floridawca.org

FloridaWCA
WORKSHOP REPORT
Workshop #15

Wednesday, November 16, 2016

8:45 AM – 4:00 PM

Prepared by
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Hosted by
Peace River Manasota Regional Water Authority, Arcadia, Florida

Contents

Florida Water and Climate Alliance Background

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 FWCA 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 when the project concluded successfully in November 2015 participants called for some "slightly more formal type of governance" that would include a steering committee, technical science committees and central management support services including workshop planning, facilitation, website and deliverable production. In addition, they suggested that there is a need for bare bones support for design, implementation and management of 3 workshops and a website, with buy in for specific products. The UF Water Institute (WI) submitted a proposal and FWCA secured interim support from Saint Johns River Water Management District (SJRWMD) and Tampa Bay Water (TBW) to continue FWCA network workshops and website respectively.

Detailed information on the FloridaWCA is available the FloridaWCA website FloridaWCA.org.

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 impacting 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), Sherry Brandt-Williams (SJRWMD), Vasu Misra (FSU), Tracy Irani (UF) and Chris Martinez (UF); Workshop Coordinator – Lisette Staal (UF Water Institute)

Workshop Summary- Wednesday, November 16th, 2016

The 15th workshop since the FloridaWCA was initiated, it was hosted by Peace River Manasota Regional Water Supply Authority at the Peace River Facility, Arcadia, FL, and attended by 20 participants (*see Appendix 1 for participant list*).

Specific Workshop Objectives:

1. Stakeholder-scientist exchange on current research, tools and issues of relevance to water resource management and supply operations

2. Consider demographic, social and economic vulnerabilities in a changing environment and relevance to water supply planning.

3. Explore critical issues that may impact the built environment & water supply that we should be thinking about, understand the types of questions, assumptions and concerns and inform the type of research that may contribute to addressing those issues.

Session 1: FloridaWCA Learning Network

- Welcome – Kevin Morris (Peace River Manasota Regional Water Supply Authority) welcomed the participants to the PRMRWSA.

- Introductions/Agenda/ Setting the Stage – Workshop facilitator Lisette Staal (UF Water Institute) led an interactive introduction activity focused on getting to know one another in the context of different vulnerabilities to water supply in a changing environment. Participants were asked to introduce themselves, their role and organization, and to share a response to the following question:

What future climate change/ climate variability PRESSURES on water supply do you think will need to be addressed?

During a discussion participants' responses were broad ranging (see Figure 1) and included both unique and shared concerns across institutions. Overall, the discussion illustrated the importance of considering water supply in the context of integrated systems and looking at climate drivers in the context of environmental, institutional and social and behavioral issues. This set the stage for the rest of the day's presentations and discussions. In addition, it emphasized the relevance of FloridaWCA efforts to better identify and find support for research that can contribute to addressing these pressures.

Figure 1. Participant comments on key climate change/ climate variability pressures on water supply

Session 2: Water Supply planning in the context of a changing environment (assessing demographic, social and economic vulnerabilities)

