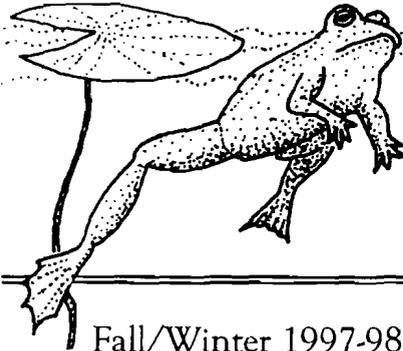
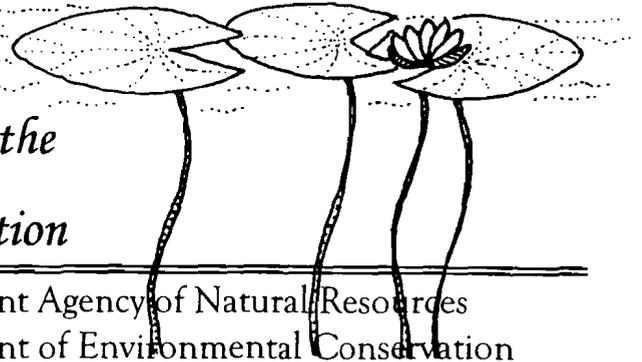




Out of the Blue



*A Newsletter of the
Lakes and Ponds Section*



Fall/Winter 1997-98 No. 15

Vermont Agency of Natural Resources
Department of Environmental Conservation

One-Year Sister Lakes Exchange Begins - Leaders from Lake Toba, Indonesia, Visit the Lake Champlain Basin

by David Read Barker and Lisa Borre

About 75,000 years ago, the earth's largest volcanic explosion occurred on the island of Sumatra, in Southeast Asia. More than 2,000 times larger than the modern volcanic eruption of Mount St Helens, the Sumatran explosion created the world's largest crater lake-Lake Toba-some 35 miles long, 20 miles wide, and more than 1,500 feet deep. The ash and dust from this and other explosions at about the same time darkened the atmosphere and may have contributed to the glaciation that created Lake Champlain, some 10,000 years ago.

Humans probably came to the shores of both lakes at about the same time, perhaps 8,000-10,000 years ago. At Lake Toba, it was the Batak people who first settled in the volcanic caldera, cradled at almost 3,000 feet above sea level in the rugged volcanic spine of Sumatra. Today, the 5 million Bataks are known in their nation, Indonesia, as talented musicians with a deep devotion to their sacred lake.

Located just north of the equator, Lake Toba is the largest lake in the island nation of Indonesia. In 1996, the Lake Toba Heritage Foundation invited Lisa Borre, the Vermont Coordinator of the Lake Champlain Basin Program, to establish an environmental exchange.

Lake Toba and Lake Champlain both face degraded water quality, loss of wildlife habitat and biological diversity, and invasion of nuisance non-native plants and animals. The sister lakes relationship was initiated in 1996 at the request of the Lake Toba Heritage Foundation, a group which promotes public awareness and monitors the water quality of Lake Toba

See "Toba" page 3

Malformed Frog Phenomenon Continues to Elude Researchers

1997 marked the second year since malformed frogs were first reported and investigated in Vermont. Frogs in Vermont that have been found with malformations include the Green Frog, Northern Leopard Frog, American Toad, Wood Frog, and Bull Frog. Although several possible causes have been suggested for the malformations, not one has been confirmed.

One possible explanation for some categories of malformed frogs is a trematode-parasite that can interfere with limb formation in developing tadpoles. However, none of the malformed frogs examined in 1996 had a significant parasite burden.

Another theory includes chemicals such as pesticides and heavy metals that can interfere with frogs during the developmental stages. Ultraviolet radiation may also be directly affecting frog eggs, which float on the surface of the water, or indirectly causing an effect by increasing the toxicity of an artificial contaminate

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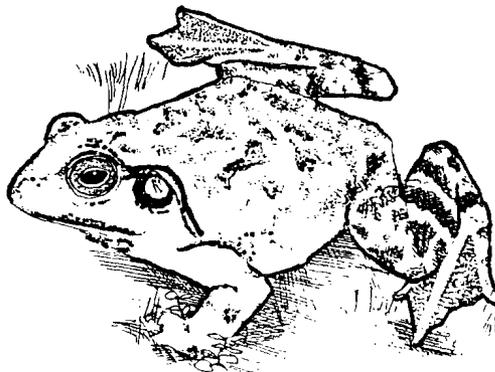
already in the water. Or possibly several factors are acting in combination to cause abnormal frog development.

The Vermont Agency of Natural Resources working in cooperation with other agencies and academic institutions, documented the extent and prevalence of malformed frogs in Vermont in 1997. Nineteen sites were surveyed for young-of-the-year Northern Leopard Frogs in July and September. Roughly eight percent of the 2,500 frogs examined showed malformations, primarily partial and missing hind legs, and shortened and missing toes. Most researchers believe a malformity rate greater than one percent to be significant and not due to natural causes.

In 1997 Vermonters reported malformed frogs from as many as 53 towns representing 13 different counties. Some of these reports may be based on what is natural trauma, that one percent or less of the population that experiences natural malformations. The incidence of malformations is more accurately portrayed when many frogs are collected and examined from each site surveyed.

Malformed frogs collected this past summer have been sent to the National Wildlife Health Lab located in Madison, Wisconsin for further examination. Water collected from Vermont sites where malformed frogs have been found is also being analyzed and tested for toxicity.

Further field investigations will continue in 1998 to help try and solve the mystery behind the cause of the malformations. If you have noticed any deformities in frogs, please contact Rick Levey at the Biomonitoring and Aquatic Studies Section at (802) 244-4520.



Bull Frog

Status of Malformed Frogs Elsewhere in the Country

Incidences of malformed frogs have been reported from at least 11 other states including Texas, California, Minnesota, Wisconsin, Ohio, Kansas, Missouri, Connecticut, and Maine, as well as the Canadian provinces of Ontario and Quebec. For more information you can visit the North American Reporting Center for Amphibian Malformations

(NARCAM) at the web site: <http://www.npsc.nbs.gov/narcam> or the Amphibian North American Amphibian Monitoring Program (NAAMP) at the web site: <http://www.im.nbs.gov/naamp> or the Minnesota New Country School Frog Project at the web site: <http://www.mncs.k12.mn.us/frog/frog.html>.

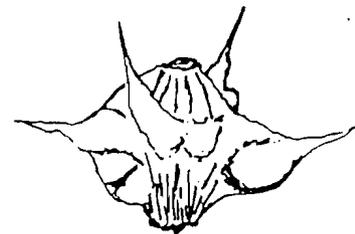
Water Chestnut Spreading North

by Ashley Weld, Lake Champlain Basin Program

The water chestnut, an aquatic plant native to Asia and Europe, is rapidly spreading north in Lake Champlain. This nuisance plant has the potential to infest wetlands, bays, and other shallow water areas, significantly altering the natural habitat. If the water chestnut remains unchecked in Lake Champlain, it will have devastating effects on campgrounds, marinas, public beach areas, and, in time, the regional economy.

