Lake Tides
The newsletter for people interested in Wisconsin lakes

# Five Year AIS Study Complete

## Statewide Project Studies Rate of Spread of Aquatic Invasive Species in Public Access Lakes

Wading, snorkeling, raking, and netting are how many Wisconsin Department of Natural Resources (DNR) staff and volunteers spent the open-water season over the last five years. They were searching for aquatic invasive species (AIS) in about 1,000 lakes with public access. Their goal was to answer the question, "Are Wisconsin's AIS prevention efforts slowing the spread of AIS?"

More than 150 staff and volunteers spent approximately 3,000 hours over five years collecting the data necessary to answer this question. No other state has completed a comprehensive AIS study of this scale and detail. This significant accomplishment paves the way for Wisconsin's role as a leader in AIS monitoring.

### Project Design

Maureen Ferry, DNR AIS Monitoring Lead, played a significant role in leading this complex project. She worked with a team of researchers, DNR staff, partners, and volunteers to collect data that would be robust enough to answer the question at hand.

"Sampling about 200 lakes each year for five years gave us the statistical confidence to determine a rate of spread for AIS," said Ferry. "The surveyed lakes were randomly selected from the approximately 1,700 with public boat access, since we know that boaters are the primary pathway for invasive species spread in Wisconsin."

*(Continued on page 2)*

*Photo by Paul Skawinski*

*Krista Kamke finds a banded mystery snail while snorkeling in Porter's Lake.*

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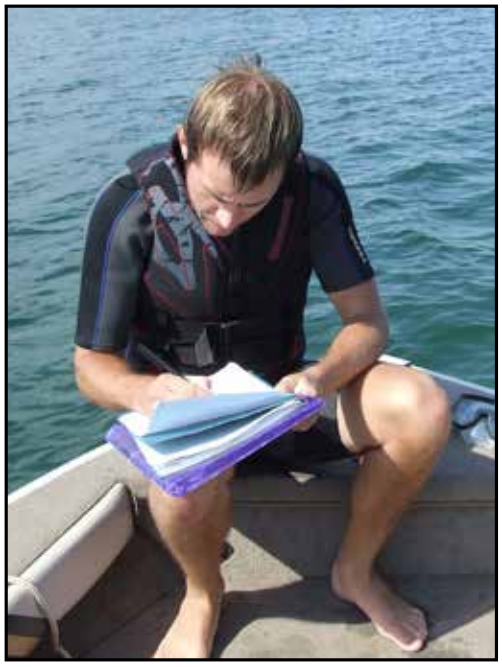
*Wisconsin Lakes Partnership*

***The primary finding was that the rate of spread for invasive species spread, overall or for any individual species, did not increase over the five year project period.***

The project, funded mostly through the federal Great Lakes Restoration Initiative, was the first of this scale in the United States. Monitors performed visual surveys along entire lakeshores, snorkeling at all boat launches and at targeted locations. They raked up plants and dipped nets into the water looking for Eurasian watermilfoil (*Myriophyllum spicatum*), spiny waterfleas (*Bythotrephes cederstroemi*), zebra mussels (*Dreissena polymorpha*), purple loosestrife (*Lythrum salicaria*) and other AIS.

*Photo provided by Wisconsin DNR*



*Scott Caven records data during the survey in Ashland County, 2011.*

## Results from Five Years of Monitoring

After five years of monitoring, the DNR had a wealth of information on the locations of AIS in Wisconsin. The primary finding was that the rate of spread for invasive species, overall or for any individual species, did not increase over the five year project period; it stayed the same. While that may not sound great, Ferry explains that it is, in fact, good news. "Theoretically, invasion rates should increase, stabilize and then decrease over time. As more lakes become invaded, there are more opportunities for spread and the rate increases until suitable habitat is saturated. A constant rate suggests something – hopefully our outreach and education efforts – is preventing that rate from accelerating."

The study uncovered some important results: nearly 75 percent of the lakes surveyed had at least one aquatic invasive species and the project identified about 500 new AIS records. However, upon further examination, those results are not as scary as they sound. Ferry explains, "While 75 percent of lakes sounds high, the most problematic invasive species, like zebra mussels and spiny waterflea, were uncommon. Most of our new detections were purple loosestrife, which has an effective biocontrol agent, and mystery snails, whose negative impacts are not as apparent. This means that our most problematic invasive species are still only in a limited number of lakes, with only a few lakes in this study having multiple AIS."

The good news is that 75 percent of the lakes monitored are free of Eurasian watermilfoil, over 90 percent are free of zebra mussels and 99 percent are free of spiny waterflea! These are very encouraging numbers because they indicate that most lakes are free of the most troubling invasive species.

"Similarly, most of the new detections were found in lakes that were never monitored before," says Ferry. "The most important thing we learned is that these new detections were already established populations. We realize we need to increase coverage of statewide monitoring (by staff and volunteers) on waterbodies most susceptible to AIS. We will continue to target our monitoring so we can catch species early."

