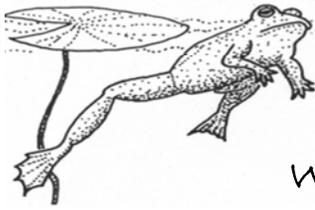
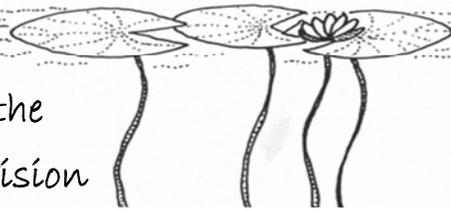


Out of the Blue



A Newsletter of the
Water Quality Division



Winter 2007 No. 31

Vermont Agency of Natural Resources
Department of Environmental Conservation

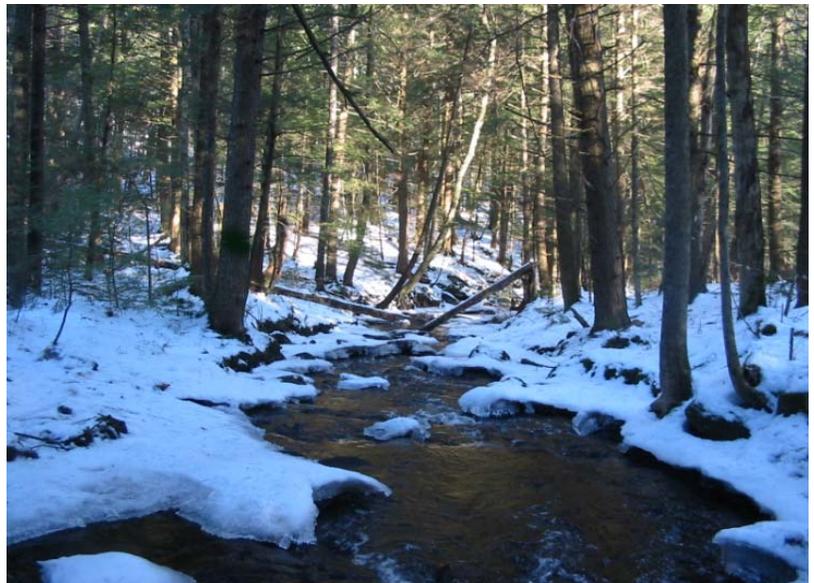
What Does Global Warming Mean for Vermont Waters

The Problem Worldwide

Water has been a long-time friend to both earth and sky, as it floats, drizzles and bops from one to the other in what we know as the hydrologic cycle. Today, this long-term relationship between our waters and our planet is being influenced as never before by our own cultural activities.

Over time, life on our planet has survived through naturally-caused warm and cold periods, but scientific evidence shows that today's global warming, fueled by human pollution, is melting glaciers and raising water levels and temperatures worldwide at an alarming rate. If ever there was fear of a cold, roaring ocean, then there is even more to dread from a warmer ocean that can store and transport its heat making it possible to kick out dangerous, intense storms with devastating effects.

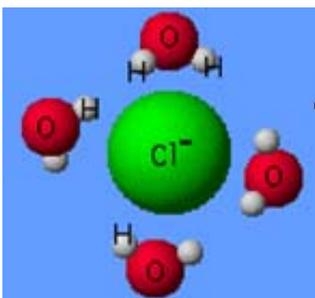
Across the planet, our consumption of fossil fuels (coal, oil, and gas), production of cement, and transportation activities are polluting our atmosphere with carbon dioxide (CO₂) emissions



faster than plants, soils, and oceans can absorb them. This increase in atmospheric CO₂ acts like a blanket and enhances the natural greenhouse effect on our planet by trapping in more heat and changing the climate of our world. We are entering

See page 3, "Global Warming"

Chloride Levels in Lake Champlain on the Rise



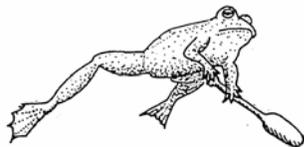
Have you ever wondered what becomes of all the salt spread on our icy roads during the winter? Or if the chlorine used as a disinfectant at wastewater treatment plants ends up in our streams and Lake

See page 6, "Chloride Levels in Lake Champlain"

In This Issue

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**“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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www.vtwaterquality.org

