



LAKE TIDES

A newsletter for people interested in Wisconsin Lakes

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NORTHERN EXPOSURE Who Owns the Lakes?

Across America we are pouring out of metropolitan areas and heading for the country... and lakes are the number one aspiration. We are converting seasonal homes for year-round use and clearing undeveloped land for new homes. How is this affecting Wisconsin's north woods?

The demand for waterfront property in the Great Lakes States is at an all time high. Across Michigan, Minnesota and Wisconsin come stories of skyrocketing prices and an unprecedented building boom. An example: the Eagle River Chain of Lakes in Vilas County where the 1990 price per foot for lake frontage was a healthy \$250. Just four years later that price has gone through the roof at \$900 per frontage foot, a 384% increase.

Some interesting things start to happen as hoards of people jockey for a place on a smattering of lakes. One result is the evolution of a scarcity mentality. The extreme demand causes prices to escalate. Lake frontage has become a shrewd place to park your money. Where else can you get such a good return?

Folks also figured out that a big piece of property can bring a lot more dollars if it's split into smaller parcels. On the flip side, taxes can increase to the point that some folks have to sell or split their property to cover their costs. This adds to a strong temptation to take the money and run when you are offered double or triple the price you paid four years earlier.

You may have noted that the optimum word in the above paragraph is *split*. It doesn't take a rocket scientist to notice that throughout this century the trend has been to split our land into small pieces, especially around our lakes.

In the spring and summer of 1994 a group of individuals representing the Wisconsin Association of Lakes (WAL), the Wisconsin Department of Natural Resources (DNR), the University of Wisconsin Extension (UWEX) and other interested individuals gathered in Rhinelander to discuss the state of the lakes in northern Wisconsin. For logistical purposes Northern Wisconsin was defined as the area north of State Highway 29. This group tried to forecast the likely changes if current trends of land division continued. How do we deal with this new land boom with an increasing population and a limited supply of natural resources and space?

The group generated action plans to address this issue. To get a handle on development trends, it seemed a fundamental tool would be usable information on the ownership patterns on northern lakes. This information was seen as useful for a number of reasons:

- Development patterns (splitting up land into smaller and smaller pieces) could be keyed to certain critical lakes.
- Owners of lake property could be identified and made aware of the Wisconsin Lakes Partnership and its potential to assist property owners and concerned citizens resolve their lake management concerns.
- Lakes having a large number of owners but no formal direction could be identified and assisted if they chose to establish lake organizations.
- The Lakes Partnership records on lake organizations could be verified and updated.

As part of the Northern Lakes Protection Strategy, this research looked at development and ownership patterns in 25 counties north of Highway 29.

It's interesting to note that of Wisconsin's 14,973 documented lakes, 12,797 lie north of Highway 29. Of those, 4,362 are larger than 10 acres. These are the lakes in our study. We wanted to see who owned the land and which lakes were potential candidates for more growth.

The number of lakes where the shore had total ownership in one category was averaged across the 25 counties and some interesting details came to light. While the average number of federally owned lakes is 6, Forest County has 47. State owned lakes are typically 8, but Vilas County possesses 79. The average for corporate-owned lakes is 9 and Vilas has 33. Privately owned shoreland runs 32 per county

while Polk tipped the scales with 107. When it comes to lakes totally surrounded with small tracts, 39 is the norm, but Vilas again claims top honors with 146. It should also be noted that Vilas surpasses all Wisconsin counties in its total number of lakes with 1,320.

