2023 UCOWR/NIWR Annual Water Resources Conference Program

(only presenters are listed; co-authors will be listed in the Event App Program and abstracts will be available for viewing)

Blue = Special Session
Orange = Interactive Session (Panel, Workshop, Participatory)
Gray = Technical Session

***** = student involved in the oral student presentation competition.

Presenters - Use 'Ctrl F' to search for your name and find your place in the program.

Monday, June 12 (Pre-conference)

1:00 PM - 4:00 PM	**Cache la Poudre River History Tour**
7:45 AM - 11:15 AM	**UCOWR Board of Directors Meeting (Room 300)**
3:00 PM - 5:00 PM	**Early Registration (Lory Student Center, Room 328)**

Tuesday, June 13

7:30 AM - 3:30 PM	**Registration (Lory Student Center, Level 300, Grand Ballroom Hallway)**
7:30 AM - 8:30 AM	**Breakfast (Ballroom D)**
8:30 AM - 9:50 AM	**Plenary Session I (Ballroom C) - Crystal Tulley-Cordova, Navajo Nation Dept. of Water Resources; Jason Robison, Univ. of Wyoming College of Law** **Welcome by Bridget Guerrero, UCOWR President; Jeff Peterson, NIWR President; Ginger Paige, Conference Chair**
9:50 AM - 10:10 AM	**Break (Ballroom D) - coffee available**

10:10 AM - 11:50 AM — **Concurrent Sessions I (90 minutes) (Moderator)**

Session 1 **322**	**Connecting with Sea Grant to Leverage and Amplify Your Water Resources Work (Karen Bareford, University of Alabama)**	
10:10 AM	The session will begin with a short presentation summarizing current Sea Grant water resources efforts and future directions. A facilitated discussion will then elicit ways that the Sea Grant Network can best work with other entities to leverage complementary activities, minimize duplication of efforts, most effectively coordinate our work, and communicate needs and successes. Please join this session and contribute to a more coordinated effort to address our Nation's growing, complex water resources challenges.	
Session 2 **324**	**Building Water Resiliency in Arizona (Sharon Megdal, The University of Arizona)**	
10:10 AM	Panel Discussion: The Colorado River Basin has been in a drought for 23 years. Based on tree ring studies, the period from 2000 to 2022 ranks as the driest period in the last 1,200 years. Due to the junior priority of more than half of its Colorado River allocation, Arizona has been preparing for shortages for decades by building resiliency within Arizona and taking steps to address reduced Colorado River flows. This panel will provide up-to-date information on the Arizona water situation, strategies, and solutions. Panelists: **Rebecca Bernat, Kristen Johnson, Vineetha Kartha, Kathryn Sorenson**	
Session 3 **312**	**Water Quality 1 (Jason Barrett, Mississippi State University)**	
10:10 AM	SipSafe Program: Findings from Two Years of Lead Testing in Drinking Water at Child Care Facilities	**Jason Barrett**
10:25 AM	MAppFx: Production Well Nitrates Northern Guam Lens Aquifer	**Dannika Valerio & Matt Zapata**

TUESDAY

10:40 AM	Flood Management for Private Wells: Utilizing QMRA and a Survey to Understand Well User Health Risks and Perceptions after Hurricane Harvey	**Anna Gitter**
10:55 AM	Characterization of the Fate and Transport of Salts in Colorado River Basin using Machine Learning Approaches	***Mohamed Fawzy Mahmoud**
Session 4 308/310	**Valuing Environmental and Human Health Benefits in Water Management (Travis Warziniack, USDA Forest Service)**	
10:10 AM	Water Quality and Use Impacts from Land Use and Land Use Change	**Nicholas Pates**
10:25 AM	The Value of Forests in Providing Drinking Water: A Natural Capital Approach	**Travis Warziniack**
10:40 AM	What's HAB-ening in our Water? Harmful Algal Bloom Monitoring in Utah	**Hope Braithwaite**
10:55 AM	The Effects of Extreme Weather on Interconnected Agricultural and Environmental Systems	**Steven Buck**
11:10 AM	Discussion	
Session 5 304/306	**New Strategies for Managing Irrigation Water Depletion 1 (Kevin Wagner, Oklahoma State University)**	
10:10 AM	New Strategies for Managing Irrigation Water Depletion	**Kevin Wagner**
10:25 AM	The Irrigators' Dilemma: What Games Teach Us About Conserving Ground Water	**Brent Auvermann**
10:40 AM	The Effects of Producer-initiated Groundwater Conservation on the Hydrology of the Ogallala Aquifer in Northwest Kansas	**Bridget Guerrero**
10:55 AM	Estimating the Impact of Groundwater Allocations on Irrigation Behavior and Energy Use: Implications for Groundwater Policy Design	**Karina Schoengold**
11:10 AM	USDA-NIFA's Water Q&Q: A Broad-based Program Intended to Reduce the Water Footprint of Agriculture	**James Dobrowolski**
11:25 AM	It's All Over but the Drying: Transitioning Land-use Paradigms in the Southern Ogallala Region	***Edward Rhodes**
Session 6 300	**Addressing the Educational Gaps: Are Water Education Programs in the Western States Creating a Sufficient Workforce for a Climate-changed Agriculture? (Robert Heinse, University of Idaho; Derek Godwin, Oregon State University)**	
10:10 AM	Short talks followed by Panel Discussion This session will highlight challenges and successes in workforce development related to careers in agriculture water management addressing both professional development and capacity building in scaffolded education. Talks will span the spectrum of K-Gray addressing STEM education and recruitment, curricular development, credit and non-credit professional development, and continued workforce training leading to in-demand, skilled, collaborative, and diverse water managers that sustain agriculture in the current and future environment. Panelists: **Billy Grenfell, Trevor Mecham, Holly Nelson, Maria Zamora Re**	

11:50 AM - 1:00 PM **UCOWR Delegate Luncheon (Longs Peak Room). Must be pre-registered. Bring ticket from registration packet. Everyone else lunch on their own.**

1:00 PM - 2:30 PM	**Concurrent Sessions II (90 minutes) (Moderator)**	
Session 7 322	**Best of the Best: Impact, Outcomes, and Challenges from the USDA-NIFA Water for Agriculture CAP Grants (Jim Dobrowolski, USDA-NIFA National Program Leader for Water)**	
1:00 PM	Building and Researching Stakeholder Engagement for Water Quality and Quantity Management: The Water for Ag Project	**Kathryn Brasier**

