

LAKE TIDES

The newsletter for people interested in Wisconsin lakes

Is it Your Land or Our Water?

Under the laws that governed the founding of our state and Wisconsin's Constitution navigable waters and title to the beds of natural lakes are reserved for the public. The line that separates public lake bed from adjacent public or private lands is called the ordinary high-water mark (OHWM). Its location affects not only title to lands and resulting property tax assessments but building setbacks and lot size determinations under local zoning ordinances and DNR permit jurisdiction for other waterfront construction. As waterfront property suitable for development has become scarce, bog lakes, swampy bays and marshy inlets have attracted attention as development sites. OHWM determination in these areas can be complex. Property owners who fail to recognize the importance of this "line in the sand" or who rely on inaccurate determinations can find themselves in violation of state water regulations or local building codes as well as subject to restrictions on expansion of a lakeside home.

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Our Public Waters Heritage – The Public Trust Doctrine

The State of Wisconsin is charged with the responsibility of protecting public waters for everyone's use and enjoyment. The basis for regulations to protect our public waters is the Public Trust Doctrine, a body of state constitutional, statutory, administrative and common law. This body of law identifies the concept of the OHWM and provides the foundation for state waterway and wetland regulations and county shoreland zoning standards. Our public rights to fish, swim, boat, hunt and enjoy the natural scenic beauty of Wisconsin's waterways are all protected by the Public Trust Doctrine.

The Ordinary High-Water Mark

In 1914 in a case involving alleged trespass by a duck hunter on the Horicon Marsh, the Wisconsin Supreme Court defined the OHWM concept. The court determined that the duck hunter was not trespassing but simply exercising a public navigation right, provided the hunting was confined to locations below (waterward from) the OHWM. The court defined this point as "the point on the bank or shore where the presence and action of surface water is so continuous as to leave a distinct mark..." *Diana Shooting Club v. Husting* (1914). The marks are often at various elevations,

but the most permanent and prevalent marks constitute the OHWM. Dense vegetation, physical activity or human alterations can obscure the OHWM elevation at some shorelines. In these cases, physical indicators may need to be identified at another location on the water body and the elevation transferred to the desired site.



Ordinary high water mark determinations can be complex.

The OHWM marks the extent of public water. It may seem like common sense to simply say the OHWM is at the edge of open water, but we know that water levels change. Cattail marshes, floating bogs and other types of vegetation commonly extend into waterways well beyond the OHWM. The Wisconsin Supreme Court has ruled that the land between the water's edge and the



**Wisconsin Lakes
Partnership**

The vast majority of OHWM determinations are relatively straightforward, and can be easily and correctly identified by finding the distinct marks which show the regular action of water against the bank.

OHWM need not be navigable to be held in the public trust. “If the land is part of a navigable lake, then the fact that the specific area cannot be navigated is irrelevant...lakebed may be heavily vegetated by plants rising far above the water.” *State of Wisconsin v. Trudeau* (1987).

Many of us in the Northwoods have walked on a floating bog. It’s like stepping on a waterbed and you can poke your walking stick or canoe paddle through the mat of vegetation to find water below. Taking away the aquatic or wetland vegetation would leave you standing or floating in the water, clearly on the bed of the adjacent lake, river or stream. In other cases the bed of a waterway beneath the vegetation is much drier.

How are OHWM determinations made?

Only a small number of properties have shoreline features that make OHWM determination difficult.

Determining the OHWM elevation along a shoreline with a wetland fringe may be complicated and may require the consideration of many factors including lake mechanics and wave energy, wetland evolution and function, soil types and water level history. The good news is that a minority of properties have shoreline features that make for a difficult OHWM determination. The vast majority of OHWM determinations are relatively straightforward, and can be easily and correctly identified by finding the distinct marks which show the regular action of water against the bank. Local county zoning staff make many OHWM determinations, including those that involve wetland-fringed lake shores. For the relatively small number of complex settings which involve a more difficult and technical determination, county staff may call on DNR water management specialists to provide assistance in an official determination of the OHWM.



The OHWM marks the boundary between private and public property.

When do I need to know the location of the OHWM?

If you plan to construct a house or build an addition at your waterfront property, you’ll need to know where the OHWM is located so you can plan to meet required building setbacks. County shoreland zoning ordinances typically authorize zoning department staff to determine the OHWM in the course of reviewing property for building, sanitary, and land use permits. DNR water management specialists make OHWM determinations when reviewing applications for state waterway and wetland permits or when determining if a state permit is needed. DNR provides assistance to county zoning

staff when requested and provides training to local county zoning staff to ensure accurate and consistent determinations.

What rights does the public have below the OHWM?

Our public waters belong to everyone, and any member of the public can use them provided they stay in the water and do not trespass on private property. When water levels are low, the adjacent landowner has the exclusive right to use the exposed lakebed, so a good rule of thumb is to “keep your feet wet”. Of course access to public waters must be obtained legally, for example through public lands, a boat landing or a public highway. If the property surrounding a landlocked lake is held by private owners, then access to the lake must be gained by obtaining the landowner’s consent or by flying into the lake with a seaplane or similar craft.

In 1974, the Supreme Court stated “A riparian owner has a qualified right to the land between the actual water level and the ordinary high-water mark; he may exclude the public therefrom, but may not interfere with the rights of the public for navigation

Catabrosa aquatica



Lake Tides 27(1)

purposes.” *State v. Mcfarren* (1974). This means the public cannot use exposed lakebed or wetlands below the OHWM without the waterfront owner’s permission, unless actually navigating in the water or portaging an obstruction.