The water chestnut was first introduced from Europe to New York State in 1884 for its ornamental appearance. It then began to spread northward from the Hudson River to southern Lake Champlain in the 1940s. The water chestnut range now extends over 56 miles in Lake Champlain and has been found as far north as McNeil Cove in Charlotte, Vermont. Water chestnut has also spread to additional Vermont water bodies, including Dead Creek in Addison, Lake Bomoseen in Castleton, and the Poultney River.

Although there is no method for eradicating this nuisance species, water chestnut control programs have been successful at reducing infestations. Because it is an annual plant, water chestnut populations can be effectively reduced by harvesting if plant removal occurs before the new seeds drop in the late summer or fall. Since 1982, mechanical



Chestnut

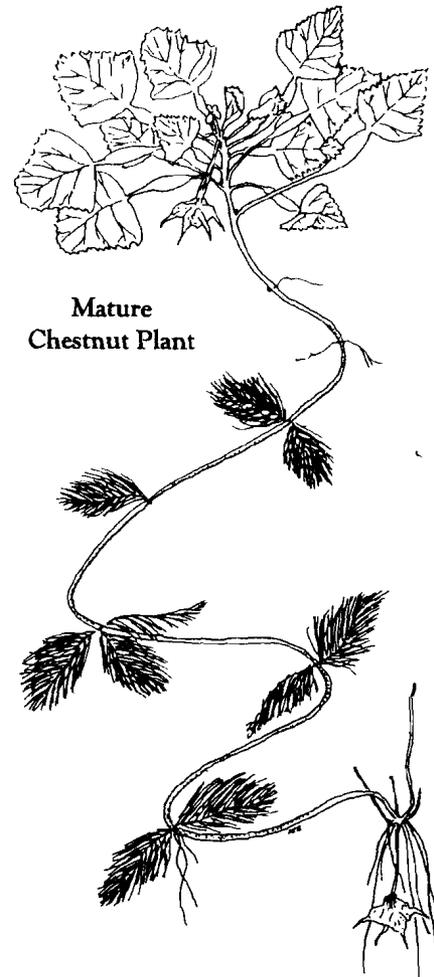
harvesting and hand-pulling has helped to slow the northward spread of this plant from the South Lake. From 1982 to 1997, more than \$2.5 million were spent controlling water chestnuts in Lake Champlain. Despite these efforts, budget constraints in recent years and gaps in funding over time have prevented adequate control of existing growth.

The VTDEC currently coordinates the water chestnut management program. During 1997, more than 3,100 cubic yards of water chestnuts were mechanically harvested from Lake Champlain.

"The chestnut has spread farther north in Lake Champlain than ever before," says Ann Bove from the Lakes and Ponds Section. "Funding is critical to successful water chestnut management, but right now, there is no long-term funding source available. If adequate long-term funding is not found, the problem is only going to get worse."

It is estimated that \$200,000 is needed annually for the next five years to be able to control the water chestnut population from Charlotte south to Benson's Landing. The Vermont Agency of Natural Resources has asked for \$150,000 for water chestnut control in their 1998 legislative budget proposal. If approved, the funding will help hold the problem in check but will not reverse the devastating impacts which Lake Champlain has already felt due to water chestnuts.

If the water chestnut control program is to be effective, citizens must be aware of and help to manage the spread of this nuisance aquatic plant. Residents can learn to identify the water chestnut and pull the plants by hand. It is also important to remove all aquatic plants and plant fragments from boat propellers and trailers before leaving launch sites and dispose of them in trash receptacles or on high dry land. Doing so will also help prevent the spread of other aquatic nuisance species.



Composting Harvested Water Chestnut Plants: A Viable Alternative to on Site Disposal

The Vermont Department of Environmental Conservation has combined efforts with the Otter Creek Natural Resources Conservation District, the USDA Natural Resources Conservation Service, Champlain Valley Compost Company and two Addison County farms to demonstrate the potential environmental and economic benefits of composting water chestnut plants.

Previously, most harvested water chestnut plants had been dumped on farm land for fill. The intent of the composting project is to generate a product from these plant spoils which will be beneficial to the farmers as a soil amendment. In addition it is hoped that this process will provide additional benefits such as increased flexibility for manure storage and use, and a decrease in the volume and weight of the raw manure.

Two Shoreham farms participated in the composting project: the Golden Russet Farm and the Elysian Fields Farm. During the 1997 harvesting season more than 1,500 cubic yards (about 125 truckloads) of harvested chestnut plants were mixed with bedded cow manure and surplus hay, and arranged in rows to facilitate the turning of the material by a machine compost turner. The rows were turned four times this summer and fall to maintain high internal temperatures necessary to break down the plant material and produce quality compost. High temperatures (160 degrees F) are also crucial for the breakdown of the hard spiny fruits of the chestnut plants which are a problem associated with dumping un-composted chestnut spoils on farm fields.

To date, the project seems to be a great success: the water chestnut plants seem to be a suitable compost ingredient and the fruits of the plants are breaking down. Farmers at both farms have indicated that they will spread the water chestnut compost on their fields early next spring. Due to the success of the project it is hoped that composting harvested water chestnut will become an integral part of the state's water chestnut management program on Lake Champlain.

 **What is the zebra mussel situation in Lake Champlain?**

The southern, northwestern, and main lake regions of Lake Champlain are now home for large numbers of zebra mussels. In these regions, large colonies of adult zebra mussels are found on most firm substrates. The highest number of veligers (free floating larval stage of the zebra mussel) for 1997 was sampled at the Crown Point bridge in early July. This total was five times more than the highest number recorded in 1996, which was also at the Crown Point bridge.

The northeast arm of the lake (Malletts Bay north to Missisquoi Bay) so far has been protected from large numbers of free drifting veligers by the old railroad causeway, which restricts water currents to just a few openings to the main lake. However, low numbers of adult zebra mussels attached to the Missisquoi Bay bridge were reported this year. A group of youngsters playing in the water at Maquam Bay found a zebra mussel attached to a native mussel. Adult zebra mussels were also sighted in Malletts Bay attached to native mussels at Bayside Park, Thayers Beach, and between Porter and Mills Point. At Allen Point on South Hero, a growing colony of adult zebra mussels was found, which is not surprising due to its close proximity to the cut in the causeway.

In Carry Bay (North Hero) where zebra mussels were seen attached to aquatic plants, there is a connecting culvert through the Carrying Place to the northeast arm. Since zebra mussel adults were found in the northeast arm near the Carrying Place and not found south of the Gut (between Grand Isle and North Hero), it is likely they came from veligers that traveled through the Gut or through the culvert.

 **What is the most noticeable impact zebra mussels have caused in Lake Champlain?**

Zebra mussels have visibly impacted native mussels by settling on them in high densities. As a result, native mussels have trouble filter feeding, reproducing, and moving. These types of stresses can eventually kill a native mussel.

People wading in the lake with bare feet have observed another problem: zebra mussel shells are sharp! Foot protection is now a must along much of the Lake Champlain shore.

