



Sustainable Water Resources

Complex Challenges, Integrated Solutions

WATER INSTITUTE 2022 SYMPOSIUM

PROGRAM BOOK

February 22-23, 2022

University of Florida
Gainesville, FL

UF | Water Institute
UNIVERSITY of FLORIDA

conference.ifas.ufl.edu/waterinstitute



WATER INSTITUTE

2022 SYMPOSIUM FLOORPLAN

LEVEL 2

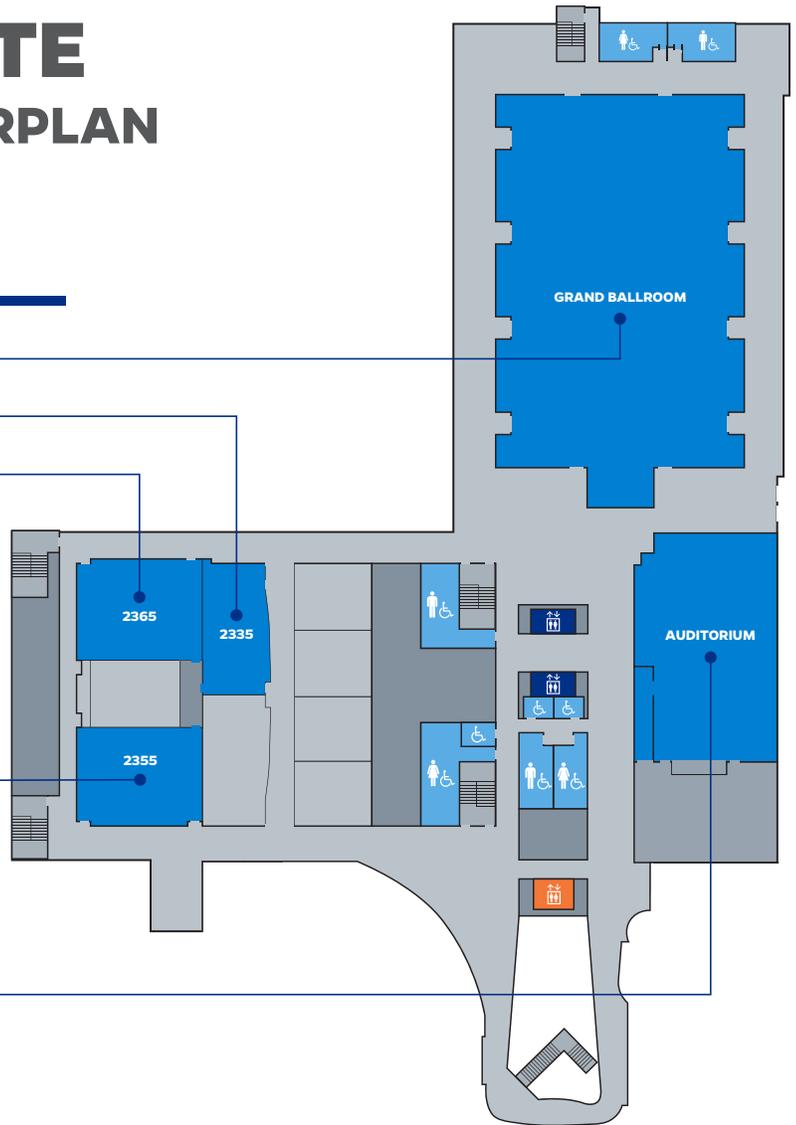
Grand Ballroom

Meeting Room 2335

Meeting Room 2365

Meeting Room 2355

Auditorium



 Orange Elevator

 Blue Elevator

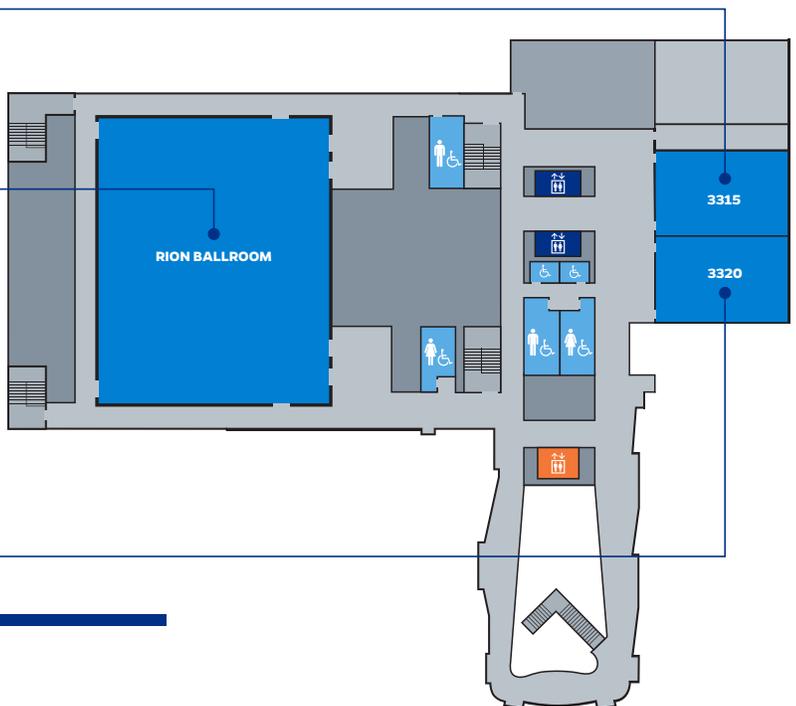
 Meeting Rooms

 Restrooms

Rion Ballroom

Meeting Room 3315

Meeting Room 3320



LEVEL 3



**Sustainable
Water Resources**
Complex Challenges, Integrated Solutions

WATER INSTITUTE

2022 SYMPOSIUM

FEBRUARY 22-23, 2022

J. Wayne Reitz Union
University of Florida
Gainesville, FL



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ABOUT THE WATER INSTITUTE

The University of Florida Water Institute brings together talent from throughout the University and builds internal and external partnerships to address urgent water research challenges; implement innovative interdisciplinary academic programs to train excellent students; and provide state-of-the-art expert assistance and educational programs for external stakeholders. Water Institute faculty represent a breadth of water specialties from geophysical, chemical, biological and social sciences, engineering, law and humanities.

To learn more about the Water Institute, visit waterinstitute.ufl.edu.



WELCOME COLLEAGUES,

Thank you for joining us for the 8th UF Water Institute Symposium!

This symposium provides an intellectually stimulating venue that links leading researchers, educators and students with resource managers, policymakers, non-governmental organizations, authors and artists interested in exploring interdisciplinary solutions to current water challenges.

Over the course of the next two days over 240 contributed oral, poster and panel presentations will draw from diverse perspectives and knowledge. We will learn about new scientific breakthroughs; traditional land and water stewardship practices; and emerging education, policy, management and technological solutions to pressing water issues.

The topics of the presentations make it clear that developing socially-acceptable, scientifically-sound solutions remains a complex process because our scientific understanding is incomplete, our goals contradictory, and complex interdependencies result in unexpected outcomes. We welcome you to join with us to ask difficult questions, listen to unexpected answers, engage in constructive dialog, and learn from those outside your area of expertise so that together we can envision and chart a path to a sustainable water future.

