



WATER IN THE NEWS



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InWMC Symposium Raises the Issue of Low-head Dams in Indiana to a New Level

By: Jody Arthur, IDEM

Low-head dams present safety and ecological issues on many streams in Indiana and across the nation. Yet the public remains largely unaware of the safety risks associated with these structures and the impact they can have on aquatic communities and the environment.

The Indiana Water Monitoring Council (InWMC) hopes to change that.

At the InWMC's annual symposium on December 17, 2015, co-sponsored by the Indiana Silver Jackets and the IWRA, the conversation about the problem of low-head dams in Indiana was elevated to a whole new level when more than 200 people came together to learn about the dangers of low-head dams – what has been done to solve the problem, and what remains to be done.

Representatives and members of more than 90 different state and federal agencies, colleges and universities, civil engineering and other consulting firms, non-profit organizations and citizens gathered at the symposium, setting the stage for the most comprehensive discussion about low-head dams ever held in Indiana.

There was much to discuss, and the agenda was packed. Attendees spent most of the morning learning about the hydraulic effects of low-head dams, their ecological effects, and the dangers associated with them.

Low-head Dams Continued...

They learned that low-head dams – also known as “submerged hydraulic jumps” – are relatively shallow dams that often span the entire river and produce drops of less than 20 feet. They are deceptively dangerous. While the water above and below the dam may look relatively calm, there are often strong hydraulic forces and rotating currents that can trap a person underwater in what has been described as a “[drowning machine](#)”.

Then Jennifer Hiebel stepped up to the podium and shared an emotional story that drove home the need to begin addressing the issue of low-head dams in Indiana. Hiebel lost her 24 year-old son, Sean, in a low-head dam while kayaking the Maumee River in June, 2015. Sadly, Sean Hiebel was not the first person to die in Indiana in a low-head dam, nor will he likely be the last (Fig. 1). Hiebel has made it her mission through the [Pelorius Project](#) to make Hoosiers aware of the dangers these dams pose.

Part of the problem, though, is in knowing where they are. According to an [article published in the Journal of Dam Safety](#), there are between 100-200 low-head dams in Indiana (Tschantz, 2014). This is just an estimate. The actual number is difficult to know because most of these dams were constructed decades ago, and their ownership is often lost in the historical record. As a result, few states – including Indiana – have accurate records of how many low-head dams exist and where they are located.

The InWMC symposium may help to remedy this. At this event, attendees learned that several divisions within the Indiana Department of Natural Resources (IDNR) are actively working to identify all the low-head dams in Indiana. The IDNR is building an inventory of these dams using Geographic Information Systems (GIS) software to map them based on:

- Institutional knowledge of field staff, including IDNR fisheries biologists, conservation officers and dam inspectors
- Existing data within IDNR’s Division of Water and its Law Enforcement Division
- Information from county surveyors

To date, the locations of about 170 low-head dams have been verified. Volunteers within Silver Jackets and IDNR are now working to improve this dataset in order to create web maps for government and public use, and prioritization tools to determine which are the most important dams to target for removal or modification based on factors of aquatic ecology and human safety. As a result of the InWMC symposium, more than 200 additional people are now aware of this effort, promising to build on what is already known with their combined knowledge of Indiana waters.

Funding for dam removal remains a key challenge. In the afternoon, symposium attendees participated in a panel discussion with state and federal officials to discuss the availability of funding for dam removal. They were also shown case studies that illustrated the benefits of dam removal to instream aquatic communities and creative approaches to removing them.

Low-head Dams Continued...

