https://www.hometownsource.com/sun_post/free/guest-column-the-impact-of-road-salt-on-wildlife-and/article_31d816de-0d31-11e9-ae40-afb00dfb3450.html

GUEST COLUMN: The impact of road salt on wildlife and soil

Dawn Pape Jan 1, 2019

Minnesotans rely on a crucial tool in clearing their roads: salt. Because the freezing point of salty water is a lower temperature than pure water, scattering salt on ice or snow accelerates the melting process to make roads safer. It's estimated that more than 22 million tons of salt are scattered on the roads of the U.S. annually—about 137 pounds of salt for every American.

According to the U.S. Geological Survey, this is 13 times more salt than is used by the entire food processing industry. About 350,000 tons are applied just in the Twin Cities metro area every year. This piece is the second article in a series by the Bassett Creek Watershed Management Commission, a local unit of government focused on protecting water comprised of the nine cities that drain to Bassett Creek and a member of the West Metro Water Alliance. The series outlines the issues excess salt poses on lakes, people, fish, and recreation – along with some solutions.

But where does all of that salt go? After it dissolves—and is split into sodium and chloride ions—it gets carried away via stormwater runoff and deposited into nearby lakes, rivers and creeks as well as groundwater. Heinz Stefan, with the University of Minnesota's St. Anthony Falls Laboratory, found that approximately 70 percent of the road salt being applied in is retained in the watershed.

When considering how easily salt corrodes cars, it's no surprise that it's also a problem for the environment. It's estimated that chloride concentrations above 800 parts per million (ppm) are harmful to most freshwater aquatic organisms because these high levels interfere with how animals regulate the uptake of salt into their bodies. When snow is melting, wetlands nearby highways can surpass these levels. A range of studies has found that chloride from road salt can negatively impact the survival rates of crustaceans, amphibians such as salamanders and frogs, fish, plants and other organisms. There's even evidence that it may be allowing salt-tolerant non-native plant species to invade plant communities.

On a large scale, excess salt can also disrupt a water body's natural chemistry and reduce the overall nutrient load. Elevated salt levels can also change the way lakes circulate because salt affects water's density. Less water circulation in lakes and ponds prevent oxygen from reaching the bottom layers of water.

On a smaller scale, highly concentrated road salt is known to dehydrate and kill trees and plants growing next to roadways, creating desert conditions because the plants have so much more difficulty absorbing water. In some cases, excess creates salt licks that attract deer to busy roads creating traffic hazards.

How can we avoid all of these problems while still de-icing the roads? Transportation departments have begun pursuing strategies to reduce salt use. Salting before a storm, instead of after, can prevent snow and ice from binding to the asphalt, making the post-storm cleanup a little bit easier and allowing road crews to use less salt overall. Mixing the salt with slight amounts of water allows it to spread more, and blending in sand or gravel lets it to stick more easily and improve traction for cars.

Elsewhere, municipalities are trying out alternate de-icing compounds. Over the past few years, beet juice, sugarcane molasses and cheese brine, among other substances, have been mixed in with salt to reduce the overall chloride load on the environment. These don't eliminate the need for conventional salt, but they could play a role in cutting down just how much we dump on the roads.

The commission is working with other metro watersheds and nonprofits to educate about salting smarter. Our next “Salt Solutions” workshop will be 6:30-8:30 p.m. Tuesday, Jan. 8, at the Nile Mile Creek Watershed District office. This training is geared for people who use or buy deicing salt at places of worship. Although there is no fee, attendees are encouraged to sign up at ninemilecreek.org so we can ensure enough materials and snacks.

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