

31ST ANNUAL INDIANA LAKES MANAGEMENT CONFERENCE



**MARCH 21ST & 22ND, 2019
OAKWOOD RESORT, LAKE WAWASEE
SYRACUSE, INDIANA**

31ST ANNUAL INDIANA LAKES MANAGEMENT CONFERENCE

March 21st & 22nd, 2019 ❖ Oakwood Resort, Lake Wawasee ❖ Syracuse, IN

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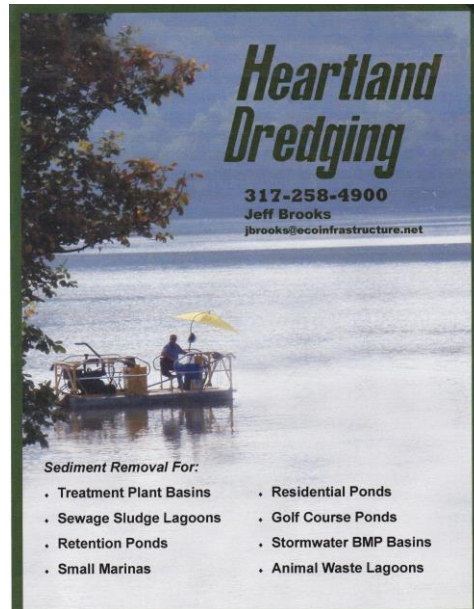
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AGENDA

Wednesday, March 20, 2019 – Early Arrivals

5:00pm-7:00pm Exhibitor Set Up – Upper Hilltop Banquet Center

7:00pm-8:30pm Hospitality Hour – Drinks at the Pier & Back Porch Bar

We encourage all to take advantage of this opportunity to meet and greet with attendees before the conference begins.

Thursday, March 21, 2019

8:00am-9:00am Registration

9:00am – 10:00am

Welcome and Plenary (Upper Hilltop Banquet Center)

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

Plenary: Effects of 21st Century Climate Change on Rivers, Lakes, and Wetlands in the Midwest and Great Lakes Region– *Dr. Alan Hamlet, Assistant Professor in Civil and Environmental Engineering and Earth Sciences at the University of Notre Dame*

10:00am – 10:15am BREAK (Upper Hilltop Banquet Center)

10:15am – 11:55am Concurrent Sessions

Track 1: Collaboration (Upper Hilltop Banquet Center)

Track 2: Fisheries (Lower Hilltop Banquet Center)

Track 1: Collaboration

10:15am-10:45am The St. Joseph River Basin Commission (SJRBC): Working Across Political Boundaries – *Matt Meersman, SJRBC Director*

10:50am-11:20am Increase Community Involvement in Ensuring Safe and Clean Drinking Water – *Francisco Ollervides, PhD, River Network*

11:25am-11:55am Best Practices for Community Engagement – *Dugan Julian, Lilly Center for Lakes & Streams, Grace College*

Track 2: Fisheries

10:15am-10:45am Fish Habitat Management through Partnerships – *Tom Bacula, IDNR*

10:50am-11:20am Relating Aquatic Vegetation to Fish Trophic Relationships, Abundance and Size Structure in Indiana Glacial Lakes – *Patricia Nease, Purdue University*

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11:25am-11:55am Potential Influences of Lake Morphology, Surrounding Land-use and Water
Quality on Fish Populations and Communities in Indiana's Glacial Lakes – *Tomas
Hook, Purdue University*

12:00pm – 1:00pm
LUNCH (for all Registered Attendees in Upper Hilltop Banquet Center)

1:00pm – 1:30pm
Annual Membership Meeting (Lower Hilltop Banquet Center)

1:30pm – 3:10pm Concurrent Sessions
Track 1: Agricultural Conservation (Upper Hilltop Banquet Center)
Track 2: Research (Lower Hilltop Banquet Center)

Track 1: Agricultural Conservation

1:30pm-2:00pm Soil and Water Conservation Districts: Your Local Partner – *Joe Schmees, Indiana
Association of Soil and Water Conservation Districts (IASWCD)*

2:05pm-2:35pm Conservation Cropping Systems Initiative (CCSI) – *Lisa Holscher, CCSI*

2:40pm-3:10pm Meet a Conservation Farmer – *Jamie Scott, Kosciusko County SWCD, IASWCD,
farmer*

Track 2: Research

1:30pm-2:00pm Indiana's Reservoir Habitat Enhancement Program: Building Better Fishing –
Sandy Clark-Kolaks, IDNR

2:05pm-2:35pm In Search of the Complete Picture: Indiana Lakes Trophic Classification
Comparison Across Citizen Science, State and National Monitoring Programs –
Heather Bearnes-Loza, Indiana University

2:40pm-3:10pm Measurement of In-Lake Sediment and Nutrient Suspension from Various
Boating Activities in a Midwestern Inland Lake – *Nate Bosch, PhD, Lilly Center for
Lakes & Streams, Grace College*

3:10pm – 3:25pm BREAK (Upper Hilltop Banquet Center)

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3:25pm – 5:05pm Concurrent Sessions

Track 1: Public Engagement (Upper Hilltop Banquet Center)