***Out of 1000 public access lakes, only two had spiny waterflea!***

| Species | Scientific name | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|
| Eurasian watermilfoil | *Myriophyllum spicatum* | 45 | 49 | 57 | 56 | 46 |
| Zebra mussels | *Dreissena polymorpha* | 14 | 13 | 16 | 20 | 12 |
| Spiny waterflea | *Bythotrephes cederstroemi* | 0 | 1 | 1 | 0 | 0 |
| Curly leaf pondweed | *Potamogeton crispus* | 41 | 35 | 64 | 50 | 30 |
| Phragmites | *Phragmites australis* | 6 | 6 | 7 | 16 | 11 |
| Purple loosestrife | *Lythrum salicaria* | 28 | 46 | 31 | 40 | 23 |
| Banded mystery snail | *Viviparus georgianus* | 43 | 58 | 55 | 49 | 39 |
| Chinese mystery snail | *Cipangopaludina chinensis* | 73 | 66 | 89 | 66 | 54 |

***This chart shows the total number of aquatic invasive species found in 200 different randomly selected public access lakes each year. Approximately 1000 lakes were surveyed over the five year study.***

*Photo provided by Wisconsin DNR*

*Jeremy Bates (DNR) and Andrew Teal (Bayfield County) in Bayfield County, 2014.*

## Early Detections

"These five years of surveys helped scientifically validate that our prevention efforts are slowing the spread of AIS. They also had an immediate benefit of detecting and responding to new populations and species. The DNR and partners were able to respond quickly to occurrences of yellow floating heart (*Nymphoides peltata*), Asian clam (*Corbicula fluminea*), and spiny waterflea," says Ferry. As a result of this intensive project, there was a quick and effective removal of yellow floating heart from Nicolet National Forest's Lake Gordon in 2013. Other water garden releases, like water hyacinth (*Eichhornia crassipes*) and water lettuce (*Pistia stratiotes*), were found in the Mississippi River, Lake Winneconne and Lake Mendota and removed by volunteers, partners and DNR staff. DNR staff and partners are working to stop the sale and release of AIS through the Chapter NR 40 Invasive Species Identification, Classification and Control rule. This rule identifies which species are regulated and what those regulations entail. The Department has been working with retailers to understand and implement the regulation.

Unfortunately, not all new invasions found by the project can be eradicated. Such was the case with the discovery of spiny waterfleas in Vilas County's Star Lake. This harmful species can be transported in bilgewater, livewells, sediment on anchors and other gear. Similarly, Asian clam was discovered for the first time within state borders in four lakes in Southeast Wisconsin. These clams have a greater metabolism than zebra mussels and can be transported in sediments attached to anchors. Volunteers and partners are working to promote awareness of these species and contain them in the newly invaded lakes. For example, the Friends of the Mukwonago River received an Early Detection and Response grant from the DNR to implement regional Asian clam monitoring and outreach. Lake associations throughout Vilas County have been receiving Clean Boats, Clean Waters grants to help stop the spread of aquatic invasive species like spiny waterfleas.

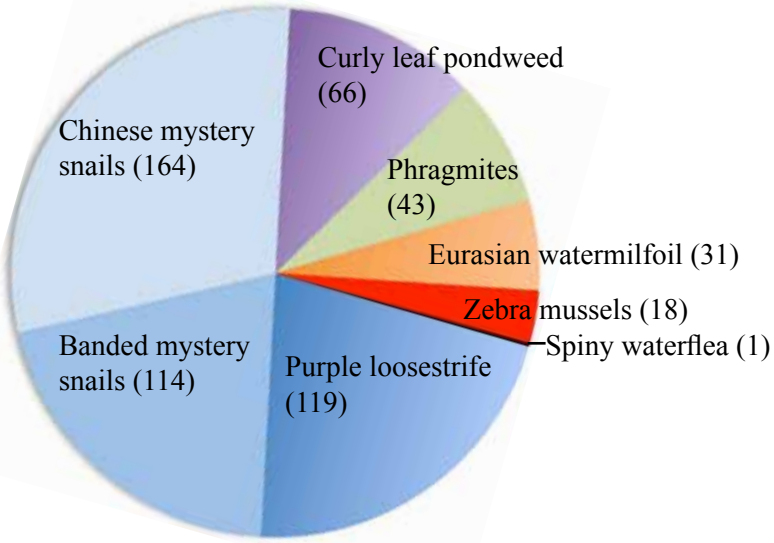
***Most of our detections were purple loosestrife, which has an effective biocontrol agent, or mystery snails, whose negative impacts are not as apparent.***

Ferry says the surveys of these public access lakes are ultimately aimed at determining whether we are actually slowing the spread of aquatic invasive plants and animals. As a bonus, the protocols developed for this study have helped identify small pioneer populations when they are less expensive to control and eradication is possible. The importance of early detection cannot be overstated.

***The importance of early detection cannot be overstated.***

*(Continued on page 4)*

## Total Number of New AIS Documented During Project




***Over 71% of invasive species found during this five year study are either controlled by beetles (purple loosestrife) or not known to have a negative impact on the lake (mystery snails).***

*(AIS Prevention Working, continued)*

"The best part is when our staff, partners and volunteers know what species look like and work together to find these populations early in establishment to increase the potential for eradication," Ferry says. "These partnerships and continued hard work are important in managing AIS in Wisconsin."

*Photo provided by Wisconsin DNR*

*Thorough cleaning of equipment was a top priority of DNR staff, volunteers and partners to keep aquatic invasive species from spreading.*

Bob Wakeman, the statewide DNR AIS Program Coordinator, sees the results as encouraging, but also as an indication that more work needs to be done.

