Final Program

2016 UCOWR/NIWR Annual Water Resources Conference



June 21-23, 2016
Hilton Pensacola Beach Hotel
Pensacola Beach, FL

UCOWR
UNIVERSITIES COUNCIL ON WATER RESOURCES

NIWR
THE NATIONAL INSTITUTES FOR WATER RESOURCES



Mississippi State University
would like to welcome you to the annual conference of the
Universities Council on Water Resources and the
National Institutes for Water Resources.
We hope you enjoy the welcome reception sponsored by
Delta Research and Extension Center.

MISSISSIPPI STATE UNIVERSITY™
DELTA RESEARCH AND EXTENSION CENTER

MISSISSIPPI
WATER RESOURCES
RESEARCH INSTITUTE

Welcome from UCOWR President and Conference Chair

Dear Colleague,

We are excited to welcome you to the Annual Water Resources Conference of the Universities Council on Water Resources and the National Institutes for Water Resources on the beach at the Hilton Pensacola Beach Hotel in Pensacola Beach, Florida. During your time in the Pensacola area, we hope you will take advantage of the beautiful beach, Gulf Coast waters, and local hospitality. We have an exciting and informative program planned. Our plenary speakers will be Jim Giattina from EPA Region IV, Laura Bowie of the Gulf of Mexico Alliance, and the 2016 Warren Hall Medal Award recipient, Dr. Norman Whittlesey. Also featured are Dr. Miguel Morales and Dr. David Warsinger, both recipients of the 2016 Outstanding Ph.D. Dissertation Award. A post-conference field trip will be conducted Thursday afternoon at the Naval Live Oaks Reservation of the Gulf Islands National Seashore with a tour and presentation on marine life and marine ecology by Dr. Alexis Janosic of the University of West Florida. As always, beyond the excellent technical program, we will offer plenty of opportunities to network and socialize, including our welcome reception, fun run/walk, and the annual awards banquet. We look forward to seeing all of you and your families June 21-23, 2016 in beautiful Pensacola, Florida.

Ari Michelsen and Jeff Johnson

Ari Michelsen
UCOWR President



Jeff Johnson
Conference Chair



UCOWR
UNIVERSITIES COUNCIL ON WATER RESOURCES

Universities Council on Water Resources (UCOWR) is an organization of universities, non-academic institutions, and international affiliates leading in water resources education, research, and public service. UCOWR institutional members and delegates are at the forefront of water resources related research and education. In addition to our annual national conference, UCOWR publishes *The Journal of Contemporary Water Research and Education*. For more information, please visit www.ucowr.org.

NIWR
The National Institutes for Water Resources

The National Institutes for Water Resources (NIWR) is comprised of the 54 university-based centers that were established by the Federal Water Resources Research Act. It is charged with arranging for research that addresses water problems or expands understanding of water and water-related phenomena, aiding the entry of new professionals into the water resources fields, helping to train future water scientists and engineers, and transmitting research results to water managers and the public. For more information about NIWR, visit: www.niwr.info.

Special thanks to Southern Illinois University for their ongoing support of UCOWR.

SIU CARBONDALE Southern Illinois University

Special Events

Monday, June 20

Early Registration
3:00 PM - 6:00 PM
Salon A Entrance

Tuesday, June 21

UCOWR Delegate Business Luncheon (see pg. 18)
11:30 AM - 1:00 PM
White Sands Room - 1st Floor Tower
Must be pre-registered. Bring your ticket with you.

Welcome Reception & Poster Session
6:00 PM - 7:30 PM
White Sands Room - 1st Floor Tower
Hors d'oeuvres and cash bar

Wednesday, June 22

Fun Run/Walk (see pg. 18)
6:00 AM
Meet at Registration Desk

Student Career Panel (see pg. 18)
11:30 AM - 1:00 PM
Coral Reef Room - 1st Floor Tower
Must be pre-registered. Bring your ticket with you.

Awards Banquet (see pg. 19)
6:00 PM - 7:30 PM
Emerald Coast Room - 2nd Floor Tower
Must be pre-registered. Bring your ticket with you.

Thursday, June 23

Gulf Islands National Seashore Field Trip
1:30 PM - 4:30 PM
Meet at Registration Desk
Must be pre-registered. Bring your ticket with you. Check the registration table to see if tickets are still available. Transportation provided.

Tuesday, June 21

Registration 7:30 AM - 3:30 PM *(Salon A Entrance)*

Breakfast 7:30 - 8:30 AM *(Salon C)*

Plenary Session I
8:30 AM - 9:40 AM *(Salon A/B)*
Welcome by Conference Chair, Jeff Johnson
Jim Giattina, Director, Water Protection Division, EPA Region 4

Break 9:40 AM - 10:00 AM *(Salon C)*

Concurrent Technical Sessions
10:00 AM - 11:30 AM
Impact of Irrigation Strategies to Reduce Overdraft of MS Alluvial Aquifer *(Salon E/F)*
Transdisciplinary Bridges to Watershed Science & Human Systems in Texas *(Aquamarine 2)*
Finding Wetland Ecosystem Services Within Existing Drainage Networks I *(Aquamarine 1)*
Emerging Issues in Coastal Water Resources Management I *(Oleander 1)*
Sea Grant & Water Institutes: Research & Partnerships Investigating the Land Sea Interface *(Oleander 2)*

Lunch 11:30 AM - 1:00 PM
UCOWR Delegate Business Luncheon
(White Sands Room - 1st Floor Tower)
All others - lunch on your own

Concurrent Technical Sessions
1:00 PM - 2:05 PM
Agricultural Irrigation Practices *(Salon E/F)*
International River Modeling *(Oleander 1)*
Finding Wetland Ecosystem Services Within Existing Drainage Networks II *(Oleander 2)*
Emerging Issues in Coastal Water Resources Management II *(Aquamarine 1)*
Panel: Sea Grant & Water Institutes: Research & Partnerships Investigating the Land Sea Interface *(Aquamarine 2)*

Break 2:05 PM - 2:20 PM *(Salon C)*

Concurrent Technical Sessions
2:20 PM - 3:25 PM
Improving Irrigation Water Management *(Salon E/F)*
Water Planning *(Aquamarine 1)*
Agricultural & Urban BMPs *(Aquamarine 2)*
Groundwater Management *(Oleander 1)*

Welcome Reception & Poster Session
6:00 PM - 7:30 PM
(White Sands Room - 1st Floor Tower)

Wednesday, June 22

Registration 7:30 AM - 3:30 PM *(Salon A Entrance)*

Breakfast 7:30 - 8:30 AM *(Salon C)*

Plenary Session II
8:30 AM - 9:40 AM *(Salon A/B)*
Warren Hall Medal Recipient - Norman Whittlesey
PhD Dissertation Award Recipient - Miguel Morales
PhD Dissertation Award Recipient - David Warsinger

Break 9:40 AM - 10:00 AM *(Salon C)*

Concurrent Technical Sessions
10:00 AM - 11:30 AM
Water Integration Sustainable Design Strategies *(Salon E/F)*
Unintended Consequences of Projects & Policies *(Aquamarine 1)*
Communicating with Decision Makers on Water & Climate Science *(Oleander 1/2)*
Education I *(Aquamarine 2)*

Lunch 11:30 AM - 1:00 PM
Student Career Panel
(Coral Reef Room - 1st Floor Tower; lunch provided)
All others - lunch on your own

Concurrent Technical Sessions
1:00 PM - 2:05 PM
Urban Water Management *(Salon E/F)*
Edge of Field Runoff Monitoring to Evaluate Agricultural BMPs *(Aquamarine 1)*
Multi-disciplinary Perspectives on Water Quantity & Quality in the MS Delta I *(Oleander 1/2)*
Education II *(Aquamarine 2)*

