Lake Tides
The newsletter for people interested in Wisconsin lakes

Rethinking Lake Organization Capacity

By Eric Olson, Director, UW-Extension Lakes

How do "wicked problems" get solved? How can we better understand the relationships between people, organizations and lake health? What are good starting points for lake organizations that want to step up their game when it comes to protecting and restoring waterway health? The University of Wisconsin and the Wisconsin Department of Natural Resources (DNR) collaborated over the past year to explore these questions and develop a model for understanding the connections between lake organization capacity and lake health using systems thinking (read about this concept on page 4). The UW and DNR are engaging with local lake associations and districts to develop new tools for enhancing community capacity.

Community capacity building is defined as the "process of developing and strengthening the skills, instincts, abilities, processes and resources that organizations and communities need to survive, adapt, and thrive in the fast-changing world."

The effort began with an idea: get several DNR resource managers and university applied researchers together to think a bit more critically about the way we engage lake organizations in planning for lake protection and restoration. The team included Buzz Sorge, Mark Hazuga, and Brian Weigel from the DNR and Eric Olson (UW-Extension Lakes), Nels Paulson (UW-Stout) and Aaron Thompson (UW-Stevens Point). The opportunity to collaborate and dig deep came about through ThinkWater, a national educational effort supported by the U.S. Department of Agriculture to help people of all backgrounds and ages think and care deeply about water. ThinkWater applies systems thinking to existing water education and research efforts by actively engaging, educating and empowering a world of Systems Thinkers to solve wicked water problems.

The wicked water problems in Wisconsin that drew this team together are evident in the numerous lakes and rivers in the state that fail to meet water quality standards. State, local and national programs have spent millions of dollars on best management practices (BMPs) to restore water quality by working at the watershed scale and with individual lakefront property owners, but that takes time. For folks in Menomonie,

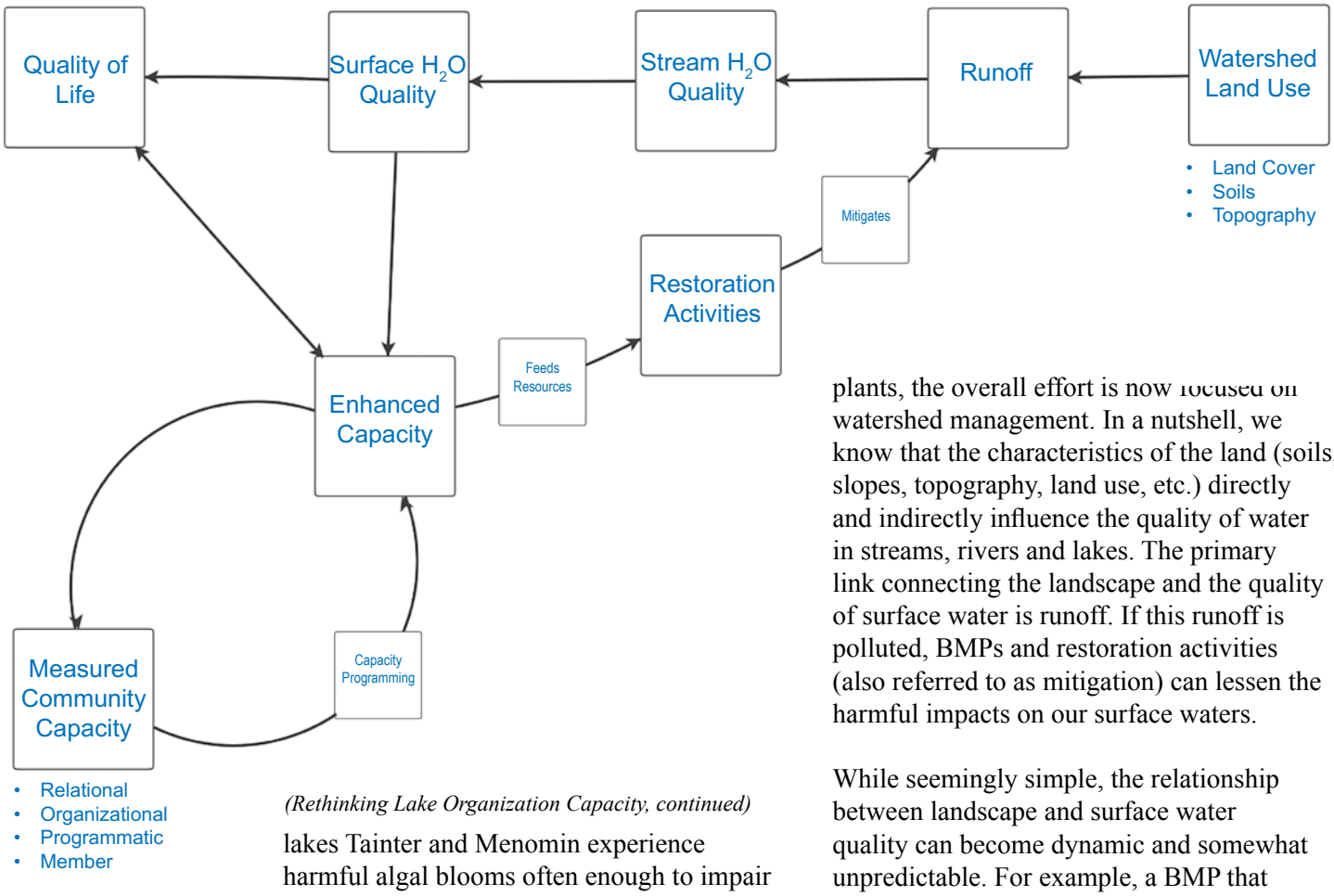
(Continued on page 2)

Amy Kowalski

Advanced Lake Leaders are clearly engaged during an activity at the Leopold Center in early October.

