

UF Water Institute Symposium

February 24-25, 2010, Gainesville, Florida



Sustainable Water Resources

Complex Challenges, Integrated Solutions

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Acknowledgements

We gratefully acknowledge the contribution of the following people who helped make this Symposium a success.

Symposium Program Committee

- Tim Anderson, *Florida Energy Systems Consortium*
- Mary Jane Angelo, *College of Law*
- Mike Annable, *Environmental Engineering Sciences*
- Becky Blanchard, *Anthropology*
- Brenda Brickhouse, *Progress Energy*
- Matt Cohen, *School of Forest Resources and Conservation*
- Susan Gray, *South Florida Water Management District*
- Kirk Hatfield, *Civil and Coastal Engineering*
- John Hayes, *Wildlife Ecology and Conservation*
- Mark Hoyer, *Fisheries and Aquatic Sciences*
- Ray Huffaker, *Food and Resource Economics*
- Tracy Irani, *Agricultural Education and Communication*
- Susan Jacobson, *Wildlife Ecology and Conservation*
- Don Polmann, *Tampa Bay Water*
- Ed Schaefer, *College of Fine Arts*
- Jane Southworth, *Geography*
- Les Thiele, *Political Science*
- Arnolde Valle-Levinson, *Civil and Coastal Engineering*
- Hal Wilkening, *St. Johns River Water Management District*

Water Institute Staff

- Mary Garvin, *Administrative Assistant, Water Institute, University of Florida*
- Kathleen McKee, *Research Coordinator, Water Institute, University of Florida*
- Max Millstein, *Intern, Water Institute, University of Florida*
- Lisette Staal, *Research Coordinator, Water Institute, University of Florida*

Student Volunteers

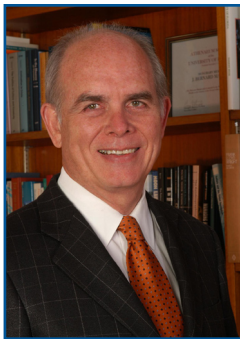
Over 25 graduate and undergraduate UF students from the following departments, and several local residents, volunteered their time in support of the Symposium:

- Agricultural and Biological Engineering Department
- Environmental Engineering Sciences Department
- Food and Resource Economics Department
- Soil and Water Science Department
- Levin College of Law
- School of Forest Resources and Conservation

Welcome

from University of Florida

President **Bernie Machen**



Faculty, students and special guests:

I am delighted to welcome you to the University of Florida's second Water Institute Symposium.

A Gallup poll last spring found that water was the American public's number one environmental concern, trumping air pollution, the loss of tropical rain forests and global climate change. Americans were most concerned about water pollution, but they also expressed worry about freshwater supply. The source of this concern is no mystery: Despite an average to wet year in much of the country, water remained omnipresent in the headlines. Just a few weeks ago here in Florida, farmers' efforts to protect strawberries and citrus from freezing conditions resulted in over-pumping that caused an estimated 85 sinkholes. Road closures led to morning gridlock, and many rural homeowners saw their wells go dry.

Only the cooperative efforts of the broadest range of scientists and scholars will allow us to address the challenges of maintaining a clean, adequate water supply while ensuring the health of our rivers, streams and lakes. The Water Institute was conceived to support this interdisciplinary approach, one carried forward in this symposium on sustainable watershed management. Recognizing that the problems confronting water resources cross all political, disciplinary and professional lines, we are pleased to have so many participants here from business, nonprofits and the public sector.

Thank you for joining us for what promises to be a rich and fruitful conference.

Sincerely,

Bernie Machen

Welcome

from UF Water Institute

Director **Wendy Graham**



Dear Colleagues,

Thank you for joining us for the 2nd UF Water Institute Symposium.

This symposium brings together professionals, students and the public to examine challenges to water resources sustainability from multiple perspectives. Presentations, posters sessions and panel discussions will focus on new research, education, policy and technology developments in five interdisciplinary areas:

- Hydrologic, biogeochemical, and ecological processes
- Human dimensions of water sustainability
- Optimal use of integrated water supplies
- Managing water and energy in a transitioning environment
- Integrating science and policy for improved water management

We at the Water Institute believe that sustainable watershed management will only be achieved by continuously integrating new biophysical and social science breakthroughs into creative engineering, policy and legal solutions and pioneering education programs. We encourage you to enrich our collective experience by participating in sessions both inside and outside of your own direct area of expertise.

Thanks again for attending the 2nd UF Water Institute Symposium. We value your contributions and encourage your active participation.

