Georgia's

State Water Plan

Regional Water Development and Conservation Plan Review and Revision
Altamaha Water Planning Council
March 2, 2017

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Council Meeting 4 Agenda

Georgia's State Water Plan

Altamaha Regional Water Council Meeting 4
Draft Agenda – March 2, 2017

Objectives:

1) Review Demand Forecasts, Resource Assessment Results and Initial Plan Updates (Sections 3, 4 & 5)
2) Discuss Format and Initial Revisions to Regional Water Plan (RWP) Update Documents
3) Review, Discussion and Revision of Management Practices including decision making
4) Discuss Approach and Timelines for Remaining RWP Updates

9:00–9:30	Registration
9:30–9:45	Welcome and Introductions Approve meeting minutes from November 17, 2016 Individual Council Meeting Approve meeting agenda
9:45-10:45	Regional Water Plan Deliverables • Review Demand Forecast Technical Memorandum • Format and Initial Revisions of RWP Updates • Review Updates to Sections 3, 4 and 5 of the RWP
10:45-11:00	Break
11:00 -11:45	Report out on January 2017 Shared Resources Sub-Committee Meetings
11:45-12:30 pm	Lunch
12:30 - 1:00	Review 2011 Decision Process
1:00 - 2:30	Review and Discuss Management Practices
2:30 - 2:45	Next steps and Schedule for Remaining RWP updates
2:45-3:00	Public Comments/Local Elected Official Comments Wrap Up/Council Meeting 5 Preview
3:00	Adjourn

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Council Business

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Council Meeting Overview

- Welcome and Introductions
- Approve meeting minutes from November 17, 2016 Individual Council Meeting
- Approve meeting agenda

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Regional Water Plan Deliverables

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Completing Draft Plan Update

- Final Demand Forecast Technical Memorandum
- Draft Section 3 - Water Resources of the Coastal Georgia Region
- Draft Section 4 - Forecasting Future Water Resource Needs
- Draft Section 5 - Comparison of Available Resource Capacity and Future Needs

Altamaha River

Demand Forecast Technical Memorandum (TM)

- Items addressed from council input during the planning process
  - Regional gpcd value vs. county specific
  - Industrial forecast not being updated but methodology will be considered for update next plan update round
  - County demands presented in tabular format
  - County specific Agricultural demands updated by Mark Masters and documented in the TM
- Seeking Council Approval

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Format and Initial Revisions of RWP Updates

- Update utilizes original sections of the 2011 RWP
- Highlighted changes since 2011 RWP
- Edits are shown in track changes to identify where information has been updated or modified
- Provide two versions for review
  - Version with track changes shown
  - Version with changes accepted
- Draft Plan Sections Submitted to Date
  - Section 3 - Water Resources of the Altamaha Region
  - Section 4 - Forecasting Future Water Resource Needs
  - Section 5 – Comparison of Available Resource Capacity and Future Needs

Overview of Plan Content

REGIONAL WATER PLAN

Table of Contents

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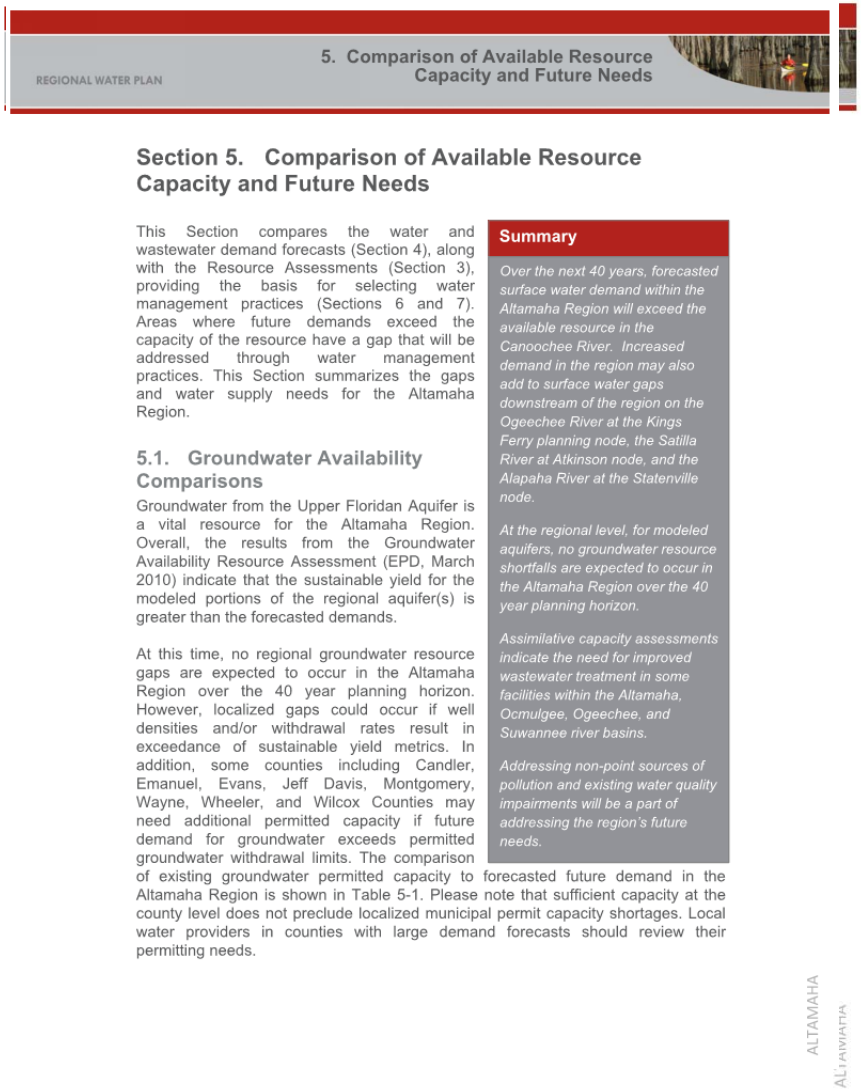
Report Sections 3, 4 & 5 – Review by Editing Committee

- Section 3 - Water Resources of the Altamaha Region
- Section 4 - Forecasting Future Water Resource Needs
- Section 5 - Comparison of Available Resource Capacity and Future Needs



REGIONAL WATER PLAN

5. Comparison of Available Resource Capacity and Future Needs

Section 5. Comparison of Available Resource Capacity and Future Needs

This Section compares the water and wastewater demand forecasts (Section 4), along with the Resource Assessments (Section 3), providing the basis for selecting water management practices (Sections 6 and 7). Areas where future demands exceed the capacity of the resource have a gap that will be addressed through water management practices. This Section summarizes the gaps and water supply needs for the Altamaha Region.

Summary

Over the next 40 years, forecasted surface water demand within the Altamaha Region will exceed the available resource in the Canoochee River. Increased demand in the region may also add to surface water gaps downstream of the region on the Ogeechee River at the Kings Ferry planning node, the Satilla River at Atkinson node, and the Alapaha River at the Statenville node.

At the regional level, for modeled aquifers, no groundwater resource shortfalls are expected to occur in the Altamaha Region over the 40 year planning horizon.

Assimilative capacity assessments indicate the need for improved wastewater treatment in some facilities within the Altamaha, Ocmulgee, Ogeechee, and Suwannee river basins.

Addressing non-point sources of pollution and existing water quality impairments will be a part of addressing the region's future needs.

5.1. Groundwater Availability Comparisons

Groundwater from the Upper Floridan Aquifer is a vital resource for the Altamaha Region. Overall, the results from the Groundwater Availability Resource Assessment (EPD, March 2010) indicate that the sustainable yield for the modeled portions of the regional aquifer(s) is greater than the forecasted demands.

