



## WATER IN THE NEWS



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### **Fall Turnover and Your Lake**

By: Dr. Nate Bosch, Director, Center for Lakes & Streams

This fall, many families around the lakes will enjoy picking apples at their local orchards and making apple turnovers. However, during the fall months, lakes enjoy a type of “turnover” as well. This lake turnover is vital to how our lakes function throughout the year.

During the summer months, local lakes stratified, or separated, into two distinct layers: The warm, upper layer called the “epilimnion” and the cold, bottom layer called the “hypolimnion.” These layers do not typically mix together; therefore, the bottom layer eventually runs out of oxygen, which is not ideal for the cold-water fish that inhabit it.

During autumn, as air temperature drops, the upper layer of a lake’s water cools until it approaches the same temperature as the bottom water layer. As a result, a difference in water density between the two layers no longer exists, as cold water is denser than warm water. When wind blows across the surface of the lake, water near the surface begins to move with the wind direction. Water will also run up against a lake’s shoreline, be forced downward, and begin flowing back along the bottom of the lake. Eventually, this water will run up against the shoreline on the other side of the lake and get forced to the lake surface to complete the cycle, resulting in an underwater Ferris wheel of sorts.

This cycling of the lake from top to bottom and back again is called “fall turnover.” And rather than carrying people, this Ferris wheel carries oxygen from the surface of the lake down to the bottom, where it has been lacking for months. This is great for fish and other organisms that live near the bottom of the lake which need oxygen to breathe. This turnover also cycles some substances from the bottom of the lake to the top. One of these substances is hydrogen sulfide gas, which has the distinctive aroma of rotten eggs. This hydrogen sulfide accumulates in the water on the lake bottom and is composed of bacteria while oxygen is absent; its fleeting smell may tip off lake residents that fall turnover has begun.

## **Welcoming Our New Board Members!**

With the recently completed Board elections, we should take a moment to welcome the five new InWMC Board members that will provide leadership for the Council over the next two years. This is an outstanding group of individuals that brings a diverse background of monitoring expertise and understanding of Indiana's water resources.



### **Kathy Clark**

Organization: Lake Maxinkuckee Environmental Council

Position: Executive Director

Expertise: lake and watershed coordination

Kathy joined Lake Maxinkuckee Environmental Council (LMEC) in 2007, making her the third Executive Director of the organization in its 35-year history. In her role with the LMEC, Kathy coordinates and participates in all of the lake and watershed projects for the Council, including working with the USGS on a two-year project to sample the lakebed for research purposes. She also manages the LMEC office, handling all social media, writing and producing the organization's quarterly newsletters and all its marketing materials.



### **Jennifer Tank**

Organization: Dept. of Biological Sciences, Notre Dame

Position: Professor

Expertise: ecology and environmental biology

Jennifer Tank is the Galla Professor of Biological Sciences at the University of Notre Dame. She also leads the Land Use Program as part of the Notre Dame Environmental Change Initiative, which includes 40 affiliated faculty tackling the interrelated environmental challenges using multi-disciplinary approaches. Dr. Tank's research interests include quantifying the effects of conservation practices on water quality and identifying controls on nutrient cycling in stream and rivers. She is leading a new Indiana Watershed Initiative (IWI) RCPP Project recently funded by the USDA, which includes collaboration with The Nature Conservancy, local SWCDs, County Surveyors and the NRCS. Her goal is to improve the health and nutrient removal efficiency of streams draining cropland in the agricultural Midwest through implementation of watershed-scale conservation.

**Bryan Wallace**

Organization: Lochmueller Group

Position: Environmental Scientist

Expertise: floodplain and stormwater management

Bryan currently is an Environmental Scientist with the Lochmueller Group. He was a Stormwater Coordinator for 12 years at two communities and managed the Community Rating System / floodplain program for the City of Jeffersonville. Mr. Wallace is also an Indiana

Class III Wastewater Operator and Grade DSM Water Distribution Operator. He graduated from Purdue University in 2002 with a B.S. in Natural Resources and Environmental Science.

