



**Savannah-Upper Ogeechee  
Regional Water Planning Council Meeting  
November 7, 2019**

[waterplanning.georgia.gov](http://waterplanning.georgia.gov)



# Welcome and Introductions

[waterplanning.georgia.gov](http://waterplanning.georgia.gov)



## Council Business

[waterplanning.georgia.gov](http://waterplanning.georgia.gov)

# Council Business

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- Approve meeting minutes from July 25, 2019 Council Meeting
- Approve today's meeting agenda
- Update discussion on Council membership

# Today's Meeting Agenda



## Savannah-Upper Ogeechee Regional Water Council Meeting Agenda – November 7, 2019, 10:00 am

### Meeting Objectives:

- 1) Updates on Topics of Regional Interest
- 2) Highlight Grant Projects
- 3) View Regional Water Planning video
- 4) Update Council on Upcoming Technical Work and review Gap Analysis Technical Memo
- 5) Plan Topics for Future Meetings

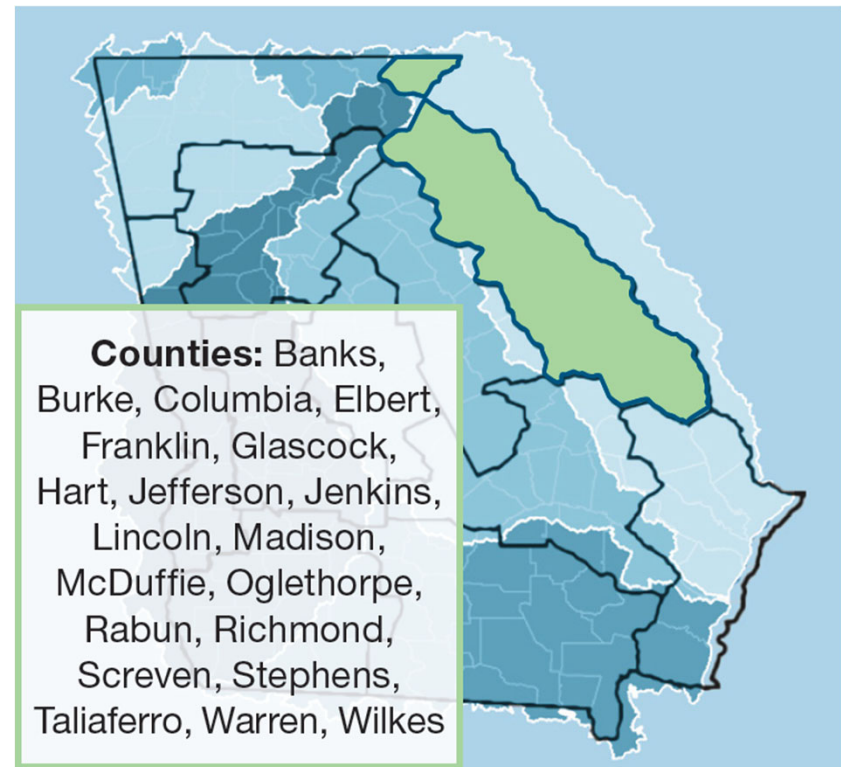
9:30 a.m. – 10:00 a.m.	Registration
10:00 a.m. – 10:15 a.m.	Welcome and Introductions (Bruce Azevedo, Chair)
10:15 a.m. – 10:30 a.m.	Council Business <ul style="list-style-type: none"> <li>• Approve minutes - July 25, 2019 Council Meeting</li> <li>• Approve today's meeting agenda</li> <li>• Update discussion on Council membership</li> </ul>
10:30 a.m. – 11:00 a.m.	Council Updates (Lee Smith, CDM Smith) <ul style="list-style-type: none"> <li>• Website Improvements</li> <li>• FERC Relicensing updates</li> <li>• Seed Grant updates (Oscar Flite, City of Augusta and Lee Smith)</li> <li>• View Regional Water Planning video</li> <li>• Council Outreach</li> </ul>
11:00 a.m. – 11:45 a.m.	Technical Information - Forecasting & Population Projections (Bill Davis, CDM Smith and Jennifer Welte, EPD)
11:45 a.m. – 12:30 p.m.	Lunch/Speaker: Phinizy Center Overview (Ruth Mead)
12:30 p.m. – 1:00 p.m.	Technical Information - Resource Assessments and Gap Analysis Technical Memo (Bill Davis, CDM Smith and Jennifer Welte, EPD)
1:00 p.m. – 1:15 p.m.	Council Committee next steps (Bruce Azevedo, Chair)
1:15 p.m. – 1:30 p.m.	Public Comments / Wrap-up and Adjourn

Location: Phinizy Center for Water Sciences  
1858 Lock & Dam Road, Augusta, Georgia

[waterplanning.georgia.gov](http://waterplanning.georgia.gov)

- 10:00 Welcome & Introductions
- 10:15-10:30 Council Business
- 10:30-11:00 Council Updates
- 11:00-11:45 Forecasting and Population Projections
- 11:45-12:30 Lunch/Phinizy Ctr Speaker
- 12:30-1:00 Resource Assessment & Gap Analysis
- 1:00-1:15 Council Committees
- 1:15-1:30 Public Comments/Wrap Up

# Update discussion on Council membership





## Council Updates

[waterplanning.georgia.gov](http://waterplanning.georgia.gov)

# Website Improvements

- Region-Specific Enhancements and Updates
  - Regional Water Plan
  - Regional Highlights
  - Technical Information
  - **Implementation**

The screenshot displays the Georgia Water Planning website. The header includes the Georgia Department of Natural Resources logo, the text "Georgia Water Planning", and a search bar. A navigation menu at the top lists "Water Planning", "Water Planning Regions", "Forecasting", "Resource Assessments", and "More Information". The main content area is titled "Altamaha Implementation" and includes a sidebar with a "Water Planning Regions" menu. The sidebar lists various regions, with "Altamaha" selected. The main content area provides information about the implementation of the Altamaha Regional Water Plan, including details on GEFA Funding Projects, 319(h) Grant Funding, Conservation Funds, Jaycee Landing Project, and Seed Grants. The footer contains the Georgia Department of Natural Resources logo and links to "AT YOUR SERVICE", "ELECTED OFFICIALS", and "NEED HELP?".

Georgia Department of Natural Resources | [Environmental Protection Division](#) | [Disclaimer](#) | [Site Map](#) | [Accessibility](#) | [Privacy/Security](#)

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[Contact us](#)  
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# Website Improvements – Implementation Page

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- **GEFA Funding Projects**

- Clean water programs
- Drinking water programs
- Georgia Fund

- **319(h) Grant Funding**

- Clean Water Act driven grants to implement nonpoint source management programs.

- **Seed Grants**

- Ongoing FY19 project
- Upcoming FY20 grants

# FERC Relicensing Updates

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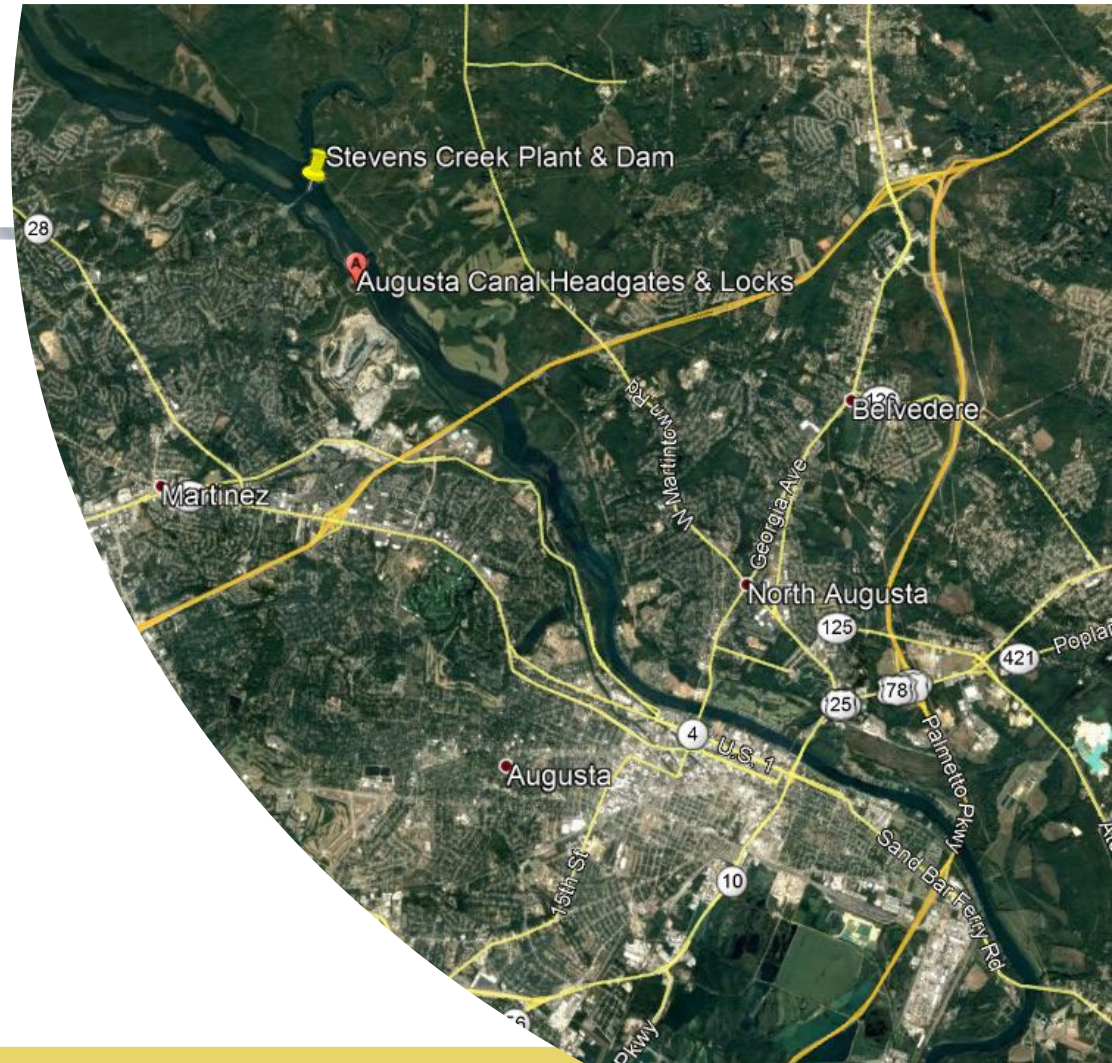
# Augusta Canal Headgates & Locks

- NMFS recently submitted filing regarding fish passage.
  - Does not require passage of sturgeon, but the fishway must be built to accommodate the Atlantic sturgeon in the future if desired.
  - City of Augusta has requested a consultation to discuss several minor issues, but this should clear the way for the FERC license to proceed.



# Stevens Creek Dam

- Now in data gathering and study plan development phase.
- Present to the Council after May 2020 Pre-Application Document filing.
- RCG meetings on Nov 13, 2019 at Misty Lake Clubhouse:
  - Water Quality, Wildlife and Fish 9 am
  - Lake, Land and Recreation 1 pm
- For further information:  
[Kelly.Kirven@KleinschmidtGroup.com](mailto:Kelly.Kirven@KleinschmidtGroup.com)



# Seed Grant Projects

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- **FY19** Grant project: **City of Augusta/Savannah Riverkeeper**: Developing a real-time, publicly accessible water monitoring system in the Savannah-Upper Ogeechee Basins
  - Progress update: Tonya Bonitatibus (Savannah Riverkeeper) and Oscar Flite (City of Augusta)



## Seed Grant Projects (cont'd)

- **FY20** Grant applications submitted within SUO Region:
  - **UGA:** Historical Analyses of in-stream water quantities for the Ogeechee, Savannah, Altamaha and Oconee River Basins
  - **City of Augusta:** High-frequency agricultural meter reading and hydrology study in the SUO Water Planning District
- GEPD is currently reviewing all applications.
- Next step is recommendations for grant awards.
- Estimated selection/notification timeframe: January 2020

# Regional Water Planning Video

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# Council Outreach

- Opportunities
  - Local government meetings
  - Industry groups
  - Environmental groups
  - Service organizations





# Background and Overview of Upcoming Technical Work for 2020-2022 Regional Water Plan Update Cycle

## Part I: Forecasting & Population Projections

[waterplanning.georgia.gov](http://waterplanning.georgia.gov)

# Background

Next plan update cycle will WJ31 begin in 2020

Initial focus areas will include:

- Updated population projections
- Updated water demand and wastewater forecasts
  - Municipal, Industrial, Energy (thermoelectric) and Agricultural
- Updated Surface Water and Ground Water Availability Resource Assessments (Quantity)
- Updated Surface Water Quality / Assimilative Capacity Resource Assessment

## Slide 18

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**WJ31**

Jennifer updated first bullet + subbullet for water demand/wastewater forecasts (so we note all 4 sectors)

