

FloridaWCA WORKSHOP REPORT

Workshop #21

Friday, February 7, 2020

10:00 AM – 4:00 PM

Hosted by

Orlando Utilities Commission (OUC)

Orlando, Florida

Workshop Report prepared by
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UF Water Institute

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Executive Summary

[The Florida Water and Climate Alliance \(FloridaWCA\)](#) is a stakeholder-scientist network committed to the co-development of locally relevant, applied climate science and tools for the water sector in Florida. Founded in 2010, the FloridaWCA brings together scientists, water resource managers and public water suppliers at local/regional/state levels to address challenges of climate change impacts on Florida's water sector. Our mission is to foster partnerships to co-develop and share actionable climate science, data and decision support that promotes sustainability in the water sector through applied research, learning and outreach. FloridaWCA achieves its mission by facilitating: 1) interdisciplinary research projects and applications; 2) three workshops per year to promote knowledge exchange and networking opportunities; and 3) online access to data and information through FloridaWCA.org.

Steering Committee (2020): Tirusew Asefa (TBW), Ed Carter (SJRWMD), Tracy Irani (UF), Carolina Maran (SFWMD), Chris Martinez (UF), Vasu Misra (FSU), Kevin Morris (PRMRWSA), Rob Teegarden (RTEE Advisors); FloridaWCA Coordinator – Karen Schlatter (UF Water Institute)

Workshop Goal: Provide an environment for stakeholder-scientist exchange of current climate change research and tools to increase local relevancy to utilities and water resource managers. Explore topics that may help inform scientists' research that would result in an actionable science of use to practitioners.

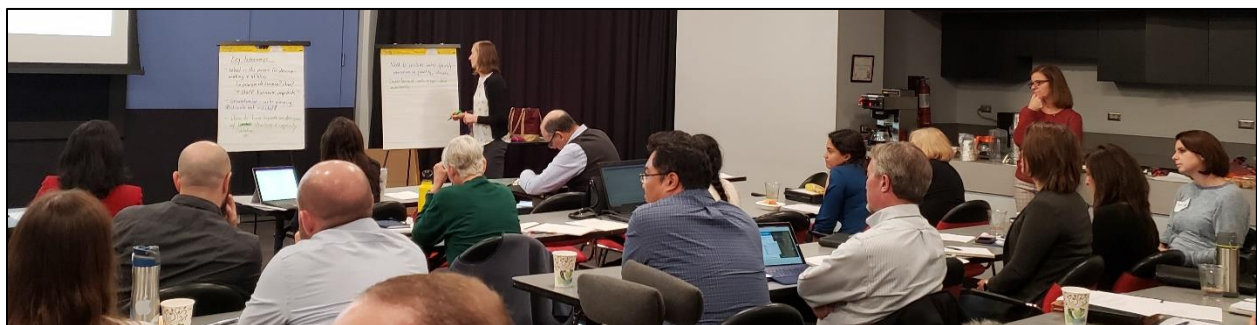
Workshop Outcomes

Key topics of interest to be further explored by FloridaWCA in future workshops, research and activities:

- **Compound flooding** impacts on coastal communities, water resources management and supply
- **Water quality** considerations in supply planning, including interactions with quantity and climate
- **Resilience:** what does this actually mean and how do water managers and utilities incorporate resilience into their plans and operations?
- Impacts of climate-related **human population shifts** in the state (e.g. coastal communities moving inland; increased development in rural areas) on hydrology, water management and supply
- Need for more **effective communication** about climate-related issues to both decision makers and the public; FloridaWCA could hold regular communication trainings or partner with another group
- Incorporation of different **scenarios** of extreme events into supply planning and water management
- **Cost-benefit analyses** for climate adaptation strategies over short- and long-term
- **NASA-funded project applications:** could include applications to other sectors, i.e. optimization of solar energy arrays across state, as well as a method for estimating future water utility bills for customers
- **Extreme events:** more monitoring, data and improved models are needed to better understand drought and flood impacts on water quantity and quality, including links between climate, hydrology, ecology, economics, and society

Updates and Resources:

- Two climate-related bills currently proposed in senate and house:
 - [2016 senate/1073 house bill](#): would establish statewide Office of Resiliency and the Sea-Level Rise Task Force within the office and provide appropriations
 - [1157/1284 bill](#): a land subsidence research initiative to determine the rate of land subsidence in the state and understand effects on sea-level rise
- [The water quality bill \("Clean Waterways Act"\)](#): seeks to implement all recommendations of the Blue-Green Algae Task Force – likely to get passed.
- [Florida Natural Resources Leadership Institute](#) –accepting applications through March 31.
- Upcoming **FloridaWCA 2020 workshops**: May 29 in Miami; Sept. 25 in Tallahassee.