**Jade Young**

Organization: US Army Corps of Engineers

Position: Limnologist

Expertise: water quality of reservoir tailwaters

Jade L. Young currently serves as Team Leader and Limnologist for the Water Quality Team of the Environmental Branch, Engineering Division for the Corps of Engineers, Louisville District. She oversees the management and execution of the District's Water Quality programs and assures that the programs are structured, staffed and managed to be responsive to program and project requirements.

Her experience includes study of freshwater water systems ranging from small streams to large rivers and reservoirs. Her areas of expertise include freshwater algal and macroinvertebrate ecology, as well as assessment of chemical and physical properties within aquatic environments.

Jade began her professional career with the Louisville District Corps of Engineers in August 2009. She has a M.S. in Biology with emphasis on benthic macroinvertebrate assessment from Tennessee Technological University. She also has a B.S. in Environmental Biology from Tennessee Technological University.

**Jeremy Weber**

Organization: Center for Earth and Environmental Science, IUPUI

Position: Staff Scientist

Expertise: GIS and remote sensing

Jeremy Weber is a Research Scientist at the Center for Earth and Environmental Science (CEES) at Indiana University Purdue University (IUPUI) in Indianapolis. His research focuses broadly on using GIS and Remote Sensor data to model risk for natural disasters, public health, and water quality issues.

Jeremy attended IUPUI and received a Bachelors Degree in Physical Geography with a focus in water resources and ecosystem restoration, and a Masters of Science in GIS and Remote Sensing focusing on environmental applications. As an undergraduate Jeremy worked closely with CEES in watershed monitoring efforts and was able to participate in several wetland ecosystem restorations, specifically fen wetlands and the reforestation of riparian corridors.

Recently Jeremy has been working on Indiana's Fluvial Erosion Hazard (FEH) Mitigation Program. Through collaborative efforts between the USGS and the Polis Center at IUPUI the FEH team has researched and developed a semi-automated method for generating erosional corridors at a regional scale. They are currently developing an algorithm to assess transportation vulnerability related to fluvial erosion hazards and flooding.

## **IDEM opens the door to greater data sharing through its External Data Framework**

By: Jody Arthur, IDEM

Greater collaboration with the water monitoring community throughout Indiana is now possible with the launch of the Indiana Department of Environmental Management (IDEM) External Data Framework (EDF). Launched on October 1, the EDF was developed by IDEM's Office of Water Quality to help individuals and organizations that collect water quality data to more easily share their results with IDEM.

### ***So much data, so little time...***

There is a lot of water monitoring happening in Indiana. Many universities, municipalities, watershed groups, local organizations and citizen volunteers throughout the state participate in

monitoring activities at various scales. Many regulated facilities also conduct monitoring above and beyond what their permits require.

The data these organizations and citizen scientists collect have tremendous potential for managing our water resources. However, there was a challenge in working with different types of data from multiple sources that we needed to solve.



Until now, IDEM's Office of Water Quality had not established a process for accepting or reviewing secondary data for use by IDEM's assessment programs.

Organizations that wanted to provide their monitoring results did not know where in the Office of Water Quality to direct their data. Despite the promise these results held for improving the understanding and management of Indiana's water resources, IDEM struggled to find the resources to review and determine the reliability of any secondary data sets it did receive.

With the launch of the EDF, volunteers now have a streamlined, systematic process to submit their data, and the barriers for its use by IDEM have been removed! For individuals and organizations that are interested in sharing their monitoring results with the Office of Water Quality, the EDF provides plenty of guidance, access to technical assistance, and a user-friendly system, online, to make sharing easier.

