Out of the Blue

Winter 2008 No. 33

Vermont Agency of Natural Resources
Department of Environmental Conservation

Pinney Hollow Brook Flows Freely Again with Removal of Old Dam

From its headwaters near the historic settlement of Plymouth Notch, Pinney Hollow Brook flows northeast through a narrow, rural valley to Broad Brook and the Ottauquechee River near Bridgewater. Thanks to a cooperative project to remove an old, unused dam, the brook flows freely again as it makes its way through the valley.

This valley is steeped in history. Plymouth Notch was the childhood home of Calvin Coolidge and where he was sworn in as the U.S. President in 1923. A short distance away is Coolidge State Park, which was the site of a Civilian Conservation Corps camp in the early 1930s. The CCC built a campground and picnic area, and built a 67-foot long and 10-foot high concrete dam on the brook to provide a swimming area for campers and picnickers.

The dam partially failed in the flood of June 1973 and then the picnic area's popularity declined once a park was opened on neighboring Echo Lake. These events left the dam with little purpose and importance. However, the dam remained with

See page 2, "Pinney Hollow Brook"

In This Issue

Pollution Solutions for Clean Water

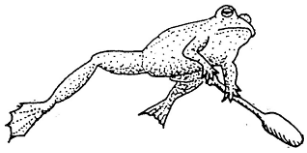
Federal Clean Water Act, Section 319 Grants

The conditions of Vermont surface waters have been in the news a lot. This attention shows that people are concerned and interested in the issues that threaten clean and healthy rivers and lakes in Vermont. However, people are not just following the news stories, they make them by doing amazing projects that help protect our waters.

Pollution that comes from many different land uses, such as stream bank erosion, agricultural and storm water run-off, devel-

See page 6, "Pollution Solutions"

"Out of the Blue"
Available on the Web



Check out the latest and future newsletter issues on the Water Quality Division Web Page at
www.vtwaterquality.org

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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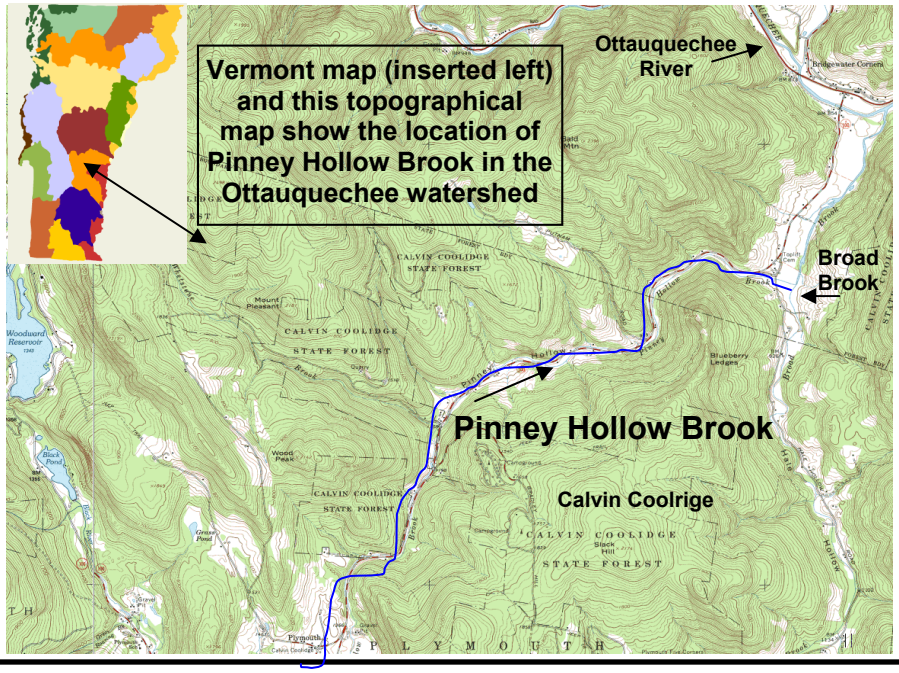
(continued from page 1) **Pinney Hollow Brook**

water flowing through an opening in its base. During storms and spring floods, woody debris would block the opening and water would back up behind the dam. At other times fast-flowing water in the narrow opening would prevent fish from moving upstream past the dam. Wild brook trout live in Pinney Hollow Brook, but the dam prevented them from inhabiting the entire length of it.

