Calais Lakes and Streams COMMITTEE

PO Box 63 • Calais, VT 05648

FALL 2011 Ed. 11-01

North Montpelier Pond

CALAIS LAKES AND STREAMS COMMITTEE — NEW NAME, NEW FOCUS

The name of our group has changed to "Calais Lakes and Streams Committee" from the "Lakes and Ponds Working Group." Our organizational relationship remains unchanged. We continue to serve under the Calais Conservation Commission. The reason for the change results from the recognition that all of the natural waters-streams, rivers, springs, lakes and ponds — are not separate entities, but are an integrally united network of water moving through Calais on its way downstream. The lakes and ponds are temporary collection points of the rains and snow which fall in the surrounding lands and ultimately make their way into the Kingsbury Branch. Calais is fortunate to be near the headwaters of this river which originates in Woodbury, passes through Calais and joins the Winooski in East Montpelier. As such Calais is near the origins of the Winooski watershed whose waters ultimately flow into Lake Champlain. The health and quality of all naturally occurring water — the still waters and the moving waters — are intimately connected. Protecting and preserving lakes and ponds depends on doing the same for streams and rivers. In recognition thereof, our name and our mission have been changed to include all of the natural waters — lakes, ponds, springs, streams and rivers — that tumble through the lands of Calais.

What's In This Issue?

Roads—How they affect lakes and streams; What can be done to minimize their impact; Recent successes—here in Calais and in Orange

For volunteering or further information, contact:

Peter Bankart	bankartp@wabash.edu	Wilson Hughes	wilson.hughes@yahoo.com
Noreen Bryan	noreen1945@yahoo.com	Victoria King	229-4674
Laura Brown	454-7723	Susan McKenney	siouxpooh@hotmail.com
Ginger Clammer	vclammer@aol.com	Clay Whitney	cwhitney@cabotcheese.com
David Ellenbogen	pianomath@gmail.com		

DIRT ROADS – HOW THEY AFFECT LAKES AND STREAMS

Calais roads took a beating this spring. For anyone who drove on them the state of the roads became an important issue. Roads tie the community together and we depend on them to connect us to our jobs, homes and the greater world. They are essential to our way of life, but they have impacts beyond the benefits that they provide. Dirt roads are a challenge to maintain and they can have a significant adverse impact on the natural environment, particularly lakes and streams. This issue of the Newsletter is devoted to dirt roads, the effect they have on water quality and ways to improve roads and water quality at the same time.

How does erosion from dirt roads affect water quality?

When snow melts and rains fall, particularly in heavy storms, water washes across the road surface carrying dirt and gravel with it into the ditches, fields and surrounding environment. When these eroded soils flow into streams or lakes they adversely affect the clarity and aquatic life which lives in the natural waters. Gravel roads, by nature of their topography and design, can, if not properly managed, contribute heavily to the creation of a significant water pollution problem.

One unwanted effect is the introduction of fertilizer in the form of phosphorus, which occurs naturally in the dirt and gravel of roads. Phosphorus is an essential nutrient for plants. Putting it into a pond is like adding Miracle Grow to your garden. The aquatic plants are stimulated to grow profusely, leading to mats of algae and wide-spread nuisance pond weeds, such as lily pads. These can clog the surface of the water. Large stands of cattails can become thick colonies spreading out from the shore. These make it difficult for a boater or a swimmer to launch into the water. Other pollutants such as oils and grease from vehicles may also be washed into our waters. No one wants to swim through lily pads, algae or oil slicks.

For fishermen there is a different, but no less adverse story. Deposits of road sediment eroded into the streams and lakes are destructive to the health of fish. Large quantities of sediments and other pollutants can destroy fish habitats and irritate the gills of fish making them more prone to disease. The next generation of fish may be lost because the spawning and feeding habitat are smothered. Fish eggs need a clean, sediment-free stream or pond bottom for incubation. These destructive effects extend to all aquatic organisms by disrupting their food chain and disturbing their reproductive cycles.

Floods are another risk created when excess sediment and gravel are deposited into the channels of streams and rivers. The resulting change in the topography- new deltas and sand bars- can increase the frequency of flooding, which damages the eco-systems that border the streams and rivers. From the point of view of the roads more flooding means more road wash-outs.

This relationship between dirt roads and water quality is all the more important when we take into consideration that

Calais has more miles of dirt roads than any other town in Vermont AND more water bodies than any other town except Woodbury.

As a result, our water ways are very susceptible to the destructive effects of erosion from dirt roads.

Driving along the western shore of No. 10 Pond – September 2011

BETTER ROADS, BETTER WATER QUALITY

The Question: How can road runoff- gravel and sand- be kept out of the streams and ponds? And equally important, how can roads be kept in good repair and maintenance be minimized?

This is a statewide problem. In response Vermont established a program to improve their roads and water quality. It is called Better Backroads. The program's goal is to institute best practices leading to more durable roads and, at the same time, cleaner waters. The investment that a town makes in these practices is returned through fewer road wash-outs and the cost savings resulting from fewer road repairs.

