

30TH ANNUAL INDIANA LAKES MANAGEMENT CONFERENCE



**MARCH 22ND & 23RD, 2018
POTAWATOMI INN, POKAGON STATE PARK
ANGOLA, INDIANA**

30TH ANNUAL INDIANA LAKES MANAGEMENT CONFERENCE

March 22nd & 23rd, 2018 ❖Potawatomi Inn, Pokagon State Park❖Angola, IN

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The Indiana Lakes Management Society (ILMS) would like to acknowledge the generous contributions of the conference sponsors:

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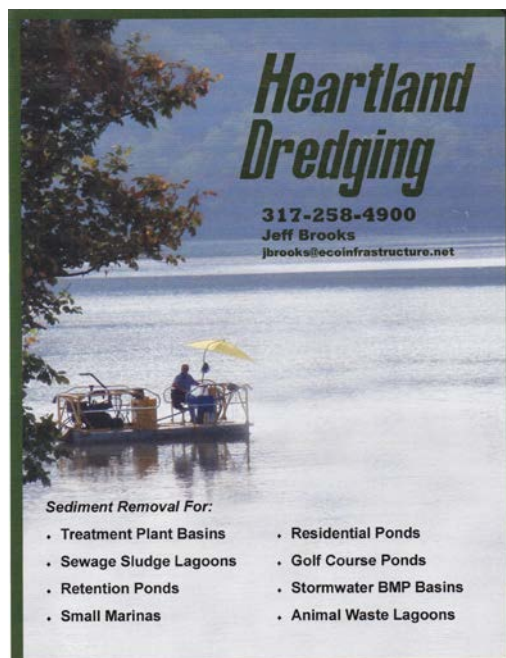
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AGENDA

Wednesday, March 21, 2018 – Early Arrivals

5:00pm-7:00pm Exhibitor Set Up – Lake James Room

7:00pm-10:00pm Hospitality Suite – ILMS Cabin located west of the Inn, near the Toboggan Run

We encourage all to take advantage of this opportunity to meet and greet with attendees before the conference begins. Not to mention the chance to enjoy some great snacks.

Thursday, March 22, 2018

8:00am-9:00am Registration

9:00am – 10:00am

Welcome and Plenary (Lake James Room)

Welcoming Remarks; Logistics of the Conference – *Elizabeth Tompkins, ILMS President*

Plenary: Harmful Algal Blooms and Dead Zones in Lake Erie and Around the World: Understanding the Problems and Solutions! – *Dr. Jeff Reutter, Retired, previously Director, Ohio Sea Grant College Program and F.T. Stone Laboratory*

10:00am – 10:15am BREAK (Lake James Room)

10:15am – 11:55am Concurrent Sessions

Track 1: State Initiatives (Crooked Lake)

Track 2: Status and Trends (Jimmerson Lake)

Track 1: State Initiatives

10:15am-10:45am Indiana's Domestic Action Plan to Address Lake Erie – *Marylou Renshaw, IDEM*

10:50am-11:20am Highlighting Indiana's Commitment to Enhance Water Quality – *Julie Harrold, In State Dept. of Agriculture*

11:25am-11:55am Indiana Clean Marina Program – Statewide Expansion – *Karen Teliba, IDEM*

Track 2: Status and Trends

10:15am-10:45am Water quality changes as health indicators for Kosciusko County lakes over the last 100 years– *Nate Bosch, Grace College*

10:50am-11:20am Status and Trends of Indiana Glacial Lakes – *Matthew Linn, IDNR*

11:25am-11:55am Steuben County Lakes: 200 Years of Change – *Pete Hippensteel, Steuben County Lakes Council*

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12:00pm – 1:00pm
LUNCH (provided for all Registered Attendees in Lake James Room)

1:00pm – 1:30pm
Annual Membership Meeting (Crooked Lake)

1:30pm – 3:10pm Concurrent Sessions
Track 1: Success Stories (Crooked Lake)
Track 2: Regulatory (Jimmerson Lake)

Track 1: Success Stories

- 1:30pm-2:00pm Pride, Power and Passion: The West Lakes Association – *Diann Scott, West Lakes Association*
- 2:05pm-2:35pm Fundraising with the Lake Cottage Tour – *Lyn Crighton, The Watershed Foundation*
- 2:40pm-3:10pm Lake Project Successes Roundtable – Moderator: *Joe Schmees*
Panelists:
- *Bridget Harrison, Clear Lake Conservancy*
 - *Lyn Crighton, The Watershed Foundation*
 - *Adam Casey, Lake Lemon Conservancy*
 - *Diann Scott, West Lakes Association*

Track 2: Regulatory

- 1:30pm-2:00pm Regulatory Requirements of the Lake Preservation Act – *Alysson Olinger, IDNR*
- 2:05pm-2:35pm Lacustrine Wetlands: Why are they important and how are they regulated? – *Heather Parsons, IDEM*
- 2:40pm-3:10pm Clean Vessel Act: Grant Funds for Pumpout Stations, Dump Stations, and Floating Restrooms on Indiana's Lakes and Rivers – *Karen Teliha, IDEM*

3:10pm – 3:25pm BREAK (Lake James Room)

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| <p>3:25pm – 5:40pm Concurrent Sessions Track 1: Restoration/Protection (Crooked Lake) Track 2: Monitoring (Jimmerson Lake)</p> |
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Track 1: Restoration/Protection

- | | |
|---------------|--|
| 3:25pm-3:55pm | Impacts of Soil Health Management Systems on Water Quality and Quantity, Part I– <i>Tony Bailey and Stephanie McLain, USDA-NRCS</i> |
| 4:00pm-4:30pm | Impacts of Soil Health Management Systems on Water Quality and Quantity, Part II– <i>Tony Bailey and Stephanie McLain, USDA-NRCS</i> |
| 4:35pm-5:05pm | Do’s and Don’ts: Lessons Learned in Water Resource Restoration and Mitigation – <i>Jacob Bannister, Davey Resource Group</i> |
| 5:10pm-5:40pm | Saving Indiana’s only Native Salmonid – <i>Brad Feaster, IDNR</i> |

