



Courses of Change

Water Conservation

By Dennis Finn

A recent inquiry came to the Commission staff concerning the Corridor Commission's authority and jurisdiction. The question that was brought to our attention concerned trash and illegal dumping along the river. This is not a new issue and we visited a variation of the problem in prior newsletters. Having debated the topic in the past did not make the issue any less onerous or unsettling. Apparently, unoccupied land, or land that is readily accessible but not easily viewed from public roadways is an easy target for illegal dumping. In discussing the problem it's clear that illegal dumping is pervasive in a number of areas in the Corridor.

Knowing that this kind of activity occurs is one thing, devising a solution to the problem is another altogether. Education is one possible key to solving the problem, however, people will-

ing to use public land, or land owned by another to dispose of their trash seem a little beyond this approach. Enforcement, on the other hand, relies on apprehension at the time the offense is committed. Of course, when trash is found, it is possible, if not disgusting to "go through the trash" looking for clues of ownership. As already mentioned, however, land where dumping takes place is usually out of the way or out of obvious sight. Perhaps prevention is the only reasonable and cost effective alternative. Although this is also difficult because of the cost involved to the town, or perhaps to a property owner.

Once again, as with many of the problems that vex society, it seems as if the answer lies within the community. Already, hard working volunteers, people interested in the quality of life in their towns and neighborhoods get together to organize cleanups.

These are the people in every community that step forward to make a difference; they take action because they recognize the importance of involvement and they know that if they don't step up perhaps nobody will. Trash along our waterways is but a symptom of a bigger problem. Over the next few months the Commission and staff will re-invigorate this issue. Trash is a problem that seems to fit in well with other issues the Commission had touched upon this past fall. It is a topic that bears more scrutiny and one that I hope the Commission will participate in.



Inside Our Spring Issue...

Executive Director's Column	2
Water Quality Update	3
What Price Clean Water	4
Notes from Upstream	5
Terrestrial Invasive Plants in the Saco River Corridor	6
Foam in the River	6
Maine Waters: A Global Resource	7

Courses of Change is a quarterly publication of the Saco River Corridor Commission. We encourage our readers to submit ideas for publication in future issues. The deadline for submission in our Vol. 5, Issue 2, edition is July 15, 2009.

SRCC Staff

Dennis Finn, Executive Director
 Joy Chasse, Administrative Assistant
 Corey Lane, Environmental Compliance Evaluator
 Ben Tripp, Water Quality Coordinator

SRCC Executive Committee

Toni Carros, Chairperson (Limerick)
 George McNeil, 1st Vice Chairperson (Standish)
 Elizabeth Bull, 2nd Vice Chairperson (Porter)
 Jane Bryant, Treasurer (Limerick)
 Michael Robinson, Secretary (Buxton)

Contact Information

Saco River Corridor Commission
 P.O. Box 283
 81 Maple Street
 Cornish, Maine 04020-0283
 Telephone 207-625-8123
 Fax 207-625-7050
 srcc@srcc-maine.org
 www.srcc-maine.org

Mission Statement

The Saco River Corridor Commission is committed to protect public health, safety, and the quality of life for the State of Maine through the regulation of land and water uses, protection and conservation of the region's unique and exceptional natural resources, and through the prevention of impacts caused by incompatible development.



Printed on Recycled Paper by:
 Cardinal Printing Company - Denmark,

Executive Director's Column...

It is likely that the year 2008 will be remembered as a turning point in the perspectives and attitudes of people living in the United States. The media, quick to capitalize on head turning phrases and one liners never let us forget that we we're faced with " an economic meltdown", or "that we're in the grip of a financial crisis," and, of course, "the country watches in horror, the imminent wall street collapse" and on and on it goes. Unfortunately, unlike other media stories, all of these headlines held us fast precisely because they were true. In fact, little more needed to be said – the headlines said quite enough.

This article doesn't predict, nor will it downplay the potential tough times ahead. But, in dealing with the very real financial issues we must recognize that solving the problem is not a simple matter.

