Deborah Balika

Conservation Ontario

Morning Speaker August 1

Balancing Short Term Gains Against Long Term Impacts

SALT SYMPOSIUM

Balancing short term gains against long term impacts- Winter Maintenance Chemicals

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Source Water Protection Manager
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Conservation ONTARIO
Natural Champions

Overview

- Conservation Ontario-Who we are?
- The Salty Situation
- Legal Context
- Ontario's Drinking Water Source Protection Program
- Working towards the "Right" balance

Conservation Ontario – Who We Are

Non-profit corporation that represents the network of Ontario's 36 Conservation Authorities

Key Areas:

- Policy and Program Development
- Business Development and Partnerships
- Communications
- Education and Training
- Collective Corporate Services
- Government Relations
- Information Management and Research
- Drinking Water Source Protection

Photo courtesy of Rideau Valley Conservation Authority

The Salty Situation

Use less road salt to protect Ontario ecosystem, urges WWF

The hidden cost of road salt

The salt we use ends up in the groundwater or lake water that is our drinking water supply, Caroline Hill Smith writes.

Contents lists available at ScienceDirect

Journal of Great Lakes Research

journal homepage: www.elsevier.com/locate/ijglr

Chloride trends in Ontario's surface and groundwaters

Ryan J. Sorichetti[a,1,*], Melanie Raby[a,1], Claire Holeton[a,1], Nadine Benoit[a], Lucas Carson[a], Anna DeSellas[b], Ngan Diep[a], Brie A. Edwards[c], Todd Howell[a], Georgina Kaltenecker[a], Chris McConnell[b], Clare Nelligan[a], Andrew M. Paterson[b], Vasily Rogojin[a], Nure Tamanna[a], Huaxia Yao[b], Joelle D. Young[a]

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Review

The effects of road salt on freshwater ecosystems and solutions for mitigating chloride pollution - A review

Sebastian Szklarek [a], Aleksandra Górecka [b], Adrianna Wojtal-Frankiewicz [c]

Impact of Road Salt on Drinking Water Quality and Infrastructure Corrosion in Private Wells

Kelsey J. Pieper*, Min Tang, C. Nathan Jones, Stephanie Weiss, Andrew Greene, Hisyam Mohsin, Jeffrey Parks, and Marc A. Edwards

LOCAL : NEWMARKET ERA | OPINION

Winter road salting has year-round consequences

NEWMARKET The Era

By Lauren Lawson
Wed., Jan. 5, 2022 5 min. read

Set Newmarket as My Local news

RESEARCH NEWS

Road salt is bad for the environment, so why do we keep using it?

By Jamie Summers and Robin Valleau

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Ontario’s Relevant Laws/Guidelines

Municipal Act

Maintenance of highways/bridges: “state of repair”.. “reasonable in the circumstances”.

Council approved Level of Service.

Negligence Act

Helps determine joint and several liability for fault and to pay damages.

Occupier’s Liability Act

Responsibilities of property owners and managers, to ensure that those who lawfully enter properties are reasonably safe.

Relevant Laws/Guidelines

Environmental Protection Act

- Cannot discharge a contaminant into the natural environment that causes an adverse effect (S.14).
- Exemption for road authorities to keep highways safe for traffic in snow and ice (O. Reg. 339).

Clean Water Act

- Protecting municipal drinking water sources
- Vulnerable areas and threat activities
- Source Protection Plans

Canadian National and Provincial Guidelines

Canadian Environmental Quality Guidelines (CCME)

Chloride toxicity to freshwater organisms:

640 mg/L (short term); 120 mg/L (long term

Ontario Drinking Water Objective

Sodium: 200 mg/L. When above 20 mg/L, the local Medical Officer of Health is notified.