Sincerely,

Wendy Graham



Hotel Floorplan



Agenda

Tuesday, February 23, 2010

4:00 PM - 7:00 PM

Symposium Early Check-in

Registration Desk

Wednesday, February 24, 2010

7:30 AM - 7:30 PM

Symposium Check-In

Registration Desk

8:30 AM - 10:00 AM

Plenary Session

Century Ballroom

(moderator: Wendy Graham, University of Florida Water Institute)

- **Wendy Graham**, Water Institute Director, University of Florida Water Institute
- **Bernard Machen**, President, University of Florida
- **Vincent Dolan**, President and Chief Executive Officer, Progress Energy Florida
- **Brian Richter**, Director, Global Freshwater Program, The Nature Conservancy
Life Cycles: Sustaining the Flows of Water, Fish, and Human Culture

Sponsored by: Progress Energy

10:00 AM - 10:30 AM

Break

Sponsored by: South Florida Water Management District

10:30 AM - 12:00 PM

Plenary Session

Century Ballroom

(moderator: Wendy Graham, University of Florida Water Institute)

- **Radley M. Horton**, Research Scientist, NASA Goddard Institute for Space Studies
Climate Hazard Assessment and Risk Management in the Southeastern United States
- **Aaron Wolf**, Professor, Oregon State University
Shared Waters: Conflict and Cooperation
- **Daniel Bena**, Director of Sustainable Development, PepsiCo
The Water Crisis: Global Scourge, Opportunity, or Both?

Sponsored by: Tampa Bay Water

12:00 PM - 1:30 PM

Lunch at Albert's Restaurant (included)

Albert's Restaurant

1:30 PM - 3:00 PM

Hydrologic, Biogeochemical and Ecological Processes 1

Azalea

(moderator: Michael Annable, Environmental Engineering Sciences, University of Florida)

- **Christy A. Crandall**, Hydrologist, U.S. Geological Survey
Simulation of Nitrate Concentrations in Three Upper Floridan Wells, Southwest Georgia using Groundwater flow and particle Tracking Techniques
- **Hal Davis**, Hydrologist, U.S. Geological Survey
Influence of Salinity on the Variation of Freshwater Flow at the Coastal Spring Creek Springs Group and the Interconnection of Flow at Spring Creek Springs Group and Wakulla Springs, Wakulla County, Florida
- **John F. Carriger**, Postdoctoral Research Associate, Florida International University
South Florida Water and Soil/Sediment Quality: Use of the U.S.EPA Ecological Risk Assessment Framework to Assess Potential Risks.
- **David A. Tomasko**, Senior Program Manager, PBS&J
Linking Ecological Restoration with Water Supply Development using Off-Stream Reservoirs in Southwest Florida

Sponsored by: Royal Consulting Services, Inc.



Agenda

1:30 PM - 3:00 PM

The Apalachicola-Chattahoochee-Flint River Basin:

Hawthorne

Complex Challenges, Integrated Solutions? 1

(moderator: Becky Blanchard, Department of Anthropology, University of Florida)

- **C. Rhett Jackson**, Professor of Hydrology, University of Georgia
Applying a Broad View of Hydrologic Connectivity to ACF Basin Water Resources Management
- **Steve Opsahl**, Associate Scientist, J. W. Jones Ecological Research Center
Nutrient and organic carbon sources and sinks in Lake Seminole: Implications for water quality in the ACF system
- **Y. Peter Sheng**, Professor, Civil and Coastal Engineering Department, University of Florida
Integrated Modeling of the Impact of Freshwater Flow on the Salinity inside Apalachicola Bay
- **William Pine**, Assistant Professor, University of Florida
Implications of Modified Flow Regimes on Viability of Gulf Sturgeon Populations in the Apalachicola River

Sponsored by: Layne Christensen Company

1:30 PM - 3:00 PM

Water Conservation and Demand-Side Management

Cypress

(moderator: Pierce Jones, Program for Resource Efficient Communities, University of Florida)

- **Camilo Cornejo**, Postdoctoral Associate, University of Florida
EZ Guide: A Water Conservation Planning Tool for Florida
- **Nicholas Taylor**, Housing Systems Analyst,
Program for Resource Efficient Communities, University of Florida
Development of Demand Side Management Programs to Reduce Potable Water Use for Landscape Irrigation.
- **Tatiana Borisova**, Assistant Professor, University of Florida
Conservation-oriented residential water rates: state-of-the art practices and future research needs
- **James Heaney**, Professor, University of Florida
Cyberinfrastructure for Demand Side Management of Urban Water Supply

Sponsored by: Conserve Florida Water Clearinghouse

1:30 PM - 3:00 PM

Adaptive Water Management Strategies for a Transitioning Environment

Hickory

(moderator: Jane Southworth, Department of Geography, University of Florida)

- **Janet G. Llewellyn**, Director, Division of Water Resource Management, Florida Department of Environmental Protection
Framework for Action: Water Management and Climate Change in Florida
- **Lauren Elmore**, Project Scientist, ENTRIX Inc.
Can you afford to ignore climate change? Developing adaptive management strategies in an uncertain environment
- **Mikel Renner**, Planning Manager, Southwest Florida Water Management District
Managing Water Resources in an Uncertain Future
- **Ignacio Porzecanski**, Lecturer, School of Natural Resources and Environment, University of Florida
Watershed management: reality or illusion?

