Working together in navigating uncertainties: A utility perspective

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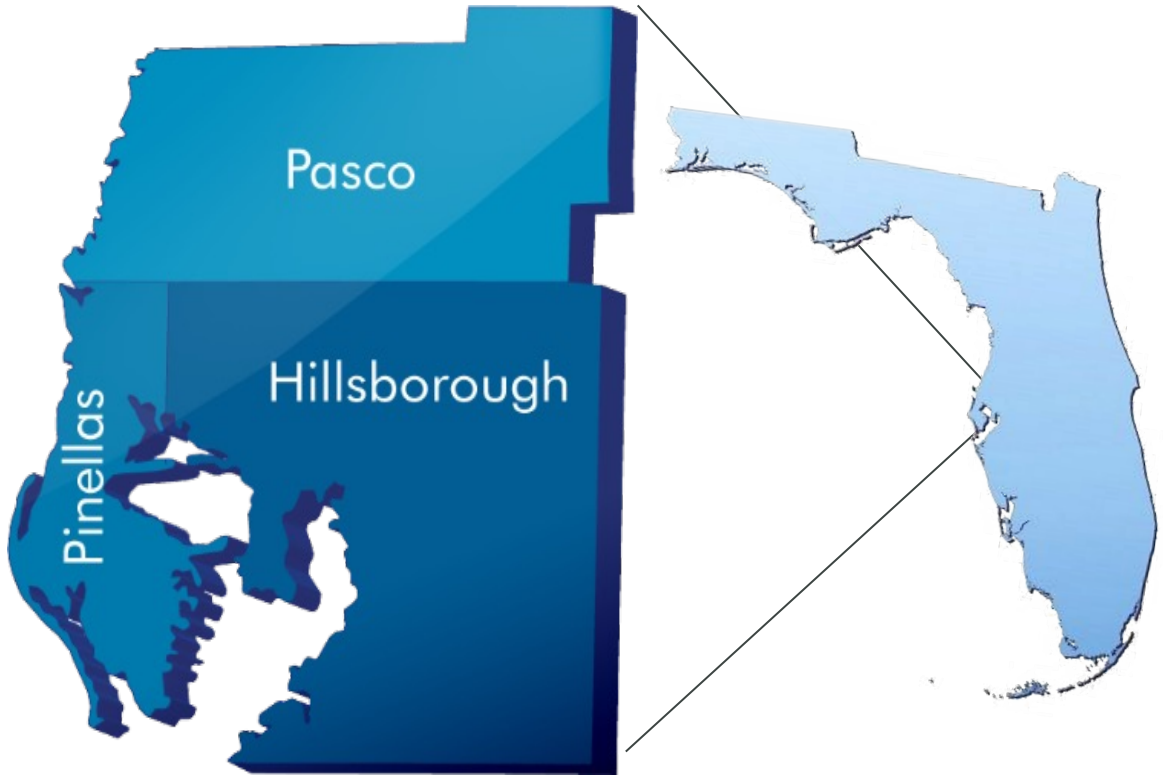
Chair, Florida Water and Climate Alliance

TAMPA BAY WATER
Supplying Water To The Region

What are the challenges and drivers?



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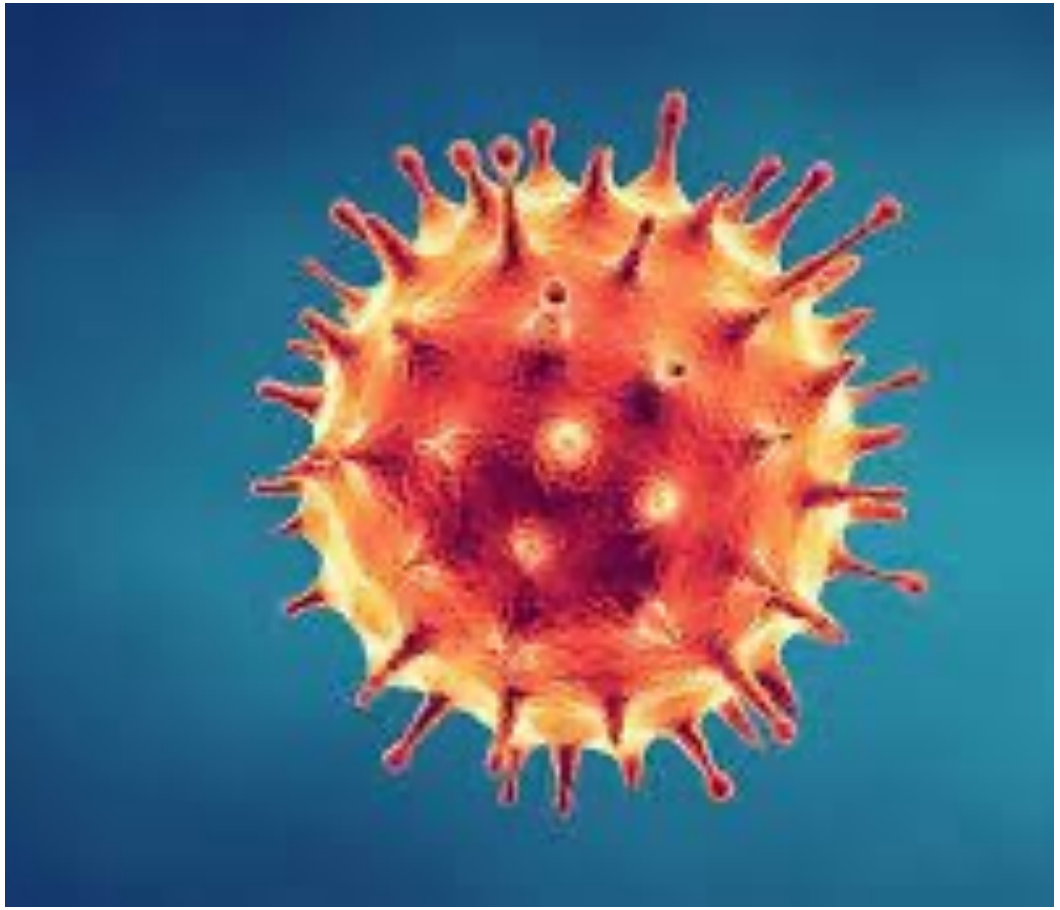

