

# Florida Water and Climate Alliance (FloridaWCA)

*Formerly: "Public Water Supply Utilities Climate Impacts Working Group"*

## WORKSHOP REPORT

### Workshop Seven

Friday, October 5, 2012

8:30 – 4:00pm

Prepared by  
Lisette Staal, Research Coordinator  
UF Water Institute

Hosted by  
Orlando Utilities Commission in Orlando, Florida

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**Florida Water and Climate Alliance (FloridaWCA)**  
**WORKSHOP Seven - Thursday, May 10, 2012, 8:30 – 4:00 pm, Orlando Florida**

**Executive Summary**

The **Florida Water and Climate Alliance (FloridaWCA)** brings together interested stakeholders 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. The specific objectives of this workshop were to learn, share research progress/results of NOAA project technical groups (focus on seasonal scale forecasts), inform the development of the Knowledge Management System (KMS) and advance working group interests and sustainability.

Participants provided input on the Knowledge Management System (KMS), that the team will use to advance the design of the website and work with Web designer to develop a shell. Based on previous discussions and feedback to a survey a new name was established: **Florida Water and Climate Alliance (FloridaWCA)**. The KMS team, following the workshop, has already obtained the web domain **Floridawca.org**.

Technical updates were provided by the technical team focused on Seasonal Scale Forecasts- Vasu Misra. Future workshops will include updates (Long-term Climate Scenarios- Wendy Graham; Sea Level Rise -Keith Ingram). It was also suggested that we consider including WEBINARs to provide information on research results in addition to just at the workshops. In addition, a newly funded NOAA SARP Project - “Use of Seasonal Climate Forecasts to Minimize Short-Term Operational Risks for Water Supply and Ecosystem Restoration”– was introduced and agreed to schedule a project Implementation meeting with key partners in Tampa Bay Water, Peace River Manasota, and South Florida WMD. The working group research agenda was discussed and updates suggested.

Discussions focused on understanding the technical presentations in terms of: Who are the users of climate science? What are the various users’ interests in climate science? What are the risks to the diverse users of using climate science? And what are opportunities for the users to use climate science to inform water supply planning? Participant comments indicated recognition of helpful technical information that could be used by utilities. However, comments noted that the utilities and planners face additional barriers in convincing decision makers to use the information since “the forecast has to be wrong only once” to cause major issues. There is a need to better understand how to present this type of information and tool when talking to decision makers. What is the “skill” level? How does that translate to “level of risk”? We need to help them see the value of this. perhaps in a white paper. In addition, research by social scientists is needed to help understand the culture of “going with no information vs. the forecast.” This could inform how probabilistic forecasts could be used in management decisions. There is a need to build awareness (the biggest hurdle) and useful information together.

Regarding long term sustainability of the FloridaWCA, suggestions were made to increase the promotion and publicity of the working group, and to reach out to more participants. In addition, identifying appropriate opportunities for collaborative proposals for specific funding opportunities were encouraged.

The next workshop will be scheduled in February.

### **Background, Goals and Objectives:**

The **Florida Water and Climate Alliance (FloridaWCA)** brings together interested stakeholders from public water supply utilities, local governments, water management districts and academic institutions in Florida focused on increasing the relevance and usability of climate change and variability data and tools to the specific needs of public water supply utilities. The partners are interested in understanding and addressing how climate variability/change and sea level rise may impact planning and operations of Florida's public water supply utilities. Initiated in 2010 by the UF Water Institute, in partnership with the Southeast Climate Consortium (SECC), Florida Climate Institute and the UF IFAS Center for Public Issues Education in partnership with six major public water supply utilities and three water management districts, the group continues to expand. Detailed information on the FloridaWCA is available at the UF Water Institute website [http://waterinstitute.ufl.edu/workshops\\_panels/PWSU-CIWG.html](http://waterinstitute.ufl.edu/workshops_panels/PWSU-CIWG.html).

This is a report of the seventh workshop ([all workshop reports are available on line](#)). Thirty-two people participated in this workshop, the largest to date and once again adding organizations that had not been represented previously (*see Appendix 1 for workshop participant list*).

**Overall Working Group 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

**Workshop Goal:** The goal of each of the workshops is to create spaces for discussion, sharing and capturing knowledge from the multiple perspectives and contexts of tool providers, users, and ultimately policy makers that will contribute to increased relevance and usability of climate and sea level rise data and tools for water managers in Florida.

**Workshop Objectives:** The specific objectives of this workshop were to:

1. Learn about climate change, climate variability and sea level rise projects/programs relevant to water utilities - invited presentation.
2. Share research progress/results of NOAA project technical groups (focus on seasonal scale forecasts).

3. Learn about, and contribute to, the working group's Knowledge Management System (KMS).
4. Advance working group interests and sustainability

