

Salt Management in Impaired Streams Roundtable

September 8, 2010; 9:00 am – 3:30 pm

Maple Hill Farm B&B Inn and Conference Center - Hallowell, Maine

Minutes compiled by Brenda Zollitsch, Salt Roundtable Facilitator

Welcome and Introductions

Purposes of the Roundtable

- Bring participants up to speed on the most recent findings about salt management impacts in Maine
- Help participants learn about current deicing methods and alternatives
- Work as a group to identify a list of barrier to/opportunities for addressing the salt issue in impaired stream areas
- Compile a list of research and information gathering needs to address and guide grant writing and exploratory efforts in Maine

How the Salt Roundtable Came to Pass

- John Peckenham made a presentation of recent salt management research findings to the BASWG in Spring 2010.
- Led to questions by the BASWG about “what next?” and “How do we address this?”
- Asked if there was interest in expanding this discussion from a regional (BASWG) effort to a statewide discussion and found there was
- Pulled together representatives from each stormwater management cluster
- This planning team jointly crafted an agenda and list of invitees
- Led to the coordination of today’s event and there are hopes by the planning team that this roundtable will lead to future activities

Special Thanks for Members of the Roundtable Planning Committee:

- Zachary Henderson, Woodard and Curran
- John Murphy, City of Bangor
- Dave Owen, University of Maine School of Law/Maine SSI
- Jan Patterson, City of Lewiston
- John Peckenham, Mitchell Center for Environmental and Watershed Research
- Tamara Lee Pinard, Cumberland County Soil and Water Conservation District
- Kristie Rabasca/Amy Stratford, Sevee and Maher
- Doug Roncarati, City of Portland
- Wendy Warren, City of Portland
- Brenda Zollitsch, Facilitator, Bangor Area Storm Water Group (Salt RT Coordinator)

Brenda then provided an overview of the day’s schedule and asked everyone to introduce themselves around the table.

Presentation #1:

Setting the Stage: Salt Management in Maine Presentation of Research Findings

Presenter: John Peckenham, Mitchell Center for Environmental and Watershed Research

See attached presentation

Presentation #2:

Recent Findings on Salt in Maine's Impaired Streams - Presentation of Recent Data

Presenter: Mark Whiting, Maine Department of Environmental Protection

See attached presentation

Presentation #3:

Maine DOT's Approach to Snow and Ice Management

Presenter: Brian Burne, Maine Department of Transportation

See attached presentation

Networking Lunch

A buffet lunch was provided with time for participants to network and think ahead to the questions being posed to the group in the afternoon.

Presentation #4:

A Brief Review of Deicing Alternatives

Presenter: Zachary Henderson, Woodard and Curran

See attached presentation

Facilitated Group Discussion #1:

Identifying Local Issues and Barriers to Reducing Impacts - How real is the problem? What are the key barriers to reducing impacts of salt?

Facilitator: Brenda Zollitsch

Please note that all ideas in this document have been listed purely as stated and with no group agreement/prioritization as to their relevance or importance. A group of representatives at the meeting agreed to have a follow-up meeting to review the documented ideas and work to prioritize and identify ways that questions/barriers could potentially be addressed.

- Cost and budget constraints
 - High costs of alternative deicers
 - Poorly understood options and costs (including not knowing the life cycle costs)
 - Competing unfunded federal mandates (storm water secondary to SCO abatement program)
 - Need to create an economically viable non-Chloride alternative
- Public expectations
 - Expectations for level of service (LOS) is very high (much higher than in the past)
 - Lack of personal responsibility

- Lack of patience as a society – Want back to the maximum speed limit ASAP after a storm; lower enforcement of lowered speeds now
 - Snow tires/chains seen as an inconvenience
- Public safety
 - Safety of EMTs, ambulances, public safety personnel
 - Concern that this could lead to less safe roads and more accidents
 - Different standards between entities (esp. regarding closings)
 - Drivers are loved ones, not statistics
 - Safety of night shift workers
- Liability
 - Litigations from less well maintained roads, parking lots, etc.
 - Municipalities have some protections, but there is liability for private properties (not tort protected)
- Lack of data about impacts, origins, alternatives, differences between locations
 - Don't know the extent of the problem with salt in impaired streams (“no real problem”)
 - Don't often know where salt load originates from
 - Hard to get information on application amounts from private owners
 - Don't have a target for percent of salt reduction desired/required
 - Not all streams are created equal regarding vulnerability to salt impacts (e.g. size, dilution, etc.)
 - It is hard to separate out the impacts of salt from other impacts (comment from John P. was that there is no absolute number or % reduction. Only thing we know is that we don't want it higher than now and that lower is better)
- Lack of education about these issues
 - Lack of understanding that there is a salt problem
 - Lack of education about these issues even at the local, state and federal levels
 - Education needed at all levels – internal, public, commercial/industrial
- Lack of Political Will
 - Politicians, boards etc. may not have the political will to change practices
- Economic Impacts
 - Could have impacts on commerce (limiting trucking, access to commerce areas, etc.)
 - Changes in parking lot access/road maintenance could stifle economic development or the perception of opportunities for economic development
 - Economic development trumps environmental protection
- Poor physical condition of roads requires more deicing
 - No funding to build better roads in impaired stream areas
 - What level of road quality is needed to make a difference in amount of salt needed?
- Limits to Innovations
 - Concerns that technological innovations in snow removal equipment (blades, etc.) are too incremental
- Lack of Planning Foresight

