

SAVE ANGELICA CREEK from ROAD SALT



A Program of Berks Nature



A problem across the world

An invisible freshwater pollutant - salt - has increased in natural fresh water sites over the past 50 years and places our freshwater environment at risk.

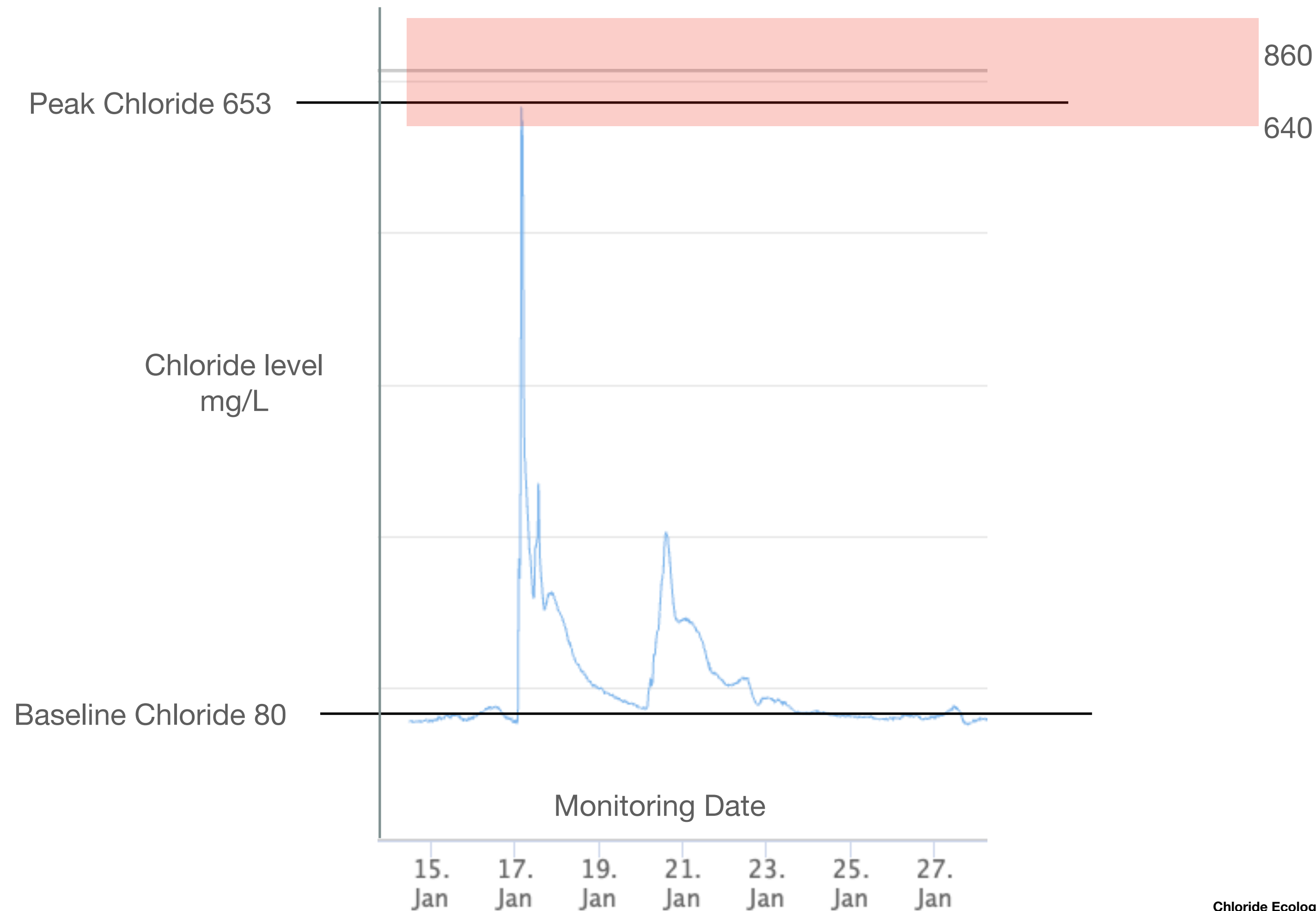
- Salt is an invisible freshwater pollutant
- Road salt is the main cause of salt pollution in PA streams and groundwater
- Road salt dissolves in water and enters streams quickly via runoff from roads and parking lots, and ALSO slowly enters the soil and groundwater
- The problem is getting worse
- The Angelica Creek Watershed Association (ACWA) stream monitoring program has detected risk for our community
- Innovative solutions can balance protection of our streams and drinking water with community safety

Why is salt a problem?

