

FloridaWCA WORKSHOP REPORT

Workshop #16

Monday, May 8, 2017

8:45 AM – 3:00 PM

Prepared by
Lisette Staal, Research Coordinator
UF Water Institute
waterinstitute.ufl.edu

Hosted by
Tampa Bay Water, Clearwater, Florida

Contents

Executive Summary.....	3
Summary of Workshop Outcomes.....	3
Workshop Summary- Monday, May 8 th , 2017	5
Session 1: Welcome, Introductions and FloridaWCA background.....	5
Session 2: Linking science and action.....	6
Session 3: Using Models and Data in Local and Regional Efforts.....	6
Session 4: Using Remote Sensing in Local and Regional Efforts	8
Session 5: Science to Action.....	8
APPENDIX 1: List of Participants –	11
APPENDIX 2: Agenda –	12

Executive Summary

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](#) 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](http://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 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), 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 Outcomes

Topics of interest related to approaches and data needs

- Find out what other people are doing and how they are doing it. What have they done? What is useable?
- Reach out to utilities and identify questions that utilities and Water Management districts have. Share the lists of questions on Website and use as outreach, and workshop planning.
- Identify cases of how model GCMs have been used in reservoir planning. Reach out to national partners – for example, City of NY, Western US. Bring that information

to a locally relevant perspective. FWCA could compile data on how other regions have modelled GCM's impacts on reservoir operations and how the GCMs and RCPs vary

- Need information on water consumption by age, socio-economic, etc. (From Nov. 16th workshop)
- Need better demand forecasting and integrating that into operations. ((from Nov. 16th workshop)

How can FloridaWCA help?—Potential Services... Actions

- Storing datasets- provide access to data set
- Summarize expertise – who has what?
- Re-define and formalize Research Areas of interest to FloridaWCA group ; for ex.,
 - Climate Impact on water supply
 - Water quality
 - What climate looks like and how it will impact water supply
- Making the information and data more available and accessible to lay people
 - Share information in public workshops.
 - Hold conferences free to the public and
- Put together white papers.

ACTIONS:

Schedule and Plan next workshop in Fall – September/October

Website – UF Water Institute will identify web help.

Research – Specific research efforts are key to the mission of the FloridaWCA (seek out proposal opportunities).

Workshop Summary- Monday, May 8th, 2017

The 16th workshop since the FloridaWCA was initiated, it was hosted by Tampa Bay Water, Clearwater, Florida, and attended by 22 participants (*see Appendix 1 for participant list*).

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.

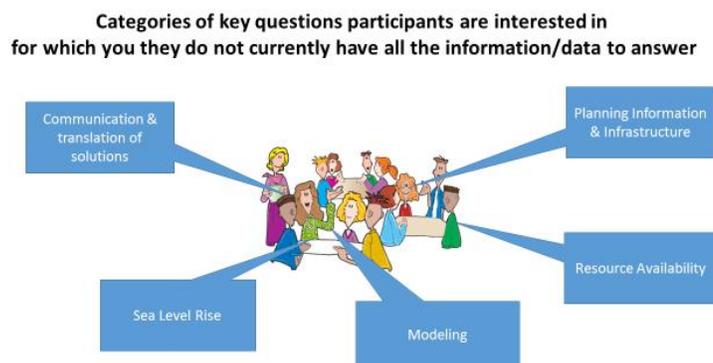
Workshop Objectives

1. Present recent methods and data that are available and how they might be useful to local planning.
2. Consider potential relevance and applicability of methods and data to local situations.
3. Inform FloridaWCA to provide stakeholder-scientist exchange and ensure network sustainability.