The temptation, especially at the state government level, will be to streamline, economize and sacrifice. It makes some sense, yet caution is necessary if we are to successfully reduce the financial burdens without destroying the essential qualities of our lives that we have so often taken for granted. Our children's education, public safety and vital resources for example, must be preserved if we are to weather this recognized, unprecedented global situation, regardless of whether it lasts a year or a decade.

Many goods and services may become unaffordable as viewed by society or from the community or individual level. Luxuries and ex-

cesses that seemed wholly reasonable if not deserved, when the economy was healthy, now seem out of place and wasteful. There are also other intangibles that we cannot afford, however, like the ignorance that accompanies a lack of education, the hazards of unsafe roads and bridges, unsafe neighborhoods, and a lack of clean air and potable water.

The Saco River Corridor Commission is entering into our biennium budget cycle where appropriations from the State of Maine General Fund are debated and ultimately disbursed. Yes, the economy is in tough shape and this is as evident in Maine as in any place in the country. But as towns people and state legislators decide how to spend the little money that is available, they should remember all that is essential, all that is necessary, and the important qualities that help mold our state. They should not get bogged down in trite or parochial differences of politic or region. **We are all in this together and our discussions about where our resources should go must reflect this fact.**



Water Quality and Macroinvertebrates

By Corey Lane

This past fall began the start of a biological monitoring program here at the Corridor Commission. With help and training from our partner, Green Mountain Conservation Group in Effingham, New Hampshire we selected and sampled three sites in the Saco River Watershed for Macroinvertebrates.

Macroinvertebrates are organisms that lack a backbone and spend at least part of their life cycle in the water. They tell the story of a river's water quality that might be missed in the chemical and physical data that we are already collecting at 35 sites from Conway, NH to Saco. The size of Macroinvertebrates varies greatly depending on the species but they are generally visible with the naked eye. For example, midge larvae and mayfly nymphs are typically between 2 to 20 millimeters. Damselfly and dragonfly nymphs range from 10-60 millimeters and on the larger end crayfish can range between 10 to 150 millimeters. Other examples of Macroinvertebrates are snails, aquatic worms, stonefly nymphs, hellgrammite larvae, leaches and caddis fly larvae to name a few.

Each species has its own numeric value based on its tolerance to pollution. The biotic score corresponds with the water quality score. A biotic score is calculated by counting the number of each species found multiplied by the tolerance value that each has been assigned. You then divide that number by the total number of macros collected. This number is your water quality score. The scores are broken down in the following way: 0 - 3.5 is excellent,

3.6 - 4.8 is good and greater than 4.8 is fairly poor.

After selecting a location that has a somewhat rocky bottom with good water flow, always under water and shallow enough to reach the bottom with your hands, the fun begins. Using a kick net to catch the macros, you scrub the rocks in a small area with your hands for 30 seconds and then use your feet to disturb the area for 30 more seconds. This process is repeated 4 more times working your way upstream. In the end you hope to have over 100 critters to sort and count. This process will lead you to each site's biotic score.

The results calculated from our three sampling sites were: downstream of Canal Bridge at Fiddlehead Campground in Fryeburg = 2.9 (excellent), Moose Pond Brook in Denmark = 4.75 (good) and at Thatcher Brook in Biddeford = 6.94 (fairly poor). We were happy to see that these num-

bers matched the physical and chemical data that has been collected in our water quality monitoring program throughout the season. It was a lot of fun and also very interesting to see what is hiding on the riverbed.

We hope to expand this program next year by adding a few more testing sites. This years project would not have been possible without help from Ben Tripp, Anne Dunbar, Michelle Broyer of the Saco River Recreational Council and Green Mountain Conservation Group. We would also like to thank all of the Volunteers who are the backbone of our Water Quality Monitoring Program. Without you, these programs would not exist.

If you would like more information or would like to volunteer on one or more of our projects, please call the SRCC office at 625-8123.