### **Workshop Outcomes:**

1. NAME - **The new name is Florida Water and Climate Alliance (FloridaWCA)** - with a web domain name Floridawca.org – was established based on discussion at the meeting and feedback in a survey a new name was established.
2. Suggestions were made to increase PROMOTION/PUBLICITY of the working group. Potential actions included:
  - a. Develop a 'progress report' for the group that would reach different audiences to promote the work that is being done.
  - b. Write briefs or articles about the group and its work for different publications.
  - c. Explore Video opportunities (i.e. recent NOAA article/video of Tampa Bay Water.
  - d. Write something that could be used by the utilities to encourage agencies use of climate tools/models. (Bertha Goldenberg, Jayantha Obeysekera)
3. Agreed to reach out to identify representative from Southwest Florida WMD. (Alison Adams and Rob Teegarden will approach Ken Herd).
4. Agreed that although not needed immediately, it will be important to keep revisiting the discussion of any need for Statement of Collaboration or other mechanisms to formalize the group.
5. Wendylin Bartels indicated that she may be connecting with participants once again for brief interviews. She will connect directly.
6. Participants provided input on the KNOWLEDGE MANAGEMENT SYSTEM, that the KMS team will use to advance the design of the website and work with Web designer to develop a shell. The KMS team, following the workshop, has already obtained the Domain Name – Floridawca.org based on decision made by the group (see #1)
7. Project (s) Status- Technical Teams of the SARP NOAA projects continue moving forward with research activities. During this workshop, updates were provided on Seasonal Scale Forecasts- Vasu Misra. Updates and results will continue in upcoming workshops. (Long-term Climate Scenarios- Wendy Graham; Sea Level Rise -Keith Ingram). It was also suggested that we consider including WEBINARs to provide information on research results in addition to just at the workshops.
8. A newly funded NOAA SARP Project - "Use of Seasonal Climate Forecasts to Minimize Short-Term Operational Risks for Water Supply and Ecosystem Restoration". – was

introduced and agreed to schedule a project Implementation meeting with key partners in Tampa Bay Water, Peace River Manasota, and South Florida WMD.

9. The working group research agenda was discussed and updates suggested. Group agreed that there is a need to find some time to connect about research proposals and to consider in future workshops scheduling working time for people to collaborate. Also discussed opportunity for potential proposals to WRF—tailored collaboration.
10. Agreed on another WORKSHOP to be scheduled in February, recruited a planning team, and suggested potential topics to be covered:
  - Progress Report/Article draft for promotion
  - Long Term Climate Scenarios Research results
  - National Climate assessment presentation – Jayantha Obeysekara
  - KMS progress
  - Research Proposals/agenda - social science, etc
  - Planning for appropriate way to invite water managers to workshop to have a discussion.... What is the risk profile?
  - Central Florida Water Initiative – use of models (reuse foundation, WRF) – Rob Teegarden

**Detailed Summary of Workshop 7:** See APPENDIX 2 for the detailed agenda.

### **Session 1: Introductions and Context**

Wendy Graham, Director of the UF Water Institute, welcomed the participants and provided brief background on the development of the working group, and the role of the UF Water Institute in coordinating the effort. Lisette Staal (UF Water Institute), workshop facilitator, thanked the workshop planning team (Tirusew Asefa (Tampa Bay Water), Nicole Hammer (Florida Atlantic University), Nancy Gallinaro (Broward County Natural Resources Planning and Management Division), Scott Laidlaw (St. Johns River Management District), Kevin Morris (Peace River Manasota Regional Water Supply Authority).

Participants were asked if this was their first workshop (about 8, three of which were visiting presenters) and to introduce themselves by providing their name, where they work, what they do, how they heard about the group, and why they are here. Although there were several new people, the number of organizations represented remained the same. This is important, since one of the comments in earlier workshops was the importance to have more than one representative from each organization involved. The facilitator then asked participants to raise hands if they have been to between 1 – 5 workshops (about 10), and then to raise hands if they have been to more than 5 workshops (the majority).

# Public Water Supply Utilities Climate Impacts Working Group



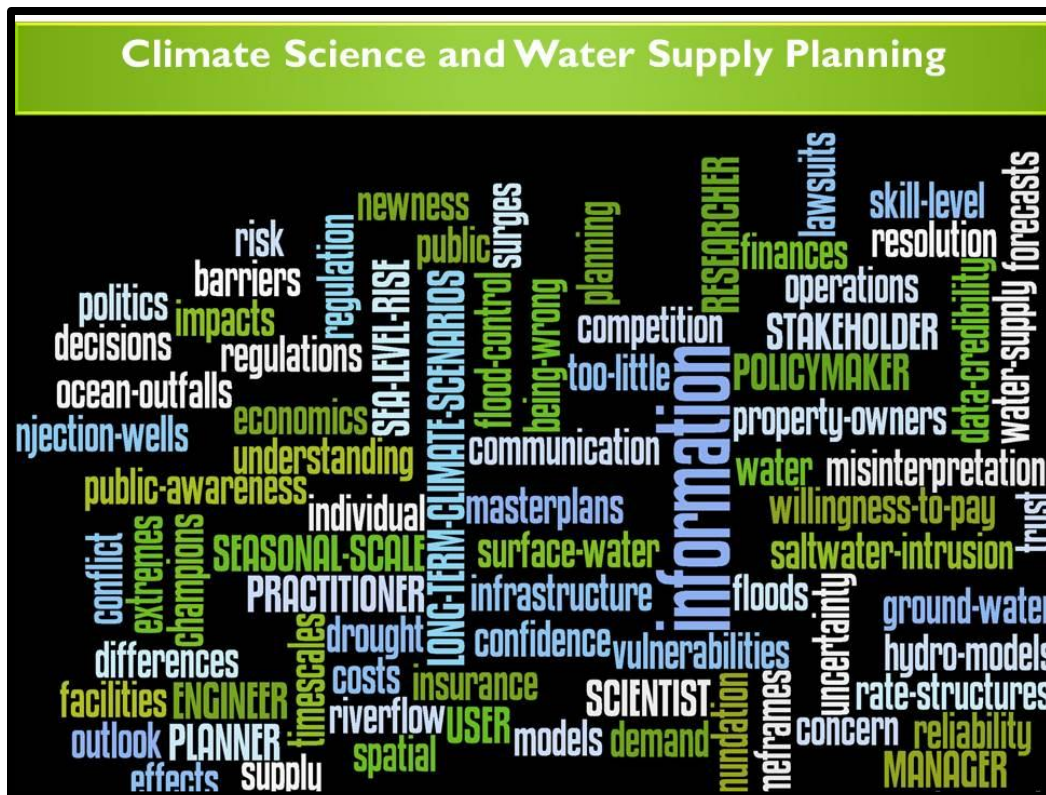
## Remembering the User Perspective

[http://waterinstitute.ufl.edu/workshops\\_panels/PWSU-CIWG.html](http://waterinstitute.ufl.edu/workshops_panels/PWSU-CIWG.html)

