



Amphibian Malformations

A Canary in a Coal Mine?

The term amphibian comes from the Greek word, *amphibios* meaning “living a double life,” refers to a life history that usually requires aquatic and terrestrial habitats.

In the summer of 1995, headlines in two Minnesota newspapers read “Deformed frogs prompt investigation - Students found large numbers of them in Henderson” (Minneapolis Star/Tribune, 9/1/95) and “Leap in Frog Mutations Startles Scientists” (St. Paul Pioneer Press, 9/1/95). That same summer, in south central Minnesota, school kids on a field trip discovered a large number of malformed northern leopard frogs. As word of this finding spread, many similar sites across the Upper Midwest, including Wisconsin, the St. Lawrence River Valley, and New England, were discovered.

The word malformation literally means “bad form.” Malformation types fall into one of three categories: 1) structures absent or reduced, 2) structures present but otherwise abnormal, and 3) structures duplicated (or multiplied). Malformations can occur anywhere on or in an animal’s body, and in amphibians include misplaced eyes (including eyes in the throat), bent bones, fluid-filled sacs, abnormal pigment patterns, and missing pelvic and spinal components. However, most amphibian malformations occur on limbs. And while the iconic image of malformed amphibians is a frog with extra hindlimbs, the most common malformation found in nature is a frog with a missing, or partially missing, hindlimb. A close look at these animals usually reveals no signs of scarring or any other type of wound healing process, suggesting trauma was not the cause.

Malformed frogs have been observed throughout the world, although most reports have come from North America and Europe. Reports pre-date the use of modern agricultural practices, including the widespread use of pesticides. They also pre-date the beginning of the industrial revolution, indicating natural phenomena or



*Multiplied structures are clearly an issue for this northern leopard frog (*Rana pipiens*).*

(Continued on page 2)

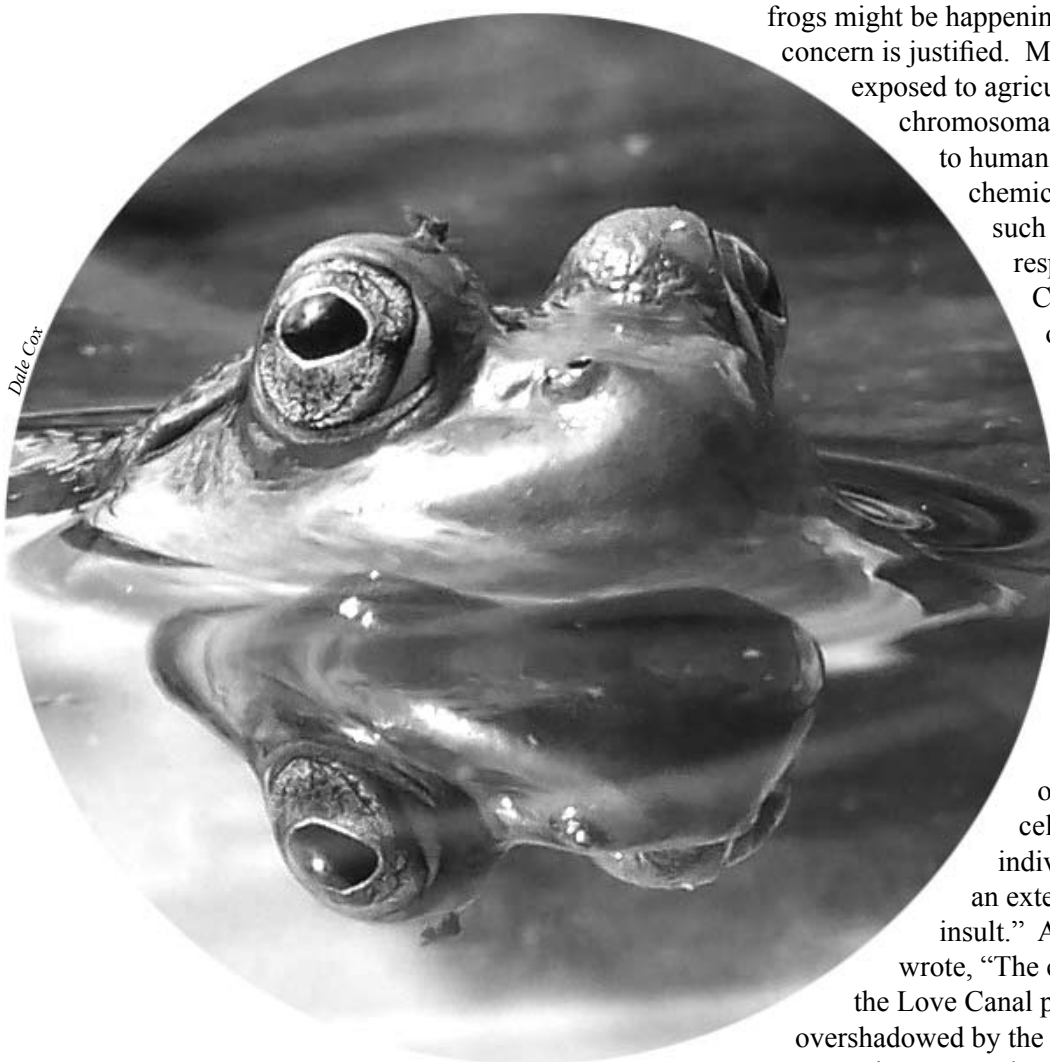
Control runoff and you control malformations. It really is that simple.

light human interventions in natural processes can cause amphibian malformations. However, modern frog malformations are not the same as historical malformations. Dr. David Hoppe has concluded: “recent findings of [frog] abnormalities in Minnesota ... represent a new phenomenon ... abnormalities were more frequent, more varied, more severe, and more widely distributed in 1996–1999 than in 1958–1992.”

