

# Cattail Chronicles

Issues Affecting the Surface Waters of Lake County

Lake County Health Department and Community Health Center  
Jerry Nordstrom, Interim Director

Volume 22, Issue 1

Spring 2013

## We love our lakes yet degrade them—what explains the paradox?

by Darby Nelson, author of *For Love of Lakes*

We love our lakes yet we not only allow, but participate in their deterioration. What explains this paradox? I could not reconcile the inconsistency in my mind and set out on a lake journey to seek understanding. That journey led me to write a book, *For Love of Lakes*, to share my discoveries with others.

The Environmental Protection Agency's (EPA's) National Lake Assessment revealed that 43 percent of our nation's lakes and 80 percent of our urban lakes fail to meet water quality standards. Stressors on our lakes include: poor lakeshore habitat, inadequate physical habitat complexity, excessive amounts of the nutrients phosphorus and nitrogen, among many others. We know what drives the stressors: eutrophication, erosion, pollution, exotic species invasions, and removal of shore vegetation and native plant communities. Ironically, nearly all are directly linked to human actions.

I began my exploration believing that people do not purposely damage lakes, but may do so inadvertently because of lack of understanding of lake ecology. Paddling the shore of a Minnesota lake, my wife and I discovered a situation where that had apparently happened. A lot owner had massively removed Chara, an alga the size of a wild blueberry bush, across

his entire lot width. Had he known of Chara's three important roles in maintaining lake clarity and health, I expect he would have behaved differently. Chara provides protective habitat for game fish sac fry, aquatic invertebrates, micro-crustacea such as water fleas, and myriad others—all critical to the food chain. Chara stabilizes bottom sediments, preventing wind and wave action from stirring sediment particles into the water column, reducing water clarity. It also keeps phosphorus in the sediments, preventing its release into the water column to feed blue-green algae, turning lakes into pea soup. You would not enjoy swimming in Chara. But, by removing just enough for boating and swimming purposes, leaving the rest alone, Chara can continue to produce the benefits of a healthy, clear water lake. One cannot claim to love a lake if he knowingly hauls away its Chara.

I also learned that we perceive lakes differently than we perceive terrestrial systems. Walk through a forest and you will quickly see diverse life forms and how all is interconnected. Go to a lake and you see aquatic plants, shore birds, maybe crayfish or frogs, and the lake surface itself. But, 99 percent of a lake lies hidden beneath that surface. We are visual creatures, so our

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<http://health.lakecountyl.gov/Population/LMU>

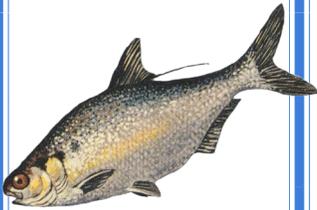


**LakeCounty**  
Health Department and  
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# Cattail Chronicles

## Spotlighting Wildlife: American Gizzard Shad (*Dorosoma cepedianum*)

### Identification:



A deep bodied fish that is laterally compressed (nearly flat when lying on their side). The dorsal fin has 10 to 12 rays and the last one extends back towards a deeply forked tail. The gizzard shad has silvery blue-green to gray coloration on its back and the sides are silvery with no lateral line.

**By: Gerard Urbanozo**

Gizzard shad are native to central and eastern United States mainly in warm low gradient rivers and streams as well as reservoirs, lakes and ponds. Shad are filter feeders; they prefer warm nutrient rich waters. Their range is temperature limited. Die offs usually occur when the water temperature drops below 37°F. Shad can extend their range during a string of warm years; the Illinois DNR collected its first sample of gizzard shad in the Fox Chain O’ Lakes in 2007. These shad migrated up the Fox River over fish ladders and dams in order to make it to the Chain. Lakes that receive flood waters from the Des Plaines River can also have them.

