



Roadmap To A Restored Green Lake

By Stephanie Prellwitz, Director, Green Lake Association, with edits from Josh Knackert

Green Lake, located in central Wisconsin, is a treasured lake of statewide significance. Measuring 236 feet at its greatest depth, it is the deepest natural inland lake in the state. Its pristine waters and diverse ecology have been revered by local residents and seasonal property owners from across the Midwest and beyond.

While all lakes naturally age, human pressures and the impact of more intense and more frequent rain events can accelerate the lake aging process from many centuries to mere decades. Despite its depth and volume of water, Green Lake has not been immune to the same forces impacting many other Wisconsin lakes.

Reflecting this long-term degradation, in 2014 the Wisconsin Department of Natural Resources (WDNR) classified Green Lake as an impaired waterway since it does not meet optimal water quality standards for dissolved oxygen. A suspended layer of water with low dissolved oxygen consistently develops at certain lake depths in Green Lake and has been getting more pronounced over time. The likely cause is high concentrations of phosphorus.

“Green Lake was listed as impaired because the thermocline, which is about 10 meters below the water’s surface, goes without oxygen for a few meters within the summer months,” explained Ted Johnson, Lakes Biologist with the WDNR. Low concentrations of dissolved oxygen at the lake’s bottom are also being carefully monitored. Dissolved oxygen in waterbodies is essential for the survival of organisms important in lake ecosystems, from small zooplankton all the way up to large trophy fish.

(Continued on page 2)



Map created by Amy Arneveit

Thermocline

[thur-muh-klahyn]

A thermocline is a thin but distinct layer in a large body of fluid (like a lake) in which temperature changes more rapidly with depth than it does in the layers above or below.

Photo by Amy Kowalski



Downed trees along the shoreline are feeding, breeding and nesting areas for all sorts of critters - from fish to song birds. These trees were placed and anchored along Green Lake's shore as another restoration effort of the Green Lake Sanitary District, made possible by a Healthy Lakes grant.

“We don’t have unlimited resources at our disposal, which means we need to be as efficient as possible... prioritizing science-based solutions that target the disease instead of spending our limited resources chasing after the symptoms.”

*- Stephanie Prellwitz,
Executive Director
Green Lake Association*

A Call to Action

Green Lake has benefitted greatly from decades of work by dedicated people and organizations. In 2013, these stakeholders worked together to develop a lake management plan (LMP) to study issues facing the lake and identify recommendations for improving water quality and aquatic habitat. The LMP team consists of governmental entities, local municipalities and nonprofit organizations working together throughout the Green Lake watershed. The team regularly partners with environmental experts, including the Nelson Institute for Environmental Studies, the Delta Institute and the University of Wisconsin.

Charlie Marks, Administrator of the Green Lake Sanitary District (GLSD), has been involved in restoration efforts on and around Green Lake for twenty years. He emphasized the benefits of compiling past and future conservation efforts into an official LMP. This plan represents the commitment and collaboration of the LMP team, which has led to an increase in grant awards for Green Lake restoration projects.

The LMP team is doubling down on initiatives that prioritize phosphorus reductions throughout the Green Lake watershed, which encompasses shorelines, cities and agricultural areas. The group is also coordinating research to align water quality goals with science-based, scalable solutions.

Understanding the Issues

As an initial step, the Green Lake LMP team is working to better understand the mechanisms causing Green Lake’s low dissolved oxygen zones and high phosphorus concentrations.

The Green Lake Association (GLA) is collaborating with the U.S. Geological Survey, WDNR, and other lake scientists on a 3-year study to investigate the dissolved oxygen issue. The project is funded by a \$200,000 WDNR Lake Protection Grant with additional financial support by GLSD.

“This study will take into account the biological and chemical factors contributing to this phenomenon of low dissolved oxygen,” said Johnson. Ultimately, the research will develop evidence-based management strategies and phosphorus reduction requirements to achieve Green Lake’s water quality goals.



Photo by Green Lake Association

Green Lake Association Intern Ricardo Jaimes spent his summer (2015) analyzing approximately 500 points along Silver Creek in order to assess the stream’s capability of filtering out nutrients. He used a transparency tube to analyze the ability for light to penetrate through the water at specific points within the stream and record overall water clarity. At each sampling point, Jaimes recorded the level of erosion, width, vegetation, tree/shade and invasive species present.



Reducing Agricultural Impacts

Since the lake study will take several years to complete, the LMP team recognizes that phosphorus reductions are a smart preliminary plan of attack.

“We don’t have unlimited resources at our disposal, which means we need to be as efficient as possible,” said Stephanie Prellwitz, Executive Director of the GLA. “It means prioritizing science-based solutions that target the disease instead of spending our limited resources chasing after the symptoms.”

Since one pound of phosphorus can fuel the growth of 500 pounds of algae, the LMP team is looking for reductions beyond the lake and into the entire 107 square mile watershed, the likely source of much of the phosphorus found in the lake.

As an essential nutrient for plant life, phosphorous is found in fertilizers, soil and manure. However, ineffective management of water runoff can lead to excess phosphorous entering waterways and depositing in the lake.