Chloride aesthetic objective: 250 mg/L

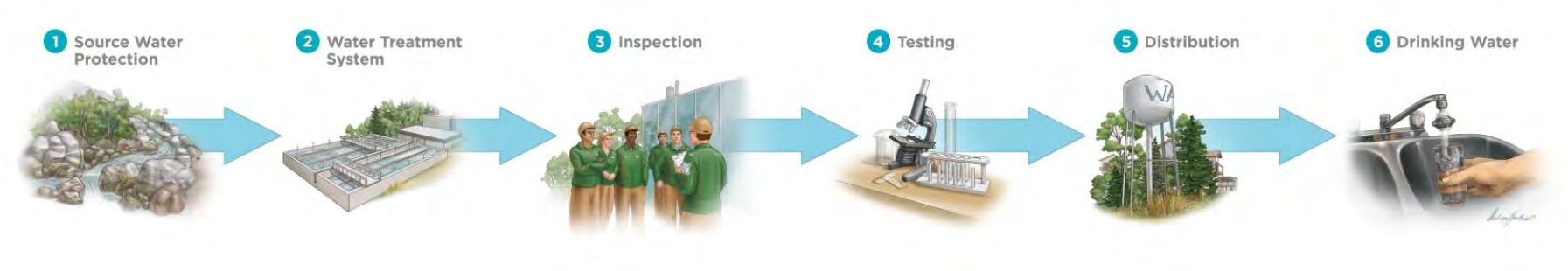
The Clean Water Act: Source Water Protection

History:

- Bacterial contamination of Walkerton municipal water supply in 2000. Seven deaths; thousands left with severe, long-term illnesses
- Justice O'Connor's Inquiry in 2002: 121 recommendations to protect sources
- The Clean Water Act (2006)

- The purpose of the Act is to protect existing and future sources of drinking water from contamination or depletion
- Drinking Water Source Protection Program: multi-stakeholder, collaborative, locally-driven process to protect municipal residential drinking water sources
- Municipalities may also bring in other systems (private, non-residential). First Nations have the option to join.

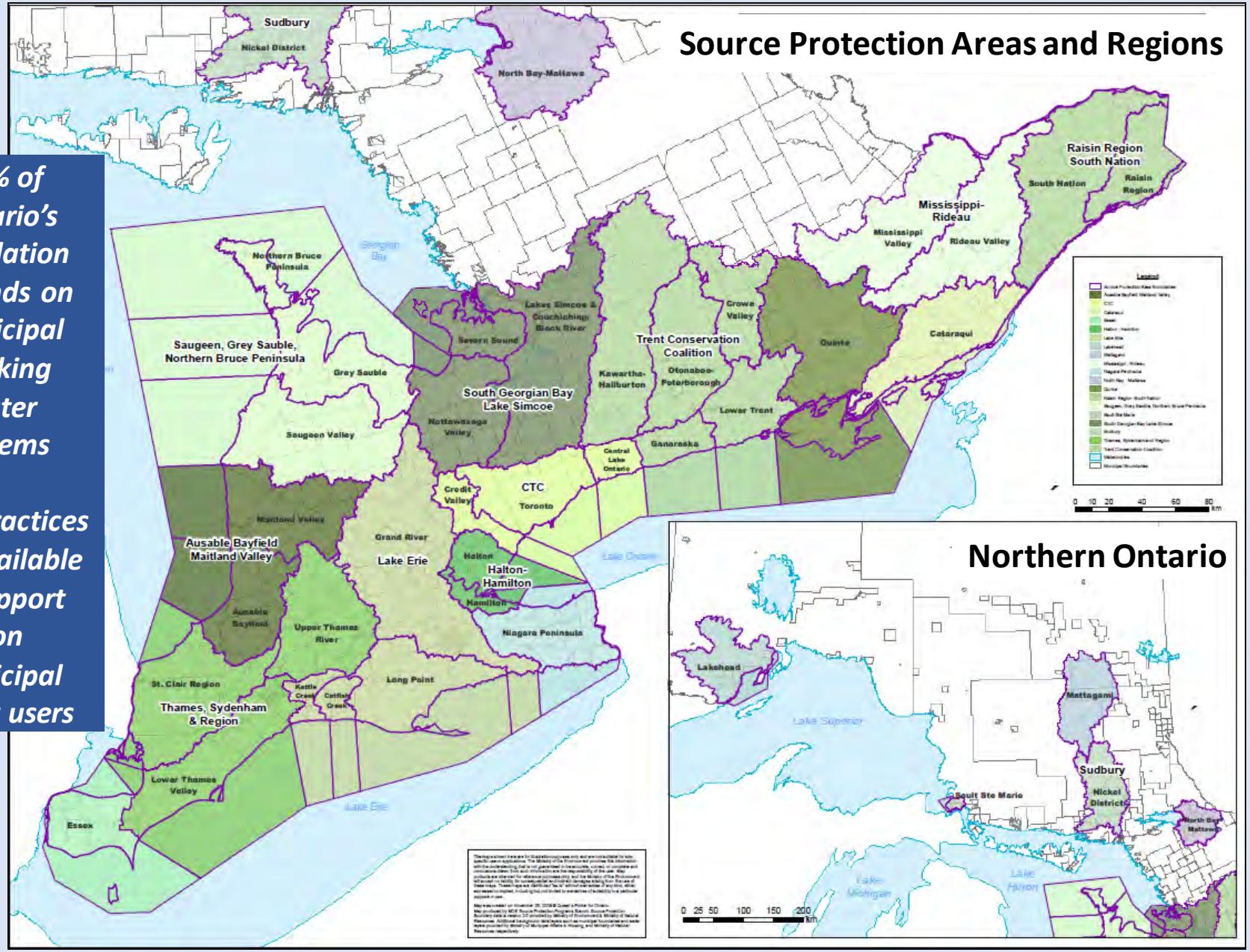
Multi-Barrier Approach: Protecting from Source to Tap