- Excess salt is harmful to freshwater animals and plants
- Federal standards help us understand harmful levels of salt
- Water pollution can occur from a sudden acute surge of salt, such as runoff from a winter storm
- Adverse impacts can also occur from chronically elevated salt levels in soil and groundwater
- Road salt also speeds up rusting of metal and corrosion of concrete and causes millions of dollars in damage to infrastructure and personal property

Angelica Creek - salt level rise after snow storm

Salt (as chloride) level peak 8 times above baseline level



Sensors continuously measure salt levels in Angelica Creek

Measures from a January 2022 snowstorm reveal dramatic acute rise in salt levels

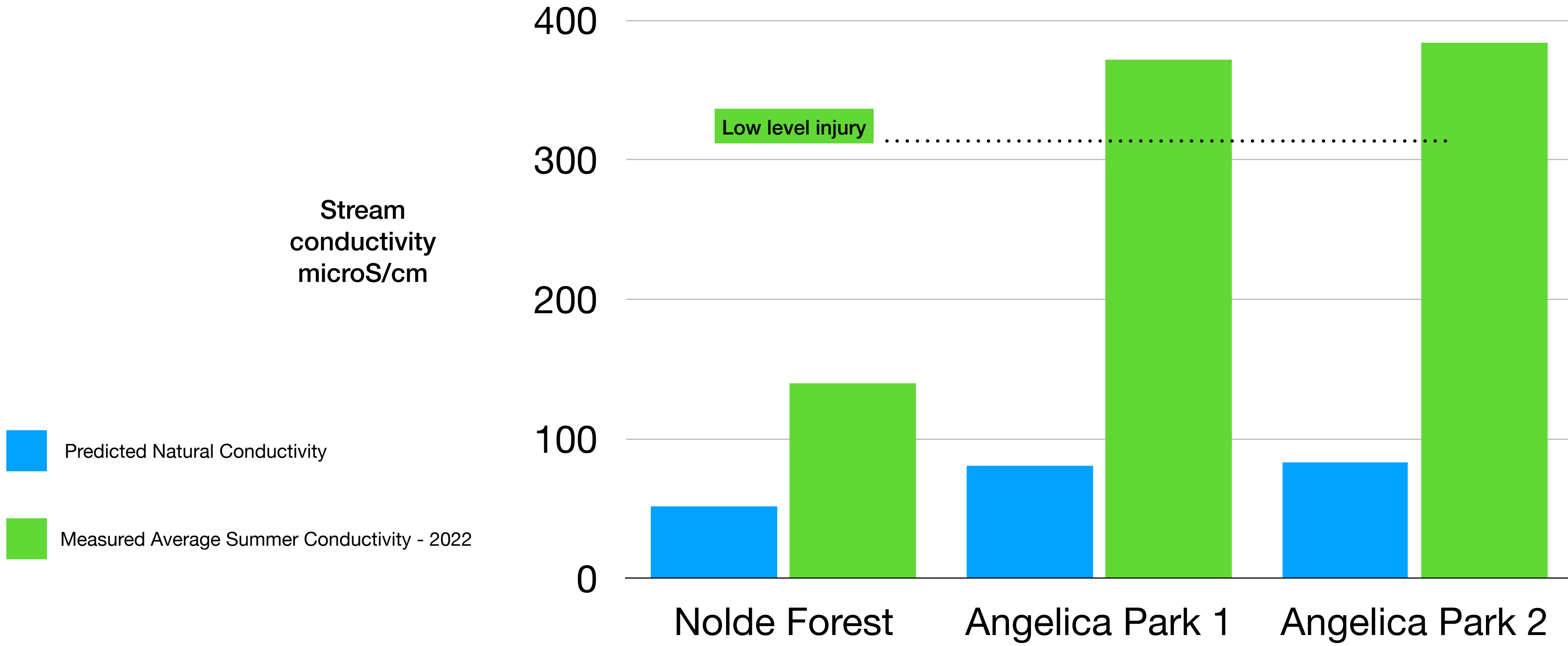
Short term (acute) salt levels above 640 mg/L have been associated with potential injury to the more sensitive aquatic species, while levels above 860 mg/L risk severe short term injury

Chloride Ecological Acute Impact Threshold
860 mg/L - US Environmental Protection Agency
640 mg/L - Canadian Water Quality Guidelines

Angelica Creek - Chronic Elevation of Salt Levels

Sensors within Angelica Creek measure conductivity, mineral ions within water, from which chloride levels can be determined

Continuous measurement of salt mineral ions at 3 sites along Angelica Creek demonstrate elevated levels up to 4X predicted levels



Salt that flows from roads, parking lots and other impervious surfaces does not break down. It enters the ground water which then feeds our streams.

Current levels of salt have been shown to be harmful to the “macroinvertebrate” insects upon which fish and other aquatic life feed

Fortunately, Angelica Creek is not currently in as much risk as many nearby streams

However, increasing “salt pollution” is occurring throughout the Northeast. Without local collaboration to address this problem, we can expect the process to worsen.

PREVENTION is much more effective and **COSTS LESS** than correction

Low level injury 310 microS/cm conductivity = 50 mg/L Chloride per MD Department of Environment/OH EPA publications

What can we do?

