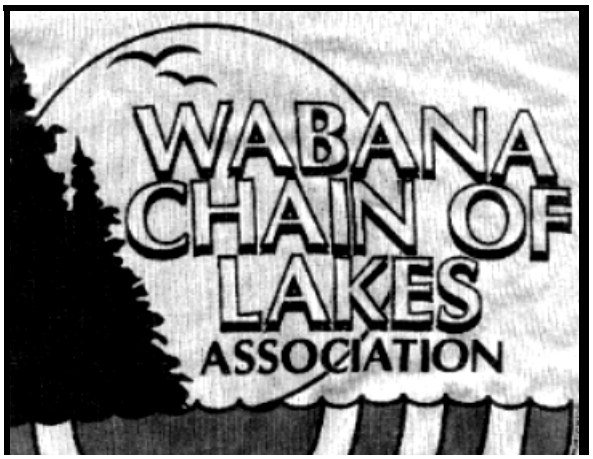

THE CHAIN LETTER

November 1999

Volume 3, Number 5

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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Minutes, Wabana Chain of Lakes Association
Regular Meeting September 11, 1999

Opening. Chair Jon Rowe introduced The Department of Natural Resources Fisheries Specialist, Karl Koller. Summarizing assessments and reviewing goals of the fisheries service explained data concerning fish and fish habitat. Assessments are done by using gill trap nets of different sizes to catch and study a variety of kinds of fish. Assessments include measuring the length of fish, studying fish scales that show growth, like the rings on a tree, deterring age and growth process.

The summary of most recent population assessments, goals and proposed management activities was presented. Karl noted fish populations continuously go up and down. Assessments are from records as old as 1945, with the most recent data from 1996.

Bluewater Lake:

Population Assessment:

- Lake trout sampled at second highest reading ever
- Lake trout mean weight = 2.1 lbs (largest 28.9 inches)
- At least 7 of 31 lake trout captured were from natural reproduction
- Bluegill abundance appears to be increasing
- Mean size of small mouth bass (15.7 inches) appears to be good.

Goal:

(1) Maintain lake trout gill net abundance above 1.7/net. (2) Establish a self-sustaining population of lake trout.

Activities:

(1) Stock 1,820 yearling, fin-clipped lake trout every other year (odd years).

(2) Conduct a population assessment in 2002.

Trout Lake:

- Lake trout sampled within historical range
- Splake sampled at low abundance
- At least 5 of the 14 lake trout sampled were from natural reproduction
- Bluegill abundance appears to be increasing since 1975.

Goal:

(1) Maintain lake trout gill net abundance around 1.4/net (2) Establish a self-sustaining population of lake trout.

Activities:

(1) Stock 8,765 yearling, fin-clipped lake trout every other year (odd years).

(2) Conduct a population assessment in 2002.

(3) Discontinue splake stocking.

Wabana Lake: Walleye and northern pike abundance within the average range for the lake ~ some walleye natural reproduction is present but extent is unclear ~ Large and small mouth bass populations appear strong ~ Bluegill abundance appears to be increasing ~ Yellow perch abundance is low.

Goal: (1) Maintain walleye gill net abundance between 4.0 and 9.6/set. (2) Maintain northern pike gill net abundance between 3.0 and 5.0/set. (3) Maintain small mouth bass gill net abundance above 0.2/set. (4) Maintain largemouth bass trap net abundance above 0.2/set. (4) Maintain largemouth bass trap net abundance above 0.3/set.

Activities: (1) Stock 785 pounds of walleye fingerlings every 3 years. (2) Conduct a population assessment in 2002.

Questions to Karl referred to; black spots and worms in fish, increase in weed beds, migration of lake trout, etc., Karl introduced the book "Lakescaping for Wildlife and Water Quality", available from the D.N.R. in Grand Rapids, as a best practice resource to maintain healthy environments for fishing and recreation.

Call to order. Chair Jon Rowe opened the regular meeting at 10:00am.

Minutes of the August 14, 1999 were approved as mailed.

