
Rising Concern Over High Water

Making a Plan for the Future

By Patrick Goggin, Lake Specialist, Extension Lakes and Kathy Bartilson, Washburn County Lakes and Rivers Association

Residents and communities around Wisconsin were facing consequences of high water this summer. In fact, some Wisconsin waterbodies, including both inland lakes and the Great Lakes, reached record levels this year. Many are concerned about how these higher water levels create challenges in maintaining clean water, controlling erosion, and sustaining wildlife.



While we are very thankful for plentiful rain for our gardens and crops, higher water influences our lakes and rivers, and the people living and recreating on them. Water quality can change in high water, but whether it makes it better or worse can depend on each lake or river itself, and how high the water gets.

Be Aware of High Water Conditions

Higher water levels increase the reach of waves from wind, boat wakes, and personal watercraft. When the waves hit the shore, the damage to riverbanks and lakeshores poses a real threat to water quality through soil loss and nutrient pollution. Unchecked erosion over time can even threaten bank integrity and lead to property damage. Further, rocky lake bottom areas where fish spawn can be covered with sediment from water running off hard structures like rooftops and driveways. Unless this water is filtered through native vegetation areas or other zones where the water is infiltrated and cleansed, it will bring soil and nutrients to the lake. Excess amounts of nutrients, like nitrogen and phosphorus, found in water running off our shoreland properties can fuel harmful algal blooms and cause additional problems with oxygen availability to fish and other critters.

Fluctuating water levels also bring about shifts in plant communities found at the water's edge. With higher water, plants that can withstand inundation for a longer period do better and expand their way out into the lakebed. Dry-footed plants creep back up

(Continued on page 2)



Tracy Arnold

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Wisconsin Lakes Partnership

Lake Tides

The newsletter for people interested in Wisconsin lakes

(Rising Concern Over High Water, continued)

the shoreline away from the higher water by spreading root systems and dispersing seeds.

In extreme cases, high water levels can also threaten public health. Private well systems, buried water and wastewater lines, and septic systems (especially drain fields), can become flooded, causing concern for safe drinking water and proper filtering and absorption in septic systems.

Planning Now for Changing Water Conditions

There are several things we can start doing now to help us better address these challenges that come with fluctuating water level conditions. Add a chapter on water levels to your lake or river management plan the next time you update it. Fill the new chapter with a few actions your community can take to better deal with changing water conditions.

For example, pay attention to when public roads around your waterbody are scheduled to be repaved. This is the time to change drainage patterns of these roads that may be conduits for excess water and nutrients to the lake. Instead, these roads can be recontoured and reshaped to shed water away from the waterway. Areas of infiltration can be added along roads if current conditions don't allow for good stormwater absorption. Recreational use ideas like a courtesy code sign and reminders to follow any slow no wake guidance would also be beneficial additions to a management plan chapter on water levels.

Another topic worth considering is the quality of your roadside ditches that drain to your lake, river, or stream. Consult the "Field Guide for Maintaining Rural Roadside Ditches: Protecting Lakes and Streams through Proper Ditch Maintenance" for tips and guidance on effective maintenance.



https://www.lakesuperiorstreams.org/stormwater/toolkit/contractor/resources/ditchguide_seagrant.pdf

When it rained, water poured down this stairway to the lake from the paved driveway above. This rock infiltration pit, installed along the driveway and above the stairs, allows stormwater to be captured and slowly filtered into the soil.



Photos by Bill Griese



Best Practices for Boating in High Water

Recreation during high water calls for special caution and courtesy. Boat wakes reach farther up onto the shoreline causing erosion and property damage in areas not normally reached by the water. The U.S. Boat Owners Association advises allowing extra time for your fishing trip and driving watercraft slowly and farther from shore. In addition, avoid repetitive routes, which can send wakes slamming into the same sections of shore. Avoid close passes to other boats and allow extra space when following another watercraft. High water also hides obstacles like rocks and logs that are visible in more “normal” water conditions. Using care to watch for these hazards can prevent serious mishaps on both lakes and rivers, making water sports safer for everyone.

Being aware of challenges we currently face from higher water helps us manage our shoreland properties for cleaner water and healthier wildlife habitat. The next time you update the management plan for your lake or river, make sure a chapter on water levels is included. This information will better prepare you and your community for the changing water conditions we will face in the years ahead. 💧

Get Involved with Your Local Lake Organization

1. Find your local lake or river group by looking at the Wisconsin Lake List (uwsp.edu/uwexlakes) then click “Lake Organization Search” in left navigation).
2. See if there is a lake or river management plan prepared on your waterbody’s WDNR lake page (dnr.wi.gov/lakes). Check out the plan’s recommendations for property owners looking to manage high water conditions.
3. Learn about how others on your waterbody are planning and managing higher water.

1 FISH STICKS

CREATE FISH AND WILDLIFE HABITAT.
Fish Sticks are feeding, breeding, and nesting areas for all sorts of critters – from fish to song birds. They can also prevent bank erosion – protecting lakeshore properties and your lake. (Not eligible on river properties.)

2 NATIVE PLANTINGS

IMPROVE WILDLIFE HABITAT, NATURAL BEAUTY AND PRIVACY, AND SLOW RUNOFF.
Native Plantings include grasses and wildflowers with shrubs and trees. Choose a template based on your property and interests – from bird/butterfly habitat to a low-growing garden showcasing your water view.