 **Have zebra mussels caused great increases in water clarity in Lake Champlain?**

In the Great Lakes, particularly Lake Erie, clarity has increased up to 600 percent and been

attributed to zebra mussels. In South Lake Champlain, there has been a slight increase in clarity at monitoring stations, but whether or not this is due to the filtering effects of zebra mussels is uncertain at this time.

 **Do any animals feed on zebra mussels?**

A few species of fish, such as the freshwater drum, pumpkinseed, white perch, and common carp will feed on adult zebra mussels. A number of species of fry and fingerlings (young fish) will feed on zebra mussel veligers. Diving ducks, muskrats and crayfish are also predators of zebra mussels, however, compared to the prolificacy of the zebra mussel, the effect of their predation is insignificant. Furthermore, because the zebra mussel is a filter feeder, it bioaccumulates pollutants such as heavy metals. Then, when predators feed on the mussels, they acquire the pollutants, which could cause health problems for them and the other animals up the food chain.

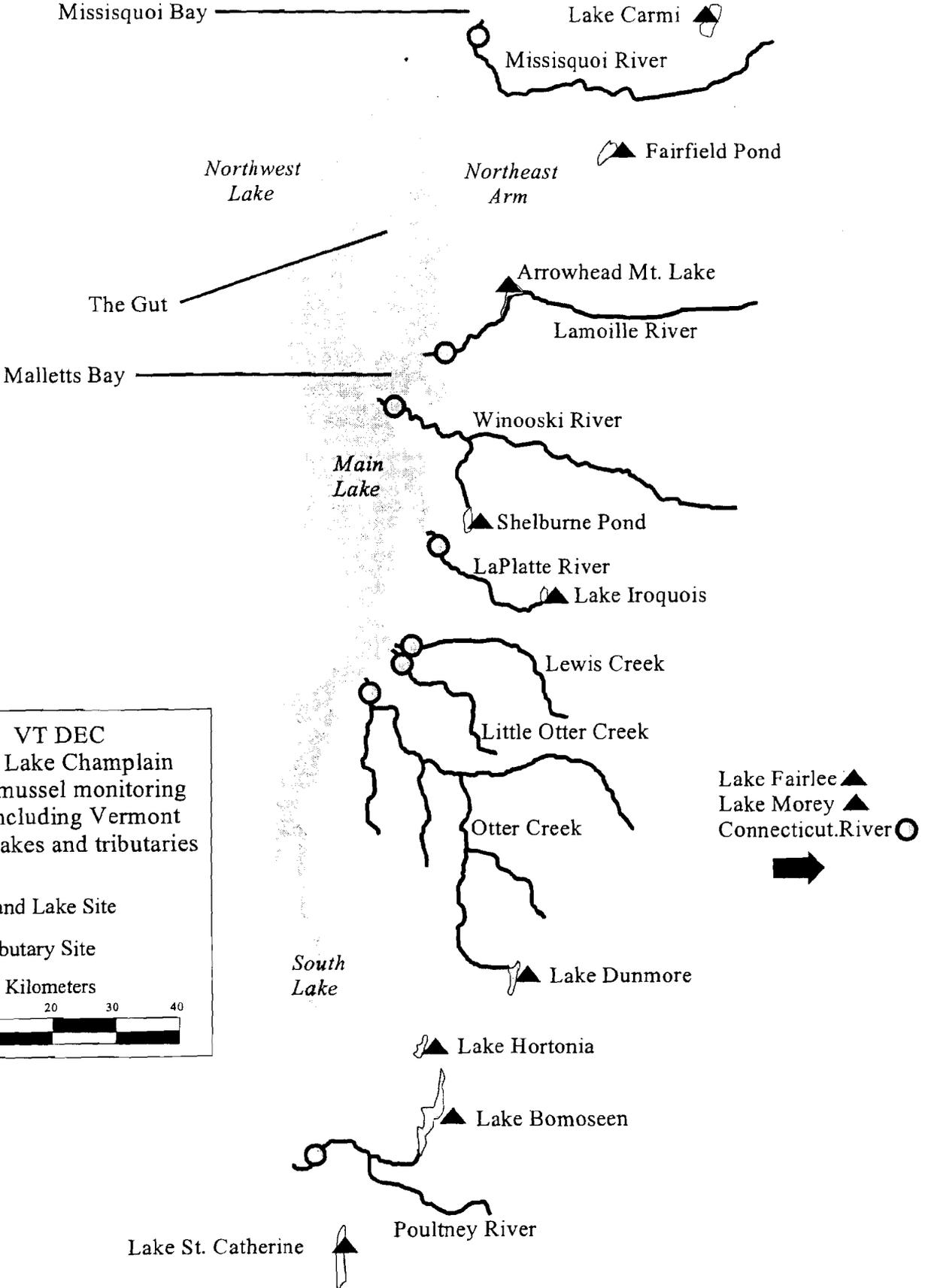
 **Do any other lakes or rivers in Vermont have zebra mussels?**

Arrowhead Mountain Lake, Lake Bomoseen, Lake Carmi, Lake Dunmore, Fairfield Pond, Lake Fairlee, Lake Iroquois, Lake Hortonia, Lake Morey, Shelburne Pond, and Lake St. Catherine were sampled for veligers during 1997. No veligers were found in any of these lakes. The Lamoille River, LaPlatte River, Lewis Creek, Little Otter Creek, Mettawee River, Missisquoi River, Poultney River, Otter Creek, Winooski River, and three sites in the Connecticut River were also sampled. Veligers were detected in the Little Otter Creek approximately one mile from the mouth of Lake Champlain, and in Otter Creek a half mile upstream from the mouth of the lake. Adult zebra mussels were found half a mile up the LaPlatte River. Veligers were not found in any of the other rivers sampled.

 **What can I do to prevent the spread of zebra mussels to other waterbodies?**

Before you move your boat between waterbodies (because you can never be certain whether any lake or river is infested or not), you must remove all plant material and zebra mussels and discard them in the trash or in an upland location; drain all water from the boat, boat engine, live well, and other equipment; and rinse all boat parts and equipment with hot tap water, or leave the boat out of the water and in the sun for at least five days. Lastly, advise other boaters to do the same!





VT DEC
1997 Lake Champlain
zebra mussel monitoring
sites including Vermont
inland lakes and tributaries

▲ Inland Lake Site
○ Tributary Site

Kilometers
0 10 20 30 40

How to Protect Your Property From Storm Damage

An Interview with Barry Cahoon, Chief Engineer for Stream Alterations

For how many years have you been working with the Department of Environmental Conservation?

Twenty-two years.

How would you define your job?

I work with individuals, municipalities, state and federal agencies to help assure that construction-related, stream alterations are conducted in a manner which is in the long-term best interests of the people of the state of Vermont.

What area of the state do you cover?

I supervise a statewide program with field responsibilities from the Winooski and Om-pompanoosuc watersheds north.

Who covers the rest of the state?

Field work for the Laplatte and White River watersheds south is done by Fred Nicholson, Stream Alterations Engineer.

About how many site visits do you make a year?

500-600 average, probably about 1,000 this year.

What kind of situations result in storm damage?

