

Water Front- Peter Mantius

Environmental politics in New York's Finger Lakes

Gung-Ho on Salting Its Wintry Roads, New York State Decides to Take Closer Look at Environmental Consequences

[Peter Mantius](#) / [December 14, 2020](#) / [Uncategorized](#)



ALBANY, Dec. 14, 2020 — New York State, the nation's most gung-ho user of rock salt to de-ice winter highways, plans a formal review of its practices in response to new data that links road salting to troubling rises in sodium and chloride in Adirondack Park water wells.

Gov. Andrew
Cuomo last week
signed into law [a bill](#)



By applying rock salt generously to melt snow and ice, the state Department of Transportation keeps roads open in wintry weather.

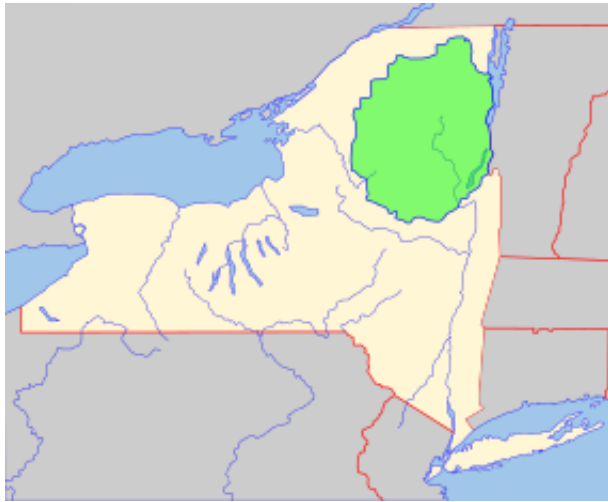
(<https://waterfrontonline.files.wordpress.com/2020/12/roadsaltreductionact.pdf>)that calls for a “salt reduction task force” to analyze the issue within the 6-million-acre park.

Wading into a political domain long dominated by the state Department of Transportation, the task force will measure salt contamination in drinking water and estimate the cost of property damage due to salt-induced corrosion.

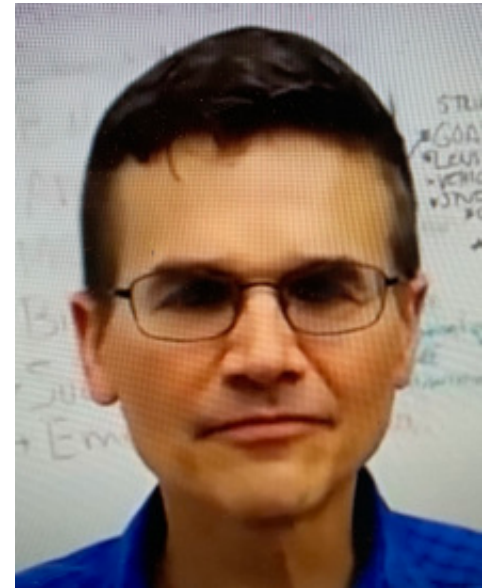
“The contamination of our well with road salt has cost thousands of dollars in ruined appliances and corroded pipes,” Kirk Peterson of Clear Lake told Adirondack Watershed Institute researchers. “We can’t operate a dishwasher and have to replace faucets and other plumbing fixtures regularly because of corrosion caused by the salt.”

Peterson said he’s had to buy bottled water to drink and worries about being unable to sell his home. He holds the state responsible.

The DOT applies rock salt aggressively to keep roads open year-round for the driving public, adopting goals and



standards



Dan Kelting

Adirondack Park: the salt reduction task force's study area is green.

(<https://waterfrontonline.files.wordpress.com/2020/12/nysdotsnowicecontrol.pdf>) geared to meet legislative mandates.

“But their mission is in direct conflict with the health and safety of the homeowner,” said Daniel Kelting, executive director of AWI (<https://www.adkwatershed.org>), an arm of Paul Smith’s College in Franklin County.

Kelting is optimistic that the task force will lead to collaboration and compromise because it gives seats at the table to not only the DOT, but also the state Department of Health and the state Department of Environmental Conservation, as well as independent scientists and local officials.