Workshop Summary – February 7, 2020

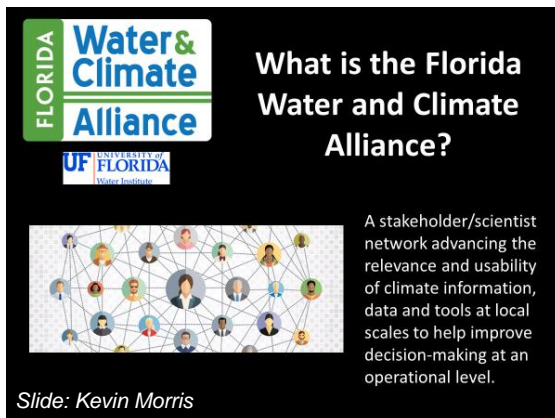
The 21st FloridaWCA workshop was hosted by OUC in Orlando, Florida, and was attended by 37 participants from 21 organizations (see Appendices 1 and 2 for participant list and agenda, respectively).

Workshop Goal: Provide an environment for stakeholder-scientist exchange of current research and tools to address climate change issues with a focus on increasing local relevancy to utilities and water resource managers. Explore topics that may help inform scientists' research that would result in an actionable science of use to practitioners.

Specific Workshop Objectives:

1. Research and Planning – Share information on the state of climate science and actions useful to local water supply and resource planning and operations.
2. Community – Share current activities and explore interests based on shared strengths and resources of the represented institutions.
3. Collaboration – Explore opportunities to partner on activities of interest to the participants.

Session 1: Welcome and Introductions



What is the Florida Water and Climate Alliance?

A stakeholder/scientist network advancing the relevance and usability of climate information, data and tools at local scales to help improve decision-making at an operational level.

Slide: Kevin Morris

The welcome and introductions session started off with a recognition of Lisette Staal's nearly 10 years of work as the facilitator of FloridaWCA. Lisette, previously a Research Coordinator at the University of Florida Water Institute, retired from her position in October 2019. Karen Schlatter was hired in September 2019 by the UF Water Institute and will facilitate FloridaWCA workshops and activities going forward. Karen led the 37 participants present at the workshop in a round of introductions, which included sharing where they had driven from to attend the meeting and putting a dot on a map of Florida to show the location.



Combining all Stakeholders on Same Map

Slide: Kevin Morris

Kevin Morris of Peace River Manasota Regional Water Supply Authority (PRMRWSA) gave [a brief introduction](#) of the goals and history of the FloridaWCA focusing on the diversity of stakeholders, projects and accomplishments of the group.

Session 2: Innovative Research and Collaboration Efforts in Florida (moderator: Karen Schlatter)

- [Central Florida Water Initiative Update](#): Craig Varn, J.D., Partner, Manson Bolves Donaldson Varn
- [Technical Review of Lake Okeechobee Regulation Schedule and Blue-Green Algae Task Force Updates](#): Wendy Graham, Ph.D., Carl S. Swisher Eminent Scholar in Water Resources, Director of the University of Florida Water Institute

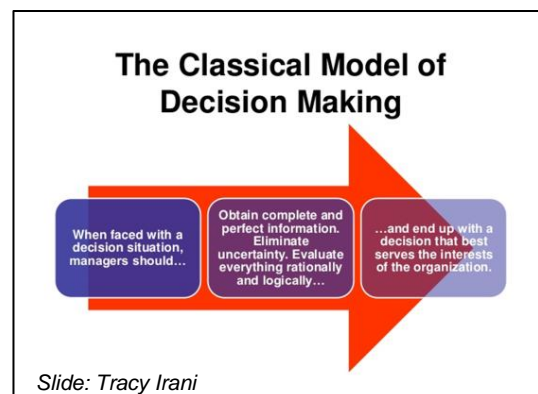
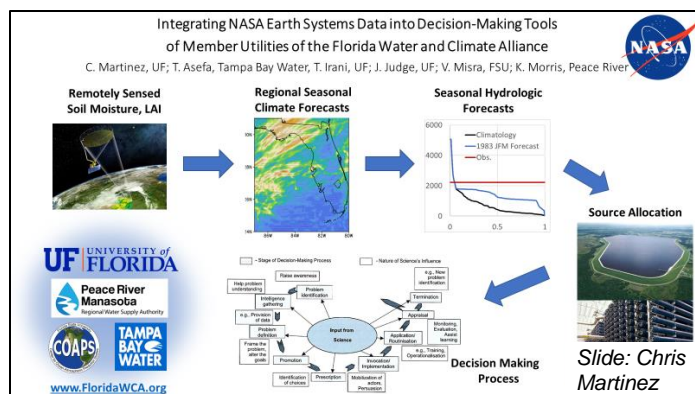
Discussion: Presentations in Session Two provided the latest updates and information regarding coordinated groundwater supply planning efforts for the central portion of the state and efforts to address and assess harmful algal blooms in Florida. Key takeaways from Session 2 included the following topics/themes, which may inform FloridaWCA activities:

- 1) The current CFWI groundwater supply planning efforts do not **incorporate climate change** projections. Is there a way to include climate data? Could FloridaWCA be a resource?
- 2) **Water quality** should be considered in supply planning, including water quality interactions with water quantity and climate. This could be a focus for future workshops.



Session 3: Integrating NASA Earth Systems Data into Decision-Making Tools of Member Utilities of the FloridaWCA (moderator: Chris Martinez, University of Florida)

- [Project Overview](#): Chris Martinez, Ph.D., Associate Professor of Urban Water Resources, Center for Landscape Conservation and Ecology, University of Florida
- [High Resolution Seasonal Dynamical Forecasts](#): Vasu Misra, Ph.D., Professor of Meteorology, Center for Ocean-Atmospheric Prediction Studies, Florida State University
- [Peace River Manasota Water Authority ASR Index](#): Kevin Morris, P.E., Manager of Engineering and Projects, Peace River Manasota Regional Water Supply Authority
- [Tampa Bay Water's Seasonal Resource Allocation Models](#): Tirusew Asefa, Ph.D., Manager, Planning & System Decision Support, Tampa Bay Water
- [Contextual Model of Decision-Making](#): Tracy Irani, Ph.D., Professor and Department Chair, Family Youth and Community Science, University of Florida/IFAS



Discussion: Session Three focused on the NASA-funded project that several FloridaWCA members are currently involved in. The session included “lightning talks” about different research components of the project and how the improved climate forecasts could be incorporated into utility water supply modeling. Key takeaways from Session 3 included the following topics/themes, which may inform FloridaWCA activities:

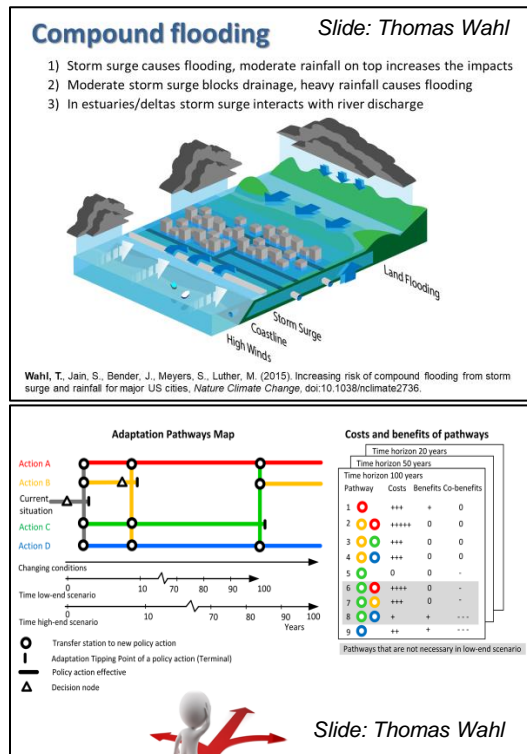
- 1) Need to better understand the **decision-making process** for utilities:
 - Is science incorporated? How?
 - What are the impacts of staff turnover?
- 2) Relevant climate information is needed now; **data availability** should be improved to enable more immediate decision making by utilities and water managers. Could FloridaWCA be a resource?
- 3) We need to get decision makers to understand the *value* of climate data and information and not just see it as a *cost*. We could develop strategies to communicate/sell this to decision-makers in order to get funding for climate science. FloridaWCA could hold **communication training workshop** or partner with another group to have training.
- 4) Rigid **institutional/governance structure and capacity** can limit collaboration and the ability of climate science to impact decision making. This related to the following issues:
 - It is difficult for utilities to consider climate impacts in water supply planning when they have so many other higher priorities (capacity and institutional limitations).
 - The difficulty of achieving statewide integrated water resource management informed by climate science when there are so many different agencies and organizations with their own separate management efforts.
 - The inflexibility of existing institutional processes which can constrain collaboration of the Blue-Green Algae Task Force with other algae groups (Session 2).