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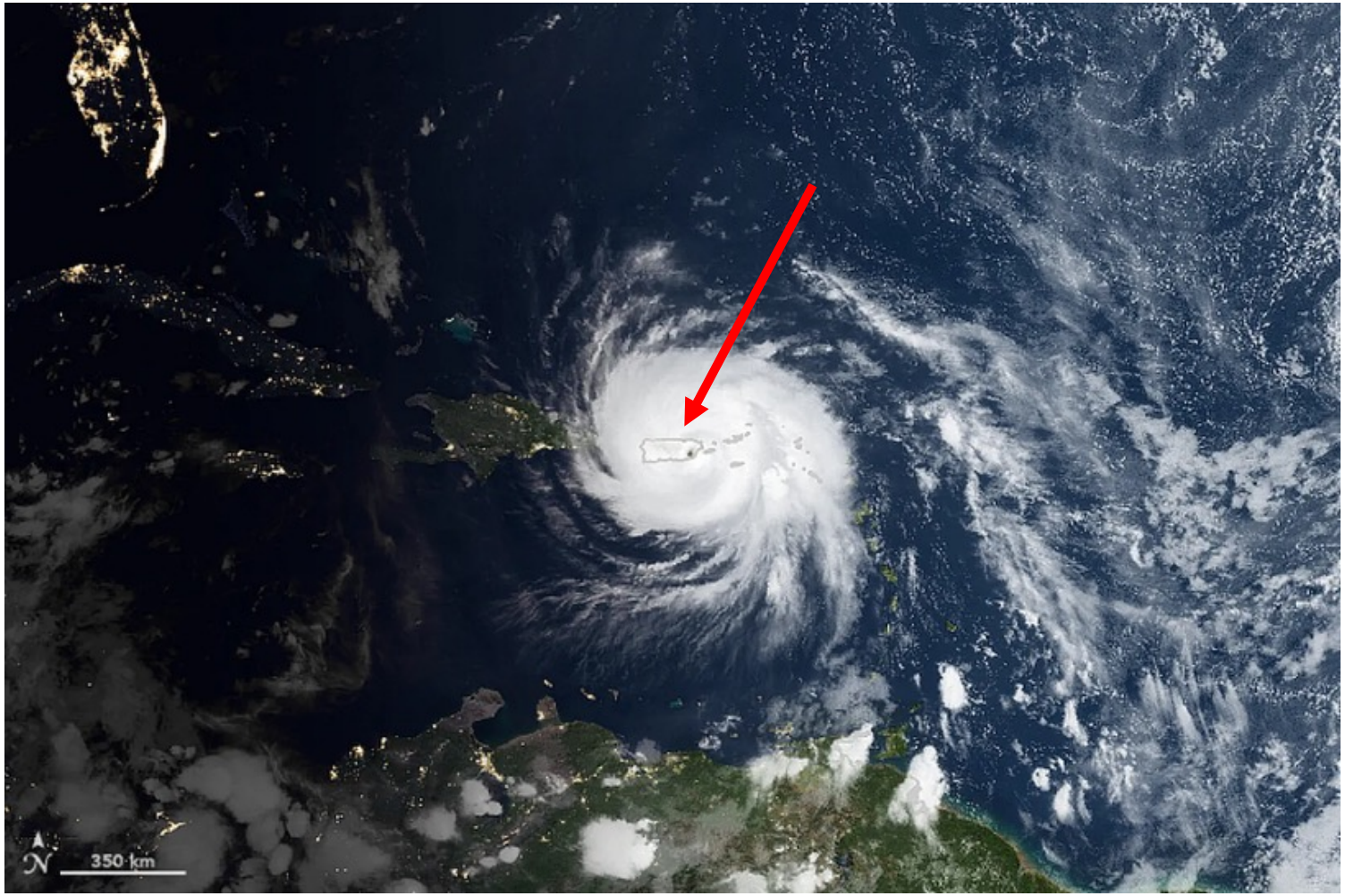

It is all about water demand!

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Forbes

Recession in 2017?

Peter Hans Former Contributor
I examine market trends through the lens of bulls and bears.

Dec 27, 2016, 11:04am EST

This article is more than 6 years old.

For much of this year, economists have speculated a recession is around the corner, but with almost full-employment, wages rising and talk of infrastructure spending by the incoming administration, it's looking harder to find conviction that one is imminent.

A homeless man sleeps on Wall Street near the New York Stock Exchange, Wednesday, Dec. 21, 2016. (AP... [+]