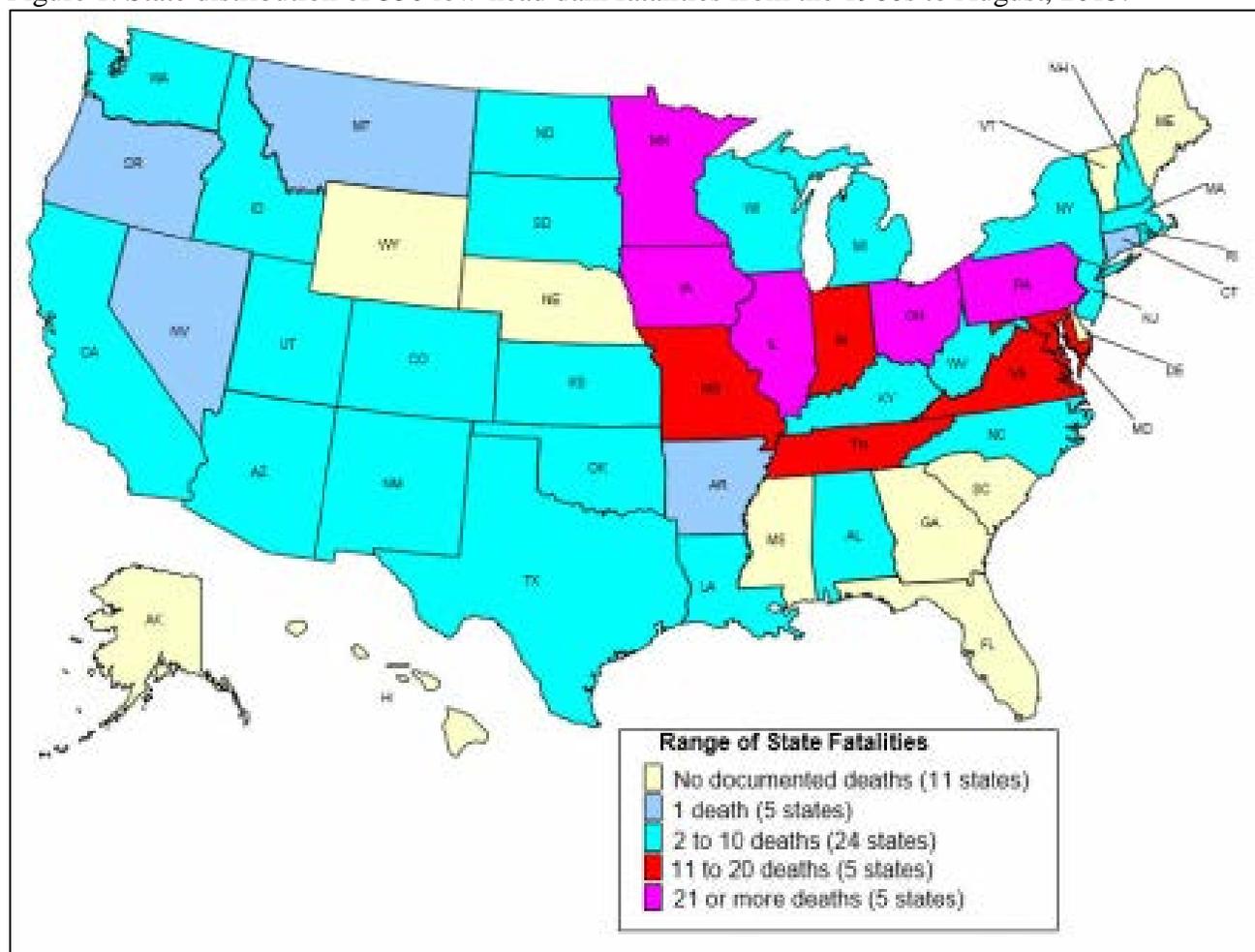
People learned a lot at this symposium. By the end of the day, though, it was clear to everyone in attendance that the solution to the challenge of low-head dams will not be a simple one. Solving it will require the concerted efforts of many public agencies, private organizations, and professionals.

Based on extensive feedback provided by attendees, developing an accurate inventory of all the low-head dams emerged as the highest priority followed closely by developing ways to help educate the public about their dangers.

The InWMC and its partners in this effort are well-positioned to do both.

In the coming months, the InWMC, the Indiana Silver Jackets and the IWRA will continue to work together to sustain the momentum achieved at the symposium and to find ways to build upon the information exchanged there. More information about this event, including the presentations shared, can be found on the [InWMC website](#).

