

FloridaWCA WORKSHOP REPORT

Workshop #20

Wednesday, May 29 – Thursday, May 30, 2019

Hosted by

Tampa Bay Water
Clearwater, Florida

In collaboration with

Water Utility Climate Alliance (WUCA)

Building Resilience to a Changing Climate:

A Technical Training in Water Sector
Utility Decision Support



For more information on WUCA and the Training Program visit the following website: <https://www.wucaonline.org/>

FloridaWCA Workshop Report prepared by Lisette Staal, Research Coordinator, UF Water Institute, waterinstitute.ufl.edu

Contents

Executive Summary.....	3
Summary of Workshop/Training	4
Florida specific presentations and case studies:	4
APPENDIX 1: LIST OF FloridaWCA participants.....	5
APPENDIX 2: Workshop Agenda.....	6



Heidi Roop, University of Washington, facilitates a group discussion at the WUCA Training.

Executive Summary

At this, the 20th FloridaWCA Workshop, Tampa Bay Water hosted the [Water Utility Climate Alliance \(WUCA\)](#) training, “*Building Resilience to a Changing Climate: A Technical Training in Water Utility Decision Support.*” This training has been held in several regions of the US. FloridaWCA members collaborated to bring a specific focus on Florida and the Southeast to the workshop. Over 45 participants, comprising drinking water, stormwater and wastewater utility managers, staff and consultants, came together to expand their knowledge and practical skills to integrate climate science into all aspects of water sector utility planning. Tampa Bay Water, a leading organization in both FloridaWCA and WUCA, made the event possible by bringing the sponsoring organizations together.

Florida Water and Climate Alliance (Florida WCA) is a stakeholder-scientist partnership committed to increasing the relevance of climate science data and tools to support decision-making in water resource management, planning and supply operations in Florida <http://floridawca.org/>). The FloridaWCA brings together interested stakeholders (public water supply utilities, local governments, water management districts and academic institutions) to increase the relevance and usability of climate change and variability data and tools to the specific needs of public water supply utilities and resource managers and planners. Initiated in 2010 by the UF Water Institute, the FWCA partnership includes the UF Water Institute, Southeast Climate Consortium (SECC), the Florida Climate Institute (FCI), and UF/IFAS Center for Public Issues Education, six major public water supply utilities, representatives of local governments, and three water management districts. Initially supported through [two NOAA funded projects and](#) interim funding provided by FloridaWCA partners, currently, Tampa Bay Water supports the FloridaWCA workshops and website. Detailed information on the FloridaWCA is available the [FloridaWCA website FloridaWCA.org](#).

Network Goal: Unfold the need for, and enhance the usability of, climate change and variability data and tools in the planning and operations of Florida’s public water supply utilities by creating spaces for sharing knowledge from the multiple perspectives and enhancing collaborative research. FloridaWCA participants are interested in influencing relevant research agendas in the technical and social sciences; understanding policy, management, operations and application of planning tools and understanding new policy changes at the state/local level that would affect the utilities; and the FloridaWCA network sustainability.

Steering Committee: Tirusew Asefa (TBW), Kevin Morris (PRMRWSA), Rob Teegarden (OUC), Ed Carter (SJRWMD), Vasu Misra (FSU), Tracy Irani (UF) and Chris Martinez (UF); Workshop Coordinator – Lisette Staal (UF Water Institute)

Workshop Goal: Provide an environment for stakeholder-scientist exchange of current research and tools to address climate variability and change issues. Focus on topics that that may help inform scientists’ research that would result in an actionable science of use to practitioners.

Summary of Workshop/Training

The WUCA training, tailored to the Florida and Southeast, focused on important dimensions of building the resilience of water sector utilities, including creating a common vocabulary and understanding of climate science and practices so practitioners and consultants are able to effectively work together. With a dynamic agenda that included plenary speakers and interactive group activities, the workshop topics included climate science and modeling, planning under uncertainty and scenario design. An important objective of the workshop was enhancing participant's communication skills for relaying this information and better engage audiences as well as addressing institutional barriers.

Florida specific presentations and case studies:

Decision Framework for Infrastructure Sequencing (DFIS), Tirusew Asefa, Ph.D., P.E., D.WRE, Planning & Decision Support Manager, Tampa Bay Water. Tirusew presented a case study of Tampa Bay Water's efforts to meet future water needs by using a planning approach considering multiple futures by considering impacts of climate change, demand forecast and uncertainties.

