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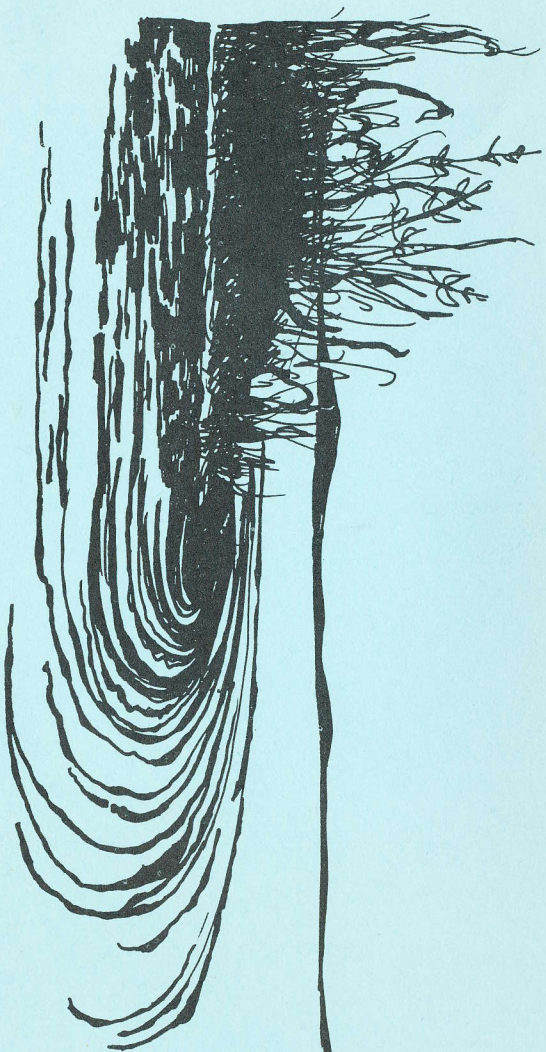


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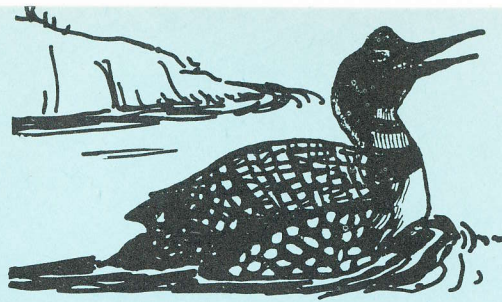
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UNIVERSITY OF WISCONSIN-EXTENSION



*A Newsletter for People
Interested in Wisconsin's
Inland Lakes*

*Lake
Sides*
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IN THE WAKE OF A LOON

Wisconsin's Inland Lake Management Program is five years old this spring. In honor of the occasion, we are holding the first convention of lake district commissioners.

You should have received a brochure since you are welcome whether or not you are a commissioner. If you are interested in Wisconsin's lakes, you should find the program informative and the fellowship of other lake community leaders inspirational.

The convention runs from 1:00 p.m. on March 29th to 4:00 p.m. on March 30th. If you receive this newsletter too late to register, please come anyway. A telephone call to our receptionist and registrar Nancy Erickson would be appreciated (608/262-0020).

Sincerely,

George R. Gibson
(608) 262-1369

Lake Management Specialists
Environmental Resources Unit
University of Wisconsin-Extension

Lowell L. Klessig
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P/S Please note that the program will be at the University Center on the UW-Stevens Point campus and that the dinner will be at the Holiday Inn.

LAKE PUCKAWAY WANTS MORE WEEDS--LESS CARP

Bernard Kasierski
Resource Agent--Green Lake County

Lake Puckaway was once well-known as one of the finest hunting and fishing lakes in the state. This 5,000-acre lake located in Green Lake County had broad expanses of marsh which supported dense stands of wild rice and bullrush. Food and habitat for fish and waterfowl was abundant. Gradually since 1950, the aquatic plants had disappeared. Fishing and hunting success had declined with change in habitat, especially evident since 1970.

