Lake Tides
The newsletter for people interested in Wisconsin lakes

Wetter Summer Weather Yields Water Woes

By Eric Olson, Director, UW-Extension Lakes

Summer 2017 is shaping up to be extraordinarily wet for Wisconsin, with some portions of the state seeing over two times their normal summertime rain totals. In early July, southeastern Wisconsin experienced nearly a foot of rain in one 24-hour period, causing riverway flooding and requiring boating restrictions on numerous lakes. Wet summer weather often leads to poor lake water clarity and algal blooms. To understand why that's the case, we need to look closer at what influences water quality, how watersheds function, and the impacts of land use change on runoff.

Most of our concern with lake water quality focuses on how clear the water appears. Volunteers and professionals collect Secchi disc measurements to allow us to track clarity over time and across different water bodies. Researchers can compare measured clarity with water samples to understand why clarity varies over time and across lakes. The amount of suspended algae and sediment in the water is often the main determinant of how clear the water appears. Abnormally wet summer weather will increase the amounts of sediment, nutrients and algae found in a typical lake. Additionally, blue green algae blooms are more common in warm, nutrient rich (eutrophic) bodies of water. Runoff from hot summertime rains provide the perfect fuel for algal blooms, but it's not the rainwater by itself that's driving change.

Rainwater alone is relatively nutrient poor, but once it makes contact with the ground and becomes stormwater runoff, it picks up a range of sediment particles and delivers them to

(Continued on page 2)

Jake Vander Zanden

Fish and other aquatic animals were directly effected by low oxygen levels from a blue-green algae bloom on Lake Mendota, brought on by this summer's mid-June heavy rains.

Learn more about Lake Mendota's recent blue-green algae bloom and the science behind lake health: http://blog.limnology.wisc.edu/madison-in-bloom-blue-green-algae-hits-lake-mendota/

Volume 42, No. 3 Summer/Fall 2017
Wisconsin Lakes Partnership

Impervious surfaces are hard, man-made surfaces such as rooftops, driveways, roads, parking areas and patios where rain and melting snow can no longer soak into the ground.

streams, rivers, and lakes. In any single rain event, there is a direct relationship between the amount of rain, the volume of runoff, and the capacity of that runoff to carry larger and larger particles. We observe this on exposed soils whenever runoff is heavy enough to create rivulets or even gullies. The volume of runoff reaching a river or lake is closely related to the land use and percent of a watershed covered by impervious surfaces.

Lynn Markham from the Center for Land Use Education has produced a short online video exploring the impacts of impervious surfaces on water: https://youtu.be/UPjPnaGNB1c

The City of Milwaukee is estimated to be 46% covered with impervious surfaces.

Prior to European settlement, forests and prairies dominated the landscape and Wisconsin's watersheds mostly lacked impervious surfaces (except places with exposed bedrock). The topography of the land surrounding lakes was complex and uneven, with decaying logs and myriad holes from places where trees had blown down from hundreds of years of storms. This situation was ideal for lake clarity, since most runoff would be slowed down and would soak into the ground before reaching open water.

Madison Area Municipal Stormwater Partnership and the Dane County Land & Water Resources Department have collaborated to create "Ripple Effects," an online clearinghouse for rain garden, rain barrel and yard care to protect lakes and streams: http://www.ripple-effects.com/

Today's landscape around lakes provides a stark contrast to the pre-settlement era. With tractors and bulldozers, humans leveled out the land and removed many low spots where rain once collected and soaked into the ground. The amount of impervious surface has dramatically increased through buildings, roads and parking lots. Beyond impervious surfaces, lawns, ditches and swales present a landscape that is intentionally designed to quickly move water away. Along roads and highways, for example, engineers require that water not be allowed to collect and soak into the ground as it would potentially reduce the lifespan of the road itself. Gutters and storm sewers are designed to efficiently get stormwater away from development and into streams, ponds, rivers and lakes.

The same logic is found on farmland, where too much standing water can reduce yield or even drown crops. Over time, plowing and tilling farmland has smoothed out the land to reduce the amount of land where water gathers and slowly soaks into the ground. Subsurface tile drains and ditches help move water away from farmland. In both farmland and cities, wetland areas that once slowed the movement of water are drastically reduced from what they were 150 years ago.

This modified landscape produces predictable results when heavy summer rains occur: massive amounts of water move fast across the land and quickly fill in low areas. The stormwater carries more sediments and nutrients, eventually depositing them into rivers and lakes. The potent water comes into lakes at or near the surface, and in summer the lake is already stratified with warm water at the top, so the new polluted runoff tends to stay near the surface. If lake levels increase from stormwater, waves at the shoreline can re-suspend nutrient rich sediments that tend to accumulate above the ordinary high water mark. Add a long period of daytime sunshine and warm air over the lake surface and you'll find a perfect condition for blue-green algae blooms.

This was the exact scenario that played out in Lake Mendota in Madison on June 16 of this year. The area had just received five days of wet weather totaling over three inches in rain. This was followed by a hot, calm, sunny day. The resulting blue green algae bloom was the largest in over 20 years, according to Dr. Stephen Carpenter, director of the UW-Madison's Center for Limnology. The bloom eventually moved into the stretch of the Yahara River that connects Mendota to Lake Monona. The riverway became a grim scene of dead fish, crayfish and even baby ducks.

