



Georgia's State Water Plan


**Savannah – Upper Ogeechee
Regional Water Planning Council Meeting
October 29, 2020**

www.georgiawaterplanning.org



Council Business

Council Business



Georgia's State Water Plan

Virtual Council Meeting
Savannah-Upper Ogeechee Regional Water Council
Draft Agenda - October 29, 2020
10:00 am

<https://zoom.us/j/96676417816>, Meeting ID: 966 7641 7816

- 9:45 – 10:00 a.m. Virtual Registration for Council Members
- 10:00 – 10:10 a.m. Roll Call, Welcome, Introductions
- 10:10 – 10:15 a.m. Council Business
 - *Approve draft meeting minutes from June 4, 2020 Council Meeting*
 - *Approve draft meeting agenda*
- 10:15 – 10:20 a.m. Special words from the Chair: Remembering Tom Wiedmeier – *Bruce Azevedo*
- 10:20 – 10:35 a.m. EPD Updates:
 - *Seed Grants Status - Haydn Blaize, Georgia EPD*
 - *Municipal Forecasting Effort – Jennifer Welte, Georgia EPD*
- 10:35 – 10:45 a.m. Seed Grant Project Updates/Updates to website: Developing a real-time, publicly accessible water monitoring system in the Savannah-Upper Ogeechee Basins – *Tonya Bonitanibus, Savannah River Keeper*
- 10:45 - 10:55 a.m. Metro North Georgia Water Planning District Updates – *Danny Johnson, MNGWPD*
- 10:55 – 11:10 a.m. Energy and Industrial Demand Forecasting Updates – *William Davis, CDM Smith*
- 11:10 – 11:25 a.m. Agriculture Water Use and Demand – *Mark Masters, Georgia Water Planning & Policy Center*
- 11:25 - 11:30 a.m. Public Comments / Wrap Up

waterplanning.georgia.gov

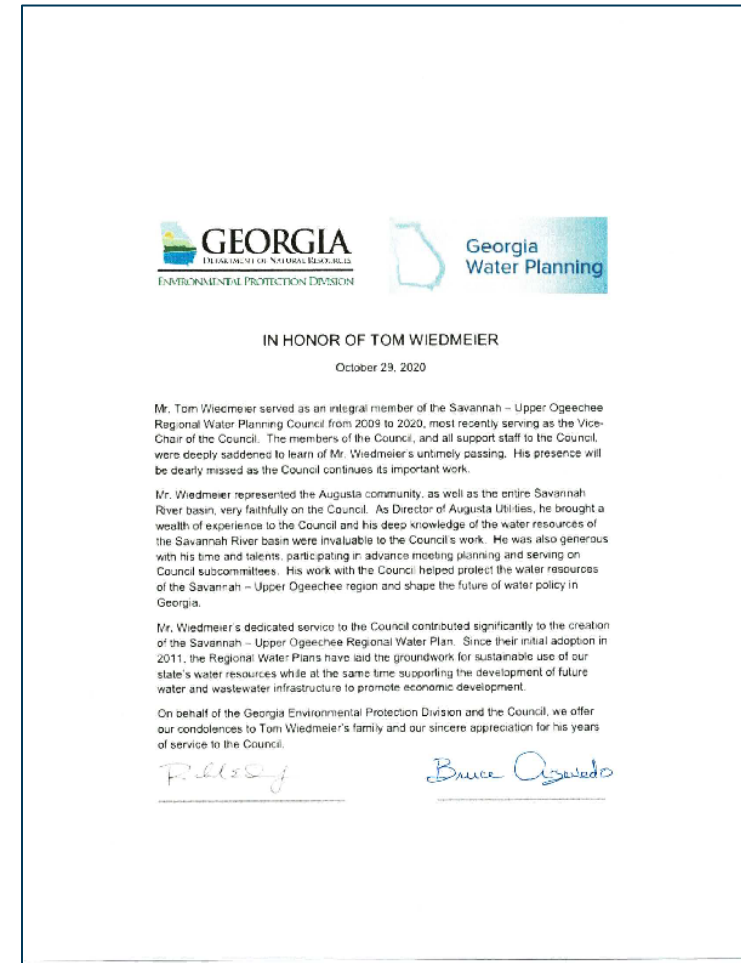
- Welcome & Introductions
- Approve Meeting Summary from June 4, 2020 Council Meeting
- Approve today's meeting draft agenda



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Special Words from the Chair: Remembering Tom Wiedmeier

Remembering Tom Wiedmeier





Updates from Georgia EPD



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SEED Grant Project Updates

Grant Project Updates Cont'd

- 319(h) FY16 award: **In Progress**
 - **Biota Improvement in an Urban Stream through Aquatic Habitat Restoration**
 - Lead Partner: City of Augusta
 - Date: 7/1/2018 – 12/31/2020

Grant Project Updates Cont'd

- 319(h) FY17 award: **In Progress**
 - **Stekoa Creek WMP Implementation Project**
 - Lead Partner: Georgia Mountains Regional Commission
 - Date: 12/27/2017 – 12/31/2021

Grant Project Updates Cont'd

- 319(h) FY18 award: **In Progress**
 - **Stormwater BMP Installation and Performance Comparison**
 - Lead Partner: City of Augusta
 - Date: 5/21/20 – 3/31/2023

Grant Project Updates Cont'd

- Seed Grant FY19: **In Progress**
 - **Initiating and Upgrading Publicly Accessible Water Monitoring for the SUO and Coastal RWPs**
 - Lead Partner: City of Augusta/Savannah Riverkeeper
 - Date: 9/24/2019 – 8/31/2021

Grant Project Updates Cont'd

- Seed Grants FY20: **In Progress**
 - **Historical Analysis of In-stream Water Quantities for the Ogeechee, Savannah, Altamaha and Oconee River Basins**
 - Lead Partner: University of Georgia
 - Date: 4/1/2020 – 3/31/2022

Grant Project Updates Cont'd

- Seed Grants FY20: **In Progress**
 - **High Frequency Monitoring and the Effects of Agricultural Water Withdrawal in the Savannah Upper Ogeechee Watersheds**
 - Lead Partner: City of Augusta
 - Date: 4/1/2020 – 9/30/2022

SEED Grant Updates

- Seed Grants FY21: **Application Process**
 - Eligible recipients of Seed Grant funds can include local, regional and State government, regional commissions, resource conservation and development councils, local schools, State college and universities, and State agencies
 - Attend pre-application meeting by October 16, 2020
 - Applications must be postmarked by October 31, 2020.



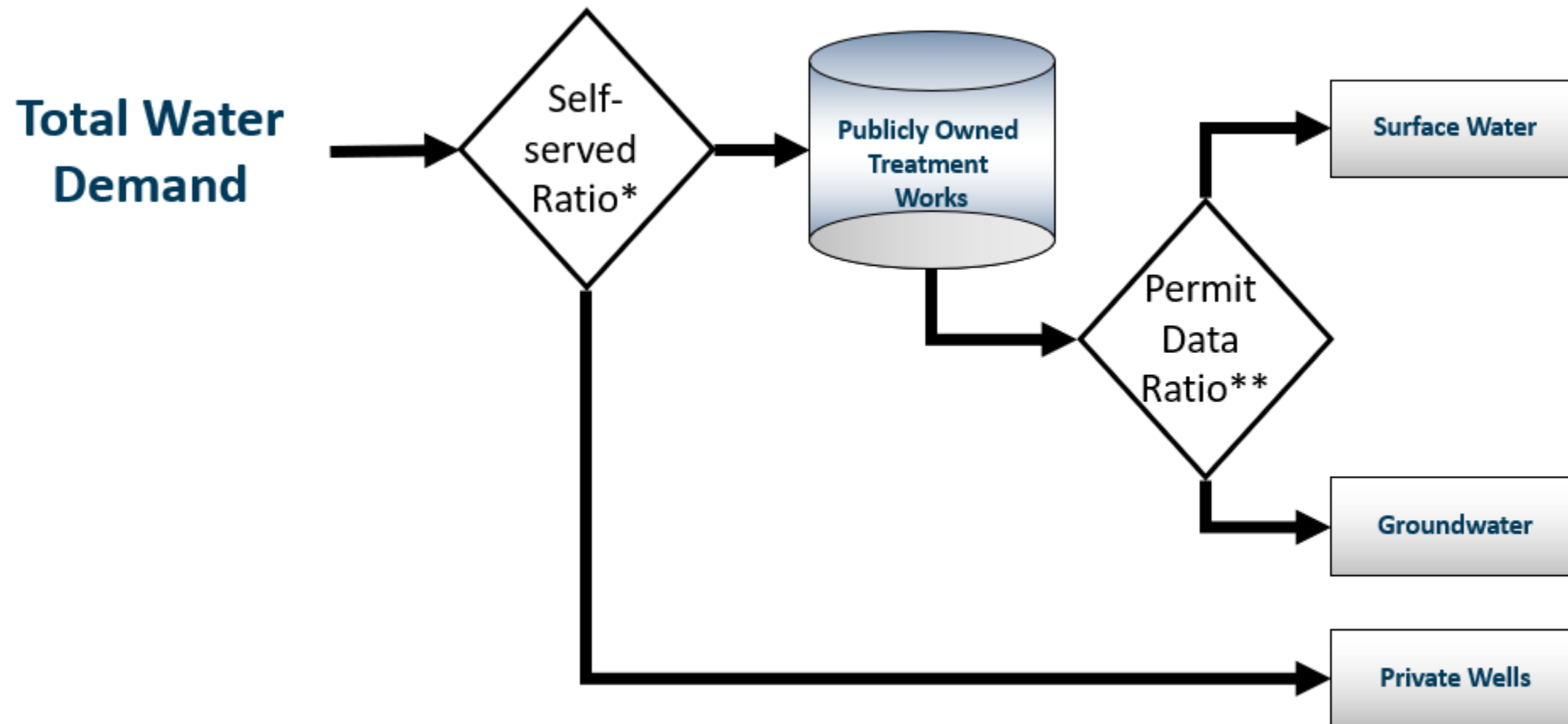
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Municipal Forecasting Effort