"While the stable invasion rate suggests our AIS prevention efforts are having a positive impact, we would like to see a decline in the rate of spread," says Wakeman. "Our next step is to identify gaps in our education and outreach to boaters and others that transport and introduce invasive species so we can decrease new introductions."

***"The best part is when our staff, partners and volunteers know what species look like and work together to find these populations early in establishment to increase the potential for eradication."***

*~ Maureen Ferry*

Those efforts include the streamlined Clean Boats, Clean Waters watercraft inspection grants and the annual Fourth of July Landing Blitz and Drain Campaign, which are crucial to stop AIS from reaching new lakes. Additionally, Wakeman notes that new efforts to reach previously uncontacted water users, such as waterfowl hunters and water gardeners, can further slow the rate of spread.

## Lessons Learned

The five-year monitoring project has come to a close, but we have learned a great deal throughout the process. Volunteers, along with AIS and DNR staff, will continue education and monitoring efforts, because they're working! These dedicated lake lovers will target lakes with problematic AIS to prevent their spread and work to contain the AIS in lakes with known populations. Whether it is the new detection protocol that will help find new populations of AIS early, or an affirmation that the education and outreach efforts are having a positive impact, this project will resonate for much longer than the five years it took to complete.

Visit http://dnr.wi.gov/lakes/invasives/AISByWaterbody.aspx to find out more about the distribution of AIS in Wisconsin and how to prevent their spread.

*For more information, contact Maureen Ferry, AIS Monitoring Lead, Wisconsin Department of Natural Resources at 608-261-6450.*

*Scott Van Egeren (DNR), project founder, snorkeling in search of AIS in Barron County.*

*Photo by Paul Skavinski*

# Diving into the Update Process for DNR's Surface Water Grants Program

Wisconsin Department of Natural Resources' surface water grant program provides over $6 million a year to lake and river groups, nonprofits and governments to help communities understand the condition of their waterbody, develop a management plan, implement projects to protect and improve water quality and aquatic habitat, and prevent and control the spread of aquatic invasive species (AIS). This grant program was developed and updated incrementally over the last 26 years. The Department is in the initial phase of revising the administrative codes that guide the lake, river and AIS grants. During the revision process, we will take a comprehensive look at what's working well and what could be improved to protect and restore the state's surface water.

Updating code is a three year process:

**2016**

**Summer** - Solicit input from our partners
**Fall** – Draft administrative code
**Winter** – Prepare fiscal estimate and economic impact analysis

**2017**

**Spring** – Host public hearings to solicit feedback on draft code
**Summer** – Finalize code
**Fall** - Secretary and Natural Resource Board approval
**Winter** - Legislature approval

**2018**

**Spring** - Rule published and becomes effective

The 2019 grant cycle will be the first to use the new and improved administrative code.

If you have suggestions on how to improve the lake, river and/or aquatic invasive species grant program, send comments to dnrsurfacewatergrants@wisconsin.gov by September 30, 2016.

# Marinette County Fosters Youth Stewardship

## Successful 11th Year for Sand Lake Conservation Camp

*By Anne Bartels, Information & Education Specialist, Marinette County Land & Water Conservation Division*

*Photo provided by Marinette County Land & Water Conservation Division*

The 11th annual Sand Lake Conservation Camp held at Camp Bird near Crivitz was again a success this summer. The event is for youth entering grades 6-8 and is organized by the Marinette County Land & Water Conservation Division (LWCD). There were 72 campers representing 25 Wisconsin and two Upper Michigan counties this year, along with 24 dedicated camp staff. Conservation Camp provides positive educational outdoor experiences, fosters an appreciation for nature, and introduces a variety of natural resources and conservation career opportunities to youth.

Core topics, presented by Marinette County staff, included aquatic macroinvertebrates, herptiles and water pollution/conservation. Wisconsin Department of Natural Resources (DNR) Fisheries Biologist Chip Long and Conservation Wardens Tim Werner and Dale Romback gave evening presentations about their careers, educational backgrounds and tools they use in their jobs. Naturalists from the Bay Beach Wildlife Sanctuary in Green Bay brought several native Wisconsin animals and discussed wildlife rehabilitation and conservation issues. Jeremy Cords, DNR, led outdoor recreation safety; Richard and Maryann Clark of Clark's Willowtree Fur of Coleman led trapping; and Marla

*Photo provided by Marinette County Land & Water Conservation Division*

Sutton led the outdoor first aid sessions. Ray Leonard and Julia Robson of the Timber Wolf Information Network presented wolf ecology sessions, and staff from the Raptor Education Group, Inc. (Antigo) taught sessions on raptor rehabilitation.

Campers enjoyed other activities including wilderness survival skills, canoeing, archery, t-shirt design, birdhouse building, leathercraft, nature crafts, mammal tracking, and the low-ropes challenge course.

2016 camper scholarships were provided by the American Legion Post 280 of Coleman, Glacierland RC&D, Green Bay Chapter of Trout Unlimited, Groundwater Guardians/ Calumet County, the Phoenix Falls Chapter of Wisconsin Woodland Owners Association, and the Wisconsin Land & Water Conservation Association. Land & Water Conservation departments in Calumet, Iron, Monroe, Oneida, and Waushara Counties joined Marinette County in providing even more scholarships to campers, along with several private donations for camp programs. Dedication to youth

*Photo provided by Marinette County Land & Water Conservation Division*

programs like Sand Lake Conservation Camp is an important part of continuing a tradition of stewardship of our natural resources.