The unique climate variations of Florida and the Challenges it poses, Vasu Misra, Ph.D., Department of Earth, Ocean, and Atmospheric Science & Center for Ocean-Atmospheric Prediction Studies, Florida State University. Vasu explored the strong seasonal cycle of rainfall and other variables contributing to what he referred to as the "Monsoon-like" Florida rains. He also Florida and Southeast specific limitations of climate models and climate projections for applied decision making, as well as efforts to overcome.

Case Study: Downscaling Approaches in Florida and the Southeast United States

Wendy presented a case study in the Tampa Bay Region that highlights the challenge and limitation of downscaling approaches in Florida and the Southeast, efforts to overcome those limitations, and an application case study using Integrated Hydrologic Modeling for climate change impact assessment.

Case Study: Broward County - Water Resources Resilience, Ana Carolina Coelho Maran, Ph.D., P.E., Water Resources Manager, Environmental Planning and Community Resilience Division, Environmental Protection and Growth Management Department, Carolina provided an overview of Broward County's efforts to incorporate future climate conditions into water supply and flood prevention/stormwater management planning and proposed urban water resources management strategies.

Case Study: Peace River Manasota Regional Water Supply Authority (PRMRWSA) Kevin Morris, Science and Technology Officer, PRMRWSA, (presented by Chris Martinez, UF) Presentation of PRMRWSA's efforts in incorporating climate change and sea level rise projections into long-term water supply planning.

APPENDIX 1: LIST OF FloridaWCA participants

May 29-30, 2019 - Tampa Bay Water, Clearwater Florida

The training was provided in collaboration with the Water Utility Climate Alliance. Outreach for audience was to FloridaWCA contact list and additional avenues. Out of 45 participants, 21 had been previously engaged with FloridaWCA. List of Participants below only list those who were already on the FloridaWCA Contact List before the WUCA Training. For complete list, contact WUCA.

Last name	First name	Stakeholder group	Organization
Adams	Alison	Utility	Interra Incorporated
Asefa	Tirusew	Utility	Tampa Bay Water
Biddlecomb	Allan	govt-county	Pasco County Public Infrastructure
Brophy	Trista	student	University of Florida
Carter	Ed	WMD	SJWMD
Ghebremichael	Kebreab	University	University of South Florida
Graham	Wendy	University	University of Florida Water Institute
Hafen	Mark	University	University of South Florida
Maran	Carolina	govt-county	Broward County
Martinez	Christopher	University	University of Florida/Florida Climate Institute/ Southeast Climate Consortium
McConnell	Robert	Utility	Tampa Bay Water
Misra	Vasu	University	Florida State University/Florida Climate Institute/ Southeast Climate Consortium
Mullens	Esther	University	University of Florida
Panaou	Toni	Govt-City	City of Lakeland
Ryan	Emily	WMD	SRWMD
Staal	Lisette	University	University of Florida Water Institute
Stamm	John	govt-Fed	USGS Caribbean-Florida Water Science Center
Teegarden	Robert	Utility	Orlando Utilities Commission
Young	Heather	Govt-County	Tampa Bay Regional Planning Council

APPENDIX 2: Workshop Agenda



FloridaWCA Workshop Agenda

Thursday, December 20, 2018

Hosted by: Tampa Bay Water, Clearwater, Florida
Co-sponsored by Water Utility Climate Alliance (WUCA)



Title: Building Resilience to a Changing Climate: A Technical Training for Water Sector Professionals

Date & Time: Wednesday, May 29, 2019, 8:00am – 5:00pm
Thursday, May 30, 2019, 8:00am – 4:00 pm

Location: Tampa Bay Water Administrative Office Building
Main Level Board Room
2575 Enterprise Road
Clearwater, FL 33763

Training Mission

Create a practitioner community active in climate adaptation consisting of smart users and consumers of climate information.

Training Objectives

- Enhance understanding of the capabilities and limitations of climate science and learn best practices for using it in long-term water, wastewater, and stormwater utility planning;
- Learn about planning methods for addressing uncertainty when incorporating climate science into utility decision-making processes; and
- Learn communication strategies to address institutional barriers and generate engagement around utility climate adaptation and resilience building.