Natural causes of malformations include: wounding, high tadpole densities, nutritional deficiencies, ultraviolet-B radiation, disease, temperature extremes, hereditary factors, and parasitic cysts. Man-made causes of amphibian malformations include: acidification, radioactive pollution, ozone depletion, heavy metals, vitamin A (retinoic acid), agricultural chemicals (pesticides and fertilizers), other chemicals, including compounds such as PCBs, that constitute what we think of as “pollution.”

While in Europe and Asia it has been generally accepted that there are multiple causes for malformed amphibians, here the debate about causes of malformed frogs has largely come down to two factors: chemicals and parasitic cysts. Both have supporting data, and both have serious problems as general explanations. Scientific discussions have centered around which cause is most important, but in truth you don’t need to know much about causes to solve the malformed frog problem. Both chemical and parasitic causes originate from excessive runoff (chemicals through pollution, parasites through an ecological cascade that begins with excessive fertilizer); control runoff and you control malformations. It really is that simple.

The reason the findings of those Minnesota school kids resonated with the general public was the fear that what was happening to frogs might be happening to humans. This concern is justified. Malformed frogs exposed to agricultural pesticides have chromosomal damage, similar to humans exposed to the chemical pollution in places such as Love Canal. In response to the Love Canal investigation, one researcher wrote, “events that occur after exposure to mutagens, carcinogens, and teratogens are not easy to explain. Chromosome damage is only one indicator in a series of poorly understood biological events that occur randomly in cells (and therefore in individuals) as a result of an external environmental insult.” A second researcher wrote, “The cytogenetic study of the Love Canal population is totally overshadowed by the outcome of the last 18 pregnancies among the residents: two births



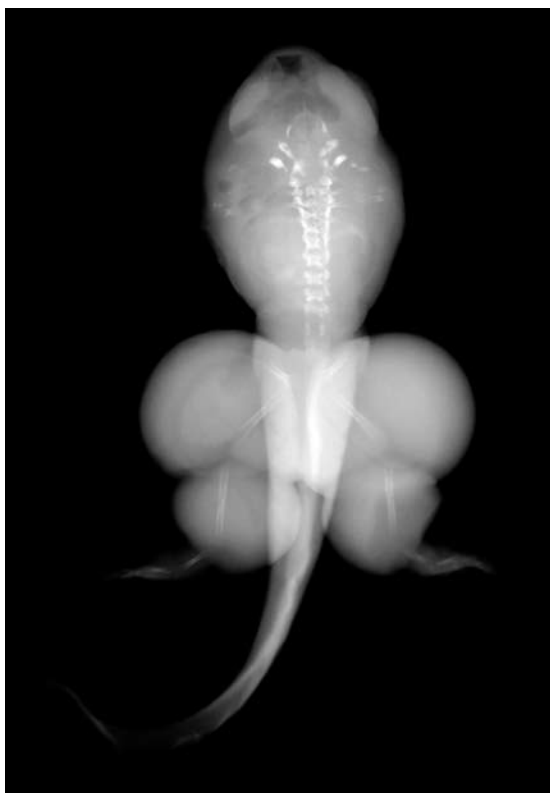
Dale Cox



were normal, nine children had birth defects, there were four spontaneous abortions and three stillbirths.” While we imagine environmental insults to be a problem we are imposing on other species, chromosomes tell us this is a problem we are also imposing on ourselves. As lakeshore owners, do everything you can to reduce runoff; the connection between frogs and humans is not as distant as we would imagine it to be. 💧

By Michael J. Lannoo, Indiana University
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Look for Dr. Lannoo’s upcoming book titled
“Malformed Frogs” to be released this
summer from University of California Press.



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This photo of a tadpole shows obvious malformations.

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Q&A Lake Districts

Q: Which records of a lake district must be available to the public?

A: All of them.

To help foster public accountability, lake districts, sanitary districts, and intergovernmental commissions are subject to state laws protecting public access to records, meetings and decision-making. All districts and commissions must give advance notice of their meetings and hold them in public places. Districts and commissions must make their records available for inspection by any member of the public. This is appropriate, because these organizations raise and expend public funds. Voluntary organizations are not subject to open meetings or public records laws.

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.

Further, the records of the district’s board of commissioners are public records, subject to the Wisconsin Public Records Law. That law generally requires that the district promptly provide a requester with any record in the commissioners’ possession relating to the district’s activities, subject to narrow exceptions.

The secretary is obliged to keep minutes for each meeting including a record of motions and votes. All records of the district must be available for public inspection.

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



What You Say is What You Get

Choosing the Right Words to Protect Lakes

Most of us have heard the phrase “it’s not just what you say, but how you say it.” We intuitively know that the words we choose make a huge difference in how our communication is received by others. However, when talking about issues we know a lot about, such as preserving the quality of our lakes, it’s easy for some of us to use specialized language that may not be the most understandable or appealing for many people.

R. Korth



Mention “water protection,” and you will get people’s attention, no matter how you say it or where you are in the nation.

This article will look at some of the findings from a study conducted by Maslin, Maullin and Associates in 2004 on behalf of the Nature Conservancy and Trust for Public Land. The study was designed to look at ways to translate specialized vocabulary into everyday language that clicked with voters. The work provided some valuable clues regarding ways to discuss environmental conservation and water-related issues with the general public.

The research was done using telephone interviews and focus groups and was conducted with 1,500 likely voters across the nation. The research focused on communicating with citizens who were not particularly engaged in environmental issues, rather than conservation groups who tend to be more aware of ecological topics.

Mention “water protection,” and you will get people’s attention, no matter how you say it or where you are in the nation. When

communicating about this issue with people in the study, the authors stressed the need to talk about “preserving” water quality. The study indicated that people overwhelmingly agree that water quality is a very important issue. The data also indicated that while people do not view water quality as a problem now, they do recognize a need to invest in preserving the quality of their water for the future.

