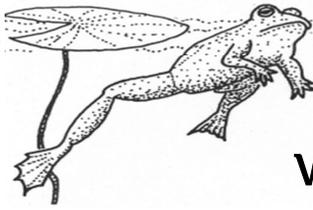
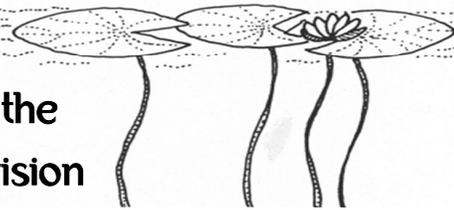


Out of the Blue



A Newsletter of the
Water Quality Division



Summer 2010 No. 37

Vermont Agency of Natural Resources
Department of Environmental

Deep Lake Conservation History

By Perry Thomas

Shortly after oil began leaking into the Gulf of Mexico this spring, one reporter compared the disaster to the burning of Cuyahoga River as it flowed through Cleveland, Ohio. This intriguing reference has prompted this look back at the roots of lake conservation.

The burning of the Cuyahoga is sometimes described as the reason for Earth Day (1970), the EPA (1970), and the Clean Water Act (1972). Yet, the oft-published picture shown below was actually taken in 1952, and the river burned several times before then. By 1969, when *Time* magazine ran a story describing the most recent river fire, grass-roots efforts to clean up Ohio's Cuyahoga River were well underway. There were no dramatic pictures of the 1969 fire, because it only burned for about half an hour. What those 30 minutes did, though, was catalyze a citizen movement that had been slowly taking form over more than a century, as people's understanding of ecology matured.

See page 2, "Lake Conservation"



Cuyahoga River Burning in 1952
Photo by James Thomas, Cleveland Press.

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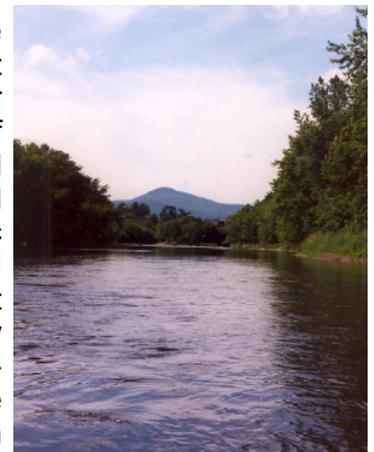
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How Wild and Scenic Are the Missisquoi and Trout Rivers?

By Shana Stewart

Portions of the Missisquoi and Trout Rivers are under study to determine if they are eligible and publically supported for Wild and Scenic designation. The Wild and Scenic Rivers Act became a federal law in 1968 with the purpose of protecting the nation's rivers which possess outstandingly remarkable values (ORVs) for the benefit of present and future generations.

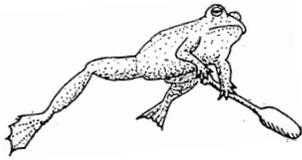
Thanks to the efforts of John Little, Wendy Scott, Anne McKay and Chris O'Shea of the Missisquoi River Basin Association (MRBA) and the support of Vermont Representative Peter Welch and Senators Patrick Leahy and Bernard Sanders, President Barack Obama signed a bill into law in March 2009 authorizing funding for a three year Wild and Scenic study of the upper Missisquoi and Trout Rivers. This study is supported by the ten towns through which these rivers flow.



Missisquoi River
Photo by MRBA

See page 4, "Wild and Scenic Study"

"Out of the Blue"



Available on the Web

Check out in color the newsletter issues on the Water Quality Division

Out of the Blue

is produced semi-annually by the Lakes and Ponds Section. Our purpose is to share information on lake, river, and wetland environments, water quality and state activities through articles on aquatic ecology and Division programs. Feel free to let us know what articles you would like to see in future issues. To be placed on the mailing list, please contact:

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(continued from page 1) Lake Conservation

One of the people who prepared the ground for a grassroots conservation movement was Vermonter George Perkins Marsh. A deep sense of connection with the natural world inspired Marsh to speak and write extensively about the perils of deforestation. In 1847, Marsh addressed the Agricultural Society of Rutland County, suggesting that, due to land use practices of the day, the "valleys of many of our streams will soon be converted from smiling meadows into broad wastes of gravel and pebbles, deserts in summer and seas in autumn and spring." He went on to urge Vermonters to recognize the interconnectedness of the natural world and to take action to prevent its destruction.