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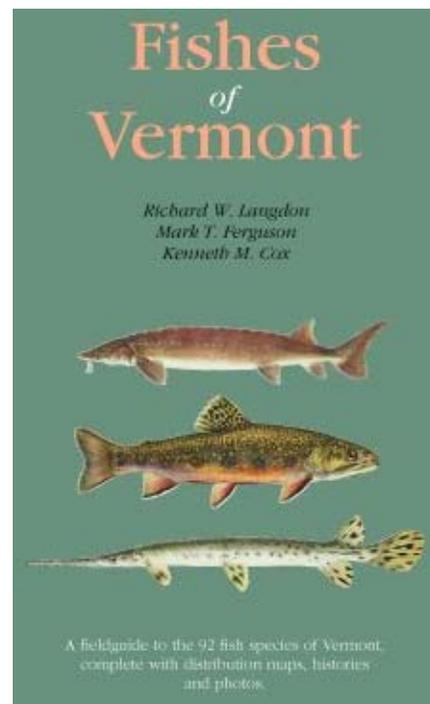
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The Vermont Agency of Natural Resources, Department of Environmental Conservation, is an equal opportunity agency and offers all persons the benefits of participating in each of its programs and competing in all areas of employment regardless of race,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

New Book! *Fishes of Vermont*

Fishes of Vermont, written by three Agency of Natural Resources biologists, provides color pictures of the 92 fish species in Vermont. This field guide offers fascinating natural history accounts for all Vermont's fish species. This new book covers drainages and aquatic habitats from mountain trout streams to the waters of Lake Champlain and the Connecticut River. *Fishes of Vermont* is written for anglers, naturalists, biologists, and anyone interested in aquatic ecology. Within the book's 320 pages you will also find maps showing where each fish species occurs in the state. Books cost \$24.95, with proceeds from sales supporting the Fish and Wildlife Department's Nongame and Natural Heritage Program. To order a



copy, call this toll free number,
1-800-515-2475.

Vicky Barney Says “See Yah” After 38 Years!

*Enjoy life, enjoy each day whether it is at work or play
– the minutes tick away pretty quickly – don’t wait to
do the things you want to do, each day is precious.*

Vicky Barney



Vicky Barney, the “superwoman” of Administration retired in December, 2006 after 38 years of working for the Water Quality Division. She is greatly missed by her co-workers who, like the public, relied on her knowledge, professionalism, competence, and positive attitude. We wish Vicky the best in life ahead, and greatly thank her for her dedicated service to the people and waters of Vermont.

uncharted waters in reversing this trend, and restoring the equilibrium becomes a world challenge.

The Vermont Scene

How climate change will impact the environment of Vermont is not entirely understood. However, there are some agreed-upon predictions as noted by the Governor's Commission on Climate Change. With expected droughts, wetlands and shallow ponds could be the first noticeable areas in Vermont to be altered. Lower water levels would reduce the food available for migrant waterfowl as they pass through the region, as well as limit nesting habitats for returning birds.

On the other hand, when the rains do come, they are predicted to occur heavily. Intense downpours do not soak into the ground to water plants or recharge groundwater, but run over it, spilling into the nearest stream or lake. Increased stream velocity and volume can erode the streambed, disturbing the habitat of bottom-dwelling animals that form the base of the aquatic food web. Heavy rains will increase pollution runoff causing high sediment and nutrient loads in surface waters.

A warmer climate in Vermont would mean warmer waters and warmer waters hold less dissolved oxygen, a condition that would endanger the survival of cold water species, like native brook trout. Native species also would be threatened by new competition from exotic species, which will be able to settle in Vermont once over-wintering becomes possible.

An ecological study from the Great Lakes region with a northern climate similar to Vermont's

suggests that the balsam fir, a tree that prefers a very cold climate, will be pushed northward, losing its niche to hardwood trees as their range expands. Moose browse heavily on balsam fir in the winter and with this tree gone, so will be the moose. This study concludes that changes in climate can cause what ecologists call a "trophic cascade," as impacts travel through the food web with repercussions for the larger ecosystem. For example, if the American beech tree, a favorite food for bears and one that is slow to adapt, dies off in Vermont forests, then the population of bears could be reduced as well.

Solutions: Taking Control

As discouraging as this greenhouse situation is, scientists believe if people act today to reduce CO₂ emissions, the trend of global warming can be slowed. After all, the cause and prevention of this accelerated climate change is entirely under human control. A few simple actions are listed in the box below. Also highlighted below are good shoreland practices that protect rivers and lakes from the effects of intense, harsh storms brewed by global warming.

If we all immediately work together to reduce our greenhouse gas emissions, we can butt-out of the long-term affairs between water and earth and sky, so they once again can guide our climate and conditions as we have known and loved them without the added chaos of an uninvited third party.