Municipal Water Demand Forecasting

- Municipal Forecasting Stakeholder Group
 - Includes one representative from each Council & the Metro Water District
 - Stakeholder Meetings held on April 16 and June 3
 - Reviewed methodology and initial data collection
 - Reviewed draft forecast results
 - Next meeting to be held this fall (date TBD)
- Forecast being prepared by Black & Veatch team
- Information from Industrial forecasting efforts will inform this forecast (municipally-supplied industries)

Municipal Water Demands



*Based on previous USGS estimates

**Based on existing GA EPD permit data

Municipal Water Demands – Self Supplied

- County % population self-supplied water (groundwater wells)
- The % self supplied will remain constant into the future, unless County-specific information is received.

County	2017 Plan Percent Population Self Supplied	Self Supplied Per Capita	Updated Percent Population Self Supplied ¹
Banks	57%	75	49%
Burke	64%	75	63%
Columbia ³	13%	75	17%
Elbert ⁴	51%	75	54%
Franklin	51%	75	27%
Glascok	60%	75	65%
Hart ⁵	66%	75	52%
Jefferson	47%	75	40%
Jenkins ⁶	23%	75	54%
Lincoln	29%	75	34%
Madison ⁷	20%	75	70%
McDuffie ⁸	53%	75	18%
Oglethorpe ⁹	83%	75	69%
Rabun	27%	75	32%
Richmond	2%	75	3%
Screven	59%	75	67%
Stephens ¹⁰	10%	75	10%
Taliaferro	62%	75	64%
Warren	44%	75	33%
Wilkes	51%	75	48%

¹ Ratios as shown in the Estimated Use of Water in Georgia for 2015 and Water Use Trends, 1985-2015 (USGS, 2019).

Municipal Water Demands – Public Supply

- Data collection was focused on 2019 average annual water withdrawals (as reported to EPD)
- Municipal water use:
 - 2019 Surface Water use: 71.9 mgd
 - 2019 Groundwater use: 11.9 mgd
- Forecast (through 2060) is based on updated per capita use estimates and population projections
 - 2060 Forecasted Surface Water use: 73.6 mgd
 - 2060 Forecasted Groundwater use: 19.4 mgd

Municipal Water Demands – Per Capita

- Updated per capita demand values based on water audit submissions to EPD (forecasting team reviewing 2019 data)

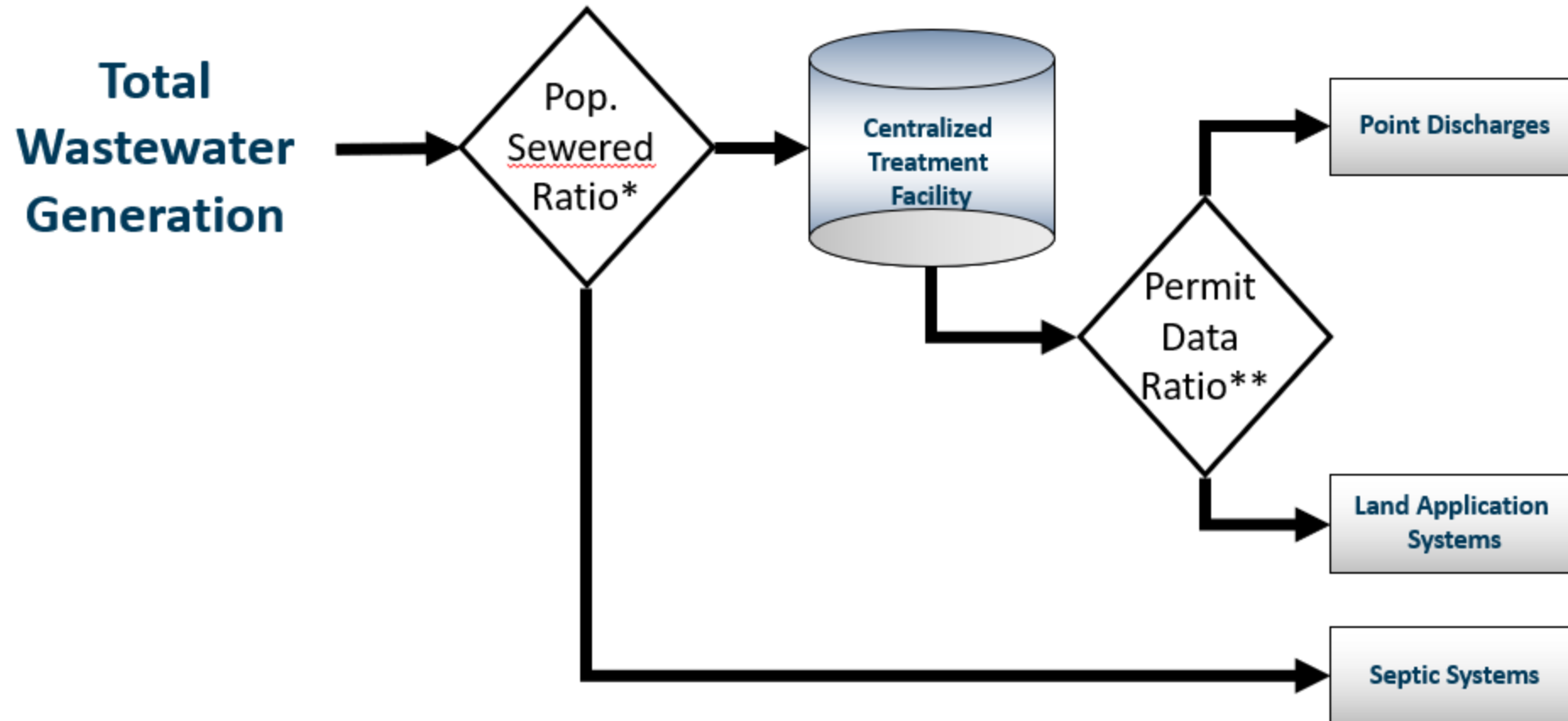
Savannah - Upper Ogeechee Per Capita Water Demand (gpcd)			
County	2011 Plan Per Capita Demand	2017 Plan Per Capita Demand	Updated Per Capita Demand ¹
Banks	101	102	101
Burke	132	129	128
Columbia	153	134	132
Elbert	102	105	194
Franklin	164	161	115
Glascok ³	73	73	75
Hart	154	158	143
Jefferson ³	169	163	171
Jenkins	101	107	110
Lincoln ³	67	66	52
Madison ³	107	104	75
McDuffie	139	141	112
Oglethorpe ³	94	100	75
Rabun	168	164	155
Richmond	221	217	170
Screven ³	161	160	229
Stephens	144	146	129
Taliaferro ³	71	71	75
Warren ³	73	72	137
Wilkes ³	156	156	219

NOTES:

¹ Weighted average per capita calculated using the available 2015-2018 Water Loss Audits.

² Per capita was calculated using the population stated in SDWIS and the recorded water demands.