The gizzard shad is a deep bodied fish that is laterally compressed (nearly flat when lying on their side). The dorsal fin has 10 to 12 rays and the last one extends back towards a deeply forked tail. The gizzard shad has silvery blue-green to gray coloration on its back and the sides are silvery with no lateral line. The mouth is small, with the lower jaw slightly shorter than the upper jaw. The mouth does not extend back past the gizzard shad’s large eyes. Like most shad, juveniles and young adults have a dark spot behind the gill plate. This spot is faint or disappears completely in larger, older fish. The belly tapers to a point where the scales fold over forming a saw like appearance.

While most shad live for 3-5 years, some have been documented to live past 10 years. They reach maturity in 2-3 years and females can produce 40,000 to 450,000 eggs. Spawning takes place during the middle of spring to early summer and usually occurs in the evening. The preferred spawning temperature is between 60°F and 70°F. Male and female shad congregate along the shallow sandy or gravel areas where eggs are released and fertilized. Once the eggs hatch they are on their own since there is no parental care from the parents. The success of the shad fry correlates with the abundance of zooplankton along with stable water level and warmer temperatures. Drastic changes in water level and temperature can decrease the survival rate of the fry. Once they reach the juvenile stage, they grow rapidly by feeding mostly on phytoplankton and zooplankton. At this stage they develop a gizzard and begin filter feeding for food. Sediment and sand are also ingested by the

gizzard shad that helps it to digest food in its muscular gizzard; this is where the fish got its name.

Fishermen on the Fox Chain O’ Lakes have been seeing large schools of shad swimming in the shallow weedy bays. While they are rarely caught with the traditional hook and line, most anglers inadvertently snag shad with their hook or lure while targeting game fish. Gizzard shad provide an abundant food source for bass and walleye, but they may compete with bluegill, crappies and other young of the year game-fish for food. Shad have rapid growth rates, often growing to 5.5 inches in length during their first year. This provides a smaller window of opportunity for bass and walleyes which are gape limited and can only feed effectively on shad up to 6”. The lakes and rivers in southern states have an over abundance of adult shad measuring 8” or larger due to lack of predators. Fortunately, the Chain has a healthy population of muskies, which are capable of feeding on adult shad. Muskies have benefited from this new food source which is not only abundant but it’s easier for them to catch than bluegills and perch. The less energy a fish spends chasing its prey the more energy it saves on growing.

“Muskie appears to have gained between 1 and 2 pounds per fish since gizzard shad showed up. Males are about 1 pound heavier and females are about 2 pounds heavier for older mature fish. A 45" female musky in 2006 weighed about 27.7 pounds and a 45" female in 2012 weighed about 29.9 pound” —Frank Jakubicek, IDNR

Gizzard shad can alter the size and density structure of a fishery. They may stunt the bluegill population through common food competition or by reducing the predation pressure which allows for higher recruitment which leads to stunted population. Bass may grow larger due to having more food available for them to eat but their fry may have to compete for food. At this point it is hard to predict what the overall outcome of the gizzard shad will be on the fishery. At least for now, it gives fishermen hope that the shad will help produce record size game fish in the Fox Chain O’ Lakes in the near future.

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# Volume 22, Issue 1

## Lake Issues: *We love our lakes yet degrade them—what explains the paradox?*

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perception of lakes is incomplete. That matters! Perception is the mother of behavior. I also learned we have innate habits of mind that prevent us from doing right by lakes. In my travels for the book, I came on a person clearing a lake shore of fallen, partly submerged, woody tree limbs. A second person with soil and water conservation credentials acknowledged that removal of such material was against DNR advice to leave reasonable amounts of such material in the lake. She then launched into a tirade about how stupid the DNR's ideas were on this issue, despite the studies revealing the importance of such woody material as habitat for fish and other aquatic life. We tend to see what we want to see and ignore factual evidence that conflicts with the "reality" we favor.