Track 2: Monitoring & Planning (Lower Hilltop Banquet Center)

Track 1: Public Engagement

- 3:25pm-3:55pm Reaching Your State Legislators – *Indra Frank, Hoosier Environmental Council & Joe Schmees, LASWCD*
- 4:00pm-4:30pm Working with your Local Leaders – *Lyn Crighton, The Watershed Foundation*
- 4:35pm-5:05pm Panel Discussion: Working with Elected Officials – *Indra Frank, Joe Schmees, and Lyn Crighton*

Track 2: Monitoring & Planning

- 3:25pm-3:55pm Understanding the importance of Oxbow Lakes – *Brad Smith, the Nature Conservancy*
- 4:00pm-4:30pm A story of Indiana lakes through data: The Indiana Lake Water Quality Assessment Report for 2015 to 2018 – *Cory Sauve, Indiana University*
- 4:35pm-5:05pm Lessons Learned at the Indiana Watershed Leadership Academy – *Gabrielle Gbreichi, IDEM*

5:45pm – 8:30pm Evening Activities (Upper Hilltop Banquet Center)

- 5:45pm-6:45pm Hors D'oeuvres, Drinks & Silent Auction (Upper Hilltop Banquet Center)
- 6:45pm-8:30pm Dinner & Awards (Upper Hilltop Banquet Center)
Special Guest Speaker: *Ted Rulseb, author of A Lakeside Companion*

8:30pm – 10:00pm Hospitality Suite (Upper Hilltop Banquet Center)

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Friday, March 23, 2017

7:30am-9:00am **Registration Open and Full Breakfast (provided for all registered attendees – Upper Hilltop Banquet Center)**

9:00am – 9:30am

Legislative Update (Upper Hilltop Banquet Center)

9:00am-9:30am Legislative Update – *Indra Frank, Hoosier Environmental Council*
Every year, out of hundreds bills introduced at the Indiana General Assembly, there are bills about water and 2019 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 – 12:00pm Concurrent Workshop/Field Trip

Track 1: Algae Workshop (Lower Hilltop Banquet Center)

Track 2: WACF Field Trip (Upper Hilltop Banquet Center)

Track 1: Algae Workshop

9:35am-12:00pm Identification, Ecology and Control of Nuisance Freshwater Algae – *Ann St. Amand, Ph.D., CLP and President of PhycoTech, Inc.*

Track 2: WACF Field Trip

9:35am-10:05am Overview of WACF – *Heather Harwood, Executive Director, and Diana Castell, of the Wawasee Area Conservancy Foundation*

10:10am-10:30am Travel to WACF Center – *on your own*

10:30am-12:00pm Tour of WACF Facility and practices – *Heather Harwood, WACF*

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Time	Thursday, March 21, 2019	
8:00am-9:00am	Registration	
	Conference Plenary – Upper Hilltop	
9:00am-10:00am	<p>Welcome: <i>Elizabeth Tompkins, ILMS President</i></p> <p>Plenary: “Effects of 21st Century Climate Change on Rivers, Lakes, and Wetlands in the Midwest and Great Lakes Region”</p> <p><i>Dr. Alan Hamlet, Assistant Professor, Department of Civil and Environmental Engineering and Earth Sciences, University of Notre Dame</i></p>	
10:00am-10:15am	BREAK – <i>Upper Hilltop</i>	
	Track 1: Collaboration	Track 2: Fisheries
	<i>Upper Hilltop</i>	<i>Lower Hilltop</i>
10:15am-10:45am	The St. Joseph River Basin Commission (SJRBC): Working Across Political Boundaries – <i>Matt Meersman, SJRBC Director</i>	Fish Habitat Management Through Partnerships – <i>Tom Bacula, IDNR</i>
10:50am-11:20am	Increase Community Involvement in Ensuring Safe and Clean Drinking Water – <i>Francisco Ollervides, River Network</i>	Aquatic Vegetation and Fish Trophic Relationships, Abundance, and Size Structure in Indiana Glacial Lakes – <i>Patricia Nease, Purdue University</i>
11:25am-11:55am	Best Practices for Community Engagement – <i>Dugan Julian, Lilly Center for Lakes & Streams, Grace College</i>	Fish Research in Indiana's Glacial Lakes, Yesterday, Today, and Tomorrow – <i>Tomas Hooke, Purdue University</i>
12:00pm-1:00pm	LUNCH for all registered attendees – <i>Upper Hilltop</i>	
1:00pm-1:30pm	Annual Membership Meeting – <i>Lower Hilltop</i>	
	Track 1: Agricultural Conservation	Track 2: Research
	<i>Upper Hilltop</i>	<i>Lower Hilltop</i>
1:30pm-2:00pm	Soil and Water Conservation Districts: Your Local Partner – <i>Joe Schmees, Indiana Association of Soil and Water Conservation Districts (IASWCD)</i>	Reservoir Habitat Improvements – <i>Sandy Clark-Kolaks, IDNR</i>
2:05pm-2:35pm	Conservation Cropping Systems Initiative (CCSI) – <i>Lisa Holscher, CCSI</i>	In Search of the Complete Picture: Indiana Lakes Trophic Classification Comparison Across Citizen Science, State, and National Monitoring Programs – <i>Heather Bearnes-Loza, Indiana University</i>