Track 2: Monitoring

- | | |
|---------------|---|
| 3:25pm-3:55pm | Measuring and Predicting Public Lake Levels in Northeast Indiana – <i>David Smith, IDNR</i> |
| 4:00pm-4:30pm | Potential for real-time indication of blue-green algae populations and toxins in Kosciusko County Lakes – <i>Hayden McCloskey, Grace College</i> |
| 4:35pm-5:05pm | Using Environmental DNA (eDNA) to Detect Fish, Bugs, and Plankton in Water and How this Information Can Help Make Water Quality and Conservation Decisions – <i>Greg Bright, Commonwealth Biomonitoring</i> |
| 5:10pm-5:40pm | Citizen Science Lake Monitoring Trends in Indiana – <i>Sarah Powers, Indiana University SPEA</i> |

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| <p>5:45pm – 8:30pm Evening Activities (Lake James Room and Stillwater Lounge)</p> |
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|---------------|--|
| 5:45pm-6:45pm | Hors D’oeuvres, Drinks & Silent Auction (Stillwater Lounge) |
| 6:45pm-8:30pm | Dinner & Awards (Lake James Room) Special Guest Speaker: <i>Eugene Braig, North American Lakes Management Society</i> |

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| <p>8:30pm – 10:00pm Hospitality Suite Stillwater Lounge</p> |
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Friday, March 23, 2017

7:30am-9:00am Registration Open and Full Breakfast (provided for all registered attendees – Lake James Room)

8:00am-9:00am Volunteer Meet & Greet with Melissa Clark & Sarah Powers, Indiana Clean Lakes Program

The Indiana Clean Lakes Program will be hosting a breakfast meet and greet with volunteer lake monitors. Melissa Clark and Sarah Powers will be present to meet with volunteer lake monitors in a casual setting to chat, discuss the program, and explore new opportunities of how we can better serve one another in the drive to collect data critical to protecting and managing Indiana's lakes. Any present or past volunteer, and anyone interested in becoming a volunteer is welcome.

9:00am – 9:30am

Legislative Update (Lake James Room)

9:00am-9:30am Legislative Update – *Indra Frank, Hoosier Environmental Council*
Every year, out of hundreds of bills introduced at the Indiana General Assembly, there are bills about water and 2018 is no exception. This presentation will summarize the bills that have the potential to impact Indiana's lakes, with special emphasis on those that are still in play as of the date of the conference.

9:35am – 11:50am Concurrent Sessions/Field Trip

Track 1: Education (Crooked Lake)

Track 2: Stormwater and Field Trip (Jimmerson Lake)

Track 1: Education

9:35am-10:05am The Steuben County Life (formerly Lake Life) learning program for citizens – *Janel Meyer, Steuben County SWCD*
10:10am-10:40am Engaging the Community and Collecting Data with Snapshot Water Monitoring Day – *Lyn Crighton, The Watershed Foundation*
10:45am-11:15am Rural Sewer System Development Success – A Unique Collaboration – *Patrick Wiltshire, LaGrange County Regional Utility District*
11:20am-11:50am Lake and stream K-12 and community partnership through interdisciplinary learning at Grace College – *Emily Barge, Grace College*

Track 2: Stormwater and Field Trip

9:35am-10:05am Stormwater Management in a Lake Community – *Ryan Workman, City of Warsaw*
10:10am-10:40pm Travel to downtown Angola – *on your own*
10:40am-12:00pm Tour of Stormwater BMPS– *Amanda Cope, Angola MS4 Coordinator*

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| Time | Thursday, March 22, 2018 | |
|-----------------|---|---|
| 8:00am-9:00am | Registration | |
| | Conference Plenary – Lake James | |
| 9:00am-10:00am | Welcome: <i>Elizabeth Tompkins, ILMS President</i> Plenary: “Harmful Algal Blooms and Dead Zones in Lake Erie and Around the World: Understanding the Problems and Solutions” <i>Dr. Jeff Reutter, Retired, previously Director, Ohio Sea Grant College Program and F.T. Stone Laboratory</i> | |
| 10:00am-10:15am | BREAK – <i>Lake James</i> | |
| | Track 1: State Initiatives | Track 2: Status and Trends |
| | <i>Crooked Lake</i> | <i>Jimmerson Lake</i> |
| 10:15am-10:45am | Indiana’s Domestic Action Plan to Address Lake Erie – <i>Marylou Renshaw, IDEM</i> | Water quality changes as health indicators for Kosciusko County lakes over the last 100 years– <i>Nate Bosch, Grace College</i> |
| 10:50am-11:20am | Highlighting Indiana’s Commitment to Enhance Water Quality – <i>Julie Harrold, In State Dept. of Agriculture</i> | Status and Trends of Indiana Glacial Lakes – <i>Matthew Linn, IDNR</i> |
| 11:25am-11:55am | Indiana Clean Marina Program – Statewide Expansion – <i>Karen Teliba, IDEM</i> | Steuben County Lakes: 200 Years of Change – <i>Pete Hippensteel, Steuben County Lakes Council</i> |
| 12:00pm-1:00pm | LUNCH for all registered attendees – <i>Lake James</i> | |
| 1:00pm-1:30pm | Annual Membership Meeting – <i>Crooked Lake</i> | |
| | Track 1: Success Stories | Track 2: Regulatory |
| | <i>Crooked Lake</i> | <i>Jimmerson Lake</i> |
| 1:30pm-2:00pm | Pride, Power and Passion: The West Lakes Association – <i>Diann Scott, West Lakes Association</i> | Regulatory Requirements of the Lake Preservation Act – <i>Alysson Olinger, IDNR</i> |
| 2:05pm-2:35pm | Fundraising with the Lake Cottage Tour – <i>Lyn Crighton, The Watershed Foundation</i> | Lacustrine Wetlands: Why are they important and how are they regulated? – <i>Heather Parsons, IDEM</i> |
| 2:40pm-3:10pm | Lake Project Successes Roundtable – <ul style="list-style-type: none"> • <i>Bridget Harrison, Clear Lake Conservancy</i> • <i>Lyn Crighton, The Watershed Foundation</i> • <i>Adam Casey, Lake Lemon Conservancy</i> • <i>Diann Scott, West Lakes Association</i> | Clean Vessel Act: Grant Funds for Pumpout Stations, Dump Stations, and Floating Restrooms on Indiana’s Lakes and Rivers – <i>Karen Teliba, IDEM</i> |