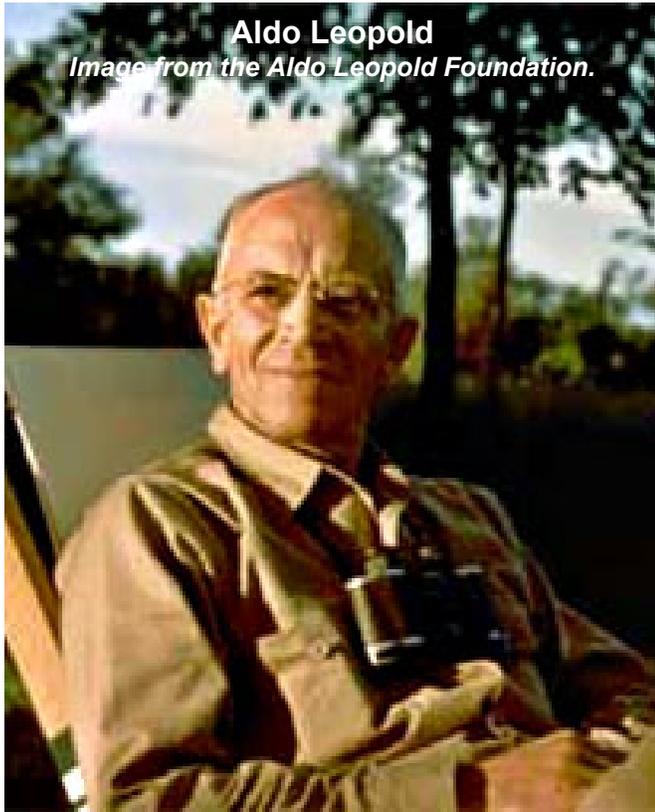
Action was exactly what resulted in 1876 when local citizens around Thirlmere, in England's Lakes District, learned that the city of Manchester planned to build a dam and pipe water from Thirlmere 100 miles southeast. According to a recent essay by Harriet Ritvo, published in the journal *Science*, the Thirlmere case marked the birth of environmentalism. Citizens blocked passage of the required bill for a year. In the process they described the lake as belonging to all the people of England, not just a few owners of shoreland. They also foreshadowed ecological arguments by describing Thirlmere as an integral part of the whole Lake District region.

The British Ecological Society was founded in 1913 (and the Ecological Society of America was founded in 1915). Lakes were an early focus of these ecologists, because inputs, outputs, and attributes could be reasonably well delineated. For example, in 1941 Ray Lindeman published his classic study of Cedar Lake Bog, describing the way energy moves through an ecosystem. And in 1948 Aldo Leopold published *A Sand County Almanac*, advocating for an ecological perspective. Leopold suggested "We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect."

