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2021 Virtual UCOWR/NIWR Annual Water Resources Conference

June 8, 2021—June 10, 2021
9:00 AM-5:00 PMCT

Conference Questions, Contact Melissa May at 618-536-7571 or
Email: ucowr@siu.edu

Live-streamed plenaries, panels, and workshops.

Recorded oral and poster presentations followed by live Q&A.

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Agenda

(conference begins at 9 AM CDT)

Search for sessions...

June 8, 2021

Welcome & Plenary I - Dale Threatt-Taylor

9:00 AM-10:00 AM

Plenary Topic: [Challenges in Conservation](#)

Welcome by Jonathan Yoder, UCOWR President and Kevin Wagner, NIWR President

Introduction: Michael O'Driscoll, East Carolina University

Q&A Moderator: Karl Williard, Southern Illinois University

The Hypoxia Task Force and SERA-46 I

10:15 AM-11:45 AM

The Hypoxia Task Force and SERA-46: A Framework for University-Agency Partnerships to Improve Nutrient Management and Water Quality

Moderator: Rebecca Power, University of Wisconsin Extension

This session will introduce the Hypoxia Task Force and SERA-46, and present university-led projects that are addressing systemic challenges related to agriculture, water, science, and society. Projects will address innovations in agricultural drainage water management; food, energy, and water systems in the Upper Mississippi Basin; efforts to create plausible and practical pathways toward agricultural systems with expanded perennial grassland components; and efforts to expand watershed networks and farmer leadership in watershed management beyond the farm gate.

Talks:

1. Introduction (**Rebecca Power**, University of Wisconsin Extension)
2. The Hypoxia Task Force: Partnership with Land Grant Universities to Make Progress (**Katie Flahive**, US Environmental Protection Agency)
3. SERA 46: A Multi-State Land Grant Research and Extension Collaboration to Improve Mississippi River and Gulf of Mexico Water Quality (**Mike Daniels**, University of Arkansas System Division of Agriculture)
4. Building Capacity for Watershed Leadership in the MARB (**Amanda Gumbert**, University of Kentucky Cooperative Extension Service)
5. Multi-State Collaboration to Improve Mississippi River and Gulf of Mexico Water Quality through Farmer-Led Initiatives and Farmer-Driven Data (**Beth Baker**, Mississippi State University)

The Need For A Core Curriculum for Academic Water Conservation Degrees

10:15 AM-11:45 AM

Panel discussion Moderator: Amy Vickers, Amy Vickers & Associates, Inc. Water Conservation managers and allied professionals play an increasingly important role in managing the water demands of public and private water supply systems and agricultural water districts in the United States. The jobs held by these water efficiency specialists typically require at least an undergraduate and often a graduate level education to serve in roles as engineers, planners, scientists, technologists, economists, program managers, policy makers, and researchers. As climate change, chronic drought, and water shortages increasingly impact the nation's 50,000-plus large and small water systems and irrigation districts, the need for highly trained water conservation professionals to do more with less water in the residential, commercial, industrial, irrigation, agricultural, and water infrastructure sectors will continue to grow in the decades if not centuries ahead. Despite this growing need, there is currently a shortage of professionals and specialists to meet these

employment demands. An ad hoc committee of academicians and conservation professionals and leaders recently identified the primary reasons for the growing dearth of qualified water conservation professionals. First, few have the knowledge and skills required to employ the numerous advances in water efficiency technologies, practices, and policies that have emerged over the past 5-10 years. Second, there is a general lack of awareness and funding for advanced water conservation education on the university level, in contrast to the numerous energy and energy efficiency graduate programs and institutes focused on energy security and conservation. This session will bring together leading U.S. academics in the fields of urban and agricultural water efficiency as well as water utility policy and regulation to discuss the educational and skill requirements needed by water conservation professionals. Further, they will outline the types of academic curricula that could serve as the basis for the first undergraduate and graduate level degree programs in water conservation.

Understanding and Managing Water Resources Related Human Health

10:15 AM-11:45 AM

Moderators: Anna Gitter and Lucas F. Gregory, Texas Water Resources Institute, Texas A&M AgriLife Research

Increased awareness of potential contaminants in existing water supplies raises concerns about connections between water and human health. Various contaminants pose multiple potential health concerns. Growing municipal water demand exacerbates concerns as alternative sources are commonly being considered for future supplies. With advancements in contaminant detection, risk analysis and public communication, there is an increased need to understand and apply effective management approaches to address these water quality concerns. Managing water quality to protect human health in the future will undoubtedly increase in complexity and must consider factors geology, hydrology, land use, treatment and distribution system composition, and contaminant load. This panel discussion will convene a broad spectrum of topical experts to discuss managerial, regulatory and technical issues and implications associated with ensuring the availability of safe water supplies for the future in the face of evolving contaminant threats.

