



Photo credit: Christina Anderson

Road Salt

The problem of salt in our waterways

Road salt (sodium chloride) has been used as a method to manage icy winter roads since the 1940s. Researchers have known the salt does not stay on the road, but disperses into roadside soils and ultimately local waterways. Once in a lake, the chloride ion can remain for long periods of time. Chloride, although naturally occurring, is harmful to freshwater organisms at elevated levels.

Researchers from across the country investigated the long-term trends of road salt use on 371 freshwater lakes across North America.

KEY FINDINGS

- Paved surfaces near waterways contribute to increasing salt concentrations - even small amounts of development can result in a large salt increase in lakes or rivers.
- Fish, invertebrates, phytoplankton, and microbe communities are altered by increased salt concentrations.
- Cyanobacteria have higher tolerance to salt than other phytoplankton do, which may facilitate blooms.
- Water with high salt concentrations is denser, which does not mix as well and may lead to low oxygen conditions.
- Salt comes from road salt applications as well as private citizens and businesses.
- Decades of salt stored in soils runs off into surface and groundwater - continuing for years even after application ends.

RECOMMENDATIONS

- Municipalities can use a brine solution rather than pure rock salt to improve efficiency and reduce salt use.
- Applying salt prior to snow or ice development can reduce the amount required to maintain safe walkways and roads.
- Read the instructions on deicing products and use only at temperatures and in amounts recommended.

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H. A. Dugan, S. L. Bartlett, S. M. Burke, J. P. Doubek, F. E. Krivak-Tetley, N. K. Skaff, J. C. Summers, K. J. Farrell, I. M. McCullough, A. M. Morales-Williams, D.C. Roberts, Z. Ouyang, F. Scordo, P. C. Hanson, and K. C. Weathers. Salting our freshwater lakes. *Proceedings of the National Academy of Sciences*. 114(17):4453-4458.

FINDINGS FROM VERMONT

- 20 Vermont lakes were included in the research.
- Only Lake Champlain and Lily Pond showed increased chloride levels over time.
- Although concentrations are increasing in Lake Champlain, the current concentration is low compared to other urban lakes.
- It is harder to remediate large lakes because of long residence time and large contributing area - proactive steps will help minimize continued salt build-up.