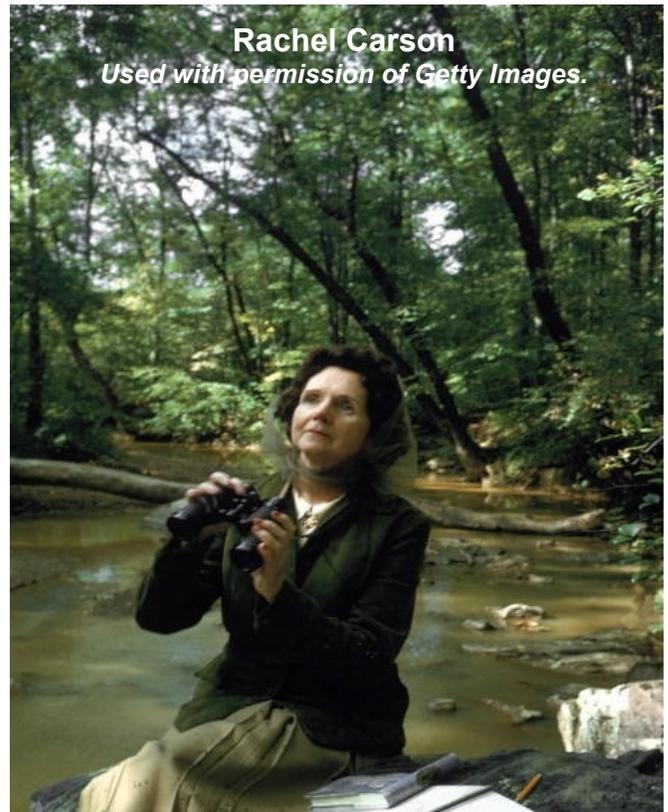


Thirlmere. Construction of a dam in 1879 caused two lakes, Leatheswater and Brackmere, to become the lake known as Thirlmere today.

Image from www.keswick.org.



Aldo Leopold
Image from the Aldo Leopold Foundation.



Rachel Carson
Used with permission of Getty Images.

In 1963, when Rachel Carson gave her last speech, she echoed Marsh's and Leopold's references to interconnectedness. *Silent Spring* had been published the year before, as a series of three articles in *The New Yorker*; however, the words Carson delivered in 1963 marked her first public acknowledgment that she wrote from the perspective of an ecologist: "We cannot think of the living organism alone; nor can we think of the physical environment as a separate entity. The two exist together, each acting on the other to form an ecological complex or an ecosystem."

Thus, when Cuyahoga's fires inspired landmark environmental legislation, they did so because the ground was well prepared by ecologists

and activists. Groups passionate about conservation of Lake Erie and the Cuyahoga valley continued their work and were instrumental in establishing the Cuyahoga Valley National Park. Today, beaver marshes thrive in areas that were once pollution dumping grounds.

After the Clean Water Act was passed in 1972, Vermont was quick to respond. Several organizations and initiatives, born in the seventies, focused on lakes: the Lakes & Ponds Section of the Department of Environmental Conservation's Water Quality Division, the Lay Monitoring Program, and the Federation of Vermont Lakes and Ponds. Today, thanks to many, citizen involvement continues to play an important and influential role in Vermont's lake management.

As part of the Federation of Vermont Lakes and Ponds current watershed grant, FOVLAP is revising its educational and informational materials and strategies that inform property owners about best practices around lakes. The Federation has developed an **online survey for lakeshore property owners** that will help to understand property owners' interests, and design better communication strategies. **If you are a lakeshore property owner, your participation would be greatly appreciated!** The survey takes about 15 minutes to complete and can be accessed via their new website, www.vermontlakes.org. For more information about FOVLAP, visit the web site, or contact Perry Thomas, President, at epethomas@gmail.com.



FOVLAP ANNUAL MEETING

Monday, July 26th, 9:30 -3:30

Steak House, Rte. 302 (Barre-Montpelier Rd.), Berlin.

All are welcome—come, it'll be informative and fun! (Agenda and registration form at web site.)