Talks followed by Panel Discussion

1. Understanding Risks of Contaminants of Emerging Concern in Water Resources (**Bryan Brooks**, Baylor University)
2. Minnesota Department of Health's Drinking Water Contaminants of Emerging Concern Initiative (**Helen Goeden**, Minnesota Department of Health)
3. Understanding and Managing Water and Human Health (**George Kraynick**, City of Minneapolis)
4. Environmental Exposures: What Is Water's Role? (**Kristina Mena**, UTHealth Houston School of Public Health El Paso Campus)

Plenary II - Suat Irmak

12:15 PM-1:00 PM

Plenary Topic: Agricultural Irrigation

Introduction: Bridget Guerrero, West Texas A&M University

Q&A Moderator: Karl Williard, Southern Illinois University

The Hypoxia Task Force and SERA-46 II

1:15 PM-2:30 PM

The Hypoxia Task Force and SERA-46 II: A Framework for University-Agency Partnerships to Improve Nutrient Management and Water Quality

Moderator: Rebecca Power, University of Wisconsin Extension

Talks followed by Discussion:

1. Introduction (**Rebecca Power**, University of Wisconsin Extension)
2. Transforming Drainage (**Jane Frankenger**, Purdue University)
3. Integrating Numerical Modeling, Social-ecological Research, and Outreach to Address Food, Energy, and Water Security Challenges in the Upper Mississippi River Basin (**Chris Kucharik**, University of Wisconsin-Madison)
4. How Do We Make Livestock Agriculture Part of the Clean Water Solution? (**Randy Jackson**, University of Wisconsin)
5. Facilitated discussion on future of research, outreach, and management in the Mississippi River Basin

HydroLearn, an Open Source Platform

1:15 PM-2:30 PM

Workshop

Moderator - Emad Habib, University of Louisiana at Lafayette

HydroLearn (www.hydrolearn.org) is an educational platform that combines research-based active-learning methods with authentic online learning modules and is designed specifically for Hydrology and Water Resources disciplines. HydroLearn aims to enable instructors to develop and share active-learning innovations, and to enhance student learning in fundamental topics in the field (e.g., rainfall-runoff processes, design of flood protection measures, flood forecasting, and water-energy-food nexus).

This workshop is offered for hydrology and water resources faculty interested in implementing or adapting authentic and active-learning resources in their classes, especially those who teach undergraduate or early-level graduate courses. The workshop will showcase examples of existing learning modules on HydroLearn on various topics that can be readily adopted by the workshop participants. The workshop will also share efforts towards building user support mechanisms in the form of lesson-based learning objectives and assessment rubrics that scaffold instructors' implementation of sound pedagogical practices. These support mechanisms are critical for enhancing adoption and ensuring the customizability and long-term sustainability of educational developments that use case-based approaches with intensive data and modeling resources. During the interactive portion of the workshop, attendees will have the opportunity to navigate through an existing module to experience the platform from the learner's perspective. Participants will also be guided through the process of creating their own module, uploading and editing content, and writing learning objectives and an assessment rubric. Interested faculty may also adopt existing modules or customize them for their specific needs.

Agricultural Water Conservation and Irrigation

1:15 PM-2:30 PM

Moderator: Lucas Gregory, Texas A&M University

Video presentations begin every 15 minutes. Live chat with the presenter during the presentation.

1. Asymmetric Effects of Rate Structure Change on Residential Water Conservation in California (**Juhee Lee**, University of California, Riverside, School of Public Policy)
2. Experimental Investigations into the Use of Brackish Blended Groundwater for Agricultural Irrigation: Enhancing Groundwater Quantity while Maintaining Soil Health (**Nathan Howell**, West Texas A&M University, College of Engineering)
3. Deficit Irrigation Strategies to Fit Desert Crop Guar in the Southern High Plains Cropping Systems (**Sangu Angadi**, New Mexico State University)
4. Integrating the Agricultural Conservation Planning Framework into Watershed-scale Conservation Planning: Guidance for the NRCS and Conservation Partners (**Emily Usher**, Purdue University)
5. Using Smart Energy and Water Meters to Inform Agricultural Groundwater Use in Cap Bon Peninsula, Tunisia (**Ali Mirchi**, Oklahoma State University)

Hypoxia Task Force States Nutrient Reduction Strategies

2:45 PM-4:00 PM

Hypoxia Task Force States Nutrient Reduction Strategies: 10 Years of Progress, Lessons Learned, and National Comparisons

Moderator: Adam Wilke, University of Minnesota

In 1997, the Hypoxia Task Force was established to address Gulf hypoxia and other nutrient loading concerns. In 2008 the Task Force released an action plan that asked the state members to develop Nutrient Reduction Strategies (NRS) by the end of 2013. In 2011, Nancy Stoner, the Acting Assistant Secretary of the Environmental Protection Agency, released a memo (the Stoner Memo) exhorting Mississippi River Basin (MRB) states to "make greater progress in accelerating the reduction of nitrogen and phosphorus loadings." In response, all 12 states in the core MRB have adopted NRS that align with most or all of these recommended elements. This session will review how different states responded to the "Stoner Memo" mandate and discuss implications of a decentralized approach to addressing a national environmental water quality problem. Speakers will highlight key lessons in individual states and compare differences across states. We will also discuss the relationship of this effort to the Great Lakes Water Quality Agreement.