Lisette Staal reviewed the purpose of the group as coming together for shared learning, and linked to previous workshop's emphasis on "Who are the Users of Climate Science." ([see slides 1-3 in powerpoint](#)). She asked whether anyone who was at the last workshop recognized the flipchart drawings that were being displayed on the power point (picture 1). Although several people remembered the activity, few remembered the specific context. As a brief review Lisette mentioned several aspects of discussions at the previous workshop, including:

- ☐ Who are the USERS of climate science?
- ☐ What are the various USERS' interest in climate science?
- ☐ What are the risks to the diverse USERS of using climate science?
- ☐ What are opportunities for the USERS to use climate science to inform water supply planning?

The Day's agenda was presented, and participants were encouraged to keep in mind the following questions throughout the day - How does what I am hearing matter to me? How does it matter to others?



## Session 2: Climate Science and Tools

Alison Adams (Tampa Bay Water) introduced the guest speakers, who she had recommended after hearing their presentation in another venue and noting the relevance to the group. Edwin A. Roehl, (ADMi) gave a presentation:: [Estimating Salinity Effects Due to Climate Change on the Georgia and South Carolina Coasts](#), Edwin A. Roehl, Ruby C. Daamen and John B. Cook (ADMi). A group discussion followed, led by Tirusew Asefa (Tampa Bay Water) focused on participants view of the applicability of the tool, and similar tools currently being used, from the user perspective. Participant comments focused on the technical aspects of the approach, basic validity of predictions, how other utilities are using the output, and a need for uncertainty analysis to accompany the study.

## Session 3: Working as a Team

This session started with participant updates including comments on the Florida Climate Institute Expansion, a successful proposal to NOAA resulting in 2<sup>nd</sup> funded project of the working group, the progress of the social science sub-committee augmenting the working group research agenda, the potential to participate in the National Climate Assessment, recent activities focused on the 18 recommendations made by the 2008 Water Congress and potential impact to the Central Florida Water Initiative, and SJRWMD contract to develop dynamic coastal well field evaluation underway. Tirusew Asefa reminded all of the research agenda and asked for any additional ideas that should be included.



Wendylin Bartels facilitated the major portion of this session using a group activity known as Broken Squares (*First appeared in: A Handbook of Structured Experiences for Human Relations Training Volume 1. Edited by J. William Pfeiffer and John E. Jones; Published by University Associates 1969*). The goals of the activity were to help with team building and cooperation in solving a group problem. The broadly used activity helps to sensitize participants to behaviors that contribute to or obstruct the solving of a group problem.

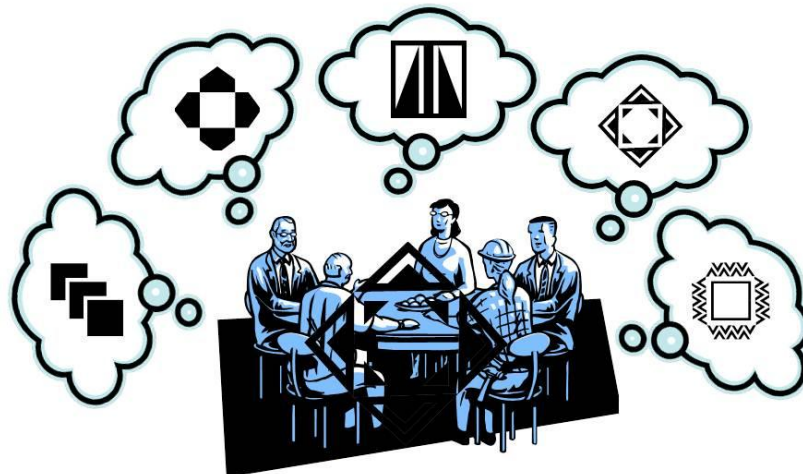
During discussion and when asked in the exit survey about one take-home message from this activity, participants mentioned many points highlighting communication, teamwork, flexibility and sharing, and seeing the big picture.