Municipal Wastewater Demands



*Based on 1990 US Census Bureau data

**Based on existing GA EPD permit data

Municipal Wastewater – Septic

- County % population on septic systems
 - Will be held constant, unless specific input received
- Values shown in unshaded cells are from Georgia Dept. of Public Health data (through 2018)
- Values shown in shaded cells are from the 1990 Census housing characteristics for Georgia (used where DPH data was deemed inappropriate for use by forecasting team)

County	% Septic Users in 2020
Banks County	90%
Burke County	65%
Columbia County	20%
Elbert County	61%
Franklin County	75%
Glascocock County	74%
Hart County	78%
Jefferson County	54%
Jenkins County	84%
Lincoln County	81%
Madison County	93%
McDuffie County	80%
Oglethorpe County	94%
Rabun County	85%
Richmond County	21%
Screven County	72%
Stephens County	60%
Taliaferro County	76%
Warren County	62%
Wilkes County	57%

Municipal Wastewater – Municipally Treated

- Data collection was focused on 2019 average annual wastewater discharges (as reported to EPD)
- Municipal wastewater flows in SUO region:
 - Point source discharges: 61.9 mgd
 - Land application system (LAS): 1.8 mgd
- Wastewater Forecast (through 2060) is based on population projections
 - 2060 Forecasted Wastewater flow: 64.9 MGD



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FY 2020 SEED Grant Project Update:

Developing a real-time, publicly accessible water monitoring system in the Savannah-Upper Ogeechee Basins

SEED Grant Update October 2020

KnowYourRiver.com

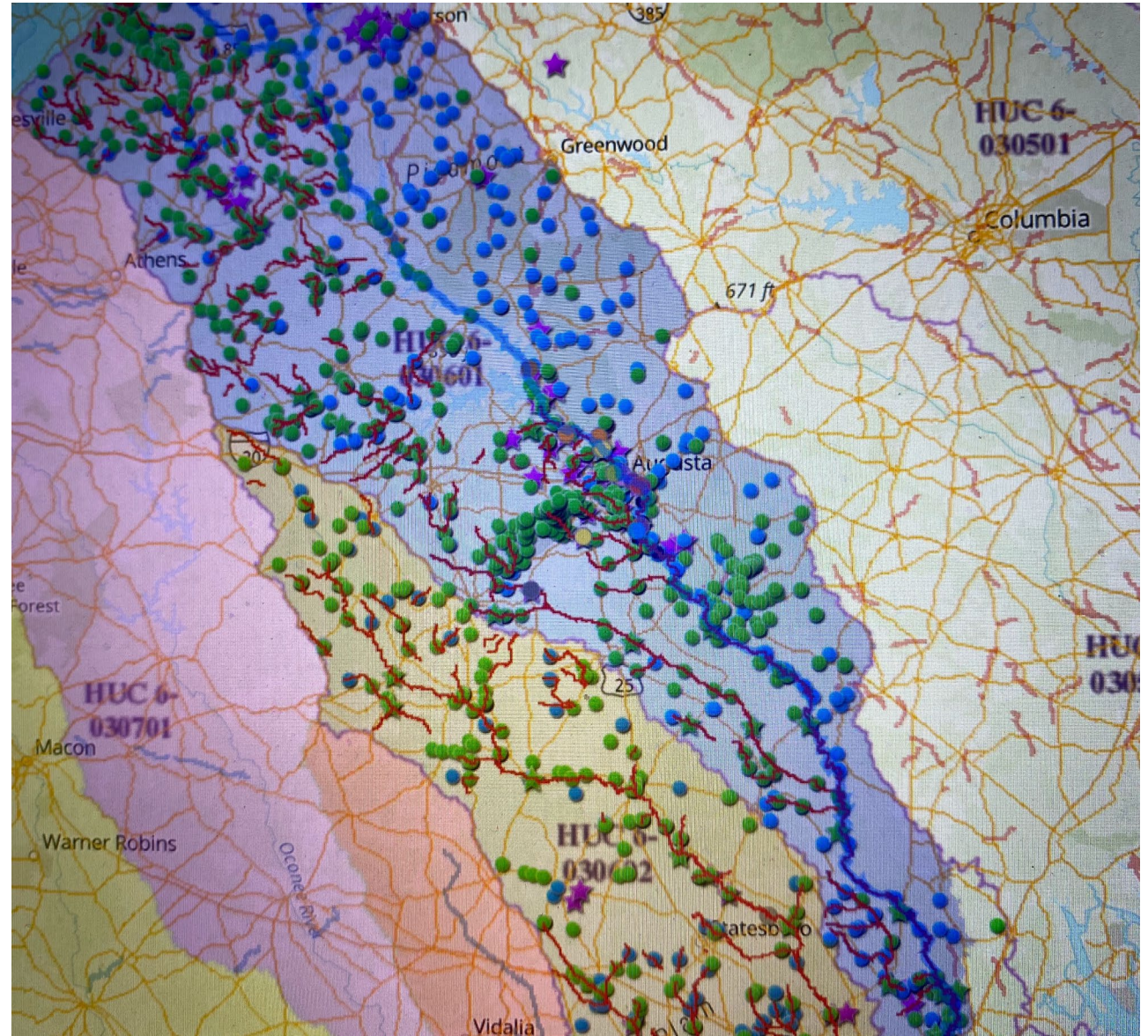
SAVANNAH RIVERKEEPER/ CITY OF AUGUSTA

External Website: <https://augustagis.maps.arcgis.com/apps/MapSeries/index.html?appid=a50d5b00d9db440b878f8abac87e0842&edit>

Will transition over to www.knowyourriver.com in next month

App is under development Launch of site expected in late Nov/ Early Dec

Next steps: Rain data, ground water data, and creating visual platform for storet data



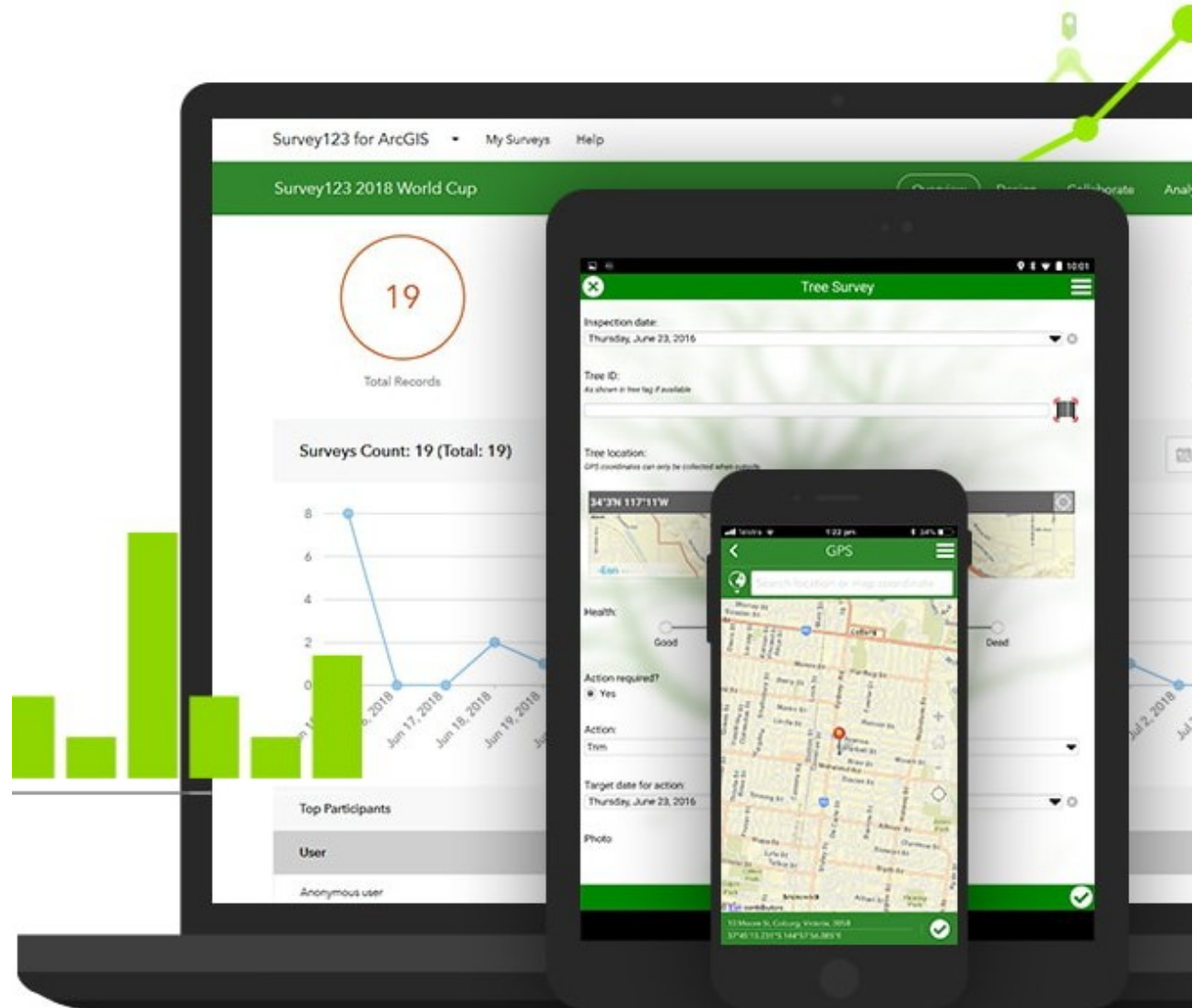
Internal Site:

273 captured data collections

Data has been used by both state agencies for fish kill and 2 spills so far

Next steps: Make batch uploads possible, increase users to include municipalities

<https://survey123.arcgis.com/surveys/b5ae039a062e4231bffd9a98b73>



Remaining grant steps:

1. Finish recreation and future uses section
2. Launch public site and app publicly
3. Market the site to public and agencies for use
4. Gather feedback, make improvements as requested

Next Steps: We would like to apply for next SEED grant to include groundwater, rain data, and Survey123 batch uploads

The next grant would include creating a manual so this project could be replicated by other basins.



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Metro North Georgia Water Planning District Updates

Metropolitan North Georgia Water Planning District Update

- Scope of Work for 5-year Plan Update
 - Forecasting
 - Will include biosolids for first time
 - Facility Planning
 - Action Item Assessment and Update
 - Technical Resource Studies
 - Residential water demands
 - Drought response options menu
 - Watershed resilience evaluation
 - Cost-Benefit Analysis
- Schedule

Highlights from the Statewide Biosolids Management Survey

For full survey results, contact Danny Johnson (djohnson@atlantaregional.org)



Biosolids Management in Georgia: Results of the GAWP Statewide Survey



Georgia
Association of
Water
Professionals

2020 GAWP Virtual Annual Conference

Mike Thomas, GAWP & Danny Johnson, MNGWPD

Background

Since 2018, the disposal of wastewater biosolids to landfills has become more difficult and costly due to recent slope instabilities:

- 2014 Pine Ridge Landfill
- 2018 Eagle Point Landfill
- 2014 Eagle Point Landfill
- 2017 Greentree Landfill, Pennsylvania