Talks followed by Panel Discussion

1. The Context: Gulf Hypoxia Task Force States Nutrient Reduction Strategies (**Ken Genskow**, University of Wisconsin-Madison)
2. Moving the Stoner Principles East?: The Great Lakes Water Quality Agreement and the Stoner Memo (**Stephen Gasteyer**, Michigan State University)
3. Been There, Done That: Reflections on Three Decades of Effort to Address Hypoxia in the Chesapeake Bay (**Kurt Stephenson**, Virginia Polytechnic Institute)
4. Meeting Goals and Tracking Quantified Progress: The Hypoxia Task Force (**Katie Flahive**, US Environmental Protection Agency)
5. Nutrient Reduction Strategies: Panel Discussion on Cross-state Comparisons (**Adam Wilke**, University of Minnesota)

Water and Big Data

2:45 PM-3:45 PM

Panel Discussion Moderator: Jeff Peterson, University of Minnesota The data revolution presents a new and exciting opportunity to address water quality challenges. To unleash the promise of data-enabled precision management, several hurdles must be overcome. Various efforts are underway to store and standardize the large volumes of public water quality data collected through existing federal, state and local programs. However, new forms of water data from onsite instruments, satellites, and citizen science programs are rapidly increasing, and many of these datastreams originate in the nonprofit, academic, and private sectors with disparate data standards. Socioeconomic and land use change data are also being collected from a similarly diverse array of actors. This session will explore the Midwest Big Data Hub Water Quality Priority area and its strategies to build and convene an innovation network to accelerate and sustain the development of standards, data sets, and cyberinformatics tools that will help to address critically missing links and bottlenecks related to water resources research and development.

Tracking Watershed Nutrients

2:45 PM-3:45 PM

Moderator: Li Li, Penn State University

Video presentations begin every 15 minutes. Live chat with the presenter during the presentation.

1. Isotope Tracers in Nutrient Source Tracking (NST) of Nitrate, a Different Perspective of Surface and Groundwater Remediation (**Sean Ahearn**, Beta Analytic, Inc.)
2. The Shallow and Deep Hypothesis: Subsurface Vertical Distributions of Chemicals Shape Export Patterns in Streams (**Li Li**, Penn State University)
3. Quantifying the Influence of Onsite Wastewater Treatment Systems on Nutrient Loading to Falls Lake, NC (**Michael ODriscoll**, East Carolina University)
4. Diatoms as Indicators for Agricultural Best Management Practice Effects on Water Quality in the Delaware River Watershed (**Mariena Hurley**, The Academy of Natural Science)

Groundwater Sustainability: From Regional Practices to a National Agenda

4:00 PM-5:00 PM

Moderator: Ruopu Li, Southern Illinois University Carbondale

Video presentations begin every 15 minutes. Live chat with the presenter during the presentation.

*student in oral presentation competition; [Click here for the evaluation form. Complete one for each student.](#)

1. *Assessing the Critical Role of Managed Aquifer Recharge to Recover California Central Valley's Groundwater Overdraft (**Sarfraz Alam**, University of California, Los Angeles)
2. National Center for Alluvial Aquifer Research: A Multidisciplinary and Collaborative Consortium to Address Groundwater Depletion in the Lower Mississippi River Basin (**Drew Gholson**, Mississippi State University)
3. Potential Application of Remotely Sensed Gridded Precipitation Data in Water Resources Management (**Mahesh Pun**, University of Nebraska-Lincoln, Long Spring Consulting)
4. Groundwater Sustainability in Irrigation Landscapes: An Interdisciplinary Socio-Ecological System Research Agenda (**Ruopu Li**, Southern Illinois University at Carbondale)

Agricultural Water Economics

4:00 PM-5:00 PM

Moderator: Shani Golovay, Illinois Nutrient Research and Education Council

Video presentations begin every 15 minutes. Live chat with the presenter during the presentation.

*student in oral presentation competition; [Click here for the evaluation form. Complete one for each student.](#)

1. *Quantifying the Economic Costs of High Plains Aquifer Depletion (**Gabriela Perez Quesada**, Kansas State University)
2. Reducing Acreage in Deficit Irrigation Systems to Maximize Producer Profitability (**Donna McCallister**, Texas Tech University)
3. Economic Assessment of a Water Demand Management Program in Wyoming's Portion of the Colorado River Basin (**Kristiana Hansen**, University of Wyoming)

4. *Water Management Practices: Use Patterns and Influencing Factors (**Merri Day**, University of Arkansas - Department of Agricultural Economics and Agribusiness)

Stormwater Infrastructure and Management

4:00 PM-5:00 PM

Moderator: Nathan Howell, West Texas A&M University

Video presentations begin every 15 minutes. Live chat with the presenter during the presentation.

*student in oral presentation competition; [Click here for the evaluation form. Complete one for each student.](#)

1. *Reversing Development Impacts Through Green Stormwater Infrastructure: Establishing a Post-Construction Baseline (**Sarah Estes**, Villanova University Center for Resilient Water Systems)
2. Collaborative Educational Programming for Phase II Stormwater Regulation Compliance in the Greater Lansing, MI Region (**Ruth Kline-Robach**, Michigan State University)
3. Peak Flow Attenuation Using Overflow Weir and Ditch-Bottom Inlet: A Catchment Scale Comparative Study (**Hafiz Ahmad**, Florida State University)
4. *Occurrences and Temporal Dynamics of Pathogens and Antibiotic Resistance Genes in Different Stormwater Reuse Systems (**Tamara Walsky**, University of Minnesota Twin Cities)

Student Career Night

5:30 PM-6:30 PM

Calling all Students and New Professionals!