Session 1: Welcome, Introductions and FloridaWCA background

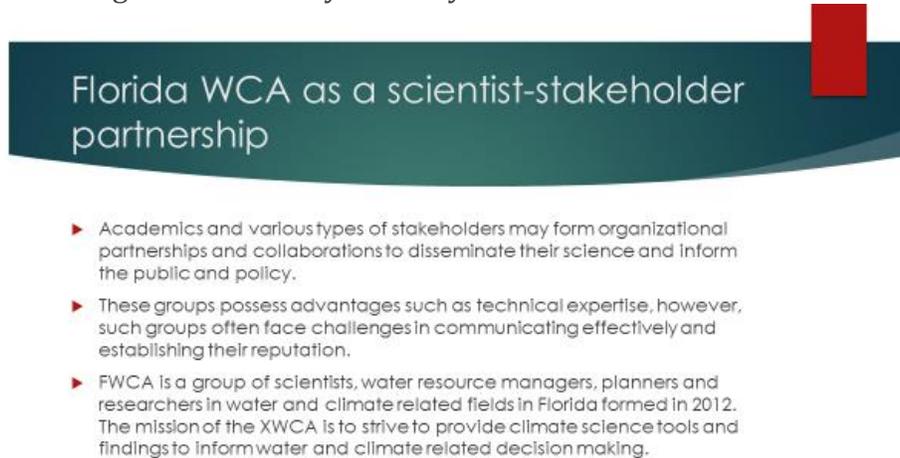
The participants were welcomed Matthew Jordan, Tampa Bay Water General Manager. In addition to recognizing the importance of the FloridaWCA network, he congratulated Dr. Alison Adams on her retirement. Dr. Alison Adams has been the “champion” of the FloridaWCA from the beginning. A brief tribute to recognize Alison’s contributions included a video ([click here](#)) featuring FloridaWCA colleagues, and a T-shirt touting her famous saying: *“If you don’t have a hydrologic model, you don’t have Jack!”*

[Introductions/Agenda/ Setting the Stage](#) – Workshop facilitator Lisette Staal (UF Water Institute) asked the participant to connect in pairs, introduce yourselves, and talk with each other about and write responses to “What are some key questions you would like to answer for which you do not currently have information/data to answer” on cards. Then, each participant introduced themselves as well as the outcome of their discussions with each other. Afterward they posted the questions on a flipchart and we returned to those later in the afternoon. Goals, objectives and agenda for the day were shared.



Session 2: Linking science and action

In the presentation, [“Challenges of linking science and action and the role, network and impact of FloridaWCA,”](#) Dr. Tracy Irani, (UF) explored key aspects of “linking science to action” including sharing scientific findings, increasing knowledge and having impact on what people actually do. She also reported findings of a brief study on the role, network and impact of FloridaWCA. She noted that as our organization seeks to further enhance its reputation, it might be valuable to invest some resources in developing and promoting its identity, core messages and visibility with key audiences

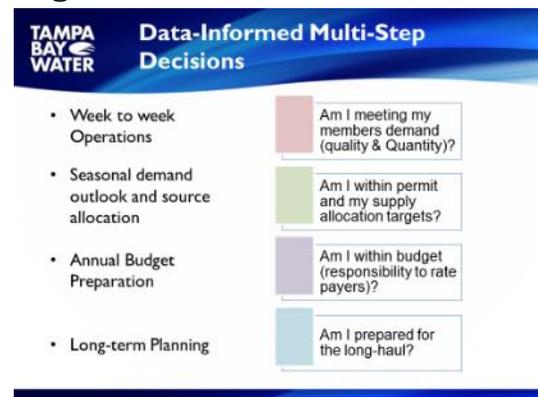


Florida WCA as a scientist-stakeholder partnership

- ▶ Academics and various types of stakeholders may form organizational partnerships and collaborations to disseminate their science and inform the public and policy.
- ▶ These groups possess advantages such as technical expertise, however, such groups often face challenges in communicating effectively and establishing their reputation.
- ▶ FWCA is a group of scientists, water resource managers, planners and researchers in water and climate related fields in Florida formed in 2012. The mission of the FWCA is to strive to provide climate science tools and findings to inform water and climate related decision making.

Session 3: Using Models and Data in Local and Regional Efforts

Stressing the importance of local context in planning, **Dr. Tirusew Asefa (Tampa Bay Water)** shared Tampa Bay Water’s seasonal data informed decision making and their integrated hydrologic model in a presentation, [“Using Models and Data in Local and Regional Efforts.”](#) He noted that you need to have both hydrologic and systems models to understand the local situation. In addition, short term adaptive management strategies and long term planning need to be linked.

