

Chloride - A Slow Poison to the Elixir of Life

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Chloride Crisis?

Chloride is increasingly dominating our streams, lakes and rivers due to human activities. Our drinking water sources are globally impacted as chloride levels surge right before our eyes. The pressing question arises: will we secure a future of safe and clean drinking water if this trend persists?



[Image from Wikipedia]

What is Chloride and how does it impact our environment?

Think about Brampton, a city in Ontario, Canada. Brampton's main source of water is Lake Ontario. During the winter, residents and the city use de-icing salts to melt snow. Road salt is really easy, cheap and people in the urban areas have a large dependency on bare, black pavement. When the salty snow melts, the chloride either sinks into the ground, eventually finding its way into the water table, local streams and rivers or flows directly into the stormwater system traveling to Lake Ontario.

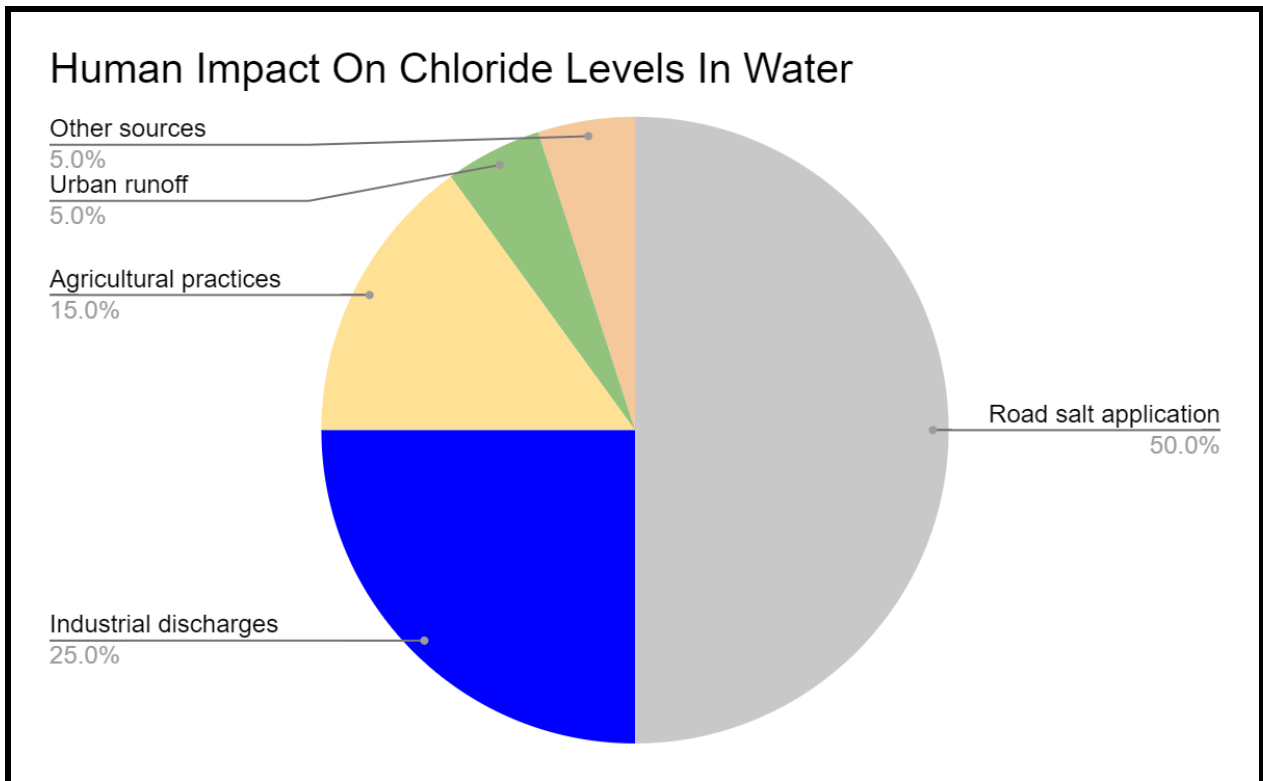
Road salt application accounts for 50% making it one of the main sources of Chloride pollutants. Beside, other human activities such as industrial processes and agricultural practices, contribute significantly to this issue.