Treasurer's report. Cathy Rudolph submitted the following report:

Balance as of 9-14-99	$3,163.20
Received:	
membership dues	$ 220.00
Total Received	$ 220.00
Paid Out:	
printing at Treasurers Bay	$ 386.88
Dues for Itasca Coalition of Lake Associations	$ 10.00
Total Paid Out:	$ 396.88
Balance as of 9-11-99	$ 2,986.32
Savings certificate of deposit	$2,043.64
Balance as of 9-11-99	$5,206.84
Paid members to date in 1999	87

Chairman Rowe thanked Bill Downing for his efforts in coordinating and publishing "The Chain Letter" which has assisted in the growth in membership.
The treasurer's report was approved as read.
Eurasian Water Milfoil Education Project. Chairman Rowe reported that over the Labor Day weekend association volunteers monitored the north and south boat access on Wabana Lake. Information was handed out to boaters on the identification, importance and how to check boats and equipment for Eurasian Water milfoil. The Regional D.N.R. was impressed with the fledgling program and sent a photographer and the information handouts to the sites.
Jon discussed the milfoil education project with Chris Kavanagh of the D.N.R., whose suggestion was to better target the July 4th holiday as prime time for milfoil biologically spreading and high populations of recreational users moving in and out of various lakes. The Gib Wilsons organized the north access and David Lick organized the south access of Wabana. Bob Sage asked what the reaction of boaters was. David Lick and Jon Rowe answered there was no milfoil found, there were boat trailers with weeds attached to them, and the general feeling of lake users was positive.
David Lick suggested contacting pilots who come and go from lakes and volunteered to draft a letter to the pilots. Jon Rowe stated the D.N.R. has information for pilots describing in detail best practice of milfoil prevention. Bob Sage suggested sending information to resorts to include with reservations, post signs at resorts and private camps where boats are brought in.
The Turtle Lake Association recently worked with the U of M Research Center to develop a key of native plants currently in Turtle Lake, reported Jon Rowe. With this baseline of information they can identify changes. The U of M would be willing to work with the Wabana Chain of Lakes as well. Bud Sage moved the association pursue this project for next summer. Approved unanimously.
Water Quality. Dr. Bill Downing performed water chemistry tests in late August. The most recent report was in the September issue of The Chain Letter with some conclusion to be drawn at the end of the open water season.
Itasca County Coalition of Lake Associations. George Wilbert and David Lick represent the Wabana Chain of Lakes. They reported there has been a change in leadership in the I.C.O.L.A. organization. Meeting with representatives from other lake associations they are working with the State of Minnesota on water testing issues.
Septic system inspections. Furthering information on inspections, David Lick advised by the Minnesota Pollution Control Agency that an infrared photo of nutrients going into the lake is not as effective as site by site testing of septic and other potential phosphorus sites. If inspections are contracted out to professionals, they are mandated to report any sites/systems that are not in compliance with current county regulations. David suggested a more friendly, yet direct education program over enforcement would be the best avenue for change. A lengthy and informative discussion among members included; existing ordinances, septic mound systems, proper installation of systems, washing machine detergent causing phosphorus, modifying old septics to pump away from the lake, sharing septic systems among neighbors, compost toilets for seasonal cabins, possible funding assistance for septic replacement, education plan including advertising speakers at meetings, contacting suggested lake associations on their existing testing and inspection programs.
Bob Sage moved that The Wabana Chain of Lakes Association with representative David Lick, proceed to the Wabana Township Board requesting a resolution granting The Wabana Chain of Lakes Association the authority to explore ways of preventing pollution to the chain of lakes from septic systems including possible inspections. The motion was seconded, after lengthy discussion, unanimously approved.
Private sale of land. Joel Solomon updated private sale of lands to the Conservation Fund. A letter has been sent to the Wabana Township Board updating them on the current re-application to The Blandin Foundation, to participate in a fund assisting private sellers and the Conservation Fund with closing costs. Joel suggested representatives thank the information to the Itasca County Coalition of Lake Associations for their understanding of the issue and for their support.
Howard Owen moved to adjourn. Approved. Regular meetings are scheduled to begin in May of 2000.
Respectfully submitted, Susan Lick, Secretary.