Source: https://www.ontario.ca/page/source-protection

80% of Ontario's population depends on Municipal drinking water systems

Best Practices are available to support non municipal water users



Source Protection Areas

- There are 38 Source Protection Authorities (SPAs)
- Grouped into 19 centres created by the Clean Water Act, 2006

Source Protection Regions

- Includes multiple SPAs
- E.g. Halton-Hamilton Source Protection Region

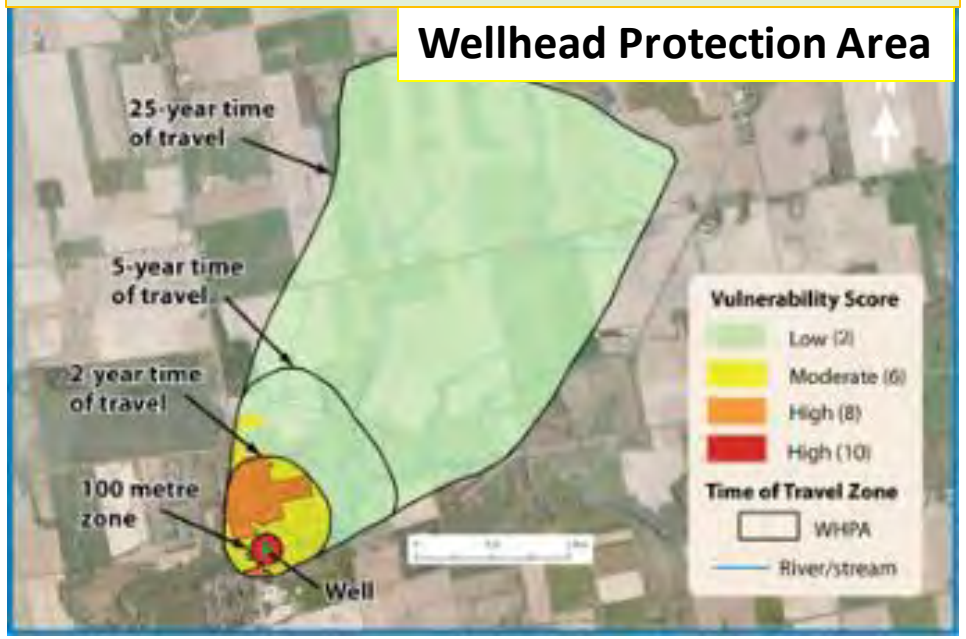
Source: https://www.ontario.ca/page/source-protection

Drinking Water Source Protection through a pro-active lens

Lake Intake Protection Zone

Vulnerability Score Range: 1 (lowest) to **10** (highest)

