



39th Annual Indiana Water Resources Association Symposium

“Ensuring a Sustainable Water Future for Indiana”

**Monroe Convention Center in Bloomington, Indiana
Flatwoods Park, Gosport, Indiana
June 27-29, 2018**

Cosponsored by:



Online Registration Only!

https://iwra_2018.eventbrite.com

(Includes Wednesday banquet, Thursday lunch, Friday box lunch, break snacks, and hospitality room)

**Registration BEFORE / ON or AFTER
Friday, June 15, 2018**

IWRA Member:	\$130 / \$160
Non-member:	\$160 / \$190
Student:	\$55 / \$65
1-day Member:	\$95 / \$115
1-day Non-member:	\$105 / \$125
Banquet Guest:	\$25 / \$25
Student Presenter:	\$0 / \$0

Note: All non-student presenters are expected to pay the Symposium registration fee. If your employing organization cannot pay the registration fee, please contact Sally Letsinger, 812-855-1356, sletsing@indiana.edu. The online registration site also includes offline payment options such as pay-at-the door (cash or check) or invoice. Contact Sally with any online registration questions.

Lodging:

Participants are responsible for their own reservations. A block of rooms has been reserved for IWRA **until Tuesday, June 12, 2018** at the Courtyard by Marriott, adjacent to the conference center.

Reservations should be made by visiting: <https://tinyurl.com/y7gajpli> or calling 812-335-8000 and using the IWRA group code **IWRIWRA** to obtain rooms at the reduced rate of **\$104/night**. The hotel includes free onsite parking, but does not include breakfast.

Students – consider requesting a double queen room with pullout sofa, and sharing the room with some friends to reduce costs!

AGENDA

Wednesday, June 27

Time	Topic	Speaker
12:00	Registration	
MODERATOR: Sally Letsinger, IGWS		
1:00	Opening and Welcome	Sally Letsinger, IGWS, 2018 IWRA President
1:10	Water Planning in Indiana	Jack Wittman, INTERA, Inc.
1:30	A Review and Future Planning Toward the Assessment of Indiana's Groundwater Resource	Randy Maier, Allison Mann, Indiana Department of Natural Resources, Division of Water
1:50	Indiana Climate Change Impacts Assessment - Trends	Alan Hamlet, Notre Dame University
2:10	Simulating the Effects of Climate Change on Streamflow and Stream Temperature in the Ohio River Basin, USA	Ram Neupane, Indiana University Bloomington
2:30	Break	
MODERATOR: Jeff Frey, U.S. Geological Survey		
3:00	Capturing Hydrologic Episodes in Indiana using Evaporative Demand Drought Index (EDDI)	David J. Smith, Indiana DNR, Division of Water
3:20	Assessment of Changing Climatic Conditions on Nutrients Fate and Transport in Tile Drained Watershed for Sustained Water Quality	Sushant Mehan [STUDENT], Purdue University
3:40	Indiana Agriculture Nutrient Alliance: Healthy Soils, Clean Water Viable Farms	Ben Wicker, Indiana Agriculture Nutrient Alliance
4:05	Nutrients in the Nation's Streams and Groundwater (tentative)	Jeff Frey, U.S. Geological Survey
4:25	Introduce Student Poster Session	Sara Peel, Arion Consultants, Inc.
4:30	Introduce Poster Presentations	1 minute each
5:00	Social Hour / Poster Presentations / Cash Bar	
6:30	IWRA Banquet and Awards	
Poster Presentations:		
MODERATOR: Sara Peel, Arion Consultants, Inc.		
	Impacts of Climate Variability and Land Use Change on Streamflow and Baseflow in an Urban Watershed	Mohamed Aboelnour, Purdue University
	Development and Improvement of Water Quality Index	Valeria Mijares, Purdue University
	Behavioral Responses of Fish to Environmental Cyanotoxins	Hannah Mullinax, Ball State University
	Analyzing Anthropogenic Effects on the Wabash River through Diatom Species Assemblages and Geochemistry	Ellen O'Neil, (Jeffrey Stone presenting) Indiana State University
	Geomorphological Characteristics of the Wabash River Indiana and their Impacts on Fish Assemblages	Jeff Robbins, Ball State University

