

A Newsletter for People
Interested in Wisconsin's
Inland Lakes



Lake Tides

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WLEX COOPERATIVE EXTENSION PROGRAMS
UNIVERSITY OF WISCONSIN—EXTENSION

UNIVERSITY OF WISCONSIN • U.S. DEPARTMENT OF AGRICULTURE • WISCONSIN COUNTIES COOPERATING

In the Wake of a Loon - an Editorial

On January 13, 1976 the United States Environmental Protection Agency (EPA) announced the first series of lake protection and restoration grants under the Clean Lakes provision (Section 314) of Public Law 92-500. Eleven grants were made to lake communities totaling about \$2 million. Wisconsin did very well as *The Milwaukee Journal* (Jan. 16th) noted in the following editorial:

Lakes Program Pays Off

The wisdom of Wisconsin in enacting an inland lakes rehabilitation program in 1974 is paying off already in federal funds. Under the pioneering Wisconsin program, residents around lakes with water quality problems can form lake restoration districts, tax themselves to help clean up the lakes and win financial aid from the state.

Now federal aid is on the way,

The Wisconsin Legislature should be proud that they provided the necessary legal and fiscal structure for the lake management program when they enacted Chapter 33

too. The Environmental Protection Agency has announced the first grants to states under a new federal program to help clean up polluted lakes. Wisconsin got 4 of the first 11 grants, and got nearly half of the federal funds allocated so far. This is just what advocates of the Wisconsin program had predicted when they pleaded for its enactment. It's nice to see things work out so well.

of the Wisconsin Statutes and provided state matching funds. The Upper Great Lakes Regional Commission can take credit for funding the far-reaching research on lake management by the Department of Natural Resources and University of Wisconsin—Extension, which led to the legislation. The Office of Inland Lake Renewal (DNR) has to be pleased that the applications which they prepared were so successful in the national competition.

Our final congratulations go to the four lake districts because in the end, it will be up to the local lake districts to implement the projects and carry on long-term management. The *White Clay Lake District* (Shawano County) will attempt to protect their lake with structural devices and agricultural practices designed to prevent nutrients and soils from reaching the lake. The



Lilly Lake District (Kenosha County) expects to undertake a major dredging project with substantial investment of their own funds to match state and federal funds. The Half Moon Lake District in the City of Eau Claire and the Mirror/Shadow Lakes District in the City of Waupaca will divert storm sewers away from their lakes.

We wish these districts well and hope that other districts now undertaking their feasibility studies can maintain Wisconsin's leadership position in the competition for \$15 million to be awarded by EPA in the coming year.

Sincerely,

Lowell L. Klessig &
Lake Management Specialists

Robert J. Sterrett



RUMBLINGS IN THE ROTUNDA

Assembly Bill 1175, which would amend Wisconsin's Lake Management Law, has been reported out of the Assembly Natural Resources Committee on a 12-0 vote. However, several legislators expressed concern about eliminating the ability of town boards to create lake districts. To answer that concern and several other minor issues, Substitute Amendment 1 to A.B. 1175 was introduced with strong bi-partisan support. On Feb. 27 it passed the Assembly on a vote of 94-0.

Substitute Amendment 1 would:

1. Allow town boards to continue to create lake districts but provides that districts formed and governed by town boards could later adopt an elective system of commissioners.
2. Defines property owner for purposes of petitioning and notice.
3. Permits the use of special assessments to finance regular activities of the district. (Currently special assessments can be used only for big projects. Regular activities must be financed by a general property tax which cannot vary according to benefit received. For example, under this amendment a lake district could operate a weed cutter and assess riparain property owners who received more benefit at a higher rate than farmers who might get little benefit from the weed harvesting.)

In addition, Substitute Amendment 1 would retain the following provisions of the original A.B. 1175:

1. Allow nonresident property owners to serve on the lake district commission.
2. Increase the emphasis on lake protection in the law itself.
3. Allow a city or village or sanitary district to petition the county board for the property owners within the city or village or sanitary district rather than require individual signatures on petitions in those areas.

4. Allow a district to substitute two newspaper notices of the annual meeting for the written notice to electors residing within the district.
5. Allow the annual meeting to compensate the commissioners if they choose to.
6. Allow lake districts to assume sanitary district powers if the annual meeting votes to request such powers and the town board confers such powers to the lake district. (This would eliminate the duplication of a sanitary district and a lake district for lake communities which wanted both types of services.)

The greatest obstacle to the passage of A.B. 1175 (Substitute Amendment 1) will be time. The bill must be passed without amendment in the Senate before the scheduled adjournment.