Agenda – May 29, 2019

Time	Item
8:00 a.m.	Registration & Coffee Available

Time	Item
8:30 a.m.	<p>Welcome, Agenda Review, and Training Participant Introductions</p> <p><i>Laurina Kaatz, Climate Program Director, Denver Water (DW) and Chair, Water Utility Climate Alliance (WUCA)</i></p> <p><i>Tirusew Asefa, Ph.D., Manager, Planning & System Decision Support, Tampa Bay Water (TBW), WUCA, Florida Water and Climate Alliance (FloridaWCA)</i></p> <p><i>Matthew Jordan, General Manager, TBW</i></p> <p><i>Lisette Staal, Coordinator, University of Florida Water Institute (UF Water Institute) and FloridaWCA</i></p> <p>Welcoming remarks from the WUCA Chair and TBW training host, review of the training agenda and pre-training survey results, and participant introductions.</p>
9:30 a.m.	<p>Group Exercise: Decisions for the Decades: Understanding Deep Uncertainty</p> <p><i>Michelle Miro, Ph.D., Associate Engineer, RAND Corporation</i></p> <p>Interactive game-based exercise on decision-making under conditions of deep uncertainty followed by facilitated group discussion about how uncertainty affects the types of long-term planning decisions participants are supporting utilities in making.</p>
10:45 a.m.	Break
11:00 a.m.	<p>Decision-Making in the Face of Uncertainty: Tampa Bay Water</p> <p><i>Tirusew Asefa, TBW/WUCA/FloridaWCA</i></p> <p>A stage-setting case study presentation depicting how and why TBW has changed its planning process to integrate climate science and other uncertainties into long-range supply system planning and decision-making.</p>
11:30 a.m.	<p>Practical Considerations for Climate Analysis and Adaptation</p> <p><i>Laurina Kaatz, DW/WUCA</i></p> <p>This session sets the stage for the upcoming training sessions and helps participants establish effective mechanisms to meet their informational needs.</p>
12:00 p.m.	<p>Climate Science and Modeling for Water Sector Professionals</p> <p><i>Joel Smith, Principal Associate, Environment and Natural Resources, Abt Associates</i></p> <p>Discussion of the capabilities and limitations of climate models and climate projections for applied decision-making. The session includes a discussion of what information climate science is currently capable of providing to support decision making at a local and regional scale. Time will be reserved for questions and answers.</p>
12:40 p.m.	Lunch (Sponsored by WUCA)
1:35 p.m.	<p>Climate Science and Modeling for Water Sector Professionals: Florida</p> <p><i>Vasu Misra, Ph.D., Associate Professor of Meteorology, Center for Ocean-Atmospheric Prediction Studies (COAPS), Florida State University</i></p> <p>Discussion of Florida and Southeast specific limitations of climate models and climate projections for applied decision making, as well as efforts to overcome. Time will be reserved for questions and answers.</p>

Time	Item
2:05 p.m.	<p>A Practical Look at Downscaling, Bias Correction, and Translating Climate Science into Hydrology</p> <p><i>Julie Vano, Ph.D, Project Scientist, National Center for Atmospheric Research (NCAR), Hydrometeorological Applications Program</i></p> <p>This session presents the range of techniques used to downscale and bias correct climate projections, reviews capabilities and limitations of downscaled data, and offers potential applications and limitations of turning projections into hydrologic impacts. Time will be reserved for questions and answers.</p>
2:35 p.m.	<p>Case Study: Downscaling Approaches in Florida and the Southeast United States</p> <p><i>Wendy Graham, Ph.D., Professor and Director, UF Water Institute</i></p> <p>This discussion highlights the challenge and limitation of downscaling approaches in Florida and the Southeast, efforts to overcome those limitations, and an application case study using Integrated Hydrologic Modeling for climate change impact assessment. Time will be reserved for questions and answers.</p>
3:05 p.m.	Break
3:25 p.m.	<p>Guiding Principles for Adaptation and Resilience Planning</p> <p><i>Joel Smith, Abt Associates</i></p> <p><i>Steve Fries, Physical Scientist, U.S. EPA Creating Resilient Water Utilities</i></p> <p>An overview of multiple approaches and decision support tools to support adaptation planning are presented. Time will be reserved for questions and answers.</p>
4:15 p.m.	<p>Case Study: Broward County – Water Resources Resilience</p> <p><i>Ana Carolina Coelho Maran, Ph.D., P.E., Water Resources Manager, Environmental Planning and Community Resilience Division, Environmental Protection and Growth Management Department</i></p> <p>Overview of Broward County's efforts to incorporate future climate conditions into water supply and flood prevention/stormwater management planning and proposed urban water resources management strategies.</p>
4:45 p.m.	<p>Key Takeaways from Day 1</p> <p><i>Ivana Kajtezovic, Planning Program Manager, TBW / WUCA</i></p> <p><i>Lisette Staal, UF Water Institute/Florida WCA</i></p> <p>Review of key takeaways regarding the state of climate science, sources of uncertainty and what it means for utility decision making. Participants will also be asked to complete an evaluation of the Day 1 sessions.</p>
5:00 p.m.	Adjourn