GAWP Biosolids Survey

Data collected for 2018 calendar year

Did not include water plant residuals

Survey sent to all GAWP Utility Members - October 2019

52 communities responded **99** facilities

EPD's Annual Biosolids Reports reviewed

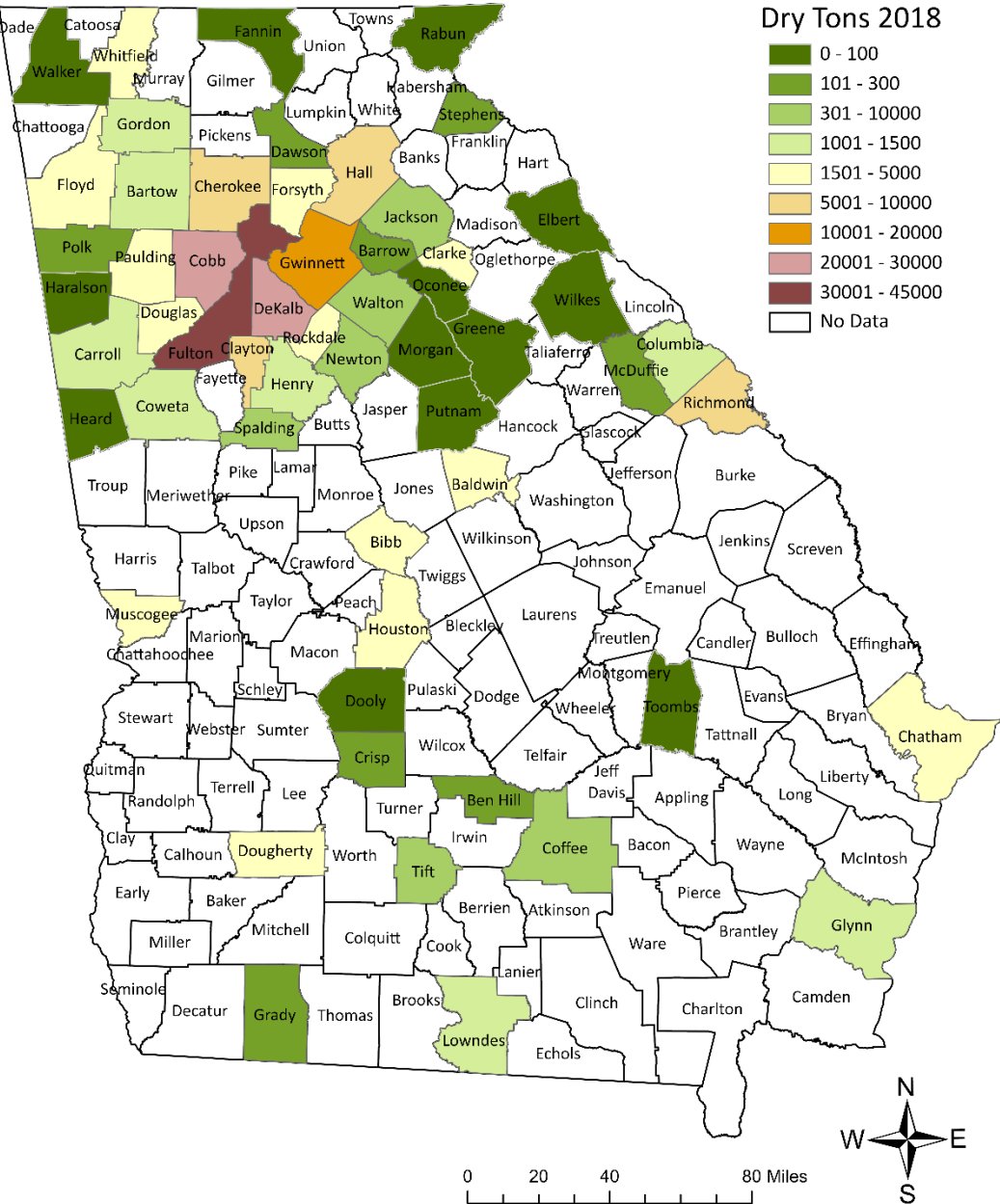
21 communities **28** facilities

TOTAL

73 communities **127** facilities



Georgia Wastewater Biosolids for 2018



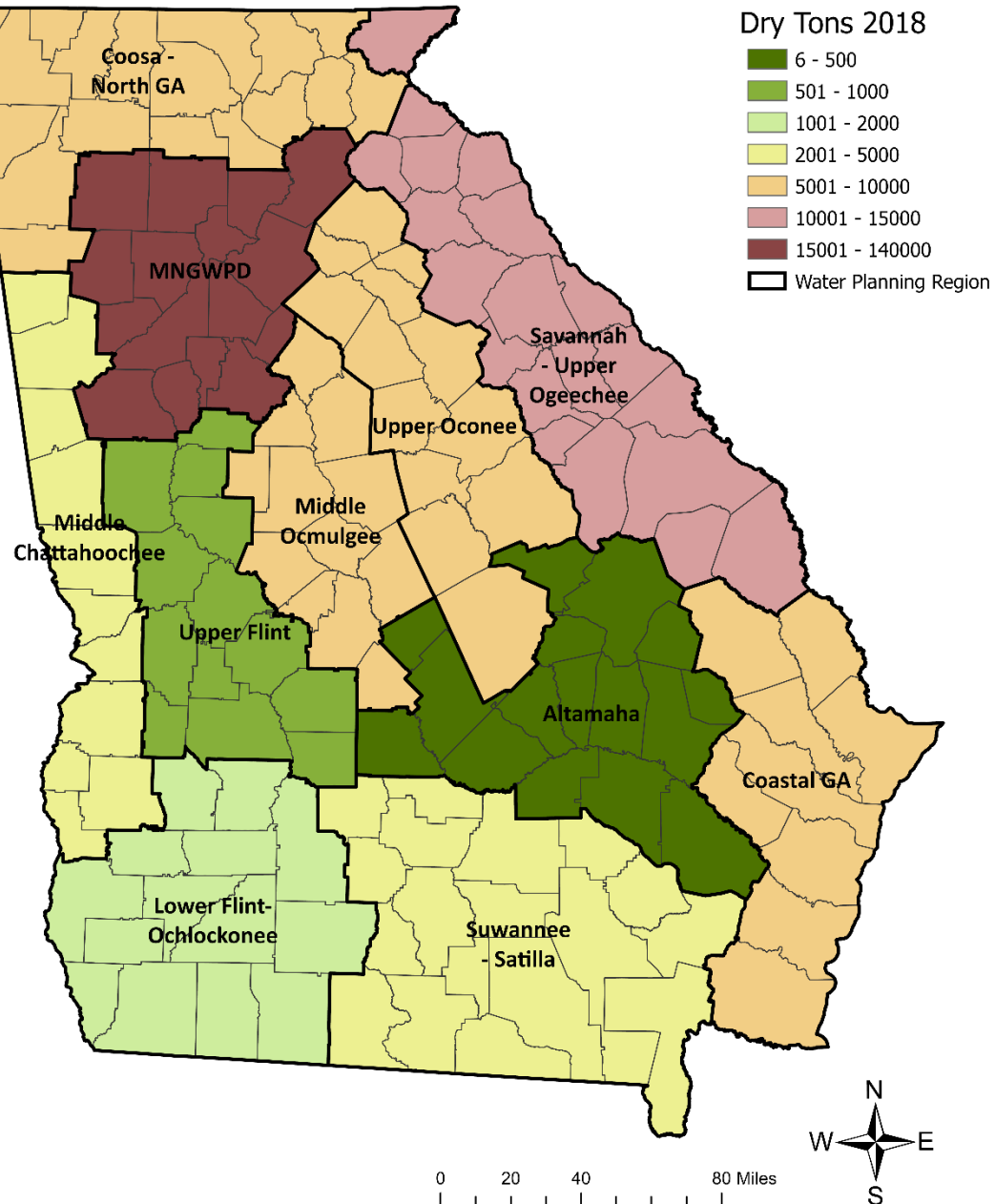
Dry Tons by County

Georgia Wastewater Biosolids for 2018

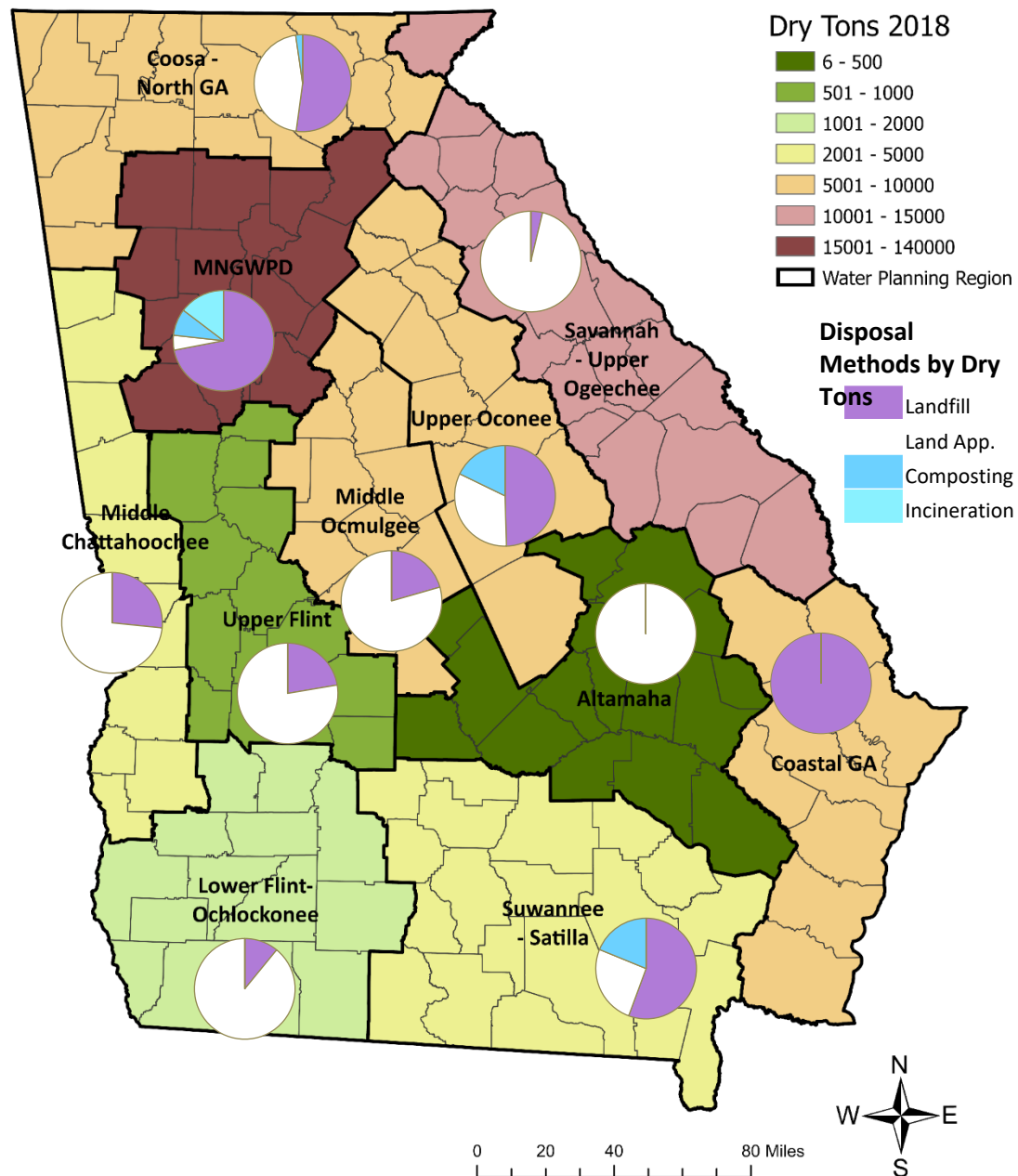
Water Planning Regions



Dry Tons by Regional Water Council



Disposal Method by Dry Tons Regional Water Council



Most common disposal methods

- Landfill – 65% of Dry Tons
- Land Application – 16% of Dry Tons

Only incinerator used in 2018 was by the City of Atlanta

Composting:

- 8% of Dry Tons
- 16 Facilities

Recapping Biosolids Management Trends

Landfilling – Regulatory pressures likely to continue

More utilities looking at advanced drying technology

- Now cost effective
- Beneficial reuse options

Land application is still an option

- Public perception, PFAS/PFOA, available land difficult for large utilities

Incineration

- Air quality, fuel costs, ash disposal

Regional Solutions

- Multiple under consideration



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Energy Water Demand Forecast

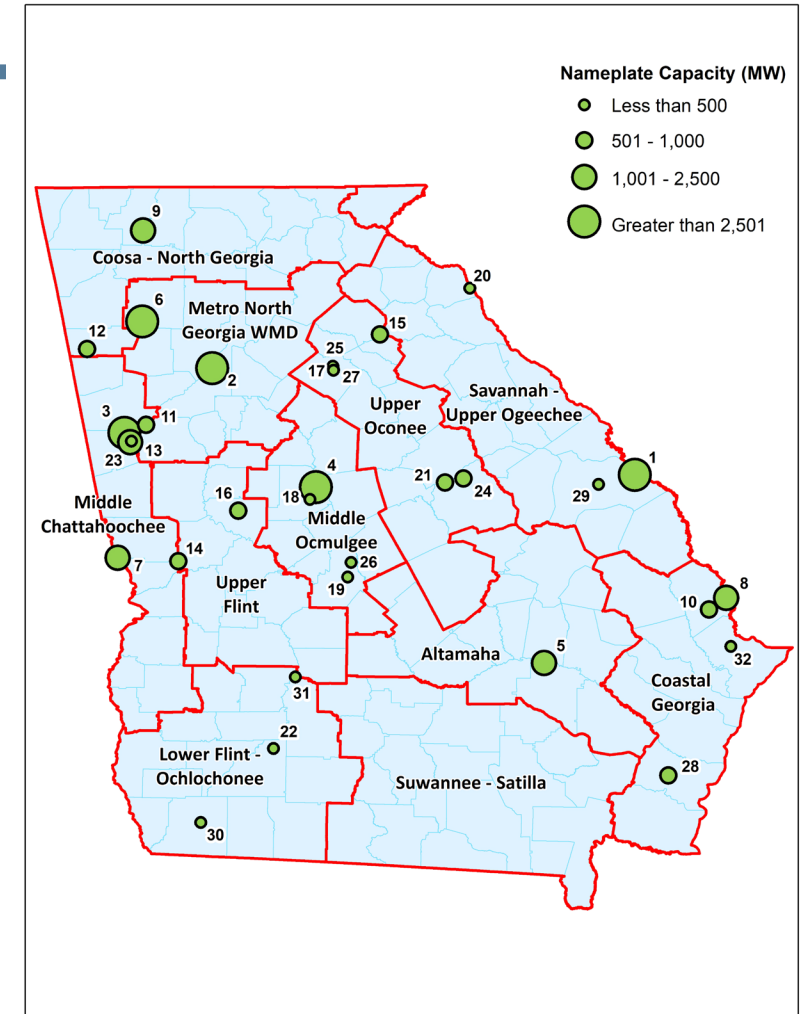
Energy Water Demand Forecasting Stakeholder Group