### ***Share your data!***

If you have water quality data to share, you are invited to participate in the EDF! IDEM's Office of Water Quality is looking for new and existing water quality data on Indiana's rivers and streams, lakes and reservoirs. The types of data that the Office of Water Quality can accept through the EDF currently includes field measurements and flow data, chemistry and bacteria results from ambient water samples, fish tissue contaminants data, and biological community data with or without habitat evaluations. *(The Office of Water Quality's data management system is not set up at this time to accept wetlands or ground water quality data. However, the basic structure exists for us to develop this ability down the road.)*

Participation in EDF can benefit your organization. For example, having your data recognized and used by a state agency may help to ensure continued support for your monitoring efforts from funding institutions and the public.

The guidance and technical assistance the EDF provides can help you improve the quality of the data you collect.



For example:

- If you're in the process of developing a water quality monitoring study, the EDF will help you determine the quality control procedures you might need to ensure the data you collect are reliable for your needs.
- If you're already monitoring, the EDF will help you identify any changes you might need to make in your monitoring program to improve the quality of your data, making it reliable for broader use by IDEM's Office of Water Quality and other organizations.
- Adhering to EDF guidelines will help you produce a data set of known quality, enhancing both its credibility and value.

The EDF also provides data quality benchmarks that IDEM's Office of Water Quality considers suitable for a number of local-level needs. You can use these benchmarks to evaluate whether water quality data you have obtained from another source is reliable for your own needs.

#### *Want to know more?*

Visit IDEM's website at <http://www.IN.gov/idem/2485.htm> to learn more about the EDF, the benefits of participation, and how you can begin sharing your monitoring results with IDEM today. You can also contact the Office of Water Quality's Secondary Data Coordinator, Carol Newhouse, at (317) 308-3392, (800) 451-6027 (toll free), or by email at [WaterQualityEDF@idem.IN.gov](mailto:WaterQualityEDF@idem.IN.gov).



## **Harmful algal bloom cruising down the Ohio River**

By: Bryan Wallace, [www.southernindianaflood.com](http://www.southernindianaflood.com)

An algal bloom is slowly moving down the Ohio River and a Harmful Algal Bloom Recreational Advisory has been issued. The [Indiana advisory](#) was issued by the Indiana Department of Environmental Management, in coordination with neighboring states, on 9-18-15. The bloom consists of blue-green algae, also known as cyanobacteria. It has the appearance of blue-green paint or scum in the water and can be toxic. Due to the toxins, avoid contact with the water (this includes pets)!

The Louisville WFPL website has an [excellent article on this issue](#), with a map of the affected sections of the Ohio River and brief description about why the algal bloom is occurring.

This advisory is a recreational contact advisory only, with finished drinking water reported as being safe. The Louisville Water Company is taking extra measures to protect the drinking water supply that comes from the Ohio River.

This event is being reported as the worst toxic bloom in the history of the Ohio River.

## **Explore Indiana shipwrecks**

By: Mike Molnar, Indiana Department of Natural Resources

Indiana's historic shipwrecks can now be explored by land or sea.

Viewing a newly designed website provides virtual looks at what only divers used to be able to access. The website, [IndianaShipwrecks.org](http://IndianaShipwrecks.org), which is part of the Indiana Department of Natural Resources website ([dnr.IN.gov](http://dnr.IN.gov)), features the J.D. Marshall and the Muskegon, as well as Car Ferry #2, and Material Service Barge. Each vessel rests under the Indiana waters of Lake Michigan.

Two years ago, the J.D. Marshall became the first underwater preserve site in the state. The preserve is in Porter County, just off the shores of Indiana Dunes State Park. Data for the website's four virtual 3-D models of the shipwrecks were gathered using detailed mobile multi-sector sonar scans.

"We hope this information will attract more underwater tourists and get people who don't dive more interested in Indiana's fascinating but somewhat unknown maritime history," said Mike Molnar, manager of the DNR's Indiana Lake Michigan Coastal Program (LMCP).

The J.D. Marshall sank during a storm on June 11, 1911. Four crew members died. The preserve includes 100 acres surrounding that ship's ruins and three mooring buoys. The buoys are for dive and fishing boats to use in lieu of anchors, which could damage the historic remains.