For more information about Sand Lake Conservation Camp, please visit www.marinettecounty.com or contact Anne Bartels, Information & Education Specialist, at 715-732-7784 or abartels@marinettecounty.com. Tentative dates for 2017 are June 21-23.

# 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: Is a lake management plan required in order to form a lake district?**

**A. No.** A lake district is most often formed to address a problem or a set of problems facing a lake community. These problems may be only partially understood, but if sufficient people on the lake agree that there is a problem, a lake district may be one of the tools that can help provide resources to address it. For example, a new district may be formed to raise necessary funds to hire a consultant to study sources of nutrients coming into the lake. Such a study could identify places where runoff management will likely reduce nutrient inputs and protect water quality. A thorough watershed analysis comes at a price, and while donations, dues and DNR grants can help meet that cost, some lakes feel that a lake district will more readily involve all who benefit from lake management in raising the money to pay such bills. Advocates for forming a new lake district should brainstorm and share the range of issues and problems that they think the district can address. You can find some guidance developing a vision and plan for your lake's future in Chapter 5 of People of the Lakes: A Guide for Wisconsin Lake Organizations. If your group is looking to hire a professional to help with the planning, there are some helpful tips in a short guide, titled "Selecting a Contractor for Lake Planning Grant Projects," created by the Polk County Association of Lakes and Rivers available on our webpage at www.uwsp.edu/uwexlakes (Use the left navigation and click *Resources*, then choose *Shoreland and Shallows*. Then click *Grant Assistance* from the menu on the right.)

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

# Water Celery: A Duck's Delight

*By Paul Skawinski, CLMN Statewide Coordinator, UW-Extension Lakes*

Have you ever wondered what is so tasty below the surface that makes ducks dive for their dinner? One of the most important foods for waterfowl is water celery (*Vallisneria americana*), and it is probably growing in your lake!

*Photo by Paul Skawinski*

*Early in the season, water celery peeks through the sediments at the bottom of the lake.*

Water celery, a submersed water plant, is native in most of the United States, including Wisconsin. This plant is named for Italian botanist Antonio Vallisneri and acquired its common name of water celery because the meat of ducks that eat a lot of *Vallisneria* is said to have a celery-like flavor. Diving ducks, like the canvasback (*Aythya valisineria*), consume huge amounts of the plant by plunging to the base of the water celery to eat its rhizomes (roots). These roots or rhizomes are a favorite, but ducks will also feed on water celery seeds that are produced in the fall. Canvasbacks even coordinate their migratory patterns to follow large expanses of water celery beds.

***Canvasbacks even coordinate their migratory patterns to follow large expanses of water celery beds.***

You may have noticed the similarity in the Latin names of water celery (*Vallisneria americana*) and the canvasback (*Aythya valisineria*). Indeed, the canvasback is named after water celery, because it is this water bird's primary food source during the non-breeding period. Other animals, like deer and muskrats, will feed on water celery too. In addition to being a food staple for many ducks, this aquatic plant provides shade, shelter and spawning habitat for a wide variety of fishes and invertebrates.

## Pollination is Tricky Business

Water celery remains fairly inconspicuous from the water's surface, except for the fast-growing, ribbon-like corkscrew that grows from its base and lifts the female flower to a few millimeters below the surface. The surface tension of the water causes a slight dimple to form around this delicate, white flower; this dimple is the key to its pollination (Figure 1). While the

*Photo by Paul Skawinski*

*Delicate, white female flowers are lifted to the surface by fast-growing, spring-like stalks.*