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2:40pm-3:10pm	Meet a Conservation Farmer – <i>Jamie Scott, Kosciusko SWCD, LASWCD Past President, and farmer!</i>	Measurement of in-lake sediment and nutrient suspension from various boating activities in a Midwestern inland lake – <i>Nate Bosch, Lilly Center for Lakes & Streams, Grace College</i>
3:10pm-3:25pm	BREAK – <i>Upper Hilltop</i>	

	Track 1: Public Engagement	Track 2: Monitoring & Planning
	<i>Upper Hilltop</i>	<i>Lower Hilltop</i>
3:25pm-3:55pm	Reaching your State Legislators – <i>Joe Schmees, LASWCD & Indra Frank, Hoosier Environmental Council</i>	Understanding the importance of Oxbow Lakes – <i>Brad Smith, the Nature Conservancy</i>
4:00pm-4:30pm	Working with your Local Leaders – <i>Lyn Crighton, The Watershed Foundation</i>	A story of Indiana lakes through data: The Indiana Lake Water Quality Assessment Report for 2015 to 2018 – <i>Cory Sauve, Indiana University</i>
4:35pm-5:05pm	Panel Discussion: Working with Elected Officials	Lessons Learned at the Indiana Watershed Leadership Academy – <i>Gabrielle Gbreichi, IDEM</i>
5:05pm-5:45pm	BREAK – <i>Upper Hilltop, Check-In at the Hotel</i>	
5:45pm-6:45pm	Hors D’oeuvres, Drinks, Silent Auction – <i>Upper Hilltop</i>	
6:45pm-8:30pm	Dinner & Awards – <i>Upper Hilltop</i> Special Guest Speaker: Ted Rulseh, author of <i>A Lakeside Companion</i>	
8:30pm-10:00pm	HOSPITALITY SUITE – <i>Upper Hilltop</i>	

Time	Friday, March 22, 2019	
7:30am-9:00am	Breakfast – Registration open – <i>Upper Hilltop</i>	
9:00am-9:30am	Legislative Update (<i>Upper Hilltop</i>) – <i>Indra Frank, Hoosier Environmental Council</i>	
	Track 1: Algae Workshop	Track 2: WACF and Field Trip
	<i>Lower Hilltop</i>	<i>Upper Hilltop</i>
9:35am-10:05am	Identification, Ecology and Control of Nuisance Freshwater Algae – <i>Ann St. Amand, Ph.D., CLP President PhycoTech, Inc.</i>	Overview of WACF – <i>Heather Harwood, Executive Director, and Diana Castell, of the Wawasee Area Conservancy Foundation</i>
10:10am-10:30am		Field Trip Travel to WACF Center – <i>on your own</i>
10:10am-12:00pm		Tour of WACF practices – <i>Heather Harwood, Executive Director of Wawasee Area Conservancy Foundation</i>

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Thursday, March 21st

Session: Plenary

Effects of 21st Century Climate Change on Rivers, Lakes, and Wetlands in the Midwest and Great Lakes Region

Alan Hamlet, Ph.D., Assistant Professor

Civil and Environmental Engineering and Earth Sciences

University of Notre Dame

Alan F. Hamlet, Diogo Bolster, Stuart Jones, Chun-Mei Chiu, Kyuhyun Byun, Zach Hanson, Jake Zwart

Abstract: Extreme changes in climate are projected for the Midwest and Great Lakes Region (MGLR) in the U.S. By the end of the 21st century, the ensemble mean change in annual temperature (T) is projected to exceed 6.5 °C, with high-end projections approaching 10 °C warming. These impacts are roughly 2 °C warmer than the global mean projections over land. Essentially all Global Climate Model (GCM) scenarios project increases in winter and spring precipitation (P) over the MGLR (+25-30% for the ensemble mean), with an increasing fraction of the precipitation falling as rain rather than snow. There is less model agreement for changes in P the summer months, suggesting that wetter or drier conditions could occur at different times in the future. Changes in summer P are also connected to summer T in the scenarios.

In response to these changes in climate, simulated flows in rivers and streams are projected to increase substantially in cool season, and decrease by a small amount in warm season. Peak flows will likely shift substantially earlier in the year. For many rivers in the southern part of the region, flood risks are projected to increase substantially, whereas strongly snowmelt dominant basins in the northern parts of the domain may see little change in flood risk, or decreasing flood risk, due to declining spring snowpack. We hypothesize that, in the absence of adaptive actions such as use of cover crops, these shifts in surface runoff patterns will exacerbate existing nutrient transport to the Great Lakes and Gulf of Mexico from Midwest farmland, especially in the southern parts of the domain.