Sponsored by: Southeast Climate Consortium

1:30 PM - 3:00 PM

Monitoring and Modeling Hydrologic Processes

Live Oak

(moderator: Susan Gray, South Florida Water Management District)

- **Marc V. Hurst**, Professional Geologist, Independent Geological Services, Inc.
Water Table Buffering in Florida's Green Swamp
- **Mark Rains**, Associate Professor, Department of Geology, University of South Florida
Hydrology of clay settling areas and surrounding landscapes in the phosphate mining district, peninsular Florida
- **Del Bottcher**, President, Soil and Water Engineering Technology, Inc.
Watershed Modeling for Water Resource Assessments
- **Prabhakar Clement**, Professor, Department of Civil Engineering, Auburn University
Are Groundwater Models Reliable Tools for Reconstructing Historical Contamination Scenarios?

Sponsored by: MACTEC Engineering & Consultants

3:00 PM - 3:15 PM

Break

Sponsored by: CH2M HILL

Agenda

3:15 PM - 4:45 PM

Hydrologic, Biogeochemical and Ecological Processes 2

Azalea

(moderator: John Hayes, Department of Wildlife Ecology and Conservation, University of Florida)

- **Andrew Kane**, Associate Professor, Aquatic Pathobiology Laboratory, University of Florida
Fish Deformities and Stress in the St. Lucie Estuary System
- **Sanjay Shukla**, Associate Professor, University of Florida
Water quality effectiveness of the water retention BMP at the two isolated wetlands in the Lake Okeechobee Basin
- **Eberhard Roeder**, Professional Engineer III, Florida Department of Health
Florida's onsite sewage research program: a source of information for environmental management
- **Roger William Sims**, Partner, Holland & Knight LLP
Emerging Pollutants in Water Supplies

Sponsored by: Royal Consulting Services, Inc.

3:15 PM - 4:45 PM

The Apalachicola-Chattahoochee-Flint River Basin:

Hawthorne

Complex Challenges, Integrated Solutions? 2

(moderator: Becky Blanchard, Department of Anthropology, University of Florida)

- **Steve Leitman**, Consultant, Waters Without Borders
A Southern-Fried Water Fight: Stumbling Towards the Limits of Water Availability in Apalachicola-Chattahoochee-Flint Basin
- **Christopher Burkart**, Assistant Professor, University of West Florida
Economic Value of Apalachicola River Flow
- **Robert Abrams**, Professor of Law, Florida Agricultural And Mechanical University College of Law
Is Control of the ACF's Waters Properly Allocated?
- **Andrew Jubal Smith**, Executive Director, Apalachicola Riverkeeper
Human Dimensions of Water Sustainability in the Apalachicola Basin

Sponsored by: Layne Christensen Company

3:15 PM - 5:00 PM

Managing Integrated Water Supplies

Cypress

(moderator: Harold Wilkening, St. Johns River Water Management District)

- **Scott C. Shannon**, Senior Associate, Malcolm Pirnie Inc.
An Ocean of Challenges: Developing the Coquina Coast Seawater Desalination Project
- **Ronald R. Cavalieri**, Principal Engineer, AECOM USA, Inc.
Development of an Integrated Water Resources Master Plan for Lee County Utilities
- **Roy Mazur**, Planning Director, Southwest Florida Water Management District
Linking Land Use and Water Supply Planning
- **Jeffrey S. Geurink**, Sr. Water Resources Engineer, Tampa Bay Water
Current and Future Challenges Managing a Public Water Supply System with Conjunctive Use: The Tampa Bay Water Experience
- **Mark David Farrell**, Principal, Water Resource Associates
Market Forces as a Water Use Management Tool

Sponsored by: Conserve Florida Water Clearinghouse

3:15 PM - 4:45 PM

Incorporating Climate Predictions into Water Planning and Management

Hickory

(moderator: Barry Rosen, USGS)