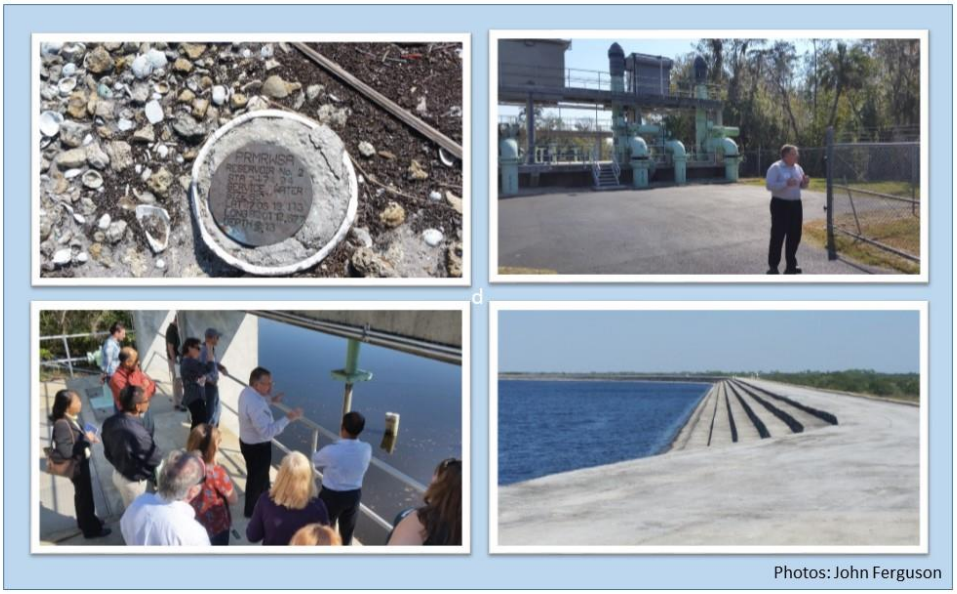
The session asked participants to consider not only the changing and variable climate but also the fast changing demographics on Water Supply services in Florida and potential implications to Utilities.

- Demographic Changes and What it Means for Water Suppliers, Kevin Morris, Science and Technology Officer, Peace River Manasota Regional Water Supply Authority - Presenting recent demographic statistics, Kevin outlined some of the State's water supply challenges and implications of projected growth on water supply costs.

- Cooperative Planning for Sea Level Rise; Policy and Programs, Alicia Betancourt, Monroe County Extension Director, University of Florida/IFAS - The example of Monroe County was shared as an illustrative of cooperative planning in face of vulnerabilities of tidal flooding, salt water intrusion and loss of habitat.

Field Trip - Water Supply Storage Elements at the Peace River Facility

The Peace River Manasota Regional Water Supply Authority has 21 Aquifer Storage and Recovery (ASR) wells, two raw water off-stream surface water storage reservoirs and a 120 million gallon per day pump station on the Peace River. This 1 hour field trip covered approximately 3 miles, the group saw the river diversion pump station, the reservoirs and the ASR system which combine for a robust and resilient water supply for 300,000 people.



Session 3: Making change in a changing climate – water supply, demand, and resiliency

Effective adaptation is based on a solid understanding of vulnerabilities to climate change and linking local knowledge to scientific evidence on societal risks. This session built on the demographic issues in the context of climate information and considering the challenges to, and importance of framing messages that will resonate with those involved in decision-making.

Urban water supply and demand in a changing demography, Vasu Misra, Associate Professor of Meteorology, Center for Ocean-Atmospheric Prediction Studies(COAPS), Florida State University – Drawing on data showing clusters analysis of North Atlantic Tropical Cyclones, regional relative sea level change, and annual mean days of both max and min temperatures, Misra emphasized the importance for urban water suppliers to plan for both sudden spikes in water demand for power generation, and reliable water supply in adverse conditions to sustain fragile population.

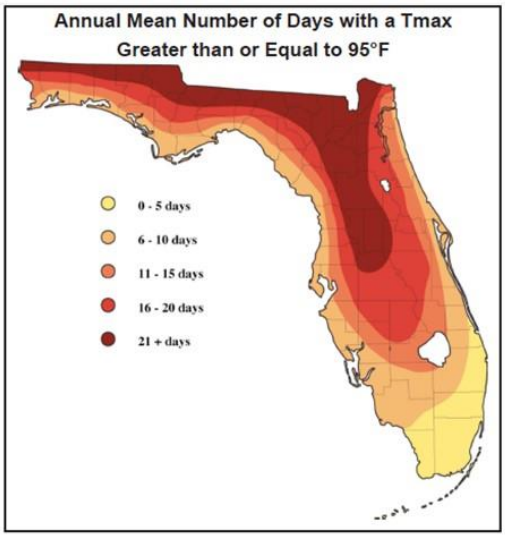


Figure 1. Annual mean number of days with a maximum temperature (Tmax) greater than or equal to 95°F (Source: The Florida State University Center for Ocean-Atmospheric Prediction Studies).