What can I do if I’m paying property tax on lakebed?

The state holds in trust the beds under natural navigable lakes or all of the area below the OHWM elevation. Ownership of the beds of flowages varies with circumstances, but public rights in the water remain regardless of who owns the lakebed. The beds of all rivers and streams are owned by the adjacent riparian landowner to the center or thread of the stream.

A significant amount of Wisconsin case law has been developed relating to the ownership of lakebeds. Lakebed ownership issues can arise when lakefront properties are sold or subdivided and resurveyed. Historically, many riparian property surveys followed the water’s edge, not the OHWM. While a number of local governments now require surveys to identify the OHWM, not all do, and even some recent surveys may show property boundaries following the water’s edge rather than the OHWM. Where an identified OHWM differs from the survey or deed,

property owners are encouraged to bring the discrepancy to the attention of their assessor and discuss an adjustment of their land assessment.



The Public Trust Doctrine protects the public's right to fish in Wisconsin waters.

Where do I get more information?

More information on water law is available from the DNR’s website at <http://www.dnr.state.wi.us/org/water/fhp/waterway/index.htm>. You can also contact Liesa Nesta at (608)266-2997 or Dale Lang at (715)365-8926 for statewide waterway issues.

By Liesa Nesta, Statewide Waterway/Wetland Policy Coordinator, WDNR and Dale Lang, Regional Aquatic Habitat Protection Coordinator, WDNR. Contributions from Michael Dresen, Director, Center for Land Use Education, UW-Extension, UW-Stevens Point.

Wisconsin Lake Stewardship Awards

The Wisconsin Lake Stewardship award recognizes individuals and groups whose outstanding contributions of time and effort have made a positive difference in the well-being of Wisconsin’s lakes. This year we will be adding youth and business leadership to the present categories of awards. Winners of this prestigious award will join a distinguished group of lake leaders that have made their mark on Wisconsin lakes. Please include the following items with your nomination:

- Letter of recommendation from the sponsor.
- Three letters of support from individuals representing varied interests.
- Supporting information in the form of letters, newspaper articles and other materials that support the nomination.

Winners of the Lake Stewardship award are evaluated based on the following criteria:

- Participation in a diverse range of activities.
- Demonstration of benefits to a lake or lakes and a willingness to share skills and information.
- A commitment to developing relationships and teaching others about lake stewardship.

Submit your nominations to UWEX-Lakes, 1900 Franklin St., College of Natural Resources, UW-Stevens Point, Stevens Point, WI 54481 by February 15, 2002.



Biocomplexity and Lake Stewardship

Most owners still do not realize that wood removal may be one of the biggest factors in declining fishing success.

Have you ever played the string game, Cat's Cradle? Using a simple loop of string stretched between hands and wound around fingers, you can form string figures of great complexity and unpredictable patterns. But one slip of a pinky here or a thumb there and the intricate design fails. Ecosystems, and especially lake-forest ecosystems in which humans are so intimately involved, always remind me of a Cat's Cradle. Humans love to be near water but we may have more impact than we know and some of the strings may be slipping from our fingers.

Researchers at the University of Wisconsin-Madison are hoping to gauge the stability of



Rusty crayfish are the bad boys of the lake bottom.

our northern forest/lake ecosystems and how vulnerable they are to human influence. Their ambitious project, "Biocomplexity and Divergent Dynamics: Complex Interaction of Riparian Land, People and Lakes" is in its second year of funding from the National Science Foundation. The field work is driven by computer models of lake processes, and one goal of the field work is to find out whether the models are correct. This project focuses on two issues: the interactions of fish and submersed wood and the interactions between fish, crayfish and macrophytes or lake weeds. In order to explore these interactions and relationships, researchers are conducting a cross-lake comparison and two whole-lake experiments.

The research is being conducted near the University of Wisconsin's Trout Lake Station in Boulder Junction. In the cross-lake

comparison, up to fifty lakes will be grouped into four combinations of high or low nutrient levels and high or low human development. On the fourteen lakes examined so far, investigators have begun to look at all of the players involved in these interactions: fish species, population numbers and age structures; macrophyte species and density; shoreline vegetation including private property (where permitted); fallen trees; crayfish; angler habits; and lakeshore homeowners' attitudes and activities.

One key research area is the relationship between fish and fallen trees and the homeowner's tendency to remove the wood

from the shore. Earlier studies indicated that submersed logs in lakes are critical for healthy fish communities. Anglers living and fishing on a lake may know that the best fishing is near fallen trees; yet most will still go home to their lake property and tidy up their shorelines by removing "messy" logs that have fallen into the water. In addition, homeowners will often clear the forest near the shore so that no more timber will ever have the opportunity to fall into the lake. Most owners still do not

realize that wood removal may be one of the biggest factors in declining fishing success. Researchers hope to learn more about how homeowners and lake associations figure into the fish-submersed wood connection in the cross-lake analysis.

In order to further test the importance of fallen trees for fish, all of the submersed wood will be removed from half of Little Rock Lake where a plastic split from another experiment had already divided the lake in half. Woody habitat will be added to Spruce Lake, a lake with little natural submersed wood. Researchers are testing whether they will see decreases in fish numbers and gaps in the age structure, such as fewer young fish, in the wood-free lake and a flourishing fish community where wood is added.