- **Jayantha Obeysekera**, Department Director, Hydrologic & Environmental Systems Modeling, South Florida Water Management District
Water Resources Management in a Changing Climate
- **Jenifer A. Barnes**, Senior Hydrologic Modeler, South Florida Water Management District
Potential Impact of Climate Change and Sea Level Rise on the Everglades
- **Paul Block**, Associate Research Scientist, Intl. Research Institute for Climate and Society-Columbia University
Tailoring seasonal climate forecasts for hydropower operations in Ethiopia's upper Blue Nile basin
- **Michelle M. Irizarry-Ortiz**, Lead Engineer, South Florida Water Management District
Historical Trends in Florida Temperature and Precipitation

Sponsored by: Southeast Climate Consortium



Agenda

3:15 PM - 4:45 PM

Integrating Science and Policy for Improved Water Management (moderator: Susan Gray, South Florida Water Management District)

Live Oak

- **Ann B. Shortelle**, Vice President, Technical Manager, MACTEC Engineering and Consulting, Inc.
Comparison of States' Responses to the TMDL Planning Process with the Advent of Numeric Nutrient Criteria
- **Gail Cowie**, Senior Policy Advisor, Georgia Environmental Protection Division
Water Planning in Georgia: Improving Information and Increasing Participation
- **Katherine Edmonds**, Graduate Student, River Basin Center, University of Georgia
Preserving Water Quality through Effective Use of the Antidegradation Policy: Guidelines for the State of Georgia
- **Joshua P. Schmitz**, Senior Professional Engineer, Water Resource Associates
Protecting Water Bodies Lacking Minimum Flows and Levels from Adverse Impact due to Water Withdrawals

Sponsored by: MACTEC Engineering & Consulting

5:15 PM - 5:30 PM

Special Music Presentation

Century Ballroom

- **Evan J. Kassof**, Student, Departments of Physics and Music, University of Florida
Water Music: a special composition for the UF Water Institute

5:30 PM - 7:30 PM

Poster Sessions and Reception (included)

Century Ballroom

(moderator: Kathleen McKee, Research Coordinator, UF Water Institute)

- **Poster Session 1** - 5:30 pm - 6:30 pm
- **Poster Session 2** - 6:30 pm - 7:30 pm

Best Student Poster Competition

Poster Sections

- Hydrologic, Biogeochemical and Ecological Processes
- Human Dimensions of Water Sustainability
- Optimal Use of Integrated Water Supplies
- Managing Water and Energy in a Transitioning Environment

For complete List of Poster Presentations by Session see page 13

For Alphabetic Listing of Posters by Author see page 20

For Map of Poster Layout see page 19

Sponsored by: Progress Energy

Thursday, February 25, 2010

7:30 AM - 3:00 PM

Symposium Check-In

Registration Desk

8:30 AM - 10:00 AM

Hydrologic, Biogeochemical and Ecological Processes in Springs Systems 1 Century Ballroom B (moderator: Matthew Cohen, School of Forest Resources & Conservation, University of Florida)

- **Sam B. Upchurch**, Vice President and Senior Principal Geologist, SDII Global Corporation
The Importance of Springsheds and Spring Protection Zones
- **Tom Scott**, Senior Principal Geologist, SDII Global
Swallets: The Key to Springshed Protection in Florida
- **Brian G. Katz**, Research Hydrologist, U.S. Geological Survey
Integrating Information on Spring Water Age, Water Quality, and Land Use to Better Understand Vulnerability of Springs to Contamination
- **Todd R. Kincaid**, Group Leader, GeoHydros, LLC
Modeling Karstic Controls on Watershed-Scale Groundwater Flow in the Floridan Aquifer of North Florida

Sponsored by: INTERA Incorporated

Agenda

8:30 AM - 10:00 AM

Human Dimensions of Water Sustainability: Stakeholder Engagement Processes Hawthorne (moderator: Tracy Irani, Department of Agricultural Education & Communication, University of Florida)

- **Thomas Swihart**, Environmental Administrator, Florida Department of Environmental Protection
A Few Lessons from the History of Florida Water Crises
- **Ken P. Yocom**, Assistant Professor, University of Washington
Building Watershed Narratives: An Holistic Approach for Guiding Urban Stream Rehabilitation Practices
- **Stephen Louis Traxler**, Fish and Wildlife Biologist, U.S. Fish and Wildlife Service
Addressing the Challenge of Climate Change in the Greater Everglades Ecosystem: A Stakeholder-Based Approach
- **Ron Chandler**, Associate in Research, University of South Florida
Human Lifespan Development and Our Relationship with Water