In addition to land use, our weather is changing to make large summer storm events more common. Summer has always been the period when most precipitation falls in Wisconsin. On average, over a third of our annual total falls during the months of June, July and August. In recent years, a larger portion of that summer precipitation has been coming in the form of heavy rains. Records compiled by the Great Lakes Integrated Sciences and Assessments


Before development


Heavy development

Photos by Robert Korth

Program (GLISA) at Michigan State and the University of Michigan reveal that the amount of precipitation falling in the heaviest 1% of storms increased by 37% in the Midwest from 1958 to 2012. The researchers also project that heavier storms will increase in frequency at a faster rate than storms that are less intense.

Learn more about recent findings on rain intensity at the Great Lakes Integrated Sciences + Assessments website: http://glisa.umich.edu/

These heavy storms are creating new challenges for communities, lake organizations and landowners working to protect and improve lake water quality. The rain falls so hard and so fast that the landscape cannot absorb or slow down the water. Major storms overwhelm storm sewers and flood roads, sometimes washing them out entirely and yielding tons of soil into streams and lakes. Waste treatment plants, often located on low areas near waterways, can be inundated by floodwaters, rendering them ineffective. In response, we need to rethink our landscape and begin the work of enhancing the land's capacity to slow down and infiltrate rainwater.

While the task may seem monumental, there are signs that communities and people are taking the right steps to mitigate the potential impact of large summer storms. In and around Milwaukee, where stormwater and sanitary sewers are largely in one shared conveyance system, there is tremendous incentive to mimic the pre-settlement landscape through green infrastructure that allows water to soak into the ground rather than move across the land. This includes a range of practices from simple steps like installing rain gardens and rain barrels to more involved projects such as bioswales and cisterns. The Milwaukee Metropolitan Sewerage District plans to add 740 million gallons of stormwater capacity through green infrastructure by the year 2035, which would allow 14.8 billion gallons of water to infiltrate into the groundwater table annually.

Explore Milwaukee's green infrastructure plan: http://www.freshcoast740.com/

Since the state of Wisconsin was first settled, one half of our wetlands have been destroyed, drained or filled.

The Wisconsin Healthy Lakes program provides technical guidance and potential cost-sharing to shoreland property owners looking to install shoreland buffer, rain garden, stormwater diversion or infiltration practices. http://healthylakeswi.com/

On a smaller scale, every shoreland property owner can take simple steps to reduce the yield of summertime rain coming off of their land and going directly into the lake. Stormwater infiltration practices like French drains and rain gardens direct rainwater back into the ground, reproducing the effect of the pre-settlement landscape. Rain barrels and cisterns can store rainwater for later use and limit the amount of runoff generated by rooftops. Shoreland buffers help filter runoff moving across the land toward the lake. Property owners can also rethink the impervious surfaces on their property and either remove structures that are no longer needed or explore pervious alternatives.

We are not going to accomplish this task overnight, but we need to remember that Wisconsinites have been heavily modifying the landscape towards faster stormwater movement for about 150 years. It's reasonable to expect work to reverse this may stretch out for decades. What is most important is the direction we are headed: we need to work together to restore the land's ability to slow down and infiltrate runoff, naturally sustaining healthy waterways.

Wild Waters Heal at Northwest Passage

By Northwest Passage (http://nwpltd.org/)

This spring, UW-Extension helped fund a visit to Wisconsin from author and photographer Andrew Fusek Peters. In addition to a closing keynote at the Lakes Partnership Convention (viewable online at https://youtu.be/0ZxVpXYXG1M), Andrew was able to spend time at Northwest Passage in Burnett County. This report from our friends at Northwest Passage explains why his visit to lake country was so important.

In a New Light: DrehSean - Water in Motion

We strive to expose [our clients] to real life experiences of the power of our wild waters.

Kids come to Northwest Passage, a residential mental health treatment program in northwestern Wisconsin, for a multitude of different reasons but the one thing they have in common is that they are struggling with their mental health. Can you imagine? It is hard enough to be a teenager, but then layer on top the realities of living with crippling depression or schizophrenia. The inability to get out of bed, to function in school, to see any hope in life; these are our kids. They may feel broken when they get to us, but they're not. We believe in these kids. We know that with support, they can heal.

Our kids are treated with an approach to wellness that borrows from the wisdom of the past and combines it with current research about the importance of living a full and mindful lifestyle. We have learned that kids heal through a variety of channels. We know that sustainable change occurs when our kids are able to depend on their doctor and therapist but also when they are able to connect with their community, explore their identity, develop their passions, appreciate time in nature, build relationships, discover effective recreation opportunities, learn healthy nutritional habits, and move their bodies.