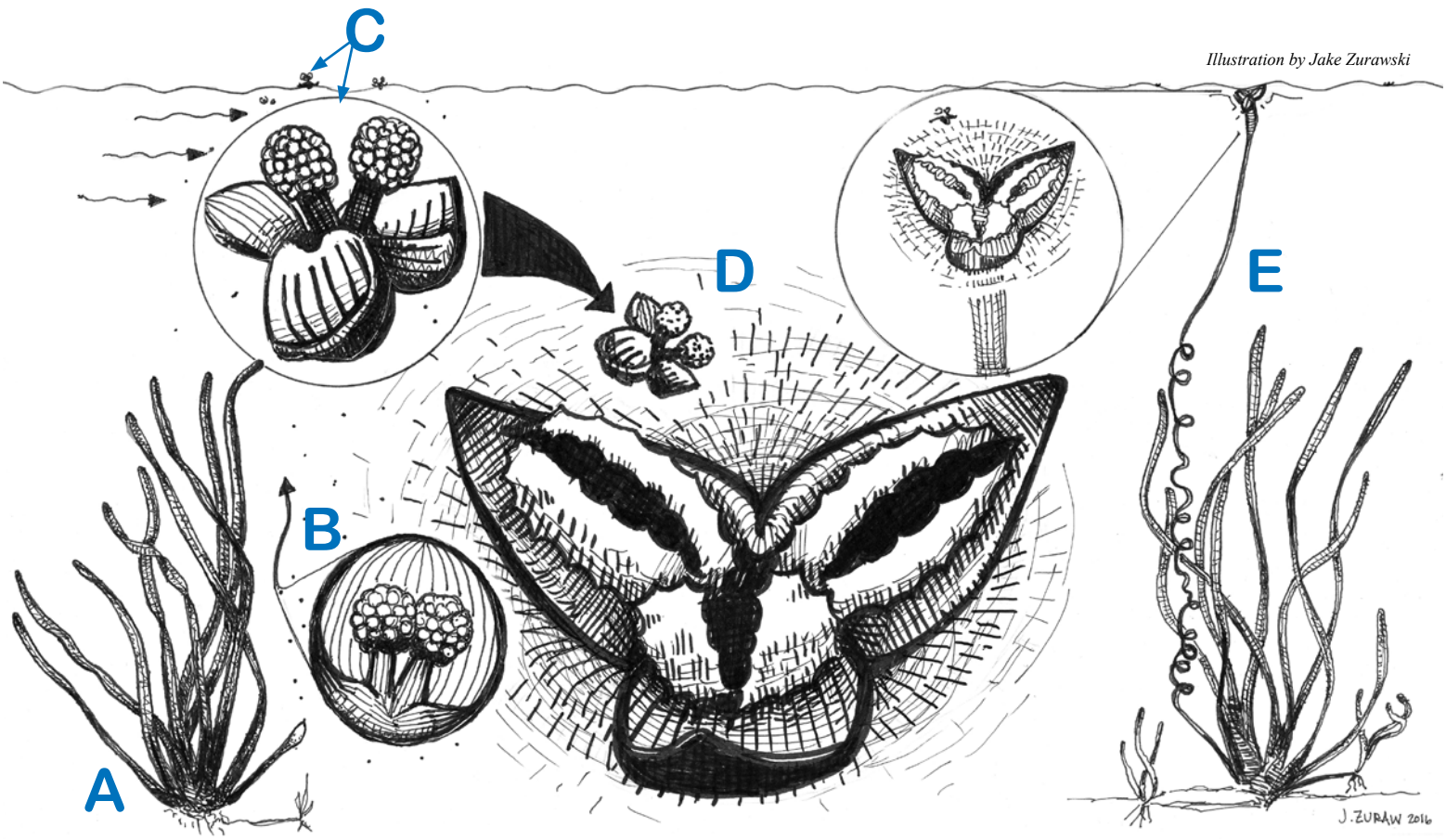



*Illustration by Jake Zurawski*

## Figure 1. Water celery pollination process

**A. The male water celery plant releases flowers.**
**B. Sealed in a buoyant capsule, the male flower rises to the surface.**
**C. When the male flower reaches the surface, it opens up, exposing the pollen.**
**D. Propelled by wind or water currents, some male flowers are pushed into the dimples created by the female flower. The male flower then tips over and delivers pollen to the female.**
**E. The stalk below the female flower will tightly coil after pollination, pulling the pollinated flower down into the water to protect it during development of the fruit.**

female flowers wait patiently at the surface, the male flowers are being released from a separate plant as they mature. Each male flower rises to the surface in a tiny buoyant capsule. As these capsules reach the surface, they will open up into a sort of miniature, floating tripod—the three sepals of each flower forming its "legs". The pollen-covered anthers are held upward, as the tiny tripods silently float along, their destiny controlled by water currents and winds. A male flower lucky enough to drift toward the dimple around a female flower will be pulled down the tiny slope and tipped over, causing the anthers to fall onto the female flower, and effectively transferring pollen to complete pollination.

You can imagine how many things can go wrong in that whole process. In fact, most reproduction in water celery is simple cloning via the underground rhizomes. This ensures that the species continues to survive in a waterbody and allows for more chances at pollination during the following season.

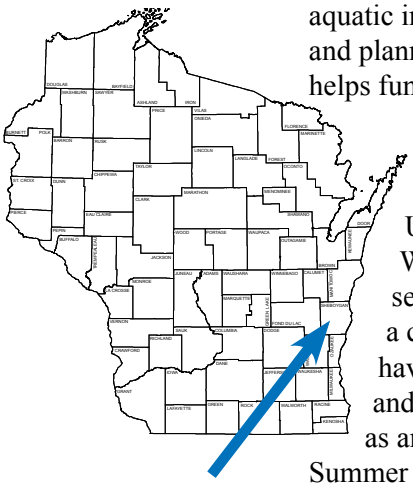
Next time you see the little corkscrews lifting their flowers toward the surface, waiting to birth a new generation of water celery plants, take a look around for the tiny male flowers. Go ahead and give them a little cheer – they need all the help they can get!

# Meet Wisconsin's AIS Staff

## Let's get to know….Mackinzi Beaty!

*To help our readers learn more about the people working on aquatic invasive species (AIS) issues across the state, we're bringing back a segment that focuses on an AIS staff member. These folks will tell us about what challenges their county is facing and why they're working to protect our lakes. Watch for these short articles in future Lake Tides.*

I work for Glacierland Resource Conservation and Development, a non-profit organization that addresses environmental concerns. They have been awarded a Wisconsin Department of Natural Resources (DNR) Surface Water Management Grant for aquatic invasive species education, prevention, and planning for Sheboygan County, which helps fund the AIS Coordinator position.



**Mackinzi Beaty is the Aquatic Invasive Species (AIS) Coordinator in Sheboygan County.**

I earned a Bachelor of Science degree in Biological Sciences from the University of Wisconsin-Milwaukee. For the past several years, I have been focused on a career in environmental education. I have worked for the DNR as a Naturalist, and I currently work for Camp Y-Koda as an Outdoor Educator and Maywood Summer Camp Director. I love being out in nature, and I am interested in gardening, hiking, kayaking, and camping. I also have many creative hobbies like drawing and painting, crafting, and nature photography.

