Lake Tides

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A Newsletter for People Interested in Wisconsin's Inland Lakes

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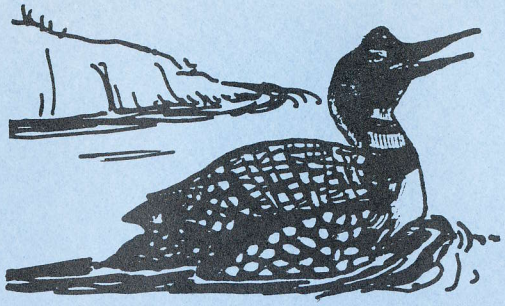
ENVIRONMENTAL RESOURCES UNIT
1815 UNIVERSITY AVENUE
MADISON, WISCONSIN 53706



IN THE WAKE OF A LOON

Several weeks ago, the Paddock Lake District in Kenosha County was taken to court over the question of non-resident voting. Apparently the annual meeting voted to purchase a weed harvester. The vote carried by a large majority whether or not the non-resident property owners voted. However, some citizens have challenged the constitutionality of the provision that provides for all property owners and residents to vote on projects over $5,000.

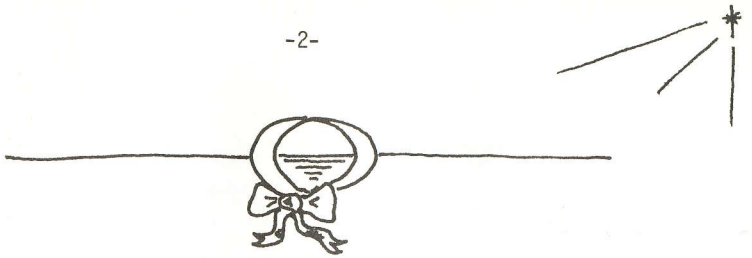
To help clarify the matter as quickly as possible the Department of Natural Resources has requested a formal opinion of the Attorney General. An opinion is expected in a few months and we will keep you informed of developments.

Sincerely yours,

George Gibson Lowell Klessig

George Gibson
Lake Management Specialists

Seasons Greetings!



ECO NOTES

A NEW LAKE MANAGEMENT PROBLEM--"ACID PRECIPITATION"

A lot is being printed in the papers these days about "acid rain" and the risk it poses to Wisconsin lakes. Acid rain results when the exhaust emissions from household heating, power plants, factories, smelters, and automobiles react with moisture in the atmosphere. Sulfur and nitrogen oxides in the smoke are changed into sulferic and nitric acid which returns to the earth as snow or rain acid precipitation. Unpolluted rain has a pH of about 5.6, while acid rain and snow in Wisconsin may be as low as about pH 4.

The term "pH" is used as an index of acidity or alkalinity and is measured on a scale of 0 to 14. Seven is neutral, progressively higher numbers indicate increasing alkalinity, and progressively lower numbers increasing acidity. Either extreme is very corrosive, i.e., lye or battery acid which approach 14 and 0 respectively. Each shift of one unit in either direction represents a change of acidity or alkalinity ten times that of the previous unit.

The acid rain or snow falling on the watershed of sensitive lakes or streams can damage some trees and crops such as conifers and soybeans. It can also cause an increase in the acidity of the receiving waterbody. Such an environmental shift causes a shock to hatching fish from which the young fry may not recover. The fish populations eventually decline and disappear. As lakes become more acid, the release of mercury and other heavy metals in soils and sediments can increase and may cause greater levels of these contaminants in fish. By shifting the pH in the lake, long-term reductions in the rates of organic matter decomposition may result; nuisance algae may increase; and basic food organisms (zooplankton) could be reduced, further influencing the fish stocks. "Hardwater" lakes are less likely to be affected by acid precipitation than are "softwater" lakes, because the minerals dissolved in them (particularly bicarbonate from sources such as limestone or marl) buffer the acid to help preserve the "natural" pH of about 6.0 to 8.5.

The acid precipitation phenomenon has probably occurred to some extent since the beginning of industrialization. But only in recent generations have the combined emissions of our industrialized societies reached sufficient magnitude to cause readily visible damage. European acid rain problems have long been known, with the first documented lake damage in Scandinavia in the 1920s, and elements of the problem have become almost routine news items since the fatal London smogs of the 1950s. Air pollution has reached proportions in Venice and Rome sufficient to seriously damage statues and other works of art.