The Study Committee

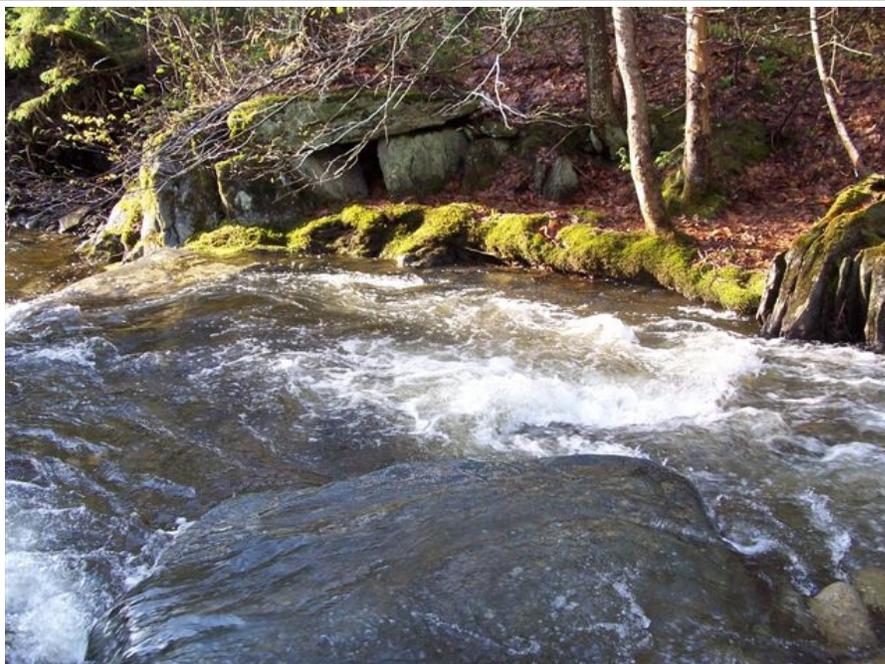
Representatives from these ten towns and from partner organizations such as the Missisquoi River Basin Association, National Park Service, Northwest Regional Planning Commission, the Vermont Agency of Agriculture, the Vermont Department of Environmental Conservation, the Vermont Federation of Sportmen's Clubs, and the Vermont Traditions Coalition make up the Study Committee. The Study Committee is charged with determining which areas, if any, are best suited for designation and encourage all to participate in their monthly meetings, held on the third Thursday of each month.

Current discussions are focused on the questions: what areas of these rivers provide outstanding recreational opportunities; where are the most significant historical sites in or along these rivers; what areas are the most scenic; and what areas provide the best wildlife habitat? Based on public input, once the ORVs are identified, the current levels of town, state and federal protections will be assessed, and suggestions made for voluntary steps that could be taken to ensure these protections. The Study Committee will then decide whether or not to pursue the Wild and Scenic federal designation. If designation is sought, it will then go to vote at Town Meeting in the ten towns within the study area. And, if supported locally, then the information collected by the Study Committee will be taken to the U.S. Congress for approval.

Wild and Scenic Designation

No rivers in Vermont have this designation. The designation classifies rivers in one of the following ways:

- ♦ Wild river areas are those with the cleanest water, and the least amount of development around the shoreline. These areas are typically only accessible by trail, and do not have impoundments.
- ♦ Scenic river areas are those with clean water, and minimal development around the shoreline. These areas may be accessible by roads, and do not have impoundments.