At this time, no regional groundwater resource gaps are expected to occur in the Altamaha Region over the 40 year planning horizon. However, localized gaps could occur if well densities and/or withdrawal rates result in exceedance of sustainable yield metrics. In addition, some counties including Candler, Emanuel, Evans, Jeff Davis, Montgomery, Wayne, Wheeler, and Wilcox Counties may need additional permitted capacity if future demand for groundwater exceeds permitted groundwater withdrawal limits. The comparison of existing groundwater permitted capacity to forecasted future demand in the Altamaha Region is shown in Table 5-1. Please note that sufficient capacity at the county level does not preclude localized municipal permit capacity shortages. Local water providers in counties with large demand forecasts should review their permitting needs.

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Editing Committee Assignments

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Break

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Report out on January 2017 Shared Resources Sub-Committee Meetings

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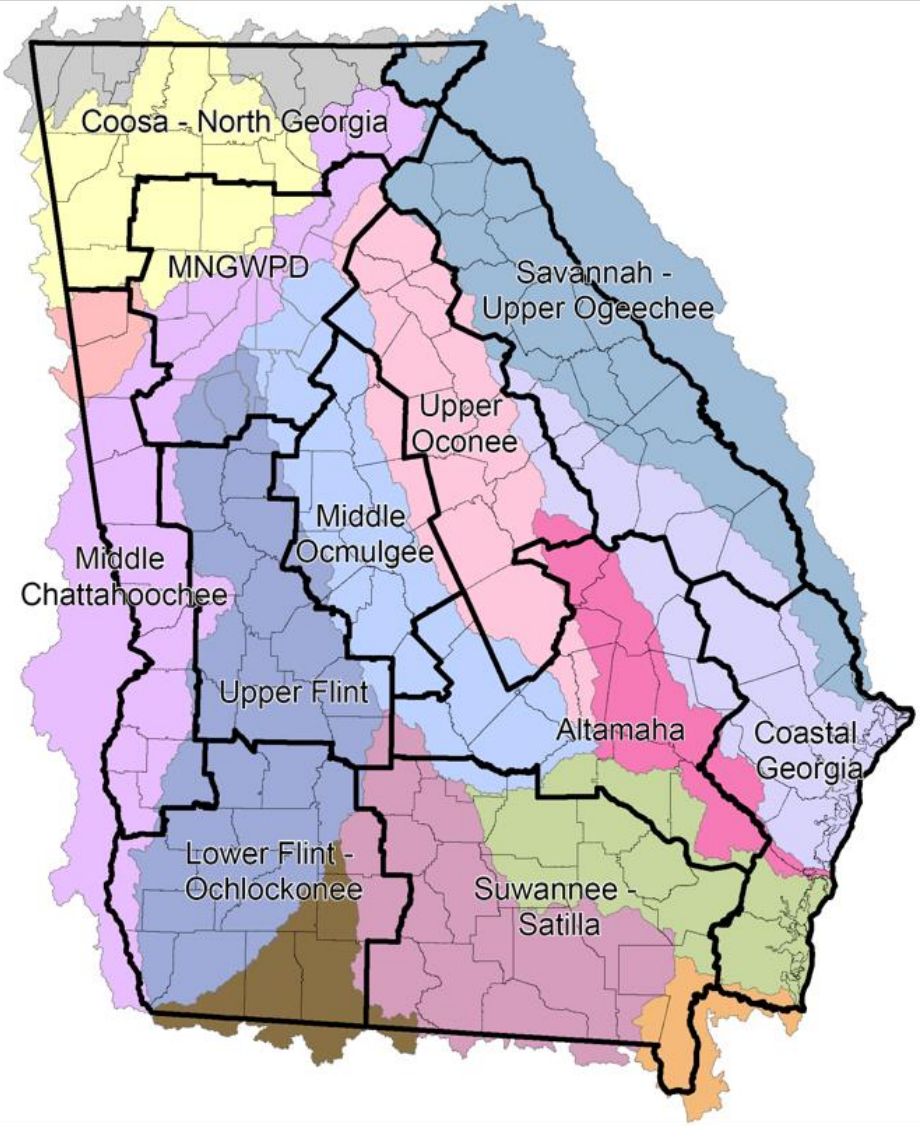
Shared Resources Sub-Committee Meetings

- Floridan Aquifer Groundwater Use Shared Resources Subcommittee Meeting held on January 23, 2017 in Savannah, GA
- Surface Water Use Shared Resources Sub-Committee held on January 25, 2017 in Statesboro, GA

Assembling the Sub-Committees



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Groundwater Subcommittee Meeting Overview

- The Regional Water Planning Process and significant changes following completion of the 2011 Regional Water Plan
- Updated Floridan Aquifer water demand forecasts, groundwater quantity gaps in the Red and Yellow Zones, and summary of select forecast information
- Preliminary identification, review, and discussion of Potential Management Practices to address groundwater quantity gaps
- Water provider/user perspective - open discussion of major challenges and planning responses
- Next Steps

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Groundwater Subcommittee Meeting Objectives

- Review and discuss changes to the 2011 Regional Water Plan
  - Updated Regional Floridan Aquifer Water Demand Forecasts
  - Assumptions for Floridan Aquifer Groundwater Availability for the Red and Yellow Zones and revised "Gap" quantification

- Begin discussion of Planned Activities and Potential Management Practices to meet future water needs (Updated Forecasts / Red and Yellow Zones Permit Reductions)

- Provide participants a more complete understanding of the Regional Water Planning process and local planning challenges and opportunities

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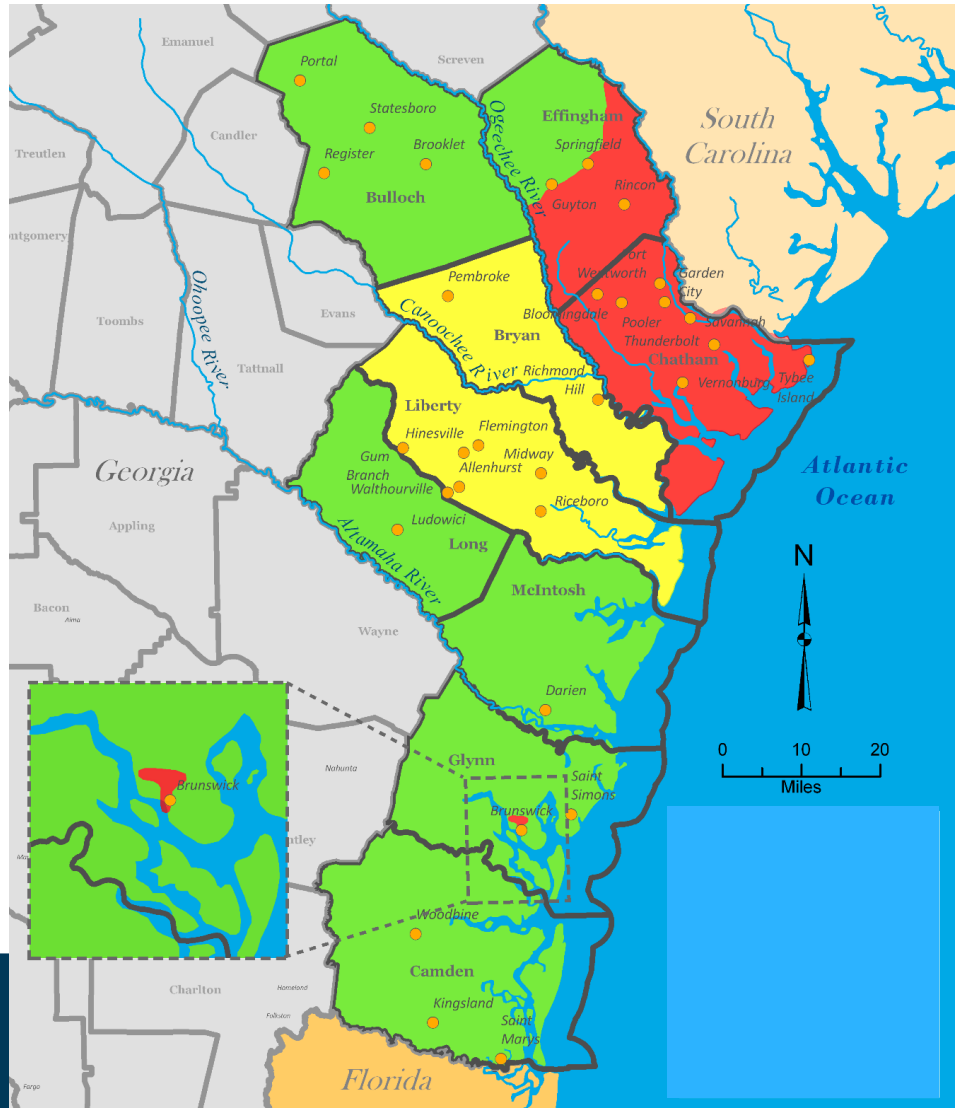
Location of Red and Yellow Zones