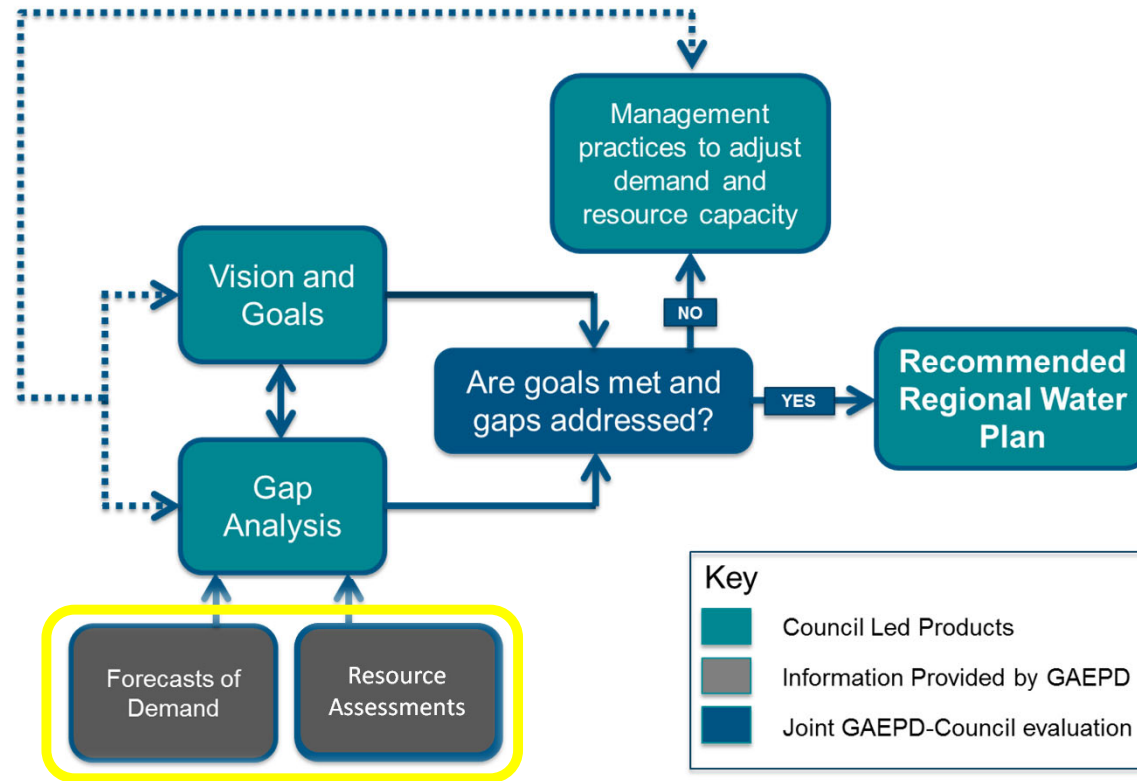
Welte, Jennifer, 11/5/2019

# Purpose

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- Re-familiarize Council with the key technical products that inform the water plan update
  - What analysis is performed?
  - How is the information used?
  - Why is it done like that?
  - How does it all fit together?
- Provide baseline for more refined discussions on items of interest or potential changes during the next cycle.

# Regional Water Planning Process





# Population Projections

[www.georgiawaterplanning.org](http://www.georgiawaterplanning.org)

# Updated Population Projections

- State and County population projections are prepared by the Governor's Office of Planning and Budget (OPB)  
<https://opb.georgia.gov/>
- Used consistently by all state agencies for multiple purposes
- WJ32 Updated population projections will be used in the Plan review and revision process
- Population is dynamic and is an important input to planning

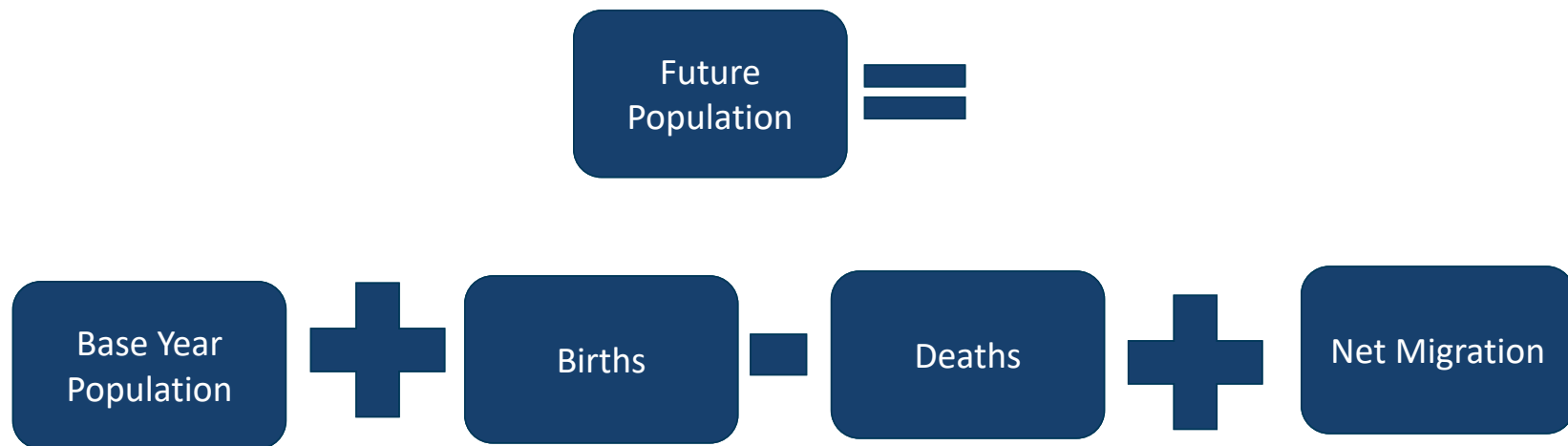
## Slide 22

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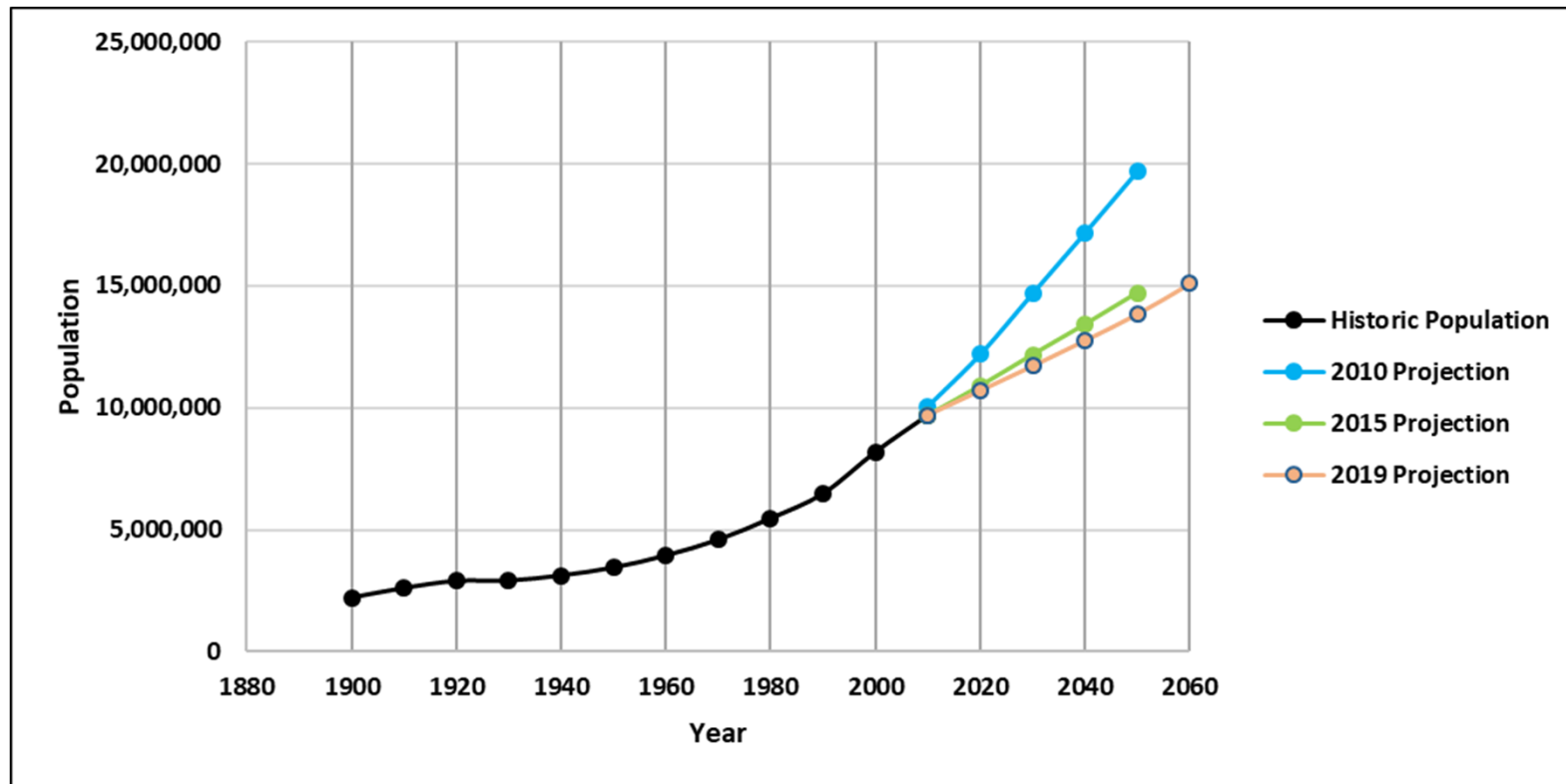
**WJ32** Jennifer updated "Review and Revision" to "Plan review and revision"  
Welte, Jennifer, 11/5/2019



# Basic Approach to Population Projections (The Cohort-Component Method)

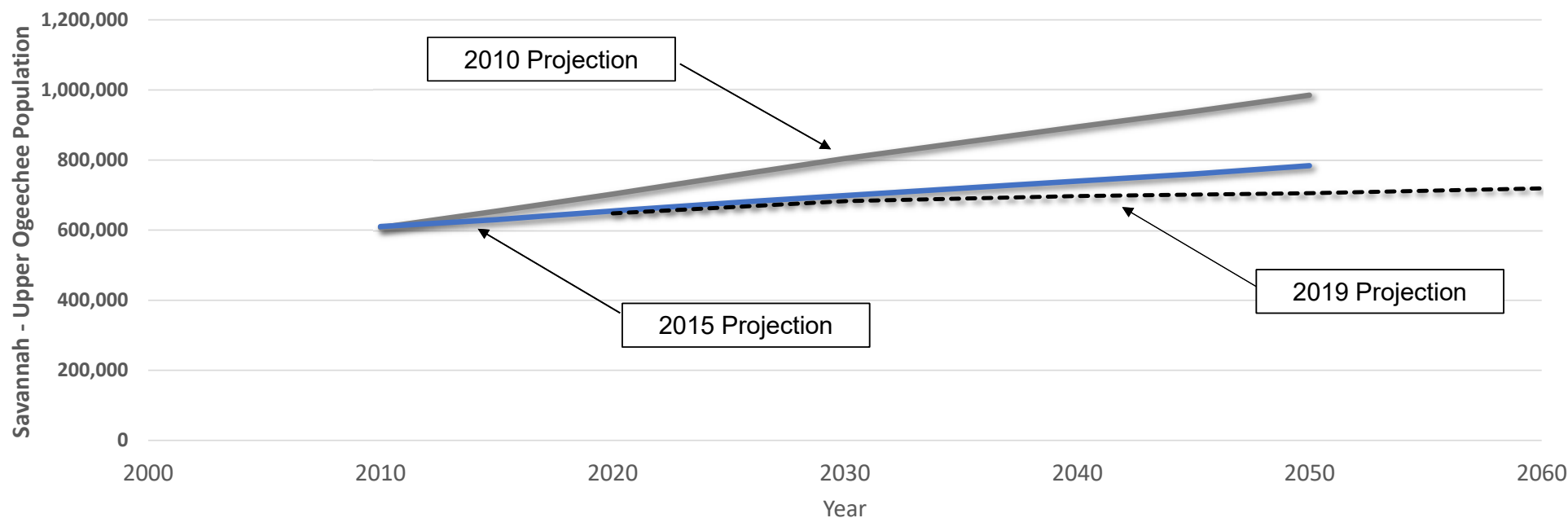


# Population Growth Revisions - Statewide



# Population Growth Revision 2017 Regional Water Plan Update – SUO Council

- Population growth was refined during the last update showing 20% less projected population by 2050.
- The newest projections are similar to the previous round



## Slide 25

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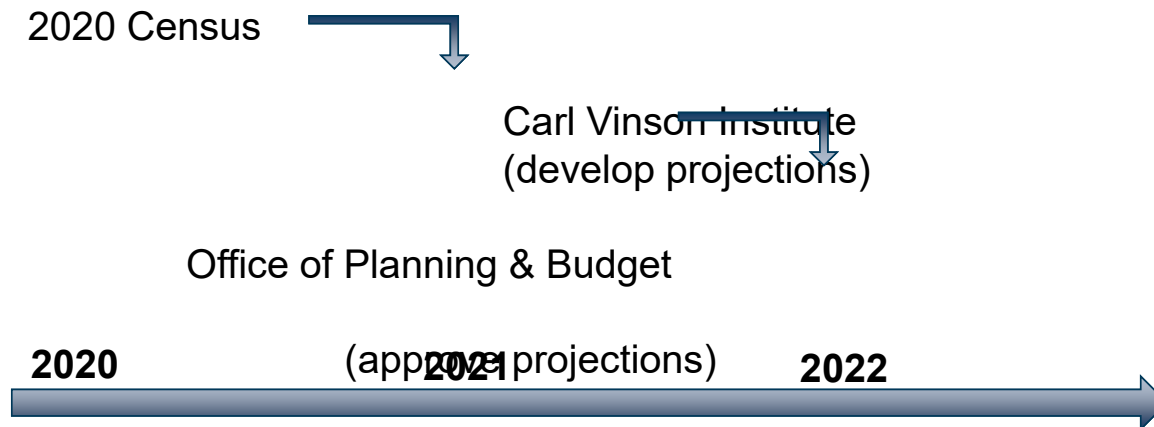
**WJ33**

Jenny/Bill are updating this slide to add in the 2019 projection. We probably also need a handout for the Council of the 2019 County-level projections for 2020 - 2060 (in 5-year increments).