Inland lakes and wetlands in the MGLR will respond to climate change (CC) via changes complex interactions between surface water (SW) and groundwater (GW). To quantify these impacts we have developed sophisticated SW/GW models coupled to lake water budget and biogeochemistry models, and have also developed high-resolution models of groundwater-connected wetlands (GCWs). Using these tools we have been able to simulate the detailed response of thousands of lakes and wetlands to CC at regional scales. Using a case study in the Northern Highland Lakes District (NHLD) we have been able to characterize the broad response of different types of small inland lakes. In response to CC, so called Drainage Lakes (DL), which have substantial stream inputs, will likely see little shift in water levels, but substantial increases in inputs of carbon, phosphorous, and nitrogen (CPN) due to increasing stream inputs. The response of so called Seepage Lakes (SL), which have small or no stream inputs and are only weakly connected to GW, is dominated by the balance of P and evaporation (E). In SLs, the combination

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Session: Plenary (Continued)

of increasing P and E, results in declining water levels, decreasing residence time, and increased browning due to the concentrating effects of increased evaporation. In a separate case study in the Kankakee River basin, GW-connected wetlands (GCWs) are shown to have the opposite response to SLs, with increasing water levels in response to increasing P and E. This is because annual groundwater recharge systematically increases in the future projections, increasing water table height, and the GCWs are connected to extensive storage in the surrounding aquifer. Thus in some ways GCWs behave like DLs, whereas perched wetlands that are only weakly coupled to GW will likely behave more like SLs.

These effects to lake hydrologic response have important connections to DOC concentrations and primary production in lakes, and the overall effects are shown to be dependent both on lake type and initial conditions. For example, lakes in the NHLD with relatively high historical DOC concentrations may see declining primary productivity with increasing DOC concentration under climate change due primarily to increased light attenuation (browning), whereas lakes with relatively low historical DOC concentrations may see increasing primary productivity in response to increasing DOC concentrations due to coincident increases in P and N inputs. Summer P uncertainty in the projections is important driver determining the overall response of lakes, suggesting that the characteristic biogeochemical response of lakes to climate change may be substantially different in different decades in the future.

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Session: Collaboration

The St. Joseph River Basin Commission (SJRBC): Working Across Political Boundaries

Matt Meersman

Director, St. Joseph River Basin Commission
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Abstract: For love of water in the St. Joe, Matt Meersman tries to inspire people to make positive changes through better understanding of the problems facing our waterways. He will provide an overview of the St. Joseph River and its watershed while addressing current and historic threats to the river's health. Matt will talk about the importance of watershed management from a holistic perspective. However, when we work across political boundaries that may include diverse stakeholder groups, we must learn to work with a variety of viewpoints. Matt will address how to work with these diverse audiences, while advocating for better management of the natural resources that impact our water.

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Increase Community Involvement in Ensuring Safe and Clean Drinking Water

Francisco Ollervides

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Abstract: Your community is passionate to have clean and safe water, but can't seem to get results? We can change this by using the Community Organizing and Family Issues (COFI) model. This simple methodology focuses on specific parents and prepares them in a unique manner to become leaders in their respective communities. These individuals are by far the most invested in making sure their children and grandchildren grow up in safe, healthy, and prosperous environments. In this workshop, we will build the foundation of the individual goals and find commonality in the collective and community needs to establish priorities towards their work plans. A well thought work plan then becomes the basis that will help us elevate the voices and decision-making power of those that are so often not involved in those choices that impact their communities and their lives. Through a series of interactive exercises and visual aids we will introduce River Network's Safe Drinking Water Guide as a tool to guide engagement around this topic and demonstrate how to synergize efforts amongst various stakeholders.

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Best Practices for Community Engagement

Dugan Julian

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Abstract: Community engagement has been a key element in the Lilly Center for Lakes & Streams' growth and success over the past 12 years. Local businesses and corporations have contributed substantial support to the research, education, and community events and projects that the Lilly Center has organized and/or hosted. Private citizens have volunteered tens of thousands of hours as boat captains, education partners, and community leaders for service projects. The Lilly Center has also partnered with non-profit organizations and government entities in the area to bring synergy to the efforts of all parties and to allow the Lilly Center to expand its capabilities well beyond that of its relatively small staff. Over the years, specific efforts to engage the community have been refined and adjusted to achieve the highest degree of impact possible. Examples include employment of student educators across the county, hosting in-house educational field trips, utilizing and engaging the community for river clean ups and interpretive hikes, and cross-promoting events with partner organizations. Transferrable processes and best practices will be discussed to help other organizations strategically impact and engage their communities in the areas of: communication, collaborative education, volunteerism, and partnership development. These efforts are at the core of our continued successes and growth.

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Session: Fisheries

Fish Habitat Management through Partnerships

Tom Bacula

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Abstract: Most frequently fisheries biologists with the Division of Fish and Wildlife within Indiana Department of Natural Resources are charged with and known for conducting fisheries surveys to monitor fish populations. But that's not all biologists do. They are also an early contact for many lake questions and for potential ideas to improve the lake and water quality. Often the highest priority is improving water quality in the lake through watershed protection or enhancements. There are also in-lake habitat improvements that will improve water quality as well as benefit the fish population. Partnerships and collaboration are essential for any local project to succeed. This presentation will highlight a few of these partnerships that have enhanced glacial lakes in Northwest Indiana. A project at Bass Lake (Starke County) will be the focus of the presentation with inception to the future of habitat enhancement. There were a variety of water quality concerns at Bass Lake, Starke County, notably a lack of water clarity. Water clarity was less than one foot which effectively reduced plant growth and the majority of the in-lake habitat. This prompted meetings with interested parties in an attempt to determine the underlying issues as potential solutions for the lake. Two main immediate actions emerged: 1) An idea to reface bulkhead seawalls around the lake and 2) Initiate an educational campaign. Additionally, a variety of other long-term monitoring or exploratory projects were discussed. Details of stakeholder involvement, funding, permitting, and locally what can be accomplished will be presented.

