

# FLORIDAN AQUIFER: WATER USE, POLICY AND CHALLENGES

**Water For Southwest Georgia's Future:  
An Informational Program for Local Leaders  
UGA Stripling Irrigation Research Park  
September 26, 2022**



**GEORGIA**  
*Water*

PLANNING & POLICY  
— CENTER —  
ALBANY STATE UNIVERSITY

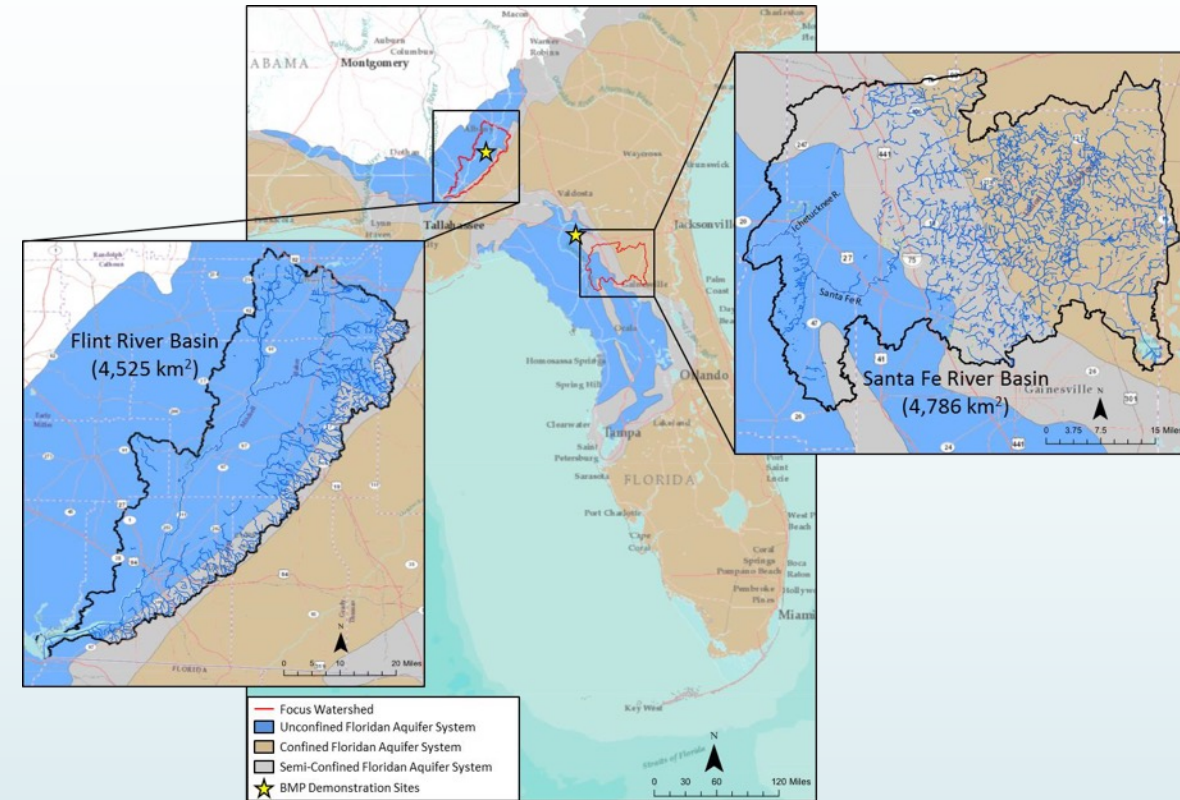
**Mark H. Masters**  
**Georgia Water Planning & Policy Center**  
**Albany State University**

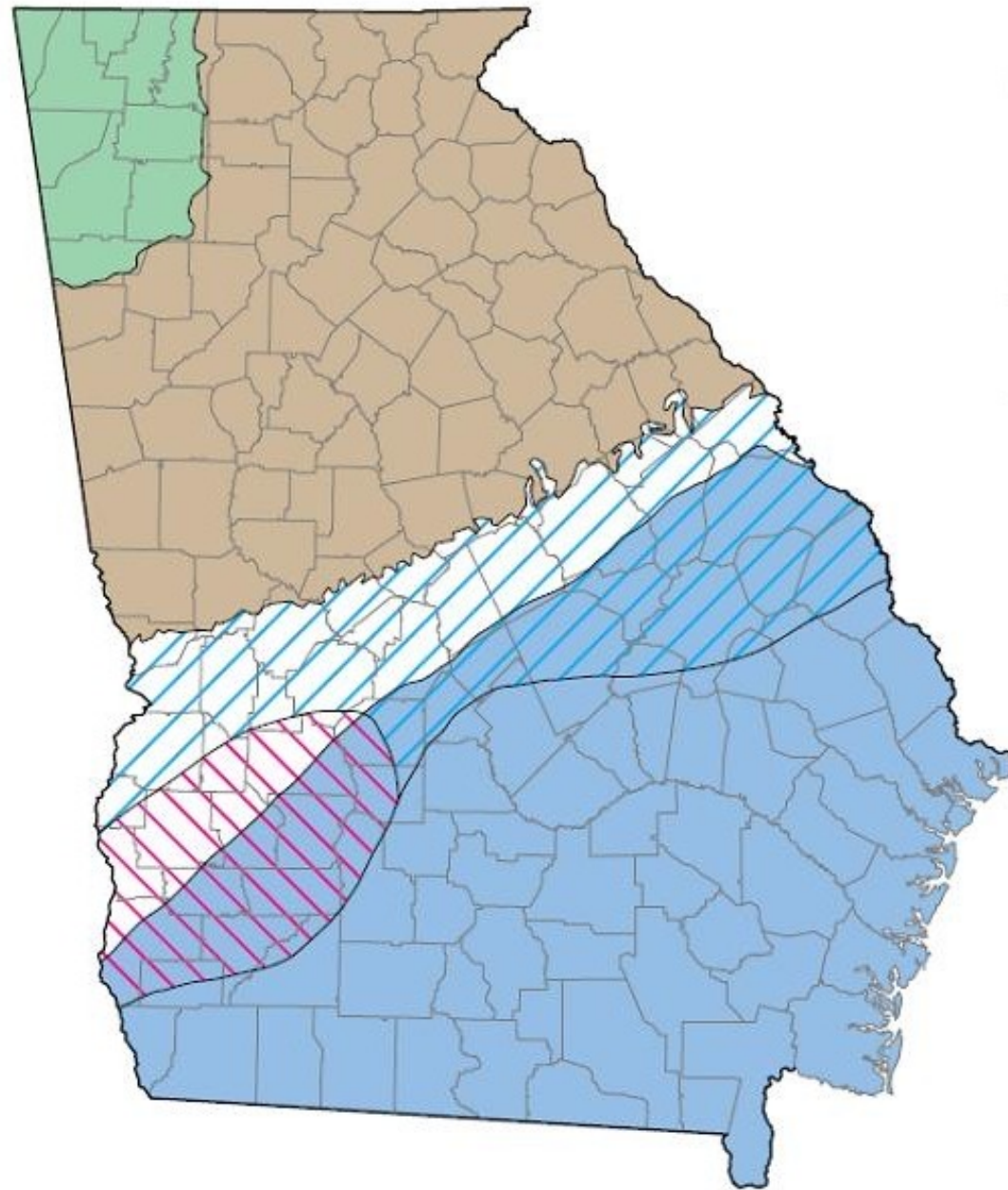


UNIVERSITY SYSTEM OF GEORGIA

# The Floridan Aquifer




- **~10 million people** depends on Upper Floridan Aquifer (UFA) for water
- **~\$9B in agriculture**-related economic activity; corn, cotton, peanuts, timber
- Among largest & most productive aquifers; **vital regional resource**.
- **Competition** between urban, ag, forestry, & environmental water uses.
- **Exacerbated by:** climate variability, agricultural migration, and stringent environmental standards intended to address declining ecosystem health





### EXPLANATION



#### COASTAL PLAIN AQUIFERS

-  Floridan aquifer system
-  Claiborne, Clayton, and Providence aquifers
-  Cretaceous aquifer systems