Break 2:05 PM - 2:20 PM *(Salon C)*

Concurrent Technical Sessions
2:20 PM - 3:25 PM
Water Planning & Governance I *(Aquamarine 1)*
Multi-disciplinary Perspectives on Water Quantity & Quality in the MS Delta II *(Oleander 1/2)*
Panel: Legal Developments in Agricultural Nutrient Management & Implications for Water Quality *(Aquamarine 2)*

Awards Banquet
6:00 PM - 7:30 PM
(Emerald Coast Room - 2nd Floor Tower)

Thursday, June 23

Registration 7:30 AM - 11:00 AM *(Salon A Entrance)*

Breakfast 7:30 - 8:30 AM *(Salon C)*

Plenary Session III
8:30 AM - 9:30 AM *(Salon A/B)*
Laura Bowie, Executive Director, Gulf of Mexico Alliance

Break 9:30 AM - 10:00 AM *(Salon C)*

Concurrent Technical Sessions
10:00 AM - 11:30 AM
Flood Forecasting & Control *(Salon E/F)*
Water Planning & Governance II *(Aquamarine 1)*
Water Management *(Oleander 1/2)*
Water Quality Management *(Aquamarine 2)*

Lunch 11:30 AM - 1:00 PM
On your own



Gulf Islands National Seashore Field Trip
1:30 PM - 4:30 PM
(Meet at Registration Desk)

A guided tour of the interpretive center will be followed by an easy hike. Plant and animal species found in the Gulf Islands National Sea Shore will be highlighted along the path. Dr. Alexis Janosik, University of West Florida, will provide a session on marine life and current research conducted along the Gulf of Mexico. Participants will have the opportunity to get up close and personal with marine life through seining of near shore waters.

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Tuesday, June 21

8:30 AM - 9:40 AM
Plenary Session I
Salon A/B

Moderator - Jeff Johnson, Mississippi State University

"Key Water Challenges and Opportunities Facing the Southeast"



Jim Giattina is the Director of the Water Protection Division of the U. S. Environmental Protection Agency's Southeastern Regional Office in Atlanta, Georgia. He is responsible for administering all Regional EPA water programs related to the Clean Water Act, the Safe Drinking Water Act, and the Marine Protection, Research, and Sanctuaries Act.

Jim has been working in the environmental protection arena for 37 years and he has been with EPA for 32 years. The last 14 years, he has served the Agency in his current capacity in Atlanta.

Jim is a native of Birmingham, Alabama. He received his Bachelor of Science in Biology from the University of Alabama and his Master of Science in Biology from the Center for Environmental Studies at the Virginia Polytechnic Institute and State University.

9:40 AM - 10:00 AM
Break (Salon C)

10:00 AM - 11:30 AM
Concurrent Technical Sessions

*Student presenter in oral presentation competition

Session 1 — **Salon E/F**

Impact of Irrigation Strategies to Reduce Overdraft of MS Alluvial Aquifer

Moderator - Jason Krutz, Mississippi State University

10:00 AM	***Agronomic and economic impacts of cover crops and tillage in a continuous soybean system in the Mid-South** Corey Bryant, Mississippi State University (co-authors: L.J. Krutz, M. Locke, W. Steinriede)
10:20 AM	**Irrigation water management from the pump to the tail ditch -** Christopher Henry, University of Arkansas Division of Agriculture (co-authors: P. Horton, J. Gaspar, L.J. Krutz)
10:40 AM	**Irrigation water management strategies that improve crop yield and/or on-farm profitability** - Jason Krutz, Mississippi State University (co-authors: D. Pickelmann, L. Atwill, S. Leininger, C. Bryant, J. McNeal, W. Wood, M. Henry, D. Roach)
11:00 AM	***Impact of planting date and maturity group on Mid-South soybean production** - Wilks Wood, Mississippi State University (co-authors: L.J. Krutz, T. Irby)

Session 2 — **Aquamarine 2**

Transdisciplinary Bridges to Watershed Science and Human Systems in Texas

Moderators - Tom Arsuffi, Texas Tech University & Kevin Wagner, Texas A&M AgriLife Research

10:00 AM	**Transdisciplinary approaches to bridging lateral and vertical dimensions in the structure and function of watershed science and human systems: Overview** - Tom Arsuffi, Texas Tech University Llano River Field Station (co-authors: T. Broad, K. Wagner)
10:20 AM	**Healthy watershed approach to managing streams : Role of science, stakeholders, education and partnerships** Tyson Broad, Texas Tech University Llano River Field Station (co-authors: T. Arsuffi, K. Wagner)
10:40 AM	**Bringing stakeholders together - Examples of bridging the gaps in knowledge, participation, and coordination with partner organizations and landowners** - Rachael Ranft, The Nature Conservancy
11:00 AM	**Synergistic approach to water quality protection and restoration in Texas** - Kevin Wagner, Texas Water Resources Institute, Texas A&M AgriLife Research (co-authors: N. Dictson, L. Gregory, A. Berthold)

Session 3 — **Aquamarine 1**

FINDING WETLAND ECOSYSTEM SERVICES WITHIN EXISTING DRAINAGE NETWORKS I

Moderator - Matt Moore, USDA Agricultural Research Service

10:00 AM **Drainage ditch mitigation strategies: The past, present, and future of water quality improvement** - Matt Moore, USDA Agricultural Research Service (co-authors: J. Taylor, M. Locke, J. Farris, E. Bennett, R. Kroger)

10:20 AM **Investigation of denitrifying microbial communities within an agricultural drainage ditch fitted with low-grade weirs** - Beth Baker, Mississippi State University (co-authors: R. Kroger, J. Brooks)

10:40 AM **Seasonal patterns in denitrification rates as a function of nitrate availability in vegetated agricultural ditch sediments** - Thad Scott, University of Arkansas (co-authors: S. Speir (1st author), J. Taylor)

11:00 AM **Balancing summer nutrient mitigation potential with winter organic matter breakdown and release: Nutrient source-sink dynamics in vegetated ditch mesocosms** - Jason Taylor, USDA-ARS, Water Quality & Ecology Research Unit, National Sedimentation Laboratory (co-authors: M. Moore, S. Testa)

Session 4 — **Oleander 1**

EMERGING ISSUES IN COASTAL WATER RESOURCES MANAGEMENT I

Moderator - Eban Bean, East Carolina University

10:00 AM ***Hydrologic monitoring and water balance modeling in West and Seven Palm Lake Drainages in the Florida Everglades** - Joshua Allen, Florida International University (co-authors: D. Whitman, R. Price)

10:20 AM **Stormwater retrofits for water quality restoration in the Lower White Oak River** - Eban Bean, East Carolina University (co-authors: C. Humphrey, M. O'Driscoll, R. Bond, N. Lyons)

10:40 AM **Release and delivery of phosphorus from a carbonate aquifer affected by seawater intrusion to adjacent coastal areas** - Rene Price, Florida International University

11:00 AM **Saltwater intrusion mitigation strategies for Baton Rouge Multi-Aquifer System, southeast Louisiana** - Jina Yin, Louisiana State University (co-author: F. Tsai (1st author))

Session 5 — **Oleander 2**

SEA GRANT AND WATER INSTITUTES:
RESEARCH AND PARTNERSHIPS INVESTIGATING THE LAND SEA INTERFACE

Moderator - Earl Greene, USGS

10:00 AM **A collaborative, comprehensive approach to nutrient load reduction in the Midwest** - Anjanette Riley, Illinois Water Resources Center

10:20 AM **Microplastics: The story from rivers to lakes** - Laura Kammin, Illinois-Indiana Sea Grant (co-author: A. Riley)

10:40 AM **Cities, oysters, and groundwater - Current interstate water disputes in the southeastern U.S.: FL v. GA and MS v. TN** - Catherine Janasie, National Sea Grant Law Center at The University of Mississippi School of Law

11:00 AM **Water resources fellowships at the local level: Using the Knauss Sea Grant Fellows Program as a template** - James Hurley, University of Wisconsin-Madison (co-authors: J. Hauxwell, N. Garber, J. Galkiewicz, J. Eckman)

11:30 AM - 1:00 PM

UCOWR DELEGATE BUSINESS LUNCHEON (WHITE SANDS ROOM - 1ST FLOOR TOWER)

Must be pre-registered and bring ticket.

