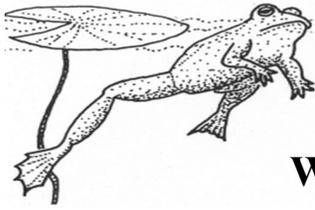
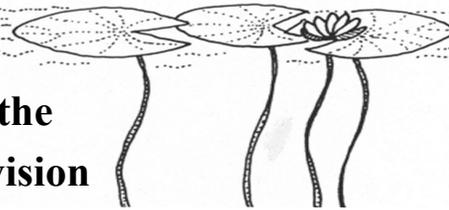


Out of the Blue



A Newsletter of the
Water Quality Division



Summer 2011 No. 39

Vermont Agency of Natural Resources
Department of Environmental

Spring Waters

Every spring, streams and rivers rise, flood, and flow to lakes. Vermonters anticipate this annual event, as skiers and riders finish the season on soft corn snow and anglers remove their fish shanties from winter lake ice. As spring approaches, people expect the frozen water to melt and begin to flow. With snow and ice melt, new life arrives. Water rising and moving indicates springtime in Vermont.

Springtime high waters and floods are natural events. However, some years this seasonal stage brings more than expected. Floods can be damaging, especially when development is poorly located.

Streams and rivers tend to meander, to wander their way with *stability* through the landscape. During high flows, streams and rivers overtop their banks and spill onto the nearby lands. These flood plains are part of a river system and are created and used by the stream or river to slow its velocity and disseminate its load during high water events. However, when encroachments, such as fill to support roads and buildings, are placed in floodplains, several negative consequences occur. An obvious one is flood damage to property built in floodplains. Another result is that confined waters run faster, causing increased channel and bank erosion and moving abundant sediment downstream into lakes.

Stability is defined as the ability of a stream, over time and in the present climate, to transport the flow and sediment of its watershed in such a manner that it maintains its dimension, pattern, and profile without aggrading or degrading.

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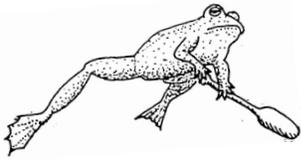
Lake Champlain Sediment Mixing from the Lamoille and Winooski Rivers, and South Hero Shore
Photo by the Lake Champlain Basin Program



Lake Champlain Floods to Record Level, Colchester
photo by Glenn Russell, Burlington Free Press

See page 2, "Spring Waters"

"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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The Vermont Agency of Natural Resources, Department of Environmental Conservation, is an equal opportunity agency and offers all persons the benefits of participating in each of its programs and competing in all areas of employment regardless of race, color, religion, sex, national origin, age, disability, or other nonmerit factors.

(continued from page 1) Spring Waters

In May, residents along Lake Champlain witnessed record breaking lake levels with the lake rising to 103.1 feet above sea level. Every year Lake Champlain has a one percent chance of reaching or exceeding 102 feet and this spring people learned what that looked like.

Lake shores buffered with vegetation have a natural defense against pounding high waters. Lakeshore erosion occurs on those banks stripped of vegetation. This spring's flooding along unbuffered Lake Champlain shores, washed excessive sediment, houses, cars, logs, septic systems, and even roads into the lake!

Aerial photos taken by the Lake Champlain Basin Program captured the flooded state of the lake and clearly showed how watersheds are connected. Land management upstream in a watershed affects conditions downstream and in the receiving lake. Major tributaries and unbuffered lake shores poured sediment into Lake Champlain during late April and May and colored the lake dark grey. After muddy waters clear, the nutrient phosphorus remains and is readily available to feed an excess of algae and aquatic plants – not a good situation.

Will Lake Champlain ever break this 2011 high water level record? Probably, and it could happen sooner than later if river floodplains are not protected. Mike Kline from the Vermont

"Flood plains are the pressure relief valve of the river. If the river can get out on its floodplain, it's going to be less erosive of those stream banks, which means less pollution into the lake."

~ Mike Kline

Vermont Rivers Program



Winooski River Floods Cochran Road in Richmond
photo by Glenn Russell, Burlington Free Press

Rivers Program says river corridor protection (channel and flood plains) is necessary to control flooding, provide healthy aquatic habitat, and clean water.