Agenda – May 30, 2019

Time	Item
8:00 a.m.	Coffee Available
8:30 a.m.	Reflections on Day 1 and Review of Day 2 Agenda <i>Lisette Staal, UF Water Institute/Florida WCA</i> Participant reflections on Day 1 of the training and review of the agenda for Day 2.
8:45 a.m.	Case Study: Peace River Manasota Regional Water Supply Authority (PRMRWSA) <i>Kevin Morris, Science and Technology Officer, PRMRWSA</i> Presentation of PRMRWSA's efforts in incorporating climate change and sea level rise projections into long-term water supply planning.
9:15 a.m.	Group Exercise: Scenario Design (Accelerated Introduction to Scenario Planning) <i>Laurina Kaatz, DW/WUCA</i> Group exercise focused on identifying and prioritizing external factors – of which climate change is one among many – that introduce uncertainty and influence long-term utility planning contexts.
11:00 a.m.	Break
11:15 a.m.	Methods for Decision-Making Under Deep Uncertainty <i>Michelle Miro, Ph.D., RAND Corporation</i> Overview of innovative methods and approaches for addressing climate and other types of uncertainty to build water utility adaptive capacity. This session provides a unique and critical opportunity for participants to examine and understand the challenges of deep uncertainty. Time will be reserved for questions and answers.
12:15 p.m.	Lunch (Sponsored by WUCA)
1:00 p.m.	Adaptation Decision-Making at Metropolitan Water District of Southern California <i>Brandon Goshi, Manager of Water Policy and Strategy, Metropolitan Water District of Southern California/WUCA</i> A real-world example demonstrating the lessons and material presented up to this point in the training. Metropolitan Water District of Southern California will discuss the evolving use of climate science and decision-making methods to address uncertainty in its long-term water resources planning.

Time	Item
1:30 p.m.	<p>Using Communications Best Practices to Engage Audiences and Address Institutional Barriers</p> <p><i>Heidi Roop, Ph.D., Research Scientist and Strategic Communications Lead, Climate Impacts Group, University of Washington</i></p> <p><i>Abby Sullivan, Environmental Scientist, Climate Change Adaptation Program, Philadelphia Water Department (PWD) / WUCA</i></p> <p>Participants will learn about tangible mechanisms and practices to effectively address institutional barriers, including developing messaging and communicating about climate science. The session will also provide examples of barriers and solutions from the experiences of Philadelphia Water Department.</p>
2:30 p.m.	Break
2:45 p.m.	<p>Bringing it All Together: Identifying Institutional Barriers and Mapping Out Strategies and Next Steps</p> <p><i>Heidi Roop, University of Washington</i></p> <p>Building on the prior session, participants will engage in an interactive exercise to explore their individual institutional barriers and communication challenges and develop potential strategies to address these challenges.</p>
3:45 p.m.	<p>Key Takeaways, Reflections and Wrap-Up</p> <p><i>Ivana Kajtezovic, TBW/WUCA</i></p> <p><i>Lisette Staal, Florida WCA/UF Water Institute</i></p> <p><i>Laurna Kaatz, DW/WUCA</i></p> <p>Review of key takeaways from the training, and participant reflections on how they intend to apply what they have learned during the training. Participants will also be asked to complete an evaluation of the Day 2 sessions.</p>
4:00 p.m.	Adjourn