ALL OTHERS - LUNCH ON YOUR OWN

See page 23 for restaurants within walking distance.

Tuesday, June 21

1:00 PM - 2:05 PM

Concurrent Technical Sessions

*Student presenter in oral presentation competition

Session 6 — **Salon E/F**

Agricultural Irrigation Practices

Moderator - Naveen Adusumilli, Louisiana State University AgCenter

1:00 PM **Improving irrigation water use efficiency in Louisiana crop production: Challenges and opportunities** - Naveen Adusumilli, LSU AgCenter (co-author: S. Davis)

1:20 PM ***Evaluation of alternate wetting and drying irrigation practices for mid-south rice production -** Richard Atwill, Mississippi State University (co-author: L.J. Krutz)

1:40 PM **Deep rooted crop options to sustain Ogallala Aquifer in the Southern High Plains -** Sangu Angadi, New Mexico State University (co-authors: S. Singh, S. Begna, K. Grover, D. Auld)

Session 7 — **Oleander 1**

International River Modeling

Moderator - Rachel McDaniel, South Dakota State University, South Dakota Water Resources Institute

1:00 PM **Spatio-temporal characteristics and trends of hydro-climatological variables in the semi-arid Southern Africa** Laurent Ahiablame, South Dakota State University (co-author: E. Mosase (1st author))

1:20 PM ***Quantification of blue and green water in the Limpopo River Basin in Southern Africa using Earth Observation data and SWAT model** - Esther Mosase, South Dakota State University (co-authors: L. Ahiablame, A. Rajib)

1:40 PM **The design and application of a hydro-economic modeling tool and its use in Southeast Asian watersheds** Brian Hurd, New Mexico State University

Session 8 — **Oleander 2**

Finding Wetland Ecosystem Services Within Existing Drainage Networks II

Moderator - Jason Taylor, USDA-ARS, Water Quality & Ecology Research Unit, National Sedimentation Laboratory

1:00 PM **Canal sediment characteristics in the Everglades Agricultural Area and potential for P mitigation** - Samira Daroub, University of Florida (co-author: T. Lang)

1:20 PM **Can floodplain restoration achieved with the two-stage ditch alter nutrient export from agricultural watersheds?** Jennifer Tank, University of Notre Dame (co-authors: S. Christopher, U. Mahl)

1:40 PM **Considerations for scaling investigative designs of mitigation efficiency in agricultural drainage ditches: Manipulating landscape properties and hydrology** - Jerry Farris, Arkansas State University (co-authors: T. Hudson, O. Iseyemi, M. Moore, R. Kroger)

Session 9 — **Aquamarine 1**

Emerging Issues in Coastal Water Resources Management II

Moderator - Mike O'Driscoll, East Carolina University

1:00 PM **Evaluation of package treatment plants on North Carolina's coast: Influence of seasonal dynamics on nutrient and pathogen treatment performance -** Eban Bean, East Carolina University (co-authors: R.N. Mahoney, M. O'Driscoll)

1:20 PM **Geophysical approaches to improve the understanding of subsurface wastewater migration in coastal watersheds** Michael O'Driscoll, East Carolina University (co-authors: C. Humphrey, D. Mallinson, S. Hardison, M. Smith)

1:40 PM **Impact of harbor expansion on water resources** - Ke Li, University of Georgia (co-authors: B. Woodson, C. Meile, W. Savidge, F. Zeng)

Session 10 — **Aquamarine 2**

Panel Discussion

Sea Grant and Water Institutes: Research and Partnerships Investigating the Land Sea Interface

Moderators - Earl Greene, USGS & Darren Lerner, University of Hawaii Sea Grant

1:00 PM **Sea Grant and Water Institutes: Research and Partnerships Investigating the Land Sea Interface**
Darren Lerner, University of Hawaii Sea Grant
Earl Greene, USGS

2:05 PM - 2:20 PM
Break (Salon C)
Light refreshments available.

2:20 PM - 3:25 PM
Concurrent Technical Sessions
*Student presenter in oral presentation competition

Session 11 — **Salon E/F**

Improving Irrigation Water Management
Moderator - Dave Kreamer, University of Nevada Las Vegas

2:20 PM **Irrigation aquifer depletion: Challenges of sustaining this resource** - Daniel Devlin, Kansas State University (co-authors: D. Parker, R. Waskom, R. Cruse)

2:40 PM **Fields of action for IWRM for Colorado irrigated agriculture** - John Wiener, University of Colorado

3:00 PM **Monitoring the impacts of Sheridan County 6 Local Enhanced Management Area** - Bill Golden, Kansas State University (co-authors: B. Guerrero, D. O'Brien)

Session 12 — **Aquamarine 1**

Water Planning
Moderator - Stacia Davis, Louisiana State University AgCenter

2:20 PM **Adaptive water planning and resilience** - Tony Arnold, University of Louisville

2:40 PM **Designing rivers, redesigning institutions: The U.S. Army Corps of Engineers' 308 reports** - Jeffrey Brideau, Institute for Water Resources, USACE

3:00 PM **Development of a sustainable water management plan for the ACF River Basin** - Martin Kistenmacher, Georgia Water Resources Institute, Georgia Tech (co-author: A. Georgakakos)

Session 13 — **Aquamarine 2**

Agricultural and Urban BMPs
Moderator - Laurent Ahiablame, South Dakota State University

2:20 PM **Nutrient removal in subsurface drainage using denitrification bioreactors and filter materials for phosphate adsorption** - Laurent Ahiablame, South Dakota State University (co-authors: G. Hua, C. Hay, J. Kjaersgaard, T. Trooien)

2:40 PM **Landscape irritation: Estimating use, conservation potential, and response to price -** Miguel Morales, University of Florida (co-authors: K. Friedman, S. Knight, J. Heaney)

3:00 PM ***The impacts of cover crops and tillage on nitrate-N leaching in southern Illinois row crop agriculture** - Brooke Hagarty, Southern Illinois University Carbondale

Session 14 — **Oleander 1**

Groundwater Management
Moderator - Ruth Kline-Robach, Michigan State University Institute of Water Research

2:20 PM **Protecting public groundwater supplies using the Michigan Groundwater Management Tool (MGMT)** - Ruth Kline-Robach, Michigan State University Institute of Water Research

2:40 PM **Simulating conjunctive use of surface water and groundwater RiverWare Model: A case study in Urumqi River Basin, China** - Shalamu Abudu, Texas AgriLife Research & Extension Center at El Paso (co-authors: Z. Sheng, A. Michelsen, C. Cui)

3:00 PM **How can a gaining river become a losing stream in an arid region?** - Zhuping Sheng, Texas AgriLife Research & Extension Center at El Paso (co-authors: A. Michelsen, S. Abudu, P. King)

Tuesday, June 21

6:00 PM - 7:30 PM
Welcome Reception and Poster Session
(White Sands Room - 1st Floor Tower)
Hors d'oeuvres and Cash Bar
Sponsored by Mississippi State University Delta Research and Extension Center

Poster Presentations

*Student presenter in poster competition
(In alphabetical order by presenter last name, # corresponds to location in room)