In 2006, a partnership of the Vermont Agency of Natural Resources, U.S. Fish and Wildlife Service and Vermont Division for Historic Preservation formed to talk about removing the dam to reconnect the upstream and downstream sections of the Brook. It was an easy decision for the natural resource agencies, but the dam carried historic meaning. In fact, it is listed on the National Register of Historic Places as one of the historic features of Coolidge State Park. Representatives of the three partnering agencies agreed to leave some portions of the dam in place but remove the center section that was within the stream channel. In addition, they concurred to develop an interpretive display on the history of the dam and why it was removed.

After the necessary permits and bids from several contractors for the work were in place, the project to remove the dam started in mid-September 2007. The first step was to construct a temporary sandbag dam upstream and divert the stream through a pipe, providing a dry work area. Next, a large slab of the concrete dam was broken loose and lifted with a crane to be used as part of the interpretive display. And finally, the rest of the concrete to be removed was broken up with a large hydraulic hammer and removed from the streambed. After months of planning and preparation, the entire job took only a week!

Pinney Hollow Brook now flows freely through Coolidge State Park, allowing fish and other aquatic creatures to move upstream and downstream unimpeded, and ample evidence of the history of this area remains. This project represents a balance of ecological restoration and historic preservation.

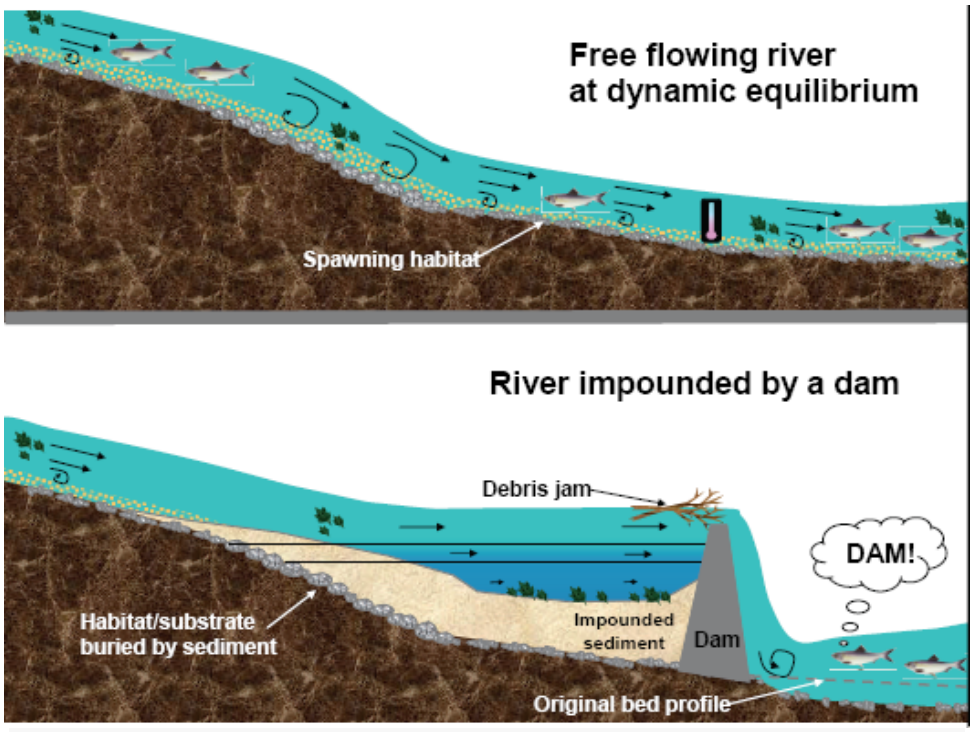


How a Dam Affects a River

Fundamentally a dam is a barrier that interrupts the natural river dynamics. The impoundment that forms behind the dam loses many of its riverine characteristics, impacting species that depend on river habitat for their survival.

"There are probably hundreds of dams in Vermont that, like Pinney Hollow, are no longer serving a useful purpose but are still having ecological impacts."

Brian Fitzgerald, VTDEC Hydrologist



Graphic based on original by Laura Wildman, American Rivers

	Free Flowing River	Dammed River
Temperature	Natural temperature regime	Greater surface area of impoundment and surface release often results in higher water temperatures in impoundment and downstream
Dissolved Oxygen	Turbulent flow and shallower water depths result in high dissolved oxygen concentration	Loss of turbulent flow may reduce dissolved oxygen concentration; impoundment may stratify, further reducing dissolved oxygen
Habitat	Riverine coldwater habitat	Habitat is more lake-like and often unsuitable for coldwater fish species
Fish Movement	Fish and other organisms free to move upstream and downstream, including migratory fish such as Atlantic salmon	Access to habitat blocked or fragmented
Flow Regime	Natural flow regime	Modified flow regime
Sediment	Natural transport processes maintained	Trapped in impoundment—natural substrate buried by sediment in impoundment, downstream channel erosion may result to "replace" trapped sediment
Pollutants	Metals and organics are distributed downstream	Metals and organics are concentrated in fine sediments trapped in impoundment
Nutrient Transport	Nutrients are transported downstream	Portion of nutrients trapped in impoundment
Woody Debris	Woody debris is transported downstream to create habitat	Portion of woody debris trapped in impoundment