1999 SECCHI DISK READINGS

Nancy Ellsworth and her faithful band of Secchi readers had made up their minds that, since Secchi disk readings are so important in keeping track of our lakes through records of water clarity, they would have continuous readings in all ten of our basins in 1999. So of course this year turned out to be the toughest one could imagine, in providing clear, sunny, calm days for taking readings! *The Chain Letter* has reported twice before on readings to-date, but here is the whole group in a table for comparison purposes:

1999 SECCHI DISK READINGS

BASIN:	WK#	TN	TS	IN	BN	BS	WW	WN	WC	WS	LW
05/15-05/21	1		16.5	14.5							
05/22-05/28	2		17	16.5						16	
05/29-06/04	3						16	16	17	12	
06/05-06/11	4		19	20		20	16			17	
06/12-06/18	5		19	20		23	16		18	17	
06/19-06/25	6		19	20		24	16				
06/26-07/02	7					25		16	20		
07/03-07/09	8		19	20	22	25	13	16		17	
07/10-07/16	9	24	20	19	16.5	18	13		17	17.5	
07/17-07/23	10		16	17.5	17.5	19	13.5	15		15	
07/24-07/30	11		15	18	18.5	18			16	17	18.5
07/31-08/06	12	12	13	20	16.5	17					15
08/07-08/13	13	14	12	19	13.5	15					15
08/14-08/20	14	16	11	19							13
08/21-08/27	15		10	18					13		15
08/28-09/03	16				12	12.5					
09/04-09/10	17					13.5			16.5		
09/11-09/17	18									16	
09/18-09/24	19	12				15					
09/25-10/01	20									17	
10/02-10/08	21	14								16	
10/09-10/15	22										

Yes, records are spotty. The three most complete records come from long-term Secchi readers, Nancy Ellsworth (BS, Bluewater South) and Harold and Betty Unger (TS, Trout South; and IN, Interlachen or Little Trout). Experience has shown them the way to work among showers and winds, coming through like the proverbial postal workers. I have the least complete record (WN, Wabana North), and others range all around in completeness. We all join in thanking Bill Berg, Jon Rowe, Susan Lick, Mary Gephart, George R. Klacan, Ellen Christmas, and Duane Amundson, for making our first all-out effort as much of a success as it was, despite the weather's non-cooperation. To improve next year, I'd suggest we have a *team* of readers for each basin, with agreements as to who will read during which weeks. I know that I was absent during a lot of the summer, and unexpectedly laid up with a hurt leg from September 1st on, so WN would have benefited if I had been part of a team. Nancy Ellsworth will be glad to have volunteers for 2000, and can help in forming teams. Get a jump on the millennium by writing Nancy right now and volunteering! Nancy A. Ellsworth, 13014 W Tangelo Drive, Sun City West, AZ 85375.

What do the records tell us? Our lakes are firmly oligotrophic—they belong to that class of lakes with little algae growth. We need years of records before we can know whether we are becoming more turbid, but many old-timers say they see lots more algae than in the past. Some basins have clearer water than others, and all basins vary throughout the year. Most deeper basins have clearer water than the shallower ones, but WS is a notable exception – deep but cloudy. Those basins with the the most houses seem to be more turbid, less clear, possibly due to septic system leakage into the lakes or lawn fertilization.

CHEMICAL TESTING RESULTS

Results are back from the laboratory for our 1999 sampling. We now have solid data for all our basins, taken eight years apart, plus other backup data of several kinds. Thus we can compare readings. The chart below reports the 1991 and 1999 data in columns side-by-side. Actual dates for samples:

	I-O Ice-Out	**Spr** Spring	**Sum** Summer	**Aut** Autumn
1991	May 2	June 24	September 4	October 21
1999	May 10	June 27	August 22	October 16

The heading “Ratio, 1999/1991” is the 1999 reading divided by the 1991 for that season, and it shows the change at that site in eight years. If the number is 1l0, there has been no change; if below 1.0, there has been a decrease in 8 years; if above 1.0, there has been an increase in 8 years. The heading “Average Ratio” is the average of the four seasonal ratios, again with 1.0 showing no change. The heading “% Change in 8 years” interprets the averages as percentage increase or decrease during the eight years.