This issue extends beyond Ontario; globally, urbanized, industrialized, and agricultural regions face heightened chloride contamination, with areas like North America, parts of Europe, and highly populated cities bearing the brunt of this environmental challenge.

Chloride levels in water bodies indicate the amount of a chemical compound called chloride, composed of chlorine atoms as chloride ions (Cl⁻). Certain level of chloride is naturally found in water. According to WHO, water supplies containing less than 20 mg of sodium per litre is considered safe and acceptable. Beyond this level, the chloride content turns into a problem and hurts the ecosystem.



[Taken-by-me]



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Chloride's Impact On Water and Health

Historically, elevated chloride levels in water bodies have raised concerns, especially in recent times due to human intervention. Even low concentrations can harm freshwater ecosystems, suppressing growth, disrupting reproduction, and affecting food sources for aquatic species.

Furthermore, chloride runoff leads to oxygen exhaustion in water bodies, creating low oxygen conditions that are harmful to fish and other aquatic organisms.

“Chloride is something of a ticking time bomb for freshwater,” says Riverkeeper President and Earth Institute adjunct professor Paul Gallay in *Columbia Climate*.

How does Chloride affect our drinking water?

Chloride also causes problems in our drinking water. Filtering Chloride is a challenging job due to its small size, solubility and ionic charge.

Access to clean water is a human right not a privilege

Overall filtering Chloride and Chloride ions requires a much advanced filtration system which is not something every region has. Places suffering from poverty are impacted even more by this as they already have limited access to clean water and filtration systems. Additionally the cost to implement these complex filtration systems sets another obstacle to having access to clean water.

The Climate Change Connection

The impact of chloride pollution intertwines with climate change. Rising sea levels, extreme weather events, shifts in ecosystems, water availability fluctuations, and infrastructure vulnerabilities all contribute to elevated chloride levels and water quality degradation.

Taking Action

This issue is impacting everyone which includes you. This is your home and your community, so you need to take care of it but what can you as an individual do to take action?

Though, we can't reverse the damage that has already been done there are quite a few things you can do to make an impact in your community which include;

Reducing Road Salt Usage

Exploring less harmful alternatives such as brine solutions derived from beet juice, cheese and pickle brine, molasses, corn, and soybean oil. Sand mixed with salt and grit is another environmentally friendly alternative that can be reused for multiple applications, reducing chloride usage and minimizing environmental impact. Additionally, promoting practices like plowing mechanical snow and ice removal decrease reliance on salt.

Managing Stormwater Runoff

As a resident, to manage Stormwater runoff there are many things you can do e.g. rainwater management practices that include rainwater harvesting - a sustainable practice that reduces and reuses recycled water, promoting green infrastructure, monitoring and reporting any pollution incidents which include illegal dumping or improper disposal of chemicals. Moreover, sustainable landscaping practices such as using native plants, reducing lawn areas, and proper irrigation practices are small changes that can make significant impacts.

Promoting Sustainable Practices

Encouraging industries and businesses to implement best management practices (BMPs) to minimize chloride discharges into water bodies can have an impact as well as supporting environmentally friendly systems and manufacturing that reduces or eliminates chloride-containing pollutants in wastewater.

Conserving Water Resources

The general conservation of water is always encouraged and helpful whether it's fixing leaks, using water efficient appliances or reducing water usage in daily activities.

Participating in Community Efforts

Playing a community role by volunteering for any community clean-up events that involve removing litter and pollutants from waterways including chloride containing materials and taking up any opportunities that involve joining local environmental organizations and initiatives that

work towards protecting water quality and promoting sustainable water use can go a long way towards the cause.

Educating and Raising Awareness

Education and raising awareness is important, easy and one of the most effective ways to help. Educating yourself and your community about Chloride and its impact on the environment encourages residents to take action. Organizing awareness campaigns, workshops, and seminars on sustainable water management practices and pollution prevention is pivotal.

Collaboration plays a vital role in helping solve this issue. Encouraging, advocating and supporting is helpful in many ways.

Though Chloride levels may not seem like much of a problem currently, it will impact us a lot more in the long run. Future generations may no longer have safe or clean drinking water if we keep going like this.

“We forget that the water cycle and life cycle are one” - Jacques Yves Cousteau

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