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Relating Aquatic Vegetation to Fish Trophic Relationships, Abundance and Size Structure in Indiana Glacial Lakes

Patricia Nease

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Abstract: Indiana glacial lakes support a wide range of both economically and ecologically important species. In order to protect the ecosystem services provided by Indiana glacial lakes, an understanding of the impacts humans have is critical. Much of the management of these lakes is indirect, such as management of habitats. Such management includes permitting for vegetation removal, even though the connection between vegetation and fish population performance is generally lacking. To this end we aim to develop a better understanding of the effect of vegetation on both juvenile and adult Largemouth Bass and Bluegill in glacial lakes. Past research suggests that age-0 Largemouth Bass exhibit local trophic relationships, and, we intend to examine whether these relationships are consistent through space and time. Ultimately, the degree of reliance on local resources has important implications for the appropriate spatial scale of nearshore habitat management. At a coarser spatial scale, we examine how nearshore vegetation impacts Largemouth Bass and Bluegill population abundance and size structure at the whole-lake scale. An understanding of these relationships will allow for better informed management decisions and has the potential to mitigate human caused disturbances.

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Potential Influences of Lake Morphology, Surrounding Land-use and Water Quality on Fish Populations and Communities in Indiana's Glacial Lakes

Tomas Hook

Department of Forestry and Natural Resources, and
Illinois-Indiana Sea Grant
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Abstract: Glacial lakes, such as the >450 lakes in northern Indiana, dominate upper Midwest landscapes where they provide a variety of ecosystem services, including important sport fisheries. Unfortunately, anthropogenic activities have contributed towards the degradation of many of these systems. Aggressive land-uses have collectively contributed to high sedimentation rates, nutrient loading, and alteration of thermal attributes, while in-lake management of aquatic vegetation, construction of shoreline structures and introduction-removal of aquatic species collectively impact internal physical, chemical and biological process. Towards the aim of improving the ability to manage fish populations in glacial lakes, our research group has examined the potential influences of lake morphometrics, water quality and catchment land-use on fish population and community indices in Indiana's glacial lakes. I will present some of these relationships and discuss their potential implications for managing Indiana's glacial lakes and the fish populations that inhabit them.

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Indiana Lakes Management Society Annual Business Meeting
Lower Hilltop Banquet Center

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 2019

Election Slate

President:

Joe Schmees: Joe Schmees is the Executive Director of the Indiana Association of Soil and Water Conservation Districts, joining the Association in May of 2018. Previously, Joe worked for the Indiana Department of Environmental Management for 11 years in their office of water quality. He held various water quality monitoring positions, served as the Northeast Nonpoint Source Watershed Specialist, and ended his time at IDEM as the Chief of Watershed Planning and Restoration. Joe has been a Board member of ILMS since 2015, and has served as Vice President the last two years. Joe graduated from Wittenberg University in Springfield, Ohio, with dual bachelor degrees in biology and chemistry. Joe currently lives in Fishers with his wife Lauren, daughter Olivia, and their dog Grace, and loves to read, run, hike, and fish. Joe also likes to spend time in his kayak/canoe/SUP on the White River and nearby Geist Reservoir, and translates his love for the outdoors and water resources into his professional life. Joe is also the current Treasurer, and a Past President and Past Secretary for the Indiana Water Resources Association.

Vice President:

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.

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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.

Secretary:

Bridget Harrison: Bridget Harrison is the Executive Director of the Clear Lake Township Land Conservancy located in the northeast corner of Indiana. Prior to taking this position, she was working for an environmental restoration and consulting firm in the Chicagoland area. Bridget earned her Bachelor's Degree in 2007 from Southern Illinois University, majoring in Biological Sciences and minoring in Environmental Studies. After graduation, Bridget worked aboard commercial fishing vessels in the Bering Sea as an Observer for the National Marine Fisheries Service. After completing a six month contract in Alaska, she went back to southern Illinois. She received a Master's degree in Forestry with an emphasis on Watershed Management from Southern Illinois University in 2011. After graduate school, Bridget volunteered with the AmeriCorps for two years at the Shasta Land Trust, in Redding California. Here, she enjoyed working with volunteers and began to understand the role of nonprofit land trusts in land and water conservation. Earlier this year, Bridget completed the Indiana Watershed Leadership Academy. In her free time she enjoys the outdoors with her dogs and husband. Bridget has been an active ILMS Board member and is Chair of the Outreach Committee.