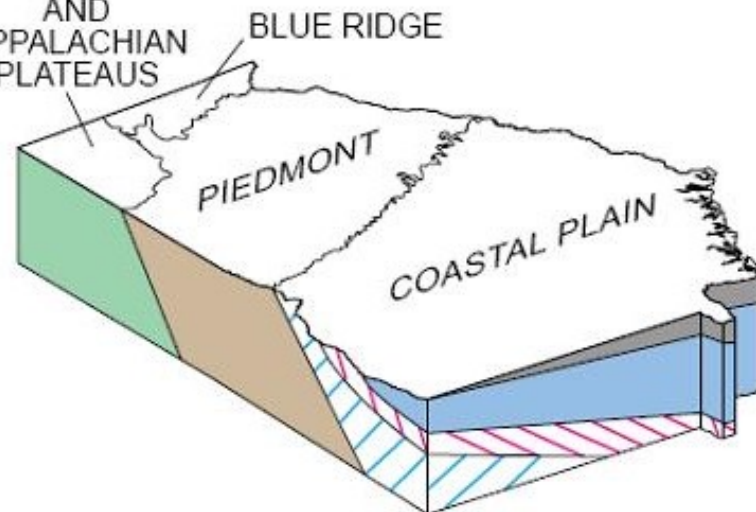
#### PIEDMONT AND BLUE RIDGE AQUIFERS

-  Crystalline-rock aquifers

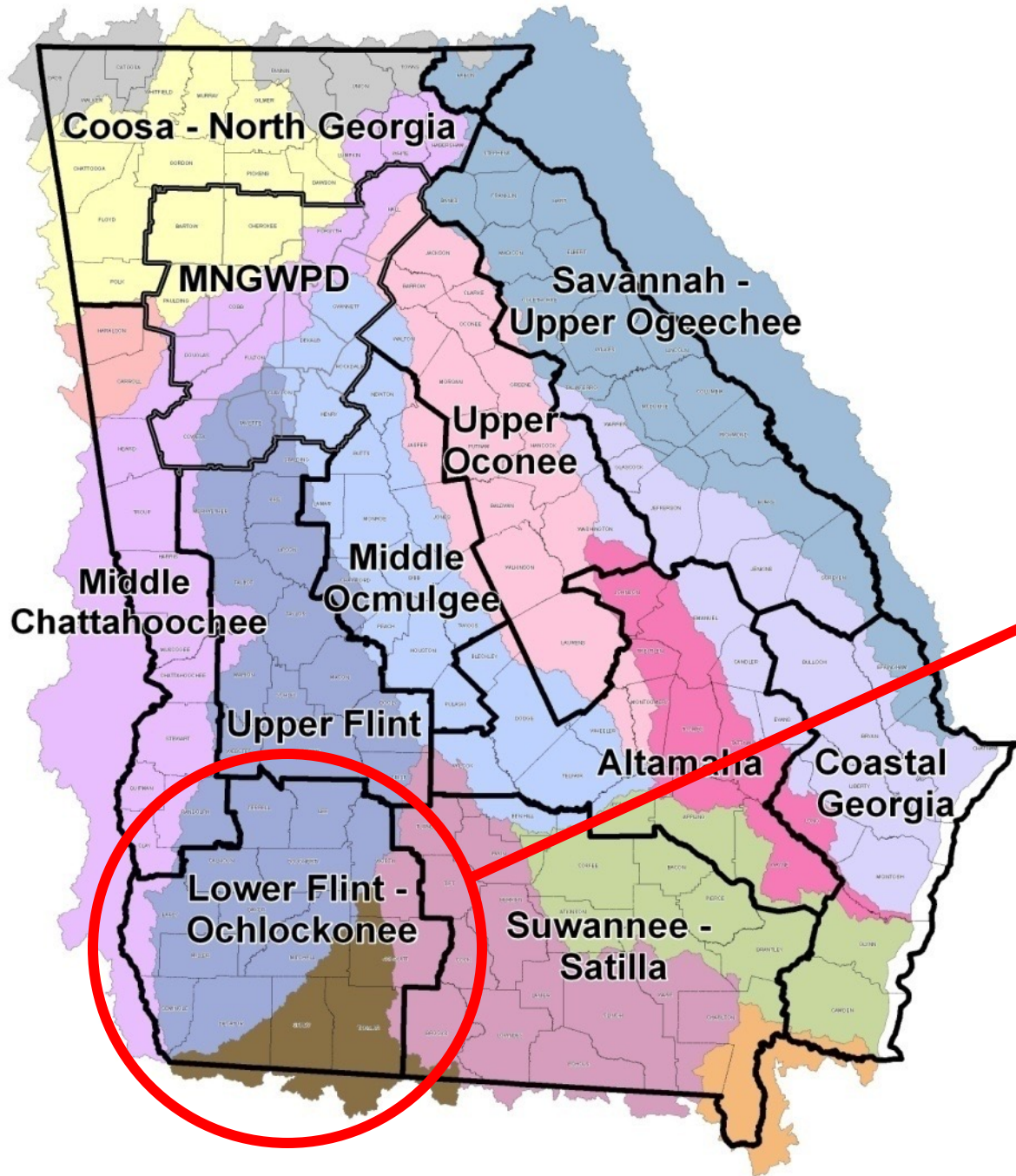
#### VALLEY AND RIDGE AND APPALACHIAN PLATEAUS AQUIFERS

-  Paleozoic rock aquifer
-  Not a principal aquifer

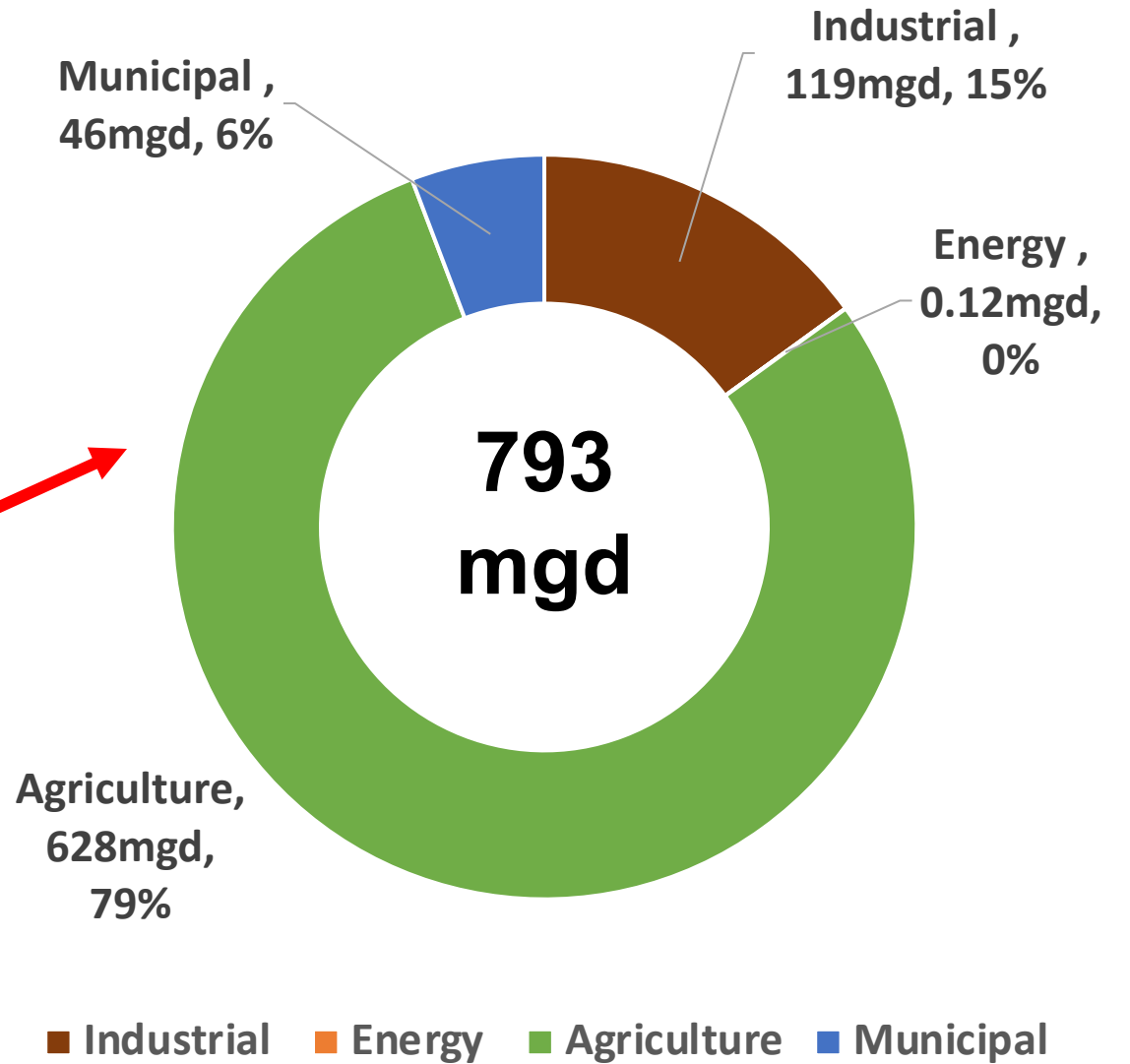
#### VALLEY AND RIDGE AND APPALACHIAN PLATEAUS