TUESDAY

1:15 PM	Transforming Drainage: Storing Water in the Landscape to Increase Resiliency and Reduce Nutrient Losses	**Jane Frankenberger**
1:30 PM	Stakeholder-Driven Modeling in Support of Groundwater Sustainability: the Floridan Aquifer Collaborative Engagement for Sustainability (FACETS) Project	**Wendy Graham**
1:45 PM	The Future of Water in a Desert River Basin Facing Climate Change and Competing Demands: A Holistic Approach to Water Sustainability in Arid and Semi-Arid Regions	**Alex Mayer & Alfredo Granados-Olivas**
2:00 PM	Engaged Research to Inform Management and Governance of the Ogallala Aquifer	**Meagan Schipanski**
2:15 PM	Developing and Promoting Water-, Nutrient-, and Climate-smart Technologies to Help Agricultural Systems Adapt to Climate and Societal Change	**Ames Fowler**
Session 8 324	**Strategies to Enhance Farmer-led Conservation Delivery and Adoption for Nutrient Loss Reduction (Amanda Gumbert, University of Kentucky & Lexi Firth, Mississippi State University)**	
1:00 PM	Expanding Capacity and Potential: Mini-grant Programs to Jumpstart Local Efforts	**Lexi Firth**
1:10 PM	Farmer-Led Watershed Groups: Key Resources and Partnerships for Success	**Mike Daniels**
1:20 PM	Farmer Engagement through Action	**Rachel Curry**
1:30 PM	Effectiveness of Farmer Outreach and Engagement Methods to Encourage Cross-basin Idea Pollination	**Amanda Gumbert**
1:40 PM	Evaluative Thinking: A 'Best Management Practice' for Effective Programs	***Brittany Isidore**
1:50 PM	One Good Idea, the Not-Quite-YouTube for Conservation Farming Practices	**Jenny Seifert**
2:00 PM	Panel Discussion	
Session 9 312	**Water Quality 2 (Lucas Gregory, Texas A&M University)**	
1:00 PM	Edge of Field Runoff Analysis following Grazing and Silvicultural Best Management Practices in Northeast Texas	**Lucas Gregory**
1:15 PM	New Practices for Water Quality Enhancement in Missouri	**Gurbir Singh**
1:30 PM	Monitoring Algae Blooms in Small Lakes Using Drones: A Case Study in Southern Illinois	**Ruopu Li**
1:45 PM	A Recurrent Neural Network Approach to Predict Harmful Algal Bloom in a Lake Using Continuous High Frequency Data	***Ibrahim Busari**
2:00 PM	Thresholds and Hierarchical Structure in Cyanobacterial Harmful Blooms, Lake Fayetteville, Four Years of Data	**Brian Haggard**
2:15 PM	Occurrence and Characteristics of Microplastics in Urban Rainwater Runoff and in Oysters from the Mississippi Gulf Coast	**James Cizdziel**
Session 10 308/310	**Management in the Colorado River Basin (Kristiana Hansen, University of Wyoming)**	
1:00 PM	Cornerstone at the Confluence: Navigating the Colorado River Compact's Next Century	**Jason Robison**
1:15 PM	Arizona Colorado River Visualization Enterprise	**Kathryn Sorensen**
1:25 PM	Rethinking Our Relationship with Nature: The Binational Restoration Process for the Colorado River Delta	**Osvel Hinojosa-Huerta**
1:35 PM	Improving CRB Resilience Through Incentives for Reduced Use	**Hannah Hansen and Bonnie Colby**
1:45 PM	Panel Discussion	

TUESDAY

Session 11 304/306	**New Strategies for Managing Irrigation Water Depletion 2 (Drew Gholson, Mississippi State University)**	
1:00 PM	The Irrigation Innovation Consortium: A Five-Year Retrospective	**Amy Kremen**
1:15 PM	Sustainability of Irrigated Agriculture Under Changing Climatic Conditions	**Scott Bradford**
1:30 PM	Panel Discussion: Addressing Groundwater Depletion across Regions and Aquifers Panelists: **Drew Gholson, Kevin Wagner, Lucia Levers, Amy Kremen, Nico Quintana, Scott Bradford**	
Session 12 300	**Interstate Collaboration and Barriers to Transboundary Water Management (Beth Callaway, Interstate Council on Water Policy)**	
1:00 PM	Panel Discussion This session focuses on interstate collaboration for water management. We will consider recent efforts to bring together federal, state, and local government, business, and NGO leaders to devise policy solutions that improve community resiliency around water resources. Speakers will cover water planning at the interstate level in the context of climate change and extreme weather events and interstate collaboration on managing water data across state lines. Panelists: **Beth Callaway, Steven Buck, Stephanie Nummer-Fantozz, Rachelle Eby, Jeff Cowley**	

2:30 PM - 2:50 PM **Break (Ballroom D) - coffee and snacks available**

2:50 PM - 4:20 PM **Field Trip: CSU Library, Water Resources Archive – Patty Rettig (Must be pre-registered. Meet at registration desk promptly at 2:50 pm to walk to the library.)**

2:50 PM - 4:20 PM **Concurrent Sessions III (90 minutes) (Moderator)**

Session 13 322	**Science Communication Workshop**	
2:50 PM	Workshop Facilitators: **Amy Kremen, Ashley Patterson** Getting clear on why you're sharing science: Bring a key theme, idea, or message you want to develop during this 90-minute session, along with your science communication frustrations, goals, or just an open mind! This interactive workshop will guide you to: • Clearly articulate why you are sharing your science idea(s), and with whom • Develop compelling and actionable messaging for your particular audience(s) • Set goals for integrating scicomm intentions and practice in your professional activities	
Session 14 324	**The Economics of Water Scarcity in the Western U.S. (Aaron Hrozencik, Economic Research Service - U.S. Department of Agriculture)**	
2:50 PM	An Agent-Based Model of Agricultural Water Markets under Appropriative Rights and Droughts	***Reetwika Basu**
3:05 PM	Anticipatory Effects of Regulation: The Case of California's Groundwater	**Ellen Bruno**
3:20 PM	Electricity Demand by the Irrigated Sector in Response to Climatic Shocks	**Aaron Hrozencik**
3:35 PM	Corn Production and Groundwater Scarcity in the US High Plains	**Gabriela Perez-Quesada**
3:50 PM	The Economic Implications of Declining Snowpack for Tribal and Irrigated Agriculture Water Supplies	**Nicholas Potter**
4:05 PM	Paper Water, Wet Water, and the Recognition of Indigenous Property Rights	**Leslie Sanchez**