Another aspect of the project recognizes that exotic species have invaded many lakes, usually with human help, often destroying native communities. Rusty crayfish are the



lake's bad boys of the bottom. First, rusties out-compete and eventually eliminate our native crayfish. Second, unlike our native crayfish, rusty crayfish can become too big to be eaten by fish predators. Third, rusty crayfish eat fish eggs. Fourth, and probably most important to the ecosystem, rusties are the lawnmowers of the lake bottom, clipping and denuding even the weediest lakebed and devastating a lake's fishery by eliminating the fish habitat provided by the macrophytes. Like the rusty crayfish, the smelt is another marauding invader. This fish is also here courtesy of humans and effectively out-competes and replaces the native perch fishery within a few years of its introduction.

If large rusties and most of the smelt could be removed, the aquatic plant beds and native fish might return and be able to hold their own. In an audacious plan, investigators will test this idea by removing as many of the rusty crayfish and smelt as they can from Sparkling Lake. They will accomplish this by catching crayfish directly in crayfish traps,

and indirectly by changing the crayfish-eating fish population by reducing bag limits, increasing size limits, stocking and encouraging catch and release. Smelt will be captured with nets set at depths already determined to be prime smelt hang outs, hopefully allowing a return of the native fish communities.

Many lakes are in trouble, and this is at least partly due to unwitting human activity resulting in too many rusty crayfish and smelt and too few submersed logs. The results of this study will tell us whether all lakes are equally vulnerable to human activities and whether there is hope of recovery for lakes with profoundly altered communities. This project is grand in scope and will undoubtedly be rich in surprises. Perhaps one day we will feel confident in our roles as lake stewards and string holders playing Cat's Cradle.

*By Susan Knight, Trout Lake Station, UW-Madison
Center for Limnology and Wisconsin DNR*

Calla palustris

Adopt - A - Lake

Adopt-A-Lake Activity Manual

The Adopt-A-Lake program prides itself in assisting communities develop a personalized lake project for youth and adults.

Each of the 15,000 lakes in Wisconsin is unique. The physical, chemical and biological characteristics help determine the "personality" of every lake in the community. Lakes are very important to tourism and the economy in general in Wisconsin. In fact, two out of three Wisconsin residents visit lakes every year.

Before undertaking any lake study, your group could first determine the long and short-term goals of your project. The Adopt-a Lake activity manual is a helpful resource to assist any stage of your adoption. This manual is divided into 3 major parts: visual surveys, physical/chemical monitoring and biological investigations. Lessons, worksheets and other helpful resources give your program additional support. This manual is available at no charge for the serious Adopt-A-Lake participant.

Call Laura Felda at 715-346-3366 or email lfelda@uwsp.edu to order your activity manual today!

Good News for Adopt-A-Lake Programs!

For eight years the Adopt-A-Lake (AAL) program has been storing annual activity reports for all projects across the state. Only the coordinator could search for similar AAL projects or communicate with youth from one part of the state or another! Well, AAL is now out of the dark and on the web. Thanks to Jim Glodosky, Webmaster at the Wisconsin Lake Partnership, AAL is now able to store past information, collect new information, and display lake data graphs. More importantly, you will now be in charge of your own site.

This is what you need to do... Log on to the Internet and find us at: www.uwsp.edu/cnr/uwexplakes/youthprograms. Select Adopt-A-Lake program, then program registration. Create your own password, enter your information and submit. You will receive an immediate email response detailing the information you submitted and within two days, your information will be posted on the web site. To check, return to the AAL home page, select Projects and click on your county. You may add or delete information at any time. Remember the annual summaries are an important component to keeping active in the program. Now is a great time to share and receive statewide recognition for all your efforts!



How's the Water? Recreation on Wisconsin Lakes

Wisconsin Lakes Convention

**March 7-9, 2002
Green Bay, Regency Suites**



2002 marks the twenty-fourth anniversary of the Wisconsin Lakes Convention. The oldest and largest state lakes conference in the nation has a new look and a new location. As always the convention will cover topics ranging from aquatic plants to zoning, but the theme of this noteworthy event will revolve around finding solutions to the challenges associated with the increasing pressure to recreate on Wisconsin waters.

The oldest and largest state lakes conference in the nation has a new look and a new location.

The convention is a wonderful opportunity for you to expand your knowledge and share your experiences on lake issues with some of the nation's leading authorities. Representatives and experts from across the nation will be gathering in Green Bay for a thorough airing of some of the most critical topics. These individuals come from major recreational water user groups, the boating and personal watercraft industry, tournament fishing, academia, state government, and various agencies. The Convention will give us an opportunity to clarify issues, look at new technologies in personal watercraft and boating, look for common ground, and find solutions to the challenges arising from the spiraling demand for recreation on and near the water.

We encourage you to seek out and invite a person or an organization whose idea of what is fun on the water may differ from yours. Invite them to join us in Green Bay to discuss the philosophies we have in common as well as the points on which we differ. We would also like to invite enthusiasts of all water sports and members of environmental groups and lake organizations to join us in March. We can learn from each other and work together to provide ways for all of us to enjoy our lakes and to protect them, while having a safe and gratifying recreational experience. If you are new to the lake or a seasoned lake lover, this is a great occasion for you and your lake organization to learn and share much in a short period of time. It is a great time to answer your questions about lake management, meet new friends and catch up with old ones. If you want to help find solutions to make your time on the lake more enjoyable this convention is a must!

Things to do in Green Bay Come to the convention early and stay late! The Regency Suites features large and luxurious suites and superb dining. The KI Convention Center is the newest in the state, and within walking distance of the Neville Public Museum, shopping and restaurants. Visit the renowned Weidner Center for a play or the Green Bay Packer Hall of Fame.