Welte, Jennifer, 11/5/2019

# Incorporating the 2020 Census

The 2020 Census timeline will not allow for incorporation into the population projections for the next update





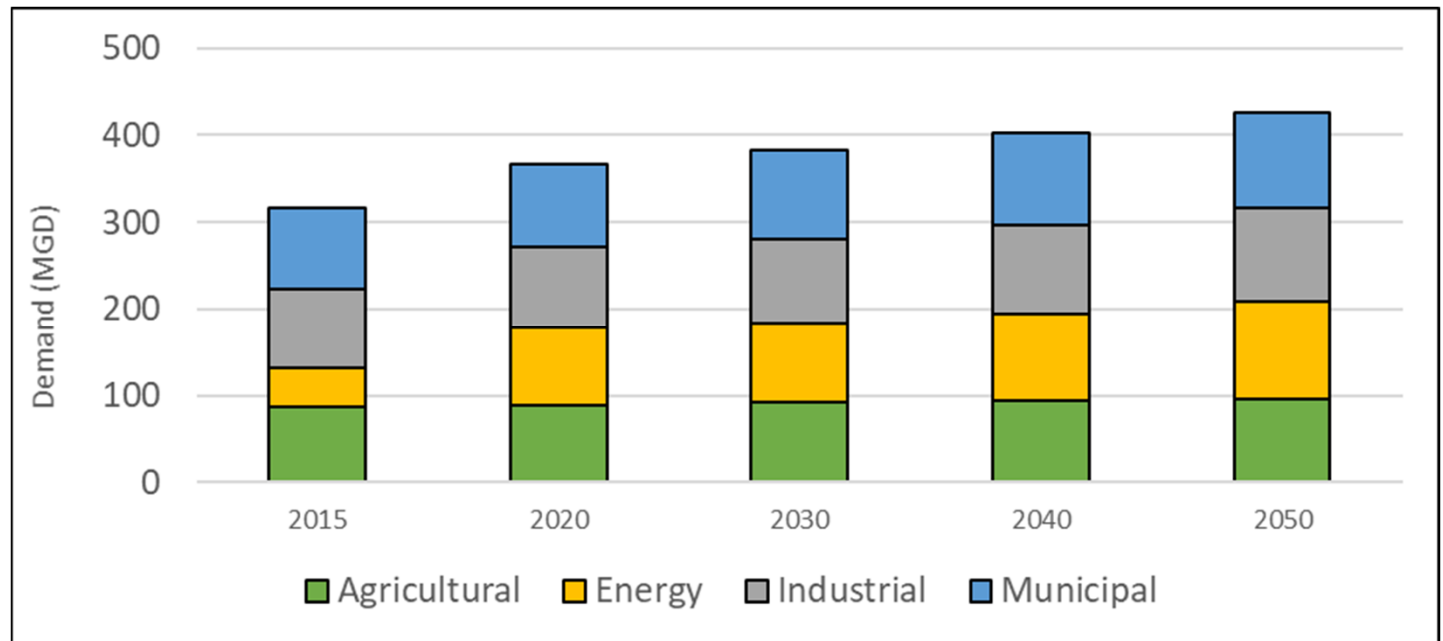
## Water Demand Forecasts

[waterplanning.georgia.gov](http://waterplanning.georgia.gov)

# Water Demand for Savannah-Upper Ogeechee Region

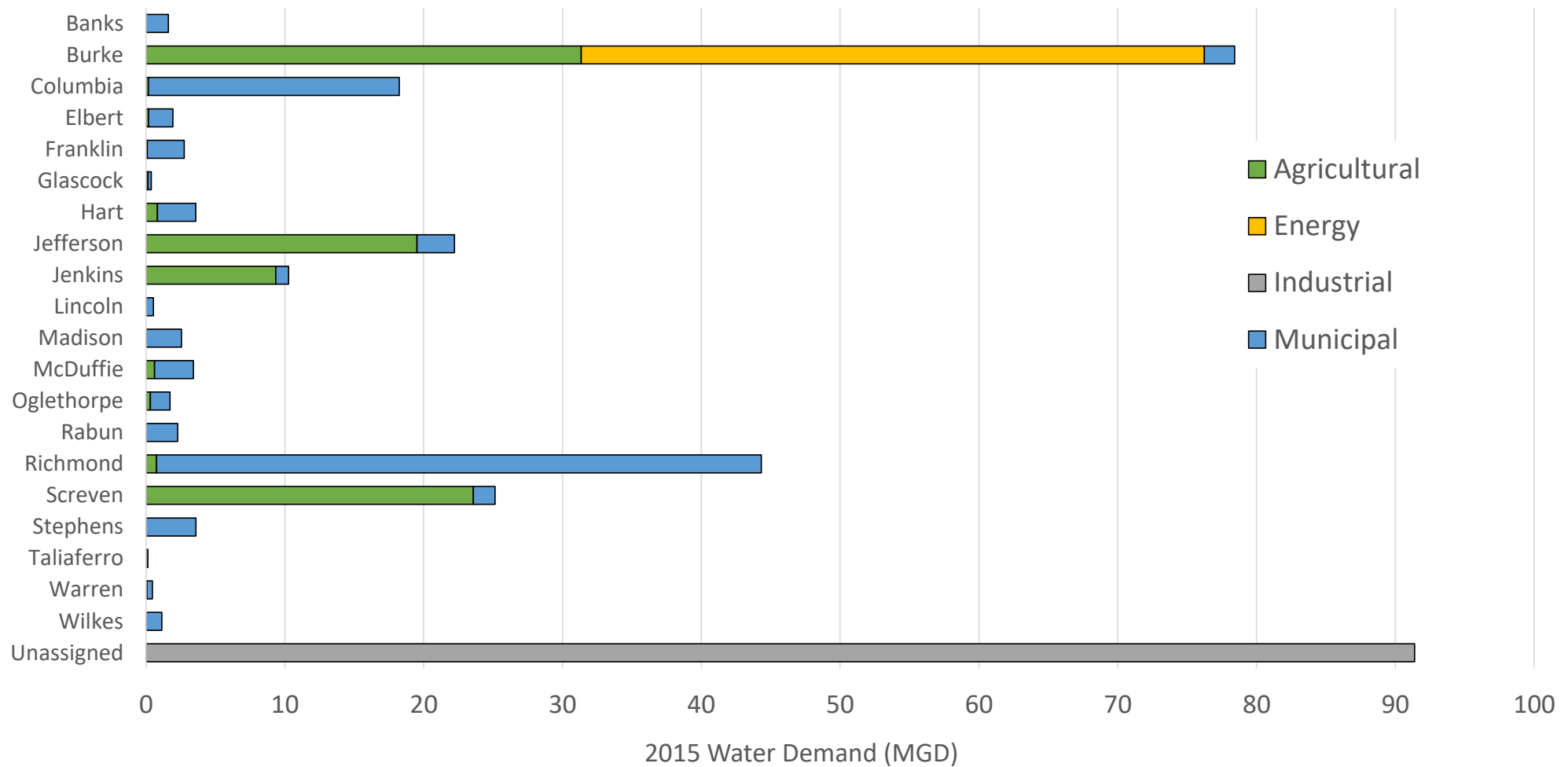
- Water Demand Forecasts are developed for 4 sectors:

- Municipal
- Industrial
- Energy
- Agricultural



W124  
W161  
BJ16

# Savannah-Upper Ogeechee Water Demands by County





## Slide 29

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- WJ34** Can you please make the legend larger, and increase the font sizes on the graph?  
Welte, Jennifer, 11/5/2019
- WJ61** I'm confused about the "unassigned" industrial demand. It must be related to a facility(ies), so do we have any way to clear that up in this graph? Maybe by basin (with secondary legend)? Otherwise, I think this will bring up too many questions.  
Welte, Jennifer, 11/5/2019
- BJ16** We have industrial by industry type and surface water basin/ groundwater aquifer. Just not by county. The majority is Savannah Basin at Burton's Ferry and then Augusta nodes.  
Bywater, Jenny, 11/5/2019



# Georgia's State Water Plan

## Municipal Water Demand Forecast

[waterplanning.georgia.gov](http://waterplanning.georgia.gov)