I am excited to take on this new role as the AIS Coordinator for Sheboygan County! The majority of Sheboygan's inland lakes contain curly-leaf pondweed, Eurasian watermilfoil, and zebra mussels. Sheboygan rests on the shores of Lake Michigan with several public access points in the county. It is important to be proactive in preventing the spread of invasive species to other inland lakes.

I have worked with, and continue to recruit, dedicated volunteers through the Clean Boats, Clean Waters watercraft inspection program. I have participated in statewide events to prevent and control the spread of aquatic invasive species. I also hope to develop cleaning stations at boat landings to help communicate the AIS prevention message to the public. I feel education is the key to protecting our natural resources.

This is a great opportunity for me to continue to create awareness and concern for our environment. I'm looking forward to working with the community to protect Wisconsin's valuable lakes and rivers.

To find out who is working on AIS issues in your area, go to: http://dnr.wi.gov/lakes/invasives/topics.aspx.

*Photo provided by Mackinzi Beaty*

# WELCOME ABOARD!

**jenny.seifert@ces.uwex.edu**
**(608) 266-0061**

Jenny Seifert is the new half-time Aquatic Invasive Species Outreach Specialist for UW-Extension and Wisconsin DNR. She'll be putting her expertise in environmental communication to good use, conducting efforts to promote AIS prevention behaviors. With a belief in the power of solution-oriented stories, she hopes to use storytelling and other creative methods to empower lake users. Her other half-time hat is as the science writer/outreach coordinator for the UW-Madison Water Sustainability and Climate project, where she's been for the past three years.

## Did you know lake foam can be a natural occurrence?

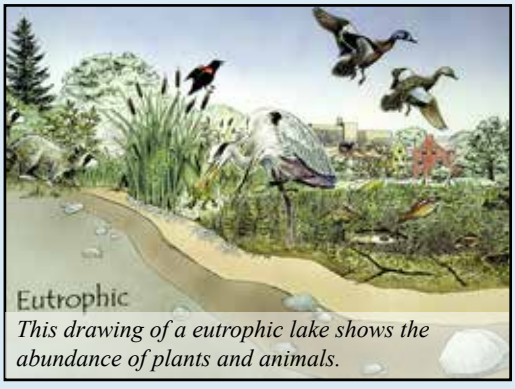
DYK

*By Kirsten James, UWSP graduate*

Lake foam occurs naturally when organic compounds, such as plant and animal matter, decompose and are released into the water. This organic content contains surfactants, which are compounds that lessen the surface tension of the water. When these surfactants are rapidly mixed with the air, by wind, wave action, water flowing over a dam, or turbulent rapids, they will create foam in the water. This foam can build up and collect in coves and downstream, but naturally-occurring lake foam will subside and settle relatively quickly.

Lake foam is most common in eutrophic lakes that are dark brown in color. These lakes typically have high organic content from decomposing leaves and the presence of many plants and animals. You will see more lake foam in the late fall due to the release of organic compounds at the end of our growing season.

Beginning in the late 1950s, synthetic laundry detergents containing surfactants made their way into waterbodies and caused massive foam production and buildup. These detergents and other soaps were chemically non-biodegradable, so they hung around for a long time. Phosphorus in these detergents also created biological overproduction – similar to the phosphorus-related problems we still see today. After conflict over the issue in the early years of environmental protection, the industry now produces household products that are much safer for our waterbodies. The sudsing agent of all detergents now on the market must be biodegradable. This effort, combined with advances in water treatment, regulation, and education, has significantly decreased the amount of lake foam from pollution.




*This drawing of a eutrophic lake shows the abundance of plants and animals.*

*Illustration by Carol Watkins*

### Is it natural or not?

Natural foam has an earthy or fishy aroma, is off-white, tan, or brown in color, and is common in rainy or windy conditions. Foam from pollution will likely smell of perfume, be whiter in color, slimy to the touch, and will not travel very far.

# Minding Our Waters

## Neuro-conservation of Our Lakes, Rivers and Streams

*By Eric Olson, UW-Extension Lakes*

*Did you know that the human body undergoes remarkable changes every time you go underwater? The heart rate slows and the cardiovascular system shifts gears, allowing people to hold their breath much longer than they can above land. Did you also know that, even when controlling for all other variables, people who live near lakes, rivers and oceans experience significant benefits in terms of happiness, longevity and absence of diseases?*

These are just some of the many fascinating ways that being near, in, on and under water affects people. We invite you to take a closer look at these phenomena during the 2017 Wisconsin Lakes Partnership Convention in Stevens Point April 5-7 as we "go deeper" and explore the mind-body-water connection.

Our Thursday morning keynote speaker will be Dr. Wallace J. Nichols, a marine biologist who has synthesized much of the science on this topic in his 2015 best selling book Blue Mind. Nichols has been an outspoken advocate for celebrating these connections, and he asks everyone he meets to recognize that water is vital to our well-being in many ways. For the most part, our society doesn't capture these wellness-related values of water in our economic equations. Undervaluing the importance and impact of lakes and rivers makes it easier to degrade them, and to quote the old saying, "you don't know what you've got 'til it's gone." We will use this Lakes Partnership Convention to identify new ways that we can highlight and communicate such hidden values of water and ensure that policy makers consider them in their decision making.

