

Chlorides in Our Lakes



Overview

- What is chloride?
- How does chloride enter our waters and what is its impact?
- How can you remove chloride?
- What are some solutions?

Chloride



How Chloride Enters Lakes

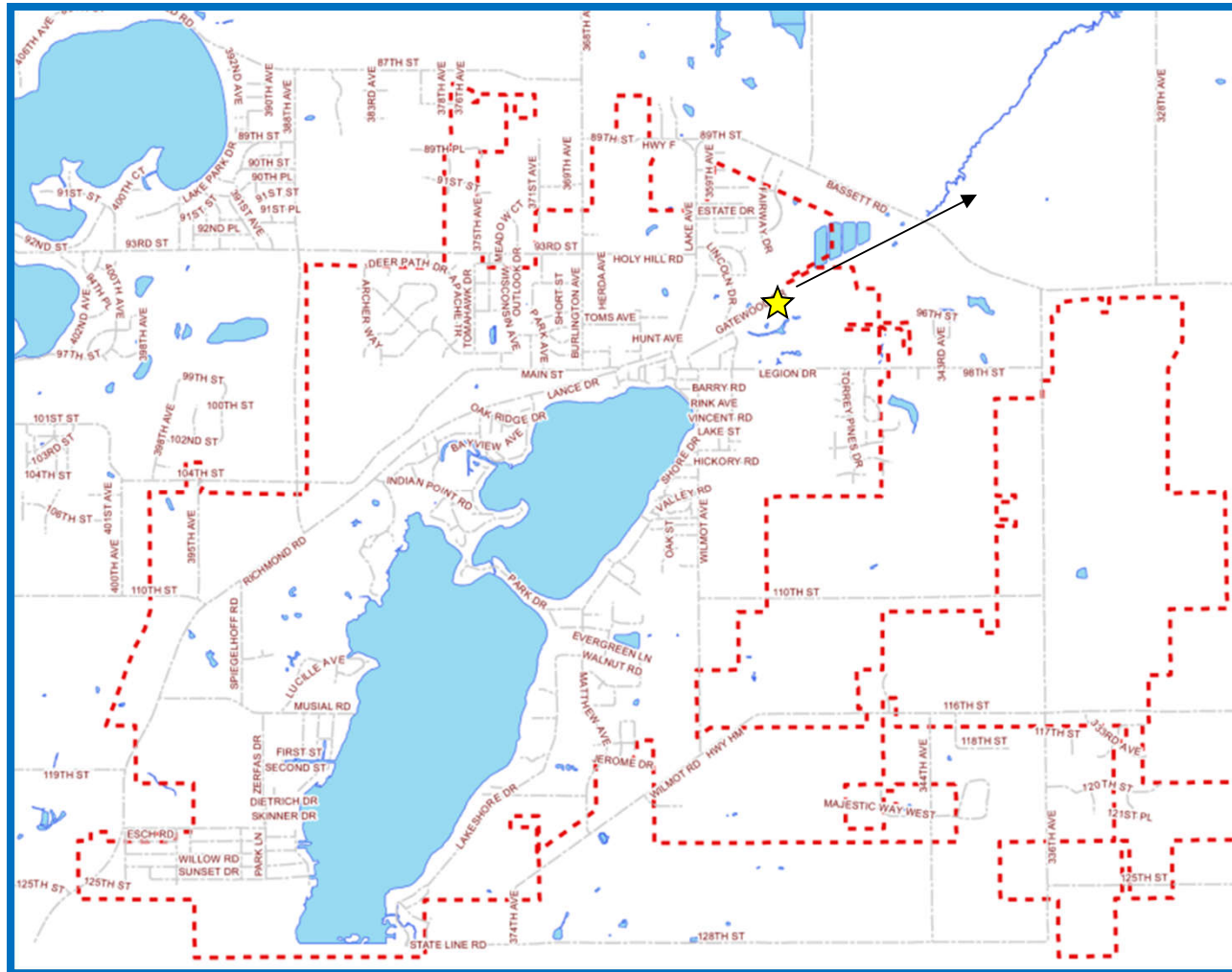
- Road salt used on roads and driveways in the winter washes into our lakes when snow and ice melts