Aquatic Nuisance Species

HIGHLIGHTS

Didymosphenia geminata ("Didymo") (also called ROCK SNOT) This potentially invasive alga species that inhabits fast-flowing, cold-water river and stream environments was discovered in the northern reaches of the Connecticut River, the White River and the Batten Kill during summer 2007. There are no known eradication methods available. The Agency of Natural Resources response is focused on public education about spread prevention. It remains to be seen whether didymo blooms will re-occur in infested rivers in 2008 with the same magnitude as seen in 2007. Stay tuned… For more information visit www.vtwaterquality.org.

Grant-in-Aid Grant Applications Now Available

Due March 3, 2008!

These grants are for municipalities to apply for funds to support aquatic nuisance control projects in Vermont waterbodies in project year 2008. To obtain an application, on line go to http://www.vtwaterquality.org/lakes/htm/lp_grantinaid.htm or call the Water Quality Division at 802-241-3777. The Program provides financial assistance to control an existing aquatic nuisance species like Eurasian watermilfoil or to prevent the spread or introduction of an aquatic nuisance species into a previously uninfested water. Spread prevention project examples include:

- "greeter programs" that provide education, outreach and courtesy boat and trailer inspections at public boat access areas;
- watch programs to identify new infestations for prompt eradication;
- outreach programs to raise public awareness about invasive species and to educate children or adults about spread prevention strategies; and
- research projects aimed at identifying potential threats or effective prevention strategies for a particular waterbody.

Water Chestnut - Good News: In 2007, mechanical harvesting efforts in Lake Champlain reached Red Rock Bay, over a half a mile further south than recent efforts; actions to control water chestnut in the bay had not occurred since 1979, due to increased spread of the species further north in the lake and a lack of adequate, available management funds. **More Good News:** Of 67 known water chestnut sites in Lake Champlain, 17 had no water chestnut this year. **Even More Good News:** In 2007, sites in the Missisquoi National Wildlife Refuge had only half the amount of water chestnut as in 2006 when water chestnut was first discovered in these sites and was removed by handpulling. **Bad News:** Three new water chestnut sites were discovered in 2007: Richville Pond, a run of the Lemon Fair River; outside the entrance to Big Marsh Slough wetland in Missisquoi Bay of Lake Champlain; and Bullis Pond in Franklin. **Good News About the Bad News:** Rapid response controls were initiated at all three new sites before mature water chestnut seeds dropped.

The number of confirmed Eurasian watermilfoil waters increased in 2007. With four new confirmations documented in 2007, the total number of known Vermont populations in a lake/pond is now 64 and in other waters, 26. While increases in the number of water chestnut and Eurasian watermilfoil sites were noted in 2007, no new species of non-native invasive aquatic plants were confirmed in the state.

Host a VIP Training Workshop in 2008!

VIP workshop participants practice identifying aquatic plants using a plant key with live plant specimens.

Early detection is vital to protecting Vermont's waterbodies from harmful invasive plants and animals. Vermont Invasive Patrollers (VIPs) monitor a local waterbody for new introductions of invasive species while also learning about native aquatic plants and animals and their habitats.

A VIP training workshop takes about four hours and consists of:

- A two-hour indoor session of a slide show and a hands-on introduction to native and invasive plant and animal identification,
- A two-hour field session *on the water*, during which participants will learn how to conduct surveys of native and invasive species.

It's helpful if VIP workshop hosts can provide:

- An indoor site with electricity, like a town hall or library,
- A nearby canoe-able waterbody,
- Canoes and/or kayaks and life jackets.

To schedule a workshop, contact Leslie Matthews at leslie.matthews@state.vt.us or call 802-241-3777.

Vermont Invasive Patrollers Early Detection Network

Thirty-seven certified VIPs surveyed 21 waterbodies this summer for new populations of invasive plants or animals. Happily, no new infestations of invasive species were discovered! Several VIPs did discover native species that had not previously been recorded in their lake – a testament to the thoroughness of VIPs' survey efforts.

