Water at Risk: "Salt of the Earth"? Not So Fast!

Written by: Carol Hillestad for the Brodhead Watershed Association

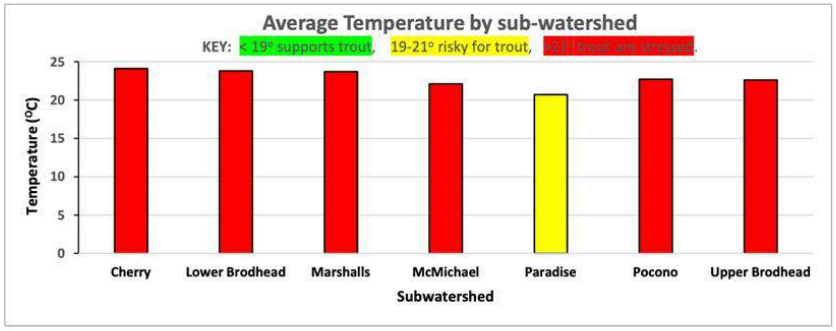
STREAMWATCH SNAPSHOT

August 1, 2024

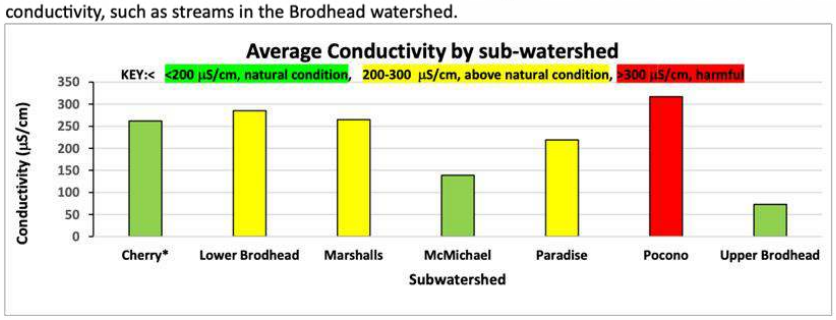
On a hot dry August afternoon, 16 BWA volunteers collected temperature and conductivity measurements at 66 sites on streams throughout the Watershed.

Both temperature and conductivity/salinity impact aquatic life. Trout, particularly brook trout, are sensitive to temperature, and may not survive at temperatures above 23° C. The best temperature for growth & feeding is 12 - 18° C.

A summary of temperature data collected on August 1 shows that at almost every site, stream temperature was stressful to trout. The average of all temperatures collected this year, 22.7° C, more than a degree higher than average temperature for all sites (44) in 2023, 21.6° C.



Conductivity measures the ability of water to conduct electricity, and rises when salts are present in water. The most likely source of salts in the Brodhead watershed is de-icing materials – road salt or sodium chloride, magnesium chloride or calcium chloride. Studies show that mayflies and caddis flies, important food for trout, are particularly sensitive to increases in chloride, or conductivity, in streams that have naturally low levels of conductivity, such as streams in the Brodhead watershed.



CAPTION: 2024 Streamwatch Snapshot Report

Sodium chloride — better known as salt — was a precious commodity for more than 8,000 years. It was so highly valued that it was used in religious rituals and even as currency.

Today salt is so easy to come by that we spread it around by the ton — close to a million tons a year in Pennsylvania alone — to keep roads, driveways, front steps, and acres of big-box parking free of snow and ice.

It's cheaper than alternatives, too. Trouble is, sodium chloride is durable stuff. All the salty runoff from all those paved surfaces (plus the just-for-good-measure extra salt we throw around with abandon at home) doesn't "go away." It sinks into the soil. And unlike contaminants that soil can clean up or neutralize naturally, sodium chloride persists. Salt isn't removed by typical treatment plants, either, and builds up in soil, groundwater, streams at low flow — and perhaps your well. (Heart patients beware.)

Creek water throughout the Brodhead Watershed was tested in August this year — when no one had been putting salt on driveways, parking lots or roads for at least four months.

Evidence of high chloride levels was found in almost every creek. That says we're wasting a lot of salt to control ice and snow — so much that it hangs around in the environment for years. And so much that, without meaning to, we're harming creeks, trout, aquatic insects — all that complex, interconnected web of life.

You should know that even "pet safe" formulas are 85 percent sodium chloride. Like other de-icers, it also contains other chlorides, such as magnesium and calcium chloride. Of whatever type, chloride is the culprit!

There is one solution, and one solution only: use less.

PennDOT ice-melt trucks are calibrated to ensure they use only as much salt as they have to. Municipalities have a financial interest in not spreading more salt than necessary. But still, it's worth checking with your elected officials to find out how they control winter salt use, whether they cut salt with alternatives like sand, and if not, why not.

And you can take a stand yourself. One major ice-melt brand says to use one pound of the product to treat 500 square feet. That's the size of a one-bedroom apartment! Keep that image in mind when you're tempted to use a whole scoop-full on the front steps alone.

To see a snapshot of the results for the creek nearest you, go to https://brodheadwatershed.org/summer-snapshot-august-2024/

And make a plan to cut back on salt use this winter.

How creekwater was tested

Volunteers collected information on temperature and conductivity at 66 sites throughout the Brodhead Watershed. Conductivity is a measure of the ability of water to conduct electricity. (Conductivity and chloride are closely related.) The largest source of chloride in the watershed is materials used for deicing. Conductivity above a certain level is dangerous for the aquatic insects that trout feed on. Find out more at www.brodheadwatershed.org

Brodhead Watershed Association protects water quality and quantity throughout our area. Get involved! Become a member! www.brodheadwatershed.org