First you need an excessively intense rainfall. Then, you need any one of the following: inadequate public investments in infrastructure; inappropriate private investments in land development; inadequate or non-existent local control of development pattern; or watershed land use changes that affect hydrology.

Could you name a few examples of the property damage you surveyed after the floods in July, 1997?

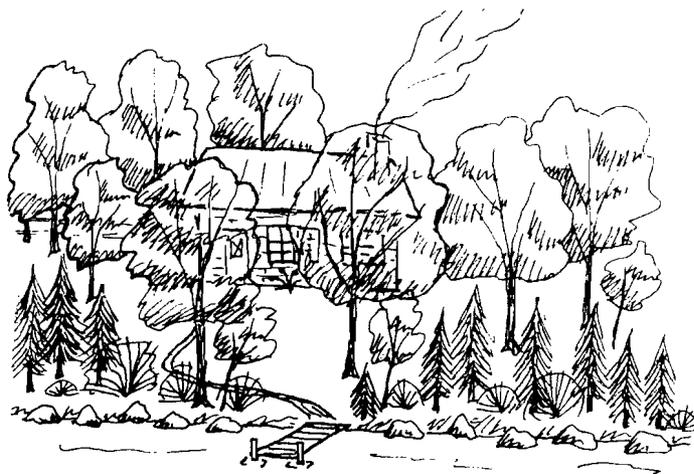
One: Improperly designed, funded, and constructed public infrastructure, such as roads, culverts, and/or bridges.

Two: Inappropriate private investments in land development in high risk areas (areas where previous flooding has occurred or where the river has flowed before) resulting in damaged homes and businesses. Damage mode usually resultant from debris jams or erosion, causing flow diversions into historic flow paths or channels.

Three: Farm land erosion. Inadequate stream buffers, bank instability, and tillage in highly erodible area, such as flood plains.



Vegetation Removed - Poor Buffer Strip



Vegetation Maintained - Good Buffer Strip

In August 1995 there were heavy floods that caused similar damage like this past summer's rain storm, did you have to re-visit any of the same sites, or had landowners learned to use better property management practices that protected their land from flood damage?

I re-visited several sites where the storm-affected areas overlapped, generally in Hardwick, Elmore and Wolcott. Some homes were at least partially protected by publicly funded protection projects after 1995. Several damaged sites to public infrastructure occurred again due to the inadequately funded response by FEMA (Federal Emergency Management Agency). By that I mean, FEMA

generally will not pay to upgrade structures. For example if an undersized culvert needs to be replaced by a larger, more appropriate sized one, FEMA will only pay the cost of the original, undersized culvert... so, chances are, the flood damage will occur again in that same spot, unless the more expensive and more appropriate sized culvert is used. So FEMA's policies are not cost effective!

Was the property damaged this summer pretty much unavoidable or are there practices a landowner or town can follow to protect against flood damage?

A certain amount was unavoidable due to the severity of the storm. Towns should do infrastructure assessment to identify inadequate infrastructure and adopt a capital budget plan to upgrade. Communities need to adopt into their zoning the identification of areas at high risk to development outside the mapped flood way. Individual landowners need to be able to identify land uses that are threatened by flood loss in certain areas.



Rock lined ditches are recommended for roads with slopes more than five percent.

Do towns use zoning to help protect their residents from experiencing property damage caused by water?

Yes. Towns use zoning because most towns have flood zoning. But, approximately 75 percent of flood losses are experienced by property located outside the designated flood way. Flood zoning is completely inadequate to define no-build zones in most communi-

ties. A few towns have gone beyond flood zoning, for example, the Town of Underhill has adopted a standard set back of 100 feet from streams to any building development. This number is arbitrary, not a resource-based or hazard-based dimension; it may be excessive or inadequate.

What are some solutions that help people protect their property, as well as the water quality of the local rivers and lakes?

Farm land conservation practices as administered by federal government do not at all emphasize buffer strip establishment or bank stabilization; this needs to change. We need a stronger watershed concept and ethic, recognizing that stream systems alteration always elicit reactions, many of which are unintended and undesirable. Concept of co-existing with river system/community needs to be stronger. Longer-term, historic perspective of river systems needs to be emphasized through public education. If people don't "remember" a river ever doing that before, it's as if it never did, and yet rivers do change paths naturally, and often change back to a previous route.

What is the most important thing a community member could do to prevent property flood damage?

Work through a local conservation commission and take up any of these issues raised. For example, work on trying to define high risk areas to flooding, to assure that a proper pattern of development is compatible with flood risk. That would be a good start!

Sources of Assistance:

Barry Cahoon, (802) 748-8787, and Fred Nicholson, (802) 786-5906, Stream Alteration Program.

Bob Niles, Vermont Local Roads Program, 1-800-462-6555.

Beth Ann Finlay, Northern Vermont Resource Conservation and Development Council, Vermont Better Back Roads Small Grant Program - to fund correction of erosion problems, and inventory and capital budget development projects, (802) 828-4595.

Two Lakes Benefit from Better Backroads Grants

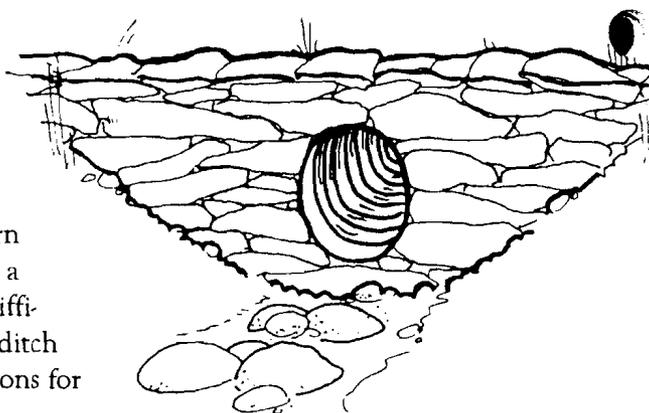
The Vermont Better Backroads - Clean Water You Can Afford initiative awarded \$17,500 in total grants to towns and lake associations during the summer of 1997 for two categories of projects:

- 1) Road Inventory and Capital Budget Planning; and
- 2) Correction of Road Related Erosion Problems.

Ten grant proposals were selected from 44 applications received. The grants program was ably administered by the Northern Vermont Resource Conservation and Development Council, and a selection committee, representing several organizations, made the difficult choices. Of the ten awards, eight went to towns for work such as ditch (rock-lining) and bank stabilization. Two grants went to lake associations for work on private roads near lakes, and are described below.

Woodford Lake Estates, Inc. - This association near Bennington has been inventorying and documenting erosion problems for several years. They used their \$500 grant to replace an undersized culvert. They plan to continue correcting other problems and improving their maintenance practices.

Bragg Road Committee - The Bragg Road Committee used their \$2,000 award to reshape and rock-line a ditch that had been an on-going erosion problem discharging into Lake Fairlee.