	Responses of Silica Stoichiometry to Hydrologic and Vegetation Changes	Lienne Sethna, Indiana University
	Abundance of Triclocarban and Triclosan in Freshwater Ecosystems Following FDA Ban and Effects on Bacterial Communities	Zack Smith, Ball State University
	Effects of Viruses on the Development and Decay of Harmful Algal Blooms	Zhe Sun, Purdue University
	Estimating Sediment Transport Capacity Functions for Overland Flow	Shuyuan Wang, Purdue University
Post-Banquet	Social and networking hour	Courtyard by Marriott

Thursday, June 28 (Breakfast on your own)

Time	Topic	Speaker
MODERATOR: Mark Basch, Indiana Department of Natural Resources		
8:30	Highlighting Indiana's Commitment to Enhance Water Quality through the use of GIS Basin Story Maps	Julie Harrold, Indiana State Department of Agriculture, Division of Soil Conservation
8:50	Reaching Nutrient Reduction Goals in the Ag Sector: Approaches and Challenges	Jill Reinhart, Natural Resources Conservation Service
9:10	Bioaccumulation of Legacy Pollutants in Freshwater Systems using <i>Lontra canadensis</i> (North American River Otter) as Indicators	Kathryn Mudica [STUDENT], Indiana State University
9:30	Characterizing Changes in Macroinvertebrate Communities of West Fork White River (1979-2015)	Caleb Artz [STUDENT], Ball State University
9:50	Microplastic Pollution in Indiana's White River: An Exploration Study	Lindsay Hylton, Indiana Department of Environmental Management
10:10	Break	
MODERATOR: Martha Clark Mettler		
10:40	Cordova Creek Naturalization Project: Planning and Implementation of an Award-Winning Urban Stream Restoration Project	John Stofleth, cbec eco engineering
11:00	Monitoring Stormwater Reduction Strategies in a Permeable Surficial Aquifer System, Gary, Indiana	David C. Lampe, U.S. Geological Survey
11:20	Ongoing and New Subsurface Investigations by the Indiana Geological and Water Survey	Todd Thompson, Indiana Geological and Water Survey
11:40	Sustainable Groundwater Protection in Marion County, Indiana	Rachel Walker, Mundell & Associates, Inc.
12:00	Student Oral Presentation Awards	
12:05	Lunch at the Monroe Convention Center (Provided in registration)	

MODERATOR: Sally Letsinger, Indiana Geological and Water Survey		
1:30	3-Dimensional Modeling of Unconsolidated Aquifer Material to Evaluate Potential Groundwater Sources	Oliver Wittman, INTERA, Inc.
1:50	Human Health Risk versus Water Resource Protection: Are Indiana's Environmental Cleanup Policies Right for Long-Term Sustainability?	John Mundell, Mundell & Associates, Inc.
2:10	Tetrachloroethylene Groundwater Remediation In A Dolomitic Limestone Aquifer Using Injectable Zero Valent Iron	Valerie Wilson, August Mack Environmental, Inc.
2:30	Groundwater Monitoring at Indiana Coal Ash Disposal Sites	Indra Frank, Hoosier Environmental Council
2:50	Break	
MODERATOR: Indra Frank, Hoosier Environmental Council		
3:20	Analytical Data Assessment and Validation for the Non-Chemist	Andrew Tennyson, August Mack Environmental, Inc.
3:40	How to Get Published	Henk Haitjema, Editor-in-chief of <i>Groundwater</i>
4:00	Status and Priorities for Lake Monroe, Indiana	Sherry Mitchell-Bruker, Friends of Lake Monroe
4:20	IWRA Water-Resources Tools and Techniques Demonstration Day at Flatwoods Park	Sally Letsinger, Indiana Geological and Water Survey
4:40	An Overview of the Geology and Hydrology of Flatwoods Park, Monroe County, Indiana	Bob Autio, Indiana Geological and Water Survey
5:00	Session ends	
5:30	Dinner in Bloomington (On your own)	
7:00	IWRA Business Meeting and Social All members and friends are welcome!	Courtyard by Marriott