3 DIVERSION*

PREVENT RUNOFF FROM GETTING INTO YOUR LAKE OR RIVER.
Diversion Practices move water to areas where it can soak into the ground instead. Depending on your property, multiple diversions may be necessary.

4 ROCK INFILTRATION*

CAPTURE AND CLEAN RUNOFF.
Rock Infiltration practices fit in nicely along roof drip lines and driveways and provide space for runoff to filter itself. They work best if your soil is sandy or loamy.

5 RAIN GARDEN*

CREATE WILDLIFE HABITAT AND NATURAL BEAUTY WHILE CAPTURING AND CLEANING RUNOFF.
Rain Gardens multi-task - they improve habitat and filter runoff while providing a naturally beautiful view.

IMPROVE 🐟 HABITAT AND 🌿 NATURAL BEAUTY ~ ⚠️ SLOW, 🔄 DIVERT, 🚰 CLEAN AND 🌊 FILTER RUNOFF

*Eligible for shoreland properties within 1000 feet of a lake or 300 feet of a river.

Lake Level Monitoring

Emily Heald



By Emily Heald, Water Program Coord., North Lakeland Discovery Center

It's a crisp, cool morning in May (or October). I am wearing my usual lake level monitoring outfit – long underwear, field pants, fleece pants (yep – three pairs of pants), long sleeves, a fleece jacket (oversized, so I can roll the sleeves up to get my hands in the water), all topped off with waders and a stocking cap. I take a few hand warmers out of their packaging, shake them, and toss them down into my waders. Getting in and

out of cold spring/fall lakes is no joke. Once my uniform is ready, I set off to the lakefront with my trusty volunteers, Al and Paul. Honestly, this ritual is one I look forward to every spring and fall, despite the cold water. This project is one of my favorite parts of my job.

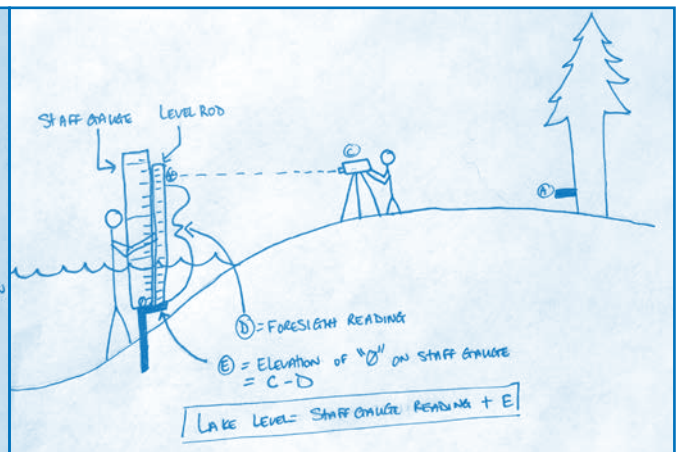
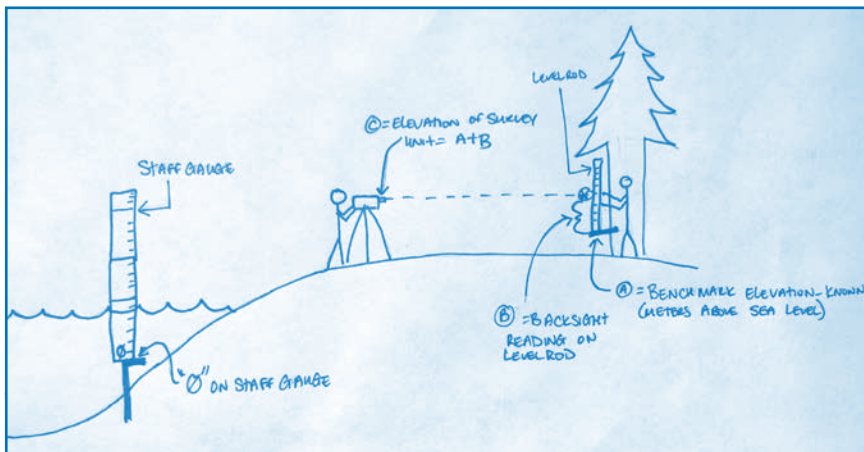
Lake monitoring enhances volunteers' knowledge of their lake, and often encourages participation in other citizen science programs such as water clarity and chemistry, loon activity, and aquatic invasive species monitoring.

Since 2010, the North Lakeland Discovery Center (NLDC) has coordinated a lake level monitoring project on 22 lakes in Vilas County. The project formed as a partnership between UW Trout Lake Station, the Wisconsin DNR, and NLDC

after concerned citizens and scientists began noticing very low lake levels around 2008 in northern Wisconsin. Each organization has different roles. Trout Lake Station and DNR helped us to create the monitoring protocols, and they are also the folks who analyze the data. But, I think I have the best role – I get to coordinate all of the wonderful volunteers, do the spring and fall field work, and (less fun) manage the data. I encourage you to check out the article Katie Hein wrote for the Spring/Summer 2019 *Lake Tides* titled “Lake Highs and Lows.” She does a magnificent job of describing trends in lake levels throughout the state. To keep it short, our program collects long-term data required to compare how different lake types respond to precipitation events spatially and temporally.