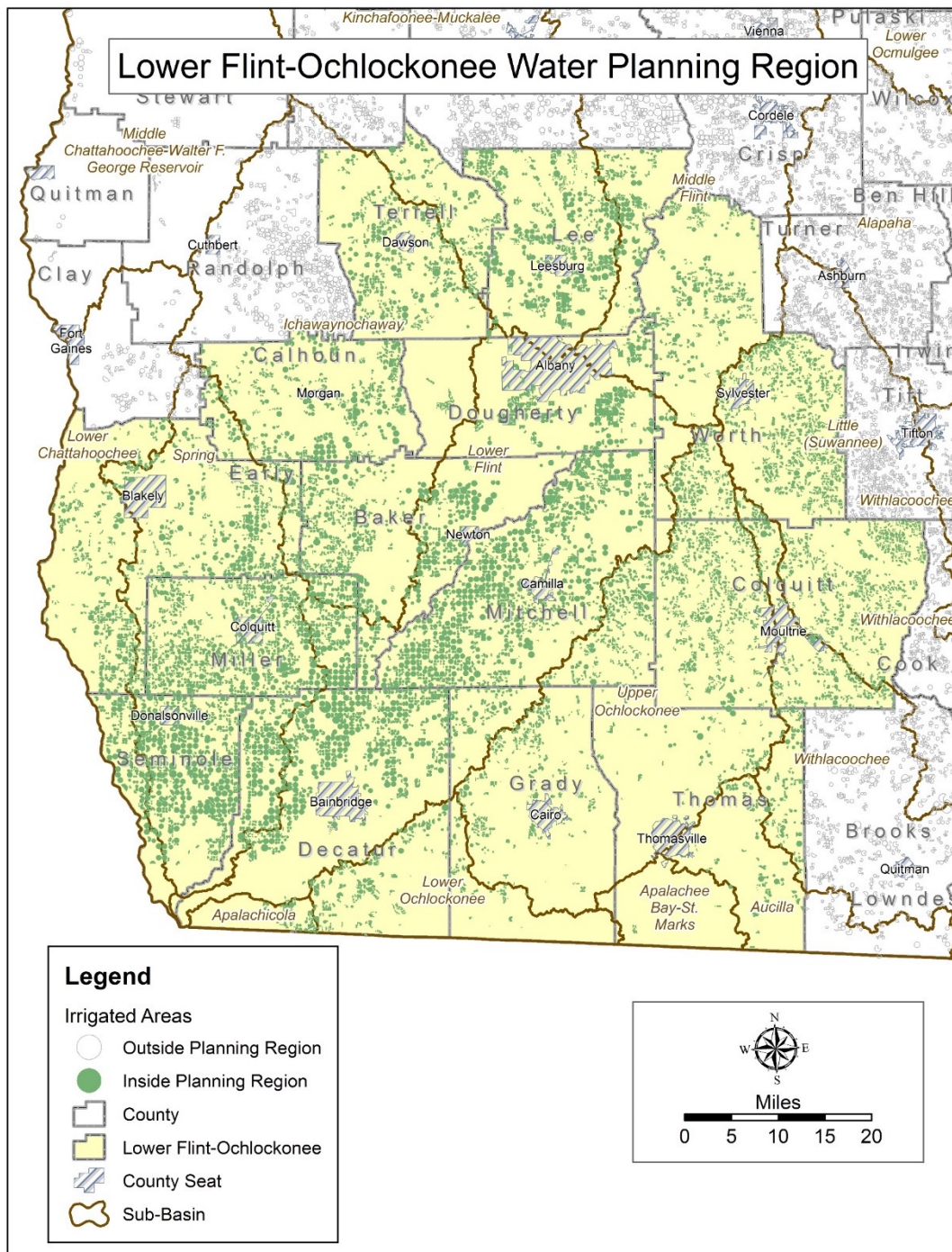


Major Aquifers Recharge During Wet Times... but at Various Rates



## Total Water Demand (MGD): 2020





## Irrigated Acres

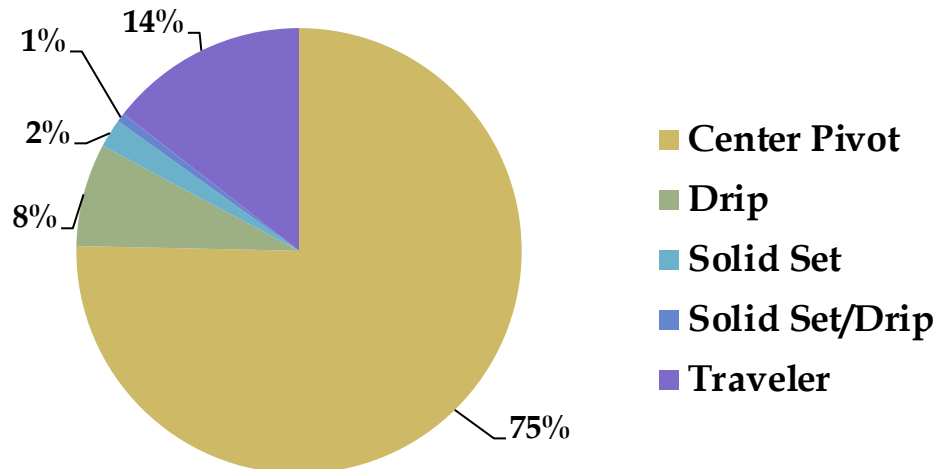
County	2015	2020
BAKER	42,273	42,218
CALHOUN	29,402	29,281
COLQUITT	54,622	56,045
DECATUR	76,391	77,751
DOUGHERTY	21,046	20,620
EARLY	48,973	49,909
GRADY	18,736	19,349
LEE	45,610	46,344
MILLER	60,840	61,955
MITCHELL	91,475	91,754
SEMINOLE	56,816	57,621
TERRELL	30,572	32,201
THOMAS	15,468	16,137
WORTH	54,923	56,503

# Lower Flint-Ochlockonee RWPC

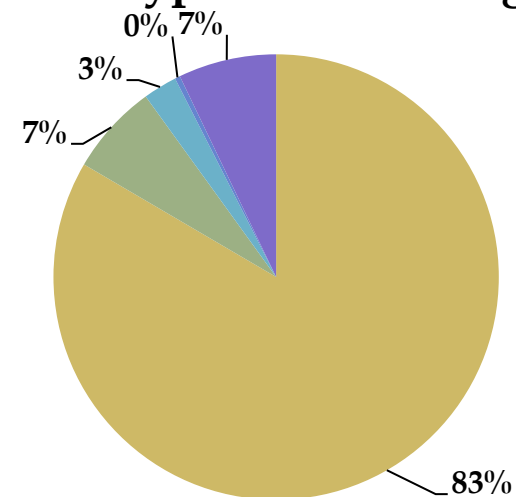
	2015	2020	% Change
Total # of Fields	11,742	12,233	+ 4.2%
Total Acreage	647,145	658,229	+ 1.7%
Total GW Acreage	532,569	548,459	+ 3.0%
Total SW Acreage	114,576	109,770	- 4.2%
Total Center Pivots	8,823	9,216	+ 4.5%
Center Pivot Acreage	539,059	549,189	+ 1.9%