- We are not thinking ahead in our development planning (economic development without infrastructure/environmental checks)
- Ordinances require a specific number of parking areas be maintained at all times (would have to change that to alter the current parking lot deicing practices)
- Need to reassess the State's roads priority
- May need to think about the difference between short- and long-term needs and solutions
 - One suggestion: In the short-term, possibility of looking at specific impaired streams as "case studies" (focus funding assistance, research grants, studies, etc. on these streams in the short term). In the long-term, push to use less across the board

Other Ideas and Potential Opportunities:

- Need incentives
 - Cost savings from reducing the volume of salt used
 - Avoiding Long Creek scenario
 - Access to education
 - Grants for monitoring equipment
 - Provision of better access to weather forecasting
 - Certification for salt applicators
- Integrate education into driving schools about driving on less salted roads
- Making different requirements for parking lot maintenance before and after holiday season (support use of salt during peak usage, but less maintenance in off-season of fringe and satellite parking areas)
- In use elsewhere: Close highways (snow/ice is easier to clear if not packed down by traffic), use snowmobiles, etc.

Facilitated Group Discussion #3:

Compiling Group Questions: What Don't We Know that We Need/Want to Know?

Facilitator: Brenda Zollitsch

Salt Origin Questions

- Can we create a better understanding of where salt originates, where load comes from
- Which Maine's streams are vulnerable to salt impacts?
- What is the level of salt usage in all impaired or "stressed" streams?

Impacts of Salt on Maine Waters

- Need better information about stream response to salt
- What is the extent of salt impairment in Maine (is it just impacting a few impaired streams or all?)
- How much of an issue is salt for large streams, rivers and lakes?

- Beyond the Penjajawoc, Maine has a limited amount of data on streams impacted by Chloride. Do people generally believe Maine streams have winter salt-related problems? Do we need more data for change?
- What would the impacts of salt be under very different conditions (lots of snow, not much snow with global warming effects, etc.)
- Are there any studies with salt as the only stressor?
- If one did all the other BMPs, would salt still be an issue?
- Might want to look at a stream and titrate it with salt to monitor the effects (does it lead to a class change in water quality, etc.?)
- Which is more detrimental, sand or salt?
- What are the impacts of salt on groundwater/drinking wells?
 - Where is the groundwater table? (Levels of chloride)
 - Could we conduct strategic monitoring of wells?
- How is climate change affecting salt needs, practices and impacts?
- Can we compare EPA environmental quality data and criterion (230 mg/liter) with local data?

Salt Use and Snow Management

- How much salt is being applied by municipalities?
- How many municipalities still have uncovered salt or sand/salt piles?
- What is the typical equipment that commercial applicators are using?
- What is the optimal road design to minimize salt need and maximize winter safety?
- Considering the impacts of salt as part of the equation, is it better to store snow near fresh or saltwater in coastal areas?
- How can we change parking lot treatments and requirements for parking lot snow removers?
- What options exist for parking lot salt management?
- Could we create a salt applicator certification process?
- Would it be a good idea to limit liquid storage?

Economic Costs

- What are the costs for infrastructure of salt corrosion/what are the life cycle costs of chloride on infrastructure?
- Calculate the real cost of using salt (\$ we pay for every pound of salt on the road) - Include crashes, infrastructure, lost economic development, environmental effect on receiving waters (incl. estuaries), fishing, trucking, etc., etc., etc. Connect with Clearroads.org – working on quantifying this already; have experienced challenges
- Are there any cost-effective continuous conductivity probes? (one suggestion, though not very cost-effective, was the purchase of probes from Campbell Scientific)
- What are the costs for replacing public drinking water wells that have been contaminated by salt (one estimate provided: \$30/\$50k/well with settlement paid over 20 years)
- What has been spent to date to address salt contamination in wells (Start with DOT data – access through Dwight Doughty, includes info about towns and dates)

- What are the long-term costs of these mandated programs?
- What options could be created for capital investments?

Salt as a Factor in Decision Making

- Is the impact of salt on specific waters factored into any decisions about placement of roads, etc.?
- How does being a corridor community affect salt usage?
- Why does this need to matter to municipal government? How does it weigh against other important priorities? What is the case?