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| 3:10pm-3:25pm | BREAK – <i>Lake James</i> | |
| | Track 1: Restoration/Protection | Track 2: Monitoring |
| | <i>Crooked Lake</i> | <i>Jimmerson Lake</i> |
| 3:25pm-3:55pm | Impacts of Soil Health Management Systems on Water Quality and Quantity, Part I– <i>Tony Bailey and Stephanie McLain, USDA-NRCS</i> | Measuring and Predicting Public Lake Levels in Northeast Indiana – <i>David Smith, IDNR</i> |
| 4:00pm-4:30pm | Impacts of Soil Health Management Systems on Water Quality and Quantity, Part II– <i>Tony Bailey and Stephanie McLain, USDA-NRCS</i> | Potential for real-time indication of blue-green algae populations and toxins in Kosciusko County Lakes – <i>Hayden McCloskey, Grace College</i> |
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| 5:10pm-5:40pm | Saving Indiana’s only Native Salmonid – <i>Brad Feaster, IDNR</i> | Citizen Science Lake Monitoring Trends in Indiana – <i>Sarah Powers, Indiana University SPEA</i> |
| 5:45pm-6:45pm | Hors D’oeuvres, Drinks, Silent Auction – <i>Stillwater Lounge</i> | |
| 6:45pm-8:30pm | Dinner & Awards – <i>Lake James</i> Special Guest Speaker: <i>Eugene Braig, North American Lake Management Society</i> | |
| 8:30pm-10:00pm | HOSPITALITY SUITE – <i>Lake James and Stillwater Lounge</i> | |

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| Time | Friday, March 23, 2017 | |
|-----------------|--|---|
| 7:30am-9:00am | Breakfast - Registration open – <i>Lake James</i> | |
| 9:00am-9:30am | Legislative Update (<i>Lake James</i>) – <i>Indra Frank, Hoosier Environmental Council</i> | |
| | Track 1: Education | Track 2: Stormwater and Field Trip |
| | <i>Crooked Lake</i> | <i>Jimmerson Lake</i> |
| 9:35am-10:05am | The Steuben County Life (formerly Lake Life) learning program for citizens – <i>Janel Meyer, Steuben County SWCD</i> | Stormwater Management in a Lake Community – <i>Ryan Workman, City of Warsaw</i> |
| | | Field Trip |
| 10:10am-10:40am | Engaging the Community and Collecting Data with Snapshot Water Monitoring Day – <i>Lyn Crighton, The Watershed Foundation</i> | Travel to downtown Angola – <i>on your own</i> |
| 10:45am-11:15am | Rural Sewer System Development Success – A Unique Collaboration – <i>Patrick Wiltshire, LaGrange County Regional Utility District</i> | Tour of Stormwater BMPS– <i>Amanda Cope, Angola MS4 Coordinator</i> |
| 11:20am-11:50am | Lake and stream K-12 and community partnership through interdisciplinary learning at Grace College – <i>Emily Barge, Grace College</i> | |

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Thursday, March 22nd

Session: Plenary

Harmful Algal Blooms and Dead Zones in Lake Erie and Around the World: Understanding the Problems and Solutions

Jeffrey M. Reutter, Ph.D., Retired Director
Ohio Sea Grant and Stone Laboratory
The Ohio State University

Abstract: Lake Erie is the southernmost, shallowest, and warmest of the Great Lakes. It is also the smallest by volume, and its watershed contains the most agricultural land. As a result, Lake Erie receives the most sediment and the most nutrients, and it is biologically, the most productive of the Great Lakes, always producing more fish than any of the other lakes.

Bluegreen algae, or cyanobacteria, are native to Lake Erie and prefer warm water rich in nutrients. Phosphorus is the limiting nutrient to their growth in most freshwater systems. They are capable of producing very dangerous toxins and can form very dense blooms that can be very toxic—harmful algal blooms (HABs).

In the 1960s and 70s Lake Erie was the poster child for water pollution problems in this country. The lake was choked with algal blooms. We had to reduce the amount of phosphorus coming into the lake by about 60%. We did it primarily by improving sewage treatment because 2/3 of the phosphorus was coming from poor sewage treatment. Lake Erie became the “walleye capital of the world.”

Since the mid-90s the amount of dissolved phosphorus coming into Lake Erie has increased almost 150%, the vast majority today is coming from agricultural runoff, and HABs are back. To solve the problem today, we need to reduce the amount of phosphorus going into the lake by 40%.

This presentation will discuss HABs in Lake Erie and other locations and suggest ways farmers can reach the 40% reduction target.

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Session: State Initiatives

Indiana's Domestic Action Plan to Address Lake Erie

Marylou Renshaw

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Watershed Assessment and Planning Branch, Office of Water Quality
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Abstract: Indiana's Great Lakes Water Quality Agreement (GLWQA) Domestic Action Plan (DAP) to reduce phosphorous to the Western Lake Erie Basin (WLEB) was released February 28,, 2018. It is the product of a dedicated Advisory Committee comprised of representatives from different stakeholder sectors and led by the Indiana Department of Environmental Management (IDEM). Founded on the principle of adaptive management, the DAP is a dynamic document acknowledging that phosphorous loading in particular, and nutrient pollution in general, is a very complex problem caused by point and nonpoint sources across all sectors, which requires a multi-dimensional solution.

The DAP emphasizes using existing programs and optimizing partnerships, effecting the most change with the least cost, prioritizing resources to areas with the most phosphorus export and/or reduction potential, seeking to engage citizens who are not participating in conservation efforts, making use of social indicators to guide actions, and employing adaptive management.