We believe that through this approach we can foster a spirit of stewardship that is vital to not only their own mental and physical health, but to the health of our planet. As Clinical Director Angela Fredrickson says, "we literally immerse our clients in the beauty of Wisconsin which is something they likely have not experienced in any meaningful way before their time at Passage. We strive to expose them to real life experiences of the power of our wild waters. As we immerse them in nature, we encourage them to see their surroundings with new eyes and use nature to help them create unique pieces of art. It's really a one-of-a-kind treatment program." Throughout this process we introduce them to

In a New Light: Jade - Flowers

other adults in the community, like you, who also care for wild waters and who also have a spiritual connection with the process of creating art from nature. Fredrickson goes on to talk about the power of building bonds in the community. She says, "It is a powerful thing to expose youth to non-familial, positive, caring adults in their community. It builds connection with their world and shows them first-hand the importance of connecting to others. They also get to see that other adults have a passion for the stewardship of our shared land and water. There is no better teacher than experience."

The nature photography you see in this spread was born of this approach. We leverage the power of nature and relationships with our Artist in Residence (AiR) and In a New Light photography programming. We were lucky enough to welcome 2017 Lakes Convention keynote speaker, Andrew Fusek Peters to work with our kids through AiR. Andrew spent three days traveling in northwestern Wisconsin exploring some of the greatest wild waters our state has to offer, connecting both the kids to nature and to his powerful story. Ian

In a New Light: DrehSean - Beach

Meadows Wildlife Refuge, to Pattison State Park to see the biggest waterfall in Wisconsin, ending at the mouth of the Amnicon River and Lake Superior to watch the ice going out. Ian and Andrew took an April Fools' Day swim in the great inland sea and showed the kids true dedication to wild waters.

In a New Light: Jade - Animal

In a New Light: Jade - Two Birds

Karl, Experiential Coordinator for Passage, helped make the experience possible. He was thrilled to bring Andrew to work with the kids. He said, "To have someone of his skill level, experience and passion spend time with our kids was a life changing opportunity for them. It opened their eyes to a bigger world of photography, healing, and for what their futures could hold." The kids traveled from the northwest corner of the state capturing the beauty of our waters with Andrew from Crex

Andrew's tale is one of resilience through nature. The English author and photographer has devoted his professional career to capturing and celebrating the power of water to heal our souls. After encountering a bout of severe depression, he turned to numerous forms of treatment and it wasn't until he returned to his love of swimming in the wild waters of Shropshire, England that he found himself again. Andrew's story is one we at Passage know all too well… nature holds a

We believe that water is medicine and adventure is transformative.

(Continued on page 6)

In a New Light: Grace - Water

key to our well-being. We believe that water is medicine and adventure is transformative. Donors and partners alike have helped ensure that the young artists of Northwest Passage have spent the past three summers submerged in Wisconsin's rivers and lakes to photograph a story of otherwise unseen magic and beauty.

Of course, we've all heard the saying, water is the elixir of life. We're made of water, are soothed by being in and around it, and are moved to protect and celebrate it. You know this because you're a part of the effort to preserve our precious shorelines and inland treasures through your local lake group and stewardship activities. Andrew knows it, as it saved his life. We here at Northwest Passage know this because we watch the soothing qualities of water heal the kids we serve. We are grateful to all of you and your work and for your support of our kids. Keep on swimming!

A Word from Andrew...

What an honour to spend time in Wisconsin with Northwest Passage and at the Lakes Convention. I was given incredible hospitality, had the opportunity to see and photograph some awesome wildlife and landscape and even take a swim in the very, very, cold Lake Superior. It was humbling to spend time with some of the teenagers at Passage and share my own life journey alongside and through mental illness and also share the hope in coming through the other end with nature helping as part of the healing process. In these difficult and negative political times when land and water seem to once again be transforming back into only being there for profit and exploitation regardless of consequences, I was blown away by the commitment of all those who work for Wisconsin's lakes to keep them clean, and filled with life and joy. It made me return to Shropshire with renewed hope in this small corner of an also fragile but stunning ecosystem I am fortunate enough to write about and photograph.

Photos by Andrew Fusek Peters

Lakes 101

Lakes 101 is a new section of Lake Tides *that will explain the basics on 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: Flooding and Recreational Safety

During and after heavy rains and flooding, beaches and other recreational waters may contain sewage, animal wastes, petroleum products, chemicals, hazardous materials and debris (such as tree limbs and sharp objects like broken glass or nails). Follow these steps to stay safe:

- Do not walk through moving water. Six inches of moving water can make you fall. If you do have to walk through water, walk where the water is not moving and use a stick or pole to check the firmness of the ground in front of you. Get to high ground.
- If power lines are down in the area, do not step into water.
- Do not swim or bathe in lakes, rivers, creeks or streams in flooded areas.
- Wash up thoroughly with soap and clean water after contact with floodwater or debris. The Wisconsin Department of Health Services offers a *Flood Toolkit* guide (https://www.dhs.wisconsin.gov/publications/p0/p00631.pdf).

Tune In for Updates

Listen to your radio or television for information.