Wellhead Protection Area

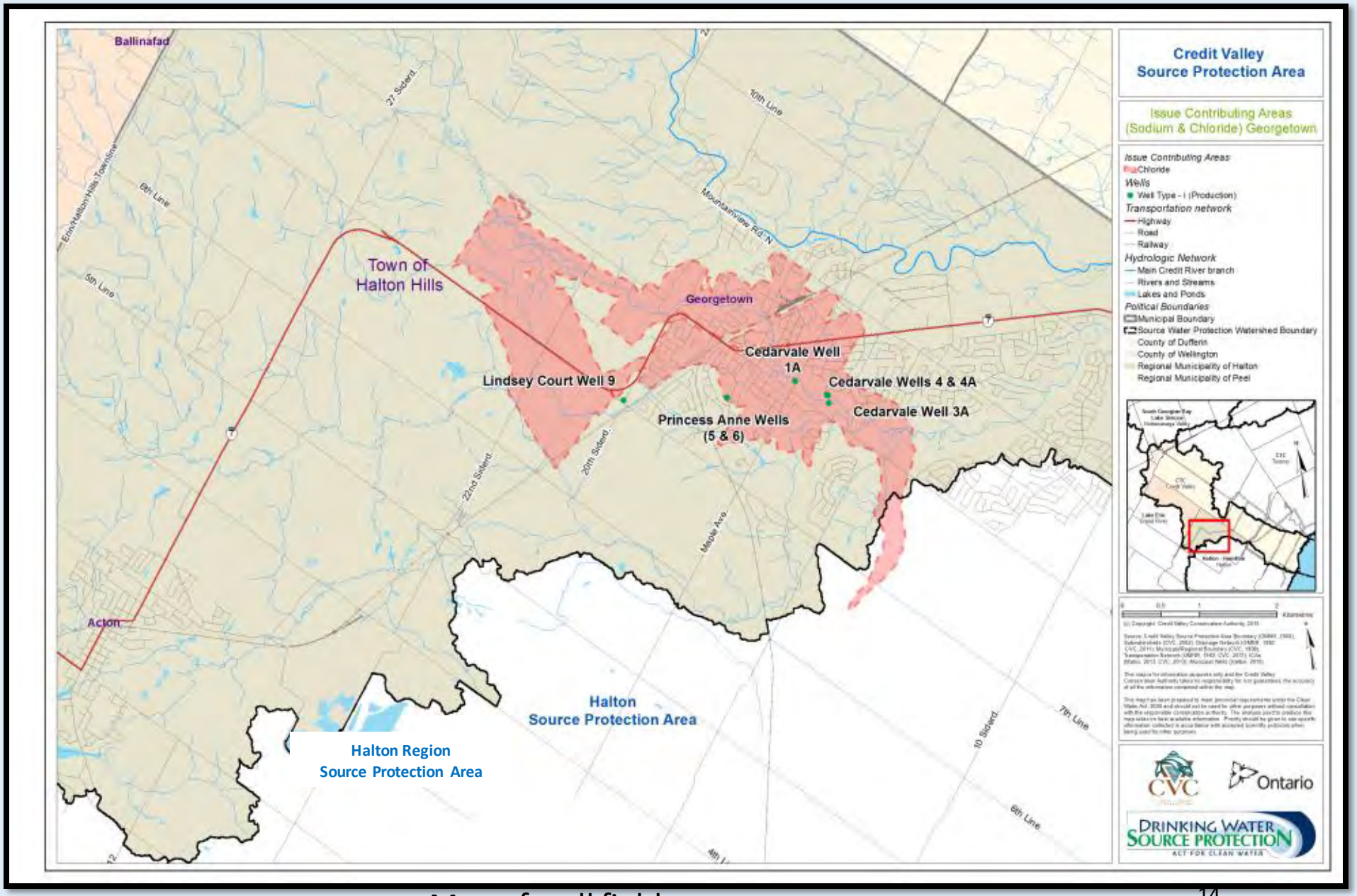


- Science Assessment Report
- Source Protection Plan (policies)
- Policy Implementation

Issue Contributing Areas

- Issue: known contaminant that can impair the source of drinking water, **e.g.: sodium, chloride**
- Activities contributing to an Issue are subject to mandatory policies within contributing areas

Threat Activities: road salt storage, road salt application, snow storage



Map of well field area

Source Protection Policy Tools

22 Drinking Water Threat Activities: application, handling and storage

Municipal experience: despite some success stories, measures under CWA in many cases do not / are unlikely to achieve salt loading reductions necessary to protect municipal drinking water sources

Source Protection Plan Policies: municipal land use planning, risk management plans, salt management plan updates, nutrient management plans, septic site inspection, etc.