**435,000 acres are from the Floridan**

**System Type - % of Systems**

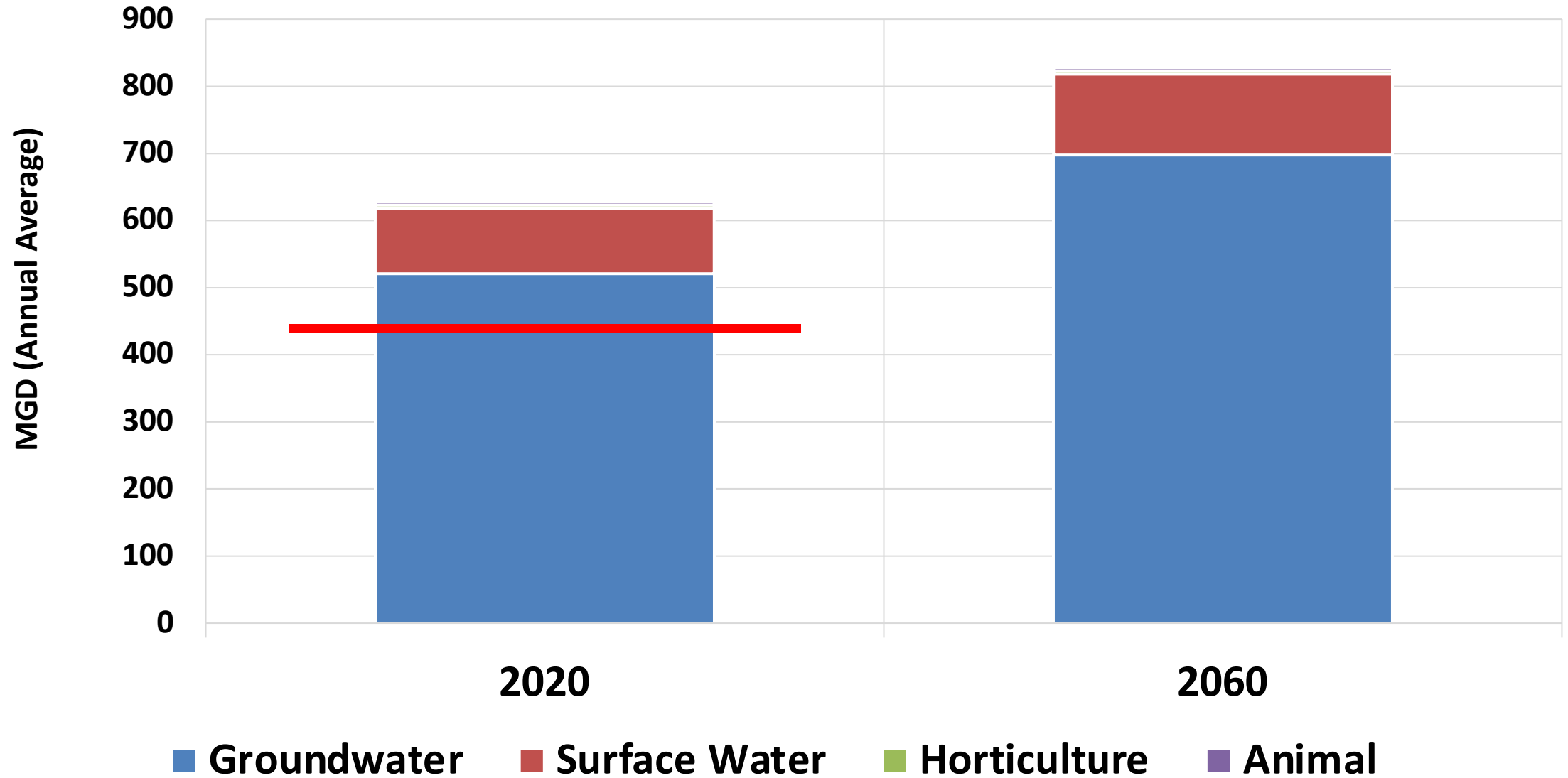


**System Type - % of Acreage**

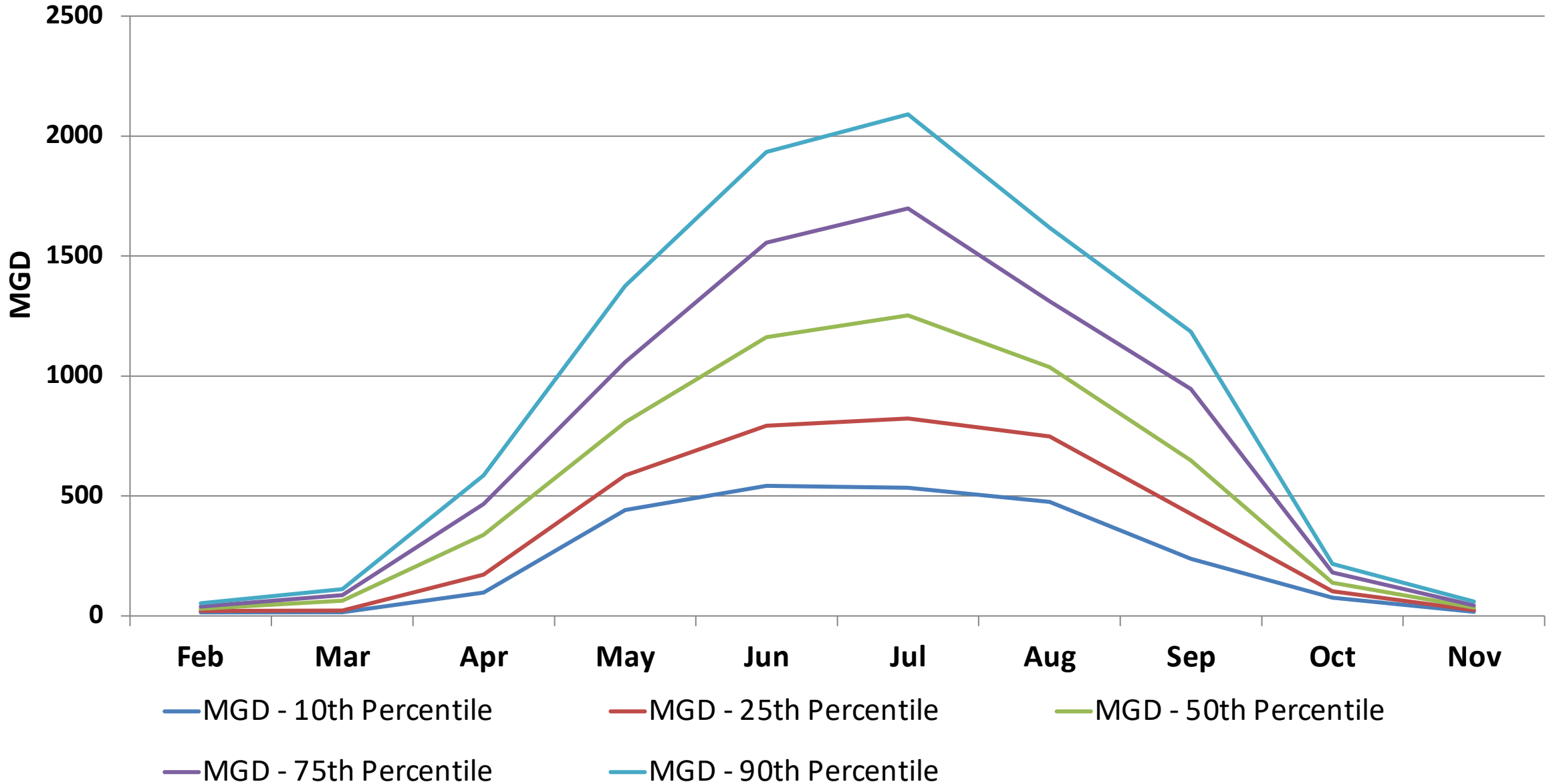


# LFO – Ag Demand – Forecast – 75th Percentile

## Totals (2020 & 2060)

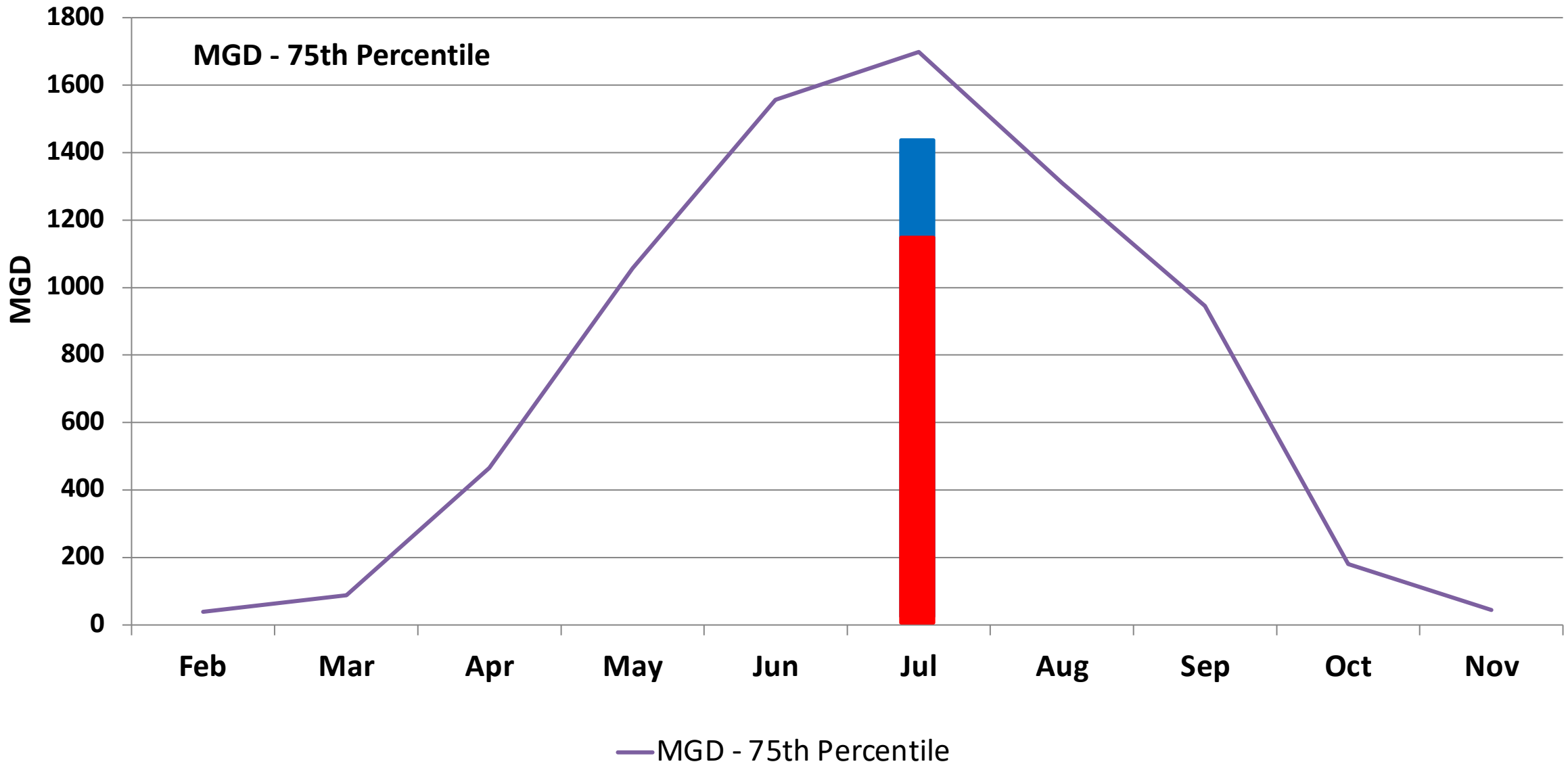


# Lower Flint-Ochlockonee RWPC - Monthly

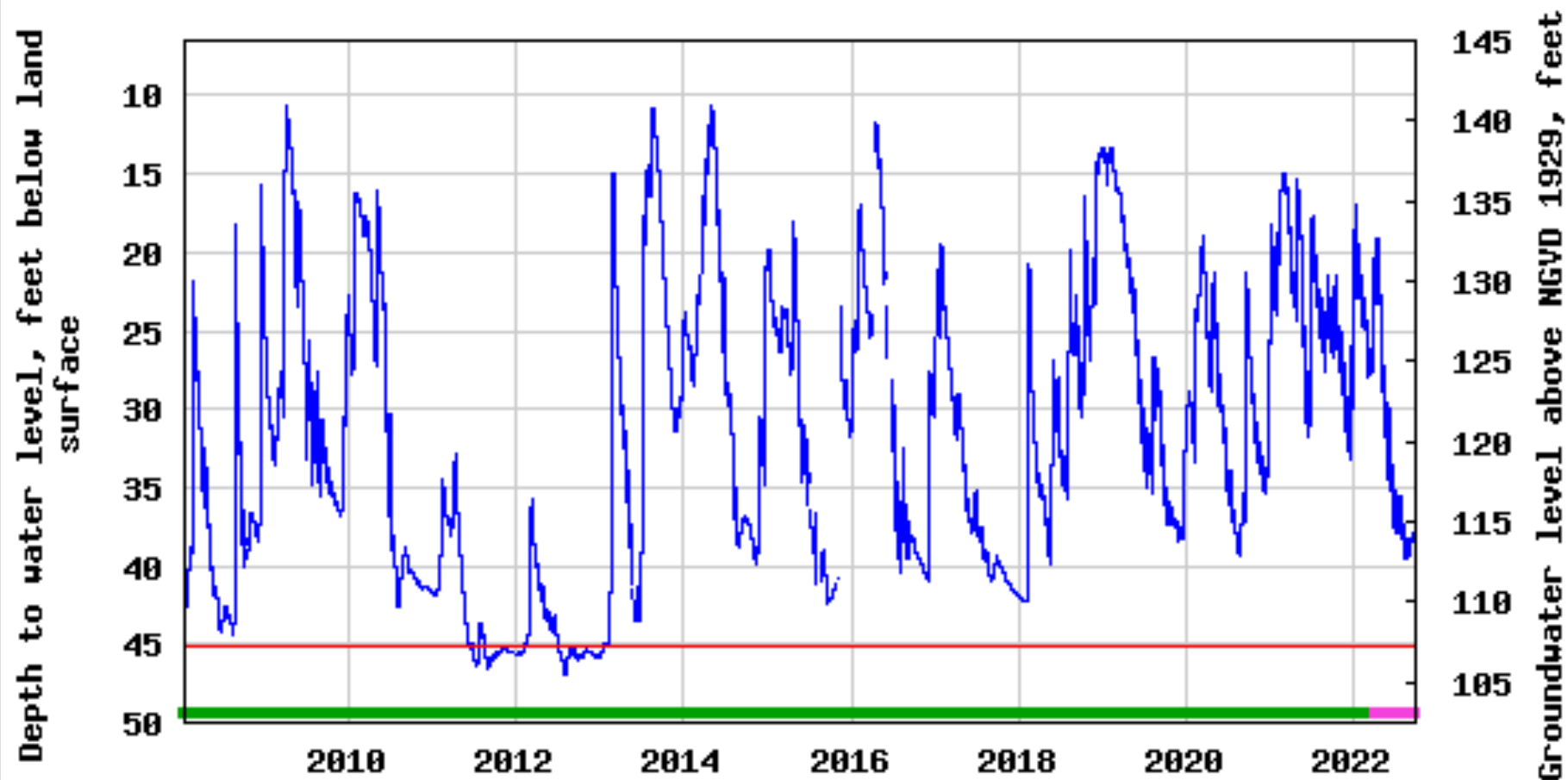