A series of agriculturally-focused projects have been gaining momentum. In Green Lake County alone, landowners have implemented over 100 agricultural best management practices (BMPs) in the Green Lake watershed thanks to six consecutive years of grant funding from the Natural Resource Conservation Service’s (NRCS) National Water Quality Initiative (NWQI). This effort partners the county’s Land Conservation Department staff with farmers to install “hard” conservation practices, such as grassed waterways and retention ponds, and to implement “soft” management techniques, including cover crops and water-friendly tillage practices. These practices keep nutrients and sediment on the land, upstream and out of the lake.

What makes this program even more unique is that many of the practices are installed at no cost to farmers. NWQI funds typically cover 70% of cost of each of these BMPs, with the remaining costs covered by the GLSD. “In many cases, the additional cost share money from GLSD, which sometimes pays



for the entire project, is the breaking point for implementing some of our most important BMPs,” said Paul Gunderson, Green Lake County Conservationist. In exchange for free BMPs, the practice is left intact in perpetuity and is maintained by the GLSD.

The LMP team is hoping to duplicate this model in Fond du Lac County, which accounts for 41% of the watershed area. The team hopes to use some of the \$200,000 in grant funds for BMPs to help keep extra nutrients from flowing into Green Lake. GLSD and GLA are providing a local match to the grant.

Future projects that aim to prevent nutrient runoff will be guided by GLA’s Phosphorus Prioritization Plan. This plan, a recently-completed project by the Delta Institute, identifies specific areas within Green Lake’s watershed that are contributing to the overload of nutrients in the lake.

(Continued on page 4)

Chris Retzlaff is a multi-generation farmer in the Green Lake watershed who farms 2,200 acres of canning crops including sweet corn, beets, soybeans, and peas. Aside from canning crops, Retzlaff plants barley as a cover crop because it provides exceptional erosion control for farming fields. Last year he planted 1,600 acres of cover crops. Here, Retzlaff is standing in one of his fields covered in barley.



This photo displays a field of cover crop varieties that are planted in the fall and do an excellent job of loosening soil and adding organic matter. (Omro, WI)



Shrinking the Urban Footprint

The cities of Green Lake and Ripon are located in Green Lake's watershed. As an LMP team member and economic beneficiary of a healthy lake, the City of Green Lake recognized their participation was vital before the team approached partners further upstream who were less directly connected to the lake.

In 2015, the City of Green Lake was awarded a \$19,000 WDNR Urban Nonpoint Source and Storm Water Grant. This municipal-wide initiative will identify, quantify and improve the city's urban footprint to Green Lake. Some of the proposed activities include addressing water infiltration and reviewing city ordinances to better manage stormwater. The City of Green Lake, GLSD and GLA are contributing remaining funds not covered by the grant.

"The city has a responsibility to do our part to protect our water resources so that future generations have the same opportunities that we have now. We take that obligation very seriously, and we are willing to do our part to make that happen," said Jon McConnell, Mayor of Green Lake.

Shoring up Shorelines

Miles of streams meander throughout the Green Lake watershed. Some sections have eroded banks that deliver sediment and nutrients into the waterway, especially during storm events like the infamous 2008 flood.

Since these stream sections are often hidden from public view or inaccessible, the LMP team sponsored a multi-year stream inventory project. Interns from the Green Lake County Land Conservation Department (LCD), GLA and Ripon College walked every single mile of stream, documenting erosion and buffer issues every 500 feet. These data were compiled into a series of maps that provided a systematic method for the Green Lake County LCD to identify and prioritize future stream restoration projects.

One recent restoration project replaced 1,700 feet of deeply eroded stream banks with gentle slopes to mimic natural systems. During future larger rain events, stream flow will be able to temporarily expand into the floodplain and then return to the channel during normal flow conditions, reducing erosion and nutrient loading to Green Lake.

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Photo by Green Lake Association



This summer, Brian and Jodi Olmen partnered with the Green Lake County Land Conservation Department (LCD) and Green Lake Sanitary District (GLSD) to collectively fund and implement 1,700 continuous feet of stream restoration on a tributary that flows through the Olmen's property on the south side of the lake. The restoration project helped to re-establish a healthy buffer of plants to keep sediment and nutrients like phosphorus from entering the stream and, eventually, Green Lake.

A People Approach

Since these voluntary agricultural and urban solutions are only as successful as their participants, the LMP team is using social science to build more effective conservation programs.

In 2015, the GLA was awarded a \$10,000 WDNR Lake Planning Grant to conduct a survey of farmers within the Green Lake area. The grant is supported by additional contributions from the GLA and GLSD.



The voluntary assessment seeks to better understand farmers' land management decisions and ask for input on solutions that collectively benefit crops, soil health and downstream water resources.

“The best way to get conservation on the land is to work together with the farmers. Their input and knowledge guides us to find solutions that reach the same goals. In fact, knowing what they are doing or would be willing to do to conserve soil is a starting point in all our conversations,” said Gunderson.