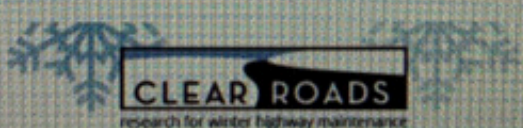
During the winter of 2018-19 and each of the two previous years, New York was the only state to spread more than 1 million tons of rock salt, or halite (chemical symbol NaCl), on its roadways, according to ClearRoads.org

Road Salt Use - Winter 2018-2019 (Top 10 States)

	Tons Applied Sodium Chloride (thousands)	Lane-Miles Maintained (thousands)	Tons/ Lane Mile	Price/ton (Jan. 1, 2019)
New York	1,214	43.6	27.8	\$63.97
Pennsylvania	922	96.0	9.6	\$64.48
Ohio	748	43.5	17.2	\$66.47
Illinois	600	44.8	13.4	\$56.00
Wisconsin	553	34.8	15.9	\$73.51
Michigan	528	32.0	16.5	\$61.78
Massachusetts	392	15.4	25.5	\$50.23
Indiana	310	31.0	10.0	\$69.60
Colorado	272	23.0	11.8	\$107.00
Minnesota	247	30.5	8.1	\$68.95

	2017-2018 (Top 3 states)			2016-2017 (Top 3 states)		
	Applied	Lane/Miles	Ton/Mile	Applied	Lane/Miles	Tons/Mile
New York	1,280	44.5	28.8	1,090	43.7	24.9
Pennsylvania	1,000	96.0	10.4	732	86.0	8.5
Ohio	955	43.3	22.1	596	43.3	13.8

Source: Data supplied by individual states to ClearRoads.org



CLEAR ROADS
research for winter highway maintenance

New York State leads the county in tons of road salt applied and tons per mile of state-maintained roadway, according to ClearRoads.org.

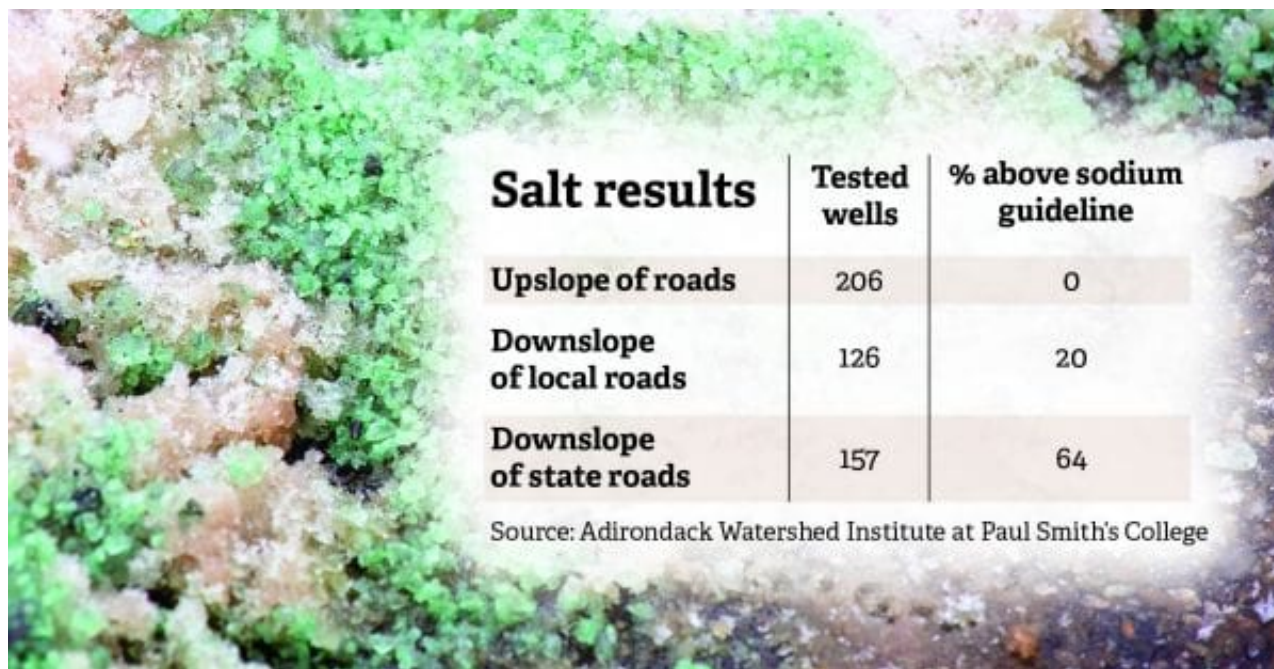
(<https://clearroads.org>). It also led all states in rock salt spread per mile of state-maintained road — 27.8 tons per lane-mile in the 2018-19 season.

Salt spreading has been even heavier on state roads in Adirondack Park — a legacy of the 1980 Winter Olympics in Lake Placid when clear, fast-moving roads became a top state priority.

Kelting figures that the 2,830 lane-miles of state-maintained roads in the park each receive an average of 38 tons of salt per winter.

