



THE CHAIN LETTER

May 2000

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Editor: Bill Downing, 1834 Simpson Street, Falcon Heights, MN 55113. wdowning@uslink.net. The *Chain Letter* is a means of communication among Association members, and it will work best if you contribute. Please send your comments, letters, historical notes, and news to the Editor *now*.

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IMPORTANT NOTICE! ASSOCIATION MEETING SATURDAY MAY 27, 9:00 A. M., WABANA TOWNSHIP HALL. PLEASE ATTEND!

A BUSY WINTER AND SPRING!

Some of us who go South from our Chain of Lakes in the Autumn, when the leaves are falling, and who come back when the wildflowers are blooming in the forest in the Spring, get the feeling that time slows and stops when we are gone, like the water in the creeks, and starts up again when we bring our warmth back in the Spring. That is *never* true, of course, but especially not true in the winter of 1999-2000!

Your Association has been exceptionally busy this past winter. From Falcon Heights I have tried to keep track of the major activities by e-mail

and phone, so I could report to you—I hope I have included everything:

September 11, the Association adopted a Resolution asking David Lick to appear before the Wabana Township Board requesting the Township to pass a resolution that would grant the Wabana Chain of Lakes Association the authority to explore ways of preventing pollution to the Chain of Lakes, including education and possible inspections; and seeking funding for necessary actions. The intent of this was that the Association wanted the backing of the Township, in order to take the matter to the County Board. (More information may be found in Minutes, in the November 1999 *Chain Letter*.)

October 13. A special meeting of Wabana Township (expense paid by the Association) to consider the Resolution from the Association. The resolution was passed with an addendum to extend the education and inspections to *all* lakes in the township. About 40 people were in attendance to discuss the issues and direct questions to an inspection/design professional, and the county zoning officer. (More information may be found in the November 1999 *Chain Letter*.)

Later in October. Meeting of the Itasca County Public Works Committee. Many Association members and other Wabana Township citizens attended this meeting. A request was made to the county board of commissioners, to adopt the resolution of the Association previously carried by the Wabana Township Board. The intent of asking the county to support the action was to show a granting agency that this is a cohesive, grass roots effort. Funds would be applied for to assist the county in the cost of the inspections and also to help the Association to continue a prolonged study of the water in the township lakes. All commissioners were present except Mr. Wilhelm. The commissioners were reminded that they had ratified an ordinance in Sept. of 1998 regarding non-compliant individual septic systems. A review of the chemical testing and Secchi disc readings was held for the Board, from 1991 to 1999, showing a serious tendency that is developing. The Board's opinion was that the township should handle the issue of compliance.

November. Water quality numbers were published in *The Chain Letter* indicating the serious increase in phosphorus concentrations in all basins, as reported to the Township and County; at a cost to the Association of \$2,440. The same edition of *The Chain Letter* reported the Secchi Disk readings by the devoted members of Nancy Ellsworth's committee, indicating a decrease in water clarity. It is no wonder that Association members are alarmed.

January 2000. The Association sent a septic tank handbook and a letter to all Township residents, requesting the cooperation of residents to get their systems checked for compliance. We should note that this went far beyond the Chain of Lakes, to

include all lakes in the Township, as required by the Township Board.

February. Research was done on nutrient loading from septic tanks, and Association member John Adams wrote a synopsis of possible problems associated with non-compliant systems, with the necessary technical documentation. This was mailed in early **March**.

March. Meeting of the Wabana Chain of Lakes Association Advisory Committee. It was agreed to request an interpretation of the Individual Septic Tank Ordinance from Itasca County Attorney, and a letter to that effect was sent to County Attorney John Muhar and Zoning Commissioner Terry Greenside.

At the same meeting a request was made to the Itasca County Soil and Water Conservation District to provide a cost-share fund to the landowner on Wabana Lake to remove cows from watering in the lake. The landowner was agreeable to the idea, and water will be moved up the hill for watering, so cattle will no longer be defecating in the lake and the runoff will no longer be making its way to the water basin. We applaud the efforts of John Rowe, and the folks

at Soil and Water and a huge Thank you to the landowner for understanding our intentions in this matter.