WATER RESOURCES MANAGEMENT CAMP

This summer, the University of Wisconsin—Superior, in cooperation with UW—Extension, is again sponsoring a Water Resources Management Camp in Superior, Wisconsin, August 22nd through the 28th. This camp is for both the interested citizens and professional person. Water pollution, ecosystem biology, ground water, and other topics will be covered. Classroom lectures and laboratory sessions will be combined with field work in order to give participants a practical approach to water management. Previous college work is not necessary, only a keen interest in water resources management is required. For further information write the Environmental Resources Unit, University of Wisconsin—Extension, 1815 University Avenue, Madison, WI 53706, or call (608) 272-0020.



Erratum Corner

In Lake Tides, Vol. 1, No. 2 (Nov. 1975) we discussed the taxing powers of lake districts. We stated that "both the general property tax and special assessments are based on benefit to the property and not solely on the evaluation of the property."

We have been advised by several attorneys that Article VIII of the Wisconsin Constitution requires that general property taxes must be based on a uniform mill rate throughout the governmental unit (lake district in this case).

Therefore, it appears that the special assessments procedure must be used if the district wants to use a differential tax assessment based on the benefit the property received from the activity. A new provision in A.B. 1175 (Substitute Amendment 1) would permit greater flexibility in using the special assessment procedure.

Lake District Commissioners Alert

Lake commissioners have a major public responsibility. While all elected officials face obstacles in meeting their responsibilities, lake commissioners face some special problems. Many commissioners have not previously served as public officials and have never before applied their skills and experiences to the operation of a unit of government. In addition, lake districts are new units of government without traditions and established rules of procedure to guide the operation of the district.

To help commissioners deal with typical issues that will face them in the months and years ahead, a series of workshops will be held throughout the state. In order to assist commissioners in preparing for their annual meetings this summer, the workshops will be held in April as follows:

April 14	West Bend	April 21	Antigo
April 20	Waupaca	April 22	Rice Lake
	April 23	Whitehall	

The workshops will attempt to deal with very practical questions that arise in the operation of a lake district. The major topics of discussion will include:

I. Drafting Rules of Procedure (by-laws)

Utilizing Taxing Powers

III. Developing a Lake Management Scheme

IV. Records, Accounting, and Auditing

Lake leaders who hope to become commissioners of new or existing lake districts and local professionals who work with lake districts are also welcome. For more information, contact Lowell Klessig, 1815 University Avenue, Madison, WI 53706 (608/262-3634).



ECOLOGICAL NEWS NOTES: LAKE AERATION

A new technical bulletin on lake aeration has just been published by the Department of Natural Resources. Lake aeration is the process by which compressed air or pure oxygen is pumped into the lake.

The basic objective of most aeration projects is to improve dissolved oxygen conditions for fishery or for water quality management purposes. Basically, there are two main types of aerators. One kind is a *total aerator*. This type of aerator lifts the cold bottom waters of a lake to the surface. The entire lake can be circulated aerated from a single site (depending on the size of the lake). The result is that the entire lake attains the same temperature and waters are enriched with oxygen by mixing.

The uniform temperature can be a disadvantage of total aeration. This is a serious problem during the summer. Destratification, a condition under which warm water near the surface is mixed with cold water beneath, can completely eliminate habitat for cold water fish such as trout. Total aeration also keeps the lake from freezing in the winter. This can be a safety hazard.

The second type of aerator is a *bottom water or hypolimnetic aerator*. Generally, it is the bottom waters of a lake that become devoid of oxygen—this is one reason for only aerating the bottom waters.

The DNR technical bulletin number 87: "Aeration as a Lake Management Technique," by S. A. Smith, D. R. Knauer, and T. L. Wirth, provides great detail on the use of a hypolimnetic aerator as a technique for lake restoration. To successfully evaluate hypolimnetic aeration, aerators were installed in two eutrophic lakes in central Wisconsin. One site was Mirror Lake in the City of Waupaca and the other was Larson Lake in Lincoln County.

The authors systematically investigated the effects of aeration, not only on the dissolved oxygen in the lakes, but also on nitrogen, phosphorus, and other chemical constituents.

They conclude that lake aeration, either hypolimnetic or total is a valuable lake restoration technique. Aeration is an effective means of improving dissolved oxygen conditions. In addition, aeration can lead to improved water quality by eliminating certain noxious chemicals such as ferrous iron, manganese, ammonia, and hydrogen sulfide. While aeration has little direct effect on the quantity of aquatic nuisances such as rooted macrophytes (aquatic weeds) or algae, the circulation patterns developed by a total aeration system may be useful in eliminating nuisance algal blooms or causing a shift to more desirable algal species.