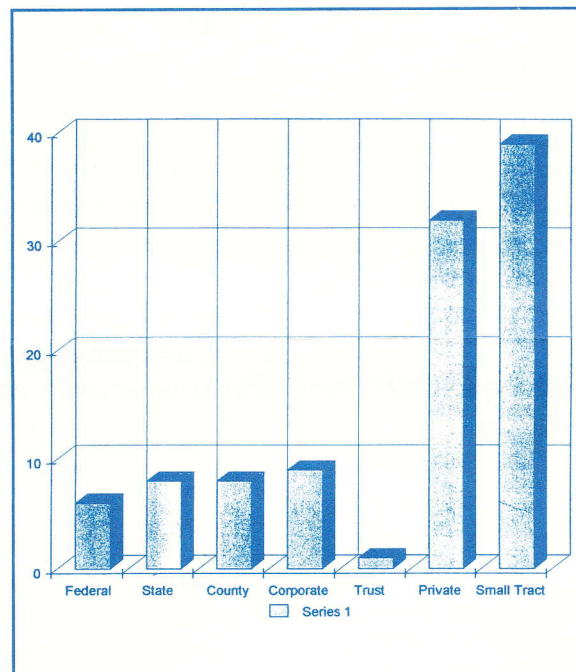
Of the 4,362 study lakes, 283 have formal lake organizations. There are 1,140 lakes with 50% or less of their shoreline in small tract development, but only 16 of those have some form of organization. Working with Lake Tides readers, government officials, UWEX, WAL and the DNR we hope to contact someone on these 1,124 lakes to let them know that the Wisconsin Lakes Partnership is out there if they need it.

Most of the prime lake frontage available for building construction has already been developed. The shorelands now being used were bypassed earlier because they were low or wet or had steep slopes.

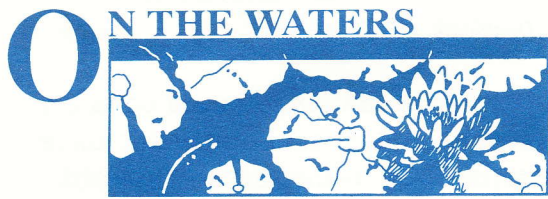
It's not just people that like the lakeshore. The area from the water's edge to about 500 feet inland shows a tremendous increase in species variation compared to

adjoining uplands. Expansion of human land use causes clashes with other humans and is squeezing out other species on land and in the water. The extinction of the creatures and plants with which we share this planet is proceeding at a pace unprecedented since the extinction of the dinosaurs. What Wisconsin's future landscape will look like depends on how we perceive our environmental responsibility.

For more information on this study, contact Robert Korth, UWEX-Lakes, Stevens Point, WI 54481.



Land ownership around lakes, by percent.



FOR BETTER OR WORSE Long Term Trends Identified in Lakes

by Susan Graham, DNR Lakes Section

So, are Wisconsin's lakes getting better or worse? We associate our lakes' health with the clarity of the water and attach that detail to what's going on in the watershed. Some appealing lake information is starting to come to light.

Just as lake water clarity responds in the short term to events like a torrential rainstorm, low nutrient influx in years of drought, or seasonal effects like algal blooms following a hot, calm July, lakes also can change in the long term. Distinguishing true trends from short-term changes is the aim of long-term trends statistical analysis performed by the Department of Natural Resources. To do this the DNR analyzed clarity data collected by volunteers in the first eight years of the Self Help Volunteer Monitoring Program.

Of the 40 lakes analyzed, 16 lucky lakes showed apparent improvement in water clarity, six showed apparent decreasing clarity, and in 18 lakes, no trend was detectable. What do these results mean? An apparent trend toward increasing clarity means just that: the clarity seems to be increasing and is probably not just a random fluctuation (although it might be!). It says absolutely nothing about other changes that may be occurring (such as the macrophytes increasing) or about the causes of the trend.

Trends analysis experts advise a minimum of 10 years of data to draw conclusions, but eight years of data is adequate to roughly indicate a trend if one exists. These eight-year tendencies do merit some attention, specifically in prioritizing grants for planning and restoration activities. Identifying a trend toward decreasing water clarity would increase the likelihood of the lake receiving a planning grant.

In some situations water clarity is apparently increasing because positive steps like reducing algae or sediment have been taken. In these cases, people should view the trend results with veiled optimism—perhaps the clarity increase is a sign that their actions are having a positive result. On the other hand, if one or even several years of slipping backward should occur, don't be discouraged. Long-term changes take place despite the short-term, natural fluctuations that will always typify these complex natural systems. Thanks to the persistent work of the Self Help Lake Monitor Volunteers, long term trends information will help us understand the impact of our activities on lakes.

NALMS Moves to Madison

Wisconsin has had the distinction of becoming the new world headquarters for the North American Lake Management Society (NALMS). This 20-year-old organization represents a unique blend of lake management professionals, academics and citizens from around the globe. Its mission is to provide a forum for information exchange and foster sound management and protection of the world's lakes and reservoirs.