ALL 1999 CHEMICAL TESTING, COMPARED WITH 1991 RESULTS															
Readings are reported in micrograms per liter, also known as Parts per Billion (PPB)															
		1991				**1999**				**Ratio, 1999/1991**				**Average**	**% Change**
	SEASON>	**I-O**	**Spr**	**Sum**	**Aut**	**I-O**	**Spr**	**Sum**	**Aut**	**I-O**	**Spr**	**Sum**	**Aut**	**Ratio**	**in 8 years**
TESTS FOR CHLOROPHYLL "A"										**TESTS FOR CHLOROPHYLL "A"**					
TN	Trout North	3.1	3.5	2.0	3.2	4.1	1.8	1.5	3.7	1.3	0.5	0.7	1.2	0.9	Down 10%
TS	Trout South	3.2	2.7	2.8	2.7	1.9	2.4	1.4	1.8	0.6	0.9	0.5	0.7	0.7	Down 30%
IN	Interlachen	4.8	1.8	1.8	3.2	3.6	4.4	2.2	7.1	0.8	2.5	1.2	2.2	1.7	Up 70%
BN	Bluewater North	2.5	1.9	1.7	2.0	2.4	1.7	2.3	2.9	1.0	0.9	1.3	1.4	1.1	Up 10%
BS	Bluewater South	3.7	1.8	1.1	3.3	7.6	1.5	1.9	3.6	2.1	0.8	1.7	1.1	1.4	Up 40%
LW	Little Wabana	7.2	0.4	2.2	5.1	5.0	2.2	1.8	5.6	0.7	5.8	0.8	1.1	2.1	Up 110%
WC	Wabana Central	3.4	2.4	1.8	3.9	3.9	2.4	2.9	4.0	1.1	1.0	1.6	1.0	1.2	Up 20%
WS	Wabana South	4.5	2.5	2.5	4.9	5.0	2.5	2.9	3.7	1.1	1.0	1.2	0.8	1.0	No Change
WW	Wabana Wakeman	2.5	0.9	2.9	14.4	5.0	7.5	2.8	6.3	2.0	8.4	1.0	0.4	3.0	Up 200%
WN	Wabana North	4.3	1.3	2.0	5.7	2.1	3.1	2.0	3.4	0.5	2.3	1.0	0.6	1.1	Up 10%
TESTS FOR TOTAL PHOSPHORUS										**TESTS FOR TOTAL PHOSPHORUS**					
TN	Trout North	4.0	13.0	6.0	9.0	8.8	9.6	8.4	15.9	2.2	0.7	1.4	1.8	1.5	Up 50%
TS	Trout South	4.0	9.0	7.0	5.0	7.8	10.0	8.2	8.2	2.0	1.1	1.2	1.6	1.5	Up 50%
IN	Interlachen	5.0	17.0	5.0	12.0	11.2	23.1		8.5	2.2	1.4		0.7	1.4	Up 40%
BN	Bluewater North	5.0	5.0	6.0	7.0	8.4	36.2	8.3	15.7	1.7	7.2	1.4	2.2	3.1	Up 210%
BS	Bluewater South	10.0	4.0	7.0		12.1	9.5	9.0	16.0	1.2	2.4	1.3		1.6	Up 60%
LW	Little Wabana	19.0	11.0	6.0	11.0	34.6	18.6	10.5	12.5	1.8	1.7	1.8	1.1	1.6	Up 60%
WC	Wabana Central	5.0	14.0	5.0	12.0	9.1	10.7	8.9	16.8	1.8	0.8	1.8	1.4	1.4	Up 40%
WS	Wabana South	6.0	10.0	6.0	10.0	28.5	10.0	9.6	16.0	4.8	1.0	1.6	1.6	2.2	Up 120%
WW	Wabana Wakeman	12.0	53.0	6.0	10.0	11.0	28.3	10.3	14.3	0.9	0.5	1.7	1.4	1.1	Up 10%
WN	Wabana North	7.0	10.0	7.0	14.0	7.6	17.5	9.8	15.4	1.1	1.8	1.4	1.1	1.3	Up 30%
TESTS FOR TOTAL NITROGEN										**TESTS FOR TOTAL NITROGEN**					
TN	Trout North	250	280	240	140	190	136	262	147	0.8	0.5	1.1	1.1	0.8	Down 20%
TS	Trout South	600	330	200	180	200	669	144	132	0.3	2.0	0.7	0.7	1.0	No Change
IN	Interlachen	700	320	50	160	350	276	163	280	0.5	0.9	3.3	1.8	1.6	Up 60%
BN	Bluewater North	130	340	130	130	220	202	237	144	1.7	0.6	1.8	1.1	1.3	Up 30%
BS	Bluewater South	640	170	120		260	282	240	158	0.4	1.7	2.0		1.4	Up 40%
LW	Little Wabana	1000	410	140	120	630	549	377	450	0.6	1.3	2.7	3.8	2.1	Up 110%
WC	Wabana Central	500	400	100	150	260	205	165	193	0.5	0.5	1.7	1.3	1.0	No Change
WS	Wabana South	140	440	90	130	260	461	211	239	1.9	1.0	2.3	1.8	1.8	Up 80%
WW	Wabana Wakeman	530	1080	50	130	640	441	259	370	1.2	0.4	5.2	2.8	2.4	Up 140%
WN	Wabana North	910	390	80	110	910	308	288	201	1.0	0.8	3.6	1.8	1.8	Up 80%