The planning team will use results of the survey as the foundation of future programs and potential incentives to increase the adoption of conservation practices in the Green Lake watershed.

Moving Forward - We All Have to Do Our Part

Green Lake has big challenges that will require the investment of big minds. The Green Lake LMP team is reaching throughout the state, region and nation to align partnerships of unprecedented proportions.

Yet, Green Lake is not alone in its water quality challenges. In Wisconsin, 1,437 waterbodies are classified as impaired because they fail to meet optimal water quality standards. Of those, 562 have high concentrations of phosphorus and 149 have low dissolved oxygen.

The partners around Green Lake continue to use resources that contribute to a healthy lake, healthy streams and a healthy watershed. Their hope is to not only improve the land and water in their neighborhood, but also be a model for lakes throughout Wisconsin and the Midwest where similar conditions exist. 💧

“The best way to get conservation on the land is to work together with the farmers. Their input and knowledge guides us to find solutions that reach the same goals.”

- Paul Gunderson, Green Lake County Conservationist

Congratulations Crew 11 Wisconsin Lake Leaders Institute Graduates

Twenty-six individuals became Wisconsin Lake Leaders Institute graduates on Friday, October 21, 2016 at Aldo Leopold's Shack near Baraboo. These dedicated citizens and lake professionals have earned *Lake Leader* status along with previous graduates of the institute, now 300 strong, since its inception in 1996.

This year's graduates (Crew 11) hail from 19 counties in Wisconsin. They have made a commitment to themselves and their crewmates promising to draw from this leadership experience in their future lake stewardship work.

Congratulations to these graduates of Crew 11:

Linda Anderson	Lindsay Olson
Kirk Boehm	Philip Peterson
Dan Butkus	LeeAnn Podruch
Anna Cisar	John Primozich
Wes Dawson	Vicki Funne Reed
Scott Frank	John Richter
Art Freiberg	Ted Rulseh
Jim Giffin	Floyd Schmidt
Lisa Griffin	Tom Schroeder
John Kennedy	Bradley Steckart
Mary Marks	Philip Sylla
Katie Nicholas	Elizabeth Usborne
Brenda Nordin	Zach Wilson



Congrats!



Shifting Currents

A New Wisconsin Academy Report on the Waters of Wisconsin

By Amanda E. Shilling, Wisconsin Academy of Sciences, Arts and Letters



On September 21st the Wisconsin Academy of Sciences, Arts and Letters released a new report, *Shifting Currents: Progress, Setbacks, and Shifts in Policy*

and Practice. The report is an overview of gains and setbacks in water policy and practice, and it outlines some unresolved water concerns noted by the Academy in its first *Waters of Wisconsin* report published in 2003. The *Shifting Currents* report also highlights emerging concerns, examines the context for decision-making around water management and protection, and explores root causes that influence water conditions and policy in Wisconsin.

“We’re at a critical juncture with our water right now,” says Jane Elder, executive director of the Wisconsin Academy. Elder points out that many challenges to Wisconsin’s water have grown in scope or scale since 2003, including phosphorus pollution and the algal blooms it can trigger, well contamination in areas such as Kewaunee County and groundwater stresses in the Central Sands region. Looking toward the future of water in Wisconsin, the *Shifting Currents* report underscores the fact that our state has no specific plan to deal with climate change impacts on water quality or supply, nor a focused plan to address aging water infrastructure.

Free Downloads

Shifting Currents report (full 80-page version) is available on the Academy website at wisconsinacademy.org/shiftingcurrents. To order print copies, contact Matt Rezin at mrezin@wisconsinacademy.org or call 608-263-1692 x10.

The eight-page executive summary is available at wisconsinacademy.org/initiatives/reports-and-resources.

In an attempt to address the growing challenges and emerging concerns surrounding water in Wisconsin, the *Shifting Currents* report recommends nine actions:

1. Develop an Integrated Water Management Framework
2. Safeguard Drinking Water
3. Control Nutrient Pollution
4. Apply Watershed-Scale Strategies
5. Plan for Climate Change
6. Manage Invasive Species
7. Modernize Water Infrastructure
8. Commit to Transparency and Public Participation
9. Invest in Water Literacy

The report and subsequent recommendations are products of more than three years of work by the Wisconsin Academy’s Waters of Wisconsin Leadership Network. This network includes more than 60 experts from fields such as water research, urban planning, environmental education, land and water conservation and wastewater management, as well as tribal scientists, family farmers and farm policy experts, public agency staff, historians, ethicists and faith community leaders.

Elder explained, “By taking stock of changes since our first *Waters of Wisconsin* report, and examining today’s water challenges and decision-making context, *Shifting Currents* serves as a valuable resource and catalyst for deeper discussion about the role of fresh water in Wisconsin—and a foundation for strategies to safeguard this irreplaceable resource for future generations.”

To learn more:

Wisconsin Academy:

wisconsinacademy.org/about-us/mission-vision-values

Wisconsin Academy Initiatives Program:

wisconsinacademy.org/initiatives

Waters of Wisconsin Initiative:

wisconsinacademy.org/initiatives/wow



Q&A Lake Districts

We often get phone calls and emails from Lake Tides readers with a variety of questions about lake districts. Do you have a question about lake districts that you would like to see answered in Lake Tides? Send it to uwexlakes@uwsp.edu so we can include it in a future issue.