Update on the Use of Herbicides for Eurasian Watermilfoil Control

In 2007, four waterbodies in Vermont received spot/partial-lake treatments using the aquatic herbicide Renovate (active ingredient triclopyr): Lakes Hortonia, Morey, St. Catherine and Star. Three of the four treatments (Lakes Hortonia, St. Catherine and Star) were conducted as part of a five-year management program following a whole-lake herbicide treatment using the aquatic herbicide Sonar (active ingredient fluridone). A requirement of the five-year program includes herbicide (pesticide) minimization, the goal being to reduce watermilfoil to the point where non-chemical control methods can be used effectively. Two of the treatments conducted as part of long-range management programs (Hortonia and St. Catherine) used a new formulation of Renovate, "On Target Flakes" (OTF). The Lake Morey treatment also used the OTF formulation. Renovate OTF can be used in areas of greater dilution such as steep shoreline areas and open coves because the flake formulation carries the triclopyr to the target plants in deeper water and localizes it where the plants are growing, effectively holding it "on target."

End of season aquatic plant survey reports for the three waterbodies using the new formulation of Renovate "OTF" indicated that Eurasian watermilfoil responded favorably to the treatment in most areas with significant reductions of milfoil density and distribution observed. However, results did vary from poor to excellent both within and between OTF treated lakes. No obvious impacts to non-target species were noted. Preliminary findings indicate that this formulation of Renovate could prove to be a valuable "tool" for controlling watermilfoil without impacting non-target species.

Permit applications requesting the use of Renovate OTF in 2008 are expected from three of the four waterbodies treated in 2007 (Lakes Hortonia, Morey and St. Catherine). The intention is to treat areas not treated in 2007 and areas found at the end of the growing season with watermilfoil too dense to effectively control with non-chemical control methods.

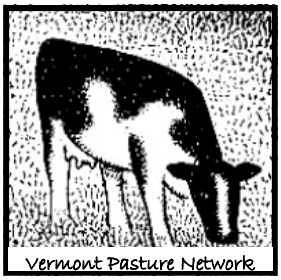
(continued from page 1) **Pollution Solutions**

opment sites, and even back roads cumulatively can cause major problems in our rivers and lakes. Excessive sediment reaching our rivers fills in the bottom, clogging the cobblestone substrate, rendering it unsuitable habitat for macroinvertebrates (insects, crayfish, mussels), which in turn upsets the whole aquatic food chain. Excessive nutrients, particularly phosphorus, washed into our lakes fuels algae blooms and aquatic plant growth, which essentially ages the lakes at an unnaturally fast rate.

Preventing run-off over wide land areas, or nonpoint source pollution, as it is referred to, is the biggest challenge for clean surface waters in Vermont.

The Water Quality Division administers grants, provided through Section 319 of the federal Clean Water Act, to fund projects aimed at controlling nonpoint source pollution. Below are examples of several "319 funded," pollution solution projects for clean water.

Grazing for Clean Water

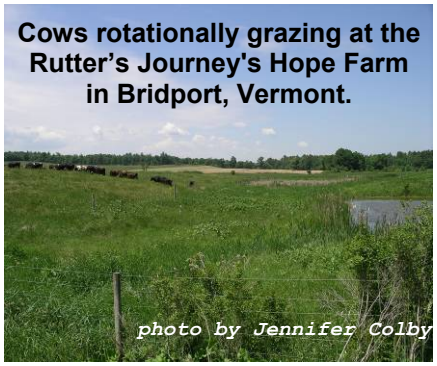


Grass-based farming under proper management has the potential to generate much less nonpoint source pollution than confined farming. Based on this fact, The Vermont Pasture Network at the UVM Center for Sustainable Agriculture received 319 funds to support their work with grass farmers throughout Vermont.

The VPN encourages farmers to use grass-based farming practices through workshops, publications and one-on-one technical assistance to farmers. They promote methods that best fit the farmer's resources and rely the least on nutrient imports, for example:

- rotational grazing strategies to improve forage quality,
- testing soil and applying appropriate amendments to improve soil quality, and
- creating more effective paddock and laneway designs to limit mud, erosion and runoff.

By providing information to more than 900 farms and on-farm assistance to 50 of these, the NPN has provided support on over 4,000 acres of farmland! For more information, please contact Rachel Gilker, rgilker@uvm.edu, 802-656-3834 or Jennifer Colby, jcolby@uvm.edu, 802-656-0858, or check out the Vermont Pasture Network on the web at: http://www.uvm.edu/~pasture/?Page=gcwi.html



Cows rotationally grazing at the Rutter's Journey's Hope Farm in Bridport, Vermont.