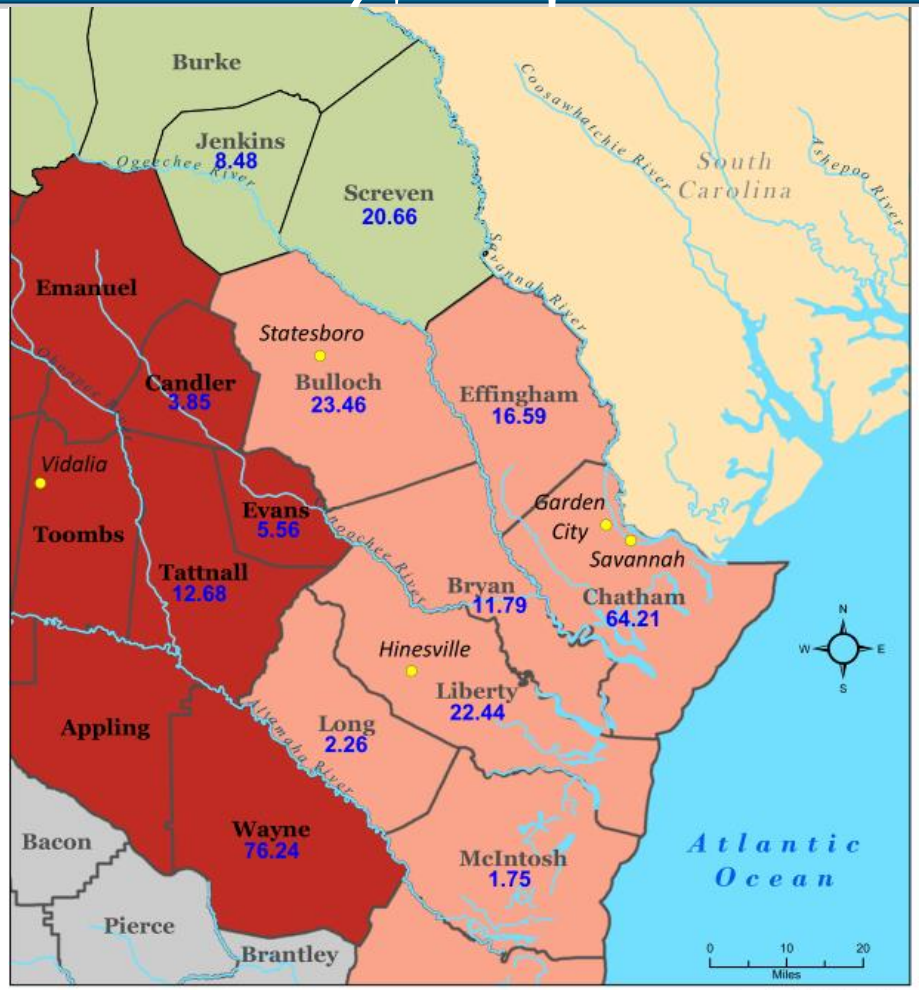
- Four counties have been the major focus of resource management efforts:
  - Bryan
  - Chatham
  - Southeastern Effingham
  - Liberty
- Also includes a small portion of Glynn County



Coastal Georgia Region Gap Summary

- Groundwater Resource
  - Consistent with Round 1, there are no gaps in the modeled portions of the Floridan Aquifer (outside Red and Yellow Zones)
  - The 4 County Red and Yellow Zones are subject to a moratorium on future withdrawals and municipal, industrial, and energy permit holders have had reductions to their permit limits
    - Potential gaps in groundwater in this portion of the region
    - Consider increased coordination & discussion within the region and between Councils

Forecasted 2050 Floridan Aquifer Use for Select Counties



- Values in Million Gallons/Day (MGD)
- Values Combined from Agriculture, Industrial, and Municipal Public/Self Supply Sectors
- No industrial data by County available for Savannah-Upper Ogeechee
- Coastal Industrial includes the base demand estimate and the additional alternate demand

CDM Smith

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Engaged Water Providers to Share Perspective

- Which management practices do you think have the highest potential to be:
    a) effective both from a cost and technical perspective; and
    b) be more readily implemented based on legal, technical, and political considerations.
- What are the significant challenges and opportunities associated with the individual management practice?
- Are there actions that could be taken to minimize the challenges?

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Surface Water Subcommittee Meeting Objectives

- Develop a deeper understanding of Surface Water Use within and between Regional Councils
- Discuss Surface Water Flow Conditions and Potential Gaps in light of Updated Forecast and Resource Assessment Results
- Learn more about the Agricultural Water Permitting Program
- Begin discussion of Planned Activities and Potential Management Practices, within and between Regional Councils, which might affect Shared Resources and/or be considered to help address potential Surface Water Gaps