The study also suggested that it is a good idea to use phrases that imply ownership and inclusion of the water, such as “our” and “we,” when discussing conservation. Talking to others about “OUR lake” and how “WE need to protect OUR lake” helps them understand their connection to surrounding water resources. By pointing out that a particular lake is a resource that belongs to the entire community and openly recognizing that everyone has a stake in the lake, individuals are given ownership and a sense of responsibility. These inclusive words help increase the likelihood that people will care about the message.

Taking care of our waters is important, and linking that value to the benefits for “future generations” consistently tested very well as a rationale for preserving natural resources. For example, 64% of respondents rated “providing opportunities for kids to learn about the environment” as a very important reason for their state or local community to protect land from development. It was interesting to note that there was very little difference between how parents or non-parents reacted to messages that emphasize the value of preservation for future generations.

Vocabulary also makes a difference when using environmental terms to describe people and their interests, such as “conservationists” rather than “environmentalists.” Respondents in the study were more likely to view themselves as “conservationists” than “environmentalists.” Additionally, people were more likely to be skeptical about the efforts of “environmental groups” as compared to conservation groups.



One of the strongest recommendations to emerge from the study was the need to avoid using the phrase “conservation easement.” The research demonstrated that the language used by the environmental community regarding this issue has hurt its public image. Rather than using the term “conservation easement,” the study recommends saying “land preservation agreements” or “land protection agreements.” Easements were interpreted negatively by some people in the study because the term made them feel they were being forced into doing (or not doing) something with part of their land. The word “easements” made them think of the types of restrictions that they may have had to deal with when they originally purchased their property.

There may be no perfect way to communicate the benefits of stewardship for our natural resources to all audiences. However, this

research reminds us that the words we use in promoting our cause can potentially make a big difference in how people respond to what we say. 💧

To read the memorandum of this study, visit: www.floridaaginfo.com/documents/language_of_conservation.pdf

*By Fairbank, Maslin, Maullin, & Associates
and Public Opinion Strategies*

*Edited by Bret R. Shaw, Ph.D., UWEX
Environmental Communication Specialist*

If you are interested in receiving a free e-newsletter on promoting pro-environmental behavior in Wisconsin, send an email to join-envcomm&socmktg@lists.wisc.edu and you will be automatically added to the e-mailing list.

New DNR Staff Confront AIS

This summer, a few of Wisconsin’s boat landings will have a new kind of Department of Natural Resources (DNR) representative present, thanks to a partnership between the divisions of Law Enforcement and Watershed Management. Starting at the end of May, nine employees, known as *Water Guard*, will be located in each of the five DNR regions across the state. The main goal of this new effort is to help raise public awareness of aquatic invasive species (AIS) prevention by providing information on AIS to folks at landings and helping boaters conduct watercraft inspections.

Some of the *Water Guard* will also be certified to write citations for people who refuse to follow the state regulation regarding AIS. Since 2001, Wisconsin Statute 30.715(2)(3) has required all aquatic plants and animals to be removed from a boat, boat trailer, and any other boating equipment before entering a waterbody. While past efforts have focused only on communicating the law, these new staff will potentially have the ability to increase awareness and compliance.

With limited state resources, each *Water Guard* will provide much needed assistance in covering more areas of the state, as they work alongside DNR watercraft inspectors and *Clean Boats, Clean Waters* volunteers. While this initiative has funding until mid-summer 2009, it is possible that the program will continue past that date if it is successful this summer. So, look to see if you notice a new face conducting watercraft inspections at your local boat landing this summer. You may have the opportunity to meet the latest addition to Wisconsin’s AIS prevention efforts!



R. Korth



CBCW Summer Workshop Schedule

Learn how to engage your community in watercraft inspection efforts! To register for a workshop, contact the resource person listed below. Additional workshops may be added in specific areas if there is public interest.

May 29 8:30am-Noon, Minocqua Municipal Building, Oneida County
Jean Hanson, Conservation Specialist, Oneida Co. LWCD, 715-369-7837

May 31 9:00am-Noon, Stephenson Town Hall, Marinette County
Chuck Druckrey, Water Resource Specialist, 715-732-7528

June 7 8:30am-Noon, Whitefish Dunes State Park Nature Center, Door County
Bob Bultman, Invasive Species Team Coordinator, 920-746-5955

June 7 9:00am-Noon, Location TBD, Wood County
Amy Thorstenson, Regional AIS Specialist, 715-346-1264

June 12 8:30am-Noon, Three Lakes Town Hall, Oneida County
Jean Hanson, Conservation Specialist, Oneida Co. LWCD, 715-369-7837

June 19 1:00-4:30pm, Northwest Lakes Conference, Telemark Resort
Lisa Gabriel, AIS Coordinator, Washburn Co. LWCD, 715-468-4654

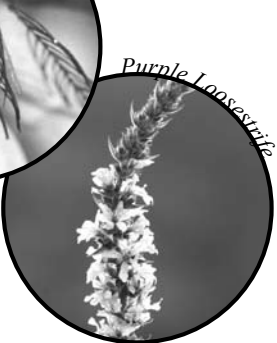
June 26 8:30am-Noon, Pelican Town Hall, Oneida County
Jean Hanson, Conservation Specialist, Oneida Co. LWCD, 715-369-7837

Contact your local AIS Coordinator or Erin Henegar, AIS Volunteer Coordinator, at 715-346-4978 or ehenegar@uwsp.edu for more information.

June is Invasive Species Awareness Month

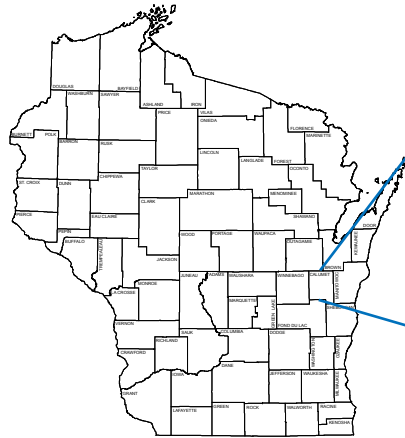
Invasive plants and animals threaten Wisconsin's waters and wildlands by out-competing native communities. In addition to ecological damage, invasive species can also cause significant economic damage. Each year, millions of public and private dollars are spent to stop the spread of invasive species in Wisconsin.