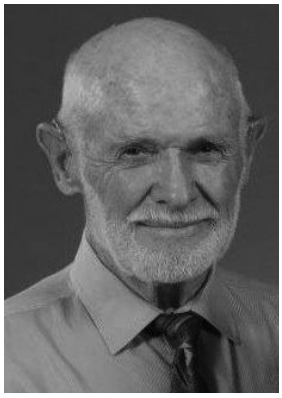
1. **Use of retention pond for storm runoff control - A modeling approach** - Laurent Ahiablame, South Dakota State University (co-authors: A. Akhavan Bloorchian (1st author), R. Shakya, J. Zhou, A. Osouli)
2. ***Geologic and seismic effects of large-scale groundwater withdrawal from northeastern Nevada basins** - Brian Anderson, Desert Research Institute (co-authors: R. Schumer, S. McCoy)
3. ***Changes in annual climate among the southeastern United States and potential impacts on water quality and quantity** - Chance Bentley, Florida Agriculture and Mechanical University (co-author: A. Aavudia)
4. **Vegetative best management practices for controlling roadway runoff** - Alex Boger, South Dakota State University (co-authors: L. Ahiablame, D. Beck)
5. **An interactive web map for the assessment of the anthropogenic wastewater generation in the Southern High Plains** - Erick Butler, West Texas A&M University (co-authors: N. Howell, B. Guerrero, M. Jackson)
6. ***A multi-objective particle swarm optimization based on Pareto-adaptive ε-dominance and orthogonal design for reservoir flood control operation** - Chen Chen, Huazhong University of Science and Technology
7. **LSU Irrigation and Leaching Control System: Development and implementation** - Stacia Davis, LSU AgCenter (co-authors: D. Smith, J. Beasley, S. Hall, M. Thiessen, D. Bordelon)
8. **Influence of amendment of biochars on soil water properties** - Syam Dodla, Louisiana State University (co-authors: H. Bohara, J. Wang)
9. **The impact of changing storm properties on water fluxes and solute transport in arid area under future climate change** - Peng Jiang, Desert Research Institute, Las Vegas (co-authors: K. Acharya, L. Chen, Z. Yu)
10. ***Regional climate simulation of orographic precipitation in interior western USA: Comparisons with gauge and high-resolution** Xiaoqin Jing, University of Wyoming (co-authors: B. Geerts, Y. Wang)
11. ***Optimal hydrothermal operation using linear programming with special ordered sets** - Chuanxiong Kang, Huazhong University of Science and Technology
12. **Applying Bayesian Inference to River Forecast Center river flow forecast for its better accuracy -** Dong Ha Kim, Georgia Environmental Protection Division
13. ***An introduction to water reallocation and barriers to its implementation** - Landon Marston, University of Illinois at Urbana-Champaign (co-author: X. Cai)
14. ***E. coli* transport in South Dakota streams** - Rachel McDaniel, South Dakota State University, South Dakota Water Resources Institute
15. ***The effects of hydro-sediment operation on future environmental non-stationary changing** - Guo Min, Huazhong University of Science and Technology (co-author: W. Jingwen)
16. ***Assessing the reliability of water test kits for use in pond aquaculture** - Shamim Naigaga, Auburn University (co-authors: B. Claude, J. Malnar)
17. ***Effect of cover crops on soil and water quality parameters at the watershed scale** - Gurbir Singh, Southern Illinois University Carbondale (co-authors: K.W.J. Williard, J.E. Schoonover, R. Cook)
18. **Developing an experiential learning mapping activity to enhance watershed education** - Lisa Swanger, Coastal Carolina University (co-author: M. Cram)
19. ***Assessment of satellite precipitation products through hydrologic simulation** - Peixin Xu, California State University Los Angeles (co-author: J. Li)

8:30 am - 9:40 am
Plenary Session II
Salon A/B

Moderator - Jonathan Yoder, Washington State University

"Research Encounters and Lessons Learned"

Warren A. Hall Medal Award Recipient



Norman Whittlesey is Professor (Emeritus) of Agricultural Economics at Washington State University, where he has been since 1964. During his tenure at Washington State University he has been heavily involved in research and teaching related to production agriculture, irrigation development, water policy, and environmental economics throughout the West. Studies of water value, allocation, and conservation have been central to research and policy development activities during the past two decades. He has authored over two hundred publications related to these fields. In 1987 he won the prestigious Award for Professional Excellence from the American Agricultural Economics Association in recognition of his distinguished policy contribution for work in water policy related to irrigation development in the West. In 1998 he was honored as a Fellow of the American Agricultural Economics Association in recognition for years of path breaking research in water policy and irrigation management. He served as vice president and president of the Western Agricultural Economics Association, and in 2004 he received the Distinguished Scholar award from the WAEA. In 2014 he received the Legacy of Excellence award for emeritus faculty from Washington State University. In 2015 he was appointed to the Hall of Fame for alumni in the Department of Agriculture and Resource Economics, Colorado State University. He has been involved in many consulting efforts. These include three (U.S. Supreme) Court cases involving disputes between states over allocation of cross border rivers. He has served on numerous regional and national committees and task forces engaged in policy development for solving problems of natural resource management and the environment.

"Water Demand Management and Cuban Infrastructure: A brief history of my time as a University of Florida graduate student"

Outstanding Ph.D. Dissertation Award Recipient - Water Policy & Socioeconomics



Miguel Morales was born in Caracas, Venezuela to a Cuban father and Venezuelan mother. He received his Ph.D. from the Department of Environmental Engineering Sciences at the University of Florida under the advisement of Dr. James Heaney. Miguel has co-authored twelve peer-reviewed journal publications focusing on methodologies to estimate water use and data-drive optimization approaches to target customers for water demand management practices. He has worked with utilities across the state of Florida, water management districts, and regional planning agencies during his time with the Conserve Florida Water Clearinghouse. He has also been a co-investigator on studies for the Water Research Foundation, City of Sanford and St. Johns River Water Management District, and Florida Energy Systems Consortium. Miguel is a founding member and past president of the Association of Cuban Student Engineers, a student organization that provides engineering students with the opportunity to conduct research on Cuba's infrastructure. He is also a partner at WaterAIM, a consulting firm which provides data-driven analyses and planning services for water demand management and water.

"The Potential and Need for Desalination"

Outstanding Ph.D. Dissertation Award Recipient - Natural Science & Engineering



David Warsinger completed his B.S. and M.Eng at Cornell, and his Ph.D. in Mechanical Engineering at MIT. He completed his graduate studies in a combined three years. Prior to starting his Ph.D., David designed heating and cooling systems and performed energy and sustainability analysis at the engineering consulting firm Arup. David is a coauthor of 18 published and 6 submitted conference or journal papers and a co-inventor on 13 filed or awarded patents. David cofounded Coolify, a startup providing cold storage for farmers in developing economies, which won the national competition for the $100k Ag Innovation Prize. Recently, David received the Institute Award for Best Research Mentor for Undergraduate Students at MIT. He has also received awards for the highest GPA in his class (M.Eng.), numerous grants, and 8 presenter awards at conferences.

9:40 am - 10:00 am
Break (Salon C)

Wednesday, June 22

10:00 AM - 11:30 AM

Concurrent Technical Sessions

*Student presenter in oral presentation competition

Session 15 — **Salon E/F**

Water Integration Sustainable Design Strategies

Moderator - Erick Butler, West Texas A&M University

10:00 AM ***Water integration sustainable design strategies** - Sandy Bernal, University of Arizona (1st author: O. Youssef)

10:20 AM ***Estimation of household willingness to pay for water conserving landscape design** - Blessing Ugwuanyi, Texas Tech University (co-authors: R. Williams (1st author), J. Young, V. Baliga)

10:40 AM ***Four-legged water curriculum for architecture education** - Sandy Bernal, University of Arizona (co-authors: N. Chalfoun (1st author), O. Youssef)

Session 16 — **Aquamarine 1**

Unintended Consequences of Projects and Policies

Moderator - Ari Michelsen, Texas A&M AgriLife Research & Extension Center at El Paso

10:00 AM **Impacts of Texas legislation on water treatment technology adoption** - Ron Lacewell, Texas A&M AgriLife (co-authors: S. Collins, E. Rister, A. Sturdivant)