Figure 1. State distribution of 350 low-head dam fatalities from the 1960s to August, 2015.



(Source: Tschantz, 2014)

Reference Cited: Tschantz, B. 2014. What We Know (and Don't Know) About Low-Head Dams, *Journal of Dam Safety*, v. 12, no. 4. Association of State Dam Safety Officials, ISSN 1944-9836.

Clear Choices Clean Water Goes National!

By: Jill Hoffman, Empower Results

When you think of states that lead the nation in innovate water management, policy, or programs, does Indiana come to mind? If not, it will now! The *Clear Choices Clean Water* program has been drawing national recognition and attention for the past few years including attention from other cities, organizations, and regions that have expressed interest in bringing the program to their areas. After much planning and technical programming, *Clear Choices* has expanded nationally and is thrilled to announce its first national affiliate, My Delaware River! My Delaware River is a consortium of partners being led by the Delaware Highlands Conservancy in southern New York and northeastern Pennsylvania.

The innovative nature of *Clear Choices*, including its personalized pollution load reductions, viral social marketing elements, and valuable built-in evaluation metrics, makes it a model public education program worthy of emulating. The Affiliate program allows groups in other locations to manage their own *Clear Choices Clean Water* website – a site complete with localized maps and watershed graphics, local sponsor recognition, customized technical resources, and a unique URL for direct promotion in their region. Affiliates also have access to all outreach materials and strategies developed by other Affiliates. *Clear Choices* was built by leveraging partner assets and is now growing to allow such partnering, common-message promotion, and creative idea-sharing to develop across the country. Imagine the diversity of ideas and impact that a unified nation-wide water campaign could have... **look out Smokey the Bear, *Clear Choices* is this decade's pivotal environmental behavior change campaign!** Learn more at clearchoicescleanwater.org

Congratulations to our InWMC member the White River Alliance for creating such an important grassroots program that can now be used to help protect our nation's waters!

Indiana Water-Resource Issues: Instream Flows

By: Mark Pyron, Ball State University

Historically, Indiana water management programs have been concerned primarily with protecting water quality (keeping water clean) and preventing flood damage (keeping water in its place). As demand for water increases in our state, we are now finding that withdrawing too much water from a stream or river at the wrong time can have negative effects on the ecological health of that waterbody. Flows that are too low in summer may limit rearing habitat, concentrate fish in shrinking pools with declining water quality and dry up portions of the channel inhabited not only by fish but by mussels, crayfish and other invertebrates that are important in fish and wildlife food chains. Low flows in winter may limit suitable overwintering habitat and ice-free refuges. Sustaining a minimum flow to keep an endangered species from extinction may also interfere with watering crops during dry times and boaters from enjoying a lake full of water. There is a balance than needs to be struck between ecosystem protection and necessary water resource development.

Managing our water resource in a way that sustains both human and aquatic life needs is an increasingly important topic, both in Indiana and throughout the United States. Nine states now have regulations that protect their water resource from removing too much water at the wrong time of year. This type of planning requires input and interactions from biologists, engineers, hydrologists, farmers, utilities, politicians, lawyers, boaters, environmental groups, and ordinary citizens. Optimal management of instream flows requires data related to streamflow and fish populations. This information enables scientists to link flow conditions with increases or decreases for various fish species. It's also important to track the populations of other aquatic animals during winter months and times of drought to gauge the overall health of streams when our aquatic ecosystems are stressed. To see additional resources related to this article go to www.inwmc.org

IDEM wants to know what *you* know about Indiana's lakes and streams

By: Jody Arthur, IDEM

IDEM will soon publish its draft 2016 303(d) List of Impaired Waters for a 90-day public comment period. The "303(d)" refers to Section 303(d) of the federal Clean Water Act, which requires that states identify waterbodies that are not supporting one or more of their designated uses.

Designated uses are described in Indiana's water quality standards and reflect the kinds of activities that Indiana's water resources should be able to support. They include recreational uses, fishing, and for some waterbodies, public water supply. The 303(d) list identifies surface waters in Indiana – lakes and reservoirs, rivers and streams – with water quality problems that may be impacting one or more of these uses. A waterbody may also be added to the list if the biological communities – the fish or aquatic insects that live there – are struggling.