Sponsored by: Southwest Florida Water Management District

8:30 AM - 10:00 AM

Use of Reclaimed Water

Azalea

(moderator: Ray Huffaker, Department of Food & Resource Economics, University of Florida)

- **David K. Ammerman**, Project Manager, AECOM
The Changing Role of Reclaimed Water
- **Erich Marzolf**, Technical Program Manager, St. Johns River Water Management District
Use of Reclaimed Water to Offset Fertilizer Applications: A Cost-Effective Pollution Prevention Management Practice?
- **Sandra Will**, Professional Geologist, Southwest Florida Water Management District
Feasibility of Using Reclaimed Water for Aquifer Recharge in the Tampa Bay Area
- **William S. Bilenky**, General Counsel, Southwest Florida Water Management District
An Alternative Strategy for Water Supply and Water Resource Development in Florida

Sponsored by: Tampa Bay Water

8:30 AM - 10:00 AM

Managing Water and Energy in a Transitioning Environment

Hickory

(moderator: Timothy Anderson, Florida Energy Systems Consortium/University of Florida)

- **Bruce Adams**, Director of Water Management, EMC Engineers, Inc.
Energy and Water Conservation- Uncovering the Hidden Industrial Opportunity
- **Pierce Jones**, Director, Program for Resource Efficient Communities, University of Florida
Land Development, Water and Accounting for Greenhouse Gas Emissions in Florida
- **Mark Allen Jamison**, Director, Public Utility Research Center, University of Florida
Reset for Regulation and Utilities: Leadership for a Time of Constant Change
- **Lisa Sorgini**, Global Director Strategic Marketing, Siemens Water Technologies
Issues, Trends and Technologies dealing with Wastewater Management and Biosolids

Sponsored by: Southeast Climate Consortium

8:30 AM - 10:00 AM

Panel: Environmental Flows and Levels: Case Studies 1

Century Ballroom C

(moderator: Mary Jane Angelo, Levin College of Law, University of Florida)

This series of panels addresses how environmental flows and levels are established and implemented in Florida. Our first two panels will address how environmental flows and levels are established and implemented through four diverse case studies presented by technical and legal staff from the water management districts. These will provide the basis for a discussion, including a broader group of stakeholders in the final panel, of the efficacy of Florida's systems for protecting and restoring water for the environment.

- **Richard Hamann**, Associate in Law, Levin College of Law, University of Florida
- **Michael S. Flannery**, Senior Environmental Scientist, Southwest Florida Water Management District
- **Martin H. Kelly, Ph.D.**, Program Director, Minimum Flows and Levels, Southwest Florida Water Management District
- **John Good**, Chief Professional Engineer, Suwannee River Water Management District

Sponsored by: Soil and Water Engineering Technology, Inc.

10:00 AM - 10:30 AM

Break

Sponsored by: OUC - The Reliable One



Agenda

10:30 AM - 12:00 PM

Hydrologic, Biogeochemical and Ecological Processes in Springs Systems 2 Century Ballroom B (moderator: Matthew Cohen, School of Forest Resources & Conservation, University of Florida)

- **James B. Heffernan**, Assistant Professor, Florida International University
Scales of variability in Florida Springs
- **Jonathan B. Martin**, Professor, University of Florida
Characteristics and effects of flow reversals at Madison Blue and Peacock springs (Florida) during river flooding
- **Dina M. Liebowitz**, Ph.D. Student, University of Florida
Exploring Alternative Controls of Algal Proliferation in Florida's Spring System
- **Robert L. Knight, Ph.D.**, President, Wetland Solutions, Inc.
Whole Ecosystem Metabolism as an Indicator of Spring Impairment and Recovery

Sponsored by: INTERA Incorporated

10:30 AM - 12:00 PM

Human Dimensions of Water Sustainability: Public Private Partnerships Hawthorne (moderator: Tracy Irani, Department of Agricultural Education & Communication, University of Florida)

- **Annie Whittaker Pais**, Executive Director, Florida's Eden
With the Ichetucknee as their classroom, students at Fort White inaugurate a new model for education with hands-on environmental labs, integration of science and humanities skills, and advocacy for long-term water sustainability.
- **Kathryn I. Frank**, Assistant Professor, University of Florida
Multipurpose and Compromise Projects: Avoiding Conflict and Restoration in the Everglades
- **Stacie Greco**, Senior Environmental Specialist, Alachua County Environmental Protection Department
Crossing Agency Lines to Improve Water Quality in Gainesville's Urban Creeks
- **Kenneth Ray Herd**, Water Supply Program Director, Southwest Florida Water Management District
"Can We Talk?" Southwest Florida Water Management District's Utility Outreach Program