For more specifics about global warming in Vermont, check out the web page of the Governor's Commission on Climate Change at: www.vtclimatechange.us



Individual Actions That Make a Difference

This list is adapted from the Stop Global Warming web site at www.stopglobalwarming.org



- **Use Compact Fluorescent Bulbs**
Replace 3 frequently used light bulbs with compact fluorescent bulbs. Save 300 lbs. of carbon dioxide and \$60 per year.
- **Fill the Dishwasher**
Run your dishwasher only with a full load. Save 100 lbs. of carbon dioxide and \$40 per year.
- **Use Recycled Paper**
Make sure your printer paper is 100% post consumer recycled paper. Save 5 lbs. of carbon dioxide per ream of paper.
- **Buy Products Locally**
Buy locally and reduce the amount of energy required to transport products to your store.
- **Bring Cloth Bags to the Market**
Using your own cloth bag instead of plastic or paper bags reduces waste and requires no additional energy.
- **Reduce Garbage**
Buy products with less packaging and recycle paper, plastic, and glass. Save 1,000 lbs. of carbon dioxide per year.
- **Inflate Your Tires**
Keep the tires on your car adequately inflated. Check them monthly. Save 250 lbs. of carbon dioxide and \$840 per year.

Aquatic Nuisance Species

HIGHLIGHTS

Zebra mussels. No new populations were discovered in 2006. Zebra mussels have not spread to waters outside Lake Champlain and Lake Bomoseen.

Eurasian watermilfoil. In 2006, Eurasian watermilfoil was confirmed growing in three more ponds: Sadawga Pond (Windham County), Hinkum Pond (Rutland County), and in a small private pond (Rutland County). VTDEC staff quickly responded by handpulling the plants in Hinkum Pond. Since this infestation was discovered at an early stage, simple control measures have a good chance of being effective. In contrast, the population in Sadawga Pond is well established, and requires control efforts beyond handpulling.

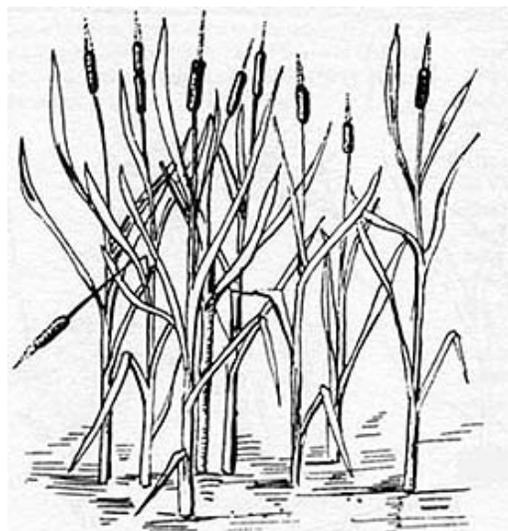
Water chestnut. *The good news-* water chestnut control efforts in Lake Champlain achieved major reductions in the dense bed growing near Benson, Vermont.

The bad news- two new water chestnut infestations were discovered in 2006. VTDEC staff, along with contractors hired by the lake association, pulled 350+ water chestnut rosettes from Lily Pond at the northern end of Lake St. Catherine after they were found by an employee from Aquatic Control Technology Inc. (Sutton, MA) who was evaluating a Eurasian watermilfoil treatment. A much larger population was discovered in three major wetland areas in the Missisquoi Wildlife Refuge in Highgate, Vermont. A dedicated group of volunteers from conservation organizations joined staff from federal and state agencies and members of the Youth Conservation Corps to rapidly pull plants from the waterfowl sanctuary before seeds were dropped. Almost 12,000 rosettes were removed in approximately 257 "puller-hours." Continued vigilance is necessary in the years to come to prevent this infestation from taking hold.

Purple loosestrife. Since 1996, loosestrife leaf-eating beetles have been released at 242 sites around the state. Significant beetle damage was observed on plants at almost half the sites visited this year, with additional damage anticipated in future years as beetles become established at new sites. Monitoring results revealed that flowering (and therefore seed production) of loosestrife plants at beetle release sites was significantly reduced, and native cattail plants were making a comeback. Thanks to all the generous volunteers around the state who have helped with this work.



Handpulling invasive water chestnut plants in the Missisquoi National Wildlife Refuge



Native cattail, *Typha latifolia*

Are You a VIP?

Vermont Invasive Patrollers is the new name for the expanding invasive species watchers program (formerly known as “ANS Watchers” or “Milfoil Watchers”).

As a VIP, you will:

- learn about native aquatic plants and animals and their habitats
- become familiar with harmful invasive species
- earn a great excuse to get out regularly and enjoy every nook and cranny of your lake or pond all summer long!

