENT STRATEGIES

Effective strategies for reducing chloride in water resources will depend on community and watershed characteristics, but decreasing salt use is always beneficial to the environment.

Winter maintenance

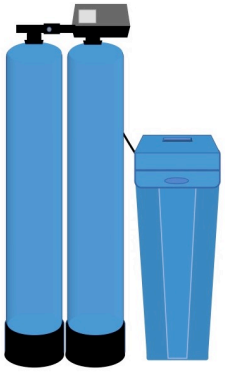
- Winter maintenance organizations can participate in trainings to reduce salt use and utilize the Winter Maintenance Assessment tool
- Community members can reduce salt use by:
  - Shoveling before salt application
  - Using salt at the appropriate temperatures and the correct application rate – a maximum of 4 lb for 1,000 square feet
  - Sweeping and reusing salt and sand on dry pavement

Water softening

- Households and organizations with timer-based softeners can consider upgrading to demand-based units
- Households can reduce salt use by:
  - Softening hot and indoor lines only
  - Having their softener settings checked by a professional to maximize efficient salt use
  - Not using a softener if the drinking water hardness is below 7 grains per gallon

Community solutions

Additional solutions for communities can include centralized water softening or wastewater treatment plant upgrades, although these are capital-intensive and costly options. Communities can work with contractors and regulators to find out if these are appropriate measures for reducing chloride and reaching compliance with water quality standards.



1 teaspoon of salt permanently pollutes 5 gallons of water – all salt savings make a difference!

For more information on chloride and reduction strategies, visit:

www.pca.state.mn.us/water/chloride-salts

www.wrc.umn.edu/watersoftening

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