10:20 AM **Will farmers save water? A theoretical analysis of groundwater conservation policies** - Seong Park, Texas A&M AgriLife Research (co-authors: T. Wang (1st author), H. Jin)

10:40 AM **Unintended and paradoxical aggregate economic and environmental effects** - Robert Taylor, Auburn University (co-author: R. Lacewell)

11:00 AM **Unintended consequences of programs subsidizing irrigation water conservation programs** - Frank Ward, New Mexico State University

Session 17 — **Oleander 1/2**

Communicating with Decision Makers on Water and Climate Science

Moderator - Puneet Srivastava, Auburn University

10:00 AM **Drought early warning systems in the United States** - Courtney Black, NIDIS/NOAA (co-authors: V. Deheza, A. Marrs, C. McNutt)

10:20 AM **Improving water supply planning and operations by using climate science: The Florida Water and Climate Alliance** Kevin Morris, Peace River Manasota Regional Water Supply Authority (co-authors: C. Martinez (1st author), T. Asefa, J. Bolson, T. Irani, V. Misra, L. Staal)

10:40 AM **Using short-term climate forecasts to mitigate the effects of drought** - Puneet Srivastava, Auburn University

11:00 AM **The NC Urban Water Consortium: Supporting decisions through collaborative funding for applied research** - Nicole Wilkinson, NC Water Resources Research Institute

Session 18 — **Aquamarine 2**

Education I

Moderator - Tolessa Deksissa, Water Resources Research Institute, University of the District of Columbia

10:00 AM **Mysterious no more - The importance of demonstration projects - Case studies in watershed education and engagement** - Eve Brantley, Alabama Cooperative Extension System, Auburn University (co-author: A. James)

10:20 AM **Enhancing water quality education and community services through a nationally accredited laboratory** - Tolessa Deksissa, Water Resources Research Institute, University of the District of Columbia

10:40 AM ***A web-based module for hydrology and water resources education: A case study from a coastal basin** - Matthew Deshotel, University of Louisiana at Lafayette (co-author: E. Habib)

11:00 AM **Introducing the Mississippi Water Security Institute (MSWSI)** - Clifford Ochs, University of Mississippi (co-authors: D. Sullivan-González, D. Brown Young)

11:30 AM - 1:00 PM

Student Career Panel (Coral Reef Room - 1st Floor Tower)

All others - lunch on your own

See page 23 for restaurants within walking distance.

1:00 PM - 2:05 PM
Concurrent Technical Sessions

*Student presenter in oral presentation competition

Session 19 — **Salon E/F**

Urban Water Management

Moderator - James Heaney, University of Florida

1:00 PM **New frontiers in urban water demand management** - James Heaney, University of Florida (co-author: M. Morales)

1:20 PM **Membrane technologies for potable water reuse** - David Warsinger, Massachusetts Institute of Technology

1:40 PM **Using advanced metering infrastructure data to assist homeowners in conserving water** - Allen Berthold, Texas Water Resources Institute, Texas A&M AgriLife Research (co-authors: K. Brumbelow, K. Wagner)

Session 20 — **Aquamarine 1**

Edge of Field Runoff Monitoring to Evaluate Agricultural BMPs

Moderator - Ernest Girouard, Louisiana State University AgCenter

1:00 PM **Development of best management practices for the reuse of agricultural runoff as irrigation water in rice- soybean production systems** - Ernest Girouard, Louisiana State University (co-author: C. Jeong)

1:20 PM **Edge of field study on phosphorus runoff losses from sugarcane fields under different management practices** Changyoon Jeong, LSU AgCenter (co-author: E. Girouard)

1:40 PM **Impacts of concentrated flow paths on crops and water quality in southern Illinois row crop agriculture** - Jon E. Schoonover, Southern Illinois University Carbondale (co-authors: M. Enger (1st author), K.W.J. Williard, R. Cook)

Session 21 — **Oleander 1/2**

Multi-disciplinary Perspectives on Water Quantity and Quality in the MS Delta I

Moderator - Kristen Gibson, University of Arkansas

1:00 PM **Do climate risks affect the use of irrigation technologies and water management practices? Evidence from Arkansas** Qiuqiong Huang, University of Arkansas (co-authors: Y. Xu, G. West)

1:20 PM **Role of freshwater sediments in the survival and transport of human pathogens in the environment** - Kristen Gibson, University of Arkansas

1:40 PM **Impact of on-farm water conservation practices on groundwater use in Arkansas** - Qiuqiong Huang, University of Arkansas (co-author: Y. Xu)

Session 22 — **Aquamarine 2**

Education II

Moderator - Doug Parker, University of California: California Institute for Water Resources

1:00 PM **Tools & support for integrating real data in classroom environments** - Liza Brazil, CUAHSI (co-authors: J. Pollak (1st author), E. Clark, L. Tran)

1:20 PM **ThinkWater: A case study in innovation and success in systems-thinking based water education** - Doug Parker, University of California: California Institute for Water Resources (co-authors: J. Solin (1st author), D. Cabrera, J. Kushner, L. Cabrera)

1:40 PM ***A survey of public perceptions and attitudes about water following an exceptional drought in Texas** - Drew Gholson, Texas A&M AgriLife Extension Service (co-authors: D. Boellstorff, S. Cumming)

2:05 PM - 2:20 PM
Break (Salon C)
Light refreshments available.

Wednesday, June 22

2:20 PM - 3:25 PM
Concurrent Technical Sessions
*Student presenter in oral presentation competition

Session 23 — **Aquamarine 1**

Water Planning and Governance I
Moderator - John Wiener, University of Colorado

2:20 PM **Value of adaptive drought management for the ACF river basin** - Aris Georgakakos, Georgia Water Resources Institute, Georgia Tech (co-author: M. Kistenmacher)

2:40 PM **Diverse public participation in watershed governance** - Tony Arnold, University of Louisville (co-authors: A. Chase, J .Ewa)

3:00 PM **Adaptive water governance for transformational adaptation to climate change** - Kofi Akamani, Southern Illinois University Carbondale

Session 24 — **Oleander 1/2**

Multi-disciplinary Perspectives on Water Quantity and Quality in the MS Delta II
Moderator - Kent Kovacs, University of Arkansas

2:20 PM **Sustaining agricultural economic returns and a shallow aquifer on a landscape using conjunctive water management** Kent Kovacs, University of Arkansas (co-author: M. Mancini)

2:40 PM **Monitoring of on-farm water storage systems for water reuse and nutrient reduction** - Joel Paz, Mississippi State University (co-authors: M.L. Tagert, J. Pérez-Gutiérrez, R. Karki)

3:00 PM **Irrigation scheduling with soil moisture sensors and the Mississippi Irrigation Scheduling Tool (MIST)** - Mary Love Tagert, Mississippi State University (co-authors: A. Linhoss, C. Rawson, G. Sassenrath)

Session 25 — **Aquamarine 2**

Panel Discussion
Legal Developments in Agricultural Nutrient Management and Implications for Water Quality
Moderator - Peggy Kirk-Hall, Ohio State University Extension Agricultural & Resource Law Program

2:20 PM **A comparative analysis of state approaches to agricultural nutrient management** - Peggy Kirk Hall, Ohio State University Extension Agricultural & Resource Law Program

Using the Safe Drinking Water Act to address impacts on water quality - Catherine Janasie, National Sea Grant Law Center at The University of Mississippi School of Law

Agricultural nutrient litigation under RCRA and the Clean Water Act - Alexandra Chase, National Sea Grant Law Center at The University of Mississippi School of Law

6:00 PM -7:30 PM
Awards Banquet
(Emerald Coast Room - 2nd Floor Tower)
Must be pre-registered. Bring your ticket with you.

8:30 am - 9:30 am
Plenary Session III
Salon A/B

Moderator - Richard Ingram, Mississippi State University

"The Importance of Regional Collaboration"



Laura Bowie serves as Executive Director for the Gulf of Mexico Alliance, a partnership of the five Gulf States with the goal to significantly increase regional collaboration to enhance the ecological and economic health of the Gulf of Mexico.