Culvert with Stone Headwall

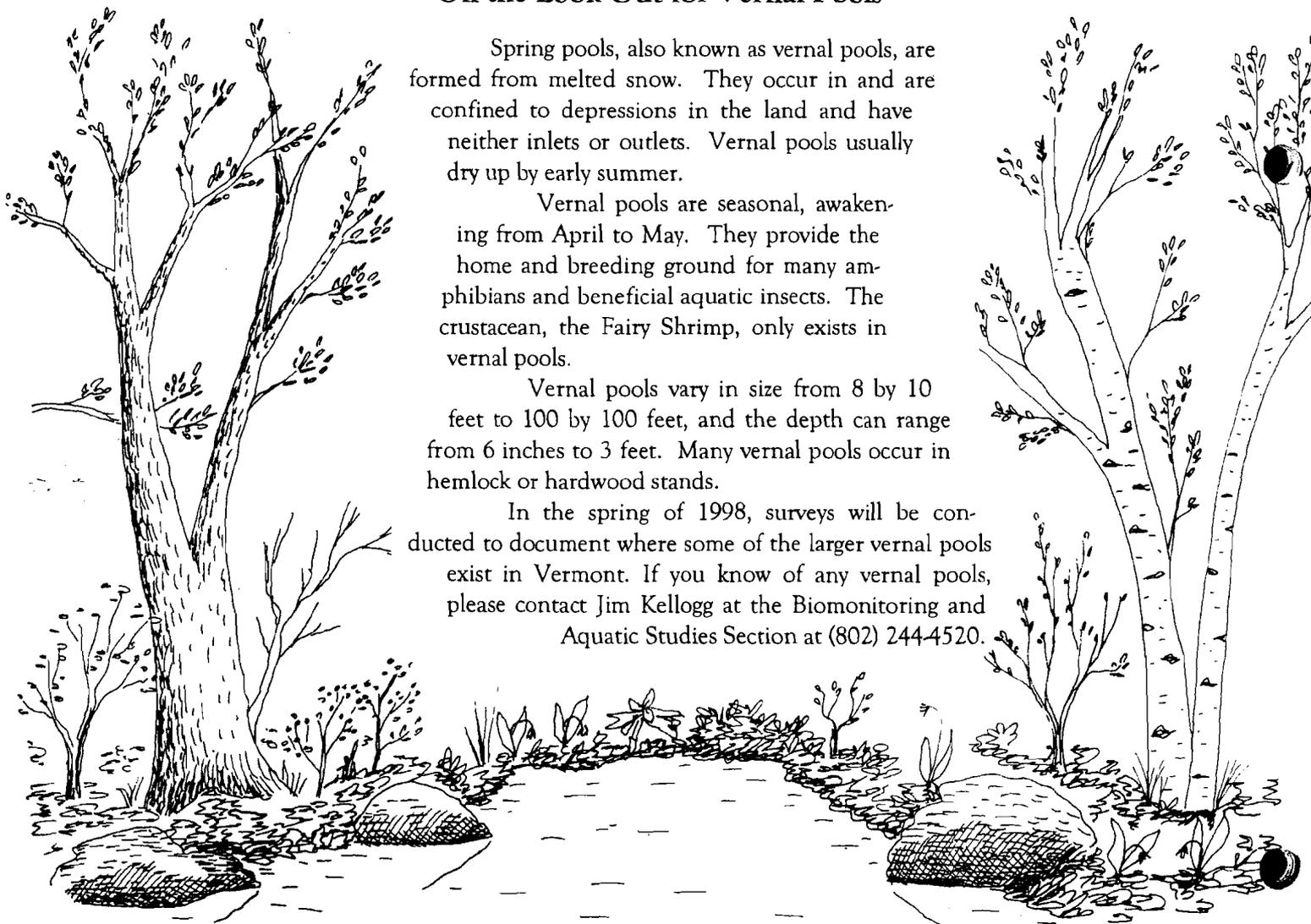
On the Look Out for Vernal Pools

Spring pools, also known as vernal pools, are formed from melted snow. They occur in and are confined to depressions in the land and have neither inlets or outlets. Vernal pools usually dry up by early summer.

Vernal pools are seasonal, awakening from April to May. They provide the home and breeding ground for many amphibians and beneficial aquatic insects. The crustacean, the Fairy Shrimp, only exists in vernal pools.

Vernal pools vary in size from 8 by 10 feet to 100 by 100 feet, and the depth can range from 6 inches to 3 feet. Many vernal pools occur in hemlock or hardwood stands.

In the spring of 1998, surveys will be conducted to document where some of the larger vernal pools exist in Vermont. If you know of any vernal pools, please contact Jim Kellogg at the Biomonitoring and Aquatic Studies Section at (802) 244-4520.



State of the Lakes



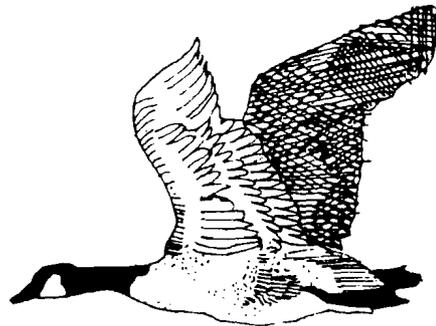
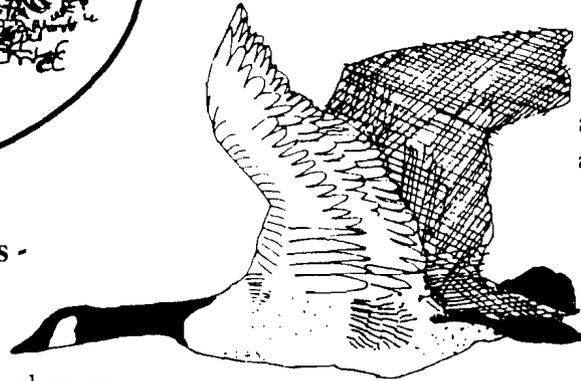
Federation of Lake Associations - Northern Vermont

by Jackie Sprague, President

"I love my lake! It's the most spectacular place on earth." This heartfelt sentiment is exhibited by every representative as they read their annual lake report at the Federation of Lake Associations - Northern Vermont summer meeting.

The Federation of Lake Associations - Northern Vermont (FLANVT) is an informal organization comprised of lake enthusiasts who come together once a year to share resources, look for answers to particular issues, and see old friends and meet new ones. FLANVT's purpose is to protect the quality of Vermont lakes and share information.

Carl Simpson, from the Westmore Association of Lake Willoughby, founded the Federation of Lakes Associations of Northern Vermont in 1957 with five other lakes. Today the organization has grown to 28 lakes and ponds and has been renamed Federation of Lake Associations - Northern Vermont.



The annual Federation meeting serves as a gathering place and dissemination house for information regarding lake protection issues. Each year the directors invite a variety of guests to speak on timely and pertinent topics such as property tax reform, aquatic nuisances, fishing, and water use regulations.