TUESDAY

Session 15 312	**Planning for a Future with Uncertain Climate (Steven Buck, University of Kentucky/Western Water Network)**	
2:50 PM	Modeling Uncertainty in the Effects of Climate Change on Agricultural Land and Water-use	***Munib Inam**
3:05 PM	Exploring the Use of Decision Making under Deep Uncertainty for Long-Term Planning in the Colorado River Basin	**Rebecca Smith**
3:20 PM	Collaborative Modeling as a Mechanism for Addressing Water Uncertainty	**Kristi Hansen**
3:35 PM	Panel Discussion	
Session 16 308/310	**Lightning Talks (Kaitlin Tucker, North Carolina State)**	
2:50 PM	From High in the Sky to Deep Underground: Using Remote Sensing to Develop Estimates of Groundwater Pumping in the Upper Colorado River Basin	***Nicholas Jadallah**
2:55 PM	Riverine Fluxes of CO_2 and CH_4 of a Regulated River	**Fernando Rojano**
3:00 PM	Inter-Professional Education for Drinking Water-Related Public Health Management	**Matthew O. Gribble**
3:05 PM	Public Surveys Expose the Disconnect between Perceived Contaminant Sources and Water Quality Data in Arequipa, Peru	**Gary Vanzin**
3:10 PM	A Just Transition Towards Regenerative Community Infrastructures	***Laura Supple**
3:15 PM	**Question and answer with first group**	
3:35 PM	Removal of Dyes and Emerging Contaminants by 2-Dimensional Porous Nano-materials	***Bhavya Joshi**
3:40 PM	Evaluating the Impacts of Cattle Grazing Management on the Water Quality of Surface Runoff in Central OK	***Austin Phillippe**
3:45 PM	Identifying Emerging Wildfire Related Concerns for Water Utility and Water Managers in the Pacific Northwest	**Julie Padowski**
3:50 PM	Water Quality Impacts of Water and Sediment Control Basins (WASCoBs) in Central Illinois	***Sara Lambert**
3:55 PM	Evaluating WASCoB's Influence on Water Quality, Phosphorus, and Sediment Trapping	***Sierra Mertz**
4:00 PM	Water Footprint Assessment of Water Sensitive Urban Design Plans to Meet the Challenges of Climate Change	***Rashid Farooq**
4:05 PM	**Question and answer with second group**	
Session 17 304/306	**New Strategies for Managing Irrigation Water Depletion 3 (Jonathan Aguilar, Kansas State University)**	
2:50 PM	State of Irrigation Systems in Kansas: Survey Report	**Jonathan Aguilar**
3:05 PM	Improving Estimates of Corn Evapotranspiration using Remote Sensing-based Crop Coefficients	**Allan Andales**

	3:20 PM	Dynamic Hydro-Economic Optimization Model for Sustainable Agricultural Water Management: A Case Study of Oklahoma Panhandle Region	**Yiqing Yao**
	3:35 PM	Linking Irrigation Water Management to Ecosystems Services in a Semi-arid Environment	**Abia Katimbo**
	3:50 PM	Sustaining Irrigated Agriculture in the Middle Rio Grande: Insights from Accounting for Climate Change and Agricultural Management Interventions	**Ali Mirchi**
	4:05 PM	Mismanaging Irrigation because of Heat-related Visual Crop Cues: Evidence from the Mississippi Delta	**Nicolas Quintana**
4:30 PM - 5:25 PM	**Career Panel for Students and Young Professionals (Room 322)**		
5:30 PM - 7:30 PM	**Welcome Reception and Poster Session (Ballroom C/D)**		

Wednesday, June 14

7:30 AM - 3:30 PM	**Registration (Grand Ballroom Hallway)**		
7:30 AM - 8:30 AM	**Breakfast (Ballroom D) - Roundtable Discussions**		
8:30 AM - 9:20 AM	**Plenary Session II (Ballroom C) - David DeWalle, Penn State University, Warren Hall Recipient; Emile Elias, USDA Southwest Climate Hub** **Moderators: Karl Williard and Amy Kremen**		
9:20 AM - 9:40 AM	**Break (Ballroom D) - coffee available**		
9:40 AM - 10:40 AM	**Concurrent Technical Sessions IV (60 minutes) (Moderator)**		
	Session 18 **322**	**Examining the Right-of-Way Process for Navajo Nation USA Indian Allotment Lands in Connection to the San Juan River and the Navajo-Gallup Water Supply Project**	
	9:40 AM	Participatory Session led by **Bernadette Romero-Benally** A brief presentation followed by the Navajo-Gallup Water Supply Project (the Project) Game. This is a game about building the Project pipeline. There will be upside cards placed in a straight line and the participants each pick a card, to determine the fate of the pipeline. The game shows participants the challenges faced by the Bureau of Reclamation to build the pipeline. Examples of challenges the Project alignment faced are the different types of land status, findings of cultural resources, and funding sources.	
	Session 19 **324**	**Human Dimensions 1 (Mark Masters, Albany State University)**	
	9:40 AM	Community Response to Floods in the Cache River Watershed of Southern Illinois: Application of a Proposed Framework for Assessing General and Specified Community Resilience	***Raymond Bieri**
	9:55 AM	Insights and Program Improvements gained from Four Years of SC Adopt-a-Stream's Community Scientist Knowledge and Motivation Surveys	**Katie Callahan**
	10:10 AM	Irrigator Endowment Effects vs. Non-pecuniary Benefits: Water Market Experiments in Washington State	***Suhina Deol**
	10:25 AM	Urban Irrigable Lands Index (UILI)- Land Use Analysis of Integrated Land and Water Management in the Colorado River Basin	**Gretel Follingstad**