However, aeration is not a panacea or cure-all for lake problems. Before a lake community invests in an aeration system, the following information should be obtained:

1. When (what season) does the dissolved oxygen content drop below acceptable levels?
2. How much of the lake experiences low oxygen conditions?
3. How long do low oxygen conditions last?
4. How frequent are low oxygen conditions?
5. How predictable are low oxygen conditions?
6. What other benefits can be expected from aeration?
7. What specific objectives should the aeration system meet?
8. How large of an aeration system is necessary to meet the objectives?

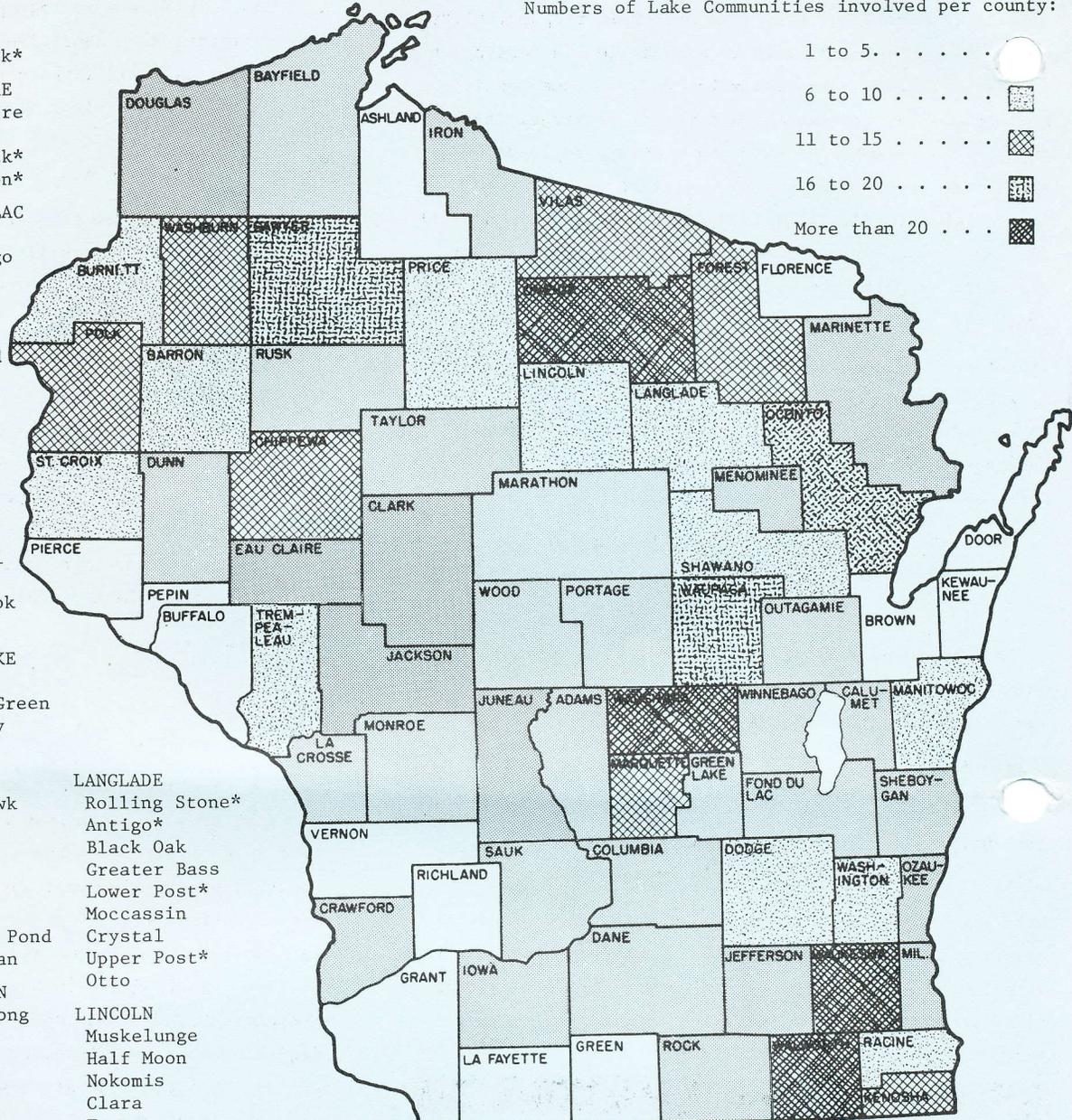
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LAKE COMMUNITIES WHICH HAVE HELD LOCAL EDUCATIONAL MEETINGS
OR