What it takes to be a VIP:

- participate in at least one basic VIP training workshop (optional advanced workshops also may be available based on interest)
- sign a *Statement of Commitment* promising to document survey results in accordance with standardized procedures and report them to VTDEC
- conduct and submit at least two surveys during the summer for the presence of invasive plants or animals in your lake or pond

If you are interested in becoming a VIP, please contact Leslie Matthews in the Lakes and Ponds Section at leslie.matthews@state.vt.us or 802-241-3798. We are in the process of compiling a list of interested individuals in preparation for planning training workshop locations and dates in 2007.



Jennifer Durham and Linda Boudette survey aquatic plant species in Lake Dunmore.

“Early detection is vital to protecting Vermont’s waterbodies from harmful invasive plants and animals. As a VIP you help protect native species and their habitats in your lake.”

Leslie Matthews,
Aquatic Invasive Species Specialist

Help Stick It to Aquatic Invasive Species!

The Aquatic Invasive Species Sticker Program is off and running!

The AIS Sticker promotes awareness about invasive aquatic plants and animals that interfere with the recreational potential and ecological health of lakes and ponds in Vermont.

Many thanks to the 70 vendors around the state who served as sticker distributors last summer, including members of lake and pond associations, boating and sporting organizations and environmental groups, as well as local businesses and town offices.

Profits from sticker sales go directly into the Grant-In-Aid Program that supports efforts to control existing infestations or prevent pests from spreading to new waterbodies.



Grant-in-Aid Applications Due March 2, 2007

The 2007 *Aquatic Nuisance Control Program Grant-in-Aid Guide* and application is on line at: http://www.vtwaterquality.org/lakes/hlm/lp_grantinaid.htm or by calling the Water Quality Division at (802) 241-3777.

If you would like to participate in marketing and/or selling stickers in 2007, contact Leslie Matthews at (802) 241-3798 or leslie.matthews@state.vt.us.

Congratulations and special thanks to top sticker sales people, Andy Dales and fellow members of the Greensboro Association (Lake Caspian)!

Champlain? Data from the Lake Champlain Long-Term Water Quality and Biological Monitoring Program show increases in chloride in Lake Champlain and its tributaries.

Since monitoring began in Lake Champlain in 1992, chloride data show small but steady increases in the main lake (see figure below). While the current lake chloride concentrations are far below any levels that may be of concern for the lake ecosystem itself, the fact that increases have been detected in a waterbody the size of Lake Champlain implies that chloride is being used more within the watershed by people, industries and municipalities.

In water, chloride bonds with water molecules, making it a choice element to track in a river or lake in order to calculate how water carries and disseminates nutrients and toxins. For this reason, not because of concerns about it as a pollutant, chloride has been monitored annually in and around Lake Champlain since 1992.

Until recently, most fresh waters across the country have not had high concentrations of chloride, with generally less than 10 milligrams per liter (mg/L) found. At these low concentrations, chloride has not been considered a pollutant in lakes, ponds, and rivers. The United States Environmental Protection Agency has established two standards to measure the concentrations of chloride in aquatic systems, one for determining "acute" conditions and the other for defining "chronic" conditions. Acute conditions are reached when a one-hour average chloride concentration exceeds 860 mg/L more than once every three years on average and chronic conditions occur when a four-day average exceeds 230 mg/L more than once every three years on average.

Chloride data from 2005 from the Biomonitoring and Aquatic Studies Section showed that higher chloride concentrations typically were found in streams flowing through areas of greater

development density, and some of those streams had chloride concentrations exceeding 200 mg/L on a routine basis during the summer. The question as to what these increases in chloride mean for the health of Lake Champlain, its tributaries and the aquatic organisms in them has not been answered. Whether or not these higher chloride concentrations will infiltrate the groundwater is also unknown.

How Does Chloride Enter the Aquatic Environment?
Chloride enters waters like Lake Champlain as runoff or discharge from several land sources. We consume and excrete salt that reaches surface waters through sewage treatment plants and septic systems. Water softeners and industrial wastewater are other sources. A major source is de-icing salts, used to prevent icy buildup on roadways, parking lots, sidewalks and at airports.

