

# Overview of Canadian policies for the protection of Ontario's freshwater ecosystems

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# Introduction

Ontario is home to a significant portion of the world's freshwater, encompassing parts of the Great Lakes and a dense network of rivers, streams, and wetlands. These ecosystems provide drinking water to millions, sustain a diverse range of aquatic life, and underpin recreational and economic activities. Yet, the health and vitality of these freshwater systems are increasingly under threat from various anthropogenic activities and pollutants. One such emerging concern is the pollution resulting from road salt which poses a significant risk to aquatic life and water quality.

In response to these challenges, a suite of policies and regulations have been crafted at Canada's federal and provincial levels. This document aims to provide a comprehensive overview of these protective measures, focusing on the Canadian Environmental Protection Act (CEPA), Ontario's Clean Water Act, Ontario's Fisheries Act, and the Code of Practice by Environment and Climate Change Canada (ECCC). By examining the implications of these policies on road salt pollution, their guidelines, comprehensiveness, enforceability, and potential gaps, light will be shed on the current state of freshwater protection in Ontario and helps chart a path forward for more robust ecosystem conservation.

# Review of the Canadian Environmental Protection Act

## Overview

The Canadian Environmental Protection Act (CEPA) is one of Canada's cornerstone environmental legislations, designed to prevent pollution and protect the environment and human health. Within its purview, CEPA assessed road salts in 2001 and determined that certain types, specifically those containing inorganic chloride salts with or without ferrocyanide salts, can be environmentally toxic.

## Implications for Road Salt Pollution

CEPA's assessment recognized the environmental risks posed by road salts. When road salts wash off roads, they can infiltrate groundwater, flow into freshwater ecosystems, and accumulate in the environment. This can increase salinity in freshwater bodies, harming aquatic life, affecting drinking water sources, and damaging vegetation. By classifying road salts as toxic under CEPA, the Act acknowledges the significant environmental implications of road salt pollution.

## Applicable Guidelines

Following the designation of road salts as toxic, Environment and Climate Change Canada (ECCC) introduced the "Code of Practice for the Environmental Management of Road Salts" in 2004. This Code provides guidelines and best management practices for storing, handling, and applying road salts to minimize their environmental impact. It encourages road authorities to develop and implement salt management plans, optimize salt use, and monitor environmental effects.

## Evaluation on Comprehensiveness

While CEPA's recognition of the environmental toxicity of road salts and the subsequent Code of Practice are commendable steps, some critics argue that the guidelines could be more comprehensive. The Code of Practice is voluntary, and while it provides a framework, it does not mandate specific reduction targets or universally standardized practices. Relying on individual road authorities to develop and implement salt management plans can lead to varied practices across jurisdictions.

## Enforceability, Penalties, Liabilities

One of the primary criticisms of the Code of Practice under CEPA is its voluntary nature. No strict enforcement mechanisms, penalties, or liabilities are associated with non-compliance. While the Code encourages best practices and environmental stewardship, the lack of binding regulations means road authorities have no legal compulsion to adhere to the guidelines or that they will face penalties for non-compliance.

## Review of Gaps

The primary gap in CEPA's approach to road salt pollution is the voluntary nature of the guidelines. Without enforceable standards and penalties, there is a reliance on individual road authorities' goodwill and resources. Additionally, while the Code of Practice provides a framework, it needs more detailed guidance on alternative de-icing methods, comprehensive monitoring protocols, and long-term environmental impact assessments. The varied implementation across jurisdictions can also lead to inconsistent protection levels for freshwater ecosystems.

# Environment and Climate Change Canada's Code of Practice for the Environmental Management of Road Salts

## Overview

Introduced in 2004 by Environment and Climate Change Canada (ECCC), the Code of Practice for the Environmental Management of Road Salts was developed in response to the designation of certain road salts as toxic under the Canadian Environmental Protection Act (CEPA). This Code serves as a guiding document, offering best management practices to road authorities in Canada for the environmentally sound management of road salts.

## Implications for Road Salt Pollution

The Code acknowledges the environmental risks posed by road salts. When washed off road surfaces, these salts can seep into groundwater, flow into freshwater ecosystems, and accumulate in the environment. The resulting increased salinity can harm aquatic life, affect drinking water quality, and damage terrestrial ecosystems. By providing a framework for better road salt management, the Code aims to reduce these environmental implications.

