Florida Water Climate Alliance Webinar Summary: Impacts of Extreme Weather & Climate on Florida Water Agencies October 27, 2022

Introduction:

The Florida Water Climate Alliance (FloridaWCA) is a stakeholder-scientist partnership committed to the co-development of locally relevant and actionable climate science to support informed decision-making in water resource management, planning and supply operations in Florida. The October 27th webinar, hosted by FloridaWCA and UF Water Institute, focused on Impacts of Extreme Weather and Climate Events on Florida's Water Agencies. Over 140 participants joined the webinar from water management districts, utilities, universities, government agencies and consulting firms. The webinar featured presentations on Florida's climate variability and trends, impacts on water resource management, and various agencies' strategies for planning and adaptation, with a focus on recent impacts of Hurricane Ian. We also gathered feedback from FloridaWCA participants prior to the webinar on how extreme events have impacted their institution's decision-making/actions and shared highlights during the webinar.

To access a recording of the October 27, 2022 webinar as well as presenter slides, click here.

Presentations and Discussion

1. Extreme Weather and Climate - Stakeholder Perspectives

We gathered feedback from FloridaWCA participants prior to the webinar on how extreme events have impacted their institution's decision-making/actions and shared highlights during the webinar. There were approximately 130 responses to the pre-meeting question. Registrants were asked: "How has extreme weather or climate impacted your decision making/actions for your institution?"

Responses focused on the following extreme events: 11 hurricanes, drought of 1999-2001, floods, storm surge & SLR, and the freeze of 2010.

Impacts on decision-making or actions included:

- Consideration of extreme drought & rainfall in water supply planning & drainage
 - Revising model calibration, validation, and assumptions.
 - Diversifying water supply sources
- Designing infrastructure to account for extremes (particularly SLR & storm surge)
 Flood retrofits, seawall maintenance, and altered treatment wetland operations.
- Wastewater & stormwater management
- Water Quality Management
- Community resilience
- Ecosystem planning, protection, and restoration
- 2. Monitoring of the 2022 Rainy Season in Florida

Dr. Vasu Misra, Professor of Meteorology at FSU, presented real-time monitoring efforts of the onset/demise of the 2022 wet season for the five water management districts in Florida. The research is part a NASA ROSES-funded project of the FloridaWCA to tailor seasonal, water supply relevant forecasts to water management districts and participating water supply utilities. A real-time outlook of the wet season for 2022 was provided in early June which predicted a drier and shorter rainy season for South

Florida WMD, Southwest Florida WMD and St Johns River WMD due to a late onset date, and a near normal rainy season for Northwest Florida WMD due to a near normal onset date. (Correlation between onset/demise of the wet season and the wet season outlook for Suwanee River WMD is weak). Observations for SFWMD, SWFWMD, SJRWMD and NWFWMD validated the predictions, demonstrating that this seasonal outlook can provide a useful alternative to numerical climate forecasts, which have poor wet season skill. For example, the NOAA seasonal precipitation outlook for the 2022 wet season predicted average or above average rainfall for those WMDs. Interestingly, the arrival of Hurricane Ian in late September led to recovery of water deficits shortly after the end of the wet season, which has only happened one other time in the past 22 years.

3. Climate Variability and Trends In Florida, Impacts on Our Water Resources.

Dr. David Zierden, Florida State Climatologist, provided an overview of extreme climate and weather events specific to Florida. He covered Florida trends including La Nina induced drought, shifting rainfall patterns, and increased risk factors for tropical storms due to climate change. He also gave a review of hurricane activity in recent years, with a focus on Hurricane Ian, the 5th most powerful storm to hit the US in recorded history.

4. Dealing with Extreme Events: From Planning, Response and Effective Resilience Implementation

Dr. Carolina Maran, Chief of District Resiliency at SFWMD, spoke on existing resilience efforts and operations at SFWMD in relation to planning for and responding to extreme events. Carolina detailed efforts that go into preparation, monitoring, communication, and response for hurricane season impacts on water management, specifically focused on Hurricane Ian. Her presentation also included lessons learned, ongoing surveys of strategic resources and future resilience enhancements such as the C-8 Basin Project.

5. <u>How the US Army Corps of Engineers Prepares for, Weathers, and Recovers from Hurricanes on</u> <u>Lake Okeechobee-Hurricane Ian</u>

Savannah Lacy, Chief of Operations Unit for Water Management at USACE Jacksonville District presented how USACE prepared for, responded to, and recovered from Hurricane Ian with respect to management of Lake Okeechobee (O). Preparations included closing structures on the Herbert Hoover Dike and lowering water levels in canals to make room for flood waters. While Lake O received relatively little rainfall from the hurricane, upstream areas in the Kissimmee Basin received very heavy rainfall, which has led to a delayed peak water level of Lake O nearly a month after the event. Lower antecedent lake levels going into the storm meant there was capacity for significant inflows.

6. Climate-Resilient Water Infrastructure in New York City

Alan Cohn, Managing Director of Integrated Water Management at NYC DEP, talked about the challenges of water management in NYC in the face of increasing temperature, precipitation and sea level rise due to climate change. As NYC population approaches 8.5 million, water demand has reached an historic low since 1960, a demand management success. He highlighted the importance of a flexible network for water supply, which includes a diverse portfolio of sources, and a comprehensive monitoring program to optimize water use. Like Carolina above, Alan brought up the cost savings of protecting vulnerable infrastructure vs. failure and replacement, such as after Superstorm Sandy. Lastly, he shared some space-frugal, multi-purpose public space designs that can retain or delay water from reaching storm drains. His takeaway message included the importance of redesign and learning from peers.