



ASRA News

ROAD SALT, A NECESSARY EVIL?

By Carol Treadwell, Ph.D.

Executive Director of the Au Sable River Association

It's a familiar winter scenario ...you are driving in whiteout or near whiteout conditions, when ahead looms a truck with flashing lights and your car is pelted with a spray of salt pellets (if it is a State DOT truck) or salty sand (if it is a Town truck). You grit your teeth and think "why do they have to spread so much !@#\$\$%^&* on the roads; it's killing the vegetation!"

Every winter, communities across the United States pour hundreds of thousands of tons of salt and other deicing materials on roads and highways. Rock salt, or sodium chloride (NaCl), is the most commonly used deicing agent. It was first used to control snow and ice on roadways in the 1930s, becoming widespread by the 1960s because it was effective, readily available, and relatively inexpensive.

Because of the number of foul weather events in an average Adirondack winter, salt application per lane mile in this region are among the highest in North America and Europe. A recent study done to determine the long-term affects of winter road maintenance in the Cascade Lakes and Chapel Pond shows that large changes occurred in the lakes following road improvements in the 1930s and dramatic changes began in the 1980s. Alternative chemical deicers were experimentally applied in the '90s but none were determined to be satisfactory by NYSDOT.

The study, funded by NYSDOT and conducted by the Clarkson Center for the Environment, investigated the environmental impacts of road salting on road side soil, vegetation, lake chemistry, and species composition within the lakes. Results showed soils had become sandier, drier, and depleted of nutrients. Birch trees, although aging, are dying faster than other local trees due to the

unstable slopes, salt spray, and loss of soil fertility. Young plants are not surviving, leading to a drastic decline in the birch and other plant populations especially down slope from the road to the lake shoreline.

The water quality of Upper and Lower Cascade Lake was found to have concentrations of chloride up to 100 times greater than expected for Adirondack Lakes. The concentration of salt increases with depth and could affect the biannual turn over of lake layers if this trend continues.

All three lakes have seen an increase in chloride-tolerant diatom species. The round whitefish (*Prosopium cylindraceum*) was of particular interest to the study because of its status on the state and global list of endangered species. In Lower Cascade Lake the fish appears to be stunted and thin as a result of stress created by prolonged low oxygen conditions that may indirectly result from high salt concentrations.

Declines in soil fertility and increases Chloride concentrations are expected to continue at unless active remediation and alternative road applications are put into practice. DOT is responding to the results of this study by altering its salt application policy for this stretch of road and in the summer of 2008 will implement a revegetation plan for the Cascade Notch.



Cascade Notch, one of the areas ecologically damaged by large amounts of road salt.

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If you are a member of both ASRA and BRASS you may notice duplication of articles between our newsletters. In an effort to reduce office workloads and increase time working on projects to benefit the river, ASRA and BRASS are beginning to cooperate on administrative efforts such as news articles, grant writing, GIS support, etc.

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....ROAD SALT *(continued from page 1)*



WHAT CAN YOU DO TO HELP THE ROAD SALT REDUCTION CAMPAIGN?

*Write a Letter to the Editor!

*Form a neighborhood group and express your concerns at a Town Board Meeting

*Meet with your Town Highway Superintendent and/or Supervisor

*Write your State Senator or Assembly person:

Elizabeth O'C. Little
45th Senate District
903 Legislative Office Building
Albany, NY 12247

(113th District)
Theresa Sayward
940 Legislative Office Building
Albany, NY 12248

(114th District)
Janet L. Duprey
937 Legislative Office Building
Albany, NY 12248

Winter Road Maintenance across the US

Increasing numbers of DOTs are evaluating the levels of chloride in streams adjacent to highways to ensure there are no impacts to water quality from deicing compounds. Several state DOTs have undertaken strategic planning efforts to reduce salt usage

New York State Deicing Policy

NYSDOT's salt reduction strategy has revolved around "right application at the right time with the right chemical."¹ NYSDOT has employed management through tracking and truck controls. The state tracks the amount of salt delivered to sheds and the amount of salt used on each beat. Computerized, on-board systems regulate application rates and take into account weather information. Checks are made to ensure that truck spreading rates are within established guidelines. If application rates are not followed a supervisor checks with the operator.

NYSDOT Regional Manager for Essex County, Mike Fayette, says the DOT has determined that the most effective deicing agent is salt (NaCl, Sodium Chloride). It is also economically most feasible and "tax payers do not want to pay!"

There is good news, however; the Clarkson study has convinced NYSDOT to change its salting practices in the Cascade Notch. All trucks coming out of the State salt depot in Keene carry "treated salt." This is Sodium Chloride that is coated with Magnesium Chloride. The result is less total sodium and chloride per lane mile and the application costs a mere \$10 extra per ton. The roads that get this "special treatment" are Route 9N between Keene to Au Sable Forks and Routes 9 and 73 from I-87 (exit 30) to the Mt. Vanhouverberg Bobsled complex.