In addition to the keynote, we are organizing breakout sessions that delve into the wellness dimensions of lakes and rivers. We believe that this particular topic will appeal to a wide group of water lovers beyond the traditional lake ecology and management crowd. This continues a decades-long tradition of broadening our convention conversation about lakes and bringing to the public new and important ideas that can help shape policy and action. If you know of a practitioner or researcher in the medical, therapeutic or

### Call for Presenters

We encourage submission of presentations that address the broad theme of *Minding Our Waters* or any of the topics listed below:

- Aquatic Invasive Species: Mindful Management of AIS
- Citizen Volunteers: Citizens Minding our Waters
- Ecology: Learning How to Live with our Aquatic Neighbors
- Mindful Connections: Lakes, Rivers, Groundwater and Watersheds
- Policy & Politics: Bringing Policy-makers to the "Watertable"
- Water on our Minds: Social/Psychological Connections to Water
- Physical Science: Minding the Science of Water Research

**Deadline: September 20, 2016**

Go to www.uwsp.edu/uwexlakes and click on *Convention 2017* under *Events* in the left navigation column.

www.uwsp.edu/uwexlakes


wellness fields who is working on this *Blue Mind* connection, please share our call for presenters with them! We would love to hear from others in Wisconsin and beyond who are doing work similar to what you'll find in Wallace J. Nichols' book.

Our call for presenters is on the UWEX Lakes web page at www.uwsp.edu/uwexlakes (click *Convention 2017* under *Events* in the left navigation column). We are also looking for presentations in our traditional convention themes of lake management, ecology and policy. The deadline for submitting proposals is September 20.

Please join us next spring at the Wisconsin Lakes Partnership Convention!

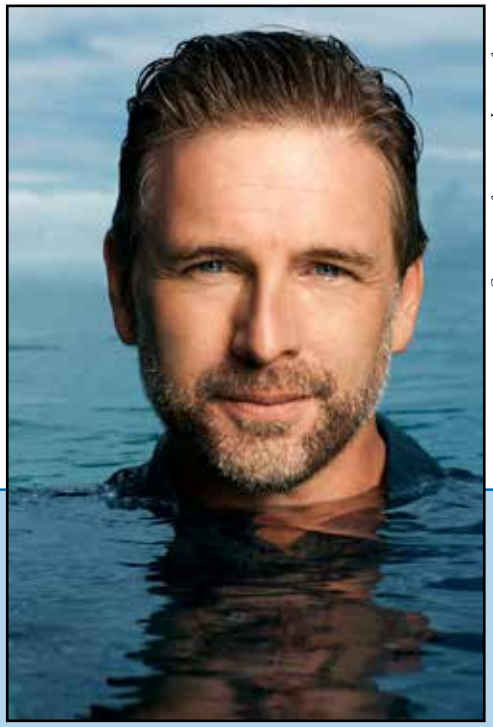
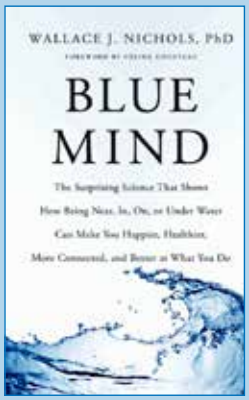


*Photo from http://wallacejnichols.org*

## Blue Mind - the Book

Combining cutting-edge neuroscience with compelling personal stories from top athletes, leading scientists, military veterans and gifted artists, Blue Mind shows how proximity to water can improve performance, increase calm, diminish anxiety and increase professional success. Nichols' book not only illustrates the crucial importance of our connection to water, it provides a paradigm shifting *blueprint* for a better life on this big blue marble we call home.




Blue Mind is available in libraries, bookstores, and for purchase online. Learn more about the author and his efforts to encourage water protection on his webpage: http://wallacejnichols.org

Blue Mind: The Surprising Science That Shows How Being Near, In, On, or Under Water Can Make You Happier, Healthier, More Connected, and Better at What You Do by Wallace J. Nichols, with a foreword by Celine Cousteau. Back Bay Books, 2015

# 2016 Invader Crusaders

The 12th annual Invader Crusader Awards were handed out at Horicon Marsh Educational Center this past June honoring citizens and organizations for their significant contribution to prevent, control or eradicate invasive species that harm Wisconsin's lands, waters, and wetlands.

Congratulations to the 2016 Invader Crusader Award Winners!

## Volunteer Individual

**Debra Feirer** is a biology teacher at Wrightstown High School and has been instrumental in educating the Chambers Island community of Green Bay on the threats that garlic mustard and phragmites could have on the island's forests and waters.

**Fritz Funk** was instrumental in responding to the new discoveries of water lettuce and water hyacinth in Lake Onalaska last year.

**Fred** and **Mary Kueffer** began a lake monitoring program and founded an AIS Committee on the Spider Chain of Lakes to search for signs of purple loosestrife, curly leaf pondweed and Eurasian watermilfoil.

**Valerie Stabenow** is a Citizen Lake Monitoring Network volunteer and was instrumental in the discovery and removal of water hyacinth from Lake Winneconne in Winnebago County.

