

Synthesis of Preliminary Phone Meetings to Discuss Potential Formation of a “Florida Public Water Utilities Climate Impacts Working Group”

September, 2010

Climate change is expected to present new challenges to the water industry in the future. The recent push toward the use of alternative water supplies in Florida has made it clear that understanding the impacts of climate variability and climate change and sea level rise on water supply reliability, and adapting to changing conditions, will become a particularly pressing challenge in addressing public water demand and supply. The [University of Florida Water Institute](#), in coordination with the [Southeast Climate Consortium](#) (SECC) is exploring the formation of a group aimed at increasing the relevance and usability of climate change and variability data, information, and models to the specific needs of public water supply utilities in Florida.

We envision the formation of a “Climate Impacts Working Group” that connects climate modelers, hydrologic modelers, academics, water resource managers, and public water suppliers that will make climate science more useable to Florida’s public water supply utilities. It will provide a forum for discussing how climate variability/change and sea level may impact the state’s public water supply utilities and will result in shared tools, strategies and adaptations relevant to the public water supply utilities’ planning needs related to both the supply of and demand for water. It will also result in strategies for federal funding to support climate model research specific to the southeast and coastal Florida.

As an initial step the WI and the SECC held a series of individual telephone meetings with representatives from several key Florida Utilities* to assess the level of interest regarding the need for and usability of climate information from their own perspectives. The purpose of this document is to provide a brief synthesis of the discussions, provide insight to the varied perspectives regarding climate change and variability as a consideration in their long term planning, and identify some commonalities and shared interests.

What has been, is being, done within Florida Utilities?

The level of activities at the representative Utilities related to climate change and variability information used in water supply planning varies among the institutions. Several Utilities have been substantially engaged in various regional, state and national programs to assess potential

impacts climate change on the water industry and to establish research and education programs to address these potential impacts. However the majority do not systematically or specifically use climate information in current decision making processes. The uncertainty of the information, the credibility, complexity, and scales of existing models and data present significant challenges and contribute to the lack of use in planning. Examples of activities engaged in by Florida Utilities include:

- Participation in the [Water UK Climate Change Focus Group Workshop on “Climate Change Adaptation Approach for Asset Management Planning”](#) (November 2007)
- Participation in the [WERF Water Industry Climate Change Research Needs Workshop](#) (January 2008)
- Participation in the [Water Utilities Climate Alliance “Options for Improving Climate Modeling to Assist Water Utility Planning for Climate Change Workshop”](#) (September 2009)
- Participation in the [Water Utilities Climate Alliance “Decisions Support Planning Methods: Incorporation Climate Change Uncertainties into Water Planning Workshop”](#) (January 2010)
- Participation in the [Climate Change Impact Forum](#) (January 2010)
- Participation in [EPA’s National Drinking Water Advisory Council Climate Ready Working Group](#) (on-going)
- Participation in the [International Council for Local Environmental Initiatives Climate Program](#) (on-going)
- Participation in the [Southeast Florida Regional Climate Change Compact](#) for the development of a Southeast Florida Regional Climate Change Action Plan (on-going)

What are the most important issues that Florida Utilities currently face relative to climate change and variability?

Again, each of the utilities, given their locations and situations, are facing different issues related to ensuring water availability and quality to meet their clients projected demands. In general the need for climate/sea level rise information, data and models seemed to fall into understanding, predicting and adapting to potential impacts in 4 key areas: **1) Impacts on Demand, 2) Impacts on Source Water Availability, 3) Impacts on Water Quality, and 4) Impacts on Infrastructure Capacity.**

The climate drivers and changes that are expected to impact these 4 key areas are **sea level rise** - both direct (e.g. through influences on water table elevations, and surface and groundwater salinity) and indirect (e.g. through inland population migration), **changes in precipitation, temperature and evapotranspiration patterns, and changes in intensity and frequency of**

extreme events (tropical storms, floods, droughts). Examples of how these drivers might impact these areas included:

Sea level rise

- Saltwater intrusion into well fields and surface water intake locations.
- Impacts of salt water intrusion on the potential use of reclaimed water for aquifer recharge.
- Impacts of salt water intrusion on the potential use of reclaimed water to restore coastal wetlands
- Impacts of sea level rise stormwater management and flood control
- Impacts of sea level rise on siting new infrastructure
- Impacts of sea level rise on Population Projections (potential sea-level rise related migration)

Changes in precipitation, temperature and evapotranspiration patterns/extreme events

- Impacts on fresh water demand: peak daily, weekly, monthly and seasonally
- Relative effects of changes in temperature, precipitation, population, price, conservation programs as a predictor/forecaster for demand
- Impact of sea level rise on demand (i.e. through population migration and/or higher water tables)
- Impacts on reclaimed water demand
- Impacts on surface water availability and quality (salinity, nutrients)
- Impacts on groundwater availability and quality (salinity)
- Impacts on appropriate timing for capturing and storing water
- Impacts on capacity of wastewater facilities (infiltration and inflow into wastewater system during high rainfall periods)
- Impacts on population projections (climate/disaster related migration due to increased incidence of extreme events)

Do you have access to the data/information that you need to understand and address the issues?

As indicated above, the majority of Florida Utilities do not yet quantitatively use climate information in their decision making processes. The uncertainty of the information, the credibility, complexity, and scales of existing data and models present significant challenges. Understanding, monitoring and modeling climate variability/change and sea level rise at the local to regional scale, and assessing the relevant uncertainties in this information, is important before this information can be used to improve operations/forecasting/ planning.

There is a need to understand the data, tools and models currently available that might address the needs of Florida Utilities; assess their strengths and limitations for Florida-specific water utility applications; and identify gaps where developing improved data, models and tools (that are relevant to the time and space scales associated with water supply planning and management)

are needed. The focus needs to shift from assessing generic potential climate impacts to better defining the probable relevant impacts for Florida, and the data, tools and models needed to assess and adapt to these probable impacts.

Is participation in a Climate Impacts Working Group something that would be of interest to you and your Utility?

All utilities expressed interest in participating in a meeting to explore the value of a Climate Impacts Working Group. Several elements were shared as important considerations. For any new initiative of this kind we should strive to:

1. Include representatives from both the water supply entities and resource protection entities from the beginning (Utilities, WMD, DEP). Water utilities provide access to the water, however, managing the resource is not in their responsibility. Currently, regulation is the driver for much of their activity. It will be important to understand how the regulatory agencies factor in climate change and variability with respect to resource protection programs.
2. Focus on specific needs that have not yet been adequately addressed by regional organizations, efforts etc. It is important to ensure that activities complement current local, regional, state and national planning efforts.
3. Focus on what we can DO to make climate science and tools more relevant and useable to public water supply utilities for planning both the supply of and demand for water.
4. Define “What are we trying to adapt to in Florida (what levels of sea level rise, what types of changes in precipitation and temperature)? Over what time? Over what space?

***Utilities Participating in the Series of Conference Calls**

Gainesville Regional Utilities (Dave Richardson)
Miami-Dade Water and Sewer Department (Doug Yoder)
Orlando Utilities Commission (Rob Teegarden, Jennifer Szaro)
Palm Beach County Water Utilities (Bevin Beaudet, Larry Johnson)
Peace River Manasota Regional Water Supply Authority (Mike Coates)
Tampa Bay Water (Alison Adams)