THE SALT IN OUR STREAMS

Loudoun Wildlife Conservancy's Salt Watch Program

Salt Watch Report 2024-2025 (Season 4)

Chloride from road salt pollution is an issue in Loudoun County streams. In February 2025, nearly 3 in 4 chloride tests from Loudoun's urban streams exceeded the chloride level the EPA considers toxic to aquatic life. Loudoun Wildlife Conservancy (LWC), in partnership with the Izaak Walton League of America (IWLA), has been monitoring this problem since 2021 across Loudoun County's streams.

SEASON 4 BY THE NUMBERS

929 CHLORIDE TESTS

94 VOLUNTEERS

71 MONITORING SITES

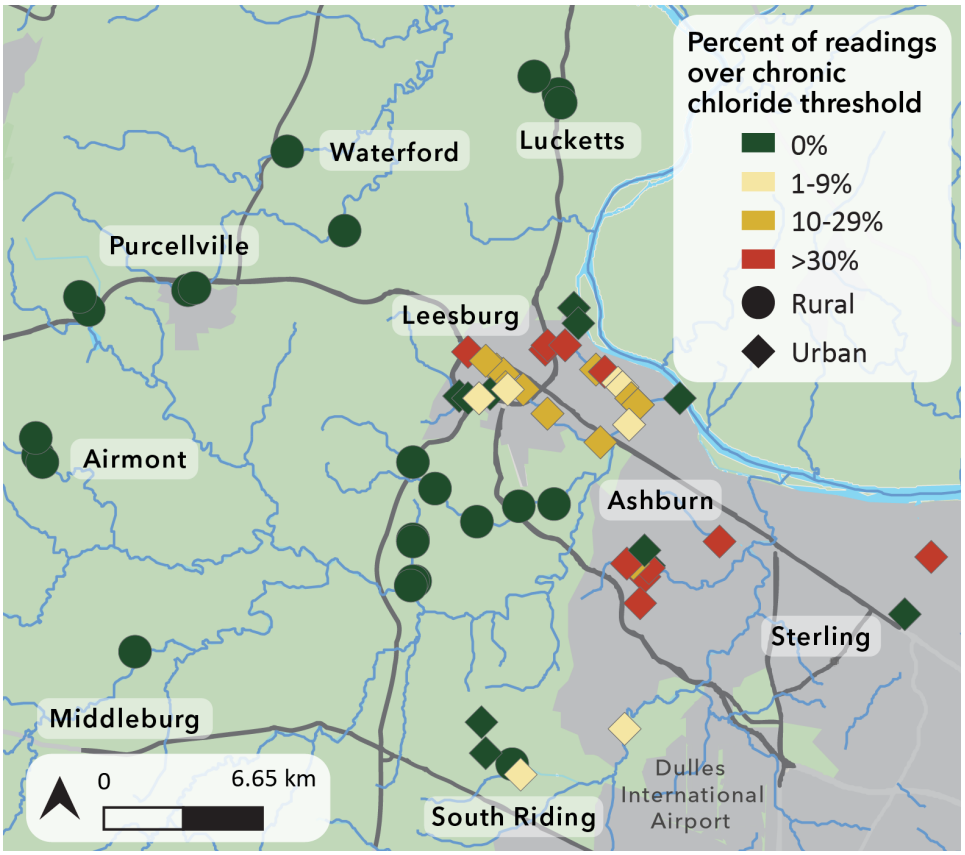
21 STREAMS MONITORED

1,100+ VOLUNTEER HOURS

12% OF ALL NATIONAL SALT WATCH DATA

Since 1995, LWC has worked to protect, preserve, and restore wildlife habitat in Loudoun County. Salt Watch is part of our Stream Monitoring Program, engaging trained volunteers in gathering data that informs local conservation decisions. Learn more at LoudounWildlife.org

SALT WATCH SITES REVEAL POINTS OF CONTAMINATION IN SEASON 4

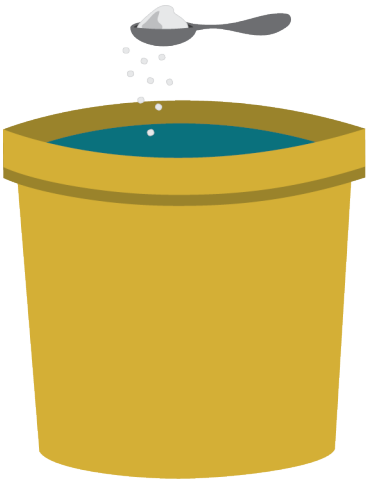


This map shows the results from data collected in Season 4 (July 2024-June 2025). The EPA sets two chloride thresholds for aquatic life. The chronic toxicity threshold, which is harmful over four days, is 230 ppm (parts per million). The acute toxicity threshold, which can kill freshwater organisms in just one hour, is 860 ppm.