This year's Symposium received a record number of abstract submissions and is registered at full capacity. We are encouraged that COVID cases are on the decline and pleased that we are able to meet in person. Nevertheless, positivity rates remain high. Therefore we request that you follow UF Health guidance which includes staying home and self-quarantining if you feel sick, wearing a mask when inside UF facilities, and observing social distancing guidelines.

Thanks again for attending the 8th UF Water Institute Symposium. We value your contributions and encourage your active participation.

Sincerely,

WENDY GRAHAM

*Carl S. Swisher Chair in Water Resources
Director, UF Water Institute*

ACKNOWLEDGMENTS

PLANNING COMMITTEE

Wendy Graham, Symposium Chair, UF Water Institute

Andrea Albertin, UF/IFAS Regional Specialized Water Resources Extension Agent

Mike Allen, UF/IFAS Nature Coast Biological Station, School of Forest, Fisheries and Geomatic Sciences

Christine Angelini, UF College of Engineering, Environmental Engineering Sciences Department

Mark Brenner, UF College of Liberal Arts and Sciences, Geological Sciences Department

Nancy Denslow, UF College of Veterinary Medicine, Center for Environmental and Human Toxicology

Mark Diblin, Wood Environment & Infrastructure Solutions, Inc.

Holly Henderson, Duke Energy

Young Gu Her, UF/IFAS Tropical Research & Education Center, Agricultural & Biological Engineering Department

Antar Jutla, UF College of Engineering, Environmental Engineering Sciences Department

Davie Kadyampakeni, UF/IFAS Citrus Research and Education Center, Soil and Water Sciences Department

Jeffrey King, Applied Technology & Management

Dail Laughinghouse, UF/IFAS Fort Lauderdale Research and Education Center, Agronomy Department

Kati Migliaccio, UF/IFAS Agricultural and Biological Engineering Department

AJ Reisinger, UF/IFAS Soil and Water Sciences Department

Catherine Tucker, UF College of Liberal Arts and Sciences, Center for Latin American Studies

Laura Warner Sanagorski, UF/IFAS Agricultural Education and Communication Department

Matt Whiles, UF/IFAS Soil and Water Sciences Department

Yilin Zhuang, UF/IFAS Regional Specialized Water Resources Extension Agent

PROGRAM ORGANIZERS

Paloma Carton de Grammont, UF Water Institute

Karen Schlatter, UF Water Institute

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UF/IFAS Wildlife Ecology and Conservation · UF Center for Coastal Solutions · UF/IFAS School of Forest, Fisheries, & Geomatics Sciences
UF Department of Geological Sciences · St. Johns River Water Management District
UF/IFAS School of Natural Resources & Environment · UF ABE Center for Remote Sensing

AGENDA-AT-A-GLANCE

Tuesday, February 22, 2022						
7:30am-8:30am	Check-in for Preregistered Attendees - Pickup Symposium Materials Early Morning Refreshments [Grand Ballroom Hallways]					
8:30am-10:00am	<p align="center"><u>Opening Plenary Session</u> [Grand Ballroom]</p> <p align="center"><u>Introduction and Welcome</u> Wendy Graham, Director, University of Florida Water Institute David Norton, Vice President for Research, University of Florida</p> <p align="center"><u>Keynote Speaker:</u> Margaret Palmer Distinguished University Professor, University of Maryland, College of Park and Director, National Socio-Environmental Synthesis Center (SESYNC)</p> <p align="center">“Restoration of Aquatic Ecosystems: the Search for a Process-based Understanding”</p>					
10:00am-10:30am	Morning Refreshment Break					
10:30am-12:00pm	Concurrent Sessions					
Room Number & Session Title	Room 2365	Room 3320	Room 3315	Room 2335	Room 2355	Auditorium
	Session 1	Session 2	Session 3	Session 4	Session 5	Session 6
	Historical Perspectives on Climate Change	Analysis of Environmental Flows, and Relationship Between Flow and Ecosystem Vitality	Climate Change and Sea Level Rise Impact on Water Resources	Stakeholder Engagement in Water Solutions	Water Policies and Programs for Water Quality	CCS1: The Role of Data Fusion and Artificial Intelligence in Transforming Coastal Hazard Detection and Monitoring
12:00pm-1:00pm	Lunch					
1:00pm-2:30pm	Concurrent Sessions					
Room Number & Session Title	Room 2365	Room 3320	Room 3315	Room 2335	Room 2355	Auditorium
	Session 7	Session 8	Session 9	Session 10	Session 11	Session 12
	FLWCA1: Water and Climate Resiliency Metrics: Long Term Data Trends	Water Availability and Allocation	Water Quality Drivers and Impacts	Education & Outreach Programs	The Floridan Aquifer Collaborative Engagement for Sustainability Project	CCS2: Unlocking Benthic-Pelagic Coupling Controls of Coastal Eutrophication
2:30pm-3:00pm	Afternoon Refreshment Break					
3:00pm-5:00pm	<p align="center">Poster Session with Student Poster Competition and Judging [Rion Ballroom]</p>					

NOTES

Wednesday, February 23, 2022						
7:30am-8:30am	Early Morning Refreshments [Grand Ballroom Hallways]					
8:30am-10:00am	Concurrent Sessions					
Room Number & Session Title	Room 2365	Room 3320	Room 3315	Room 2335	Room 2355	Auditorium
	Session 13	Session 14	Session 15	Session 16	Session 17	Session 18
	FLWCA2: Future Trends in Climate and Sea Level Rise	Harmful Algal Blooms	BMP Adoption in Agricultural and Urban Systems	Technology and Decision Tools for Water Management	Water and Wetlands Challenges in the Tropics	CCS3: Improving the Condition of Coastal Ecosystems through Collaboration: A Panel Discussion of Lessons from Decades of Estuarine Nutrient Assessment and Management
10:00am-10:30am	Morning Refreshment Break					
10:30am-12:00pm	Concurrent Sessions					
Room Number & Session Title	Room 2365	Room 3320	Room 3315	Room 2335	Room 2355	Auditorium
	Session 19	Session 20	Session 21	Session 22	Session 23	Session 24
	FLWCA3: Assessing Flood and Sea Level Rise Vulnerability and Best Adaptation Solutions	Lake Okeechobee Water Quality Issues	Stormwater and Wastewater Treatment	Smart-irrigation and Sensor-based Irrigation for Water Savings	Tribal Communities and Water Issues	CCS4: The Frontier of Earth Systems Modeling for Hazard Prediction & Management
12:00pm-1:00pm	Lunch					
1:00pm-2:30pm	Concurrent Sessions					
Room Number & Session Title	Room 2365	Room 3320	Room 3315	Room 2335	Room 2355	Auditorium
	Session 25	Session 26	Session 27	Session 28	Session 29	Session 30
	FLWCA4: Using Rainfall and Wet Season Conditions to Analyze Compound Flooding Risks	Watershed Provisioning in Estuarine Food Webs	Urban Water Quality and Quantity	Artificial Intelligence in Water Systems	Navigating a Professional Job in Water	CCS5: Accelerating the Infusion of Science in Coastal Policy - A Panel
2:30pm-3:00pm	Afternoon Refreshment Break					
3:00pm-5:00pm	<p style="text-align: center;"><u>Closing Plenary Session</u> [Grand Ballroom]</p> <p style="text-align: center;"><u>Introductory Remarks</u> Scott Angle, Vice President for Agriculture and Natural Resources, University of Florida</p> <p style="text-align: center;"><u>Presentation of Student Poster Competition Awards</u></p> <p style="text-align: center;"><u>Closing Panel</u> “Climate Resilience in a Ground Zero State”</p> <p style="text-align: center;">Moderator Wendy Graham, Director, University of Florida Water Institute</p> <p style="text-align: center;">Panel Description Resilience generally refers to the ability to persist or adapt in the wake of disruption. In Florida, climate change is already disrupting local economies, infrastructure, ecosystems and human health. Indeed, Florida has been described as America’s “ground zero” for climate change. What does climate resilience mean for Florida’s water sector? This panel consists of a group of leading scientists, engineers, water managers and policy makers representing agriculture, the environment, water management, and academic interests. Panel members will discuss initiatives, opportunities, and timeframes for developing water-related resilience in the face of climate impacts. The panel will conclude with open questions and dialogue with the audience.</p> <p style="text-align: center;">Panelists: Beth Lewis, Director of Water Resources, The Nature Conservancy Florida Chapter Carolina Maran, Chief Resiliency Officer, South Florida Water Management District Chris Pettit, Director of Agricultural Water Policy, Florida Dept. of Agriculture & Consumer Services Mark Rains, Chief Science Officer, Florida Department of Environmental Protection Jason von Meding, Florida Institute for Built Environment Resilience, University of Florida</p>					
Symposium Concludes						