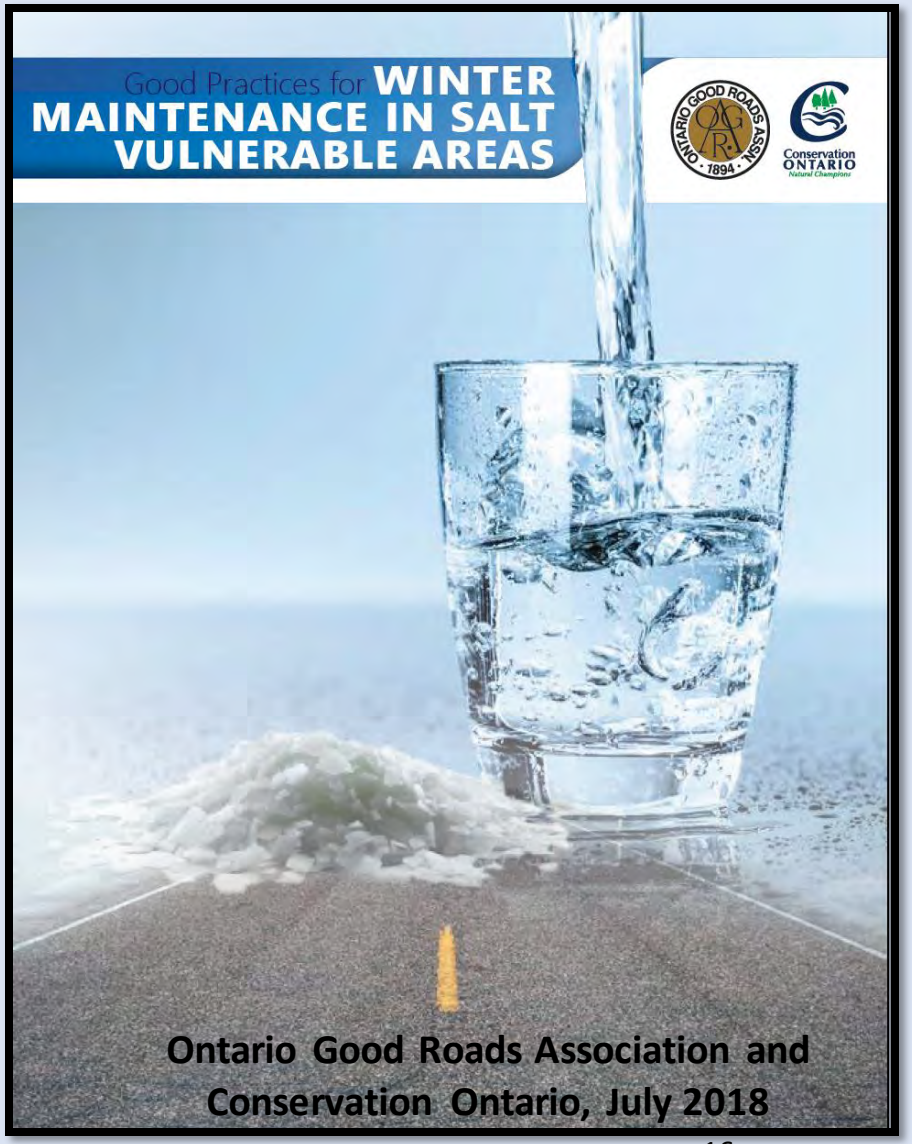
Guidelines: Good Practices for Winter Maintenance in Salt Vulnerable Areas

Legal context and finding the balance.

Minimum Maintenance Standards, Level of Service

Good Practices: monitoring, equipment, staff, training, materials, rates, methods, managing parking lots, salt storage, slower speed limits in salt vulnerable areas.