Most of the lakes we monitor here in Vilas County are in Winchester and Presque Isle, but we do have a few “out east” in Phelps. We monitor big lakes (maximum 1,165 acres) and small lakes (minimum 21 acres), seepage lakes and drainage/drained lakes, lakes with and without public landings, and deep lakes (maximum depth 105 feet) and shallow lakes (maximum depth 16 feet). Each lake has a citizen scientist volunteer to record the lake level weekly during the ice-free season, but the action really starts right after ice out.

Most of the lakes in Vilas County are frozen until late April or early May. Once I have heard



Photos provided by Emily Heald



from volunteers that their lakes are ice free, Al, Paul, and I set out to each lake to install the gauges into the lake beds. It's a bit more complicated than simply pounding a fence post with a ruler into the lake, though that's definitely a piece of the puzzle. I drew a little diagram of how this works – try to follow along as you read this. At each volunteer's home, we installed a lag bolt into the base of a tree. We call it the benchmark. The benchmark does not move as the tree grows, it stays right at the base of the tree at the same level (trust me). A couple years ago, DNR came out and tied all of the benchmarks to sea level, so we know their exact elevations. The math was a little more complicated before we did this! Then, we use survey equipment like you see during road work. We know the elevation of the benchmark, so by surveying the level rod (it's just a big ol' ruler) we can determine the elevation of the survey equipment. Then we carefully turn the survey equipment towards the lake. We place the level rod at the bottom of the gauge in the lake at the "0" mark and take another survey reading. The elevation of the survey equipment minus the reading of the level rod tells us the elevation of the "0" mark on the gauge. So, to get the lake level, all you need to do is add your lake level reading from the gauge (just read the gauge marking where the water level is hitting) to the elevation of "0." Voila! We survey the gauges in the spring during installation and again in the fall before we remove them, to make sure the gauges haven't moved around.

My favorite part of this whole process is interacting with our volunteers. Our volunteer turnover rate is close to 0%! Folks have only "quit" volunteering if they move, and in those cases, a neighbor takes over pretty quickly. Our volunteers share their lake level data with their lake organizations for discussion. Lake monitoring enhances volunteers' knowledge of their lake, and often encourages participation in other citizen science programs such as water clarity and chemistry, loon activity, and aquatic invasive species monitoring. This connection of people to the natural world is invaluable to the program, as well as the ecology of the entire region. Not-so-coincidentally, connecting people to the natural world is also the mission of the North Lakeland Discovery Center. 💧

North Lakeland Discovery Center (DiscoveryCenter.net) is a 501(c)(3) not-for-profit environmental education center located in Manitowish Waters, Wisconsin. Our mission is to enrich lives and inspire an ethic of care for Wisconsin's Northwoods through the facilitation of connections among nature, people, and community. Our education programming offers a variety of community programs throughout the year for all ages, as well as free drop-in activities including the Nature Center and guided nature hikes. Member activities include free onsite use of our canoes, kayaks, and snowshoes. Our water program works with local towns and lake associations on lake management planning projects and aquatic invasive species education, prevention, and management.



Emily Heald



Capacity Corner Nov. 2020

Virtual Communication and Engagement

By Sara Windjue, Leadership and Capacity Development Specialist, Extension Lakes



You can find all of the Capacity Corner articles in our online newsletter archive. Just go to uwsp.edu/uwexlakes click on “Newsletter” in the left navigation, then click the “Search Lake Tides” button and choose “Capacity Corner” under “Category.”

Each issue of *Lake Tides* is highlighting one of these four dimensions, and we last discussed **programmatically capacity** in the Fall/Winter 2019 *Lake Tides* (Vol. 44 No.

4). Due to the public health situation, we are all facing new communication challenges, so we’ve decided to focus this **programmatically capacity** article on virtual communication and engagement resources.

This month we want to share some tips for keeping your programs going forward despite COVID-19 related constraints and the need to move meetings, gatherings, and events online. Whether you are using Zoom, Google Meet, or any other tool to “get together,” there are some techniques you can employ to make these meetings more productive, useful, and engaging.

Sociocracy

In this time of virtual communication, it is important to understand how to actively engage your audience. Sociocracy is the art of bringing everyone into the conversation. Sociocracy is important when we want to hear all voices. During in-person meetings, we can often sense when sociocracy is lacking. People use non-verbal cues to let us know that they are feeling left-out; they may be looking at their phone or expressing discomfort. In the online environment, those holding a meeting or event need to go out of their way to practice and deploy sociocracy.

Engaging Your Virtual Audience

Here are some tips to engage virtual meeting and conference participants so all voices are heard.

Consider assigning roles to participants. Here are a few roles that are possible:

- **Break-out Room Manager**
Designating a facilitator can keep the conversation moving forward and within boundaries while making sure goals are being met.



- **Note-taker**
Recording what has been discussed and agreed upon during a meeting can be later shared in a separate document or displayed in real time.
- **Co-facilitator**
You may not want just one person to lead the conversation all the time. It's good to get different voices and different perspectives. Ahead of time, see if others would be willing to take over some of the discussion and agree to things such as how much time each person wants to facilitate or if there are certain areas of the conversation people are more excited, or more knowledgeable, about leading.
- **Sharer**
Ask for volunteers to share their ideas from break-out groups.
- **Question Leader**
Ahead of time, you may want to ask certain individuals you trust to come up with questions to get the Q&A session started. Sometimes it takes someone else to go first before others are comfortable contributing.

