

Protecting Ground & Surface Water Throughout the Year

Walking across a parking lot or driving to the store in winter weather requires a special tool kit: getting out the grippy gear to keep from slipping; picking a safe speed; noticing how quickly the snow is coming down and which way the wind is blowing it and where the potential for ice is. But are we as good at noticing what happens after the storm and how the choices we make to stay safe in winter weather impact the local environment?

Road salt is an important part of our winter arsenal, helping us manage ice until we have a chance to clear the ground. Usually made of sodium chloride, it lowers the freezing point of water and prevents ice from forming as the temperature drops. When the storm clears, it stays in the melt water, draining from the road or walkway and into the soil, local streams, and larger bodies of water. We might not see it there, but the plants and animals living in the water have good reason to pay attention.

While animals like starfish are well-adapted to life in saltwater and plants like mangroves have ways to get rid of excess salt, freshwater plants and animals don't have the same adaptations and can be very sensitive to salt. Chloride is toxic to some aquatic life at concentrations above 230 mg/liter (plus it makes the water salty to drink) and it is very hard to filter out- essentially, once it's there, it's there. So, everytime road salt washes into a lake, the chloride count goes up a little. It's a slower process in some areas (for example, rural spaces) than in others, but New Hampshire counted 50 chloride-impaired water bodies in 2020 (up from 19 in 2008).

Can we be safe in winter AND keep salt from getting into our water? Absolutely- part of the challenge with salt is using it well, so there are changes we can make. Road salt is most effective at melting ice around 30° F and that impact drops sharply until it doesn't do much below 15° F no matter how much we put down. We also tend to use more salt than is needed for an area- depending on temperature, as few as four coffee cups of salt can de-ice 1000 square feet of parking lot, driveway, or sidewalk. On roadways, dry salt can bounce right off the road at application and then we need to re-apply.

What are our alternatives? Ice occurs when precipitation melts and refreezes before it can be cleared away- by being proactive, careful, and willing to try some new techniques, we can lower our road salt use and stay safe in winter weather. Clearing the snow before it has a chance to form ice gets ahead of the problem. While it might be feasible to shovel your front walk every hour or two during a storm, it's not always the case with roadways and sometimes we need to buy the plows time to clean things up. Pre-treating the roads with salty brine ahead of the storm prevents ice from forming and the brine helps the salt stay in place to do its job. Brine can also start melting existing ice more quickly than salt alone and uses less salt to cover the same area. Using the correct amount for the temperature and knowing when road salt won't be effective will limit extra salt sitting around in the environment, and you can sweep up left-over salt to save for next time if it turns out you used too much. Another option is to ask a certified Green SnowPro to handle things- the NH Department of Environmental Services and UNH Technology Transfer Center provide training and certification to municipal and private operators to limit road salt use across the state; you can find more information about the program at des.nh.gov/land/roads/road-salt-reduction.

Staying safe in the winter doesn't have to put our water at risk- by making sure we're using the best method for the temperature & type of precipitation and being proactive when possible, we can have safe roads & sidewalks AND protected water.