MILWAUKEE RIVERKEEPER®
HELPING OUR WATERS THRIVE SINCE '95

Winter Road Salt Monitoring in the Milwaukee River Basin and Actions to Reduce Chloride Pollution at the Source

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Mission:

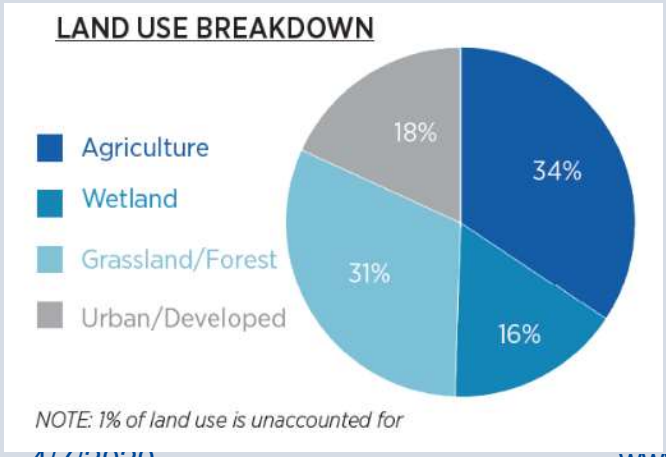
Protect, improve and advocate for water quality, riparian wildlife habitat, and sound land management in the Milwaukee, Menomonee, and Kinnickinnic River Watersheds.