The farm fences out watershed buffer areas in addition to excluding animals from direct contact with waterways.

UVM Extension Builds Rain Gardens—Winooski Rain Garden Project

Rain gardens in Winooski are a useful, cost effective and efficient solution in reducing polluted stormwater runoff in the impaired Morehouse Brook watershed. The Morehouse Brook is located in the densely development city of Winooski. Most development within this watershed was incremental and created prior to stormwater management. With limited space for a traditional stormwater management facility, the city of Winooski needs to find alternative solutions to stormwater management that can be distributed throughout the watershed.

Winooski Rain Garden

This project incorporated basic water quality and rain garden education with demonstration gardens installed at both residential and public locations. The workshops have targeted Winooski residents, master gardeners and Winooski municipal officials. The demonstration rain gardens installed at residential locations were installed by the residents and master gardeners as a hands-on learning session. The public rain gardens were installed by the Vermont Youth Conservation Corps. A total of 11 gardens have been installed as part of this pollution solution project.

St Albans Rain Garden and Cistern Project

Rain gardens and cisterns are part of the plan to clean up Stevens and Rugg Brook watersheds, located in St. Albans City. With so much of the city paved over, preventing water from permeating into the ground, these two stormwater impaired streams, nestled within the densely developed downtown area of St. Albans, receive excessive stormwater runoff. Rain gardens and cisterns will help reduce and reuse stormwater generated within the watershed, giving these streams a break from carrying an unnaturally full load.

> **What's a Rain Garden?**
>
> A sunken garden planted with water loving plants! Rain gardens are designed to catch water flowing fast overland. As stormwater flows, these shallow depressions trap it, giving pollutants a chance to settle out and allowing the water a site to seep into the ground. Rain gardens reduce stormwater flows, produce clean water and are beautiful.

The Public Works Department will be installing a cistern at their public garage to reuse the stormwater to wash town trucks and vehicles. A rain garden workshop and demonstration installation was completed at a local resident's house; other gardens are planned for Taylor Park, along Bishop Street, at Northwest Regional Medical Center, and other sites.

To learn more about raingardens, contact Emma-Lynn Melvin through the University of Vermont's Extension by email emma-lynn.melvin@uvm.edu, or by calling her at 802-656-9110. More details about raingardens can be found on the University of Vermont's Extension web site at: http://www.uvm.edu/~seagrant/communications/assets/WinooskiRainGarden.pdf

Trees for Streams

Trees for Streams is a locally-driven program working to establish woody buffers and stabilize banks along rivers, streams, lakes and ponds. With the help of 319 grant funds (and watershed license plate grant funding), the program expanded beyond Lamoille County to plant trees throughout the entire Lamoille River watershed from its headwaters in the Northeast Kingdom to its mouth in Outer Malletts Bay in Lake Champlain.

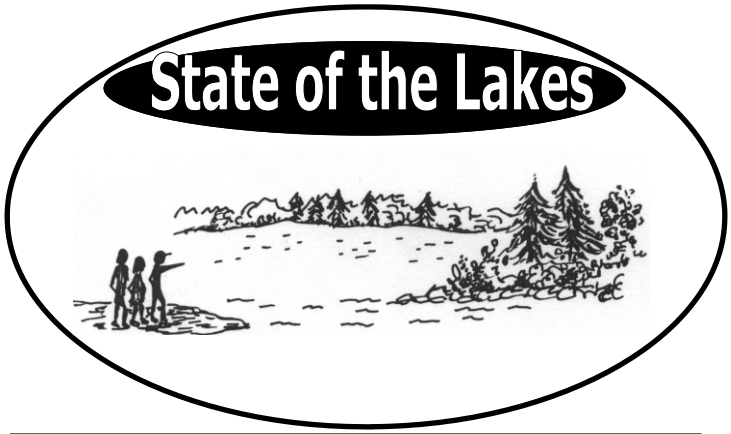
Trees for Streams has planted almost nine miles of shoreline with 15 to 50 foot buffer strips. And, most recently completed a shoreline demonstration project at Lake Eden with the Lake Eden Association.

Project partners prioritize their planting sites according to stream shape and size and site characteristics, such as nonpoint source pollution issues, adjacent land use, landowner willingness, terrestrial and aquatic wildlife habitat needs, and buffer connectivity. Using these criteria, along with desired outcome (such as increased habitat) to select a site for re-vegetating helps determine the size and species of buffer to plant. Also, river sites are selected in accordance with the current stage of the river channel's evolution. (Rivers behave differently, such as running straighter or more meandered, depending on their channel evolution; whether or not a stream is down cutting in the middle, widening or reaching equilibrium, must be understood before planting a buffer strip. For more background on stream geomorphology and stream channel evolution, visit the Floodplain Article in *Out of the Blue*, Summer 2007 No. 32, on the web at www.vtwaterquality.org.)