Bankrate

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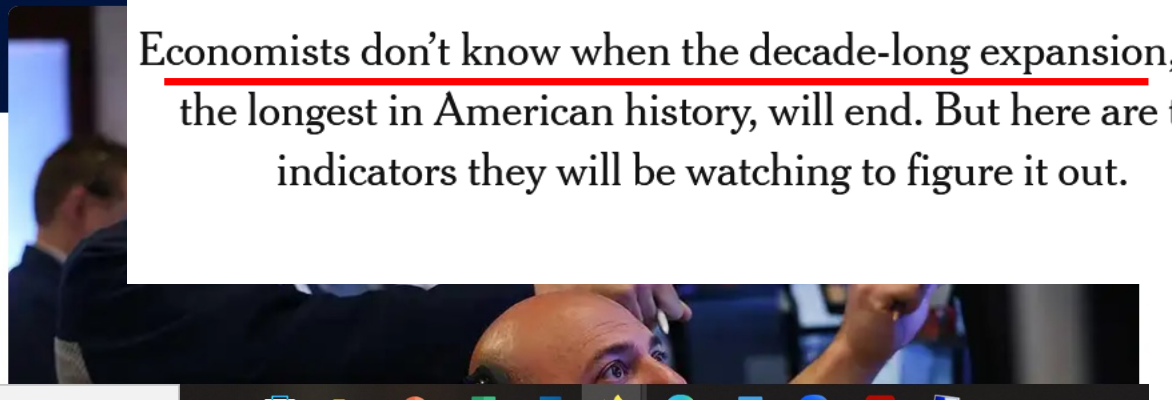
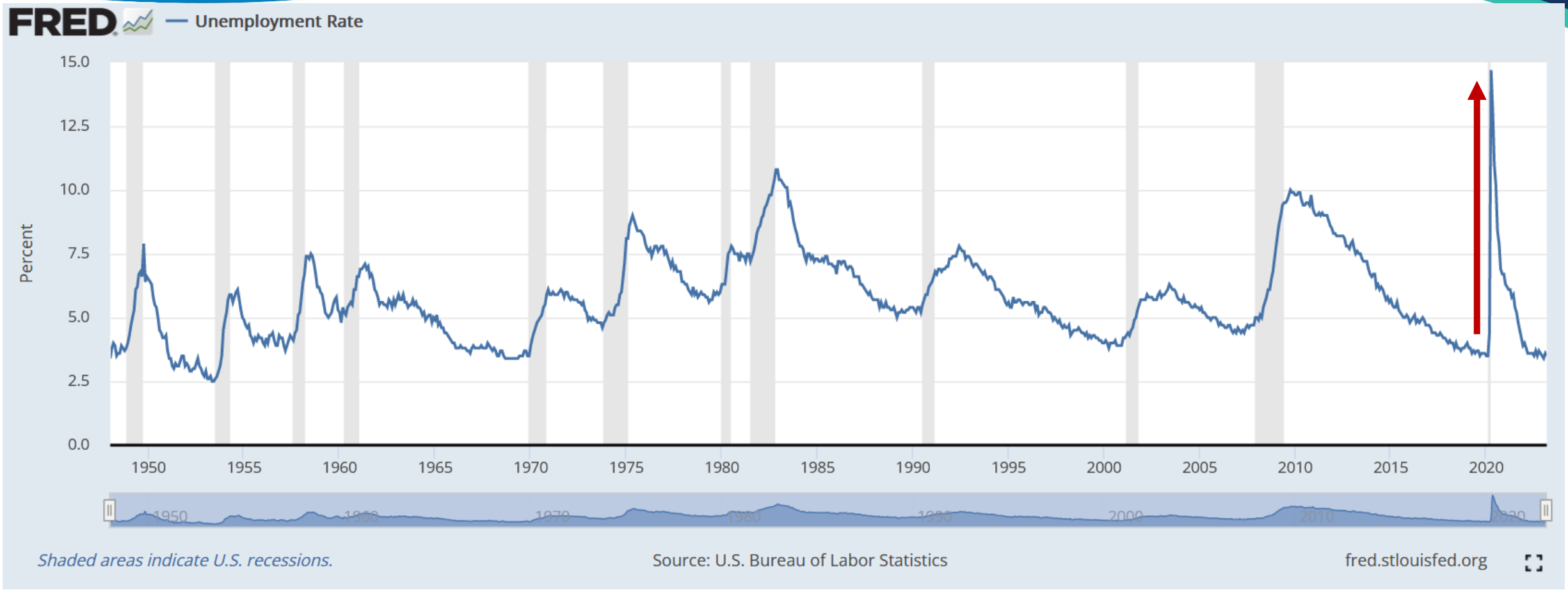
The New York Times

A Recession Is Coming (Eventually). Here's Where You'll See It First.