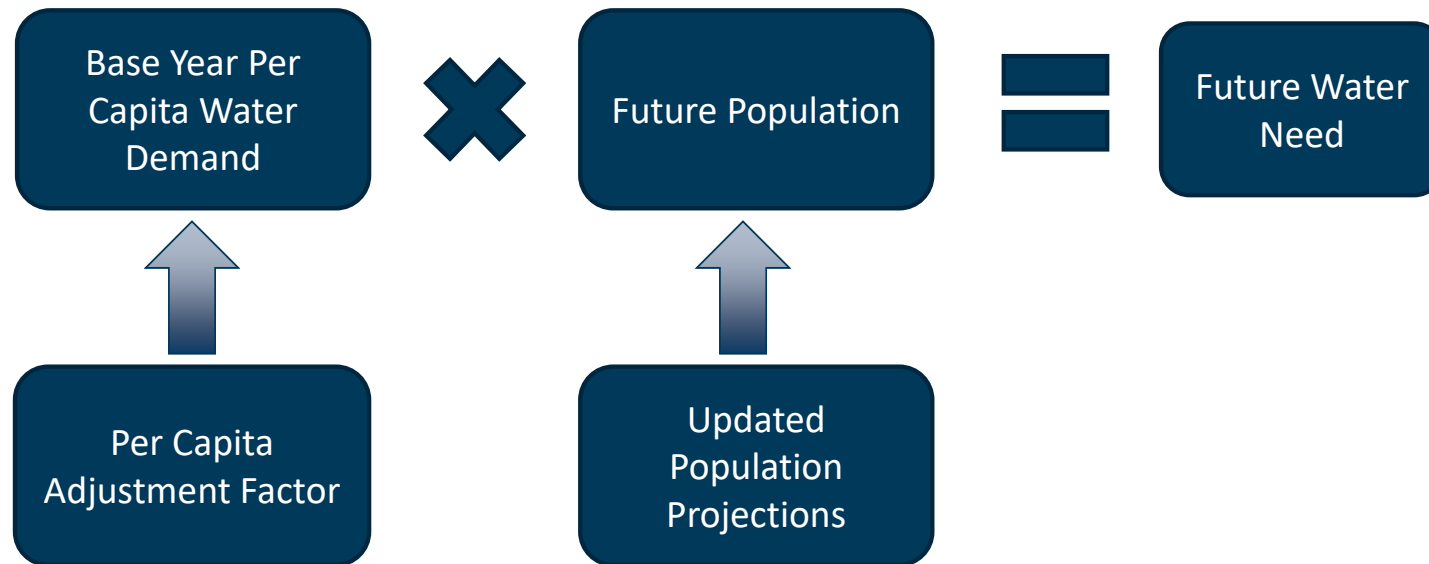
# Projecting Municipal Water Demand

2011 Future Water Need:

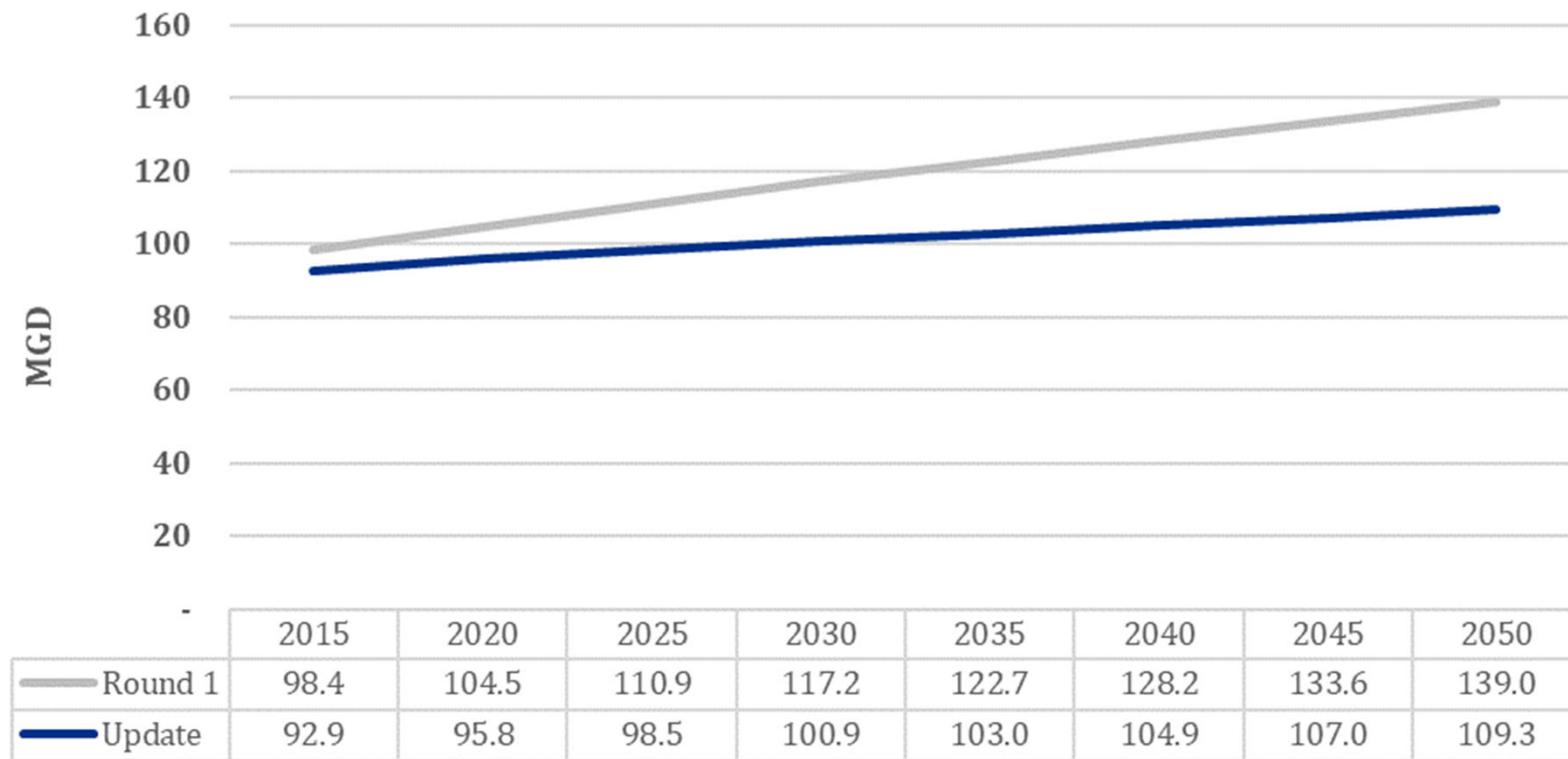


# Projecting Municipal Water Demand

2017 Update with Adjustment Factor:



# Change in Municipal Water Demand





# Georgia's State Water Plan

## Updating Per Capita Estimates

[waterplanning.georgia.gov](http://waterplanning.georgia.gov)

# Using Water Audits to Calculate Per Capita

- Annual water audits are required by all water systems serving 3,300 people or more in Georgia since 2011/2012
- Water audits show the breakdown of water use from entering distribution system to customer meter
- Accounts for imported and exported water
- Quantifies water loss volumes

# Per Capita Calculation

- Water supplied from water audit divided by population served from the State's Safe Drinking Water Information System (SDWIS) database
- Preliminary per capita values are calculated for each system (2011-2018)
- Weighted averages are calculated for each county with water systems serving population of 3,300 or more



## Slide 36

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**WJ60**    Changed second bullet to say "Preliminary per capita values"  
Welte, Jennifer, 11/5/2019

# Preliminary Per Capita Estimates

County	2011 RWP	2017 RWP	Reported					5-yr Avg
			2014	2015	2016	2017	2018	
Banks	101	<b>102</b>	103	100	108	99	96	101.2
Burke	132	<b>129</b>	127	116	128	139	131	128.2
Columbia	153	<b>134</b>	136	133	142	129	124	132.8
Elbert	102	<b>105</b>	178	195	203	194	185	191
Franklin	164	<b>161</b>	98	100	112	119	128	111.4
Glascock	73	<b>73</b>	no systems serving more than 3,300					
Hart	154	<b>158</b>	132	136	138	147	153	141.2
Jefferson	169	<b>163</b>				275	279	277
Jenkins	101	<b>107</b>	126	114	122	122	82	113.2
Lincoln	67	<b>66</b>		41	55	53	60	52.25

\*Not all counties have systems serving >3,300 people

## Slide 37

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**WJ35** I think we should break this apart into two slides so that the headings and values can be viewed more easily. Also not sure we need to show all of these years, so trimming them down will also help. Perhaps start at 2014 or 2015? I might also help to show the Round 2 values in bold.

Welte, Jennifer, 11/5/2019

**BJ21** Done

Bywater, Jenny, 11/5/2019

# Preliminary Per Capita Estimates

County	2011 RWP	2017 RWP	Reported					5-yr Avg
			2014	2015	2016	2017	2018	
Madison	139	<b>141</b>	no systems serving more than 3,300					
McDuffie	107	<b>104</b>	111	111	114	114	111	112.2
Oglethorpe	94	<b>100</b>	no systems serving more than 3,300					
Rabun	168	<b>164</b>	166	171	150	153	148	157.6
Richmond	221	<b>217</b>	174	168	173	170	168	170.6
Screven	161	<b>160</b>				228	151	189.5
Stephens	144	<b>146</b>	101	89	144	140	145	123.8
Taliaferro	71	<b>71</b>	no systems serving more than 3,300					
Warren	73	<b>72</b>	no systems serving more than 3,300					
Wilkes	156	<b>156</b>	205	222	216	222	214	215.8

\*Not all counties have systems serving >3,300 people

## Slide 38

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**WJ35**

I think we should break this apart into two slides so that the headings and values can be viewed more easily. Also not sure we need to show all of these years, so trimming them down will also help. Perhaps start at 2014 or 2015? I might also help to show the Round 2 values in bold.

Welte, Jennifer, 11/5/2019

**BJ20**

Done

Bywater, Jenny, 11/5/2019



# Georgia's State Water Plan

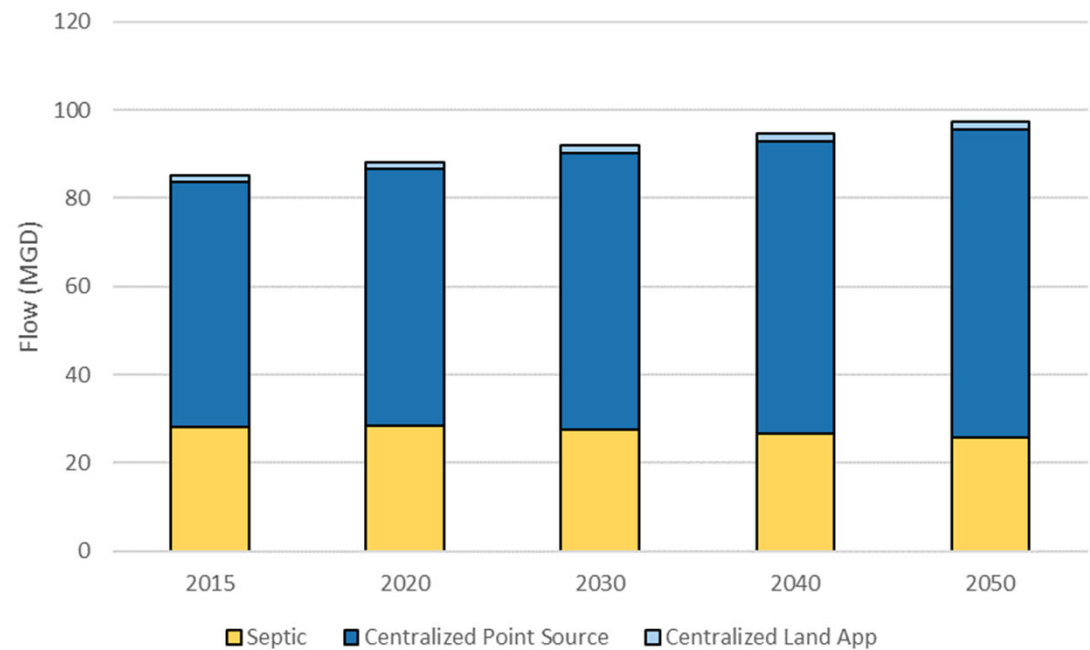
## Municipal Wastewater Forecast

[waterplanning.georgia.gov](http://waterplanning.georgia.gov)

# Municipal Wastewater Forecast Update

- For the 2011 RWP, the municipal water demand served as the basis for estimating the municipal wastewater (WW) flows for each count

*2017 Updated Wastewater Forecast*



## Slide 40

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**WJ36** Are we missing a bullet here re: 2017 approach? Might want to replace this bullet with a bullet that discusses the approach we took in 2017 instead (vs. going over the comparison).

Welte, Jennifer, 11/5/2019





# Georgia's State Water Plan

## Industrial Water Demand Forecast

[waterplanning.georgia.gov](http://waterplanning.georgia.gov)

# Industrial Water Demand Forecasts

- Industrial demands were not updated during the 2017 RWP update due to updated employment data not being available
- Industrial wastewater flows are identified by discharge method

## Slide 42

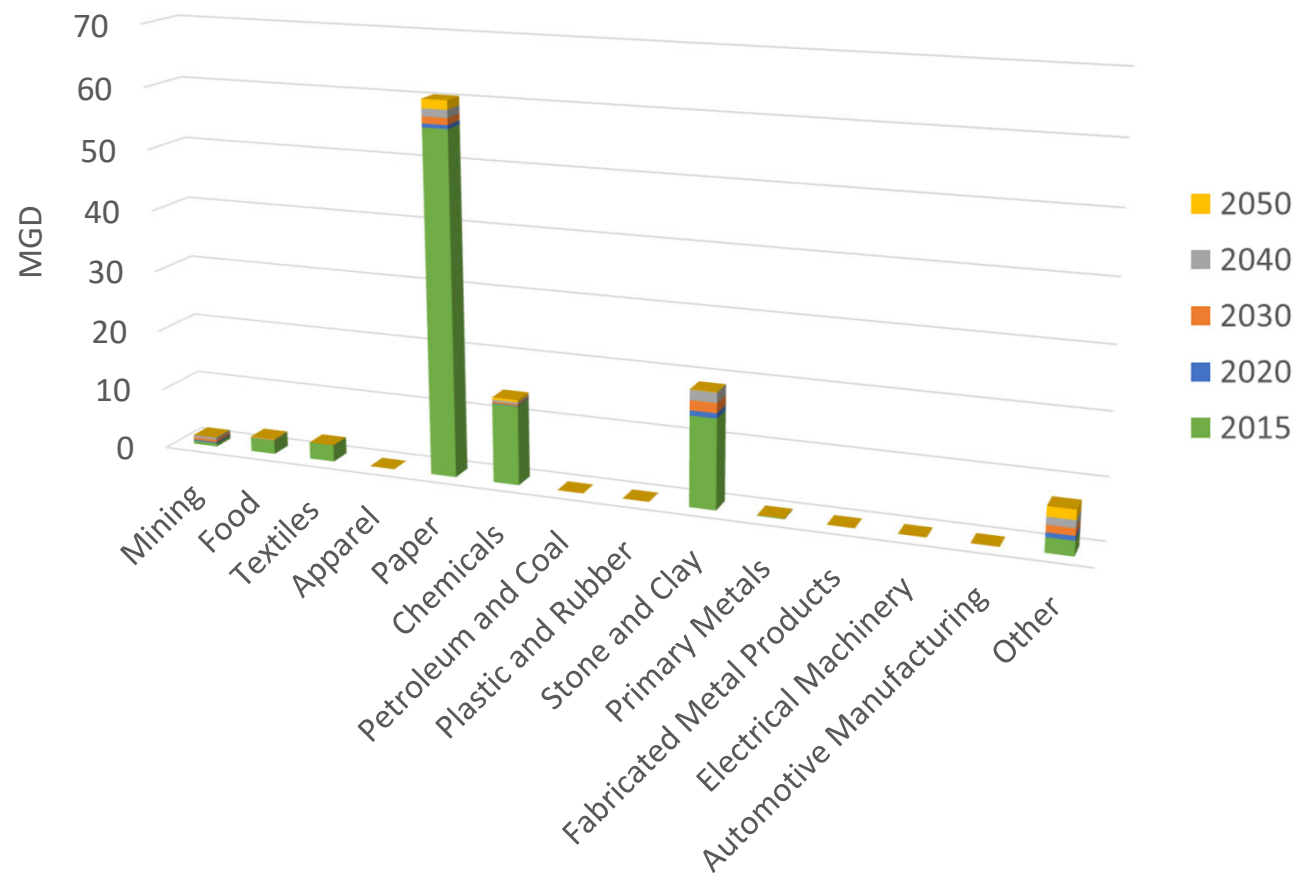
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**HD55** Bill to confirm bullets with Forecast TM  
Honour, Danielle, 10/28/2019

**BJ5** These seem general and accurate to me  
Bywater, Jenny, 10/30/2019

# Industrial Water Demand for Savannah-Upper Ogeechee

- Industrial water use in the Savannah-Upper Ogeechee Region is dominated by the paper industry, followed by chemicals and stone and clay.



