



Ten Mile Lake Association

1983 WINTER NEWSLETTER

POLLUTION STUDY MAKING EXCELLENT PROGRESS

At our annual meeting in 1981, Delman R. Hogen furnished disturbing predictions about the eutrophic future of Ten Mile Lake if we fail to locate and curtail sources of pollution. The membership voted to retain the services of Del and his company, Instrumental Research, Inc., to undertake this task. Del subsequently submitted a detailed proposal with a price tag of \$10,317.73, which program was approved by the directors, and work got under way in 1982.

The objective is to determine how much of what kinds of nutrient input our unique lake can withstand and how to keep these nutrient loadings under control. We need fundamental information on:

1. The history of Ten Mile Lake and the changes it has undergone during the past several hundred years.
2. Complete knowledge of chemical, biological and other characteristics throughout the lake.
3. The extent to which any of these characteristics is undergoing change and the rapidity thereof.
4. Amounts, locations and compositions of all sources of nutrient input.

Here is an abbreviated status report. The lake's history (1), especially how it has undergone changes in the past, is of great importance and will be studied by extracting cores of sediment at selected sites and subjecting them to analyses by recently developed techniques. The coring needs to be done this year.

The data for evaluating the lake's present condition in great detail (2) and what changes may be occurring have already been obtained. This consists of thousands of individual measurements and analyses conducted in 1982 as well as the continuous testing carried on in prior years by the Committee on Environment plus, especially, the limnological survey done for us in 1975 by the FMC Corporation. All these data now are ready for evaluation by various types of computer analysis.

The largest cause of pollution (4) probably is surface run-off, and a detailed study of these many sources of nutrient input was completed in 1982. The other important source to measure is the influx of human waste from faulty and excessively old septic systems. This part of the study is yet to be undertaken and will consist of chemical and biological analyses of hundreds of individual samples of water from all around the lakeshore.

The chemical and biological testing requires highly sophisticated scientific equipment and techniques. The Directors and particularly the Committee on Environment, have devoted much study to the program and participated in much of the field work.

Our directors authorized the commitment knowing that it would impose a drain on our treasury and, in fact, necessitate pleas for financial contributions by individual members in addition to the annual dues. Two such requests were mailed to each member last year.

Printing and mailing a new directory coupled with regular expenses still leave us somewhat short of being able to complete the project's funding. The measurements must be completed this year. So we again ask that you make every effort to send a contribution. Send checks payable to the Ten Mile Lake Association, addressed to Lois Sandell, Box 424, Star Rt. 2, Hackensack, MN 56452.

W. GOSS

461 RESIDENCES ON TEN MILE

To update information for the new Ten Mile Lake Directory, a house count was taken in summer of 1982. A total of 461 residences were counted.

Joe Major was captain of the counting team from the causeway leading to Brandt's island south by the public access, Kenfield Bay to Forseman Point on the south shore. He located 110 houses.

Chris Bliska counted 102 from Forseman Point via Fernhurst, former Camp Hillaway, Sunset Beach, Long Beach, Elmhurst to Loufek Point.

Ross Melgaard found 26 from Loufek Point by Hillaway East and Gitchey Gumey Beach to Boone Point at the entrance of Long Bay.

Claude Miller and crew had the largest count, 158. He covered all of Long Bay, Crescent Beach, Park Point and Flower Pot Bay.

Bill Macklin added 65 from the Kolderie point at the west side of Flower Point, along Bachelor Beach, Brandt point, Chariton Beach, Northwest Shores, Gainey Point, Lundstrom's Bay, Robinson's Bay and Brandt's island.

The figure was believed to include only one new house in 1982.

JAKE'S POND -- FROM BOOM TO BUST!

The Association's long-time cooperative walleye rearing project with the DNR turned out this year to be one of those "good news, bad news" stories. The good news is that 24,380 walleye fingerlings were stocked in Ten Mile between Sept. 14 and 22. The bad news is that they did not come from Jake's Pond which for years has been our sole source of walleye fingerlings.

Instead, the fingerlings were taken from Perch Pond near Backus and averaged about 2.5 inches in length (230 fish per pound). We were able to get them because of what John Kollar, of the DNR Fisheries staff, said was the unusually large walleye harvest from rearing ponds in this section of the state.

Jake's Pond, on the other hand, produced almost nothing -- just a few oversized fish. That's disappointing, of course, but not entirely unexpected. The productivity of Jake's Pond has been declining in the last few years and a number of persons, including veteran Ten Miler Art Horn, have suggested that perhaps it's time to give the pond a rest.

With that in mind, a number of association officers and directors, led by Past President Jake Fleisher, toured the Hackensack area in October and inspected several potential rearing pond sites. After discussing the possibilities with Kollar, we have tentatively decided to try Hiram Lake, a shallow (3 to 5 feet deep) pond of about 45 surface acres located just south of Hackensack. If for any reason that doesn't pan out, Jake says: "I know plenty more."