Volume 42, No. 4 Fall/Winter 2017
Wisconsin Lakes Partnership

Understanding Watershed Management Using A Systems Thinking Map



(Rethinking Lake Organization Capacity, continued)

lakes Tainter and Menomin experience harmful algal blooms often enough to impair recreational use of the waters. These conditions are driven largely by nutrients that are carried there through waterways in the entire Red Cedar River basin. For all of the work that has been accomplished in the basin through BMPs like nutrient management plans, wastewater plant improvements and stream restoration, the lake is still far from ideal.

The primary link connecting the landscape and the quality of surface water is runoff.

The ThinkWater experience gave the DNR and university participants an online tool for mapping out the problem of unhealthy watersheds using a formulation of systems thinking summarized in the 2015 book Systems Thinking Made Simple: New Hope for Solving Wicked Problems by Derek and Laura Cabrera. The system mapping tool (MetaMap) helped the team see the distinctions and relationships between numerous parts of physical watersheds. Many decades of research and data collection have vastly improved our understanding of the connections between the landscape and surface waters. Now that the DNR has identified and brought into regulation point sources of water pollution such as factories and wastewater treatment plants, the overall effort is now focused on watershed management. In a nutshell, we know that the characteristics of the land (soils, slopes, topography, land use, etc.) directly and indirectly influence the quality of water in streams, rivers and lakes. The primary link connecting the landscape and the quality of surface water is runoff. If this runoff is polluted, BMPs and restoration activities (also referred to as mitigation) can lessen the harmful impacts on our surface waters.

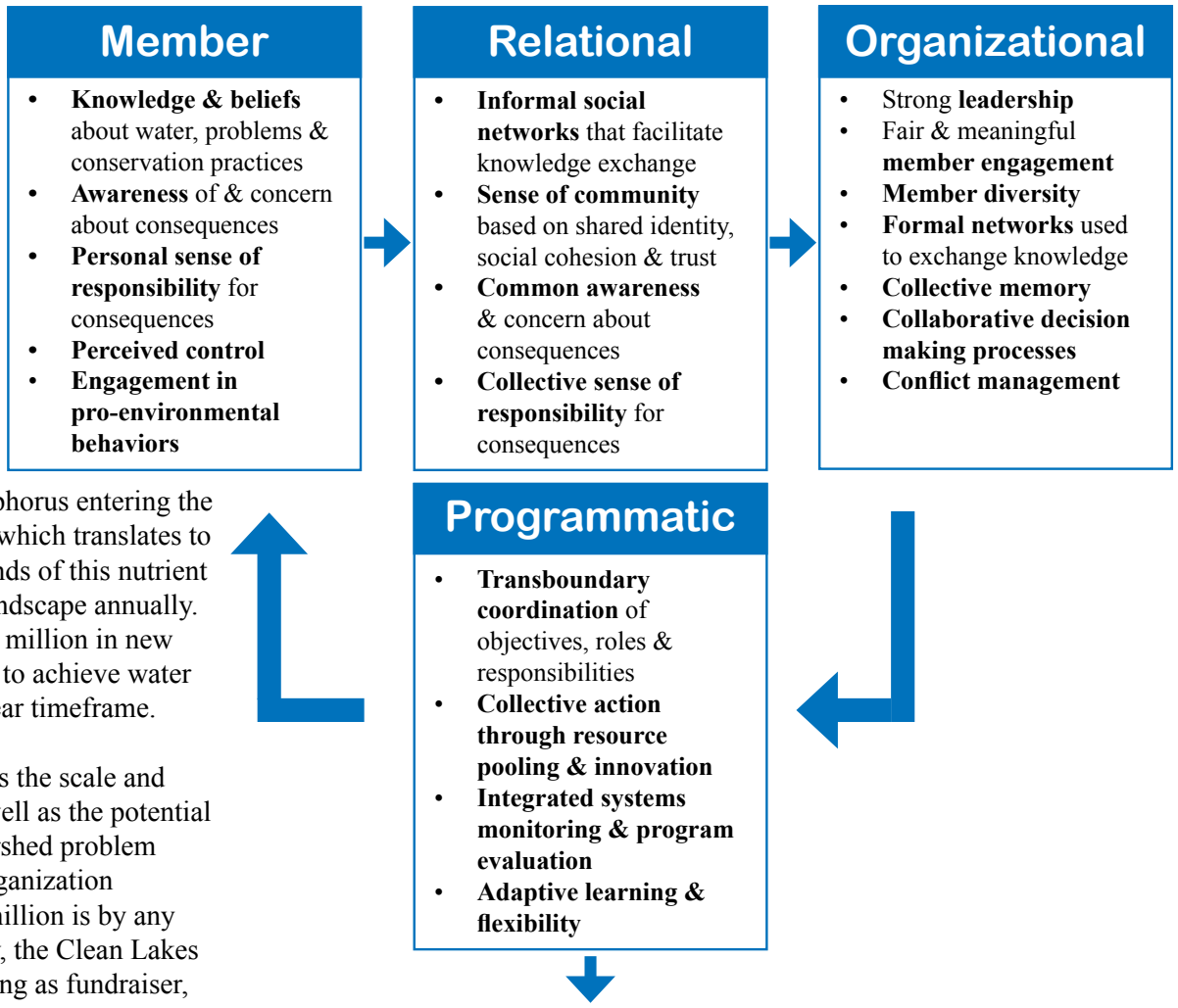
While seemingly simple, the relationship between landscape and surface water quality can become dynamic and somewhat unpredictable. For example, a BMP that allows stormwater to slowly soak into the ground near the headwaters of a stream helps reduce the extreme fluctuations in that stream's flow volume. A more consistent flow may support healthier vegetation along the stream's edge downstream from where the BMP was installed, and those plants in turn will limit stream bank soil erosion and further enhance water quality in the rivers and lakes downstream. DNR and university researchers have greatly enhanced our understanding of these dynamic relationships through higher resolution watershed models, and we are better than ever at identifying where and how to intervene on the landscape to obtain the greatest effect from our efforts. This greater understanding has led to a somewhat challenging realization: all of our work so far to restore streams, rivers and lakes still falls short of the task at hand.