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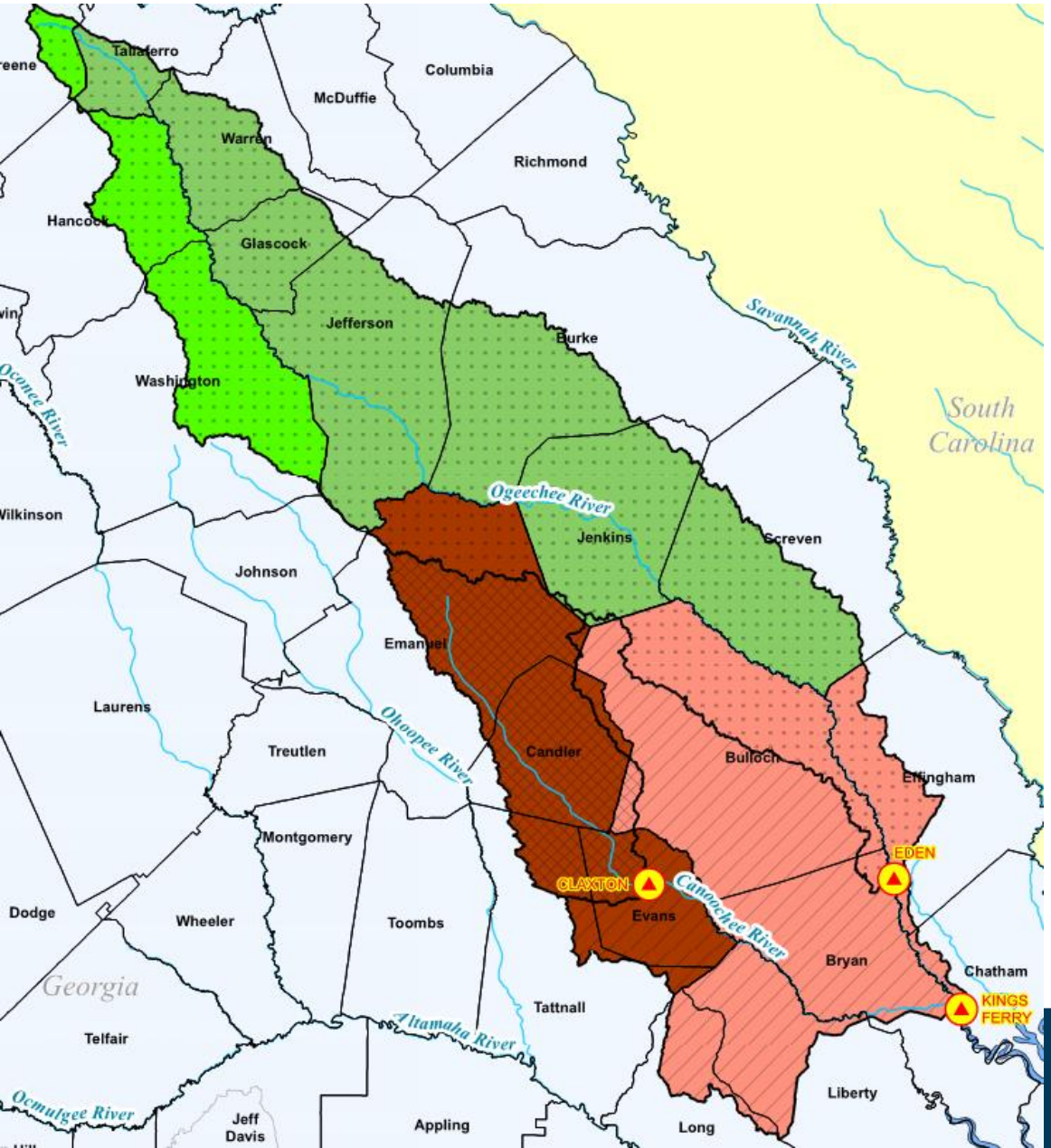
A Closer Look at the Ogeechee Watershed



- Regional Council and Local Drainage Area (LDA) Boundaries – Claxton, Eden and Kings Ferry Planning Nodes

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2050 Withdrawals by County and Region

Claxton Planning Node Surface Water Forecast by Region and County

	Councils That Are Within the Local Drainage Area with Potential Gaps	Counties That Are Located (whole or in part) Within the Local Drainage Area	Acreage of County Area Within the LDA That Drains to Planning Node	% of County Land Area Within the LDA That Drains to Planning Node	Acreage of SW Irrigated Land Area Within the LDA That Drains to Planning Node[1]	2050 Forecasted Surface Water Withdrawals for Portion of County That Drains to Planning Node[2, 3] (MGD)
Canoochee River	Altamaha	Candler	133,561	83.8%	3,695	2.75
		Emanuel	143,497	32.5%	757	0.50
		Evans	31,606	26.4%	864	0.47
		Tattnall	37,832	10.8%	1,859	1.26
	Coastal Georgia	Bulloch	11,120	2.5%	564	0.27
	Savannah-Upper Ogeechee	Jenkins	1,594	0.7%	29	0.02

1 – Acres irrigated with surface water by County and planning node were obtained from the Irrigated Acreage GIS layer (Georgia Water Planning & Policy Center, 2016)
2 – Surface water withdrawals by County were obtained from 2050_Final_Yearly_Withdrawals_MGD_Atlantic GIS layer (Georgia Water Planning & Policy Center, 2016)
3 – MGD represents average annual day demands

Georgia

2050 Withdrawals by County and Region

Kings Ferry Planning Node Surface Water Forecast by Region and County

	Councils That Are Within the Local Drainage Area with Potential Gaps	Counties That Are Located (whole or in part) Within the Local Drainage Area	Acreage of County Area Within the LDA That Drains to Planning Node	% of County Land Area Within the LDA That Drains to Planning Node	Acreage of SW Irrigated Land Area Within the LDA That Drains to Planning Node[1]	2050 Forecasted Surface Water Withdrawals for Portion of County That Drains to Planning Node[2, 3] (MGD)
Ogeechee River	Altamaha	Candler	11,225	7.0%	105	0.04
		Emanuel	2,258	0.5%	148	0.08
		Evans	88,106	73.6%	3,789	2.45
		Tattnall	22,355	6.4%	616	0.52
	Coastal Georgia	Bryan	184,718	63.4%	--	--
		Bulloch	269,498	61.1%	5,449	2.72
		Chatham	9,412	2.9%	--	--
		Effingham	5,369	1.7%	--	--
		Liberty	116,784	33.2%	31	0.02
		Long	47,550	18.4%	263	0.12
	Savannah-Upper Ogeechee	Jenkins	1,750	0.8%	194	0.11

1 – Acres irrigated with surface water by County and planning node were obtained from the Irrigated Acreage GIS layer (Georgia Water Planning & Policy Center, 2016)
2 – Surface water withdrawals by County were obtained from 2050_Final_Yearly_Withdrawals_MGD_Atlantic GIS layer (Georgia Water Planning & Policy Center, 2016)
3 – MGD represents average annual day demands
-- No surface water irrigated acres reported for County within LDA

2050 Withdrawals by County and Region

Eden Planning Node Surface Water Forecast by Region and County

	Councils That Are Within the Local Drainage Area with Potential Gaps	Counties That Are Located (whole or in part) Within the Local Drainage Area	Acreage of County Area Within the LDA That Drains to Planning Node	% of County Land Area Within the LDA That Drains to Planning Node	Acreage of SW Irrigated Land Area Within the LDA That Drains to Planning Node[1]	2050 Forecasted Surface Water Withdrawals for Portion of County That Drains to Planning Node[3, 4] (MGD)
Ogeechee River	Altamaha	Emanuel	85,902	19.4%	67	0.05
	Coastal Georgia	Bryan	8,566	2.9%	--	--
		Bulloch	160,722	36.4%	2,609	1.28
		Effingham	75,983	24.6%	23	0.01
	Savannah-Upper Ogeechee	Burke	201,286	37.6%	3,771	2.24
		Glascock	85,063	92.0%	143	0.05
		Jefferson	275,388	81.2%	4,149	1.95
		Jenkins	210,099	93.1%	3,194	1.94
		Screven	179,344	42.7%	2,443	1.46
		Taliaferro	45,087	36.0%	33	0.01
		Warren[2]	101,551	55.3%	95	0.22
	Upper Oconee	Greene	23,158	8.9%	--	--
		Hancock	86,595	28.3%	14	0.02
		Washington	168,745	38.5%	1,159	1.4

1 – Acres irrigated with surface water by County and planning node were obtained from the Irrigated Acreage GIS layer (Georgia Water Planning & Policy Center, 2016)
2 - Warren County has municipal surface water withdrawals (0.17 MGD) in addition to agricultural surface water withdrawals (Source: Round 2 Statewide Aggregation spreadsheet, Arcadis, 2016)
3 – Surface water withdrawals by County were obtained from 2050_Final_Yearly_Withdrawals_MGD_Atlantic GIS layer (Georgia Water Planning & Policy Center, 2016)
4 – MGD represents average annual day demands
-- No surface water irrigated acres reported for County within LDA

Developing Information for Regional Water Planning Councils

- Did you find the meeting information useful in helping improve your understanding of the planning process?
- Do you have any suggestions or observations that you think would benefit the Regional Water Planning Councils?
- Do you have any additional thoughts for enhancing communications with agricultural water users or other public or private entities?