State NALMS chapters (Wisconsin is represented by Wisconsin Association of Lakes) deliver educational programming to lake organizations. NALMS also conducts a Lake Management Certification program for consultants.

If you are interested in joining this organization, contact Charles Gardner, Director-NALMS, PO Box 5443, Madison WI 53705.

If a Tree Falls in the Forest... Wisconsin's New BMPs

It is estimated that forestry practices account for 3 to 9% of all nonpoint source pollution. While this may sound like a small amount, localized pollution can have a significant impact on water quality. The bulk of forestry pollution comes in the form of sediments. Soil is disturbed at stream crossings and rains carry sediments from forest roads and skid trails.

Section 208 of the Clean Water Act requires each state to develop plans and procedures to control "silviculturally-related nonpoint sources of pollution." To meet this mandate the DNR's Bureau of Forestry brought together concerned individuals to develop **best management practices** (BMPs) for state lands. For two years this group deliberated over the best way to meet the EPA mandate and preserve water quality during logging operations. Included were DNR foresters, representatives from timber and paper industry, environmental groups, and Lakes Partnership members from WAL and UWEX.

The members worked painstakingly through a wide assemblage of difficult issues: fueling, spills, forest roads, harvesting, wetlands, chemicals and riparian zones.

The area from the water's edge outward is called the "riparian zone," and is most sensitive to poor logging practices. Wisconsin's BMPs designate a riparian zone in the area within 100 feet of navigable streams and lakes and within 35 feet of non-navigable streams and navigable intermittent streams. Logging is allowed to the water's edge but harvesting equipment should stay back 50 feet and skid trees out. Selective harvesting that promotes long-lived tree species is suggested in the riparian zone, with 10 years between harvests.

Wisconsin's Forestry BMPs for Water Quality will be fully implemented this summer. The new field manual is hot off the press and a team

of volunteers will evaluate selected sites to provide baseline information.

Some loggers have always followed conscientious harvesting practices. Formalizing these procedures in BMPs is the first step toward cleaner water and healthy forests. For more information on the new BMP's, contact your area DNR forester.

Lake Grants Change

Changes to state administrative codes governing lake planning and protection grants for local lake communities and organizations were approved by the Natural Resources Board this spring. The general intent of the revisions is to make the programs available to a wider range of sponsors and to cover a greater extent of activities. Highlights include:

- Restrictions on the use of federal and other non-DNR state funds as part of the local share have been removed.
- Public access is no longer a requirement for receiving planning assistance. However, to continue to support public access needs, lakes meeting the minimum access requirements will receive priority for funding.
- Under planning grants, the \$10,000 per biennium and \$30,000 lifetime caps have been replaced by a single \$50,000 lifetime cap. Each grant is still capped at \$10,000, but multiple grants are available in one year.
- Nonprofit Conservation Organizations will become eligible sponsors.
- New protection grant rules allow funding for most any lake improvement or restoration project as long as they are recommended in a plan that has been approved by the DNR. **Dredging, sanitary sewer work and routine aquatic plant management are not eligible.** Note: Some lake improvement projects, defined as "lake restoration," will require public access.

Contact your DNR District Lake Coordinator for more information.

Curlyleaf Pondweed

by Susan Borman, WDNR - Western District Aquatic Botanist

Curlyleaf pondweed (*Potamogeton crispus* L.) is a cool water specialist. This non-native aquatic plant developed very successful adaptations for surviving low temperature water in its native range of northern Europe and Asia. It has proven to be a strong competitor with native species in Wisconsin lakes and streams, particularly in the spring and early summer when it gets a head start on the local competition.

The first confirmed specimen of curlyleaf pondweed in the United States was collected in Delaware in the mid-1800's. By the turn of the century, it had spread along the east coast from Virginia to Canada, and by the 1930's it was established in the Midwest. Currently, curlyleaf pondweed is found throughout the lower 48 states.