Know the Terms

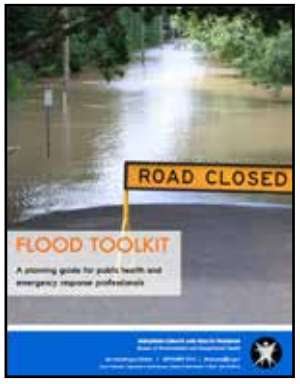
Flood Watch: Flooding is possible

Flash Flood Watch: Flash flooding is possible. Be prepared to move to higher ground

Flood Warning: Flooding is occurring or will occur soon; if advised to evacuate, do so immediately

Flash Flood Warning: A flash flood is occurring; seek higher ground immediately

- Check with local authorities on water quality conditions. To get updates on the water quality of beaches along the Great Lakes (and some inland public beaches), check out the Wisconsin Beach Health website at https://www.wibeaches.us.
- Use the USGS Water Watch web page (https://waterwatch.usgs.gov/) for flood watch conditions.
- Contact the local municipality where you want to boat, fish or swim, or check their website to see if they have declared emergency slow no wake speed limits in order to protect shorelines from damage, and boaters from running into floating debris.
- Do not rely 100 percent on navigational buoys as high water and debris may have moved some markers.
- Be cautious when using private wells. Even without obvious flooding, a well may become contaminated. Sampling the well and testing may be necessary; more information is available on Wisconsin's Public, Environmental and Occupational Health Laboratory website at http://www.slh.wisc.edu/. The Wisconsin Department of Natural Resource offers guidance if you are unsure of the safety of your private well (search "Flooded Private Wells" at http://dnr.wi.gov).



Check out more tips at the Wisconsin Department of Health Services: https://www.dhs.wisconsin.gov/

Cup Plant

Nature's Birdfeeder

By Patrick Goggin, Lakes Specialist, UW-Extension Lakes

Paul Skawinski

Leaf cups formed at the stem junction will collect rain water that is slurped up by goldfinches, sparrows, chickadees and other birds.

If you're searching for a native wildflower to help in feeding and providing water to seed loving birds, look no farther than the cup plant, *Silphium perfoliatum*. This damp prairie beauty is distinguished by its thick, tough, square/quadrangular stems and pairs of cup-forming leaves. It is a sunflower-like plant, and typically grows to a height range of 4-8 feet, but can reach as high as 12 feet when older. Its flower heads stretch to three inches in diameter and feature delightful light yellow rays (20-40) and darker yellow center disks which bloom in summer on the upper part of the plant from July to September. The leaves are rough to the touch, triangular to ovate in shape, coarsely-toothed and opposite from each other on the stem.

Paul Skawinski

The open, composite flower of the cup plant welcomes bee visitors of all kinds for the nectar.

In Wisconsin, this plant occurs chiefly in southwestern areas of the state at the edges of low woods, low wet prairies and river and stream banks of southern, wet forests. It is also common along open or shaded roadsides, fields and other rich and moist habitats like railroad rights-of-way, ponds and lake edges. As it is an important cultural plant for local Bad River, Lac du Flambeau and Menominee Nations in Wisconsin, cup plant occurs in several populations on tribal reservations because of long-ago introductions by American Indians. In North America, its native range extends from central-eastern Canada to the southeastern portions of the United States. It is a close relative of other Silphium found here in Wisconsin, including compass plant, rosinweed and prairie dock.

Cup plants are also valuable to wildlife. The large leaves surrounding the stem are reservoirs providing birds and insects with drinking water. The sunflower-sized seeds are sought after by finches and sparrows and the flowers attract many bees and beneficial insects. The open, composite flower of the cup plant welcomes bee visitors of all kinds for the nectar, including bumble and cuckoo bees, long-horned bees, leafcutter bees, green sweat bees and miner bees of several species.

Patrick Goggin

Cup plant growing on the water's edge.

Cup plant is the larval host of silphium moths (*Tabenna silphiella*) and giant eucosma moths (*Eucosma giganteana*). Several species of skipper butterflies visit cup plant flowers for nectar including the fiery skipper butterfly (*Hylephila phyleus*) and eastern tiger swallowtail (*Papilio glaucus*).

Large aphid populations on the underside of cup plant leaves are common. Aphids (*Uroleucon spp.*) are small, soft-bodied insects that feed on plants by piercing through the plant tissue with their straw-like mouthparts and sucking out the liquid. Their waste material (aka honey dew) is sticky and sweet, which attracts a number of other insects to the plant, in particular, ants that feed on it. Katydids feed on cup plant leaves in early summer as well, and are common prey for parasitic wasps like grass-carrying, great black and great golden digger wasps. Still other insects use cup plant stems as their winter home to protect themselves from the cold temperatures.

Cup plant is a super plant for clay-like soils because its strong, fibrous roots penetrate into the clay, helping increase infiltration and water drainage. Although cup plant prefers moist, rich soils, it is easily grown in average, medium to wet soils in full sun, and even tolerates sandy soils and some drought once it's established. It can be a little slow to establish when grown from seed, but it will come on strong after a year or two, and will self-seed in optimum growing conditions.