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Review 2011 Decision Process

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2011 Decision Process

- In 2010 the Altamaha Council adopted the decision making and selection process for selecting Management Practices

- Council expressed a strong preference to work on a consensus based track

- Council agreed there was a potential need for a scoring based process in the event that consensus could not be reached
  - Council elected to not assign any weighting or numeric criteria unless it was needed i.e., in the event the Council reached an impasse in the selection of management practices

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2011 Decision Process

- Council utilized a management practices subcommittee to help identify, screen, and recommend practices to the full Council
- Council feedback was solicited regarding the effectiveness and implementability of each of the identified management practice
- Council gave special consideration to water conservation practices

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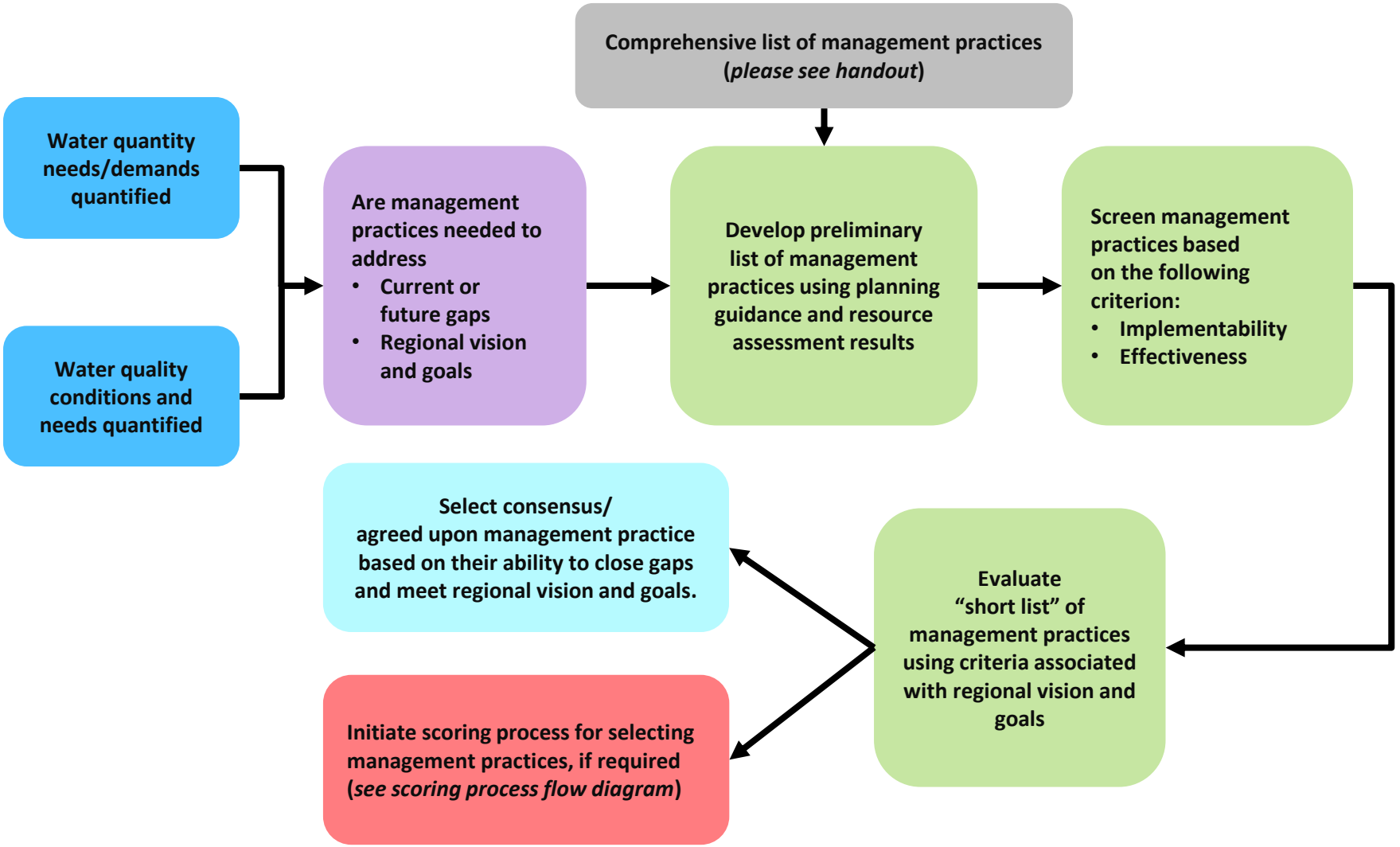
Council Decision-Making Process (Consensus Based)



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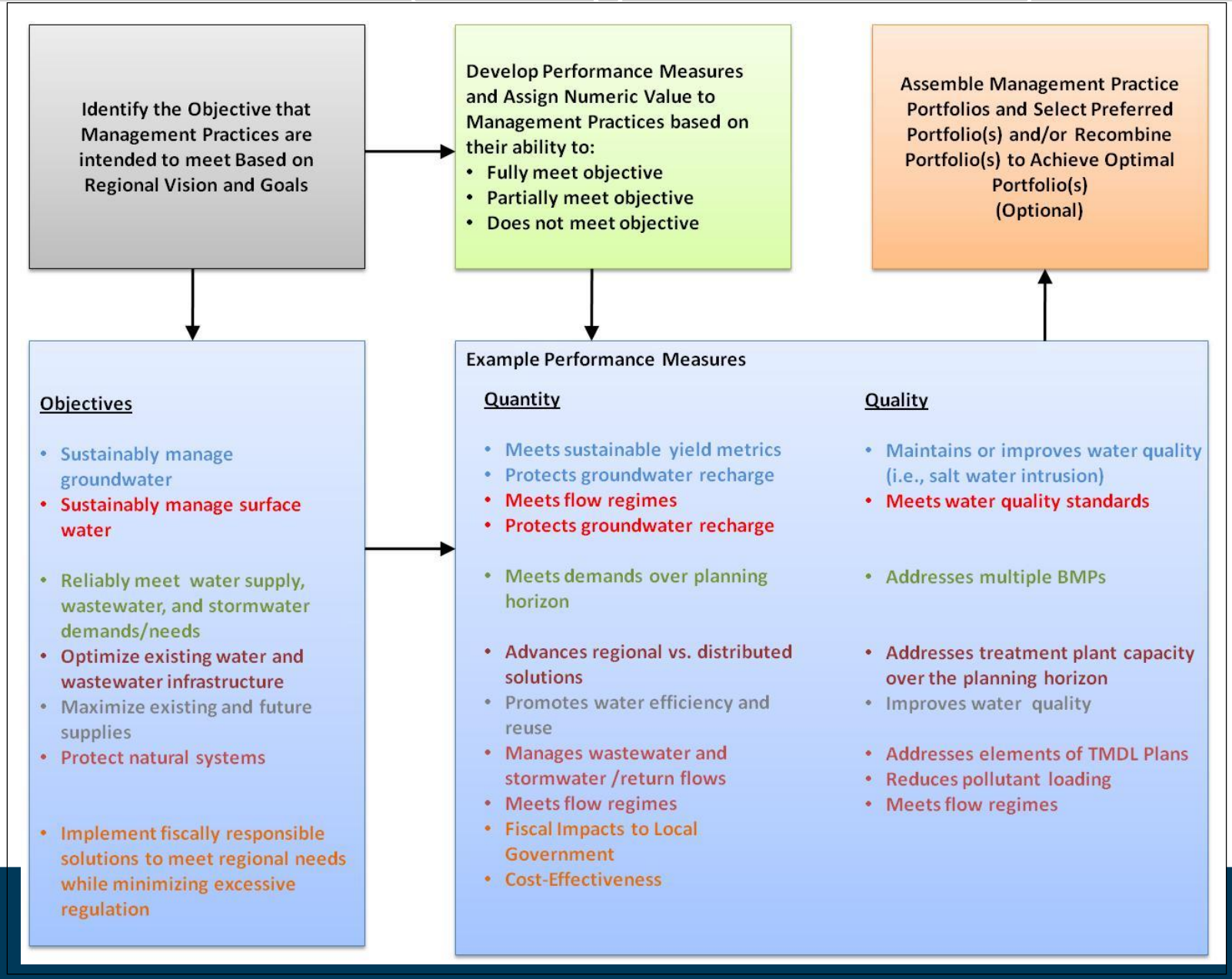
Council Decision-Making Process (Scoring Based Process)