Where to Focus Salt Reduction Efforts

- Should efforts be focused on impaired stream areas or statewide?
- Calculation of which streams are vulnerable to the impacts of salt
- Research indicates most critical impacts of salt if current practices remain will occur in 150 years (based on last 30 years of data). But there is likely a huge range (may be less or more). Need more information about impacts on specific waters.
- Information to help categorize streams so that we would have the option to work on them incrementally (which streams would give us the biggest bang for the buck? Which ones should be pursued the most? Which would involve rehabilitation v. preservation of water quality? What actions need to be done to address issues in them and is salt one of them?

Salt Alternatives

- Are alternate deicers actually safer towards the environment (or will they cause more environmental problems than fixing environmental problems)?
- What local products could be adopted as deicers (wood chips, potato derivatives, crushed lobster shells, etc.)?

Targets, Benchmarks, etc.

- What is the target for salt reduction? What reduction would have a real impact?
- What level of road quality is needed to make a difference in amount of salt needed? (Road performance, quantity of salt usage, etc.)

Need for Best Management Practices

- What are best management practices (BMPs) to limit salt migration?
- Development of best management practices (BMPs) for parking lots

Legal/Policy Questions

- What are the different structures of commercial applicator contracts? Could these be changed to encourage limiting salt use? What is "above and beyond"? Is the focus on number of applications, size of applications, amount used, etc?

- Would there be any inspections to monitor compliance with salt application improvements for certified salt applicators? (Could use fee charged for certification process to pay for coordination of the certification program).
- What have towns paid to mitigate salt in private wells in the past?
- Should we reassess the roads priority?

Behavior Change

- Can we slow down? Look at what it would take to get drivers to lower their speed in inclement conditions
- Although it seems implausible at this point, what would the impacts be of closing certain roads during storm conditions?
- Can we all just telecommute on snowy days?

Additional Information Gathering Needs

- What information has been collected on water quality chloride analysis since EPA's 1987 study?
- Collection of clear legal information about liability, lawsuits, etc.
- Would like to know more from law enforcement specialists (talk about regulating snow tires/speed)
- Expand municipal "tool boxes" with new measures to reduce salt applications

Networking Coffee Break

Facilitated Group Discussion #3:

Identifying Next Steps

Facilitator: Brenda Zollitsch

Next Steps

- A task force from this group will get together once to review and prioritize next steps and research questions from the Salt Roundtable meeting minutes.
 - Meeting will be scheduled for early November
 - Volunteers included:
 - Brian Burne, Maine DOT
 - Bob Burns, Town of Windham?
 - LaMarr Clannon, Maine NEMO
 - Zachary Henderson, Woodard and Curran
 - Doug Hill, City of Old Town
 - David Ladd, Maine DEP
 - Jan Patterson, City of Lewiston
 - Tamara Lee Pinard, CCSWCD
 - Phil Ruck, CES
 - Jeff Varriccionne, Maine DEP
 - Mark Ward, City of Bangor

- Wendy Warren, City of Bangor
- Rob Yerxa, Town of Orono
- Brenda Zollitsch, Bangor Area Storm Water Group/SSI

2) Create an information clearinghouse

- ThinkBlueMaine.org was offered by Tamara Lee Pinard as an option (free for limited postings with remaining funds from SW management for posting SW-related information on the site)
- All presentations and minutes from this Salt Roundtable will be posted to the Thinkbluemaine.org website (contact is Jami Fitch at CCSWCD)

3) Tie-in with Long Creel technical Committee working on chloride issues

- Who are the contractors? What equipment are they using? What are they measuring?

4) Coordinated discussion among and with Maine Sustainability Solutions Initiative researchers to determine areas for potential partnership

5) Link data together through Peter Vaughn's "Knowledge Base" data management site

6) Explore opportunity to do a pilot in a town through the support of Melissa Evers at Maine DEP

Possible Resources and Partnerships:

- Review of NCHRP Guide on Deicing Alternatives
- Connect with Clearroads.org – Quantifying impacts of salt use
- What is New Hampshire doing? (Salt Reduction Work Group)
- University of New Hampshire Storm Water Center
- What are the study results on the porous pavement strip by the Maine Mall?
- University of Michigan
- University of Minnesota
- MN and MI Department of Transportation studies
- Watershed studies in CT, NH
- Look at politics and policies in other U.S. states
- Federal Agency information and studies: Federal Highway, USGS, EPA
- National APWA
- Efforts in other countries, incl. Canadian efforts and policies (incl. Quebec and Ontario – research; mandating snow tires; lower expectations for level of service)

Possible Funding Sources

Initial (unresearched) ideas from participants included:

- SRF funds to borrow money for the purchase of equipment
- State Planning Office

- Maine Department of Environmental Protection (604B funds?)
- University of Maine apply for federal grants for research
- WRRRI grants
- Maine Community Foundation

Additional Stakeholders to Engage

- Private contractors
- Parking lot owners (through Chamber of Commerce?)
- Salt distributors
- Maine Municipal Association
- Drinking Water
- Speakers from UNH Storm Water Center

Roundtable adjourned at 3:15 pm.