Laura began her career in Houston, Texas, at Texas Eastern Pipeline Company as a remediation specialist on their PCB Task Force. Later, she served Continental Airlines as a Senior Manager in the Environmental Affairs Department. Since moving to Mississippi, she has supported local non-profits spear-heading watershed and grant programs. In 2010, Laura was the first employee hired by the Gulf of Mexico Alliance to take the loose network of partnerships into a formal not-for-profit organization.

Laura holds a bachelor's degree in chemistry from Mississippi State University and a master's degree in environmental management from the University of Houston. Laura is active in local civic and education organizations. She and her husband John have been married 16 years and have two sons, Andrew and Mitchell.

9:30 am - 10:00 am
Break (Salon C)

Thursday, June 22

10:00 AM - 11:30 AM
Concurrent Technical Sessions

*Student presenter in oral presentation competition

Session 26 — **Flood Forecasting and Control** — **Salon E/F**

Moderator - Jeff Johnson, Mississippi State University

10:00 AM **The effect of the development and growth of vegetation on floodplains** - William Rahmeyer, Utah State University

10:20 AM **Culvert design for flood routing considering sediment transport** - William Rahmeyer, Utah State University (co-author: W. Goodridge)

Session 27 — **Water Planning and Governance II** — **Aquamarine 1**

Moderator - Kofi Akamani, Southern Illinois University Carbondale

10:00 AM **Adaptive water governance, social-ecological resilience, and climate change: Transdisciplinary synthesis** - Tony Arnold, University of Louisville

10:20 AM **Adaptive water governance and evolving planning theories** - Kofi Akamani, Southern Illinois University

10:40 AM ***Assessing conserved consumptive use of agricultural water for a potential Colorado Western Slope Water Bank** Amandeep Vashisht, Colorado State University (co-authors: P. Cabot, J. Chavez)

11:00 AM ***Are water indices co-integrated with the world water markets?** - S.M. Rajibur Reza, Griffith University, Australia (co-authors: G.A. Tularam, B. Li)

Session 28 — **Water Management** — **Oleander 1/2**

Moderator - Michael Barber, University of Utah

10:00 AM ***Importance of concentrated flow paths in agricultural watersheds in southern Illinois** - Prabisha Shrestha, Southern Illinois University Carbondale (co-authors: K.W.J. Williard, J.E. Schoonover)

10:20 AM ***Energetic benefits of staged reverse osmosis** - Quantum Wei, Massachusetts Institute of Technology (co-authors: R. McGovern, J. Lienhard)

10:40 AM **Impacts of woody biomass biofuel production on sustainable river basin management** - Michael Barber, University of Utah (co-authors: M. Hasan, J. Petrie, R. Goel)

11:00 AM **Applications of statistical techniques to analyze temperature data trends for the State of Florida, U.S.A., for period 1895-2014 -** Hector Quevedo, Universidad Autonoma de Ciudad Juarez

Session 29 — **Water Quality Management** — **Aquamarine 2**

Moderator - Brian Haggard, University of Arkansas

10:00 AM **In-reservoir management reduces phosphorus flux from sediments and [maybe] cyanobacteria occurrence** - Brian Haggard, Arkansas Water Resources Center (co-authors: T. Scott, S. Patterson)

10:20 AM **Removal of sulfamethoxazole, trimethoprim, and triclosan by a green alga *Nannochloropsis*** - Xuelian Bai, Desert Research Institute (co-author: K. Acharya)

10:40 AM ***Effects of cover cropping and tillage on nutrient leaching in a corn/soybean rotation** - Gurbir Singh, Southern Illinois University Carbondale (co-authors: K.W.J. Williard, J.E. Schoonover, R. Cook)

11:00 AM **Effectiveness of vegetated treatment areas as a BMP for small swine operations** - Kevin Wagner, Texas A&M AgriLife Research (co-authors: K. Higgs (1st author), D. Harmel, P. Smith)

11:30 AM - 1:00 PM
Lunch on your own

See page 23 for restaurants within walking distance.

1:30 PM - 4:30 PM
Gulf Islands National Seashore Field Trip, Meet at Registration Desk

Must be pre-registered. Bring your ticket with you.

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UCOWR DELEGATE BUSINESS LUNCHEON
Tuesday, 11:30 AM, White Sands Room - 1st Floor Tower

Must be pre-registered to attend. Bring your ticket with you.

What does it mean to be a UCOWR delegate? How can you become more engaged?
These questions and more will be discussed over lunch.
This also serves as the Annual UCOWR Business Meeting.

*** Are you currently not a delegate, but interested in finding out more?
See the registration desk or contact Karl Williard at williard@siu.edu ***



FUN RUN/WALK
Wednesday, 6:00 AM, Meet at Registration Desk
Enjoy an early-morning informal run or walk on the beach.
No registration required.

STUDENT CAREER PANEL

Calling all students. Please join us for a special lunch session just for you.
Wednesday, 11:30 AM, Coral Reef Room - 1st Floor Tower

Must be pre-registered to attend. Bring your ticket with you.
If you did not pre-register, please see Melissa at the registration desk.
A limited number of tickets may be available.

The Career Panel will consist of brief presentations by professionals from a wide variety of specializations and career paths highlighting the kinds of day to day work they do, the challenges and benefits of their professional lives, and candid advice for students preparing to enter the workforce. There will be time reserved for students to ask their own questions, and of course, lunch is included.

Career Panelists:
Courtney Black – National Oceanic and Atmospheric Administration (NOAA)
Eve Brantley – Water Resources Specialist & Faculty, Alabama Cooperative Extension System, Auburn University
James Heaney – Engineering Faculty at University of Florida
Doug Kenney – Law and Policy Faculty at University of Colorado
Doug Parker – Director of California Institute for Water Resources and Water Strategic Initiative Leader
Rachael Ranft – Nature Conservancy

AWARDS BANQUET

Wednesday, 6:00 PM, Emerald Coast Room - 2nd Floor Tower
Must be pre-registered to attend. Bring your ticket with you.

Congratulations to the 2016 UCOWR awards recipients!
All recipients will be honored at the Awards Banquet.

WARREN A. HALL MEDAL

(recognizes distinguished achievements of an individual in the field of water resources)

Norman Whittlesey, Professor (Emeritus) of Agricultural Economics, Washington State University

EDUCATION AND PUBLIC SERVICE

(recognizes individuals, groups, or agencies that made significant contributions to increase public awareness of water resource development, use, or management)

Tom Cech, Director of the One World One Water (OWOW) Center for Urban Water Education and Stewardship at Metropolitan State University of Denver

Todd Jarvis, Hydrogeologist and Instructor in the College of Earth, Ocean, and Atmospheric Sciences at Oregon State University

Christopher C. Obropta, Extension Specialist in Water Resources with Rutgers Cooperative Extension and an Associate Professor with the Department of Environmental Sciences at Rutgers University

FRIENDS OF UCOWR

(recognizes individuals or groups who have made outstanding contributions to UCOWR)

James P. Heaney, Professor, Department of Environmental Engineering Sciences, University of Florida

Brian H. Hurd, Professor of Agricultural Economics and Agribusiness, New Mexico State University

Mac McKee, Director of Utah Water Research Laboratory and Professor of Civil and Environmental Engineering, Utah State University

PH.D. DISSERTATION

(recognizes outstanding Ph.D. dissertations in two categories)

Miguel Morales, University of Florida (Water Policy and Socioeconomics category)

David Warsinger, Massachusetts Institute of Technology (Natural Science and Engineering category)

Thank you to the Warren Hall Medal and Awards Committee for their time and dedication to selecting deserving recipients from an excellent and record pool of candidates. Committee members are:

Warren Hall Medal Committee
Doug Parker, Chair, University of California
Ellen Douglas, University of Massachusetts Boston
Brian Haggard, University of Arkansas
Ari Michelsen, Texas A&M AgriLife Research

Awards Committee
David Kreamer, Chair, University of Nevada, Las Vegas
Jonathan Yoder, Washington State University
Kofi Akamani, Southern Illinois University
Laurent Ahiablame, South Dakota State University

Many Thanks

Thank you to all the presenters, moderators, judges, and attendees.
Each of you are vital to a successful conference!