# Lower Flint-Ochlockonee RWPC - Monthly

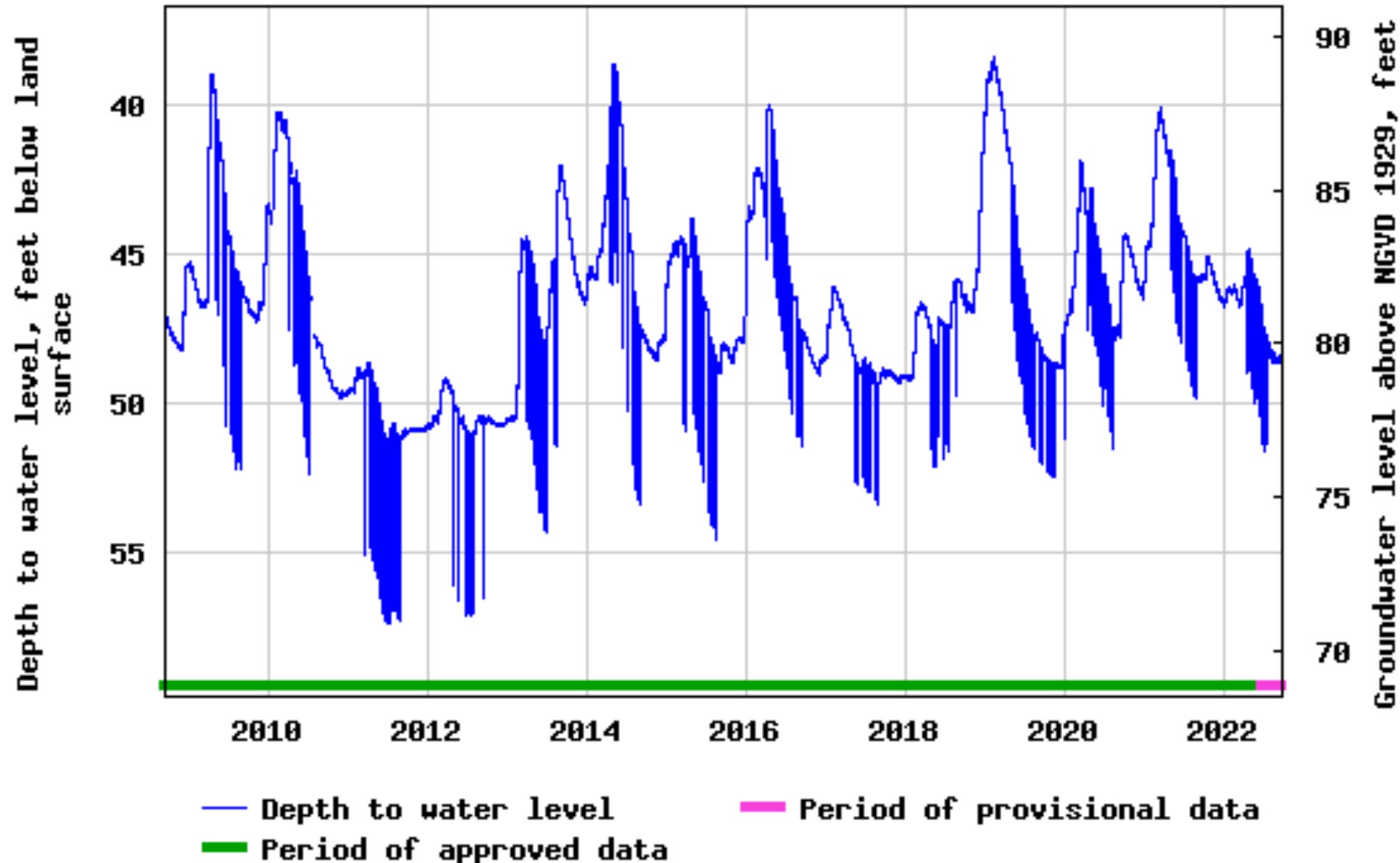


### USGS 310651084404501 08G001

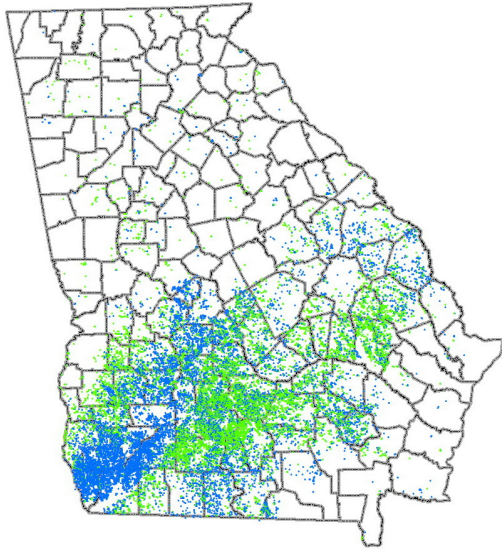


- Depth to water level
- █ Period of approved data
- █ Period of provisional data
- Lowest water level recorded prior to 1999 (45.1 ft, Aug 30, 1997)

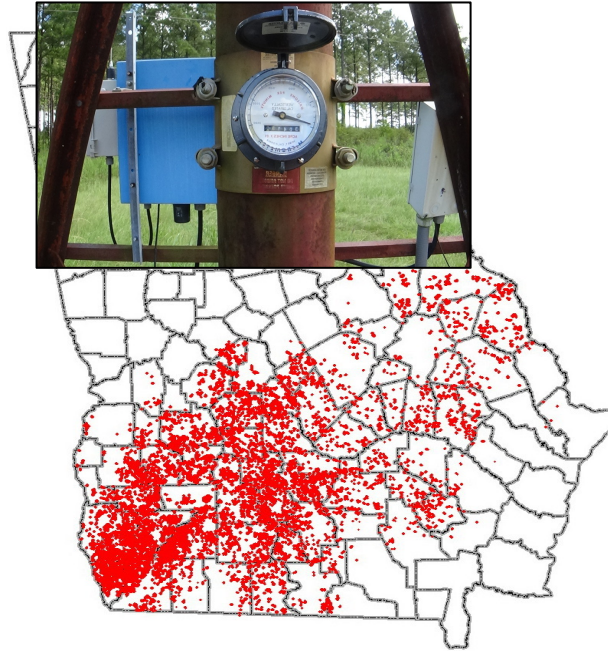
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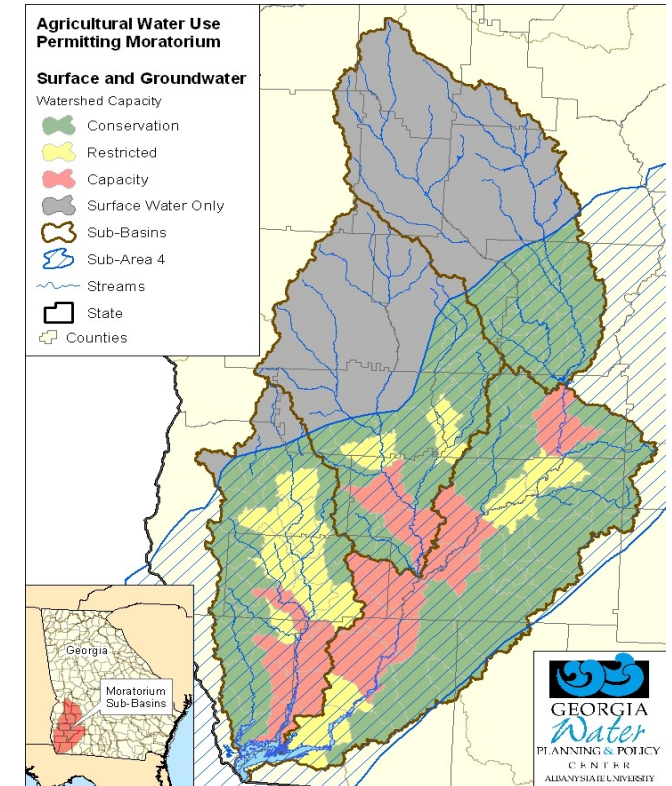