### **COMMUNICATION**

- "Communication is hugely important"
- "Communication is important to working as a group and not individual effort in isolation"

### **COLLABORATION AND TEAMWORK**

- "collaboration improves the outcome"
- "need to work as a team from the beginning"
- "By working as a team, each member can better achieve their individual goals"



### **FLEXIBILITY AND SHARING**

- "People are reluctant to give up their success for others."
- "We have to share (share our knowledge) with others in a meaningful way"
- "Important for people to be able to give up their personal agenda if group is going to work"

Building on the outcomes of the Broken Squares exercise and discussion, Lisette Staal refocused the participants on Working Group Sustainability ([see slides 4 – 13](#)), including

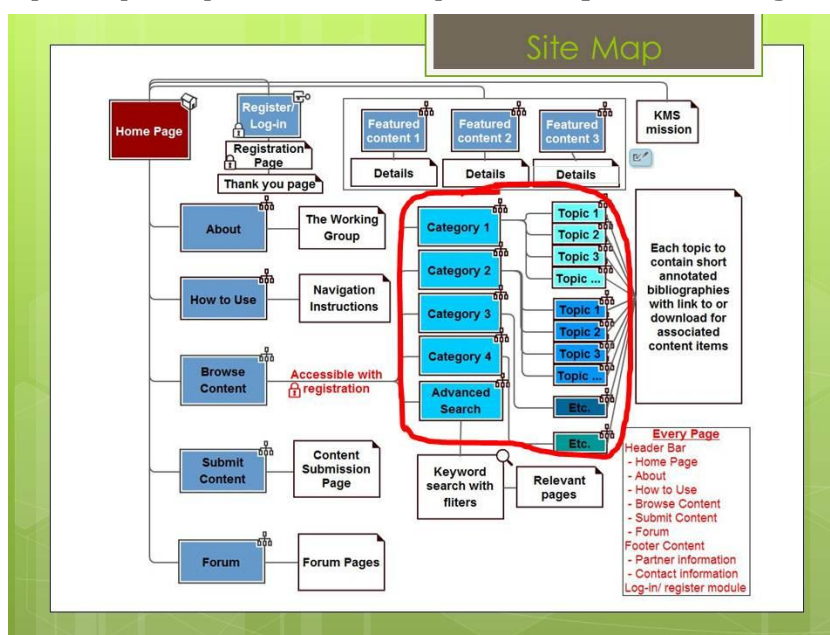
the collaborative framework, identity, managing knowledge, future funding and statement of collaboration. She then introduced the next session focusing on participant input for the collaborative development of the Knowledge Management System Development, in particular the content management system (CMS) for an interactive web-presence.

#### Session 4: Knowledge Management System Development: collaboration tool progress and input

Diedra Slough and Erica Odera updated the participants on progress made in developing the Knowledge Management system [using a PowerPoint presentation](#). The also introduced members of the sub-committee: Dr. Alison Adams, Tampa Bay Water and Dr. Jayantha Obeysekera, South Florida Water Management District. Using an interactive activity based on card sorting technique, the participants provided their input into **topics and categories** of information for the Content Management System. See results of TOPICS and CATEGORIES made by the four groups in Appendix 3.

The team gained significant insight and suggestions about categories and topics that would be incorporated into design discussions. Participant comments indicated enthusiasm for the website and their desire to have a “prototype to test drive.” In addition

comments on the development process recognized the amount of effort required, I enjoyed the overview of website design. It is a much bigger challenge than I had thought.” Next step actions include the KMS team considering the input and meeting with web designer. The KMS sub-committee will continue and by the end of the day, a couple of others had joined the sub-committee.



#### Session 5: Climate Science and Tools: SEASONAL SCALE FORECASTS

**Presentation 1: Seasonal climate forecasts from FISH50** - (Vasu Misra)- Presentation of Research Results 1 (Seasonal Scale Forecasts) of NOAA Project: Collaborative Development of Public Water Supply Utility Relevant Climate Information for Improved Operations and Planning. Participant’s reflected on the practical applicability of the information from the user perspective in a large group discussion facilitated by Kevin Morris.

**Presentation 2: Hydrological forecasts for southeast US watersheds using FISH50** - Presentation of Research Results 1 (Seasonal Scale Forecasts) of NOAA Project: Collaborative Development of Public Water Supply Utility Relevant Climate Information for Improved Operations and Planning. Participant's reflected on the practical applicability of the information from the user perspective in a large group discussion facilitated by Nicole Hammer (Florida Atlantic University).

For moderate events (dry/wet) the FISH 50 is consistently doing better than other models in demonstrating credible seasonal climate forecast of stream flow over several watersheds in the southeastern US, but fails in extreme forecasts. The direct use of FISH50 for seasonal hydrologic forecast is detrimental as the biases are huge. However, ensemble streamflow predictions using climate information derived from FISH50 showed improvement. The take home message resonated as it is better to use probabilistic seasonal forecasts as opposed to knowing winter is dry and summer is wet. Participant comments indicated recognition of helpful information that could be used by utilities. Comments noted a recognition that the utilities and planners face additional barriers in convincing decision makers to use the information since "the forecast has to be wrong only once" to cause major issues. There is a need to better understand how to present this type of information and tool when talking to decision makers. What is the "skill" level? How does that translate to "level of risk"? We need to help them see the value of this, perhaps in a white paper. A suggestion was made to put together and show benefits and how it can be applied (*for example in Miami Dade- Martha Goldenberg/ Janyantha Obesekera- Workshop Outcomes #2.d.*). In addition, research by social scientists is needed to help understand the culture of "going with no information vs. the forecast." This could inform how probabilistic forecasts could be used in management decisions. There is a need to build awareness (the biggest hurdle) and useful information together.

Chris Martinez, UF, introduced the newly funded research project: "[Use of Seasonal Climate Forecasts to Minimize Short-Term Operational Risks for Water Supply and Ecosystem Restoration.](#)" The focus of the project is to improve the regional relevance of seasonal climate forecasts and increase their usability for multiple water managers in Florida to minimize short-term operational risks for water supply as well as ecosystem restoration. Partners include Peace River Manasota Regional Water Supply Authority, Tampa Bay Water and the South Florida Water Management District.