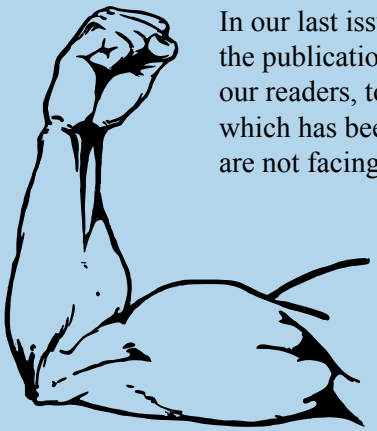
Cup plant is an expansive plant that needs lots of space. Some gardeners find cup plant to be too large and aggressive for border areas; instead, they utilize it in the backside of native plant beds like rain gardens and lakeshore plantings as an effective backdrop for perennials. It adapts well to prairies, wildflower/native plant gardens, naturalized areas or moist, open woodland areas including stream and lake edges. Good complimentary native plants to use with cup plant include spotted Joe-pye weed (*Eutrochium maculatum*) and swamp milkweed (*Asclepias incarnata*). Cup plant is a large, bold plant that brings form and texture to the landscape. Use it as a focal point in perennial gardens around your home landscape!

Good complimentary native plants to use with cup plant include spotted Joe-pye weed and swamp milkweed.

The large leaves surrounding the stem of the cup plant are reservoirs providing birds and insects with drinking water.

Amy Kowalski

A More Durable Future for *Lake Tides*



In our last issue, we introduced the idea of an endowment that could begin supporting the publication of *Lake Tides* well into the future. We are looking to hear from you, our readers, to help provide a sound financial footing for this quarterly newsletter, which has been a feature of the Wisconsin Lakes Partnership for over forty years! We are not facing any immediate financial crisis, but we want to begin diversifying the funding streams to better position this publication to educate and connect future generations of lake lovers. You can show your support by making a donation through the UW-Stevens Point Foundation webpage, or contact Steve Menzel at the UWSP College of Natural Resources (Steve.Menzel@uwsp.edu or 715-346-2032).

Q&A Lake Districts

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

Q: Do lake districts have unique advantages when it comes to dealing with dam maintenance, repair and replacement?

A. Yes, lake districts are often superior to lake associations when a community is facing a dam-related project. Landowners have organized several lake districts in the past five years specifically to address issues surrounding a dam. Compared to lake associations, lake districts are more capable of ensuring that those who benefit from the dam (i.e. those who have property on the impounded waterway) are "chipping in" to pay for the costs of the dam. While lake associations depend on dues and fundraisers, lake districts can assign dam costs to property owners through the annual tax bill. Unlike lake associations, lake districts can access low-cost, easy to obtain loans through the Board of Commissioners of Public Lands (BCPL). This allows the organization to spread out the fairly large capital expense associated with the dam over a period of many years. While lake associations may be able to secure loans through banks or other lenders, the terms and process would be more burdensome than what the BCPL offers. Finally, for the past four years the Wisconsin DNR has offered grants to help fund eligible engineering and construction costs associated with the maintenance, repair, modification or abandonment and removal of municipally owned dams. Cities, towns, villages, counties, tribes and lake districts were eligible for grants to conduct dam maintenance, repair, modification or abandonment and removal on dams that they own. Private dam owners and lake associations are not eligible to apply. At this time, the state budget process for 2017-2019 grants has not been finalized, but interested lake groups can contact Meg Galloway, Dams and Floodplain Section Chief, at 608-266-7014 to learn about the status of the grant program. You can see lists of past grant recipients at http://dnr.wi.gov/aid/dammunicipal.html.

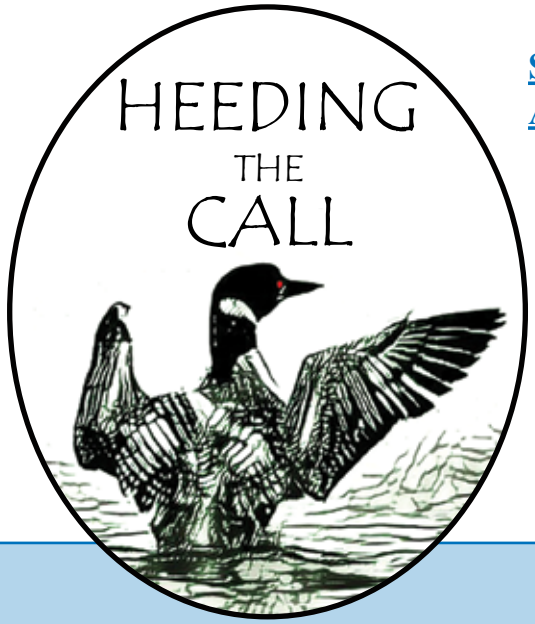
For more information on lake districts, see *People of the Lakes: A Guide for Wisconsin Lake Organizations*, www.uwsp.edu/cnr/uwexlakes/districts.

Heeding the Call

2018 Wisconsin Lakes Partnership Convention

The 2018 Wisconsin Lakes Partnership Convention will be held April 18-20 at the Holiday Inn and Convention Center in Stevens Point, Wisconsin.

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 conference (April 20-22).