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Review and Discuss Management Practices

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Management Practices Definition

- Any program or activity that:
  - Helps meet the regional vision and goals
  - Can be employed to ensure that there is sufficient water (surface and groundwater quantity) and assimilative capacity (surface water quality) to sustainably meet future needs
- Management practices can increase resource capacity and/or adjusts forecasted demands (i.e., water efficiency measures)

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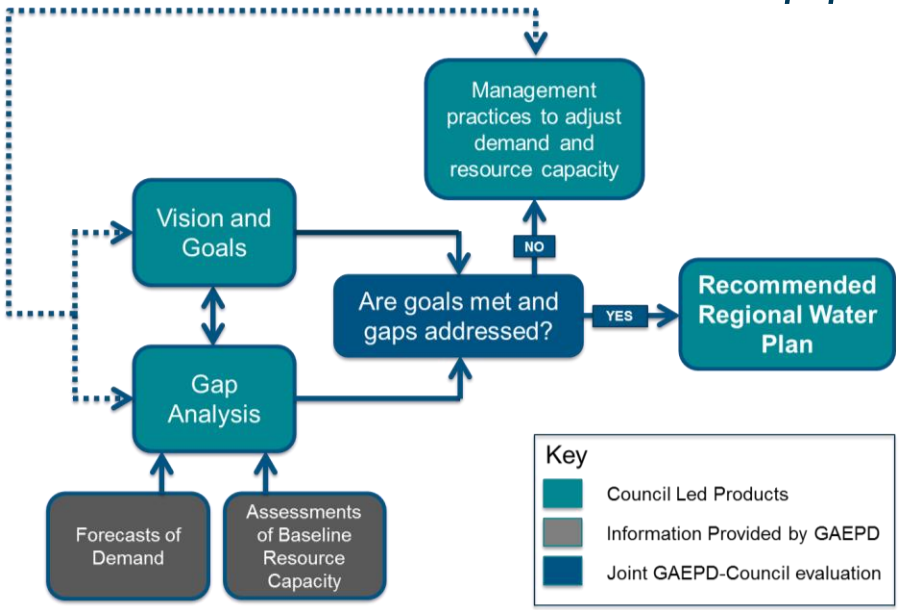
Altamaha RWPC Vision

Wisely manage, develop, and protect the Region's water resources for current and future generations by ensuring that the Altamaha basin's water resources are sustainably managed to enhance quality of life and public health, protect natural systems including fishing, wildlife and wildlife utilization activities, and support the basin's economy.



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Refinement of Management Practices

- Interim review of management practices
- What are the changes from Round 1 that would facilitate a change to the Council's management practices?
  - Updated population and forecast information
  - Updated resource assessments

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Demand Forecasting Summary Statistics

- Population Changes over the Planning Period (2015 – 2050)

Counties with Highest Projected Population Growth	% Change	Wheeler	35%
		Tattnall	23%
		Emanuel	21%
	# People	Tattnall	6000
		Wayne	5400
		Emanuel	4900

Counties with Lowest Projected Population Growth	% Change	Telfair	-12%
		Johnson	-7%
		Treutlen	-6%
	# People	Telfair	-2000
		Johnson	-700
		Dodge	-500

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Management Practices

- Over 70 Management Practices Identified in 2011 RWP
  - Water Conservation
  - Water Supply
  - Wastewater and Water Quality
  - Information Needs
- Based on updated forecasts and demands:
  - Are there additional practices not currently in plan?
  - Are there ones that should be refined?
  - Ones that should be eliminated?

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Surface Water Availability and Potential Gaps

- No major changes from Round 1
  - Potential gaps at the following planning nodes:
    - Claxton (Canoochee River)
    - Eden (Ogeechee River)
    - Kings Ferry (Ogeechee River)
    - Atkinson (Satilla River)
    - Statenville (Alapaha River)
  - Potential gaps affect:
    - Appling, Candler, Emanuel, Evans, Jeff Davis, Tatnall, Wayne and Wilcox Counties
    - Related to Agricultural Surface Water Demands
- Additional information on frequency of gaps
  - Smaller and more frequent gaps can be more readily addressed through management practices

Surface Water Quantity Management Practice Categories

- Data Collection/Additional Research (DCAR)
- Water Conservation (WC)
- Additional/Alternate to Existing Surface Water Supply Sources (ASWS)
- Current and Future Surface Water Needs (SW)
- Agricultural Best Management Practices for Crop and Pasture Lands (NPSA)

Surface Water Quantity Management Practice Categories

Data Collection/Additional Research (DCAR)

No Revision Needed **(NRN)**
Additional Discussion Required **(ADR)**
Revise or Eliminate **(ROE)**

Management Practice Name / Number	Category
DCAR-1 Agricultural Consumption Data	
DCAR-2 Source of Supply Data to Refine Forecasts	
DCAR-3 Metering Data	
DCAR-4 Support Irrigation Efficiency Research	
DCAR-5 Irrigation Education and Research	
DCAR-6 Minimize Groundwater Use Impacts on Surface Water	
DCAR-7 Study Potential Use of Aquifers to Address Gaps	
DCAR-8 Address Low Flow with Wetland Restoration and Retention Structures	
DCAR-9 Analyze Addressing Extreme Conditions	

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Surface Water Quantity Management Practice Categories

Current and Future Surface Water Needs (SW)

No Revision Needed **(NRN)**
Additional Discussion Required **(ADR)**
Revise or Eliminate **(ROE)**

Management Practice Name / Number	Category
SW-1 Surface Water Use Within Available Capacity	

Surface Water Quantity Management Practice Categories

Water Conservation (WC)

No Revision Needed **(NRN)**
Additional Discussion Required **(ADR)**
Revise or Eliminate **(ROE)**

Management Practice Name / Number	Category
WC-2 Tier 1 and Tier 2 Measures for Agriculture	
WC-3 Audits	
WC-4 Metering	
WC-5 Inspections	
WC-6 Minimize High-Pressure Systems	
WC-7 Efficient Planting Methods	
WC-8 Conservation Tillage	
WC-9 Control Loss	
WC-10 End-Gun Shutoffs	
WC-11 Low Pressure Systems	
WC-12 Application Efficiency Technologies	

Surface Water Quantity Management Practice Categories

Agricultural Best Management Practices for Crop and Pasture Lands (NPSA)

No Revision Needed **(NRN)**
Additional Discussion Required **(ADR)**
Revise or Eliminate **(ROE)**

Management Practice Name / Number	Category
NPSA-1 Soil Erosion Reduction Measures	NRN
NPSA-2 Utilize Buffers	NRN
NPSA-5 Wetland and Forest Restoration Incentives	NRN

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Surface Water Quantity Management Practice Categories

Additional/Alternate to Existing Surface Water Supply Sources (ASWS)

No Revision Needed **(NRN)**
Additional Discussion Required **(ADR)**
Revise or Eliminate **(ROE)**

Management Practice Name / Number	Category
ASWS-1 Consider Low Flow Conditions in Future Surface Water Permitting	
ASWS-2 Incentives for Dry-Year Releases from Ponds	
ASWS-3 Incentives for Sustainable Groundwater Development	
ASWS-4 Monitor Gap Closure and Manage Adaptively	
ASWS-5 Restoration Incentive Programs	
ASWS-6 Land Management Incentives	
ASWS-7 Incentives for Greater Wastewater Returns	
ASWS-8 Address Gaps Periods with Aquifer Storage	
ASWS-9 Study Multi-Region Reservoir Feasibility	
ASWS-10 Inter-Basin Transfers	ROE