On average, in Season 4, the worst conditions were in urban areas near Leesburg and Ashburn. There were 23 sites that exceeded the threshold more than 10% of the time. Explore data from all seasons at **https://www.cleanwaterhub.org/maps/salt-watch**.

MONITORING SALT MATTERS

Salt Watch volunteers monitor chloride levels in local streams year-round and identify areas where levels are toxic to aquatic life. LWC uses that data to raise public awareness and advocate for smarter, reduced salt application. Volunteer-collected data is submitted to the Clean Water Hub—a public database where anyone can explore results for their local stream.



1 TEASPOON OF SALT

PERMANENTLY POLLUTES

5 GALLONS OF WATER

When roads and sidewalks are salted in winter, that salt washes into storm drains and, without any treatment, flows directly into our streams. As salt moves across paved surfaces, it seeps into soil and groundwater, where it can linger for decades, releasing back into streams with every subsequent rain. Chloride released from road salt accumulates in the environment over time, cycling through soil, groundwater, and our streams.

Chloride is also highly corrosive to our infrastructure and our drinking water. It damages roads, bridges, and vehicles; indirect costs of road salt damage in the U.S. are estimated at $16–19 billion per year. In our homes, that same corrosiveness attacks water pipes and can cause lead to leach into tap water in homes with older plumbing. Most water treatment plants are not equipped to remove chloride from drinking water.

Goose Creek near Lansdowne in winter.

WHAT SALT DOES TO STREAM LIFE

Mayflies, stoneflies (pictured below), water pennies, and many other small organisms—known as benthic macroinvertebrates—live on the streambed. They are also indicators of stream health because different species have different tolerances for pollution. A mix of different species tells us whether a stream is thriving or impaired.

Chloride from road salt is toxic to the most sensitive species. The disappearance of those species indicates deteriorating conditions. These species provide a critical food source for fish, herons, and other wildlife. Fish growth and reproduction are also affected by chloride. Amphibians developing in seasonal pools are particularly vulnerable.

LWC STREAM HEALTH SCORES

As part of our biological monitoring program, LWC surveyed 24 stream sites across Loudoun County in fall 2024 and spring 2025. After the heavy salt events of January and February 2025, ecological health scores fell or stayed flat at every urban site. Not one improved. At Beaverdam Run in Ashburn, where winter chloride regularly exceeded toxic levels, stream health dropped from acceptable ecological conditions in fall 2024 to unacceptable by spring 2025.

Of the two Town Branch Salt Watch sites in Leesburg with biological monitoring, one has never reached an acceptable ecological health score in its entire monitoring history, and the other has done so only once—in spring 2020. Most rural biological monitoring sites—where chloride levels remained low all yea—maintained acceptable ecological scores through the seasons. For more detailed scores visit https://www.cleanwaterhub.org/organization/114.

ACUTE TOXICITY PEAKS AT THREE SITES

TOWN BRANCH	3,715 PPM
CATTAIL BRANCH	2,074 PPM
BEAVERDAM RUN	896 PPM

WHAT OUR SEASON 4 DATA SHOWS

URBAN STREAMS VS. RURAL STREAMS

Measured across the full monitoring year (July 2024–June 2025), urban streams exceeded the EPA's chronic toxicity threshold—230 parts per million (ppm) of chloride—in about 1 in 4 tests. Rural streams recorded 0 tests above that threshold all year. The difference reflects road density and salt application—where less salt is applied, streams stay healthier.