Sponsored by: Southwest Florida Water Management District

10:30 AM - 12:00 PM

Panel: Conjunctive Use of Surface and Groundwater: Scientific, Management and Regulatory Issues Hickory (moderator: Donald Polmann, Tampa Bay Water)

As an alternative water supply system, conjunctive use of surface and ground waters for public supply utilities holds promise as environmentally sound and cost effective. Scientific, management, and regulatory issues influence decision makers concerned about operational complexity, water quality changes, and reliability. A clear understanding of the extensive data needs, the behavior of integrated hydrologic systems, regulatory paradigms, financing and pricing of water in difficult economic times, the benefits and challenges of regional perspective—these factors and more must be considered. Are regional conjunctive-use water supplies for Florida a panacea, pipe dream, or special case? Audience debate is invited.

- **Koni Cassini**, Director of Finance & Administration, Tampa Bay Water
- **John Shearer**, President, Shearer Consulting Inc.
- **Jack Wittman**, National Director of GeoSciences, WHPA, a division of Layne Christensen Co.

Sponsored by: Tampa Bay Water

10:30 AM - 12:00 PM

Panel: Environmental Flows and Levels: Case Studies 2 Century Ballroom C (moderator: Mary Jane Angelo, Levin College of Law, University of Florida)

This series of panels addresses how environmental flows and levels are established and implemented in Florida. Our first two panels will address how environmental flows and levels are established and implemented through four diverse case studies presented by technical and legal staff from the water management districts. These will provide the basis for a discussion, including a broader group of stakeholders in the final panel, of the efficacy of Florida's systems for protecting and restoring water for the environment.

- **Sonny Hall**, Technical Program Manager, St. Johns River Water Management District
- **Veronika Thiebach**, Senior Assistant General Counsel, St. Johns River Water Management District
- **Beth E. Lewis**, Senior Specialist Attorney, South Florida Water Management District

Sponsored by: Soil and Water Engineering Technology, Inc.

Agenda

12:00 PM - 1:30 PM

Lunch in Albert's Restaurant (included)

Albert's Restaurant

1:30 PM - 3:00 PM

Panel: Florida Springs: Science for Ecosystem Protection

Century Ballroom B

(moderator: Matthew Cohen, School of Forest Resources & Conservation, University of Florida)

Florida's artesian springs represent a unique natural heritage, and the wide range of threats to their ecological health presents a substantial management challenge. Presentations in sessions earlier in the day synthesizing recent research on springsheds and spring ecosystems will provide a basis for a panel policy discussion, to be led by regulators and policy makers. Key elements for consideration include: regulating nutrients, setting minimum flows, measuring ecosystem-level effects, and evaluating the role of ecological interactions in regulating spring health.

- **Shea Armstrong**, Wildlife Biologist, Florida Fish and Wildlife Conservation Commission
- **Constance Bersok**, Environmental Administrator, Florida Department of Environmental Protection
- **Thomas Kerry Frazer**, Associate Director, SFRC, University of Florida
- **Jim Stevenson**, Springs Specialist, Florida Springs Stewardship
- **David Still**, Executive Director, Suwannee River Water Management District

1:30 PM - 3:00 PM

Panel: Human Dimensions of Water Sustainability: Education and Outreach Programs

Hawthorne

(moderator: Susan Jacobson, Department of Wildlife Ecology & Conservation, University of Florida)

A range of solutions to maintaining sustainable water resources relies on effective public education, outreach and involvement. Panelists will discuss research and practice necessary for creating knowledgeable citizens, marketing environmentally responsible behaviors, and promoting policies for long-term sustainability. Panelists will describe processes for planning, implementing and evaluating programs in schools, communities and watersheds. They will provide theory and guidelines for developing successful programs to engage the public in water issues.

- **Ron Chandler**, Associate in Research, University of South Florida
- **Linda Cronin Jones**, Associate Professor, University of Florida
- **Paul F. Monaghan**, Assistant Professor, University of Florida
- **Robert V. Sobczak**, Hydrologist, Big Cypress Nat'l Preserve

1:30 PM - 3:00 PM

Panel: Water for Life: Basic Need to Sacred Object

Century Ballroom A

(moderator: Les Thiele, Department of Political Science, University of Florida)

Water is one of the most essential physical resources. But it is much more than that. Throughout the ages, water has also served as a grounding source for cultural expression. It inspires art, provides a fundamental element of social ritual, and constitutes a crucial feature of religious ceremony. Water has always been a central means for humanity to cultivate and express its spiritual and aesthetic sensibilities. This panel explores the cultural importance of water. It also addresses various means by which contemporary artists and spiritual practitioners express their devotion to water as a means of heightening public awareness.