Indiana's goal is to meet the spring-time phosphorus targets for the Maumee River as it flows across the border into Ohio. The DAP includes an Action/Milestone table that enumerates the current and planned activities to address the issues outlined in the DAP as well as an adaptive management plan.

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Highlighting Indiana's Commitment to Enhance Water Quality

Julie Harrold

Program Manager for CREP and Water Quality Initiatives
Indiana State Department of Agriculture, Division of Soil Conservation
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Columbia City, IN 46725

Abstract: This presentation will be focused on highlighting Indiana's commitment to enhance water quality through sediment and nutrient load reduction tracking of conservation practices and through the use of GIS Story Maps for the 10 major river and lake basins in Indiana. Discussion will focus on why the Indiana Conservation Partnership (ICP) tracks sediment and nutrient load reductions of nitrogen and phosphorus and how the reductions are tracked through the use of the EPA approved Region 5 Model, as well as showing results of the reductions on statewide maps and telling the story of conservation in Indiana through the Basin Story Maps. The GIS Basin Story Maps showcase the efforts to enhance water quality, as well as educate landowners, both rural and urban, about local, state and federal cost-share programs, educational opportunities, and rural and urban conservation practices. The story maps feature interactive maps which allow users to click on watersheds, on water monitoring locations along with links to water quality data, and educational sites to view detailed information about each basin. There is also information about local watershed groups and organizations, the number of conservation practices in specific watersheds, nutrient load reductions from BMPs, and any active grants. The development and purpose of these GIS story maps is making Indiana's nutrient reduction strategy more interactive. <http://www.in.gov/isda/2991.htm>

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Indiana Clean Marina Program – Statewide Expansion

Karen Teliha

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Abstract: Day-to-day operations at marinas may generate pollutants that can negatively impact aquatic environments. Marina owners and managers play a vital role in protecting Indiana’s inland and coastal waterways.

The Indiana Clean Marina Program was developed as a Lake Michigan Pilot Program in an effort to protect our state’s coastal waterways by reducing the potential environmental impacts associated with marinas and recreational boating. Due to the success of the Lake Michigan Pilot Program, the Clean Marina Program was approved for statewide expansion. Now inland marinas as well as marinas on the Ohio River and Lake Michigan can become members.

The purpose of this presentation is to educate interested parties about the program, the certification requirements, and the application process.

The Indiana Clean Marina Program provides information, technical assistance, and guidance to marinas and recreational boaters. By participating in this voluntary program, marinas, boatyards, yacht clubs, and recreational boaters are recognized for their environmental stewardship. Current members are implementing best management practices which help prevent or reduce the amount of pollution entering our lakes and rivers and even help stop the spread of aquatic invasive species.

The Indiana Clean Marina Program is a collaborative effort by the Indiana Department of Environmental Management, the Indiana Department of Natural Resources, marinas, boatyards, yacht clubs, and recreational boaters. Development of the Indiana Clean Marina Program was made possible with financial assistance awarded to the Lake Michigan Coastal Program.

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Session: Status and Trends

Water quality changes as health indicators for Kosciusko County lakes over the last 100 years

Nathan S. Bosch

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Abstract: Water temperatures, oxygen levels, water clarity measurements and total phosphorus levels are important indicators of lake health over time. Kosciusko County, Indiana has a rich heritage of lake research, including these important indicators, going back over 100 years. The most commonly studied lakes over this time period were Lake Tippecanoe, Lake Wawasee, and Winona Lake. Early research in the county was initiated by the Indiana Geological Survey and the Indiana University Biological Station. Later, research continued sporadically by the Indiana Department of Conservation, Butler University, and Indiana Academy of Science. More recent lake monitoring was conducted by the Indiana University Clean Lakes Program, while the Lilly Center for Lakes & Streams at Grace College has been conducting more consistent lake research in the county's lakes since 2007. Over this recorded period, trends in lake health indicators are difficult to establish due to changing methods, differing sampling sites, incomplete data records, and continued change of research focus. However, significant changes in water clarity have been demonstrated over the last 20-30 years in Kosciusko County lakes. Longer term changes over 100 years might be apparent in lake water temperature and oxygen levels, while more recent changes in lake phosphorus levels may be more difficult to assess. Exploration of these water quality changes can inform current and future efforts to improve local lakes.

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Status and Trends of Indiana Glacial Lakes

Matthew Linn

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Abstract: Beginning in 2010, the North Fisheries unit implemented the glacial lakes Status and Trends (S&T) program to provide a robust study design capable of monitoring fisheries-related metrics at larger spatial and temporal scales. Since 2010, over one hundred northern Indiana glacial lakes, spanning approximately 11,000 acres have been randomly selected and surveyed under the S&T program. Standardized surveys are comprised of June dissolved oxygen and temperature profiles, June general fisheries surveys, July hydroacoustic surveys, August dissolved oxygen and temperature profiles, and August Tier II vegetation surveys. Historical (1986-2009) fish community and water quality surveys were compared to current conditions (2010-2017) by standardizing historical surveys to the S&T survey protocol. Spatio-temporal changes of key metrics are presented and the impacts on species such as Cisco (*Coregonus artedii*) are described. The analysis of these data demonstrates the value of a study design that representatively quantifies the biotic community and habitat of Indiana's glacial lakes relative to past conditions. The continuation of the S&T program will be essential to our ability to detect future changes amongst Indiana's glacial lakes and adapt accordingly.

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Steuben County Lakes: 200 Years of Change

Pete Hippensteel

Steuben County Lakes Council
pdhipp@mchsi.com

Abstract: The first settlers built dams to create water power for grist and saw mills that created new lakes and enlarged others. One of the first lake surveys was for marl to be used in making cement. Dredging for marl greatly changed Big and Little Turkey Lakes.

New drainage laws of the 1890s encouraged land owners to drain lakes and wetlands to create more farmland. This practice has reduced Indiana's historic wetland acreage by 85 percent. Many lakes were lost or reduced in size.

As railroads improved transportation to the lake areas starting in 1870 and into the early 1900s lake recreational use increased. Hotels were built on the lakeshore to accommodate guests. The first platted lake developments started in the 1895 for cottages and fishing-hunting clubs.