Complete information about diving on the shipwrecks, fishing near the site, and the history of the ships is included on the website. The LMCP and its partners have been working on the preserve project since 2008. The website launch completes the preserve project. "The State holds underwater archaeological resources in the public trust for current and future generations and has an obligation to properly manage the resources," Molnar said.

The project required updating information gathered during the 1980s on known and suspected shipwreck sites in Indiana. Molnar said the preserve may be

included on the National Oceanic and Atmospheric Administration's (NOAA) roster of Marine Protected Areas in the near future.

## **Monroe Lake anglers must take precautions against Asian carp**

By: Indiana Department of Natural Resources

Invasive Asian carp are knocking on Monroe Lake's door, and DNR officials are warning anglers not to let them in. Silver and bighead carp (collectively referred to as Asian carp) have been found in Salt Creek, directly below the Monroe Lake dam. The dam prevents the carp from entering the lake.

But fisheries biologists with the DNR Division of Fish & Wildlife are concerned that anglers collecting baitfish from Salt Creek might mistake juvenile Asian carp for gizzard shad and introduce the carp into Monroe Lake. Using live gizzard shad is a common way to fish for hybrid striped bass at Monroe Lake. The method is legal at Monroe Lake as long as the fish were collected in the lake.

Collecting live gizzard shad in Salt Creek and using them at Monroe Lake is against the law. It is also difficult to distinguish gizzard shad from juvenile Asian carp. Earlier this month, DNR researchers cast a net in Salt Creek below the dam to determine the prevalence of Asian carp and how easy it would be to catch them while targeting gizzard shad. In just six casts, they caught 52 juvenile Asian carp.

Anglers fishing Monroe Lake are reminded to collect their bait fish in Monroe Lake only. Do not transport fish from one body of water to another. Anglers also should dispose of all unused baitfish, including fish parts, on shore, in a trash can. Never release bait into the water.

Asian carp can cause enormous damage to native species by outcompeting existing fish for food, specifically plankton. By consuming so much plankton, the carp affect the entire aquatic food chain, including sport fish that feed on plankton-eating fish.

## Save the Date!

### Family trout fishing derby at Shoaff Park

October 17, 2015 (9am-11 am), Shoaff Park, Fort Wayne

The Indiana DNR and Fort Wayne Parks and Recreation Department will host a free family trout fishing derby.

DNR officials will release approximately 400 rainbow trout, each about 13-14 inches long, in a small pond at Shoaff Park before the event. No fishing will be allowed before the event. Registration of youth anglers will begin at 8 a.m. DNR staff will be present to measure trout caught by youth anglers. Prizes supplied by Pro Tackle Outfitters will be awarded to the youth anglers who catch the largest trout. If a tie occurs, a drawing at 11 a.m. will determine the winners.

DNR staff will also make available bait and a limited supply of fishing poles to lend to youngsters new to fishing. Bait will be provided by Pro Tackle Outfitters. Anglers under age 18 can participate without a license or trout stamp. Anyone age 18 or older who fishes must have a valid Indiana fishing license and trout stamp. The catch limit will be five trout per angler. Shoaff Park is at 6401 St. Joe Road. The pond is near the splash pad and has open access for shore fishing. A restroom facility and ample parking space are available nearby.

“We want families to come out and experience fishing in a fun and safe environment,” said Tyler Delauder, DNR assistant fisheries biologist. “Trout fishing is easy and you can take your catch home to eat.” Avid trout anglers from the area also will be on hand to demonstrate fly tying and casting skills.

For more information, call (260) 244-6805.

### Fall Festival at Summit Lake State Park

October 17, 2015 (11am – 3pm), Summit Lake SP, 5993 N. Messick Road, New Castle, Indiana 47362

The chili cook-off and pumpkin carving will be from 3:30 p.m. to 4:30 p.m. Participants must provide their own pumpkins. Campground trick-or-treating and the judging of campsite decorations run from 5:30 p.m. to 7 p.m.