Session 4: Surface Water Management in the Context of Extreme Events (*moderator: Carolina Maran, South Florida Water Management District*)

- [Sea Level Rise, Coastal Impacts, and Adaptation](#): Thomas Wahl, Ph.D., Assistant Professor of Coastal Risks and Engineering, University of Central Florida
- [Broward County Surface Water Model, Rainfall Projections, and Flood Map](#): John Loper, P.E., Associate Vice President, Taylor Engineering

Discussion: Impacts of extreme events on water management, supply and operations was previously identified as a topic of interest to the FloridaWCA. Session Four provided an in-depth look at sea level rise (SLR) impacts on coastal communities, adaptation strategies and Broward County’s 100-year flood map developed to determine potential impacts of extreme rainfall and flooding events.





Key takeaways from Session 4 included the following topics/themes, which may inform FloridaWCA activities:

- 1) Coastal communities should consider **compound flooding** when planning for SLR impacts, e.g. storm surge can block stormwater drainage and further compound flooding issues with rainfall event.
- 2) In FL, extreme drought during the typical wet season can have the greatest impact on water supply planning. How can utilities incorporate different **scenarios** of extreme events into supply planning?
- 3) Climate **adaptation pathways** provide a way to visualize costs and benefits of different strategies and scenarios over varying time horizons (short, medium and long-term). This can be useful for communicating outcomes of different adaptation approaches.
- 4) Interaction of **population relocation** (as people move due to sea-level rise, flooding, hotter temperatures) and weather-related land use change with hydrology, water management and supply issues.

- 5) Broward County should be seen as an example for coastal water planning: skilled development of the flood map, inclusion of stakeholders in the process and communication with the public makes them a model for other coastal communities.

Session 5: FloridaWCA Moving Forward – Linkages and Synergies

For the final session, the workshop participants broke out into six groups to further discuss potential applications of NASA project results and research/application needs around extreme events. The following key themes emerged from the small group discussions:

NASA project application and needs:

- Utilities could use improved forecasts to improve water supply planning with higher level confidence and could provide projected water utility bills to customers to manage customer perceptions.
- Use improved forecasts to develop a solar energy capture forecast: Model spatial cloud cover variability and temporal average across state in order to distribute solar generation plants at locations so that they provide optimal operations across the state in aggregate.

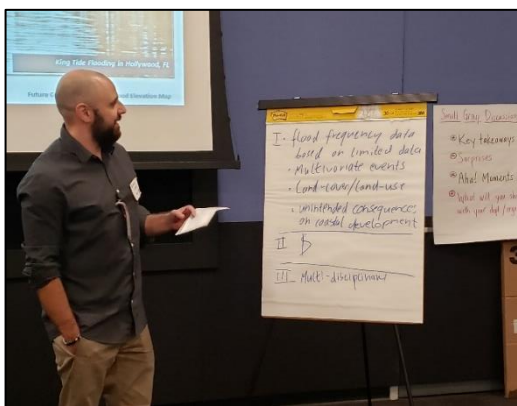
Research/application needs and opportunities around extreme events:

- Improved models: higher spatial and temporal resolution; links between climate, hydrology, ecology, economics, and society; incorporate compounding factors for extreme events; better quantify uncertainty

- More monitoring and more data to better understand drought and flood impacts on water quantity and quality and how this relates to economy
- More resources: funding and people
- Assess infrastructure vulnerabilities; funding for improvements
- Cost-benefit analyses for different adaptation and management strategies
- Promote state level policy that better addresses: growth management, comprehensive planning, and SLR
- Better understand how organizations make decisions and are communicating
- Oceanic current research impact on FL rainfall
- Engage wastewater and stormwater utilities

Lastly, the group shared **updates and resources** that could be of use to participants, including:

- There are two climate-related bills currently proposed in senate and house:
 - [7016 senate/1073 house bill](#): would establish statewide Office of Resiliency and the Sea-Level Rise Task Force within the office and provide appropriations
 - [1157/1284 bill](#): a land subsidence research initiative to determine the rate of land subsidence in the state and understand effects on sea-level rise
- [The water quality bill \("Clean Waterways Act"\)](#): seeks to implement all recommendations of the Blue-Green Algae Task Force – likely to get passed.
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- Upcoming FloridaWCA workshops: May 29 in Miami; Sept. 25 in Tallahassee.