PLENARY SPEAKERS



Margaret Palmer

Keynote Speaker

Distinguished University Professor, University of Maryland, College Park and Director, National Socio-Environmental Synthesis Center

Margaret A. Palmer is a Distinguished University Professor in the Department of Entomology at the University of Maryland and director of the National Socio-Environmental Synthesis Center (SESYNC). Palmer works on the restoration of streams and rivers, and is co-author of the book *Foundations of Restoration Ecology*. Palmer has been an invited speaker in numerous and diverse settings including regional and international forums, science-diplomacy venues and popular outlets.



Beth Lewis

*Director of Water Resources
The Nature Conservancy
Florida Chapter*

Beth Lewis is the Resilient Lands and Waters Strategy Director for the Nature Conservancy's Florida Chapter. In this role, Beth is responsible for overseeing implementation of the Chapter's terrestrial, freshwater and marine conservation efforts involving resource protection and land management. She also served as the Freshwater Program Manager where she led the Chapter's water resource conservation activities through policy initiatives and project implementation.



Carolina Maran

*Chief Resiliency Officer
South Florida Water Management
District (SFWMD)*

Carolina Maran is a Water Resources Engineer with over 19 years of experience in: integrated water resources planning, management and regulation; climate change and resilience; hydrologic and hydraulics analysis/modeling, decision support systems and GIS; water conservation, water allocation and conflict resolution; urban and regional planning, and public policies. Maran has been responsible for several interdisciplinary projects and research, including collaboration with local, state and federal agencies and International Organizations.



Chris Pettit

*Director of Agricultural Water Policy,
Florida Department of Agriculture &
Consumer Services*

Christopher Pettit is the Director of the Office of Agricultural Water Policy for the Department of Agriculture and Consumer Services. The Office is responsible for the development and implementation of best management practices on agricultural properties related to water quality and conservation, as well as additional policy and regulatory responsibilities. Chris previously served in the offices of counsel for both SFWMD and SWFWMD, as well as a Policy and Legislation Manager handling water and environmental issues for Palm Beach County.



Mark Rains

*Chief Science Officer
Florida Department of Environmental
Protection (FDEP)*

Dr. Mark Rains was announced as chief science officer on March 30, 2021. Rains is the second state CSO in Florida's history. Dr. Rains currently serves as a professor and was past chair and director of the School of Geosciences at the University of South Florida. He earned his bachelor's degree in ecology, behavior and evolution from the University of California at San Diego, his master's degree in forest resources from the University of Washington and his Ph.D. in hydrologic sciences from the University of California at Davis. Dr. Rains is also a certified professional wetland scientist with years of experience in both the public and private sectors in Florida, Alaska and California.



Jason von Meding

*Associate Professor, Florida Institute
for Built Environment Resilience,
University of Florida*

Jason von Meding's research centers the experiences, knowledges and strengths of affected communities and focuses on how injustice and inequality underpin the creation of risk in society, profoundly shaping disaster impacts. As part of his public facing science communication, he is co-host of the Disasters: Deconstructed Podcast and tweets @vonmeding.

Concurrent Sessions — 10:30am - 12:00pm

	2365	3320	3315	2335	2355	Auditorium
	1	2	3	4	5	6
Session Title	Historical Perspectives on Climate Change	Analysis of Environmental Flows, and Relationship Between Flow and Ecosystem Vitality	Climate Change and Sea Level rise Impact on Water Resources	Stakeholder Engagement in Water Solutions	Water Policies and Programs for Water Quality	CCS1: The Role of Data Fusion and Artificial Intelligence in Transforming Coastal Hazard Detection and Monitoring
Moderator	Mark Brenner University of Florida	Jeffrey King ATM, A GeoSyntec Company	Young Gu Her University of Florida	Yilin Zhuang UF/IFAS	Karen Schlatter University of Florida	Zhe Jiang University of Florida
10:30am	Introduction	Introduction	Introduction	Introduction	Introduction	Introduction
10:35am	Bruce MacFadden University of Florida Geological History of Florida's Water Over the Past 40 Million Years	Andrew Sutherland St. Johns River Water Management District Environmental Flows and Levels: Determining Impact Thresholds and Allowable Change	Jung-Hun Song University of Florida Performance of Climate Models in Reproducing the Hydrological Characteristics of Rainfall Events in Florida	Mark Hoyer Florida LAKEWATCH A Limnological Yardstick Based on Phosphorus Limitation	Robert Knight Florida Springs Institute A Prescription for Cost Effective Restoration of Florida's Springs	Barbara Kirkpatrick Gulf Coast Ocean Observing System (GCOOS) Data Aggregation, Citizen Science, and AI - Oh My!
10:50am	Jason Bellino U.S. Geological Survey Reference and Potential Evapotranspiration, Solar Radiation, and Albedo Over Florida, USA, 1985-2020	Gabriel Herrick Southwest Florida Water Management Instream Habitat Quantification Using System for Environmental Flow Analysis	Ziwen Yu University of Florida Stochastic Downscaling of Hourly Precipitation Series from Climate Change Projections	Ernie Cox Family Lands Remembered Innovative Water Resources Projects Through Alternative Delivery Methods	Christopher Pettit Florida Department of Agriculture and Consumer Services Agricultural Water Governance and Management	
11:05am	Rick Copeland AquiferWatch, Inc. Regional, Passive Saline Encroachment in the Springs of Florida (1991 – 2020)	Sean King Suwannee River Water Management District Development of Environmental Flow Analyses for Spring Systems in the Suwannee River Basin	Young Gu Her University of Florida Impacts of Climate Change and Sea Level Rise on Southeast Florida's Groundwater Resources	Steve Leitman Apalachicola Bay Science Initiative, Florida State University The Development of Performance Metrics for the ACF Watershed	Del Bottcher Soil and Water Engineering Technology, Inc. Agricultural Best Management Practices Assessment Tool (BMPAT)	Zhe Jiang UF Department of Computer & Information Science & Engineering Spatiotemporal Machine Learning for Hydrology: A Couple of Examples
11:20am	Ying Ouyang USDA Forest Service Contribution of Streams to Groundwater Resource in the Mississippi Embayment Over the Past 100 Years	Paul Thurman Northwest Florida Water Management District Minimum Flows Development in a Spring System Displaying Increased Flows	Yogesh Khare Everglades Foundation Phosphorus Source Contributions Under Current and Future Climate in a Lake Okeechobee Subwatershed	Shannon Monahan Lake Cane Restoration Society Lake-in-a-Box: How Citizens are Taking Responsibility for Domestic Water Quality	M. Jennison Kipp UF/IFAS Extension Lightening the Water Footprint of Florida's New Residential Developments	Ronald Fick University of Florida Fusing Remote Sensing Data with Spatiotemporal in Situ Samples for Red Tide Detection
11:35am	Gerald Murphy and Thomas Ruppert UF Program for Resource Efficient Communities Navigating the Waters of Future Climate: Law & Policy	Tracey Piccone South Florida Water Management District Everglades Stormwater Treatment Areas: Managing Flows to Achieve Performance Goals	Peter Sheng University of Florida Adaptation of Coastal Communities and Natural Ecosystems in a Changing Climate	Olesya Savchenko University of Florida Public Preferences for Management of Aquatic Invasive Species in Florida Waters	Matthew DePaolis University of Florida A Restoration Aquaculture Approach to Water Quality	Guangming Zheng UMD, NOAA/NESDIS/ Center for Satellite Applications and Research Hypoxia Forecast in the Chesapeake Bay using CNN and LSTM
11:50am	Discussion	Discussion	Discussion	Discussion	Discussion	Discussion
12:00pm-1:00pm	Lunch					