The establishment of Pokagon State Park in 1925 with access to the Lake James chain of lakes enhanced Steuben County as a recreational destination.

Improved roads and automobiles also increased the demands for shoreline development. This increased the need for lake regulations and thus the Indiana Lake Preservation Act of 1947. Now with the ability to establish legal lake levels developers started dredging channels on many lakes to increase shoreline access to the lakes during the 1950s and 1960s.

Starting in the 1980s the development of central sewer systems around many of the lakes has created a shift to more year-around homes with their increased recreational use of the lakes.

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Indiana Lakes Management Society Annual Business Meeting Crooked Lake Room

Agenda:

- a. Roll call. (conducted at the door)
- b. Reading of minutes of last preceding membership meeting.
- c. Report of president.
- d. Report of secretary.
- e. Report of treasurer.
- f. Transaction of other business as mentioned in the notice.
- g. Election of Officers.
- h. Election of Directors.
- i. Adjournment

ILMS Board Elections 2018

Election Slate

Secretary:

Sarah Powers: Sarah Powers is the Lab Manager and Volunteer Coordinator for the Indiana Clean Lakes Program (CLP). She has been working with the Indiana Clean Lakes Program since 2008. She is an Adjunct Lecturer at Indiana University in the School of Public and Environmental Affairs where she teaches Introduction to Environmental Science and Techniques in Environmental Science. Sarah graduated from Indiana University's School of Public and Environmental Affairs in 2011 where she received a MS in Environmental Science. Sarah has assisted in several watershed diagnostic studies including multiple Lake and River Enhancement Projects. She has taught several workshops throughout the state to teach Lake Enthusiast about aquatic plants and train volunteers for Lake Monitoring Programs. During the summer of 2012 and 2017 she was a crew leader for the National Lakes Assessment, which was sponsored by the U.S. Environmental Protection Agency and coordinated by the Indiana Department of Environmental Management.

She has been a member of the Indiana Lake Management Society since 2009 and has been serving on the board of directors since October of 2012, the Marketing Chair from 2013-2016 and secretary since 2016. Sarah is interested in lake management particularly the impacts of climate change on the aquatic ecosystem, aquatic plant benefits and impacts on lake ecosystems, and increasing participation in volunteer lake monitoring efforts throughout the state of Indiana.

Treasurer:

Christian Anderson: My name is Christian R. Anderson, for over 25 years I have lived on a beautiful small lake near Valparaiso, IN. I truly love the Lake Areas and hope to preserve their beauty and the quality of life which they possess and provide.

I would like to give you an idea of my background, I am now retired, but for the past 17+ years I was the Community Manager of Shorewood Forest, a community constructed around a beautiful 230 acre

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I have and continue to serve on the Board of the Indiana Lakes Management Society and for the past several years I have served as Treasurer and hope to continue in that capacity. I also serve on the VLAC (Valparaiso Lakes Area Conservancy District) Board of Directors and Chair the Environmental Committee. I have also served on the Porter County Council for 8 years, 6 years as president. I was District President for 17 counties which made up the Association of Indiana County Councils. Because of my work in Porter County Government as an elected official, I also served as a Commissioner on the Northwest Indiana Regional Plan Commission.

For fun things to do, I enjoy getting out on the lake in my paddle boat or canoe. There are few things which can match the beauty and peace of a lake. I also enjoy camping, hiking and traveling.

I graduated from Chesterton High School many years ago. I received my Associates Degree from Vincennes University, my Bachelors Degree in Business Administration from Valparaiso University and my Master of Arts Degree in Liberal Studies, also from Valparaiso University.

I hope the above information gives you a better idea of who I am and a little more about me.

Board Members (3):

Caleb Asbury, M.S.E.S.: Caleb Asbury is a project manager and biologist with Davey Resource Group. Mr. Asbury assists with a variety of ecological projects, including restoration plans and implementation, invasive species management, water quality monitoring, wetland mitigation monitoring, freshwater mussel surveys and relocations, macroinvertebrate collections, aquatic vegetation and sediment sampling, and bat tree habitat identification. He also serves as a team leader for Indiana DNR Lake and River Enhancement projects involving lake and watershed diagnostic, engineering, aquatic vegetation, and sediment removal studies. Mr. Asbury regularly treats invasive vegetation species in deep water, wetland, and upland habitats, and he is experienced with multiple ecological and biological assessment tools. He is responsible for preparing and delivering public educational materials and outreach presentations by communicating scientific data into readily understood materials. In addition, Mr. Asbury contributes to a variety of watershed and water quality improvement studies. Mr. Asbury is a Qualified Mussel Surveyor of Groups 1 and 3 Systems through the Ohio Department of Natural Resources (ODNR), Division of Wildlife. He also has an Ohio Scientific Collectors Permit certification through ODNR. Mr. Asbury is a Certified Lake Professional through the North American Lake Management Society, and he is a licensed applicator through the Office of Indiana State Chemist (F250567). Prior to joining Davey Resource Group, Mr. Asbury performed fish, macroinvertebrate, E. coli bacteria, and other water chemistry sampling for the Indiana Department of Environmental Management (IDEM). He is also experienced with numerous deep water invasive vegetation and algae treatments. Mr. Asbury has performed field research on the feeding behaviors and year class strength of smallmouth bass in various environmental conditions, including the effects of large spring rain amounts and increased total suspended solids. Mr. Asbury has a master's

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degree in environmental science with a concentration in applied ecology from Indiana University. He also has a bachelor's degree in biology and environmental studies from Manchester University.