Please join us for a lively discussion and question & answer session about water resource careers with a panel of experts with diverse training and experience in water professions. Come and hear about coursework and training recommendations, strategies for job searching, interviewing tips, and typical career tracks in governmental agencies, extension, academia, non-governmental organizations, public water utilities, and private consulting and future directions in water resources employment. Our panel of experts will include:

- **Karen Bareford**, National Water Extension Liaison, Mississippi-Alabama Sea Grant Consortium
- **Natasha Bell**, Assistant Professor, East Carolina University
- **Steve Buan**, Hydrologist in Charge, North Central River Forecast Center, National Oceanic and Atmospheric Administration (NOAA)
- **Scott Mansell**, Senior Engineer, Clean Water Services, Hillsboro, Oregon
- **Dale Threatt-Taylor**, Executive Director, South Carolina Chapter, The Nature Conservancy

Moderated by **Mike O'Driscoll**, Associate Professor, East Carolina University

Each panelist will give a brief, informal presentation of their career experiences in water resources, followed by an open question and answer and discussion period. This is a "must do" activity for students and new professionals alike.

June 9, 2021

Plenary III, Warren Hall Medal Recipients, Dr. Ron Lacewell and Dr. Mac McKee

9:00 AM-10:00 AM

The UCOWR Warren A. Hall Medal is a lifetime achievement award. 2021 recipients are Ron Lacewell of Texas A&M University and Mac McKee of Utah State University.

Introduction: Jeff Peterson, University of Minnesota

Q&A Moderator: Karl Williard, Southern Illinois University

Human Dimensions of Water Resources Management

10:15 AM-11:45 AM

Moderator: Adam Wilke, University of Minnesota

Video presentations begin every 15 minutes. Live chat with the presenter during the presentation.

*student in oral presentation competition; [Click here for the evaluation form. Complete one for each student.](#)

1. *Securing Water Resilience through Collaborative Engagements and Policies (**Gretel Follingstad**, University of Colorado)
2. Adaptive Water Governance and Transitions toward Ecosystem-based Adaptation: A Case Study of the Cache River Watershed of Southern Illinois (**Kofi Akamani**, Southern Illinois University Carbondale)
3. *Contexts for Adaptive Water Governance: Bridging and Bonding Capital in the S.C. Conservation Bank (**Andrew Waters**, S.C. Water Resources Center Clemson University)
4. To Better Understand the Complexity and Diversity of Human-natural Systems: NIFA Stitches Together Scientific Teams toward Solving Generational Issues (**James Dobrowolski**, USDA National Institute of Food and Agriculture)
5. *Comparing Funding Networks within the Food-Energy-Water-Ecosystems Nexus (**Yu Lu**, University of Wisconsin-Madison)
6. Municipal and Industrial Water Use: A Look at Water Use in the Oil Impacted Bakken Region 2000-2018 (**Christina Hargiss**, North Dakota State University)

Agricultural Water Quality

10:15 AM-11:30 AM

Moderator: Gurpreet Kaur, Mississippi State University

Video presentations begin every 15 minutes. Live chat with the presenter during the presentation.

*student in oral presentation competition; [Click here for the evaluation form. Complete one for each student.](#)

1. Innovate Edge-of Field Practices to Reduce Nitrogen (N) and Phosphorus (P) Loss in Tile Drained Fields (**Shani Golovay**, Illinois Nutrient Research and Education Council)
2. *Impact of Cover Crops on Nutrient Leaching in Agricultural Fields (**Ashani Thilakarathne**, Department of Forestry, Southern Illinois University)
3. *Cover Crop Impacts Water Quality and Soil Health in a Tile-terraced No-till Field (**Harpreet Kaur**, University of Missouri Columbia)
4. *Tile Drainage Depth and Spacing Impact on Drainage Flow and Nutrient Losses (**Shailendra Singh**, University of Illinois at Urbana-Champaign)
5. Effectiveness of Constructed Wetlands with Floating Plants in Removing Nutrients from Tile Drain (**Jeremiah Asher**, Michigan State University)

Water Resources Extension: Achieving Actionable Science to Inform Sustainable Community Actions

10:15 AM-11:45 AM

Panel Discussion

Moderators: Karen Bareford, University of Alabama and Mississippi-Alabama Sea Grant; and Michael Mezzacapo, University of Hawaii Sea Grant College Program

Extension is a form of knowledge and skills delivery that translates, transfers, and disseminates evidence-based information for real-world application by communities facing both challenges and opportunities. The foundation of extension was in agricultural clubs of the early 1800s, however the practice is now utilized across the United States (U.S.) and beyond. Extension is one of the fundamental strategies utilized by the U.S. Department of Food and Agriculture (USDA) and U.S. Land Grant Colleges and universities as well as the U.S. National Oceanic and Atmospheric Administration (NOAA) National Sea Grant College Program. The latter utilizes a system of thirty-four university-based programs to implement research to inform education and extension efforts to address complex coastal, ocean, and Great Lakes issues and opportunities. A fundamental component of extension personnel is their training in innovative approaches to facilitate information transfer to help address complex and controversial topics from an evidence-based perspective. As such, extension is based in science and research, but is often a "professional art" when implemented well.

This session will introduce and illustrate examples of diverse water-related extension efforts at multiple scales; which will be further highlighted in the December 2021 Water Extension special issue of the Journal for Contemporary Water Resources and Education. Extension practitioners will provide overviews of specific research to outreach examples and how they have supported actionable community change. Presentations will be followed by a facilitated panel discussion with the extension professionals on projects presented, challenges faced, and how successes might be expanded and used in other communities to facilitate further advances regarding water-related issues.