Tuesday, February 22, 2022 (continued)						
Concurrent Sessions — 1:00pm - 2:30pm						
	2365	3320	3315	2335	2355	Auditorium
	7	8	9	10	11	12
Session Title	FLWCA1: Water and Climate Resiliency Metrics: Long Term Data Trends	Water Availability and Allocation	Water Quality Drivers and Impacts	Education & Outreach Programs	The Floridan Aquifer Collaborative Engagement for Sustainability Project	CCS2: Unlocking Benthic-Pelagic Coupling Controls of Coastal Eutrophication
Moderator	Nicole Cortez WSP USA	Samuel Smidt University of Florida	Matt Whiles UF/IFAS	Yilin Zhuang UF/IFAS	Paloma Carton de Grammont University of Florida	Ashley Smyth & Betty Staugler UF/IFAS
1:00pm	Introduction	Introduction	Introduction	Introduction	Introduction	Introduction
1:05pm	Karin Smith South Florida Water Management District Sea Level Rise and Saltwater Intrusion into Aquifers along the Southeast Florida Coast	Samuel Smidt University of Florida Estimating Historical Irrigated Production of Major US Row Crops	Andy Canion St. Johns River Water Management District Biosolids Applications and Nutrient Export in Tributary Watersheds of the Upper St. Johns River	Yilin Zhuang University of Florida Challenges and Opportunities Facing the Florida Well Owner Network	Nathan Reaver University of Florida Environmental and Economic Tradeoffs of Land Use and Management in the Floridan Aquifer Region	Jim Fourqurean Florida International University Decomposition and Lability of Soil Organic Matter and Carbon Stocks across a Seagrass Landscape
1:20pm	Yibing Zhu South Florida Water Management District Evapotranspiration Trend in South Florida	Katie McCurley Pisarello USDA Long Term Water Yield Impacts from Pine Plantation Management Strategies in the Southeast	Shourish Chakravarty UF/IFAS SWFREC Assessing Impacts of Deforestation on Water Quality in Agricultural Landscape in Indiana	Tina McIntyre UF/IFAS Extension Seminole County Quantifying Fertilizer Impacts: A Case Study Investigating Years of Educational Workshops	Rob De Rooij University of Florida Simulating Nitrate Transport to the Devil's Springs Complex Using Swat-Modflow and Modpath	
1:35pm	Tibebe Dessalegne South Florida Water Management District Water Level Trends at South Florida Coastal Structures and Implications to Water Management	Louis Mantini Suwannee River Water Management District Biological Metrics for Development of Minimum Flows and Levels in the Suwannee River Basin	Kai Rains University of South Florida Forensic Mapping of the Stunning Transformation of Florida's Coastal Watersheds over 150+ Years	Morgan Pinkerton UF/IFAS Pesticide CEUs as a Platform for Water Resource Education	Wendy-Lin Bartels University of Florida The Room Where It Happens: Co-Producing Scenarios for the FACETS Project	Chris Anastasiou Southwest Florida Water Management District The Hangover Effect: Coupling Seagrass Loss, Macroalgal Growth, & Water Quality in Charlotte Harbor
1:50pm	Tara Root U.S. Geological Survey Identifying Hydrologic Changes and Trends using Automated Statistical Analyses	Marco Pazmiño-Hernandez USGS Caribbean-Florida Water Science Center A New Method for Estimating Water Withdrawn from Private Domestic Wells in Florida	Tracey Schaefer University of Florida Spatial Distribution of Sediment and Porewater Biogeochemical Characteristics in Lake Okeechobee	Tiare Silvasy UF/IFAS Water Wednesday Program Educates Urban Residents About Actionable Water Conservation Practices	Damian Adams University of Florida Payments for Forest Ecosystem Services: an Integrated Approach to Value Forest Water Benefits	Annie Murphy INSPIRE Environmental Human-Facilitated Bivalve Populations Effects on Energy and Nitrogen Flow Through Marine Ecosystems
2:05pm	Nenad Iricanin South Florida Water Management District Water Quality Trends in Lake Okeechobee: Climate Change or Other Influence?	Dat Tran Florida Legislature-EDR Water Demand and Supply in Florida: Past, Current, and Future Trends	Mary Szafraniec Wood Testing Performance Efficiency of Innovative Nutrient Reduction Technologies With In-Situ Mesocosms	Carrie Stevenson UF/IFAS Extension Resilience to Future Flooding in the Gulf of Mexico	Sadie Hundemer University of Florida The Water Science Communication Problem: Water Knowledge and Acceptance/Rejection of Water Science	Ashley Smyth University of Florida The Role of Sponges in Modulating Nitrogen Cycling in the Florida Keys
2:20pm	Discussion	Discussion	Discussion	Discussion	Discussion	Discussion
2:30pm-3:00pm	Afternoon Refreshment Break					
3:00pm - 5:00pm	Poster Session with Student Poster Competition and Judging [Rion Ballroom]					