What Price Clean Water

By Dennis Finn

It appears that the residents in the Saco River Basin are not the only ones that place a high value on the water in the Saco River. A recent study presented to Governor Baldacci on February 3, 2009 outlined the benefit of the regional delivery of public waters supplies. The report stated emphatically that the Saco River along with Sebago Lake are the only two sources of freshwater in Southwest Maine with the ability to serve as a potable regional water supply for an increasing population.

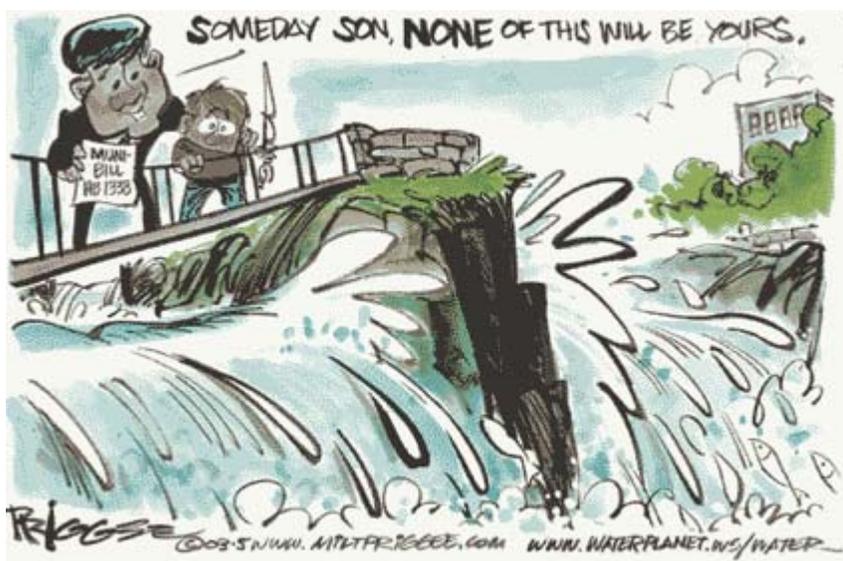
The group known as the Southern Maine Regional Water Council released their report following the study of the capacity and supply of fresh water in Southern Maine. Their conclusion isn't new information to us. The Saco River is currently supplying Biddeford and Saco, Old Orchard Beach, Kennebunk, Kennebunkport and portions of Scarborough now. As aquifers are placed under more stress through active withdrawal, the only reasonable remaining source of water will be fresh water rivers. In order to effectively use a river system several criteria must be met. The water must be abundant and it must be clean. Essentially, the Saco River Corridor Commission is in place to ensure that the water is clean and that it is protected as well as monitored into the future.

Other areas of the country are not so lucky and the end result could be disastrous for them and difficult for us. As water use increases, the pressure on local aquifers to produce clean, potable water also increases. More use means that precipitation must also cooperate year round, so that there is steady groundwater recharge.

Increases in population, increased manufacturing use, steady and increasing water withdrawal all place stress on our natural water systems. Looking at other locations, particularly the southern and western sections of the United States makes us realize that we have abundant water – at least for now. Out west, in places like California, Washington and Oregon, water use has quickly outpaced aquifer recharge. The water table is lowered and is being depleted faster than it is being filled with dire consequences for communities, cities and particularly, farm land. Although farming in our area is not a major revenue producer for the state, out west, farming is a multi-billion dollar business supplying

the rest of the country and the world with fresh fruits and vegetables.

Twenty-first century man steps back and marvels at what we have created. Of course we do, and why not! Our world is a different place than it was just 60 years ago. But for all we do, and all we know, we still squander and waste our most precious resources. We have always taken water for granted. Most major empires always have. Perhaps it is time to take stock in our bounty, look around at how other people live with limited water resources and at the very least, continue to protect and guard the water we have.



Copyright Center for Environmental Law & Policy (CELP)

Notes from upstream

By Danielle Dugas and Tara Schroeder

On November 20th, residents and town officials were provided with water quality results and future directions for water research and protection in the Ossipee Watershed. The evening's presenters included: GMCG Program Director Tara Schroeder, University of Vermont graduate student Mia Akaogi, GMCG Water Quality Assistant Danielle Dugas, Saco River Corridor Commission Water Quality Program Coordinator Corey Lane, and water quality professionals Michelle Daley and Bob Craycraft from UNH, in addition to students from the Tamworth Learning Circles school.

