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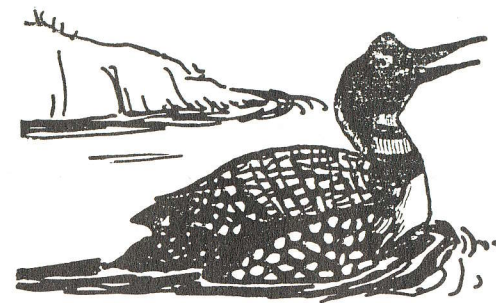
WUEM UNIVERSITY OF WISCONSIN-EXTENSION
ENVIRONMENTAL RESOURCES UNIT
1815 UNIVERSITY AVENUE
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*A Newsletter for People
Interested in Wisconsin's
Inland Lakes*



*Lake
Tides*
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IN THE WAKE OF A LOON

THE REFERENDUM: AN EDITORIAL

In the last several issues of Lake Tides we discussed the question of voting by seasonal residents.

To our knowledge, seasonal residents have been voting on all matters in all lake districts since Chapter 33 was enacted into law in 1974. That practice was challenged at Paddock Lake after the 1979 annual meeting. A subsequent opinion by the Attorney General stated that the law was constitutional--seasonal residents could be allowed to vote in this special management unit. However, he indicated that the voters of the entire state would have to approve the provision allowing all property owners, regardless of permanent residency, to vote.

On November 4th, all resident Wisconsin voters will have the opportunity to voice their opinion on this topic. On the ballot all voters will find the following question:

Shall state law be amended to permit persons who own property in a public inland lake protection and rehabilitation district and who are U.S. citizens and who are 18 years of age or older to vote at meetings of the district?

Please give the topic serious consideration. About 50 percent of Wisconsin's 125 lake districts have a majority of property owners who do not claim their permanent residence in the lake district.

The referendum will only apply to voting at the annual and special meeting of the lake district. Seasonal residents will not be allowed to vote in town board, county board, school board or other local elections.

If the referendum is approved, lake districts will be able to continue operating as they have been. If the referendum is disapproved, those property owners who do not claim residence in the district will no longer be able to participate directly in the decisions of the districts. The district would still retain all authorities to undertake management projects and to tax all property owners in the district.

If this issue is of interest to you, we suggest that:

1. You discuss it with neighbors and friends.
2. Talk to the editor of your local paper about covering it in his editorial column.
3. Write a "letter to the editor" for direct inclusion in the paper.
4. Ask that the topic be put on the agenda of the October meeting of groups you belong to, e.g., Lions, League of Women Voters, Optimists, Kiwanis.

We are happy to speak to reporters, on radio talk shows, or to meetings. We also have a one-page informational flyer available for distribution.

November 4th is the biggest milestone in the Wisconsin Lake Management Program since the original legislation was enacted. Many of you were involved in that decision; we hope you'll be involved again in the best traditions of democracy.

Sincerely,

George R. Gibson *Lowell L. Klessig*

George R. Gibson, Jr. Lowell L. Klessig
Lake Management Specialists



ECO NOTES

The Unique Properties of Water

In this space we have discussed many variations on the theme of lake problems, lake management, the environment, and water quality in general. But, the ubiquitous, all important substance--water itself--has never been covered in any detail. It's time we gave more attention to this resource, essential not only to lake management but to life itself.

Were it not for some of the unique properties of water our lives and our environment would be drastically different if not non-existent.

- Water is the most abundant liquid on earth, about a billion billion times as abundant as petroleum.
- The water molecule (H_2O) is a "kinked molecule" having an angle between the oxygen and the two hydrogen atoms of about 104.5° . This particular angular arrangement makes the molecule dipolar, i.e., it tends to have a positive and negative end, sort of like a flashlight battery. This presence of both electrical charges on the molecules of water make it attractive to the molecules of most other substances. Thus, water molecules can react with and (given enough time) eventually dissolve just about any substance. Because of this, water is known as the "Universal Solvent." This property contributes to the erosion and creation of land forms; the saltiness of the seas; the digestion and metabolism of most living animals; the assimilation of pollutants by our surface and ground waters; and the provision

of mineral nutrients by lake and soil water to plants.

- Water is selectively transparent to light. Most of the visible spectrum of light waves penetrates water, particularly blue light. This is why deeper bodies of water look blue. The red end of the spectrum, however, is mostly absorbed in the surface layers of the water. This absorption helps control the growth of the green algae and higher plants that use red light in photosynthesis. Consequently, they are restricted from extensive growth in deeper waters. Were it not for this characteristic of water, we would have greater weed problems at greater depths in our more eutrophic lakes.

Water vapor in the atmosphere also absorbs much of the ultraviolet light from the sun and protects us from fatal solar radiation while still allowing energy to penetrate and heat our environment from below. This "greenhouse effect" promotes the relatively lush and apparently unique growth of life enjoyed by the earth in our solar system. This form of energy absorption and reradiation also helps drive the hydrologic cycle by evaporating sea water to water vapor which falls on distant land sites as rain or snow, much of which eventually drains back into the sea.