Community members planting trees along the Lamoille River with the Lamoille County Conservation District

The Trees for Streams Program require participating landowners to sign a ten-year contract and make a 20% financial contribution to materials; labor is voluntary and includes an educational component. The remaining 80% of the cost is covered by grant dollars and community contributions. Planted species are based on Vermont's natural communities and sourced locally from conservation nurseries collecting seed within corresponding or adjacent watersheds. To learn more about Trees for Streams, contact Christina Goodwin, at the Lamoille County Natural Resources Conservation District & Nature Center in Morrisville by email christina.goodwin@vt.nacdnet.net, or by calling her at 802-888-9218 x13. The web site is:

http://www.lcnrcd.com/ConservationProjects.html



Lake Habitat Measures

This article has been modified with permission by the author, Dr. Dave Halliwell, Fisheries Biologist from the Maine Department of Environmental Protection

The shallow area around a lake where water meets land is called the *littoral zone*, in direct contrast to the deeper, offshore *limnetic zone* of a lake. The condition of this watered shore land area in terms of human alterations, such as tree cutting and retaining walls, is a critical component of overall lake habitat for fish and other aquatic organisms. Several recent studies have investigated the relationships between the degree of development, in terms of shoreline disturbance and the number of shoreland residences, and the health of the aquatic community. This article summarizes the findings of these studies.

The presence of high quality habitat in the littoral zone is essential for maintaining lake health. Historically, developers and lakeshore residents have often modified both shoreline and in-lake littoral zone for recreational and perceived aesthetic purposes. The human tendency to create and maintain uncluttered or 'clean' manicured lakeshores does not necessarily help keep a lake healthy.

Lakes with minimal shoreline development are generally characterized by large accumulations of large and small woody debris (fallen trees and branches) originating from the lake shore (see photos). This natural woody structure serves as a nutrient source and provides valuable overhead and in-lake habitat cover for a very diverse community of aquatic organisms, from invertebrates (insects, mollusks, crayfish) to minnows to trout.

In southeastern **Michigan**, Aaron Jubar "quantified the effects of residential lakeshore development on littoral fishes and habitat" (Jubar, M.S. 2004, Michigan State University). He claims that "extensive alterations to north temperate lakes due to lakeshore development and associated activities have the potential to negatively affect habitat features in the littoral zone of lakes." His findings showed that undeveloped lake sites had significantly greater abundance of coarse woody material and aquatic plant cover compared to developed sites. He also recognized the vulnerability of littoral fish species to effects of habitat loss given their use of near-shore habitat for nesting, foraging, and as refuge sites.

"Coarse" (i.e. large) woody material such as fallen trees are an important feature along undeveloped lake shorelines.

In north-central **Maine**, Kirsten Ness, studied "the effects of shoreline development on lake littoral and riparian [shoreland] habitats" (Ness, M.S. 2006, University of Maine). As she states, her primary objective was "to determine the effects of shoreline development on the structural complexity of lake littoral and riparian habi-

Fallen trees provide valuable shelter and habitat to aquatic organisms.

tats." She found that shoreline development affected lakes at the whole lake and site specific scales, with the greatest effects occurring directly in front of a (shoreland) structure. According to Ness, "measured detrimental effects of development, in terms of coarse woody habitat and shoreline vegetation, also extended to sites away from structures, indicative of whole lake scale effects."

An ongoing lake study, directed by Kellie Merrell, Eric Howe, and Susan Warren from the Vermont Water Quality Division, shows the effect of lakeshore development on oligotrophic lakes in northeastern **Vermont**. Given that past studies in Wisconsin (Jennings and Emmons et al. 1999 and 2003) "found significant effects of shoreline development on macrophytes, woody debris, fishes, birds and frogs," this Vermont study is designed to measure the affect of shoreland development on lake littoral systems. This study references land use changes from historical logging (1880s), to the prevalence of seasonal camps (1920s), to the transition to permanent homes (1980s).