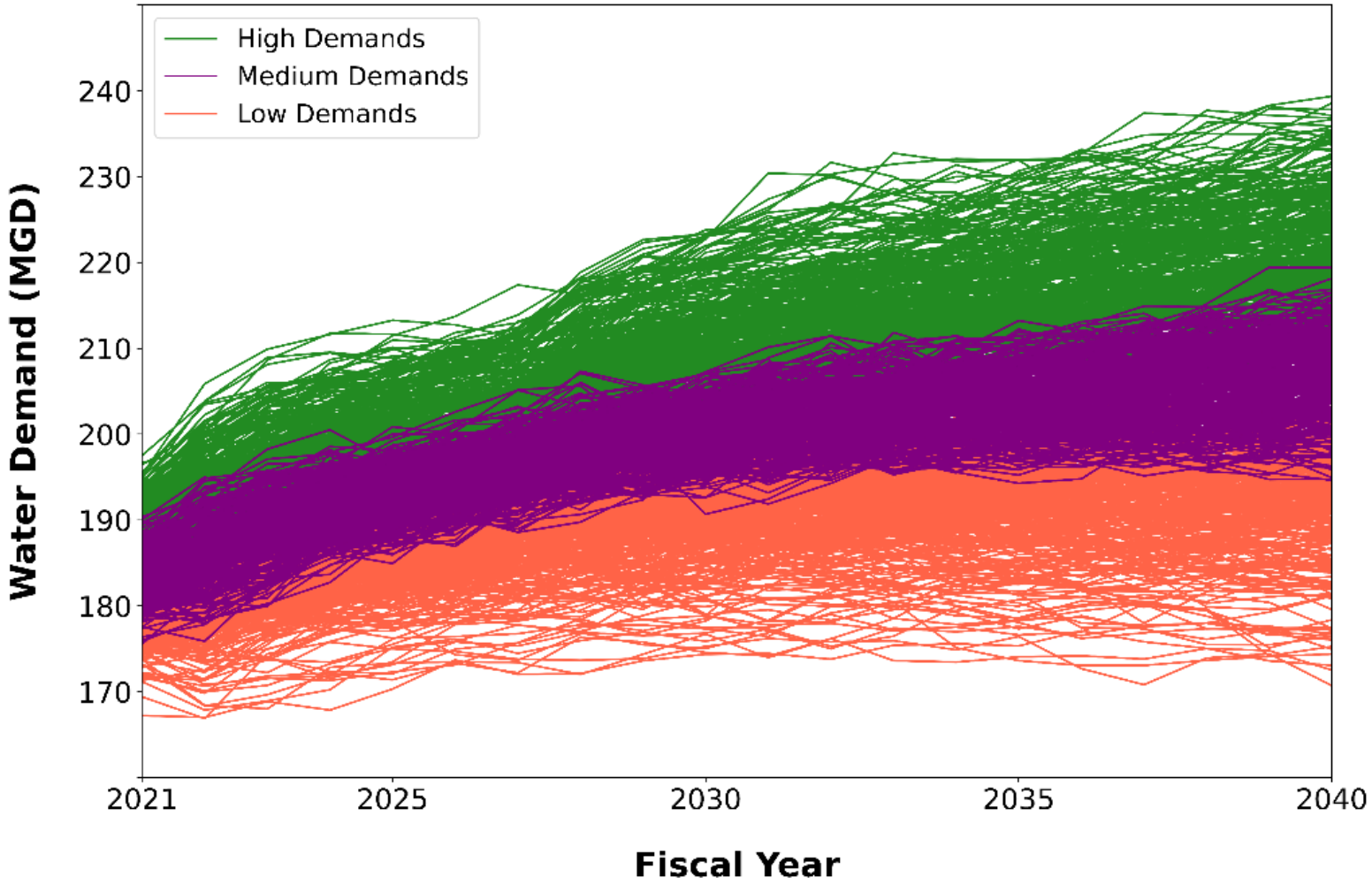
Economists don't know when the decade-long expansion, now the longest in American history, will end. But here are the indicators they will be watching to figure it out.



Recession as indicator for water use (e.g., 2008)