WEDNESDAY

Session 20 312	**Remote-Sensing Satellite Data and Modeling to Inform Intrastate Water Conservation Programs in the Colorado Basin (Moderators: Perry Cabot and John Tracy, Colorado State University)**	
9:40 AM	Panel Discussion Better techniques continue to be developed in evapotranspiration (ET) modeling through remote sensing, satellite data, and modeling tools. Nevertheless, examples of administrative use of remotely sensed data and ET models specifically in water conservation decision making and implemented programs are limited. This panel session will explore how researchers and water resource managers can collaborate to formally utilize these tools for addressing the pressing problems of the Colorado River Basin, brought on by drought and persistent water scarcity. The purpose of the panel will be to moderate a discussion between leading researchers and water administrators in order to understand the applicability, advantages and limitations of remote-sensing in large-scale conservation programs. As problems on the Colorado River continue to mount, we envision the value of broad spatial ET modeling to increase significantly. Administrators, policy makers and researchers need to establish a more connective dialog to respond more effective and nimbly to the need for planning responses to the Western water crisis. Panelists: **Charlie Ferrantelli, Brenna Mefford, James Prairie, Jose Chavez**	
Session 21 308/310	**Southwest Groundwater and Sustainable Agricultural Systems under a Changing Climate 1 (Isaya Kisekka, UC Davis)**	
9:40 AM	Quantitative Modelling of the Impacts of Irrigation Water Salinity on Crop Yield and Profitability: Case Study of Groundwater Quality Used for Irrigation in California's Central Valley	***Floyid Nicolas**
9:55 AM	Impacts of Soil Health Practices on Soil Moisture Retention in an Arid Agroecosystem	***Ibukunoluwa Fademi**
10:10 AM	Quantifying Long-Term Regional Groundwater Quality Benefits from Agricultural Practices	**Thomas Harter**
10:25 AM	Southwest Groundwater and Agricultural Sustainability	**Isaya Kisekka**
Session 22 304/306	**New Strategies for Managing Irrigation Water Depletion 4 (Robert Schwartz, USDA-ARS)**	
9:40 AM	Identifying Barriers to Adoption of Cover Crops in the Southern Great Plains	**Allen Berthold**
9:55 AM	Climate-smart Agriculture to Conserve Water Resources and Sustain Crop Production in the Texas Rolling Plains	**Paul DeLaune**
10:10 AM	Evaluating the Impact of Regenerative Agricultural Practices on Soil Health and Water Quality in Altus, Oklahoma	***Jack Edwards**
10:25 AM	Profitability Comparisons of Regenerative Agricultural Practices in Deficit-Irrigated Systems	**Donna McAlister**
Session 23 300	**Water Resources Management (Ciprian Popoviciu, East Carolina University)**	
9:40 AM	A Self-Assessment Framework and Rating System for One Water Cities	***Donya Dezfooli**
9:55 AM	Platform Template for Easy Deployment and Operation of Sensors in Support of Water Resources Management Projects	**Ciprian Popoviciu**
10:10 AM	Characterization of the Relationship between Water Use Intensity and Land Use Planning	***Mahshid Mohammad Zadeh**
10:25 AM	Improving SWAT's Irrigation Algorithm to Facilitate Water Management and Conservation in Irrigated Regions	**Zaichen Xiang**

10:40 AM - 11:00 AM **Break (Ballroom D) - coffee available**

11:00 AM - 12:00 PM	Concurrent Technical Sessions V (60 minutes) (Moderator)	
WEDNESDAY		
Session 24 322	**Extension (Andrea Ludwig, University of Tennessee)**	
11:00 AM	Colorado's Agricultural Water Quality Program Outreach and Extension	**Christina Welch**
11:15 AM	Improving Surface Water Quality in Texas Through Public Outreach and Education	**Leanne Wiley**
11:30 AM	Tapping the Well that is Private Property to Address Community-Scale Challenges	**Andrea Ludwig**
11:45 AM	Enhancing Producer Knowledge and Adoption of Irrigation Water Management Practices Through Education in the Mississippi Delta	**Dillon Russell**
Session 25 324	**Policy (Naveen Adusumilli, Louisiana State University Ag Center)**	
11:00 AM	Blue Carbon and Beyond: Challenges and Opportunities for Landowners	**Naveen Adusumilli**
11:15 AM	The Potential of Combining Water Banks with Virtual Water to Increase Water Availability in the Intermountain West	**Christopher Lant**
11:30 AM	Assessing Stakeholder Perceptions of Water Sharing Arrangements in the South Platte River Basin	***Jesse Jo Rego**
Session 26 312	**Watershed Management 1 (Annalee Epps, Texas A&M AgriLife Extension)**	
11:00 AM	Assessment of Land Treatment Practices for Reducing Wind-driven Erosion in Rangeland Landscape in the Western U.S. using the APEX Model	***Gunho Cho**
11:15 AM	Watershed Protection Plan Improved with Bacterial Source Tracking Data: Adaptability in Implementation	**Annalee Epps**
11:30 AM	Trends in the Eucha-Spavinaw Watershed Show Management Limitations to Reducing In-stream Nutrient Concentrations	**Erin Grantz**
Session 27 308/310	**Southwest Groundwater and Sustainable Agricultural Systems under a Changing Climate 2 (Sharon Megdal, The University of Arizona)**	
11:00 AM	Innovative Educational Modules for Sustaining Groundwater and Irrigated Agriculture in the Southwest	**Shannon Norris-Parish**
11:15 AM	Selecting Cover Crop Mixes for Water-limited Environments of Southwestern US	**Debankur Sanyal**
11:30 AM	Streamflow Simulation using SWAT Model for Rio Grande Watershed	**Manoj Shukla**
11:45 AM	Exposure to Climate Stressors for California Winegrapes under a Changing Climate	**Ning Zhang**
Session 28 304/306	**New Strategies for Managing Irrigation Water Depletion 5 (Katie Lewis, Texas A&M AgriLife Research)**	
11:00 AM	Panel Discussion: Overcoming the Challenges of Regenerative Ag Systems in Water-Limited Environments The panel will include scientists and producers from Texas and Oklahoma and will elucidate the challenges of regenerative crop production in water-limited environments such as the U.S. Southern Great Plains. Steps to overcome challenges and research being conducted will be the primary focus of discussion. Panelists: **Katie Lewis, Paul DeLaune, Kevin Wagner, Allen Berthold, Clay Lewis**	
Session 29 300	**Water Resources Use and Environmental Change: Emerging Challenges for Environmental Health Equity (Matthew Gribble, University of Alabama Birmingham)**	
11:00 AM	Water Contaminants: A Potentially Modifiable Risk Factor for Pediatric Cancer in Nebraska	**Azar Abadi**