## **Session 6: Working Group Sustainability: Next Steps, Reflection and Evaluation**

The plenary discussion resulted in suggestions focused on (1) sustainability of the group focusing on group/alliance building, a need for promoting and sharing information about the group, outreach, (2) the knowledge management system, (3) active and potential projects, and (4) the next workshop.

Next steps outlined included:

(1) Sustainability of the group

- a. **GROUP/ALLIANCE BUILDING** - NAME - Get feedback to finalize name choices. These names were developed as part of a process building on initial group suggestions and identifying availability of web domains. During the workshop the name - Florida Alliance on (for) Water and Climate was suggested with an acronym of FLAW-C.org. Although the name was generally acceptable, the majority of people did not like FLAW-C. Following the meeting several people suggested that we consider Florida Water and Climate Alliance. After checking on the availability of the Domain names, we have narrowed down to two choices. **Please cast your vote on the preferred name for the group.**

***PLEASE REPLY TO THIS EMAIL (by Tuesday, October 16<sup>th</sup>) TO CAST YOUR VOTE FOR ONE OF THE FOLLOWING NAMES.***

***Florida Water and Climate Alliance (FloridaWCA.org).***

***Florida Alliance for Water and Climate (FloridAWC.org)***

b. **PROMOTION/PUBLICITY** –

1. Develop a ‘progress report’ for the group that would reach different audiences to promote the work that is being done. Suggestion included briefs or articles about the group and its work for different publications – (Vasu suggested AMS) others to be identified.
2. Another potential would be to explore Video opportunities (i.e. recent NOAA article and video of Tampa Bay Water.
3. Write something that could be used by the utilities to encourage agencies use of climate tools/models. (Bertha Goldenberg, Jayantha Obeysekera)

- c. **OUTREACH** - reach out to get someone from Southwest Florida WMD - Alison Adams and Rob Teegarden will approach Ken Herd.

- d. **STATEMENT OF COLLABORATION** – Not immediately, but keep revisiting the discussion of any need for statement of collaboration or other mechanisms to formalize the group. Potential proposals to WRF—tailored collaboration

- e. **FEEDBACK** – Wendylin Bartels indicated that she may be connecting with participants once again for brief interviews. She will connect directly.

(2) Knowledge Management System – **KMS** team will

- a. Review input/feedback on the KMS system and will revise categories as appropriate.
- b. Share revisions with the Subcommittee (Jayantha Obysekera, Alison Adams, Fran Henderson, and Rhonda Haag). **If there are others who would like to join this subcommittee please connect directly with Tracy Irani ([Irani@ufl.edu](mailto:Irani@ufl.edu)).**
- c. Follow-up with the Web design group to develop a shell by December
- d. Obtain the appropriate DOMAIN NAME once name is finalized (see #1.a above).

### **(3) RESEARCH PROJECTS –**

- a. **NOAA SARP Project** - “Collaborative Development of Public Water Supply Utility Relevant Climate Information for Improved Operations and Planning) - Technical Teams will continue moving forward with research activities and provide updates and results in upcoming workshops. (Long-term Climate Scenarios- Wendy Graham; Sea Level Rise -Keith Ingram; Seasonal Scale Forecasts- Vasu Misra;) -- Consider including WEBINARs to provide information on research results in addition to just at the workshops.
- b. **NOAA SARP Project** - “Use of Seasonal Climate Forecasts to Minimize Short-Term Operational Risks for Water Supply and Ecosystem Restoration”.)
  - i. Schedule a Project Implementation meeting with key partners in Tampa Bay Water, Peace River Manasota, and South Florida WMD - Chris Martinez.
- c. **RESEARCH AGENDA** – Tirusew has agreed to continue to shepherd the research agenda. He will revise the agenda to reflect the discussion to remove Carbon Emission from the list at this time. In future, there should be more emphasis on the potential for proposal ideas and development, rather than just the research topics. Group agreed that there is a need to find some time to connect about research proposals and to consider in future workshops scheduling working time for people to collaborate.

(4) **WORKSHOP PLANNING** –Schedule a workshop for some time in February, 2013. Volunteers for the planning team included Tirusew Asefa. PLEASE LET ME ([lstaal@ufl.edu](mailto:lstaal@ufl.edu)) **KNOW** IF YOU WOULD LIKE TO HELP OUT WITH THE PLANNING)  
Potential topics included:

- Progress Report/Article draft for promotion
- Long Term Climate Scenarios Research results
- National Climate assessment presentation – Jayantha Obeysekara
- KMS progress
- Research Proposals/agenda - social science, etc
- Planning for appropriate way to invite water managers to workshop to have a discussion.... What is the risk profile?
- Central Florida Water Initiative – use of models (reuse foundation, WRF) – Rob Teegarden

### **Workshop Evaluation**

As in each workshop, a feedback form was distributed and input requested from the participants. Twenty-two of the thirty-two participants responded to the survey. Overall satisfaction was higher than the previous workshop, once again reaching totals of earlier workshops ranging from 4.3 – 5.0 in all categories on a scale of 1.0 – 5.0 with 5.0 being the

highest. Looking at responses by different institutional affiliations, there was a slightly higher degree of satisfaction on the part of the Utilities, WMD and Other, than University participants.

Some of the comments from the exit survey continue to highlight the need to keep the ultimate user of the information and tools engaged at an appropriate level of understanding. For example, see the following comments:

- Simplify technical presentations and focus them on utility application so that everyone can participate in discussions
- Researchers held the floor more
- Discussion of examples or specific situations indicating how these tools could be used would be helpful, as opposed to the statistical methods, behind the tools
- How do managers make decisions (i.e. what actionable options do they have and what do they base this choice on?)