The public was invited to learn more about their town's water quality conditions based on the past seven years of monitoring local rivers, streams and lakes. Trends in water quality were compared with trends from the Lamprey River Watershed, other lakes in New Hampshire, and the greater Saco River Watershed. Participants also learned about the importance of science-based planning and water sustainability through the use of Best Management Practices (BMP's) and Low Im-

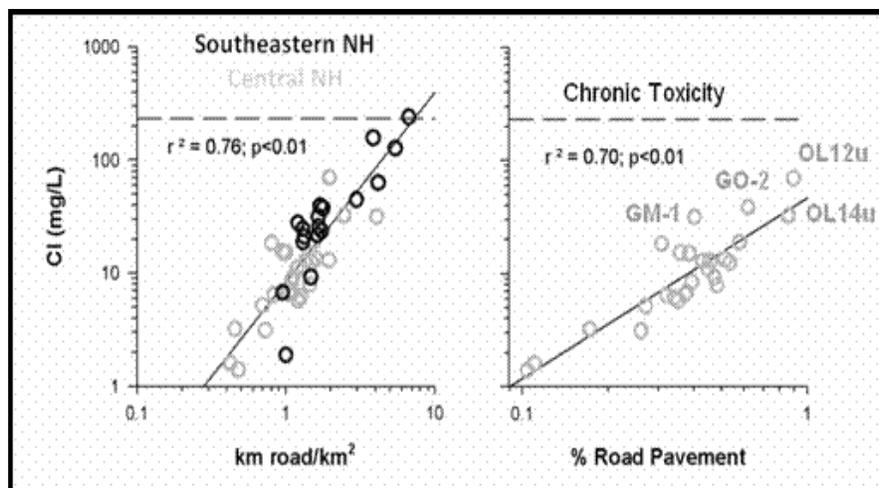
pact Development (LID's) techniques to prevent such non-point source pollution problems as chloride leading from road salt, a common issue showing up in water quality data.

Road salt (NaCl) application is the dominant source of elevated levels of chloride (Cl) in the Ossipee Watershed and in many surface and groundwater across the state. According to a recent study of the data by UNH, chloride concentrations are strongly related to watershed road density or watershed percent road pavement among streams and tributaries in the Ossipee Watershed (Daley et al 2009). Salinization of fresh waters has a negative impact on the health of aquatic species and humans. The chloride acute toxicity limit (level which sudden and severe impacts occur) is 860 mg/L and the chronic toxicity limit (level which negatively impacts aquatic health) is 230 mg/L for NH surface waters. The drinking water limit for chloride is 250mg/L. Typical background levels in New Hampshire surface waters are less than 30 mg/L. Data clearly show that the Ossipee Watershed is showing impacts from road salt on surface water quality, and UNH water quality professionals have stated that "in some places, concentrations are those found in the seacoast region of the state where ocean water plays a larger role."

In order to sustain safe, clean lakes and streams, experts recommend preventing pollution by good planning at the local level and encouraging LID's that minimize runoff, erosion and sedimentation. The use of BMP's, combined with LID's, can prevent nonpoint source pollution from entering our surface and drinking water, and protect shorelines from erosion.

One example of an LID technique is the use of pervious pavement. Typical pervious pavement consists of cement, gravel, and water with no fine aggregates in the mixture. The absence of fine aggregates allows storm water to pass through the pavement, which creates a faster recharge rate for groundwater. Studies have shown that the use of pervious pavements for roads and parking lots decreases the amount of salt needed for deicing, lessening the amount that gets into our water. <http://www.youtube.com/watch?v=ScsQYHMfabU>

So how do we maintain public safety and preserve aquatic and human health? Reducing the amount of sodium chloride on our roadways, the use of sodium chloride alternatives can all help lower our dependency on salt. GMCG's Source Water Protection project, which is focused on protecting the drinking water resources in the Ossipee Watershed and collaborating with the community to ensure that these resources are safe for the future, has been encouraging the use of BMP's throughout the Ossipee Watershed. For more information on the SWP project and/or BMP's, visit www.gmcg.org.