SENT REPRESENTATIVES TO REGIONAL CONFERENCES ON WISCONSIN'S NEW LAKE MANAGEMENT PROGRAM

Numbers of Lake Communities involved per county:

- ADAMS
- Big Roche-a-Cri
- Mason
- Castle Rock
- Sherwood
- BARRON
- Dallas
- Chetek
- Horseshoe
- Rice Lake
- Staples*
- Beaver Dam
- BAYFIELD
- Cable
- Eau Claire
- McCarry
- Tahkodah
- BURNETT
- Clam*
- Round
- Trade
- Yellow
- Birch
- Fish
- Wood
- Spirit
- Holmes
- CALUMET
- Winnebago
- CHIPPEWA
- Chapman
- Round
- Hallie
- Tilden
- Chain*
- Holcombe
- Long*
- Pine
- Otter
- Como
- Wissota
- Sampson
- Ax Handle
- CLARK
- Owen*
- Rock Dam
- Mead
- COLUMBIA
- Wyocena
- Long
- Park
- Swan
- Lazy
- CRAWFORD
- Gremore*
- DANE
- Mendota
- Monona
- Kegonsa
- Waubesa
- Fish
- DODGE
- Fox
- Sinissippi
- Collins
- Beaver Dam
- Rubicon
- Emily
- Rock
- DUNN
- Elk Creek*
- EAU CLAIRE
- Eau Claire
- Altoona*
- Elk Creek*
- Half Moon*
- FOND DU LAC
- Forest
- Winnebago
- Wolf
- Bernice
- FOREST
- Hardwood
- Long
- Lucerne
- Pine*
- Popple
- Trump
- Metonga
- Roberts
- Berry
- Windfall
- Silver
- Bog Brook
- GREEN LAKE
- Green
- Little Green
- Puckaway
- Grand
- IOWA
- Blackhawk
- Avoca
- IRON
- Lavina
- JACKSON
- Melrose Pond
- Merrillan
- JEFFERSON
- Koshkonong
- Ripley
- Rock
- Rome
- Spring
- JUNEAU
- Decorah*
- KENOSHA
- Camp
- Center
- Lilly*
- Powers
- Silver
- Gardens
- George*
- Hooker
- Shangrila
- Paddock*
- Cross
- Rock
- Twin*
- LA CROSSE
- Neshonoc
- Onalaska*
- DOUGLAS
- Amnicon
- Nebagaman



- LANGLADE
- Rolling Stone*
- Antigo*
- Black Oak
- Greater Bass
- Lower Post*
- Moccassin
- Crystal
- Upper Post*
- Otto
- LINCOLN
- Muskelunge
- Half Moon
- Nokomis
- Clara
- Tug
- Clear
- Bridge
- Soma
- MANITOWOC
- English
- Pigeon
- Horseshoe
- Wilke
- Cedar*
- Green
- Long
- MARATHON
- Lilly*
- Mayflower*
- Pike
- MARINETTE
- Noquebay*
- Newton
- Thunder
- Mountain

- MARQUETTE
- Buffalo
- Emerald
- Harrisville
- Kilby
- Lawrence
- Mason
- Oxford
- Montello
- Williams
- White
- Wood
- Tuttle
- Crystal
- MENOMINEE
- Legend
- LaMotte
- MILWAUKEE
- Kelly
- MONROE
- Tomah*
- Perch*
- Angelo
- Cataract
- OCONTO
- Chute
- Townsend
- Kelly
- Boulder
- White Potato
- Waubee
- Archibald
- Rost
- Green
- Anderson
- Bass
- Reservoir*
- Chain
- Maiden
- Leigh
- Inland
- Berry
- ONEIDA
- Bear*
- Post
- Katherine
- Tomahawk
- Town Line
- Thompson
- Emma
- Pelican
- Two Sisters
- Horsehead*
- Mid Lake*
- Crescent
- Upper Kaubashine
- Big Ford
- Nokomis
- North Two
- Minocqua
- Range
- Green Bass
- Fawn
- George
- Upper Post*
- OUTAGAMIE
- Black Otter
- OZAUKEE
- Church
- POLK
- Little Butternut
- Pipe
- White Ash
- Apple River*
- Long
- Balsam*
- Deer
- Half Moon*
- Wapogasset
- Bone
- Dwight
- Cedar*
- Largon*
- Round
- Bear Trap

*Have formed Official Lake District

PORTAGE
Helen*
Jacklin
Rhinehart
Tree
E
Butternut-Schnur
Solberg
Big Dardis
Long
Wilson
Sioux