Lodging Information **KI Convention Center/Regency Suites**, 333 Main Street, Green Bay, WI 54301 (800)236-3330 or (920)432-4555. Room price includes full breakfast and two hours of complementary beverages in the evening. Other nearby hotels include **Holiday Inn-City Centre**, 200 Main Street, Green Bay (920)437-5900. *Please refer to the Wisconsin Lakes Convention when reserving your room.*



How's the Water? Recreation on Wisconsin Lakes

Thursday, March 7, 2002

The pre-conference workshop will explore the issues, solutions and future of recreational use in Wisconsin and on the nation's waters. A host of great presenters from across the nation, representing advocacy groups, the water recreation industry and government agencies will join us to answer questions and explore solutions to the growing demand for recreational use on our lakes. The workshop will provide a unique opportunity for you to increase your understanding of how to deal with various recreational issues such as personal watercraft, water toys, boating, tournament fishing, light and noise pollution and limiting conflict on the water. Join us and bring your neighbors to start off 2002!

8:00-9:00 Registration

9:00-11:45 **Opening remarks**

Water recreation and invasive species in Wisconsin

Lieutenant Governor Margaret Farrow (invited)

Boating trends and the future of boating in Wisconsin

John Lacenski, Boating Law Administrator, WDNR

The national boating industry and the future of boating

Mick Blackistone, National Marine Manufacturers Association

The technology and future of two stroke and four stroke out board engines

Representative of Mercury Marine

The implications of changes in the law of navigable waters

Roger Walsh, President Elect, WAL

12:00-1:00 Lunch

1:00-4:30 **Water toys: issues and trends**

Norm Mears, CEO, RAVE Products

The technology, the issues and the future of personal watercraft

Representative from the Personal Water Craft Industry Association

Trends in noise pollution

Les Bloomberg, Director, The Noise Pollution Clearing House, Montpelier, VT

The impact of boat wakes and prop wash on bottom sediments

Dr. David Hill, Penn State

Panel discussion

4:30-5:30 Pre-conference Registration

NEW for 2002 –Evening Workshops and Art Show

Thursday, 7:00 p.m.

The Convention is expanding. This year you will be able to participate in some fascinating and informative workshops. Work with experts and learn more about building wooden boats and kayaks, fly fishing, photography, rock hounding, aqua scope construction and much more. There is no extra fee and you do not need to pre-register.

Join us at our first art show! "Lake beauty" is the theme at the Lakes Convention Art Show. Share your photos and artwork at the convention. For more information and to register, contact JoEllen Seiser at wal@coredcs.com or 715/342-8020.

Friday, March 8, 2002

7:30-9:00 Registration – Check in

8:00-9:00 Exhibit hall opens

9:00-11:30 **Plenary session**

How's The Water - A multi-media 35mm slide presentation

Initiatives in aquatic plant management

Learn about significant legislative changes, new rule development, and aquatic plant management in Wisconsin.

Tourism and Wisconsin waters

Richard "Moose" Speros, Secretary, Department of Tourism

Panel discussion. Wisconsin legislators and industry representatives discuss and answer your questions on key issues relating to Wisconsin lakes and the future of water recreation in Wisconsin.

Future of water recreation

Bill Geist, nationally recognized futurist

11:30-1:30

Lake Stewardship Luncheon Awards Banquet

1:30-2:30

Workshop Stream #1 (8 concurrent sessions)

1:30-4:30

Chat tables and Poster Session

1:30-4:30

Workshop: **Aquatic plants at the root of a healthy lake eco-system**

3:30-4:30

Workshop Stream #2 (9 concurrent sessions)

5:00-7:00

Exhibitors Reception

6:00-8:00

Special Sessions – **Purple loosestrife** workshop and **Everything you want to know about dissolved oxygen meters**

Saturday, March 9, 2002

6:40-7:00

Check in for WAL Annual Meeting

7:00-8:15

WAL Annual Meeting

8:30-9:30

Workshop Stream #3 (8 concurrent sessions)

10:00-11:00

Workshop Stream #4 (8 concurrent sessions)

11:15-12:30

Closing ceremony- food and refreshments

Workshop Streams

Aquatic ecology: In this stream experts will answer your questions on aquatic ecology. This is a bug's eye view of lakes, dragonflies, the importance of coarse woody debris in littoral zones and the ecology of fish management.

Laws and water: Ask questions and get answers from attorneys and others who specialize in water and conservancy law. Get updates on the latest developments in water law and insights on various lake issues. Look for discussions on water law, the public trust doctrine, conservation easements and the ordinary high water mark.

Nuts and bolts of lake management: This session will explore the day-to-day details of operating a lake organization. This is a chance to work with the pros and learn the finer points on running a lake organization effectively.

Shaping shoreland regulations: Wisconsin's shores have seen major changes over the past decade. In this stream we will explore the following topics: shoreland zoning, the science behind the rules, the meaning of nonconformity, using classification to establish more protective local shoreland zoning ordinances, and citizen participation in ordinance amendment initiatives.

How's the water? : Recreation on Wisconsin lakes: A continuation on the theme of the Convention, this stream will focus on the water recreation issues affecting our lakes and rivers. We will look at the impacts of shoreland lighting, the future of boating and personal watercraft in Wisconsin, water toys, tournament fishing, and future directions.

Invasive species in Wisconsin: Wisconsin waters are under increasing pressure from a host of exotic creatures. Join experts and legislators as we discuss ways to deal with these unwelcome critters and plants.