At the beginning of your virtual meeting, or throughout the meeting, consider asking questions about people's comfort and/or questions that will engage them in different ways. Examples include:

- **How are you feeling right now?**
Participants can leave their comments in the chat feature, in a word cloud tool, on the white board, or reply with a thumbs-up or thumbs-down.
- **How have you recently inspired others?**
Questions like this get people thinking about how they've personally made a difference. Some will want to share while others won't, and that's okay.
- **What is going on outside?**
Have everyone take a minute to step (or at least look/listen) outside and ask them to name one thing they currently see, hear, feel, smell, or even taste! This type of activity engages our brain in different ways and allows us to relax and use all of our senses.

Online Resources

Along with using Zoom, Teams, or other video communication platforms, there are many web-based tools available that can help with virtual engagement. Here are a few you might want to test out. Let us know if you find them helpful!

1. **Kahoot**
<https://kahoot.com/>
Even adults like a little friendly competition! This quiz competition tool is perfect for reviewing content/testing knowledge.
2. **Mentimeter**
<https://www.mentimeter.com/>
This tool is meant to be used in place of a static PowerPoint presentation. Because it is hosted on the Internet, individuals do not need to download an app to participate. Your audience can participate in real-time quizzes, word cloud activities, and reactions such as thumbs-up and hearts.
3. **GooseChase**
<https://www.goosechase.com/>
This Scavenger Hunt tool creates "missions" which allow people to snap pictures with their phones or enter answers to compete for points.
4. **Poll Everywhere**
<https://www.pollerywhere.com/>
This online service is an audience response system. It is a simple application that works well for live audiences using mobile devices like smartphones.

Consider asking questions that will engage folks in different ways.

Are there other tools you like using to engage virtually? Please let us know by emailing uwexlakes@uwsp.edu. We'll add your resources to our list! 💧

Andrea Piacquadio, Pexels.com



Writing History Through the Eyes of a Potato

By Zach Loken, UW-Stevens Point Graduate

Bob Peterson - Flickr Creative



the other hand, are found mostly submerged within the water. Its flowers are borne on smooth stems in rings (whorls) of three at a time. There may be up to 15 of these rings of flowers on a single flowering stalk. Each flower has three green sepals and three white petals. The plants hold both male and female flowers, with female flowers found nearer to the base of the plant, and they bloom in mid-late summer. When fruiting, a single plant can produce upwards of 20,000 seeds, which provide a rich food source for wildlife.

Historically, this plant was used by Native Americans and early European settlers as an excellent source of nutrition, and furthermore provided medicinal benefits for various ailments.

The duck potato (*Sagittaria latifolia*), otherwise known as broad-leaf arrowhead or wapato, is an emergent plant found in the shallow waters and mucky soils of wetlands throughout most of North America, stretching from northern Canada to the southwestern United States. Duck potato acquired its name due to observations of diving ducks readily consuming the flattened seeds and potato-like tubers of this plant, but other wildlife such as songbirds, wading birds, muskrats, and beavers seem to enjoy this tasty tuber as well. A single plant can yield up to 40 tubers per year.

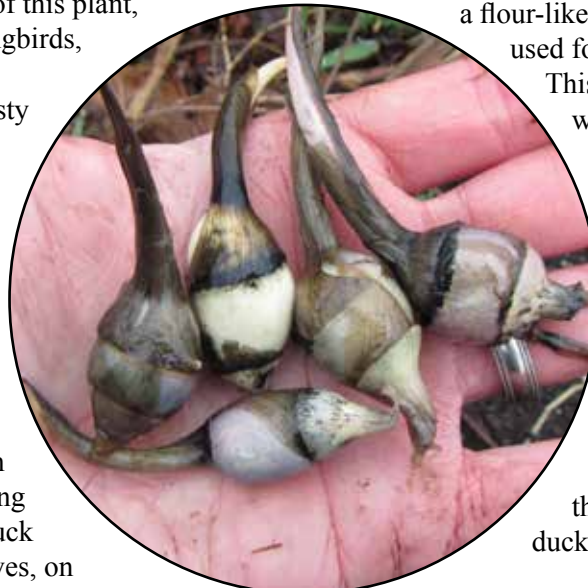
The leaves of duck potato are commonly observed in two different forms: arrow-shaped and ribbon-like. The arrow-shaped leaves are by far the most common and can be consistently found emerging above the water's surface. Duck potato's stiff, ribbon-like leaves, on

Historical and Environmental Significance

Historically, this plant was used by Native Americans and early European settlers as food and for medicinal purposes. The tubers were commonly boiled until the skin was soft enough to peel away, which also improved the taste. Boiled tubers were also sliced, hung up to air-dry, and then pounded into

a flour-like meal that was used for making bread.

This floury powder was used as an herbal poultice and applied to the skin to relieve the soreness and inflammation commonly associated with animal bites and stings. Similarly, the leaves of duck potato were



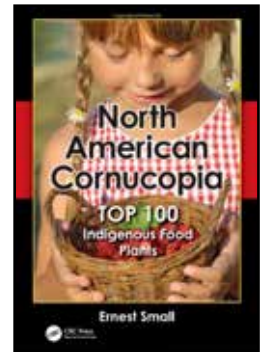
also consumed in the form of a tea to relieve symptoms of indigestion and rheumatism. Due to duck potato's tendency to absorb harmful toxins into its tuber, modern foragers must err on the side of caution when searching for these tubers in the wild. Nevertheless, this tendency to absorb harmful pollutants from the water makes duck potato a strong candidate for naturally restoring aquatic environments.