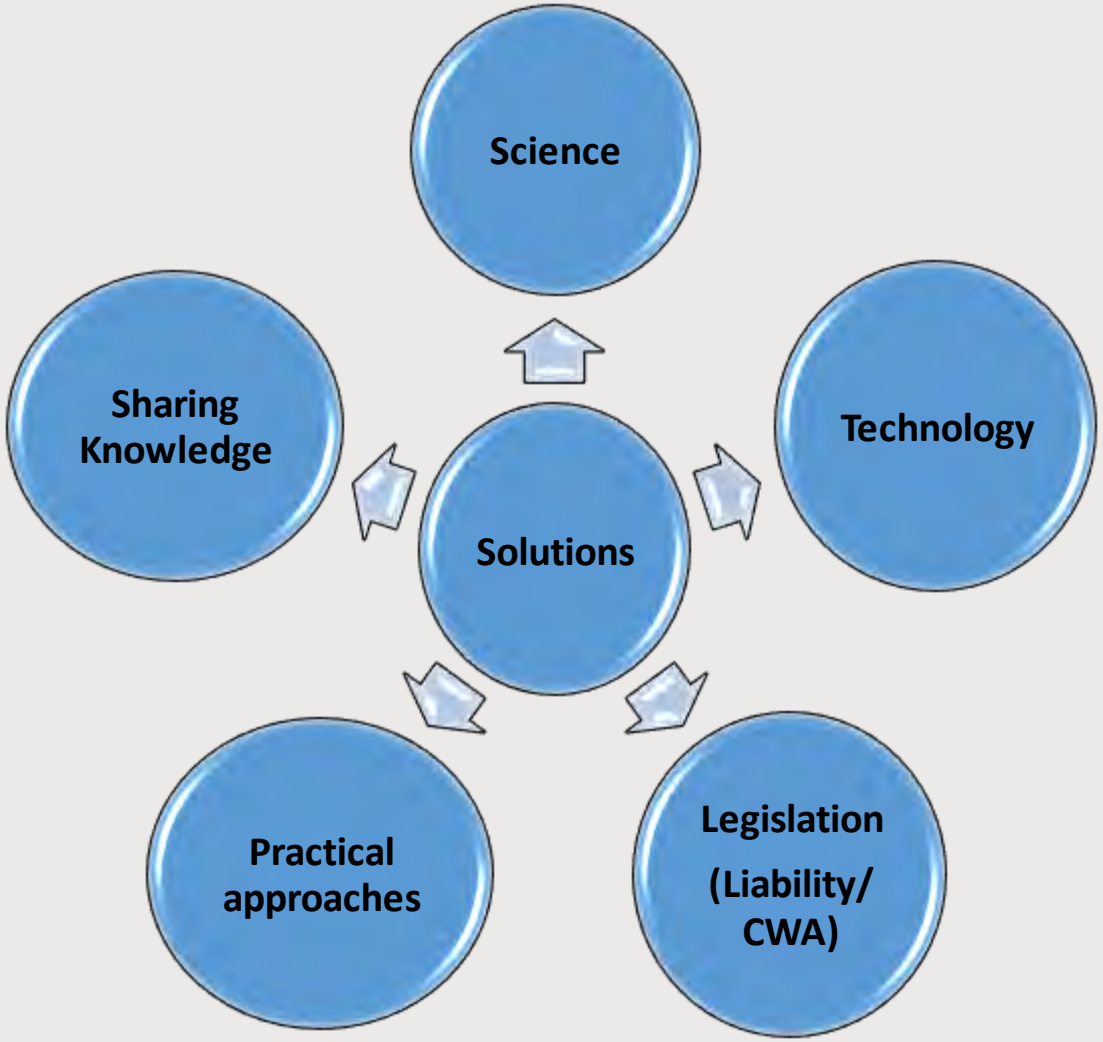
Salt Vulnerable Area Maps *(Issue Contributing Areas for sodium, chloride)*