Show me the money: lake grants and management: Learn how to access state grant dollars and use them to preserve and protect your lake. This discussion addresses effective strategies for planning, protection and restoration. Find out which organizations are eligible, requirements for application, and proposed rule changes.

The business of lake management: Lake businesses from around the region share their expertise. A view from the private sector on grants and working with consultants.

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How's The Water? - Recreation On Wisconsin Lakes

24th Annual Wisconsin Lakes Convention, March 7, 8, 9, 2002

Green Bay



Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Daytime Telephone: _____ E-Mail: _____

I am representing (Lake) _____ County _____

My lake has sent a rep. to the Convention _____ times. I have personally attended _____ times.

Pre-Conference

Thursday, March 7, "How's the Water?" (includes materials & meals) \$45.00

Conference

Friday, March 8 (includes materials, meals and social)..... \$60.00

Saturday, March 9 (includes materials, meals and social)..... \$50.00

Full Conference (Friday, March 8 & Saturday, March 9)..... \$110.00

Pre-Conference & Conference (Thursday, Friday & Saturday)..... \$155.00

Vegetarian meal request

No separate meal tickets will be issued

Total _____

Workshop

Friday, March 8 (1:30 pm-4:30 pm, limit 25) Aquatic Plants at the Root of a Healthy Lake Eco-System.

A hands-on approach to aquatic plant identification. Take this unique opportunity to work with state experts and learn more about aquatic plant ecology and identification. Includes your aquatic plant collection kit.

(Must be Registered for Convention to Attend) \$30.00

Late Registration Fee (after February 25, 2002)..... \$10.00

No refunds issued after February 25, 2002

Program subject to change without prior notification

Total Registration Fee Enclosed _____
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Lodging information: KI Convention Center/Regency Suites, 333 Main Street, Green Bay, WI 54301 (800)236-3330 or (920)432-4555. Rates are: \$91 double occupancy (\$20 for each additional person up to a maximum of 6); \$101 king double occupancy (\$20 for each additional person up to a maximum of 6). Price includes full breakfast and 2 hours of complementary beverages in the evening. Please refer to the Wisconsin Lakes Convention when reserving your room.

Mail form and check payable to UW-Extension, to: UWEX-Lakes, 1900 Franklin St., CNR-UWSP, Stevens Point, WI 54481. Phone (715)346-2116, e-mail uwexlakes@uwsp.edu. Sorry - no telephone or credit card registrations accepted.

You will receive confirmation and additional information upon registering

The Relationship Between Public Lands and Your Property Taxes: The Case of County Forests

As shoreland owners review their annual property tax bills, they no doubt wonder what they are paying for and why they are paying so much. Lakefront property owners have been enjoying a steady appreciation in the value of their property, but at the same time they feel the sting of the higher taxes associated with that higher value. Some may question the role that public lands play in the overall scheme of property taxation. Does public ownership of lands raise taxes by taking land off the tax roll? Who pays for public land acquisition? What affect does public land have on nearby property values?

The depression further worsened a bleak situation, and droughts turned scrubby re-growth and slash into a tinderbox, fueling fires that occasionally reached catastrophic levels.



There is no simple answer to these questions, in part because there is no single type of public land. Federal, state, county and local governments all own land for different reasons with different impacts on local budgets. Each public land program also has different revenue sources, with some programs relying heavily on property taxes and others from “own source” revenue, or money generated from operations. With almost 2.5 million acres, county lands are the largest public land classification in the state of Wisconsin. While counties own land for a number of reasons (utilities, public services, roads, etc.), the vast majority of county land is classified as county forest, and these forestlands are the topic addressed in this article.

In addressing the issue of public lands, it is important to understand the context in which the different land programs came about. For this reason, the history of county forests is briefly reviewed to provide a sense of how we have come to the current situation. In

addition, it is important to explore the “soft” expenses and benefits that county lands provide as well as the “hard” numbers that measure the direct monetary costs and benefits of the program. In this way, the article provides a more holistic view of the county forest programs in Wisconsin.

History of county lands

The existing system of county-owned land has its origins in the earliest settler economies of the 19th Century. Much of Wisconsin was covered with forestland, and timber was a valuable commodity for supplying the explosive growth of cities such as Chicago and St. Louis. The laws regulating forest harvest were minimal and rarely enforced. As a result, many timber companies found it easier and more profitable to harvest with little or no concern for forest regeneration. This practice was reinforced by the widespread opinion that the plow would follow the ax, that much of the so-called cutover region was destined to become farmland.

In the early part of the 20th Century, the promise of productive farming in the cutover proved more challenging than local boosters had anticipated. The depression further worsened a bleak situation, and droughts turned scrubby re-growth and slash into a tinderbox, fueling fires that occasionally reached catastrophic levels. Farmers abandoned their lands, as did many others who purchased land on speculation. The counties were faced with massive delinquencies in property taxes. At the same time, the remaining settlers in the north woods were scattered about the landscape. This made per-capita costs for public services like schools and road maintenance more than local governments could bear.

Public solutions to widespread public problems

As the situation turned from bad to worse, the state, counties and towns agreed that public ownership was the most promising path towards reforestation of the landscape and prevention of deadly forest fires. A system of cost-sharing was developed whereby the



state would levy a statewide property tax to fund forestry activities and fire protection. Local governments would take on much of the day-to-day work of forest management. Counties were granted ownership of tax delinquent lands, a move that required a constitutional amendment. Counties were also given the authority to zone rural land and even to resettle scattered households into more concentrated sites. With time and proper management, the forests would return to provide more revenue through future timber harvests. In the meantime, the county lands would be open for recreational enjoyment by Wisconsin residents and distant tourists.