The Yahara Chain of Lakes in Dane County illustrates this phenomenon. Lake Mendota is often heralded as one of the most thoroughly studied lakes in the world, sitting on the shores of the University of Wisconsin-Madison.

A Multilevel Community Capacity Model for Sustainable Watershed Management

by Mae Davenport and Erin Seekamp

State, county and local governments, as well as numerous lake and watershed organizations, have been working hard to monitor and restore the Dane County lakes and the waterways that feed into them, but they are still short of their goals. A 2012 plan presented by the Clean Lakes Alliance calls for a 50% reduction in phosphorus entering the entire system of lakes, which translates to preventing 46,000 pounds of this nutrient from running off the landscape annually. The plan calls for $130 million in new urban and rural actions to achieve water quality goals in a 20-year timeframe.



This example highlights the scale and scope of the issue, as well as the potential tractability of the watershed problem through greater lake organization capacity. While $130 million is by any measure a lot of money, the Clean Lakes Alliance has been serving as fundraiser, convener and motivator, bringing together an array of people and partnerships to leverage resources towards the nutrient reduction goal. Their 2016 State of the Lakes report summarized recent accomplishments: "Farmers, especially in the Lake Mendota watershed, have partnered with Yahara Pride Farms, Dane County, and Yahara WINS to put in place improved cropping, tillage, and field management practices to divert significant amounts of phosphorus." They estimate that the farmland practices alone reduced nearly 5,000 pounds of phosphorus annually from entering the lakes. These and other accomplishments have created a positive feedback loop in Dane County, where partners are viewing the lakes as a worthwhile investment and are committing themselves to further actions, including a recent announcement by County Executive Joe Parisi to invest $12 million over four years to remove legacy sediment from streams that empty into the lakes.

When the ThinkWater team tried to bring the Dane County experience into our systems map, we realized that we needed to include the social components and relationships that directly and indirectly influence the scale and scope of BMPs and restoration activities that happen in a watershed. We drew on the research of Mae Davenport from the University of Minnesota who has focused on community capacity to address watershed issues. Mae's system includes four distinct types of capacity: Member, Relational, Organizational and Programmatic. These four facets of capacity are themselves mutually reinforcing, but they are also embedded in places where achieving successes in watershed management can feed additional capacity back into local organizations. Put simply, success leads to further success.

(Continued on page 4)

Our team then came to several conclusions. First, local and state government alone will not be capable of providing all the resources needed to implement the scale and scope of BMPs and other restoration actions needed to reach water quality goals in Wisconsin. The price tag across the state is easily in the billions of dollars. The status quo of voluntary actions and existing programs in urban and rural areas is also insufficient to get us where we want and need to be. Second, local lake organizations have demonstrated that they can be important motivators and funders for getting more improvements on the landscape, but they too may be limited by their own member, relational, organizational or programmatic capacity. As a result, Wisconsin needs to invest more time and energy into measuring and enhancing community capacity to support watershed restoration, the applied social science side of our complex system. This investment should equal the time and effort spent understanding the bio-geo-physical part of the system if we want to move beyond just understanding watersheds and deeper into restoring them.

We are laying the groundwork for this shift towards capacity building in several ways. Aaron Thompson from our team has created a simple "score yourself" tool that lake organization members can use to gain a sense of how much capacity they have in each of the four facets. We have piloted this tool twice through Advanced Lake Leaders and found it to be a robust and accurate method for gaining a snapshot of capacity, and we plan to use the tool more often through workshops and online programming. We are also working with lake associations to create simple guides for those who wish to enhance their organization's capacity. Look for more about these guides in a new regular feature of this newsletter (the *Capacity Corner*) that will highlight the capacity building guides and share real world experiences from lake organizations. Last, but not least, there is growing acceptance in the Wisconsin DNR that these capacity building efforts could and should be better supported through the surface water grants program.

Contact Eric Olson at Eric.Olson@uwsp.edu or 715-346-2192 if you have questions or would like more information for your lake group.

ThinkWater

The ThinkWater webpage has short videos and other resources to show how systems thinking can be applied to complex water management challenges. https://www.thinkwater.us/

Systems Thinking 2.0

The ThinkWater approach draws on a form of systems thinking described by Cornell researcher Derek Cabrera. His research emphasizes the importance of how we think in addressing both simple and complex problems. Cabrera contends that there are four structures or patterns underlying our thought processes: Making Distinctions, Organizing Systems, Recognizing Relationships and Taking Perspectives. The acronym DSRP is shorthand for these four primary patterns.

Any piece of information can be analyzed using each of these elements. For example, consider the Beaver Dam Lake Improvement Association. By giving their lake association this name, a distinction is drawn between it and all other entities. In this instance, the Beaver Dam Lake is the basis of the group's identity and everything else is the *other*. From the perspective of a neighboring lake, however, the Beaver Dam Lake Improvement Association is the other. The Beaver Dam Lake Improvement Association is also a system – it is a whole entity, but it is made up of constituent parts: its membership, hierarchy, values, etc. When viewed from a different perspective, the Beaver Dam Lake Improvement Association is just a part of the whole universe of lake organizations. These in turn are examples of local organizations people create to meet local needs. The Beaver Dam Lake Improvement Association is in relationship with innumerable other entities, for example, the local media, the DNR and the lake itself, each of which mutually influence the Association – relationships of both cause and effect. The lake association is also a relationship itself between other concepts, for example, between one of its members and efforts to protect and restore the Rock River basin. Finally, the Beaver Dam Lake Improvement Association constitutes a distinct perspective on the world – a way of viewing the physical and social landscape around the lake and collectively understand social and ecological issues.