GENERAL OBSERVATIONS

The data continue to confirm the alarming results from May and June: on a Chain-wide basis, we have gained in phosphorus, chlorophyll and nitrogen in nearly every basin. *Every one* of our ten basins shows increase in phosphorus, one up by only 10%, one a startling 210%. Phosphorus is our major concern, since any small increase in this *limiting nutrient* will allow suspended algae to reproduce and grow. Nitrogen is the next most essential nutrient, and usually it decreases in the water when algae use it in reproduction. The chlorophyll measurement shows how much algae we have in the sample at the time. Phosphorus and nitrogen are released by dead biota, and are normally highest just after ice-out and in the autumn, and are lower when the algae grow in the spring and summer.

We have not determined the source of this serious addition of chemicals—it may be that with 1999 being a very rainy year, dissolved phosphorus from somewhere was dumped into the lakes; or that there are air-borne sources of phosphorus and nitrogen that have fallen into the lakes; or that increased acid in the waters is dissolving phosphorus from bottom sediments—but we would be prudent to conclude that *we* are in some way the cause, until we have data to show otherwise, and to change our behavior to remove the possibility that we *are* the source.

These data are strong indicators of trouble, but by themselves they cannot be definitive—they are a solid two years of information, taken at pivotal times in the year.

BASIN-BY-BASIN DISCUSSION

- **Trout North**, which we could expect to remain quite stable, with its large water volume and relatively few houses, doubled its Spring phosphorus reading between 1991 and 1999 (4.0 to 8.8), and maintained an increase throughout the summer, with an average 50% increase. Nitrogen decreased, but no increase in chlorophyll was detected.
- **Trout South** essentially repeated the observations in Trout North: an increase in phosphorus, a decrease in nitrogen, and a surprising 30% decrease in chlorophyll. With no human effects except the boat-in campers and the Joyce Estate visitors, it is difficult to determine the source of the increased phosphorus. Perhaps the toilet facility (for which our Association helped pay) will help in the future, in preventing further radical increase in phosphorus.
- **Interlachen ("Little Trout")** showed a 40% increase in phosphorus over the eight years between 1991 and 1999. Although this lake is very deep, it is small in area and therefore small in volume, and so it is highly vulnerable to human activity. Increase in nitrogen is significant: residents would profit from upgrading septic systems and avoiding any lawn fertilizers next Spring.
- **Bluewater North** shows an unbelievable average ratio of 3.1, which is a 210% average increase in phosphorus; but that high average is due, in large part, to the 36.2 micrograms per liter reading in spring 1999, which could have been caused by a flawed sample. If that reading had been the same 8.4 micrograms per liter reading obtained in the spring, the average ratio would have been 1.7, with percent increase of 70%--still very high. There was an increase in nitrogen which accompanied the increase in phosphorus, which suggests heavy lawn fertilization or overflowing septic systems.
- **Bluewater South** shows 60% phosphorus increase, and its chlorophyll was up 60% as well. Further, the nitrogen seems is up, which suggests increasing use of nitrogen lawn fertilizers, or overflowing septic systems.
- **Little Wabana** was high in phosphorus at ice-out in 1991, and increased 60% in 1999 to the astonishing level of 34.6 micrograms per liter. The amount of chlorophyll more than doubled over the 8 years. Nitrogen also more than doubled, which may indicate over-fertilization of lawns, or failing septic systems. Residents should take serious steps in this lake.
- **Wabana Central,** the part of Wabana's main lake farthest from human habitation, still showed an average ratio of 1.4, a 40% increase in the 8 years. Chlorophyll increased 20%, but nitrogen remained unchanged.
- **Wabana South** has a lot of human habitation, and the phosphorus increase to go with it—average ratio of 2.2, a 120% increase, much of the increase coming from an ice-out reading of 28.5 micrograms per liter. But even if we assume that it is the same as the autumn figure of 16.0 micrograms per liter, the average ratio would be 1.7, a 70% increase. The large increase in nitrogen suggests lawn fertilization or septic system problems.
- **Wabana Wakeman** was already high in phosphorus in 1991, and suffered a 10% increase in *that* level in 1999. Its dense human population coupled with shallow water, make it quick to show results of lawn fertilization and septic tank malfunction or overflow. Nitrogen, already high

in 1991, went up 140% in 1999. Very serious steps need to be taken in Wakeman's Bay.