10:00 am-10:30am	Morning Refreshment Break							
	Wednesday, February 23, 2022 (continued)							
	Concurrent Sessions — 10:30am - 12:00pm							
	2365	3320	3315	2335	2355	Auditorium		
	19	20	21	22	23	24		
Session Title	FLWCA3: Assessing Flood and Sea Level Rise Vulnerability and Best Adaptation Solutions	Lake Okeechobee Water Quality Issues	Stormwater and Wastewater treatment	Smart-irrigation and Sensor-based Irrigation for Water Savings	Tribal Communities and Water Issues	CCS4: The Frontier of Earth Systems Modeling for Hazard Prediction & Management		
Moderator	Drew Bartlett South Florida Water Management District	Nancy Denslow University of Florida	Andrea Albertin UF/IFAS	Davie Kadyampakeni UF/IFAS	Paloma Carton de Grammont University of Florida	Olabarrieta Maitane & David Kaplan University of Florida		
10:30am	Introduction	Introduction	Introduction	Introduction	<p><i>This session contains three 30 minute separate presentations that begin immediately.</i></p> <p>Steven Chischilly & Abhishek RoyChowdhury Navajo Technical University</p> <p>Water Quality on the Navajo Nation and How it has Contributed to the Spread of Covid-19 (30 mins)</p>	Introduction		
10:35am	Alberto Pisani Miami-Dade County Update of the Stormwater Master Plan of Miami-Dade County for Current and Future Conditions	Joseph Gilio Limnological Science for Lake Okeechobee Lake Okeechobee's Trophic "Temperature"	Christopher Keller Wetland Solutions, Inc Mcintosh Preserve Wetlands Project – Integrated Water Resources Management for Multiple Benefits	Vivek Sharma University of Florida Florida Agricultural Soil Moisture Sensor Network		<p>Ben Kirtman University of Miami</p> <p>Global High-Resolution Earth System Models Representation of Regional Climate Change and Variability</p>		
10:50am	Christine Carlson South Florida Water Management District Documenting Flood Occurrence and Exposure	Sangdon So Applied Technology and Management Tidal and Subtidal Nutrient Flux Forced by Lake Okeechobee Drawdown	Scott Knight Wetland Solutions, Inc. Quantifying the Ancillary Benefits of Constructed Treatment Wetlands	Haimanote Bayabil University of Florida Potentials of Variable Rate Irrigation for Vegetable Production in South Florida				
11:05am	Tom Frick St. Johns River Water Management District Resilience – A Water Management District Perspective	Viviana Mazzei U.S. Geological Survey Effects of Experimental Nutrient Enrichment on Phytoplankton Assemblage Structure and Cyanotoxins	Jinsheng Huang University of Florida Ball Milled Biochar Effectively Removes Sulfamethoxazole and Sulfapyridine Antibiotics From Water and Wastewater	Sandra Guzman University of Florida Tools to Address Current Irrigation Management Challenges in Citrus Production			<p>Stacy Myers Heritage and Environment Resources Office, Seminole Tribe of Florida & Joe Frank Resident of Big Cypress Reservation, Seminole Tribe of Florida</p> <p>Water Issues Affecting Big Cypress Reservation and the Seminole Tribe of Florida (30 mins)</p>	Xingyuan Chen Pacific Northwest National Laboratory Integrated Modeling of Carbon and Nitrogen Cycling in River Corridors and Watersheds
11:20am	Kevin Hart South Broward Drainage District South Broward Drainage District Green Infrastructure Projects and Climate Change Impacts	Miles Medina University of Florida Nitrogen Enriched Discharges from a Vast Watershed Intensify Red Tide	Tricia Kyzar Wildwood Consulting Inc Assess Vulnerability of OSTDS to SLR and Storm Surge to Develop Adaptation Plans	Lincoln Zotarelli University of Florida Rethinking Seepage Irrigation Management for Horticultural Production in Florida				<p>Maitane Olabarrieta University of Florida</p> <p>John Warner US Geological Survey</p> <p>Advancements of a Coupled Ocean Nearshore Forecasting System</p>
11:35am	Akintunde Owosina South Florida Water Management District Assessing and Mitigating the Impacts of Sea Level Rise on Flooding in South Florida	Mohsen Tootoonchi University of Florida Decadal Changes in Nitrogen and Phosphorus Species along the Lake Worth Lagoon in South Florida	Lisa Krinsky UF/IFAS Informing Septic to Sewer Conversion Outreach in Florida through Community-Based Social Marketing	Davie Kadyampakeni University of Florida Implementing Full and Deficit Irrigation Practices using Soil Moisture and Sapflow Sensors for Water Savings in Citrus Production Systems				
11:50am	Discussion	Discussion	Discussion	Discussion	Discussion			
12:00pm-1:00pm	Lunch							

Wednesday, February 23, 2022 (continued)						
Concurrent Sessions — 1:00pm - 2:30pm						
	2365	3320	3315	2335	2355	Auditorium
	25	26	27	28	29	30
Session Title	FLWCA4: Using Rainfall and Wet Season Conditions to Analyze Compound Flooding Risks	Watershed Provisioning in Estuarine Food Webs	Urban Water Quality and Quantity	Artificial Intelligence in Water Systems	Navigating a Professional Job in Water	CCS5: Accelerating the Infusion of Science in Coastal Policy - A Panel
Moderator	Carolina Maran South Florida Water Management District	Mike Allen UF/IFAS	Eban Bean UF/IFAS	Rafael Muñoz-Carpena UF/IFAS	Kati Migliaccio UF/IFAS	Tom Ankersen University of Florida
1:00pm	Introduction	Introduction	Introduction	Introduction	Introduction	Introduction
1:05pm	Al Ali South Florida Water Management District Regional Trend Analysis for Rainfall of South Florida	Eric Nagid FL Fish & Wildlife Conservation Com Evaluating Changes and Predicting Impacts to Freshwater Fish Communities in Florida	Eban Bean UF/IFAS Moving Florida Forward on Low Impact Development + Green Stormwater Infrastructure	Ray Huffaker University of Florida AI Modeling of Complex Real-World Ecosystem Dynamics	<p>Panel Focus:</p> <p>The goal of this session is to introduce students to different professional water careers, to provide them information on the skills and experience employers prefer, and to give them the opportunity to network with leading water professionals. The session will consist of a panel discussion of water professionals and follow with a networking period between students and water professionals.</p>	<p>Panel: Annie Brett University of Florida Levin College of Law</p> <p>Rachel Silverstein Miami Waterkeeper</p> <p>Adam Blalock Florida Department of Environmental Protection</p> <p>Christine Angelini University of Florida College of Engineering</p> <p>Panel Focus: Driven by rapid developments in sensor design and deployment, robotics, big data acquisition, storage and analytics, artificial intelligence and Earth Systems modeling, the pace of coastal science has accelerated. At the same time, the scale and gravity of the hazards confronting coastal waters, shorelines and communities has also been accelerating. Many of these coastal hazards are systemic - warmer water, rising seas, tropicalization - the result of the changing climate. Others are more localized – legacy pollution, altered hydrologic regimes, ecosystem disturbance. Synergies between these global and local impacts, coupled with multidecadal time horizons, present a profound policymaking challenge.</p>
1:20pm	Francisco Peña Guerra Florida International University Compounding Effects of Surface-Subsurface Water Interactions and Sea Level Rise in North Miami	Jordan Miller Southwest Florida Water Management District Establishment and Use of Nature Coast Springs Systems by Common Snook (<i>Centropomus undecimalis</i>)	Cristian Cardenas-Lailhacar University of Florida Energy Efficiency Assessments of Wastewater Treatment Plants in Florida	Berry Wen University of Florida Using Explainable AI Models for Precipitation Retrievals to Bridge NASA and NOAA Observation Systems		
1:35pm	Vasu Misra Florida State University Monitoring the Wet Season over the Five Water Management Districts of Florida	Kym Rouse Holzwart Southwest Florida Water Management District Use of Snook Thermal Refuge Criteria for Minimum Flows Development in Coastal Springs	Mary Lusk University of Florida Beneficial Reuse of Wastewater: An Update on Trends in Florida and Interdisciplinary Research Opportunities	Alina Zare University of Florida Underwater Intensity-to-Height Domain Translation for Synthetic Aperture Sonar		
1:50pm	Angela Schedel Taylor Engineering Combined Probability of Coastal and Riverine Flooding	Charles Martin University of Florida Snook Use of Thermal Refugia along the Nature Coast: Implications for Minimum Flows and Levels	Kathleen Sealey University of Miami Florida Keys Residential Canal Development Impacts on Nearshore Water Quality and Benthic Diversity	Robert Currier Texas A&M University STAMPing out HABs: Materials and Methods for Training an AI Classifier for HAB Detection		
2:05pm	Kevin Reed Stony Brook University Improving Modeling of Earth System and Intersectoral Dynamics at Local Scales: Hurricane Storylines	Philip Stevens Florida Fish and Wildlife Conservation Commission Identifying Freshwater Inflow Needs for Estuarine Fishes: A Statewide Perspective	Kristen Sealey Gainesville Regional Utilities GRU Groundwater Recharge Wetlands – Past, Present and Future	Nikolay Bliznyuk University of Florida Spatio-Temporal Forecasting of Urban Household-Level Water Demand with Statistical Machine Learning		
2:20pm	Discussion	Discussion	Discussion	Discussion	Discussion	Discussion
2:30pm-3:00pm	Afternoon Refreshment Break					

