

A Park-Wide Approach

- Relevant Local Research
- Roadmap to Reduce Road Salt
- Hold the Salt Campaign



Local Research

Done: Adirondack application rates Source-identified surface water impacts

Ongoing: Groundwater Impacts Economic impacts





Road Salt in the Adirondacks



- 10,555 lane-miles of paved roads
- 6,500,000 tons since 1980
 - ¹⁄₄ State roads
 - ³⁄₄ Local roads
- 108,000 tons of salt used on state roads per year
- 84,700 tons of salt used on local roads per year





Kelting, D. L., & Laxson, C. L. (2010). Review of effects and costs of road de-icing with recommendations for winter road management in the Adirondack Park. *Paul Smith's College Adirondack Watershed Institute Report#*2010-01.



Salted Roads and Surface Water



•Majority of surface water may be contaminated
•6,000 miles of streams
•52% of total length
•195,000 acres of lakes
•77% of total acres

•820 water bodies





Regalado, S. A., & Kelting, D. L. (2015). Landscape level estimate of lands and waters impacted by road runoff in the Adirondack Park of New York State. *Environmental monitoring and assessment*, 187(8), 1-15.





Median Lake Chloride

Regional Salinization

- <0.5ppm
 w/no roads
- 14X higher w/roads





Kelting, D. L., Laxson, C. L., & Yerger, E. C. (2012). Regional analysis of the effect of paved roads on sodium and chloride in lakes. *Water Research*, 46(8), 2749-2758.



Lake Chloride and State Road Density

- No relationship between local road density and Cl
- State road density explained 84% of the variation in Cl
- Higher road density equals higher salt load

Regional salinization is from salting state roads (NYS DOT)



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Stream Baseflow Chloride





Groundwater

- 1600 sq miles of unconfined aquifers
- Most overlain by salt contaminated surface water
- Regional Groundwater Pollution





Well and Aquifer Study



400 Wells
 Local runoff
 State runoff
 No road runoff



 Determine the extent and magnitude of road salt contamination of both shallow and deep groundwater

Economic Impact

When you take all of the corrosion into account, road salt may not be the most cost effective option.

Ongoing Research

- 1. Private vehicle costs
- 2. NYS Department of Transportation vehicle costs
- 3. Roadway infrastructure costs
 - Bridge deck maintenance and repair correlated with tons salt applied







Roadmap to Reduce Road Salt

- Simple breakdown of relevant local research
- Checklist of best practices
 - In order from cheapest and easiest to implement to most expensive and difficult (but worth it)

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DK

- Laminated posters for garages
- Park-wide MOU/Pledge and awards



Imagine that your chair is actually a time machine.







Campaign for the Driving Public

- Increase awareness
 - Impacts of road salt
 - Reasonable winter driving expectations
- Increase accountability
 - Leave early and slow down
 - Drive Prepared



Join our working group

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