Lake Tides
The newsletter for people interested in Wisconsin lakes

Microbeads

Down the drain and into our food web?

Research and analysis published over the past year has revealed a new threat to lake health coming from an unlikely source: face wash. The companies that make face wash have been increasingly using tiny plastic "microbeads" to improve the scrubbing capabilities of their products. The microbeads, often under one millimeter in diameter, slip through most municipal wastewater treatment systems. Their ability to stay suspended in liquids is both part of what makes plastic microbeads popular with manufacturers (prevents the exfoliant from settling to the bottom of a container) and part of what makes them so problematic (once floating in open water, they resemble insect eggs and other food sources to fish). The accumulation of microbeads in lakes and rivers is beginning to alarm scientists who are just starting to understand the ecological implications.

For many years, ocean researchers have pointed to the ocean gyres - the most famous being the "great Pacific garbage patch" - as evidence that human waste products are wreaking havoc on a global scale. The currents of the oceans have steadily steered floating debris into relatively small, concentrated areas. Floating on or just below the surface, plastic bags and all sorts of various flotsam gradually breaks down into smaller and smaller pieces. Fish and birds perceive the bits of floating plastic as food. The debris can quickly cause health problems, as is found too often on the remote Midway Islands where nesting albatrosses feed their young a diet of plastic garbage until their chicks die on the nest. A more complex problem arises from the toxins that tend to concentrate on the floating plastic: PCBs and other endocrine disruptors that then bioaccumulate in the food web and impact species that are not directly feeding on plastic debris.

(Continued on page 2)

Original photo by Robert Korth

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Wisconsin Lakes Partnership

Microbeads are often under one millimeter in diameter.

In the realm of inland lakes, we have taken a number of steps to minimize the amount of large floating plastic debris. Wastewater systems and stormwater sewers generally intercept a great deal of litter before it hits the water, and it is now socially unacceptable in most places to simply throw garbage into a lake. The microbeads in our cleaning products threaten to introduce the bioaccumulation problem into more midwestern food webs, potentially even impacting people who catch and eat fish from lakes.

Lorena Rios-Mendoza is an assistant professor of chemistry at the University of Wisconsin - Superior. She began her research on pollutants associated with plastic debris found near Baja, California in the 1990s. In 2012, Lorena participated in a research project to see how common floating plastic debris was in the Great Lakes. While large plastic debris was uncommon, the research showed surprising amounts of microbeads. The concentration generally increased along a downstream gradient in the Great Lakes system, with the highest amounts - over half a million pieces per square kilometer - found in Lake Erie. Another plastic pollution survey conducted by Dr. Sherri Mason and her team during the summers of 2012 and 2013, revealed over twice that amount in Lake Ontario (1.1 million per square kilometer). Mason, a chemistry professor at the State University of New York, Fredonia, found that approximately 70% of the plastic they skimmed off the top of the Great Lakes was between one-third and one millimeter in diameter!

More recently, scientists from McGill University in Canada reported measurable

This past September findings indicate that plastic concentrations in sediment of the St. Lawrence River are similar to the most contaminated ocean sediment samples.

~ Canadian Journal of Fisheries and Aquatic Sciences

What you can do:

Individuals

"There's an app for that"
Download the *Beat the Mircobead* app to your smartphone. Simply scan a product's bar code to learn if it contains microbeads! You can also tell by looking for the ingredients *polyethylene* or *polypropylene*, meaning the product contains plastic.

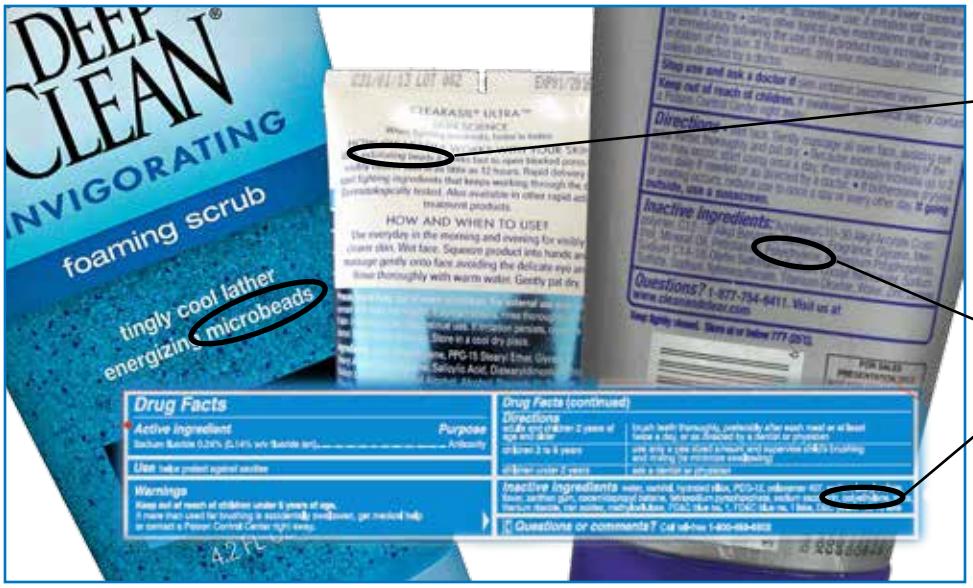
"Shop smart!"
Single-use shopping bags are another source of unintentional plastic pollution; reusable cloth bags are increasingly available at stores and often are compact enough to stow in a purse or pocket.