# Permitting



# Metering



# Moratoriums

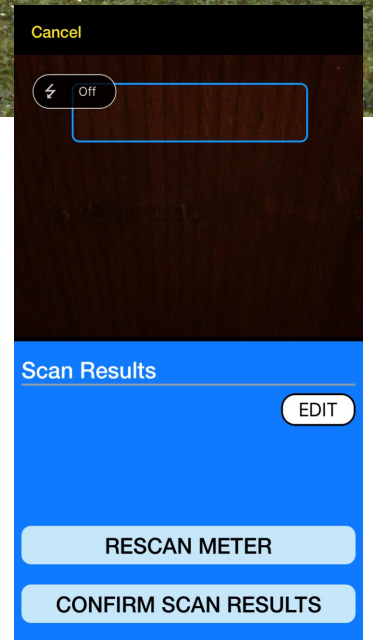
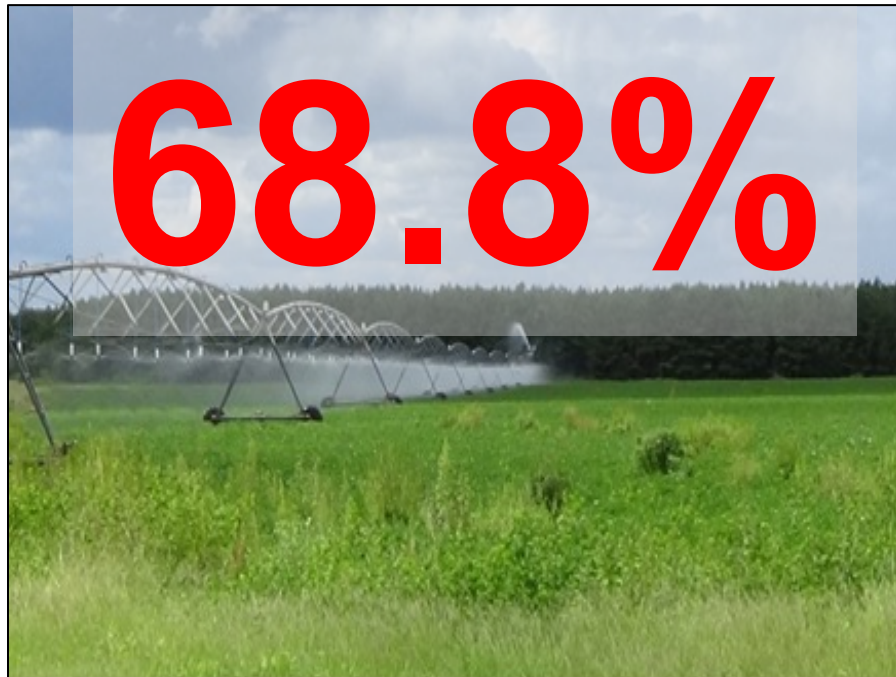


# Planning



# Other Policy

- Flint River Drought Protection Act and Amendments
- Water Stewardship Act
- Pilot programs and research on alternate sources
- Investments in data collection and conservation



So, if Everything is So  
Great...