A brief summary of exit feedback survey responses appears in Appendix 4. Lisette Staal thanked the participants for their contributions and OUC for hosting the workshop.

## APPENDIX 1: List of Participants – Workshop October 5, 2012

Last name	First name	Stakeholder group	Organization
<b>Abdul-Aziz</b>	Omar	University	Florida International University (FIU)
<b>Adams</b>	Alison	PWS Utility	Tampa Bay Water
<b>Asefa</b>	Tirusew	PWS Utility	Tampa Bay Water
<b>Bartels</b>	Wendylin	University/facilitation	University of Florida/Florida Climate Institute/ Southeast Climate Consortium
<b>Bastola</b>	Satish	University	Florida State University
<b>Bolson</b>	Jessica	University	University of Miami
<b>Browning</b>	Kevin	PWS Utility	Orlando Utilities Commission
<b>Cook</b>	John	Consulting	Advanced Data Mining Intl
<b>Cullum</b>	Mike	WMD	Saint Johns River Water Management District
<b>Daamen</b>	Ruby	consulting	Advanced Data Mining Intl
<b>Galindo</b>	Sebastian	University/facilitation	University of Florida Center for Public Issues Education
<b>Goldenberg</b>	Bertha	PWS Utility	Miami-Dade Water and Sewer Department (WASD)
<b>Graham</b>	Wendy	University	University of Florida Water Institute
<b>Haag</b>	Rhonda	County	Monroe County
<b>Henderson</b>	Fran	County	Broward County
<b>Hernandez Hammer</b>	Nicole	University	Florida Atlantic University
<b>Hwang</b>	Syewoon	University	University of Florida
<b>Martinez</b>	Christopher	University	University of Florida/Florida Climate Institute/ Southeast Climate Consortium



<b>McElroy</b>	Jennifer	PWS Utility	Gainesville Regional Utilities
<b>Misra</b>	Vasu	University	Florida State University/Florida Climate Institute/ Southeast Climate Consortium
<b>Morris</b>	Kevin	PWS Utility	<a href="#">Peace River Manasota Regional Water Supply Authority</a>
<b>Murray</b>	Anne	County	Martin County Board of County Commissioners
<b>Obeysekera</b>	Jayantha	WMD	South Florida Water Management District
<b>Odera</b>	Erica	University	University of Florida
<b>Palomino</b>	Pedro	University	University of Florida
<b>Roehl</b>	Ed	consulting	Advanced Data Mining Intl
<b>Slough</b>	Deidra	University	University of Florida
<b>Staal</b>	Lisette	University/facilitation	University of Florida Water Institute
<b>Stefanova</b>	Lydia	University	Florida State University/COAPS
<b>Teegarden</b>	Robert	PWS Utility	Orlando Utilities Commission
<b>Tian</b>	Di	University	University of Florida
<b>Truer</b>	Galen	University	University of Miami/Abess Center for Ecosystem Science and Policy



## **APPENDIX 2: Workshop Agenda**

### **WORKSHOP 7 –Agenda**

#### **“Public Water Supply Utilities Climate Impacts Working Group” (PWSU-CIWG)**

**Friday, October 5, 2012 8:30 – 4:00pm**

Orlando Utilities Commission (OUC), Safety & Training Conference Room  
at the Gardenia Avenue office, 3800 Gardenia Avenue, Orlando, FL

**Overall Working Group 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.

#### **Specific Workshop Objectives**

1. Learn about climate change, climate variability and sea level rise projects/programs relevant to water utilities - invited presentation.
2. Share research progress/results of NOAA project technical groups (focus on seasonal scale forecasts).
3. Learn about, and contribute to, the working group’s Knowledge Management System (KMS).
4. Advance working group interests and sustainability.

Agenda:

8:30 AM - Registration and Coffee

8:45 - Introductions, Objectives, Agenda

9:00 – 10:00 CLIMATE SCIENCE AND TOOLS

Presentation: [Estimating Salinity Effects Due to Climate Change on the Georgia and South Carolina Coasts](#), Edwin A. Roehl, Ruby C. Daamen and John B. Cook (ADMi) (30 minutes)

Discussion: Reflecting on practical applicability from the user perspective.  
(Large group discussion facilitated by Tirusew Asefa) (30 minutes)

10:00 BREAK

10:15 – 11:15 PWSU\_CIWG WORKING AS A TEAM

Participant updates, Research Agenda Update, Project updates (all)  
Activity - Working as a team (Wendylin Bartels)  
Working Group Sustainability (Lisette Staal)

11:15 – 12:15 KNOWLEDGE MANAGEMENT SYSTEM (KMS) – collaboration tool  
progress and input (Deidra Slough)

12:15 - 1:00 LUNCH

1:00 – 3:00 CLIMATE SCIENCE and TOOLS – SEASONAL SCALE FORECASTS

**Presentation 1: Seasonal climate forecasts from FISH50** - (Vasu Misra)-  
Presentation of Research Results 1 (Seasonal Scale Forecasts) of NOAA Project:  
Collaborative Development of Public Water Supply Utility Relevant Climate  
Information for Improved Operations and Planning (30 minutes)

Discussion: Reflecting on practical applicability from the user perspective. (Large  
group discussion facilitated by Kevin Morris) (30 minutes)

**Presentation 2: Hydrological forecasts for southeast US watersheds using  
FISH50** - Presentation of Research Results 1 (Seasonal Scale Forecasts) of  
NOAA Project: Collaborative Development of Public Water Supply Utility  
Relevant Climate Information for Improved Operations and Planning (30  
minutes)