## Professional Individual

**Tim Campbell** is the invasive species outreach specialist for UW-Extension and Wisconsin DNR. Tim engages communities, organizations, local governments, and other stakeholders to help them incorporate AIS prevention actions into their existing activities.

**Michelle Nault** is a water resources management specialist for Wisconsin DNR and has worked over the past decade to assess the impact of Eurasian watermilfoil through developing and refining a point intercept survey methodology and collecting and analyzing data.

**Brock Woods** is the Purple Loosestrife and Wetland Invasive Plant program coordinator for the UW-Extension and Wisconsin DNR. Brock has supported volunteers statewide to raise and distribute beetles to control purple loosestrife.

## Volunteer Group

**Lower Chippewa Invasive Species Partnership** is a broad alliance established to control invasive plants by fostering partner cooperation and community action.

**Mequon Nature Preserve Restoration Rangers** range in age from 7 years old to senior citizens and help create awareness in people of all ages to advocate for invasive plant removal and replacement of those non-natives with native species.

**Sauk Prairie Conservation Alliance** members devote their time to stewardship of the lands of the former Badger Army Ammunition Plant.

## Sustaining Crusader

**Mike Fort** volunteers at Lapham Peak State Park in Delafield and has worked to restore native prairie grassland habitat on approximately 200 acres of property.

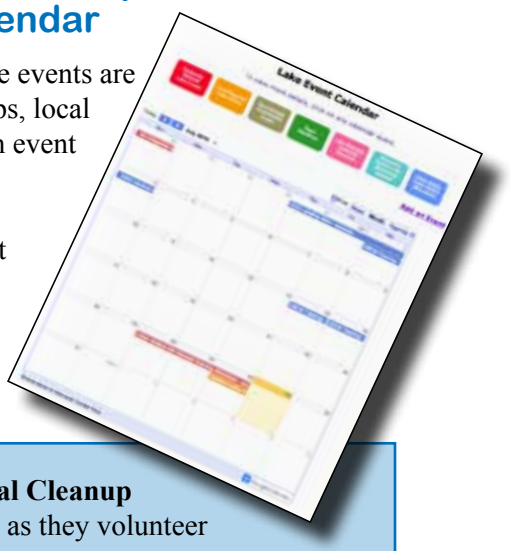
*Provided by Wisconsin Invasive Species Council*

# Lake Events at Your Fingertips

## UW-Extension Lakes Online Event Calendar

Don't forget to visit the UW-Extension Lakes online calendar to see what lake events are happening around the state. From national lake events to state-wide workshops, local lake fairs, hearings and grant deadlines, this online calendar is sure to have an event that will pique your interest. Check it out at www.uwsp.edu/uwexlakes.

Are we missing something? Use the "Add an Event" link and fill out the short form with the details, or just email us at uwexlakes@uwsp.edu.




## CALENDAR

**September 20, 2016 - Ocean Conservancy's International Coastal Cleanup**
Take the *Pledge to Fight Trash* and join thousands across the nation as they volunteer their time to keep our coasts naturally beautiful.
For more information: www.oceanconservancy.org/keep-the-coast-clear/pledge.html

**September 20-22, 2016 – 11th Annual Great Lakes Restoration Conference, Sandusky, OH**
Each year the Healing Our Waters – Great Lakes Coalition brings together a diverse group of more than 400 people from throughout the Great Lakes region to attend the Great Lakes Restoration Conference. The conference provides a 3-day forum for participants to learn about important Great Lakes restoration issues, network at the largest annual gathering of Great Lakes supporters and activists, and develop strategies to advance federal, regional and local restoration goals.
For more information: http://conference.healthylakes.org/

**October 4-6, 2016 – Great Lakes Public Forum 2016, Toronto, Ontario, Canada**
The Great Lakes Public Forum will provide an opportunity for the Governments of Canada and the United States to discuss and receive public comments on the state of the lakes and binational priorities for science and action. The forum will also provide an opportunity for the International Joint Commission to discuss and receive public input on the Progress Report of the Parties. The Forum takes place once every three years, and allows for significant public input into the implementation of the 2012 Great Lakes Water Quality Agreement.
For more information: http://www.great-lakes.net/glba/events.html

**October 16-19, 2016 – Upper Midwest Invasive Species Conference (UMISC), La Crosse**
The goal of UMISC is to strengthen management of invasive species, especially prevention, control, and containment. This year's conference theme is "Sharing Innovative and Practical Solutions." For more information: www.umisc.net

**November 13-17, 2016 – Annual AWRA Conference, Orlando, FL**
The American Water Resources Association will hold its Annual Conference on Water Resources in Orlando this year. You can expect information about the latest national and local water resources topics, along with four days of productive community building, conversation, and connections while enjoying what Orlando offers. For more information: www.awra.org

**November 1-4, 2016 – 36th NALMS International Symposium, Banff, Alberta, Canada**
The North American Lake Management Society will hold their upcoming international symposium in the beautiful city of Banff. The theme this year is *Science to Stewardship: Balancing Economic Grouth with Lake Sustainability*. For more information: www.nalms.org

*Lake Tides* -- ***PRJ85HX***
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IN THIS ISSUE



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# *Reflections*

*F*all more deeply in love with water in all its shapes, colors, and forms. Let it heal you and make you a better, stronger version of yourself. You need water. And water needs you now."

~ Wallace J. Nichols
from the book Blue Mind