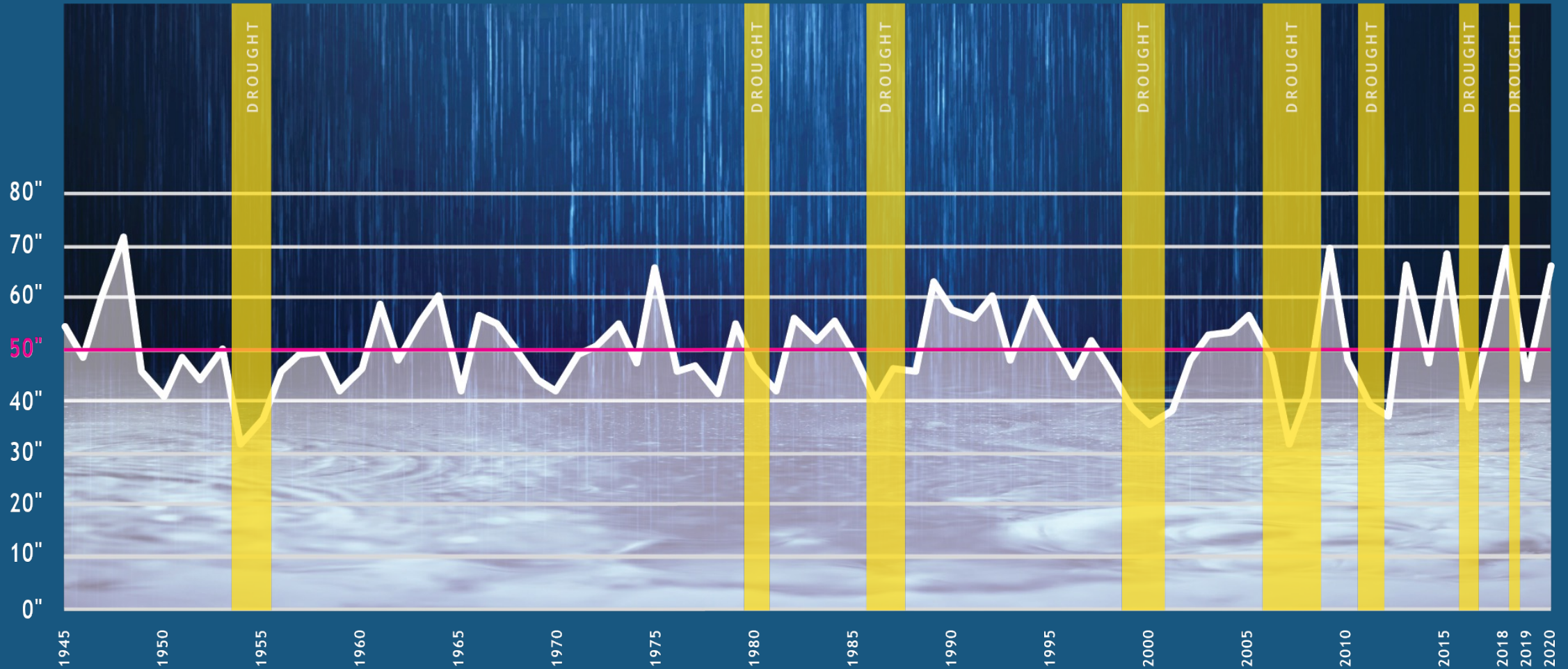
The background of the image is a close-up photograph of parched, cracked earth. The soil is a rich, dark brown color, and the cracks are deep and irregular, forming a complex, web-like pattern across the entire surface. The lighting is even, highlighting the texture and depth of the fissures.

**We Will Always Have  
Challenges**

# Cycles of Floods and Droughts

Annual Rainfall

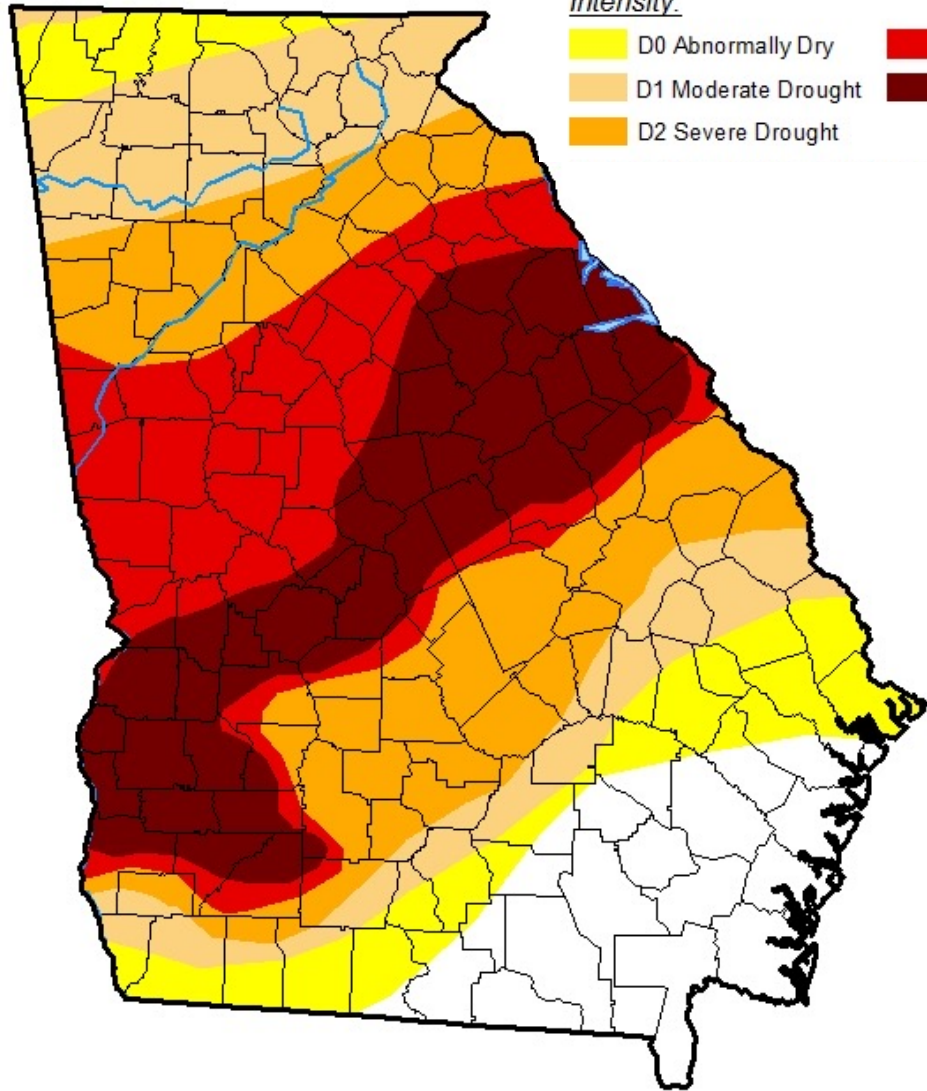
Average Annual Rainfall = 50 inches



While we receive abundant rain most years, multi-year droughts stress our water supply and have become more frequent.