Participating Representatives from:

- Georgia Power / Southern Company
- Municipal Electric Authority of Georgia (MEAG)
- Oglethorpe Power Corporation
- Dalton Utilities
- Georgia Public Service Commission
- Georgia Environmental Finance Authority

Purpose of Energy Stakeholder Group

- Provide input on the methodology used to estimate future water demand for thermoelectric power generation
- Review and provide input on:
 - Available data
 - Updated list of thermoelectric facilities
 - Method for statewide energy generation estimate
 - Estimation of water withdrawal and consumption forecast by facility



Energy Forecasting Methodology

- Each power facility has a unique water-to-power-to-production signature
- The need for power is estimated statewide
- The current statewide generating capacity by fuel-type is known and may be capable of meeting the projected statewide need.
- Statewide, each facility contributes a unique portion to the entire power portfolio and is allocated a portion of the future generation.
- The projected generation of each facility is used to estimate water withdrawal and consumption by location

Where We Are in the Process

EPD & Planning Contractor

- ✓ • Refined estimate of statewide need for energy
- ✓ • Estimated future generation by configuration type to meet future need
- ✓ • Estimated need for additional capacity if necessary
- ✓ • Estimated future withdrawal & consumption by location

Stakeholders

- ✓ • Provided feedback on materials presented at April 29th kickoff meeting
- ✓ • Reviewed draft forecast technical memorandum (TM) from 7/28/20
- ✓ • Participated in follow-up meeting on August 14th to discuss draft forecast and provided feedback
- ✓ • We addressed stakeholder comments to finalize forecast TM

Energy Sector Forecast for SUO

Savannah-Upper Ogeechee	2020 MGD	2030 MGD	2040 MGD	2050 MGD	2060 MGD
Withdrawals - High Demand Scenario	109.89	213.84	213.91	213.93	213.95
Withdrawals - Expected Demand Scenario	109.89	213.84	213.88	213.90	213.92
Consumption - High Demand Scenario	70.51	137.19	137.25	137.26	137.28
Consumption - Expected Demand Scenario	70.51	137.19	137.22	137.24	137.25



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Industrial Water Demand Forecast

Introductory Kickoff Meeting held June 3, 2020

Participating Industrial Stakeholders:

- Rayonier Performance Fibers
- Georgia Paper and Forest Products Association
- Irving Consumer Products
- Southwire
- Gerdau Steel
- Toyo Tire
- SAFT, Inc.
- BASF
- Covia
- Kamin
- Mohawk Industries
- Milliken and Company
- Georgia Poultry Federation
- Georgia Mining Association
- Georgia Chemistry Council
- Georgia Association of Manufacturers
- Georgia Department of Economic Development
- Office of Planning and Budget

Industrial Water Demand Forecasting

- Industrial Forecasting Stakeholder Group
 - Initial stakeholder meeting held on June 3
 - All agreed that employment projections are not a good estimator of future industrial water use
 - Developed groups by major sub-sectors to develop a reasonable forecast methodology for each sub-sector:
 - Food Processing (predominately poultry processing)
 - Mining
 - Paper and Forest Products
 - Manufacturing

Industrial Water Demand Forecast Sub-Sectors

Three of the sub-sector groups conducted surveys to inform the best approach to estimating future water demand:

- Georgia Poultry Federation survey of membership with assistance from Georgia Tech Research Institute
- Georgia Mining Association survey of membership
- Georgia Association of Manufacturers survey of membership

The Paper and Forest Products group developed recommendations for estimating future water demand for this sub-sector.

Survey Questions:

- Average Water Use
- Water Sources
- Municipal Customer
- Average Discharge
- Receiving Bodies
- Municipal WW Customer
- Anticipated changes in next 5 – 10 years

Industrial Water Demand Forecast (*cont.*)

- A Technical Memorandum (TM) has been prepared for each industrial sub-sector with water demands and discharges by county
- The TMs have been reviewed by the respective sub-sector groups
- A Draft Integrated Industrial Forecast TM is being prepared for review by the entire industry stakeholder group in early November
- The industrial water demand forecast with water withdrawals and water discharges by county should be available in December.

Industrial Water Demand Forecast Coordination

Coordination with Municipal Water Demand Forecast

- Sharing information with municipal forecast team where municipal water use is identified and greater than 0.20 MGD

Georgia Department of Economic Development (GDED)

- Want to be sure water is not a limiting factor in attracting new businesses to regions
- Coordination with GDED on industry trends and available data to inform the forecast
- In the absence of specific information about the locations/amounts of water needs from new industries, each planning region may choose to run a management scenario during Resource Assessment process



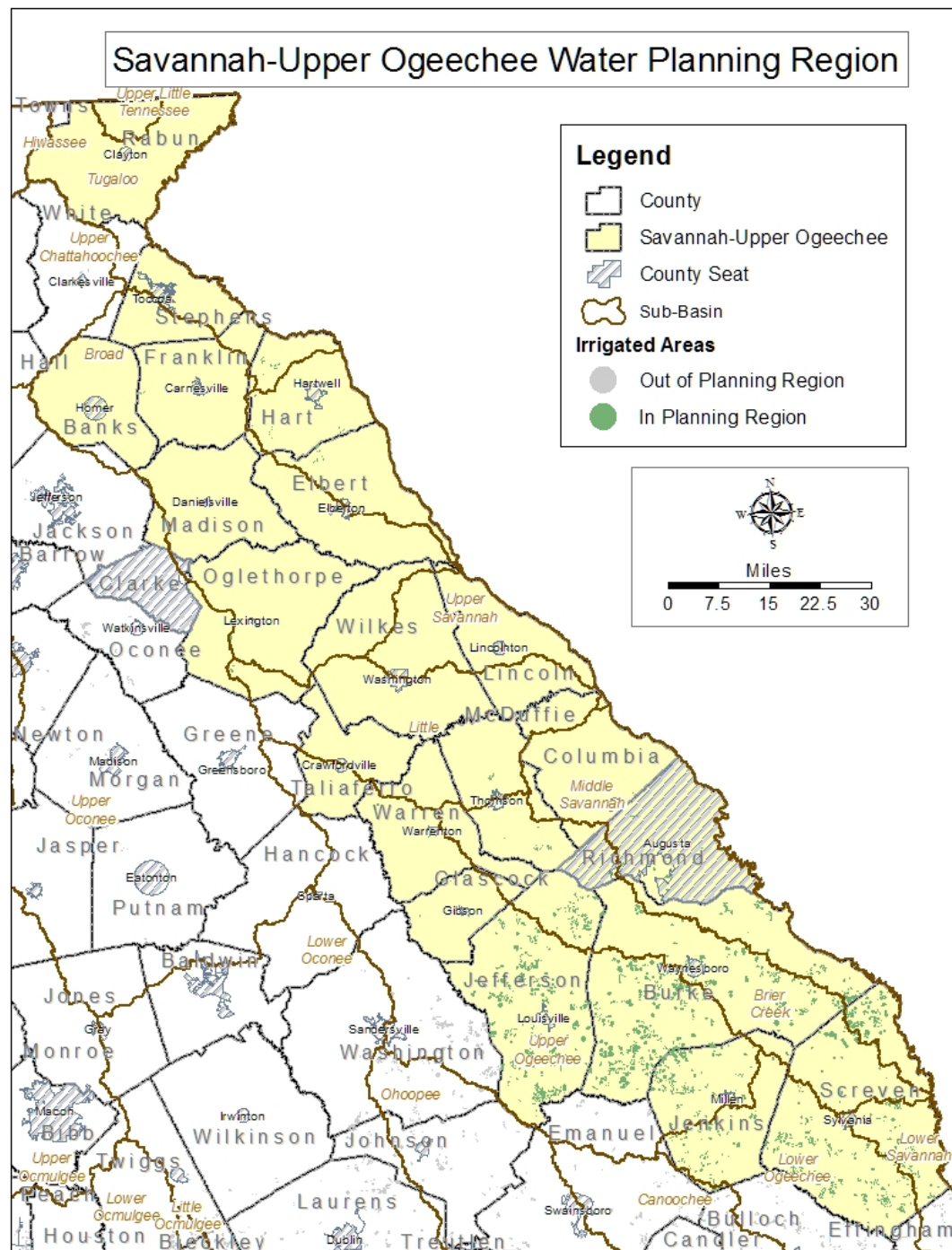
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Agriculture Water Use and Demand

