



NEWSLETTER

The Federation of Vermont Lakes and Ponds, Inc. • P.O. Box 421, Waterbury, VT 05676

SPRING 2010

NUMBER 11

What Happened to Life in Lakes During the Past Winter?

As spring days lengthen, snow geese and other migrating birds begin to pass overhead. Red-winged blackbirds appear in our wetlands and peepers begin their chorus. As the last of the ice melts off our lakes and spring turnover brings nutrients to the surface, some of our aquatic plants are already photosynthesizing. Even after mild winter conditions, the way in which spring explodes can take us by surprise. How do non-migrating organisms like frogs and plants survive winter? The following story about winter survival strategies is adapted from information provided by the VTDEC water quality division.



Contrary to popular belief, not all aquatic plants are dormant during the cold, dark months of winter. Scientists observing the growth of 26 aquatic plant species during the winter in Lake George, NY found that 10 species remained active throughout the winter. These plants, including certain species of watermilfoil, pondweed, arrowhead and waterweed, continued to photosynthesize under the ice, although maximum photosynthetic activity is only 10% to 20% of that of the summer. These winter-hardy plants help oxygenate the water and provide winter habitat for fish and wildlife.

Other aquatic plants die off before winter, but leave an abundance of hard-coated seeds (e.g. the annual plant, naiad) or winter buds (e.g. curly-leaf pondweed and common bladderwort) that sprout new plants and shoots in the spring. The winter buds of curly-leaf pondweed start sprouting in mid-winter, giving this non-native plant a head start for spring and a competitive edge over native plants. Some plants form underground root structures called tubers that store carbohydrates over the winter and sprout to form new plants in the spring.

Although the activity level of cold-blooded aquatic animals drops during the winter, it does not stop

entirely. During a warm spell reptiles and amphibians may get heated up enough to venture out and about. In fact, the term hibernation, which means to be in a constant inactive state, is more applicable to warm-blooded animals than to reptiles and amphibians. Since aquatic animals may experience spurts of activity during the winter, the term brumation, which describes a period of reduced activity, is more commonly used to explain their overwintering habits.

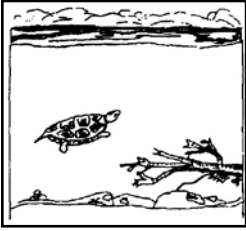
A drop in air temperature in the fall means a drop in body temperature for reptiles and amphibians and alerts them to head for their overwintering sites. Some amphibians such as wood frogs and spring peepers overwinter by burrowing down in shoreland leaf litter. They actually experience some amount of crystallizing and freezing during the winter. However, these animals produce high levels of glycerol or glucose that acts as antifreeze in their blood and tissue, keeping their body cells from freezing completely. Other amphibians and reptiles that do not have this capability escape from the freezing temperatures by spending the winter at the bottom of fast-flowing deep streams and in the bottom of lakes beyond the depth of ice. The mud at the bottom of a lake may be comparatively warm, but it poses another challenge—a lack of oxygen.

continued on page 2

Attention: Greeters

During the last week of March 2010, Jonathon Wood, Vermont's Secretary of Natural Resources, alerted FOVLAP that Fish & Wildlife's public access area use fees have been waived for greeter programs. Many thanks to all those who participate in organizing and implementing these important efforts to educate lake users about invasive species spread prevention.

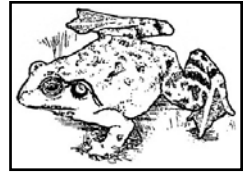
What Happened to Life in the Lakes During the Past Winter cont'd.



Turtles are unique among reptiles in their ability to survive long periods of time without oxygen. Their metabolism becomes anaerobic!

Fish respond to the change in lake temperature in the fall by building up tolerances to the extreme cold. Fish decrease the level of lipids (fats) and slightly increase the level of glucose in their bodies. This allows them to remain active during the winter, but their movements are more restricted than in other seasons.

Since aquatic organisms are equipped with several unique strategies to survive the winter, the biggest threat to their winter survival is the loss of habitat. Alterations along the shoreland such as retaining walls can prevent amphibians from reaching their required overwintering habitat on shore. The removal of natural vegetation along the shoreland can eliminate overwintering habitat entirely. Water level drawdowns result in ice reaching the lake bottom farther from shore than would naturally occur, negatively impacting the amphibians and reptiles that spend the winter in the lake bottom beyond the depth of ice. Protecting our lakes and the animals that live in them means protecting the winter habitat they require as well. Once safe in a healthy aquatic environment, aquatic species will carry on during the winter, some resting and some not, being guided by the natural changes in temperature and light.