The Wisconsin Council of Invasive Species is leading a statewide effort in June, to inform citizens about invasive plants and animals as part of Wisconsin's fourth annual Invasive Species Awareness Month. This year's focus is aquatic invasive species. Visit <http://invasivespecies.wi.gov> to learn more, and find out how to participate in a workshop, field trip, lecture or work party in your area. 💧



Meet Wisconsin's AIS Staff

To help our readers learn more about the people working on aquatic invasive species (AIS) issues across the state, we're featuring a new segment that focuses on a local AIS staff member. Find out what challenges this county is facing and what is being done to protect our lakes. Watch for these short articles in future issues of Lake Tides.



Calumet County

Diane Schauer
AIS Coordinator

Diane Schauer is the new Aquatic Invasive Species (AIS) Coordinator in Calumet County. As a volunteer, she has been involved in invasive species education and control for more than a decade. Now, as AIS Coordinator, Diane is working to increase public awareness of the issues, build a volunteer base, develop an early detection/response team, and map and eradicate invasive species. Diane was kind enough to take the time to answer some questions for us about AIS in her county. So, let's get to know Diane Schauer!

What's new with invasive species in Calumet County?

Not a lot, I hope! In terms of projects and programs, the "Beetle Mania" program and the AIS Strategic Plan for the Winnebago Pools are both great projects for this region. Calumet County is part of a tri-county "Beetle Mania" program that raises 100,000 galerucella (purple loosestrife-eating) beetles for release each year. The AIS Strategic Plan for the Winnebago Pool Lakes is almost complete, and I will be aiding in the implementation of the plan.

addition of the Coordinator position, I believe we can make a difference in preventing the introduction and spread of AIS.

How do you think preventing the introduction and spread of AIS should be addressed?

Education is key. Increasing the awareness of the severity of the problem within governmental agencies will be important. Collaboration on a regional basis is also essential to prevent the introduction and spread of AIS.

All AIS issues concerning Lake Winnebago are incredibly important to Calumet County.

In your opinion, what is currently the most prominent AIS issue in Calumet County?

Phragmites, an invasive wetland plant, is a problem that we can still manage in the county, so it would be good to get on top of it before it's out of control. All AIS issues concerning Lake Winnebago are incredibly important to Calumet County.

What is your favorite part of being an AIS Coordinator?

It's been great fun so far. The people I've met and worked with have been wonderful and very helpful. But I've only been the Coordinator for 2 1/2 weeks, so I expect my favorite part is yet to come!

Why is AIS prevention important to you?

This is a beautiful county that provides many extraordinary opportunities for outdoor recreation. I've seen places that have been devastated by invasive species. We simply cannot allow that to happen here. With the

To learn more about AIS in Calumet County, and how can get involved, contact Diane at 920-849-2361 ext. 273#, schauer.diane@co.calumet.wi.us. To find out who is working on AIS issues in your area, see www.uwsp.edu/cnr/uwexlakes/CBCW/AIScontacts.pdf. 💧



2007 National Lake Survey

Preliminary Findings in Wisconsin

In the summer of 2007, 58 Wisconsin lakes got a checkup in water quality, ecological integrity, and recreational value. Of these randomly-chosen lakes, half were chosen as part of a national Survey of the Nation's Lakes sponsored by the Environmental Protection Agency (EPA), and the other half were added by the Wisconsin Department of Natural Resources (WDNR) to represent the full range of Wisconsin lake types. For more background information on this study see the winter 2007 issue of *Lake Tides* (Vol. 32, No. 1) at www.uwsp.edu/cnr/uwexlakes.

lake bed substrate, indications of fish habitat, composition and percent coverage of nearshore vegetation, and the level of human disturbance, such as houses and roads.

In addition to the standard protocol of the Survey, we also performed several enhancements in Wisconsin:

Sediment cores: We collected sediment cores and a limited set of water quality samples from an additional pool of 29 randomly selected lakes to enhance our understanding of pre-settlement reference conditions on Wisconsin lakes.

Aquatic plant surveys: We sampled the aquatic plant community on most of the randomly selected lakes using the point-intercept sampling approach. The data will tell us about the maximum rooting depth, distribution of aquatic invasives, and the diversity of the plant community.

Enhanced physical habitat assessment: We collected additional habitat data on expanded shoreland plots to provide more detail on woody debris for fish habitat, invasive species specific to Wisconsin, and to better document the presence and density of human development.

Surface water mercury sampling: National Lake Survey sampling crews for Wisconsin, Illinois, Minnesota, and Michigan collected water samples for total and methyl mercury from approximately 200 lakes. The data will be used to better understand how internal mercury loading rates and ecosystem factors such as water quality, hydrology, and food web characteristics control the magnitude of mercury levels in fish.

What did we measure?

WDNR and U.S. Geological Survey (USGS) staff worked together to sample the selected lakes throughout July and August of 2007. Samples collected included standard water quality constituents (nutrients, pH, color, chlorophyll-a), water clarity, physical profiles, phytoplankton and zooplankton, a sediment core, algal toxins, pathogens, and benthos (lake-bottom organisms).

We also conducted a comprehensive shoreline assessment of each lake. At ten evenly-spaced plots around each lake, we assessed the composition of the upland riparian zone, the shoreline, and the littoral zone, or nearshore lake bed. We collected information on the

What did we find?