"Learn more!"
Learn more about plastic waste and efforts to control it from the *5 Gyres Institute*, a global non-profit whose mission is to conduct research and communicate about the global impact of plastic pollution in the world's oceans and employ strategies to eliminate the accumulation of plastic pollution in the five subtropical ocean gyres: www.5gyres.org

Groups

"Clean it up!"
Many lake groups organize clean up days. These are great opportunities to meet your neighbors and reduce the amount of plastic and other debris that could be entering your lake's food web.

"Encourage visitors to help!"
Consider installing a fishing line recycling bin at nearby boat landings to encourage proper disposal of fishing line. You can find a video showing how to make an inexpensive bin and request informational decals from the Boat Owners Association of the United States webpage: www.boatus.com/foundation/monofilament/



concentrations of plastic microbeads in the river sediment of the St. Lawrence River. Their findings, published in the *Canadian Journal of Fisheries and Aquatic Sciences* this past September, indicate that plastic concentrations in river sediment are similar to the most contaminated ocean sediment samples.

No research has been done yet to look at how microbeads are impacting smaller inland lakes and rivers. Where municipal systems discharge treated wastewater into rivers or lakes, it is highly likely that microbeads are being discharged as well. We also know very little about how microbeads move and affect private on-site wastewater systems (septics). Since some septic waste is pumped and then treated at municipal plants, they too could be delivering plastic debris to the environment.

While the growing amount of microscopic plastic debris is troubling, society is already figuring out ways to turn off this pollution spigot. The most simple remedy is to stop buying and using products that contain microbeads. This includes not only soaps and toothpaste, but certain makeup products as well. This past summer, the State of Illinois passed a law that gradually bans the sale of products with microbeads, eliminating them from store shelves by 2019. According to a recent news article in Racine's *Journal Times*, State Senator Bob Wirch and State Representative Tod Ohnstad are planning to introduce a bill in the next legislative session to create a similar ban in Wisconsin.

Manufacturers are already responding, with industry giant Unilever pledging to eliminate microbeads in their products by 2015. In the meantime, millions of pounds of new microbeads will join the untold amounts already moving through our waterways.

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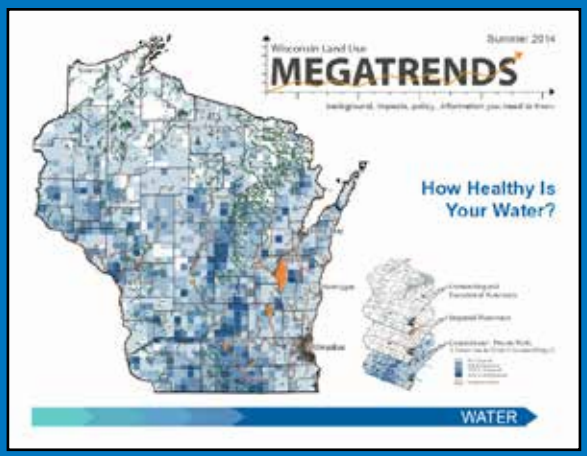
Water Megatrends

The Center for Land Use Education (CLUE) recently released the latest publication in the Wisconsin Land Use Megatrends series, Water Megatrends. CLUE worked with staff from UW-Extension Lakes, the Center for Community Economic Development, the Center for Watershed Science and Education, the Wisconsin Wetlands Association, and Water Action Volunteers to complete the publication. Water Megatrends is 16 pages with lots of maps, figures, and charts. Topics include the water cycle, Wisconsin's water resources, water use, health, economics, recreation, and water policies. Water Megatrends is available on the CLUE website at the following link: http://www.uwsp.edu/cnr-ap/clue/Pages/publications-resources/LandUseMegatrends.aspx



Remembering Lowell

We recently celebrated the life of a great statewide lake leader. Lowell Klessig, the creator and first publisher of the *Lake Tides* newsletter passed away on August 8, 2014 at his home in New Hope outside of Amherst, Wisconsin. In many ways, the entire Wisconsin Lakes Partnership is the fruit of Lowell's tireless efforts to better manage our state's water resources through citizen education and organization. As mentioned in the Spring 2014 edition of *Lake Tides*, it was 40 years ago that Governor Lucey signed legislation creating Wisconsin's unique lake law, an outcome of Lowell's research into local lake associations and their potential roles helping protect and restore lakes. Lowell went on to serve as one of the state's first Extension Lakes Specialists and built much of his academic career on lakes and the ways people manage them.

Amy Kowalski

Lowell laughs while talking about the early days of the Lakes Program in an interview with Eric Olson in December 2013.

In many ways, the entire Wisconsin Lakes Partnership is the fruit of Lowell's tireless efforts to better manage our state's water resources through citizen education and organization.

Lowell's death at age 69 was brought on by Creutzfeldt-Jakob Disease, a rare terminal degenerative neurological disorder. He had just recently completed writing his memoirs as the disease's symptoms began to emerge and needed to arrange for their editing as his condition worsened. In his memoirs, Lowell discusses frankly and candidly another neurological challenge he faced as a person living with bipolar disorder. Friends and colleagues are working to have the memoirs published in 2015, knowing that Lowell's life experiences will help others seeking to better understand mental illness and bipolar disorder. We are sharing an excerpt from his memoirs to both highlight Lowell's dedication as a public servant and provide a sense of how his illness impacted his life and work.