- **Wabana North** showed a 30% increase in phosphorus between 1991 and 1999, and chlorophyll went up 10% as well. The increase in nitrogen may indicate lawn fertilization and/or septic system failure.

COST OF TESTING

We obtain an extremely good rate from the Water Research Lab of the Minnesota Chippewa Tribe: they are an excellent lab, and they value water data from outside the tribal lands, and thus keep our price down so we can afford it. Nevertheless the membership should know that each Phosphorus test costs $18, each Nitrogen test costs $18, and each Chlorophyll test costs $25. We had 40 of each test in 1999, and thus our testing bill is $2,440, which tells us why we do not test every year—we have been saving for years for this round. It takes 122 annual $20 dues to pay the lab costs, and at present we do not have that many members. If you have been postponing paying your dues (for the year beginning July 1, 1999), *you can still send the $20* to Cathy Rudolph, Treasurer, 36542 Havenwood Drive, Grand Rapids, MN 55744, and the Water Quality Committee, particularly, will be grateful.

DOLLAR EFFECT OF WATER QUALITY

Here is a publication that will be of great interest to members who are concerned about the evaluation of their property if the water becomes murky: Steinnes, Donald N., 1992, Measuring the economic value of water quality: the case of lakeshore land, *Annals of Regional Science* 26:171-176. The author is in the Department of Economics in the University of Minnesota at Duluth, and used Secchi disk readings as the measure of clarity or murkiness. He presents a mathematical formula which gives a price per front foot of lakeshore, depending on the Secchi disk reading and some other parameters, and determined values through actual sales in 1991. John Downing used the formula on a hypothetical piece of land, and showed that if the lakeshore is worth $121 per foot if the Secchi disk reading is 20 feet (pretty cheap at prices now on the Wabana Chain!), it would be worth $111 at 15 feet, $101 at 10 feet, $91 at 5 feet. So the valuation of
a hundred foot lot would go from $11,100 to $9,100 with the growth of just a little algae. You can mess around with these equations a lot, but the bottom line is, if water gets turbid, it loses value rapidly.

CONCERN OVER SEPTIC SYSTEMS

Please see page 2, the section of the Minutes discussing Septic System Inspection, for background for this topic. The Association asked for a Special Meeting of the Township Board, it was granted, we paid the necessary fee, and the Township met on October 13. The Board has ratified the Minutes of the meeting, Georgia Brooks has kindly provided us with a copy, and the following are excerpts from those Minutes:

Special Wabana Township Meeting

October 13,1999. Present: Chairman Radecki, Supervisors Wilbert and Kilpatrick, Clerk Brooks, Dave Lick, Terry Greenside, Keith Freizen, John Adams, Bob Liebfried, and about 30 observers.

Mr. Lick asked the township board to pass a resolution for checking of septic systems for compliance, to help control nutrients and prevent polluting of lakes and ground waters. He spoke about possible funding to aid in helping residents needing to replace their systems—grants, low interest loans, and in-kind assistance. He explained that the Association's objective is to insure that every system which is not in conformity with the law be put in compliance; but he stressed they do not want to pit people against people. It is felt that 60% of all systems are not in compliance with the present Code. As long as a dry well is being used, even though it might not be contaminating it is not in compliance with the present code, thus the system must be replaced. The inspector would not need to gain entrance to the residence as they can usually identify where the system is located. The worst situation would be a leach pit, cesspool, and dry well.

Terry Greenside said that the County's program is the state rules and regulations. A permit is needed to install a new system, and any property being sold must also be evaluated, and if a problem is found it must be corrected. The time frame for replacement is usually two years, unless a health threat is present, and then it must be taken care of within a 10 month period.