Behavior at our lake shores plays a major role in lake health. The EPA's National Lake Assessment five year follow up studies reveal the greatest stressors on lakes are those that affect shorelines and shallow water areas. Lack of adequate physical habitat complexity and lake shore habitat disturbance are a particularly widespread problem. The most sobering slide in my presentations to groups is one of a large lake home surrounded by an attractive manicured lawn sloping to the very edge of the shore. The scene is enough to make a lake-lover cry.

Consider this. Seven to nine times as much phosphorous and eighteen times as much sediment enters a lake than would be the case if the shore was natural or well-buffered. This unbuffered, well developed shoreline:

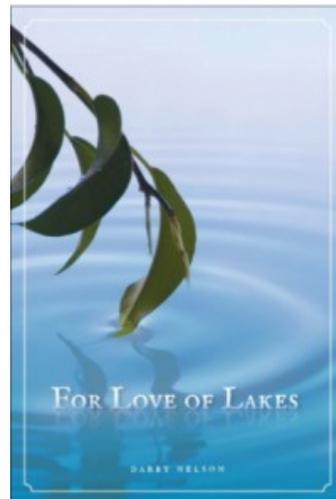
- Increases erosion,
- Increases phosphorus entering the lake,
- Increases sediment entering the lake,
- Reduces fish habitat,
- Reduces basking sites for turtles,
- Increases bird predation on fish, and
- Reduces dragonfly presence.

The lake pays the price for such destructive landscaping. So do other property owners and our grandkids.

Last summer I had the chance to give talks to lake advocates in many places, including Vermont, New Hampshire and Maine. Decades ago, Maine required lake shore owners to establish wide buffer zones to protect their lakes. How well did this requirement work? Last year they completed an extensive study and found that lots that had followed the buffer strip requirement actually protected lakeshores on a par with natural shorelines. A tip of the hat to Maine! They love their lakes! From *For Love of Lakes*: "Mountains may last for eons of geologic time, but lakes for only a geological moment. It is our cosmic good fortune to be on earth at such a moment. Eutrophication, erosion, pollution, exotic species invasions, removal of shore vegetation and native aquatic plant communities accelerate lakes through their already too short natural lives. Inaction does not become creatures of love, common sense, and reason. Descendants of our tribe would never forgive us.

Absent love, lake protection is an impossible mission. Absent understanding, lake protection is a fool's dream.

What will be our tribal narrative? What will be our legacy?"



### ***For Love of Lakes***

weaves a tapestry of history, science, values. Nelson's interplay of emotion and logic stimulates the reader to think—and that is a good thing. *For Love of Lakes* is poetic to the end—a wonderful read for all who enjoy natural history.

**John J. Magnuson,**  
Emeritus Professor of  
Zoology and  
Limnology, University  
of Wisconsin—  
Madison.



Dick Schick 32 year  
VLMP  
Lake Zurich

### **Join Summer Volunteer Lake Monitoring Program**

In the Basic Monitoring Program, citizens select a lake in which they have an interest and are then trained to measure water clarity (transparency) using a Secchi disk. This increases citizen knowledge and awareness of the factors that affect lake quality so they can understand the lake/watershed/ecosystem and make informed decisions. Volunteers monitor twice a month May through October. In 2012 there were **53 lakes** in Lake County participating.

If you would like more information please contact:

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[www.epa.state.il.us/water/vlmp/index.html](http://www.epa.state.il.us/water/vlmp/index.html)



Melonnie Hartl  
3 year VLMP

# Cattail Chronicles

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## Spotlighting Watershed Groups: 9 Lakes

### Restoring Water Quality in Southwestern Lake County

By: Timothy T. Loftus, Ph.D.

Chicago Metropolitan Agency for Planning

The Chicago Metropolitan Agency for Planning received a federal Clean Water Act 604(b) grant from the Illinois EPA, Bureau of Water, to work with local stakeholders in developing a TMDL implementation plan for nine lakes in southwestern Lake County. The planning area covers approximately 29 square miles. The two-year project got underway last summer and is scheduled to produce a draft plan by April 1, 2014.