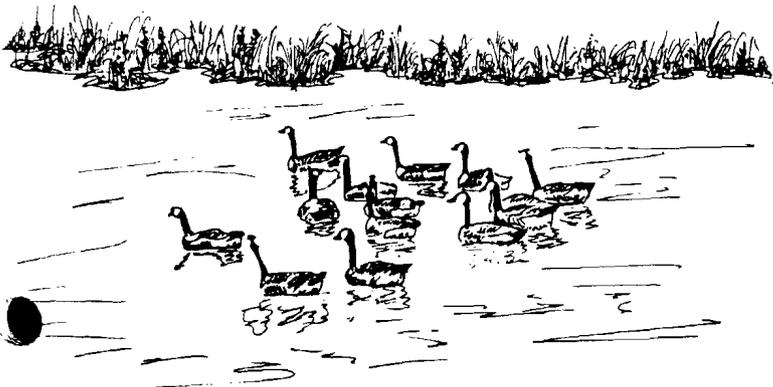
FLANVT stays abreast of current legislative action(s) so that lake associations may appropriately participate in the formation of the laws. Each member is involved to the level which is comfortable to them, but all are always willing to share their expertise and experiences.

The Lake Protection Advisory Committee (LPAC)

consists of members throughout the state, many who have been or are involved in FLANVT. The Federation supports the work of the LPAC in its endeavors to bring more people together for enhancement and protection of Vermont lakes.

The newest development through LPAC is the first annual *LakeFest '98*. *LakeFest '98* will occur from July 18 - 26, 1998. All lake groups are invited to participate in a fashion that will work for them from regattas to workshops to barbecues. Take this wonderful opportunity to boast about your lake and bring knowledge and lake awareness to the community (see back page)!

The FLANVT is hoping to make 1998 a year to remember by having the Northern and Southern Federations unite as one state organization. The pool of resources would increase without losing the "local" camaraderie and their individual goals. This is an exciting time for lakes! Please feel free to contact Jackie Sprague at (802) 482-2885 or e-mail jackie@sprague.org for more information regarding the Federation of Lakes.



Conte Refuge Receives Invasive Plant Control Grant

Established in 1991, the Silvio O. Conte National Fish and Wildlife Refuge encompasses the 7.2 million-acre Connecticut River watershed in the states of Vermont, New Hampshire, Massachusetts, and Connecticut. Two important purposes of the refuge are to conserve, protect and enhance the natural diversity and abundance of species and ecosystems within its boundaries, and to provide opportunities for research, environmental education, recreation, and access.

A key management task required to fulfill the refuge's mission is addressing the threat to natural diversity posed by invasive exotic plant species. Competition from invasive exotic plants is a potential serious threat to the many exemplary vegetative community types and more than 400 rare native plant species that exist in the Connecticut River watershed. Listed below are some examples of the spread of these non-native, invasive plants.

- ♦ Within the watershed, internationally significant tidal wetlands, valuable to thousands of migratory waterfowl, are being taken over by common reed.
- ♦ Riverine and inland wetlands are being dominated by purple loosestrife.
- ♦ Countless riparian and upland areas are succumbing to an onslaught of Japanese knotweed, honeysuckle, and oriental bittersweet.
- ♦ Some invasive plants found in the watershed, such as Eurasian watermilfoil and water chestnut, can significantly affect the recreational use of the resource.

The National Fish and Wildlife Foundation recently awarded the Conte Refuge a grant of \$45,000 to conduct the Connecticut River/Long Island Sound Invasive Plant Control Initiative. These funds will allow the Refuge to develop a structure and program to address the introduction and spread of invasive exotic plants in areas of critical environmental concern. Matching funds for the 1997-98 grant were provided, in part, by the VTDEC and several Vermont local communities in the watershed who were already working on invasive exotic plant control programs on Lake Morey, Lake Fairlee, Mill Pond and Halls Lake.

The Conte Refuge plans to bring together private, state, and federal conservation interests to accomplish the objectives of the initiative. About half of the grant money will be used to fund a coordinator who will conduct a complete needs assessment and develop a blueprint of tasks to be completed during the next five years to encourage spread prevention, control and/or

eradication of invasive exotic plant species in the watershed.

The other half of this year's award will be used for specific projects within the watershed. A Steering Committee, with representation from different areas within the watershed, will work with the coordinator to prioritize projects. The selection of project sites will be based on several criteria, including threats to the natural resource, likelihood of success, and cost effectiveness. Additional priority activities identified during this grant period may be carried out in future years. For more information, please contact Holly Crosson at the Lakes and Ponds Section.



Purple Loosestrife
drawing by Libby Walker Davidson

Two New Milfoil Lakes Found in 1997

The discovery this summer of two new lakes with Eurasian watermilfoil brings the statewide total to 42 lakes.

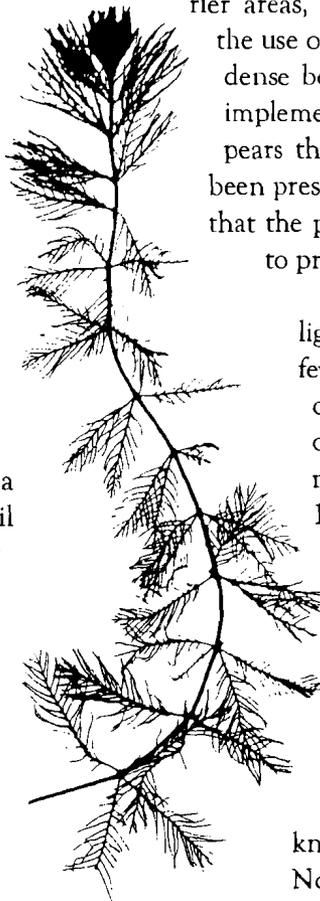
A population in Star Lake in Belmont was first identified by a local resident in early July. The VTDEC confirmed the report during a survey on July 15. Lakes and Ponds staff have been working with local residents on potential control strategies which may include handpulling and the use of bottom barrier at the beach area.

Local residents on Lake Elligo in Craftsbury and Greensboro were also responsible for alerting the VTDEC to a milfoil population in that lake in early August. The VTDEC conducted a survey on August 11 and documented milfoil growth in many areas of the lake. The most abundant growth was found at the northern end. A group of lake association members immediately began handpulling the scattered plants found in the southern half of the lake. They also applied for and received permits to use bottom barrier in four areas that were beyond the handpulling stage.

Lakes and Ponds staff will continue to work with the Elligo Lake Association to expand control efforts in 1998. Several options are being

explored, including an expansion of the bottom barrier areas, diver-operated suction harvesting, and the use of a fragment barrier to try to contain the dense bed in the north until a strategy can be implemented to control that area. While it appears that the milfoil in Lake Elligo may have been present for at least three years, there is hope that the population was still found early enough to prevent a widespread, dense infestation.

The discovery of milfoil in Lake Elligo is particularly troubling because so few lakes in this part of the state are currently infested. Limiting the spread of milfoil in Lake Elligo, as well as to neighboring lakes, will be a priority in 1998. We can only do this with your help! If you visit the lakes in this region, please make sure you know what Eurasian watermilfoil looks like and contact the VTDEC **immediately** if you find it. In Orleans, Essex, Caledonia, and Washington Counties, there are only three other lakes with public accesses that are known to have Eurasian watermilfoil: North Montpelier Pond, Brownington Pond and Lake Memphremagog.