The most recent overhaul to this Great Depression-era system took place in the 1960s when the counties sought to renegotiate the cost-sharing between the state and local governments. During these deliberations, Governor Nelson agreed to yield more money to the counties and towns, but he also sought to ensure that the county forest program would be a permanent public lands system to be actively managed for forestry and recreation, benefiting all Wisconsinites.

Today's county lands cover nearly 15% of the entire state land base. The vast majority of these lands are in the northern half of the state, with some counties owning over a quarter of the local land base. Counties manage these lands for a variety of uses, but timber production is often the most predominant. Many counties receive significant revenue from timber sales. Burnett County, for example, netted almost \$1 million from timber sales in the year 2000, funding the parks and forestry operations and supplying 20 percent of the county's total income. Many counties are also continuing to acquire additional forestland. Most acquisitions are "blocking" purchases or land-swaps designed to consolidate ownership within a forest boundary and eliminate in-holdings.

What's the bottom line?

The impact of the county system of forestland for the Wisconsin taxpayer is complicated because it varies from county to county and year to year. On the cost side, one must consider the operating expense of running the forest system, the direct cost of acquiring any

additional lands, and the foregone revenue from land not in the taxable property base. On the revenue side, one can measure gross and net revenue from timber sales, direct payments from the state for county land management, and indirect state aids that are tied to the size of the local government tax base. In addition, compared to most other land uses, county forest land is less expensive to provide services to.



County forests protect watersheds.

A number of studies have been conducted by state government offices, the University of Wisconsin, and local governments to determine the net total of the above costs and revenues. These studies have repeatedly found that local governments, be they counties, school districts, or towns, are relatively unaffected by county land ownership since direct state payments and state aids make up for the lost tax base. The story told again and again by these studies is that county land acquisitions are revenue neutral for local governments.

“Soft” costs and benefits: property values and industry

Beyond the “hard” balance sheet of revenues and expenditures one can try and identify the indirect effects of county lands on local governments and economies. It is well established that public lands yield a great deal of amenity value to residents and non-residents through the provision of outdoor recreation and scenic beauty. Properties adjacent to county lands are often valued higher than similar properties without county lands. The amenity values of county forests no doubt contribute to the overall growth in private land values in the northland. The potential downside is evident when low-income households cannot capitalize on this

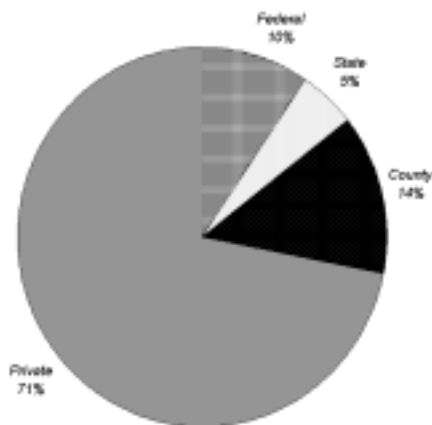
The story told again and again by these studies is that county land acquisitions are revenue neutral for local governments.



value growth without leaving their residence. In other words, unlike a growing bank account from which funds can be withdrawn, it is difficult to “cash in” on the increased value of a home.

Tourism is a long-established activity in the northland due in no small part to the public lands base of the area. The outdoor recreation opportunities bring money to the region that is spent on a variety of goods and services. The costs of tourism are comparatively low, but they are evident in resource degradation and occasional crowding and conflict.

Tourism is a long-established activity in the North due in no small part to the public lands base of the area.



Land ownership in Wisconsin

Timber harvesting and processing based on county forests also support a large and relatively stable industrial base that may otherwise not exist in the state. From paper mills to furniture manufacturers, forest products provides income, demands other commercial inputs, and contributes to the local property tax base. The Fox River Valley, for example, relies heavily on the timber supplies of county and other lands for much of the paper-related processing in the area. Timber harvesting on county forests, however, can be contentious when people express concern over possible effects on scenic or recreation values. Many people are not aware of the prominent role that forest harvest played in the creation and ongoing maintenance of the

county forest system. In general, the recognition that timber harvesting plays a major role in managing the forest ecosystem and providing access to forested lands supports the view that timber management will continue on county lands for the foreseeable future.

In summary, it is hard to make a solid case against the county forestlands system from the standpoint of direct fiscal costs and revenues. Time and again the analysis has shown that the program is a fiscal “wash” for local governments. The various state aid formulas work to make county land ownership tax neutral, and it could be argued that a disproportionate amount of the state revenue used to fund these programs is collected from outside those counties with the most county land.

Which isn't to say that urban residents are being taken for a ride, as the county forests yield their benefits to all Wisconsin people—the urbanized southeast region included—through the support of two major industries (tourism and forest products) and through the provision of a diverse and accessible recreation resource. In addition, many people depend on these public lands for their income, while others obtain quality of life benefits from this massive land base. In the case of lakeshore property owners, county forests serve to both protect and beautify a lake's watershed and provide numerous opportunities for recreation. While difficult to quantify, these additional amenities make the county forest system a valuable asset for Wisconsin residents worthy of protection. To get a sense of what the state might have been like without the system, one only need look back at the turn of the 20th century and revisit the land degradation, the fires, and the bleak future for Wisconsin's rural counties. Today, the picture is much brighter.