April. Three members of the Association, one Township Board member, two Commissioners, and two County Attorneys attended a meeting at which the Lake Association requested help in (a) obtaining ratification of the Resolution, and (b) inspecting septic systems in the township. The two commissioners agreed to help us in obtaining ratification of the resolution and to help us seek funds to provide an ongoing water testing and educational program. Commissioner Wilhelm requested that we contact the remaining commissioners personally to inform them of the meeting. Mr. Greenside agreed that the funding would be more easily obtained with the backing of the County. Additional meetings with Mr. Greenside will be necessary to see how best to accomplish the inspections and the other steps in the process.

For **May and June**, meetings are planned with the County Commissioners. For **June and July**, it is hoped that inspections will begin, for people who have volunteered to have it done.

SEWAGE TROUBLES FOR MILLE LACS

Even huge round Mille Lacs Lake is having trouble with septic tanks. The StarTribune ran a scary article on April 25, written by my favorite environmental reporter Tom Meersman, which they tell me I can quote if it is not for a commercial purpose:

“Sewage that is leaking into Lake Mille Lacs—one of Minnesota’s most popular and productive walleyefishing spots—is threatening the lake, pollution authorities say.

“Bob Newport, a water quality specialist with the Environmental Protection Agency (EPA) in Chicago, said too much phosphorus, especially from sewage that leaks into the lake, could eventually transform Mille Lacs from a place of relatively clear water and a sandy bottom to a lake full of algae, aquatic plants and silt.

“‘We have started to see preliminary indications of degradation of the lake,’ he said. ‘If nutrient loads continue to build in the lake, it can change to a system dominated by sunfish and bass instead of walleye’...

“‘Untreated sewage is a problem because the communities along the western shore use individual septic systems, which have largely failed. A recent study for the city of Garrison concluded that more than 95 percent of its septic systems are ‘imminent health threats, failing or nonexistent’...

“The [Ojibwe] tribe also needs to upgrade its sewage treatment system, which consists of stabilizing ponds that can’t keep up with the band’s expanding need for housing...[T]hey also fear that failing septic systems will contaminate the ground water that they drink. ‘Everybody shares the aquifer...If anybody pollutes it, that affects all of us.’”

(Continued on page 4)

THE INS AND
OUTS OF
SEPTIC SYSTEMS

Bewildered by the recent mailings about septic systems?

Well, here is a short list of key points to remember.

To: Wabana Township Residents
From: Harold Dziuk, member. Wabana
Chain of Lakes Association

1) The concern about noncompliant septic systems arises from the fact that sewage contains pathogens (disease causing organisms such as bacteria and viruses), as well as phosphorus, nitrates and other nutrients. Sewage must be effectively treated by a suitable bed of soil containing air to kill pathogens and to protect both ground water and surface water..

2) In earlier times most shoreland cabins did not have running water. Today, modern plumbing, greater numbers of shoreland homes and increased use of water have changed the need for sewage treatment. Unless household wastewater is properly treated, water contaminated with disease producing organisms and dissolved nutrients can cause health problems for both humans and animals, degradation of water quality, increased algae blooms and excessive plant growth in nearby ponds and lakes.

3) Across Minnesota, shoreland owners are being encouraged to take Action to protect health and water quality by making certain that their on-site sewage treatment system has been properly designed, installed and maintained.

4) The Itasca County Board of Commissioners adopted a new sanitation ordinance in September, 1998. Objectives of the ordinance include the prevention and control of water-borne disease, lake degradation, ground water related hazards and public nuisance conditions.

8) Seepage pits, drywells or leaching pits

do not provide soil conditions that kill bacteria or remove and treat nutrients and that render wastewater clean. Therefore, they are defined in the sanitation ordinance as a failing system.

6) Any system with less than three feet of soil or sand between the bottom of the distribution medium (I.e., the perforated sewer pipes and a layer of small rocks) and the water saturated soil level or bedrock in shoreland areas is also defined as a failing system.

7) If untreated wastewater is discharged into soils that are saturated with water, at a level that is too close to an impervious bedrock or into soils that do not contain air, biological breakdown of sewage will be incomplete and nutrients will move much greater distances, sometimes hundreds of feet from the drainfield or mound. This is the reason why cesspools or drywells are defined as failing or noncompliant systems.