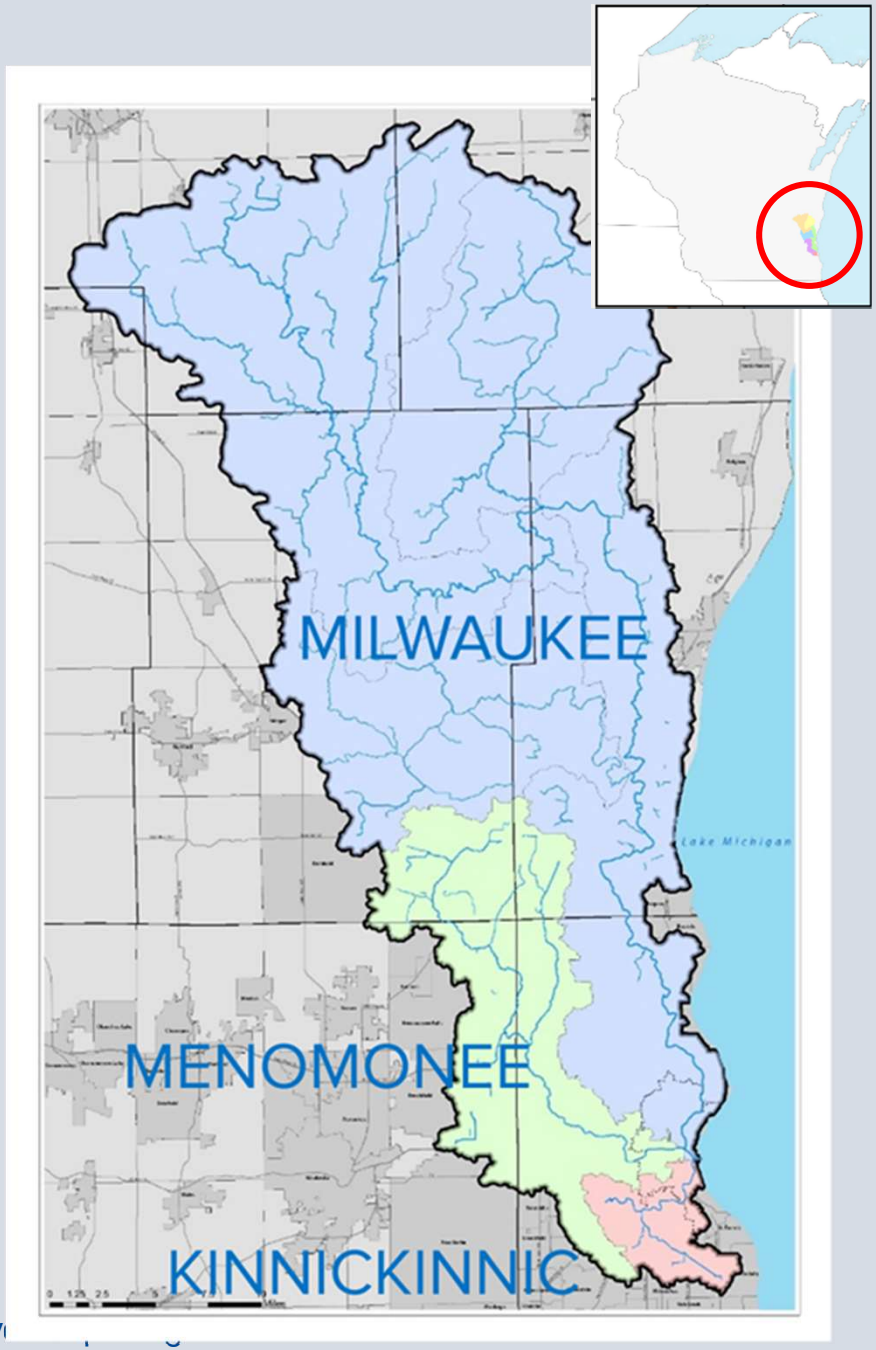
WATERKEEPER® ALLIANCE


PROTECT
RESTORE
CONNECT
ADVOCATE

Milwaukee River Basin Characteristics

- Southeastern Wisconsin
- Drains into Lake Michigan
- 882.3 Square Miles
- 1.3 million people
- 500 miles of perennial streams
- Three Distinct Watersheds
  - Milwaukee
  - Menomonee
  - Kinnickinic





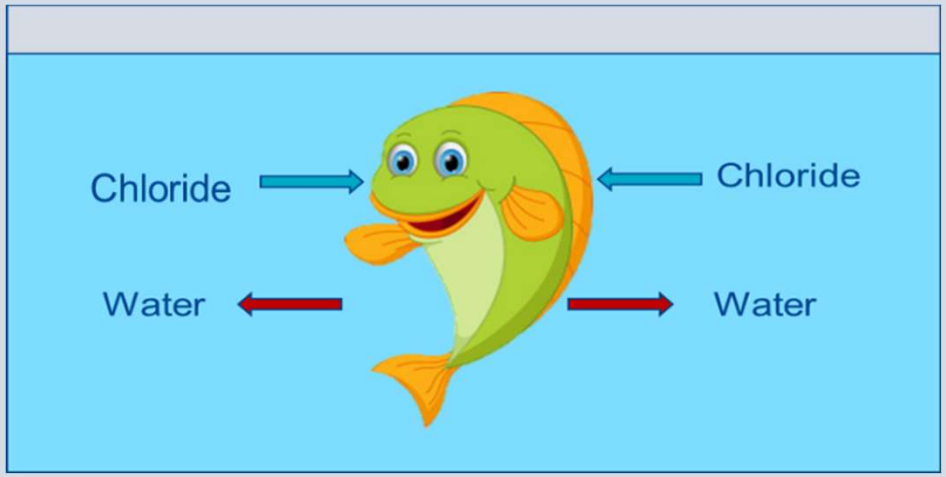
Road Salt and Chloride

- Road salt is applied to roadways, driveways and parking lots
- Run-off or water traveling over land surface carries water polluted with chloride into our storm drains eventually emptying into local rivers

Runoff

Snow Melt

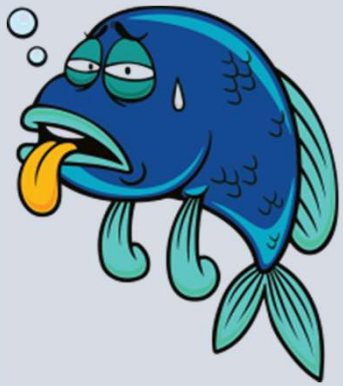
Impacts of Road Salt



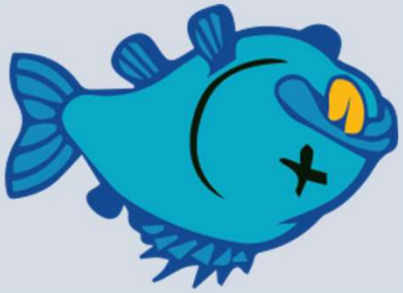
Our aquatic ecosystems cannot tolerate saltwater like oceanic fish can!