## Slide 43

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**HD56** Jenny to update with SUO  
Honour, Danielle, 10/28/2019

**DWY2** did not find graph in TM  
Davis, William Y., 10/29/2019

**BJ6** I made a graph. The Coastal one was from the previous round TM but didn't have that for SUO  
Bywater, Jenny, 10/30/2019

**WJ38** I tried moving text over and increasing graph, but I still think the fonts and legend could be larger (and maybe legend can be on top of the graph?)  
Welte, Jennifer, 11/5/2019

# Industrial Water Demand Forecast in Other States

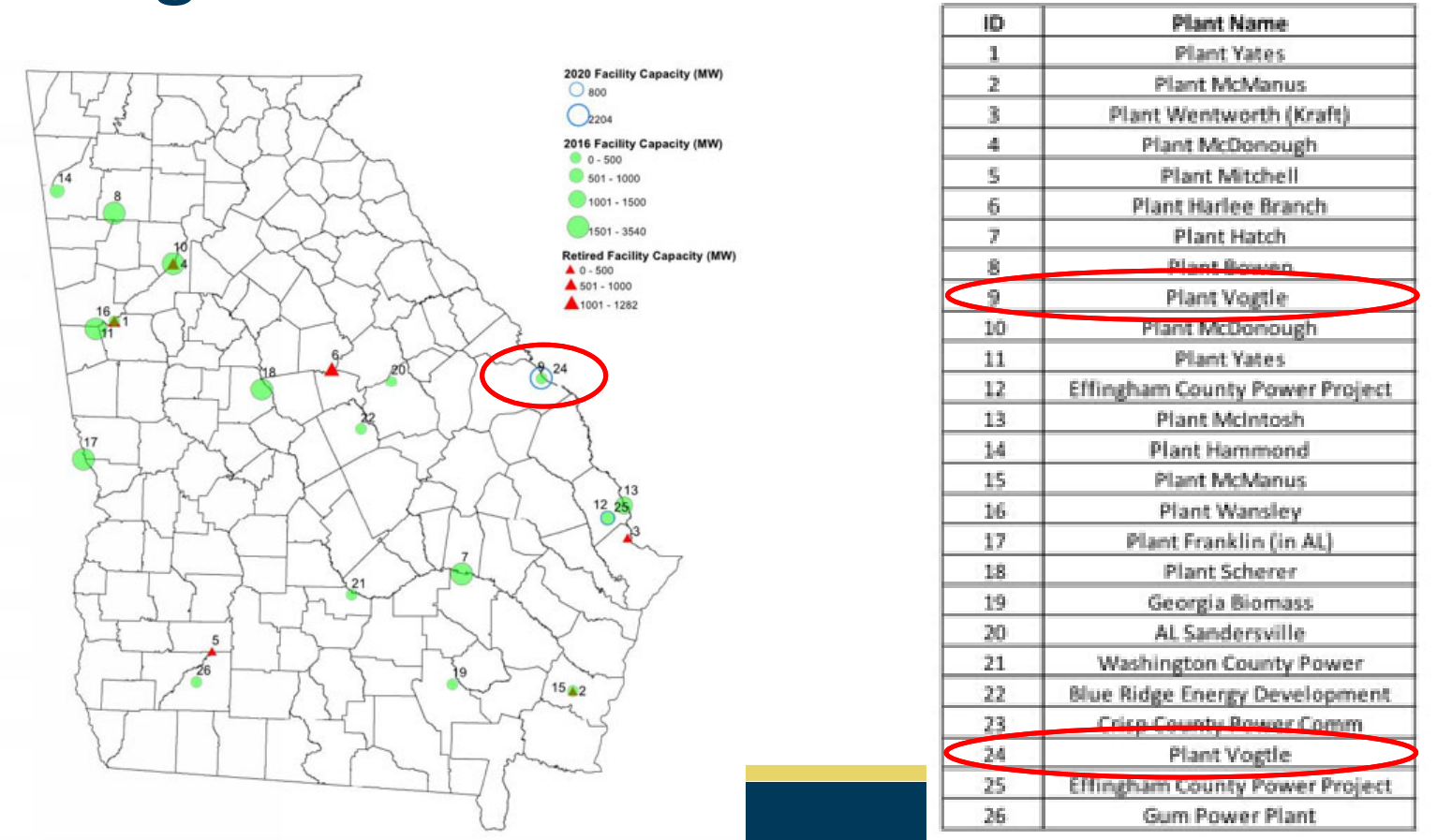
STATE	Water Use	Driver	Comment
ARK	State database by NAICS by county	County employment by NAICS	Have county level employment projections
CAL	Total industrial water use by basins	Industrial employment by basin	Used linear regression to estimate future employment by basin
CO	Select large industry users by county	Held constant unless local information	No data for most counties
OK	State database by NAICS by county	Percent growth of industrial employment by NAICS & County	Have county level employment projections
TX	State database by NAICS by county, calculate ratio of Industrial water use to industrial Gross Product by county	Projected growth of Industrial Gross Product by region	Hired consultant to project Industrial Gross Product by region



# Energy Water Demand Forecast

[waterplanning.georgia.gov](http://waterplanning.georgia.gov)

# 2011 RWP - Thermoelectric Power Facilities in Georgia with Water Withdrawal Permits





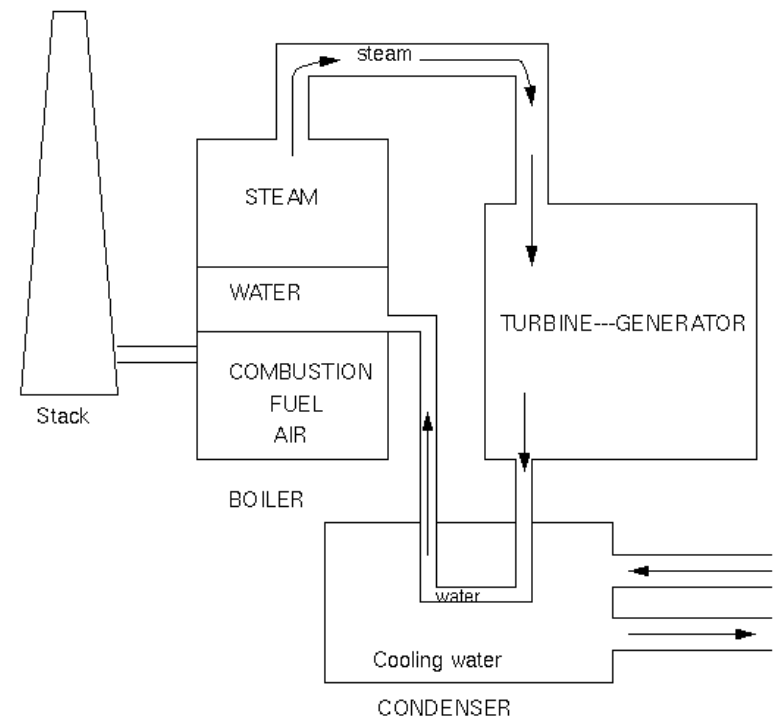
## Slide 46

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**HD57** Bill to update and adjust for SUO  
Honour, Danielle, 10/28/2019

# Water Requirements for Energy Generation

- Variables for calculations
  - Fuel type (coal, natural gas, nuclear)
  - Prime Mover (thermal energy into mechanical energy)
  - Cooling type (single pass vs. evaporative)



# Energy Forecasting Methodology

- Each power facility has a unique water-to –power-to-production signature
- Statewide, each facility contributes a unique portion to the entire power portfolio
- The relative contribution of each facility can change over time as facilities retire or are brought on-line
- This information is used along with total power production (est. from population projections) to determine statewide & regional water needs out to 2050

# Savannah-Upper Ogeechee Energy Forecast Review

Demand Type	2015	2020	2030	2040	2050
Withdrawals (MGD)	70	138	140	155	175
Consumption (MGD)	45	89	91	100	114

*\*Assumes new units at Plant Vogtle come online by 2020*

## Slide 49

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**WJ39** I updated the footnote to note assumption by 2020 (that may not be the reality).  
Welte, Jennifer, 11/5/2019



# Agricultural Water Demand Forecast

[waterplanning.georgia.gov](http://waterplanning.georgia.gov)

# Agricultural Water Demand Forecast

- Approach: Look to past trends and consider foreseeable changes
- Irrigated acreage
  - Baseline – USDA Census of Agriculture (2012); linked to 2015 irrigated acres
- Crop water needs
  - Wet, normal and dry year estimates by crop/soil/county
  - Estimates informed by metering data
  - Aggregated spatially to 2015 irrigated acreage
- Crop projections through 2050 - modeled based on multiple data sources:
  - Average of: USDA Projections, Southeast Model, Georgia Model

## Slide 51

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**WJ40** I added another subbullet re: metering data.

Welte, Jennifer, 11/5/2019

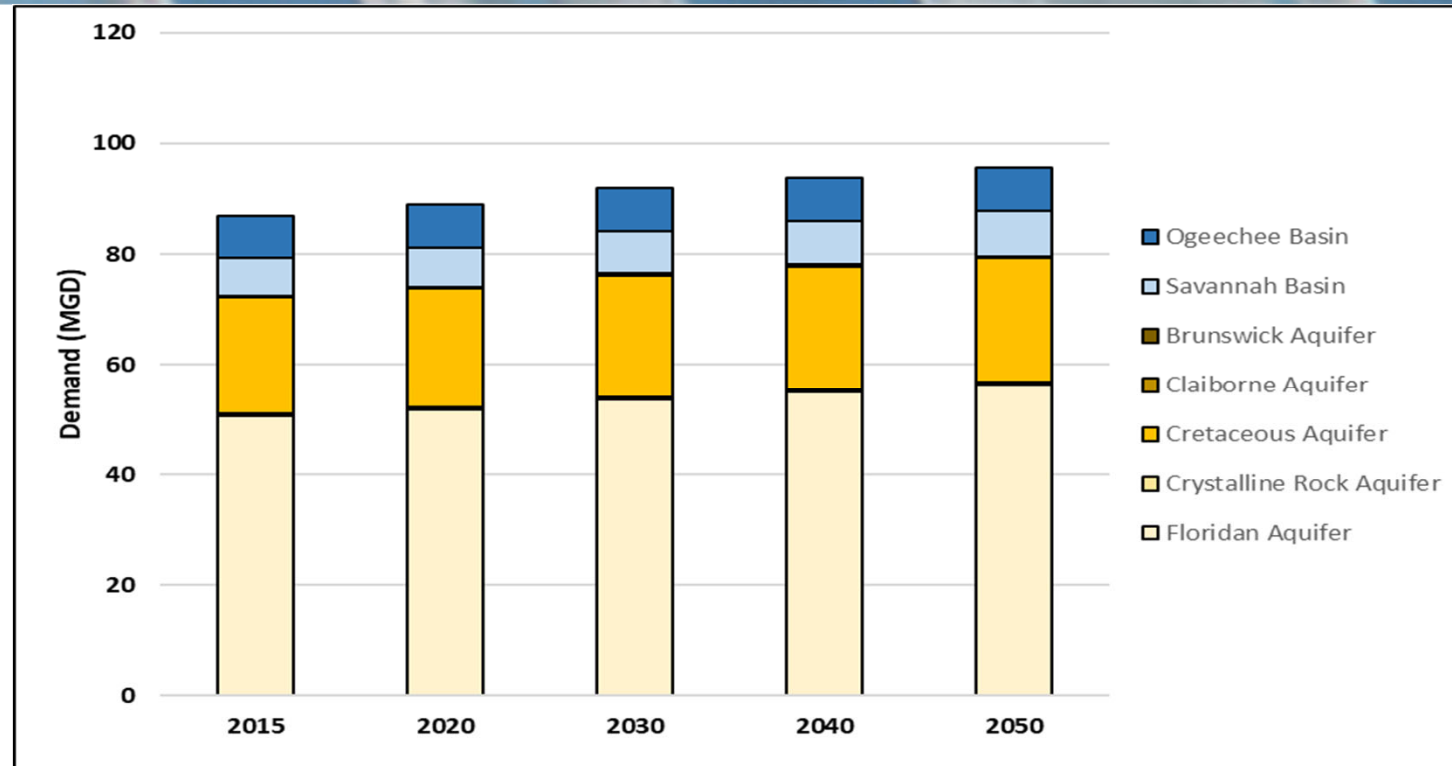
**WJ41** Bill, please also be sure to note here that we are just speaking to irrigated acreage. The total agricultural water demand also includes container nurseries and animal water use.

Welte, Jennifer, 11/5/2019



# Savannah-Upper Ogeechee Agricultural Water Demand

- Agricultural water demand is focused in Burke, Screven, Jefferson & Jenkins counties
- Demand is met through surface water (i.e. river basins) and groundwater



## Slide 52

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**WJ42**

I moved text over and increased the size of this graph.

Welte, Jennifer, 11/5/2019



LUNCH

[waterplanning.georgia.gov](http://waterplanning.georgia.gov)



## Phinizy Center Overview

[waterplanning.georgia.gov](http://waterplanning.georgia.gov)



# Georgia's State Water Plan

## Background and Overview of Upcoming Technical Work for 2020-2022 Regional Water Plan Update Cycle

### Part II: Resource Assessments and Gap Analysis

[waterplanning.georgia.gov](http://waterplanning.georgia.gov)



# Resource Assessment

[waterplanning.georgia.gov](http://waterplanning.georgia.gov)

# Savannah-Upper Ogeechee Region Resource Assessments

## Current & Future Conditions

- Groundwater availability
  - Surface water availability
  - Surface water quality
- Compare resource to demands to determine if there are potential gaps in current or future water availability or water quality
  - Findings documented in the Gap Analysis Technical Memo

## Gaps

## Slide 57

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**WJ43**

Bill, please note here that the Gap Analysis TM was just completed and will be emailed to the Council for their review prior to posting on their website.