Board Members (4):

Adam Casey: Adam Casey is currently entering his fifth year as the District Manager for the Lake Lemon Conservancy District (LLCD). This position was quite an achievement and homecoming of sorts for Adam. Mr. Casey was the acting District Biologist for the LLCD from 2009-2012 during graduate school and for some time after. Between stints with the LLCD, Adam served multiple roles with the Indiana Department of Environmental Management. When initially hired by IDEM, Adam primarily focused on biological and chemical monitoring of streams and rivers around the state of Indiana as a staff environmental scientist. His last position held with IDEM was as an Environmental Manager responsible for the management of The Environmental Stewardship Program and Partners for Pollution Prevention. Both programs focused on reducing pollution and environmental impacts from major manufacturers around the state of Indiana. Adam graduated undergrad from The University of Maine in 2008, where he studied Marine Science. In 2011 Adam graduated from IU's School of Public and Environmental affairs, where he obtained two masters degrees, A Master's of Science in Environmental Science with a focus on water resource management, and a Masters of Public Affairs. Adam has recently purchased a home near Lake Lemon and looks forward laying down roots in Bloomington Indiana. Adam has been a Board member of ILMS since 2017.

Diana Castell: Diana Castell has volunteered with Wawasee Area Conservancy Foundation for twelve years and chaired the Ecology/Education Committee for nine years. She started an educational outreach program to help lake residents and the local community to understand how their actions affect

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their watershed. The program, Lake Talk and Eats, takes place first Saturday in June, July and August. Topics range from local fish to grandkids and grandparents catching water critters and learning how water quality effects insects. Their committee is full of positive, committed people, which makes their programs possible. They continue to look for new ways to education our residents in order to protect our lakes. Next summer they will start a Cool Wake program to keep skiers and wake boarder in the deep part of the lakes.

Kassia Groszewski: Kassia is a Senior Environmental Manager with the Indiana Department of Environmental Management's Watershed Assessment and Planning Branch. She has BS and MS degrees in Environmental Science from Indiana University, with concentrations in hydrology and freshwater resources. While at IU, Kassia was a graduate student scientist with the Indiana Clean Lakes Program and was involved with ILMS as a student member from 2010 - 2012. Following graduation, Kassia worked at the University of Pittsburgh as a graduate researcher and ecology/geology lecturer in the Department of Geology and Planetary Science from 2013 – 2017. In Pittsburgh, she was a member of the scientific advisory committee for the Nine Mile Run Watershed Association and helped to conduct stream monitoring, electrofishing surveys, and macroinvertebrate data analysis on samples collected throughout the watershed. In 2018 Kassia moved back home to Indiana to serve as IDEM's new lakes coordinator, liaison to the CLP, and as the project manager for the diatom, cyanobacteria, and algal chlorophyll programs. She greatly enjoys being able to spend time outdoors around Indiana's many lakes and streams, and is excited to be in a position to help protect Indiana's natural resources.

Brendan Hastie: Brendan Hastie is an Aquatic Biologist at Aquatic Control, Inc. He was born in Waukegan, IL. He graduated from Upper Arlington High School, OH in 1993. In December of 1998, he received a BS degree in natural resources, water option from The Ohio State University. Brendan has been employed with Aquatic Control Since 1998. While attending The Ohio State University, Brendan participated in a Lake Erie area wetland seed bank study. His responsibilities included daily maintenance of the project, field collection, plant identification, and data collection. Aquatic Control, Inc. employed Brendan in 1998. His responsibilities include aquatic plant management, lake management consulting, fisheries surveys, and aquatic plant surveys. In 2003, he was assigned to the position of office manager and field applicator at the Valparaiso, IN satellite office. Brendan was reassigned to a full time biologist position at the Seymour, IN office in February of 2007. He also assists with aeration and fountain maintenance, installation, and repair. Mr. Hastie has presented talks regarding lake management and aeration at many clinics, lake owner association meetings, and trade meetings. Brendan is a member of the Indiana chapter of the American Fisheries Society, Indiana Lake Management Society, and the Midwest Aquatic Plant Management Society. Brendan Hastie is a licensed aquatic applicator in the states of Illinois, Indiana, Kentucky, Michigan, Tennessee, and Ohio. He is also a certified PADI Open Water SCUBA diver.

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Session: Agricultural Conservation

Soil and Water Conservation Districts: Your Local Partner

Joe Schmees

Executive Director
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Abstract: Local Soil and Water Conservation Districts (SWCDs) were established after the Dust Bowl natural disaster of the 1930s to bring soil conservation implementation to the local level. There is a county SWCD in each of the 92 counties in Indiana. They are led by local boards made up of elected and appointed local officials, supervisors, and staffed by county employees. There are 460 SWCD supervisors and 202 employees statewide. SWCD priorities naturally grown over time to include more water quality objectives, which makes them a great partner for local watershed and lake planning. We will discuss how you can partner with SWCDs in your local area.

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Conservation Cropping Systems Initiative (CCSI)

Lisa Holscher

Director

Conservation Cropping Systems Initiative

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Abstract: The Conservation Cropping Systems Initiative (CCSI) is a program of nine governmental and university organizations of Indiana. CCSI works with these organizations as well as numerous NGOs, commodity groups, and representatives of agricultural retail to provide consistent, science-based and farmer-proven information on soil health practices – leading to increased practice adoption and improved soil health on Indiana cropland. The fact that cover crops are now the 3rd most commonly grown crop in Indiana is an indicator of the success of this collaborative partnership. Underpinning this success is the practical application of conservation social science in the management of these diverse groups of partners, the targeting of influential audiences and decision makers, and the crafting of messaging for target demographics that is both factual and resonant.