WEDNESDAY			
	11:15 AM	Human Adaptation to Deteriorating Water Quality from Over-exploited Aquifers	**Peter Knappett**
	11:30 AM	Groundwater Resources and Arsenic: Exploring Potential Links between Water Scarcity and Arsenic Concentrations in the San Luis Valley, Colorado	**Ryan Smith**
	11:45 AM	Discussion	
12:00 PM - 1:50 PM	**Awards Luncheon (Ballroom B/C) - Must be pre-registered to attend. Bring ticket from registration packet.**		
2:00 PM - 3:15 PM	**Field Trip: CSU Library, Water Resources Archive – Patty Rettig (Must be pre-registered. Meet at registration desk promptly at 2:00 pm to walk to the library.)**		
2:00 PM - 3:15 PM	**Concurrent Technical Sessions VI (75 minutes) (Moderator)**		
	Session 30 322	**Smart Irrigation: Upskilling Our Workforce using an Online Micro-credential, Kit-based Approach for Teaching Irrigation Fundamentals and Internet-of-Things Sensor Technology**	
	2:00 PM	Participatory Session led by **Jay Ham** A new grant-funded upskilling program in IoT irrigation technology and Irrigation Principles was developed in which participants earn micro-credentials, much like upskilling "Badging" systems used in the computer industry. Our unique approach includes self-paced experiential, hands-on learning, while still allowing the completion of skill badges using an online, remote-learning format. Currently, a two-badge system is being tested in 20 High Schools across Colorado. The first badge is focused on fundamental irrigation principles and participants use a research-based online irrigation app (WISE) to experience real-world irrigation scheduling. The second badge uses IoT soil moisture sensors that send data to the cloud and post results on the user's custom online dashboard. This presentation will provide an overview of the upskilling training system. Presenters will demonstrate how the hands-on exercises are interwoven with online content to meet learning objectives. Preliminary data from participating high schools will also be provided. Efforts are underway to extend the upskilling program to adult learners and irrigation professionals in the workforce.	
	Session 31 324	**Economics 1 (Lal Almas, West Texas A&M University)**	
	2:00 PM	Statistical Investigation of Economic & Climate Signals in Groundwater Data	**Zoey Reed-Spitzer & Bonnie Colby**
	2:15 PM	Past is Prologue: The Effect of Yesterday's Adverse Weather on Agricultural Risk Management Today	***Calvin Bryan**
	2:30 PM	The Role of Off-season Precipitation and Irrigation Water Use in Groundwater Sustainability	**Amer Al-Sudani**
	2:45 PM	A Spatiotemporal Analysis of Livestock Production in the Texas High Plains and Southern Ogallala Aquifer Depletion	**Lal Almas**
	Session 32 312	**Watershed Management 2 (Frances O'Donnell, Auburn University)**	
	2:00 PM	Assessing Indicators of Forest Restoration Success across a Chronosequence of Afforested Cropland in Cypress Creek National Wildlife Refuge	***Maggie Herrmann**
	2:15 PM	Bridging the Gap between Floodplain Management & Watershed Management	**Michael Kuitu**
	2:30 PM	Poor Performance or Indication of Water Losses? Insights into Watershed Structure and Water Losses from Hydrologic Model Simulation across Spatial Scales	***Salar Jarhan**
	2:45 PM	Three Rivers QUEST: Success in Collaboration	**Melissa O'Neal**
	3:00 PM	The Watersheds and Landscapes of the Delaware Basin and Estuary: 2023 Status and Trends	**Andrew Homsey**

WEDNESDAY

Session 33 308/310	**Hydrologic Processes and Human Water Systems (Ginger Paige, University of Wyoming; Sam Fernald, New Mexico State University)**	
2:00 PM	Systems Approach to Understanding Human-Water Interactions	**Thushara Gunda**
2:15 PM	Key Socio-Institutional Drivers of Human-Water Systems in Western Watersheds	**Jamie McEvoy**
2:30 PM	Simplifying the Complex: Indicators to Characterize Socio-hydrologic Systems	**Fabian Nippgen**
2:45 PM	Key Drivers of Watershed Biophysical Processes in Western Watersheds	**Sam Fernald**
3:00 PM	Discussion	
Session 34 304/306	**New Strategies for Managing Irrigation Water Depletion 6 (Amanda Nelson, USDA-ARS)**	
2:00 PM	Effects of Irrigation Methods on Watermelon Production and Water Use Efficiency in the Texas High Plains	**Andrea Leiva Soto**
2:15 PM	Challenges in Obtaining a Water Budget for a Tailwater System in Sunflower County, MS	**Amanda Nelson**
2:30 PM	Effects of Partial Root-zone Drying (PRD) Technique and Strategic Deficit Irrigation on Cotton Yield in Central High Plains	**Farzam Moghbel**
2:45 PM	Center Pivot Water Allocation Strategies Under Limited Irrigation	**Robert Schwartz**
3:00 PM	Improve Yield and Water Use Efficiency in Delayed-planting Corn under Limited Irrigation	**Qingwu Xue**

3:15 PM - 3:35 PM **Break (Ballroom D) - coffee and snacks available**

3:35 PM - 4:50 PM **Concurrent Technical Sessions VII (75 minutes) (Moderator)**

Session 35 322 — **Workshop: A Mobile, Hands-On Soil Health Testing Kit for Producers to Increase Conservation Adoption in Semi-Arid Production Regions**

3:35 PM

Facilitators: **Joseph A. Burke, Katie L. Lewis**, and **Jourdan M. Bell**, Texas A&M AgriLife Research

The adoption of conservation management practices in semi-arid regions of Texas and Oklahoma has been limited due to producer concerns about yield declines. Despite these challenges, research has shown that conservation management practices can increase soil properties, potentially decreasing soil erodibility while improving nutrient cycling potential, carbon sequestration, and water storage. To better inform producers and improve conservation adoption, we developed a fully mobile, soil health testing kit that allows producers to evaluate their own soil characteristics. In this workshop, participants will be able to evaluate several soil characteristics with provided samples and gain insight into how these testing kits can increase conservation adoption potential in semi-arid regions.

Session 36 324 — **Offering Policy-Relevant Water Resource Economics to Non-Economists (Lynne Lewis, Bates College)**

3:35 PM

Panel Discussion

Economic tools are critical for addressing water challenges, yet many water professionals have little economics background. This session focuses on economic concepts and teaching tools valuable for water management. We begin with brief remarks by panelists and allow ample interactive time to draw upon experience and interests of those attending. We consider the array of benefits from trainings for non-economists, geared to address contemporary water management challenges. The presenters are experienced in teaching university water economics classes, and in offering trainings for public agencies, elected officials, non-profit organizations, stakeholder groups and for water engineers, attorneys, and judges.