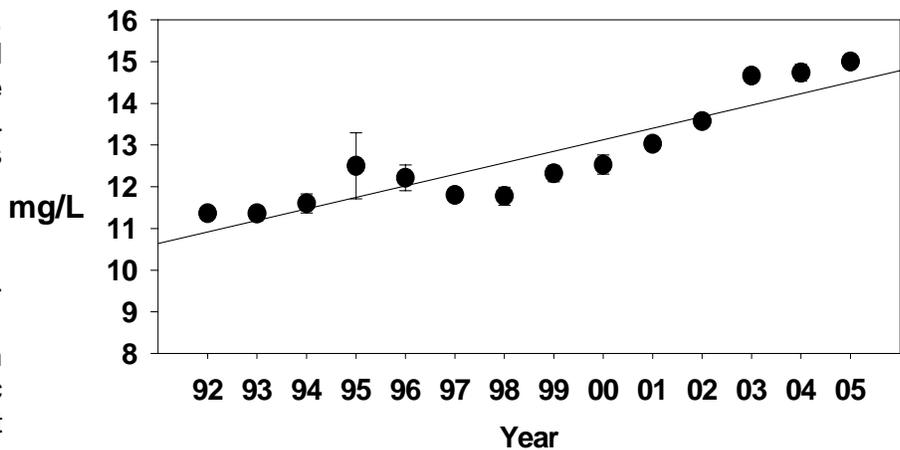
How Does Chloride Enter the Aquatic Environment?

The Vermont Agency of Transportation developed a "smart salting" policy in 1997 that limits salt usage on state roads and the interstate. The Transportation Agency continues to implement new technology and procedures aimed at maintaining safe roads while protecting the environment such as road temperature monitoring and motorist warnings. A low salt "diet" makes sense not only for us, but also for the environment.

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Chloride Concentrations in Milligrams per Liter (mg/L)

- ◆ 1 mg/L (or 1 part per million) is equal to one minute in two years
- ◆ Most freshwater chloride concentrations have been measured around 10 milligrams per liter --or 10 parts per million-- equal to 10 minutes in two years
- ◆ Lake Champlain shows safe, but increasing, chloride levels



Annual chloride concentrations in Lake Champlain have increased from 11 mg/L in 1992 to 15 mg/L in 2005

Happenings

NEAEB Comes to Vermont! March 14-16, 2007

- ◆ 2007 New England Association of Environmental Biologists Conference
- ◆ At the Grand Summit Hotel and Conference Center at Mt. Snow in West Dover, Vermont
- ◆ Wednesday, March 14 - Friday, March 16, 2007

This three-day conference will feature research on New England's aquatic habitats, EPA water quality initiatives, and state water quality standards and regulations. Anyone is welcome to attend. For more information, please contact Neil Kamman in the Lakes and Ponds Section at 802-241-3777 or Neil.Kamman@state.vt.us.



Featuring Vermont presentations on volunteer monitoring and aquatic invasive species

The 4th Promise of Place Conference *Place-Based Education in New England and Beyond* MARCH 15-17, 2007 Lake Morey Inn, Fairlee, Vermont

If you are a nonformal or formal educator, a program manager, a school administrator, or actively involved in your community, then this conference will inspire you with a vision of how to promote learning about the local landscape and how to link students with their communities through helpful, hands-on projects that are educationally rewarding for all. For more information, contact Pat Straughan at Shelburne Farms, 802-985-8686 or pstraughan@shelburnefarms.org.



The Project WET Program will present on how to use local water quality data to teach interdisciplinary subjects. Also Vermont geologists will convey stories in stone from the Connecticut River valley.



A Watershed For Every Classroom

This place-based professional development program for educators in the Lake Champlain basin is being offered by the Champlain Basin Education Initiative (www.lcbp.org). The 11-day training will be field-based and spread out from May, 2007 to February, 2008. Contact Amy Picotte in the Lakes and Ponds Section for more information, 802-241-3789 or Amy.Picotte@state.vt.us.



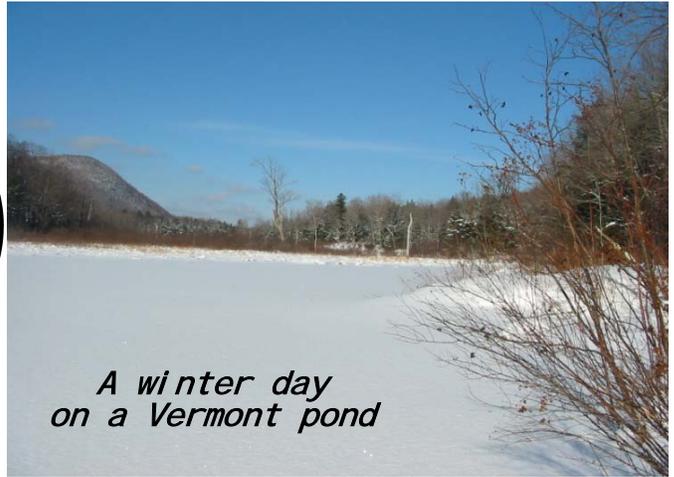
Come explore the Lake Champlain basin with this CBEI program!