## Applicable Guidelines

The Code of Practice provides a set of guidelines for road authorities, including:

- Developing and implementing salt management plans.
- Storing road salts in appropriate facilities to minimize leaching and runoff.
- Using modern spreading equipment and techniques to optimize salt application.
- Monitoring and reporting on salt usage and environmental impacts.
- Training staff in best practices for road salt application.

## Evaluation on Comprehensiveness

While the Code offers a structured approach to managing road salt, its comprehensiveness can be debated. It provides a foundational framework but stops short of mandating specific reduction targets or universally standardized practices. The responsibility instead falls on individual road authorities to tailor their salt management plans which can lead to varied practices and outcomes across jurisdictions.

## Enforceability, Penalties, Liabilities

A significant aspect of the Code is its voluntary nature. It does not come with binding enforcement mechanisms or associated penalties for non-compliance. While it encourages road authorities to adopt best practices, there is no legal obligation. This voluntary approach can lead to varied levels of adoption and implementation across different road authorities.



## Review of Gaps

The primary gaps in the Code of Practice revolve around its voluntary status and the lack of uniformity in its application. Without enforceable standards, there is a reliance on the goodwill and resources of individual road authorities. While providing a general framework, the Code needs more detailed guidance on alternative de-icing methods, comprehensive monitoring protocols, and long-term environmental impact assessments. The absence of penalties or liabilities for non-compliance further exacerbates the potential for inconsistent protection of freshwater ecosystems.

## Compliance by Municipalities

Some municipalities in Ontario have also developed policies and programs to address the impact of roads on salt vulnerable areas or wetlands and watersheds. Most municipalities develop a Salt Management Plan (SMP), outlining best practices for storing, handling, and applying road salts. These plans often align with Environment Canada's "Code of Practice for the Environmental Management of Road Salts." Such plans are primarily a guideline for best practices rather than a legally binding document with penalties for non-compliance.

The plans typically include measures to reduce salt use, such as training city crews and contractors, guidance for storage, and equipping application vehicles with efficient technology.

For example, based on the monitoring data, the City of Toronto has been able to reduce its salt use by over 10-15% since 2001.

# Ontario Clean Water Act Source Protection Plan

## Overview

Ontario's Clean Water Act (CWA) was enacted in 2006 in response to the tragic events in Walkerton, where contaminated drinking water led to several deaths. The Act's primary objective is to protect existing and future drinking water sources. It emphasizes a collaborative, watershed-based approach involving municipalities, conservation authorities, property owners, and the public to identify potential threats and take necessary actions to reduce or eliminate them.

## Implications for Road Salt Pollution

When washed off surfaces, road salts can infiltrate groundwater or flow into surface water sources. Elevated salt levels can affect the quality of drinking water sources. Under the CWA, road salts have been identified as a potential threat to drinking water sources, especially in areas where the vulnerability of the water source is high. The Act mandates the creation of Source Protection Plans, which can include policies to manage road salts to protect drinking water sources.

## Applicable Guidelines

The CWA led to the development of Source Protection Plans across various watersheds in Ontario. Based on scientific assessments, these plans identify vulnerable areas and potential threats, including road salts. The plans can provide specific guidelines or policies for road salt storage, application, and management to protect local water sources. The specifics can vary from one watershed to another based on the vulnerability and risk assessments.

## Evaluations on Comprehensiveness

The Clean Water Act provides a comprehensive framework for protecting drinking water sources from various threats, including road salts. Its strength lies in its localized, watershed-based approach, allowing for tailored solutions based on specific risks. However, while the Act addresses drinking water sources, it might only partially encompass broader environmental impacts of road salts on non-drinking water aquatic ecosystems.

## Enforceability, Penalties, Liabilities

The CWA has strong enforceability provisions. Non-compliance with the Act or associated Source Protection Plans can lead to significant penalties for individuals or corporations. Municipalities have a legal obligation to ensure that their actions and activities, including road salt application and storage, comply with the policies in the Source Protection Plans. Failure to do so can result in legal liabilities.