Members of the Calais Lakes and Streams Committee visited the Town of Orange to see how roads built to Better Backroads standards fared during the heavy rains and flooding of the spring. We met with Rita Bission, the Town Clerk, and two watershed coordinators from the Agency of Natural Resources — Jim Ryan and Karen Bates. Historically Orange has received state and federal grants for some of its most challenging road problems. We viewed several roads which had been redone to Better Backroad standards. One of these, Richardson Road, has a very steep slope. At the bottom of the hill the road meets the river, known as the Jail Branch. In the past the gravel from the road eroded and flowed down the hill into the river. The road was difficult to maintain and frequently had washouts in heavy rain. Last year Orange redid Richardson Rd. with assistance from a Better Backroads grant. The road was crowned and graded to allow water to move quickly from the surface into the ditches, a rock lined ditch was built on the uphill side of the road to slow water flow, turnouts, rock-lined ditches angled away from the road, were created to direct runoff into vegetated areas to collect gravel and sand eroded from the roads and a stone berm was built at the bottom of the hill to stabilize the road bank from eroding into the river.

The Result: Richardson Rd. went through the spring deluge unscathed. Orange's other roads built using the practices of the Better Backroads fared well, also. Repairs were minimal or not required at all.

The Benefits: Residents were not impaired by a washed-out road, the road crew had fewer problems to solve, the Town saved through reduced costs of maintenance and the Jail Branch stayed free-flowing unhampered by deposits of gravel and sand from the road. That is good for fishing and wildlife and helps improve the watershed.

continued on page 4

Eroding road edge, unditched

Observing the rock-lined ditch on Richardson Road

continued from page 3

What We Learned from Our Visit to Orange:

- Towns can benefit from a planned approach to road improvements using shared funding from federal and state grants
- All the roads cannot be improved at once. A prioritized approach is needed with the most difficult roads receiving the most immediate attention.
- It is important to use the right materials and the right design/engineering.
- The aesthetics of the road work in Orange were first rate. Rita Bisson, Town Clerk, said. "We take great pride in the physical beauty of our town!"
- Judicial protection of trees, such as Grand Daddy maples, was a priority. Careful attention was given to ditches and runoff during design and to the protection of tree roots during construction. However, it was necessary to remove smaller saplings to make way for the rock-lined ditches.
- Roads with good ditches and quick drainage mean better water quality. That is good for the future of Vermont's streams and ponds.
- The Better Backroads "Best Practices" can effectively serve to guide a Road Commissioner and crew on a day-to-day basis and serve as a way to plan for road improvements and their prioritization.
- "Best Practices" are cost effective. The initial expense of road construction is greater, but this is paid back in a few years through reduced road maintenance. Rita Bission showed us the history from several roads constructed to Better Backroads standards. Her records showed that the initial costs of grading and making rock lined ditches were recouped within five years. Many of these roads have not needed repairs in that time period. If inconvenience and drivers' frustration were given a price tag, the costs would be recouped even sooner.

In summary, following the "Best Practices" of Better Backroads has the potential to accomplish three important things — protect and improve the water quality of lakes and streams; improve road durability and safety; and reduce costs through reduced road repairs.

Jail Branch- clear and clean

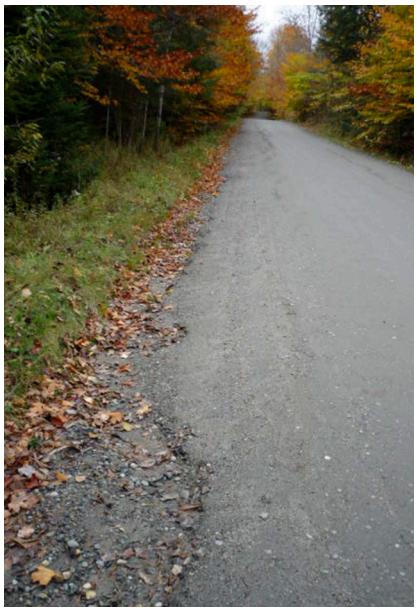
SADIE FOSS ROAD IMPROVEMENTS

A little over a year ago, the Lakes and Ponds Working Group of the Calais Conservation Commission asked Calais Road Commissioner, Alfred Larrabee, what road in town would benefit from a Better Back Roads grant. He told us that Sadie Foss Road had needed upgrading for years.

Sadie Foss Road was a neglected back road connecting Marshfield to Calais. Over time, ditches had filled in with trees and brush and the tree canopy had grown over the road, blocking sunlight. Water ran down a trench in the center of the road and then directly into upper Still Brook.

The Lakes and Ponds Working Group and Road Commissioner Larabee teamed together and successfully applied for a Better Backroads grant. With the help of the grant funding, the Calais road crew was able to clear the sides of the road, build better rock-lined ditches, and properly crown the road. They left large trees standing but cut small trees and brush to allow winter sunlight to reach the road.

The stone-lined ditches now catch most of the silt that used to run into the brook. The brook now runs clearer and cleaner. Visibility for travelers has been greatly improved. The road stood the test of the spring rains and floods without needing repairs, which is a boon to the residents who must travel this road and to the road crew who were not burdened with one more job to do.



Before: Eroding, grassy verge, unditched

Construction: Removing the sod

Construction: Ditch shaping complete

After: Rock-lined ditch in place