In the meantime, we'll let Jake's Pond rest for at least two years.

This coming summer, Kollar and his crew are planning a major test netting on Ten Mile. The purpose is to check the populations of various fish species and to assemble data that will be used by the DNR in its management program.

A great many people deserve credit for the time and effort they devote to improving Ten Mile fishing. But we'd be remiss if we didn't single out for special thanks such persons as Fleisher, Kollar and his crew, and those un-named individuals in the DNR for all they have done and are doing to insure good fishing.

J. SCHWARTZ

TEXANS IN THE NORTHLAND



Patricia, my ever-loving spouse, and I spent our honeymoon on Ten Mile nearly 37 years ago. We had a day-dream then of sometime having our own place here, but that was largely forgotten as we wandered down life's highway for nearly a quarter of a century in South America and 11 years in Dallas, Texas. Oh, we made several short visits to Ten Mile over the years to see Patricia's parents, the C. Petrus Petersons, but it always seemed a little too far away for comfort.

However, about 3½ years ago we flew up from Dallas to visit Breta and David Dow. Something clicked resoundingly as we enjoyed a marvelous 10 days. We decided to build a house for all seasons.

The day finally arrived last May when we put Dallas behind us. Late spring, summer and fall were full of outdoor activities at our new home. We were busier and more physically active than we had been in years and loving every minute of it. The only completely new endeavor for us was wild ricing which left us panting, but which we enjoyed enormously.

We were, however, a bit apprehensive about the winter. We knew pretty well what to expect in the way of temperatures and weather. Our daughter, Barbara Galdames, and her two children spent the fierce winter of '81-'82 here. What in the world do people from the deep south do in a Northland winter?

Well, one thing they do is to clear a skating rink for the grandchildren. There wasn't much snow by the time the ice was thick enough, so the small circular rink was a breeze. We quickly had the inch of light snow swept inwards toward the center and outwards around the outer edges. There must be something hypnotic about sweeping and/or shoveling snow. At any rate, I decided quickly that we needed a larger rink. We added another, much larger circle so that we had a good-sized figure eight. Not enough. I was really hooked on moving snow by this time, so we added another huge loop with some interior islands to make a super-duper figure eight. It stretched some 80 yards out from shore.

Somewhere along the line it occurred to me that I was expending far too much energy just for youngsters. I yearned to give it a whirl myself, but there was a drawback. I calculated it had been 46 or 47 years since I had skated, and I did not own a pair of skates. Good old Bill Macklin rushed to the rescue. He dug up a spare pair that fit. I ventured out upon the ice with much fear and more than a little trembling. I went down a few times, but, by gollies, at the end of an hour, I was beginning to get the hang of it again.

The next day I only fell three times - confidence was building. After the third day on borrowed skates, I dashed into Walker to buy a pair of my own.

Patricia and Barbara saw how much fun I was having on the ice and they followed the same route. Patricia was black and blue, stiff and sore, for quite awhile, but she hung in there and she is definitely a skater now.

I could write a book on the care and feeding of ice skating rinks. Right now all I'm going to say is that we have put in at least two hundred people-hours, and we have moved literally tons of snow to keep the rink open. Here it is, the end of February and the rink is still open. It has been more than worth the struggle. We are all skating 50 minutes every day, on the average. Skating has become a marvelous adventure for us. It is as close to personal flying as we are ever likely to know.

It would seem that what Texans and South Americans do when they move permanently to the Northland is to sweep and shovel mountains of snow. Then they skate their hearts out. Once in awhile they get on their cross-country skis, or just hike through the woods. Above all, they learn to love winter in the Northland, which is easy to do.

R. J. (Deacon) LARSON

NEW HONOR ROLL MEMBERS

You may recall that in our Spring 1982 Newsletter we published an "Honor Roll" of those lake property owners who had installed new waste disposal systems since 1975. The names are furnished us by the Cass County Zoning Office and represent properties located in Hiram, Turtle Lake and Shingobee Townships.

As had been anticipated we missed some persons who had upgraded their systems and we have since received a new list from the Zoning Office of those who have installed new systems since our last newsletter. So here is the latest edition of our "Honor Roll" - and we ask you again to let us know of anyone whose name should appear, but for some reason beyond our control did not:

Angus Lamont, Box 394, Theodore Melby 269 and Don Fransen 270 (shared system), James Ackerman 372, Jane Brandt 344, Ken Peterson 364 and Harold Newell 362 (shared system), Anna Marie Hamsa 498, Mrs. H. F. Garbisch 134, Al Roeder 476, Anne Knapp 368 and Earl Cutter 366 (shared system), Molly Bliska 68, Ralph Brown 632, John Flakne 635, Dr. Melvin Kirchhoff 663, Donald Babst 57, Terrence Hopkins 758, M. Y. Seyola, William Schuck.