Q: Can a non-profit or tax exempt organization sign a petition to form a lake district, or participate in the lake district annual meeting?

A. Yes. This question occasionally comes up during the petition process when lake district organizers are working to obtain the needed signatures to submit to a local government or county. Some people may ask whether it is “fair” for a tax-exempt property to be able to participate in the process since they do not pay property tax. Chapter 33.25(1)(a) explicitly states, “Governmental subdivisions, other than the state or federal governments, owning lands within the proposed district are eligible to sign such petition,” and these same local governments are exempt from the property tax. Chapter 33.25(1)(b) notes, “For a landowner that is a trust, foundation, corporation, association or organization, a petition under par. (a) shall be signed by an official representative, officer or employee who is authorized to do so by that landowner.” The statute makes no distinction between tax paying and tax exempt organizations. Furthermore, special charges and special fees assessed by the lake district can and often are charged to owners that are exempt from general property taxes. A church camp, for example, may be liable for the same flat-rate special charge as a private home or cabin. These same rights to sign petitions extend to votes taken at the annual meeting.

For more information on lake districts, see *People of the Lakes: A Guide for Wisconsin Lake Organizations*, www.uwsp.edu/cnr/uwexlakes/districts.

Healthy Lakes Team Receives Secretary’s Service Excellence Award

Kurt Thiede, Deputy Secretary of the Wisconsin Department of Natural Resources (WDNR), traveled to Beaver Dam Lake in early October to award the Healthy Lakes team with the Secretary’s Service Excellence Award.

As a butterfly from the 350 square foot native planting at the Boettge residence landed on his shoulder, Thiede said, “There’s absolutely no way the Department can do conservation alone. I think [partnerships] exemplify the way we need to get work done.”

The Healthy Lakes initiative is a partnership of County, Agency and UW-Extension professionals working together with lakefront property owners, lake groups and counties to implement five simple and inexpensive best practices that improve habitat and water quality along our lakeshores.

“This statewide initiative is a true, collaborative team effort,” said Pamela Toshner, Lakes Biologist, WDNR, and Healthy Lakes team wrangler. “Healthy Lakes wouldn’t even exist without local champions that are leading by example, talking to their neighbors, and working in their local communities.”



From left to right: Bill Foley (lakeshore property owner - Beaver Dam Lake), Karen Huber (lakeshore property owner - Beaver Dam Lake), Kurt Thiede (WDNR), Carroll Schaal (WDNR), Tom Onofrey (Marquette County Zoning Department), Amy Kowalski (UW-Extension Lakes), Patrick Goggin (UW-Extension Lakes), Pamela Toshner (WDNR), Evonne and Bill Boettge (lakeshore property owners - Beaver Dam Lake) – Healthy Lakes team members not shown: Jane Malischke (WDNR), Dave Ferris (Burnett County Land and Water Conservation Department), and Shelly Thompsen (WDNR)

Bowfin

A Living Relic in the Cold Waters of Wisconsin

By Paul Skawinski, Statewide Citizen Lake Monitoring Network Coordinator, UW-Extension Lakes

Beneath the waves of many Wisconsin lakes and flowages, there lies a mysterious, misunderstood fish. Its name – *Amia calva*, Latin for “bald fish.” Commonly called the bowfin, dogfish or mudfish, this top predator lurks among the plants in the shallow areas of lakes, waiting to ambush unsuspecting prey, similar to the lifestyle of a largemouth bass.

Resembling something between a smallmouth bass and an eel, the bowfin has a long body with a large, tapered head. Its beautiful dorsal fin runs almost the entire length from its tail to its head. Bowfin are able to send undulating waves along their dorsal fin, sure to mesmerize any snorkeler lucky enough to get within sight of one. Colors can range from silver to various shades of green and brown – there are even rare albino and black variations!

One of the most remarkable adaptations of the bowfin is its ability to breathe atmospheric air in addition to dissolved oxygen.

The female bowfin will broadcast her sticky eggs into patches of vegetation. Bowfin have been known to spawn at water temperatures as low as 43°F, but the optimal spawning temperature is 61-66°F. Once those eggs hatch, it's the male bowfin's time to shine. Bowfin fry (newly hatched young) congregate in a large ball and swim together, guarded by the adult male. Adult male bowfin are known to fiercely protect their young against anything they perceive as a threat. There have even been reports of bowfin leaping out at deer and other animals that stray too close!

The value of the bowfin as food for humans is highly debated. One thing that is certain though, is that they tend to be high in mercury as a result of biomagnification – the process of contaminants accumulating in top predators. Since bowfin are longer-lived than similar fish like bass, they continue to accumulate

contaminants for a longer period of time.