To date, this Vermont lake littoral study concludes: (1) Shoreline development increases with lake size and shoreline access for wildlife becomes limited; (2) The switch from tree to lawn dominated shoreline resulted in decreased shading in the littoral zone, leading to higher water temperatures, and the decrease in woody debris in shallow water has resulted in a loss of habitat for fish, wildlife, and macro-invertebrates; (3) Where there is a decrease in fine and medium woody debris and deciduous leaf litter, there is more sand/gravel and sediment embeddedness. This condition means less organic matter available as food or as habitat for fish, wildlife, and macro-invertebrates. The Water Quality Division is continuing this study next summer, in 2008, to gather data on mesotrophic and eutrophic lakes.

Jennings and others from **Wisconsin** originally studied the "cumulative effects of incremental shoreline habitat modification on fish assemblages in north temperate lakes," as reported in 1999. They found that fish species richness (number of species found) was positively correlated with local habitat complexity, i.e., more woody debris, rocky bottom, and/or mix of aquatic plant growth. In more recent Wisconsin studies (2003 and 2004), this group found that the "quantity of woody debris, emergent and floating vegetation decreased at developed sites in lakes with greater cumulative lakeshore development." They concluded that "habitat management programs, such as shoreland zoning/permitting, should consider the cumulative effects of small habitat modifications in addition to local effects."

Studies specific to lake littoral zones and the effects of shoreland development on them are relatively new. There is still a lot to learn about the relationship between healthy shores and healthy littoral zones. As the findings from these studies become more available, one thing is clear already, that a healthy lake consists of having healthy, natural littoral environments.

Recent research has begun to identify the relationships between human development along lake shorelines and the impacts on a variety of aquatic life such as the minnows shown here.
(photo by Ryan Burton, Maine DEP)

For more information about the important benefits of shoreland vegetation, visit the new Vermont Water Quality Division's website at: www.vtwaterquality.org/lakes/htm/lp_shorevegandbuffers.htm

Vermont Participates in the National Lakes Survey

Last summer the Vermont Lake Assessment Program participated in the National Lakes Survey, an initiative of the United States Environmental Protection Agency to determine the ecological health and recreational value of the nation's lakes. From June through September, our crew visited thirty-two lakes across Vermont, while at the same time groups from Maine to California were performing identical surveys on lakes in their regions.

Although the National Lakes Survey involved many techniques that Vermont has been using in water quality assessment for decades, it introduced some new methods and technology. To help record and store data, we replaced the clipboard and pencil with new data tracking technology. New equipment was used for measuring dissolved oxygen, pH, and temperature; navigating to the station location using latitude and longitude coordinates; and mapping and recording physical habitat information on electronic field sheets. This hand-held field instrument was plugged into a computer back at the office to transfer all the data directly to our computer network. This process saved a lot of time and made field work much easier, especially in the rain!

Trophic States

Oligotrophic- Often referred to as "young" lakes characterized by deep, clear water, low nutrient enrichment, little algae growth (low productivity), few aquatic plants, bare sand or rock along most of shoreline (little mud) and often supporting coldwater fish species.

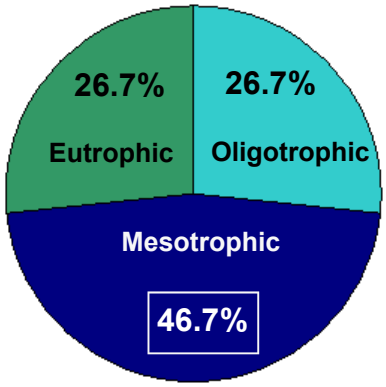
Mesotrophic- "Intermediate" lakes are characterized by moderate nutrient enrichment, moderate algae growth, moderate aquatic plant growth, moderate sediment accumulation over the lake bottom and usually supporting warm water fish species.

Eutrophic- Referred to as "old" lakes characterized by high nutrient enrichment, abundant algae growth (high productivity), extensive aquatic plant beds, extensive sediment accumulation on lake bottom and supporting exclusively warm water fish species. Note that eutrophic may be the natural, expected condition of smaller, shallower lakes.

We would like to thank all the Lay Monitors who offered their boats and energy while working with us in collecting data under the EPA National Lakes Survey. We look forward to more of these professional/citizen monitoring shared days as we aim to survey 25 additional lakes during the 2008 summer.

Below is a picture of the water clarity data collected during 2007. The pie chart indicates that on average, nearly three-quarters of Vermont lakes would be considered mesotrophic or oligotrophic, with the remainder being eutrophic. Lakes assessed in this study were randomly selected, therefore, the results of this survey can be considered representative of lakes and ponds across Vermont. As survey results from across the country become more available, we will be able to compare Vermont lake conditions with lakes nationwide. To learn more about this program, and to find out which lakes are being surveyed in 2008, please visit our webpage at

http://www.anr.state.vt.us/dec/waterq/lakes/docs/lp_mon-natlakesurv.pdf.