- **Johnny Dame**, Naturalist Artist, Florida's Eden
- **Kamala Earl**, Student, University of Florida
- **Steven Edward Earl**, Park Ranger, Free Lance Artist/Educator
- **Fritzi Olson**, Executive Director, Current Problems



Agenda

1:30 PM - 3:00 PM

Panel: Environmental Flows and Levels: Perspectives on Success

Century Ballroom C

(moderator: Mary Jane Angelo, Levin College of Law, University of Florida)

This series of panels addresses how environmental flows and levels are established and implemented in Florida. Our first two panels will address how environmental flows and levels are established and implemented through four diverse case studies presented by technical and legal staff from the water management districts. These will provide the basis for a discussion, including a broader group of stakeholders in the final panel, of the efficacy of Florida's systems for protecting and restoring water for the environment.

- **Janet G. Llewellyn**, Director, Division of Water Resource Management, Florida Department of Environmental Protection
- **Edward P. De la Parte, Jr.**, Attorney, de la Parte & Gilbert, P.A.
- **John Ross Thomas**, Attorney, Thomas & Associates, P.A.
- **Mary M. Davis**, Director, Southern Freshwater Program, The Nature Conservancy

3:00 PM - 3:15 PM

Break

Sponsored by: St. Johns River Water Management District

3:15 PM - 5:00 PM

Plenary Session

Century Ballroom A

Student Poster Awards Presentation

Panel: Sustainable Water Resources: Recent Progress, New Challenges, and Future Trends

(moderator: Wendy Graham, University of Florida Water Institute)

This panel consists of a diverse group of scientists, engineers, managers and policy makers representing agriculture, industry, public water supply, non-governmental organization and public agency interests at state, national and global levels. Panel members will discuss major challenges to water resource sustainability from a variety of personal and institutional perspectives, as well as recent breakthroughs and future actions needed to ensure progress toward sustainability. The panel will conclude with open questions and dialogue with the audience.

- **Daniel Bena**, Director of Sustainable Development, PepsiCo
- **Eric Draper**, Executive Director, Audubon of Florida
- **Hugh M. Gramling**, Executive Director Tampa Bay Wholesale Growers and Governing Board Member, Southwest Florida Water Management District
- **Janet G. Llewellyn**, Director, Division of Water Resource Management, Florida Department of Environmental Protection
- **Donald J. Polmann**, Director, Science & Engineering, Tampa Bay Water
- **Brian Richter**, Director, Global Freshwater Program, The Nature Conservancy

List of Poster Presentations by Session

See Poster Layout Map Pg. 19

Poster Session 1 Century Ballroom

5:30 PM - 6:30 PM

Human Dimensions of Water Sustainability 1

Arnold, Jennifer # 101
The University of Florida

Examining the social dynamics of conflict and collaboration: A critical analysis of discourse surrounding sustainable riparian management in the southwestern US

Baum Haley, Melissa # 102
University of Florida

Survey of Residential Water-wise Irrigation Practices and Perceptions

Becker, Thomas # 105
University of Florida

Making Every Raindrop Count

Davis, Jim # 107
University of Florida

Watering Smart & Efficiently in The Villages

Divine, Rachel # 109
University of Florida

Factors associated with farmer adoption of Best Management Practices in the Suwannee River Water Management District of North Florida

Kanapaux, William # 111
University of Florida

Assessing Visitor Impact on Coastal Habitats in South Carolina's ACE

Kerr, Debora # 113
Florida Public Health Institute

Public/Private Partnerships: the Role of Public Health in Water Sustainability Policy Development for Decision Makers

Overdevest, Christine # 115
University of Florida

Understanding Stakeholders in the St. Johns River

Pyati, Radha # 116
University of North Florida

The Second State of the River Report and Brochure on the Lower St. Johns River Basin: a Technical Report Designed for the Public

Hydrologic, Biogeochemical and Ecological Processes 1

Abebe, Surafel Asefa #236
Aalborg University

Conditional Markov Mixture Models for Seasonal Rainfall Simulation

Bhadha, Jehangir # 201
University of Florida

Phosphorus retention characteristics of aluminum-based water treatment residuals for use in permeable reactive barriers

Bhomia, Rupesh # 203
University of Florida

Soil nutrient storages in the Stormwater Treatment Areas of the Everglades basin.