Meriwether Lewis and William Clark repeatedly mention duck potato as an important food source in their expedition journals. Arguably so, this humble tuber is what saved Lewis and Clark's Corps of Discovery from starvation during the cold, wet winter of 1805-1806 at Fort Clatsop—otherwise known as modern-day Oregon. Without the flour-like duck potato meal to hold the Corps over until springtime salmon-runs began, some of the most noteworthy explorers in the 19th century could have perhaps become nothing more than a footnote in history. Lewis noted that Native American women used their toes to separate the tuber from its root while



Paul Skowinski

holding onto a shallow canoe for increased buoyancy. Once the tubers had separated from their roots, they would rise from the bottom of the lake to the surface, where they were then tossed into shallow canoes for storage. This technique is still used by modern foragers and is often known as “stomping tubers.” For more information, check out North American Cornucopia: Top 100 Indigenous Food Plants by Ernest Small. 💧



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 uwexplakes@uwsp.edu so we can include it in a future issue.

Q: Our lake district's board of commissioners needs to hold a meeting in between our normal board meetings. Can we do that?

A. The board of commissioners is the governing body for the lake district's day-to-day affairs. It's understandable that unexpected decision items may arise in between regularly scheduled meetings. The board can meet additional times if needed. Chapter 33.28 (6) states: “The board shall meet at least quarterly, and at other times on the call of the chairperson or the petition of 3 of the members.” So, either the chair would call for an additional board meeting, or three other members of the board would request a meeting to the chair. In practical terms, this means that one or two members of the board can't make a meeting happen unless they have the agreement of the chairperson. Any meeting of a lake district board is a public meeting and Wisconsin's Open Meeting Laws must be followed. This includes a notice requirement: someone needs to physically post a printed notice of the meeting and its agenda in three locations likely to be seen by the general public 24 hours or more before the meeting begins. The meeting also must be held in a location accessible to the public. This past April, Philip Forsberg and Daniel Foth from the UW Madison Division of Extension's Local Government Center gave a presentation on Wisconsin Open Meetings Law as part of our online Lakes and Rivers Convention. You can find a video of their presentation, a copy of their slides, and a link to the Wisconsin Open Meetings Law Factsheet in the 2020 Convention Archives located in the EVENTS box on the Extension Lakes website at uwsp.edu/uwexplakes.

For more information on lake districts, see *People of the Lakes: A Guide for Wisconsin Lake Organizations*, at <https://www.uwsp.edu/cnr-ap/UWEXLakes/Pages/organizations/guide.aspx>.



AIS Monitoring

Preventing the Spread Through the Seasons

By Chris Hamerla, AIS Coordinator, Golden Sands Resource Conservation & Development Council

The good example we all set while preventing the spread of AIS will help teach others to do the same!

Summer 2020 saw a large increase of people enjoying Wisconsin's lakes, rivers, and pretty much all of the outdoors. Many lakes reported busier than average boat landings as people spent more time recreating on the water. This was confirmed by empty shelves at retail stores where boating, kayaking, and fishing equipment would normally be found. With that increase came an increase in first-time boaters and anglers, or people who hadn't done so in many years. This provided an opportunity to educate more people about preventing the spread of aquatic invasive species (AIS). It also meant we needed to step up monitoring efforts.

Not Just for Summertime

AIS prevention and monitoring isn't just reserved for the summer. Fall is a good time to look for invasive species like starry stonewort, water hyacinth, and zebra mussels. In 2020 and 2019, residents from two different lakes in Portage County noticed zebra mussels on their docks. Zebra mussels attach to hard surfaces so it is easy to check pontoon tubes, boat hulls, and dock legs, once they are removed from the lake. Even if you didn't think to check those items when they were removed, the mussels will still be there and monitoring can be done now.

While the pleasure boating and waterskiing has gone silent for the year, many water related activities continue to occur, which means AIS prevention steps remain important. Fishing, waterfowl hunting, and trapping are a few of these activities. Remember to inspect and clean all mud, plant material, and organisms from footwear and equipment. Drain all water from your boat and never move plants, organisms, mud, or water.

An Ounce of Prevention

Following the AIS prevention steps helps preserve quality habitat and avoids negative impacts to recreation as well as potential maintenance and management issues. Monitoring for AIS and reporting suspicious findings can help in management efforts and reduce new found populations from spreading further. Please report findings to local AIS partners or DNR. And remember, the good example we all set while preventing the spread of AIS will help teach others to do the same! 💧



Chris Hamerla

These zebra mussels hitched a ride on the wheels of this removable pier.

To find your local AIS or DNR partners, go to dnr.wi.gov and search for "AIS contacts."



A Snapshot of Snapshot Day 2020

SNAPSHOT DAY



By Jaclyn Lucas, former AIS Project Manager & Communications Assistant, River Alliance of Wisconsin

On August 15, 2020, 139 volunteers donned their masks, grabbed their garden rakes, and explored 200 monitoring sites across Wisconsin on a search for aquatic invasive species. This was the 7th year of Snapshot Day, a statewide “citizen science” event hosted by River Alliance of Wisconsin in partnership with the Wisconsin Department of Natural Resources (WDNR) and Extension Lakes. During a global pandemic, however, there was concern as to whether Snapshot Day could happen this year.