It's True Why the Secchi Disk is Painted White and Black



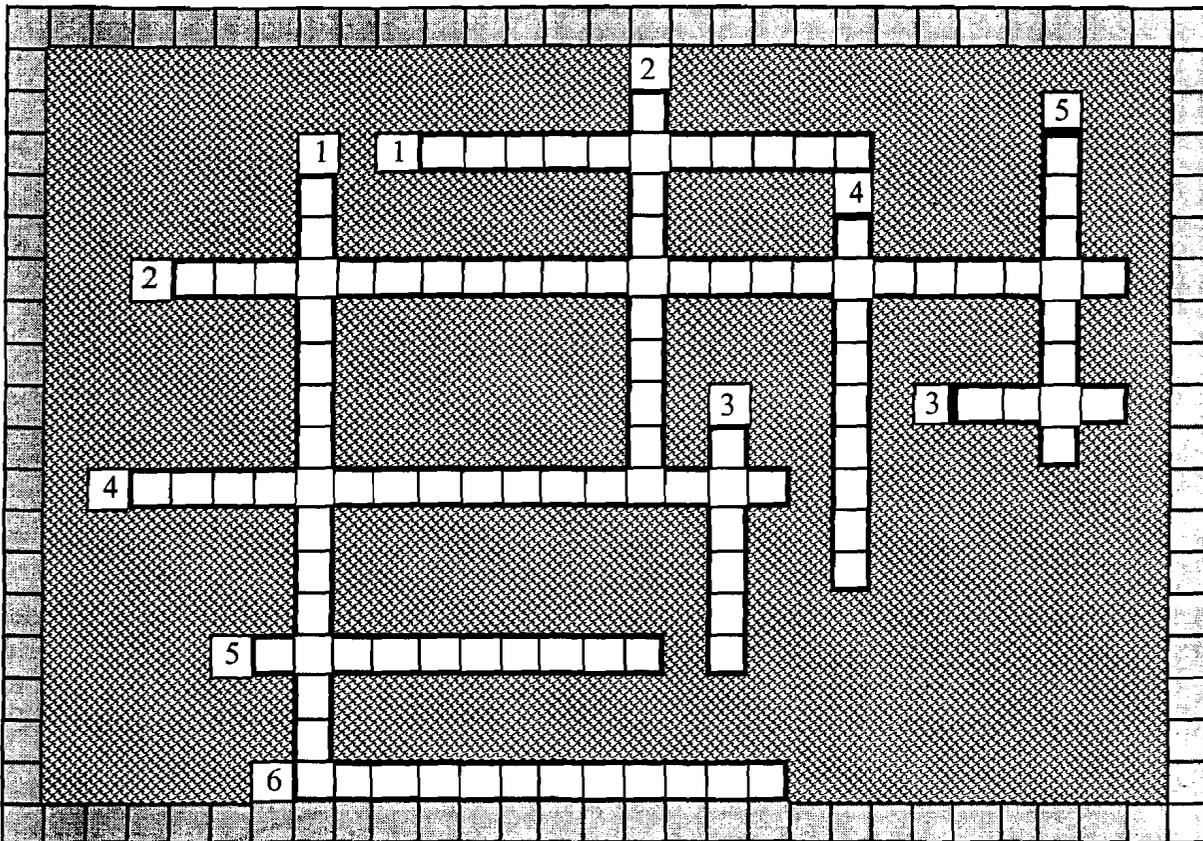
The Secchi disk (rhymes with "Becky"), was invented by an Italian named Pietro Angelo Secchi. His first tests with an all white Secchi disk were done April 20, 1865 on the Mediterranean Sea.

By 1899, George Chandler Whipple had successfully proven that by painting the Secchi disk with black and white quadrants a constant contrast between the disk and the background was seen. This contrast made it easier for the eye to pick out the disk as it was lowered through the water, which resulted in more accurate readings.

Although a number of different sizes, colors, and shapes have been used during the years, today it is standard practice by limnologists to use the eight inch, black and white disk.

Do the Right Thing

All the answers to the crossword puzzle relate to good water protection practices.



ACROSS

- 1) vegetation that filters run-off entering a waterbody
- 2) methods used to prevent/solve sediment and nutrient run-off to streams and lakes
- 3) creature who benefits from water protection
- 4) helping to control nuisance exotic species
- 5) documenting existing water quality conditions
- 6) needs pumping every three to five years

DOWN

- 1) a program aimed at reducing gravel road erosion
- 2) a water related, k-12 grade, integrated, environmental education program
- 3) a tool a town can use to protect water
- 4) the land area to survey in order to best understand how to protect your lake
- 5) the first planned annual statewide water celebration event

Answers Across:
 1) bufferstrip
 2) best management practices
 3) spread prevention
 4) monitoring
 5) septic system
 6) fish

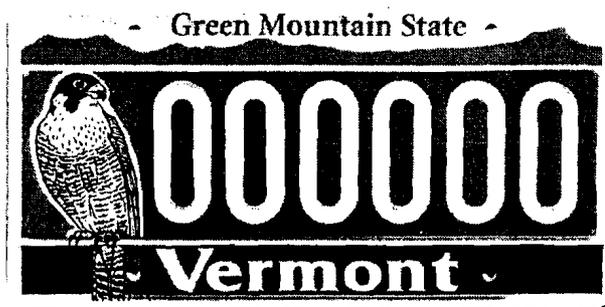
Answers Down:
 1) better backroads
 2) project WET
 3) zoning
 4) watershed
 5) laketest

Happenings

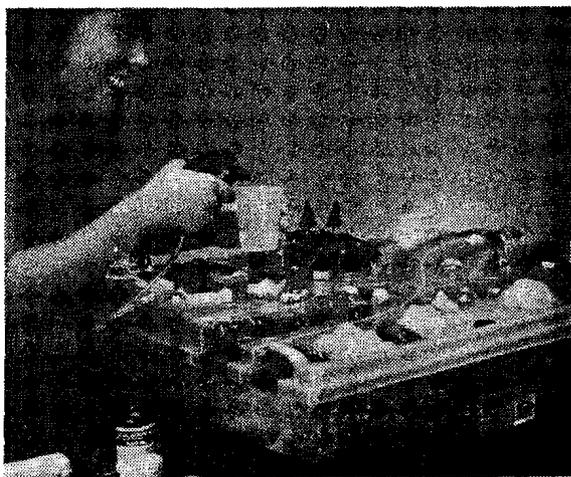
Vermont Watershed Grants Available

Half of the proceeds from sales of the new Vermont Conservation License Plate will become part of the Watershed Fund. The Fund will be used to provide grants to local lake and stream projects. The first series of watershed grants will be made in January 1998. Eligible projects include protecting or restoring fish and wildlife habitats, water quality monitoring, protecting shorelines, recreational access or trails, and watershed education—basically anything water-related! Grant applications for the next round of funding will be available during the summer of 1998.

To help ensure adequate funding for Watershed Grants, buy a Conservation Plate (\$20 added on to your annual car registration fee) or promote it among your fellow lake lovers. For brochures or more information, contact Susan Warren at the Lakes and Ponds Section.