Save the Date
April 18-20, 2018

Call for Presenters

We encourage submission of presentations that address the broad theme of "Heeding the Call," and more specifically, within these topical areas:

- Aquatic Invasive Species (AIS) and after AIS – Restoration
- Research Recap – Research over the Years and Citizen Science – Democratizing Research
- Waterway Restorations – Success Stories/Gains and Real Life Projects
- Understanding Watershed Connections and Water Quality - Best Management Practices for Various Land Uses
- People & Policy – Organizational Capacity and Economics of our Water Resources
- Fisheries Ecology and Restoration Ecology for Plant & Animal Habitat

Go to http://www.uwsp.edu/uwexlakes for more information and to submit a proposal.

Deadline: September 23, 2017

Wisconsin Lakeshore Restoration Project Resources

A new web portal is available for the Wisconsin Lakeshore Restoration Project on the UW-Extension Lakes website. This resource is the entry point for learning about the findings of this ten-year-long lakeshore study in Vilas County from 2007 to 2017. You will find background information on lakeshores including assorted references, a description of the study design, the final project report, several published papers sharing results, lessons learned from the project, before and after photos of project sites, erosion control and bioengineering treatments used in the project, as well as an outreach section devoted to helping lake communities design a lakeshore restoration program from the ground up. Check it out in the Highlights section on the UW-Extension Lakes web page (http://www.uwsp.edu/uwexlakes).

2017 Invader Crusaders

The 13th annual Invader Crusader Awards were handed out at the MacKenzie Environmental Center in Poynette this past June honoring citizens and organizations for their significant contributions to prevent, control or eradicate invasive species that harm Wisconsin's lands, waters, and wetlands. For more in-depth descriptions of the winners' efforts, go to the Wisconsin Invasive Species Council website (http://invasivsespecies.wi.gov/awareness-month/awards/)

Congratulations to the 2017 Invader Crusader Award Winners!

Professional Individual

Christa Shaefer, a Wisconsin Department of Transportation employee, has consistently advocated for preventing the spread of invasive species on roadsides by setting up a program to allow volunteers to control invasives on state highway corridors, training state and county maintenance staff, ensuring that prohibited species are controlled on state highways, and many other efforts. Christa has served on several state and national invasive species boards, and has encouraged greater communication for Wisconsin's Cooperative Invasive Species Management Areas.

Jeff Epping, the Director of Horticulture at Madison's Olbrich Gardens, has influenced invasive plant management through his efforts encouraging gardeners to use native and well-behaved non-native plants. He has assisted in developing management plans and conducting studies on control of invasive plants and jumping worms in collaboration with state agencies, horticulturalists and researchers. Check him out on Wisconsin Public Radio's Garden Talk show.

Jared Urban serves as coordinator of the Department of Natural Resource's State Natural Areas (SNAs) volunteer program. Since joining the DNR in 2011, Jared has developed a structured volunteer program for citizens interested in helping to manage Wisconsin's SNAs. This volunteer program actively recruits, trains, and supports volunteers and, consequently, has significantly increased the quality and efficiency of volunteer work.

Volunteer Individual

Robert and Dorothy Moe have worked tirelessly to control purple loosestrife in the areas surrounding Bear Lake, protecting the Bear Lake Sedge Meadow State Natural Area and the lake's wild rice populations. They have shared purple loosestrife locations with the Wisconsin Department of Natural Resources, raised Galerucella beetles as a biocontrol method, and educated their neighbors on the impact of this invasive species.

Pam Nelson has been involved with controlling Eurasian watermilfoil (EWM) on Horseshoe Lake for almost a decade. Initially she served on a committee to collaborate

(Continued on page 13)

Colleen Robinson

From L to R: (front row) Tom Buechel (Chair of the Invasive Species Council), Robert & Dorothy Moe, Christa Schaefer, Jared Urban and Drew Feldkirchner (back row) Paul Schumacher, Jim Kerkman and Dougal Walker.

with the DNR, and later became the Invasive Species Coordinator for the lake association, spearheading a plan to control EWM and maintain the lake's ecosystem.

Daniel Pawlak, a parent volunteer with Eagleville Elementary Charter School, started an afterschool science club. In 2014-2015, he taught first through sixth graders the impacts of invasive species on their local ecosystem. With Dan's mentorship, students have learned to identify, monitor and prevent the spread of invasive species on Jericho Creek, a nearby tributary of the Mukwonago River.

Mark Acherman works with about 50 students (grades 5-7) each year to teach the importance of aquatic invasive species control. They create posters to spread the word throughout their community. In addition, Mark has raised biocontrol beetles to prevent the spread of purple loosestrife at various sites, including Yellowstone Lake.