Why is IDEM asking for public comments?

The simplest answer is that IDEM is required to by state law to publish the 303(d) list. But, that doesn't explain the real reason behind doing so.

IDEM monitors water quality throughout the state every year and at some locations, all year long. But, with more than 63,000 miles of streams and over 500 lakes in Indiana, it will be a very long time before IDEM is able to monitor each and every one.

This is where the public can help. Often, people on the local level are aware of and can alert IDEM to water quality problems in waterbodies that have not yet been monitored by IDEM's sampling crews. Likewise, the people that frequent a given lake or stream for recreational or other purposes are likely going to be the first to notice water quality improvements.

These are the *real* reasons IDEM publishes its 303(d) list. IDEM believes that the public has new and important information to share about the condition of Indiana waters. And, the public comment period provides a clear and easy way to get that information to IDEM to help the agency build a more accurate and complete 303(d) list:

- The more complete the 303(d) list is, the more effectively IDEM can prioritize, targeting available resources for restoration activities where they are most needed
- The more accurate the list is, the less likely IDEM is to spend limited staff resources and public funds on waterbodies that may not really need restoration

There's another reason, too...

In addition to helping IDEM build a more reliable list, the public comment period also serves another important purpose. It allows the public to weigh in on *how* the IDEM develops its 303(d) list.

IDEM's includes its Consolidated Assessment and Listing Methodology (CALM) in the notice of public comment period along with the 303(d) list. The CALM spells out IDEM's processes for determining whether a waterbody is in good condition or impaired and whether it should be added

to the 303(d) list. Publishing the CALM with the draft 303(d) list not only helps the public to better understand IDEM's 303(d) listing decisions, but also provides an opportunity for the public to provide feedback on how those decisions are made. This is important because IDEM's decision to add or remove a waterbody from the 303(d) list can have important policy implications.

Whether IDEM is revising current methods for water quality assessments and 303(d) listing or developing new ones – the feedback received through the public comment period helps to ensure they result in scientifically sound and defensible decisions.

What kind of information is IDEM looking for?

With regard to the 303(d) list, IDEM is soliciting any information the public might have for one or more waterbodies anywhere in the state. IDEM encourages the public to share any information available, from anecdotal information to scientific studies. The public comment period makes sharing this information with IDEM easy and provides a 90-day window in which to send it.

Water quality data sets can be shared with IDEM at any time through the agency's new External Data Framework (EDF). Water quality data sets are particularly useful to IDEM because if they the agency's guidelines for data reliability, the results can be used to make water quality assessments and 303(d) listing decisions. The EDF provides three different ways for individuals and organizations to submit their water quality data to IDEM, including a very user-friendly online data entry option.

IDEM really does wants to know what you know.

If you have information to share about any Indiana waters, IDEM encourages you to review the draft 2016 303(d) list and the CALM when it is published for public comment. The exact date of publication is not yet known. But, you can get on the list to be notified as soon as it's available. Just click here: <http://www.in.gov/idem/5474.htm>

If you have water quality data that you want to share and just can't wait, consider plugging into IDEM's External Data Framework here: <http://in.gov/idem/cleanwater/2485.htm>

Or, if you just want to learn more, contact Jody Arthur, IDEM's Integrated Report Coordinator, at 317-308-3179 or jarthur@idem.IN.gov.

Save the date!

Kayaking for Beginners at Patoka Lake, April 16th, 2016

Saturday, April 16, 1pm

3084 N. Dillard Road, Birdseye, IN 47513

Learn to kayak during a special workshop at Patoka Lake on Saturday, April 16.