Thankfully, River Alliance has amazing partners, and our network of WDNR staff, site leaders, and volunteers across the state helped to ensure that we could move forward with Snapshot Day 2020. We adapted the usual one-day event to include a virtual training beforehand, and implemented mandatory safety precautions like social distancing. Even with changes made due to COVID-19, Snapshot Day was a great success, with events hosted at 24 different locations across Wisconsin.

Kate Wright



Polk County volunteers learn about what to look for during Snapshot Day 2020.

While Snapshot Day is a great way to get outdoors and explore, this one-day monitoring event also contributes a vast amount of data to the statewide database maintained by WDNR. After Snapshot Day, the aquatic invasive species information that was recorded by volunteers is verified before becoming part of this database. For 2020, the data are still rolling in, but fortunately, we have already had many sites declare that there were no new findings in their waterways. Meanwhile, to see what was found during Snapshot Day 2019, check out the interactive story map here: <http://bit.ly/aisstorymap2019>. Mark your calendar for the 8th annual Snapshot Day next summer on Saturday, August 21, 2021.

Sheila Leary



Volunteers in Madison pose as “AIS Monitoring Gothic.”

Thank you to everyone involved; we could not have done it without you! Also, we’d like to give a big shout out for the additional financial support provided by the Alliant Energy Foundation and to Culver’s for making the day a bit sweeter. 💧

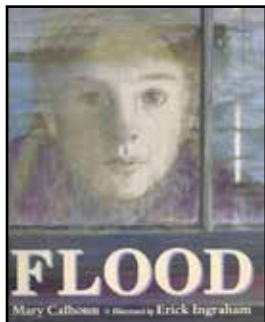


Lake Tides 45(4)

Keeping Lakes in the Family

Sharing the Magic Through Stories

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



High Water Levels and Flooding

Our recommended books and videos this year focus on high water levels, flooding, and the stories of families affected by floods. They provide steps we can take to limit damage to our homes and communities from high-water levels – actions like minimizing structures near the shoreline, protecting and restoring wetlands, keeping trees and planting more, minimizing impervious surfaces, and creating rain gardens.



Flood

Ages 5 and up

Written by Mary Calhoun

Illustrated by Erick Ingraham

Set against the backdrop of the devastating Midwest floods of 1993, this book follows a family as they try to protect their home from the flooding Mississippi River. Times get even more stressful when the levee breaks and more water rushes in.



Flood Readiness

Ages 10 and up

By Natalie Hyde

Flooding from torrential rain and melting snows can devastate areas where people live. This book examines what scientists know about flooding, whether we can predict floods, and how we learn from each event. By studying the destruction they cause, scientists and engineers continue to come up with new and improved technologies to predict severe weather and better protect cities, buildings, and people. Great information about how forests and wetlands limit flooding.

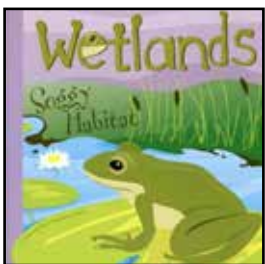


Floods

Ages 6-9

By Martha London

This book's vivid photographs and easy-to-read text explore the science behind how floods form, where they most commonly occur, and how people can best stay safe during one. It describes how intact wetlands and floodplains help reduce flooding.



The Great Midwest Flood

Ages 9 and up

By Carole G. Vogel

This is another book that captures the drama and tension of the summer of 1993 when the Mississippi River basin was flooded to record levels. Through both words and full-color photographs, the book describes the battles from city to city as each struggled to contain the Mississippi or its tributaries. The author notes both financial and personal losses when the waters finally receded and cleanup began. She stresses that major floodplain management and restoration of the wetlands around the Mississippi can help prevent such disasters in the future.

Wetlands: Soggy Habitat

Ages 5-9

Written by Laura Purdie Salas

Illustrated by Jeffrey Joseph Yesh

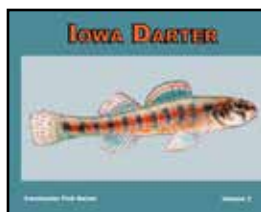
This story focuses on many of the benefits that wetlands provide, including the reduction of flooding. The delightful illustrations reveal how wetlands are one of Earth's treasures.

Iowa Darter

Ages 8 and up

Written by Elie Hart, Lynn Markham, Justin Sipiorski, and Jonathan Stoffregren

Illustrated by Justin Sipiorski



This book isn't exactly about flooding, but we are super-excited to announce the newest addition to the *Freshwater Fish Series*! Find out how these tiny native fish grow from eggs to adults, where they like to hang out, and what you can do to keep their waters healthy. Available at uwsp.edu/uwexlakes.

The digital era is helping people learn about flooding and stormwater in new and engaging ways. Check out these short video clips and share them with your local lake and river organizations on social media!

VIDEOS

What can property owners do to reduce flooding?

