

Impact of road salt on drinking water quality and infrastructure corrosion in private wells

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Abstract

Increased road salt use and resulting source water contamination has widespread implications for corrosion of drinking water infrastructure, including chloride acceleration of galvanic corrosion and other premature plumbing failures. In this study, we utilized citizen science sampling, bench-scale corrosion studies, and state-level spatial modeling to examine the potential extent of chloride concentrations in groundwater and the resulting impact on private wells in New York. Across the sampled community, chloride levels varied spatially, with the highest levels in private wells downgradient of a road salt storage facility followed by wells within 30 m of a major roadway. Most well users surveyed (70%) had stopped drinking their well water for aesthetic and safety reasons. In the bench-scale experiment, increasing chloride concentration in water increased galvanic corrosion and dezincification of plumbing materials, resulting in increased metal leaching and pipe wall thinning. Our simple spatial analysis suggests that 2% of private wells in New York could potentially be impacted by road salt storage facilities and 24% could potentially be impacted by road salt application. Our research underscores the need to include the damage to public and privately-owned drinking water infrastructure in future discussion of road salt management

Read the full article in [Environmental Science and Technology](#) [1].

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