- **Damaging to vehicles and infrastructure**
- **Harmful to pets and wildlife**
- **Damaging to soil and plant life, many plants are not salt tolerant**
- **Chloride is toxic to freshwater fish and other aquatic organisms**
- **Chloride displaces water within aquatic organisms leading to dehydration or desiccation of the organisms.**

Types of Chloride Toxicity



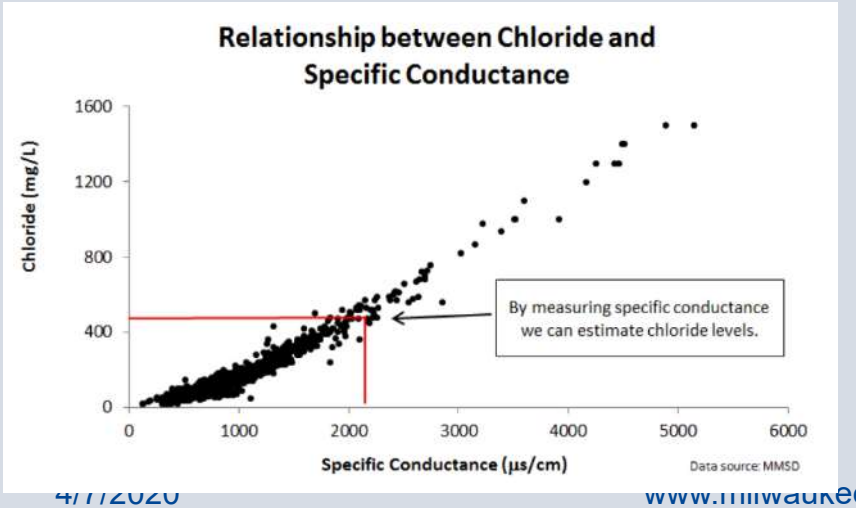
Chronic toxicity is an extended period of an increased level of chloride. Chronic level may not kill life within the stream instantly, the environment is highly stressful and can cause damage over time.



Acute toxicity is a single event of very **high** chloride concentration, this spike in chloride can result in instant death to fish and other aquatic organisms within the stream.

