

Members and Friends of the Indiana Water Resources Association,

The Indiana Water Resources Association (IWRA) is pleased to announce the following 2014 award winners that were recognized during the 35th Annual Water-Resources Symposium held at the Canyon Inn, McCormick's Creek State Park, on June 11-13, 2014:

Charles H. Bechert Award

Leslie D. Arihood, Hydrologist (retired); U.S. Geological Survey, Indiana Water Science Center – For his lifelong work to advance the understanding of water resources in the State of Indiana

Outstanding Achievement Awards

*Academic Sector* - Jane Frankenberger; Ph.D.; Purdue University - for her work dealing with watershed management, assessment and protection, water monitoring, and her extensive public outreach efforts.

*Private Sector* – Sara Peel; Wabash River Enhancement Corp. - for her efforts with the Wabash Sampling Blitz and her commitment to increase citizen awareness of the Wabash River's water quality.

*Public Sector* – William Guertal, Ph.D; U.S. Geological Survey - for his advancement of water resource science and his efforts to build partnerships with various groups and agencies to promote the stewardship of the Indiana's water resources.

The IWRA congratulates these deserving award winners and is proud to honor their achievements. The following are the nominations for each of the 2014 award winners, as well as past recipients of each award:

Charles H. Bechert Award

**Leslie D. Arihood:** Les Arihood's stalwart career of scientific work has significantly advanced the understanding of water resources in Indiana and is most deserving of this recognition.

The past 40 years have seen a significant increase in the understanding of the hydrology of Indiana and the Midwestern United States; Les has had a leading role in many of those advances. Les is an author or co-author of 27 publications on the water resources of Indiana and our region; the results of many of which have profoundly influenced water resource assessment and use, water-quality protection, and evaluation of water-related public hazards in Indiana. He has reached out to the scientific community and public through numerous presentations. Les is an engineering graduate of Purdue University. He began his career as a Hydrologic Field Assistant in the U.S. Geological Survey (USGS) in Indianapolis in August 1972, became a Hydrologist in 1973, and worked in that capacity until his retirement from the USGS in 2010. Since retirement, Les has continued advancing the hydrologic sciences in his role as a scientist emeritus, also with USGS.

Les has been a leader in the development of computer simulations of groundwater flow in Indiana. His simulations of groundwater flow in glacial and alluvial aquifers near the White River in Delaware, Hamilton, Randolph, and Tipton Counties in the early 1980's remain the most comprehensive regional investigations of groundwater flow dynamics in those areas. His simulations of groundwater flow near constructed and natural wetlands in the Kankakee River basin identified effects of streambed scour on changes in the hydraulic conductivity of streambeds—an important characteristic in evaluating surface-water/groundwater interactions. Les's models of the St. Joseph aquifer system in St. Joseph County (with Randy Bayless) and Elkhart Counties (with David Cohen) were the first publicly available groundwater model results to incorporate distinctions between the upper and lower aquifers in those systems; an important evolution in the understanding, development, and protection of those resources. He has provided modeling assistance to the IDNR, Division of Reclamation that assisted with design of land reclamation strategies. This is not a comprehensive list, only some of the most notable among his efforts.

Les developed methods for estimating low flow characteristics of unaged streams in Indiana that are still used by professionals. He is actively working during retirement to update those regional regression equations to incorporate new data since the original methods were published. He is also an accomplished surface-water hydrologist, having completed runoff modeling studies early in his career and contributed to a flood inundation evaluation of the White River in Indianapolis just before his retirement. Les was among the first hydrologists to develop linkages between geologic classifications, geographic information systems, and the pre- and post- processing of groundwater-model data. Les used GIS and

database software in combination with data from Indiana Department of Natural Resources, Division of Water computerized database of well records to create groundwater model frameworks from the geologic information in hundreds to thousands of individual well records. His methods were used to integrate and analyze data for many efforts, notable among which are: (1) the source-water assessment of Indiana—a statewide analysis of the vulnerability to contamination at about 2,300 ground-water systems, (2) an analysis of data from about 400,000 well logs to develop the model framework of glacial sediments for a groundwater model of the Lake Michigan Basin, and (3) a near-real-time model of flooding along the White River. Les's understanding of the hydrologic significance of geologic properties in water-well records led to significant improvement in the level of detail used to simulate groundwater flow systems in Indiana and elsewhere.

Since retirement, Les has spearheaded (with Randy Bayless) development of a multistate water-well record database of the glaciated United States. Les's well-record analyses are being used to compute hydrogeologic properties for 25 states that encompass the entire glaciated U.S. (including Alaska) and parts of southern Canada. The spatial information created by those studies are being used in models of (1) water availability and groundwater/surface-water interaction in the Lake Michigan drainage basin, (2) freshwater impacts from oil drilling in the Williston Basin (North Dakota and Montana in the USA and parts of Saskatchewan and Manitoba in Canada), (3) nutrient contamination in Iowa by the National Cancer Institute, and in (4) water quality and availability studies in the glaciated U.S. by the USGS National Water Quality Assessment Program.