Western State's De-icing Policy

Colorado, Washington, Oregon, New Mexico, and Montana DOT's have all changed to magnesium chloride based liquid anti-icers and de-icers. Liquid de-icers spread easier and are more dilute than rock salt, therefore, fewer pounds of salt per lane mile are applied. Research done in Colorado has shown that the product does not significantly impact roadside flora or fauna and has less negative impact on highway bridge decks and water quality. Furthermore, CDOT has reported snow, ice, and slush related accidents greatly declined state-wide after the use of liquid anti-icers and de-icers began to be widely used. Both Montana and Colorado cite prices per gallon that are more cost effective than any other sand or salt alternative.

What's up New York?

The question remains... If five other states can cut costs while using more environmentally friendly practices then why can't New York State? Perhaps the answer is in the salt source? Colorado gets its salt from the Great Salt Lake in Utah which provides a Magnesium Chloride rich solution pre-made by Mother Nature! The salt that is mined in New York comes from rock salt deposits 2000 feet below Cayuga Lake that is the remnant of an ancient dried up sea. Cargill Salt Company in Lansing, New York, mines this salt and it is this salt that is spread on the roads in New York State².

But wait! Channel 9 News in Onondaga County reports that the town of Fayetteville, New York, is testing liquid deicer on its roads and finds it is using 14 tons less per run and therefore saving money!³ As an added bonus the product works at lower temperatures than traditional salt. Let's hope Fayetteville can set an example for the rest of the state!!!

¹Venner and Kober, AASHTO Center for Environmental Excellence, Technical Memorandum for the Kentucky Transportation Cabinet, Winter Operations Benchmarking, November 2003

²http://www.cargilldeicing.com/about/dc_dt_prod_lansing.pdf

³http://www.cargilldeicing.com/dc_dt_deicing_technology.htm

Free Tree Seedlings for ASRA Members!

This year the Au Sable River Association is starting a new program to reestablish the riparian buffer along the river and its tributaries. ASRA will give tree seedlings to members who own riverfront property for planting on riverbanks. The seedlings will be available in the first week in May in time for spring, frost free planting. If you would like to receive seedlings please contact ASRA** at info@ausableriver.org or 873-3752.

The Importance of Riparian Buffer:

The term riparian buffer is used to describe land adjacent to streams containing native grasses, flowers, shrubs and trees. They often appear as thin-lines-of-green from the air. A healthy riparian buffer is an essential part of a healthy stream.



Riparian buffer is important for a number of reasons. Tree roots provide strength to riverbanks, holding sediment in place, and reducing the rate of erosion. Often, the worst stream bank erosion takes place at locations where the land has been cleared of forest cover. Eroding banks contribute to sedimentation and lead to wide shallow streams with little habitat value.

Riparian buffers are important for good water quality. Riparian zones help to prevent sediment, nitrogen, phosphorus, pesticides and other pollutants from reaching a stream.

Streamside vegetation is a major source of nutrients and habitat for stream communities. Overhanging trees provide shade to keep streams cool and well oxygenated; this is especially important for the Ausable's trout populations. Stream side forests also acts as a corridors for travel for deer, rabbit, quail and nongame species like migratory songbirds.

Restoring and Managing Riparian Buffers

Rehabilitating riparian buffers is key to restoring natural stream functions and aquatic habitats. There are many economic benefits derived from increased riparian habitat, channel stabilization, improved water quality, improved wildlife and fish populations, improved aesthetics, and other associated values. Depending on the

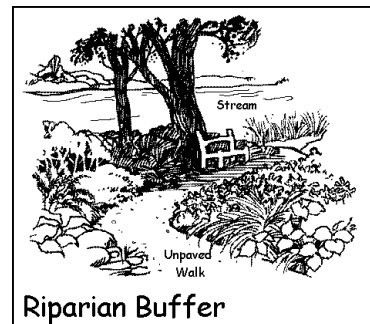
surrounding land use and area topography, riparian buffers should range from 25 to 100 feet wide on each side of the stream.

Recommended Riparian Management Practices:

- Protect or establish native shrubs, trees, or other vegetation along streams.
- Manage livestock grazing in riparian zones to avoid damage to existing plants.
- Plan developments, forestry, and other land disturbing activities to protect riparian zones.

Practices to Avoid:

- Straightening sections of streams.
- Removing streamside shrubs, trees and other vegetation.
- Farming up to the edge of a stream.
- Allowing livestock access to the riparian zone.



Request Your Free Tree Seedlings:

Yes! I live on the waterfront and I'd like to restore the riparian buffer. I will pick up ___#___ tree seedlings at the ASRA office (specify number of trees in quantities of 10):

- | | |
|-----------------------|----------------|
| ___ White Pine | ___ Beach Plum |
| ___ Red Osier Dogwood | ___ Red Cedar |
| ___ Sugar Maple | ___ Sumac |
| ___ Paper Birch | |

*Plants come in bags and are bare root seedlings that require prompt planting.

**Send this form to: ASRA, P.O. Box 217, Elizabethtown, New York, 12932 before April 28. OR e-mail your order to info@ausableriver.org.