In North America, the problem is of more recent origin and began with the industrialized central and eastern U.S. Since the prevailing winds are from the West to the East, much of the pollution generated by the Milwaukee-Chicago-Detroit area has gone unnoticed in Wisconsin. However, our midwestern discharges join those of Canada and the eastern seaboard resulting in acid precipitation in the Northeast and the dramatic decline of fish life in the lakes in the Adirondack region of Upper New York State. New England is similarly affected. And now some of our own "sins of emission" may be coming back to haunt us. Wisconsin may risk increased acid precipitation as a consequence of industrial development to the North and West of us as well as from a possible return of some of our own discharges. One theory suggests that the circular air movement of large weather systems moving eastward through the state may pick up some of that Milwaukee-Chicago air pollution and redistribute it on Wisconsin as acid rain or snow before the front moves on.

While most of the risk to our lakes is presently viewed as theoretical, the potential problem is recognized and enough concern has developed for several state bureaus and university departments to begin the monitoring and research essential to determine any future action. Investigations are either pending or under way in the Department of Natural Resources North Central District; DNR Bureau of Fish; DNR Bureau of Research; and the Office of Inland Lake Renewal. In Minnesota, Gary Glass of the EPA Duluth laboratory has coordinated an impressive research program on the impact of air pollutants on wilderness areas. For our part in Extension,

Byron Shaw at the UW-Stevens Point has been interested in acid precipitation from the outset. In conjunction with his continuing research, he will also be organizing a professional conference to exchange and develop more information for Wisconsin and the midwest. Later in the spring, we also hope to prepare a "fact sheet" here at ERU on acid precipitation.

As these investigations proceed, our knowledge of the extent of the problem will increase. With a lot of hard work and a little luck, we can expect to develop reasonable and responsible abatement and management practices to deal with this new threat to our lakes.

ATTENTION: DUCK HUNTERS, ICE FISHERMEN AND SNOWMOBILERS

"Cold Water Drowning, A New Lease on Life"

The title above begins a pamphlet released by the U.S. Coast Guard last year and is must reading for all winter recreationists. New research shows that many apparently dead victims of cold water accidents can be revived even after more than 30 minutes immersion. The shock of exposure to the cold water causes the body to shut down all but essential circulation to the heart, lungs, and brain areas (called "mammalian diving reflex"). Because of this reflex and hypothermia (loss of body heat to the cold environment) the victim may look dead including no detectable heart beat or breathing, blue skin, and fixed pupils.

However, there is still a chance of survival if you as a potential rescuer know what to do. This pamphlet, CG-513 or Michigan Sea Grant Bulletin MICHU-SG-77-104, tells you the essentials and belongs in your coat pocket whenever you go near the water this winter. The pamphlet is free from any Coast Guard boating safety or Auxiliary Office, and may just become the source of the most precious Christmas gift you could give this holiday season. If you have difficulty obtaining a copy, contact me and I'll try to get one out to you.

Have a Merry Christmas and a safe holiday!

George Gibson

BLAIR CELEBRATES LAKE HENRY REHABILITATION

Oliver Williams
Director, Office of Inland Lake Renewal, DNR

The first official dedication of an Inland Lake Renewal project in Wisconsin took place August 26th at Blair. This city in Trempealeau County celebrated the completion of a major dredging project in Lake Henry.

At a cost of approximately $420,000, the lake district undertook a project which:

> Deepened a major portion of the flowage to 10 feet, effectively eliminating submerged plant growth which had clogged the surface. Some 220,000 cubic yards of sediment were hydraulically dredged.
>
> Placed 11,550 feet of riprap on banks and bends of the Trempealeau River to reduce streambank erosion.
>
> Installed more than 3,000 feet of fencing to protect the river and its tributaries from intrusion by livestock.

Ray Nereng, retired Blair city clerk who had been director of the lake improvement effort, was master of ceremonies for the dedication. Other participants included State Sen. Thomas Harnisch, Neillsville; Anthony Earl, Secretary of the Department of Natural Resources; Oliver Williams, Director of the Office of Inland Lake Renewal; and Kenneth Cookson, Assistant State Director of the Soil Conservation Service.

