

Members and Friends of the Indiana Water Resources Association,

The Indiana Water Resources Association (IWRA) is pleased to announce the following 2018 award winners that were recognized during the 39th Annual Water-Resources Symposium Awards Banquet held at the Monroe Convention Center in Bloomington on June 27, 2018:

William G. Wilber – John S. Zogorski Leadership Award

Dr. Sally L. Letsinger; Indiana Geological and Water Survey – 2018 IWRA President

Charles H. Bechert Award

Kathleen K. Fowler (Semi-retired); USGS, Indiana-Kentucky Water Science Center – for her dedicated career of scientific work to significantly advance the understanding of water resources in Indiana.

Outstanding Achievement Awards

Academic Sector: Dr. Venkatesh Merwade; Lyles School of Civil Engineering, Purdue University - for his work to improve the flood prediction and mapping capabilities for Indiana rivers.

Private Sector: Dr. David A. Hillman, O.D.; Program Director, Nina Mason Pulliam Charitable Trust – for his extraordinary contribution to the Partners for the White River to invest in the health of the White River within Indiana through restoration and protection efforts.

Public Sector: Indiana Finance Authority – for its leadership in conducting a statewide program to sample drinking water for lead contamination in over 900 public schools in Indiana.

Student Poster and Oral Presentation Awards

Poster Presentation: Zhe (Jason) Sun; Purdue University – for his poster “Effects of Viruses on the Development and Decay of Harmful Algal Blooms”.

Oral Presentation: Caleb Artz; Ball State University – for his presentation “Characterizing Changes in Macro Invertebrate Communities of West Fork White River (1979-2015).”

The IWRA congratulates these deserving award winners and is proud to honor their achievements. The following are nominations submitted for the award winners and past recipients of each award:

Charles H. Bechert Award

Kathleen K. Fowler: The last four decades have seen a significant increase in the understanding of the hydrology of Indiana and the Midwestern United States; Kathleen has had a leading role in many of those advances. Kathleen is an author or co-author of 28 publications on the water resources of Indiana and our region; the results of many of which have profoundly influenced evaluation of water-related public hazards, water resource assessment and use, and water-quality protection in Indiana and the Midwestern United States. Kathleen has a Bachelor’s Degree in Geology from Indiana University. Her first major work experience was in the oil fields of Texas and Louisiana as a mud logging geologist, where her nickname was “Lil’ Heifer” (#metoo). The Cajun roughnecks taught her how to throw Little King beer bottles (empty) at the alligators in the bayous surrounding the drill platform. One evening, the roughnecks threw an alligator in the work trailer, officially solidifying her status as “one of the boys.”

She began her career with the USGS as a Field Technician and then a Hydrologist. As a Field Technician, she conducted many hydrologic field trips and especially enjoyed the lakes field trip in northeastern Indiana, considering herself the “Lady of the Lakes.” Kathleen worked through a career advancement program within the USGS that was effectively an internal Master’s Degree program and, with additional coursework, she qualified as a Hydrologist. She is an active member in Indiana Water Resources Association (IWRA) and is a Licensed Professional Geologist.

Kathleen has been a leader in the development of publicly available flood-inundation simulations and map libraries of streams in Indiana. The inundation studies have utilized the broad skill set Kathleen has developed. She has particularly enjoyed the combination of field work surveying stream profiles, incorporating LiDAR data and USGS hydrologic data for hydraulic modeling, and finally, using GIS to display and share results. During the field work, she even waded the Wabash River near Logansport and saved the life of a colleague with quick use of a life line.

Among her publications, she has authored 14 reports and on-line libraries that are regularly used by hazard-mitigation professionals and the public to assess flood risk to life and property. Her work to develop flood-inundation libraries immediately after the Kalamazoo River petroleum spill in 2010 helped environmental professionals identify affected parts of the floodplain and develop response and clean-up plans to mitigate residual hydrocarbons. Her work to compute low-flow characteristics of Indiana streams is the chief reference used to evaluate permitted wastewater and storm-water discharges to Indiana streams. Her team's innovative use of hydrogeologic characteristics to compute low-flow statistics has been adopted by other scientists in other parts of the glaciated Midwestern United States.

Kathleen's career has been highlighted by other contributions to the study of the hydrology of surface-water and groundwater in Indiana. Her descriptions of annual maximum water levels in Indiana lakes remain actively used by hydrologic professionals and the public. Her chapter on the sole-source St. Joseph aquifer system in the "Hydrogeologic Atlas of Aquifers in Indiana," her hydrogeologic and water-quality summary report for that aquifer system, and her evaluation of sediment transport in Juday Creek (one of Indiana's few trout streams) are important contributions to the hydrologic understanding of Northern Indiana. She improved methods to compute loading of mercury in precipitation to Indiana, as represented in a report and a USGS Professional Paper. Other hydrologic professionals actively use results from her work to evaluate their solutions to practical hydrologic and engineering problems, thereby benefiting society.