Because the survey was a one-time "snapshot" of each lake, it is difficult to generalize about the conditions of any single lake in the Survey. In addition, the summer of 2007 had




Plant sampling in Green Lake, Green Lake County.



widely variable climatic conditions between northern (dry) and southern (wet) Wisconsin, particularly in August, which makes statewide comparisons more challenging. Nonetheless, one can learn from the distribution of lakes that were captured by the Survey. Water clarity on most lakes varied between one and four meters, with only two lakes with less and five lakes with more clarity. In terms of trophic status, about half of the lakes could be considered in the eutrophic to hypereutrophic range (less than 2 m Secchi transparency), while the rest were mesotrophic (3-4 m) to oligotrophic (>4 m).

Of particular interest to Wisconsin lake experts, was the systematic evaluation of shoreline habitat that was included as part of the Survey protocol. We have been interested in developing a relatively easy, but comparable method of assessing shoreline health on a statewide basis for quite some time. Our initial assessment of the method was favorable, as it appeared to detect the impacts of human influences that we have observed with other more detailed approaches. For example, the chart to the right shows a clear relationship between the proportion of habitat plots that had a human disturbance feature (pier, seawall, or dwelling) and the percentage of plots with woody submerged habitat (brush, logs, etc). We plan to further refine and test this assessment protocol in the future.

What's next?

All sampling in Wisconsin was completed during the summer of 2007. Currently, biological samples are being analyzed in the lab and data are being compiled. The EPA hopes to have a draft report available to the public for review and comment by 2008 and a final published report by 2009. In order to track trends over time, another Survey of the Nation's Lakes will be conducted in 2013 on another set of randomly selected lakes. Stay tuned to the following website for more information as results become available: <http://dnr.wi.gov/lakes/nls/index.htm>. 

By Tim Asplund and Brynn Bemis
Wisconsin Department of Natural Resources

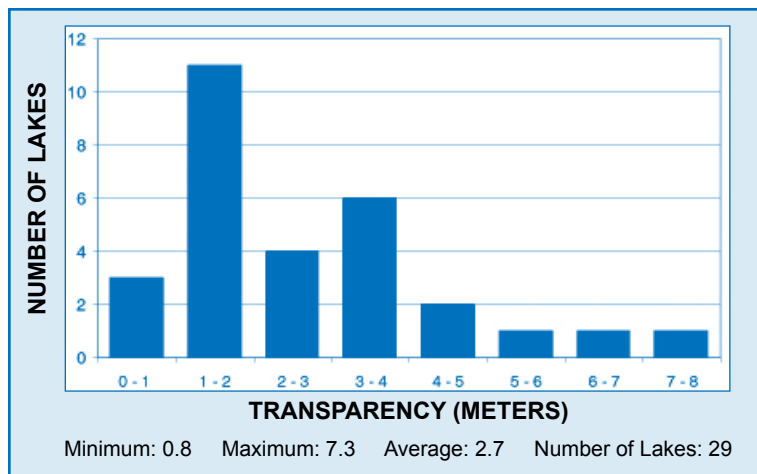


Figure 1. Distribution of Secchi Disk Transparency in Wisconsin lakes sampled in the EPA's Survey of the Nation's Lakes.

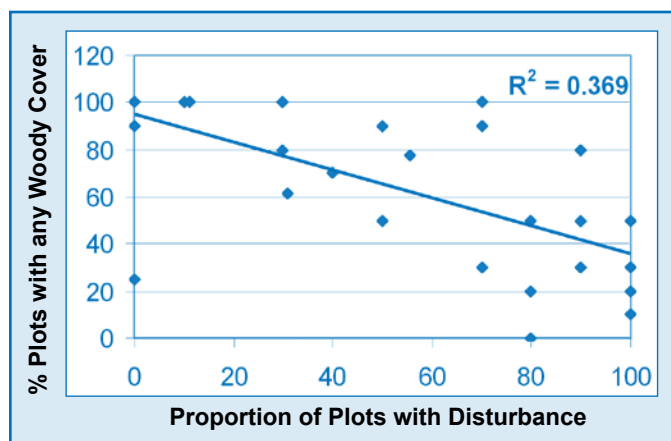
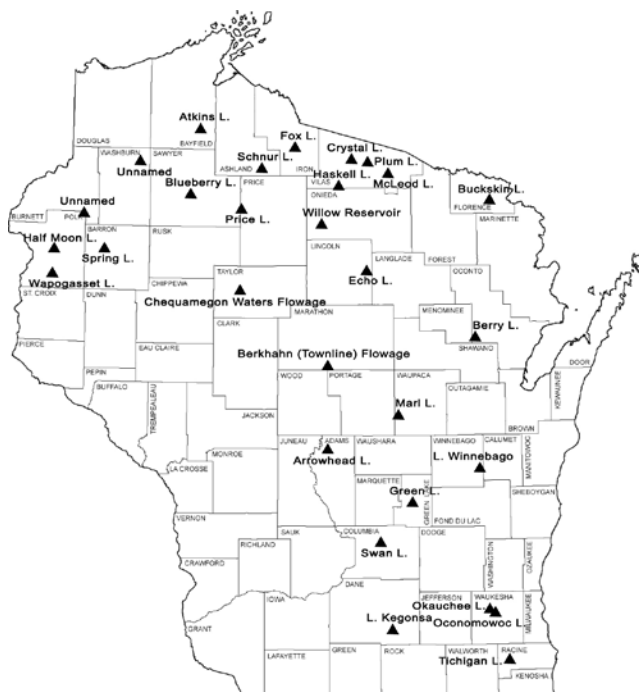


Figure 2. Influence of shoreland disturbance on fish habitat.



The Environmental Protection Agency's Survey of the Nation's Lakes included 29 Wisconsin lakes.



A COOL Project

The first day of summer vacation is usually a time that teenagers spend lounging around the house or sleeping late, but that was not the case for Luke and Kyle Lenard of Rhinelander. With the memory of swimming at a local lake near their home the summer before, Luke (age 14) and Kyle (age 13) recalled the large amount of trash that had accumulated along the shoreline and in the

Photo courtesy of the Lenard family



The Lenard brothers are not only showing us how to "Clean Our Oneida Lakes," but also how to be environmental stewards.