Panelists: **Bonnie Colby, Mehdi Nemati, Kristi Hansen**

Session 37 312	**Watershed Management 3 (Masoud Negahban-Azar, University of Maryland)**	
3:35 PM	Developing a Framework for Implementation of Alternative Water Sources and Water Conservation Practices in Maryland: Integrating Hydrodynamic and Agent-Based Models	**Masoud Negahban-Azar**

WEDNESDAY

3:50 PM	The Value of Demand Reduction and Storage Capacity in Alleviating Predicted Water Shortage in Semi-arid River Basins	*Ahmed Gharib
4:05 PM	Georgia Flow Incentive Trust: Building from Science and Stakeholder Engagement to Better Drought Response	Mark Masters
4:20 PM	A Human-natural Framework for Assessing, Forecasting and Managing Watersheds for Coastal Resiliency along the Gulf of Mexico	Christopher Anderson
4:35 PM	The Future of Aquatic Flows In the Anthropocene Epoch	Richard Palmer
Session 38 308/310	**The STEPP Initiative: Standardizing Stormwater BMP Efficiency Studies and Implementing a National Verification Program (Chris French, Hydro International)**	
3:35 PM	Panel Discussion Panelists will discuss the need for stormwater BMP verification programs and offer unique perspectives from academia, state regulatory entity, and the regulated private sector. Discussions and audience interaction will allow all to explore the implication of integrating the STEPP framework into state stormwater rulemaking efforts, NPDES stormwater permitting processes, and discuss how academic researchers can further these efforts and provide needed consistency to stormwater BMP studies. Panelists: **Chris French, Seth Brown, TBD**	
Session 39 304/306	**East is East and West is West: Interstate River Basin Governance of Drought and Flood in the USA (Jerry Kauffman, University of Delaware)**	
3:35 PM	Panel Discussion While the West is coming out of the worst drought in a millennium, the East has been deluged by the floods of Isaias, Ida and now Ian, the worst in centuries along the Eastern Seaboard. While drought and flood are at opposite extremes of the hydrologic cycle, they share common causes that occur in the interstate river basins such as the Colorado, Central Valley, and Missouri out west and the Hudson/Delaware/Chesapeake megabasin back east. This panel seeks to discuss river basin governance models in the United States available to address the common causes of drought and flood. Panelists: **Sharon Megdal, John Tracy, Jerry Kauffman**	
Session 40 300	**Engineering (Nathan Howell, West Texas A&M University)**	
3:35 PM	Improved Characterization of Single-family Residential Water Uses with High-resolution Flow Monitoring	*Cibi Vishnu Chinnasamy
3:50 PM	Developing Low-cost, Internet-of-things Sensors for Measuring Soil Salinity: Obstacles, Options, and Opportunities	Jay Ham
4:05 PM	Development and Deployment of Internet of Things (IoT) Sensors in Aquaponics Experiments	Nathan Howell
4:20 PM	Assessment of Salinity Impact on Agricultural Water Footprint in a Semi-arid Watershed using SWAT-MODFLOW-Salt	*Pardis Hosseini

3:50 PM - 4:50 PM **JCWRE Editors and Associate Editors Meeting (Ballroom C)**

5:00 PM - 6:00 PM **Speed Networking for Students and Young Professionals (Ballroom D)**

Thursday, June 15

7:00 AM - 8:00 AM **UCOWR Board of Directors Meeting (Room 300)**

7:30 AM - 10:00 AM **Registration (Grand Ballroom Hallway)**

7:30 AM - 8:30 AM **Breakfast (Ballroom D)**

8:30 AM - 9:50 AM **Plenary Session III (Ballroom C) - Jeffrey Basara, University of Oklahoma; Kevin O'Donnell, Global Sustainability Executive and Advisor**
Moderator: Lucas Gregory

9:50 AM - 10:10 AM	**Break (Ballroom D) - coffee available**		
10:10 AM - 11:40 AM	**Concurrent Technical Sessions VIII (90 minutes) (Moderator)**		
THURSDAY	**Session 41** **322**	**Education (Tracy Boyer, University of Wisconsin-Milwaukee)**	
	10:10 AM	Collaborative Development of an 'Introduction to Freshwater' Undergraduate Course	**Tracy Boyer**
	10:25 AM	CUREs for Water Pollution: Engaging Undergraduates in Water Resources Research	**Michael O'Driscoll**
	10:40 AM	Investigating Requisite Professional and Practical Skillset for Workforce Preparedness of Engineering Graduates in the 21st Century Water Industry: An Exploratory Study	**Ibukun Osunbunmi**
	10:55 AM	City of Wilmington Green Jobs Program	**Martha Narvaez**
	11:10 AM	Farmer Perceptions and Preferences on Conservation Practices and Information Transfer	**Dave Spencer**
	11:25 AM	Teaching Online with Articulate Storyline	**Natalie Carroll**
	Session 42 **324**	**Modeling 1 (Walter Silva, University of Puerto Rico at Mayaguez)**	
	10:10 AM	Development of Flood Inundation Map using Aerial Imagery, Satellite Data and ICPR4 Expert	**Hafiz Ahmad**
	10:25 AM	Hydrograph Separation Method (HSM) for the Design of Storm Drain Inlets	**Walter Silva**
	10:40 AM	A Generalized Procedure for the Parameterization, Sensitivity, and Uncertainty Analysis of a Small Watershed Scale Hydrological Model	**Mahesh Maskey**
	10:55 AM	Modeling Investigation of Groundwater Availability in Louisiana and Southwest Mississippi, USA	***Shuo Yang**
	11:10 AM	Investigating Modeling for the Decline of the Southern Carrizo-Wilcox Aquifer	***Jose Garcia**
	11:25 AM	The Community-enabled Life-cycle Analysis of Stormwater Infrastructure Costs (CLASIC) Tool	***Tyler Dell**
	Session 43 **312**	**Hydrology 1 (Jim Stagge, The Ohio State University)**	
	10:10 AM	Estimating Soil Moisture at High Spatial Resolutions Using Meteorological Variables at a Study Region in Northern Colorado	***Boran Kim**
	10:25 AM	Comparative Assessment of Drought Indices in the Upper Colorado River Basin	**Mohammad Hadi Bazrkar**
	10:40 AM	How Precipitation and Potential Evapotranspiration Drive Modern Drought Trends Relative to a Millennial-length Baseline	**Kyungmin Sung**
	10:55 AM	Investigating the Impact of Irrigation Practices on Hydrologic Fluxes in a Highly Irrigated River Basin	***Mohammed Almahawis**
	11:10 AM	Retrospective and Statistical Analyses of Agriculture and Groundwater in Arizona through the Lens of Groundwater Management and Access to Surface Water	***Danielle Tadych**
	11:25 AM	Sustainability Signaling in Aquifers	**Robert Mace**
	Session 44 **308/310**	**Agriculture 1 (Mary Foltz, Oklahoma State University)**	
	10:10 AM	A Sensor-based Peer Learning Agricultural Network for Crop Production and Water Resource Management	**Xin Qiao**
	10:25 AM	Evaluating Demand Management at the Field Scale though Direct and Indirect Measurements of Conserved Consumptive Use	**Joseph Cook**
	10:40 AM	Rate and Timing Influence Water Use Efficiency in West Texas Row Crops	**Glen Ritchie**
	10:55 AM	Carbon Footprint Estimate for Irrigated Corn Production in the U.S. Great Plains to Promote Sustainable Irrigation and Agricultural Best Management Practices	**Mary Foltz**
	11:10 AM	Wireless Sensor Networks for Calibrating Numerical Groundwater Models	**Nuri Yilmazer**