Speaking in favor, Nancy Ellsworth said she has been taking Secchi disk readings for about 8 years, and the clarity of Bluewater Lake has definitely changed over the years. Harold Unger said he would like to know if his system is in compliance, and if is not, he would like to do something about it. Brenda ZumMallen felt this is not the township's job but is the County's. Chairman Radecki said we would not be giving money or authority to do the inspections, but only giving the Association backing for it to obtain the funds to finance the inspection and education processes. Jon Rowe, President of the Wabana Chain of Lakes Association, presented the Resolution. Supervisor Wilbert made a motion to

support the resolution. Supervisor Kilpatrick had a problem with the fact only five (5) lakes would be involved and he felt all lakes in the township should be included. Supervisor Wilbert then moved to amend his motion to include all township lakes, Kilpatrick seconded the. motion and the motion carried. This would include approximately 17 lakes. The Association will need to raise funds, send bid requests out to find costs for the inspections, write grant proposals, and raise funds for people in need. Meeting adjourned.

LETTER TO THE CHAIN LETTER

I'd like to make everyone aware of a Web page that is devoted to fishing reports for Wabana lake. The idea of the page is for people to actively put in their most recent fishing successes/failures. There have been just a few entries this year and for the most part, I don't think too many people are aware of it. The flip side of this, of course, is it may draw too much attention to the lake but the way fishing has been for years, I don't think we are in any imminent danger of that! You can find the page at http://mnfishing.com/northern_area/wabana/wabana.html

Also, perhaps we could investigate the idea of having a Wabana lake or an association web page…the newsletter could be posted on it, it could serve as an interactive notice list, people could update their addresses, phone numbers, etc., list items for sale, submit articles to the newsletter, etc., etc., etc. I suppose there is no end to what it could be used for.....we would simply need someone to actually design and serve as its "webmaster". Maybe when I finally get up there on a permanent basis…

Paul & Barb Oberg

Editor responds: What a great idea! We could all keep in contact throughout the year, and even the people far away could be as near as those who live year-around on the Lakes. Is there a volunteer to get it started?

3-D IMAGE OF OUR LAKES

The Summer 1999 issue of the MDNR's publication Water Talk contained the following, which we have permission to reprint here:

*Coming soon…*3-D Images of Your Lake's Watershed. Within the next two years the public will have access to 3D models of lake watersheds within the state of Minnesota. It will provide a very powerful and valuable tool in protecting the health of our lakes.

The 1998 Minnesota Legislature authorized through: *Laws of Minnesota 1998, Chapter 401, Section 4:* "$200,000 in fiscal year 1999 to identify watershed boundaries for lakes greater than 100 acres in a geographical information system format. This appropriation is added to the base in fiscal year 2000 only." DNR Waters, in cooperation with local officials, lake organizations and citizens, is heading up this project.

Once completed, lake watersheds will be

The last chance to pay dues with a check dated in this millennium! Please cut off and mail.

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available in an electronic format called a Geographic Information System, or GIS for short. This means that there will be a computer model of each lake's watershed. This is not just a mapping project. It will be a working 3D model of a lake and its watershed.

Some of the model's capabilities will be:

* Predicting and tracing which way water flows at any point within the lake watershed,
* Calculating flow volumes within any part of the lake watershed, and
* Assisting in planning, trouble shooting and predicting potential watershed problems. Local planners, water managers, lake associations, and consultants can use these 3D models of lake watersheds as building blocks.

Once the technical work is done on each lake watershed, fine tuning or ground truthing of the watershed will be needed. This will rely on local observation and input from citizens, lake organizations, local governments and officials. Final adjustment to the model will then be made.

It is anticipated most lakes greater than 100 acres will be completed during the two year project. The information should be available to the public through various sources, including local DNR offices.

I e-mailed Russ Schultz in Brainerd, the Land Management Specialist in charge of the project, identified myself as a member of the Wabana Chain of Lakes Association, and volunteered on my own hook to participate in the project next summer. (I didn't volunteer the Association to do anything.)If there are those members who would like to be involved in this, please let me know at wdowning@uslink.net, or Russ at russ.schultz@dnr.state.mn.us.

THE CHAIN LETTER
from The Wabana Chain of Lakes
November 1999

This is the last issue of the millennium, and contains all the Secchi disk data, and the lake chemical analysis, for the summer of 1999. We skipped the Sept.-Oct. issues to put all the data in this one as soon as we received it. It's a lot of information! No room for history, even if we had it to print. We plan a story in February, on where this chain fits into the world lakes. Also, we hope old-timers will send in stories of the early days on this Chain of Lakes, in time for that issue.

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