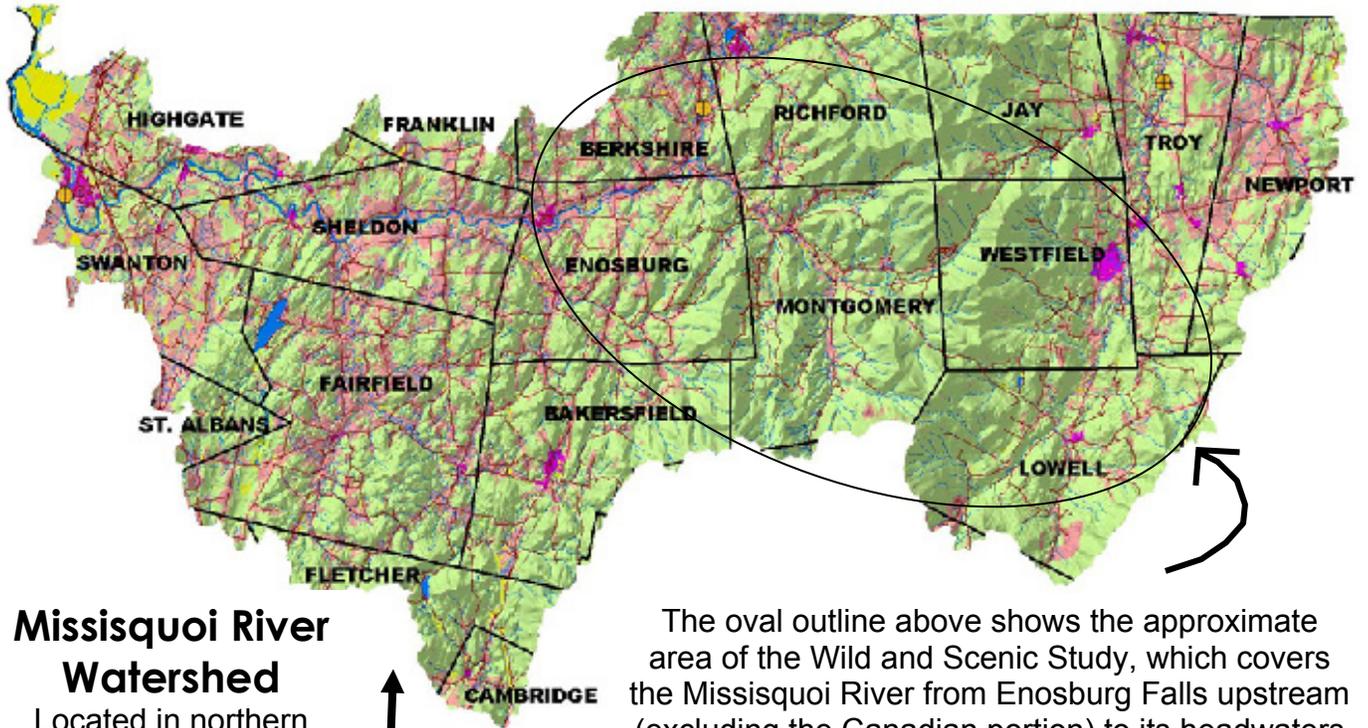
Taft Brook, a Missisquoi River Tributary

Photo by Dianne Laplante

- ♦ Recreational river areas are those which may have some development along shorelines. They are readily accessible by roads or railroads, and may have had historical impoundments or diversions.

If designated a Wild and Scenic River, the U.S. Congress appropriates funds for projects to preserve the river's recreational, scenic, historic, cultural, natural, and geologic resources. The goal of designation is to ensure protection of and enhancement for the ORVs. Private property rights and current land-use is not affected by the designation and Town and State laws and regulations continue to govern private property rights and land use.

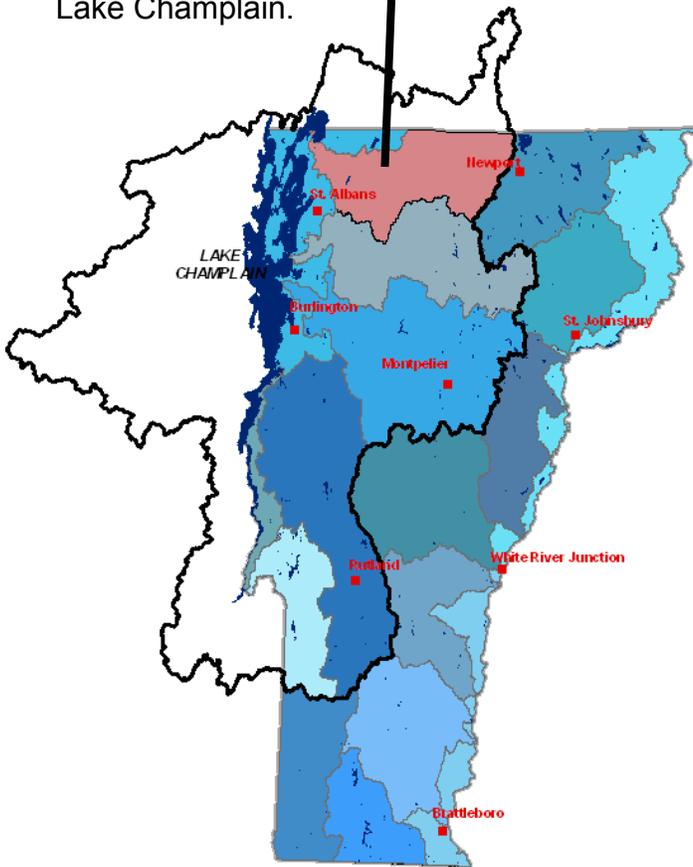
If the Missisquoi and Trout Rivers prove Wild and Scenic enough, then this designation would rank them among the nation's best rivers and qualify them for annual federal funding for protection projects and activities. To be a part of this study, visit the Wild and Scenic Rivers web site at: www.vtwsr.org, or call Shana Stewart, the River Study Coordinator, at 802-393-0076, or email shana.stewart@vtwsr.org. Also, visit the Missisquoi River Basin Association's web site for the most up to date activities going on in these northern Vermont watersheds.