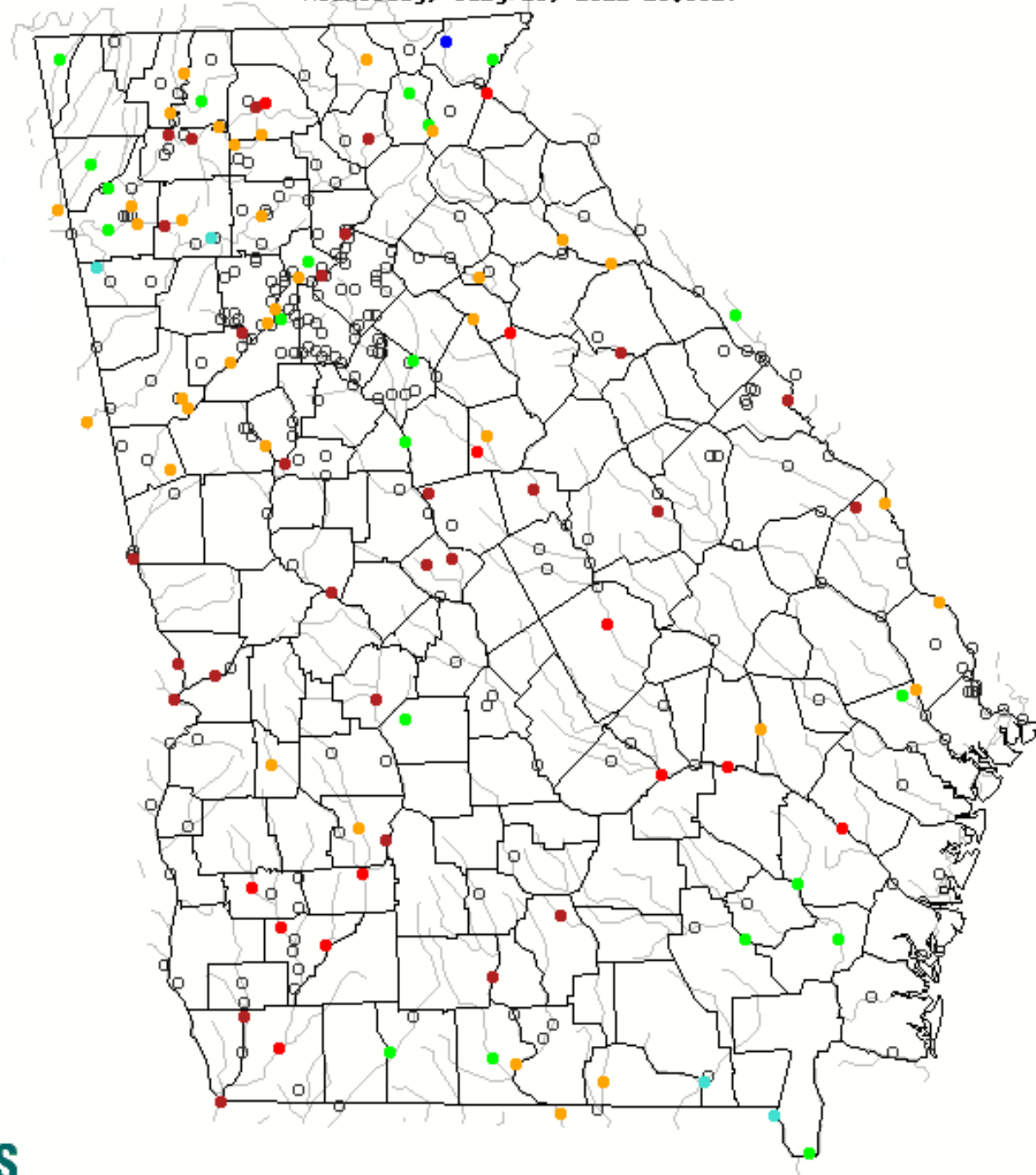
# U.S. Drought Monitor Georgia



Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

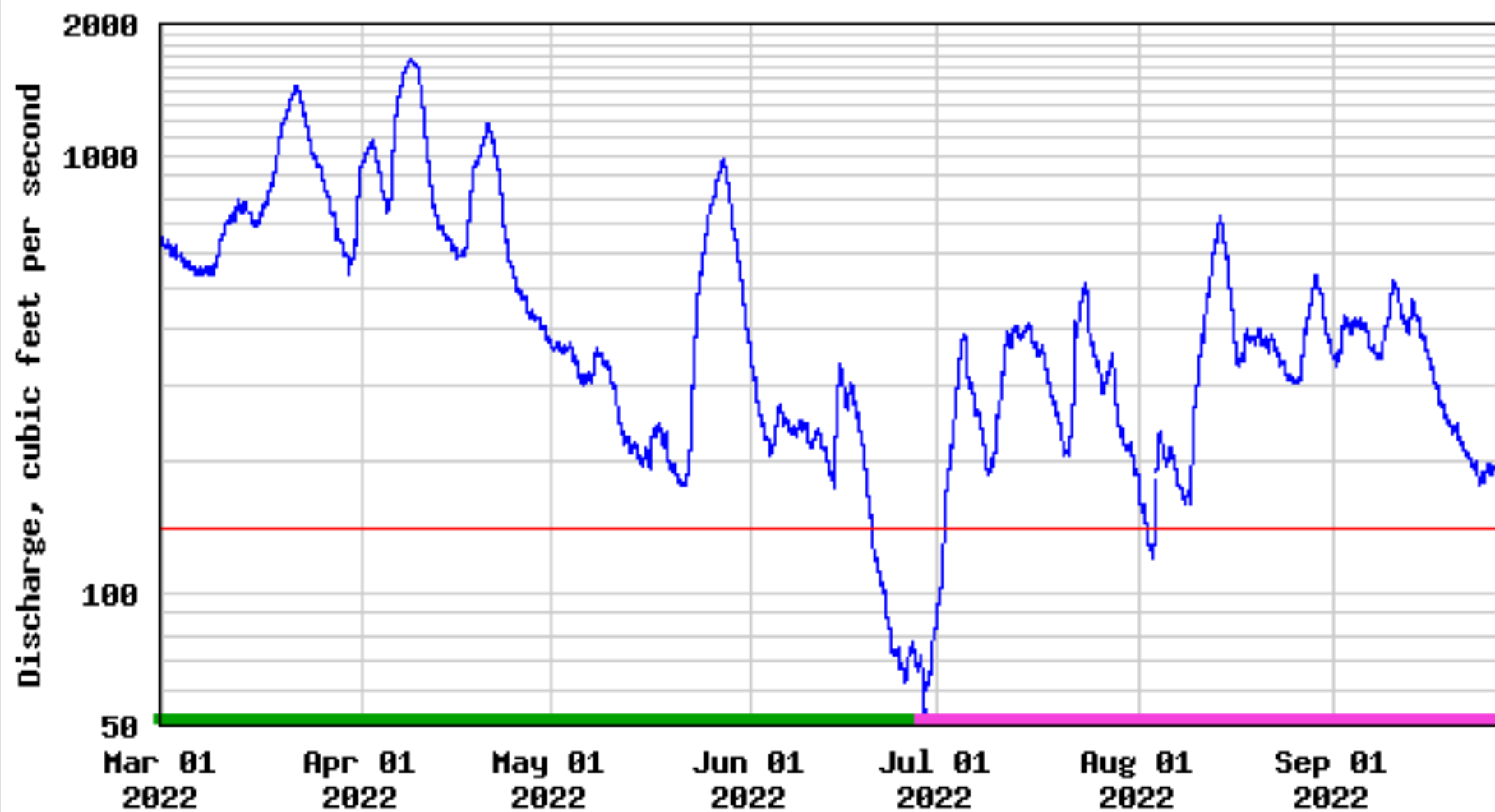
Wednesday, July 18, 2012 15:30ET







## USGS 02353500 ICHAWAYNOCHAWAY CREEK AT MILFORD, GA



— Discharge

■ Period of approved data

■ Period of provisional data

— Annual 7Q10

So where are we headed?



# So where are we headed?

- Irrigated ag consistently produces more crops, of higher quality and we generally have the water to do it;
- Irrigation doesn't happen in a vacuum, ag water policy development won't either;
- There's a foundation of innovation on which to build;
- Opportunity for policy innovations is ripe;
- Resiliency of Georgia agriculture and Georgia ecosystems are not mutually exclusive;
- Stakeholders are engaged and work is underway.