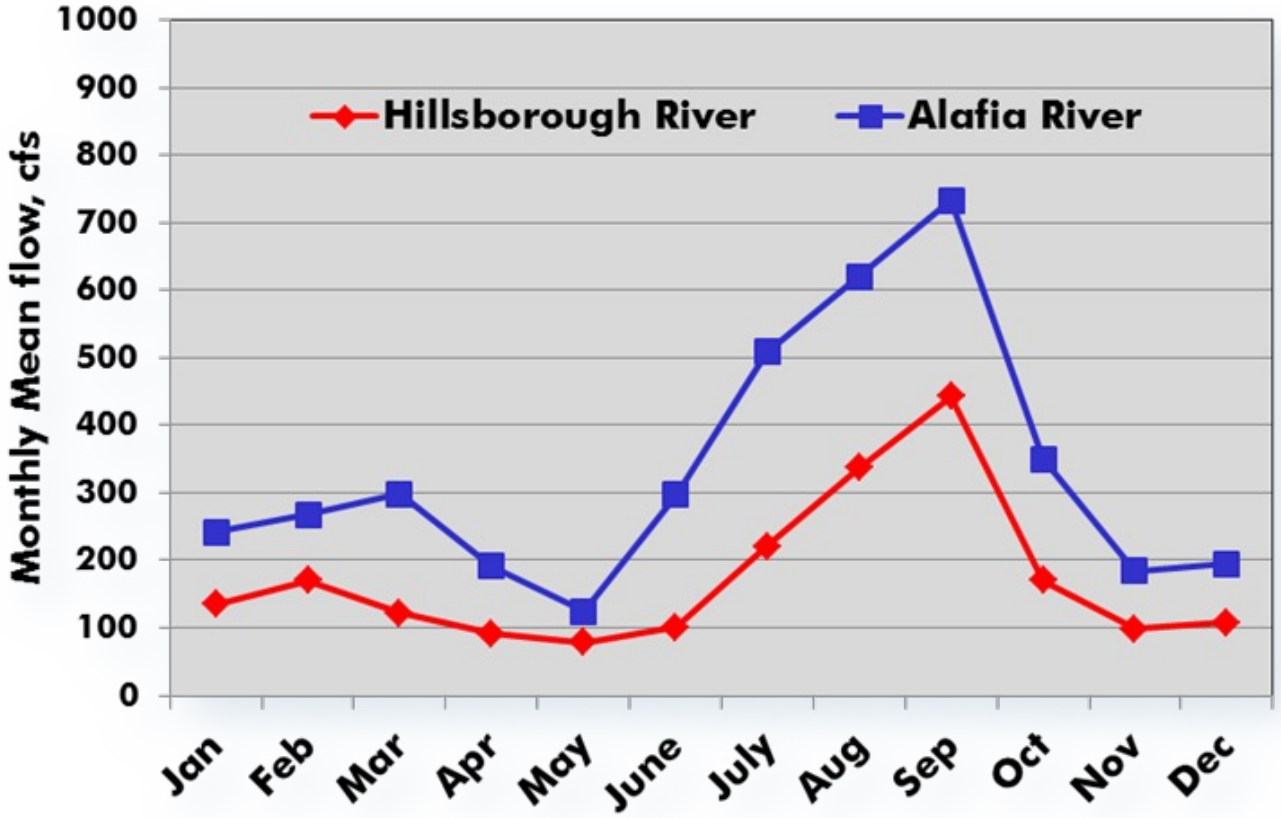


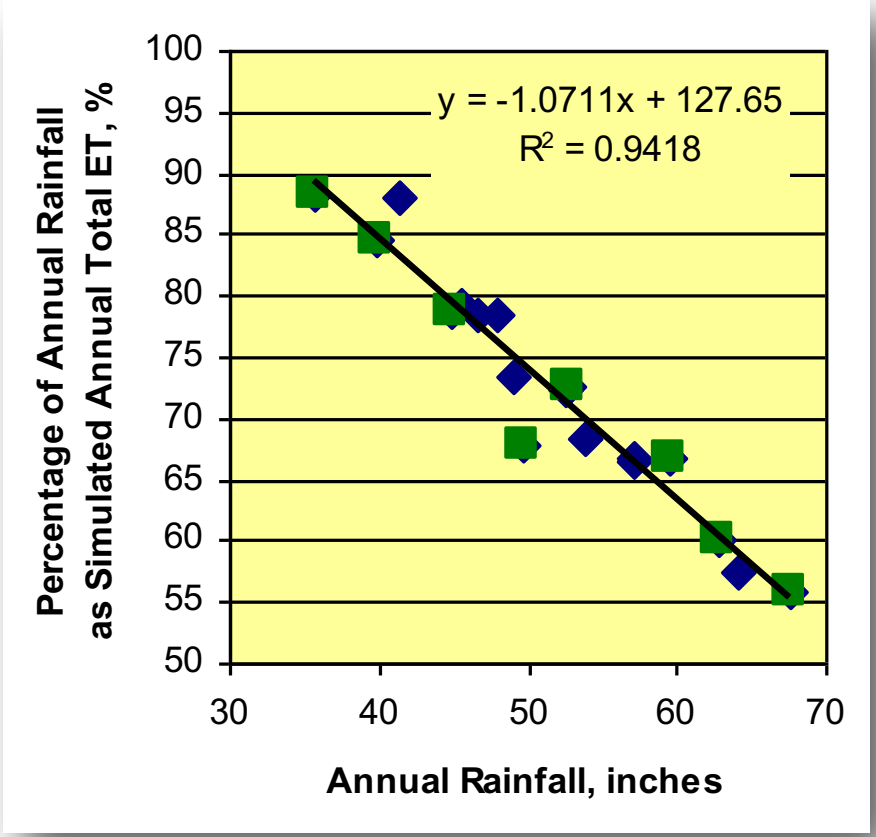
Regional demand including climate variability



Supply side uncertainty

What are the challenges and drivers?





What did we do?

- Initiated a collaborative research with University of Florida's water institute… circa 2007/2008
- Initial effort to do the Climate modeling "in house" was not satisfactory
- Formed Florida Water and Climate Alliance (www.FloridaWCA.org) and brought expertise across the spectrum

and….Just before that

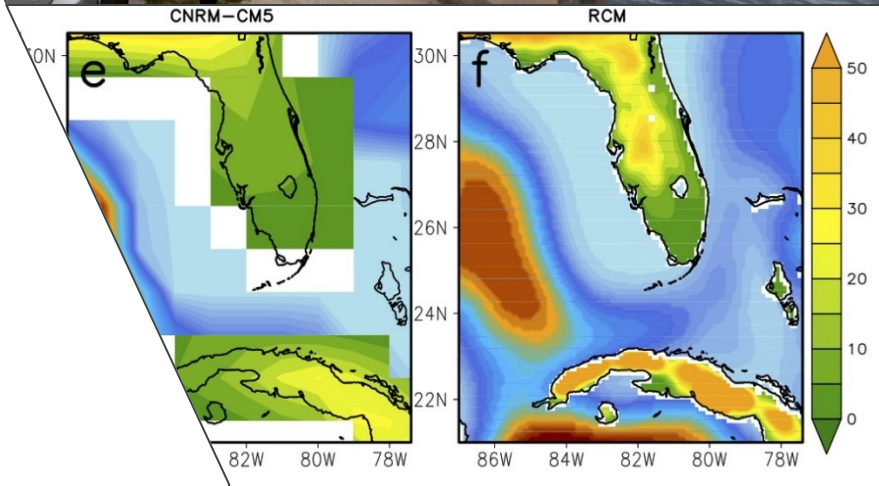
Joined the Water Utility Climate Alliance