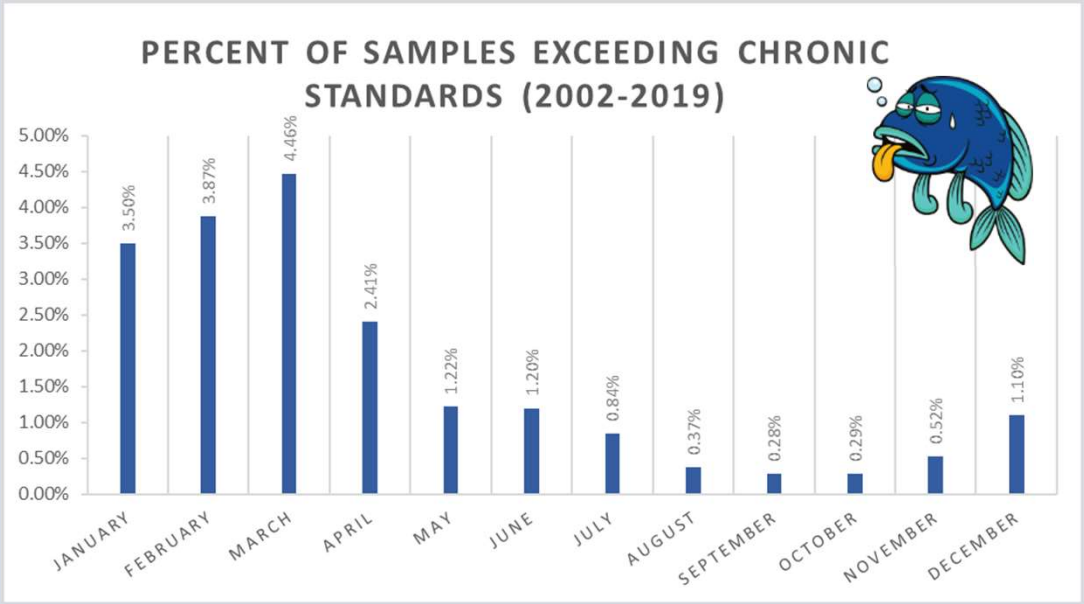
Community Science Road Salt Monitoring

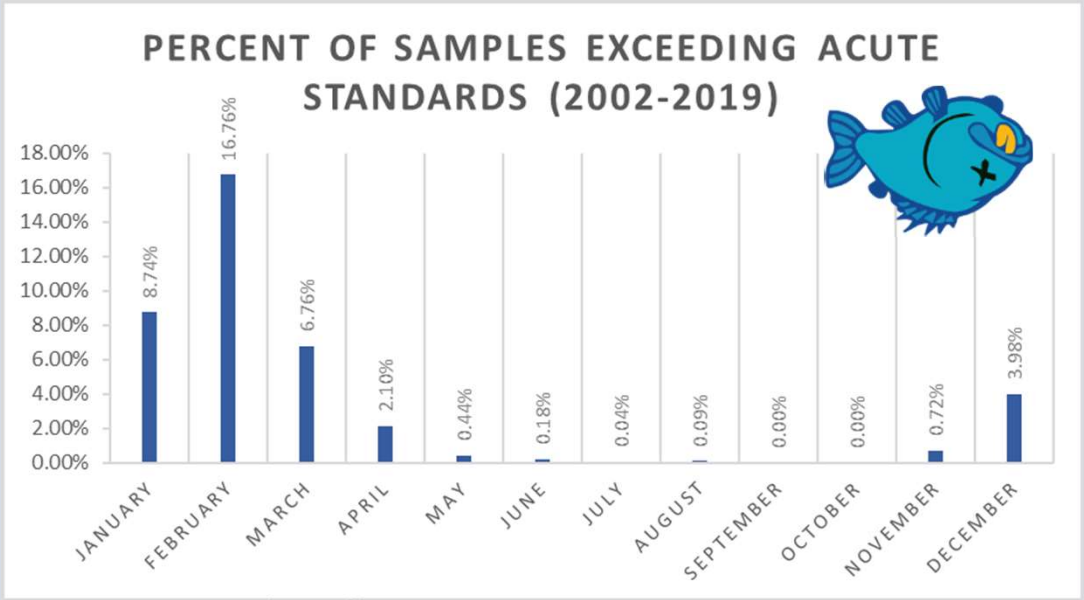
- Milwaukee Riverkeeper's Road Salt Monitor program began in 2010
- January – April monitors head into the field after snowfall or warming events (Trigger Event)
- Samples are collected if exceeding specific conductivity standard and are sent to State Lab of Hygiene for chloride analysis
- All data is uploaded to SWIMS database
- In 2020:
  - 21 volunteers monitoring 33 sites focused in Jackson, West Bend and Fredonia



Chloride Exceedances

- Chloride levels are highest during the winter months
- Greater than 2 exceedances can result in portion of river being listed as impaired





Date Sources:

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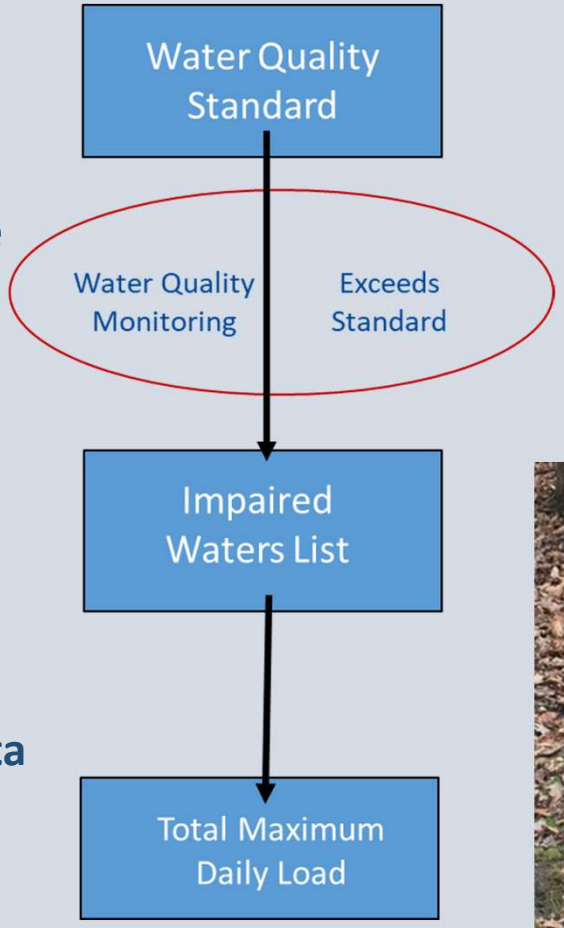
MMSD PARTNERS FOR A CLEANER ENVIRONMENT