Although I would be given many other short-term responsibilities and a few additional titles during my career, Extension Lake Management Specialist was the core of my position. The years that followed were heady times with thousands of presentations to audiences that ranged from a few lake community leaders around somebody's kitchen table to 500 local officials at a statewide conference.

Summers were incredibly busy and rewarding—above average—borderline manic. However, the lithium chemical defenses held. The secretaries wrote telephone invitations to speak on colored message slips and hung them on my door. Sometimes they reached from eye level nearly to the floor. They couldn't put them on my desk because my mail (no e-mail at that time) piled up in summer by the inches per

UW-Extension Lakes

Lowell speaks to particpants at the 1991 Wisconsin Lakes Convention.

week. Sometimes I was on the road six days in a row. Once I even had to buy an additional set of clean clothes. One weekend I gave five presentations successively in opposite sides of the state. Heady times. I was always the center of attention, always getting a 45 – 90 minute adrenaline rush during an interactive presentation. There was always an outpouring of gratitude.

A friend and colleague, Bob Korth, remembers Lowell's dedication and inclusiveness: "Lowell knew that to have successful lake protection and preservation, citizen leadership was a critical component. He was a driving force behind the concept of a lakes district, which gave a local lake community the economic horsepower to get management done.

Lowell sincerely cared about people and consistently went far above the call of duty to assist and support colleagues and citizens. He was a tireless worker. I couldn't count the number of late nights and weekends over the years that Lowell spent far from home and family working to support those philosophies and people he believed in.

Lowell knew that the most productive types of programs and policies are those that bind people and their communities. He could move people from self-interest to shared interests and in doing this he accomplished much. His passion for his work and energy was contagious."

Dr. Diane Humphrey Lueck, reminisces her early career working with Lowell: "I started working with Lowell and the Lakes Program in 1981 (through 1993). Almost immediately after I began, it was Lakes Convention time. Friends, do you remember the great speakers Lowell was able to find in his immense network? Do you remember the sessions where you networked and found better ways to keep your lakes healthy? That was because Lowell knew how to put together what we all needed in order to learn. Lowell was the most personable of hosts, and the most demanding of his team of experts. I believe we all reacted to his drive to improve lake health through the formation of districts and associations, through citizen monitoring, through the involvement of each of you!

For readers who knew Lowell, think about when he came to your lake meetings. Didn't you feel that you could do more, just because of that dynamic person? I'm proud that working with Lowell started me along my path as a professional in natural resources management. Each of you, whether you knew Lowell Klessig personally or not, can be proud that you are continuing a project—his project—that is so important to the health of our wonderful state!"

UWSP News Services

Lowell's legacy of citizen involvement in the Wisconsin Lakes Partnership will be ever present. Photo taken in 1999.

Our connection with water is almost magical. For some, water is for recreation, sportsmanship, or creativity. For others, it is the soothing and healing capacity that draws us to our lakes and streams. For Lowell, it was a driving force in his life and most possibly his coping mechanism as he worked through a life of mental illness.

To learn more about bipolar disorder and mental illness visit the National Alliance on Mental Illness webpage at www.nami.org.

You can read a memoriam about Lowell on the North American Lake Management Society's webpage, as well as his 2010 article A Tale of Two Spiritual Lakes *here: www.nalms.org/home/klessig.cmsx.*

Donations in Lowell's memory can be made to the Lettie Jensen Community Center, 487 N. Main St., Amherst, WI 54406 or the Nature Conservancy of Wisconsin, 633 W. Main St., Madison, WI 53703.

Lowell was the most personable of hosts, and the most demanding of his team of experts.

~ Diane Lueck

Lowell - the early years!

Surface Water Grants

Streamlined and Online

Grant applicants are now able to electronically submit their application materials!

***Go to dnr.wi.gov and search* surface water grants.**

A new, streamlined application process including an online submission option will make it easier for communities, nonprofit organizations, academic institutions and waterfront property associations to pursue funds for a variety of water protection, management and education grants.

Since 1989, the Wisconsin Department of Natural Resources (DNR) has been funding projects to protect and restore waterbodies throughout the state. The DNR recently consolidated the application for the lakes, rivers and aquatic invasive species grant programs to streamline the application process. In addition, interested grant applicants are now able to electronically submit their application materials!

"DNR provides significant funding to encourage communities, nonprofits and other groups to take on projects that protect and enhance Wisconsin's tremendous water resources," said Shelly Thomsen, Lakes and Rivers Team Leader for DNR. "We want to make it as simple and efficient as possible for stakeholders to apply for and access this support."

Additionally, the application deadlines have been modified to account for the busy field season. Now, lake and river associations, nonprofit organizations and government agencies can apply for planning and education grants including aquatic invasive species education projects until December 10. Grant applications for projects that focus on lake and river protection and restoration as well as controlling aquatic invasive species (AIS) are due February 1. (Grants for AIS detection and response and maintenance and containment are still available year-round.)

These new deadlines ensure grant recipients will be notified of successful projects early enough to allow for project planning before the summer field season is in full swing.

For more information, contact Shelly Thomsen, Lakes and Rivers Team Leader, (608) 266-0502, shelly.thomsen@wisconsin.gov.