Kathleen Fowler's career in hydrology has been one of passion and commitment to all of Indiana's surface water and groundwater resources. She served in a volunteer role as treasurer of the Indiana Water Resources Association (IWRA) for 24 years, from 1993 until 2016 and is a regular supporter of the IWRA Student Scholarship Program. Her long-term service to IWRA has enabled and enhanced links among scientists and hydrologic professionals in Indiana that furthered long-term understanding of the State's water resources. Kathleen regularly assists professionals and the public to access published information from USGS and State agencies and to explain and understand a difficult hydrologic problem. Her work and volunteer service to IWRA has earned her the high esteem and respect of her water-resource colleagues.

Kathleen has been a consistent and substantive provider of relevant resources employed by many others in Indiana. She has embodied not only a successful career, but a full life, raising two sons with her husband along with various large, well-loved dogs and now two mules and beehives. This balance has served as a role model for others, whether or not she knew others were paying attention. Her willingness to invest her knowledge alongside new technological tools such as hydrological modeling has imbued those products with the sage wisdom that only the accumulation of years of experience can contribute.

Outstanding Achievement Awards

Dr. Venkatesh Merwade (*Academic Sector*): Dr. Merwade is a professor in the Lyles School of Civil Engineering at Purdue University. Since arriving at Purdue, Dr. Merwade has devoted his academic career to improving the flood prediction and mapping capabilities for Indiana rivers. Specifically, he has developed low cost floodplain mapping techniques including large scale publicly available soil and topographic data. While the Federal Emergency Management Agency (FEMA) creates 100-year flood inundation maps for the nation, these maps do not include many rural and low order streams, which are also prone to flooding. Dr. Merwade's work on floodplain mapping using the SSURGO soil data created a floodplain map for all streams in Indiana. These maps are publicly available and can be downloaded free from Purdue's website: <https://mapsweb.lib.purdue.edu/floodplain/floodmapindiana.html>. Besides these static maps, Dr. Merwade has developed innovative tools and applications that are expected to provide near real-time flood information for all streams in Indiana. A prototype of such as tool, called SWATFlow, is available in public domain at the following link: <https://mygeohub.org/groups/water-hub/swatflow>. SWATFlow uses a simulation model, Soil and Water Assessment Tool (SWAT), in conjunction with USGS streamflow data to provide streamflow for all National Hydrography Dataset (NHD) reaches in Indiana. This tool when coupled with weather forecast will provide near real-time flow information for all the reaches and corresponding flood inundation extent.

Impact of nominee's work on Indiana's water resources: Managing and protecting water resources requires information, which is not always available for all stream reaches. This is especially true for low order streams in many areas where there are no gauges. Dr. Merwade's work has enabled dissemination of critical information such as floodplain maps and streamflow data for these reaches by using public domain datasets and computational tools. Dr. Merwade's SSURGO based maps have been used by

IUPUI's POLIS center for some of their workshops on flood mitigation, and is downloaded by many floodplain managers in Indiana. These maps proved to be a great resource for Indiana and were then expanded to the entire continental United States. These are available at: <https://mapsweb.lib.purdue.edu/floodplain/>. Considering the increasing threat of more frequent and higher magnitude floods, Dr. Merwade's tools related to near real-time flood information and inundation for streams in Indiana will play a critical role in preparing mitigation plans and rescue operations. These tools could also be used to investigate the role of future developments and/or sustainability measures on flood risk in many Indiana communities.

Dr. David A. Hillman, O.D. (Private Sector): Indiana has a strong advocate for the environment and water resources. That advocate is from an unexpected sector of our community: principled philanthropy. David Hillman, Program Director of the Nina Mason Pulliam Charitable Trust, is an important champion of improving our local natural resources, especially water quality.

David Hillman has a fascinating academic pedigree, starting with a science background in biological sciences, then obtaining his doctorate in optometry, and then imbuing his growing interest in philanthropy with a master's in administration – all from Indiana University (or IUPUI). He has an impressive record of lifelong service, including to the Alzheimer's Association, the IU Matching Promise Campaign, and a decade of contributions to civil rights legal services, serving Indiana's poorest citizens. Dr. Hillman's current position is at the Nina Mason Pulliam Charitable Trust, where he has worked for 18 years.

The mission of the NMP Charitable Trust is to support people in need, animals and nature, and to enrich community life. In David's capacity as Program Director, he reviews proposals in all of these areas, but especially Indiana environmental proposals. The approach of the Trust is twofold: to educate and to spur on-the-ground action. Education is supported through subsidizing objective environmental reporting. Action started as a dull roar with developing Indiana water governance recommendations as a follow-on to the well-received 2014 Chamber of Commerce water management report. Recently, that call-to-action has been forcefully brought forward into the awareness of the greater public.