THURSDAY

Session 45 **304/306**	**Increasing DEI in Western Water Management (Ginger Paige, University of Wyoming)**	
10:10 AM	Panel Discussion Who gets water, how much, and for what beneficial use is being critically examined in many western basins in the face of climate change and growing demands on limited and sometimes decreasing water resources. Western basin states are looking at trade-offs between food security (ag water), energy needs, and maintaining healthy watersheds. Increasing diversity, equity and inclusion in western water resource management is complex and involves legal, cultural, environmental justice, and socio-economic issues coupled with information and knowledge of current and future available water resources. Ideally, all stakeholders are at the table and included in the management and decision making processes. The session will focus on identification of challenges and paths forward. Panelists: **Staci Emm**, Professor and Extension Educator, University of Nevada (Reno) **Stefan Tangen**, Tribal Liaison, North Central Climate Adaptation Science Center **Otakuye Conroy-Ben**, Sustainable Engineering & the Environment, Arizona State University **Jackie Tinetti**, The Council of State Governments West	

11:40 AM - 1:00 PM **Lunch on your own**

1:00 PM - 2:30 PM **Concurrent Technical Sessions IX (90 minutes) (Moderator)**

Session 46 **322**	**Water in the Archives: A Conversation with Hydrophilic Librarians (Patricia Rettig, Colorado State University)**	
1:00 PM	Panel Discussion This panel of archivists and librarians from four different institutions in three different states will engage in a conversation about what they do, the contents of the collections they curate, and how the materials can be useful to a variety of audiences. The panel will also welcome audience questions on the topic. Panelists represent the Water Resources Archive at Colorado State University, Fort Collins; the Water Resources Collections and Archives at the University of California, Riverside; Special Collections and Archives at The Claremont Colleges Library; and Special Collections and Archives at the University of Nevada, Las Vegas. With historical documents concerning various topics in western water law, civil engineering, water quality, irrigation, endangered species and much more, along with documentation on numerous rivers and aquifers, these institutions hold a wealth of material offering numerous research possibilities. Though the participants are all based in the West, conference attendees from anywhere in the country will benefit from knowing more about these collections and will come away with ideas for increasing historical documentation of water resources in their own locales. Attendees will also be curious to know more about drafts of the Colorado River Compact, photographs of the construction of the West's largest dams, oral history recordings with western water leaders, and millions more unique documents. Panelists: **Andrew Lippert**, University of California, Riverside **Michele Potter**, University of California, Riverside **Lisa Crane**, The Claremont Colleges Library **Sarah Jones**, University of Nevada, Las Vegas	
Session 47 **324**	**Human Dimensions 2 (Natalie Carroll, Purdue University)**	
1:00 PM	Communication Research to Minimize Obstructive Water Partisanship and Increase Adoption of Water Research Findings	**Sadie Hundemer**
1:15 PM	Factors that Shape Knowledge Co-production in Participatory Modeling	**Wendy-Lin Bartels**
1:30 PM	Indigenous and European Place Names Along Streams and Waterways in Delaware (Lenapehocking)	***Elizabeth Shields**

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1:45 PM	Advancing Regional Water Supply Planning to Develop Equitable and Robust Infrastructure Investment and Management Pathways	**David Gold**
2:00 PM	Writing the River	***Jake Friedman**
Session 48 312	**Hydrology 2 (Jonathan Czuba, Virginia Tech)**	
1:00 PM	Making Research in Water Resources More Reproducible: ASCE's Reproducibility Review Program	**James Stagge**
1:15 PM	Sensitivity Analysis and Parameter Estimation for Holistic Hydrologic Modeling using SWAT+	**Salam Abbas**
1:30 PM	A Web-based Decision Support System for a Better Understanding of Riverine Flood Hazards in the U.S.	**Mahshid Ghanbari**
1:45 PM	Initial Results of a Multi-Region, Multi-Year Analysis of Flood Timing, Magnitude, and Severity as Measured Compared to National Water Model Predictions	**Iman Maghami**
2:00 PM	Incorporating Flowpaths as an Explicit Measure of River-floodplain Connectivity to Improve Predictions of Floodplain Sediment Deposition	**Jonathan Czuba**
2:15 PM	Hydrologic Responses to Management of Surface Water Resources: A Model Design Study	***Justin Bowen**
Session 49 308/310	**Agriculture 2 (Lacy Barnette, University of South Carolina)**	
1:00 PM	Understanding the Interacting Effects of Climate and Land Use on Geographically Isolated Wetlands	**Frances O'Donnell**
1:15 PM	Dust in the Wind: Impacts of Water Scarcity on Particulate Matter Concentrations	**Alex Maas**
1:30 PM	A Decade of Saturated Buffer Research: Results from Long-Term Monitoring in Iowa	***Gabriel Johnson**
1:45 PM	Analysis of Factors Associated with Dis-Adoption of Irrigation Best Management Practices	***Evelyn Osei**
2:00 PM	On-Farm Evaluation of Conservation Production Systems for Environmental and Economic Benefits	**Dave Spencer**
2:15 PM	Producer Interviews and Analysis as a Tool for Science Communication in Agriculture	***Lacy Barnette**
Session 50 304/306	**Adapting Agriculture to a Drier Future from the Great Plains to the Central Valley (Noah Silber-Coats, New Mexico State University)**	
1:00 PM	Panel Discussion This panel convenes experts from around the region to discuss the following questions: How have reduced water supplies and drought impacted producers in the areas where the panelists work? Which tools or strategies - whether technological or institutional - have shown positive results in terms of building resilience to a hotter, drier future for agriculture in the western U.S.? What are the barriers to implementing these solutions more widely? What opportunities exist to collaborate between the many ongoing research and outreach efforts related to water scarcity across the region? Participants are involved in research and outreach programs covering a variety of topics and locations, from managed aquifer recharge and desalination in groundwater-dependent irrigated agricultural systems in California's Central Valley to training irrigators on advanced water management techniques in the Great Plains. Panelists: **Emile Elias, Sam Fernald, Jamie McEvoy, Amy Kremen**	

2:30 PM - 2:50 PM **Break (Ballroom D) - coffee and snacks available**

2:50 PM - 4:05 PM **Field Trip: CSU Library, Water Resources Archive – Patty Rettig (Must be pre-registered. Meet at registration desk promptly at 2:50 pm to walk to the library.)**