Plenary IV - Sacoby Wilson

12:15 PM-1:00 PM

Plenary Topic: Environmental and Social Justice

Introduction: Mehdi Nemati, University of California, Riverside

Q&A Moderator: Karl Williard, Southern Illinois University

Environmental and Social Justice in Water Issues

1:15 PM-2:30 PM

Moderator: Catherine Janasie, University of Mississippi

Video presentations begin every 15 minutes. Live chat with the presenter during the presentation.

*student in oral presentation competition; [Click here for the evaluation form. Complete one for each student.](#)

1. Assessing Affordability of Water and Sewer Rates in New Jersey (**Dan Van Abs**, Rutgers, The State University of New Jersey)
2. Environmental Justice: Septic and Wells (**Sushama Pradhan and Lorna Withrow**, On-site Water Protection Branch, NC DHHS)
3. *Water Quality - Inequality: A non-Targeted Hotspot Analysis for Ambient Water Quality Injustices (**Justine Neville**, North Carolina State University)
4. *The Long-term Outcomes of Restoring Indigenous Property Rights to Water (**Leslie Sanchez**, Tufts University)
5. People, Place, Water & Story (**Jolie Kaytes**, Washington State University)

Ecohydrology

1:15 PM-2:30 PM

Moderator: Abu Mansaray, Oklahoma State University

Video presentations begin every 15 minutes. Live chat with the presenter during the presentation.

*student in oral presentation competition; [Click here for the evaluation form. Complete one for each student.](#)

1. Managing the Buffering Capacity of Dryland Watersheds Using Vegetation Pattern Indicators: An Ecohydrologic Modeling Framework to Predict the Effects of Connecting Flood Flow to the Landscape (**Connie Maxwell**, New Mexico Water Resources Research Institute)
2. *Assessing Riparian Vegetation Impacts on Spatial and Temporal Hyporheic Zone Fluctuations (**Viktor Stromberg**, University of Wyoming)
3. Solving Temperature Issues in the Tualatin River using a Holistic Watershed-Based Approach (**Scott Mansell**, Clean Water Services)
4. Where the Wild Beavers Are: Effects of Physical Watershed Characteristics on Beaver Pond Distributions (**Fabian Nippgen**, University of Wyoming)
5. *Metagenomic Insights into Potential Indicator Genes for Monitoring Antibiotic Resistance (**Mehedi Hasan Tarek**, West Virginia University)

Extension Education - Adapting to a Changing Audience

1:15 PM-2:30 PM

Panel Discussion Moderators: Allen Berthold, Texas A&M AgriLife, Texas Water Resources Institute; and Drew Gholson, Mississippi State University Extension education is a crucial component of encouraging the adoption of new technologies and management practices that increase production and protect our natural resources. Communicating to our constituents is becoming more of a challenge as there increasingly becomes various methods in which agricultural producers can receive information, the amount of available information (factual or not), and the changing demographics as the next generation becomes primary decision makers. Even with all these changes, Rogers (2003) outlined the innovation decision process in which an individual becomes aware of an innovation, is persuaded through various methods to adopt, decides to adopt, implements the innovation, and then confirms whether or not the innovation was better than before. During this panel, we focus on the innovation decision process, in particular the persuasion stage, and have panelists representing different components. The three panelists will briefly discuss their programs, including outreach through mass mailing, an in-depth education program, and a large scale demonstration that allows producers to make decisions with no risk to them. At the conclusion of these overviews, panelists will discuss how education programs can adapt and be leaders of information for a changing constituency.

Coastal Water Issues

2:45 PM-3:45 PM

Moderator: Natasha Bell, East Carolina University

Video presentations begin every 15 minutes. Live chat with the presenter during the presentation.

*student in oral presentation competition; [Click here for the evaluation form. Complete one for each student.](#)

1. Microplastics in the Mississippi River and at Oyster Reefs in the Mississippi Sound Estuary (**James Cizdziel**, University of Mississippi)
2. *Feeding Dynamics of the Invasive Copepod *Pseudodiaptomus Inopinus* in Two Northeast Pacific Estuaries, and Potential Competition with its Invasive Congener, *P. Forbesi* (**Jade Jacobs**, Washington State University)
3. A New Framework to Analyze Heterogeneity Effects on Seawater Intrusion (**Saubhagya Rathore**, Oak Ridge National Laboratory)
4. *A Methodological Construct for the Implementation of Small Unmanned Aircraft (sUAS) Deployed Thermal Infrared (TIR) Imaging of Submarine Groundwater Discharge (SGD) (**Kyle Young**, University of Rhode Island; US Coast Guard Academy)

Water Extension

2:45 PM-3:45 PM

Moderator: Bilal Iftikhar, Georgia Tech

Video presentations begin every 15 minutes. Live chat with the presenter during the presentation.

*student in oral presentation competition; [Click here for the evaluation form. Complete one for each student.](#)

1. Water Technology Farms: Reimagining Farmer Engagement (**Jonathan Aguilar**, Kansas State University)
2. *Educating for Action: The Algal Bloom Action Team's Effort to Expand HABs Research and Communication (**Sean Welch**, Illinois Water Resources Center)
3. Integrated Land Grant University Missions to Prepare the Next Generation Practitioners for Sustainable Landscapes (**Andrea Ludwig**, University of Tennessee)
4. Stakeholder Engagement Process to Assess the Feasibility of a Demand Management Program in the Upper Colorado River Basin in Wyoming (**Ginger Paige**, University of Wyoming)

Poster Session

4:00 PM-5:00 PM

Poster Presenters will be available during this time to answer questions via a Live Zoom. Hop around to each poster that interests you. **View their presentations before you join their Zoom chat. They will not be presenting live, only answering questions.** You may view their poster pdf and video at any time during the conference by visiting their page under the Posters tab near the top of the page in Attendee Hub.