POSTER INFORMATION

Poster presentations play a key role in the exchange of information at the UF Water Institute Symposium. Considerable time is dedicated viewing them, giving students, scientists, policy makers, planners, practitioners and managers valuable opportunities to interact and share details of their work, successes and lessons learned.

Student Competition:

Student poster authors will compete for “Best Poster” awards based on the quality of the poster format, content and presentation. Four poster winners will receive prizes of \$1,000 each to be used as funding to support future participation at a national conference. Students must be present during their presentation time to be judged and considered for the award.

Student winners will be notified by email on the evening of Tuesday, February 22. We ask that you are present at the Closing Plenary Session on Wednesday, February 23 at 3:00pm to accept your award.

Poster Room Schedule:

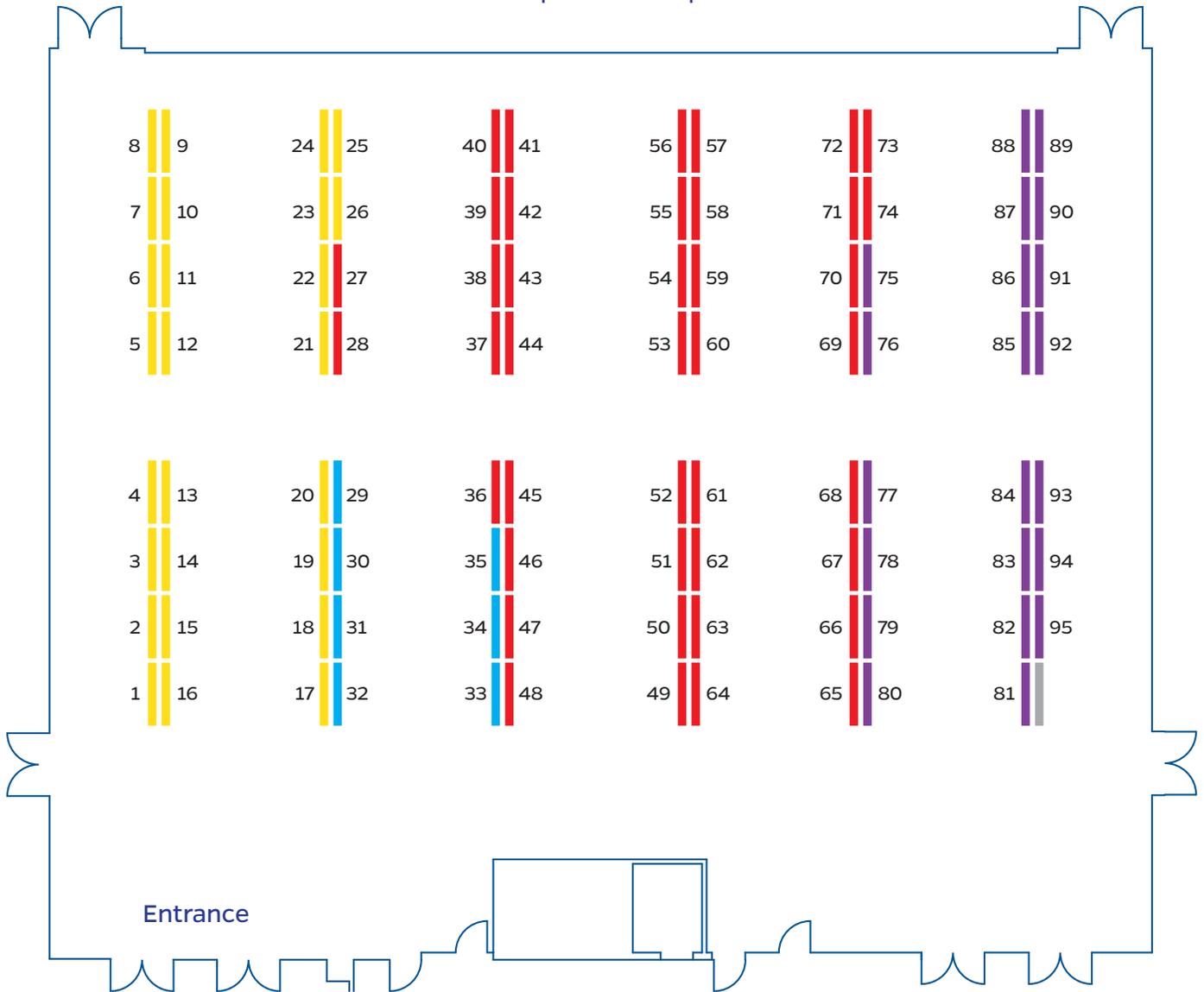
Poster Set Up:	Monday, February 21, 1:30pm–5:00pm Tuesday, February 22, 7:30am–1:30pm
Formal Poster Session:	Tuesday, February 22, 3:00pm–5:00pm
3:00pm – 4:00pm	Poster Session One
4:00pm – 5:00pm	Poster Session Two
Poster Removal	Wednesday, February 23, before 3:00pm

*As a courtesy to the presenter before/after you, please only stand at your poster during your assigned session. Posters are divided into two sessions. Consult the poster directory to confirm your session assignment.

Poster display boards will be dismantled by the vendor during the closing plenary. Please have your poster removed by 3:00pm Wednesday. Organizers are not responsible for lost posters discarded by the board vendor.

POSTER ROOM LAYOUT

Rion Ballroom | 3rd Floor | Reitz Union



POSTERS BY THEME

- Climate Change and Sea Level Rise Impacts on Ecosystems and Communities
- Water Quality Drivers and Impacts on Public Wildlife and Ecosystem Health
- Water Governance and Environmental Justice
- Water Availability Valuation Allocation and Reuse

POSTER DIRECTORY

Posters are listed in order by topic, poster session hour, then by presenter last name.