Matt Rayl: Matt Rayl is the owner of American Pond and Lake Management where he helps private landowners and municipalities on fishery, nuisance and non-nuisance vegetation, and nutrient abatement. He also manages a small fish hatchery designed for lake and pond stocking. He has also recently started consulting for lake product and aquaculture companies. Matt has a BS in biology and a minor in chemistry from Earlham College. He also has a year of post grad work in fisheries from Purdue University. Matt's prior experience was being the lake manager at Aquatic Eco-Systems where he was able to travel to over a hundred aquatic vegetation, lake management, aquaculture, and water based conferences. He also has been involved with the boards and /or committees of Central Florida Lake Management Society, Florida Lake Management Society, and North American Lake Management Society. He was also responsible of hiring and teaching technicians who help pond owners, lake owners, and municipalities from multiple countries and multiple languages. He has personally been involved in inventing and improving products in the lake industry such as aeration, deicing, nutrient binding and sediment inactivation such as the Mobile Alum Injection Device (MAID). Matt's strengths are consulting, people skills, and passion for the lake and pond industry.

Dave Smith: Dave has been a Big Lake resident for 23 years and served as the Big Lake Association President for 10 years. He has also served on the Board of Directors of The Watershed Foundation (formally The Tippecanoe Watershed Foundation) for 6 years and the Board of Directors of Indiana Lakes Management Society for 6 years. Dave was a major player in getting a sewer system for Big Lake. He is a retired mechanical design engineer who wants to help make our lakes and streams better for the next generation.

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Session: Success Stories

Pride, Power and Passion: The West Lakes Association

Diann Scott

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Abstract: Diann will speak about the challenges facing this small northeast Indiana Lake Association and steps taken to strengthen this community of nearly 500 homes. Following historic flooding in 2017, how did the Association pull together to tackle “Aid & Recovery” and “Mitigation & Prevention.”

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Fundraising with the Lake Cottage Tour

Lyn Crighton

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Abstract: The lake cottage tour is a fundraising event that actually makes money and is fun! Think of this event as a “Parade of Homes” by pontoon boat. The Watershed Foundation has held five of these events on Lake Tippecanoe and one on Winona Lake over the past 6 years.

Tickets are sold for \$25 each for the opportunity to tour 5-7 homes. Residents drive their own boats, and must have a minimum of six passengers per boat.

A volunteer committee solicits business sponsorships. Sponsor names and logos are included on the tour booklet, website, as well as signs in the homeowners’ lawns. Goodie bags are provided to participants and higher dollar sponsors provide promotional items for the bags.

An after-party affords the opportunity to thank sponsors and continue the fun with food, drinks, and live music. Live and silent auctions add to the excitement, as well as the amount of funds raised.

This talk will cover our lessons learned and best tips for a successful event.

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Session: Regulatory

Regulatory Requirements of the Lake Preservation Act

Alysson Olinger

DNR Division of Water
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Abstract: The purpose of this presentation is to educate the audience about the Lake Preservation Act, IC 14-26-2, and the DNR Division of Water's jurisdiction on public freshwater lakes. I will provide a summary of the Lake Preservation Act and its associated rules, 312 IAC 11. I will also explain the DNR Division of Water's regulatory authority including the definition of a public freshwater lake. Proposed seawalls and underwater beaches require a permit from the DNR Division of Water. However, there are certain projects, such as the installation of temporary piers, which do not need to be reviewed by the DNR if criteria in the lake rules are followed. I will go over some of the common projects we review and explain the requirements for project approval by general license. There are four shoreline classifications defined in 312 IAC 11: Significant Wetland, Area of Special Concern, Natural Shoreline, and Developed Area. I will describe each classification, explain how the Division of Water determines the shoreline classification for a permit application review, and give examples of what types of projects are approvable in each area. Finally, I will give examples of projects that did not comply with the regulations of the Lake Preservation Act and what our office did to remedy the violations.

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Lacustrine Wetlands: Why are they important and how are they regulated?

Heather Parsons

Environmental Manager
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Abstract: Wetlands along lake shorelines play a vital role in protecting the chemical, physical and biological integrity of the state's waters. The Indiana Department of Environmental Management, among others, regulates these and other waters of the state in order to protect the key functions they provide. Wetlands, along lake shorelines and inputting streams, provide vital functions such as pollutant filtration, water fluctuation balance (i.e. flood protection) and shoreline protection (i.e. erosion control) along with providing important wildlife food and habitat. Undisturbed lake shorelines are often highly diverse with plants and animals. A review of the functions of these wetlands and the corresponding regulations is important for lake managers and homeowners alike, to ensure the chemical, physical and biological integrity of the state's waters are protected.

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Clean Vessel Act: Grant Funds for Pumpout Stations, Dump Stations, and Floating Restrooms on Indiana's Lakes and Rivers

Karen Teliha

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Abstract: Many recreational boats are equipped with on-board toilets and wastewater holding tanks. Proper disposal of sewage from recreational boats is important in preserving and improving water quality in our state's vital aquatic ecosystems.

The Clean Vessel Act Grant Program (CVA) provides grant funds for the construction, renovation, operation, and maintenance of pumpout stations and waste reception facilities for recreational boaters and also for educational programs that inform boaters of the importance of proper disposal of their sewage.

The purpose of this presentation is to introduce the grant opportunity, its purpose and background, and to provide an overview of eligible projects and grant conditions.

The Indiana Department of Environmental Management (IDEM) manages Indiana's CVA grant program. Over the past 20 years, IDEM has funded nearly 50 CVA projects, offering safe alternatives to boaters for legal disposal of marine waste.

IDEM currently has funds from the U.S. Fish & Wildlife Service for CVA grants and applications are being accepted from public and private marinas wishing to install pumpout stations, dump stations, or floating restrooms open to the general public.

IDEM's funding priorities include:

- Projects in areas with low pumpout ratio – many vessels, few pumpouts;
- Projects using public/private partnerships;
- Projects implementing innovative ways to increase availability and use of pumpout and dump stations;
- Projects benefiting waters most likely to be affected by discharge of sewage from vessels;
- Applicants with a positive environmental history (i.e. no major past compliance issues; members of the Indiana Clean Marina Program)

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Session: Restoration/Protection

Impacts of Soil Health Management Systems on Water Quality and Quantity

Tony Bailey, Stephanie McLain

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Stephanie McLain
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Abstract: Effectively implementing Soil Health Management Systems such as no-till, cover crops, nutrient management, integrated pest & weed management, innovative technologies and conservation buffers has positive effects on water quality and quantity, as well as soil health. We will present and demonstrate (such as slake and infiltration tests) how Soil Health Management Systems impact water quality and quantity.