What is a TMDL? A total maximum daily load, or TMDL, quantifies pollutant loads delivered to impaired water bodies and sets the pollutant load reduction goal that is necessary to restore a river or lake to the water quality necessary for achieving all designated uses. Surface waters can assimilate a certain amount of pollution and still meet their designated uses. Beyond the threshold of pollution loading that results in a use impairment, a determination made by Illinois EPA, a TMDL is developed that considers all potential sources of pollutants (i.e., both point-source and nonpoint-source pollutions.) A TMDL also includes a margin of safety that reflects both scientific uncertainty and the effects of seasonality on water quality. In a sense, a TMDL is a pollution budget for the watershed contributing area that affects the water quality of a receiving river or lake. TMDLs are called for by Section 303 of the Clean Water Act.

Illinois EPA is obligated by the Clean Water Act to develop a series of TMDLs for the following lakes that are impaired for one or more of their designated uses: Drummond (aka, Ozaukee) Lake, Lake Barrington, Lake Fairview, Lake NaPa SuWe, Island Lake, Slocum Lake, Timber Lake, Tower Lake, and Woodland Lake. All but Woodland Lake will have a total phosphorus TMDL developed while

Woodland Lake will undergo a TMDL for dissolved oxygen. Lake Barrington and Tower Lake will additionally receive TMDLs for fecal coliform. The lakes are found within three adjacent subwatersheds of the Upper Fox River Basin: Cotton-Mutton Creek, Slocum Lake Drain/Fiddle Creek, and Tower Lake Drain. Additional information can be reviewed in a fact sheet that is available on the Fox River Ecosystem Partnership (FREP) website

< <http://foxriverecosystem.org/9Lakes.htm> >.

An initial report was released in March 2010, titled: Upper Fox River / Flint Creek Watershed TMDL Final Stage 1 Report. A Stage 3 final report, expected in 2012, has been delayed. CMAP, county partners, and local stakeholders will develop a watershed-based plan and identify watershed-wide and site-specific opportunities for best management practice (BMP) implementation. The plan will aim to reduce pollutant loads and strive to meet TMDL pollutant reduction goals once they are quantified. While disappointing that the TMDLs are off schedule, planning will proceed nonetheless.

Are these nine lakes typical? Lakes in Illinois generally attain their aquatic life designated use. For example, the draft 2012 Integrated Report indicates that over 90% of assessed lakes are fully supporting the aquatic life designated use; about the same as found in the previous biennial report. Less than half of lakes (47%) assessed for the primary contact designated use, however, are fully supporting of that use; the same as in 2010. Fecal coliform, in counts that exceed the standard, is almost always the cause of impairment with potential sources typically listed as “unknown”. Sources are listed as unknown because of the uncertainty created by insufficient data. Best

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# Goodbye

Donna Minkley was the lakes intern this summer. Donna lives in Paddock Lake where she raised four children with her husband Craig. As a non-traditional student Donna received her environmental geography degree from University Wisconsin Parkside. During the 2012 sampling season Donna assisted Environmental Services with various projects including lake sampling in the Indian Creek Watershed. Donna possessed a variety of skills; among them the most valuable was aquatic plant identification.



## Spotlighting Watershed Groups: *Why watershed groups are important*

**Continued from page 4**

professional judgment, on the other hand, offers more than a few ideas as to likely sources of fecal coliform.

The aesthetic quality designated use is even more challenging for Illinois lakes to attain. Less than 16% of the sample of lakes assessed are fully supporting of aesthetic quality. Illinois EPA reports that the major causes of aesthetic quality impairment include total suspended solids, total phosphorus, and aquatic algae. Excessive aquatic algae are usually symptomatic of nutrient enrichment in streams and cultural eutrophication in lakes; both of which implicate too much phosphorus and/or nitrogen.