Description

Although curlyleaf pondweed is a submersed aquatic plant, the spaghetti-like stems often reach the surface by mid-June. The oblong leaves attach directly to the stem in an alternate pattern. Margins of the leaves are wavy and finely-toothed creating an overall leaf-texture that is "crispy." In the spring, curlyleaf produces flower spikes that stick up above the water surface. The small flowers are arranged in a dense terminal spike on a curved 1-2 inch stalk. By June, thin-walled nutlets (*achenes*) are mature on the stalks and may serve as duck food or drop to the sediment.

Habitat

Curlyleaf is considered a deep water plant, but will also colonize shallow areas. In a lake where it is dominant, a curlyleaf bed may start in 1 to 2 feet of water and extend out to a depth of 10 to 12 feet or more. It has a competitive advantage over many native species at disturbed sites because it can tolerate low light conditions, both in the summer during algal blooms and under ice and snow cover in the winter. It has been found growing under 20 inches of ice and a heavy blanket of snow.

The strong rhizome anchoring system of curlyleaf allows it to colonize a number of challenging sites from lakeshores with wave action to streams with moderate velocity. Curlyleaf can grow on a variety of sediment types but is most successful on fine sediments enriched with organic matter.

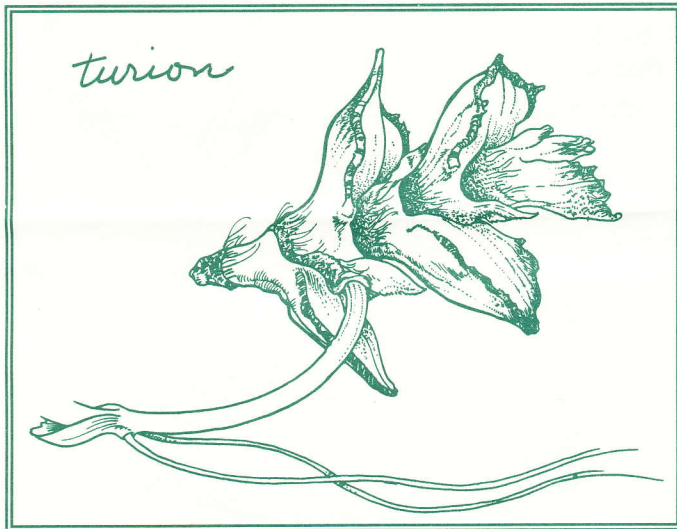


Curlyleaf pondweed seeds play a relatively small role in reproduction compared to their vegetative winter buds (*turion*). These turions look like small brown pine cones and are produced in great numbers by mid-summer on shortened branchlets along the stem. Studies of curlyleaf beds in lakes have shown as many as 1,600 turions in just a square yard plot. The germination rate for these turions is high, ranging from 60 to 80%.

Special Adaptations

The cool water adaptations of curlyleaf set it apart from other Wisconsin aquatic plants. It is actively growing under the ice while most plants are dormant, but dies back in mid-July when other aquatic plants are just reaching their peak growth for the year.

The life cycle of curlyleaf is triggered by changes in water temperature. Warming waters in May stimulate growth of the spring foliage which has wider leaves than the winter growth and a reddish brown cast with wavy leaf margins. During the spring, flowers and fruit are produced. As water temperatures rise in early July, curlyleaf prepares for late summer dormancy. By August, the majority of curlyleaf stems and leaves have decayed and dropped a carpet of sharp-angled turions on the sediment.



These turions lie dormant until the water begins to cool in September. When the water temperatures fall to about 75° F the turions germinate to produce winter foliage. The winter curlyleaf growth has flat, blue-green leaves that are narrower, softer and more translucent than the summer leaves. The plant grows and photosynthesizes under the ice and when the water warms up in the spring the summer growth cycle starts over.

Significance in Aquatic Community

Curlyleaf provides habitat for fish and invertebrates in winter and spring when most other plants are reduced to rhizomes and winter buds.

However, the mid-summer curlyleaf decay creates a sudden loss of habitat and releases a surge of nutrients into the water column that can trigger algal blooms and create turbid water conditions. In waters that have a diversity of other aquatic plants, the breakdown of curlyleaf may not be a problem. However, in situations where curlyleaf is dominant the summer die-off can lead to habitat disturbance and degraded water quality.