Rivers that swell and flood naturally onto floodplains, run slower, and scour out channels less. Additionally, a river accessing floodplains drop sediment loads on land, reducing the phosphorus concentration and sediment load and debris entering Lake Champlain.

If river corridors are protected and established as no build zones, then there is a much better chance that during future high water events less damage will occur. Protecting river corridors benefits water quality, natural habitats, lakes, and helps prevent property damage during floods.

In addition to protecting more miles of river corridors, Vermont lakes need stronger shoreland protection. Lake shore buffers are essential for protecting lake water quality, aquatic habitat and property damage. Improvements in land management are essential to healthy rivers and lakes and in preventing flood property damage in the future.



Shoreline erosion North Point Isle LaMotte VT
Photo by the Lake Champlain Basin Program



Camps along Hathaway Point in St. Albans
photo by Glenn Russell, Burlington Free Press

Here's What You Can Do to Lessen Future Flood Damage:

- Work locally to protect vegetative shoreland buffers, wetlands, and floodplains.
- Don't allow new development to occur within 100 feet of lakeshores.
- Encourage your town to participate in the National Flood Insurance Program.
- Encourage your community to conduct a geomorphic (**physical river process**) study of the rivers and streams in your town to learn where land use regulations are needed to protect the stream and river corridors.

These actions will help protect community investments, the people already living in a floodplain or within a 100 feet of a lake, and help sustain the natural qualities of our lakes, ponds, rivers, streams, and wetlands.

State of the Lakes



Phosphorus Ban!

The Vermont Legislature just passed New England's first law prohibiting the use of lawn fertilizers containing phosphorus. Unnecessary use of phosphorus in lawn fertilizers has been shown to increase the amount of phosphorus running off from residential areas into lakes and streams, contributing to unwanted algae growth. Most lawn soils in Vermont already contain enough phosphorus for healthy grass without adding extra phosphorus fertilizer.

Several years ago, a group of organizations in the Lake Champlain basin began pooling resources and ideas to create the Lawn to Lake program. In addition to promoting the use of phosphorus-free fertilizer with the "Don't P on Your Lawn" message, this partnership created other healthy lawn tips and encouraged local retailers to stock phosphorus-free fertilizers.

Officials from Scotts Miracle-Gro Company announced they were changing their formula to help clean up pollution from storm runoff. Scotts took the step of removing phosphorus from its lawn products after research showed that it is not necessary for lawns, except ones that are just getting established.

Now, a bill (H.26) passed by the Vermont Legislature in May 2011 will prohibit the use of phosphorus fertilizers on most non-agricultural turf except when a soil test indicates the need for additional phosphorus or when using starter fertilizer to establish a new lawn. The law also prohibits the use of nitrogen fertilizer that contains less than 15 percent slow-release nitrogen. No fertilizer may be applied to an impervious surface, to frozen ground, within 25 feet of water, or to turf anywhere between April 1 and October 15. The Governor is expected to sign the bill, and the provisions will become effective on January 1, 2012.

To learn more about healthy lawns and lakes, visit the Lawn to Lake Program at: www.lawntolake.org/index.htm



Teaching Teachers about Urban Stormwater Run-Off



The Project WET, Water Education for Teachers, partners with the Lake Champlain Basin Education Initiative to offer a year long professional development training to teachers called **A Watershed For Every Classroom**. In the spring 2011 session, Jim Pease from the Stormwater Section, took the teachers on tour of Englesby Brook in Burlington to teach about urban streams and stormwater run-off prevention. The ban on phosphorus in lawn fertilizer was also discussed.

HIGHLIGHTS

Aquatic Invasive Species

Grants. Approximately \$416,000 from a portion of state motorboat registration funds and federal Army Corps of Engineer monies will support 36 grants to municipalities managing aquatic invasive species in 2011. Additional state and federal funds are available in 2011 to support variable-leaved watermilfoil and water chestnut control programs, and early detection and spread prevention programs.

Access Area Greeter Programs. Twenty-eight greeter program coordinators and access area greeters attended VTDEC's 4th annual Access Area Greeter Program training workshop on May 13, 2011. In 2010, greeter programs receiving state funding reported more than 8300 boat inspections. Of these, 190 (2.3%) were carrying plant or animal material, including invasive species! Spread prevention through greeter programs is the most cost-effective means of managing aquatic invasive species threats.