ASRA Projects and Accomplishments, 2007-2008

Geomorphic Survey of the Ausable River

A comprehensive survey of bank erosion and height along the Ausable River was completed in the summer and fall of 2006. A report of this study is available on line at

www.ausableriver.org/projects. In total, 19.8 miles of channel are highly eroded (greater than 30% of the banks are eroded); 25 miles show low erosion, and 8.4 miles show no erosion. There are 13.6 miles of channel with high banks (greater than 15 ft. high), 4.2 miles of low banks (less than 5 feet high), and 36 miles of banks with 5 to 15 feet high (medium). The results of this survey will be used to target locations for geomorphic restoration and tree planting.



“Stop Rock Snot!”

ASRA spearheaded the “Stop Rock Snot!” campaign after the invasive algae *Didymo* was found in two Vermont rivers this summer. *Didymo*, nick-

named “rock snot” is a highly invasive and unsightly algae that forms mats on the bottom of rivers. Fish populations decline and a reduction in “wind shield” tourism has been noted in regions with infected streams.

In the summer of 2007, ASRA, with the assistance of BRASS, developed and distributed information cards and stream side flyers to inform anglers and boaters about the invasive algae. *Didymo* has spread to two southern New York rivers, but so far has not been identified in Adirondack streams—don’t let Adirondack rivers get slimed – clean your gear!

Invasive Mapping and Prevention

ASRA assisted the Mirror Lake Watershed Association by continuing the Purple loosestrife eradication program on Mill Pond. Mill Pond, on the Chubb River, is a tributary of the West Branch Ausable; keeping invasive plants out of the Chubb keeps them from entering this National Scenic River! Investigation and documentation of invasive populations done by the ASRA in the West Branch corridor shows that Purple loosestrife has entered Power



Pond (just downstream of Mill Pond) but has not invaded the lower Chubb or West Branch. The next appearance of this invader is below the Flume and in Lake Everest in Wilmington.

Watershed Management Planning

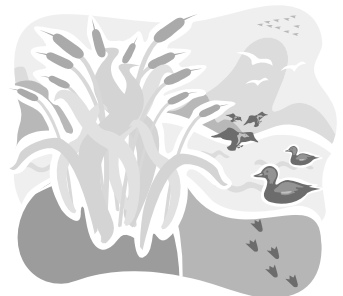
A grant from the Department of State was awarded to conduct “Watershed Management Planning of the Ausable.” Public education meetings were held in North Elba and Upper Jay to determine public concerns about water and river quality. 30 people attended each meeting. The three largest concerns were: 1) Sediment going into the river from natural (stream bank), and human sources (construction sites, stormwater run-off), 2) Pollution entering the river from failed and failing septic tanks, 3) The negative affects of road sanding and salting practices on the river, and 4) Flooding caused by ice jams.

ASRA at the Keene Farmer’s Market

This summer, for the first time, ASRA had a display at the Keene Farmer’s Market. The Executive Director set-up a booth, met watershed residents, handed out educational materials, and solicited input for the Watershed Management Plan.

Ausable Watershed Wetland Monitoring Program

ASRA, in coordination with SUNY Plattsburgh, was awarded a grant from the U.S. EPA to create a wetland monitoring program. The purpose of the study is to measure the hydrology, vegetation, and soils of 20 wetlands in the watershed and to monitor their long-term health.



Septic Pump-out Cost Share

ASRA, in partnership with Champlain Watershed Improvement Coalition of New York (CWICNY), will offer a cost reduced septic tank pump-out for residents who live along the West Branch in North Elba. The objective is to reduce the amount of phosphorous and biologic contaminants entering the river. Home owners will be offered reduced rates on tank pump-out and inspection, as well as educational services and low flow showerheads and faucets to reduce tank loads.

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Thank you to the Donors who funded the 2007 printing of our Didymo Information Cards:



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Wilmington Fish and Game Club

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Name: _____ Address: _____
City: _____ State: _____ ZIP code: _____
E-Mail: _____ Telephone: _____

Please return this form to: Au Sable River Association, P.O. Box 217, Elizabethtown, NY 12932

ASRA is a 501-c-3, not-for-profit and your donation is tax-deductible to the extent allowed by the law.

Newsletter of the Au Sable River Association |
Winter 2007/2008 |

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PO Box 217
Elizabethtown, NY 12932

Phone: 518.873.3752
Website: www.ausableriver.org
E-mail: info@ausableriver.org

*Working to protect and
enhance the natural and
cultural resources of the
Au Sable Watershed.*

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*ASRA is currently seeking
Board Members to represent the
watershed towns of AuSable,
Black Brook, Chesterfield, Jay,
and Keene. Board members
make recommendations for
projects to be done in their
towns; your input is important!

Au Sable River Association Winter 2007/2008 Newsletter

Opportunities to help the River through Volunteer Projects

- ◆ Plant trees! (First week of May)
 - Cascade Notch Revegetation Project
 - West Branch Catch and Release Riparian Buffer
- ◆ Become a Water Quality Monitor
- ◆ Become a Wetland Monitor
- ◆ Come to a Invasive Plant Eradication work day

Contact info@ausableriver.org to be put on the
volunteer notice list for these projects.