Years after establishing that many of the park's lakes have elevated sodium and chloride readings tied to road salt, AWI recently began testing roughly 500 private water wells.

Researchers found that dramatic differences in well contamination levels correlated with their proximity to salt spreading on state roads.



Salt results	Tested wells	% above sodium guideline
Upslope of roads	206	0
Downslope of local roads	126	20
Downslope of state roads	157	64

Source: Adirondack Watershed Institute at Paul Smith's College

For example, drinking water drawn from all 206 wells upslope of roads in the park had sodium levels beneath the federal health guideline

The Adirondack Watershed Institute found much higher levels of sodium in water from wells downslope from heavily salted state roads.

(https://www.epa.gov/sites/production/files/2014-09/documents/support_cc1_sodium_dwreport.pdf) of 20 parts per million. But one-fifth of the 126 wells downslope of local roads (which receive minimal salt) exceeded the guideline. And nearly two-thirds of the 157 wells downslope of heavily salted state roads exceeded the sodium health guideline.

The highest sodium concentration neared 2,000 ppm — “way beyond undrinkable,” Kelting said.

For chloride, the health guideline (<https://www.epa.gov/sdwa/drinking-water-regulations-and-contaminants>) is 250 ppm. The median reading for wells upslope of roads was less than 1 ppm, while the median for wells downslope of local roads was 7 ppm. Wells downslope of state roads had a median chloride reading of 100 ppm, with a high of 1,690 ppm.

Neither sodium nor chloride — the components of table salt — are considered health hazards in moderate doses. But ingesting high concentrations of sodium over the long term tends to increase blood pressure (as the body retains excess fluids). Over many years, too much sodium boosts risks for stroke, heart failure, osteoporosis and kidney problems.



A New York State DOT salt spreader.

High chloride levels affect the taste of water and tend to corrode metals. For example, high-chloride water that passes through lead pipes leaches lead from the pipes into the water, a process that contributed to the lead poisoning crisis in Flint, Mich.

Homeowners may not necessarily know whether the water they draw from their wells poses a health risk because taste doesn't change until sodium and chloride levels far exceed health guidelines.

But Kelting said AWI's well survey turned up several extreme cases, including Peterson, where homeowners were obliged to buy bottled water and frequently replace water-linked appliances.

Anecdotes of road salt contamination have surfaced around the state.

Earlier this year, a Court of Claims in Rochester heard arguments from a couple in Phelps that alleged



that road salt from the New York State Thruway, which abuts their farm, had

John and Jan Frederick claim rock salt applied on the NYS Thruway in Phelps ran off onto their farm and killed their cows. (Democrat and Chronicle photos)

contributed to the deaths of 88 cows (<https://waterfrontonline.files.wordpress.com/2020/12/aaroadsaltdairyherd.pdf>) over four years.

“They salt the Thruway — I mean *heavy*,” said John Frederick, who said he was forced to switch to piped-in water. “Sometimes when you look out there in a windstorm it looks like a white cloud of dust.”



The Fredericks say road salt corroded this pump on their property adjacent to the NYS Thruway.

Fredericks and his wife Jan Frederick have sued the state, seeking \$250,000 in damages. The Thruway Authority has argued that there’s insufficient evidence to show that road salt killed the cows. The Fredericks’ attorneys said last week that case is pending.

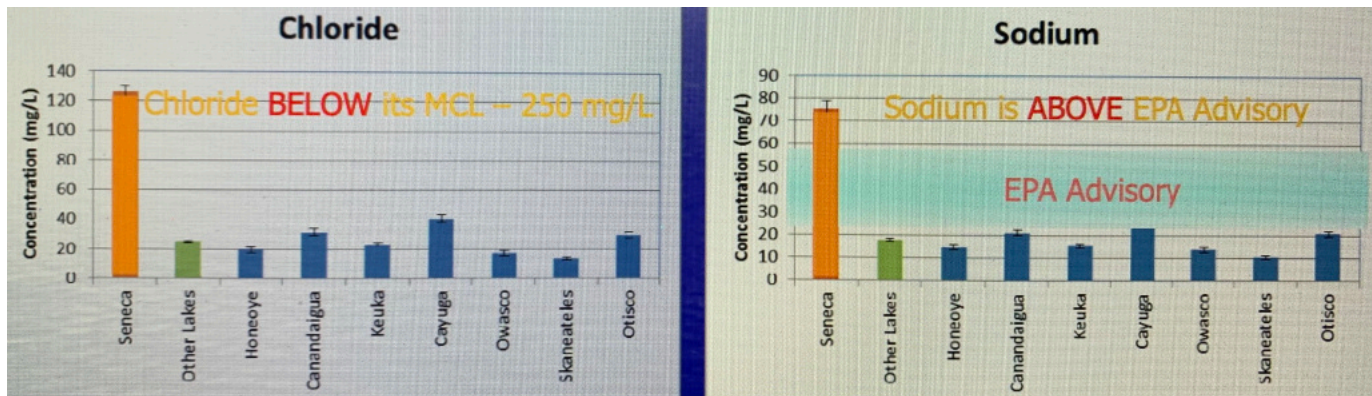
In Dutchess County, the Cary Institute of Ecosystem Studies has studied the effects of road salt pollution in streams — especially chloride overdoses — on aquatic plants and animals, including fish, frogs, snails and insects.