Les Arihood's career in hydrology has been one of passion and commitment to all of Indiana's water resources. He is constantly examining the literature and searching for new ways to expand our understanding by better utilizing existing data, he is a regular supporter of the IWRA Student Scholarship Program, and frequently throws killer parties for friends in the water-resource community. Many in the water resource community can identify personal stories about how Les has reached out to assist a student, a professional, or a member of the public to understand a difficult problem. As a scientist emeritus, Les comes to work almost every day to teach and assist current staff. Most people exercise to forget about work; Les will tell you that exercise allows him to block out the distractions and gain clarity about the best approaches to understand our water resources. His work has earned him the high esteem and respect of his water resource colleagues.

#### Outstanding Achievement Awards

**Dr. Jane Frankenberger** (*Academic Sector*): Dr. Frankenberger is a renowned scientist, prolific and caring author, outstanding educator, and a water resources ambassador extraordinaire. She earned a B.A. in Physics from St. Olaf College, Northfield, Minnesota, an M.S. in Agricultural Engineering from the University of Minnesota, and a Ph.D. in Agricultural and Biological Engineering from Cornell University. Before joining the ABE Department in 1996, she spent eight years working in Africa, both in the Democratic Republic of Congo (formerly Zaire) and in Senegal. In 2002-2003, she worked at the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Agriculture (USDA) in Washington DC, focusing on TMDLs and the role of land grant university extension and research in the TMDL process.

Jane's contributions to water resources management in Indiana include the following:

1. **Educating and connecting Indiana's water community through the [Indiana Watershed Leadership Program](#).** She developed and leads this program, which aims to strengthen water resources management in the state through education of future watershed leaders, building a support network for watershed groups, and providing access to and training on innovative tools. The program includes three main components:

- The Indiana Watershed Leadership *Academy* is a five-month intensive experience combining in-person and distance education. More than 265 people have participated over the past eight years, and they credit the experience with opening their eyes to the broader issues of watershed management as well as equipping them with tools to lead local efforts, resulting in clear and direct impacts on improved watershed protection in the state.
- *Webinars to strengthen water resources management*: The [Indiana Watersheds Webinar Series](#) organizes monthly webinars in topics such as Indiana's water shortage plan, effective

sampling programs, innovative conservation practices, Limnology 101, permitting for streams and wetlands, and effective group leadership. These webinars connect people around the state through live interaction while listening to researchers, water agency staff, and local water managers with great ideas. More than 1000 participants have appreciated the opportunity to hear excellent speakers and the latest information while saving time and money by not traveling.

- [Online tools to enhance water resources and watershed management](#). Jane has led the development of several web-based tools such as the Indiana HUC and Watershed Finder, the [iwatersheds.net](#) networking tool, and a web-based load calculation tool. She also seeks out and provides training on and links to other tools that guide water managers to existing data, analyze measurements, map watersheds, and provide critical watershed information.

## 2. Contributing to coordination of water monitoring in Indiana.

- Jane organized some of the meetings that led to the formation of the Indiana Water Monitoring Council, and took on the role of developing a clearinghouse of monitoring in Indiana, the [Indiana Water Monitoring Inventory](#). The Inventory is an online hub that holds the locations of thousands of monitoring sites around the state. Despite limited funding, the technology behind it has been upgraded several times to keep pace with current web-based mapping protocols, and monitoring sites continue to be added.
- She and Laura Esman compiled protocols of monitoring methods of the major state water monitoring agencies, and compiled them in an online tool called the [Catalog of Monitoring Protocols used by Indiana Agencies](#). This has increased the potential to share data and methods across agencies, and allowed data users to better understand the monitoring methods.
- They also developed a monitoring manual for Indiana watershed groups, stormwater programs, and others called [Monitoring Water in Indiana: Choices for Nonpoint Source and Other Watershed Projects](#). Jane recorded video training to help others use the manual and set up water monitoring programs that go beyond fulfilling program requirements to complement existing efforts and add to our knowledge of water resources.

Jane also serves as a cooperative extension specialist and has developed numerous tools and publications for watershed protection. Included within the statewide publications are several county site-specific water resources publications which are very informative and yet easy to read. The Purdue Cooperative Extension Specialists Association awarded the Mid-Career Award to Dr. Jane Frankenberger. The Mid-Career Award recognizes an Extension specialist with 11-20 years of service that demonstrate Extension leadership; excellence in delivering public education programs; innovative approaches to program development; outreach efforts to county Extension Educators; research that benefits Extension clientele through practical application; or demonstrated collaboration with county Educators, agencies, or community leaders.

Dr. Frankenberger is responsible for the Purdue University Cooperative Extension Service program in soil and water engineering and water management, and serves as the Extension Water Quality Coordinator. She is an author or co-author of more than 30 extension publications dealing with watershed management and assessment, wellhead protection, drinking water testing and treatment, and land use impacts on water quality. She has led numerous projects working with communities and public water supply systems throughout Indiana to develop source water protection strategies and manage drinking water quality.