Welte, Jennifer, 11/5/2019



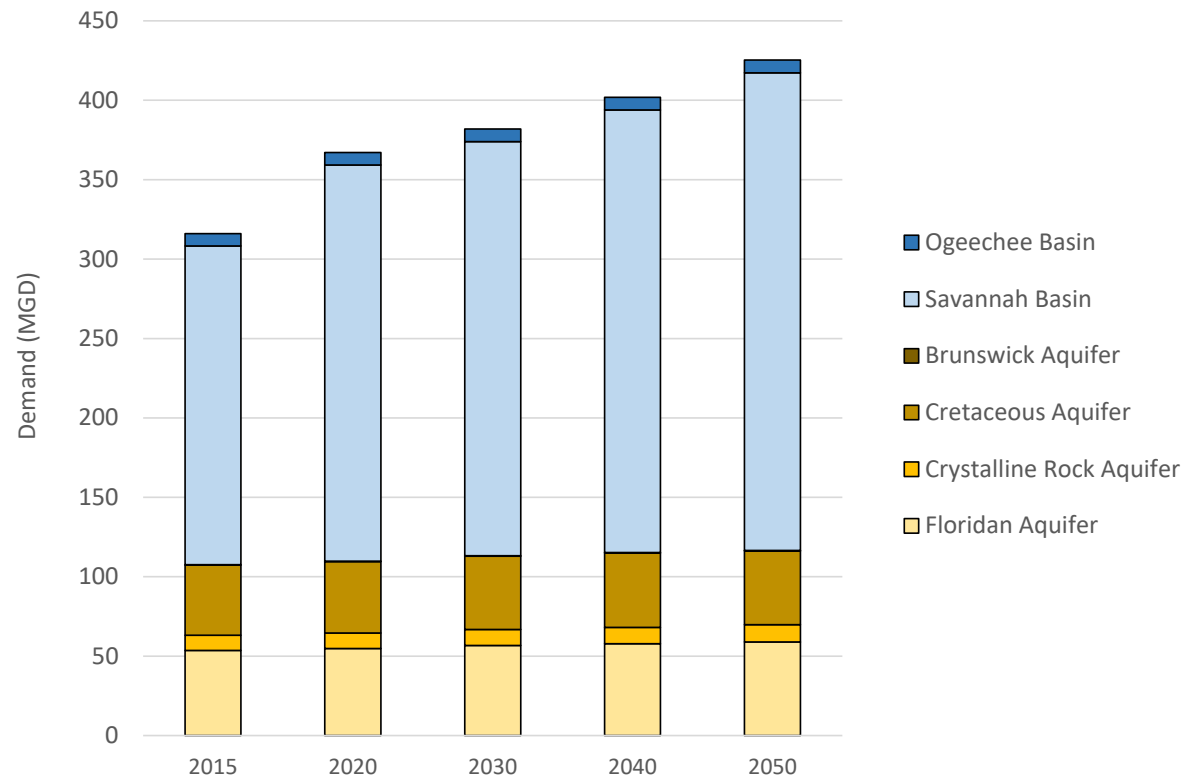


# Groundwater Availability

[waterplanning.georgia.gov](http://waterplanning.georgia.gov)

# Savannah-Upper Ogeechee Region Groundwater Availability Assessment

- Groundwater currently supplies ~34% of the projected regional water demand. WJ45
  - Of the projected 109 MGD of increased future water use only 9 MGD is projected to come from groundwater
- The major aquifers utilized are the Floridan, Cretaceous and some Crystalline Rock



## Slide 59

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**HD62** Jenny to update bullets and graphic for SUO

Honour, Danielle, 10/28/2019

**BJ7** Updated

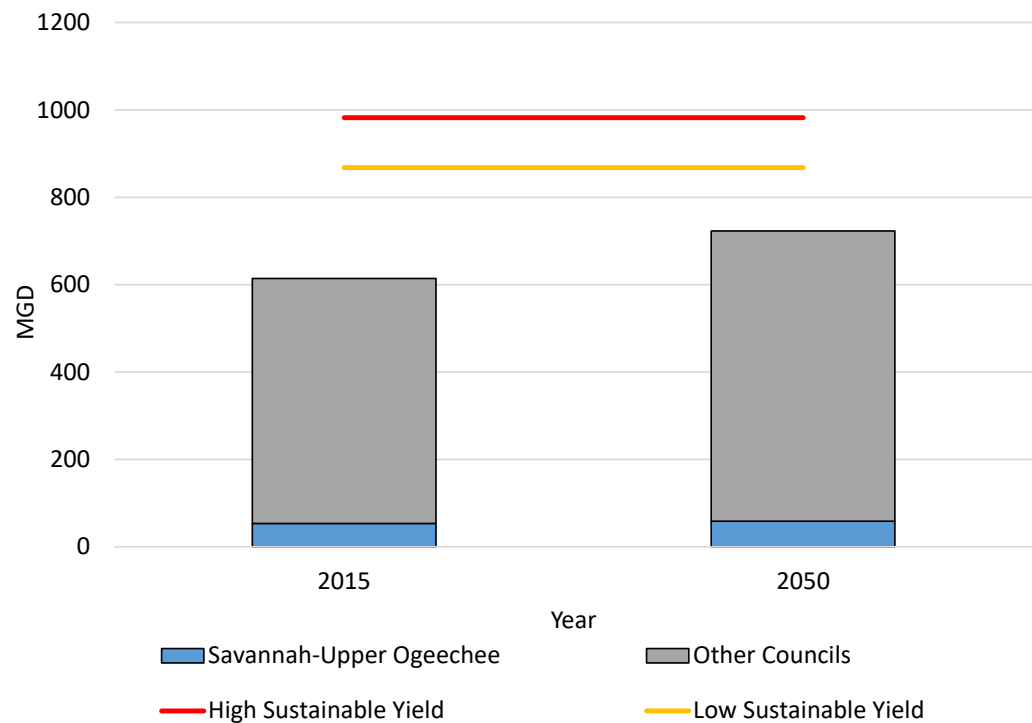
Bywater, Jenny, 10/30/2019

**WJ45** I move the text over and increased the graph.

Welte, Jennifer, 11/5/2019

# Groundwater Modeling of the Floridan Aquifer

- Floridan Aquifer model boundaries used in the Groundwater Resource Assessment for determining sustainable yield
- Regionally, there is sufficient



LD63  
RI8  
RI9  
RI10  
BJ15

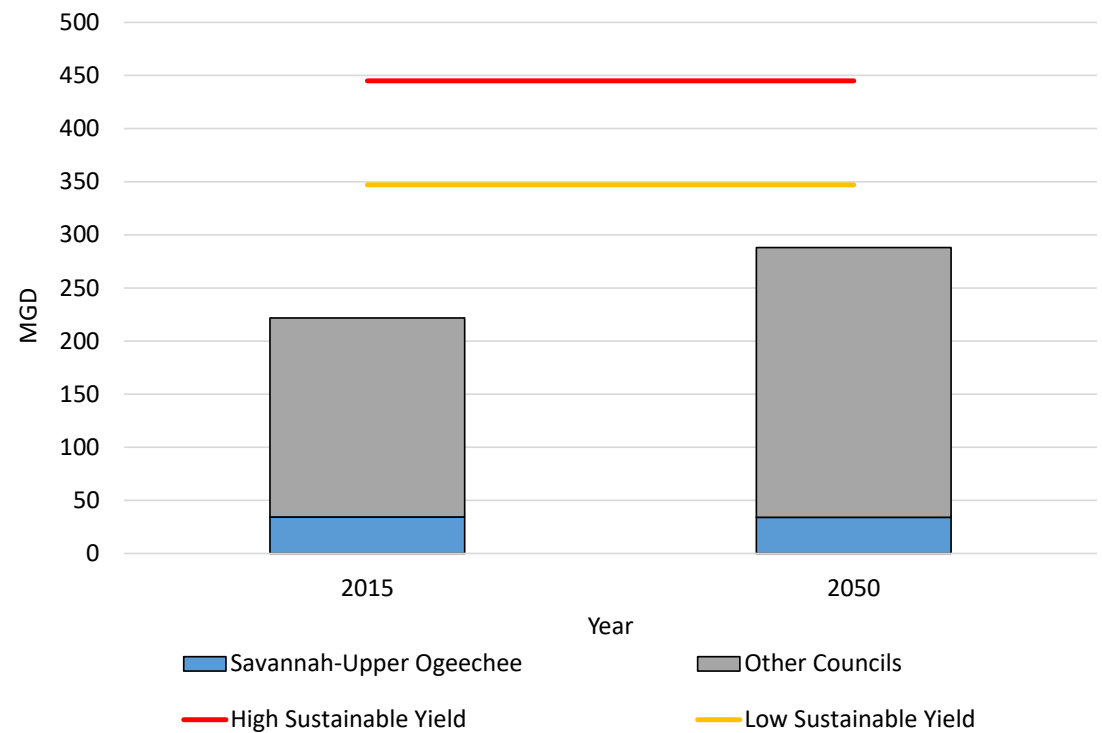
## Slide 60

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- HD63** Jenny to modify bullets for SUO. Please see if any other slides can be added for GW based on Gap TM as I think the next few slides are not applicable and can be deleted.  
Honour, Danielle, 10/28/2019
- BJ8** I updated figure and text to be more general  
Bywater, Jenny, 10/30/2019
- BJ9** Agree the slides on red zone/ yellow zone could be removed and removed them.  
Bywater, Jenny, 10/30/2019
- BJ10** Replaced with some slides on the other aquifers  
Bywater, Jenny, 10/30/2019
- BJ15** There is now annimation on this slide  
Bywater, Jenny, 11/1/2019
- WJ46** I added "and future" to the final bullet  
Welte, Jennifer, 11/5/2019

# Groundwater Modeling of the Cretaceous Aquifer

- Cretaceous Aquifer model boundaries used in the Groundwater Resource Assessment for determining sustainable yield
- Regionally, there is sufficient groundwater to meet current and future needs



## Slide 61

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**WJ47**

I added "and future" to the last bullet

Welte, Jennifer, 11/5/2019

# Groundwater Modeling of the Crystalline-Rock Aquifer

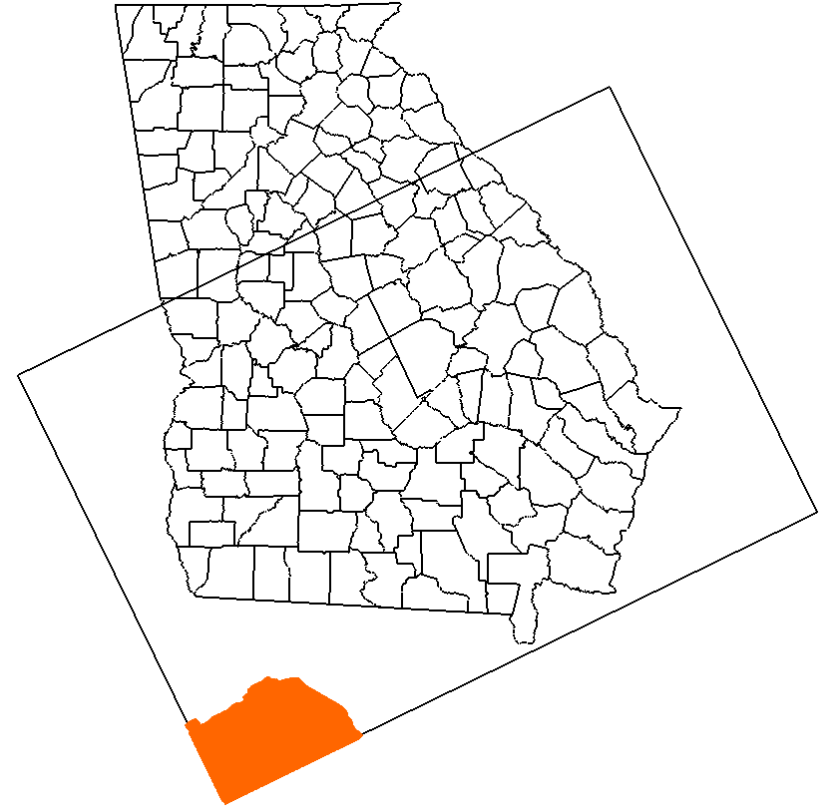
- Only small portions of the Crystalline-Rock aquifer were modeled
- A low range sustainable yield of 0.01 MGD per square mile area was estimated which is ~40 MGD for the modeled area
- The 2050 demands are projected to remain under the estimated range of sustainable yield for this aquifer





# Groundwater Availability Modeling

- The modeling tool used to analyze groundwater availability has been updated
  - “Coastal Plain of Georgia” modeling domain
- Grid spacing has been reduced, from 5,280' to 1,760'
  - Decreasing grid spacing allows for a more refined look at the impact of withdrawals
- The modeling tool can now be run in transient mode, to analyze time-varying uses vs. steady state