8) Even though a sewage treatment system is properly designed and installed, it may fail to function to clean wastewater as it should if the system is not properly maintained.

S) Best management practices for maintaining septic systems include regularly pumping and cleaning solids from the septic tank, controlling water use, spreading water use out over the day or week, minimizing the use of detergents and cleaners and not disposing of substances that are not biodegradable, such as paints and plastic products, in the septic system.

(Continued from page 2)

The residents have found a solution they apparently can live with: connect all the sewage for the whole west side of the lake to a pipe system, send it to the tribe, which will process all the sewage, and charge a monthly sewage service charge to everyone. Cost of making pipe connections to the sewage system, is not addressed in the article, but presumable it will be an expense to the owners, as it is in the city. Some seasonal residents are expected to object, but there doesn't seem to be any other option for protecting all that huge mass of water from human degradation! What will it cost? Meersman says:

“The tribe will receive a \$6.7 million grant from the EPA that will finance about two-thirds of its share of the cost...[I]f approved, construction could begin in spring 2001.”

LESSONS FOR US FROM MILLE LACS

One lesson to us we can learn from this sad story is how serious the effect is from failing septic systems. Many of those seasonal homes are fifty to a hundred years old, and still using whatever “system” was put in, back when they first got running water and flush toilets—remember the 95% failure rate?. They probably feel that their system is OK, because it has never backed up on them. But in that sandy soil, they are doing the next thing to running the pipe directly into the lake, since the lake water and ground water are about the same. They now realize that this cannot continue, and it is going to be very costly to everybody, owners, tribe, and public. (I remind myself that that \$6.7 million, which will pay for two-thirds of the initial system cost, is not free money, but my tax money!), and we would surely not like to do a similar thing in the human-crowded parts of Wabana, Bluewater and Trout. We need to catch it now, while we can.

But the second lesson is not so obvious: the huge volume of water in Mille Lacs, because it is *round*. Consider just Wabana lake (I happen to have better measurement data on it than on the others in the Chain).

Total water area	2,146 acres
Shoreline	23 miles

The MDNR divides the acres by the miles and comes up with a figure called “Crowding Potential”, and in the case of Wabana it is 93. We are in about the same range as others with our cut-up shape: Spider 80, Turtle 95, Bass 121. Rounder lakes have higher CP: Deer Lake 173, Splithand 183, Sand Lake 287. Pokegama is difficult to measure, but about 363. Big Winnie defeats me, though I'd guess about 1,300.

What's the point of this? It shows that Wabana, and the others in the Chain, have *very little water relative to their shoreline!* What goes into the water won't get diluted very much. Furthermore, our flow-through is very slow.

What if Wabana were round? High school Geometry ought to help here, with its Circumference =

$\pi \times \text{diameter}$, and Area = $\pi \times \text{radius}^2$. A *round* lake with Wabana's 23 mile shoreline would be 3.7 miles across, and would cover 450 square miles, or (if there are 640 acres in a square mile) about 254,000 acres instead of our modest 1,266 acres. Now *that* shaped Wabana could dilute a *lot* of septic system phosphorus! Would we like it better?

But even monster Mille Lacs (translated as “thousand lakes”) is having trouble with its septic systems. They have gone beyond control over the years. So what chance have we got? The only chance I can see is to catch the problem early, keep *close* track of the waters in the lakes, and stop the septic systems that are leaking into the lakes from doing that (whether they are “in code” or not). We have our work cut out for us!

LETTER FROM KEITH FRIESSEN: LAWN FERTILIZATION—OUR NEXT BIG SOURCE OF PHOSPHORUS IN THE LAKES

Chain of Lakes Association member Keith Friessen has sent us the following, as help in understanding the problems involved in lawn fertilization, and suggestions for solving them..

I think everybody would admit that walking through a thick green lawn with bare feet is one of the fun things about summer, but developing and maintaining a lawn of this type requires extra time, water and, for a lot of people, chemical additives. Living near a lake or stream and choosing to use lawn chemicals such as commercial fertilizers or herbicides increases the chance that runoff will contain excess chemicals that have harmful effects on those lakes and streams.