Living with Curlyleaf Pondweed

Curlyleaf provides food for ducks and valuable winter and spring habitat for fish and invertebrates. But these values can be overshadowed by big summer die-off when curlyleaf dominates a plant population. Selective control of curlyleaf stands and protection or restoration of native species can lead to a balanced plant population. Protecting water quality will also help keep curlyleaf in check because it has a competitive advantage over native plants when water clarity is reduced.

1995 WISCONSIN LAKES CONVENTION

Another productive Wisconsin Lakes Convention has entered the history books. Once again people from Wisconsin gathered at Stevens Point to discuss critical issues and expand their understanding on a host of lake-related topics. This two-day convention is thought to be the largest of its kind in the nation and draws professionals and citizens from across the Great Lakes states. Thursday's extra technical session on stormwater management was sponsored by the EPA and the North American Lake Management Society (NALMS). George Meyer, Secretary of the DNR, was the featured speaker on Friday and addressed "The New Land Boom" and the DNR views on land use.

Several new twists were presented at this year's convention. The Stewardship Awards Banquet was moved to a well-attended breakfast; this year's recipients were John Seibel of Alma-Moon Lake in the Individual Category, the Lake Ripley Management District in the Group Category and Tom Wilson of UWEX-Waupaca County in the Public Service Category.

For the first time, a fresh perspective was brought to the convention by a large contingency of youth groups who attended as part of the Adopt-A-Lake program. Youth described their lake protection activities through poster sessions and group presentations. Presenters came from Three Lakes and Cambridge High Schools, Lucky Hills and Dodge County 4-H Clubs, Lake Pewaukee, Fox Lake, Rice Lake Middle School and North Lakeland Elementary School.

Each year we attempt to make your Lakes Convention surpass the previous year in its benefit to you. **You can assist us by sending your comments on topics, speakers or other special events you would like to see.** Send your comments or suggestions to Robert Korth, UWEX/UWSP, CNR Bldg, Stevens Point WI 54481. **1996 Wisconsin Lakes Convention—March 7-9, Stevens Point.**

1995 Lake Stewardship Nominees

Stewardship awards were again presented at the Lakes Convention to individuals and groups for their leadership roles in protecting Wisconsin's lakes. Nominees for the individual award were: Dolly Burr (Tilleda Pond), Allen Erickson (Mudhen Lake District), Frank Hoffman (Beulah Lake), Jim Leicht (Lake Neshonoc P&R District), George Wood (Blue Spring Lake), and George Wundsam (Silver Lake Sportsman's Club). Nominees for the group award were: Lake Holcombe Improvement Association and Lake Holcombe FFA, and the Park Lake Management District, Columbia County. Nominated for the Public Service Award was Tom Wilson of the University Extension in Waupaca County.



Working together in natural resources is like a jigsaw puzzle—everyone needs to bring their pieces to the table. All but 90 of the 1000 pieces came back!

Blastomycosis: How Big A Threat?

The recent death of former Menominee Tribal Chair Glen Miller and two others this year from blastomycosis has caused anxiety for many waterfront property owners. Residents near Clintonville, where two women died early this year, as well as homeowners near Ward Pond in Merrill have voiced concern at recent lake meetings.

The fungus that causes this disease tends to live in moist soils with a high organic material content and an acid pH; i.e., near waterways. Its spores are released by ground disturbance and can be inhaled into the lungs where they convert to a yeast that causes flu-like or pneumonia symptoms that don't go away. Another symptom is skin lesions that don't heal. The incubation period for blastomycosis varies from 15 to 90 days.

According to Kurt Reed, Director of Microbiology at Marshfield Clinics, people should not be overly concerned. Although blastomycosis can be fatal, it is relatively uncommon among humans. Says Reed, "People with underlying health problems are more at risk, and Wisconsin physicians are very aware of the problem of blastomycosis. This leads to early diagnosis and treatment with new antibiotics that are more tolerable." He does not recommend that people avoid their usual outdoor activities, but should be aware that this problem exists and seek treatment if symptoms persist.