The challenge of working across multiple agencies and organizations has been offset by the abundance of innovative ideas that arise in a social network rich with structural holes and social bridges. In addition, the practical application of theories such as EM Rogers Diffusion of Innovations, information from Purdue Natural Resources Science Lab and Iowa Farm Life Polls, and other sources of information at field office levels has enabled the successful identification of programmatic and support needs to further conservation.

This presentation will focus on the benefits of developing diverse networks and adapting messaging targeting and delivery mechanisms based on demographic studies and adoption groups.

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Meet a Conservation Farmer

Jamie Scott

Chairman, Kosciusko County SWCD
Past President, IASWCD
<https://www.kosciuskoswcd.org/>
<http://iaswcd.org>

Abstract: Jamie Scott is a supervisor for the Kosciusko County Soil and Water Conservation District and a board member of the Indiana Association of Soil and Water Conservation Districts. He is part of a family farm operation (approximately 2000 acres) that has implemented many conservation practices, earning recognition as the IASWCD Conservation Farmer of the Year and both Regional and National Conservationist of the Year Awards from the American Soybean Association. The farm operation was an early adopter of conservation tillage. Other conservation practices include: grassed buffer strips, concrete inlet structures and stone chutes, hay plantings on highly erodible acres, and tree plantings. Jamie has become a familiar spokesperson for cover crops at regional, state and national meetings in a variety of venues. Jamie will talk about his operation, his involvement with State-level initiatives, and what other farmers and programs are doing to improve soil and water quality.

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Session: Research

Indiana's Reservoir Habitat Enhancement Program: Building Better Fishing

Sandy Clark-Kolaks

Southern Fisheries Research Biologist
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Abstract: In many Midwest states, including Indiana, large reservoirs are highly utilized by anglers. Also, similar to most reservoirs in the Midwest, reservoirs in Indiana are aging and aquatic habitat is deteriorating or nonexistent. Indiana Department of Natural Resources (DNR) is working to improve reservoir aquatic habitat through the reservoir habitat enhancement program (RHEP). Using techniques similar to other Midwestern states, DNR is building artificial structures to mimic deteriorated natural habitat including: crib structures, rock piles, Hoosier cubes, brush piles, and felled shoreline trees. Since the inception in 2016, RHEP has included work on three reservoirs in Southern Indiana; Sullivan Lake, Cecil M. Harden Lake, and Monroe Lake. Over 600 structures have been built and deployed through the program to date, enhancing around 45 acres of aquatic habitat.

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In Search of the Complete Picture: Indiana Lakes Trophic Classification Comparison Across Citizen Science, State, and National Monitoring Programs

Heather Bearnese-Loza

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Abstract: Lake monitoring programs across the country are designed to meet specific needs. The Indiana Clean Lakes Program was developed in 1989 in partnership with the Indiana Department of Environmental Management's (IDEM's) Office of Water Quality to facilitate a multifaceted approach for assessing Indiana's lakes. The primary monitoring goals of this program are to assess Indiana's lakes utilizing snapshots of water quality through random annual samplings, and on a long-term scale using volunteer citizen scientists to collect data at the same lakes over time. The National Lakes Assessment (NLA) and its state intensification program is an additional monitoring tool used in Indiana to help understand our lakes and the relationships to other lakes across the nation.

Each of these monitoring methods is unique. Comparison of the trophic classification of Indiana's lakes in 2007, 2012, and 2017 shows differences in the distribution of lake trophic classes in Indiana through each of these monitoring programs. In this talk, we will look at these differences, explore the likely causes, and demonstrate the need and value of each program as a distinct monitoring tool.

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Measurement of In-lake Sediment and Nutrient Suspension from Various Boating Activities in Midwestern Inland Lake

Nathan S. Bosch, Ph.D.

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Abstract: A potentially important nutrient and sediment source in Indiana lakes is internal loading from watercraft directly stirring up the lake bottom sediments. To test this potential source and provide science-based recommendations for future boating activities, the Lilly Center for Lakes & Streams at Grace College studied various boating activities in Lake Wawasee, Indiana's largest natural lake, during 2018. Marl, mud, and sand bottoms were tested as well as water depths of 3, 5, 10 and 15 feet. The study included five watercraft: standard pontoon, inboard/outboard runabout, center mount inboard, V-drive wakeboard/wakesurf and personal watercraft. Watercraft were tested at idle speed, near plane and on-plane operational conditions. The study found that the pontoon boats did not measurably increase nutrients or sediments in the water when operated at 5 feet of water depth, but the other four watercraft types did under standard operation in 5 feet of water. None of the five tested watercraft measurably stirred up the bottom at 10 or 15 feet water depths. Under idle speed operation in 3 feet of water, the personal watercraft, inboard/outboard runabout and the V-drive wakeboard/wakesurf watercraft all measurably stirred up the bottom sediment as well. Study results will be used for boating activity recommendations shared with the public.