Climate Change and Sea Level Rise Impacts on Ecosystems and Communities

Poster #	First Name	Last Name	Organization	Abstract Title	Poster Session
1	Anna	Beard	Whitney Lab, University of Florida	Evaluation of Climate Induced Changes to Porewater Biogeochemistry in Mangrove/Saltmarsh Ecotone	Session One
5	Megan	Black	University of Florida	Watershed Topography as a Predictor of Stream Chemistry Across Non-Glacial Streams in Greenland	Session One
7	Quincy	Faber	University of Florida	Metagenomic Analysis of Algal Communities Inhabiting the Near Surface Aquifer of an Alaskan Glacier	Session One
9	Hallie	Fischman	University of Florida	Invasive Hogs Alter Salt Marsh Functioning, Ecosystem Service Provisioning, and Resilience	Session One
13	Madison	Flint	University of Florida	Surface-Groundwater Mixing Stimulates Nitrous Oxide Production in Carbonate Aquatic Systems	Session One
11	Bethany	Gaffey	FCFWRU / UF SFFGS	Cold Blood in Warming Waters: Conserving Gulf Sturgeon Using Precipitation and Groundwater Models	Session One
15	Zoey	Hendrickson	University of Florida	Invasive Species Pathways: Using the NAS Database to Identify Case Studies for Gap Analysis	Session One
3	Walker	Marechal	FAMU	Investigation of Mechanisms for Methylmercury Bioremediation by Indigenous Bacterial Strain in Comparison with Non-indigenous Metal Resistant Strain of Bacillus Through Proteomics Studies	Session One
18	Collin	Ortals	University of Florida	Crab Consumers Transform Vegetation-Sediment-Flow-Morphology Feedbacks in Southeastern US Salt Marsh	Session One
21	Daniele	Pinton	University of Florida	Morphodynamics of Oyster Reefs in Tidal Flats under Various Sea-Level Rise and Wave Scenarios	Session One
20	Edwin	Rajeev	University of Florida	Impact of Sea Level Rise on Flooding and Wave Load: The Case of the Glass Window Bridge, Bahamas	Session One
23	Justin	Tagle	Florida Atlantic University	Flood Protection Level of Service for Miami-Dade County Current and Future Sea Level Rise Conditions	Session One
25	Songzi	Wu	University of Florida	Interpreting the Trends of Extreme Precipitation in Florida through Pressure Change	Session One
16	Scott	Alford	UF/IFAS Nature Coast Biological Station	Watershed Modification Effects on Coastal Ecosystems: A Synthesis from Key Gulf of Mexico Estuaries	Session Two
2	Prakhin	Assavapanuvat	University of Florida	Organic Carbon Burial in Mangrove-Salt Marsh Ecotones of Apalachicola Bay: The Role of Reactive Iron	Session Two
4	Alexandra	Bijak	University of Florida	Seagrass Species Identity and Historical Cover Influence Sediment Organic Carbon Stocks	Session Two
6	Megan	Donovan	University of Florida	Social and Agricultural Vulnerability to Climate Change Hazards in the Southern Region	Session Two
8	Brady	Evans	University of Florida	Hydrogeology of Local Water Balances Impacted by a Dynamic Saltwater Interface	Session Two
12	Maria Fernanda	Gastelu-Barcena	University of Florida	Transverse Structure of Tidal and Exchange Flows in a Magellan Glacial Fjord	Session Two
10	Fikadu	Getachew	University of Florida	Trends and Variability of Agricultural Drought under Climate Change in Ethiopia	Session Two
14	Megan	Kramer	University of South Florida	Evaluation of Hydrodynamic Effects of Waterway Restoration on an Estuarine Ecosystem	Session Two
17	Madison	Mullen	Florida Gulf Coast University	Surface and Subsurface Hydrology and Flood Mitigation in Estero River Headwaters, Southwest Florida	Session Two

Climate Change and Sea Level Rise Impacts on Ecosystems and Communities (continued)

Poster #	First Name	Last Name	Organization	Abstract Title	Poster Session
19	Jamila	Roth	University of Florida	Does More Variety Mean Higher Stability? Exploring How Seagrass Species Diversity Impacts Resilience	Session Two
22	Satbyeol Joy	Shin	University of Florida	Climate Change Impacts on Streamflow and Nutrient Loading in the Northern Lake Okeechobee Basin	Session Two
24	Emily	Watts	University of Florida	Oxygenation of Long Term Anoxic By Fjord, Sweden: Implications for Organic Carbon Sources and Decay	Session Two
26	Chi	Zhang	University of Florida	How to Develop a Multi-facet QC Procedure for a Ground-based Weather Monitoring Network	Session Two

Water Quality Drivers and Impacts on Public Wildlife and Ecosystem Health

Poster #	First Name	Last Name	Organization	Abstract Title	Poster Session
27	Maximiliano	Barbosa	University of Florida	Drivers of Protistan Diversity in the Oligotrophic Lake Tohopekaliga	Session One
39	Jenna	Brooks	University of South Florida	Settling Behaviors of Stormwater Microplastics	Session One
37	Trista	Brophy	UF School of Natural Resources	Relating Land Cover Change to Flood Runoff Distribution Using Nasa Earth Observations in Kansas	Session One
43	Joe	Carter	University of Florida	The Effect of Training Methodology on Machine Learning Models for Estimating Nutrient Concentrations	Session One
41	Jade	Chery	Florida A & M University	Responses of Microbial Communities of Heavy Metal Contaminations in Lake Talquin	Session One
45	Daniela	Daniele	Florida International University	Urban Rivers as Social-Ecological Systems: An Examination of History & Ecology in the Miami River	Session One
47	Antonio	Diaz	University of Florida	The "Bathysdrone" for Underwater Survey and Mapping	Session One
49	Taylor	Dluzniewski	Florida Fish and Wildlife Conservation Commission	Investigating Drivers of Seasonal Shifts in Fish Habitat Use in The Homosassa River System	Session One
51	Wenchong	He	University of Florida	Challenges and Opportunities for AI in Geodomains: Case Studies of Geoi in Hydrological Application	Session One
53	Samantha	Howley	University of Florida	Tracing Frequency and Magnitude of Flow Reversals in Florida Springs	Session One
73	Navdeep	Kaur	University of Florida	Assessment of Hemp Variety and Measuring Leaching Losses in Response to Different Nitrogen Rates	Session One
55	Deirdre	Love	University of Florida	Examining the Practice of Pre-Washing Pyrethroid Treated Nets to Mitigate Toxicity in Invertebrates	Session One
57	Leslie	Munroe	University of Florida IFAS Extension	Highlighting Florida Natives in a Commercial Landscape	Session One
59	Gregory	Owen	Alachua County	Evaluating Restoration Activities to Better Prioritize a Hierarchy of Needs in Florida's Springs	Session One
61	Patrick	Saldaña	University of Florida	Macroalgae Decay Rates and Diversity Effects on Sediment Biogeochemistry in a Florida Estuary	Session One
63	Adam	Siders	University of Florida	Assessing the Effects of Florida Manatees and Humans on Nutrient Uptake Rates in Kings Bay, FL	Session One
65	Leanne	Stepchinski	University of South Florida	Influence of Hydrologic Connectivity on the Natural Flow Regime of Archetypal Wetland Complexes	Session One