Not every angler is excited to catch a bowfin. These fish are ferocious fighters and will strike any bait that is favored by bass,

pike or musky. In Wisconsin, bowfin grow to a larger size than bass and occupy similar habitats. Yet, they still have not earned the respect of some anglers. There is a myth that killing bowfin will increase populations of other sport fishes, but studies of bowfin diets have shown that a crayfish or small catfish is most likely to become bowfin food.

The bowfin is a very unique animal that has lived for over 100 million years. One of the most remarkable adaptations of the bowfin is its ability to breathe atmospheric air in addition to dissolved oxygen. In fact, a bowfin has two

Record Bowfin Catches

- ◆ **Current world record: 21 lbs., 8 oz. (South Carolina)**
- ◆ **Current Wisconsin record: 13 lbs., 1 oz. (Willow Flowage, Oneida County)**

Bowfin caught on hook and line typically range from 6-8 pounds.

This male bowfin was caught on the Willow Flowage in Oneida County, and estimated at about eight pounds.



Photo by Alex Skawinski



different ways of breathing, with different purposes. One type of breathing involves inhaling and exhaling, and this type is used for ordinary respiration. The other type appears to be for regulating the fish's buoyancy and involves only inhaling. This is commonly done by gulping a breath of air at the surface and using it to fill the fish's swim bladder, an internal air sac that allows some fishes to change their body density and suspend themselves in the water without having to use their fin or tail muscles.

bladders to regulate their buoyancy, but the bowfin was likely one of the first.

This bowfin uses its undulating dorsal fin to navigate Spring Lake in Waushara County.

If you live near a large lake or flowage, there is a good chance that the mysterious bowfin is swimming right under your nose. A well-placed cast along a bed of aquatic plants could serve up a ferocious fighter who roamed with the dinosaurs – a beautiful fish eager to earn your admiration and respect. 💧

Adult male bowfin are known to fiercely protect their young against anything they perceive as a threat. There have even been reports of bowfin leaping out at deer and other animals that stray too close!

The bowfin can also gulp surface air if the level of dissolved oxygen in the water is too low. This is thought to have been an early evolutionary advantage of the bowfin. One hundred million years ago most fishes were bottom-feeders, and a bowfin had the advantage of using atmospheric oxygen to regulate its buoyancy and feed wherever it wanted with very little energy. Today, a large percentage of fishes have swim



No one was hurt in the capturing of this newly hatched bowfin (fry) on Lake Tomahawk, Oneida County.

Photo by Paul Skawinski

We Want Your Feedback

Awhile back we asked for your feedback on the guide *Aquatic Plant Management in Wisconsin*. We are now well into the 21-day comment period offered by the Wisconsin Department of Natural Resources (WDNR) - the deadline for comments is November 16, 2016. If you would like to share your suggestions for the APM guide, please go to <http://dnr.wi.gov/topic/EIA/APMSA.html>, where you will find opportunities to comment.



Keeping Lakes in the Family

Sharing the Magic Through Stories

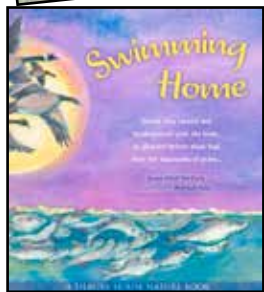
Compiled by Lynn Markham, Center for Land Use Education, UW-Stevens Point

This year's resource recommendations focus on some of the ways we enjoy being in, on and near the water – snorkeling, looking for loons and harvesting wild rice.



Fish Hotel Age 5 and up
Written by Lynn Markham
Illustrated by Justin Sipiorski

Tessa and her cousin Hugo grab their snorkeling gear for an underwater adventure and end up learning that trees in the water are helpful to fish. A friendly neighbor teaches them how downed trees are like a fish hotel, providing shelter, food and a place to lay their eggs. When the kids find out Uncle Henry is going to remove a downed poplar from the water, they make the case to keep it as a fish hotel. This story of cooperation and friendly neighbors captures the spirit of “up north” in Wisconsin and teaches us how leaving trees in the water is beneficial.



Swimming Home Age 5-8
Written by Susan Hand Shetterly
Illustrated by Rebekah Raye

The story follows a school of fish on a journey to return to their spawning grounds in Lilly Lake. While migrating, the school of fish evade an eagle and a heron, and they navigate a beaver dam before pulling up short where a road has been constructed over the stream; the culvert through which the stream now flows is too high for the fish to reach. Happily, the boy and his father spot them and are able to use buckets to lift the fish over the road and into Lilly Lake.

Pond Circle Age 4-8
Written by Betsy Franco
Illustrated by Stefano Vitale

On a summer night by a small pond, all seems still. But a closer look reveals a world of activity—mayflies dart, beetles dive, frogs spring, skunks shuffle, and owls swoop. As a young girl watches, the circle of life unfolds.

Book reviews are drawn from Amazon and the Cooperative Children's Book Center at UW-Madison.