WUCA
Water Utility Climate Alliance

Vision:
Climate-resilient water utilities, thriving communities

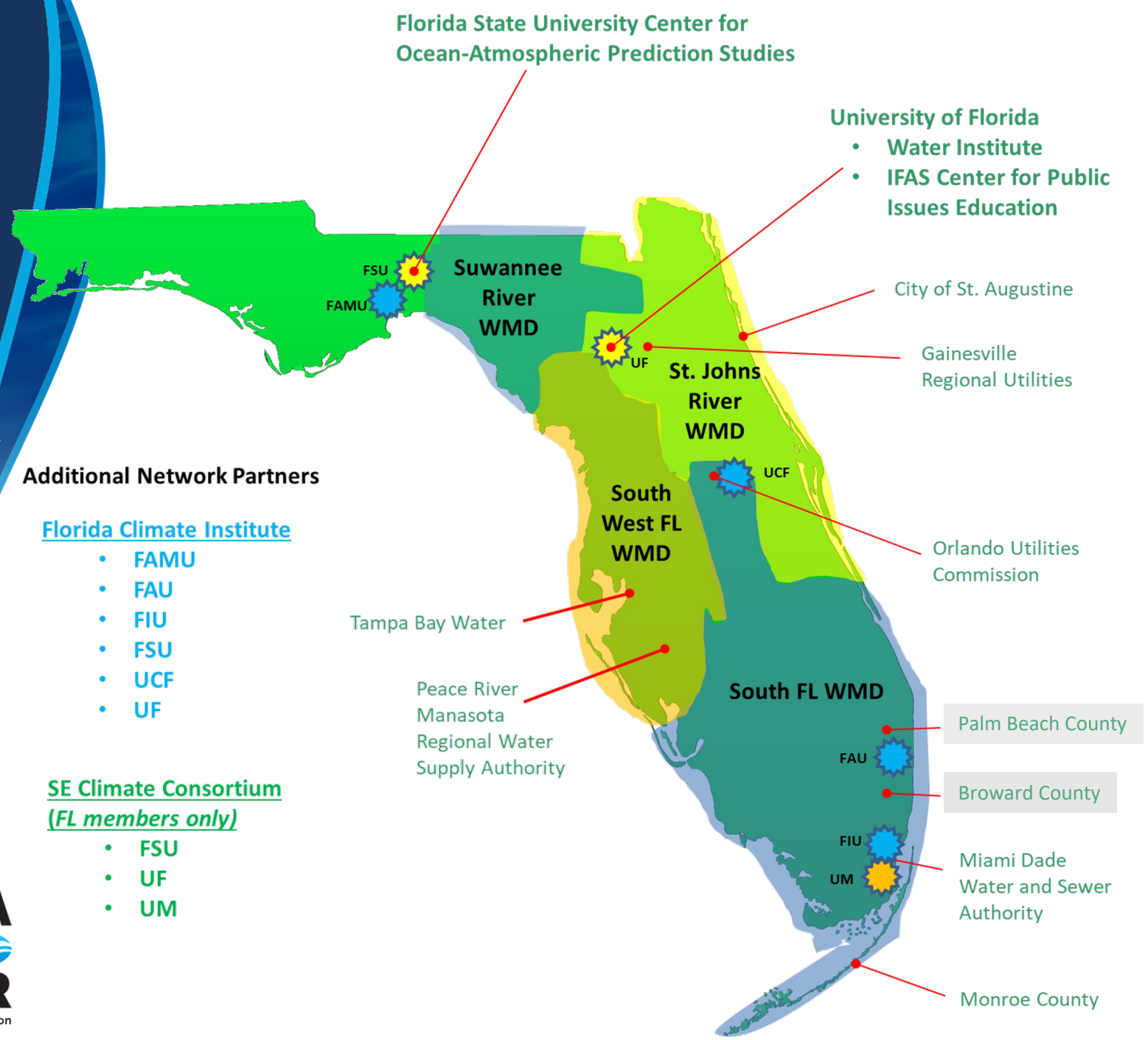
Mission:
Collaboratively advance water utility climate change adaptation

What did we do?



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

Members and Supporters of the Florida Water & Climate Alliance



Additional Network Partners

Florida Climate Institute
- FAMU
- FAU
- FIU
- FSU
- UCF
- UF

SE Climate Consortium
(FL members only)
- FSU
- UF
- UM

TAMPA BAY WATER
Supplying Water To The Region

SOUTHEAST
Climate Adaptation Science Center

FLORIDA Water & Climate Alliance

Sustain and Engage: Steering committee

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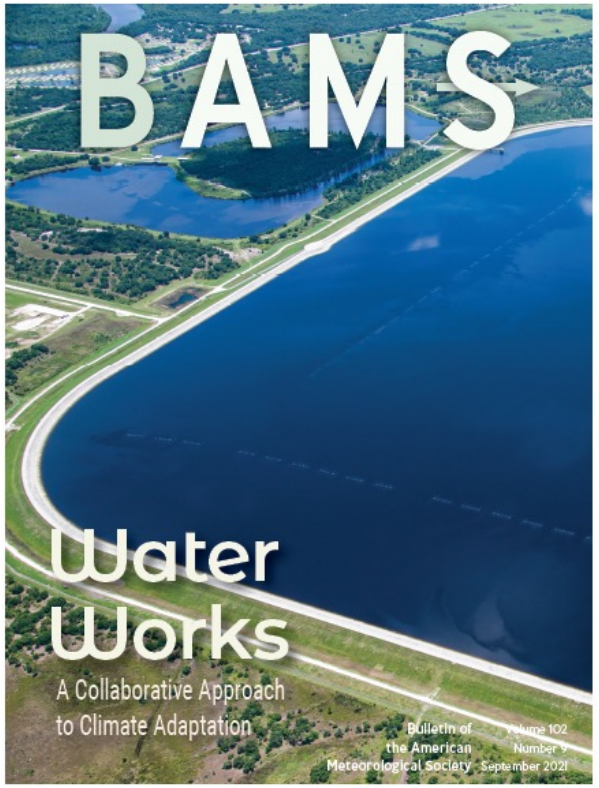
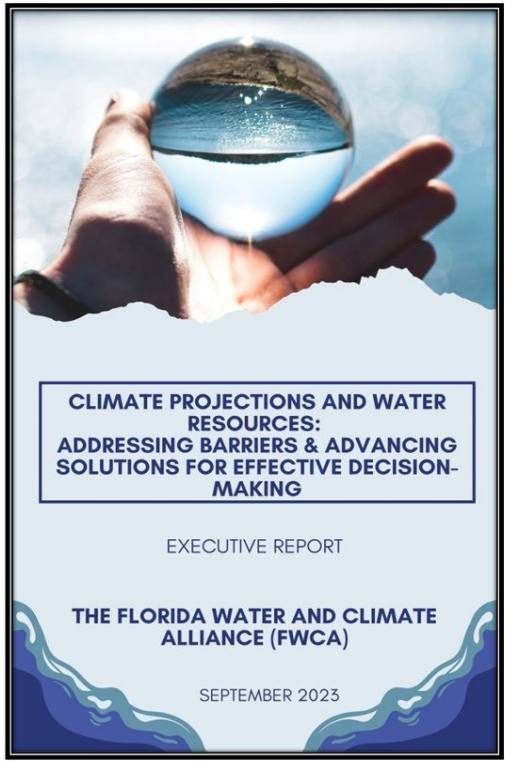
- Centralized admin support (used by WUCA)
- Loosely couple organization with institutional champions
- Scientists, partitioners and “regulatory” orgs are in tune
  - Iterative learning process
- Funding