Friday, June 29 (Breakfast on your own)

Field Tools and Techniques Demonstration Day: Flatwoods Park 9a-3p

(Detailed schedule pending)

Event, Activity, Demo, Display	Presenter	Category	Space
Quake Cottage: Earthquake Simulator	Gary Motz, Kim Cook, Indiana Geological and Water Survey	Hazards	Parking lot
Augmented Reality Earth Simulator	Kevin Russell, Indiana Geological and Water Survey	Education	Shelter
GeoProbe monitoring well installation	Steve McIntire, Troy Weaver, Indiana Department of Environmental Management	Groundwater	Field

Tractor-mounted GeoProbe soil coring	Drew Packman, Indiana Geological and Water Survey	Groundwater	Field
Hydrology, artesian well	Bob Autio, Indiana Geological and Water Survey	Groundwater	Boardwalk
Ambient water quality	Tracy Branam, Indiana Geological and Water Survey	Groundwater	Boardwalk
Soil core description using a mobile database app	Bob Autio, Indiana Geological and Water Survey	Groundwater	Shelter or Field
Soil core interpretation (possibly perc test) for septic-system suitability	Jim Brown (ret), Monroe County Health Department	Water Quality	Shelter or Field
Borehole flow meters	Randy Bayless, U.S. Geological Survey	Groundwater	Shelter
Downhole camera and associated equipment	Kate Braunschneider, Peerless Midwest	Groundwater	Shelter
Streambed temperature probes	Dave Lampe, U.S. Geological Survey	Ecology	Shelter
Backpack e-fishing	Cyndi Wagner, Indiana Department of Environmental Management	Ecology	Stream
Crayfish/water quality	Kriste Lindberg, City of Bloomington	Ecology	Shelter
Geomorph, habitat assessment	Bob Barr, IUPUI CEES	Geomorph/Ecology	Stream
Water resources interpretive hike	Cathy Meyer, Monroe County Parks and Rec	Education	Trails
Tromino geophysical device demonstration	Don Tripp, Indiana Geological and Water Survey	Geophysics	Field
Karst model	Elizabeth Tompkins, Bloomington Parks & Rec	Groundwater	Shelter
Tentative or Pending			
Gamma logging	Henry Loope, Indiana Geological and Water Survey	Groundwater	Field
pXRF of earth materials	Pat McLaughlin/Kristin, Indiana Geological and Water Survey	Remote sensing	Shelter
Near-surface geophysics	John Mundell, Mundell & Associates, Inc.	Geophysics	Field
Groundwater model	Shane Schmidt, Professional Geologists of Indiana	Groundwater	Shelter
Aerial data collection (drone)	Jeremy Webber, IUPUI, Geography	Remote sensing	Field

Soil health demonstrations, slake and infiltration tests	Pending, Natural Resources Conservation Service	Water quality, soil health	Shelter
Pending	August Mack Environmental, Inc.		

Please contact Sally Letsinger, 2018 IWRA President, sletsing@indiana.edu, (812) 855-1356 for information about the conference, IWRA membership, invoices, or student scholarships. For information about registration, invoicing, and fee payment, contact Cyndi Wagner, 2018 IWRA Registrar, CWAGNER@idem.in.gov, (317) 308-3381.

2018 Symposium Committee:

Sally Letsinger, Jeff Martin, Rosy Hansell, Cyndi Wagner, Joe Schmees, Mark Basch, Kathleen Fowler, Martha Clark Mettler, Randy Bayless, Jack Wittman, Laura Esman, Sara McMillan, Dave Lampe, Bob Barr, Sara Peel, Keith Cherkauer, Ken Smith, and Ginger Davis.

*This is the thirty-ninth annual Indiana Water Resources Association Symposium.
IWRA is a scientific and educational not-for-profit organization established to encourage interdisciplinary communication between persons working in all aspects of water resources.
IWRA is an affiliate of the **American Water Resources Association.***

<http://www.iwra.info/>