Lakes 101

By Michala Feigal, UWSP Student

Lakes 101 is a new section of Lake Tides that will explain the basics of lake related topics. If you are curious about a lake issue or water related topic, let us know and we will explore it in a future issue (uwexlakes@uwsp.edu or 715-346-4744). You can also connect with us on Facebook by typing "Wisconsin Lakes Partnership" into the search box at http://www.facebook.com.

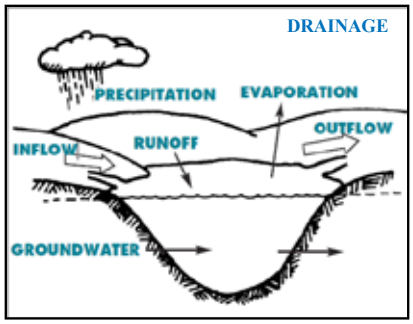
Topic: Not All Lakes Are the Same

Lakes provide a place for people to relax or play and a home for other mammals, fish, plants, water bugs, amphibians and other organisms. But, not all lakes are the same. Did you know that there are five main lake types? Lake types vary by the way that water enters and exits the lake. The source of a lake's water is vitally important to determine and protect its water quality.

Watershed \ ˈwȯ-tər-ˌshed \ (noun) An area of land where all of the water that falls into it drains to a common outlet (stream or lake).

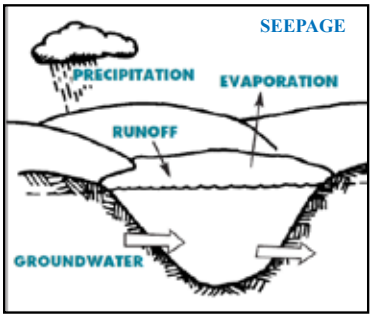
Drainage Lakes

These lakes have both an inlet, meaning they are fed by a stream, and an outlet. Fish populations in drainage lakes can vary depending on what is found in the stream. Drainage lakes may have higher nutrient levels depending on the watershed that surrounds the incoming streams. Drainage lakes typically have steady water levels.



Seepage Lakes

Seepage lakes do not have an inlet or an outlet. These lakes are fed by rainfall, runoff and groundwater. Seepage lakes reflect the groundwater levels and rainfall patterns in the watershed. Because the lake reflects these, the water level of the lake may fluctuate seasonally. For example, if it is a dry year one may see the water level lower than a wet year. Seepage lakes also tend to have a fish population that is less diverse.



Spring Lakes

Spring lakes do not have an inlet, but they do have an outlet. These lakes are fed by groundwater that flows into the bottom of the lake. Often times spring lakes are the headwater of a stream. These types of lakes are fairly common in Northern Wisconsin.

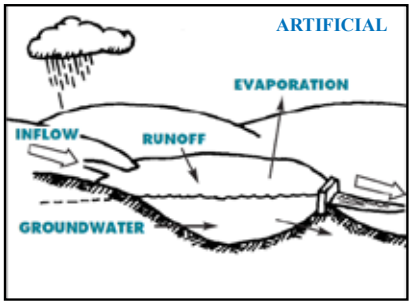
Lakes have many different habitats within them. This allows for a diverse fish population to live in a lake.

Drained Lakes

Drained lakes do not have an inlet, but do have an outlet. These lakes are fed by precipitation and direct drainage of the watershed. Water levels in these lakes fluctuate depending on the amount of rain in the watershed. If there is not much rain or snow, drained lakes may have very low water levels, sometimes resulting in a dry lake.

Artificial Lakes

Artificial lakes are human made. Sometimes these are also called impoundments, meaning there is some sort of dam influence on the waterbody. These lakes are also considered drainage lakes because they have both an inlet and an outlet. These lakes are fed by a river inlet, but fish populations will differ between the impoundment and the river that feeds it.



Groundwater \ ˈgraünd-ˌwȯ-tər \ (noun) Water that is found underground in spaces between the soil, sand and rocks. It is stored in areas between the rocks, called aquifers. And, in some cases, moves through the aquifers into lakes.

Look Out Aquatic Invaders

AIS Snapshot Day Expands to Lakes

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

Paul Skawinski

Barb Schmidt finds curly-leaf pondweed on a rake sample during Snapshot Day.

This past August, the River Alliance of Wisconsin organized their annual Aquatic Invasive Species Snapshot Day. New this year was a partnership between the River Alliance, Wisconsin Citizen Lake Monitoring Network, and the University of Minnesota Extension. Participants in this year's Snapshot Day event searched for aquatic invasive species across streams and lakes in both states on August 5th, visiting more than 150 sites in Wisconsin and a similar number of sites in Minnesota. In Wisconsin, the day began with training and equipment being provided at over a dozen training sites. Participants were trained to recognize aquatic invasive species, and were encouraged to bring back samples of anything that looked strange or suspicious, even if they didn't know whether it was an invasive species. These samples were then examined by the site host—typically a local Aquatic Invasive Species Coordinator.

AIS Snapshot Day provides a quick way for concerned citizens to get involved in early detection of aquatic invasive species, and minimize the negative impacts these species can have on Wisconsin's waters. A species caught early can be managed quickly and inexpensively, compared to one that has become well established. Snapshot Day participants have discovered many new AIS populations, including notable invaders like water hyacinth, purple loosestrife and curly-leaf pondweed.

Almost all (97%) of participants in this year's AIS Snapshot Day reported that they now feel comfortable recognizing aquatic invasive species after the event, and 90% indicated that they are likely to participate again next year. The 2018 AIS Snapshot Day will likely be in August or September. Contact Paul Skawinski at UW-Extension Lakes (Paul.Skawinski@uwsp.edu or 715-346-4853) or Amanda Perdzock at the River Alliance of Wisconsin (aperdzock@wisconsinrivers.org or 608-257-2424 x111) to get involved!

Anna Cisar, Golden Sands RC&D

Paul Skawinski helps to identify various suspicious/unknown plant species collected by volunteers in Wild Rose.