Appendix 1: FloridaWCA Workshop Participants

February 7, 2020 – OUC, Orlando, Florida

First Name	Last Name	Organization
Alison	Adams	INTERA Incorporate
Aavudai	Anandhi	FAMU
Mauricio	Arias	University of South Florida
Tirusew	Asefa	Tampa Bay Water
Allan	Biddlecomb	Pasco County Public Infrastructure
Cortney	Cameron	SWFWMD
Paloma	Carton de Grammont	UF Water Institute
Erin	Duke	Tampa Bay Water
Wendy	Graham	UF Water Institute
YOUNG GU	HER	University of Florida, TREC/ABE
Tracy	Irani	University of Florida
Michelle	Irizarry	USGS
Cathleen	Jonas	HSW Engineering, Inc.
Ivana	Kajtezovic	Tampa Bay Water
Jim	Lilly	City of Lakeland
John	Loper	Taylor Engineering, Inc.
Carolina	Maran	SFWMD
Chris	Martinez	UF
Tom	Mattiacci	City of Lakeland
Vasu	Misra	Florida State University
Kevin	Morris	Peace River Manasota RWSA
Toni	Panaou	City of Lakeland
Donald	Polmann	Florida Public Service Commission
Jill	Qi	SWFWMD
AJ	Reisinger	University of Florida
Angie	Rincón Camacho	University of Florida
Emily	Ryan	SRWMD
Karen	Schlatter	UF Water Institute
Chris	Sharek	Ardurra
John	Shearer	Shearer Consulting Inc
Ruth	Spierling	Microbioengineering
John	Stamm	USGS
David	Sumner	USGS Caribbean-Florida Water Science Center
Rob	Teegarden	RTEE Advisors
Craig	Varn	MBDV
Thomas	Wahl	University of Central Florida
Hua	Zhang	SWFWMD

Appendix 2: Workshop Agenda

FloridaWCA Workshop Agenda

Friday, February 7, 2020

Hosted by: Orlando Utilities Commission (OUC)

Location: OUC, Safety & Training Conference Room
Gardenia Avenue office, 3800 Gardenia Avenue, Orlando

Overall Workshop Goal: Provide an environment for stakeholder-scientist exchange of current research and tools to address climate change issues with a focus on increasing local relevancy to utilities and water resource managers. Explore topics that may help inform scientists' research that would result in an actionable science of use to practitioners.

Specific Workshop Objectives:

1. Research and Planning – Share information on the state of climate science and action useful to local water supply and resource planning and operations.
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Workshop Agenda:

9:30-10:00 Check-in, Networking

10:00-10:30 **Session 1: Welcome and introductions** (*Karen Schlatter, UF Water Institute*)
The FloridaWCA stakeholder-scientist network (*Kevin Morris, Peace River Manasota Regional Water Supply Authority*)

10:30-11:15 **Session 2: Innovative Research and Collaboration Efforts in Florida** (*Karen Schlatter*)

- Central Florida Water Initiative Update: Craig Varn, J.D., Partner, Manson Boves Donaldson Varn
- Technical Review of Lake Okeechobee Regulation Schedule and Bluegreen Algae Taskforce Updates: Wendy Graham, Ph.D., Carl S. Swisher Eminent Scholar in Water Resources, Director of the University of Florida Water Institute

11:15-12:15 **Session 3: Integrating NASA Earth Systems Data into Decision-Making Tools of Member Utilities of the FloridaWCA** (*Chris Martinez, University of Florida*)

- Project Overview: Chris Martinez, Ph.D., Associate Professor of Urban Water Resources, Center for Landscape Conservation and Ecology, University of Florida

- High Resolution Seasonal Dynamical Forecasts: Vasu Misra, Ph.D., Professor of Meteorology, Center for Ocean-Atmospheric Prediction Studies, Florida State University
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- Contextual Model of Decision-Making: Tracy Irani, Ph.D., Professor and Department Chair, Family Youth and Community Science, University of Florida/IFAS

Discussion

12:15-1:15 Lunch

1:15-2:15 Session 4: Water Supply Planning in the Context of Extreme Events
(*Carolina Maran, South Florida Water Management District*)

- Sea Level Rise, Coastal Impacts, and Adaptation: Thomas Wahl, Ph.D., Assistant Professor of Coastal Risks and Engineering, University of Central Florida
- Broward County Surface Water Model, Rainfall Projections, and Flood Map: John Loper, P.E., Associate Vice President, Taylor Engineering

Discussion

2:15-2:30 Break

2:30-3:45 Session 5: FloridaWCA Moving Forward – Linkages and Synergies

- Applications of NASA project results
- Research and/or application needs around extreme events
- 2020 Workshop themes
- Updates: proposals, publications, new ideas

3:45-4:00 Next Steps and Close