Earl cited the Inland Lake Renewal program as one of the many positive DNR activities. "When one of these people tell you that 'I'm from the DNR, and I came here to help you,' you can believe it," the department secretary quipped.

The leadership of Nereng and the community support provided by the citizens of Blair were praised by Williams. He noted the dramatic, and virtually immediate, improvement in the usefulness of the flowage for boating, fishing and other water activities. The acid test, he said, will be the longevity of the project. Unless watershed work and other non-point pollution controls can be effectively applied to minimize sedimentation, dredging of flowages may not continue as a viable lake management option. The project was cost-shared by EPA (50%), DNR (30%) and local lake district (20%).

INLAND LAKE GROUP--A HOME AT LAST????

A note from the Office of Inland Lake Renewal

Us folks in the Office of Inland Lake Renewal are a shifty lot. We change locations oftener than a Kentucky moonshiner.

Some 4-1/2 years ago, when we went into business, we were on the 6th floor of the DNR "silo" in Madison, known as Pyare Square. And we reported to the assistant secretary for environmental affairs.

Then we traveled down to the 2nd floor of the same building--to a couple of different locations on that floor, in fact. We moved on the organization chart, too--attached to the Division of Environmental Standards.

The sheriff was getting too close. Fifteen months ago we fled from Pyare Square, hiding out at the "Outpost," a rented office space at 2825 University Avenue. To throw the bloodhounds further off the track, we were assigned to the Division of Resource Management.

In September of this year, it was off to the races again. This time the entire Madison headquarters of the Department of Natural Resources was moved to a new state-owned facility, known as GEF-2. (The initials stand for General Executive Facility.)

The building is a block off the northeast corner of the Capitol Square, bounded by Webster, Main and Butler Streets. There isn't a name on the structure yet. If you get lost, just stop and ask someone.

Inland Lake Renewal is on the 4th floor. The floor receptionist will point you in the right direction.

Is this shift permanent? Probably not! There's talk about some further reorganizations within DNR. And who knows what the Governor's Task Force might recommend. Regardless, we wanted to let you know we can give you the same friendly service--one thing that will never change.

CHILTON LAKE PARADE

Mike Vande Logt
Calumet County Extension Agent

The dredging project of Lake Chilton is now finished. Credit must go to the two citizens on the lake who initially got the ball rolling. Alice Connors and Al Larsen made the initial contacts with Lowell Klessig and Oliver Williams, and brought the program to the attention of the local government officials.

Once the lake district was legally formed, all the information needed for the application was quickly assembled. This greatly simplified my task of writing the formal application for funding from the DNR. Oliver Williams and the Department of Natural Resources were cooperative throughout the whole project.

The dredging was done by Iowa Dredging. The hydraulic pump system pumped a slurry of 80% water and 20% lake sediments to the settling ponds. Because the lake did not need to be drained before dredging was to begin, and because a dragline which often disturbs the sediments was not used, little silt was allowed to escape down river. This greatly reduced the environmental impact of the project. The sediments were pumped about a quarter mile to the settling pond in 8-inch piping. No trucks were used and no messes were made. The whole project was conducted very neatly.

The water coming out of the settling ponds was returned to the lake in a pre-existing drainage ditch. The returning water was clear and virtually no sediment could be observed in the return water. The depth of our lake was increased from an average depth of 3 feet to a new average depth of 7 feet. The resulting reduction in light penetration should greatly decrease weed growth, thereby greatly increasing the quality of Lake Chilton.

To celebrate our newly cleaned lake, the citizens organized a party held on September 29th. A torchlight parade was held; canoes and decorated boats paraded in the newly cleaned lake. The huge bonfire kept the party going into the late evening.

In sum, the united efforts of the citizens of Lake Chilton, the governmental officials of Chilton, the Department of Natural

Resources and personnel of the University of Wisconsin-Extension has resulted in the success of our project. With the stocking of game fish in our lake in the near future, the lake has a great recreational potential.