- The greatest density of water is just above its freezing point. Water expands as it freezes (0°C) and then contracts during the first small temperature interval of warming (4°C); it thereafter expands again with further warming. This unique property happens because there is a transition point at about

4°C where the larger ice crystals are disintegrating and their molecules are collapsing together. Because ice is slightly less dense than cold water, it floats. Water is the only common substance which has a lighter solid than liquid phase. Thus, we bang our noses on ice cubes in our drinks, and our lakes and ponds freeze on top instead of from the bottom up. Since the ice is also a poor conductor of heat, the denser, slightly warmer waters of winter ponds and lakes remain liquid in climates where a solid freeze of the entire water body might otherwise be expected. Were it not for this attribute, pond and lake biological communities might not be able to survive from one year to the next.

Above 4°C , the discrete, smaller molecules begin to spread away from one another. The increased space makes the water relatively lighter. As the water warms up, progressively more molecules escape from the liquid phase, i.e., evaporate, and reenter that all essential hydrologic cycle.

Given the remarkable coincidence of our life sustaining needs, and the corresponding quantities and properties of water just when and where needed, one is led to ponder some profound questions about the roots of our existence and the nature of life forms. At any rate, water is amazing stuff.

COMMISSIONERS' CORNER

Please mark your calendar for the Second Lake District Commissioners' Convention. It will be held in Stevens Point on Friday and Saturday, March 20-21, 1981.

The first day is expected to be a combined meeting with other folks who are interested in acid rain. The second day, Saturday, will be devoted strictly to matters of interest to lake district commissioners.

Some commissioners have indicated that they cannot attend weekday meetings, and this Friday-Saturday arrangement should permit the most commissioners to attend one or both days. Workshops on lake projects and other matters would be scheduled on Saturday following an update on acid rain on Friday.

Final decisions on the organization of Wisconsin Association of Lake Districts is expected at that time.

SAME JOB--NEW OFFICE

This summer, Lowell moved to central Wisconsin. He and his wife, Chris, live on a small farm at Amherst Junction. Chris has joined a law firm in Amherst/Stevens Point.

Lowell will continue to serve as a University of Wisconsin lake management specialist. He will also continue as Chairman of the UWEX Environmental Resources Unit with staff members at Madison, Stevens Point, Superior and Green Bay.

Lowell's main office is now located at the College of Natural Resources, University of Wisconsin-Stevens Point 54481 (715/346-3783). He does, however, maintain his old office in Madison.

George continues to work out of the Madison base at 1815 University Avenue (608/262-1369).

INTERNATIONAL SYMPOSIUM ON INLAND WATERS AND LAKE RESTORATION

Eight hundred lake management specialists from 35 countries, 49 states and all the provinces of Canada met in Portland, Maine from September 8th to 12th this fall for the largest meeting on lake management ever convened.

Topics included eutrophication (accelerated lake aging from excess nutrients), cost-benefit ratios of lake projects, public health problems, pollution control, and acid rain.

Wisconsin was very well represented. Papers were presented by: Dave Armstrong, Nic Bouwes, Russ Dunst, George Gibson, Doug Knauer, and Bob Stauffer. Lowell Klessig was chairman of the North American Lake Management Society business meeting and was elected to represent the Upper Midwest on the Board of Directors.

A REVIEW OF LAKE MANAGEMENT ACTIVITIES THIS YEAR

Lake Districts Receiving Feasibility Study Technical Assistance Funds in F.Y. 1980

Easton Mill Pond, Adams Co.
Campbellsport Pond, Fond du Lac Co.
Silver Lake, Manitowoc Co.
George Lake, Pierce & St. Croix Cos.
Osceola Mill Pond, Polk Co.
Lake Jacqueline, Portage Co.
Parfrey Mill Pond, Richland Co.
Big Muskego Lake, Waukesha Co.
Lake Irogamie, Waushara Co.

Lake Districts Receiving New State or Federal Grants for Management Projects in F.Y. 1980

Staples Lake, Barron Co.	- \$78,691, State Grant
New Richmond Flowage, St. Croix Co.	- \$344,000, Federal Grant
Lake Marinuka, Trempealeau Co.	- \$530,000, Federal Grant

Lake Districts with Projects in Progress

Perch Lake, Monroe Co.	Dredging and Streambank Improvement
Bugle Lake, Trempealeau Co.	Dredging and Streambank Improvement
Angelo Mill Pond, Monroe Co.	Dredging Project
Big Cedar Lake, Washington Co.	Manure holding facilities, nutrient diversion, preservation of grassed waterways
Lake Noquebay, Marinette Co.	Weed Control Project
Lilly Lake, Kenosha Co.	Dredging Project
Half Moon Lake, Eau Claire Co.	Storm Sewer Diversion, Dredging, Well Water Recharge
Lake Marinuka, Trempealeau Co.	Dredging and Streambank Improvement
New Richmond Flowage, St. Croix Co.	Dredging and Streambank Improvement