Project Team

- Albany State University – Georgia Water Planning and Policy Center (Lead)
- University of Georgia Agricultural and Applied Economics





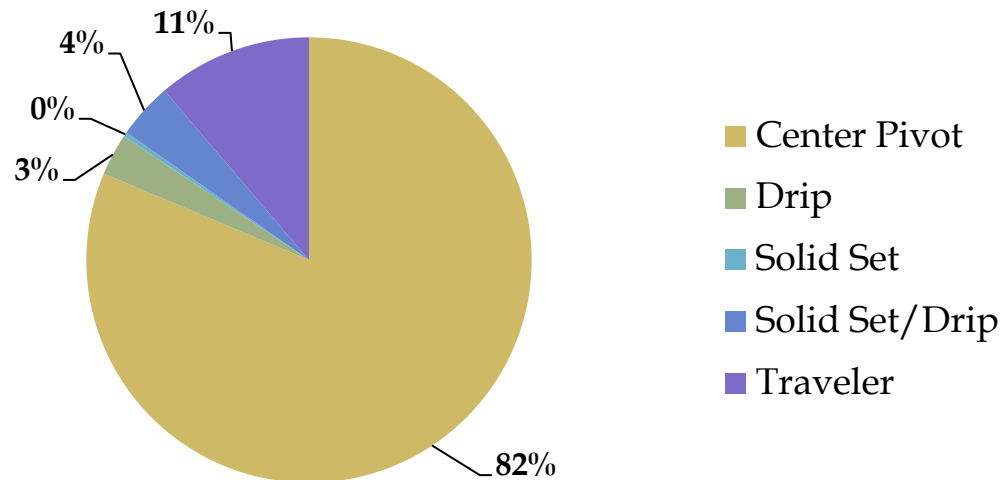
Irrigated Acres

County	2010	2015
Banks	6	6
Burke	24,840	40,244
Columbia	45	141
Elbert	444	311
Franklin	161	161
Glascock	89	294
Hart	779	911
Jefferson	19,803	26,688
Jenkins	8,973	13,084
McDuffie	811	793
Oglethorpe	349	341
Rabun	21	0
Richmond	114	851
Screven	21,899	27,117
Taliaferro	0	33
Warren	0	99
Wilkes	27	0

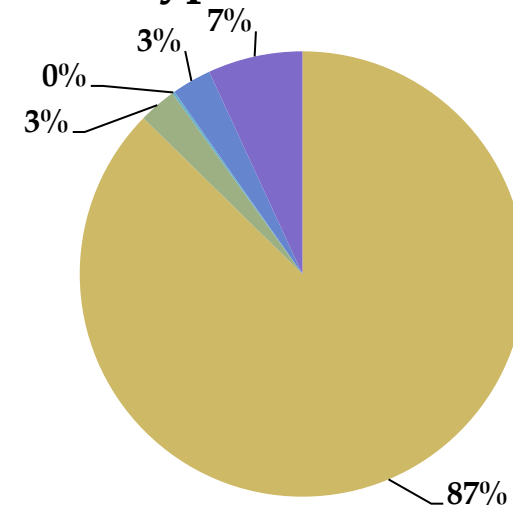
Savannah-Upper Ogeechee RWPC

	2010	2015	% Change
Total # of Fields	1,313	1,876	+ 42.9%
Total Acreage	78,361	111,075	+ 41.7%
Total GW Acreage	50,856	87,466	+ 72.0%
Total SW Acreage	27,505	23,609	- 14.2%
Total Center Pivots	922	1,525	+ 65.4%
Center Pivot Acreage	61,293	96,999	+ 58.3%