Dr. Frankenberger's research focuses on watershed management, nonpoint source modeling, and water and nitrate flux to subsurface drainage tiles. She developed a GIS-based model of the variable source area runoff-generating process responsible for transport of pollutants such as pathogens and pesticides transported primarily by surface runoff, and has analyzed factors that can be used to determine critical watersheds for pesticide contamination in Indiana. She has studied the impact of spatial variability of

precipitation and topography in site-specific agriculture, and is using the drainage model DRAINMOD to predict water and nitrate pathways and flow quantities in areas of subsurface drainage.

**Sara Peel (Private Sector):** Sara Peel's background is solid and well developed in the environmental area. She has completed assessment for Griffy Lake Nature Preserve Master Plan. She has also developed watershed management plan and assisted with the implementation of plan for Indiana's largest natural lake (Lake Wawasee) and its watershed. She has served on the Indiana Lakes Management Society Board since 2004 and helps to develop the annual education and outreach plan for their annual conference. In all, she is spending a great deal of time and energy working to improve the Wabash River, Indiana's longest and most important water body. She has worked with more than 30 groups throughout Indiana to assess watersheds and water quality issues and has help to identify solutions to improve conditions on more than 70 lakes and 30 streams in the state.

The Wabash River Enhancement Corporation (WREC) was established in 2005 in an effort to boost environmental, economic and social conditions within the Wabash River Corridor in Tippecanoe County, Indiana. WREC's mission of the Wabash River Enhancement Corporation is "*to enhance the quality of life in the Wabash River Corridor by providing sustainable opportunities to improve health, recreation, education, economic development, and environmental management.*" The Wabash River Enhancement Corporation has advanced this goal by simultaneously focusing on corridor master planning and watershed planning and education efforts. To promote recreation, education and environmental management, the Wabash River Enhancement Corporation staff and volunteers dedicated thousands of hours toward connecting watershed residents to the Wabash River through the **Wabash Sampling Blitz**.

The Wabash Sampling Blitz was began in the fall of 2009 by **Ms. Sara Peel** and occurs twice annually. The Blitz creates a unique view or snapshot of water quality within the Region of the Great Bend of the Wabash River and Wildcat Creek watersheds using citizen scientists to collect and analyze water quality samples in a coordinated single-day event. The Blitz has three key objectives: 1) Connect volunteers of all ages to the Wabash River and its tributaries; 2) Increase community awareness about water quality in the Wabash River and its tributaries; and 3) Encourage community actions to positively impact the Wabash River and its water quality through individual actions at home and at work.

**Dr. William Guertal (Public Sector):** Dr. William Guertal's accomplishments to advance the water resources science of Indiana began when he arrived from Maryland in 2006 to accept the position of Director for the USGS Indiana Water Science Center. From the beginning Dr. Guertal made it a priority to meet with the many constituents that represent Indiana's water resources community. He made it a priority for he or his staff to be involved with groups such as IWRA, INAFSM, The Indiana Silver Jackets, and The Indiana Water Shortage Taskforce; he encouraged staff to attend many conferences and meetings to find out where there were unmet needs that the USGS could bring resources to assist with. The result of this work has been a significant expansion of the Indiana hydrologic monitoring networks and the undertaking of innovative new hydrologic investigations in such as areas as flood science products and tools and water quality monitoring. Bill believes in building coalitions and partnerships with a broad base of groups including federal, state, and local government agencies, universities, NGOs, and the private sector. One fruit of those labors is the new Indiana Water Monitoring Council. Bill was instrumental in getting the Council formed and on track to becoming an excellent partnership for furthering the stewardship of Indiana's water resources. In 2009 the USGS combined the Indiana and Kentucky offices under Bill – this new model, called a Water Science Center Commonwealth, allowed Bill to leverage scientific capabilities from Kentucky to help with Indiana water resources issues, such as flooding in the karst terrain of Orange County. In 2013 Bill moved up to a position as Deputy Regional Executive Director for Science for the USGS Midwest Region; even in this position he has continued to look toward Indiana and the excellent work done here by many partners to forward the relevance and benefits of USGS

**Past Award Recipients:**

Charles H. Bechert Award:

1981 Oral Hert  
1982 Dan Weirisma  
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

Outstanding Achievement Awards:

*Academic Sector:*

2009 Lenore Tedesco  
2010 Bill Jones  
2011 Ron Turco  
2012 Alan Johnson  
2013 Sara Pryor

*Private Sector:*

2009 Siavash Beik  
2010 The Nature Conservancy  
2011 Jill Hoffmann & Lyn Crighton  
2012 Robert Armstrong  
2013 Jack Wittman

*Public Sector:*

2009 Dave Knipe  
2010 Rod Renkenberger  
2011 IDNR, Division of Water  
2012 Johnson Co. WHP/LPT  
2013 Sally Letsinger

Thanks to all who submitted nominations and congratulations to the 2014 recipients.

Sincerely,

Mark Basch  
IWRA Awards Committee