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Session: Public Engagement

Reaching Your State Legislators

Indra Frank, Joe Schmees

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Environmental Health & Water Policy Director
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Executive Director
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Abstract: American Democracy is established on the concept that your elected officials represent your interests in the decisions they make. How often do you talk to your state legislators? Do you talk with them about what is important to you? In this session we will cover the basics of the Indiana State Legislature, and give you the resources and tips on how to best engage these state elected officials.

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Working with your Local Leaders

Lyn Crighton

Executive Director
The Watershed Foundation
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574-834-3242

Abstract:

“If your actions inspire others to dream more, learn more, do more and become more, you are a leader.”
- John Quincy Adams

In this session, you will discuss why it's important to develop good working relationships with your local leaders. Lyn will give examples from her experience with The Watershed Foundation, as well as from other lake associations.

There will be at least one hands-on activity, and you will leave inspired to be proactive in connecting within your community.

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Panel Discussion: Working with Elected Officials

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Lyn Crighton
Executive Director
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Abstract: This will be a panel discussion with the three previous presenters about challenges and tips for working with elected officials, answering audience questions.

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Session: Monitoring & Planning

Understanding the Importance of Oxbow Lakes

Brad Smith

Lower Wabash and Wetlands Program Director for Indiana
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Abstract: Oxbow lakes are an important habitat type found along Indiana's major rivers in southwest Indiana. They are an integral part of a river's ecology. Many species of riverine fish use oxbows to reproduce or rear young. Oxbow lakes are also home to many species of rare plants, and they provide wintering and nesting habitat for waterfowl and songbirds.

Despite the ecological importance of oxbow lakes, little is known about their overall health. As a result, there have been no conservation strategies developed around this important habitat-type in Indiana. Oxbow lakes face many threats, including levees, ditching and field tiling within the lake basins, agricultural runoff, and fragmentation of surrounding woodlands.

In addition to these threats, changes in land use and hydrology in the age of European colonization have dramatically altered rates of succession in these habitats. This raises the question of the sustainability of function in the face of high sedimentation and altered flood regimes.

To establish a baseline of data and develop conservation strategies around these lakes, we completed an initial ranking process via GIS, followed by an on-the-ground sampling effort in 2017 including monthly water sampling and in 2018 fish sampling.

We will share our research results to date and discuss the challenges of developing a conservation strategy for a dynamic and large-scale habitat like oxbow lakes along the lower Wabash River.

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**A Story of Indiana Lakes through Data: The Indiana Lake Water Quality
Assessment Report for 2015 to 2018**

Cory Sauve

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Abstract: All water quality monitoring programs have the ability to effectively tell a story through the data that are collected. The concept of telling a story through data is often lost on many researchers, as conveying complex results to a diverse assemblage of stakeholders comes with numerous difficulties. This talk will illustrate how to utilize various open-source tools to effectively tell a story through data collected from Indiana Lakes. The data used in this talk were collected primarily during the Indiana Lake Water Quality Assessment Report for 2015 to 2018, where we sampled 329 lakes to identify water quality trends across the state of Indiana. The assessment was conducted by the Indiana Clean Lakes Program, a multifaceted water monitoring and education program developed in 1989 in partnership with the Indiana Department of Environmental Management and administered through the Indiana University School of Public and Environmental Affairs.

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Lessons Learned at the Indiana Watershed Leadership Academy

Gabrielle Ghreichi

Municipal NPDES Permit Writer
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Abstract: The Indiana Watershed Leadership Academy (IWLA) is a unique opportunity here in Indiana to earn a professional certificate in watershed leadership while also meeting and networking with a diverse group of people across the state who are passionate about improving watershed management and water quality in Indiana. This talk will give an overview of the academy, its mission, its key components and learning structure. In addition, the presentation will share highlights and key lessons from the 2018 IWLA season.

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Friday, March 22nd

A Lake-related Update from the 2019 Indiana General Assembly

Dr. Indra Frank

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Abstract: The Hoosier Environmental Council is an environmental not-for-profit organization based in Indiana. One of our most important annual tasks is tracking bills going through the Indiana General Assembly looking carefully at how they will impact the state's air, land, and water. The General Assembly will be in session from January through April. 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.

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Session: Algae Workshop

Identification, Ecology and Control of Nuisance Freshwater Algae

Ann St. Amand, Ph.D., CLP

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Abstract: This informative workshop will be mostly lectures with breaks for live demonstrations.

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Session: WACF and Field Trip

Overview of the Wawasee Area Conservancy Foundation and Field Trip

Heather Harwood, Diana Castell

Heather Harwood
Executive Director
Wawasee Area Conservancy Foundation (WACF)
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Abstract: This presentation about the Wawasee Area Conservancy Foundation will be followed by a field trip to the WACF Education Center, just down the road from the conference location.

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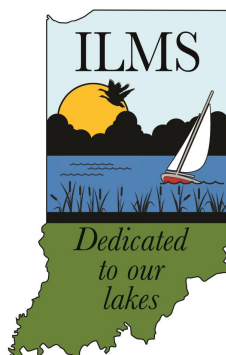
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THANK YOU!

We look forward to seeing you next year!

Please mark your calendars for next year's conference:

32nd Annual
Indiana Lakes Management Conference
March 2020



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

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