Trophic state of Vermont lakes based upon 2007 National Lakes Survey water clarity data

Trophic State	Secchi disk clarity
Oligotrophic (sparsely enriched)	> 5.5 meters
Mesotrophic (moderately enriched)	3.0-5.5 meters
Eutrophic (very enriched)	0-3.0 meters

Mission Mercury - DVD and Computer Games!

Mission Mercury is a fast-paced, animated educational video involving time travel and a trip through a typical food chain designed to explain the concept of "biological magnification." The video, an appealing teaching tool for youth, is about the environmental health hazards of exposure to mercury. It describes how mercury gets into the environment; how natural biological processes concentrate mercury; and most importantly, what each of us can do to avoid or minimize exposure. Also covered is how to identify alternatives to common consumer products with mercury in them, and how to deal responsibly with mercury waste.

The video is available in both VHS and digital (DVD) format and can be accessed online at www.mercvt.org. It was produced by Champlain College students and DEC staff.

For copies of the video and games, contact Karen Knaebel at: karen.knaebel@state.vt.us or 802-241-3455.

Aquatic Invasive Species Bill

On January 29, 2008, a bill was introduced by Representative David Deen (and others) that proposes a comprehensive aquatic nuisance species program in Vermont and includes, among other items, rapid response permitting, a mechanism to increase funds for management, and a change to the current transport law that would make the transport of all aquatic plants in Vermont illegal. The bill, H-720, can be found at: http://www.leg.state.vt.us/docs/legdoc.cfm?URL=/docs/2008/bills/intro/H-720.htm

Waterways Buffer Bill

As of this writing the House Fish, Wildlife and Water Resources Committee was close to passing out a Waterways Buffer Bill, which includes lakeshores. It is difficult to summarize the bill at this time. You can check the latest version of H.549 (that the committee has voted on) at www.leg.state.vt.us/docs/billtext.cfm or call Catherine Russell from the Legislative Council at 802-828-2266 for details.

New England Chapter of the North American Lake Management Society Conference —NECNALMS ... coming to Vermont June 13-14th, 2008!

Flip to the back page for details!

This conference is sponsored by the New England Interstate Water Pollution Control Commission (NEIWPCC), along with the Connecticut Department of Environmental Conservation.

19TH ANNUAL CONFERENCE
NONPOINT SOURCE POLLUTION
PROGRESS THROUGH PARTNERSHIPS: COLLABORATING TO PROTECT OUR WATERSHEDS
- **MAY 19-21, 2008**
- **MYSTIC MARRIOT HOTEL AND SPA, GROTON, CONNECTICUT**

This event will bring together people from state, federal and municipal governments, private sector, academia and watershed organizations to build partnerships and programs that help reduce nonpoint source pollution in local watersheds.

32nd Annual Meeting of the New England Association of Environmental Biologists—
NEAEB

March 26 – 28, 2008
In the heart of the White Mountains at
The Attitash Grand Summit Hotel
in Bartlett, New Hampshire

Hosted by the New Hampshire Department of Environmental Services
For more information, check out the web site at:
www.epa.gov/region1/neaeb2008/

Vermont Agency of Natural Resources
Department of Environmental Conservation
Water Quality Division
Lakes and Ponds Section
103 S. Main Street, 10 North
Waterbury, VT 05671-0408

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New England Chapter of the
North American Lake Management Society
Celebrating Lake and Watershed Stewardship

2008 New England Lakes Conference
June 13-14, 2008
Lake Morey Resort, Fairlee, Vermont

Mark your calendars to come hear about the best lake projects in New England! The Federation of Vermont Lakes and Ponds and the Vermont Water Quality Division's Lakes and Ponds Section are pleased to host this regional conference, which will take the place of this year's Vermont Lake Seminar.

The NEC NALMS Conference will provide a forum for information exchanges amongst lake managers (volunteer or professional) and encourages a proactive and protective approach to lake health and use.

30th Anniversary Celebration for the Vermont Lay Monitoring Program—
Friday Evening, June 13th
Please join us to recognize the outstanding work of all volunteers in lake protection!

Call for Papers:

Please consider speaking about your lake project! We are looking for proposals on all lake topics including invasive species spread prevention and control, and shoreland and watershed management.

Submit proposals specifying your purpose, approach, and results by March 14, 2008. Contact Susan Warren at susan.warren@state.vt.us for further details. For registration information, check out the websites at: vtlakes.org or vtwaterquality.org/lakes