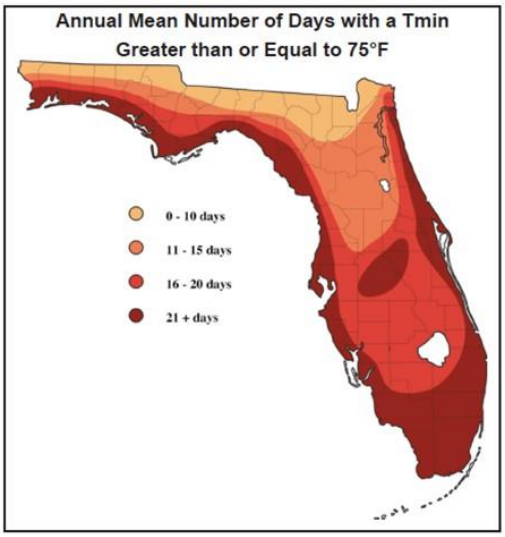


Figure 2. Annual mean number of days with a minimum temperatures (Tmin) greater than or equal to 75°F (Source: The Florida State University Center for Ocean-Atmospheric Prediction Studies).

Humidity impact on differences in Tmax and Tmin

Making Change in a Changing Climate: Water supply, demand and resiliency, Tracy Irani, Professor and Department Chair, Family Youth and Community Science, University of Florida/IFAS. Recognizing the framing effects (both message effects and source effects) is important when considering your approach to communicating science. Tracy presented theory and practice to illustrate these issues, and the participants worked together briefly to consider how to frame particular climate issues of importance to water supply planning.

Participatory activity and discussion – In four small groups the participants discussed one of the climate concerns mentioned in the previous sessions morning's sessions - Sea Level Rise, Extreme Events, Temperature Increases, Evapotranspiration - Together each group was asked to frame a message (including at least demographic issues) to a decision making body (i.e. Board, commission, etc.) around that issue. Following the small group discussion, participants shared their approaches, and challenges they encountered

Session4: **Models, Data, Planning tools, and Decision Science tools in Local and Regional Efforts**

Tirusew Asefa (Tampa Bay Water) facilitated this session focused on what is currently being done with models, planning tools, decision science tools in Florida to address climate change, variability and vulnerability?

- Adaptation in a Sea of Uncertainty: Sea-Level Rise Planning at the Local Level, Jason Evans, Assistant Professor of Environmental Science and Studies, Stetson University – "Risk-based" scenario planning for sea-level rise - coupling small-area population projections with SLR vulnerability assessment

- Sea Level Rise and Climate Change: Water Modeling Advances and Capital Resilience Planning, Miami-Dade Water and Sewer Department, Miami-Dade County, FL
  Virginia Walsh, Senior Professional Geologist, Chief Hydrogeology Section, Miami Dade Water and Sewer Department. Share details and approaches that Miami-Dade County is working on to integrate science into operations.

- Challenges of Modeling Climate Change and Sea Level Rise Impacts on the Peace River: Peace River Decision Tool Experience , Kevin Morris, Science and Technology Officer, Peace River Manasota Regional Water Supply Authority – Provided background on PRMRWSA and statistical model development for formulating future SLR Scenarios for river and TDS.

Session 5: So What? And next steps for FloridaWCA?

Topics of interest for future development/discussion:

- In order to link some demographic impacts on water supply, additional information would be useful. Some questions included whether there information available on water consumption by age, socio-economic, etc. A utility participant noted that at this point, rather than a direct link to demographics, there is a more clear link to the type of housing (single family, apartment complexes… etc.)

- There is still a need for better demand forecasting and integrating that into operations.