Student Speed Networking

5:30 PM-6:30 PM

Students, we know it can be difficult to initiate conversations with professionals at conferences. We have the solution. Speed Networking! We've lined up a great group of water professionals from across the country for you to meet. Just like speed dating in the 2000's, you'll get to meet a bunch of new, interesting people in a short amount of time. We'll run ten 5-minute rounds of one-on-one or two-on-one networking. Don't worry, the professionals will have some prepared questions to kick-off the conversations. You don't want to miss this high energy event!

June 10, 2021

Plenary V - Karletta Chief

9:00 AM-9:45 AM

Plenary Topic: Tribal Water Issues

Introduction: Rebecca Power, University of Wisconsin

Q&A Moderator: Karl Williard, Southern Illinois University

Water Economics

10:00 AM-11:15 AM

Moderator: Nuri Yilmazer, Texas A&M University - Kingsville

Video presentations begin every 15 minutes. Live chat with the presenter during the presentation.

*student in oral presentation competition; [Click here for the evaluation form. Complete one for each student.](#)

1. Embedded Water Resources Accounting for the U.S. Economy (**Susana Garcia**, Oak Ridge National Laboratory)
2. Agricultural Decisions in Response to Groundwater Salinity on Irrigated Lands in Kansas (**Juhe Lee**, University of California, Riverside, School of Public Policy)
3. The Effects of Agricultural and Urban Land Use on Drinking Water Treatment Costs: An Analysis of U.S. Community Water Systems (**James Price**, University of Wisconsin - Milwaukee)
4. *The Temporal and Spatial Extent of Home Value Losses Due to Chemical Spills (**Kati Burton**, Virginia Tech)
5. *Valuing Beach Hazard Warnings in the Great Lakes (**Bernadette Swanson**, University of Wisconsin-Milwaukee)

Water Treatment, Remediation, and Management

10:00 AM-11:30 AM

Moderator: Harpreet Kaur, University of Missouri

Video presentations begin every 15 minutes. Live chat with the presenter during the presentation.

*student in oral presentation competition; [Click here for the evaluation form. Complete one for each student.](#)

1. A Comparison of State and Federal Regulation of Per- and Polyfluorinated Substances (**Catherine Janasie**, University of Mississippi School of Law, Nat'l Sea Grant Law Center)
2. *Thermal Decomposition of Per- and Polyfluoroalkyl Substances (PFAS) on Spent Granular Activated Carbon: Implications to Drinking-water Purification (**Pavankumar Challa Sasi**, University of North Dakota)
3. *Soilborne Per- and Polyfluoroalkyl Substances in Thermal Processes: Implications to Thermal Soil Remediation (**Ali Alinezhad**, University of North Dakota)
4. *Degradation of Sulfamethoxazole Using PMS Catalytic Decomposition with Composite Zero-Valent Iron Nanoparticles/SBA-15 (**Ahdee Zeidman**, Desert Research Institute)
5. *Arsenic Removal from Groundwater Using Iron Enriched Compost and Iron-based Metal-organic Frameworks (**Porraket Dechdacho**, Desert Research Institute and University of Nevada at Reno)
6. *Measuring and Managing Trihalomethanes with Real-Time Gas Chromatography and Aeration Approaches (**Pamela Franco**, University of Rhode Island)

Turf to Surf in the Mississippi River Basin

10:00 AM-11:30 AM

Panel Discussion

Moderators: Karen Bareford, University of Alabama and Mississippi-Alabama Sea Grant; and Bethany Perry, NOAA

Connecting farmers, natural resource managers, fisher people, and scientists

The Mississippi River Basin is the largest river basin, and drains 41 percent of the landmass of the contiguous United States. The water quality management issues span the headwaters to the Gulf and require coordination across disciplines, organizations, and industries to adequately address the cascading impacts to our natural systems and built environment. This session will focus on trans-regional water quality management issues along the Mississippi River into the Gulf of Mexico and the research and outreach contributions that are affecting positive change. Sea Grant and the NOAA Regional Collaboration Teams are pursuing multiple initiatives to tackle these issues along the river from Minnesota to the northern Gulf of Mexico. These efforts began with a trans-regional Runoff Risk Decision Support Tool Workshop in January of 2018, where representatives from the Great Lakes, Central, and Gulf of Mexico regions gathered in Tuscaloosa, Alabama to discuss existing runoff risk tools and other successful water quality educational resources that could be used to connect issues across the basin. These efforts have expanded and the teams are looking to further connect researchers, managers, and industry representatives across the region. This session will provide introductions to cross-basin efforts by federal agencies, researchers, and representatives from the agricultural and fishing industries. We will touch on the latest research, innovative tools, and engagement mechanisms to coordinate and collaborate on water quality issues across the entire Basin. Short presentations will be followed by a discussion of ways to further engage across the university enterprise, industry, and governmental agencies to build off successful efforts and address the most pressing water quality issues faced in this part of the country.