RACINE
Bohners
Tichigan
Tri Lakes
Eagle
Wind
Browns

ROCK
Leota*
Koshkonong

RUSK
Island*
McCann*
Chain*
Clear*

ST. CROIX
Upper Willow*
Squaw
Cedar*
Mallalieu
Mary & George
Pine

SAUK
Stone
Wisconsin
Dutch Hollow

SAWYER
Grindstone
Lac Courte Oreilles
Round
Birchwood
Whitefish
Lost Land
Teal
Spider
Clam
Moose
Ghost
Nelson
Bass
Sissabagama
Big Lake Chetac
Winter
Gridstone
Round

SHAWANO
Pleasant*
White Clay*
Loon
Four Cloverleaf
Kolpack
Big
Lilly

SHEBOYGAN
n
le Elkhart*
kandom
Crystal

TAYLOR
Rib
Sackett
Esadore
Kathryn
Spirit

TREMPEALEAU
Bugle*
Henry*
Marinuka*
Martha*
Round*
Second*
Strum
Third*
Trempealeau*

VILAS
Lac Vieux Desert
Little Arbor Vitae*
Little St. Germain
McDonald
Trout
Fence
Rose
Lost
Edith
Upper Gresham
Backatabon
Four
Kildare
Muskellunge

WALWORTH
Lorraine
Interlake
Farm
Pell
Tambeau
Benedict

WASHBURN
Spooner
Trego
Clover Leaf
Stone
Little Divide
Potato
Acorn
Chicog
Long
Gilmore
Nancy

WASHINGTON
Hartford*
Big Cedar*
Little Cedar*
Silver*
Bark
Green
Pike

WAUKESHA
Golden
Muskego
Keesus
Okauchee*
Nashotah
Nagawicka
Oconomowoc
Pine
Mukwonago
Pretty
Little Muskego*
Nemabin

WAUKESHA (cont.)
Big School Sect
Ashippun*
North
Silver
Denoon
Eagle Spring
Pewaukee
Waterville
Lower Nashotah

WAUPACA
Cary*
Manawa
Mirror*
Pigeon*
Shadow*
White
Waupaca
Bear
Chain O Lakes
Iola
Weywuega Pond
Big Falls Pond
Ogdensburg Pond
Pigeon Pond
Cary Millpond*
Gurholt
Partridge

WAUSHARA
Kusel*
Fish
White River
Witters
Silver
Pearl*
Hancock Fish
Mt. Morris*
Johns
Long
Pine
Lake Kristine
Hills
Gilbert
Pleasant
Big Hills
Wilson*
Kusel
North Lake Poygan
Auroraville
Irogami
Wild Rose*
Round *

WINNEBAGO
Rush
Winnebago
Brooks
Winneconne

WOOD
Wazeecha

*Have formed Official
Lake District

(Continued from page 3)

9. How much will it cost to purchase, operate and maintain the system?
 10. Who will operate the system?
 11. Who will pay for the operation of the system?
- One way to answer these questions is to conduct a feasibility study. Preliminary advice can be obtained from your local DNR office.

Aeration may or may not help your lake. Like all other lake management techniques, it should be investigated before valuable community funds are committed to it.



TWENTY-NINE NEW LAKE DISTRICTS
APPLY FOR STATE ASSISTANCE

One year ago in January, 1975, 20 lake districts were vanguard applicants for state assistance. An additional 12 districts applied by the end of the fiscal year on June 30th.

In the new fiscal year, 29 lake districts have applied for technical assistance by January 1, 1976. These lake districts are receiving technical assistance. They are being considered for financial assistance by the Office of Inland Lake Renewal in DNR which will be making cost sharing grants by April 1st for feasibility studies. The following is a list of the new districts which have applied:

LAKE	COUNTY
Apple River	Polk
Ashippun	Waukesha
Balsam	Polk
Bear Lake	Oneida
Cedar Lake	Manitowoc
Cedar Lake	Polk & St. Croix
Elk Creek Lake	Dunn & Eau Claire
George Lake	Kenosha
Half Moon	Polk
Honey Lake	Walworth
Island Chain of Lakes	Chippewa & Rusk
Lake Helen	Portage
Lake Leota	Rock
Lake Onalaska	LaCrosse
Lilly Lake	Marathon
Little Arbor Vitae	Vilas
Little Elkhart	Sheboygan
Long Lake	Chippewa
Mayflower Lake	Marathon
Mt. Morris Lake	Waushara
Okauchee Lake	Waukesha
Paddock	Kenosha
Pearl	Waushara
Pigeon Lake	Waupaca
Pine Lake	Forest
Rolling Stone	Langlade
Staples Lake	Barron
Upper Post Lake	Langlade & Oneida
Wild Rose	Waushara



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