URBAN STREAMS

1 IN 4

TESTS ABOVE THE EPA CHRONIC TOXICITY THRESHOLD OF 230 PPM

RURAL STREAMS

0

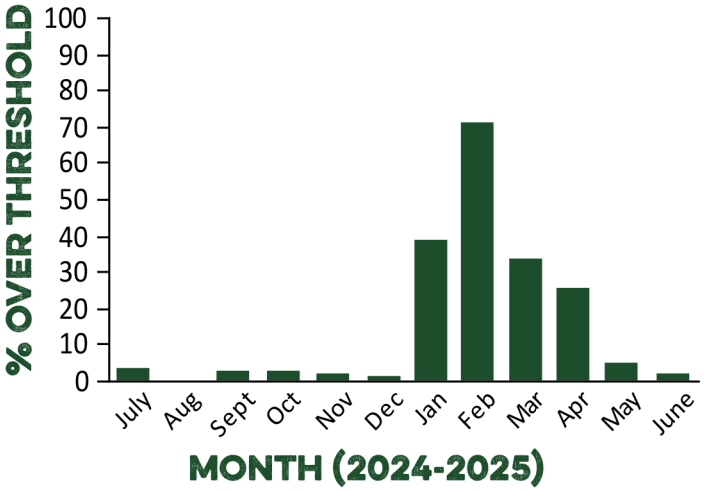
TESTS ABOVE THE EPA CHRONIC TOXICITY THRESHOLD OF 230 PPM

WINTER SALT SPIKES LINGER INTO SPRING

Hach chloride testing strip used by LWC volunteers.

In January 2025, about 39% of urban stream tests exceeded the chronic toxicity threshold. In February, that number rose to 71%. These elevated levels continued in March and April at 34% and 25% of tests respectively.

At sites on Cattail Branch and Town Branch in Leesburg, more than a third of tests taken outside the winter salt season still exceeded the chronic threshold, consistent with chloride accumulating in soil and groundwater and being released into streams with every rain. Year-round monitoring captured this signal.



January and February show the highest percentage of urban tests exceeding the chronic toxicity threshold of 230 ppm.

FEBRUARY 2025

71%

OF URBAN TESTS EXCEEDED THE CHRONIC TOXICITY THRESHOLD OF 230 PPM

APRIL 2025

25%

OF URBAN TESTS EXCEEDED THE CHRONIC TOXICITY THRESHOLD OF 230 PPM

A GROWING COMMUNITY RESPONSE

In Season 1 (winter 2021–22), 9 LWC volunteers collected 110 chloride tests at 14 sites on 9 streams during winter storm events only. By Season 4 (July 2024-June 2025), those numbers had grown to 94 LWC volunteers collecting data twice a month year-round—plus additional sampling around every storm event)—for a total of 929 tests conducted at 71 sample sites on 21 streams.

LWC Salt Watcher testing at Town Branch.

BE A SMART SALTER

AT HOME

Skip: Don't pre-salt unless temperatures are below freezing and precipitation is imminent.

Shovel: Shovel first. Less snow means less or no salt needed.

Scatter: Scatter sparingly. One coffee mug covers a 20-foot driveway.

Sweep: Sweep up excess after the storm is over—reuse it and keep it out of streams.

Switch: Know the limit. Below 15°F, salt stops working. Switch to sand or a low-temperature deicer.

Note: 'pet-friendly' or 'eco-friendly' deicers often still contain chloride—using less, or none at all, is always the better choice.

COUNTY

Report excess salt on roads or uncovered salt piles in parking lots to Loudoun County Stormwater—include address and photo, if possible:

stormwater@loudoun.gov

STATE

Report excess salt on state-maintained roads to VDOT:

my.vdot.virginia.gov | 1-800-FOR-ROAD (1-800-367-7623)

Ask businesses and HOAs to sweep up excess salt after storms are over, before it washes into streams.

BECOME A SALT WATCHER

Join our expanding network of volunteers. No scientific background needed—we provide full training and free supplies. Scan to learn more or contact us directly at **aulland@loudounwildlife.org.**

Uncovered salt pile in Sterling parking lot.

ACKNOWLEDGMENTS

Salt Watch is an Izaak Walton League of America program whose vision and support makes this monitoring program possible for individuals and partner organizations like LWC. Their test kits, outreach materials, program guidance, and national data infrastructure empower communities across the country to understand and take action on road salt pollution in their local streams. We are grateful to the University of Maryland Center for Environmental Science for their rigorous data analysis and partnership in producing this report. We thank the Chesapeake Monitoring Cooperative for funding the design of this publication. Above all, we are profoundly grateful to every LWC volunteer who shows up for Loudoun's streams—sampling, reporting, and taking action—and helps us understand what is happening to the waterways in our own backyard. They are the heart of this program.

Photography Credits: Page 2- Peter Podbielski, Amy Ulland; Page 3- Amy Ulland, Adrienne Bassett; Page 4- Loudoun County Stormwater Team.

Loudoun Wildlife Conservancy Established 1995

The Izaak Walton League of America

University of Maryland Center for Environmental Science Integration and Application Network

CMC 10 YEARS