Awards Ceremony

11:30 AM-12:30 PM

[Click to View the Awards Video Presentation.](#)

Join us for this engaging virtual take on the traditional UCOWR Awards Luncheon. The Warren Hall recipients will make brief acceptance remarks, and other award recipients have prepared a two minute video presentation to help us learn about them and their work. We have built in time for live applause, meet and greet, and even a chance to win **door prizes!** Join us for the fun and to celebrate our honorees:

- **Dr. Ron Lacewell**, Texas A&M University
- **Dr. Mac McKee**, Utah State University
- **Dr. Cully Hession**, Virginia Tech University
- **Nicole Wilkinson McIntosh**
- **Dr. Amir Haghverdi**, University of California Riverside
- **Dr. Ali Mirchi**, Oklahoma State University
- **Dr. Kenneth (KC) Carroll**, New Mexico State University
- **Dr. Jonathan Aguilar**, Kansas State University
- **Dr. Tushar Apurv**, Ph.D. from University of Illinois Urbana-Champaign, 2020
- **Dr. Rebekah Martin**, Ph.D. from Virginia Tech, 2020
- **Dr. Saubhagya Rathore**, Ph.D. from Georgia Institute of Technology, 2020
- **Katy E. Mazer**, et al., Purdue University and Universidad Nacional de San Agustín de Arequipa

Please [visit our website](#) to learn more about each awardee.

Water and Climate

12:30 PM-1:15 PM

Moderator: Saugu Angadi, New Mexico State University

Video presentations begin every 15 minutes. Live chat with the presenter during the presentation.

*student in oral presentation competition; [Click here for the evaluation form. Complete one for each student.](#)

1. Farmers' Adaptation Strategies to Drought in the Great Plains: Insights from Case Studies (**Yubing Fan**, Texas A&M AgriLife Research)
2. *How Non-Stationarity in a Changing Climate Impacts Drought Prediction? (**Mohammad Hadi Bazrkar**, North Dakota State University)
3. *Improved Evapotranspiration Predictions for Texas across Space and Time by Using Sparse Weather Station Data : A Basis Function Approach (**Dhruva Kathuria**, Texas Water Resources Institute)

Lightning talks

12:30 PM-1:45 PM

Moderator: Ginger Page, University of Wyoming The first 3 recorded talks will be played followed by a 10 minute Live Q&A. The next 3 talks will be played followed by a 10 minute Live Q&A. The final 4 talks will be played followed by a 10 minute Live Q&A. Mitigating the Effects of Aquifer Decline on Producer Profitability with High-Value Crop and Seed Production in the Texas Panhandle (Bridget Guerrero, West Texas A&M University) Monitoring Groundwater Levels in a Region Dependent on Central Pivot Irrigation by using Wireless Sensor Networks (Nuri Yilmazer, Texas A&M University-Kingsville) *The Potential Improvements in Yield-Based Recommendation Systems with a Diversified Precipitation Dataset (Catherine Walwer, Wake Forest University) Challenges in Paradise: Developing an Integrated Statewide Cesspool Conversion Program Through Evidence-Based Methods and Frameworks (Michael Mezzacapo, University of Hawaii Sea Grant College Program) Modern Lakes: A Window to Past and Future Oceans (Mojtaba Fakhraee, Yale University) *Row the Boat: Steering Invasive Plant Management into the Future by Looking Backward (Michael Verhoeven, University of Minnesota) Statistical Data Characterization of an In-situ Phosphate Level Time Series Array in the Mississippi Watershed (Nicholas Scott, Riverside Research) Bayesian and Manifold Learning Based Characterization of an In-situ Phosphate Level Time Series Array (Nicholas Scott, Riverside Research) *Water and Sediment Control Basins (WASCoBs) Impacts on Water Quality in Menard County, Illinois (Kevin Turnbow, Southern Illinois University Carbondale) *Flue Gas Desulfurization

Gypsum Impact on Surface Runoff Water Quality in Southern Illinois (Dipty Poudel, Southern Illinois University Carbondale) *student in oral presentation competition.

Educating and Engaging Communities to Enhance Water Quality Knowledge and Build Community Resilience

12:30 PM-1:45 PM

An interactive session with the Watershed Game Moderators: Karen Bareford, University of Alabama and Mississippi-Alabama Sea Grant; and John Bilotta, University of Minnesota Water Resources Center and Minnesota Sea Grant. The Watershed Game has been a resource of the Minnesota Sea Grant Program and Minnesota Extension, and an effective tool for Extension Educators from land-grant and sea-grant institutions for more than twelve years. The Game is designed to shift the conversation on watershed management and planning by using a relaxed role-playing environment. This setting helps break down barriers, encourage dialogue and mutual respect, and foster cooperation- all while enhancing the learning process through hands on activity. Colleagues from across the country use the Game to help individuals understand the connection between land use and water quality. The Watershed Game for Local Leaders is designed for use with elected and volunteer community leaders. The Classroom Version is designed for middle school-aged youth and is intended for use by formal and informal educators. In 2017-18, a comprehensive evaluation revealed the positive impacts the tool has had for many communities and our colleagues that use it as a water education and community engagement tool for critical conversations around sustainable water and land use planning. More significantly, it opened the door to advances in the Watershed Game that include new support mechanisms for its more than 250 users across the country, and the beginning of a framework to create a new model of both the Local Leader and Classroom versions. Minnesota Sea Grant and Minnesota Extension have teamed up with the University of Alabama, Mississippi-Alabama Sea Grant, and NOAA to develop these new models which help participants learn how land uses impact water quality (phosphorus, nitrogen, and sediment), natural resources, and community resilience in coastal areas. This session will include an introduction to the Watershed Game, provide information on it can be used to help connect with local communities and children, and allow for demonstration plays of the game.