DECEMBER 10 - Planning

- Lake Management Planning
  - Small Scale
  - Large Scale
- Lake Classification and Ordinance Development
- Aquatic Invasive Species (AIS)
  - Education, Prevention, & Planning
  - Clean Boats Clean Waters
- River Planning

YEAR-ROUND

- AIS Early Detection & Response
- AIS Maintenance & Containment

FEBRUARY 1 - Management

- Lake Protection
  - Land/Easement Acquisition
  - Wetland & Shoreline Habitat Restoration
  - Lake Management Plan Implementation
  - Healthy Lakes Project
- AIS Established Population Control
- River Protection
  - River Management
  - Land/Easement Acquisition

Healthy Lakes Opportunity

Funding and Best Practices for Lake Properties

By Pamela Toshner, Lake Biologist, Department of Natural Resources

Last fall a lean government team initiated a project to create a new Healthy Lakes grant. Lean government applies lean methods to both identify and then implement the most efficient, value added way to provide government services. The team's overarching mission is to protect and improve the health of Wisconsin lakes by increasing lakeshore property owner participation in habitat restoration and runoff and erosion control projects. The team has measures in place to confirm we will reach our objectives:

1. Reduce grant administration.
2. Improve customer satisfaction.
3. Simplify the process.
4. Improve the environmental outcome.

Who benefits?

Lakeshore property owners receive:

- Enough technical detail to implement best practices on their own.
- Potential funding and less bureaucracy for implementing best practices.
- Consistent technical information, simplified grant forms/process, and a reasonable project commitment.

Agency and lake group partners get:

- Tools for local planning efforts
- Ways to implement more lake health best practices.
- Consistent technical information and simplified grant forms/process.

DNR staff can:

- Partner on more lake health best practice implementation projects.
- Reduce administrative workload and improve consistency.
- Improve program efficiency by standardizing and simplifying the requirements, forms and process.

Making it Happen

Thanks to your feedback and the team's efforts, Wisconsin may be the first state in the nation to have a statewide Healthy Lakes program that includes technical information/assistance and implementation funding.

Our team wrote Wisconsin's Healthy Lakes Implementation Plan, which describes the five most cost-effective and commonly applicable lakeshore habitat improvement and erosion and runoff control best practices, along with corresponding fact sheets and technical guidance. Lake groups, counties, and other eligible sponsors can adopt the plan and locally implement it or integrate the plan and practices into their own planning efforts.

Wisconsin may be the first state in the nation to have a statewide Healthy Lakes program that includes technical information/assistance and implementation funding.

The next deadline to apply for lake protection – plan implementation Healthy Lakes grants is February 1, 2015. Go to dnr.wi.gov and search for *surface water grants*.

For more information, go to http://tinyurl.com/healthylakes or contact Pamela Toshner at 715-635-4073 or pamela.toshner@wi.gov.

Healthy Lakes

Project Team (L to R): Patrick Goggin, UW-Extension Lakes; Jane Malischke, WDNR Environmental Grants Specialist; Pamela Toshner, WDNR Lake Biologist; Carroll Schaal, WDNR Lakes and Rivers Section Chief; Tom Onofrey, Marquette County Zoning Department; Dave Ferris, Burnett County Land and Water Conservation Department

Wood Turtles in Wisconsin!

By Carly Lapin, North Central Wisconsin Field Ecologist, Department of Natural Resources

I push through a dense alder swamp, fighting the branches and swatting mosquitoes while I attempt to hold the 4-prong antenna overhead, listening to the beeps on the radio receiver in my other hand. I'm playing the research-scientist version of 'hot and cold.' The beeps get louder and louder as I walk in one direction, suddenly dropping off as I move past the target. Moving in, making smaller circles, I try to find the location that produces the loudest beeps but cannot see anything in the dense ground cover. Finally, resorting to crawling on my knees and feeling with my hands, I touch what feels to be a large rock underneath the grasses. Pushing the vegetation aside, I finally locate my prize: an adult female wood turtle with a large, copper-colored transmitter and six-inch antenna glued to her shell. It's just another day in the life of a wood turtle; it's also just another day of turtle telemetry in northern Wisconsin.

Carly Lapin

Andrew Badje

The wood turtle is a medium-sized turtle found from the northeastern United States, west to Michigan, Wisconsin, and Minnesota, and north into the Canadian provinces of Ontario, Quebec, New Brunswick, and Nova Scotia. It is listed as a threatened species in the State of Wisconsin. Its upper shell, or carapace, is dark brown with black and yellow flecks and shows growth rings on each scute, or segment. The lower shell, or plastron, of the wood turtle is yellow with dark blotches on the outer-rear corner of each scute, which also show growth rings. The head, legs, and tail of the wood turtle are dark brown or gray above, and the skin between the scales and in the leg and tail sockets is usually yellow, sometimes varying to orange. They are called wood turtles because of their association with forested rivers, the similarity in appearance of their shell to carved wood, and because they are very terrestrial during the summer months, sometimes using upland wooded habitats. Indeed, the turtle's genus name, *Glyptemys*, means 'carved turtle' in Greek, and its species name *insculpta*, is derived from 'insculptus,' the Latin word for 'engraved.'