Discussion: Reflecting on practical applicability from the user perspective. (Large  
group discussion facilitated by Scott Laidlaw) (30 minutes)

3:00 - BREAK

3:15 – 3:30 NEW PROJECT: Introduce newly funded research project: “Use of  
Seasonal Climate Forecasts to Minimize Short-Term Operational Risks for  
Water Supply and Ecosystem Restoration”. (Chris Martinez)

3:30 – 4:00 WORKING GROUP SUSTAINABILITY

Next Steps, Reflection and Evaluation (Lisette Staal)

Ending at 4:00 PM

**APPENDIX 3: Knowledge Management System- Topics and Categories**  
**exercise results**

<b>Group 1</b>	<b>Group 2</b>	<b>Group 3</b>	<b>Group 4</b>
<b>Climate Science and Modeling</b> -Global -Regional -Local -Long-term climate scenarios -Seasonal scale forecasts -Sea level changes -Extreme weather -Temperature -Rainfall -Societal impacts -Environmental and -ecosystem impacts <b>Communicating Climate Science</b> -Education -Perceptions -Risk communication -Engagement -Practice <b>Planning and Operations</b> -Global -Local -Regional -Long-term planning -Short-term planning -Policy, regulation and action <b>Risk and adaptive strategy (new)</b> -Risk management and uncertainty (new) -Decision-making -Dealing with uncertainty Resilience and adaptive capacity <b>Data (new)</b> -Data links (new) <b>Trash</b> -Major topic: Climate Change and Variability -Sea level rise/ change -Climate -Regional -Global -Data	<b>Climate Science and Modeling</b> -Local -Regional -Global -Long-term climate scenarios -Seasonal scale forecasts -Data (new) -Sea level rise/change <b>Utilities Planning and Operations (new)</b> -Decision making Policy, regulation, and action -Dealing with uncertainty -Resilience and adaptive capacity -Risk management -Long-term planning -Short-term planning <b>Climate Change and Variability</b> -Data (new) -Climate -Environmental and ecosystem impacts -Rainfall -Temperature -Extreme weather -Societal impacts -Sea level changes <b>Communication (new)</b> -Utilities (new) -Public (new) -Policy makers (new) -Education -Engagement -Practice -Perceptions -Risk communication	<b>Planning and Operation</b> -Sea level rise/change -Risk management -Regulation/infrastructure time scale (new) -Dealing with uncertainty -Long-term planning -Policy, regulation and action -Short-term planning -Resilience and adaptive capacity -Decision making -Long-term climate scenarios -Seasonal scale forecasts <b>Terminology (new)</b> <b>Communicating Climate Science</b> -Education -Risk communication -Engagement -Societal impacts -Applications of climate science (new) -Perceptions <b>Climate Change and Variability</b> -Climate science (new) -Rainfall -Temperature -Sea level changes -Climate -Extreme weather -Environmental and ecosystem impacts -Climate modeling (new) <b>Trash</b> -Major topic: Climate Science and -Modeling -Global -Regional -Local	<b>Working Group Library (new)</b> -Powerpoints -Agendas -Meeting summaries <b>Climate (new)</b> -Rainfall -Evapotranspiration (new) -Temperature -Sea level (new) -Extreme weather -Historical data (new) -Seasonal scale forecasts -Long-term climate scenarios <b>Policy and decision making (new)</b> -Decision making -Dealing with uncertainty -Resilience and adaptive capacity -Policy, regulation and action <b>Communication tools (new)</b> -Risk communication -Engagement -Perceptions -Education <b>Applications for Water Resource Planning and Operations (new)</b> -Risk management -Short-term planning -Long-term planning -Environmental and ecosystem impacts -Societal impacts <b>Trash</b> -Major topic: Climate Change and Variability -Local -Regional -Global -Climate -Practice -Sea level rise/change

## APPENDIX 4: Exit Survey (October 5, 2012)

Average response by institutional affiliation - survey responses (1 low - 5 high)

	Public Water Supply Utility	Water Management District	University	Other
1. Output	4.50	5.0	4.42	5.0
2. Organization	4.71	5.0	4.58	5.0
3. Use of Time	4.57	4.0	4.33	5.0
4. Participation-involvement	4.86	5.0	4.33	5.0
5. Next Steps clear	4.40	NA	4.71	NA

### General Comments

- Data mgmt: major tabs: Data, Forecasts (global, regional, local), planning and operation (regulatory, utility level), communications (inter-agency, gov't, public outreach)
- I like new name. Florida Alliance for Water And Climate. The Alliance needs to pursue additional funding in usable research and making results available to us
- Thank you for all of the hard work to put on this work shop!
- Great meeting. Very impressive organization and interesting presentations
- Simplify technical presentations and focus them on utility application so that everyone can participate in discussions
- I was excited to learn about the thread of chaotic systems when multiple extreme events are aligned
- This is great work. Please understand that glazed expressions are often the result of physical and emotional exhaustion and that was how we showed up - it is not a reflection of the group dynamic
- Researchers held the floor more

### 1. Which of the following that best represents your institutional affiliation?

- University = 12
- Utility = 7
- Other = 2
- WMD = 1

### 2. Within your institution, role/position and disciplinary background

- Engineer/analyst
- Engineer and research
- Researcher
- Researcher - Climate change impact assessment/post-doc
- Researcher – behavioral science (PhD Student)
- Researcher
- Climate change researcher, program manager (forms SLR), MS Biology, MBA Finance
- M.E. Environmental Engineering/Researcher - Long term planning for increasing DBPs in drinking