MYSTERIES ABOUND IN WATERS OF TEN MILE LAKE

Many tales have been spun, some of them quite hair-raising, about mysterious happenings and immense monsters in the depths of Ten Mile Lake. Although some or most are of mythical origin, there are indeed many unsolved mysteries that may or may not be related to the great depth and other unique qualities of this unusual body of water.

In past newsletters we have discussed the unique little ciscoes (dwarf tullibees) that are seldom seen except when they swarm shoreward by millions to spawn in late October and early November. During the remainder of the year apparently they live unseen in the depths where they provide forage for lunker fish.

How and why did these unusual (and delicious) little fish get into the lake, or what caused them to evolve here? Prof. James C. Underhill, noted fish specialist at the University of Minnesota, along with his graduate students, has been studying these creatures for the past six years and continues to encounter more unanswered questions. One of his graduate students is conducting research on these problems for his doctor's degree.

After years of searching, we and the University people still haven't been able to find where the little critters lay their eggs. Two SCUBA divers joined the search last year and worked underwater around our shores until December when the lake was freezing. What they found presents another mystery, namely many nests containing large clusters of large disintegrating eggs, not from ciscoes, that have failed to hatch for reasons unknown. The identity of the eggs has not been determined, but they are not from walleye or lake trout.

We have ample evidence that walleyes don't reproduce in Ten Mile Lake, but we don't know why. The same mystery applies to lake trout, which were stocked in the lake several times during the first half of this century but have failed to reproduce. There is good evidence that at least a few huge lake trout still haunt the depths.

Many theories are being pursued as to why these three varieties of fish all fail to reproduce. Marl suffocation, for example, sounds possible. Are the failures due to the same cause in all three instances? Has anybody got some valid explanations for these mysteries?

W. GOSS



NEW LEADERS OF ASSOCIATION

At the Annual Meeting - August 7, 1982, a new officer was elected - Earl Holle as treasurer. New directors elected were permanent residents Al Roeder and Molly Bliska and summer resident Ross Melgaard.

The association will miss Joseph Major, 71, who was a permanent resident of Ten Mile Lake. He died January 28th in the Decatur, IL. Memorial Hospital after a stroke. After retiring to his summer home here, Joe was president of the association in 1979 and 1980. He was currently serving as Zoning and Planning Chairman and served as vice-president prior to his presidency. Those desiring may contribute memorials to the Ten Mile Lake Association or the Deep-Portage Conservation Reserve.
L. SANDELL

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TREASURER'S REPORT

Balance - August 7, 1982 -		\$ 4,008.76
RECEIPTS (8/7/82 to 2/17/83):		
Dues and contributions -		+ <u>4,355.00</u>
		\$ 8,363.76
EXPENSES:		
Instrumental research -	\$ 4,135.18	
Supplies, postage, etc. -	348.08	
Speaker expense (annual meeting) -	144.45	
Refreshments -	22.78	
Liabilities insurance -	<u>86.00</u>	- <u>\$ 4,736.49</u>
Balance in checking - February 17, 1983 -		<u>\$ 3,627.27</u>
Savings Account - August 7, 1982 -		\$ 3,367.16
Interest -		+ <u>89.71</u>
Balance - Savings Acc't. - February 17, 1983 -		<u>\$ 3,456.87</u>

E. HOLLE, Treasurer

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NEW DIRECTORY THIS YEAR

We plan to publish a new Directory this summer. The secretary has on file all the changes of address, changes or additions of information and listing of new members that have been sent in since the publication of the 1981 Directory. If any of the rest of you have any information to be added or corrected, please send it to the secretary now.

AN IMPORTANT REMINDER

Cass County's Zoning Ordinance requires that you obtain a building permit if you are planning any construction on your property. Besides the obvious case of a new cottage, that would include such projects as additions, remodeling, new septic systems, storage sheds, garages, decks and the like. There also are requirements specifying minimum distances of buildings and septic systems from lot lines, lake shore, water wells, highways and other buildings.

When you have familiarized yourself with these provisions and are ready to proceed with your project, get in touch with the deputy zoning officer for your township, and have a sketch prepared of what you propose to do. When the permit has been approved and issued, you may begin the project.

Zoning officers are for Hirman Township - Dean Thomas, 675-6380; Shingobee - Curt Voshell, 547-1691; Birch Lake - Jack Eisenbrenner, 675-6893.

GROUP OF LAKE ASSOCIATIONS ORGANIZED

Officers of the association are in frequent touch with their counterparts in quite a few of the other lake associations in our area, but they generally admit that a closer relationship would be beneficial to all the organizations and their members. The formation of an "association of associations" has been talked about for years.