Wood turtles are found in northern Wisconsin down to Brown, Outagamie, and Winnebago counties and into the extreme southwest counties of the state. They inhabit clear streams with moderate- to fast-flowing water and sand or gravel bottoms in forested areas. Wood turtles spend the winter hibernating underwater in these streams and rivers, where they lodge themselves under a rock, log, or overhanging

bank. They emerge from hibernation in May, at which time they mate and begin moving on-land, returning to the water at night. Female wood turtles nest from mid- to late-June, sometimes moving long distances (up to three miles documented in northern Wisconsin) to reach their nesting sites. Following nesting, the females and some males spend the rest of the summer on land, roaming the forests and alder swamps until cool night temperatures cause them to move back to the rivers in late August. Wood turtles typically return to the water permanently to hibernate in October or November.

Wood turtles are omnivores and feed opportunistically on just about anything they can find, including berries, leaves, mushrooms, earthworms, insects, mollusks, mice, amphibians and carrion. Mushrooms are reported to be a particular favorite. Wood turtles have been observed performing a very unique activity, called 'worm stomping,' to hunt earthworms. They lift their plastron (lower shell) off the ground and repeatedly *thump* it down onto the soil. This sound and vibration cause earthworms to emerge from below the surface, and they are then consumed by the stomper! Wood turtles have been observed stomping both in the wild and in captivity, which suggests that this is an innate, rather than a learned, behavior.

Wood turtle populations have declined significantly across the species' range. Threats to the species include road mortality, which often occurs in June when females are looking for nesting sites, nest and hatchling predation associated with increased raccoon and other predator populations (a result of increased human activity), and removal of

Andrew Badje

Here we see a hatchling of a wood turtle.

Andrew Badje

wood turtles from the wild to be kept as pets. Wood turtles do not reach sexual maturity until approximately 12-14 years of age; therefore, populations are very sensitive to the loss, either by the death or removal of adult females, which are the only source of new turtles into the population. Those wood turtles that do reach sexual maturity can often live to be 30 years old, or even older!

Wood turtle populations have declined significantly across the species' range.

With the use of telemetry and monitoring, the Wisconsin Department of Natural Resources' Bureau of Natural Heritage Conservation is studying the movements and behaviors of wood turtles in northern Wisconsin to improve our understanding of habitat use, threats and conservation opportunities in the state. The results of this research will be used to enhance our management strategies and improve conservation by reducing road mortality, improving and restoring nesting habitat, and preventing nest predation.

The wood turtle is a unique and charismatic species with a very special type of cuteness. It is an important part of Wisconsin's natural heritage. If you are lucky enough to see one, enjoy it in the wild, and let it do its 'wood turtle thing.' If you would like to promote the conservation of wood turtles as well as all of Wisconsin's turtle species, please consider participating in The Wisconsin Turtle Conservation Program. For more information, go to dnr.wi.gov and search for *wood turtle*.

Check out this short YouTube video of a North American Wood Turtle 'worm stomping' http://youtu.be/rU1OfiL5XaI

Keeping Lakes in the Family

Sharing the Magic Through Stories

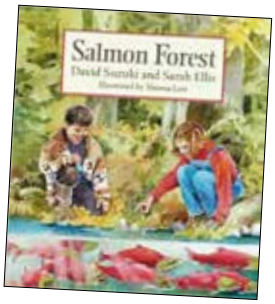
Compiled by Lynn Markham, Center for Land Use Education, UW-Stevens Point

Wildlife are attracted to lakes and streams because the essentials of life for many species occur there, including food, water, shelter, and a place to raise their young. The variety of plants on land and in the water provides a mosaic of wildlife habitat. The land that drains to a lake or stream is known as the watershed. Healthy watersheds include woods, wetlands, and prairies that filter and absorb runoff from buildings, driveways, and roads. But that's not all; watersheds also provide critical habitat near the shoreline. In this year's book review, we're focusing on the benefits of trees, forests and wetlands near our lakes. Healthy Watersheds = Healthy Lakes.

A Log's Life *Ages 4-8*

Written by Wendy Pfeffer
Illustrated by Robin Brickman

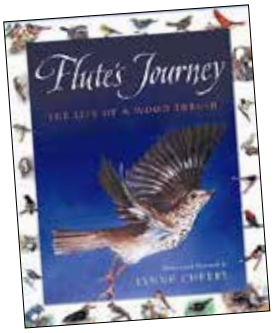
An attractive introduction to the life, death, and decay of an oak tree. The simple, informative text presents the complex cast of characters residing in or on the living tree as well as the decomposing log from woodpeckers, squirrels, and porcupines to carpenter ants, millipedes, slugs, and fungi. This book is enhanced by striking illustrations of three-dimensional paper sculptures, often so realistic as to seem to be preserved natural specimens



Salmon Forest *Ages 5-8*

Written by David Suzuki and Sarah Ellis
Illustrated by Sheena Lott

While this book features the sockeye salmon, found in the Pacific Northwest, the book offers a wider view of the fish's ecosystem. In clear, kid-friendly language, Katie and Dad discuss how the salmon and the forest ecosystem form an intricate web of dependency that includes flesh-eating fungi, maggots, and "all the poop" from the animals that feed on salmon. Many fish in Wisconsin also depend on the cool, clear water provided by trees and forests on the shorelines. Vibrant watercolors of sun-dappled forest light and shimmering fish bodies add to the sense of atmosphere.