Cathey, Anna # 209
University of Florida

Global Sensitivity Analysis of a Rainfall-Runoff Model in a Largely Ungauged Watershed, Okavango Basin in southern Africa

Chakraborty, Debolina # 207
University of Florida

Tool to Evaluate Soil Phosphorus Release and Potential Effect on Water Quality

Dix, Nikki # 209
University of Florida

Oysters as Indicators of Trophic Status in Highly Flushed Estuaries

Friedman, Melissa # 211
University of Florida

Characterizing Riparian Forest Communities in an Urban and Urbanizing Area in West Central Florida

Gardner, Lisa # 213
University of Florida

Carbon Pool Dynamics in a Phosphorus-Impacted Wetland (Everglades, FL)

Gaughan, Andrea # 215
University of Florida

Linking climate to landscape: Investigating the response of vegetation to precipitation variability in a semi-arid catchment area of southern Africa



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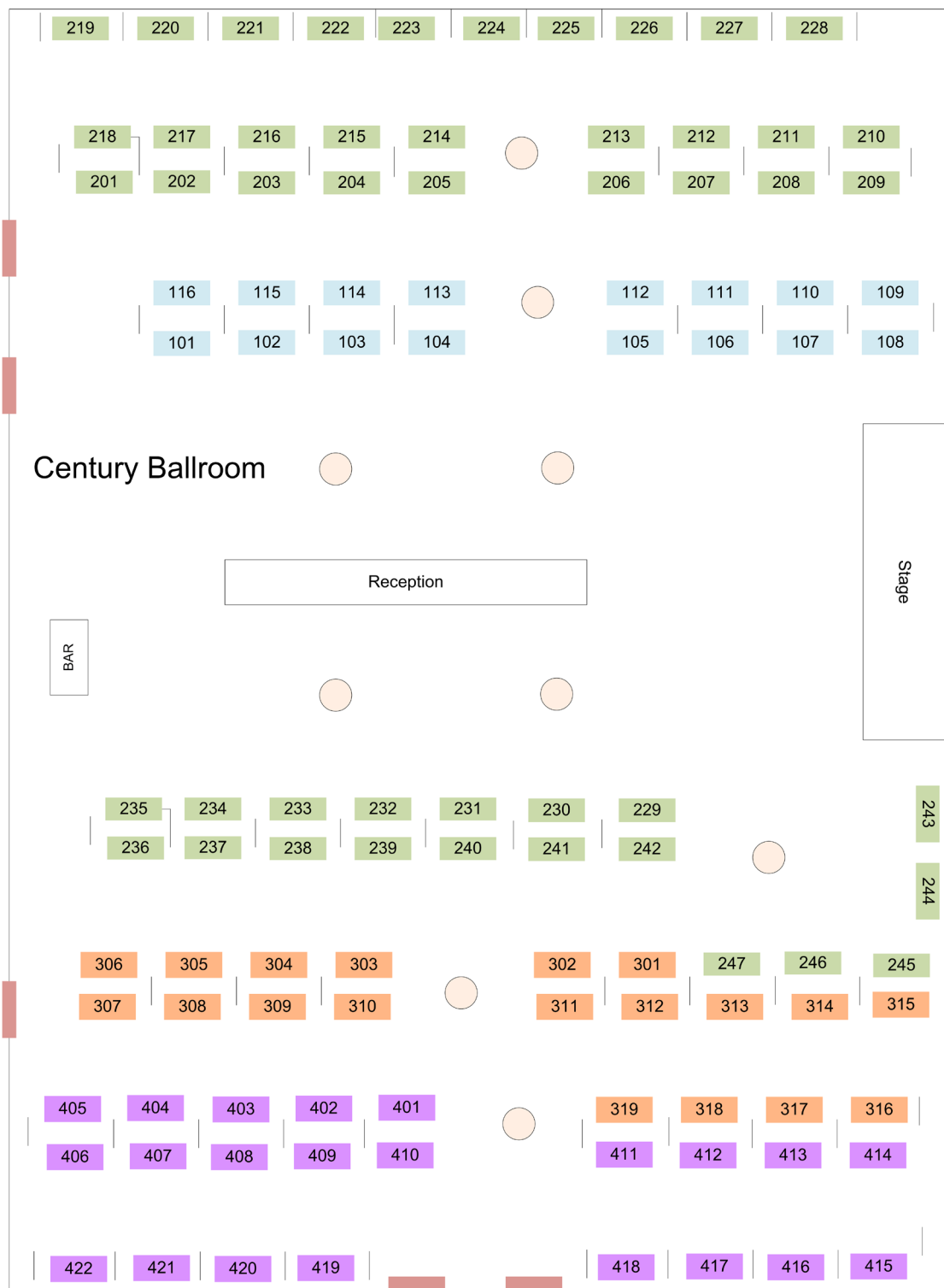
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