How Chloride Enters Rivers

- Water that is softened in residences and businesses goes through the wastewater treatment plant and is discharged to surface waters
- Chloride isn't treated for at the facility, so any softening salt that goes into the sanitary sewer system ends up in the Fox River

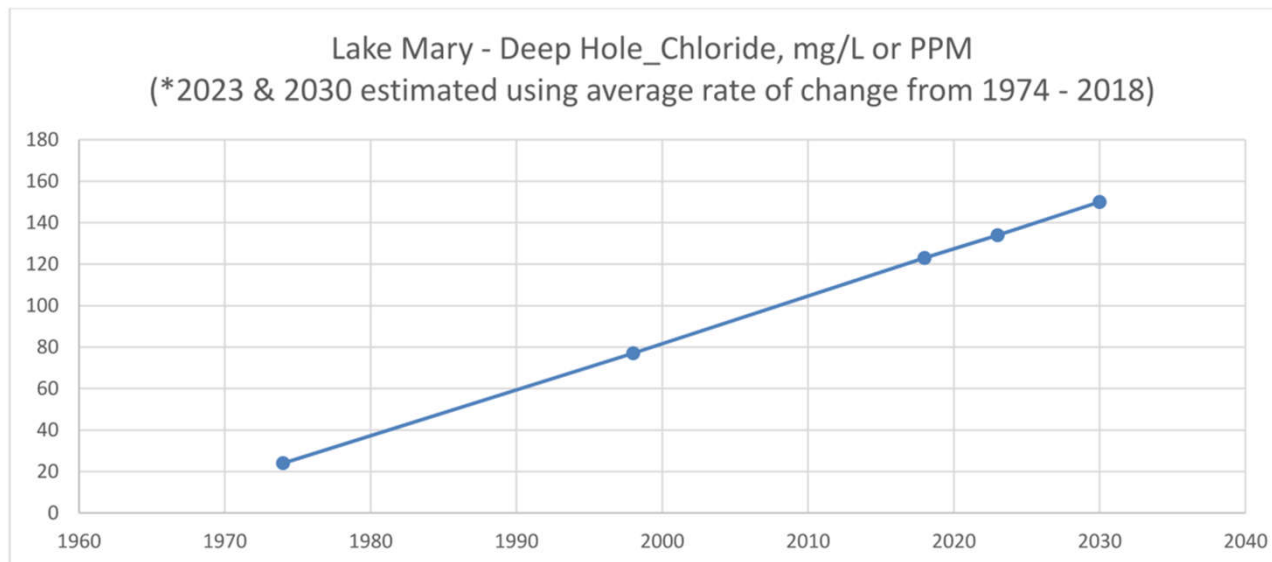
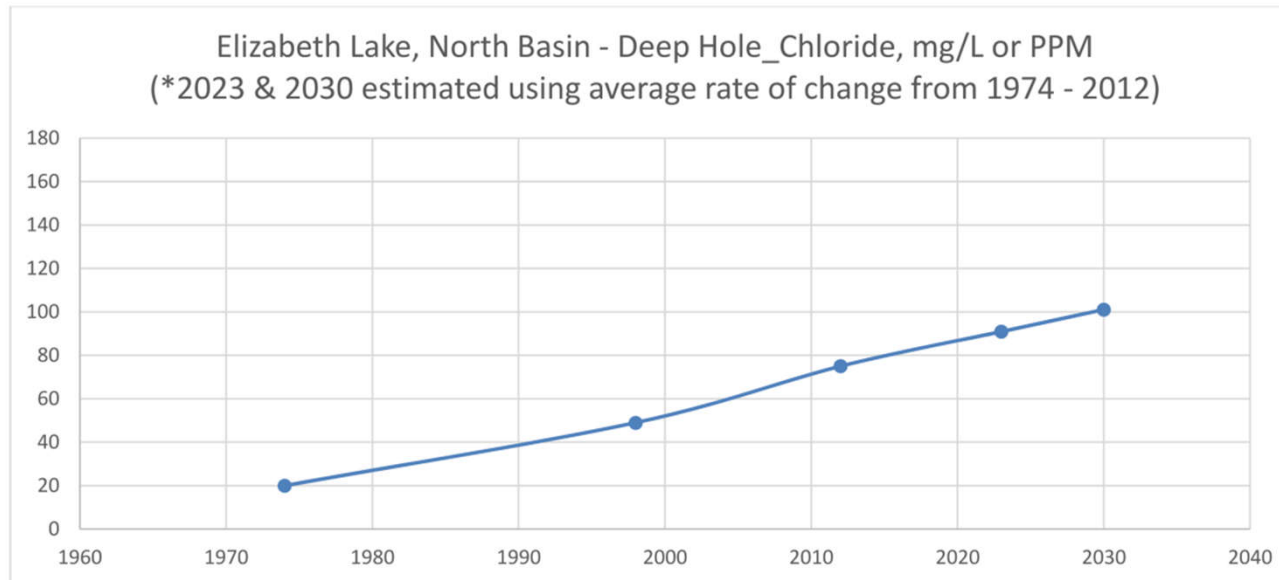
Twin Lakes Watershed