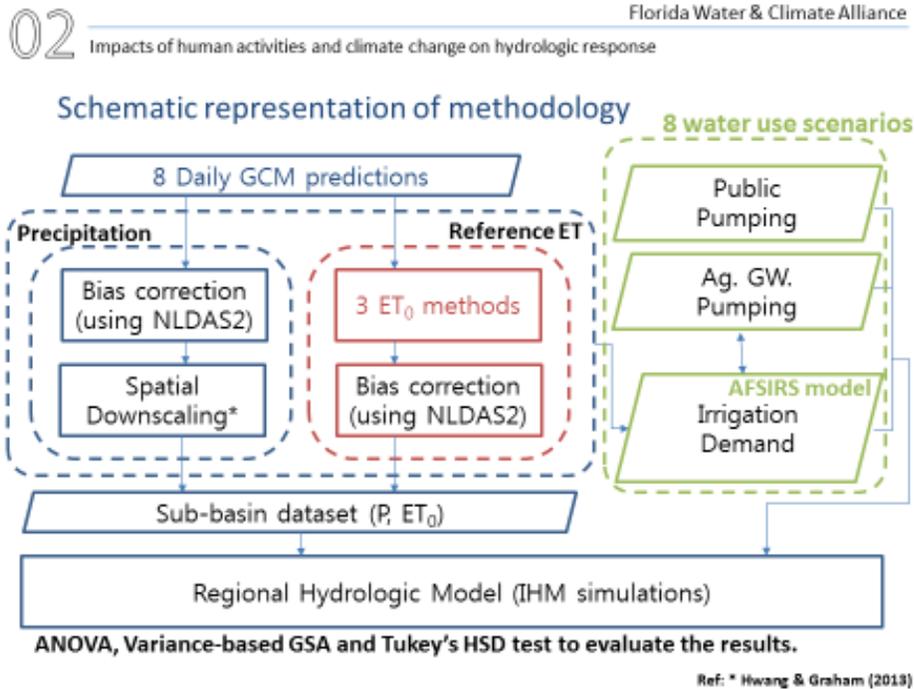


TAMPA BAY WATER Data-Informed Multi-Step Decisions

- Week to week Operations: Am I meeting my members demand (quality & Quantity)?
- Seasonal demand outlook and source allocation: Am I within permit and my supply allocation targets?
- Annual Budget Preparation: Am I within budget (responsibility to rate payers)?
- Long-term Planning: Am I prepared for the long-haul?

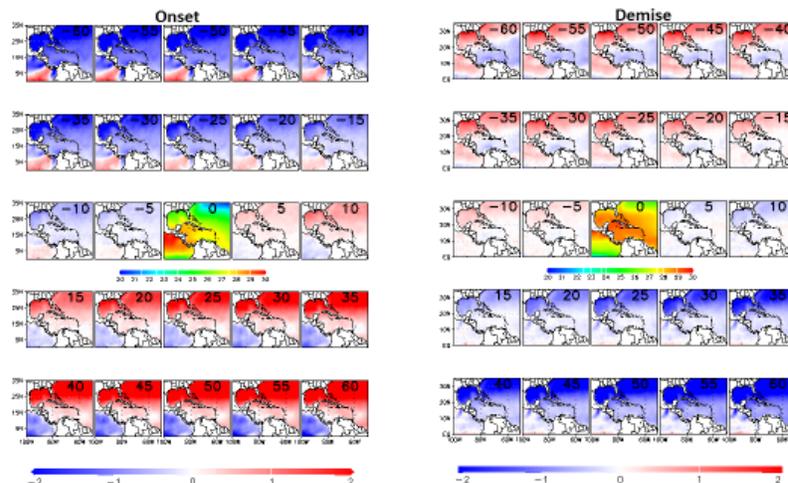
Seungwoo J. Chang (UF) presented his research focused on Tampa Bay Water entitled [“Quantifying the relative uncertainties of changes in climate and water demand for water supply planning,”](#) He evaluated impacts of human activities, climate change, and Evapotranspiration estimation method on regional hydrology. He posed two key questions.

The first was on the relative impact and uncertainty of climatic vs anthropogenic factors in predicting hydrologic conditions. The second asked if the reliability of the use of streamflow for water supply changes under future climatic and anthropogenic conditions.



Dr. Vasu Misra (COAPS, FSU) presentation, [“Florida Monsoon? Implications for past reconstructions and future projections”](#), explored the idea that the Florida wet season is a stable feature from geological times and behaves like a monsoon. The wet season will have significant variations that can be both naturally and anthropogenically forced, and just the atmospheric model, or the ocean model to downscale could be insufficient.