Terrestrial Invasive Plants in the Saco River Corridor

We are coming into the third year of a grant to map ten terrestrial invasive plants along the Upper Saco River Floodplain including 20,000 acres from the New Hampshire border in Fryeburg to the Hiram Falls Dam. This grant is funded by Maine Outdoor Heritage Fund (MOHF) through Oxford County Soil and Water Conservation District. Other partners that have donated time and funds needed to complete this project are The Nature Conservancy's Saco River Project, Saco River Recreational Council and Saco River Corridor Commission.

This summer we are in need of volunteers to spend time along the Upper Saco River mapping these plants. Infestations of the ten species will be mapped using a PDA with WIMS (Weed Information Management System) or a GPS and field data form. There will be a brief training on the equipment used as well as the ten invasive plants included in this grant. You might recognize one or more of the plants listed below.

- Black Locust (*Robinia pseudoacacia*)
- Common Buckthorn (*Rhamnus cathartica*)
- Garlic mustard (*Alliaria petiolata*)
- Glossy Buckthorn (*Frangula alnus*)
- Japanese barberry (*Berberis thunbergii*)
- Japanese knotweed (*Fallopia japonica*)
- Multiflora rose (*Rosa multiflora*)
- Oriental bittersweet (*Celastrus orbiculata*)
- Purple loosestrife (*Lythrum salicaria*)
- Russian olive (*Elaeagnus angustifolia*)



Japanese Knotweed (Fallopia japonica)

The Saco River Corridor Commission has applied for another terrestrial invasives mapping grant along the Ossipee River from the Maine border to the Saco River in Cornish. This grant is very similar to the Upper Saco River Invasives grant but includes the 500 feet in the Corridor as well as floodplain up to 1000 feet from the Ossipee. The total area to be covered is 1,751 acres. If this grant is accepted, volunteers will be needed to help with landowner data and mapping the ten plants listed above as well as the three below.

- Japanese honeysuckle (*Lonicera japonica*)
- Morrow honeysuckle (*Lonicera morowii*)
- Tartarian honeysuckle (*Lonicera tartarica*)



Garlic Mustard (Alliaria petiolata)

Ten of the 13 terrestrial plant species are listed by Maine Natural Areas Program as Maine's Most Problematic Terrestrial Invasive Plant Species. There is currently little to no baseline data on the extent of invasive plant species along the Saco or Ossipee Rivers. What is known is that invasive aquatic and riparian plant species can clog waterways and aggressively replace native species along our river systems; they impair agricultural productivity, reduce property values and threaten the survival of Maine's natural ecosystems. According to the United States Department of Agriculture Economic Research Service, (USDA) at the national level, invasive species is responsible for billions of dollars in environmental and agricultural losses. In order to minimize losses here in Maine and keep the future financial costs of prevention and control low, baseline data must be established.

If you would like more information on Invasive plants or are interested in volunteering please call the SRCC office.



Oriental Bittersweet (Celastrus orbiculata)

For more information on invasives, please see the following websites:

<http://tncinvasives.ucdavis.edu/>

<http://www.umext.maine.edu/onlinepubs/htmpubs/2536.htm>

Foam in the River . . .

By Ben Tripp

Every river watcher has seen it and nearly everyone has questions about this whitish-brown foam ranging from an inch or so high to basketball sized chunks floating down the river or clinging to the banks. This substance is almost always a simple natural byproduct of the decomposition of algae, zooplankton and other aquatic organisms.



Through the process of decomposition, natural organic compounds that have

the capability to reduce the surface of water molecules are released into the river. This results in the formation of foam as air is mixed in, frequently occurring at natural and man made water falls where additional air is mixed and voila: foam in the river! This substance can easily accumulate into large blocks as winds and water flow enter the picture.