How Wetlands Manage Water

By Wisconsin Wetlands Association

Length 3:38

This animated white-board “explainer” video uses simple illustrations and clear language to outline how wetlands reduce flood damages, help keep our waters clean, and ensure we have water to drink and use in our communities. <https://www.youtube.com/watch?v=QyA5PBqSdfc>

Learn the Benefits of Planting a Rain Garden

By Milwaukee Metropolitan

Sewerage District

Length :58

Join Gardening Expert Melinda Myers as she explains how rain gardens attract birds and butterflies while capturing and cleaning runoff. She talks about their sponge-like ability to capture stormwater and keep runoff from entering nearby lakes. <https://www.youtube.com/watch?v=UHWXF8gM2Yc>

Healthy Lakes Series: Rain Garden and Diversion

By Extension Lakes

Length 1:58

Follow the path of rainwater from a rooftop through two Healthy Lakes and Rivers best practices to keep runoff from entering Legend Lake. Lake Specialist Patrick Goggin talks about some of the plants that help rain gardens do the “heavy lifting” of capturing and filtering runoff. <https://youtu.be/66ZG-yIPU9o>

Impacts of Impervious Surfaces on Fish, Wildlife, and Waterfront Property

By Center for Land Use Education

Length 12:19

Healthy fish, abundant wildlife, and clear, clean water all depend on the decisions that we make on our waterfront properties. Learn about how impervious (hard) surfaces like paved driveways/walkways and rooftops impact fish, wildlife and waterfront property values. <https://www.youtube.com/watch?v=UPjPnaGNB1c&t=3s>



How does it feel when your home or community floods?

Stories from the Flood

By The Driftless Writing Center

Length: 12:30

Southwest Wisconsin’s Driftless Region has seen plenty of dramatic flooding in recent years. This video and project looks to collect and share stories of people impacted by flooding and develop examples of resilience. <https://www.wisconsinfloodstories.org/media>

Baldwin Homeowners Assess Flash Flood Damage, 2020

By WCCO - CBS Minnesota

Length 2:37

This news story includes interviews with affected homeowners who state this has happened to their homes before, and most didn’t have flood insurance. <https://www.youtube.com/watch?v=iur93CBw18Y>

Dane County breaks record for heaviest rainfall in 24 hours, in state of emergency, 2018

TMJ4 News

Length 4:29

News report shows multiple communities impacted, with videos of flooded homes, roads, and stranded vehicles. <https://www.youtube.com/watch?v=YWCSji-oSS8>

Residents stressed as historic Dane County flooding moves into third week, 2018

Channel 3000/News 3 Now

Length 2:51

Reporter noted that this is the third time in 20 years that Lake Monona has hit “100-year levels.” <https://www.youtube.com/watch?v=zEs3pD5bryk>



Let's Make Healthy Lakes & Rivers Together!



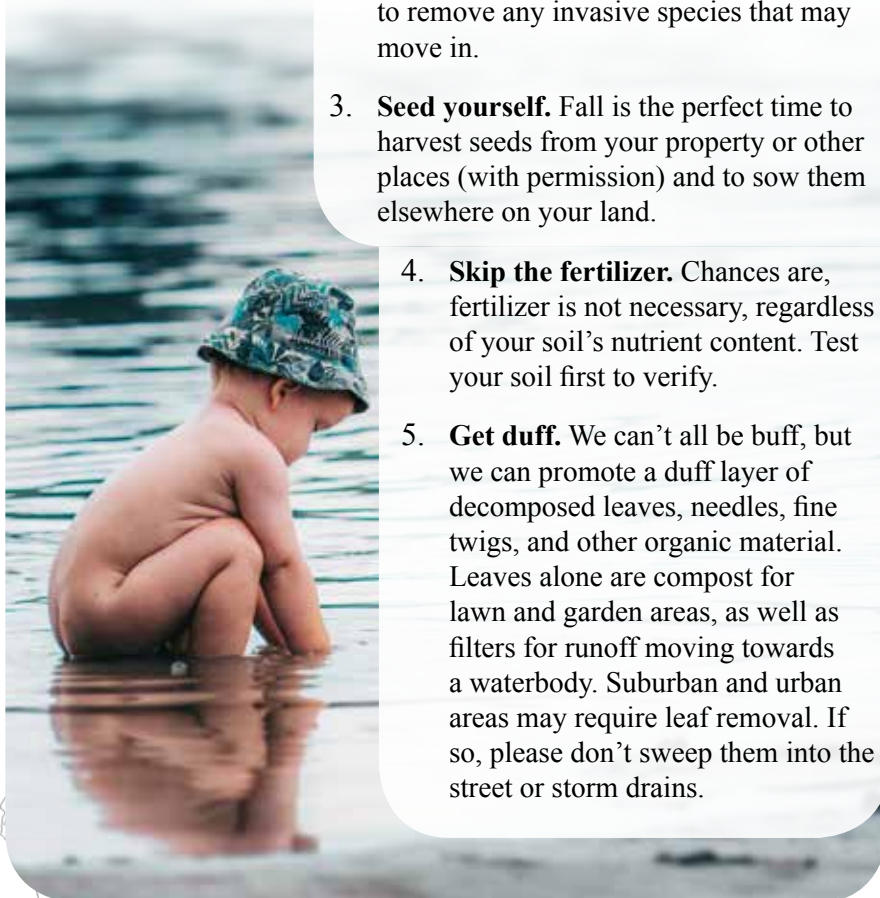
The Healthy Lakes & Rivers initiative is a statewide effort providing outreach, technical assistance, and funding for five simple and inexpensive best practices that are appropriate for most lakeshore properties. Pitch your Healthy Lakes & Rivers feature story to Pamela Toshner (pamela.toshner@wi.gov) or Amy Kowalski (amy.kowalski@uwsp.edu).