2007 Vermont Lakes Seminar

Friday June 8, 2007
Montpelier, Vermont

This year's annual Lake Seminar will feature aquatic invasive species issues, lake and shoreland protection, and offer a workshop on "Tips for Running a Successful Lake Association." This conference is sponsored by the Water Quality Division and the Federation of Vermont Lakes and Ponds. For more details, contact Federation President, Jackie Sprague at jackie@sprague.org or Susan Warren from the Lakes and Ponds Section at 802-241-3794.

State of the Lakes



*A winter day
on a Vermont pond*

Vermont Lake Protection Series

Lake Protection Series (Fact Sheets)

- #1 Introduction
- #2 Only You Can Save Your Lake
- #3 Go Wild: Plants and Plantings on Lakeshores
- #4 Septic System Basics
- #5 Preventing Driveway Erosion
- #6 Conducting a Watershed Survey
- #7 Conserving Lakeshores
- #8 Lake Monitoring and Obtaining Water Quality Data
- #9 How to Manage a Successful Lake Association:
 - A. Starting and Running an Effective Lake Association
 - B. Funding Your Association's Good Work
- #10 Connecting with Local Schools

Visit the Lakes and Ponds web page and check out the new **Lake Protection Series**. This series of fact sheets covers topics on how to prevent lake pollution, replant your shoreland, assess a lake's watershed, and raise funds for your important projects. The Federation of Vermont Lakes and Ponds has teamed up with the Lakes and Ponds Section to make available a complete set of the series bound in a notebook for each lake association in Vermont. For more information, contact Susan Warren at 802-241-3794, susan.warren@state.vt.us or visit the Lakes and Ponds web page at: www.vtwaterquality.org//lakes/html/lp_protection.htm.



New England Lake NEWS



New...NEC-NALMS Newsletter!

Interested in what other lake groups in New England are up to? A new newsletter is being published by the New England Chapter of the North American Lake Management Society (NEC-NALMS) dedicated to facilitating communication for the benefit of our lakes. You can request a copy at 802-241-3777, or download it from the Lakes and Ponds web page at

www.vtwaterquality.org. Also, note that the NEC-NALMS 2007 conference will be held in Connecticut June 8-9. This conference is a great way to find out how lake associations in other states are dealing with the same issues facing Vermont lakes. For more details, contact Susan Warren in the Lakes and Ponds Section at 802-241-3794, or susan.warren@state.vt.us.

Lake Shoreline Aquatic Habitat Protection In Our Back Yard

Most of us Maine folks have had the chance to visit a rural lake or pond whose shoreline is *totally undeveloped* – that is, no visible signs of houses, docks, roads, unnatural clearings or human-made beaches. Perhaps you spent considerable energy and time hiking into this environment and as you rest to eat your lunch, you are refreshed by the variety of shoreline birds, and if you are very fortunate, larger mammals and birds, such as deer, moose, beaver, otter, osprey, and eagles.

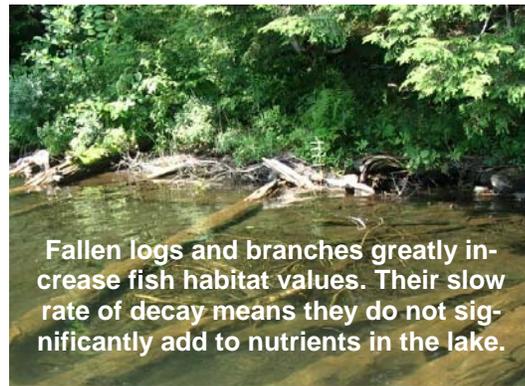
What you don't readily see, unless you look very close into the shallow depths along the shoreline of the lake, is the variety of aquatic life, fish, bugs, crayfish, frogs, and more. As a rule, the more remote and undeveloped a waterbody – the greater abundance and diversity of resident aquatic organisms.

Perhaps you brought along a fishing rod. If you're lucky (or skilled), you may catch a sample of what lies beneath the surface of the shimmering waters. Native brook trout abound, as they have since the retreat of the glaciers, 10,000 years ago! Maybe you catch several good-sized trout and decide to cook them up for dinner. While cleaning them, you notice their stomachs are full. You open them up and find partially digested remains of smaller fish. Pearl and redbelly dace, lake and creek chub, fallfish and common shiner are some of the native minnow species common as forage fish for the larger brook trout. The trout also will feed on their own young (they're cannibalistic). When trout are younger, they primarily feed on larger aquatic and shoreline invertebrates, or 'bugs.'

This great abundance and diversity of aquatic life (ranging from trout to minnows to amphibians to bugs) are found in undisturbed waters. Remote and relatively undeveloped lakes and ponds are



Branches and trees hanging over the water keep the water cool and allow terrestrial insects to drop into the water and become fish food.