While the nitrogen in fertilizers can have a negative effect on surface waters, it is the phosphorus in fertilizers that has the greater immediate and long term effect. Since one pound of phosphorus can yield up to 500 pounds of algae, the long term effect of phosphorus runoff would be to turn a lake like Bluewater from blue to green, eventually changing the type of fish that can live in the lake. It would no longer be able to sustain lake trout as it does now.

Although most commercial fertilizers contain phosphorus, many of the soils in Minnesota do not require additional phosphorus. Grass can only use a certain amount and any excess will run off or leach through the soil. Therefore, prior to applying fertilizer to your lawn a soil test should be conducted so that you can purchase the correct fertilizer mixture. If you choose to maintain a green lawn and use phosphorus free or no fertilizer at all, here are a number of things you can do to accomplish this:

- Use a phosphorus free fertilizer, indicated by “0” as the middle number of the three numbers listed on commercial fertilizers, i.e., 10-0-10
- Wait until the middle of May to fertilize
- Aerate your lawn
- Water your lawn deeply, ½ to 1 inch at a time
- Maintain grass at a height of 2-3 inches and cut no more than 1/3 of the grass leaf each time
- Never fertilize before a heavy rain.
- Never fertilize wet grass, but water thoroughly after application
- Avoid fertilizing on hard surfaces, natural drainage areas, or near shoreline.

- Leave a buffer of natural vegetation near shorelines to prevent erosion and retain nutrients
- While each person that lives on or near the Wabana Chain of Lakes has their own philosophy of land and water use, I believe we all share a desire to see the lakes remain clear and clean. To that end, each person has a duty to minimize the effect that they have on their environment. If you want additional information about what you can do to limit nutrient and chemical runoff into the lakes, the University of Minnesota Extension Service, the Minnesota Department of Natural Resources, as well as other agencies have many useful publications.

DUES, AND A CONTRIBUTION? Dues for the Wabana Chain of Lakes have remained the same \$20 from the beginning, decades ago. Meanwhile our expenses reflect the rising tide--laboratory fees last year were \$2,440! If you want to make an additional contribution, please feel free to do so and mark below: Please mail to Cathy Rudolph, Treasurer, address on other side.

~ Regular 2000 Dues \$ _____ ~ Contribution \$ _____

Name _____

Address #1, permanent _____

City _____ State _____ Zip Code: _____

Which months of the year for mailing? _____

Name _____

Address #2, seasonal _____

City _____ State: _____ Zip Code: _____

Which months of the year for mailing? _____

Wabana Chain of Lakes Association, Cathy Rudolph, Treasurer, 36542 Havenwood Drive, Grand Rapids, MN 55744

SOME RESEARCH ON LAWN PHOSPHORUS RUNOFF

Does excess phosphorus actually run off into the surface water? It seems logical, almost inevitable, but finding research to demonstrate it is difficult, because the equipment is expensive, setting it up is time consuming, and controlling the variables is complicated. A friend at the Minnesota DNR found such research published, and gave me a copy, a piece of real and careful research: Barten, John M and Ethan Jahnke, 1997, Suburban lawn runoff water quality..., Suburban Hennepin Regional Park District, Maple Plain, MN. These men spent a couple of summers setting up twenty-nine sets of lawn samplers, made of dozens of five-foot extensions of PVC pipe with parallel slits in them, ganged together, and two in a V shape were connected to a collecting vessel. Then the researchers collected the samples at frequent intervals and analyzed Phosphorus in the runoff, as well as a lot of other chemicals. They already

had determined what was in the turf at the beginning of the work: phosphorus, potassium, pH, soil texture, age of lawn, fertilization frequency, and mowing and turf watering practices. They then applied fertilizers to the lawns at known concentrations, watered or collected rain water, and compared results.

Their data showed that phosphorus fertilizer applied to lawns that already have phosphorus, runs off. (We thought it would, and it did.) And it runs off, already dissolved, ready to build up the phosphorus in whatever unfortunate lake it goes into. They conclude: "This suggests very strongly that much of the phosphorus fertilizer applied to lawns...is transported to the storm sewer system." Of course in suburban Hennepin County, those storm sewers end up in their lakes, while in Wabana Township, where we don't have storm sewers, whatever we add in excess of the *immediate* needs of the grass, goes directly into our lakes.

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