Missisquoi River Watershed

Located in northern Vermont and draining into Missisquoi Bay in Lake Champlain.

The oval outline above shows the approximate area of the Wild and Scenic Study, which covers the Missisquoi River from Enosburg Falls upstream (excluding the Canadian portion) to its headwaters in Lowell, and the Trout River, a major tributary joining the Missisquoi in East Berkshire.



Shaded areas represent the 17 major watersheds in Vermont. Black outlines the Lake Champlain watershed, which includes lands in New York and Quebec.



Tributary to the Trout River
Photo by Ken Secor

Clean Dishes AND Clean Water!

Automatic dishwasher detergents will no longer contribute to algae problems in Vermont rivers and lakes. Vermont's phosphorus detergent law (Title 10 §1381-1384) prohibits the sale of household dishwasher cleaning products containing more than a trace amount of phosphorus after July 1, 2010, except for pre-existing inventory. The law is part of a larger effort to ban the distribution and sale of phosphorus containing household cleaning products throughout the state. Laundry detergents and hand-washing dish soaps sold in Vermont are already phosphorus-free.

Phosphorus entering our lakes and streams acts as a fertilizer, feeding plant and algae growth. In fact, one pound of phosphorus can produce up to 500 pounds of algae! Not only can the algae look and smell bad, but when they die, bacteria decomposing them deplete the oxygen needed by fish and other aquatic life.

After Vermont's 1978 phosphorus ban on laundry detergents, phosphorus concentrations in wastewater effluent declined by 40%. Today, wastewater discharges are down by more than 90% from their historical levels, and now represent only a small fraction (approximately 3%) of all phosphorus pollution that reaches Lake Champlain from Vermont each year. These reductions are the combined result of improved treatment technologies and the reformulating of cleaners.

Currently, 20% of the total amount of phosphorus delivered to Vermont wastewater treatment plants is attributable to automatic dishwasher detergent. Wastewater treatment facilities cannot remove all of the phosphorus. The phosphorus that isn't removed is discharged into our streams, rivers and lakes. The switch to phosphorus-free dish detergents alone will reduce phosphorus pollution in Lake Champlain by one to three metric tons per year. It is easier and cheaper to reduce the use of phosphorus-based products than it is to clean-up water quality problems caused by phosphorus loading. Vermont is not taking this legislative action alone; as 15 other states have laws setting a target date of July 1, 2010 for a reduction in the use of phosphorus in household automatic dishwashing detergents as well. To learn more, visit the Clean and Clear web page: www.anr.state.vt.us/cleanandclear/phosban.htm.