Volunteer Group

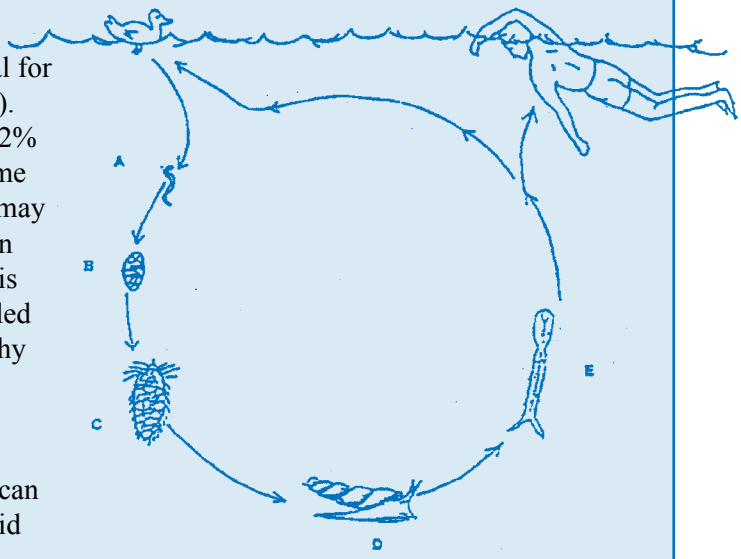
The **Town of Barnes Aquatic Invasive Species Committee** was the first organization in the region to research and build a Diver Assisted Suction Harvester (DASH) boat, with substantial funding from the **Friends of the Eau Claire Lakes Area**. This allows for much more effective and efficient removal of invasive plant species in lakes and waterways. These two organizations also collaborated to develop the Lake Ecology Education Program (LEEP). Downloadable as a full curriculum from their website, LEEP has been used as a program for approximately 30 Drummond 7th graders each year. This program educates students on natural resource conservation, while integrating invasive species education.

Did you know swimmer's itch is caused by a parasite?

DYK

At the end of a hot summer season, many of our favorite swimming holes hold some pretty warm water, which is ideal for the parasites that cause swimmer's itch (*cercarial dermatitis*). These parasites have quite an elaborate life cycle, with only 2% of the snails they infect releasing the cercariae that cause some of us to endure red, itchy welts. However, snail populations may be as high as 400 per square meter, and one infected snail can release 4,000 cercariae each day! The good news is that if this parasite does attach to you or a loved one, it will soon be killed by our natural defense system, but could still form a very itchy rash. More good news is that only about 40% of humans are sensitive to this parasite and experience irritation.

Swimmer's itch rarely leads to complications, but your skin can become infected if you scratch too vigorously. So, try to avoid scratching the rash.



Life cycle of swimmer's itch cercariae: (A) blood fluke carried by water bird; (B) egg (shed through the host's excretory tract); (C) miracidia (egg hatches into this free-floating stage); (D) snail host; (E) cercariae seeking host.

Prevention Tips

- Towel off immediately after swimming or wading in water that may be infested.
- Swim in water away from shore if you are a strong swimmer.
- Avoid swimming in areas where snails have accumulated.
- Wear waterproof sunscreen which may deter the parasite that causes swimmer's itch.
- Don't encourage birds to stay near swimming areas by feeding them.

CLMN Superstar

Wisconsin is fortunate to have many talented and knowledgeable people acting as citizen water quality scientists on their lakes. We would like to highlight some of the accomplishments of the volunteers in the Citizen Lake Monitoring Network (CLMN). Want to see a CLMN volunteer acknowledged in Lake Tides*? Please send information to Amy Kowalski, Lake Tides Editor, at akowalsk@uwsp.edu.*

By Sandy Wickman, UW-Extension Lakes and Wisconsin Department of Natural Resources

Les Schramm
Lake Metonga, Forest County

Eurasian water milfoil (EWM) was first found on Lake Metonga in Forest County in 1998. Within days, CLMN volunteer Les Schramm mobilized and was on the lake with DNR staff mapping EWM beds, searching for (and stocking) *Eurychiopsis lecontei* weevils and learning everything he could about the management of EWM. Les has been involved with EWM management since that first day of discovery.

Zebra mussels were discovered on this 2,157 acre lake in 2001. Les again mobilized and became the point of contact for both the DNR and the Mole Lake Tribe. He has built a rewarding partnership with the Sokaogon Chippewa Community. His great communication skills bridged a gap among the Tribe, lake association and local communities.

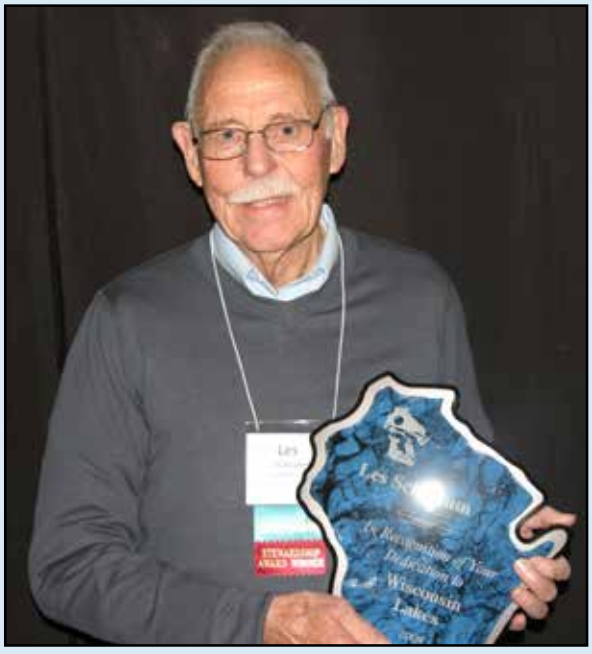
Les and his wife, Donna, wanted to educate boaters about the invasive species in Lake Metonga and were one of the first to volunteer for the Clean Boats, Clean Waters (CBCW) program that was offered in early 2000. They organized volunteers at the landing and spent hundreds of hours talking to boaters visiting Lake Metonga. John Preuss, AIS Coordinator for Forest County, said "without Les and Donna, Lake Metonga would be a very different place." John said that Les has attended every CBCW workshop that has been offered in Forest County. He realized early on that the discovery of AIS on the lake could impact water quality and the fishery.