Conference Organizing Committee

Jeff Johnson, Chair, Mississippi State University
Eve Brantley, Auburn University
Stacia Davis, Louisiana State University
Aris Georgakakos, Georgia Tech
Brian Haggard, University of Arkansas
Richard Ingram, Mississippi State University
Melinda Laituri, Colorado State University
Mark Newman, University of Florida
Frank Tsai, Louisiana State University
Kevin Wagner, Texas A&M University
Karl Williard, Southern Illinois University

Technical Program Review Committee

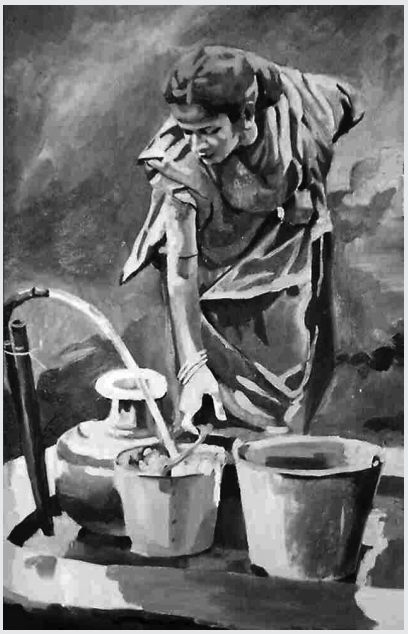
Kevin Wagner, Chair, Texas A&M University
Stacia Davis, Louisiana State University
Brian Haggard, University of Arkansas
Jeff Johnson, Mississippi State University
Melinda Laituri, Colorado State University
Mark Newman, University of Florida
Frank Tsai, Louisiana State University
Karl Williard, Southern Illinois University

Special thanks to The Ivanhoe Foundation and Mississippi State Delta Research and Extension Center for their generous contributions in support of this conference.

The Ivanhoe Foundation

The Ivanhoe Foundation grants Fellowships to needy and deserving students from developing countries. These students must be studying at a U.S. university for a practical Master of Science degree in engineering or science, with an emphasis on water resources. Mr. Ivanhoe, the Foundation's founder, spent most of his working years in developing countries and observed firsthand the plight of water-deprived localities. He felt the most pressing need globally will be practical water-related degrees at the Masters level. For more information go to www.theivanhoefoundation.com.

Afternoon breaks sponsored by The Ivanhoe Foundation



NOTES

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All attendees will receive an email survey in the days following the conference. Please provide your feedback and let's make next year's conference even better!



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REGISTER NOW for the ninth annual WaterSmart Innovations Conference and Exposition – Oct. 5-7, 2016, in Las Vegas. Get more info at WaterSmartInnovations.com.

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Consider the *Journal of Contemporary Water Research and Education*

JCWRE is a peer-reviewed journal devoted to disseminating original work in water research, policy, education, and extension. The journal is published three times a year, with two themed issues comprised of invited authors and one open issue devoted to general submissions.



Interested in submitting a manuscript to our annual open issue in August? Submission deadline is January 15, 2017. Visit ucowr.org for author instructions.

Have an idea for a themed issue? Did you see an interesting concurrent session suitable for a themed issue? Contact Karl Williard, williard@siu.edu

UCOWR
UNIVERSITIES COUNCIL ON WATER RESOURCES

JCWRE is a publication of the Universities Council on Water Resources

Dining within Walking Distance

Bonsai Sushi and Lounge – sushi; in hotel

H2O – cajun-asian grill; in hotel

Grab 'N Go – sandwiches, soup, pizza, salads; in hotel

Red Fish Blue Fish – raw bar, seafood, burgers, tacos, po' boys; across street

Sidelines – American, sports bar; 0.1 mi West

Flounder's Chowder House – seafood, burgers, po' boys, fish tacos; across street 0.2 mi West

Quiznos – sub sandwiches; next to Flounder's

Hemingway's Island Grill – seafood, pasta, sandwiches, soups, salads; across street 0.4 mi West

Crabs on the Beach – beachside bar/grill, seafood, burgers, sandwiches, steak; west of hotel on beach

Native Cafe – gumbo, fish tacos, sandwiches, soups, salads (open until 3pm); across street 0.25 mi East

Paradise Bar & Grill – open-air bar/grill, burgers, sandwiches, po' boys; across street behind Paradise Inn 0.2 mi East

Lillo's Tuscan Grille – Italian (opens at 4pm); across street

Getting Around

Pensacola International Airport is ~13 miles away

Airport Shuttle
The Airport Connection 850-607-0209
http://www.pensacolaairportshuttle.co/reservations/
$35 one way

Taxi Services
1 A&A Airport Taxi (850) 478-4477
Choice Taxi (702) 384-2322
United Taxi (850) 462-1173
Yellow Cab (850) 433-3333

Rental Cars
Avis (800) 331-1212
Enterprise (800) 261-7331
Hertz (800) 654-3131
Thrifty (800) 367-2277

Uber
www.uber.com
To/from airport - uberX $21-28, uberXL $34-44

Pensacola Area Attractions

Pensacola Beach Gulf Pier - Stretching over 1,470 feet beyond 2 sand bars, the pier has some of the most exciting fishing and sights any pier in Florida has to offer. Also a great vantage point for the sunset. $1.25/person to walk out onto the pier; http://www.fishpensacolabeachpier.com/

National Naval Aviation Museum - world's largest Naval Aviation museum; over 150 restored aircraft representing Navy, Marine Corps, and Coast Guard; free admission; http://www.navalaviationmuseum.org/ Family in town? Blue Angels are scheduled to practice on the 21st & 22nd; http://www.navalaviationmuseum.org/attractions/blue-angels/

Fort Pickens Area of Gulf Islands National Seashore - built in 1829 to defend Pensacola Bay; http://www.exploresouthernhistory.com/fortpickens1.html