The majority of the nine lakes are man-made and relatively shallow ranging in average depth from about 2 to 8 feet. Excluding Drummond Lake which has a small watershed to lake surface area

ratio of 3:1, impervious cover within the lake watersheds averages 17.5%; an amount known to have impacts on water quality. While all lakes are impacted by both internal and external sources of phosphorus, internal recycling is thought to be the primary source of total phosphorus in the majority of the lakes. Thus, reducing phosphorus loads in the nine TMDL lakes in an amount that will allow the lakes to achieve water quality standards and use attainment will be a challenge.

Regardless of the apparent challenge, there are sure to be opportunities to improve land management, urban landscape maintenance, and stormwater management to mention just a few areas of water quality influence. Local ordinances will likely benefit from a critical review and updates to ensure that development proceeds in a manner that does not sacrifice water quality in the receiving lakes that are cherished by residents, lakeshore property owners, and a variety of recreational users.

The Fox River, a public water supply for hundreds of thousands of people downstream, stands to benefit as well. Outreach and education can always be strengthened to raise awareness and encourage people to become part of the solution with behavior that reflects an ethic of stewardship.

By mid-2014, local governments and residents alike will have a new plan that is informed by science and local input. Upon implementation, the plan will improve lake water quality and by extension, the quality of life in this part of the Fox River Basin. The plan will also serve as a necessary vehicle to attract federal Clean Water Act funding for implementation of its recommendations. If you live nearby, please join us in our collaborative effort to improve water quality in the "9 Lakes TMDL Implementation Planning" area.



**Bonnie Thompson Carter, County Board member, speaks at the June, 2012 9 Lakes meeting.**

# Hello

Gerard Urbanozo joined the Environmental Services in the spring of 2012. Gerard attended Mundelein High School and earned his B.S. Biology at Northland College, where he focused on Natural Resources and Fisheries. While attending Northland College he worked at the National Park Service and was an intern at the Red Cliff Fish Hatchery. During the spring and summer of 2006 he assisted the Illinois Natural History in fish creel surveys along Lake Michigan. Gerard has been with the Lake County Health Department since 2007 as an Environmental Health Practitioner where he inspected restaurants, septic, well, and environmental health complaints. Gerard enjoys spending time in the outdoors especially fishing and hunting. On his days off he works as a charter boat captain on Lake Michigan or competes in walleye tournaments. Gerard and his wife currently live in Beach Park, Illinois.





## STOP AQUATIC HITCHHIKERS!™

By: Kathy Paap

The Aquatic Life Transport Bill (HB3888) which was introduced into the House by Representative Joanne Osborne (Antioch) and sponsored in the State Senate by Senator Suzi Schmidt was signed into law on July 26, 2012 and is in effect as of January 1, 2013 (PA 97-850). This law requires people to remove aquatic plants and animals from the exterior of their vehicle, seaplane, watercraft, or other object before operating or transporting onto a highway or before placing the vehicle into navigable water other than the water in which the aquatic plant or animal became attached. This law enables law enforcement personnel to order a person to remove aquatic plants or aquatic animals from the vessel. The person would have the choice to abide by the order or be issued a citation. There are exemptions to the law; duckweeds that incidentally are attached to the exterior of a vessel are one exception. The other pertains to aquatic plant harvesters that are owned by a local governmental unit. Harvesters are allowed to have aquatic species attached to the exterior of the equipment, with the understanding that it is being transported somewhere to be cleaned before being replaced into another water body.

This law provides a means to minimize the spread of invasive species from lake to lake, by requiring users of Illinois lakes and streams to remove aquatic plants and animals from their boats, trailers and vehicles, including seaplanes. This law is important as it is designed to alleviate the accidental spread of invasive species. By reducing the spread of an invasive species into other navigable waters within the state of Illinois, where it did not previously exist, there is less burden placed on taxpayers, homeowner associations or lake associations. Once established, full usage of a lake for activities such as boating, swimming, and waterskiing often requires extensive, long-term, management. It is estimated that hundreds of millions of dollars are spent nationally to manage aquatic invasive species or impacts on lakes caused by these species. If left unmanaged species such as Eurasian water milfoil (EWM) can impede navigation, impacting boating, angling, and swimming on the lake. Property values can also be impacted by invasions of these species due to either reduced recreational opportunities or general aesthetics. In some instances, invasive species such as EWM can grow to abundances that cause oxygen deficiencies in shallow lakes, potentially impacting fish and other aquatic organisms. Boaters and anglers also need to be aware of other invasive species such as zebra mussels, round goby, and spiny water flea, which also have profound impacts to lakes. For example in Lake County, zebra mussels infest more lakes each year, presumably from boats going from one infected lake to another.