"We decided that forming a club with a unique name and t-shirt design would help generate support for additional lake clean-up work," stated Luke.

shallow water. Knowing that most of the trash consisted of plastic bottles and aluminum cans, the boys realized that the garbage would remain for many years to come if it were left there.

Oneida County has one of the highest concentrations of fresh water lakes in the world, totaling 1129. With an eye towards the bigger picture, Luke and Kyle decided to clean their neighborhood lake and promote that fact by forming a group called COOL, which stands for Clean Our Oneida Lakes. Cleaning the environment is not a new adventure for the two boys. Numerous family walks involved picking up trash along the roadway as their parents, Chris and Julie Lenard, carried large plastic bags for collection. Luke has also volunteered to pick up trash with the Rhinelander Rotary Club along a nearby highway.

Luke and Kyle knew right away that cleaning all of the lakes in Oneida County could not be done alone. "We decided that forming a club with a unique name and t-shirt design would help generate support for additional lake clean-up work," stated Luke. "Our success on the lake nearest our home was encouraging," noted Kyle. "Using snorkeling gear, my brother retrieved numerous cans and bottles

from water up to ten feet deep. Meanwhile, my dad patrolled the shallows collecting a wide array of garbage that combined, weighed 125 pounds and nearly filled the john boat that I rowed!"

"With the publicity generated by a local TV news report and articles written by newspaper reporters, our friends took notice and offered to help with another lake clean-up that we planned for early July," said Luke. The lake we chose to be cleaned is totally surrounded by county land with no development except for a gravel boat landing. "Over the years the lake became a dumping ground for used tires and other wastes that should never have been deposited there," noted Kyle. With four friends and one additional boat, the boys were able to pull 300 pounds of trash from the lake in about three hours. One of the life lessons they learned was that once you help remove garbage from a lake, you are less likely to ever throw garbage there in the first place!

The summer of 2008 looks promising for the lakes in Oneida County, as the founders of the COOL project plan on cleaning six additional lakes. They will get help from numerous classmates as well as the Oneida County Lakes Association.

"It is really exciting," according to Luke, "that a little initiative and hard work can have such a dramatic effect on our natural resources. We live in an area of tremendous beauty and we owe it to those that follow us to keep it clean. When you look out over the blue water, you should be proud of what you see!" With continued effort and support, the lakes in Oneida County will be treasures admired into the future. 💧



Photo courtesy of the Lenard family



Citizen Lake Monitoring Network

Let's give a big thanks to the Citizen Lake Monitoring Network (CLMN) volunteers for their efforts during the 2007 season. We broke several records: over 962 volunteers participated in 2007 (an increase of 130 since 2006) and these volunteers monitored over 856 locations (up 58 from the 2006 season).



Get Involved

Are you looking for secchi (water clarity) and Aquatic Invasive Species monitoring training sessions? The 2008 CLMN Workshops and trainings are now listed by county on the UWEX website at www.uwsp.edu/cnr/uwexlakes/CLMN/schedule.asp. The workshops are now also listed by month on the UWEX "lake event calendar" (www.uwsp.edu/cnr/uwexlakes/Calendar) - see page 15 of this issue for more details. This is an easy way to find monitoring sessions for those that need to be trained by a specific date. Additional workshops will be added throughout the spring and summer, so please check back for updates.

What's New for 2008?

Check out the CLMN websites at www.uwsp.edu/cnr/uwexlakes/CLMN or <http://dnr.wi.gov/lakes/CLMN/> for this new information:

◆ **Annual Lake Water Quality Reports**

The 2007 "Annual Report" displays the data collected at each site. You can also review previous reports by year as well as individual lake maps.

◆ **AIS Lists/Maps**

The lists and maps of waterbodies in Wisconsin where Aquatic Invasive Species (AIS) have been verified are now updated throughout the year.

◆ **Forms for Volunteers**

Volunteers can download AIS monitoring forms and ice on/off forms, in addition to many others.

◆ **Online Data Entry for Volunteers**

Volunteers can now enter their Secchi, Temperature, Dissolved Oxygen, Aquatic Invasives, Ice on/off, and LoonWatch data online. ◆

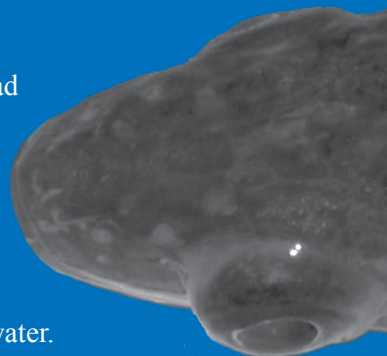
www.uwsp.edu/cnr/uwexlakes/CLMN

VHSv Rules Revised

On March 26, 2008, the Wisconsin Natural Resources Board unanimously voted to revise rules created to prevent the spread of the viral hemorrhagic septicemia (VHS) fish disease, which, while harmless to humans, can kill native pan fish, bait fish, and game fish. These rule revisions will allow anglers to reuse leftover minnows purchased from a Wisconsin bait dealer as long as they're reused on the same waterbody. Minnows may also be reused on a different waterbody if they haven't been exposed to any lake or river water.

The unanimous vote came after board members heard from Department of Natural Resources (DNR) Deputy Secretary Pat Henderson and DNR Fisheries Director Mike Staggs that there was strong bipartisan legislative opposition to provisions of the VHS rules the board had adopted last fall that prohibited anglers from reusing leftover minnows. The rest of the VHS rule provisions adopted in December 2007 remain the same.

For the latest information on VHS, visit: <http://dnr.wi.gov/fish/vhs>.



Great Lakes Basin Compact

The Great Lakes hold twenty percent of the world's freshwater.