Healthy Lakes & Rivers...*Au Naturel*

Some of life's greatest pleasures are free – in spirit, mind, and pomp (think skinny-dipping). Going *au naturel* applies to shorelands, too! Here are some ways you can give back to your lake or river - sans a cent or bead of sweat - with an open mind and naked heart.

1. **Let trees be.** Trees have been growing around and falling into Wisconsin waters (and onto land) for thousands of years. Those fallen trees, which can span several human generations, protect shorelines and provide fish and wildlife habitat. Contrary to popular belief, there is no law requiring you to remove trees from the water. In fact, we'd prefer (and so would the fish, turtles, frogs, songbirds, eagles, minks, and more) you let them be.
2. **Don't mow – let it grow.** 90% of wildlife rely on natural shorelines at some point in their lives. One of the simplest steps towards a healthier shoreland property is to refrain from mowing. Just be sure to remove any invasive species that may move in.
3. **Seed yourself.** Fall is the perfect time to harvest seeds from your property or other places (with permission) and to sow them elsewhere on your land.
4. **Skip the fertilizer.** Chances are, fertilizer is not necessary, regardless of your soil's nutrient content. Test your soil first to verify.
5. **Get duff.** We can't all be buff, but we can promote a duff layer of decomposed leaves, needles, fine twigs, and other organic material. Leaves alone are compost for lawn and garden areas, as well as filters for runoff moving towards a waterbody. Suburban and urban areas may require leaf removal. If so, please don't sweep them into the street or storm drains.
6. **Make a swerve.** Redirect gutters and downspouts away from the lake, river, and hard surfaces that drain to the waterbody. This is an easy way to prevent runoff pollution.
7. **Plan now, save later.** 800 square feet of pavement, rooftop, or other hard surface generates nearly 500 gallons of water during a one-inch rain. Anytime you can refrain from adding a hard surface to your property, you're helping our lakes and rivers.
8. **Seize nature.** Identify and protect existing natural areas, especially prior to construction. Many properties have vegetated areas where runoff can soak into the ground before it gets to your lake or river - and provide habitat, too!
9. **Don't flip the switch.** Kitchen waste dumped down the drain via garbage disposal can contribute nutrients to and create maintenance problems for septic systems, which are not designed for that type of waste. Indoor (vermiculture) and outdoor composting are better alternatives.
10. **Scoop the poop.** Pick up pet waste, especially in urban areas where it contributes substantial amounts of nutrient and bacteria to our waterbodies.

Take a chance – the *au naturel* experience may delight you! Commit a small area of your property or time on your schedule for testing it out. Then, kick back and enjoy the effort and money you've saved. 💧



Wisconsin Water Week

A week of inspiring content and connections among water lovers.



Monday

March 8, 2021

The first three days of Wisconsin Water Week will focus on major aspects of Wisconsin's water system. Monday will emphasize "Water Cycles," including groundwater and climate, the two largest but mostly invisible pieces of our shared water inheritance.



Tuesday

March 9, 2021

Day two will explore "Water Bodies," delving into the science of monitoring and managing lakes, rivers, wetlands, and watersheds, and evaluating their health. This includes the flora and fauna in and around these water bodies and how they interact.



Wednesday

March 10, 2021

Wednesday will focus on "Water Actions," featuring examples and stories from the field that demonstrate how people and communities are tackling water challenges - even during these turbulent times.



Thursday

March 11, 2021

Thursday's programming will be built around the major watersheds in Wisconsin with dozens of simultaneous, place-based, one-day conferences. Drawing on the Red Cedar Watershed Conference's past success, numerous additional watersheds will address issues and concerns most relevant to their specific region.



Friday

March 12, 2021

The week concludes on Friday with a menu of smaller local events and meetings that draw upon the week's content to outline action plans for spring and summer 2021. Depending on the public health circumstances and the size of local gatherings, some of these may be held in person.



uwsp.edu/uwexplakes

CALENDAR

November 16-20 – International Symposium for NALMS, online

This year's North American Lake Management Society's conference, *NALMS at 40: Advancing Our Mission to Forge Partnerships*, will be held virtually.

For more information: <https://www.nalms.org/nalms2020/>

December 15 – Wisconsin Lakes Annual Meeting, 4:00-5:30PM, online

The state lake association is holding its annual meeting online this year and the public is welcome - please join us! For more information and to sign up: <https://wisconsinlakes.org/>

December 16 – Steps to Transformative Change: Healthy Waters for All, online

The Wisconsin Academy of Sciences, Arts & Letters is hosting this virtual meeting as part of their Environmental Breakfast Series. For more information: <https://www.wisconsinacademy.org/evenings/steps-transformative-change-healthy-waters-all>

Stay up-to-date by checking the online Lake Event Calendar at uwsp.edu/uwexplakes!



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Reflections

*“Even when the rain falls
Even when the flood starts rising
Even when the storm comes
I am washed by the water.”*

~ NEEDTOBREATHE
(from *Washed By The Water*)