By Eric Olson, University of Wisconsin-Extension



Self-Help Monitoring

Are you tired of using that little plastic hand pump to filter the algae out of your water sample? Does it take way too long? Does it lack the suction power to complete the job? Does your hand get tired? Would you prefer to spend about three minutes to complete the job rather than thirty minutes? How does an electric filtering pump that you can make yourself for about \$25 sound as an alternative?

The Little Pump That Could

All you really need are a working compressor motor from a discarded refrigerator, dehumidifier or window air conditioner and some basic home repair skills. The principle for the electric filtering pump is simple - a refrigeration compressor is also a vacuum pump. It has two metal tubes coming out of it that are connected to the cooling coils. One tube sucks Freon gas in and the other tube blows compressed Freon out. A third tube is usually present, but is pinched closed at the factory. The tube that sucks Freon in is the vacuum pump side and can also be used to draw in ordinary air, thus replacing the hand pump. With a few adaptations the compressor can be used to force your lake water sample through the chlorophyll filter, and the task will take only a few minutes!

Here's how you can make your own electric filtering pump:

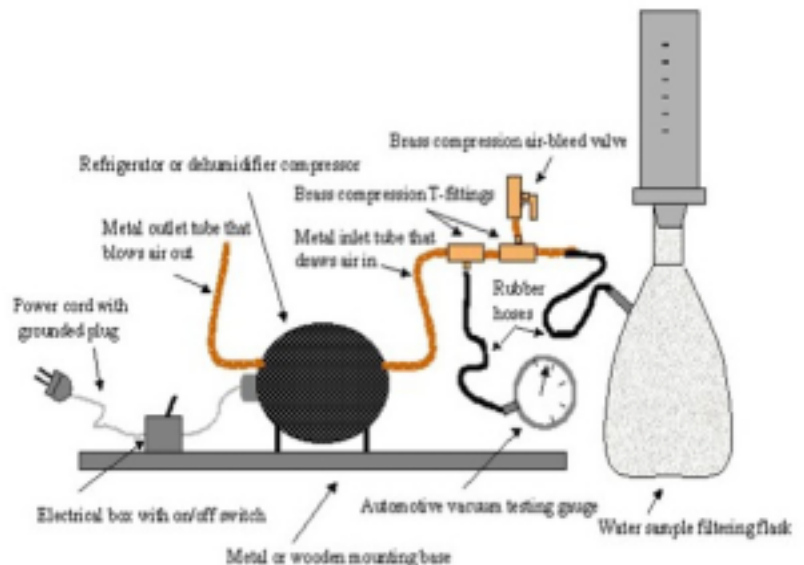
- (1) Skills needed: The confidence to dismantle an appliance using a screwdriver, wire cutters and a hacksaw. Enough knowledge about electricity to replace a power cord and to install a switch using wire nuts. Enough plumbing knowledge to cut copper tubing and to install a couple of brass compression fittings.
- (2) Tools needed: screwdriver, pliers, wire cutters, hacksaw, copper-tubing cutter, miscellaneous home repair tools.
- (3) Parts from your local hardware: about \$10 worth of brass compression fittings (sized to your particular compressor's tubing), an on/off switch, and an electrical box. Finding the appropriate sizes of plumbing parts might prove to be the most challenging part of this project. Be resourceful!

Optional parts: an automotive vacuum test gauge (if you want to be fancy). These cost about \$15, but you might find one lying around in your garage.

- (4) Equipment: Find a discarded air conditioner, dehumidifier, freezer or refrigerator that has a working compressor. You should have little trouble obtaining a free one; the hard part is convincing your friends that you only need one discarded appliance. The chance that the compressor still works is good because most failures are due to bad thermostats, humidistats or switches, and not due to bad compressors. I recommend using a discarded dehumidifier because the chassis is usually lighter, more compact, and easier to tear down to get at the compressor. Also, since the case, coils, switches and everything except the compressor get thrown away, smaller is better.

- (5) Directions:

- A. Inspect the appliance to ensure the power cord is a 3-pronger and in good condition... no cracked or frayed insulation! Plug it in and see if it works. If it doesn't, a little temporary rewiring is necessary to bypass all of the switches and test the compressor directly. If the compressor does not work, find a way to politely return the appliance to its owner and find another one.
- B. Have the Freon removed at a professional appliance-recycling center or by a reputable air conditioning repairperson. I checked



the cost to do this at two places and was given a price of \$7 at one and \$30 at the other. **DO NOT remove the Freon yourself.** Not only is this illegal, but it is also dangerous to you and very unfriendly to the atmosphere!

- C. Using screwdrivers, tubing cutter, hacksaw and wire cutters remove all the panels, switches, and coils from the chassis leaving only the mounting base, the power cord, and the compressor with the inlet and outlet tubing attached. When cutting off the coils try to leave as much tubing as possible connected to the compressor. A foot on each pipe is desirable. Be sure to use a plumb-ing-tubing cutter (not a hacksaw) to do this to prevent damage to the copper pipe ends.
- D. Remove the gooey black insulation from the copper pipes, using lighter fluid or GoJo hand cleaner for the final cleanup. Keep the copper tubing pointed vertically (up) to prevent machine oil in the compressor from leaking out.
- E. Refer to the accompanying diagram to complete the assembly of your pump.
- F. Mount an electrical switch box to the base as shown in the diagram and wire the power cord through the switch to the compressor.
- G. Now the moment of truth... Plug the power cord in and turn on the compressor. One of the copper pipes will be blowing air out and the other side will be sucking air in. Add 2 compression T-fittings to the pipe that is sucking air in using short pieces of copper pipe cut from the tubing as in-between pieces. The T-fittings give you three vacuum ports instead of one. Connect an air-bleed valve to one port, an automotive vacuum test gauge to the second port, and the rubber tube from the water sample filtering flask that used to go to the hand pump to the third vacuum port.