Misra, V., Irani, T., Staal, L., Morris, K., Asefa, T., Martinez, C., and Graham, W. 2020. The Florida Water and Climate Alliance (FloridaWCA): Developing a Stakeholder–Scientist Partnership to Create Actionable Science in Climate Adaptation and Water Resource Management. Bulletin of the American Meteorological Society 102(2):1-38



Irani, T., Anderson, R., Pierre, B., & Michael, A. (2023). Climate projections & water resources: Addressing barriers & advancing solutions for effective decision-making. Gainesville, FL: University of Florida.

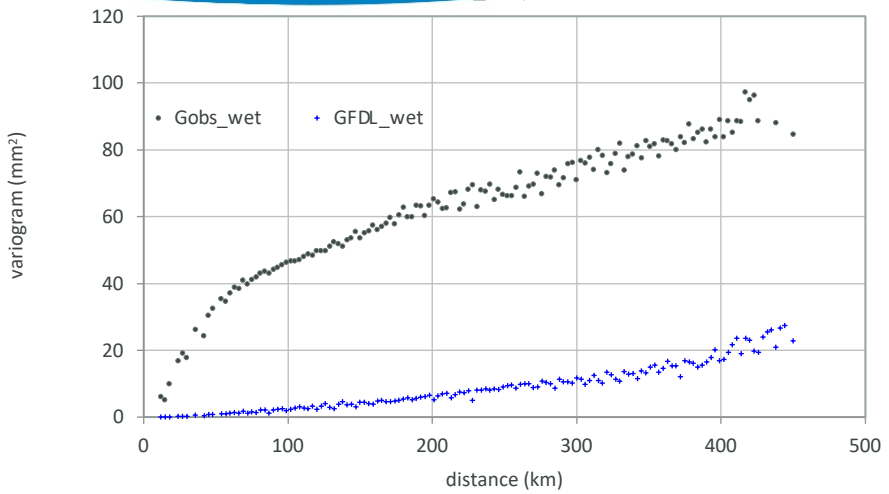
Continued engagement among scientists and stakeholders answering questions

- Hypothesis: Landfalling tropical cyclones help to mitigate droughts in the southeastern United States, especially in Florida.

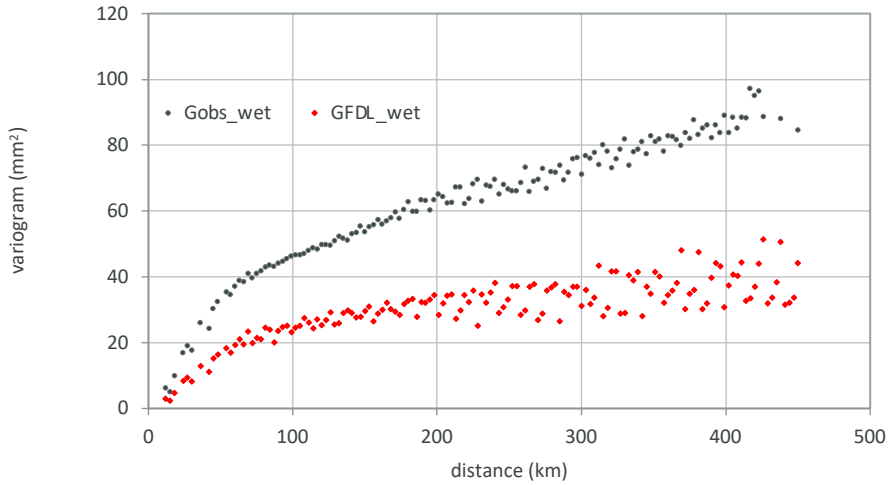
- Florida WCA investigation by Misra and Bastola (2015) found that the contribution of the rainfall from landfalling tropical cyclones on the mitigation of monthly drought in the 28 southeastern U.S. watersheds (including five watersheds in Florida) is relatively insignificant.