The Patoka Lake interpretive naturalists will offer a free beginners kayaking lesson at 1 p.m. EDT at the beach. Participants can try different kayaks and paddles and learn about necessary gear and the best places to paddle on Patoka Lake. All equipment, including life jackets, will be provided. The event is open to anyone ages 12 and older. Space is limited. Register in advance by calling the Patoka Lake Nature Center at (812) 685-2447. Entrance to Newton-Stewart State Recreation Area on Patoka Lake costs \$7 per in-state vehicle and \$9 per out-of-state vehicle. For more information, call (812) 685-2447.

More than birds at Indiana Dunes Birding Festival, May 5-8

Wednesday May 5 – Sunday May 8, 2016

1215 N. State Road 49, Porter, IN

The second annual Indiana Dunes Birding Festival, May 5-8, not only will highlight some of the Midwest's premier birding locations, but also will offer nature-related workshops, programs and hikes. The event is organized by the Indiana Audubon Society and includes both Indiana Dunes National Lakeshore and Indiana Dunes State Park as site hosts. The four-day festival is targeted to general nature enthusiasts, beginning birdwatchers, advanced birders, and plant and animal lovers.

Non-birding presentations throughout the festival include those on bats in the dunes, singing insects, native plants and gardening, and frogs. Additional topics include dunes geology, nature photography and a butterfly tour. Registration runs through April at indunesbirdingfestival.com. Registration is available for all four days or for single days. Reduced rates for children are available.

Free bowfishing workshop at Hardy Lake, June 18, 2016

Saturday June 18, 2016, 7pm

4171 E Harrod Rd, Scottsburg, IN 47170

The free event is a joint effort between the DNR Division of Fish & Wildlife fisheries staff, the Hoosier Bowfishing Association and the Bass Unlimited Foundation.

The workshop will promote the growing sport of bowfishing while raising awareness about aquatic invasive species. Bowfishing can help the environment because bow anglers often target invasive and nuisance species such as grass carp and common carp. These species can damage native and sport fish habitats.

The event starts at 7 p.m. local time at the Hardy Lake office. Participants will learn tips and techniques before heading out on the water for a one-on-one experience with a professional bowfishing guide in a boat.

The workshop will end around midnight. All equipment will be provided.

Advance registration is required and is limited to 30 participants. Register by contacting fisheries biologist Rebecca Pawlak at (812) 789-2724 or rpawlak@dnr.IN.gov. The deadline for registration is June 1.

A Plain and Simple Floodplain Formula

By: Bryan Wallace, www.floodplainsimplified.com

With the melting of the record setting snow and the persistent rain that we are experiencing, flooding is occurring. The News and Tribune posted an [article](#) on Monday, March 9th about how flooding is slowing down work on the bridge projects. Since we can easily see some flooding right now, let's quickly dissect the floodplain.

100-year floodplain = floodway + flood fringe

There are two parts of a floodplain:

- The *floodway* is the part of the stream that is basically in the middle (where the water velocity is the highest). This is where the channel of the river or stream exists. The floodway also includes the area just prior to water moving into the flood fringe. Check out the [23 second video](#) I posted to YouTube that shows the Ohio River floodway. The water is cruising!
- The *flood fringe* is the area where the water is slowest, or even just standing (no movement at all). In the picture to the right, you can see that the water is not moving near the shore. The water near the shore is in the flood fringe.



When you combine the floodway and the flood fringe, you get the 100-year floodplain. The City of Ann Arbor, Michigan has a great illustration of the floodplain on their [website](#).

High water marks

I was recently out checking on the flooding along Riverside Drive and at Duffy's Landing on Utica Pike in Jeffersonville. I am keeping tabs on the water level and will be creating high water marks once the water recedes. The goal is to collect flood height elevation data over time to compare with the data the Indiana Department of Natural Resources has gathered. This will help us verify that the flood maps are accurate.

What about localized flooding?

If a single lot, several lots, or certain areas of a road have water ponding, it is probably experiencing a local flooding issue. This is something that the local Drainage or Street Department would typically work to resolve. Sites with localized flooding may or not be part of the 100-year floodplain. Flooding that occurs in a small area can happen at the top of a hill, perhaps in a subdivision, but will most likely not be in the floodplain.