The Lake Champlain Basin Rapid Response Task Force, which includes representatives from New York, Quebec and Vermont, met for the first time in February and followed with an EPA-lead Incident Command System training. Vermont's new emergency permitting authority aimed at initiating a rapid response to a new invasive species invasion was authorized under a **General Permit** in March 2011.

Cooperative Invasive Species Management Areas (CISMAs) are partnerships of federal, state and local government agencies, individuals and non-government groups that manage invasive species (terrestrial and aquatic) in a defined area. Two CISMAs are forming in Vermont – one in the Ottauquechee River watershed and one in the Upper Connecticut River watershed.

Felt-soled Wader Prohibition. This new Vermont law aims to reduce the spread of invasive species and fish diseases such as didymo, New Zealand mud snail and whirling disease.

Asian clam was discovered in August 2010 in Lake George, NY, within the Lake Champlain basin. The source of the introduction is unknown, but bait or aquarium dumping are suspected. A massive rapid response is now underway using benthic mats to smother the clams and prevent them from reproducing and spreading. VTDEC staff continue to participate in this effort as part of the Lake Champlain Basin Rapid Response Task Force.

Join the Vermont Invasive Patrollers (VIPs) Early Detection Network! Four Vermont Invasive Patrollers (VIPs) basic training workshops were held around the state in 2010 with a total of 41 participants. This brings to approximately 400 the total number of VIP volunteers trained since the program's inception four years ago. Certified VIPs documented at least 25 surveys on nine water bodies during 2010. **Attend a VIP workshop in 2011** and find out how you can monitor your waterbody for new invasive species infestations! You'll learn to recognize invasive species and distinguish them from the many lake-friendly native aquatic plants and animals. **Already a trained VIP?** Schedule a site visit this summer! For more information, visit us online at www.vtwaterquality.org, follow the links for Lakes and Ponds section and Vermont Invasive Patrollers, email leslie.matthews@state.vt.us, or call 802-241-3798.

Ecosystem Restoration Program and The Lake Champlain Basin Program

Introducing the New Ecosystems Restoration Program

Under Governor Peter Shumlin's Administration, Deb Markowitz was appointed as Secretary of the Agency of Natural Resources, and subsequently, David Mears as the Commissioner of the Department of Environmental Conservation. This new management team recognizes the efforts to clean up Lake Champlain as ecosystem restoration work, hence has expanded the Lake Champlain "Clean and Clear Program" work to the newly titled Ecosystem Restoration Program.

Since 46 percent of Vermont drains to Lake Champlain, as well as parts of upper state New York and Quebec, the ratio of lake to watershed is huge, in fact one to nineteen! Compared to the Great Lakes, which have a one to two ratio of lake to watershed, the task of keeping Lake Champlain clean and healthy extends to a much larger land area, way beyond just the lake's shores.

A key partner and forerunner in Lake Champlain public involvement is the Lake Champlain Basin Program. For nearly two decades, the Agency of Natural Resources has worked with the LCBP to help monitor the lake and engage the public in finding and implementing solutions to water quality problems. While broadening watershed work to all of Vermont waters, the Ecosystem Restoration Program will continue to collaborate with the LCBP and to support the shared objective of protecting Lake Champlain.

2012 Ecosystem Restoration Grants

Grants are available for projects that reduce nutrient and sediment loading to Vermont waters and provide other ecosystem benefits as well. Pre-proposals are due **July 15, 2011**. The RFP is posted online at:

<http://www.vermont.gov/cleanandclear>

<http://www.anr.state.vt.us/cleanandclear/new.cfm>

Or, for more information, contact:

Eric Smeltzer, Acting Manager, Ecosystem Restoration Program

(802) 241-3792

eric.smeltzer@state.vt.us

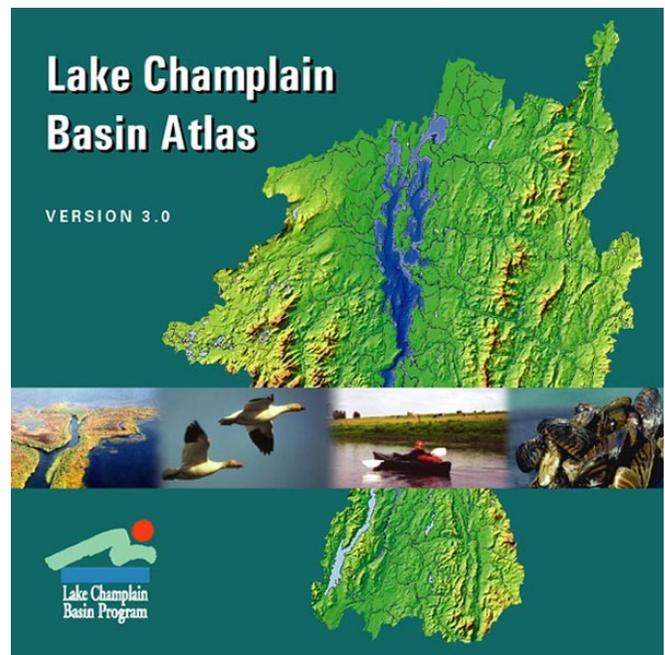
Or, your Watershed Coordinator (see page 7).

The Lake Champlain Basin Program

The Lake Champlain Basin Program works in partnership with government agencies from Vermont, New York, and Quebec, private organizations, local communities, and individuals to coordinate and fund efforts which benefit the Lake Champlain Basin's water quality, fisheries, wetlands, wildlife, recreation, and cultural resources.

These efforts are guided by the plan *Opportunities for Action*, Lake Champlain's long-term management plan. The LCBP works with its program partners, advisory committees, and local communities to implement this plan through a variety of federal, state and local funds. Core funding for the LCBP is through the US Environmental Protection Agency.

The LCBP has developed an Atlas on Lake Champlain, which can be found on their web site. This Atlas covers everything -- from current issues, nature, glaciers, geology, culture and people to events in the basin. And, all data results from the Long-Term Monitoring Program and the Vermont Lay Monitoring can be found on this site as well. The LCBP has provided funding support for hundreds of water quality improvement projects in the basin, including invasive species spread prevention, stormwater runoff control, and lakeshore and riverbank revegetation. To learn more about the LCBP and all their extensive work in the basin, visit their web site at www.lcbp.org.



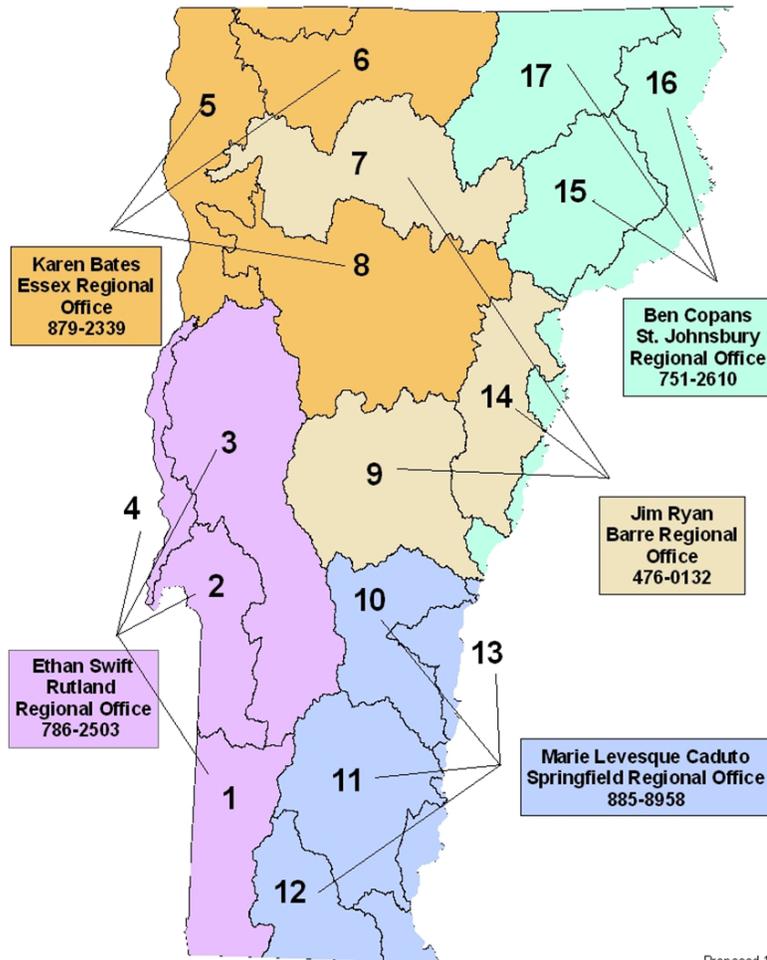
Tactical Basin Planning

During the last year, the Water Quality Division has developed a more effective planning process to manage surface waters across the state. This new strategy aims to pull together the monitoring and assessment data, and the protection and restoration tools of rivers, lakes, wetlands and stormwater for each of Vermont's 17 major watersheds. What makes this new watershed planning process different from previous basin planning efforts is the scale.