2:50 PM - 4:05 PM **Concurrent Technical Sessions X (75 minutes) (Moderator)**

Session 51 322	**Temporal Configuration - Unlocking Hidden Streamflow Properties (Richard Koehler, CEO Visual Data Analytics, LLC)**	
2:50 PM	Participatory Session Imagine being able to do the following:	

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	• Plot hydrographs without using a time axis • Instantly quantify all rising and falling limbs from a 50-year daily streamflow record • Estimate temporal autocorrelation simply by looking at a data plot – no formulas needed • Show discharge (Q), discharge change (dQ/dt), rate of discharge change (d2Q/dt2) on a single plot • Examine hydrologic models to a level of detail not possible before • Realize that flow duration curves don't really show flow duration • Quickly plot highly specific conditions of the streamflow record (Example: from a 50-year daily streamflow record you can: find all rising limbs that are 1.25x greater than the previous day **and** have flow rises ≥ 75 cfs **and** occur only during winter months **and** just compare water years 1950-1959 to 1990-1999) Come find out how to do these things and more!	
Session 52 **312**	**Lessons Learned on Increasing DEI in Water-Related Fields (Karen Schlatter, Colorado Water Center)**	
2:50 PM	Participatory Session Diversity, equity, and inclusion (DEI) initiatives have increased significantly in the past several years, including those that focus on increasing recruitment, retainment, and career pathways for historically underrepresented students and professionals in water-related fields. So, how is that all working out? What are the impacts of such initiatives in the water sector? What are the experiences and perspectives of students, academics, and professionals participating in such initiatives? This roundtable session will focus on discussing experiences and lessons learned to gain insights on how to improve DEI-related programs and projects in water-related fields. Colorado Water Center Student Fellows from underrepresented groups will drive the session.	
Session 53 **308/310**	**Modeling 2 (Mahesh Maskey, USDA-ARS)**	
2:50 PM	Assessing Hydrologic Fluxes in the Upper Colorado River Basin using the SWAT+ Model	***Muhammad Raffae**
3:05 PM	Evaluating Historic and Future Changes of Soil Temperature, Vegetation Distribution, and Permafrost Degradation in the Arctic	**Aleksey Sheshukov**
3:20 PM	Seeking Best Management Practices for Salinization Mitigation in Irrigated Agricultural Regions Using an Integrated Hydro-Salinity Model	***Soheil Nozari**
3:35 PM	Uncertainty Quantification of Salinity Transport Simulation for Integrated Hydrological Models	**Seonggyu Park**
3:50 PM	Hydro-Economic Modeling System for Understanding the Dynamics in the Food, Energy, and Water Nexus in California	**Enrique Triana**
Session 54 **304/306**	**Economics 2 (Dawoon Jeong, Purdue University)**	
2:50 PM	Economic Value of New Jersey Tributaries to the Delaware River	***Lydia Franks**
3:05 PM	Policies to Achieve Sustainability in the Colorado River Basin under Climate Change Conditions and Growing Demand: A Hydro-economic Analysis	**Daniel Crespo**
3:20 PM	Water Market Design Features and Transaction Costs: A Comparative Analysis of Two Snowfed River Basins in the Arid Western United States	**Loretta Singletary**
3:35 PM	The Effect of Cropland on Drinking Water Treatment Costs: A Cost Function Analysis of Municipal Groundwater Systems in Wisconsin	**James Price**
3:50 PM	Efficiency and Equity of Posted Price Markets for Irrigation Water	***Dawoon Jeong**

Poster Presenters

Welcome Reception and Poster Session (Ballroom C/D): Tuesday 5:30 PM - 7:30 PM (* = student presenter in poster competition; judges pre-assigned)

1	***Nichole Angell**	Aquatic Invasive Species Prevention: Getting the Best Bang for the Buck!
2	***Cassandra Bonfil**	Evaluation of a Potentiometric Soil Nitrate Sensor for Detecting Nitrate Transport in Glass Beads
3	***Kehinde Bosikun**	Complex Network Analysis of Temperature across the United States
4	***Kaylie Carver**	Improving Water Use Data and Understanding of Rural Water Suppliers
5	***Christopher Cobos**	Soil Water Dynamics In Semi-Arid Cotton Conservation Systems
6	**Joseph Cook**	Reducing Water Conflict through Student Led Rancher Funded Irrigation Administration in the Brush Creek System
7	***Wenyi Cui**	Influence of Organic Amendments on Nitrogen Dynamics under Agricultural Managed Aquifer Recharge (Ag-MAR)
8	**Flor Guerrero**	Spatial Differentiation of Stream Geochemistry in a Subwatershed Affected by Coal Mining in Appalachia
9	***Justin Higa**	Quantifying Sediment and Phosphorus Loss from Streambank Erosion in Two Illinois Agricultural Watersheds
10	***Gabe Lara**	Flood Risk in Redlined Communities
11	***Lizzie Long**	Model Estimated Nitrogen Emissions from Corn Fields under Different Fertilizer and Irrigation Management
12	***Fabian Maldonado**	Investigating the Possible Factors Causing the Increase of Salinity Levels in the Carrizo-Wilcox Aquifer, Winter Garden Region
13	***Anna Grace McCarty**	Assessment of Atmospheric Deposition in Arkansas and Tennessee
14	**Felix Ogunmokun**	Evaluation of Winter Flooding as a Management Practice for Mitigating Boron Toxicity in Almond Orchards
15	***Victor Oladoja**	Spatiotemporal Characteristics of Soil Moisture in Texas, United States: A Complex Network Analysis
16	***William Ottenheimer**	Do Managers of Dams with Greater Purpose Complexity Deviate Further from Rule Curves?
17	***Carson Roberts**	Cover Crops Affect Irrigation Water Use in Cotton
18	***Bernadette Romero-Benally**	Examining the Right-of-Way Process for Navajo Nation USA Indian Allotment Lands in Connection to the Navajo-Gallup Water Supply Project
19	***Kaitlyn Smith**	Evaluation of Wetland Treatment to Improve Discharge to Baffin Bay
20	***Abigail Spiers**	Impacts of Intensifying a Corn-Soybean Rotation with Winter Wheat on Nitrate Leaching in Southern Illinois
21	***Avalokita Tuladhar**	Quantifying the Impact of Climate Change and Land Use Change on Water Quality in the Nanticoke River Watershed
22	**Maria Jhonnie Villareal**	Drilling Deep Observation Wells in Carbonate Island Karst – The Monitoring System Expansion and Rehabilitation Program, Guam
23	***Ilde Vivero**	Analysis of Discharge Locations for Corpus Christi Desalination Plants