Last year a group of enterprising associations around Gull and Pelican Lakes got the ball rolling and organized the Coalition of Lake Associations (COLA) with the hope of enlisting all or most of their sister organizations in the Brainerd-to-Bemidji area. Their objectives include helping each other in matters of common concern such as disputes involving proposals for environmentally unsound lakeshore developments.

The current mailing list includes 20 associations of which 15, including the Ten Mile Lake Association, have joined. It is an active group and holds monthly meetings which are constructive and educational for owners of lakeshore property.

Bill Macklin and Warren Goss represent the Ten Mile Lake Association at present, but others are welcome at their meetings. W. GOSS

TREES CUT FOR HIGHWAY 71 IMPROVEMENT

Cass County Highway Department employees started work during the winter 1982-83 for improvement of Highway 71, which serves residents on the northwest side of Ten Mile Lake. It runs about 7 miles from Cass County Highway 50 to Cass 6.

In the preliminary work, trees and brush were cleared. The trunks were left for removal by property owners; the brush was burned.

"We hope to get the stumps out next and improve the drainage," explained Cass County Highway Engineer, Jim Worcester.

Ditches will be deepened, high banks lowered and curves rounded to improve sight on the road. Surface will remain gravel for the present.

The road engineering term for the project is "turnpiking".

WHEN THE LAKE TURNS OVER

In our spring newsletter of 1977, we explained how the entire body of water in the main part of Ten Mile Lake undergoes a complete turnover in the late fall and again in the spring. These are known as diurnal turnovers.

They are caused by the fact that fresh water undergoes quite a change in density as it becomes warmed in summer and cooled in the autumn and, quite remarkably, has a maximum density at 39°F (4°C). Water at this temperature becomes lighter (less dense) when it is either warmed or cooled.

This unusual characteristic of fresh water (sea water has a maximum density at 28.4°F) causes the lake to become stratified during summer when the upper layer becomes warm and consequently less dense. This upper stratum, known as the epilimnion, floats on top of the colder water deeper down, which is known as the hypolimnion. The boundary between the two strata is called the thermocline (or metalimnion). As the summer progresses the thermocline becomes progressively more sharply defined and, in Ten Mile, is usually at a depth of about 30 to 35 feet until late in the season.

When chill autumn winds rife the lake's surface the layer above the thermocline gradually cools and becomes heavier. Finally it becomes so dense that it sinks and causes the entire lake to turn over and become homogeneous from top to bottom. Many interesting phenomena take place as the lake gradually becomes "top-heavy" and -- to put it briefly -- simply turns upside down.

We have been making measurements for several years to observe these occurrences by determining profiles of temperature and content of dissolved oxygen in the water every few days at all depths from surface to bottom (208 ft.). The fall turnovers were completed on these dates and at these water temperatures in recent years:

<u>Year</u>	<u>Fall Turnover Date</u>	<u>Water Temp. °F @ Turnover</u>
1976	Oct. 22	47.8
1977	Nov. 10	45.7
1978	Nov. 7	45.9
1979	Nov. 3	43.5
1980	Nov. 1	41.5
1981	Oct. 30	42.3
1982	Nov. 4	41.4

After the fall turnover the entire body of water continues to cool down, more rapidly at the surface than in the depths, until the surface freezes four to six weeks later. The water becomes nearly, but not completely, stagnant through the winter, but biological activity continues. There is a marked decrease in the concentration of dissolved oxygen in the deeper water.

When winter loosens its grip, spring sunshine imparts warmth first around the edges of the lake where it can penetrate thin ice in the shallows and be absorbed by the dark-colored bottom. The snow over the main body of the lake reflects most of the sun's energy and absorbs only minor amounts. As the water around the edges melts and gradually warms toward 39°F it becomes heavier and flows slowly down toward the depths where the slightly colder (and therefore lighter) water is displaced upward and then shoreward. The water beneath the ice begins to circulate. As the spring warm-up progresses, so does the circulation, augmented by the run-off from the surrounding shores, and it washes the underside of the floating ice sheet causing it to melt.

When the ice finally disappears the lake is thoroughly mixed and essentially homogeneous again as the result of circulation. As summer arrives, stratification develops again as the cycle of seasonal phenomena continues endlessly.

The smaller bays of Ten Mile Lake act independently. Flower Pot and Lundstrom Bays are too shallow to undergo summer stratification and diurnal turnovers. Kenfield, Robinson and Long Bays, on the other hand, are deeper and perform their own seasonal turnovers.

In February of 1980 we observed a most unusual occurrence in the main body of the lake. An unprecedented warm spell caused a winter turnover under the ice, after which the entire body of water re-assumed its nearly stationary condition. None of this startling behavior was perceptible at or above the ice.

W. GOSS

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