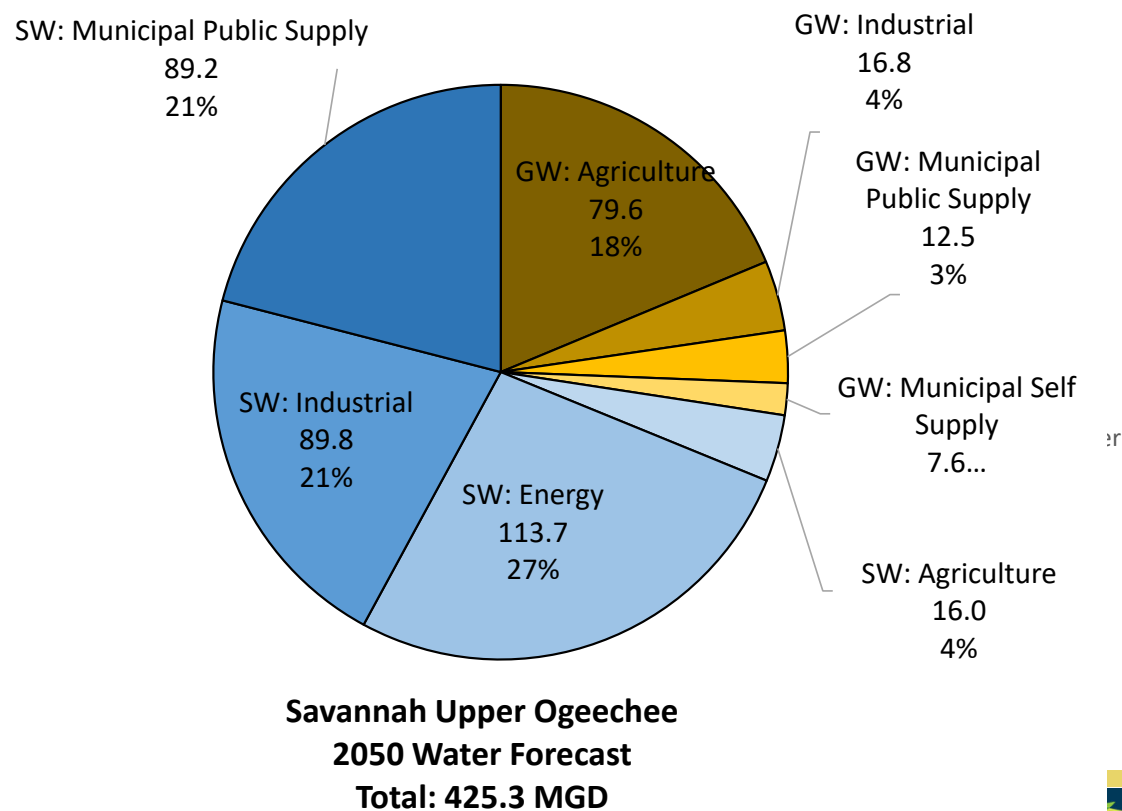


# Surface Water Availability

[waterplanning.georgia.gov](http://waterplanning.georgia.gov)

# Savannah-Upper Ogeechee Region Surface Water Supply

- Surface water supply comes primarily from the Savannah River basin
- Surface water accounts for ~70% of water demands
- Surface water serves multiple demands types with the largest growth projected in the energy sector



## Slide 65

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**HD62** Jenny to update bullets and graphic for SUO

Honour, Danielle, 10/28/2019

**BJ7** Updated

Bywater, Jenny, 10/30/2019

**WJ48** I increased the graph and font sizes, and moved text over on this slide.

Welte, Jennifer, 11/5/2019

# Surface Withdrawals by County and Region

- Acreages of each County within the local drainage area (LDA) by planning node were determined
- Areas irrigated with surface water by County within the LDA assigned to planning node were determined
- 2050 forecasted surface water withdrawals for portion of County assigned (drains to) planning node within LDA were available from forecasting and resource assessment work

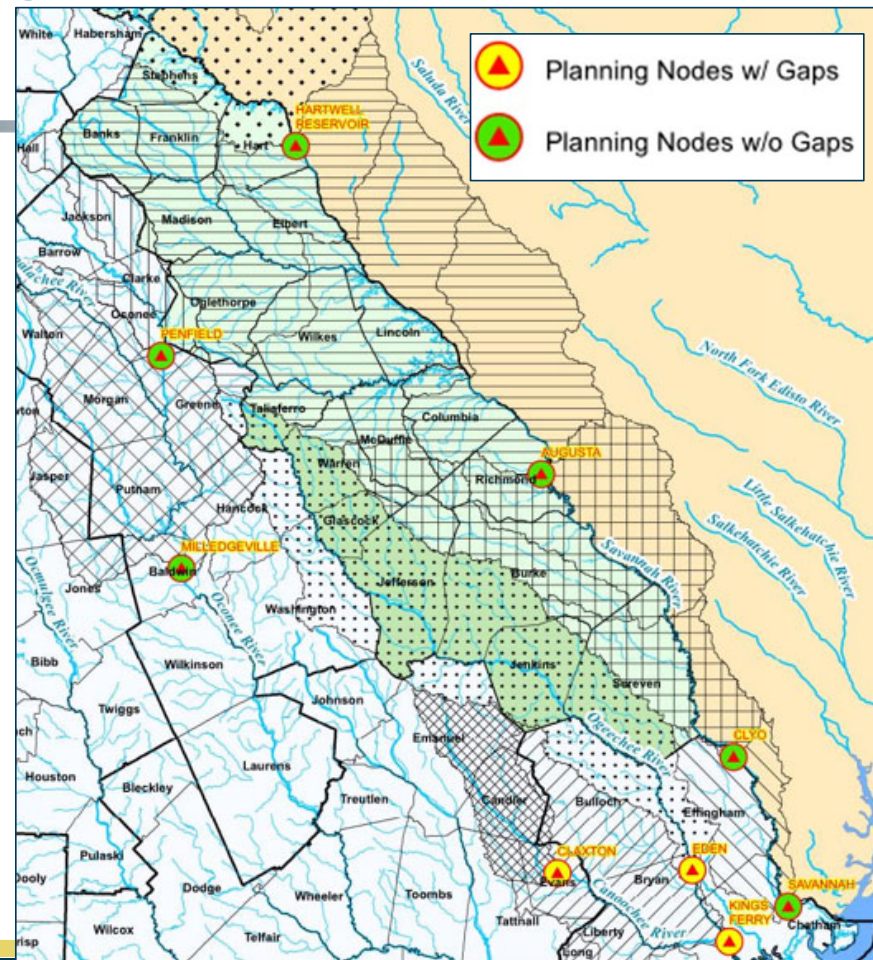
## Slide 66

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**WJ49** I shortened the language in the last part of this bullet  
Welte, Jennifer, 11/5/2019

# Savannah-Upper Ogeechee Region Surface Water Availability Assessment

- Surface water availability was assessed at locations with long-term records of flow, [WJ50](#)th streamflows modeled under current and future conditions
- A potential gap occurs when streamflow is projected to fall below specified low flow levels [WJ51](#)
- Potential gaps in streamflow identified on the Ogeechee River at the Eden and King's Ferry node and on the Canoochee River at the Claxton node



## Slide 67

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**HD67** Jenny to update graphic and text for SUO

Honour, Danielle, 10/28/2019

**BJ11** Updated graphic, text and notes

Bywater, Jenny, 10/31/2019

**WJ50** Changed "measurements" to "flow" in the first bullet

Welte, Jennifer, 11/5/2019

**WJ51** Changed "targets for instream uses" to "specified low flow levels"

Welte, Jennifer, 11/5/2019

**WJ53** I removed the bullet in the talking points about the Canoochee, as the SUO regional use is too small a percentage at that node. I reworded to focus on the Ogeechee and added the next slide as well.

Welte, Jennifer, 11/5/2019



# Ogeechee River, Eden Node

W1152  
BJ17

Councils and Associated Counties That Are Within in the Local Drainage Area with Potential Gaps	Total 2050 Forecasted Surface Water Demand at Planning Node Summarized by Sector (MGD)	2050 Potential Gap Information: Average Daily Flow Deficit per Gap Event Summarized by Planning Node		2050 Forecasted Surface Water Withdrawals Summarized by Planning Council (MGD)
		1-7 Day Duration	8-14 Day Duration	
Ogeechee River				
Altamaha - Emanuel	Agriculture: 0.05	7 MGD (11 cfs)  61.1% of all potential gap events	10 MGD (15 cfs)  16.7% of all potential gap events	0.05
Coastal Georgia – Bryan, Bulloch, Effingham	Agriculture: 1.29			1.29
Savannah-Upper Ogeechee – Burke, Glascock, Jefferson, Jenkins, Screven, Taliaferro, Warren	Agriculture: 7.7			7.87
	Municipal Water: 0.17			
Upper Oconee – Greene, Hancock, Washington	Agriculture: 1.42			1.42
Total:				10.64

## Slide 68

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**WJ52** Jenny, can you please add the table used in the Gap Analysis TM for the Eden node here (Table 4-5)?  
Welte, Jennifer, 11/5/2019

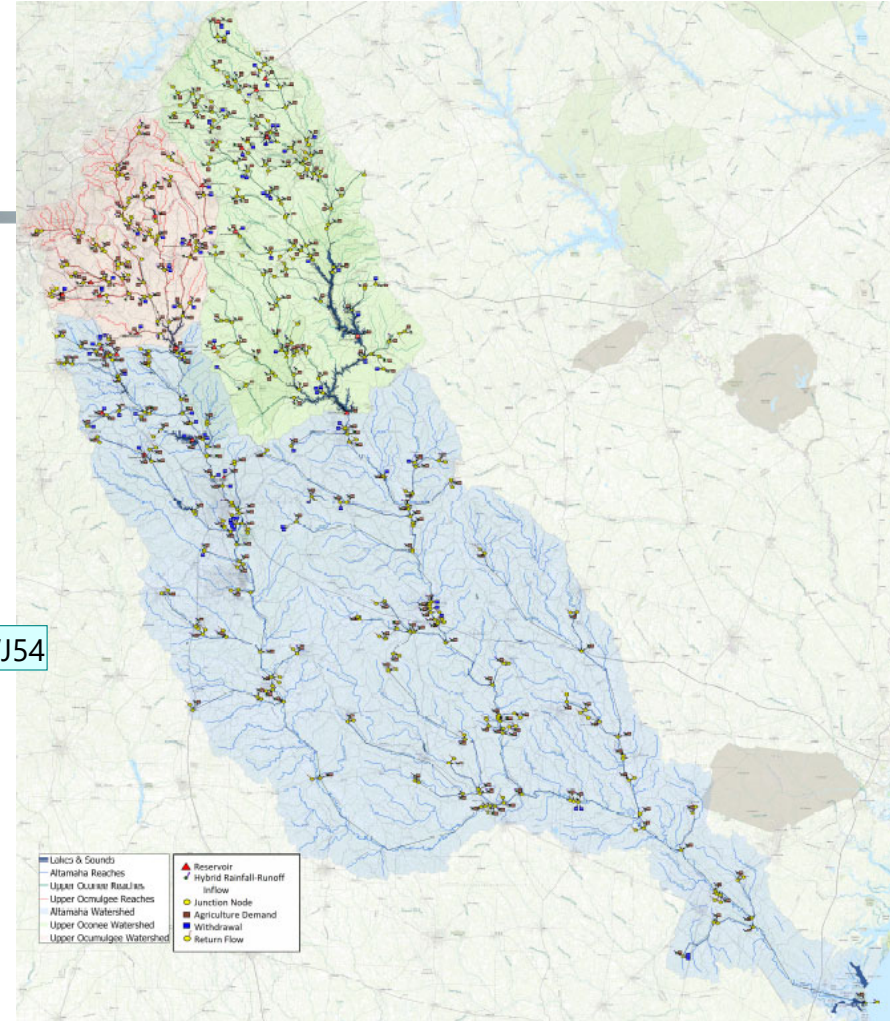
**BJ17** Added  
Bywater, Jenny, 11/5/2019

# Surface Water Availability Resource Assessment

- Developing finer-scale hydrologic models (nodes at discharge and withdrawal points, at reservoirs and at flow gages)
- Starting with Oconee, Ocmulgee and Altamaha basins



WJ54



## Slide 69

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**WJ54** Jennifer added this slide and can cover it during the meeting.  
Welte, Jennifer, 11/5/2019