Waterfowl Hunters Join Efforts to Help Stop the Spread of AIS

"Healthy wetlands and waterways support strong waterfowl populations," said Paul Samerdyke, a Wisconsin Department of Natural Resources (DNR) wildlife biologist stationed at the Horicon Marsh. "We know that Wisconsin waterfowl hunters are committed to conservation, and they've been solid partners in restoring and improving wetland habitats. We don't want these efforts to be diminished by the spread of damaging aquatic invaders."

That's why Water Guards (deputy DNR conservation wardens), along with aquatic invasive species (AIS) partners and volunteers, visited with waterfowl hunters at ten key locations across the state during opening hunting weekends in late September.

Over 200 hours were logged while talking with about 750 hunters. Interestingly, over 50% had never been contacted at a boat landing about checking and cleaning their equipment for AIS. "It is encouraging that we might be reaching a new audience," said Jeanne Scherer, statewide AIS Outreach Specialist. "With the combined efforts of staff, volunteers, hunters and anglers, we can spread the word and NOT invasives!"

Chris Hamerla

On September 23, opening day at Mead Wildlife Area, four Water Guards, 12 volunteers, and one AIS Coordinator logged 116 hours and contacted 165 hunters!

For more information on Wisconsin's invasive species rule and what hunters, anglers, boaters and other outdoor enthusiasts can do to prevent the spread of aquatic invasive species, visit DNR.wi.gov and search *Aquatic Invasive Species*.

Contact Jeanne Scherer (below) if you would like to help extend hunter outreach in your area in 2018.

Just a few minutes of preventative action can protect your hunting tradition for generations to come.

Chris Acy

Waterfowl hunters appreciated getting free red bird bands with the message, "SAH!" urging hunters to Stop Aquatic Hitchhikers!

WELCOME ABOARD!

Jeanne Scherer was recently hired as the Aquatic Invasive Species (AIS) Outreach Specialist through a contract between the Department of Natural Resources (DNR) and UW-Extension's Environmental Resources Center. She will help deliver outreach programming to our network of AIS coordinators, develop new AIS programs and serve on the DNR AIS Team work groups. She will be working half-time in this position and half-time as a DNR AIS monitoring specialist. Jeanne has always enjoyed combining her love of nature with her professional teaching goals and is excited about the opportunities and challenges this new position is already providing. Contact Jeanne at 608-266-0061 or Jeanne.Scherer@ces.uwex.edu.

The Evening Bat

Welcome to Wisconsin!

By Sandy Wickman, Regional CLMN Coordinator, UW-Extension Lakes

We have a new bat in Wisconsin! In July of 2015, bat researchers were mist netting in Avon Bottoms State Wildlife Area in Rock County, and caught a juvenile male evening bat. With anticipation, researchers visited again the following year. This time they caught a pregnant female evening bat and placed a small tracking device on her. The evening bat has never before been reported in Wisconsin, so when researchers radio-tracked the little bat to her roost, it was an exciting find! By following the little bat to her home, researchers found 60 more evening bats!

Mist nets are used by researchers to capture bats and birds for banding or other research projects. They are typically made of nylon or polyester mesh. The nets are suspended between two poles, resembling a volleyball net.

Heather Kaarakka, Wisconsin DNR Bat Program

Researchers working with the Wisconsin Department of Natural Resources Bat Program place a tracking device on this pregnant female Evening bat in June 2016.

Researchers returned a few weeks later and tracked two additional females to find another roost with 103 evening bats! With the discovery of the evening bat, the number of species in Wisconsin has grown to eight.

The evening bat, *Nycticeuis humeralis*, is a medium sized bat that averages between 6 and 14 grams (for reference, a nickel weighs five grams). They have a dark brown snout and light brown fur, with no hair on their snout, ears, tails or wings. A distinguishing factor is the number of upper incisors - these bats have two instead of four like other bat species in Wisconsin. Evening bats are insectivores and are described as having strong jaws, which makes for short work of beetles! They are a great help to farmers, since they devour agricultural pests such as root worm and cucumber beetles. June beetles, Japanese beetles and Japanese moths are also on their dinner menu. The evening bat is a relatively slow and steady flyer that feeds high in the early evening and comes lower after dark. In cooler weather, evening bats feed only once per night. This bat's life span is surprisingly short for a small insectivorous bat, and thought to live only two to five years.

We are learning that bats are largely dependent on their olfactory system, or sense of smell. We think this is how mothers and babies recognize each other, and that it has an influence on how adults attract a mate. Scents vary between roosts, species and even individuals of the same species! Interestingly, bat researchers that work with evening bats report that these particular bats have a burnt orange smell.

As the air temperatures cool and the leaves begin to turn brilliant hues of red and yellow, evening bats know it is time to mate. One adult male mates with up to 20 females in the fall. After mating occurs, the males and females part ways. Although evening bats

mate in early fall, the female bats hold the sperm in their reproductive tract until spring when ovulation and fertilization occur. Female evening bats form maternity colonies of 25-950 individuals and can give birth to 1-4 pink, hairless squeakers. Pups (baby bats) weigh only two grams at birth (that's about the same as a couple of thumbtacks)! They are also born blind, but develop very quickly, and are able to fly three weeks after birth! Male pups leave the roost about six weeks after birth, but female pups remain in the colony where they were born. In just one year the pups are able to breed.

Evening bats haven't been studied thoroughly, but we do know that they do not hibernate in caves during the winter. It seems as though the bats will fly several hundred kilometers to the southern part of their range, where they live actively during the winter months.

Heather Kaarakka, Wisconsin DNR Bat Program

Bats are often split into two groups: "cave bats" and "tree bats." Cave bats are species that hibernate over winter in caves and mines. Tree bats are species that migrate south for the winter.