## Review of Gaps

While the Clean Water Act provides robust protection for drinking water sources against threats, including roads salt, there are some gaps, including:

- The Act focuses on drinking water sources, potentially leaving out broader environmental impacts on aquatic ecosystems not designated as drinking sources.
- The variability in Source Protection Plans across watersheds might lead to inconsistent standards or guidelines related to road salt.
- The Act does not provide detailed, standardized guidelines on alternative de-icing methods or comprehensive monitoring protocols specific to road salt.

# Review of the Canada Fisheries Act

## Overview

The Fisheries Act is one of Canada's oldest and most significant environmental laws, primarily aimed at protecting fish and fish habitats and regulating fishing activities. Administered by Fisheries and Oceans Canada (DFO), the Act's primary objective is to ensure the sustainability and ongoing productivity of commercial, recreational, and Indigenous fisheries.

## Implications for Road Salt Pollution

While the Fisheries Act does not specifically target road salt, its provisions related to the protection of fish habitats have implications for road salt pollution. Excessive road salt can run off into freshwater ecosystems, increasing salinity levels and harming fish and their habitats. Any activity, including road salt pollution, that harms fish habitats or results in the death of fish can fall under the purview of the Fisheries Act.

## Applicable Guidelines

The Fisheries Act prohibits "serious harm to fish" that are part of or support commercial, recreational, or Indigenous fisheries. "Serious harm" is defined as the death of fish or any permanent alteration or destruction of fish habitat. While the Act does not provide specific guidelines on road salt, any significant harm caused by road salt runoff could be deemed a violation, especially if it affects fish habitats or leads to fish and fish egg mortality.

## Evaluations on Comprehensiveness

The Fisheries Act is comprehensive in protecting fish and fish habitats from various threats. However, its broad focus does not specifically address road salt pollution or provide detailed guidelines on managing such pollution. The Act's strength lies in its broad prohibitions against harming fish or their habitats, but this can also be a limitation when addressing specific issues like road salt pollution.

## Enforceability, Penalties, Liabilities

The Fisheries Act is enforceable, with significant penalties for violations. Individuals or entities found violating the Act can face substantial fines and, in severe cases, imprisonment. The Act also allows issuing "Habitat Protection and Pollution Prevention" provisions, which can be used to set standards and guidelines to prevent pollution, including road salt. However, the actual enforcement of road salt pollution would depend on demonstrable harm to fish or their habitats.

## Review of Gaps

While the Fisheries Act is robust in protecting fish and fish habitats, there are gaps related to specific pollutants like road salt. The Act does not provide detailed guidelines or standards for managing road salt runoff. Additionally, proving harm or potential harm to fish habitats can be challenging, especially when linking it directly to road salt pollution. The broad nature of the Act, while its strength, can also make it less agile in addressing specific, localized environmental concerns.

# Conclusion

Road salt pollution is a significant concern for freshwater bodies in Canada given its widespread use and potential for long-term environmental impact. A layered approach to address this challenge was discerned through this analysis of the Canadian Environmental Protection Act (CEPA), Ontario's Clean Water Act, Ontario's Fisheries Act, and the Code of Practice by Environment and Climate Change Canada (ECCC).

Each policy and guideline brings its own strengths. CEPA's broad framework, the targeted protection of the Clean Water Act, the ecological focus of the Fisheries Act, and the practical guidelines of the ECCC's Code of Practice collectively form a comprehensive shield against the detrimental effects of road salt pollution. Numerous municipalities have also taken proactive steps, crafting salt management plans per the ECCC's Code, showcasing a local commitment to public safety and environmental stewardship.

However, the voluntary nature of federal liability, the variability in implementation across jurisdictions, and the need for more detailed, standardized protocols are areas that demand attention. Enforceability remains a pivotal concern, with the balance between flexibility and strict regulatory oversight being a continuous point of debate.

In moving forward, policymakers, environmentalists, community groups, municipalities, and the public must engage in collaborative dialogue. Continuous review, research into alternative de-icing methods, and public education will be crucial. Only through collective effort can there be assurance that Ontario's freshwater ecosystems remain pristine and resilient, safeguarded against the challenges of road salt pollution and other environmental threats for generations to come.



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