“Sublethal salt levels present in many streams can impair health, reproduction and behavior of many organisms — especially with extended exposure,” the institute wrote in a recent report

(<https://waterfrontonline.files.wordpress.com/2020/12/caryinstitutereport.pdf>).

The U.S. Environmental Protection Agency recommends that to maintain aquatic life, continuous chloride concentrations should not exceed 230 parts per million and never exceed 860 ppm.

In the Finger Lakes, Seneca Lake stands out for its relatively high concentrations of sodium and chloride — up to 10 times higher than other Finger Lakes. Scientists haven't pinpointed the cause. While road salt may be a contributing factor, the salt beds that underlie Seneca and the two salt mines at its southern end are also suspected.



Scientists aren't sure why sodium and chloride levels are so much higher in Seneca Lake than in other Finger Lakes. (Data from Wing, et al, 1995 and Halfman, teal 2006)

Salt beds also underlie Cayuga Lake, which has the second highest sodium and chloride levels in the Finger Lakes.

In its studies of tributaries that feed Cayuga, The Community Science Institute has noted that salt concentrations are two to four times higher at the mouths of streams than at their headwaters. It also noted a wide range of chloride levels (up to 1083 ppm) in streams and ponds around Ithaca.

CSI



Stephen Penningroth

(<https://waterfrontonline.files.wordpress.com/2020/12/penningroth2016saltrisingingroundstreams.pdf>) estimated that salt concentrations in groundwater in the southern Cayuga Lake watershed are

rising at the rate of 1.5-3.7 ppm each year. “Possible sources contributing to rising salt levels include road salt, water softeners and geology (salt beds),” CSI reported.

Stephen Penningroth, executive director of CSI, said he supported the state Legislature’s decision to limit the study area of its salt reduction task force to the Adirondack region. The presence of salt beds and active salt mines on Seneca and Cayuga lakes makes the Finger Lakes a less than ideal case study for the impact of road salt contamination.

“The salt situation here is different from the get-go,” Penningroth said. “You’re working against a higher background down here than you are in the Adirondacks, so it’s harder to see an impact from road salt.”

Even so, CSI plans to explore whether chloride levels in Cayuga tributaries correlate with road density and salt-spreading practices, he added.



Cargill’s rock salt mine in Lansing.

Much of the rock salt that is spread on New York



State roads comes from a Cargill salt mine in Lansing that extends for miles beneath a major portion of Cayuga Lake.

State records show Cargill has a three-year \$206.6 million contract

(<https://waterfrontonline.files.wordpress.com/2020/12/cargillcontracts.pdf>) to supply road salt to the state. In addition to that contract, which ends next August, the company has a pair of smaller road salt contracts worth a combined \$16.9 million.

The state also relies on American Rock Salt Co. in Livingston County for a major portion of its road salt. That company’s pending state contracts for rock salt and related materials total more than \$200 million.

Because those salt suppliers are major employers, any decision to drastically cut salt spreading on state roads could have an economic impact on their communities.

“Every percentage reduction in the use of salt (on roads) is going to be millions of dollars in lost revenues for the companies,” Kelting said.



Victoria Kelly

While Kelting is generally pleased with the bill Gov. Cuomo signed, he said the Legislature could have gone further by providing state funding and a budget for pilot projects to control salt spreading. But the bill “never would have passed if was any money associated with it,” he added.

Kelting said he sees the task force as promising because it allows for “a whole bunch of other stakeholders” to reach a compromise between the interests of drivers, salt suppliers and homeowners, among others.

Victoria Kelly of the Cary Institute in Dutchess County said she was also optimistic about the task force.

“I really do think what they discover will be picked up by other places, even outside of New York State,” Kelly said. “Other communities will be looking to that project for direction.”

Published by Peter Mantius

I am a journalist who lives in Watkins Glen, NY. I write about the environment and politics on my website, Waterfrontonline.blog. For more detail on my background, see the "Peter's Bio" section on that site. [View all posts by Peter Mantius](#)

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