So, as you begin the boating season, be a good lake steward and please remember to:

## Cattail Chronicles

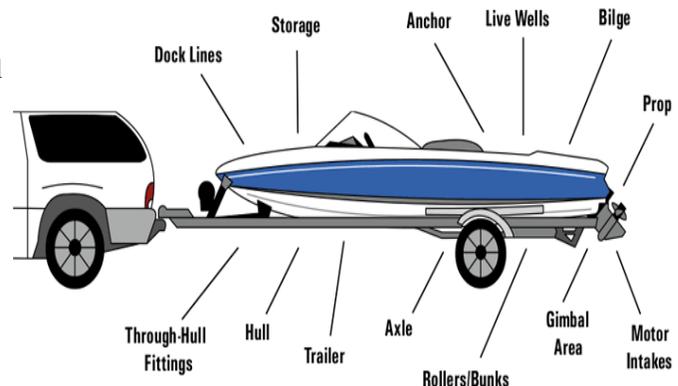
### Lake Issues: The Aquatic Life Transport Bill *What it means and why you should care*

- Clean aquatic weeds from your vehicles before leaving a lake.
- If possible, rinse your boat and drain all water from your bilges, live wells and other bait containments before leaving a lake as hitchhikers such as zebra mussels can spread to other inland waters either in their immature form known as veligers transported in water or as adults attached to boat hulls, engines, aquatic weeds, or other surfaces. Veligers are small (about the size of the period at the end of this sentence) and may be able to survive in any residual water source.
- Rinsing with a 1% bleach solution has been found effective in killing veligers; however, it is also acceptable to have the vehicle(s) dry for a period of 48 hours before entering a lake after being in a lake infested with zebra mussels. This promotes the desiccation of zebra mussel veligers and helps stop the spread in lakes not infested.
- Dispose of unused bait in trash.
- Do not release any plants or animals in a water body unless they came from that water body.

**4 additional lakes in Lake County became infested with zebra mussels in 2012, totaling 34 water bodies**



Before launching and before leaving...  
**Inspect everything!**



Lake Issues: Stop repeating history!

Help end accidental introductions of aquatic invasive species

By: Cathy McGlenn

In 1988 zebra mussels (*Dreissena polymorpha*) were discovered in the Great Lakes. Scientists think that these mussels were probably introduced in the mid-1980's by a European ship that released contaminated ballast water when it arrived at port. Since that time zebra mussels have been disrupting the ecosystems they infest and making their way to inland lakes and waterways.

You might wonder how an aquatic animal could travel over land from the Great Lakes to a lake in your Forest Preserve District. It is easy. Zebra mussels attach themselves to a boat, boat trailer, jet ski or are carried in a bait bucket or in bilge water to a new location. This is how many new infestations start – accidental introduction. The new amendment to the Illinois Boat Registration and Safety Act addresses this issue by prohibiting the transport of any aquatic plants and animals on recreational water vehicles, sea planes, and equipment. This amendment became effective January 2013 <http://www.ilga.gov/legislation/publicacts/fulltext.asp?Name=097-0850>. As part of the effort to prevent accidental introductions and transport of aquatic invasive species Illinois-Indiana Sea Grant and the