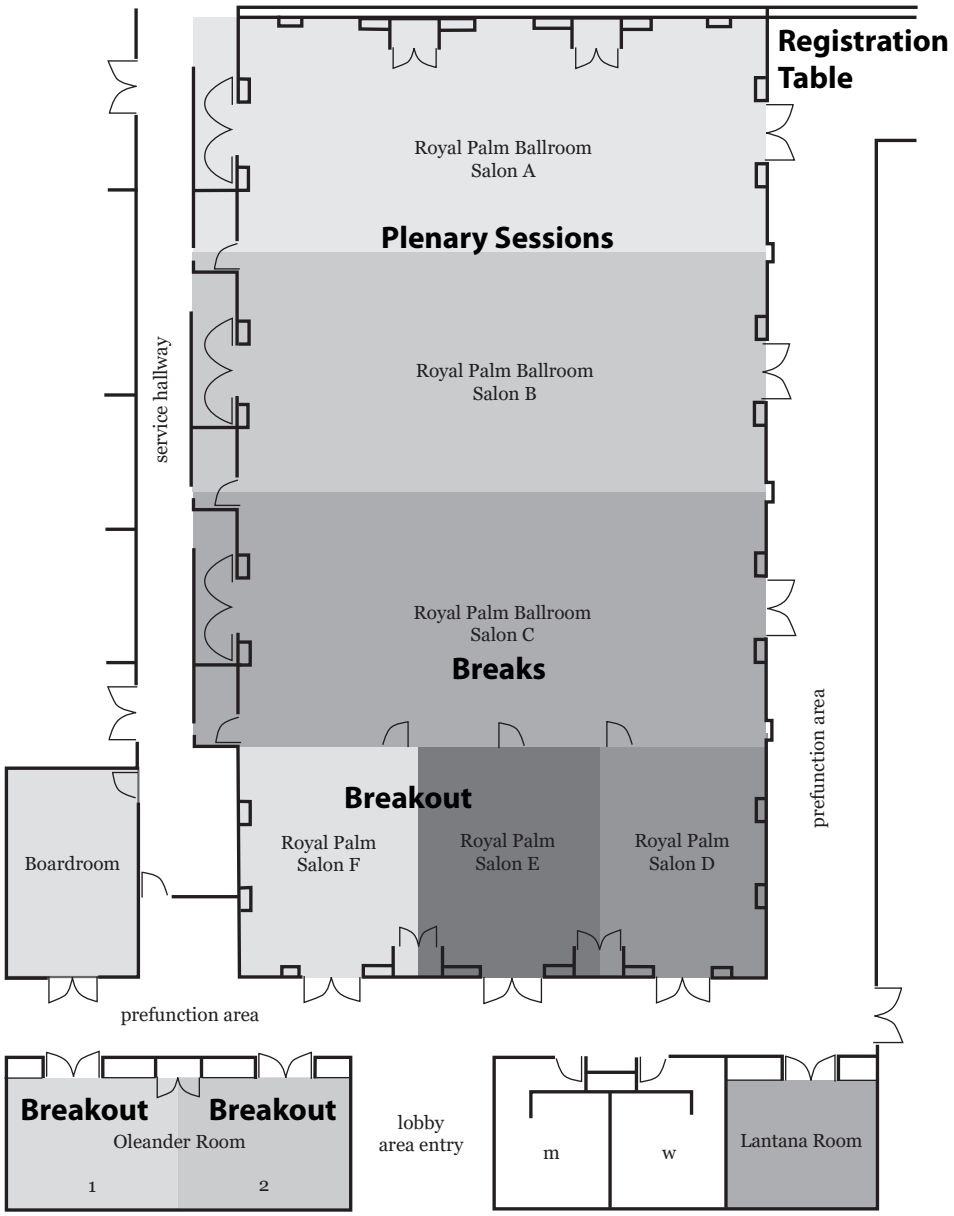
Pensacola Lighthouse and Museum - built in 1859; http://www.pensacolalighthouse.org/

Fishing & Charter Tours - http://www.beachguide.com/PensacolaBeach/Fishing

Sam's Fun City - Amusement and Water Park; http://www.samsfuncity.com/

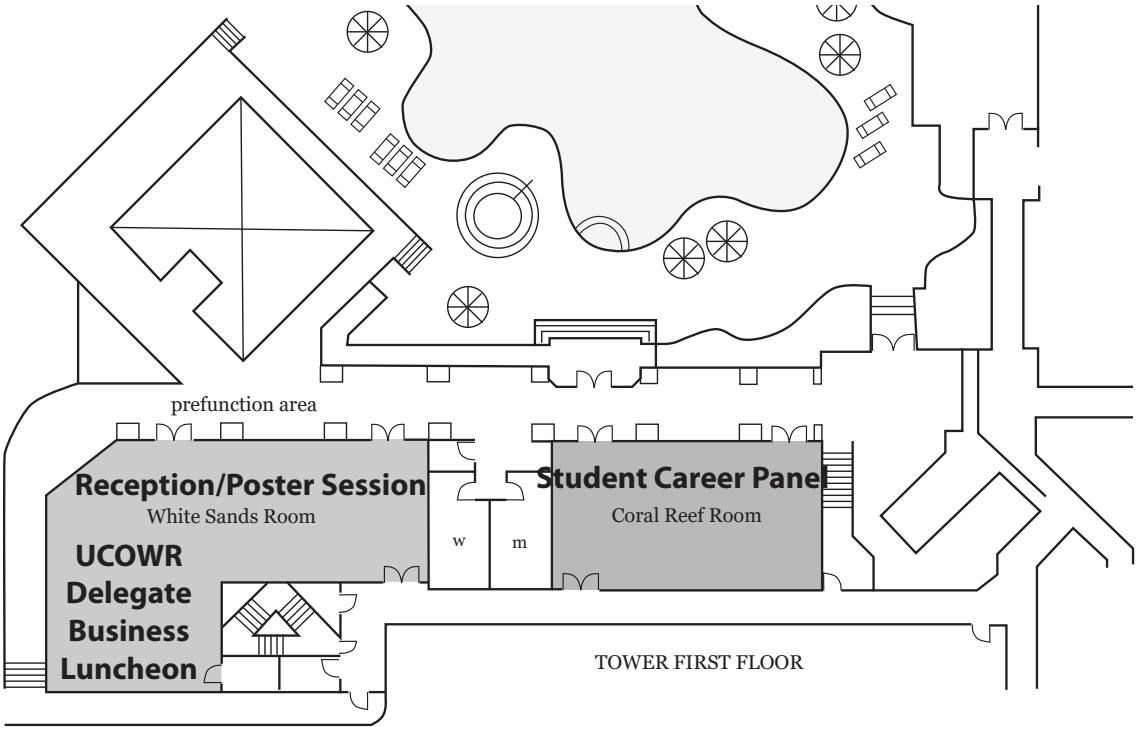
Main Area Meeting Rooms Layout

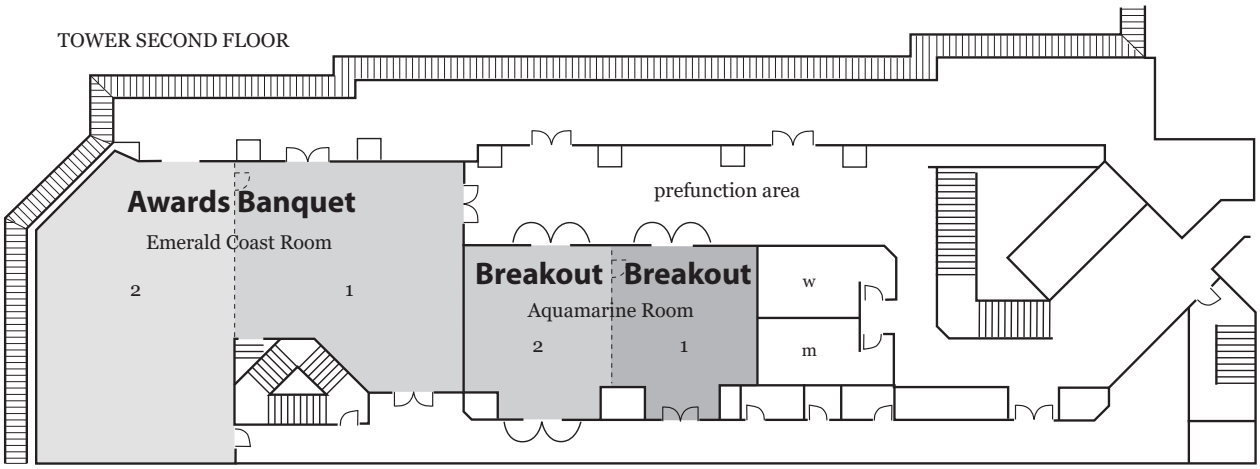
Hilton
Pensacola Beach Gulf Front



Tower Meeting Rooms Layout

Hilton
Pensacola Beach Gulf Front





Mark your calendars!

2017 UCOWR/NIWR Annual Water Resources Conference Fort Collins, CO

June 13-15, 2017
Colorado State University campus

Online abstract submission opens in October. Abstract deadline is January 20, 2017.



Volunteers are needed to serve on the conference planning committee.
If interested, contact Sharon Megdal, Conference Chair, at smegdal@email.arizona.edu

Have an idea for a special session?
Submit a one paragraph proposal to ucowr@siu.edu by September 23, 2016.

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