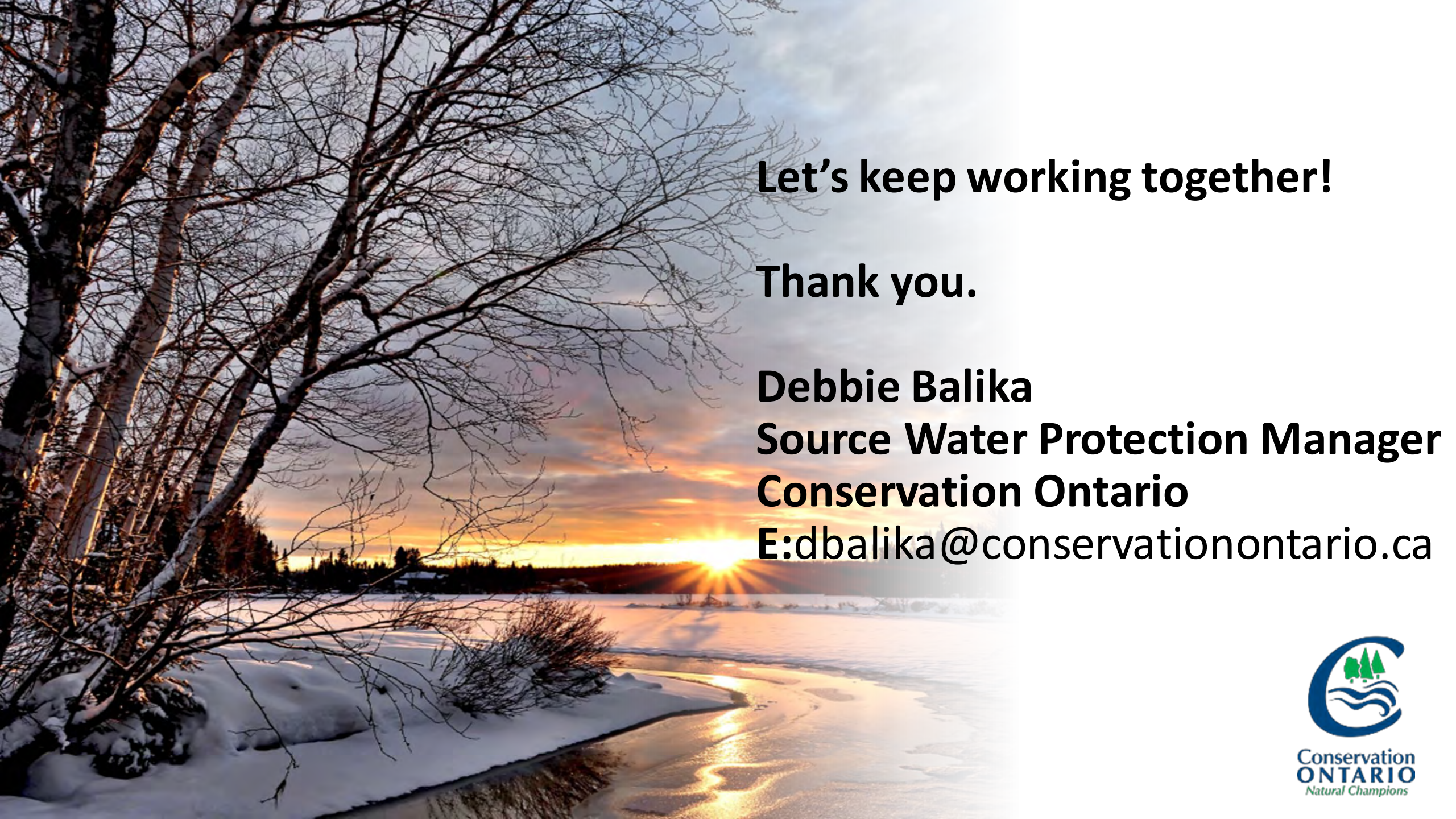


Finding the balance

- **Safety of the travelling public** is a priority; road salt is needed during winter conditions.
- **Excessive liability** concerns need to be addressed. Ontario's liability framework needs review.
- Third party contractor **training** is needed
- **Clean Water Act** only legislation that puts in place requirements to reduce amount of road salt entering drinking water sources. **Mandatory policies** apply in certain areas
- Source Protection Plan policies on their own are **ineffective** – need to look at broader issues
- Must find **balanced approach** to ensure safe conditions for travelling public, protect municipal drinking water sources, and mitigate other environmental impacts

Interdisciplinary approach to finding the ‘right’ balance





Let’s keep working together!

Thank you.

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