Flute's Journey: The Life of a Wood Thrush *Ages 5-8*

Written and illustrated by Lynne Cherry

Through the tale of a young wood thrush, readers learn the dangers migratory birds face. Cherry's illustrations, always a feast for the eyes, provide colorful, richly detailed forest scenes as a handsome backdrop for the story of Flute's autumn migration from his birthplace in a Northern American forest to a Central American rain forest for the winter. There he rests and feeds before beginning his journey back north in the spring. Along the way, Flute faces natural predators, but the destruction of habitat is presented as the most serious threat.

Forest has a song: Poems *Ages 6-9*

Written by Amy Ludwig VanDerwater
Illustrated by Robbin Gourley

Creatures and plants and the sights and sounds of the forest are described in this collection of nature poems. A girl, other human companions, and her dog encounter chickadees, tree frogs, lady slippers, lichens, and fossils, and these forest experiences span the seasons. The poems are simple, well-shaped, and pleasant for read-aloud sharing.

This is my favorite book!
~ Tessa, age 5

On Meadowview Street *Ages 4-8*

Written and illustrated by Henry Cole

When Caroline and her family move to a suburban development, their street's pleasant name prompts an exploratory stroll to see if there really is a meadow on Meadowview Street. The girl doesn't get far before she spies a beautiful, solitary flower on her own lawn. She asks her dad to work around it while mowing the lawn, hurries inside to find string and sticks, and builds a "small wildflower preserve." As other flowers bloom, she enlarges the area. Dad puts the lawn mower up for sale, and, with the help of her parents, Caroline sets about transforming her backyard into a teeming ecosystem. Soon there are butterflies, birds, a pond, flowers, trees, and a real meadow on Meadowview Street. And soon, their neighbors' yards changed. Cole's economical text and tender, acrylic paintings tell the story with simplicity and energy as the barren strip of grass evolves into a lush habitat.

The Secret Pool *Ages 6-10*

Written by Kimberly Ridley
Illustrated by Rebeka Raye

"Even if you are lucky enough to find me shining on the forest floor on an early spring day, you might mistake me for a puddle—which I most certainly am not! I'm a watery jewel called a vernal pool." A lyrical narrative is supported by additional text on every page providing accessible facts about vernal pools. These temporary areas of water that form in spring and last (typically) until autumn serve as a breeding ground for several creatures in forest ecosystems, such as wood frogs, spotted salamanders, and fairy shrimp. Both narratives follow the activity across the several months of a vernal pool's existence. Once the pool is dry, things continue to happen in the spot where it once shined as the cycle of decay and renewal nourishes the environment that will enable the vernal pool to support new life the next time it forms. Illustrations with a rich, woodsy palette provide an up-close look at activities in and around the vernal pool.

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

Loon *Ages 4-7*

Written by Susan Vande Griek
Illustrated by Karen Reczuch

One late June day, a gray chick pecks and pecks her way out of her large green-and-brown spotted egg. A short time later, she has a little brother. They stay in the nest for about a month, then are ready to test the waters, literally. In summer, there are dangers on the water, such as people; the offspring learn to dive deep for fish like their parents. As fall turns to winter, the parents fly away, leaving the young to fend for themselves. They grow strong and take flight just before the lake water freezes, finding a new home on the ocean with a loose flock of others. After a few years they are ready to become parents themselves and begin to listen for that distinct mating call. The book concludes with an informative essay about the loon, including what we can do to help loons. Beautiful paintings tell the story eloquently.

Ellie's Log: Exploring the Forest Where the Great Tree Fell *Ages 8-12*

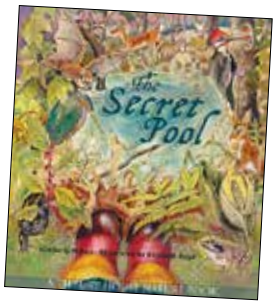
Written by Judith L. Li
Illustrated by M. L. Herring

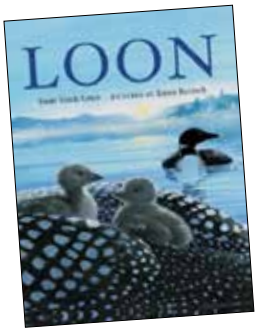
After a huge tree crashes to the ground during a winter storm, ten-year-old Ellie and her new friend, Ricky, explore the forest where Ellie lives. Together, they learn how trees provide habitat for plants and animals high in the forest canopy, down among mossy old logs, and deep in the pools of a stream. The plants, insects, birds, and mammals they discover come to life in colored pen-and-ink drawings.

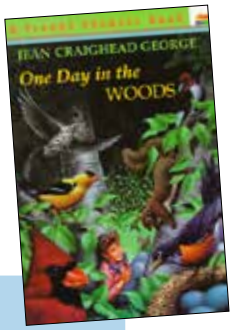
One Day in the Woods *Ages 6-10*

Written by Jean Craighead George
Illustrated by Gary Allen

Rebecca is determined to find an ovenbird in her local woods. Rebecca's encounters with various animals are gentle and respectful. The day climaxes at sunset with the appearance of the ovenbird and a concert of amazingly varied sound. The repeated reference to animals as "wizards of the woods" adds a precious note to the quiet tale.







This is the best book I've ever read!

~ Tate, age 9, who stayed up two nights in a row reading this book under the covers with a headlamp when he was supposed to be sleeping!

We all want to be healthy, right?