Lake Fairs

In just a few years, Lake Fairs have become a significant part of the educational programming for lake organizations around the Dairy State. This summer promises another round of water learning, discovery and entertainment. Lake fairs also present an opportunity for lake organizations to offer information while building relationships with other groups in an area. Getting experts and specialists to attend local meetings is becoming more difficult as demand on their time increases, but many times their expertise can be shared at local educational events like Lake Fairs. Find out where Lake Fairs and education events are being held this summer and encourage your group to participate. Hold your annual meeting at your area Lake Fair. If we want to assure there are clean, healthy lakes in our future we need to pitch in and work together!

Summer Lake Fair Schedule

June 17: **Third Annual Northwestern Wisconsin**, Forts Folles Avoine, Webster. John Preissing, UWEX-Burnett County (715-349-2151)

June 17: **Lake Ripley**, Lake Ripley Park, Cambridge. Ron Kroner, Priority Watershed (608-423-4537)

July 8: **Northwoods**, Lake Metonga City Beach, Crandon. Sheila Landsverk, UWEX-Forest County (715-478-2212)

August 5: **Polk County**, North Park on the Apple River, Amery. Pat Schmidt, Balsam Branch Priority Watershed (715-485-3725)

Take the Lake Leap!

The Madison Children's Museum's "Leap into Lakes" exhibit is receiving high praise from visitors across the state. This hands-on lakes display for pre-school through fifth grade children infuses art, culture, science and history for a fun and creative approach to learning about lake ecosystems.

Both youth and adult visitors to the "Leap into Lakes" exhibit are intrigued by the 9 ft., 80 lb. bluegill painted in detail inside and out. The bluegill model, made to "swallow" children, was chosen for the exhibit by area elementary children because bluegills are found in almost all of the area lakes. Other subjects of the

lakes exhibit include: glacier formation; secchi disks and water clarity; a *Daphnia* display; magnetic fishing display; and an "EcoCruiser" computer game.

There is also an excellent set of curricular activities to complement the exhibit's various components and help teachers integrate lake concepts into their classroom activities. For more information on the exhibit, contact the Madison Children's Museum, 608/256-6445.



Wild and Wet at Green Bay's Neville Museum

After nearly three years of planning and construction, the long-awaited WILD & WET exhibit at Green Bay's Neville Public Museum opened in January 1994. Over 100,000 people have visited the WILD & WET exhibit which has already distinguished itself with two awards for excellence: the Mayor's Award for a Cleaner, More Beautiful Green Bay and a Clean Bay Backer Award.

The 3,000 square foot exhibit which looks at different aspects of water usage and conservation is the largest and most complex ever developed by the Neville Museum. The exhibit emphasizes the importance of water and carries visitors along through various phases, ranging from: The Watery Planet; The Water Cycle; Water: The Dry Facts; Life: Brought to you by Water; and This Land is Our Land: Rural Uses of Water, among others.

There's something for everyone at the Neville WILD & WET exhibit—get ready for original videos, polarized light displays, a cut-away toilet and sink, a walk-through 7 foot sewer, a life-size fiberglass model of a Holstein Cow,

historical photographs, a large, single-lens microscope to see the tiny life forms which live in a drop of water, a pinball game to show how water can be conserved, interactive computers, and hundreds of other fun, educational displays.

According to Jill Weismann, Communications & Education Coordinator for the Green Bay Metropolitan Sewerage District (GBMSD), school and youth groups have particularly enjoyed the WILD & WET exhibit. Many of the teachers have infused the water concepts and issues addressed through the exhibit into their school curriculum.

While the target audience for the WILD & WET exhibit is children in grades four to six, everyone can have a great experience learning about water issues. While in the area you can also visit the Environmental Education Center (EEC) located at the Green Bay Metropolitan Boat Launch west of the GBMSD. The WILD & WET exhibit will continue until January, 1996. Contact the Neville Public Museum of Brown County at 414/448-4460 for more information.

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Birdfoot's Grandpa
Joseph Bruchac

The old man must have stopped our car two dozen times to climb out and gather into his hands the small toads blinded by our lights and leaping, live drops of rain.

The rain was falling, a mist around his white hair and I kept saying you can't save them all, accept it, get back in we've got places to go.

But, leathery hands full of wet brown life,
knee deep in the summer roadside grass,
he just smiled and said

they have places to go too.

[from Hobson, G. (ed.), 1979.
The Remembered Earth.]