Wisconsin Bat Species

Cave Bats:	***Tree Bats:***
Little brown	***Silver-haired***
Big brown	***Eastern red***
Eastern pipistrelle (a.k.a. tri-colored)	***Hoary***
Northern long-eared	***(and now) Evening***

All this excitement about a new bat species in Wisconsin is understandable. White-nose Syndrome (WNS) was discovered in our state in 2014 (and in the United States in 2006). This syndrome is named for the white fungus that typically appears on an affected bat's muzzle and thrives in cold environments, such as the caves where bats hibernate. The fungus is rapidly spreading through caves in North America and devastating our bat populations. The US Fish and Wildlife Service estimates that 5.7-6.7 million bats have died because of WNS, causing declines that approach 100% in some populations! This syndrome poses a large threat for many of Wisconsin's bat populations. Luckily for the evening bat, along with other tree bats, WNS does not seem to be a threat.

Bats with WNS often times display the fungus on their noses (hence the name), as well as other hairless parts of their bodies including their wings.

Bats are welcome members of our river, lake and wetland communities. Many residents will sit outside at night and watch the bats as they swoop and dive, dancing through the sky. We welcome their open wings with open arms!

The evening bat's life span is surprisingly short for a small insectivorous bat, and thought to live only two to five years.

How can we help bats?

- ***Honor cave closures and gated caves.***
- ***Provide bat homes (boxes).***
- ***Avoid caves and mines where bats are known to hibernate.***
- ***Do not disturb bats at any time.***
- ***Support the Wisconsin Bat Program (http://wiatri.net/inventory/bats/).***

Keeping Lakes in the Family

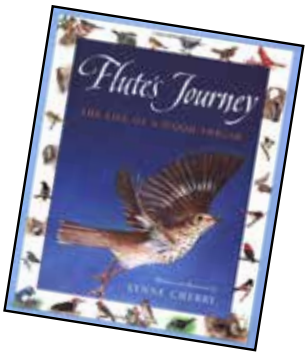
Sharing the Magic Through Stories

Compiled by Lynn Markham, Center for Land Use Education, UW-Stevens Point and Karen Engelbretson, KJE Design, LLC

What do birds need?

Many of us enjoy watching and listening to the wonderful songbirds in our yards. What we might not realize is the great journey they make to come here for the summer to breed and raise their young. While flight paths usually go along central America, many go non-stop over water. The birds arrive exhausted and hungry and often find suburban-style landscaping – which is the equivalent of an empty fridge.

We can put that food back… for the birds, and for our own enjoyment in watching them. With the exception of goldfinches, birds don't feed their babies seeds. Birds prefer, and feed their young, big fat caterpillars and insects. By planting native flowers, and fruiting trees and shrubs, all of which are full of insects and caterpillars, we can help these birds thrive.



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 the plants that provide him food and shelter are the most serious threat.

On Meadowview Street *Ages 4-8*

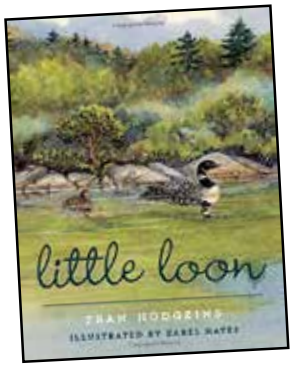
Written and illustrated by Henry Cole

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 birds, butterflies, 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.

Birds of a Feather

Written by Jane Yolen
Photographed by Jason Temple

Birds of a Feather pairs striking, full-color photographs of birds with spirited poems in a full range of styles and forms. For example, a haiku for a kingfisher speaks tenderly to the quirky, diminutive bird, and a poem for a "solitary wood duck" admires the bird's nobility. Stemple's intimate photos capture a great horned owl's gaze, a chickadee's downy plumage, and sandpipers silhouetted against a sunrise, while Yolen's solidly constructed verses show equal affection.



Little Loon *Ages 4-8*

Written by Fran Hodgkins
Illustrated by Karel Hayes

Little Loon traces the birth and first summer of a loon chick, ending with the loon's migration for the winter. Readers follow along as the baby loon grows and discovers the world around her. Along the way, they'll learn that loons are so perfectly adapted to life in the water that it's very difficult for them to walk on land. Readers will also discover that the biggest threats to loons come from people—boats, pollution and fishing tackle. Lavishly illustrated in full color.

Oh Look! Baby Loons! *All ages*

Written and photographed by F. C. West

Those who have heard a loon's eerie call or glimpsed a fluffy loon chick riding on its parent's back will love this informative new photographic book. Fifty-five color images of life on an idyllic lake give readers a glimpse into the world of baby loons and their elegantly plumed parents. From eggs on a nest to first flight, follow along as these two lovable chicks go on outings about the lake, learn to fish, and grow, grow, grow. A special section introduces readers to the other residents of the lake.

Over and Under the Pond *Ages 5-8*

Written by Kate Messner
Illustrated by Christopher Silas Neal

This book brings to life a secret underwater world. In this book, readers will discover the plants and animals that make up the rich, interconnected ecosystem of a pond. Over the pond, we see goldfinches, herons, woodpeckers and loons. But under the pond is a hidden world of minnows darting, beavers diving, tadpoles growing. These and many other secrets are waiting to be discovered...over and under the pond. A wonderful read aloud book.

Paul Skawinski

Books and videos for adults

Bringing Nature Home

Written by Douglas Tallamy

"If you cut down the goldenrod, the wild black cherry, the milkweed and other natives, you eliminate the larvae, and starve the birds. This simple revelation about the food web - and it is an intricate web, not a chain - is the driving force in Bringing Nature Home."

~ The New York Times

This book is so readable and engaging – and so valuable!

If you prefer a video, try *Bringing Home the Natives*, 64 entertaining minutes about birds and plants by Doug Tallamy at https://www.youtube.com/watch?v=LthiZ0ppr-A.