Healthy Watersheds, Healthy Lakes Healthy People

2015 Wisconsin Lakes Partnership Convention

You are what you eat is a common phrase that has often been used to describe how the food we eat has a bearing on our state of mind and health. The same concept can be used to talk about the health of our watersheds and lakes. How we care for and use our resources has a bearing on how healthy our watersheds and lakes are, and ultimately affects our own personal health. The theme for the 2015 Wisconsin Lakes Partnership Convention is: *Healthy Watersheds, Healthy Lakes, Healthy People.*

The schedule for 2015 will include pre-convention workshops and technical sessions the first day, followed by a full second day including the keynote address, breakout sessions and poster displays covering topics like:

- Ecology
- Groundwater/Water Levels
- Aquatic Inavasive Species
- Public Health
- Eutrophication/Non-Point Pollution, and more.

Early bird deadline: April 2, 2015

More breakout sessions and inspirational speakers will be followed by field trips and workshops to round out the final day. Throughout the convention you will be able to visit educational tables and business displays, network with watershed/lake colleagues and other lake enthusiasts, and reconnect with friends and neighbors. Please join us in helping to reach our goal of *Healthy Watersheds, Healthy Lakes, Healthy People.*

Nominate a Local Lake Steward

Deadline: February 6, 2015

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 Partnership Stewardship Award. The categories are:

- Citizen
- Organized group
- Public service
- Youth (individual or group)
- Business

Recipients and all nominees will be recognized at the Wisconsin Lakes Partnership Stewardship Award Banquet, April 24. An online nomination form is available at www.uwsp.edu/uwexlakes/ click on *2015 Convention* under **Events**. For more information call the Wisconsin Association of Lakes at 608-661-4313 or 800-542-5253.

CALL for POSTERS

Deadline: February 20, 2015

Share your plans, projects, and research results with convention attendees at the ever-popular poster session. This is a great way for lake stewards, researchers, educators and managers to share with, and learn from one another.

When: Friday, April 24, 2015 from 3:30 to 5:00 pm. You are required to attend your poster during this time.

Questions: please contact the UWEX-Lakes office at (715) 346-2116 or uwexlakes@uwsp.edu.

For more information and to submit your abstract, go to www.uwsp.edu/cnr/uwexlakes and click on *2015 Convention* under **Events**.

The Wisconsin Lakes Convention does not endorse specific products or services. Therefore, posters presented by individuals representing corporations or projects conducted by corporations should avoid the use of trade or brand names and refer to the products or services by a generic descriptor.

Picture This!

Amy Kowalski

You enter the Wisconsin Lakes Partnership photography contest and win $100! It could happen!

Show us the beauty and uniqueness of your favorite Wisconsin lake and how you enjoy it. It's easy. Just check out the 2015 Convention page in the Events section of our web site www.uwsp.edu/cnr/uwexlakes or contact Amy at 715-346-4744 to get the official rules and an entry form.

All photo entries will be displayed at the 2015 Wisconsin Lakes Partnership Convention in Stevens Point. You can enter up to four photos (two in each category) that show "people enjoying lakes" and "the natural features in and around lakes and under water."

Deadline: April 2, 2015

Did you know the wood frog needs a predictable climate?

DYK

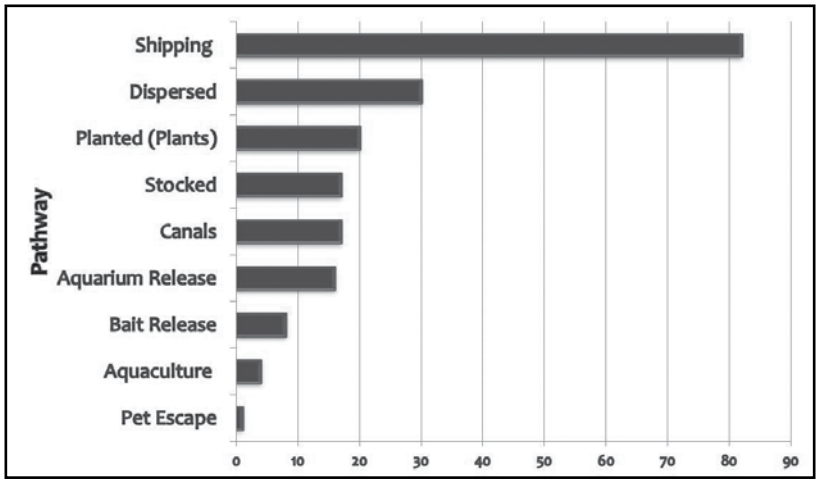
Wisconsin's wood frog is unique in its survival skills and that's why it can make it through Wisconsin's harshest months. It's ability to "freeze" in the winter and thaw in the spring, allows it to tolerate winter in Wisconsin. Wood frogs rely on soil burrows, leaf litter, and snow cover to help keep them insolated in the cold winter months, and need moist soils, leaf litter, and ponds close to woodlands for breeding in spring. This makes the Wisconsin wood frog very reliant on a predictable and steady climate. Ecologists expect that because the climate is changing at a more rapid pace, the wood frog may face complications living in Wisconsin, and it may result in changes to the wood frog's population and range. A major cause of juvenile frog mortality is freezing when exposed to extremely cold temperatures, putting the wood frog at greater risk of dying before it is able to reproduce. Another threat to wood frogs is the possible projected future of drought increase and severity. Because Wood frogs rely on moist climates and temporary ponds for breeding grounds, the increase in drought-like conditions will have great ramifications on the amphibian's population in Wisconsin.