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Surface Water Quality Resource Assessment

- Resource Assessment components
  - Dissolved Oxygen Assimilative Capacity
    - Identification of specific reaches not meeting assimilative capacity
    - Result of both point source and nonpoint sources
  - Nutrient loading analysis (N & P heat maps)
  - Impaired stream segments based on 2014 303(d) list
  - Consideration of additional analysis to look at natural conditions
- To address dissolved oxygen assimilative capacity under future conditions
  - More stringent permit limits that were assumed by EPD

Water Quality Management Practice Categories

- Existing Impairments and Total Maximum Daily Load Listed Streams (TMDL)
- Point Sources – Dissolved Oxygen (PSDO)
- Nutrients – Satilla River Watershed Model (NUT)
- Current and Future Surface Water Needs (SW)
- Water Quality Nonpoint Source Needs (NPS)
- Management Practices to Address Future Ordinance and Code Policy Needs (OCP)
- Future Educational Needs (EDU)
- Best Management Practices (NPSU, NPSR, NPSF, NPSA)

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Water Quality Management Practice Categories

Existing Impairments and Total Maximum Daily Load Listed Streams (TMDL)

No Revision Needed **(NRN)**
Additional Discussion Required **(ADR)**
Revise or Eliminate **(ROE)**

Management Practice Name / Number	Category
TMDL-1 Evaluate Impairment Sources	
TMDL-2 Analyze Impaired Segments and Sources	
TMDL-3 Stormwater Management BMPs	

Current and Future Surface Water Needs (SW)

Management Practice Name / Number	Category
SW-2 Monitor and Evaluate Estuaries	

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Water Quality Management Practice Categories

Future Educational Needs (EDU)

No Revision Needed **(NRN)**
Additional Discussion Required **(ADR)**
Revise or Eliminate **(ROE)**

Management Practice Name / Number	Category
EDU-2 Stormwater Education	
EDU-3 Septic System Maintenance Education	
EDU-4 Forestry BMP Education	
EDU-5 Clean-Up Events	

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Water Quality Management Practice Categories

Point Sources – Dissolved Oxygen (PSDO)

No Revision Needed **(NRN)**
Additional Discussion Required **(ADR)**
Revise or Eliminate **(ROE)**

Management Practice Name / Number	Category
PSDO-1 Collect Water Quality Data	
PSDO-2 Point Discharge Relocation	
PSDO-3 Enhance Point Source Treatment	

Water Quality Nonpoint Source Needs (NPS)

Management Practice Name / Number	Category
NPS-1 Study Human Impacts on Water Quality	
NPS-2 Research and Address Impairment Issues	

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Water Quality Management Practice Categories

Best Management Practices (NPSU, NPSR, NPSF, NPSA)

No Revision Needed **(NRN)**
Additional Discussion Required **(ADR)**
Revise or Eliminate **(ROE)**

Management Practice Name / Number	Category
NPSU-1 Control Erosion	
NPSU-2 Manage Stormwater Runoff	
NPSU-3 Increase Stormwater Infiltration	
NPSU-4 Riparian Buffers	
NPSU-5 Street Sweeping	
NPSR-1 Advocate Implementing Road Runoff BMPs	
NPSF-1 Support Forestry Commission Water Quality Program	
NPSF-2 Improve BMP Compliance	
NPSF-3 Wetland and Forest Restoration Incentives	
NPSA-3 Livestock Management	
NPSA-4 Manure Control	

Water Quality Management Practice Categories

Nutrients – Satilla River Watershed Model (NUT)

No Revision Needed **(NRN)**
Additional Discussion Required **(ADR)**
Revise or Eliminate **(ROE)**

Management Practice Name / Number	Category
NUT-1 Link Nutrient Loading With Current Land Use	

Management Practices to Address Future Ordinance and Code Policy Needs (OCP)

Management Practice Name / Number	Category
OCP-1 Engage Local Governments	
OCP-2 Green Space Opportunities and Incentives	
OCP-3 Promote Integrated Planning	

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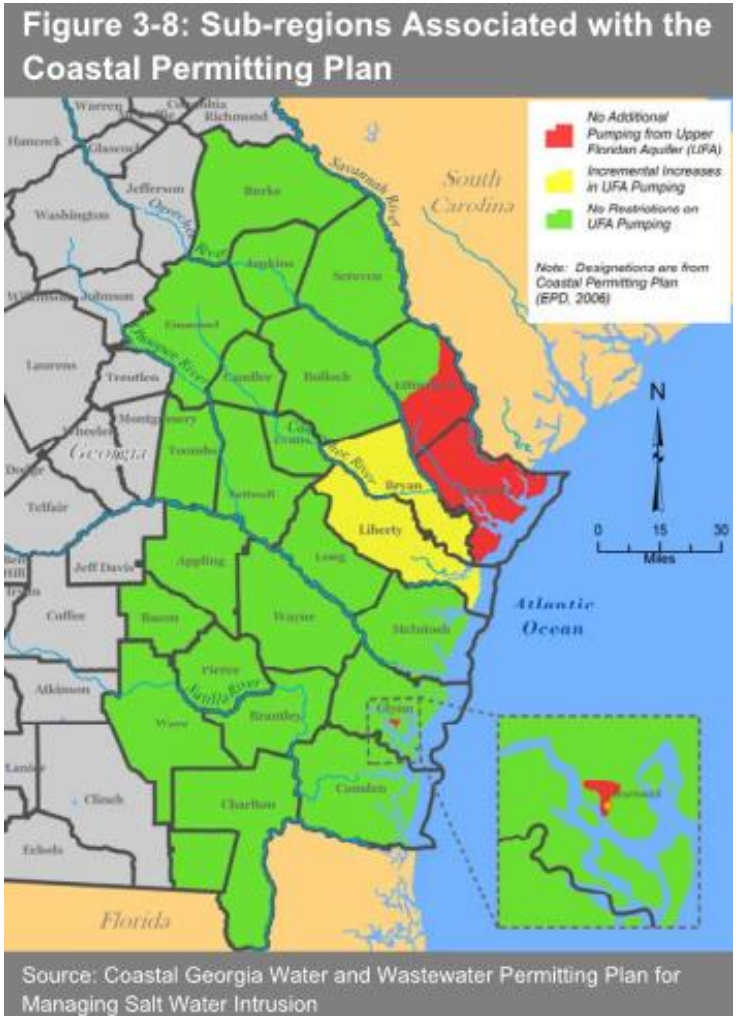
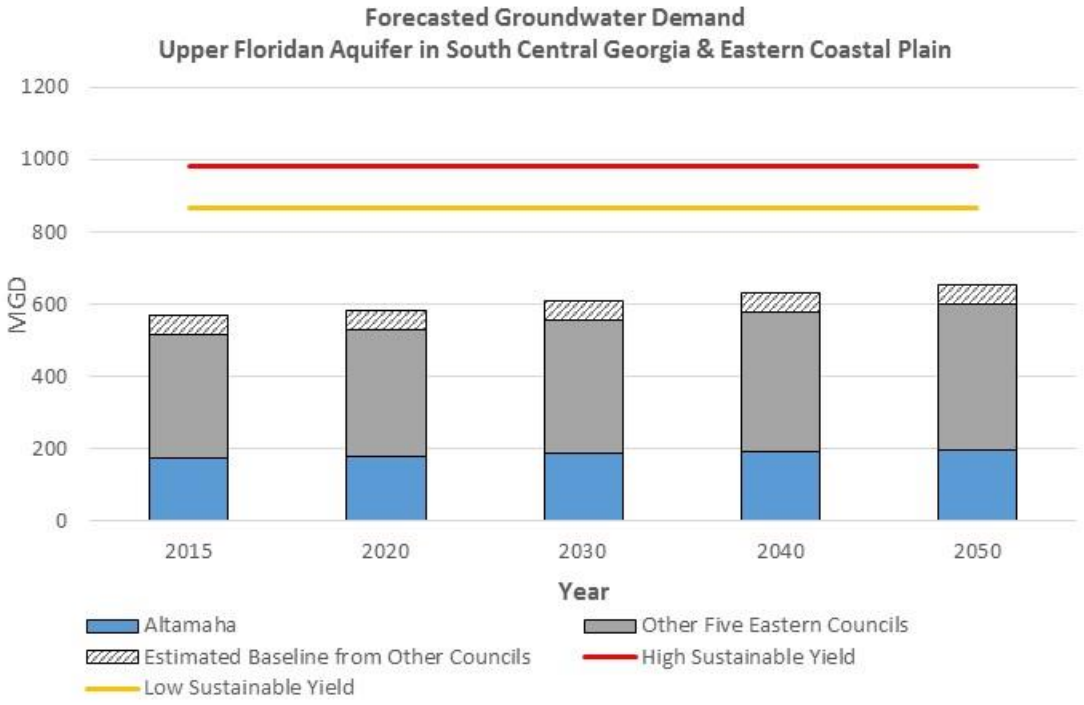
Groundwater Availability