The Living Landscape: Designing for Beauty and Biodiversity in the Home Garden

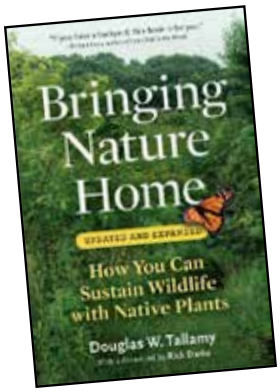
Written by Rick Darke and Douglas Tallamy

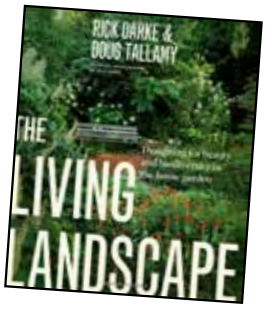
Richly illustrated with superb photographs – beautiful to peruse. Many gardeners today want a home landscape that nourishes birds and wildlife. But they also want beauty, a space for the kids to play, privacy, and maybe even a vegetable patch. Sure, it's a tall order, but The Living Landscape shows how to do it.

Protecting Our Living Shores

University of Wisconsin-Extension

Red osier dogwood provides excellent shoreland protection. Bluebirds, thrushes, grouse, turkey and other birds favor its distinctive white fruits. It favors wet soils and can grow in sun or partial shade. The striking red stems are especially attractive in winter against snow. See page 4 for other plants to help birds.
https://learningstore.uwex.edu/Assets/pdfs/GWQ039.pdf

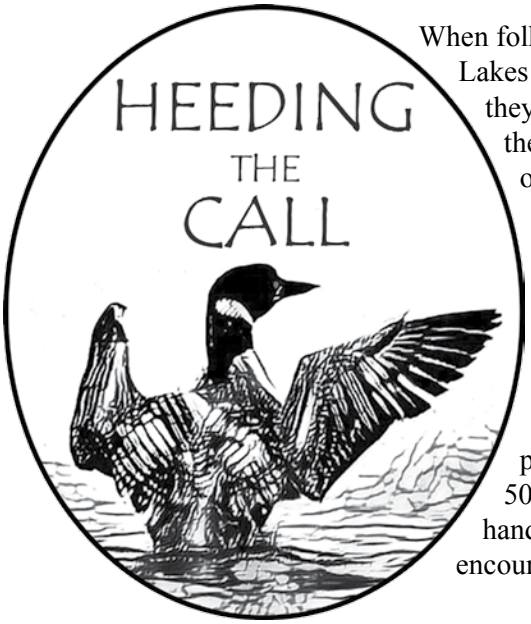




Heeding the Call

2018 Wisconsin Lakes Partnership Convention

What does it mean to "heed the call?" It has been defined as an expression to take responsibility or do the right thing. According to Merriam-Webster, heed, as a transitive verb, means to give consideration or attention to (e.g. heed the call).



When folks gather at the Wisconsin Lakes Partnership Convention, they are paying attention to the many factors that affect our precious waters. In this setting, professionals and citizens have the time and space to discuss successes, as well as learn from each other. There is new research to consider during the poster session as well as 50+ concurrent sessions and hands-on workshops that will encourage you to heed the call.

Save the Date
April 18-20
2018

As our logo for this year hints, we are also "heeding the call" by celebrating 40 years of loon research in Wisconsin. Thursday morning will include a Kickoff Plenary Panel and digital production giving some attention to the common loon. We will hear from professionals and citizen scientists about what this emblematic water bird with the haunting call has taught us. Even though the loon is typically found in the far northern part of our state, we can all glean information about citizen science, collaboration and sound resource management from this special species.

Join others who work every day to protect Wisconsin's water! The 2018 Wisconsin Lakes Partnership Convention will be held April 18-20 at the Holiday Inn and Convention Center in Stevens Point, Wisconsin. A block of guest rooms has been set aside at the Holiday Inn; learn more about making reservations on the UWEX Lakes website. Don't delay, as we have been selling out of rooms for the past few years!

This convention will again join with the Water Action Volunteers (WAV) Symposium to bring citizens and professionals together to work on not only lake matters, but expand those efforts into the watershed. As our waters do not stop at the borders of Wisconsin, neither do our partnerships. The 2018 Lakes Convention will also overlap with the Midwest - Great Lakes chapter of the Society for Ecological Restoration's (SER) annual meeting (April 20-22).

The convention will include numerous opportunities for networking, interacting with experts, and sharing your stories. We look forward to your participation every year - it truly would not be the same without YOU!

Calling All Photographers!

Help us brighten your convention space with your favorite lake photos! Pick your four best photos to share - you could win $100! Rules and entry forms found on the *Convention 2018* page.

http://www.uwsp.edu/uwexlakes

Deadline:
March 12, 2018

Linda Grenzer

Coming Mother *won the People's Choice award in 2017, as well as Honorable Mention in the Natural Features in and Around Lakes and Underwater category.*

Let's Make Healthy Lakes Together!

We are dedicating space in Lake Tides *to highlight the Healthy Lakes initiative, and we'd love to feature your project, innovative outreach or other tip! We will also be celebrating local champions of Healthy Lakes in future issues! The Healthy Lakes initiative is a statewide effort providing outreach, technical assistance and funding for five simple and inexpensive best practices that are appropriate for most lakeshore properties.*

In this segment, we are sharing a recent Healthy Lakes website update: the "take what you need" Healthy Lakes Toolshed!

Many of you have asked for simple tools to promote Healthy Lakes, and our team listened. We have assembled a Healthy Lakes Toolshed in which you can choose the one or more things you need to get the job done. The Toolshed includes a list of publications that can be ordered, short and long PowerPoint presentations with notes, real-life promotion examples, and direct links to video testimonials and the Healthy Lakes logo. Stay tuned for pre/post photos, editable news releases, promotional and demonstration videos, and more! Check out the Toolshed under the *Resources* tab at http://healthylakeswi.com.

Have you used a special technique to recruit people to Healthy Lakes? Do you know a local champion worthy of extra recognition? Would you like to share a particularly beautiful project or any unique wildlife observations?