- Interested in whether rate structures have impact on water use. Can there be comparison to US census data… Tampa Bay Water is working on this.

- There is a need for parcel data.

- What is the impact of climate on migration? (drier regions, extreme events…) What impact will that have on demand for water?

Workshops – **(Asefa, Staal)** Tampa Bay has committed support for 3 workshops in 2017. The time and topics need to be identified soon.

Website (Chris Martinez) -This is a key "product" of the FloridaWCA and is highly valuable. Need to ensure continued support for Website.

- Emphasize research outputs, past presentations, journal articles
- Consider revising the intro page to better reflect the strengths and products of the FloridaWCA to date.

Webinars (Martinez)-

Outreach (Teegarden, Morris, and Bryant-Williams) – As the FloridaWCA has evolved, it is becoming important to begin to share it with other organizations, and continue to bring stakeholders "to the table." Discussion encouraged outreach to organizations that would be interested in the mission and outputs of the FloridaWCA. It was suggested that to attract Utilities, framing the discussion of climate and variability issues in the context of Adaptation and Resiliency is important.

- Explore possible linkages/synergies with the CFWI, in particular with the Water Resources Availability group relative to incorporating climate variability into models.
- Begin to identify professional organizations and opportunities
- Explore linkages and synergies with UF/IFAS Extension programs and priorities.
- Frame information of what we do around adaptation and resiliency. Two areas of key interest to Utilities and Water Managers -- securing long term water resources and supply and addressing near term water issues for utility management in the context of climate change.

Research – Proposals (Misra, Asefa) – Specific research efforts are key to the mission of the FloridaWCA.

- Identify key leading research issues and invite scientists to workshops, webinars, etc. to enhance potential collaborations for research proposals.
- Explore collaboration with WRF for larger NSF proposals…
- Identify funding opportunities
- Lead proposal efforts
- Develop white papers
- Need for translational documents focusing on the meaning of the science in operational sense
- Extension Fact sheets to share research results

FloridaWCA Sustainability – Contracts with SJRWMD and Tampa Bay Water provided funding last year for support for Website and Workshops respectively.

- **Workshops** - $12,500 – Confirmed commitment from Tampa Bay Water to continue at the same level of support (3 Workshops) (**Graham)**
- **General Support for network activity** - $5,000 – Commitment from Peace River to provide general support to sustaining the network. Current contribution is supporting documentation of network growth and impacts **(Irani)**
- Contact SWFWMD **(Adams)** and SFWMD (?) regarding potential support

APPENDIX 1: List of Participants –

Florida Water and Climate Alliance Workshop – November 16, 2016
Peace River Manasota Regional Water Supply Authority

Last name	First name	Stakeholder group	Organization
Adams	Alison	Utility	Tampa Bay Water
Arias	Mauricio	University	University of South Florida
Asefa	Tirusew	Utility	Tampa Bay Water
Betancourt	Alicia	University	UF/IFAS Extension Monroe County
Borisova	Tatiana	University	University of Florida
Crumpton	Michael	Utility	City of Sarasota - Utilities
Evans	Jason	University	Stetson
Ferguson	John	WMD	SWFWMD
Ghebremichael	Kebreab	University	University of South Florida
Irani	Tracy	University	University of Florida
Kiger	Thomas	WMD	SWFWMD
Martinez	Christopher	University	University of Florida
Misra	Vasu	University	Florida State University
Morris	Kevin	Utility	Peace River Manasota Regional Water Supply Authority
Shafer	David	Consulting	Shafer Consulting
Staal	Lisette	University	University of Florida Water Institute
Tyrna	Abbey	Govt-county	Sarasota County Sustainability
Walsh	Virginia	Utility	Miami-Dade Water and Sewer Department
Williams	Molly	Govt-county	Sarasota County Public Works
Zangh	Qiong	University	University of South Florida

APPENDIX 2: Agenda –

FloridaWCA Workshop Agenda

Wednesday, November 16, 2016

Hosted by **Peace River Manasota Regional Water Supply Authority**
Peace River Facility 8998 SW County Road 769, Arcadia, FL

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.