Foam in the river is unlikely to be from soaps and detergents, but it can be the source. If there is a question about the source, check around the immediate area for a possible discharge point – a pipe or channel running across the land that shows evidence of foam. It is not unusual to see foam accumulations in the outlet pools of road culverts, once again, from natural sources, because foam-producing organic substances can also leach from the soil.



If the foam covers a large area or is found in numerous locations, it is even more likely that the source is natural. It is estimated that it would take nearly 1,000 pounds of detergent to suds up a shallow 1 acre area of the river. One way to determine natural river foam from detergent-based foam is by performing a ‘sniff test’. Natural foam generally has an earthy smell whereas foam that is detergent based is nearly always heavily perfumed.

Maine Waters: A Global Resource

By Doug Hawkins

We in Maine are a global water center. Yet, we act parochially in our governance.

We allow big business to conduct large water extraction with minimal oversight by the State of Maine. We allow corporations seated in Switzerland to extract and profit from our aquifers, with minimal over watch by us.

Intuitively, one might surmise that since Poland Springs continues to seek additional Maine outlets, the company knows how to measure quantities to be extracted. But when the company negotiates, the preferred agreement is: we will extract 105 million gallons of water in a year.

To leave such calculations in only commercial hands is poor governance. Rather, there should be trusted teamwork between business and government, with objective honest oversight on the part of government because

the water to be extracted belongs to us all here in Maine.

The negotiated wording therefore should have read . . . up to a limit of 105 millions gallons in one year may be extracted if the following conditions are met:

First, a quantification (amount) of water available – in gallons, as carefully measured by what means;

Second, the variance possible in that amount on a continuum from drought to saturation;

Third, the prioritized use of commercial, agricultural and residential needs – to include actual growth as it occurs.

The number one priority must be to provide for the populace and their emergency services, such as hospitals.

It bears repeating over and over that:

**California valleys are running low on ungoverned water;
Georgia’s drought continues;
China’s water is contaminated; and
Nestle is drilling into the mid-east aquifer – the largest in the world(?).**

Maine needs to take control of its global water center – NOW.



Saco River Corridor Commission
P.O. Box 283
81 Maple Street
Cornish, Maine 04020-0283

COURSES OF CHANGE - Vol. 5, Issue 1, April 1, 2009

- Our newsletter is available on the web at www.srcc-maine.org. If you would like to receive this publication electronically, please send us your e-mail address.
- Has your address changed? If so please let us know!

Please help us save paper! We would like to start sending our newsletter electronically. Help by contacting us with your e-mail address so that we can update our records. Thank you!

Vernal Pools and Wood Frogs

By Joy Chasse

A vernal pool is a contained basin depression lacking a permanent above ground outlet. In the Northeast, it fills with water with the rising water table of fall and winter or with the melting of winter and spring snow and rain. Many vernal pools in the Northeast are covered with ice in the winter months. They contain water for a few months in the spring and early summer, but by late summer, a vernal pool is generally (but not always) dry.

Shortly after the thawing takes place, the wood frog wakes from its winter dormancy and hops its way to these temporary wetlands for breeding. If you live near a vernal pool, the croaking of the Wood Frog is unmistakable and can be heard for weeks.

After they mate and lay their eggs, the wood frogs leave the vernal pools to spend the rest of the year in the adjacent uplands. They lay hundreds of eggs and by late April, small black wood frog tadpoles are abundant in vernal pools. As they feed on the leaves and algae of the pool, they grow quickly and become a green-brown color. By June, the tadpoles will have developed legs and will absorb their tail in preparation for leaving the pool. The frogs that complete development leave the pool as a miniature version of the adult frog and venture into the forests to spend their life searching for insects and other invertebrates to eat.

Some years the vernal pool dries up before development of the tadpole is complete, and you might find thousands of tadpoles flopping in the muck.

They become food for numerous birds, mammals, reptiles and insects as they dry and die.

This spring if you are fortunate enough to hear the chorus of these little frogs, spend a moment enjoying their short-lived song.



Copyright The Vernal Pool Association