Winners of the chili cook-off, and pumpkin carving and campsite decorating contests will be announced at 7:30 p.m. All activities are open to the public and free after the standard gate fee of \$7 per in-state vehicle and \$9 per out-of-state vehicle. For more information call (765) 766-5873 or visit [stateparks.IN.gov/2967.htm](http://stateparks.IN.gov/2967.htm).

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## Recent News Releases

EPA Awards Great Lakes Restoration Initiative Grant to Central Michigan University to Monitor Coastal Wetlands. See entire article here:  
<http://yosemite.epa.gov/opa/admpress.nsf/0/A2C27F4C0D4C9ED985257ED100692429>

EPA Finalizes Changes to Cleanup Plan at Olean Well Field Site-AVX Property in Olean, NY. See entire article at:  
<http://yosemite.epa.gov/opa/admpress.nsf/0/615A0F835D06FD7485257ED20058DF00>

Federal Court of Appeals puts a hold on nationwide implementation of the Clean Water Rule. Read more at:  
<http://www.reuters.com/article/2015/10/09/us-usa-court-water-idUSKCN0S31QW20151009>

U.S. EPA Orders Kern County Public Water System to Reduce Arsenic in Drinking Water. Read more here:  
<http://yosemite.epa.gov/opa/admpress.nsf/0/7AD3B9A0B9FD52CB85257ED60063DED6>

A Resource Out of Place. See entire article at:  
<http://www.resourceoutofplace.com/>

## **Storm: Get Lost!**

By: Bryan Wallace, [www.southernindianaflood.com](http://www.southernindianaflood.com)

With the late summer upon us, it is practically a bad dream that we received so much rain earlier this summer and spring. The Southern Indiana area received several “100-year” rain events in May, along with two storms that were at least a “500-year” rain event level (or greater) in June / July. At several public meetings, people stated that the term “100-year storm” should be thrown out the window...they were sick of hearing about it and just wanted answers about solving the flood problems! I can hardly blame them. I was tired of it too.



The general public demands that the 100-year flood be banished...Be gone!

### ***It was not a dream.***

Unfortunately, the major storms that repeatedly rolled through this area caused a significant amount of loss to homes and property. While many of us can go on and forget about what happened, people are still dealing with the aftermath. I am not sure about the conclusion for many of the people I spoke with earlier this year. But, I am sure that several of them had to spend thousands of dollars fixing their homes since they did not have flood insurance.

### ***Meanwhile in Louisville, Kentucky...***

In the Louisville area, there were numerous homes that were significantly damaged and not allowed to be reconstructed due to the local floodplain ordinance. This caused an outcry by the general public. In response, the Louisville Metropolitan

Sewer District (MSD) has made some exceptions to its policy and is actually going through the process to [buy out some of these properties](#). Check out that link for a quick update on the process by the Louisville NPR politics reporter, Ashley Lopez. Louisville MSD is looking to spend about \$1 million dollars...wow.

### ***The flood finale!***

There has not been much rain lately, which has been great for property owners. Some of the heavy rains damaged the crops in various areas. But, let us hope the farmers purchased crop insurance, just like I hope people who live next to streams and creeks purchased flood insurance. With the storms that happened, I am sure that many home owners have asked their insurance agent for information about flood insurance. Not everyone was lucky enough to live in a place that has the funds available to purchase flooded structures.

## **Become a Member!**

The Indiana Water Monitoring Council (InWMC) invites you to [become a member](#) today!

The InWMC addresses the full range of water resources, physical, chemical, and biological, including ground and surface waters.

Visit our [website](#) to learn more or click [here](#) to join today!

InWMC serves as a broad-based collaborative body to help achieve effective and efficient collection, interpretation, and dissemination of basic data and processed information for use in addressing issues of Indiana waters.

Join the InWMC today at:  
<http://www.inwmc.org/page-303780>

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