President's Corner – Perry Thomas

FOVLAP continues to collaborate with the Lakes Section of VTDEC as we support Vermont's lake and watershed associations in addressing issues described in this newsletter: conserving biodiversity, controlling invasives, managing shorelands, and informing legislation. This coming summer, we look forward to reviewing the history of Vermont's lake conservation efforts during our Lake Seminar and anticipating future conservation needs at our Annual Meeting. Details of these events are listed on page 5.

As we look toward the future, we can base decisions on extensive data about the health of our lakes today. In "News from the VTDEC" (below) Susan Warren describes some of the studies that produced these data. To learn more about Kellie Merrell's research, contact the Lakes Section. To learn more about the EPA National Lakes Assessment and read the 2010 draft report visit www.epa.gov/lakessurvey/#report.

Earlier this year, FOVLAP responded to the EPA's invitation for comments on the NLA draft report. We concluded our letter as follows:

In summary, the National Lakes Assessment pointed out the relative importance of lake stressors for restoring and maintaining lake integrity. The degradation of lakeshore habitat cover is the most important stressor of lakes nationwide, affecting more than one-third of the nation's lakes. We urge USEPA to act quickly to develop a national educational campaign and provide targeted funding and technical information to assist states and local organizations before any more of our lakes are degraded due to the loss of lakeshore habitat.

If you would like a complete copy of our comments to the EPA, please drop me a line (epethomas@gmail.com).

Just as this newsletter goes to press, FOVLAP has been invited to participate on a national steering committee to help an EPA consultant develop an outreach program for lakeshore management/protection. Ginny Garrison will represent us. Thank you, Ginny!

News from the VTDEC

by Susan Warren, susan.warren@state.vt.us

The Lakes Section is putting increasing emphasis on shoreland management as an issue critical to lake ecological and recreational health. As you may have heard at last year's Federation Annual Meeting, an EPA National Lakes Assessment was recently completed and identified "poor lakeshore habitat conditions and high levels of nutrients [phosphorus] as widespread stressors impacting lake water quality in the United States." We also found this to be true in Vermont, where Kellie Merrell's five-year study of shallow water habitat conditions found a strong correlation between developed shores (where native woods are replaced with lawns) and a significant loss of established habitat quality indicators such as fallen trees and branches, leaf litter, shade and cobble rocks. To quote from the National Lakes Assessment Report (Draft for Review, 2009, page 83):

The findings...show that poor habitat condition imparts significant stress on lakes and could suggest the need for stronger management of lakeshore development at all jurisdictional levels...Development and disturbance along lakeshores (such as tree removal and residential construction) impacts the integrity of lakeshore and shallow water habitats, affecting terrestrial and aquatic biota alike.

To address these threats, and restore good conditions on affected lakes, we will be continuing emphasis on good shoreland management (primarily shoreland re-vegetation) and controlling shoreland and watershed runoff that delivers sediment and phosphorus to lakes. Visit our website: (www.vtwaterquality.org/lakes/html/lp_protection.htm) for information or contact us. We can provide outreach materials, assist with an assessment of conditions on your lake, conduct shoreland workshops, and point you in the direction of resources such as plant sales, guidance and grants. Look for new information on shoreland management as Amy Picotte takes over the education and outreach on this important issue for our section. In the meantime, plant, plant, plant that lakeshore!

Also, the Water Quality Division has undergone a partial re-organization. There are still Lakes, Rivers and Wetlands sections, but the Planning and Biomonitoring and Aquatic Studies sections have been merged into "MAP," Monitoring, Assessment and Planning. Neil Kamman, formerly of the Lakes Section, has been chosen to head up this new section! We expect to be able to better coordinate across the division now with respect to these functions.

Update: Variable-leaved Watermilfoil in Vermont

by Ann Bove



In October 2008, aquatic biologists at the Agency of Natural Resources confirmed the arrival of a new invasive aquatic plant in Vermont, **variable-leaved watermilfoil** (*Myriophyllum heterophyllum*). The plant was found in Halls Lake in Newbury located on the eastern side of the state. In September 2009, a second population was confirmed in Lake Champlain in the southern end of Missisquoi Bay. Variable-leaved watermilfoil is a freshwater rooted perennial plant not native to Vermont.