COMMISSIONERS' CORNER

We have become aware that lake districts can finance their equipment purchases through First Wisconsin Financial Corporation. Our latest information indicates a 9% rate on a loan of 3-6 years.

For further information, contact:

Greg Schulte
First Wisconsin Financial Corp.
P.O. Box 1625
Milwaukee, WI 53201
(414/765-4492)

As usual, we do not endorse this particular firm, but are simply calling their service to your attention.

TIPS ON BUYING, BUILDING, AND LIVING WITH RURAL LAND

For the sixth year, Lowell Klessig and colleagues will offer a short course on country life. The following topics will be covered:

1. Soil suitability for septic systems
2. Domestic water supply
3. Town government structure and services
4. Zoning ordinances
5. Property rights and obligations
6. Rural customs
7. Homesteading philosophy
8. Wood heating
9. Passive solar construction
10. Underground housing

The course will be offered via the Educational Telephone Network, available in most courthouses, on Thursday nights from 6:30-7:50, January 17th-February 7th. Contact Lowell Klessig, 1815 University Avenue, Madison, WI 53706.

FEASIBILITY STUDY--CASH FLOW TIPS

*Editor's Note: Clair found that this chart was very helpful. It lists clearly when a district is to receive and pay out money; helps determine financing arrangements; and clarifies the need for funds to the membership. This approach also graphically illustrates the reporting and payment schedule for contracted feasibility studies. Any other district wishing to try this approach is encouraged to do so. Your comments and suggestions are welcomed.

Our Deer Lake District Feasibility Study contract was recently approved, but only after several weeks of working on a cash flow chart to satisfy the requirements of our Deer Lake District, our Consultant, and the DNR. The duties of our Treasurer and the control of our Deer Lake District Feasibility Study should be simplified with the following approach:

After listing all the financial needs to conduct a lake study, a flow chart was developed with a column for each need. We then determined that, although data collection for a lake study required one year, the total project with financing and report approval requires about 20 months to complete. With this knowledge, we proceeded to enter the data on the sample chart shown. The dollars are not actual, and are used to simplify the chart.

1. Enter date data collection begins and ends.
2. Enter date when quarter reports are due and approved.
3. Enter dates for audit of records and final report approval.
4. Enter dates money will be received from O.I.L.R. (DNR Office of Inland Lake Renewal).
5. Enter dates money will be received from the Lake District.
6. Enter payment dates to your consultant after negotiating with him.
7. Enter date of loan and repayment, if required.

Our Deer Lake District is financing our lake study with the User Charge Plan. Two payments are required to meet our obligations and ease our financial burden.

Our thanks to the DNR, University of Wisconsin Extension, and Study Consultant for their input into the chart, and for making our lake management job easier.

DEER LAKE DISTRICT
Clair W. Mueller, Secretary

(SAMPLE)
LAKE DISTRICT CASH FLOW

DATE	MONEY IN (DISTRICT)	%	MONEY IN (DNR)	%	DNR QTR. REPORT DUE	DNR QTR. REPORT APPROVED	PAYMENT TO CONSULTANT	%
(1979)								
AUG	1000	5%	300	10%				
SEPT								
OCT								
NOV					DATA COLL BEGINS		BEFORE 11-1 1250	25%
DEC								
(1980)								
JAN								
FEB								
MARCH	1000	50%			1ST REPORT 3-1-80			
APRIL			600	20%		1ST REPORT 4-1-80	BEFORE 5-1 1000	20%
MAY								
JUNE					2ND REPORT 6-1-80			
JULY			600	20%		2ND REPORT 7-1-80	BEFORE 8-1 1000	20%
AUG								
SEPT					3RD REPORT 9-1-80			
OCT			NO PAYMENT			3RD REPORT 10-1-80		
NOV					DATA COLL ENDS		BEFORE 11-1 250	5%
DEC					FINAL REPRT 12-1-80			
(81)								
JAN					REVIEW OF F & FINANCIAL	INAL REPORT AUDIT OF		
FEB			1500	50%	O.I.L.R. & D	ISTRICT RECORDS		
MARCH						FINAL REPORT 3-1-81	FINAL REPORT 1500	30%
APRIL								
MAY								
TOTALS	2000	100%	3000	100%			5000	100%