The outstanding achievement highlighted in this nomination is the recent extraordinary contribution made to 9 non-profit organizations comprising the Partners for the White River to invest in the health of the 362-mile White River in Indiana through restoration and protection efforts. The river affects the lives of millions of people and animals in central Indiana, providing drinking water and habitat. Conservation of that resource has not always been a priority for Hoosiers. For this enormous collaborative project to happen, Dr. Hillman clearly recognized the potential impact not only of the river on the state, but the potential transformational impact that a CLEAN river could have on the state and its citizens. How many outside investors would have directed resources to a non-navigable river in "flyover" country? It took a local advocate to be paying attention, be creative, and work towards such a noble end result.

David Hillman oversees grants for the Trust, and will ensure that implemented actions will be scientifically based and will use various metrics to track and evaluate outcomes. In the case of the White River project, the primary goals are to make the river cleaner, ensure accessibility to the watershed, and increase appreciation and understanding of the river to all stakeholders. These goals will be met by a combination of water-quality research, addressing nutrient inputs to the waterway, ameliorating water contamination owing to surface-mining activities, investing in the waterway trail system, and habitat restoration activities. Part of the award will support the first few years of an annual water summit. The first Indiana Water Summit is coming up soon in Indianapolis, on August 12-13, 2018, and you are welcome to attend! Sign up here at: <https://thewhiteriveralliance.org/programs/water-summit>.

We, as Indiana citizens, are so fortunate to have a local advocate, with an incredible history of service to us all.

Indiana Finance Authority (Public Sector): A public-private partnership has been underway for over a year to collaboratively conduct a statewide program to sample drinking water in over 900 public schools in Indiana for lead contamination. The program was initiated by the Indiana Finance Authority (IFA), who have provided leadership for the program, as well as technically adept staffing to guide protocol guidance to the other team members. The IFA conducted detailed surveys of all registered schools, and handled review of the drinking water sample analysis results and working one-on-one with schools to remediate any problems found during the program.

Under direction of the IFA, the Indiana Geological and Water Survey (IGWS) coordinated the statewide sampling team, distributed into 9 regional sampling centers across the state. The IGWS adhered to

rigorous standards, and completed the program in a single school year. The entire IGWS program, including coordination, support, administration, and field staff, encompassed 80 people, all dedicated to the common goal of accurately describing and documenting every drinking water fixture and collecting water samples from those fixtures. A small Indiana-based start-up company named 120WaterAudit also participated in the program by creating a web-based software platform to host and populate the database that holds all of the detailed information about every drinking water fixture and every sample collected in the program. The software was integral in the standardization of the program statewide, allowing the field Technical Assistance Providers to conduct their inventories online, the coordinators to document every school visit, and the IFA to review results and document remediation measures. The water sampling campaign to identify lead contamination in drinking water fixtures in Indiana schools is an excellent example of the Indiana Finance Authority's mission to "oversee State-related debt issuance and provide efficient and effective financing solutions to facilitate state, local government and business investment in Indiana". The nomination of the Indiana Finance Authority for recognition of outstanding achievement in the public sector highlights how collaboration and communication can achieve positive results for the citizens of Indiana.

Past Award Recipients:

Charles H. Bechert Award:

1981 Oral Hert
1982 Dan Weirsma
1984 Bill Andrews
1986 Bill Steen
1990 Dennis Stewart
1992 Jacque Delleur
1996 Jim Barnett
1998 John Simpson
2002 Tom Bruns
2004 Mark Reshkin
2006 Charlie Crawford
2007 Judith Beaty
2008 Jim Stewart
2009 Dennis Clark
2010 Jim Gammon
2011 John Craddock
2012 Dick Powell, Noel Krothe
2013 Henk Haitjema
2014 Les Arihood
2015 Greg Olyphant
2016 Manuela Johnson
2017 Dr. William G. Wilbur

Outstanding Achievement Awards:

Academic Sector:

2009 Lenore Tedesco
2010 Bill Jones
2011 Ron Turco
2012 Alan Johnson
2013 Sara Pryor
2014 Jane Frankenberger
2015 Manchester University Environmental Studies
2016 IUPUI Dept. of Journalism and Public Relation
2017 Bob Barr

Private Sector:

2009 Siavash Beik
2010 The Nature Conservancy

2011 Jill Hoffmann & Lyn Crighton
2012 Robert Armstrong
2013 Jack Wittman
2014 Sara Peel
2015 Acres Land Trust
2016 Todd Feenstra
2017 Mike Starkey & Jack Maloney

Public Sector:

2009 Dave Knipe
2010 Rod Renkenberger
2011 IDNR, Division of Water
2012 Johnson Co. WHP/LPT
2013 Sally Letsinger
2014 Bill Guertal
2015 Jane Hardisty
2016 James Sullivan
2017 Shannon Zezula

Thanks to all who submitted nominations and congratulations to the 2018 recipients.

Sincerely,

Mark Basch
IWRA Awards Committee