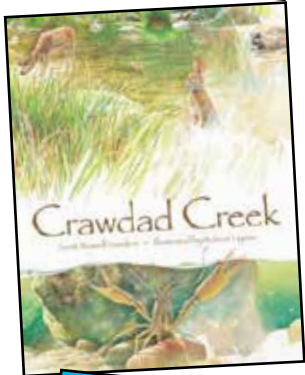
Crawdad Creek Age 4-8
Written by Scott Russell Sanders
Illustrated by Robert Hynes

There's always something happening at Crawdad Creek, just like along the shore of your lake. Come hunt for fossils, find an arrowhead in the mud or a crayfish under a stone. Watch whirligig beetles and water striders skate across the water teasing the fish below. Count the turtles sunning themselves on moss-covered logs. Follow tracks along the bank, then sit in quiet amazement as deer, raccoons and other animals visit the creek. There's a wild and beautiful world here waiting to be discovered.

Half a Chance Age 8-12
Written by Cynthia Lord

Lucy and her parents have no sooner moved to their new lake home, than her professional-photographer father is off on a work trip for the summer. As he leaves, Lucy learns from him about a photo contest for kids and decides to spend the summer working on winning it. As the days and weeks pass, Lucy makes friends with Nate (the boy next door), learns to kayak, joins in the community's watch of nesting loons, and stays focused on taking photos that fulfill her father's advice to make sure the picture implies a story. When she learns that Nate's grandma's failing health is keeping her from observing her beloved loon family up close, she and Nate devise a plan to rent a motorized raft to take her out on the lake.

This book is fun because the kids go on Loon Patrol every day to see how the loons are doing and find out if their eggs have hatched.
~ Tessa, age 7



The Sacred Harvest: Ojibway Wild Rice Gathering *Age 8 and up*

*Written by Gordeon Regguinti
Photographs by Dale Kakkak*

Glen Jackson, Jr. is an 11 year-old Ojibway Indian from the Leech Lake reservation in Minnesota. His people are wild rice growers. Glen is taking part in the ritual for the first time and is worried that he won't be strong enough to push the canoe through the rice beds without tipping over. Ojibway history and descriptions of the reservation are smoothly blended into the narrative as Glen learns how to harvest, parch, winnow and cook the rice.

Wild Rice and the Ojibway People

Written by Thomas Venum

Wild rice has always been essential to life in the Upper Midwest and neighboring Canada. In this far-reaching book, Thomas Venum, Jr. examines the importance of this wild food to the Ojibway people by using travelers' narratives, historical and ethnological accounts, scientific data, historical and contemporary photographs and sketches, his own field work and the words of Indian people. He details the technology of harvesting and processing, from seventeenth-century reports through modern mechanization. He explains the important place of wild rice in Ojibway ceremony and legend, and depicts the rich social life of the traditional rice camps. He also reviews the volatile issues of treaty rights and litigations involving Indian problems in maintaining this traditional resource.

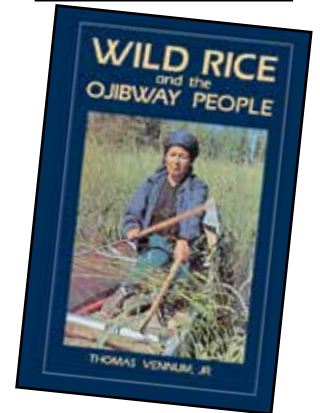
With twentieth-century agricultural technology and paddy cultivation, white growers have virtually removed this important source of income from Indian hands. Nevertheless, the Ojibway continue to harvest and process rice each year. It remains a vital part of their social, cultural and religious life.

How to Harvest Wild Rice

10 minute video

Interest in the harvest of wild rice is growing. This video provides a starting point for those interested in learning more about wild rice, offering tips on items needed to harvest wild rice, where and when to harvest wild rice in Wisconsin and ethical considerations to keep in mind when harvesting wild rice.

<https://www.youtube.com/watch?v=wCQfVYiRpsA>



Wild Rice Cooking: History, Natural History, Harvesting and Lore

Written by Susan Carol Hauser

This complete guide to harvesting and cooking wild rice includes 80 recipes and a fascinating history of the plant.

Winner of the Minnesota Book Award.



Online Bookstore

Looking for a few other good reads this holiday season? Check out the UWEX Lakes online bookstore at www.uwsp.edu/uwexlakes (just click on "bookstore" in the left navigation column).

We have a few field guides, children's books, a trivia game and even some free brochures!

Not too sure about online ordering? Have some questions about the process? We're here for you! Just give us a call at 715-346-2116 or email uwexlakes@uwsp.edu.



Minding Our Waters

2017 Wisconsin Lakes Partnership Convention

April 5-7, 2017 ~ Stevens Point

When British author and poet Andrew Fusek Peters was experiencing a deep bout of depression five years ago, he and his family took all the proper steps to restore balance and joy to their home in rural Shropshire. They sought counseling from psychologists and he followed a prescribed regimen of medications. But it was a natural remedy that Andrew credits with placing him on a path to recovery: swimming in the wild rivers and

ponds of the English countryside. He recounts that experience, season by season, in his 2014 book Dip: Wild Swims From the Borderlands. Andrew will be coming to Wisconsin this spring to share his experiences with us during the closing luncheon keynote on Friday, April 7, at the 2017 Wisconsin Lakes Partnership Convention in Stevens Point.