Pitch your Healthy Lakes feature story to Pamela Toshner (pamela.toshner@wi.gov) or Amy Kowalski (amy.kowalski@uwsp.edu). Final versions should be 400 words or less and include at least one photo with a caption.

Grant Deadline Feb. 1, 2018

We are looking forward to celebrating Healthy Lakes together!

Healthy Lakes Best Practices

- ***Fish sticks***
- ***350 ft² native plantings***
- ***Diversion***
- ***Rock infiltration***
- ***Rain gardens***

healthylakeswi.com

Call for Posters!

Deadline: March 12, 2018

Present a poster at the Wisconsin Lakes Partnership Convention to share your research, project or success story! Learn more or submit a proposal at www.uwsp.edu/uwexlakes; navigate to the Convention 2018 page and click on "Call for Posters."

Doug Moore

Nominate a Local Lake Steward

Deadline: February 9, 2018

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 19, 2018, at the Wisconsin Lakes Partnership Convention.

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

Sound Financial Footing for the Lake Tides Newsletter

You can help to create permanent funding for this publication in the future. To help continue this four decade pursuit of educating and connecting future generations of lake lovers, contact Steve Menzel at the UW-Stevens Point College of Natural Resources (Steve.Menzel@uwsp.edu or 715-346-2032), or donate online:

Step 1: Go to https://give.uwsp.edu/give-now
Step 2: Enter an amount in the appropriate space.
Step 3: Select Designation by choosing, "Other Specific Fund."
Step 4: Type "Wisconsin Lakes Partnership" in the box.
Step 5: Fill out the rest of the form and click the *Give Now* button.

Share Past Lake Tides Articles: Searchable Directory

Did you know you can search past *Lake Tides* articles by edition, category, author or key word? You can! Just go to http://www.uwsp.edu/uwexlakes click on *Newsletter* in the left navigation bar, then click the "Search *Lake Tides*" button. We encourage you to use any *Lake Tides* articles for your organization's newsletter, website or email communications. Please credit the source by inserting the line "reprinted from *Lake Tides*" and include the volume and number as well as any listed authors.

Did you know it takes thousands of caterpillars to feed a family of chickadees?

DYK

By Mitchel Block, UWSP Student

It may sound crazy, but it's true. In fact, chickadees have been known to catch over 500 caterpillars in a single day in order to feed their young. Since chickadee young usually take around 16 to 18 days to fledge, that adds up to a mind boggling 6,240 to 10,260 caterpillars to fledge a single clutch. It's even more impressive when you take into consideration that adult chickadees only weigh the equivalent of about four pennies. That's a whole lot of caterpillars for such tiny birds! And that's just chickadees. Take into account all the other birds that frequent your backyard, and the amount of caterpillars needed to support them becomes inconceivable.

But why caterpillars and not other insects? Well, it turns out caterpillars contain the high protein that the young need to grow. In fact, caterpillars contain even more protein than beef does! Much like the chickadees, these caterpillars are picky eaters themselves. More than 90 percent of caterpillars only eat specific native plants or plant groups. So in order to keep caterpillar populations high and help out the chickadees and some of our other feathered friends, here are a few things you can do:

- Plant native plants in order to satisfy the hungry caterpillars.
- Stop the use of pesticides, as these kill the caterpillars and make food for birds much harder to find.
- Keep goldenrods around your house, because insect larvae love to hide in them, and they make great "buffets" for birds.

Where can you find native plants?

Search "native plant nurseries" on the dnr.wi.gov website to get a Wisconsin listing, or go directly to this link: http://dnr.wi.gov/files/pdf/pubs/er/er0698.pdf.

CALENDAR

December 10, 2017 - 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 17-18, 2018 – Wisconsin Groundwater Conference - Wisconsin Dells, WI
Continuing education credits offered on January 19.
For more information: http://www.wisconsinwaterwell.com/for-members/conference/

January 28-31, 2018 – Midwest Fish and Wildlife Conference - Milwaukee, WI
This annual event will attract over 1,000 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. Theme: "Strengthening Natural Resources Through Collaboration"
For more information: http://www.midwestfw.org/

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

February 9, 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 20-22, 2018 – Wetland Science Conference - Oconomowoc, 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 19, 2018.
For more information: http://conference.wisconsinwetlands.org/

February 28-March 1, 2018 – International Conference on Water Management Modeling - Toronto, Canada Meet your colleagues, learn from experts and be on the forefront of advances in our profession. Early bird discount through December 31, 2017.
For more information: http://www.icwmm.org/

March 8-9, 2018 – Wisconsin AWRA Annual Meeting, Appleton, WI
For more information: http://state.awra.org/wisconsin/

March 21, 2018 – Early Bird Deadline, Wisconsin Lakes Partnership Convention
For more information: http://www.uwsp.edu/uwexlakes or see page 12 of this issue.

March 14-16, 2018 – Wisconsin Land+Water Conference - Lake Geneva, WI
For more information: http://wisconsinlandwater.org/events/annual-conference

April 18-20, 2018 – Wisconsin Lakes Partnership Convention
Agenda details and online registration will be available in January 2018.
For more information: http://www.uwsp.edu/uwexlakes or see page 12 of this issue.

Lake Tides -- ***PRJ85HX***
College of Natural Resources
University of Wisconsin-Stevens Point
800 Reserve Street
Stevens Point, WI 54481

NON-PROFIT ORG
U.S. POSTAGE
PAID
MILWAUKEE, WI
PERMIT NO. 530

Volume 42, No. 4
Fall/Winter 2017

UW Extension
University of Wisconsin-Extension

College of Natural Resources
University of Wisconsin-Stevens Point

IN THIS ISSUE

A quarterly publication of the Wisconsin Lakes Partnership

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Printed on recycled paper with vegetable-based ink.

Reflections

Delicious autumn!
My very soul is wedded to it,
and if I were a bird I would
fly about the earth seeking the
successive autumns.

~ George Elliot