Workshop Objectives

1. Consider demographic, social and economic vulnerabilities in a changing environment and relevance to water supply planning.
2. Explore critical issues that may impact the built environment & water supply that we should be thinking about, understand the types of questions, assumptions and concerns and inform the type of research that may contribute to addressing those issues.

Workshop Agenda:

8:45 – 9:00 Check-in, Networking, Refreshments

9:00 – 9:30 **Session 1**: Welcome **(Kevin Morris)** introductions and the FWCA Stakeholder-scientist collaborative network **(Lisette Staal)**

9:30 – 10:45 **Session 2:** Water Supply Planning in the context of a changing environment (assessing demographic, social and economic vulnerabilities) This session will raise awareness of the need for assessing the potential impact of the fast changing demographics on Water Supply services. In particular focusing substantively on the potential implications to Utilities and explore opportunities to inform planning tools in the face of climate variability and extreme events. **(Kevin Morris)**

(60 minutes) Presentations

- **Kevin Morris**, Science and Technology Officer, Peace River Manasota Regional Water Supply Authority

- **Vasu Misra**, Associate Professor of Meteorology, Center for Ocean-Atmospheric Prediction Studies(COAPS), Florida State University
- **Alicia Betancourt**, Monroe County Extension Director, University of Florida/IFAS
- Other efforts

(15 minutes) Discussion

10:45 – 11:00 **BREAK**

11:00 – 12:00 (Field Trip) **Water Supply Storage Elements at the Peace River Facility –**

1 Hour Tour Description: The Peace River Manasota Regional Water Supply Authority has 21 Aquifer Storage and Recovery (ASR) wells, two raw water off-stream surface water storage reservoirs and a 120 million gallon per day pump station on the Peace River. For this 1 hour field trip that will cover approximately 3 miles, the group will see the river diversion pump station, the reservoirs and the ASR system which combine for a robust and resilient water supply for 300,000 people. Transportation will be personal vehicles, no hard hats are required.

12:00 – 1:00 LUNCH

1:00– 2:15 **Session 3:** Making change in a changing climate **–** water supply, demand, and resiliency **-** Effective adaptation is based on a solid understanding of vulnerabilities to climate change, linking local knowledge to scientific evidence on societal risks. **(Tracy Irani)**

(20 minutes) Presentation

Tracy Irani, Professor and Department Chair, Family Youth and Community Science, University of Florida/IFAS. "Adaptation as policy, not politics: Scientific communication and framing an agenda for climate change"

(55 minutes) Activity and Discussion

Focused on understanding vulnerabilities and what can be done on an individual, organizational and state level to address challenges of water supply, demand and access.

2:15– 2:30 ***BREAK***

2:30 – 3:30 **Session 4:** Models, Data, Planning tools, and Decision Science tools in Local and Regional Efforts What is currently being done with models, planning tools, decision science tools in Florida to address climate change, variability and vulnerability? **(Tirusew Asefa)**

(60 minutes) Presentations

- **Jason Evans**, Assistant Professor of Environmental Science and Studies, Stetson University, Adaptation in a Sea of Uncertainty: Sea-Level Rise Planning at the Local Level
- **Virginia Walsh,** Senior Professional Geologist, Chief Hydrogeology Section, Miami Dade Water and Sewer Department, Sea Level Rise and Climate Change: Water Modeling Advances and Capital Resilience Planning, Miami-Dade Water and Sewer Department, Miami-Dade County, FL
- **Kevin Morris**, Science and Technology Officer, Peace River Manasota Regional Water Supply Authority, Challenges of Modeling Climate Change and Sea Level Rise Impacts on the Peace River

3:30 – 4:00 **Session 5:** So What? And next steps for FloridaWCA? **(Lisette/Steering Committee)**