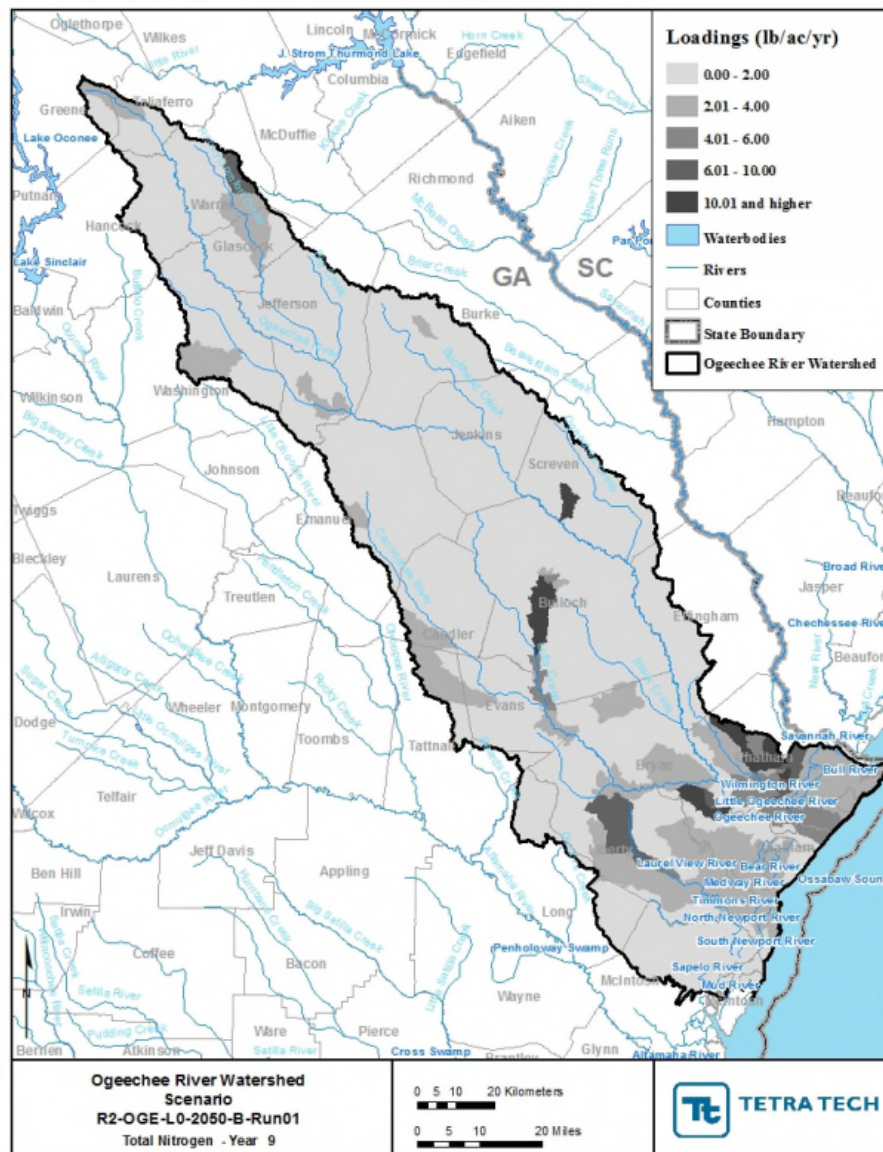
# Water Quality

[waterplanning.georgia.gov](http://waterplanning.georgia.gov)

# Current Assimilative Capacity Assessment

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- Develop Models
- Use available data & conservative assumptions
- Calibrate models to existing conditions
- Evaluate models using current permits
- Determine available assimilative capacity
- Determine areas of concern



## Round 2 of the State Water Plan

- Multiple models used including:
- DOSAG (streams)
- RIV1 (Rivers)
- GA ESTUARY (Estuaries)
- Lakes/Estuaries
- Watershed Models
- Nutrient Loading

WJ55

## Slide 72

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- HD68** Jenny to update graphic for SUO. This is an animated slide so check graphics underneath.  
Honour, Danielle, 10/28/2019
- BJ12** This graphic is still relevant for SUO. Figure below is also state-wide and relevant  
Bywater, Jenny, 10/31/2019
- WJ55** I removed the acronyms for the lake/estuary models and added "watershed models". I also modified the talking points, adding an update about work completed on the upper Savannah basin. (Bill, I can help with this if needed.)  
Welte, Jennifer, 11/5/2019



# Future Assimilative Capacity Assessment

- Evaluate models using future permitted flow
  - Increased Flows (Q)
- Incorporate model assumptions regarding future permits limits designed to meet water quality standards
  - Tighter BOD Limits (maintain load,  $Q \times \text{Concentration}$ )
  - New or Tighter Ammonia (NH<sub>3</sub>) Limits
  - New or Tighter Dissolved Oxygen Limits
- Future land use changes

WJ56

## Slide 73

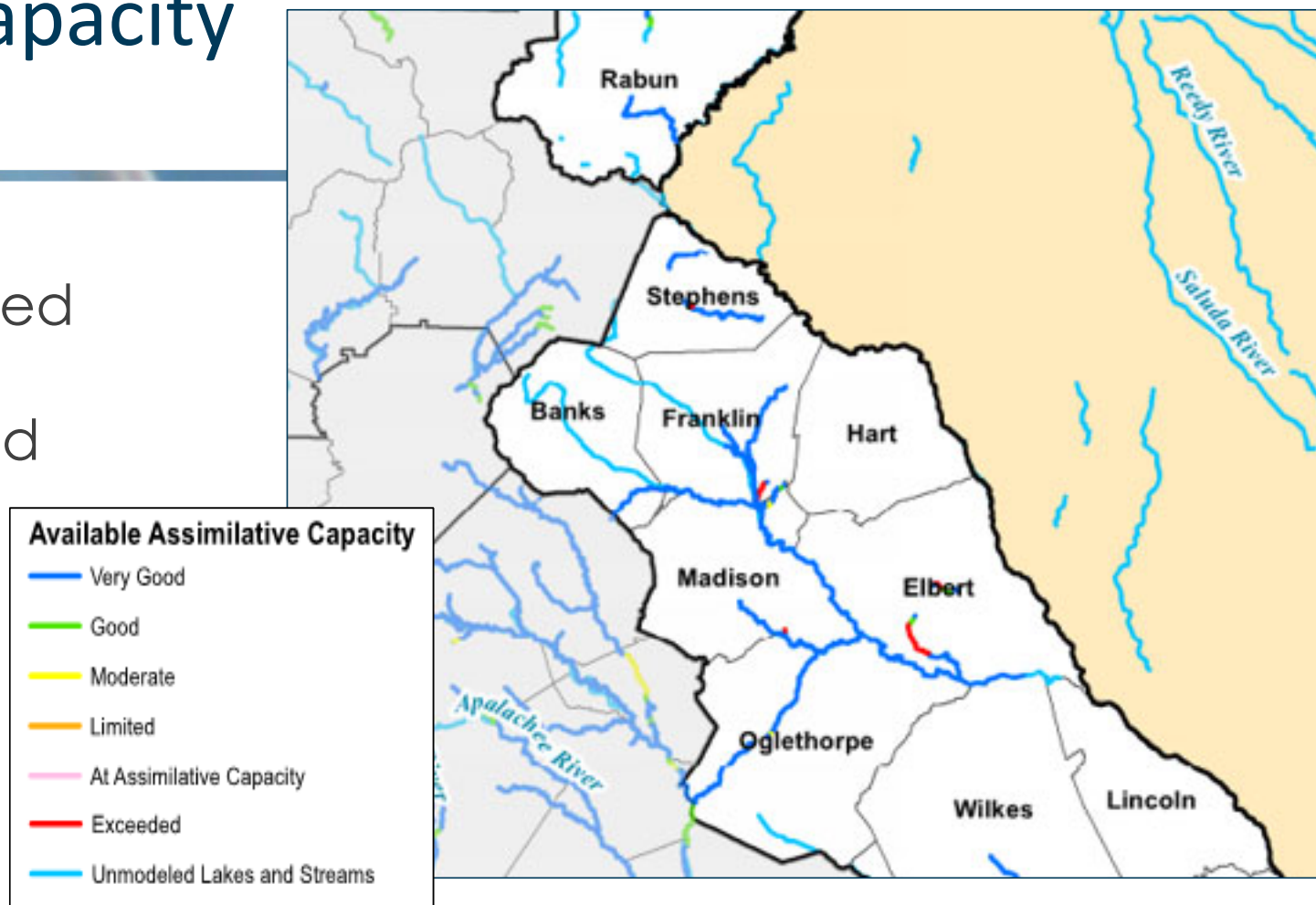
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**WJ56** Edited last bullet to add word "Future"  
Welte, Jennifer, 11/5/2019

LD69  
BJW158  
BJ19

# Assimilative Capacity Assessment

- Modeled dissolved oxygen under current permitted conditions



## Slide 74

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**HD69** Jenny to update for SUO  
Honour, Danielle, 10/28/2019

**BJ13** Updated  
Bywater, Jenny, 10/31/2019

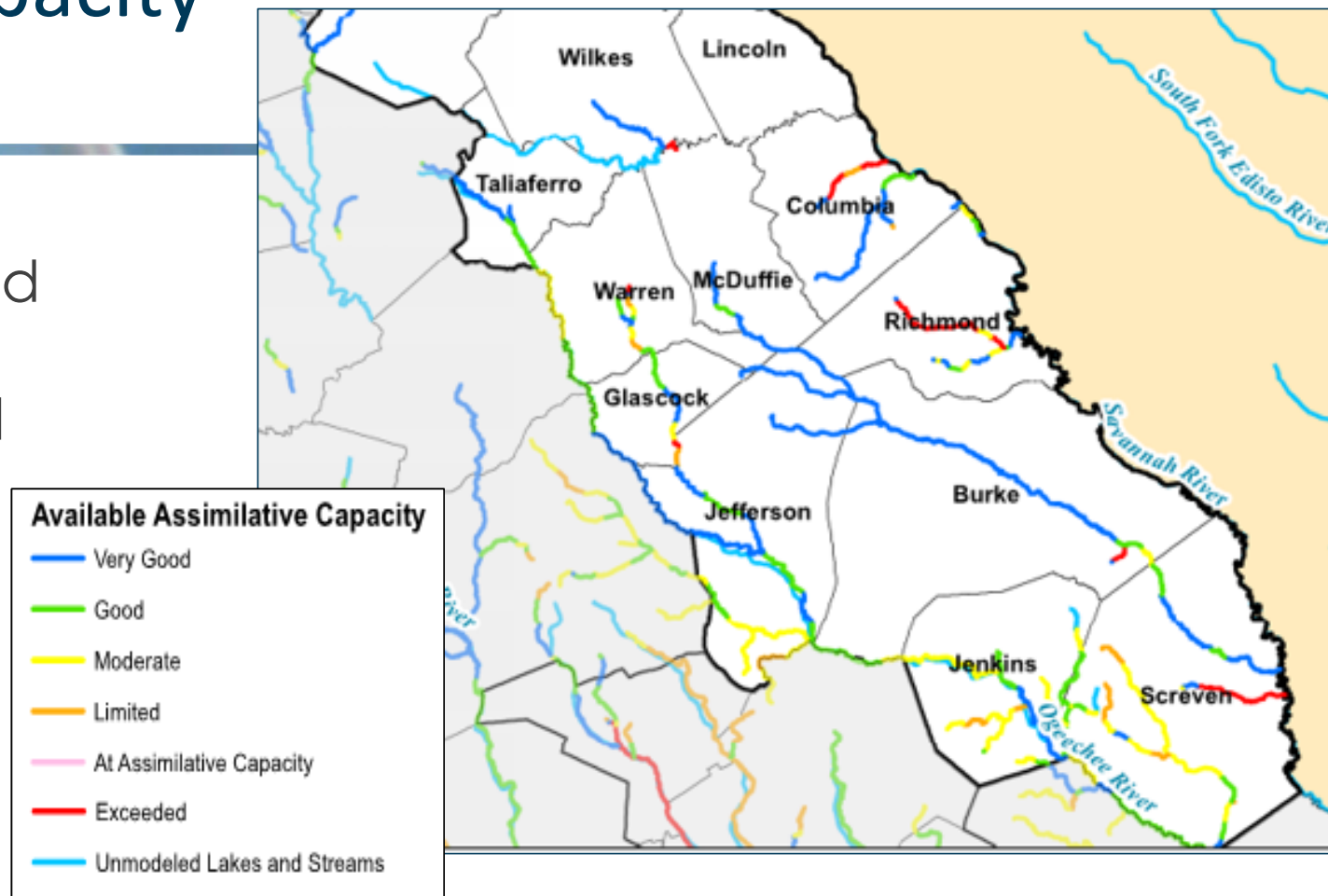
**WJ58** This is very hard to read; I would recommend breaking this apart into two slides; northern half of region and southern half of region.  
Welte, Jennifer, 11/5/2019

**BJ19** Done  
Bywater, Jenny, 11/5/2019

LD69  
BJW/LE9  
BJ18

# Assimilative Capacity Assessment

- Modeled dissolved oxygen under current permitted conditions



## Slide 75

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**HD69** Jenny to update for SUO  
Honour, Danielle, 10/28/2019

**BJ13** Updated  
Bywater, Jenny, 10/31/2019

**WJ58** This is very hard to read; I would recommend breaking this apart into two slides; northern half of region and southern half of region.  
Welte, Jennifer, 11/5/2019

**BJ18** Done  
Bywater, Jenny, 11/5/2019

# Gap Technical Memorandum

- Summary comparing forecasted demands to available resources
  - Water and wastewater forecasts for regional surface and groundwater resources
  - Identification of known existing permit capacity in relationship to forecasts
  - Water quality considerations
- Document will be emailed to Council members, then made available via the SUO region webpage



## Slide 76

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**WJ59**

I edited the last bullet here.

Welte, Jennifer, 11/5/2019





# Georgia's State Water Plan

## Council Committee Next Steps

[waterplanning.georgia.gov](http://waterplanning.georgia.gov)

# Public Comments

# Next Meeting Date & Topics

# Thank You!

Questions? Comments? Need  
More Information?

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[smithla@cdmsmith.com](mailto:smithla@cdmsmith.com)