Clean Water Act & Chloride

- Waterways that exceed chloride standards can be listed as impaired
- Monitors play a critical role in identifying waterways that are reaching toxic chloride levels
- Milwaukee River Basin is densely urban in the south and less populated/more agricultural in the north
- 2019-2020 Milwaukee Riverkeeper focused on data collection outside of Milwaukee County



Annual Snow & Ice Control Workshops

- Since 2017, Milwaukee Riverkeeper has hosted annual Snow & Ice Control Workshop(s) for winter maintenance professionals
- In 2019
  - Roads Workshop
  - Parking Lots & Sidewalks

Proper road salt application can promote public safety and healthy rivers!

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Annual Snow & Ice Control Workshops

- Deicing – breaking bond between ice and pavement
- Anti-icing – preventing bond from forming between ice and pavement
- Calibration Rates

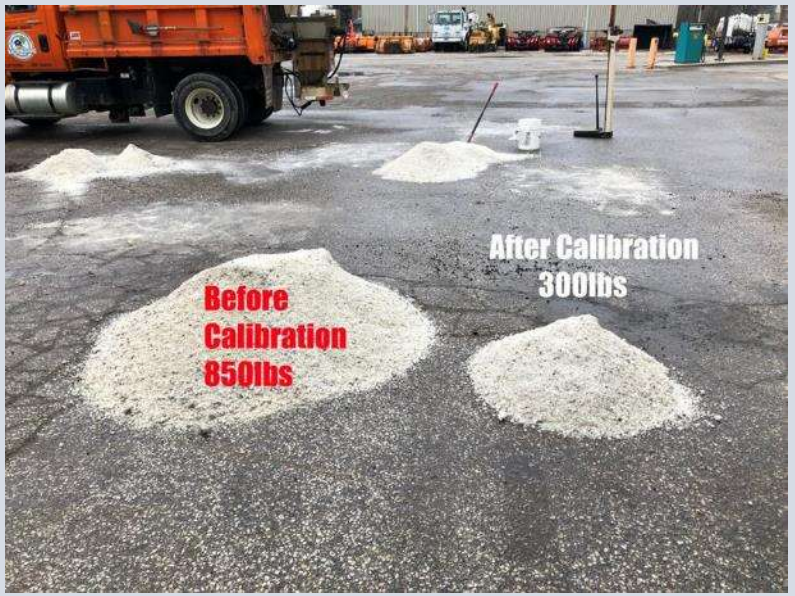

Photo: City of Cudahy

Public Outreach

Help keep our waterways safe during winter months by following these steps:

- **Shovel Early and Often.** This reduces the need for salt. (Pro-tip, sweep up extra salt and reuse!)
- **Use only the salt you need.** 12 oz. of salt is all that's necessary for a 20 foot driveway or 10 sidewalk squares. (Pro-tip: a coffee mug's worth is usually all you need.)
- **Talk to your friends & neighbors.** Share the toxic consequences of over salting with the people in your life. (Pro-tip: Write to your local representative supporting responsible road salt practices for roads, sidewalks and public parking lots.)
- **Become a Road Salt Monitor.** Help Milwaukee Riverkeeper understand where road salt is entering our waterways.

- **Raising awareness through public outreach, flyering and tabling**
- **Providing door hangs to applicator organizations who noted public understanding being a barrier to change**

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