Halls Lake: In 2008, Staff with the Lakes and Ponds Management and Prevention Section removed roughly 52 cubic feet of variable-leaved watermilfoil by hand from a 3-acre cove late in the growing season. Shortly after ice-out in April 2009, staff began making weekly visits to 84-acre Halls Lake to continue the work initiated in 2008. Although 23 additional variable-leaved watermilfoil infestation sites were confirmed in 2009 bringing the total to 24, only 2 areas contained more than individual plants. The tally for 2009, from this 3-acre cove plus 23 other sites, is less than 5 cubic feet.

continued on page 4

lengthy discussions in the House Fish, Wildlife and Water Resources Committee on H.323. FOVLAP's President Perry Thomas and Legislative Affairs Committee Chair Ginny Garrison testified on H.323 before the committee in January in strong support of the restoration and conservation of riparian buffers along Vermont's lakes, rivers and streams. H.763, among other measures, would declare that it is in the public interest to encourage and promote buffers and protected river corridors in Vermont; establish shoreland management and river corridor management programs within ANR; provide encouragement and financial incentives to towns to adopt zoning to establish buffers and river corridors; and require ANR to develop best management practices for the management of shorelands, river corridors and buffers. FOVLAP will be closely monitoring the progress of H.763 in the Senate. The other 14 bills mentioned above of potential interest to FOVLAP members have not been acted upon in the Legislature to-date.

REMINDER: *You do not want to miss!*

Lake Seminar

Friday ~ June 4, 2010 ~ Ed Kehoe Conservation Center in Castleton, VT

Annual Meeting

Monday ~ July 26, 2010 ~ The Steak House
at 1239 US Route 302 – Berlin (Barre-Montpelier Road)



2010 Membership Dues

WE INVITE YOU TO JOIN OUR FEDERATION AND HELP PRESERVE VERMONT'S LAKES AND PONDS.

() \$25.00 Association Member () \$15.00 Individual Member

Name: _____

Address: _____

Association: _____

Contact Phone No.: _____ e-mail: _____

() We would like to show our support with the following additional donation \$ _____.

The Federation is a 501c3 non-profit organization. Your contribution is tax deductible in accordance with I.R.S. regulations.

*Checks payable to the Federation of Vermont Lakes and Ponds
and mailed to our P.O. Box 421, Waterbury, VT 05676.*

Please send us your updated list of Association Officers and e-mail contact.



NEWSLETTER

P.O. Box 421
Waterbury, VT 05676

OFFICERS OF THE FEDERATION

Perry Thomas, President (Lake Eden)
Andy Dales, Vice-President (Caspian Lake)
Judy Davis, Treasurer (Little Hosmer Pond)
Ginny Garrison, Secretary

Greg Allen, Director (Lake Morey)
Art Brooks, Director (Lake Willoughby)
Nancy Darrah, Director (Miles Pond)
Bill Fisk, Director (Cedar Lake)
Al Meunster, Director (Halls Lake)
Cindy Swanson, Director (Echo Lake)
Don Weaver, Director (Lake Champlain)

Membership and PR Committees Merge

by Don Weaver

FOVLAP's Membership Committee and Public Relations (PR) Committee have joined forces. Our goals are to increase lake association memberships, improve our newsletter, and expand our website to provide viewers with the latest information and happenings.

Once again, if you know of new lake association contacts, please inform us by sending a message to fovlap@vermontlakes.com with the contact name, address, phone number, e-mail address and we will follow-up.

Because we want to protect as many trees as possible (whether they grow on lakeshores or not), we anticipate beginning to phase out hard copy distribution. Please let us know at the address provided above if you would like to receive your newsletter by e-mail next spring.

Visit us on the Web at www.vermontlakes.org. Our website has taken on a new dimension, all the past information has been transferred, and we are constantly adding new information for your viewing. If YOU have information that YOU would like to share with other lake associations or individuals, please use the above e-mail address to communicate your information. Pictures are encouraged. FOVLAP is your sounding board, ready to assist, here to help. We look forward to hearing from you.