Evolution of Sea Surface Temperature



Session 4: Using Remote Sensing in Local and Regional Efforts

To set the stage for this session, Dr. Chris Martinez (UF) shared information on a few available production in his presentation [“Remote Sensing for Water Resources Management.”](#)

Dr. Aditya Singh, (UF) presented his research in [“Remote sensing applications in water quality management: prospective applications with new sensors and analysis technique.”](#) He stressed that as biodiversity loss, anthropogenic disturbances, and climate change impacts increase, remote sensing is an important tool that allows regional assessment from field base studies and there is a continuing need for new tools and techniques.



Session 5: Science to Action

So what does this mean to potential users of the information/data? What role can FloridaWCA and partners play to help? What should be FloridaWCA NEXT STEPS?

During the final session participants returned to thinking about the questions that they had identified at the beginning of the workshop - questions for which they need to understand, but do not feel they have all the data to answer (see figure 1) below. In mixed groups they were asked to talk with each other about the questions, think about possibilities of data that may already exist, and to select one of the questions that the group would prioritize as important.

A discussion followed and resulted in a list of potential “to do’s” for FloridaWCA by considering -- How can FloridaWCA help?

Figure 1. Participant generated questions which they feel they do not have all the data to answer

Communication and translation of solutions	<ul style="list-style-type: none"> • How can we communicate science more effectively to skeptics? • How do you translate solutions to a rural area with limited resources?
Planning Information and Infrastructure	<ul style="list-style-type: none"> • How vulnerable are sewer systems (civil economic impact; reclaimed water salinity)? • How effective is natural infrastructure in collecting storm water from municipal systems, especially in Florida? Large scale? Cost? • Water withdrawal -- Check previous; need for future study • Impacts on storm water runoff at sub daily time scale – what data are relevant
Resource Availability	<ul style="list-style-type: none"> • What is the impact of climate changes on water supply sustainability related to established MFLs (monitoring target) for river, lakes and wetlands. • When river flow comes back to Peace River? (short term) • Sea level rise impact on intake salinity (Long term) • What is the interaction between surface and groundwater? --- Implications on interactions with climate? • How are rainfall timing changes effecting recharge to the Aquifer? Where? • How does climate change affect ET over time? How might climate change affect water demands over time? • How does climate change impact water quality (nutrient pollution)?
Modeling	<ul style="list-style-type: none"> • How does one parameter-2E-Landsurface for future ET estimates? • Would like to see how other regions have modelled GCM's impacts on reservoir operations and how the GCMs and RCPs vary and if any provide consensus. . • What climate model and observation data can we rely on?- for precipitation uncertainty across time-scales? • Alternatives to climate models for hydrological applications? -- Uncertainty?? • What are the most reliable models in providing seasonal-scale forecasts that can be used to develop short term operation rules? Tampa Bay Water models?
Sea Level Rise?	<ul style="list-style-type: none"> • What magnitude or rate of sea-level rise can we rely on ...do we have accurate long-term observations of sea level rise on Florida coasts? • What is actual SLR in our region? What is effect of the rise on ET? Effect on saltwater intrusion to rivers, aquifer, groundwater supply? What are effects on water quality? • Prediction methodology for salinity migration up-stream in coastal rivers in relation to projected sea level rise.

Discussion :

Suggestions made on data available for some participant questions

- ✓ NOAA's ATLAS 14 database may help with Impacts on storm water runoff at sub daily time scale
- ✓ For accurate long-term observations of sea level rise – there are several good ones-- - for projections can use SE compact or NOAA' projections—IPCC due next year)

Topics of interest related to approaches and data needs

- Find out what other people are doing and how they are doing it. What have they done? What is useable?
- Reach out to utilities and identify questions that utilities and Water Management districts have. Share the lists of questions on Website and use as outreach, and workshop planning.
- Identify cases of how model GCMs have been used in reservoir planning. Reach out to national partners – for example, City of NY, Western US. Bring that information to a locally relevant perspective. FWCA could compile data on how other regions have modelled GCM's impacts on reservoir operations and how the GCMs and RCPs vary
- Need information on water consumption by age, socio-economic, etc. (From Nov. 16th workshop)
- Need better demand forecasting and integrating that into operations. ((from Nov. 16th workshop)

How can FloridaWCA help?—Potential Services... Actions

- Storing datasets- provide access to data set
- Summarize expertise – who has what?
- Re-define and formalize Research Areas of interest to FloridaWCA group ; for ex.,
 - Climate Impact on water supply
 - Water quality
 - What climate looks like and how it will impact water supply
- Making the information and data more available and accessible to lay people
 - Share information in public workshops.
 - Hold conferences free to the public and
- Put together white papers.