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Do's and Don'ts: Lessons Learned in Water Resource Restoration and Mitigation

Jacob Bannister

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Abstract: The restoration, enhancement, and creation of water resources such as wetlands and streams are integral parts of improving water quality. Whether these projects are happening due to required mitigation or individual restoration efforts, there are many variables that must be considered. From site design, selection, and installation; to maintenance, and monitoring, many challenges may present themselves. With these challenges, however, there are plenty of lessons to be learned. This presentation will touch on successes, failures, and lessons learned over a decade of managing mitigation sites throughout Indiana, Ohio and the Midwest in general.

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Saving Indiana's only Native Salmonid

Brad Feaster

State Wildlife Action Plan Coordinator
Indiana Department of Natural Resources
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Abstract: Northern Indiana is blessed with over 400 natural lakes. These lakes support an abundance of recreational opportunities, prime lakeshore real estate and provide a variety of habitats for fish and wildlife. As recent as the 1950's, 45 of these deep, clear, cold and oxygen rich lakes were home to Indiana's only native salmonid, the Cisco. Where Cisco once thrived, they now cling to a precarious existence in only 7 lakes. Currently listed as a species of greatest conservation need (SGCN), Cisco are on the brink of extirpation in Indiana. Their demise is largely of our own making. Increased soil and nutrients loading into lakes from within lake catchments have negatively impacted water quality. The loss and degradation of shoreline habitat has further exacerbated the problem. Since the 1980's the Division of Fish and Wildlife (DFW) has taken several steps to prevent further declines, including: closing commercial fishing for Cisco; stopped predator stockings in Cisco lakes; attempted reintroductions; and adopted policies to curtail in-lake habitat modifications. Yet, there has been little focus on land use practices within lake catchments. The DFW is creating a multi-disciplinary team to address the threats to Cisco and take actions as outlined in Indiana's State Wildlife Action Plan. This team will be charged to raise public awareness, forge diverse partnerships, and enhance terrestrial habitats that aim to significantly reduce runoff, improve water quality and sustain a SGCN. Come learn about this new team's efforts and how you can help save Indiana's only native Salmonid.

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Session: Monitoring

Measuring and Predicting Public Lake Levels in Northeast Indiana

David J. Smith

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Abstract: Since the 1950's, the Indiana Department of Natural Resources (DNR) and the United States Geological Survey (USGS) jointly sponsored a network of lake level gages. Due to increased operating costs, the network was reduced in 2002 and ended in 2015. Following elimination of lake level gages, the DNR Division of Water began to develop a network of tape down measurement points at bridges and public access sites to provide a reference point to manually measure lake levels to assist permitting, resource assessment and public monitoring.

With the network of gages dismantled, the need to document and predict magnitude and duration of lake level changes became desirable for natural resource managers. Specifically, the need to monitor and document water resource dynamics that influence lake levels is critical considering expected future changes in regional climate.

A study was conducted to determine if publically accessible historical and forecast environmental data could be used by managers to predict lake levels. Period of record lake level and precipitation data weighted by historical groundwater recharge rates were used to develop a regression model for several lakes in northeast Indiana.

USGS Lake Level Gage Network data prior to 2015, combined with climate division precipitation and groundwater recharge rates yielded R-squared values from 0.57 to 0.72 depending on the drainage area of the lake. The suite of regression models were evaluated for operational value using forecast precipitation for two lakes: Tippecanoe in Kosciusko County; and Hamilton Lake in Steuben County. Errors in predicting lake levels ranged from 0.28 to 0.57 feet for large rain events (total 24 hour >2.00 inches) when compared to staff gage and tape down point data immediately following those events.

Results of this study indicated that the ability to predict lake levels using regression model analysis yields adequate skill to inform lake resource managers. These models cannot, however, replace the need to restore and conduct field monitoring thereby implying the need for developing citizen networks. This study is on-going and the latest updates to the regression models will be presented at the March meeting.

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Potential for real-time indication of blue-green algae populations and toxins in Kosciusko County Lakes

Hayden L. McCloskey

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Abstract: Over 100 lakes are located in Kosciusko County, Indiana, making local water resources important for quality of life and substantial economic drivers for the cities of Syracuse, North Webster, Warsaw, and many other smaller communities. As such, it is imperative that these resources be protected and preserved so that they can continue to enrich families and support local economies. However, as seen at Grand Lake Saint Marys and other lakes around the country, blue-green algae blooms can quickly decimate the economic value of a lake. Additionally, blooms can negatively affect other aquatic life in the lake as well as create health risks for humans and their pets. During the summer months of 2015, 2016, and 2017, researchers from the Lilly Center for Lakes & Streams conducted weekly sampling on the 12 all-sports lakes in the county which included fluorometer measurements, algae population counts, microcystin toxin analyses, and many background water quality measurements. The purpose of this study was to better understand possible relationships between fluorometer measurements and the presence of blue-green algae. It was hypothesized that this data might also lead to the identification of a correlation between fluorometer or other rapid measurements and microcystin toxin levels that could be shared with lake associations and other organizations to provide real-time toxicity indications for water with which humans and pets might come into contact.

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Using Environmental DNA (eDNA) to Detect Fish, Bugs, and Plankton in Water and How this Information Can Help Make Water Quality and Conservation Decisions

Greg Bright

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Abstract: Every cell of every living thing contains the molecule DNA, whose primary function is to carry the code for how that plant or animal is constructed, maintained, and reproduced. Although the structure of DNA is similar in each living thing, the code it carries is unique for each species. The recent ability of laboratories to replicate very small amounts of a DNA molecule has also made it possible now to use DNA as a method for detecting whether a particular plant or animal is present nearby.

When a plant or animal is present, small amounts of its DNA are continuously being sloughed off from skin, urine, mucus, hair, and leaves or are directly present in algae cells themselves. By carefully collecting water samples from a lake or stream (avoiding contamination from the person collecting the sample), it is possible to detect what kinds of plants or animals are present in that waterbody for about \$100 per sample.