Wetland Reserve Project Helps Protect Important Water Bodies From Possible Invasive Asian Carp

By: Natural Resources Conservation Service

Wetlands are among the most biologically productive ecosystems in the world, comparable to tropical rainforests and coral reefs in the diversity of species they support. While wetlands only occupy about five percent of the continental U.S., up to one-half of all North American bird species feed or nest in wetlands, more than one-third of Endangered and Threatened species rely on them and wetlands are home to nearly one-third of our plant species.

The USDA-Natural Resources Conservation Service's (NRCS) Wetlands Reserve Program (WRP), now identified as Wetlands Reserve Easements (WRE), has helped private landowners voluntarily restore, protect and enhance wetlands and wildlife habitat in Indiana since 1992. The cumulative benefits of the wetlands restored through WRE reach well beyond their boundaries to improve watershed health, the vitality of agricultural lands, and aesthetics and economies of local communities.

Under WRE, NRCS offers financial and technical assistance to assist in wetland conservation and its related benefits. The program provides habitat for fish and wildlife, including threatened and endangered species, improves water quality by filtering sediments and nutrients, reduces flooding, recharges groundwater, protects biological diversity and provides opportunities for educational, scientific, and limited recreational activities.

Jane Hardisty, Indiana's State Conservationist said, "WRE is an effective tool that helps private landowners revitalize and protect Indiana's wetland resources, but the work is nowhere near complete." "Some of our best efforts are private and public partnership projects like Eagle Marsh that help continue to get the word out about this important, voluntary program."

Eagle Marsh is a 716-acre wetland nature preserve

located on the southwest border of Fort Wayne, Indiana. Acquired in 2005 by the Little River Wetland Project (LRWP), Eagle Marsh has undergone one of the largest wetland restorations in Indiana.

Because Eagle Marsh is located on the watershed divide of the Mississippi River and Lake Erie, concern that Asian carp, a problematic fish that has already invaded a nearby river, could make its way to the Great Lakes during flood events became the focus of a new project along the marsh. Federal and state agencies also became concerned that a number of other invasive aquatic species might cross either way between the Mississippi River and Great Lakes watersheds in such a flood. To prevent this from occurring, the partnership expanded an existing berm that runs through Eagle Marsh and made other changes to the hydrology of the preserve.

Efforts this large take strong partnerships. NRCS secured funding through WRP for the restoration and the Great Lakes Restoration Initiative (GLRI), a partnership program led by the Environmental Protection Agency to construct the berm. With the assistance of the Indiana Heritage Trust of the Indiana Department of Natural Resources (DNR), The Nature Conservancy of Indiana, the U.S. Army Corps of Engineers, private foundations, and LRWP members, this area was returned to a native wetland, while planting 500 acres with native rushes, grasses, and wildflowers and more than 45,000 native trees and shrubs.

"In addition to securing the conservation easement, NRCS worked closely with the Indiana DNR and the Little River Wetlands Project to carry out this project," Hardisty said. "I'm especially proud of the engineering and construction oversight provided by NRCS Area Engineer Duane Riethman who worked long hours over the past three years to ensure the changes in hydrology on the preserve will help prevent the invasive carp from entering our important waterbodies."

Now, with adjacent Fox Island County Park and other privately owned natural land, Eagle Marsh creates almost two square miles of habitat for birds and other wildlife. More than 220 kinds of birds and

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Visit us at:

www.inwmc.org

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>

numerous other wild creatures have been seen there, among them 28 bird and two amphibian species endangered or of special concern in Indiana. Bald eagles are often found at the preserve and have a nest just off the property.

If you would like to learn more about what WRE can do for you and your land, visit the Indiana NRCS website at:

<http://www.nrcs.usda.gov/wps/portal/nrcs/detail/in/programs/easements/acep/?cid=stelprdb1248149>.

If you are ready to enroll your land in WRE, call or visit your local USDA service center (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/in/contact/local/>) and schedule a time to visit with an NRCS district conservationist today. Our experts will help you evaluate your resources, develop a conservation plan and provide technical recommendations to make your conservation dreams a reality.