<p>water with sea level rise</p> <ul style="list-style-type: none"> <li>• Hydrologic modeler</li> <li>• Postdoc - Social Science :)</li> <li>• Researcher/climate</li> <li>• Research assistant</li> <li>• Research coordinator, PIE Center</li> <li>• Hydrologist</li> <li>• project manager/hydrogeologist</li> <li>• operations management/hydrological engineer</li> <li>• water supply planning and management, short term, seasonal, annual. Water Resources expert</li> <li>• Planning and regulatory compliance (chemical engineer)</li> <li>• Planner</li> <li>• Advisory/Engineer</li> <li>• Director of Engineering</li> </ul>
<p><b>3. Have you been able to share the benefits of participating in this group with others at your institution or within your professional/social environment? Please list examples of how you have integrated lessons/experiences from this group into other realms (e.g. presented on X issue to my institutional colleagues, applied specific climate information in Y task, drawn on expertise from this group for Z event, leveraged relationships for,...etc.).</b></p>
<ul style="list-style-type: none"> <li>• 1st meeting. Future: via participation in Seven50Awareness</li> <li>• no</li> <li>• Yes, too numerous to describe most recent. NOAA video</li> <li>• Have shared presentations and information with staff and others in organization</li> <li>• Not yet</li> <li>• No, because today is first workshop attended (3)</li> <li>• No</li> <li>• Yes, contacts for research collaborations and opportunities for workshop/conference presentations</li> <li>• useful framework for applying information</li> <li>• give presentation about project to Rotary Club &amp; USF &amp; Everglades climate meeting</li> <li>• Yes, discussed meetings with colleagues, students and mentors</li> <li>• Yes, shared concepts and lessons other utilities have learned or initiatives they are working on spark ideas</li> <li>•</li> </ul>
<p><b>4. We heard several climate-related presentations today and had discussions about decision support tools. How useful (practically applicable) is this information in your job. Indicate with X in the table below: 0 = not useful; 5 = extremely useful</b></p>
<ul style="list-style-type: none"> <li>• Estimating Coastal Salinity <ul style="list-style-type: none"> <li>○ University – 2.3 (n= 9)</li> <li>○ Utility and other – 2.4 (n = 7)</li> <li>○ WMD – 5 (n=1)</li> </ul> </li> <li>• Climate Forecasts</li> </ul>

- University – 3.3 (n= 9)
- Utility and other – 2.6 (n = 7)
- WMD – 4 (n=1)
- Hydrologic Forecasts
  - University – 3.3 (n= 9)
  - Utility and other – 2.4 (n = 5)
  - WMD – 4 (n=1)

#### **5. What additional information on decision support tools would you have liked to have heard?**

- Not sure
- Can't think of any
- Discussion of examples or specific situations indicating how these tools could be used would be helpful, as opposed to the statistical methods, behind the tools
- I don't really consider the tools we heard about discussion support tools
- I would have liked to hear more stakeholder feedback about applications. I also would have liked to see the DSS tool interface
- How do managers make decisions (i.e. what actionable options do they have and what do they base this choice on
- What does 50 km versus 150km models mean?

#### **6. We discussed a tool for knowledge management( website). What remaining questions do you have about this tool, its development, or its application?**

- How detailed will the information on the site be?
- None, waiting on the prototype to test drive
- Unfortunately people will comment on FLAW repeatedly
- How is going to be tested prior to posting.
- Do we really need our own dataset? R we may be able to effectively use already available data archives, just link them
- None, I am just looking forward to seeing it
- None until I can actually try it out
- It will be nice to see this play out. Not sure our disparate input will be helpful. Maybe a good strategy not to ask for input since you can't please everyone
- Ahhhh!
- I enjoyed the overview of website design. It is a much bigger challenge than I had thought

#### **7.What other tools/processes/mechanisms might help this group interact and share information, manage knowledge or learn together?**

- A presentation or document viewer available to the group
- obeys suggestions - a white paper explaining to decision makers the research, the costs, etc.
- have presentation by a representative of the group at a utility conference, such as FWRC (Wendy or Lisette)
- need to think about it

- can't think of any
- Role playing or gaming through a real problem with a climate tool and a utility manager might be useful for understanding
- Those mentioned, Youtube Video, white paper
- quarterly workshops + KMS should be enough
- I think this will be on this site, but posting our papers or interacting findings or papers will be great - also blogging maybe
- Brochures and "dumbed down" presentations have great utility value
- Pre-planned ideas on projects (small in size and scope) that utilities, managers, planners, and scientists can work on
- Not sure

**8. What is one take-home message from the "broken squares" activity and how does it relate to your participation in this working group?**

- We need communication
- collaboration improves the outcome
- communication is hugely important
- Need to work as a team from the beginning of the activity
- Water utility agency seems to have "hard frame" with a specific shape in their mind. BUT I think science/information looks too different to fit theirs. Let's make it flexible!! Vice Versa!!
- Communication is important to work as a group and not individual effort in isolation
- Teamwork, selfishness
- By working as a team, each member can better achieve their individual goals through collaboration
- People are reluctant to give up their success for others. It is like water users desire to always keep their allocation
- Communication is talk
- see big picture
- important for people to be able to give up their personal agenda if group is going to work
- teamwork is based on being unselfish, that is what makes this alliance so effective
- We have to share (share our knowledge) with others in a meaningful way
- Important to think of "Big Picture"