You are now ready to filter the algae out of your water sample!

By Don and Nancy Shaner, SouthTwin Lake, Washburn County

Filtering pump operating techniques:

Run the pump only enough to keep the filtering action going. Our pump is capable of pulling 28 inches of vacuum, but we generally let vacuum build to about 22 on the gauge and then shut it off for a while, because the filtering action continues. I've found it needs to be running only 15 to 30 seconds at a time and can then be off for 30 to 60 seconds.

If the flask becomes full of water shut off the pump and open the air-bleed valve to reduce the vacuum before emptying the flask. **DO NOT** let the flask overflow or the excess water will end up in the compressor!

If oil has spilled or splattered out of the tubing (the one that blows), an occasional shot of "WD- 40" or "3-In-1 oil" can be used to replace it. This won't be necessary if the outlet tube is kept pointed vertically.

Whether you are a Self Help Lake Monitoring volunteer, or just interested in Wisconsin's Lakes, the new Self Help Lake Monitoring website has information that may be of interest to you. You can visit the website at: <http://www.dnr.state.wi.us/org/water/fhp/lakes/shlmmain.htm>

When you visit this website, you can enjoy many new features, including:

- The Self Help Database online, featuring 15 years of lake water quality data collected by thousands of volunteers all over Wisconsin.
- A new online form that will enable volunteers to submit their data over the web, starting this spring.
- A slide show about Self Help Lake Monitoring.
- Lists of award recipients (2001 awards lists coming soon).
- And much more!



LET IT SNOW! Snowflakes provide us with many things...beauty, recreation, and of course, frustration (remember those monster snowstorms?). But no matter how many fall from the clouds, each one is unique and lovely. "Snowflake Bentley", otherwise known as Wilson Bentley, was the first person to photograph snowflakes. In the late 1800s, he photographed over 6,000 snowflakes and had no duplicates. The chances of two snowflakes being exactly alike are approximately one in one million trillion!

How is a beautiful 6-sided symmetric snowflake created? It's a fairly complex process, and a cold one. The simple ingredients are a speck of dust and water vapor. The dust absorbs some water vapor to form a nucleus for the ice crystal. The crystal grows into a tiny hexagonal prism (hexagonal due to the molecular structure of water). The crystal grows, sprouting tiny arms that stick out into the supersaturated air. The arms grow at roughly the same rate, and their features are dependent upon the temperature. So depending upon where winds blow the crystal within the cloud, it will form different features. For example, if the crystal blows into a region of the cloud with a slightly lower temperature, each of the arms could develop a plate-like extension. Later on, at a slightly different temperature, each arm could develop a dendritic (tree-like) extension. And so it goes...as the snow crystal blows around on its own unique temperature course its growth pattern is completely unlike any other snowflake.

Of course, there are other shapes to snow crystals besides the stellar (star) shaped. Snow can also be found in plate, column, capped column, needle, spatial dendrite, or irregular crystal shapes. But how can one determine a shape when it melts under warm breath? An easy way to preserve a snowflake is to make an image of it. All you need is a flat piece of glass and a can of clear acrylic spray paint. Chill the spray and clean glass either in the freezer or outside. When it snows, spray the cold glass lightly with the cold acrylic. Catch a few snowflakes on the glass and let the glass sit inside for 15 minutes to dry. Although your flakes will melt, their images will be there to study with a magnifying glass or microscope.



There you have the "short course" on snowflake formation and preservation. For further information, check out this great snowflake website: <http://www.its.caltech.edu/~atomic/snowcrystals/>. In the meantime, enjoy studying the wondrous tiny beauties of Wisconsin's winter.

"Under the microscope, I found that snowflakes were miracles of beauty; and it seemed a shame that this beauty should not be seen and appreciated by others. Every crystal was a masterpiece of design and no one design was ever repeated., When a snowflake melted, that design was forever lost. Just that much beauty was gone, without leaving any record behind."

Wilson "Snowflake" Bentley 1865-1931

C A L E N D A R

February 1-3, 2002 - Wisconsin Association for Environmental Education Winter Workshop. Treehaven, Tomahawk. Call 715/346-2796 for information.

March 7-9, 2002 - How's the Water? Wisconsin Lakes Convention. Regency Suites, Green Bay. Call 715/346-2116 for information.

April 10-12, 2002 - "Trails: Connecting People, Places and Open Spaces" workshop. The Alliant Energy Center, Madison. See <http://www.dnr.state.wi.us/org/land/parks/trails/sprgconf.html> for more information.



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IN THIS ISSUE

Is it Your Land or Our Water.....1
Wisconsin Lake Stewardship Awards.....3
Biocomplexity and Lake Stewardship.....4
Adopt-A-Lake News.....5
How's the Water - Wisconsin Lakes Convention.....6
Public Lands and Property Taxes..... 10
The Little Pump that Could.13
Self Help Website.....14
Let it Snow.....15
CALENDAR..... 15

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Reflections

To Know the Dark

To go in the dark with a light is to know the light.
To know the dark, go dark.
Go without sight,
and find that the dark, too,
blooms and sings,
and is traveled by dark feet and dark wings.

Wendell Berry