Wisconsin has spectacular water resources! This includes our connection to the Great Lakes, as about one-third of our state lies in the Great Lakes basin. The portions of Lakes Michigan and Superior that lie within Wisconsin's boundaries add nearly 6.5 million acres of water to the state. Through the Great Lakes watershed, Wisconsin rivers, streams, lakes and groundwater are inextricably linked. The Great Lakes hold twenty percent of the world's freshwater. They are a vital natural resource that contributes to the beauty of our state, helps sustain our economy, and enhances our quality of life.

To protect this unique resource, a binational agency called the Great Lakes Basin Commission, was established in 1955. The Commission has developed a plan to strengthen the abilities of governors to protect these waters, called the Great Lakes Basin Compact. This formal agreement includes Minnesota, Wisconsin, Illinois, Indiana, Michigan, Ohio, Pennsylvania, New York, Quebec and Ontario. The compact essentially allows the governors to veto any plan to "divert," or pipe out, Great Lakes water to other regions of the country, with a few limited and strictly regulated exceptions. Four states have ratified the compact, but as *Lake Tides* goes to press, it is bogged down in Michigan, Ohio and Wisconsin. After ratification by all states the compact will require approval by congress to become federal law.

The compact is more than just ensuring that our water is not diverted to other parts of the country. It also provides a coordinated regional effort designed to sustain and manage Great Lakes water inside the basin.

Standards in the compact ensure that no significant adverse environmental impacts to the waters of the state and basin will result from new or increased withdrawal. Further, any new or additional withdrawal will not violate current water quality standards.

A Wisconsin bill to sign the Great Lakes Compact (Senate Bill 523) has been delayed in our legislature. It passed the full Senate, and a public hearing was held in the Assembly Natural Resources Committee. Governor Doyle may call a special legislative session on this issue soon. Wisconsin would be the sixth state to ratify the compact, which may prompt Ohio and Michigan to follow.

While the Great Lakes have been an important part of our past, they are even more important for our future. For a long time we have thought of our water as an abundant and limitless resource. Judging from what we can see in our nation and around the world, we now appreciate that our water, though plentiful, is not limitless. In our country's West and South water shortages are a reality. In the 21st century, the value of water will only increase. Supporters of the compact say it is important to ensure that we are taking the steps necessary to manage and sustain this valuable resource. We are not talking about water rationing. We are talking about being smart and making sound environmental decisions today for future generations.



“The Great Lakes are not only our greatest natural resource, but they are also a true national treasure,” said Wisconsin Governor Jim Doyle, Chair of the Council of Great Lakes Governors. “As Great Lakes Governors, we have been fighting to make sure we have a compact that preserves and protects the waters of the Great Lakes.”

For more information on the Great Lakes Compact contact Shaili Pfeiffer with the Wisconsin Department of Natural Resources Office of the Great Lakes at 608-267-7630 or Shaili.Pfeiffer@wisconsin.gov. Information is also available on-line at <http://dnr.wi.gov/org/water/greatlakes/annex2001>. ♦



R. Korth

The Grand Sable Dunes cover a five mile stretch between the Sable River and Au Sable Point, Michigan.

Expanding Expertise in the Partnership

The Wisconsin Lakes Partnership would like to welcome two new members to our lakes team, Christal Campbell and Maud LaMarche.

Christal Campbell, AIS Education Specialist

In January, Christal began job-sharing with Julia Solomon as Wisconsin’s Aquatic Invasives Education Specialist, and is very excited to be working on this prominent issue! Along with Julia, it’s Christal’s job to connect people with the resources they need and help folks stay in touch with each other. The main goal is to prevent the spread of aquatic invasive species (AIS) by motivating people to change their behaviors and take the necessary prevention steps.

Before coming to UW-Extension, Christal spent time as a natural resources educator for the Wisconsin DNR and also taught middle school earth and life science. She hopes to use her experience developing environmental programming and outreach materials to enhance the already successful aquatic invasives outreach and education efforts initiated by the Wisconsin Lakes Partnership.

Contact Christal at 608-266-0061 or christal.campbell@wisconsin.gov with any AIS questions.



Provided by Christal Campbell

Maud LaMarche, IS Resource Support Technician

Hailing from Michigan, Maud received a Bachelor of Arts degree in Mathematics and Philosophy from UW-Stevens Point in 1994. She worked in the insurance industry until starting in early March as the UWEX Lakes “Information Systems (IS) Resource Support Technician.” Besides being a computer programmer, Maud has worked as a database and systems analyst as well as an Information Technology Project Manager.

Maud has big plans for both the Lake List database and the UWEX Lakes Website as a whole. Both are already in a re-design phase and together promise a much more intuitive, informative and flexible tool than ever before. Maud believes that there are two primary reasons for the Internet: to form communities and to share information. She will work to help the Wisconsin Lakes Partnership do just that (for example, see www.uwsp.edu/cnr/uwexlakes/lakeleaders/discussion.asp). Maud is a life-long learner and is not only eager to share her computer skills with the Partnership, but is very excited about learning as much as she can about Wisconsin lakes and their stewards (yes, that’s you). If you have any tips, suggestions or questions for Maud you can reach her at Maud.LaMarche@uwsp.edu.



R. Korth





Wisconsin Lakes Convention

Wrap-up

The 30th annual Wisconsin Lakes Convention – Learning from Lakes – was held in Green Bay on April 17-19, 2008.

“Keep it going!”

- 2008 Convention attendee

“First time - I’m impressed!”

- 2008 Convention attendee

What have we learned from Lakes? They are a meeting place for groups of individuals from varied backgrounds, each with their own set of values, who realize how important these waters are to all of us and to future generations. This year’s convention has come and gone but each of the approximately 450 participants was able to take away lessons learned (whether new or old). The agenda included 12 workshops, a field trip, and 36 concurrent sessions. Business partners and non-profit organizations exhibited a wide variety of products and programs. Pat Rivers, Project Manager for the Midwest Glacial Lakes Partnership spoke on conservation of Wisconsin’s glacial lakes. Jeff Bode of the Wisconsin Department of Natural Resources (WDNR), and Attorney Bill O’Connor, each shared lessons we have learned from lakes and each other over the past 30 years. They emphasized the importance of continuing our strong preservation efforts via partnership and state water law. Secretary Matthew Frank and Representative Garey Bies also addressed attendees.