A downscaling approach that is in tune with Tampa Bay area

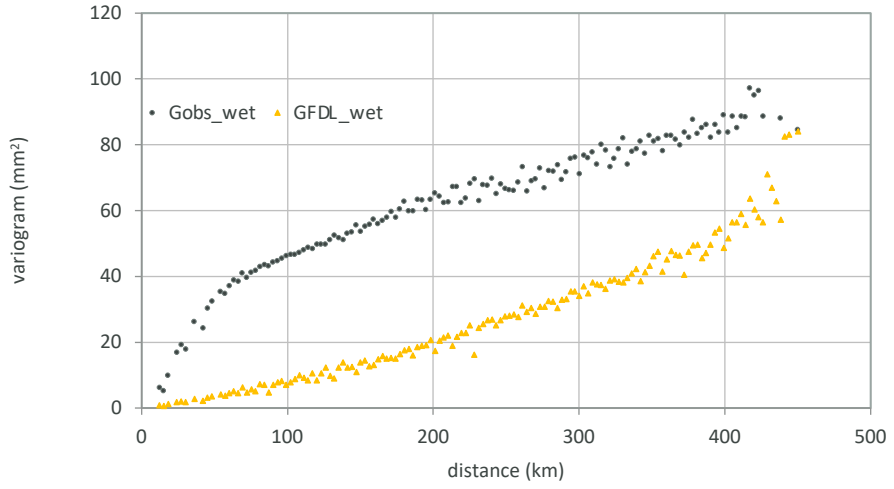
(a) **BCSD**_daily wet



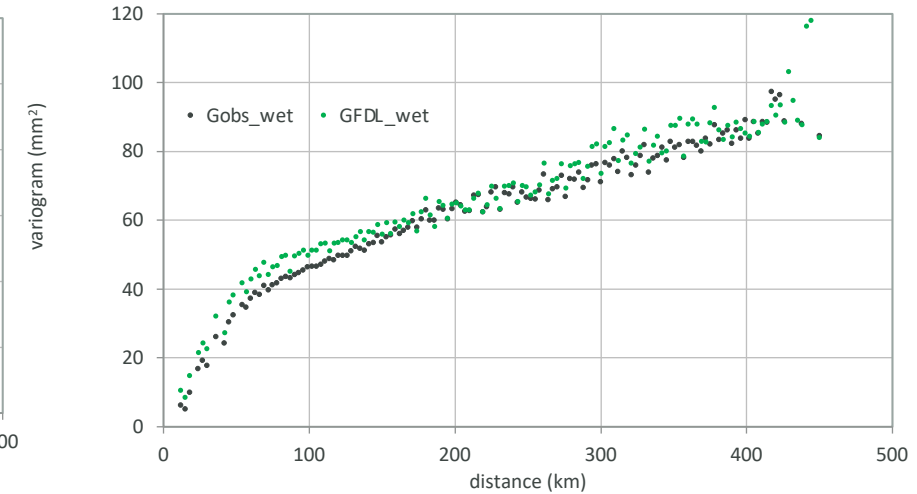
(b) **BCCA**_wet

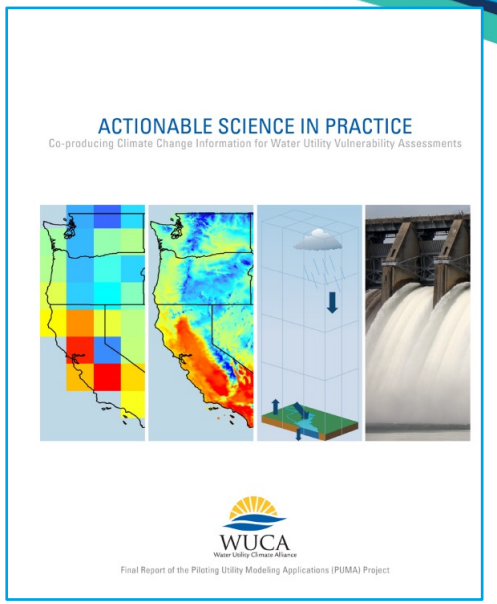


(c) **SDBC**_wet



(d) **BCSA**_wet





Hwang and Graham, 2013
Hydrol. Earth Syst. Sci.

Collaborative research products (in chronological order)

Peer reviewed articles of Tampa Bay Water and Florida Water and Climate Alliance

- Hwang, S., Graham, W.D., Jose, L.H., C. Martinez, J.W., Jones and Adams, A. (2011). Quantitative Spatiotemporal Evaluation of Dynamically Downscaled MM5 Precipitation Predictions over the Tampa Bay Region, Florida. Journal of hydrometreology.
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- Asefa, T. and Adams, A. (2013). “Reducing bias-corrected precipitation projection uncertainties: a Bayesian-based indicator weighting approach.” Reg. Environ. Change, 13, 111–120, doi:10.1007/s10113-013-0431-9, 2013.
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- Chang, S., Graham, W., Geurink, J., Wanakule, N., and Asefa, T.: Evaluation of impact of climate change and anthropogenic change on regional hydrology, Hydrol. Earth Syst. Sci. Discuss., https://doi.org/10.5194/hess-2018-91, 2018
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- Panaou, T., Asefa, T. and M. Nachabe (2019). Performance evaluation of a water supply system under a changing climate; In: Melesse, A. W. Abtew and S. Gabriel (Eds.), Extreme Hydrology & Climate Variability Book Chapter, Elsevier Institute Chapter 37.

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- Misra, V., Irani, T., Staal, L., Morris, K., Asefa, T., Martinez, C., and Graham, W. 2020. The Florida Water and Climate Alliance (FloridaWCA): Developing a Stakeholder–Scientist Partnership to Create Actionable Science in Climate Adaptation and Water Resource Management. Bulletin of the American Meteorological Society 102(2):1-38 DOI:10.1175/BAMS-D-19-0302.1, 2020.
- Wang H., Asefa, T., Misra, V., and Bhardwaj, A. 2022, Assessing the Value of a Regional Climate Model's Rainfall Forecasts in Improving Dry-Season Streamflow Predictions, Journal of Water Resource Planning and Management, DOI:10.1061/(ASCE)WR.1943-5452.0001571, 2022

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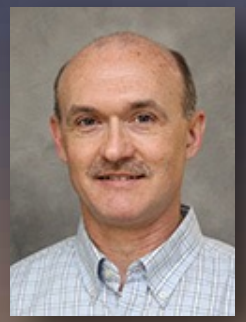

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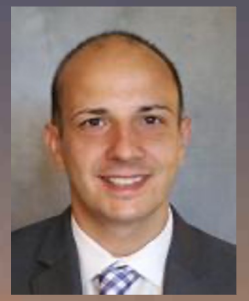

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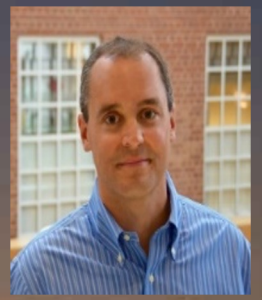

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Questions