Fallen logs and branches greatly increase fish habitat values. Their slow rate of decay means they do not significantly add to nutrients in the lake.



A diverse plant population provides shelter and shade for organisms, as well as a living surface for aquatic insects on which the fish feed.

not very common in southern New England and are less common in southern Maine than areas in the northern woodlands. In northwestern Maine, a history of land use by large forestry companies, whose focus was not on developing their lands, has served to protect ponds by maintaining mostly undisturbed lake shorelines for resident

critters. Excessive disturbance and removal of the vegetation along the shore, such as overhanging shade trees and shrubs and submerged or floating tree trunks and branches, certainly reduce and can alter much of the existing aquatic life.

Recent studies in Maine and Vermont woodland lakes have confirmed the importance of maintaining natural vegetation and woody debris along lake shorelines to have a healthy aquatic community. Our lakes are now facing much greater development pressures, as older seasonal cottages get converted to year round dwellings and what is left of the undeveloped lake-shores is carved up. But this problem, long recognized in populated areas, is now happening elsewhere. Large-scale residential development is a looming reality in our less populated towns and unorganized regions. Wherever lakes are developed, it is very important to protect critical shoreline habitat for all aquatic life. So, if you want to keep catching those fat brookies, leave the shoreline of the lake as natural as possible.

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This article was written by Dave Halliwell, Biologist in the Maine Bureau of Land and Water, Division of Environmental Assessment and reprinted with permission.

“How Long Until Turtle Eggs Hatch?”

Lay Monitors have volunteered to sample the water quality of Vermont lakes and ponds since 1979. They have thought about most things associated with lakes and ponds, including how long it takes for turtle eggs to hatch. The following questions from Lay Monitors show how these lake stewards regard their lake for all its worth.

How Long Until Turtle Eggs Hatch?

“We would like to know because a snapping turtle laid her eggs in our dirt driveway and we don’t want to run over her nest. How long will we have to park our car on the road?” A long time, since the eggs of snapping turtles, *Chelydra serpentina*, generally take 80-90 days to hatch. A mature female snapping turtle, four to six years old, will lay 20-40, ping-pong size eggs in a five to seven inch hole she digs and covers back up. Once hatched, the young turtles head for the nearest lake or pond and hope that they do not get eaten first by birds of prey, foxes, raccoons or snakes. If they make it to the water and survive predation from larger fish and mammals, they can hope to have a life expectancy of 30-40 years. For more details, check out the Vermont Reptile and Amphibian Atlas web site at: <http://community.middlebury.edu/~herpatlas/>.



Snapping turtle, *Chelydra serpentina*

Photo by E. Talmage
(from the Vermont Reptile and Amphibian Atlas web site)

I Found a Dead Bird, Should It Be Tested for West Nile Virus?

Yes, if it is a robin, jay, crow, raven, hawk, owl, falcon, vulture, or eagle. These bird species are the most important for indicating



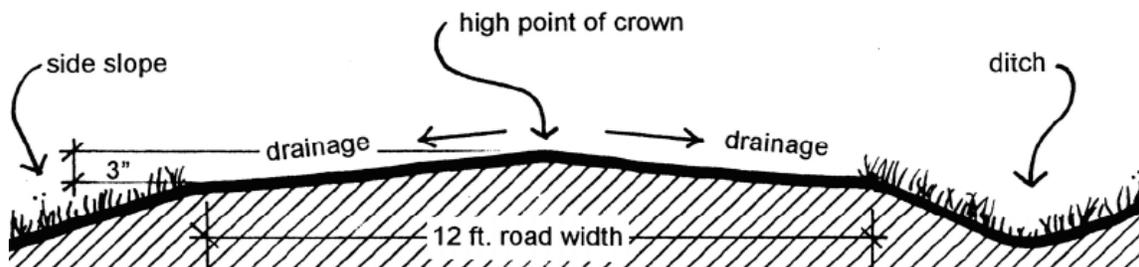
Blue jays are tested to indicate the presence of West Nile virus

the presence of the West Nile virus and the ones the Vermont Department of Health will run tests on. However, regardless of the bird species, the Department of Health would like to learn about any dead bird you discover. Contact the Department of Health’s “Dead Bird Hot Line” at 1-800-913-1139. People cannot get West Nile virus from handling dead birds. West Nile virus is spread by mosquitoes that have fed on infected birds. However, it is always wise to wear gloves when handling a dead animal and to wash your hands thoroughly with soap and water afterwards. Keep the bird frozen and transport on ice if possible. If you cannot bring the bird to the Department of Health’s lab in Burlington, contact the Lay Monitoring Program staff, who may be able to transport it for you during the summer months (call Amy Picotte at 802-241-3789).