Interest in forming a lake protection and rehabilitation district was generated as early as 1975. Residents, concerned with the decline in fish and wildlife populations, large numbers of carp, absence of lake vegetation, and the control of water levels, began discussing a lake district for Puckaway during meetings of the Lake Puckaway Improvement Association. Proper legal procedures for lake district formation began in June of 1976. During this time, the University of Wisconsin-Extension was approached for assistance.

The Lake Puckaway Protection and Rehabilitation District became reality in July of 1977. The Green Lake County Board approved the formation upon recommendation of the County Agriculture and Extension Education Committee. After nearly a year of educational meetings and discussions, it was interesting to note that unanimous agreement occurred at the public hearing--that Lake Puckaway needed assistance and that the lake district would have to be the vehicle to accomplish the rehabilitation effort. The final delineation of the district boundary was compromised. The entire process was an example of achievement resulting from open communication lines and citizens united for a common cause.

During 1978, two important events occurred. First, during the first annual meeting in June, a lake management plan was approved. Second, since Lake Puckaway shoreline also occurs partly in Marquette County, residents of the shoreline areas in the Town of Mecan (Marquette County) petitioned the lake district for attachment. Under Chapter 33, Wisconsin Statutes, as amended, Green Lake County approved the attachment petition in September. All township property surrounding the lake was now incorporated in a lake district. None of the 283 property owners objected to having their land attached to the district.

The management plan approval called for (1) water level management, (2) carp control, and (3) restocking. Water level would be maintained and managed at the Princeton Dam. Carp control would be achieved through a combination of spot treatments, commercial seining, and the installation of fish barriers to prevent carp migration. Restocking of panfish and gamefish would occur after a season of intensive carp removal.

The objective of this plan is to reduce the carp population, then maintain the carp population at a level that will permit the improvement of water quality and increase the growth of aquatic vegetation. These conditions would be necessary for improvement of the fishery and wildlife.

During the summer of 1978, commercial fish seining removed over one million pounds of carp and 200,000 pounds of sheephead. Though the DNR estimated two million pounds of carp in the lake, commercial fishermen estimated the population number at closer to ten million pounds. According to many local residents, the conditions of water clarity have improved remarkably during the past autumn. And for many, fishing has begun to improve. During this first year of operation, the lake district raised money to subsidize the fish removal operations.

Users of Lake Puckaway made the decisions as to what they wanted the lake to be. Then a determined commitment to a management plan was made in order to achieve their goals. Lake Puckaway is a large complex body of water with a large watershed. The task to improve the fish and wildlife resource will not be an easy one. The proposed management plan is a workable one that has a reasonable chance to be successful. No one can guarantee that the plan will correct the problems on Lake Puckaway. The best that can be done is try.

THE VALUES OF WETLANDS

Jim Harris*

Wetlands--those places where land and surface water meet to support characteristic communities of specially adapted plants--were long considered so useless as to merit only drainage, dredging, or filling. The very names swamp, bog, and marsh carried dismal associations with slimy mud, bubbling gases, snakes, mosquitos, and ooze. We have so successfully drained and filled wetlands that today only a quarter of Wisconsin's original wetlands remain.

Only recently, as wetlands have become scarce, have their many values been recognized. Because of the important roles these areas play in maintaining quality and quantity of all waters of Wisconsin, people who enjoy our lakes and rivers should be particularly concerned with the future of wetlands.

Wetlands display immense biological productivity. Therefore, they are more important to wildlife than any other habitat. Many

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creatures depend on wetlands to survive. These include mink, otter, muskrat, and beaver which together form the basis of livelihood for trappers. Thousands of hunters seek waterfowl, another rich harvest of wetlands. Some animals that can live away from wetlands nevertheless find such areas ideal for foraging--the deer, raccoon, bear, and dozens of other animals that delight all people who venture outdoors. Fishermen, too, benefit from wetlands, which provide shelter for young walleye and prime spawning areas for northerns.