Andrew's presentation builds on the convention theme, *Minding Our Waters*, and will serve as a perfect bookend to Thursday's keynote by Wallace J. Nichols, author of Blue Mind. Conference breakout sessions and workshops will similarly explore the ways that water affects our moods, our health and our community's well-being. Of course, the conference will also feature our regular fare of lake ecology, aquatic invasive species prevention and management, and emerging issues in lake science and policy.

Minding Our Memories

Along with the 2017 Lakes Convention comes the 15th annual Wisconsin Lakes Partnership Photography Contest! Like one of our keynote speakers, Andrew Fusek Peters, we know many of you love to capture the amazing feeling of our water resources through photography. Please share your talents and images with us - your photographs are a wonderful addition to the lakes convention, and the top prize in each of the two categories is \$100!

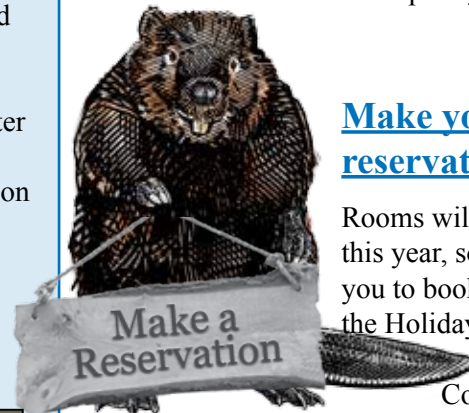
1. People enjoying Wisconsin lakes
2. Natural features in and around Wisconsin lakes and underwater

Go to www.uwsp.edu/uwexplakes, navigate to the Lakes Convention page and click on "Photo Contest" to get the official rules and an entry form, or contact Amy Kowalski at 715-346-4744 for help.

All photos will be displayed at the 2017 Wisconsin Lakes Partnership Convention in Stevens Point, April 5-7.



Stephanie Witman



Make your reservations early!

Rooms will likely sell out this year, so we encourage you to book your room at the Holiday Inn Stevens Point -

Convention Center.

Just go to www.uwsp.edu/uwexplakes, navigate to the 2017 Lakes Convention, then click on "lodging" for instructions.

Agenda At-a-glance

Your full convention agenda will be online in early 2017!
www.uwsp.edu/uwexplakes

Early-bird deadline

Register for the 2017 Lakes Convention by March 8, 2017, and save some cash!



An excerpt from Andrew Fusek Peters' memoir Dip: Wild Swims from the Borderlands.

I stand on the lip of Ludlow Weir, my clothes piled on the concrete bank behind me, near to some teenagers drinking cans of cider. I'm hoping they don't nick my stuff. However, they seem intrigued by the middle-aged beanpole in trunks, preparing to embark on a curious activity: swimming in a river.

I dive. The water is cool balm. This is going to be a proper, long swim, upstream, all the way out of Ludlow. In the park, children stare at the funny man splashing rhythmically past. I have swum in the Teme many times, but never this far. What lies beyond? It's the same urge that drives on the walker, the climber, the explorer. And at this moment, anything could lie just beyond my sightline.

In Shingle Street, Suffolk, my brother Marc and I once scrunched up the pebble beach,

tracing the route up the River Ore. We began at the river mouth where it ran fast and tight, then followed the flow, backwards. As I drift and swim, Marc is still alive and we are young men again. We dive into the water, daring to go deeper, where the current is a hungry, propelling thrust. We scream with feral joy.

We were young, unwise. It was perfect. It's this moment I want for remembering, but he is swept away by the 20 years since I was last with him, when he was gaunt, dying of Aids, so thirsty but not able to swallow; his only relief a cotton bud soaked with water and held to his lips. The savage irony of it: of us two water boys, of Marc who loved life.

I love the river and the river loves me. I loved my brother, my only sibling. I miss him, his playfulness and daring. So I carry him with me back downstream. For if I am the one who has to live on, then he is under me, my water wings, his words seeping into mine.

Throughout his book, Andrew reflects on the loss he experienced when his father committed suicide and his brother Marc died of AIDs. He describes in vivid prose the invigorating natural world that helped aid his recovery. Since he began his wild swimming adventures, Andrew has also become a successful and award-winning nature photographer. You can view his photos on his Twitter feed at <https://twitter.com/2peters>

Call for Posters!

Deadline: Feb. 23, 2017

Including your poster in the Wisconsin Lakes Partnership Convention is a great way to share your research, project or success story! For more information and to submit a proposal, go to www.uwsp.edu/uwexlakes, navigate to the Lakes Convention page and click on "Call for Posters."



Doug Moore

Nominate a Local Lake Steward

Deadline: February 3, 2017

Do you know an outstanding person or group who dedicates time and talent to our state's water resources? We encourage you to nominate them for the prestigious Wisconsin Lakes Stewardship Award.

Recipients and all nominees will be recognized during a special awards ceremony on April 6, 2017, at the Wisconsin Lakes Partnership Convention.