ACTIONS:

Next workshop in Fall – September/October

Website – UF Water Institute will identify web help.

Research – Specific research efforts are key to the mission of the FloridaWCA (seek out proposal opportunities).

APPENDIX 1: List of Participants -

FloridaWCA Workshop

Monday, May 8, 2017, Tampa Bay Water, Clearwater, Florida

Last name	First name	Stakeholder group	Organization
Adams	Alison	Utility	Tampa Bay Water
Asefa	Tirusew	Utility	Tampa Bay Water
Borisova	Tatiana	University	University of Florida
Brophy	Trista	Utility	Tampa Bay Water
Carter	Ed	WMD	SJWMD
Chang	J. Seungwoo	University	University of Florida
Ferguson	John	WMD	SWFWMD
Geurink	Jeffrey	Utility	Tampa Bay Water
Hafen	Mark	University	University of South Florida
Myers	Steven	University	University of South Florida
Infanti	Johnna	University	University of Miami
Irani	Tracy	University	University of Florida
Kiger	Thomas	WMD	SWFWMD
Martinez	Christopher	University	University of Florida/Florida
McConnell	Robert	Utility	Tampa Bay Water
Misra	Vasu	University	Florida State University
Morris	Kevin	Utility	Peace River Manasota Regional Water Supply Authority
Panaou	Toni	University - student	University of South Florida
Staal	Lisette	University	University of Florida Water Institute
Stamm	John	gov-Fed	USGS Caribbean-Florida Water Science Center
Teegarden	Robert	Utility	Orlando Utilities Commission
Brown	Amy	WMD	SRWMD

APPENDIX 2: Agenda -

FloridaWCA Workshop Agenda

Monday, May 8, 2017

Hosted by Tampa Bay Water, 2575 Enterprise Road Clearwater, Florida [Directions](#)

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

4. Present recent methods and data that are available and how they might be useful to local planning.
5. Consider potential relevance and applicability of methods and data to local situations.
6. Inform FloridaWCA to provide stakeholder-scientist exchange and ensure network sustainability.

Workshop Agenda:

8:45 – 9:00 Check-in, Networking

9:00 – 9:30 Session 1: Welcome, Introductions and FloridaWCA background

Welcome by Tampa Bay Water General Manager

9:30 – 10:15 Session 2: Linking science and action

“Challenges of linking science and action and the role, network and impact of FloridaWCA, “Tracy Irani, Ph.D., Professor and Department Chair, Family Youth and Community Science, University of Florida/IFAS.

10:15– 10:30 BREAK

10:30 – 12:15 Session 3: Using Models and Data in Local and Regional Efforts

“Using Models and Data in Local and Regional Efforts,” Tirusew Asefa, Ph.D.
Manager, Planning & System Decision Support, Tampa Bay Water,

“Quantifying the relative uncertainties of changes in climate and water demand for
water supply planning,” Seungwoo J. Chang / Wendy Graham, Ph.D, Director UF
Water Institute

“Florida Monsoon? Implications for past reconstructions and future projections“
Vasu Misra, Ph.D. Associate Professor of Meteorology, Center for Ocean-
Atmospheric Prediction Studies(COAPS), Florida State University

12:15 – 1:00 LUNCH

1:00– 2:00 Session 4: Using Remote Sensing in Local and Regional Efforts

“Remote Sensing for Water Resources Management,” Chris Martinez, Ph.D.,
Associate Professor, Department of Agricultural and Biological Engineering,
University of Florida

“Remote sensing applications in water quality management: prospective
applications with new sensors and analysis technique,” Aditya Singh, Ph.D.,
Assistant Professor, Remote Sensing, Dept. of Agricultural and Biological
Engineering, University of Florida, "

2:00 – 2:15 BREAK

2:15 – 3:00 Session 5: Science to Action

“So what does this mean to potential users of the information/data? What role can
FloridaWCA and partners play to help? FloridaWCA NEXT STEPS