In addition, wetlands serve to regularize the flow of waters, acting as natural reservoirs after heavy rains or the rapid melt of snow. At these times, the water thus held back does not contribute to floods damaging waterfront properties for many miles downstream. Extensive destruction of wetlands can so aggravate flood problems as to make necessary construction of expensive dams and levees. In some areas, water slowly leaving wetlands after the floods helps to maintain stream flow during dry periods.

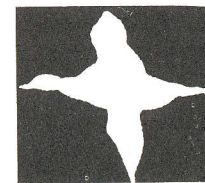
Wetlands act as nutrient traps, collecting topsoil, fertilizers, and other materials running off agricultural and urban lands. Such non-point sources of pollution are extremely difficult to control, but can significantly damage water quality of our lakes and streams with heavy silting, algal blooms, and lowering of oxygen levels. Wetlands also protect shorelines from erosion during times of high or rough water, thus providing another protection of water quality.

While only those wetlands immediately adjacent to lakes and rivers receive special protection under state and federal law, wetlands throughout a watershed can have a major influence on quality and quantity of lake and river waters. Cycling of nutrients, sediments, and

particularly of water depends on the condition of the entire watershed, not just one or more of its components. Similarly, the values of a wetland can be severely damaged by activities on the surrounding upland. A wetland enclosed by heavy development or human disturbance will not support much wildlife, while heavy erosion or pollution can destroy a wetland's ability to buffer downstream areas.

The advantages and costs of any activity likely to alter a wetland should be carefully evaluated. Wetlands have become too precious and rare a resource to be needlessly destroyed. The public as a whole pays for unwise decisions.

As our awareness of wetland values grows, so also does our appreciation for their beauty and mystery. The patterns of vegetation and quiet water add wonderful variety to our landscapes. Still unfamiliar and relatively inaccessible, these areas provide recreational experiences that cannot be found elsewhere by canoeist or adventuresome wader.





PACE OF LIFE SLOWS
IN ICE SEALED LAKES

Reprinted from Nature Notebook
Written by Chris Elfring

Each winter, our lakes vanish, succumbing one by one to ice and snow.

The change from lake to ice field actually begins long before winter. Each summer, deep lakes stratify into a warm upper layer (the epilimnion) and a cold lower layer (the hypolimnion). As fall progresses and air temperatures drop, the upper layer cools to the same temperature as the lower layer. This leads to a "turnover," or mixing, because the cooled surface water becomes more dense and sinks. This leaves warmer water exposed at the surface, where it then also cools and sinks, continuing the mixing until the surface and bottom water are about the same temperature.

"This mixing process is completed when all the lake water has been chilled to about 39 degrees, which is the maximum density of water," explains George Gibson, University of Wisconsin-Extension lake management specialist. "Then, as the surface water cools down further and freezes, a new stratification occurs. The ice which forms at 32 degrees is less dense than the water, so it floats. This creates a cold upper layer which acts as a barrier to further wind or current mixing."

An ice-capped lake is a stable environment. Even as the ice grows downward, and the temperature of the air above fluctuates wildly, the water temperature remains a cold, constant 34 to 39 degrees.

"Most life in ponds and lakes is rigidly controlled by the temperature of the environment," says Stanley Nichols, a University of Wisconsin-Extension aquatic biologist. "Colder temperatures reduce biological activity in both plants and animals."

Because of the cold, aquatic plants, which through photosynthesis produce oxygen for aquatic animals, are much less productive in winter. Also, thick ice and snow allow less light to penetrate to plants, limiting photosynthesis. This means there is less oxygen for the underwater community.

And with winds no longer stirring the water, the exchange of gases between the lake and the atmosphere also stops. Life in the depths must then proceed on the oxygen reserves created during the fall turnover.

"There's a continual depletion of oxygen from the time the lakes freeze over until they thaw," says Nichols. "Even though the plants generate some oxygen, the animal life is relying mainly on oxygen

which entered the water from the atmosphere before the freeze." The severity of the oxygen depletion depends on the size and depth of the lake, the thickness and clarity of the ice, the amount of snow cover and the length of the winter.