Water Quality Standards

- Chloride Standards
 - 395 mg/L (chronic)
 - 757 mg/L (acute)
- Many treatment facilities are not able to meet the 395 mg/L criterion
- Current Permit Limit
 - 600 mg/L

Chloride Data in Twin Lakes



Impact of Chloride

- 1 teaspoon of salt can pollute 5 gallons of water to a level that is toxic to native aquatic organisms (Salt Wise)
- Excess salt in water can stunt aquatic life growth and be toxic over time (Wisconsin DNR)
- Chloride can stress plant respiration and change the characteristics of the ecosystem
- Over 40 lakes and streams in Wisconsin have been designated as impaired by high salt concentrations (Wisconsin DNR)

Impact of Chloride

- When salt accumulates at the bottom of a lake, it can inhibit spring turnover, which is the natural cycling of water caused by temperature changes.
- When this happens, the bottom waters of the lake become inhospitable for organisms.
- It could take decades for salt levels to stabilize in freshwater systems, but only if we reduce the amount of salt going into these systems.

Impact of Chloride

- Excess salt can cause toxicity concerns for pets who walk on road salt or lick their paws after walks (Salt Wise)
- Road salt causes \$5 billion in damage to infrastructure nationwide every year (Wisconsin DNR)



Chloride Removal

- It is very difficult to remove any salt that has already gotten into water
- Treatment of chloride at wastewater treatment plants is very costly for communities to install and operate (Salt-Wise)
- The most cost-effective option is to reduce the amount of salt entering our waters



Salt Minimization

- Use road salt wisely on driveways and sidewalks
 - Shovel before snow turns to ice
 - Scatter salt, a coffee mug of salt is enough to treat an entire 20-foot driveway (Wisconsin DNR)
- Most common road salt, sodium chloride, only works above 15°F
 - Consider using calcium chloride, which works above -20°F, requires a smaller amount to melt ice, and is less harmful to the environment (US EPA)
- Consider using sand on driveways to help with traction (Wisconsin DNR)

Salt Minimization

- Chlorides need to be reduced before they reach the treatment facility, the only way to achieve this is to reduce the salt used for water softening
 - Water softener optimization can reduce the amount of salt being used and in turn save money
- Water softener rebate program



Water Softener Rebate Program

Summary

- Chlorides need to be reduced before water reaches the treatment facility and optimizing water softeners can achieve reducing the amount of chloride going into our rivers
- Reducing the amount of road salt you use can help reduce the amount of chloride in our lakes



Questions / Comments