Les has participated in and coordinated water quality monitoring on Lake Metonga since 1998 and can always be counted on to recruit and train new volunteers. He received the Lake Stewardship Award from the Lakes Partnership in 2009.

Les Schramm is a past president and long-time board member of the Lake Metonga Association, board member of the Forest County Association of Lakes (FCAL) and chairman of their invasive species committee. Les has been instrumental in making the Lake Metonga Association one of the more active, progressive lake groups in the region. Les played an important role when FCAL received the Lake Stewardship Award in 2013.

Les has welcomed Crandon High School environmental science students to make Lake Metonga their outdoor classroom, lending a helping hand to teach them about water quality monitoring for the past fifteen years. Many of those students have gone on to pursue careers in natural resources.

Everyone who knows Les agrees that he is a kind and generous man who is dedicated to preserving our natural resources. His work ethic is an inspiration to us all and he is a true Superstar.



CALENDAR

September 15-16, 2017 - Wetland Delineation Workshop, Saukville, WI
This workshop, offered by UW-Milwaukee's Natural History Field Station, will help attendees recognize the boundary between a wetland and upland.
For more information: http://uwm.edu/field-station/workshops/fall-workshops/

September 16, 2017 - Central Sands Water Walk, Town of Rome, Adams County
Meet at sunrise at Arrowhead County Park in Rome and walk part or all of the 10-mile trek to honor the gifts that water gives us. Join Ojibwe and Ho-Chunk Nations, along with other water lovers, for this free event followed by an early afternoon dinner (also free - donations accepted).
For more information: https://www.gofundme.com/2sq5bxy9

September 16, 2017 - Ocean Conservancy's International Coastal Cleanup
Today, plastic has been found in 62% of all sea birds and in 100% of sea turtle species! Join millions of water lovers to help keep our coasts clean by volunteering your time or donating to the cause. Ocean Conservancy even has an app called CleanSwell to record the trash you collect.
For more information: https://oceanconservancy.org/trash-free-seas/international-coastal-cleanup/

September 24-26, 2017 - Wisconsin Counties Association Annual Conference, Wisconsin Dells
This unique opportunity allows county officials to come together and learn from one another, as well as receive updates on county issues.
For more information: https://www.wicounties.org/events/#conference

September 30, 2017 - Invasive Plant Management Techniques Workshop, Saukville, WI
This hands-on class, offered by UW-Milwaukee's Natural History Field Station, will discuss, demonstrate and practice all applicable control methods for five plant types. Learn about the most appropriate, efficient, up-to-date and least environmentally-damaging methods of control.
For more information: http://uwm.edu/field-station/workshops/fall-workshops/

October 8-10, 2017 – Wisconsin Towns Association Convention, Stevens Point
For more information: http://www.wisctowns.com/

October 17-19, 2017 – Great Lakes Restoration Conference, Buffalo, NY
This 13th annual gathering is hosted by the Healing Our Waters Great Lakes Coalition.
For more information: http://conference.healthylakes.org/

November 5-9, 2017 – Annual AWRA Conference, Portland, OR
Located just south of the confluence of the Willamette and Columbia Rivers, Portland, Oregon is an ideal place to find your community, conversations and connections around water resources. Join the American Water Resources Association at the Red Lion, Jantzen Beach for this 53rd Annual Conference. For more information: http://www.awra.org/meetings/Portland2017/

November 6-9, 2017 – 37th NALMS International Symposium, Westminster, CO
The North American Lake Management Society will hold their upcoming international symposium in mountainous Colorado. The theme this year is *Finding Balance,* which is key to managing our lakes, watersheds and even day-to-day relationships with people. For more information: http://www.nalms.org

November 7-10, 2017 – State of Lake Michigan Conference, Green Bay, WI
Join other water resource managers and researchers to discuss diverse issues relevant to Lake Michigan. This event will also feature the annual meeting of the Great Lakes Beach Association and other associated workshops and field trips. For more information: http://iaglr.org/sol/

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. 3
Summer/Fall 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

Nature never hurries: atom by atom, little by little, she achieves her work. The lesson one learns from yachting or planting is the manners of Nature; patience with the delays of wind and sun, delays of the seasons, bad weather, excess or lack of water."

~ Ralph Waldo Emerson