"A big, deep lake that doesn't have very much organic growth in to decompose during the winter or a lake with rivers feeding oxygen into it probably won't have oxygen problems," Nichols explains. "But if a small, shallow pond with a lot of marsh and no in-flowing water gets heavy snow, it can suffer oxygen depletion, and that can kill fish."

In some areas, people have tried to prevent this oxygen loss. One method is to plow the snow off the ice to allow more sun to penetrate. Another is to spread carbon black on the snow to melt it and allow more sunlight through. And in a few places, concerned pond owners have even tried aerating the water.

The consequences of winter's ice seal spread throughout the lake ecosystem. Green plants, the primary link in nature's food chain, respond to reduced light and temperature with decreased activity. This, in turn, affects all the organisms which feed upon them, directly or indirectly.

Gamefish are also affected. Because they are cold-blooded, their body temperature fluctuates according to the surrounding water temperature. Consequently, as the water gets colder, so do they, and they become less active, expend less energy and feed less often.

Smaller life forms--insects, microorganisms and such--also have evolved ways of coping with severe winter conditions. Most overwinter in some hardy form; insects often spend the cold months in larval or egg stages. Some, though, do winterover as nymphs or adults, waiting for spring to produce offspring for another generation.

All the living creatures in a community depend upon one another, whether in subtle or obvious ways. Consider, for example, fur-bearers like muskrat or beaver. Both feed heavily each fall to build up body fat to help them survive the winter. They also stockpile food.

But should food supplies run low and hunger force them from their dens, the frozen lake can hamper their foraging. Without the protection of open water, they are forced to move about on the ice, a black dot on a white expanse. To large predators also hard-pressed by winter's demands, a foraging muskrat or beaver is a tempting target and a link in the food chain.



COMMISSIONERS' CORNER

The big news item for commissioners is, of course, the convention. Some districts are sending three or four representatives; we hope all districts send at least one. In the next issue of Lake Tides, we will note the highlights and the winners of the Outstanding Service Awards.

Just a few other notes:

1. Recreational Boating Facilities Program provides assistance to local municipalities to construct public accesses and launching ramps. Lake districts are not directly eligible, but could co-sponsor a project with a local municipality. For further information, see Chapter 30.92 of the Wisconsin Statutes, NR 7 of the Administrative Codes, or contact Ted Lauf (DNR) at 608/266-0160.

2. U.S. Internal Revenue Service regulations require that lake districts who pay their commissioners must file Form 1099. Commissioners are not considered employees because they are elected and no withholding is required. Form 1099 is used to report income on which taxes were not withheld. These provisions do not apply if commissioners only receive reimbursement for expenses.

3. Wisconsin Department of Industry, Labor and Human Relations now considers all units of government to be employers and subject to Unemployment Compensation procedures (Chapter 108.02, Wisconsin Statutes). Previously, governmental units with no employees and less than 5,000 population were exempt from filing. Now all units, including lake districts, are required to file a quarterly report

even though the figures on the report would all be zero if the district has no employees. In addition, there is a fine for late filing. We do not understand the reason for this change and commissioners who know about it are unhappy. An effort may be made to repeal part of the new statute which adds this "red tape" burden on districts without providing any information or revenue to the Unemployment Compensation Program.

4. Condemnation powers could be exercised by lake districts with certain cautions according to a recent opinion by DNR attorney Charles Hammer. Further elaboration may be provided in a future issue.

5. County Fish and Wildlife Aids in modest sums (\$600-\$4,000 per county) are available for a variety of projects relating to fish habitat improvement, aquatic vegetation management, dredging, land acquisition, stream bank fencing, and other measures (Section 23.09[12], Wisconsin Statutes). The monies are available to counties but conservation clubs or lake districts often cooperate in projects.

6. North American Lake Management Conference is being held in East Lansing, Michigan on April 16th-18th. The sessions are chiefly designed for professionals, but may be of interest to some commissioners or lake residents. If you would like a brochure, please contact:

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