Dave Huth, Flickr Creative Commons, cropped

AIS - How Do They Get Here?

By Tim Campbell, AIS Communication Specialist, UW-Extension and Dept. of Natural Resources

When many of us think of aquatic invasive species (AIS), we think of dense mats of Eurasian water milfoil or sharp zebra mussel shells cutting our feet. We might also picture a boat with water sloshing around or with vegetation tangled around the motor as the main ways these things are moved around. Without a doubt, these are some really common ways people experience AIS and are accurate reflections of AIS impacts in Wisconsin.



But what about the species that aren't here yet? What about the pathways we haven't been talking a lot about? Many of these pathways are organisms in trade (OIT) pathways, and these pathways involving the trade and transport of plants and animals have the potential to be the next way a new species is introduced. OIT pathways are diverse and numerous, but over the next few *Lake Tides* issues we'll introduce these pathways and provide you with what you need to know to prevent invasions through them. In the meantime, check out this graph showing the pathways responsible for AIS in the Great Lakes. Do you see the OIT theme?

Provided by Paul Skawinski

Newest Member of UW-Extension Lakes Team

In late October, UW-Extension Lakes welcomed Paul Skawinski as the new Citizen Lake Monitoring Network (CLMN) Educator. Paul has worked extensively with the CLMN program through his previous position as the Regional Aquatic Invasive Species (AIS) Education Specialist for Golden Sands Resource Conservation & Development Council, Inc. He also teaches Aquatic Plant Taxonomy for the Department of Biology at UW-Stevens Point.

In 2003, Paul began his work with AIS as the first Clean Boats, Clean Waters watercraft inspector on Wisconsin's Lake Michigan shoreline. A graduate of UW-Stevens Point (B.S. - '08, M.S. '14), his thesis work focused on physical, chemical and biological variables of lakes and shorelands, and how those relate to density of both Eurasian watermilfoil and milfoil weevils.

Combining his passions for photography, kayaking and environmental education, Paul spent several years researching and photographing all of the aquatic plants of the region for his popular field guide Aquatic Plants of the Upper Midwest (2011, 2014), which was recently released in its second edition (available through the UW-Extension Lakes bookstore).

Paul is excited to support lake monitors and help preserve Wisconsin's legacy of lakes. He can be contacted at Paul.Skawinski@uwsp.edu or 715-346-4853.

2014 WI Lake Leaders Institute Graduates

On Friday October 17, 2014, near Aldo Leopold's Shack in Baraboo, WI. twenty-eight individuals graduated from the Wisconsin Lake Leaders Institute. They join almost 300 dedicated citizens and lake professionals who have attained *Lake Leader* status since the institute's inception in 1996. These new lake leaders come from 21 different counties in Wisconsin. They have made a commitment to themselves and their *crew mates* promising to draw from this leadership experience in their future lake stewardship work. Graduates of Crew 10 include:

Timothy Day
James DeLuca
Mark Emerick
Maureen Ferry
Christopher Gaetzke
Chris Hamerla
Ryan Haney
Scott Heinritz
Shanda Hubertus
Tom Ittner
Susan Johnson
Christy Justice
Jodi Lepsch
Dan McFarlane
Anne Miller
Carrie Sanda
Danielle Santry
Beverly Saunders
Jeanne Scherer
Wally Sedlar
Thomas Spaniol
Kaycie Stushek
Linda Szramiak
David Tidmarsh
Shelly Thomsen
Ron Verdon
Robin Walsh
Ray Zuelke

Amy Kowalski

For more information about the Wisconsin Lake Leaders Institute please visit www.uwsp.edu/UWEXLakes and click *Lake Leaders*.

CALENDAR

December 10, 2014 – Planning Grant Deadline
Application deadline for lake and river planning, lake classification and ordinance development, AIS education, planning, prevention, and Clean Boats, Clean Waters grants.
For more information: http://dnr.wi.gov/lakes/grants/

January 7-8, 2015 – Wisconsin Ground Water Conference, Wisconsin Dells
For more information: www.wisconsinwaterwell.com/news-and-events/

February 1, 2015 – 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 8-11, 2015 – Midwest Fish and Wildlife Conference, Indianapolis, IN
For more information: www.midwestfw.org/

February 24-26, 2015 – Wisconsin Wetlands Association Conference, Madison
For more information: www.wisconsinwetlands.org/

April 2, 2015 – Early bird Deadline, Wisconsin Lakes Partnership Convention
For more information: www.uwsp.edu/uwexlakes

April 23-25, 2015 – Wisconsin Lakes Partnership Convention, Stevens Point
Agenda details and online registration will be available in January 2015. Register before the April 2nd early bird deadline and save your hard-earned cash!
For more information: www.uwsp.edu/uwexlakes

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IN THIS ISSUE

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Reflections

Few words have as positive a connotation as "stewardship." However, stewardship is not enough. It will not provide lakes or any other part of nature with enough love and respect… The lake steward is protecting the lake for the benefit of present and future generations of humans. That is a good start, but it is a woefully inadequate paradigm because it still treats nature as a commodity to be managed for wise human use. A paradigm shift from stewardship to "interdependence and a broad sense of community" is required for families, communities, and societies to be sustainable.

~ Lowell Klessig