State of the Lakes

Lake Association
Web Sites

Lake Bomoseen www.lakebomoseenassociation.org
Lake Carmi www.lakecarmi.org/
Cedar Lake www.cedarlakevt.org/
Caspian and Eligo Lakes www.greensboroassociation.org/
Lake Champlain Comm. www.lakechamplaincommittee.org/
Southern Assoc. www.lakechamplainrestoration.org/
St. Albans Bay www.saintalbanwatershed.org/
Lake Dunmore and Fern www.lakedunmorevt.com/
Echo Lake echolakeassociation.net/
Lake Fairlee blog.lakefairlee.org/
Groton www.grotonpond.com/
Harveys Lake lakeharvey.com/
Lake Hortonia lakehortonia.org/
Lake Iroquois lakeiroquois.org/
Joes Pond www.joespondvermont.com/
Maidstone Lake maidstonelakevt.com/
Lake Memphremagog www.memphremagog.org
Lake Morey lakemorey.org/
Lake Parker www.lakeparker.org/
Lake Rescue www.lakerescue.org
Lake St. Catherine and Lily Pond lakestcatherine.org/
Seymour Lake www.seymourlake.org/
Shadow Lake www.shadowlakeassociation.org/
Star Lake www.mounthollyvt.org/FOSL.htm



While your Dishwasher's Cleaning, Our Lakes are Greening.

Effective July 1st, 2010 Vermont stores can no longer sell dishwasher detergents that contain phosphorus.

What does this mean for your dishes? Nothing! Phosphorus-free dishwashing detergents perform just as well as their phosphorus containing counterparts.

This is great news for Vermont's lakes and waterways. Phosphorus feeds algae and too much allows harmful amounts of algae to thrive.

It is easier and less expensive to reduce our use of phosphorus-based products than it is to remove phosphorus at our wastewater treatment plants.

Clean dishes AND clean water!

For more information, please visit <http://www.anr.state.vt.us/cleanandclear/>

THIS MESSAGE IS BROUGHT TO YOU BY THE FOLLOWING:



HIGHLIGHTS

Aquatic Invasive Species

Law Prohibits the Transport of Aquatic Plants and Aquatic Invasive Species in Vermont

On July 1, 2010, Vermont's 22-year old law prohibiting the transport of important aquatic invasive species changed. Previously, the law prohibited the transport of the invasive plants Eurasian watermilfoil and water chestnut. Vermont's invasive species transport law now **prohibits the transport of all aquatic plants or aquatic plant parts** on the outside of a vehicle boat, personal watercraft, trailer or other equipment. The law change means both the public and those who enforce the law will not have to know how to distinguish one type of aquatic plant from another. Vermont's invasive species transport law also will continue to prohibit the transport of two animal species, zebra mussels and quagga mussels. For information visit www.vtwaterquality.org

Be a VIP-Vermont Invasive Patroller!
Contact Leslie.Matthews@state.vt.us

Water Chestnut 2010

The water chestnut management program is in good shape funding-wise for 2010. Now if the weather cooperates and the newly rebuilt access road holds up, the program should meet a long-awaited milestone – water chestnut control in Lake Champlain as far south as the Narrows of Dresden. Since 1982, the Vermont Department of Environmental Conservation has managed water chestnut in Lake Champlain from the north to the south in an effort to prevent the northward expansion of this species and reduce its population to first the Narrows, and then if successful, beyond to Whitehall, NY. VTDEC is fortunate to have strong management help from partners such as The Vermont Chapter of the Nature Conservancy, U.S. Fish and Wildlife Service, Army Corps of Engineers, Lake Champlain Basin Program, and others.

European Frogbit Removal Project, Mouth of Thorp Brook Lake Champlain

The Lewis Creek Association is in the second year of removal of European frogbit (*hydrocharis morsus-ranae*, an invasive floating-leaved aquatic plant that is easily picked by hand. Contact Sue Smith: ssmith@gmavt.net for details. **Volunteers Help Days:** July 5th, 6th, 12th, 13th, 19th, 20th, 26th, and 27th, and August 2nd and 3rd.