Homeowners and residents

- Shovel First: Shovel before you salt and right after it snows to reduce the need for salt
- Reduce and Reuse: Use just enough salt to melt ice (one 12oz cup of salt per 20 ft of driveway or 10 sidewalk squares). After snow melts, sweep up and reuse the salt that remains
- Consider: Use sand or crushed limestone instead of salt or a 1:1 sand/crushed limestone to road salt mixture
- Read the Label: Don't use products containing urea, kitty litter, or ashes
- Speak up: If you see an unprotected salt pile or excessive road salt use contact your township. Educate your neighbors about how we all can help!

Solutions for municipal and private property owners

- Adopt more efficient mechanical snow/ice removal methods such as live edge plows
- Apply pre-storm salt brine to reduce use of rock salt
- Improve efficiency of salt application and storage to reduce waste. Sweep up salt after use.
- Adjust brine and salt applications to match snow/ice expectations and traffic volume

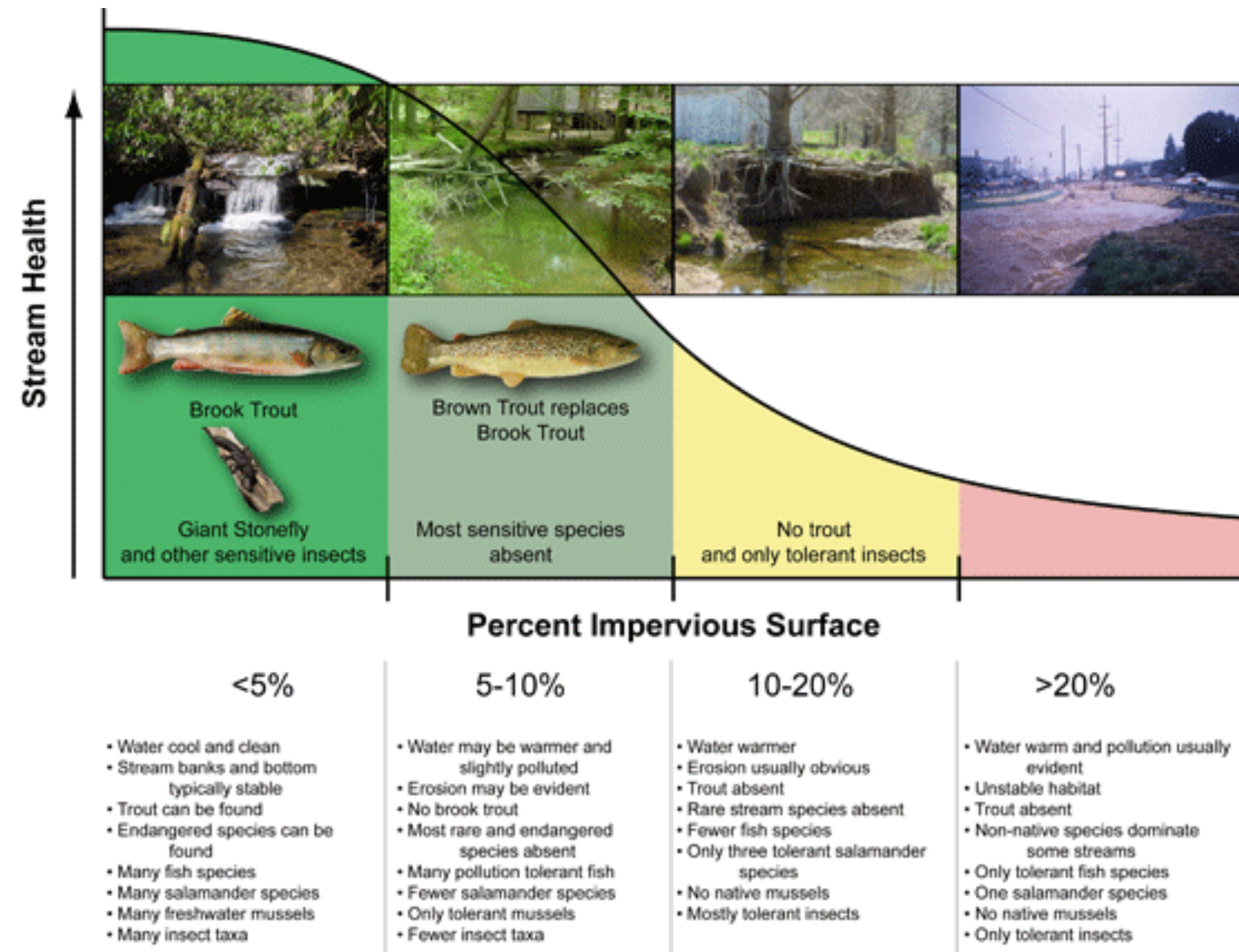
Looking forward

- Salt application is important to protect residents from snow/ice risks.
- Salt applications are often greater than needed to assure safety.
- Proven approaches can reduce salt use, assure community safety, and save the community money!

Looking forward

Less Impervious Surfaces, Healthier Streams

- More impervious surfaces in our community mean more pollutants (including salt) in our streams



(Maryland Department of Natural Resources)

- Citizens and planners can work together to minimize the amount of impervious surface in our community