In the summer of 2017 we collected water samples from the Tippecanoe River in Kosciusko County to determine how useful eDNA samples might be in making decisions about water quality and conservation. Samples from immediately downstream of Tippecanoe Lake to 10 miles downstream from the City of Warsaw revealed potentially useful information on phytoplankton, benthic macroinvertebrates, fish, and mammals present in or near the river. DNA from pigs and cattle dominated the vertebrate DNA but many fish and amphibian species were also detected. Planktonic DNA was dominated by diatom species but a large contribution from yellow-green algae was also present. Plankton samples near Warsaw were quite different than those upstream and downstream from the city. Information from benthic macroinvertebrate DNA was less specific but riffle beetle, caddisfly, midge, ostracod, and crayfish DNA were detected. Human DNA was present but in much lower amounts than other warm-blooded animals, indicating that influence of humans on E.coli concentrations in the river may be low.

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Citizen Science Lake Monitoring Trends in Indiana

Sarah Powers

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Abstract: The Indiana Clean Lakes Volunteer Lake Monitoring Program began in 1989. Since that time, volunteer citizen scientists have been collecting data on Indiana lakes. Many of these data sets represent the longest continual data sets on lakes in our state. This data is invaluable.

In the mid 2000's we began to see the need to bring new topics to our citizen scientist as well as bringing citizen based aquatic invasive species monitoring to the state. Today new challenges face our lakes. With that in mind we are working to bring new monitoring methods for hazardous algal blooms to our state.

In this talk we will focus on the history of the Volunteer Lake Monitoring Program and future program adaptations to meet the changes and challenges of Indiana Lakes.

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Friday, March 23rd

Session: Education

Steuben County Life Learning Program for Citizens

Janel Meyer

Administrative Coordinator
Steuben County Soil and Water Conservation District
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Abstract: Across Indiana, 92 Soil and Water Conservation Districts (SWCDs) help Indiana residents to conserve land, water, forests, wildlife and related natural resources that encompass our state's 23 million acres. Local SWCDs are committed to fostering natural resource conservation and environmental stewardship within our communities. Learn how the Steuben County SWCD increases the awareness of resource issues through the Steuben County Life educational program.

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Engaging the Community and Collecting Data with Snapshot Water Monitoring Day

Lyn Crighton

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Abstract: The Watershed Foundation (TWF) hosted our first Snapshot Water Monitoring Day in 2017. During this one-day event, 26 teams consisting of 182 volunteers tested 96 stream sites throughout our 246 mi² Upper Tippecanoe River watershed

This event engaged youth and adult volunteers as citizen scientists in monitoring water quality using simple testing kits. Along the way, they learned about water quality, got their feet wet in a local waterway, met new people, and had a lot of fun.

As added bonus, they gathered valuable water quality data to be used by TWF and our partners to drive action for clean water. Data obtained from the Snapshot was useful in identifying problem areas or “hot spots,” as well as indicating where additional professional monitoring might be needed.

The largest benefit, however, is the program’s potential to educate and engage the community in water resource protection. Not only were the volunteers directly involved with the success of the snapshot day, but partners and sponsors were also invested in the success, too!

TWF used the Wabash River Enhancement Corporation’s Sampling Blitz as a model to develop our program. We will share our successes and lessons learned with you as we plan this year’s Snapshot Day.

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Rural Sewer System Development Success - A Unique Collaboration

Patrick Wiltshire

President, Board of Trustees
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Abstract: The LaGrange County RUD will soon realize the goal first envisioned over 40 years ago to bring public wastewater collection treatment services to a significant and under-served area of the county. The project requires a unique collaboration of multiple state and local governmental units as well as a large commercial enterprise and will result in the elimination of mostly aging septic systems producing wastewater equivalent to nearly 1,000 residential homes and located on or near lakes, rivers and in an unincorporated town. But there is great uncertainty ahead for further development of rural water and wastewater systems. Each will be addressed and the audience invited to engage in the identification of ideas and actions to address them.

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Lake and stream K-12 and community partnership through interdisciplinary learning at Grace College

Emily M. Barge

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Abstract: The Lilly Center for Lakes & Streams at Grace College conducts research, provides resources, engages and educates residents, and collaborates with local organizations in efforts to make the lakes and streams of Kosciusko County cleaner. Over the past few years, we have combined the education and collaboration aspects of our center to enhance our ability to reach and educate then next generation.

By establishing a partnership between the expertise and knowledge that the Lilly Center can provide and the passion for teaching that the School of Education at Grace College can offer we create unique and effective programming. Not only do we have the backing of an accredited education program, but we can provide the soon to be teachers with real world experience in STEM education, creating a generation of teachers who are excited about lake and stream education. Through this partnership we are able to host a field trip for over 900 4th grade students, provide Kindergarten aquatic petting zoos for 5 local schools, give in-classroom presentations to 23 classrooms who participate in our Classroom Lake Experience program, and participate in other collaborative educational events. This system could be replicated between other lake groups and local universities to make a big impact for lake and stream education.

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Session: Stormwater and Field Trip

Stormwater Management in a Lake Community

Ryan Workman

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Abstract: Stormwater issues have been addressed since the late 1980s. As stormwater management continues to develop, the need to conserve the integrity of surface waters increases. Research has shown a clear correlation between stormwater management, water quality, and lake aging (eutrophication). With the lakes' provision of ecological and economic benefits, it is imperative for lake communities to have an understanding of stormwater management.

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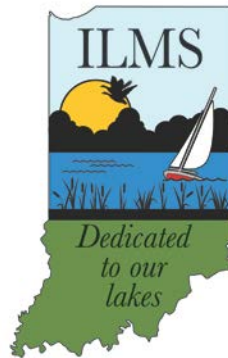
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THANK YOU!

We look forward to seeing you next year!

Please mark your calendars for next year's conference:

31st Annual
Indiana Lakes Management Conference
March 2019



Indiana Lakes Management Society
207 S. Wayne Street, Suite B
Angola, IN 46703-9315

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