Northeast Illinois Invasive Plant Partnership have joined forces to provide education and outreach about aquatic invasive species (AIS) to boaters, anglers, and recreational water users at regional marinas, harbors, and fishing tournaments. Our Clean Boats Crew volunteers raise public awareness about the importance of prevention and provide information about what you can do to avoid transporting AIS while you are out enjoying a day on the water. Prevention is the very best method for dealing with AIS and reduces both the economic and environmental impacts of these species. Zebra mussels, quagga mussels (*Dreissena bugensis*), Brazilian elodea (*Egeria densa*), and Eurasian watermilfoil (*Myriophyllum spicatum*) have already arrived, but they can be contained! Since 2011 Clean Boats Crew volunteers have talked with more than 3,500 people at marinas, harbors, and fishing tournaments in the Illinois and Indiana counties adjacent to southern Lake Michigan. Our next season will begin on Memorial Day weekend and end in mid-August. If you are out and about in the waters of northeastern Illinois and northwestern Indiana this summer look for our volunteers! They have a wealth of information to share and would love to talk with you.

Consider Joining Clean Boats Crew

For more information about Clean Boats Crew please visit <http://niipp.net>. If you would like a Clean Boats Crew program in your county or are interested in becoming a volunteer please contact Cathy McGlynn (847-242-6423; [cathy.mcglynn@niipp.net](mailto:cathy.mcglynn@niipp.net)) or Sarah Zack (847-242-6440; [szack@illinois.edu](mailto:szack@illinois.edu)).



Illinois Lake Management Association Annual Meeting

At the Parke Hotel & Conference Center, Bloomington, IL

Thursday, April 4, 2013 through Saturday, April 6, 2013

Come join ILMA at our 28th annual lake conference in Bloomington this April. Whether you are a lake manager, recreational lake user, researcher, public water supplier, in a lake home owner association, or interested in lakes/watersheds in any capacity, this is a conference you don't want to miss. We have two full days packed with information, but still provide plenty of time and activities for networking with fellow attendees and representatives from throughout the industry. Additional options are provided for half-day workshops on day three (see below).

Planning and Executing a Lake Dredging Project Restoration of Kickapoo Creek at the Grove

This workshop will be tailored for stakeholders who are interested in dredging as a way to maintain a healthy lake for recreation, navigation, and water storage, or who may be planning their first dredging project. Topics that will be covered in the workshop include planning, budgeting, design, permitting, dredging methods, equipment options and vendor selection. Options for dewatering, disposal, and beneficial reuse of dredged sediment will also be presented. This workshop will be conducted indoors, so that participants can view photography and video from actual dredging projects.

This workshop will provide a field trip to the 'Grove' development where approximately two miles of channelized stream was restored using natural design principles. The restoration created a meandering waterway surrounded by more than 80 acres of restored prairie and wetland habitats. The restoration took place as an integrated element within a new urban growth cell of the City of Bloomington which provides stormwater runoff control, nutrient reduction, high quality aquatic and terrestrial habitat, while also providing aesthetic benefits for the surrounding urban development.

## Can You Name This Lake?



### Clues:

- Historical name Breeden Slough
  - Included in the 9 Lakes Watershed Group
  - Current Name derived from four daughters
  - A shallow slough
  - Max Depth 3.5 ft
  - Average Depth 1.4 ft
  - Surface Area: 85.3 acres
- Find the answer on our web page*

## Lakes to be Monitored in 2013

Albert Lake	Lake Napa SuWe
Bangs Lake*	Long Lake*
Buffalo Creek Reservoir	Slocum Lake
Cedar Lake*	Slough Lake
Countryside Lake*	Third Lake*
Cranberry Lake*	Timber Lake
Island Lake	Tower Lake
Lake Barrington	Woodland Lake
Lake Fairview	Wooster Lake*
Lake Lakeland Estates	

\*Sentinel lakes monitored annually, 2005-2013  
Lakes within the Buffalo Creek and 9- Lakes Watersheds

*Inside:*  
The Aquatic Life Transport Bill,  
*why you should care*

PRRST STD  
STANDARD MAIL  
U. S. POSTAGE  
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PALATINE, IL  
PERMIT NO. 401