What’s the Best Type of Material to Use on Our Gravel Driveway?

This question comes up a lot. Before applying any new material to your roadway, read The Lake Protection Series Fact Sheet #5 on *Preventing*

Dirt Road or Driveway Maintenance



A properly crowned dirt road allows water to flow immediately off the road into surrounding vegetation or a stabilized ditch. Water running lengthwise off the road is likely to cause erosion of the road surface.

Driveway Erosion, which could help save you money and time when you do apply gravel to your road. The Lake Protection Series is available on the Water Quality Division web site at www.vtwaterquality.org or by contacting Susan Warren at 802-241-3794. Aggregate mixes, uniformly graded from course to fine, are recommended by the Vermont Agency of Transportation for gravel driveways. The strategy is for the soil (smallest particles) to pack and hold together the sand (medium particles) and the aggregates (largest particles), which grip and stabilize the load to the road. If there is too much soil, the mix will erode, and if there is too much aggregate, the mix will pile up and not stay put in one place.

The Vermont Local Roads Program web site offers more information on this subject. <http://personalweb.smcvt.edu/vermontlocalroads/default.htm/>.

A Loon Has a Fishing Line Attached to Its Beak, What Should We Do?

Eric Hanson, Loon Biologist at the Vermont Institute of Natural Science in Quechee, Vermont, can be contacted through the Vermont Loon Recovery Project at 802-359-5000. If Eric is unavail-

able, call your local Fisheries Biologist (listing at http://www.vtfishandwildlife.com/library/maps/fisheries_districts.pdf). "If the loon is free-swimming, diving and eating, then just monitor it over time," says Eric "otherwise, you literally will be on a wild goose chase." If the loon is not able to dive and eat, then it might be able to be captured more easily and then helped to be untangled. Sadly, two adult loons died in 2006 by swallowing fishing line. Eric spent more than 100 hours during the 2006 summer rescuing loons from entangled fishing lines. More than half of all adult loon mortalities in New England are caused by lead poisoning from ingestion of lead sinkers and jigs used for fishing. Four of five adults found dead or dying in Vermont in 2001 died from lead poisoning. Loons and other birds ingest the lead fishing gear by eating the fish that "got away," taking live bait (please reel in if loons are diving nearby), or by swallowing abandoned lead sinkers in the process of ingesting stones to aid in their digestion. For more information on how to become a Volunteer Loon Watcher, contact Eric Hanson via email at ehanson@vtlink.net or by calling the VINS number above.



The common loon, *Gavia immer*



New 2007 Lead Sinker Law

As of January 1, 2007, it is illegal to use lead sinkers weighing one half ounces or less for fishing in Vermont. Free sample packets of non-lead sinkers are available from the Vermont Department of Fish and Wildlife District Offices and Fish Hatcheries. Contact the Fish and Wildlife Department in Waterbury for more details, at 802-241-3700, or check out their web page for further information, including how to dispose of lead sinkers.

<http://www.vtfishandwildlife.com/>

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

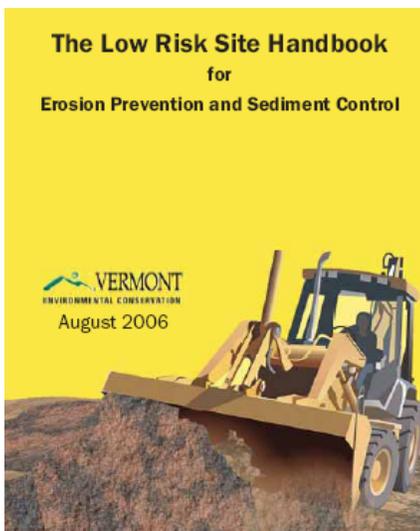
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NEW STORMWATER GUIDES

The Regulation is: “Any construction that disturbs one or more acres of land, or is part of a larger development plan that will disturb one or more acres, requires a Vermont state permit for stormwater discharges from construction sites.”

The Education is: to teach people, using these new, colorful pictorial guidebooks on how to manage a construction project, preventing erosion and controlling sediment from entering our surface waters. Think of SEDIMENT as THE big, bad monster in our streams and lakes, destroying aquatic habitat and animals and leaving an ugly mess along the way. These guidebooks are essential for learning how to keep the sediment monster from entering our streams, and helping everyone meet their permit requirements.



Available on the Vermont Water Quality Division web site at:
http://www.vtwaterquality.org/stormwater/html/sw_cgp.htm