Strengthening the Watershed Planning Process

Neil Kamman, long-time staff member of the Lakes and Ponds Section, has been hired as the Program Manager of the new Monitoring, Assessment and Planning Program, which combines the Planning and Biomonitoring Sections. The re-organization has provided the opportunity to review the watershed planning process; identifying its strengths and weaknesses, and opportunities for improvement. The general goal is to enhance coordination of the numerous water-related planning efforts by developing a state-wide plan that spotlights the highest-priority strategies needed to protect Vermont's waters. Examples where enhanced coordination is envisioned include the Lake Champlain "Total Maximum Daily Load" Implementation Plan; the River Management Program's corridor planning and protection program; and stormwater and wastewater permitting programs. Below are a few topics included in the plan.

Identification of State Water Resource Goals and Objectives: This component will lay out the vision for Vermont waters, including descriptions of healthy and functioning watersheds.

Water Quality Monitoring Program Strategy: This component will direct how monitoring and assessment resources are allocated.

Protection and Remediation Programs: This section will contain rules, procedures, and best practices that outline state technical assistance services available to assess and remediate various stressors.

Tactical Basin Implementation Plans: The tactical plans are intended to focus state resources on the most important issues in each basin, and is the equivalent of the current basin plans.

After completion of its internal review of its current basin planning process and opportunities for enhanced planning and coordination, the Agency of Natural Resources will initiate an open, public process for discussion of these issues. For more information about the current Watershed Planning Process, visit the web at: www.vtwaterquality.org/mapp.htm

Green and Lamoille Rivers Are Reconnected to Sections of Flood Plain

After several years of negotiation, planning, collaboration, and fund raising, the Green River-Lamoille River flood plain restoration got underway. A third generation family-owned auto salvage yard was located on the banks of the Lamoille River at the confluence with the Green River. This past spring, excavators, loaders and shovels unearthed over 90 cars that had been silted in the banks of the Lamoille River. In some cases the cars had been in the banks for several decades. While the cars had offered up some protection against the erosive water forces and ice flows of the Lamoille and Green Rivers, they prevented the growth of native trees and shrubs on the streambank and acted as flood plain encroachments, reducing the Lamoille River's ability to fully access its flood plain during high water events.

Some of the cars were removed, and immediately crushed and taken off the premises while the remaining cars with some value were relocated away from the streambank area. A 50 foot vegetative buffer was then established. Several hundred native trees and shrubs were planted within the riparian buffer area, restoring approximately one acre of flood plain and riparian area.

Funding for the project was provided by a grant from the Vermont Agency of Natural Resources' Clean and Clear grant program to the



Before (left) and After (above) Photos of the Lamoille and Green River Bank Restoration Project.

Lamoille County Natural Resources Conservation District. Trees and shrubs were planted as part of the LCNRCD's *Trees for Streams* program. The TFS program offers river and lakeshore landowners a subsidized cost to plant trees adjacent to rivers and lakes, while volunteers provide the labor for the plantings. Lamoille Union Middle School students and members of the Lamoille River Angler Association helped plant the buffer after the cars were removed. And, anglers regularly have provided labor and funding for other buffer projects within the Lamoille River watershed. The Vermont Department of Environmental Conservation's Watershed Planning and River Management staff initiated the project and provided technical assistance and grant oversight. Contact Jim Ryan for more information about projects in the Lamoille Watershed at 802-476-0132, or email jim.ryan@state.vt.us

Lay Monitors Sampling Lakes Statewide



Andrew Robbins
Lake Runnemedde
6 Years!

Steffen Parker
Champlain
16 Years!



Jeff MacQueen
Halls Lake
10 Years!



Sara Gluckman
Champlain
18 Years!



Tom Fetter
Holland Pond
15 Years!



Dick Harter
Champlain
26 Years!

Contact Amy Picotte for your lake's data or to monitor your lake, 802-241-3789, or Amy.Picotte@state.vt.us