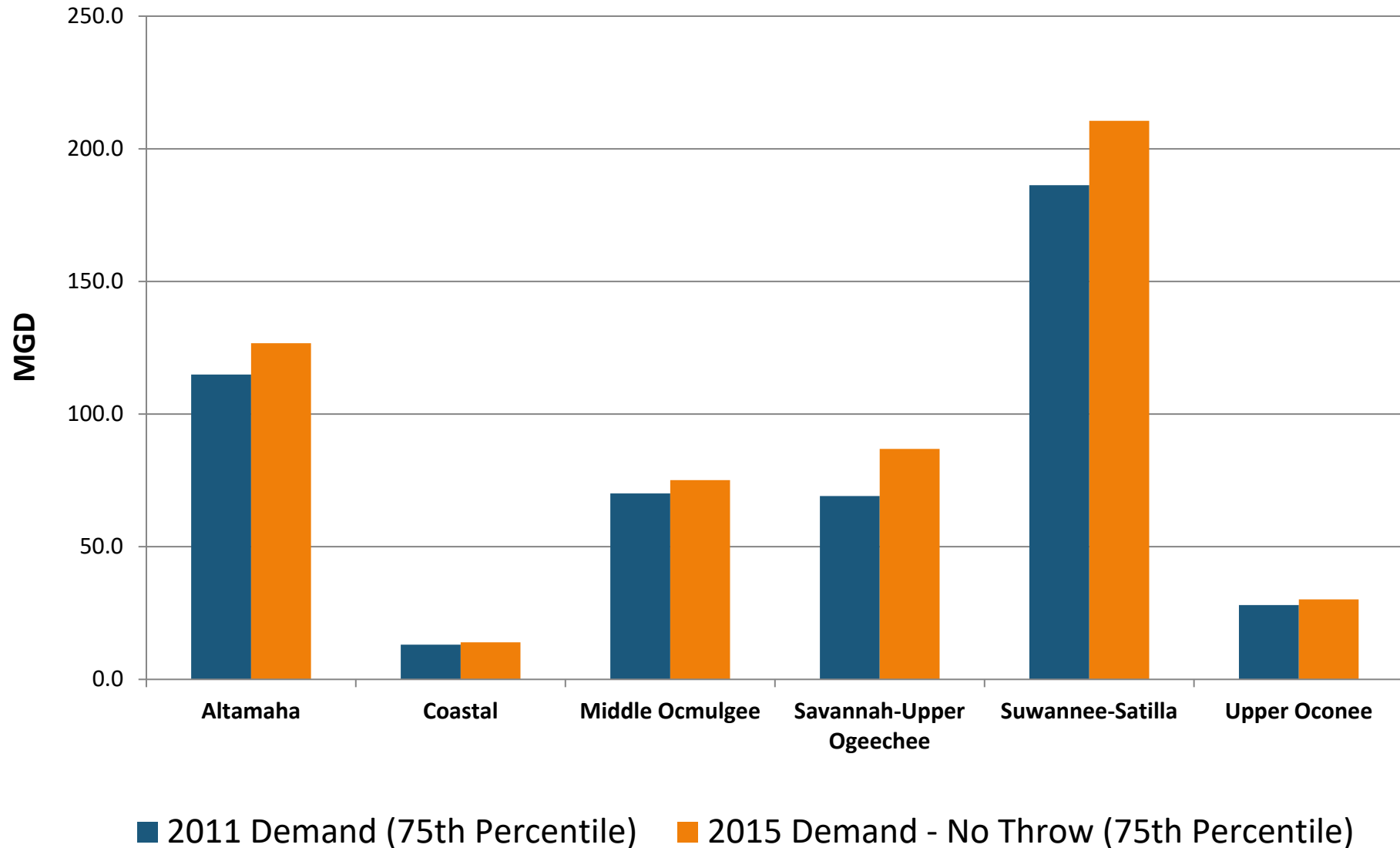
System Type - % of Systems



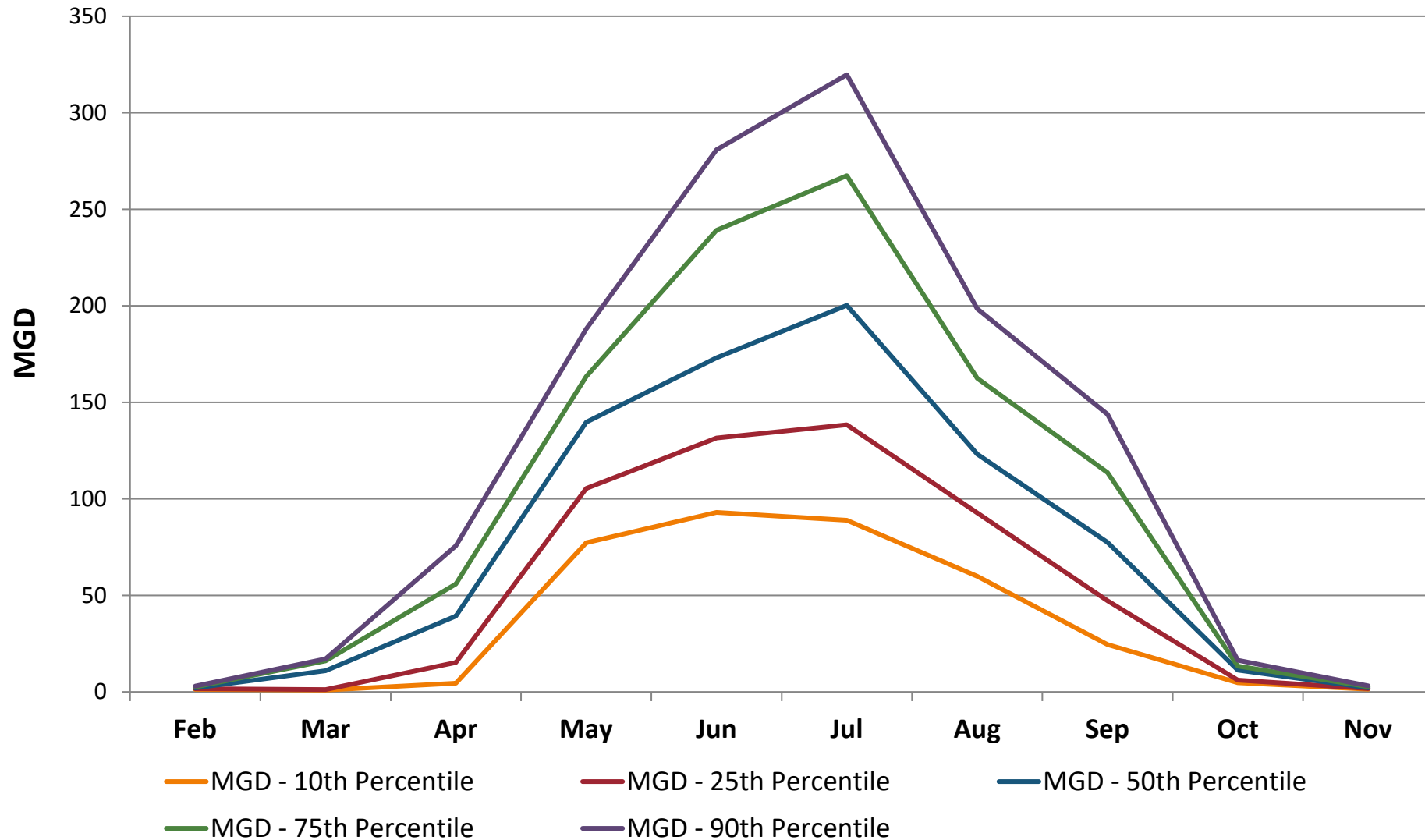
System Type - % of Acreage



Ag Demand (2011 & 2015)

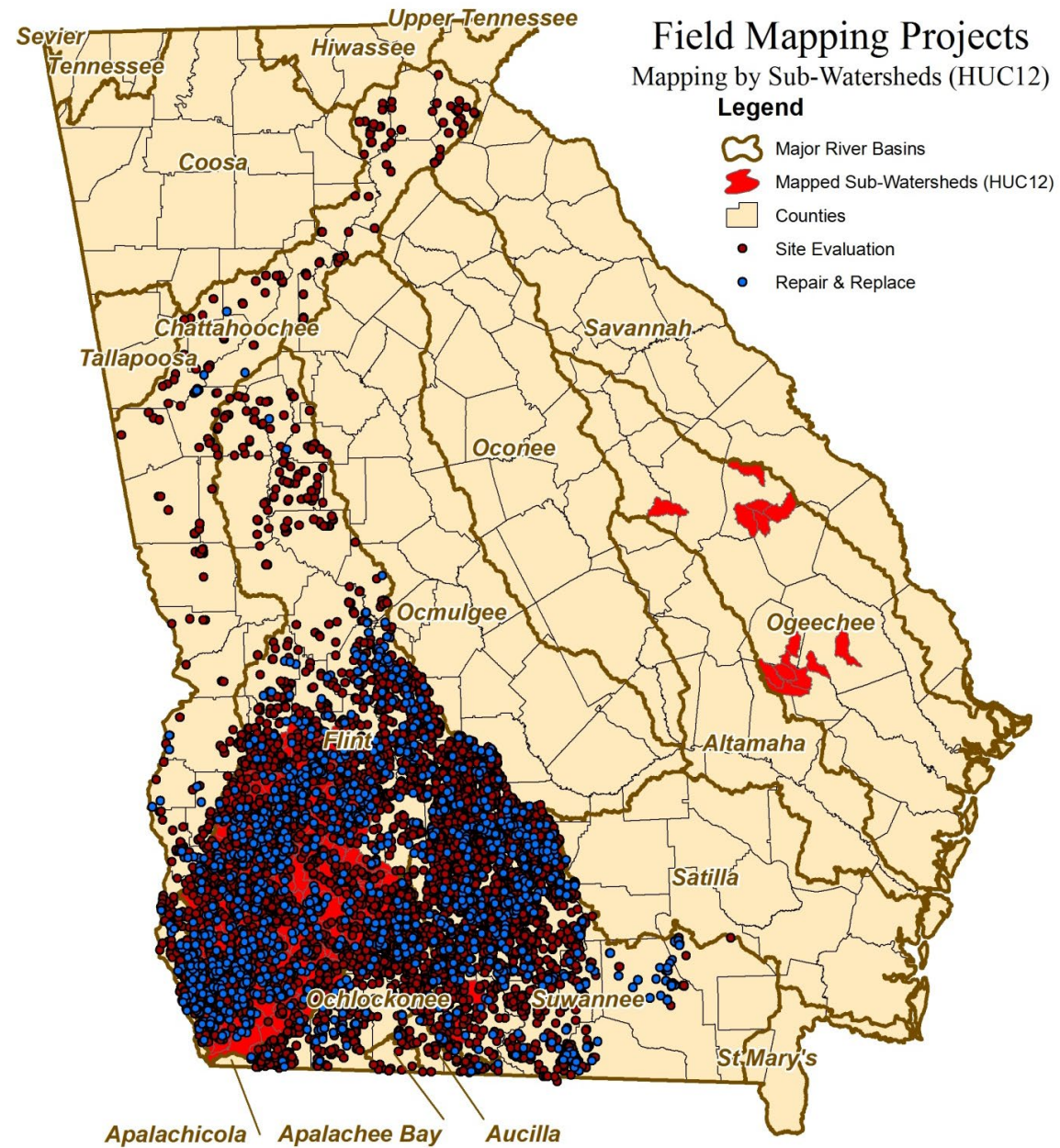


Savannah-Upper Ogeechee RWPC- Monthly



2020-21 Agricultural Water Demand Forecasts - Methods

- ▣ **Acreage – Updated 2020 wetted acreage data**
 - Field observation and aerial survey
- ▣ **Crop projections through 2060 - modeled based on multiple data sources:**
 - Remote sensing and field data
 - USDA Projections, Southeast Model, Georgia Model, Data Trends
- ▣ **Crop water needs - wet, normal, dry years**
 - Expanded use of meter data
 - Review estimates used in 2015-2016 and revise if needed
 - Presented by basin, county, planning node, aquifer, etc....
- ▣ **Animal Ag/Nursery**





Public Comments

Thank You!

Questions? Comments? Need
More Information?

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