Road Salt

The accuracy of this section will depend intensely on region. It applies to regions with cold, snowy winters, where roads are kept clear of ice using salt. Not all snowy areas rely on salt, even in the united states. It's as much a matter of ingrained defaults and expectations as cost and safety.

History

During the Interstate Age one of the responsibilities of the New Hampshire Department of Transportation was to keep the state roads drivable during winter storms. They had several processes and specialized pieces of equipment which they used to do this in different conditions, but one thing they relied very heavily on before and during almost any kind of freezing storm was road salt.

Their plow trucks were equipped with salt spreaders which flung sand and salt onto the roads to melt the ice. This practice, carried out annually for decades by the state, towns, private plow operators, and individuals, poisoned numerous waterways, and thousands of acres of roadside land.

Concentrations of chloride in surface waters rose steadily for decades, killing off large swaths of aquatic plants and animals, nearly sterilizing some rivers of life altogether. As with most environmental damage, this impact cascaded. The steady die-off reduced the self-purification processes of water by decreasing nutrient accumulation in aquatic plants, decreasing the denitrification rate, and reducing organic matter decomposition. Ironically this allowed for an overenrichment of nutrients in the water, which favored phytoplankton, especially cyanobacteria which could tolerate the new conditions, causing toxic algae blooms. These caused even more damage.

On top of that, chloride seeped into the groundwater, contaminating wells and aquifers. And though it isn’t especially poisonous to humans on its own, high enough concentrations are caustic enough to damage pipes and leach lead into drinking water. And humans weren't the only ones affected: the chloride which vanished underground hid the extent of the problem – some of this pollution didn’t re-enter streams and lakes until decades after the salt hit the road, meaning that the concentrations continued to increase in surface waters independent of human activity.

By the end, they started to recognize the damage road salt was causing. The DOT began studying alternatives in 2011 and retraining not just their own drivers but also city, town, and private operators. Depending on weather conditions and temperature, their crews would use different mixes of Salt (NaCl) or a Salt Brine, coarse “winter” sand, Calcium Chloride (CaCl), Liquid Magnesium Chloride (MgCl2), or a Liquid Chloride Blend. These new techniques reduced the total amount of salt needed to do the same job, and they eventually supplemented with alternatives such as beet juice, molasses, and agricultural byproducts like grape skin compounds which reduced it further.

But from 1938 until the automobile lost its dominance, the standard de-icer was, and remained, Sodium Chloride.

Solarpunk Alternatives

These days people rely primarily on sand, sugar (though this can also cause environmental problems) and the occasional brine when they need ice removed immediately. The big difference is in the

number of autoroads and bike paths maintained to bare-pavement conditions, especially during winter storms.

Many roads are now seasonal, and of those which are maintained for wheeled vehicles, the slower pace of life and numerous trains and other public transit options generally make keeping them clear during blizzards and ice storms less critical.

Modern New Englanders tend to favor modes of transportation that work with the local climate - cross-country skis, snowshoes, and for longer distances or faster speeds, snowmobiles, including a variety of ski-and-tracked truck-format vehicles.