Randy Stark, Chief Conservation Warden of the Bureau of Law Enforcement for WDNR refreshed all of us on the people, challenges and events that shaped the history of the conservation movement in the United States, and provided inspiration for us to tackle current challenges on behalf of future generations. Inspiration was taken to a new level when *National Geographic Live* speaker Chad Pregracke showed how individuals CAN make a difference through passion and perseverance as he led us through his “Crusade to Clean America’s Rivers.”

“Exceptionally valuable!”

- 2008 Convention attendee

The Convention was also a time for recognition of the hard work and passion so many people have for lakes. Some of these folks were celebrated as the 2008 Wisconsin Lakes Stewardship Award winners. The Wisconsin Lakes Partnership congratulates the following winners:



Citizen
June Schmaal



Educator
Jill Graf



Public Service
Mark Sasing



Lifetime Achievement
Ron Martin



Youth
Lakes Studies Students,
Green Lakes School District



Group
Dane County Lakes and
Watershed Commission
and Office of Lakes and
Watersheds

Natural Features Around and In Lakes and Underwater

- 1st - *Sunrise on the Fox* - Derek Kavanaugh, Green Lake, WI
- 2nd - *American Toad on the Prowl* - Paul Skawinski, Plover, WI
- 3rd - *Single Bliss* - Christopher Hanger, Spooner, WI

People Enjoying Lakes

- 1st - *Age 11, Size 12* - Steven Lepak, Green Bay, WI
- 2nd - *Skiing at Sunset* - Troy Loferski, Mauston, WI
- 3rd - *First Light* - James Brakken, Cable, WI

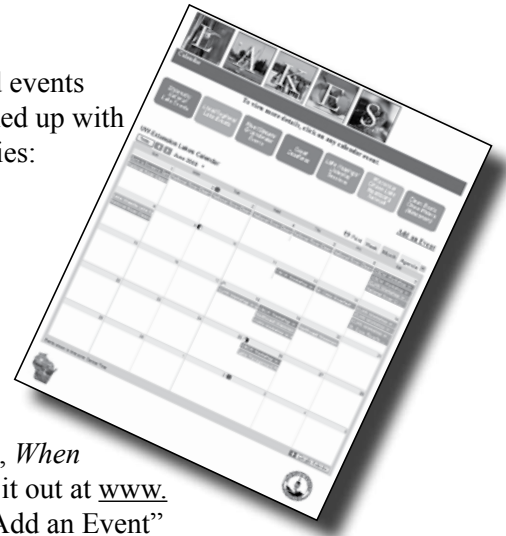
**2008 Wisconsin
Lakes Partnership
Photo Contest
Winners**



Online Lakes Calendar

Wouldn't it be great if there was one place to look for all of the lake-related events happening around the state? Well, there is! UW-Extension Lakes has teamed up with Google to offer an online calendar that lists events in the following categories:

- Statewide/National Lake Events
- Local/Regional Lake Events
- River/Stream/Groundwater Events
- Grant Deadlines
- Lake Hearings/Listening Sessions
- Citizen Lake Monitoring Network Events
- Clean Boats, Clean Waters Events



Shown in an easy-to-use monthly calendar, this tool will give you the *What*, *When* and *Where* - and will even link you to a Google map for directions! Check it out at www.uwsp.edu/cnr/uwexlakes/Calendar. 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. ♦

C A L E N D A R

May 31, 2008 - Natural Shoreline Expo

Join the Winnebago County Land and Water Conservation Department for the 2nd annual Natural Shoreline Expo at the Sunnyview Exposition Center, Oshkosh. For more information: Keith Marquardt 920-232-1950

June 1-8 - National River Clean-up Week

If you are in the Rock River Basin, you can go to the Rock River Coalition website (www.rockrivercoalition.org) and click on "projects" on the side bar, or contact Suzanne Wade, UW-Extension Basin Educator, 920-674-8972.

For more general information: www.NationalRiverCleanup.org

June 8 - Lake Wissota Lake Fair

Join lake enthusiasts and professionals from 12:00-4:00 pm for this local lake event at Lake Wissota State Park, Chippewa Falls.

For more information: Mary Jo Fleming bingnjo@charter.net or 715-723-0822

June 13-14 - St. Croix Riverfest, Solon Springs

St. Croix Riverfest is a two-day (Friday & Saturday) community-based celebration of the Upper St. Croix – Eau Claire Rivers Watershed, and is intended to recognize local citizens and organizations and to promote stewardship of our streams, lakes, rivers, and wetlands.

For more information: <http://riverfest.uscwa.org/>

June 19-20 - Northwest Wisconsin Lakes Conference

Join us for this 10th annual conference at Telemark Resort in Cable, WI. This gathering is designed to provide anyone who enjoys the public waters of northern Wisconsin, general lake information and a heightened awareness of today's issues.

For more information: www.wisconsinlakes.org/Events/08nwlc.html

June 26 - Lake Management Planning Workshop

This workshop will be held from 8:30am-12:30pm at Nicolet College, Rhinelander. Learn how to create a lake plan that will help your community protect, manage, or restore your lake.

For more information: www.wisconsinlakes.org/Events/08lake_planning.htm

August 1 - Aquatic Invasive Species & Lake Planning Grants Due

For more information: www.dnr.state.wi.us/org/caer/cfa/Grants/Lakes/invasivespecies.html



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Reflections

Rain is a blessing when
it falls gently on parched
fields, turning the earth
green, causing the birds
to sing.

~ Donald Worster

Meeting the Expectations of the Land, 1984