Water Quality Drivers and Impacts on Public Wildlife and Ecosystem Health (continued)

Poster #	First Name	Last Name	Organization	Abstract Title	Poster Session
67	Gretchen	Stokes	University of Florida	Assessing Anthropogenic Stressors to Global Freshwater Habitats and Inland Fisheries	Session One
69	Osama	Tarabih	University of South Florida Tampa	Effects of Lake Okeechobee Operation Schemes on Phosphorous Exports	Session One
71	Henry	Tingle	University of Florida	The “Sipper” Drone-based Water Sampling System	Session One
28	Piyush	Agade	University of Florida	Gatorbyte – A Low-Cost Mobile Real-Time Water Resource Monitoring Platform	Session Two
60	Mandy	Baily	University of Florida	Youth Education and Skill Development for a Generational Impact on Water Quality of the Indian River	Session Two
36	Ronell	Bridgemohan	Watershed Management Laboratory, UF WFREC	Microbial Risk Assessment to Determine the Level & Sources of Fecal in NW Florida Urban Streams	Session Two
40	Juma	Bukomba	University of Florida	Nitrogen Dynamics & its Fate in Inorganic Forms in Sandy Soils Under a Cover Crop System in Florida	Session Two
38	Alvaro	Carmona-Cabrero	University of Florida	Improving the Prediction of Sediment Particle Size for Engineering Vegetative Filter Strips	Session Two
42	Nicholas	Chin	UF Watershed Ecology Lab	Quantifying the Effects of National Water Model Prediction Error on Nearshore Hydrodynamic Forecasts	Session Two
46	Alexandra	Feldman	University of Florida	Impact of Hydrologic Regime on Soil Organic Matter Accumulation in a Stormwater Treatment Wetland	Session Two
48	Audrey	Goeckner	University of Florida	Water Column Saturation Profiles of N ₂ , Co ₂ , and Ch ₄ in Natural and Constructed Subtropical Ponds	Session Two
44	Sergio	Gonzalez	University of Florida	Wetland Pulse Amplitude Better Predicts Aquatic Species Richness than Static Wetland Size	Session Two
50	Casey	Harris	University of Florida	Long-Term Surface Water Quality Trends Relevant to Drinking Water Supply in Tampa, Florida	Session Two
52	Andrew	James	Soil and Water Engineering Technology, Inc.	Watershed Assessment Model Used to Evaluate Restoration Options for the Bob Janes Preserve	Session Two
54	Dogil	Lee	University of Florida	Modeling the Impacts of Agricultural Management Practices on Groundwater in the Santa Fe River Basin	Session Two
58	Brooke	Moffis	UF/IFAS	Multispecies Lawns: An Alternative Strategy for Lawn Resiliency and Ecosystem Functions	Session Two
56	Amanda	Muni-Morgan	University of Florida	Karenia Brevis Utilization of Dissolved Organic Nitrogen in Wastewater and Stormwater Pond Effluent	Session Two
62	John	Roberts	UF/IFAS Orange County Extension	Soil Denitrification Dynamics in Urban Impacted Riparian Zones throughout Tampa, FL	Session Two
74	Ayush	Sharma	University of Florida	Sulfur as Leaching Prone Nutrient	Session Two
64	Yuseung	Shin	University of Florida	Abiotic Causality of Metabolic Processes in Rivers	Session Two
66	Cody	Stewart	University of South Florida	Stormwater Baffle Box Performance: A Case Study of Baffle Boxes in the City of Tampa	Session Two
68	Praveen	Subedi	University of Florida	Enzymatic Hydrolysis of Dissolved Organic Phosphorus in the Everglades STA Source Waters	Session Two
70	Emily	Taylor	University of Florida	Alterations of Dissolved Organic Material Composition and Its Influence on Ecosystem Respiration	Session Two
72	Rob	Taylor	UF Watershed Ecology Lab	Measuring Submerged Aquatic Vegetation Motion Using Digital Video Analysis	Session Two

Water Governance and Environmental Justice

Poster #	First Name	Last Name	Organization	Abstract Title	Poster Session
29	Farah	Aryan	University of Florida	The Effects of Colonization on Water Distribution in Indigenous Lands: Case Studies in the Navajo Nation and Palestine	Session One
31	L. Donald	Duke	Florida Gulf Coast University	Wind, Water, and Public Safety: Socioeconomic Disparities in Hurricane Safety, South Florida Housing	Session One
33	Tania	Romero Bautista	Florida International University	Systematic Review and Stakeholder Roadmap for Freshwater Policies in the Peruvian Amazon	Session One
35	Jobel	Villafane-Pagan	University of Puerto Rico - Mayaguez	The Mother Map: Rio Grande de Manatí Watershed and the Human Impact on Natural Resources	Session One
30	Natalie	Cooper	University of Florida	A Comparison of Relationships with Nature among Water Stakeholders in North Florida	Session Two
32	Fei	He	University of Florida	Profitability of Alternative Nutrient and Irrigation Management Systems in Corn, Peanut, and Carrot	Session Two
34	Abby	Vidmar	University of South Florida	Water, Sanitation, and Health in Urban Disadvantaged Unincorporated Communities	Session Two

Water Availability Valuation Allocation and Reuse

Poster #	First Name	Last Name	Organization	Abstract Title	Poster Session
75	Dylan	Barr	University of Florida	Researching the Efficacy of Reclaimed Water BMPS for Nutrient Load Reductions in Residential Areas	Session One
77	Tyelyn	Brigino	University of South Florida	Influence of Groundwater on Streamflow in Salmon-Bearing Streams	Session One
83	Katie	Glodzik	University of Florida	Scenario Planning Tool for Forest Water Yield in North Florida	Session One
81	Caleb	Gravesen	University of Florida	Wastewater Treatment Residuals and Native Per- and Polyfluoroalkyl Substances	Session One
85	Yi	Han	University of Florida	Machine Learning-Based Probabilistic Ensemble for Urban Water Demand Forecasting	Session One
79	Esther	Lee	University of Florida	Understanding the Hydrologic Connectivity between Upland Forests and Wetlands	Session One
87	Jia-Yi	Ling	University of Florida	Streamflow Forecasting in West-Central Florida Using Climate Drivers	Session One
91	Hanyu	Qian	University of Florida	Improved Sensor-Analytical Point Solutions (Snaps) For E. Coli in Irrigation Water by Integration of Statistical Machine Learning	Session One
89	Amir	Rezazadeh	University of Florida	Pongamia: An Environmentally Friendly Alternative Crop for Citrus Growers	Session One
93	Patricia	Spellman	University of South Florida	Quantifying Vadose Storage and Release in a Young, Uplifted Karst Aquifer Using Spectral Analysis	Session One
95	Sarah	Strohming	University of Florida	A Household Cost-Benefit Analysis of Impacts from Fog Water Access in Southwest Morocco	Session One
76	Lorna	Bravo	Broward County Ext. Ed. Urban Horticulture and Natural Resources	Development of Advanced Water Extension Programs for MGVs	Session Two
78	Judyson	de Matos Oliveira	University of Florida	Least Limiting Water Range in Irrigated Sandy Soils of Northeast Florida	Session Two

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