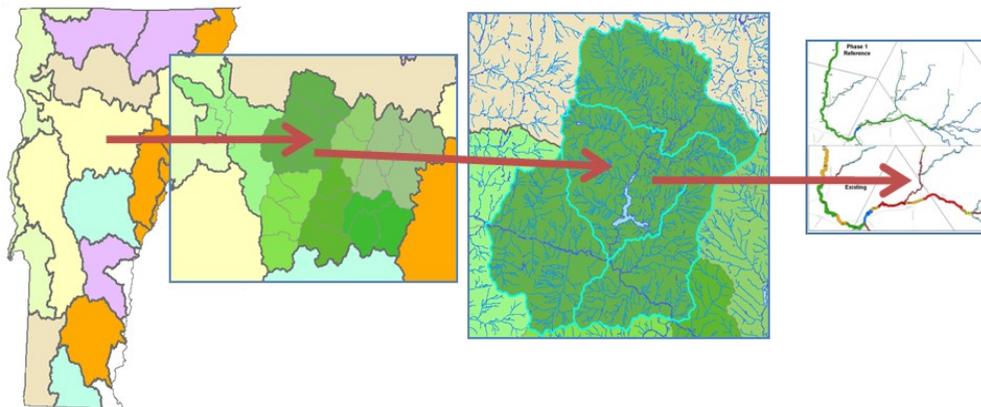
While prior basin plans focused on broad-scale strategies to promote surface water protection or improvement, the new tactical plans will highlight the projects or actions needed to protect or restore specific waters and identify appropriate funding sources to complete the work. For those who know about pollution run-off issues in their watershed, such as eroding dirt roads, poor culvert placements, stream or lakeshore erosion, clear-cutting, etc., it's important to include them in these new tactical basin plans. These plans will guide the state's watershed work and the issues identified in these plans will be prioritized for management attention, including funding.

There are 17 major river watersheds in Vermont and the tactical basin plans will prioritize sub-basins of these watersheds for enhanced monitoring, assessment, planning, and project development. All implementation watershed improvement work will be available to track on the Water Quality Division's web site at www.vt.waterquality.org.

Watershed Coordinators



Watershed Coordinators encourage public involvement as they develop new Tactical Basin Plans for each of the 17 major watersheds. Contact your Watershed Coordinator to help prioritize projects for your area.



New Tactical Basin Plans aim to pin point specific problems to address within each of the 17 Major watersheds in Vermont



2011 FOVLAP Annual Meeting

Monday ~ July 25, 2011

The Steak House, 1239 Rte 302 , Barre-Montpelier Rd.
Berlin, VT

Registration & coffee: 9:00-9:30

www.vermontlakes.org

Vermont Lake Seminar Held at State Capitol!



Lake Iroquois was well represented (photo on left) at the Vermont Lake Seminar, held on June 3rd, 2011 at the State Capitol in Montpelier. This annual lake event is sponsored by the Federation of Vermont Lakes and Ponds and open to everyone. This year the seminar offered workshops on shoreland conservation and zoning and stream dynamics. Eric Hanson, from the Vermont Loon Recovery Project, presented on the latest status of loons, and Jenna Calvi, from the Water Quality Division, addressed "Low Impact Development" practices for lakeshores. On Monday, July 25th, FOVLAP will hold its annual meeting in Berlin.

Students Today, Leaders Tomorrow

The Vermont Envirothon is a high school challenge program that connects students to the natural resources of their community. It focuses on aquatics, forestry, soils, and wildlife and is sponsored by the Vermont Association of Conservation Districts. The 2011 teams competed on Lake Fairlee and the top three teams were:

Essex

Mills River (Rutland)

Bellows Falls

To learn more contact Marie or Amy at

Marie.caduto@state.vt.us or
Amy.Picotte@state.vt.us



Out of the Blue

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