For more information go to <http://www.wisconsinlakes.org/lakestewardshipawards/>.

www.uwsp.edu/uwexlakes



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DNR Surface Water Grant Deadlines Approaching

Planning grants: December 10, 2016

Management grants: February 1, 2017



Lake groups, river groups and local governments are encouraged to apply for surface water grants from the Wisconsin Department of Natural Resources. This program provides \$6.5 million annually to local groups to protect and improve water quality and aquatic habitat and control aquatic invasive species (AIS).

DNR's surface water planning grants are available to help communities:

- ◆ Understand the condition of their lake, river or watershed
- ◆ Develop a management plan
- ◆ Implement projects to protect and improve water quality and aquatic habitat
- ◆ Prevent the spread and control aquatic invasive species.

“The surface water grant program provides organizations the resources they need to create effective plans for managing lakes and rivers. It enables lake and river groups and local government to take steps toward improving or protecting the health of their local waterbodies,” said Shelly Thomsen, DNR's lakes and rivers team leader, who coordinates the grant effort.

“The successes of past grant recipients have made this a popular and competitive program,” Thomsen said.

Organizations interested in applying for the DNR surface water grant program are encouraged to contact their local aquatic invasive species, lake or river coordinator as soon as possible to discuss project ideas. Local grant coordinators are familiar with both the grant process and the issues affecting local areas.

“The involvement of your local lake or river coordinator is key to writing and submitting a competitive grant application,” Thomsen said.

For more information on the Lakes, Rivers and AIS Grant program, including contact information for local coordinators and application materials, visit dnr.wi.gov and search “Surface Water Grants.”

I love that counties in the Northeast are benefitting from this grant program!

~ Shelly Thomsen, WDNR Lakes and Rivers Team Lead

Yep, there are some really dedicated lake stewards in my neck of the woods!

~ Brenda Nordin, WDNR Lakes Biologist, Northeast Region

Photo by Amy Kowalski



CALL FOR RESEARCH

November 12, 2016 – “Connections in Nature” Student Research Symposium - Newburg, WI
Just east of West Bend at the Riveredge Nature Center, we will be celebrating and learning what Wisconsin students have been researching for this 4th annual symposium. Dr. Val Klump is this year’s keynote speaker from UW-Milwaukee’s School of Freshwater Sciences.
For more information: <http://www.riveredgenaturecenter.org/research/student-research-symposium/>

December 10, 2016 – Planning Grant Deadline
Application deadline for lake and river planning, lake classification and ordinance development, AIS education, planning, prevention and Clean Boats, Clean Water grants.
For more information: <http://dnr.wi.gov/lakes/grants/>

January 18-19, 2017 – Wisconsin Ground Water Conference - Wisconsin Dells, WI
Continuing education credits offered on January 20.
For more information: <http://www.wisconsinwaterwell.com/for-members/2017-convention/>

February 1, 2017 – Management Grant Deadline
Application deadline for lake and river protection and AIS established population control grants.
For more information: <http://dnr.wi.gov/lakes/grants/>

February 3, 2017 – Wisconsin Lake Stewardship Nomination Deadline
Let us keep celebrating the good work of our peers! See more on page 13 of this issue.

February 5-8, 2017 – Midwest Fish and Wildlife Conference - Lincoln, NE
This annual event will attract over 800 biologists and students from state, federal, and tribal natural resources agencies from the Midwest, Great Plains, Rocky Mountains and Canadian provinces. Highlights include: nearly 400 technical presentations, poster displays, plenary sessions, networking opportunities and social events. Early bird pricing through November 30, 2016.
For more information: <http://www.midwestfw.org/>

February 28-March 2, 2017 – Wetland Science Conference - Stevens Point, WI
Interested in presenting at this annual Wisconsin Wetlands Association conference? The deadline for the call for presentations is November 15, so hurry! Early bird pricing ends January 20, 2017.
For more information: <http://conference.wisconsinwetlands.org/>

March 1-2, 2017 – International Conference on Water Management - Toronto, Canada
For more information: <http://www.icwmm.org/>

March 8, 2017 – Early Bird Deadline, Wisconsin Lakes Partnership Convention
For more information: <http://www.uwsp.edu/uwexplakes> or see page 12 of this issue.

March 15-17, 2017 – Wisconsin Land+Water Conference - Elkhart Lake, WI
For more information: <http://wisconsinlandwater.org/events/annual-conference>

April 5-7, 2017 – Wisconsin Lakes Partnership Convention
Agenda details and online registration will be available in January 2017.
For more information: <http://www.uwsp.edu/uwexplakes> or see page 12 of this issue.



Lake Tides -- PRJ85HX

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MILWAUKEE, WI
PERMIT NO. 530

Volume 41, No. 4
Fall/Winter 2016



College of Natural Resources
University of Wisconsin-Stevens Point

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A quarterly publication of the Wisconsin Lakes Partnership

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Printed on recycled paper with vegetable-based ink.

Reflections

Get in the water. Walk along
the water. Move across its
surface. Get under it. Sit in it.
Leap into it. Listen to it. Touch
the water. Close your eyes and
drink a big glass.

~ Wallace J. Nichols
from the book Blue Mind