Recently Made Available



Watershed Model

Now available on loan through the Lay Monitoring Program and Project WET, is an interactive, portable model of a watershed. This hands-on model demonstrates for all ages how land uses affect water quality. The model shows both pollution sources and solutions to protecting the water quality. Please call Amy Picotte at the Lakes and Ponds Section for more information about how to borrow this interactive watershed model.

Backroad Manuals

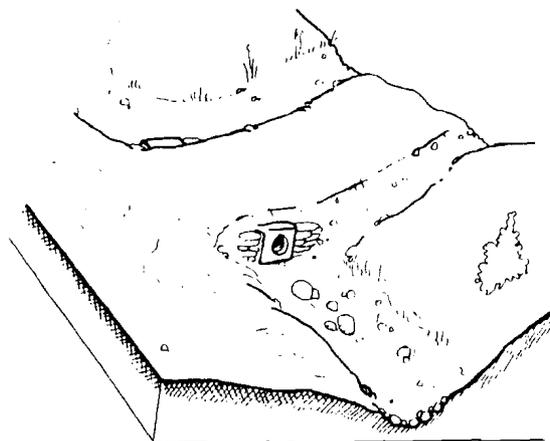
Two new guide books that help with back road maintenance are available free of charge from the Lakes and Ponds Section:

Cost Effective Solutions to Protect Water Quality Near Vermont Town Roads. Vermont Local Roads Program, May 1997. 10 pages.

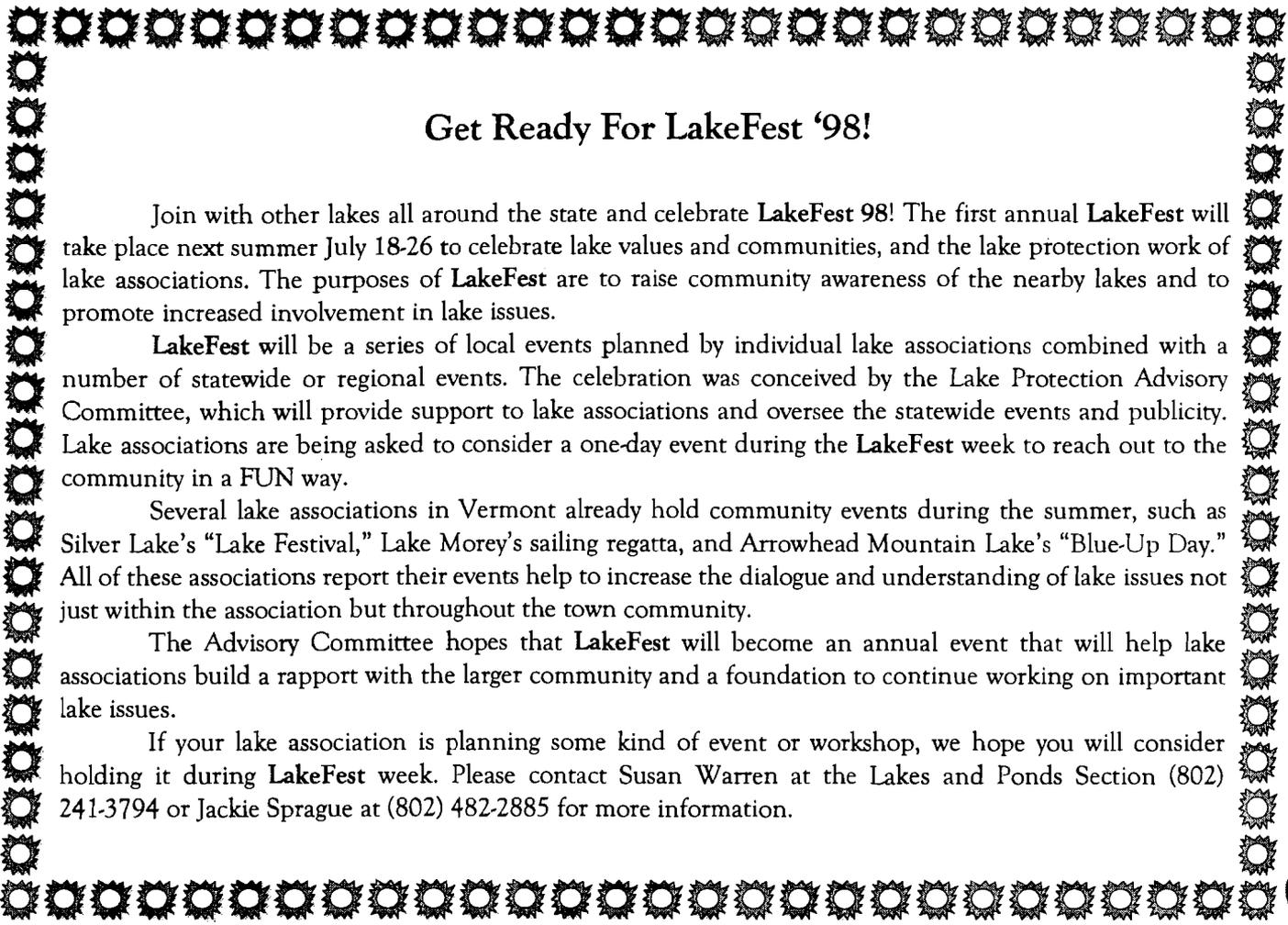
Profiles three real-life examples of erosion control techniques used in towns and estimates the cost-savings realized by implementing them.

Developing a Highway Access Policy: Guidelines and Model Ordinance. Vermont Local Roads Program, May 1997. 48 pages.

Provides design, construction and maintenance standards that control erosion and protect public safety for towns to use when approving new driveways. Primarily applies to rural areas.



New driveway with good approach, protected culvert and clean ditches.



Get Ready For LakeFest '98!

Join with other lakes all around the state and celebrate **LakeFest 98!** The first annual **LakeFest** will take place next summer July 18-26 to celebrate lake values and communities, and the lake protection work of lake associations. The purposes of **LakeFest** are to raise community awareness of the nearby lakes and to promote increased involvement in lake issues.

LakeFest will be a series of local events planned by individual lake associations combined with a number of statewide or regional events. The celebration was conceived by the Lake Protection Advisory Committee, which will provide support to lake associations and oversee the statewide events and publicity. Lake associations are being asked to consider a one-day event during the **LakeFest** week to reach out to the community in a FUN way.

Several lake associations in Vermont already hold community events during the summer, such as Silver Lake's "Lake Festival," Lake Morey's sailing regatta, and Arrowhead Mountain Lake's "Blue-Up Day." All of these associations report their events help to increase the dialogue and understanding of lake issues not just within the association but throughout the town community.

The Advisory Committee hopes that **LakeFest** will become an annual event that will help lake associations build a rapport with the larger community and a foundation to continue working on important lake issues.

If your lake association is planning some kind of event or workshop, we hope you will consider holding it during **LakeFest** week. Please contact Susan Warren at the Lakes and Ponds Section (802) 241-3794 or Jackie Sprague at (802) 482-2885 for more information.

**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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