Educating Leaders, Scientists, and Citizens about Climate Change

2:00 PM-3:30 PM

Workshop

Facilitators: Natalie Carroll, Purdue University and Paul Lachapelle, Montana State University

Carroll and Lachapelle will share the guiding principles of 4-H curriculum development, how attendees can apply to have their youth curriculum peer reviewed, and how to submit activities to the National 4-H Council. They will then introduce two curricula available from the National 4-H Council:

1. *Weather and Climate Science*, activities intended for 4-H members and in other informal learning settings, under the guidance of a parent or other facilitator. Age-appropriate activities are presented in three online (PDF) books for upper elementary (13 activities, 40 pages), middle, (15 activities, 84 pages), and high school elementary (16 activities, 96 pages), learners.
2. *4-H Weather and Climate Youth Learning Lab Leader's Guide* for working with elementary school students, grades 3-5. Nine activities, 71 pages.

Both curricula include Next Generation Science Standards (NGSS) addressed and the *4-H Weather and Climate Youth Learning Lab* activity book includes information about the Climate Literacy Framework.

After these presentations, Carroll and Lachapelle will provide hands-on demonstrations of some of the experiments, discuss evaluation outcomes and impacts received to date, and talk about curriculum development for youth audiences and submission to the National 4-H Curriculum Collection.

Hydrologic Modeling

2:00 PM-3:00 PM

Moderator: Scott Mansell, Clean Water Services

Video presentations begin every 15 minutes. Live chat with the presenter during the presentation.

*student in oral presentation competition; [Click here for the evaluation form. Complete one for each student.](#)

1. MAGNET – Multiscale Adaptive Global NETwork – 4 Water, A Cloud-powered, Big-data-enabled, Realtime Interactive Platform for Hydrologic and Hydraulic Modeling, Visualization and Analysis (**Zachary Curtis**, Hydrosimulatics)
2. Flood Modeling Using an Integrated Hydrosystems Approach: Moving Beyond Traditional Flood Mapping (**Siddharth Saksena**, Virginia Tech)
3. *Identifying Hydraulic Structures for Improved DEM-based Hydrologic Delineation using Geospatial Artificial Intelligence (**Di Wu**, Southern Illinois University Carbondale)

4. Performance of PlantScope in Comparison to Landsat-8 and Sentinel-2 for Water Quality Sensing in Reservoirs in Agricultural Watersheds (**Abu Mansaray**, Oklahoma Water Resources Center)

Groundwater Characterization and Management

2:00 PM-3:15 PM

Moderator: Gretel Follingstad, University of Colorado

Video presentations begin every 15 minutes. Live chat with the presenter during the presentation.

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1. Groundwater Governance and Technological Advances: Help or Hindrance? (**Jacob Petersen-Perlman**, East Carolina University)
2. Managed Aquifer Recharge Element of the Yakima River Basin Integrated Water Management Plan (**Dave Nazy**, EA Engineering, Science and Technology, Inc., PBC)
3. Mitigation of Shallow Groundwater Contamination in Urban Environments of Texas through the Use of Municipal Setting Designations (**Michael Kuitu**, Texas A&M AgriLife Extension Service)
4. *Risk Characterization of Private Wells Impacted by Hurricane Harvey Flooding (**Anna Gitter**, Texas Water Resources Institute, Texas A&M AgriLife Research)
5. *What Lies Beneath? An Analysis of "Time of Sale" Well and Septic Inspection Failures (**April Athnos**, Michigan State University)

Water Literacy as a Pre-Requisite for Everything

3:45 PM-4:45 PM

Participatory Session Moderator: Brian Rahm, New York State Water Resources Institute, Cornell University There is increasing need to address the diverse risks facing our fresh water resources, including climate change, emerging contaminants, and aging infrastructure. In order for students, the public at large, and elected representatives to adequately address these challenges, it is necessary that they possess a conceptual understanding of natural and engineered water systems and their interconnections, as well as the social, political, and economic context in which water systems are situated. Current K-12 science standards, as well as college curricula, mention water primarily in learning about the water cycle, or to further understanding of specialized fields, and do not consistently carry ideas about water resources through grade levels or to subject areas beyond Earth science. There is an opportunity to become more interdisciplinary in our approach to teaching concepts relevant to water resource management. In this participatory session, I will explore our sense of what it means to be literate in water resources, and will argue that literacy is a cultural foundation for tackling complex problems of the type we face in our communities, and as a nation.

Education and Outreach

3:45 PM-4:45 PM

Moderator: Ann Lewandowski, University of Minnesota

Video presentations begin every 15 minutes. Live chat with the presenter during the presentation.

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1. *Perspectives on Nutrient Management Planning: Survey of Soil and Water Conservation Staff in Upper Mississippi River Basin States (**Kelly Shen**, Duke University)
2. Smart Citizen Science: Leveraging Data for Community Activation (**Max Herzog**, Cleveland Water Alliance)
3. *Institutional Fit as a Lens for Watershed-level Management (**Emily Azevedo-Casey**, University of Wisconsin - Madison)
4. Incorporation of a Course-based Undergraduate Research Experience (CURE) into Water-focused Environmental Engineering Courses (**Natasha Bell**, East Carolina University)

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