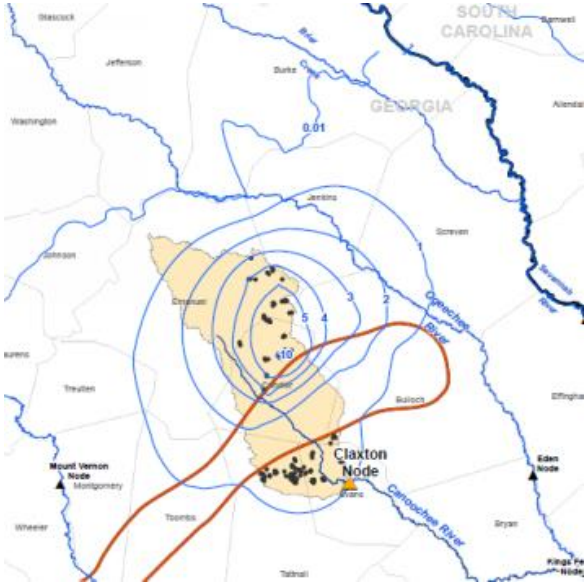
- No regional groundwater resource gaps expected to occur over the planning horizon
- 24 counties in SE Georgia subject to Coastal Permitting Plan
- Seven counties located within the "green zone" where there were no pumping restrictions from the Upper Floridan Aquifer
  - Appling, Candler, Emanuel, Evans, Tattnall, Toombs, and Wayne Counties



Groundwater Availability

- Resource assessment update included an analysis of the potential to use groundwater as an alternate (to surface water) source of supply to help address potential surface water gaps





Groundwater Water Management Practice Categories

- Data Collection/Additional Research (DCAR)
- Current and Future Groundwater Needs (GW)
- Future Educational Needs (EDU)
- Water Conservation (WC)
- Additional/Alternate to Existing Surface Water Supply Sources (ASWS)
- Municipal Groundwater Permit Capacity (MGWPC)
- Industrial Groundwater Permit Capacity (IGWPC)

Groundwater Water Management Practice Categories

No Revision Needed **(NRN)**
Additional Discussion Required **(ADR)**
Revise or Eliminate **(ROE)**

Data Collection/Additional Research (DCAR)

Management Practice Name / Number	Category
DCAR-6 Minimize Groundwater Use Impacts on Surface Water	
DCAR-7 Study Potential Use of Aquifers to Address Gaps	NRN

Current and Future Groundwater Needs (GW)

Management Practice Name / Number	Category
GW-1 Sustainable Groundwater Use	
GW-2 Research Groundwater Sustainability	
GW-3 Promote Aquifer-Friendly Land Use	

Groundwater Management Practice Categories

Future Educational Needs (EDU)

No Revision Needed **(NRN)**
Additional Discussion Required **(ADR)**
Revise or Eliminate **(ROE)**

Management Practice Name / Number	Category
EDU-1 Promote Conservation Programs	

Georgia

Groundwater Management Practice Categories

Water Conservation (WC)

No Revision Needed **(NRN)**
Additional Discussion Required **(ADR)**
Revise or Eliminate **(ROE)**

Management Practice Name / Number	Category
WC-1 Tier 1 and Tier 2 Measures for Municipal and Industrial Users	
WC-2 Tier 1 and Tier 2 Measures for Agriculture	

Georgia

Groundwater Management Practice Categories

Additional/Alternate to Existing Surface Water Supply Sources (ASWS)

No Revision Needed **(NRN)**
Additional Discussion Required **(ADR)**
Revise or Eliminate **(ROE)**

Management Practice Name / Number	Category
ASWS-3 Incentives for Sustainable Groundwater Development	
ASWS-4 Monitor Gap Closure and Manage Adaptively	
ASWS-6 Land Management Incentives	
ASWS-8 Address Gaps Periods with Aquifer Storage	

Georgia

Groundwater Management Practice Categories

Municipal Groundwater Permit Capacity (MGWPC)

No Revision Needed **(NRN)**
Additional Discussion Required **(ADR)**
Revise or Eliminate **(ROE)**

Management Practice Name / Number	Category
MGWPC-1 Increase Municipal Groundwater Permit Capacity	

Industrial Groundwater Permit Capacity (IGWPC)

Management Practice Name / Number	Category
IGWPC-1 Increase Industrial Groundwater Permit Capacity	

Finalizing Management Practices

Table 6-1: Management Practices Selected for the Altamaha Region			
Management Practice Number	**Issue(s) to be Addressed by Action(s)**	**Description/Definition of Action**	**Relationship of Action or Issue to Vision and Goals (Section 1.4)**
Action Needed - Address Current and Future Surface Water Use in Gap Areas **Data Collection/Additional Research (DCAR)** to confirm frequency, duration, severity, and drivers of surface water gaps and identify significant causes (climate, timing, water use, land cover, etc.) of 7Q10 low flow conditions and advance research/feasibility of potential solutions			
DCAR-1 Agricultural Consumption Data	Improve understanding and quantification of agricultural water use and the projected surface water gaps on the Canoochee River at Claxton, Ogeechee River at Kings Ferry, Alapaha River at Statenville, Satilla River at Atkinson (hereafter referred to as "gap areas")	-Acquire additional data/information on agricultural consumptive use to confirm or refine if agricultural consumption is less than 100% consumptive[1] -Conduct "modeling scenario analysis to bracket a reasonable range of consumption" with Resource Assessment models with "new" information on consumptive use to assess effect on surface water gap[1]	2,6
DCAR-2 Source of Supply Data to Refine Forecasts		Refine surface water agricultural forecasts and Resource Assessment models to improve data on source of supply and timing/operation of farm ponds and dual source irrigation systems[1]	2,6
DCAR-3 Metering Data	Obtain additional data and improved understanding of actual versus forecasted water use	-Continue to fund, improve, and incorporate agricultural water use metering data; collect and use this information in Water Plan updates. -Expand number of GSWCC continuously monitored real-time meter sites in surface water gap areas.[1] -Maintain and fund river gauging stations.	2,3,6
DCAR-4 Support Irrigation Efficiency Research	Improvement of surface water flows (in gap areas) via reduced surface water use while maintaining/ improving crop yields	Support research (University, State, and Corporate) on improved irrigation efficiency measures and development of lower water use crops and plant strains[1]	2,3,6
DCAR-5 Irrigation Education and Research		Improve education and research on when and how much water is needed to maximize crop yield with efficient irrigation[1]	2,3

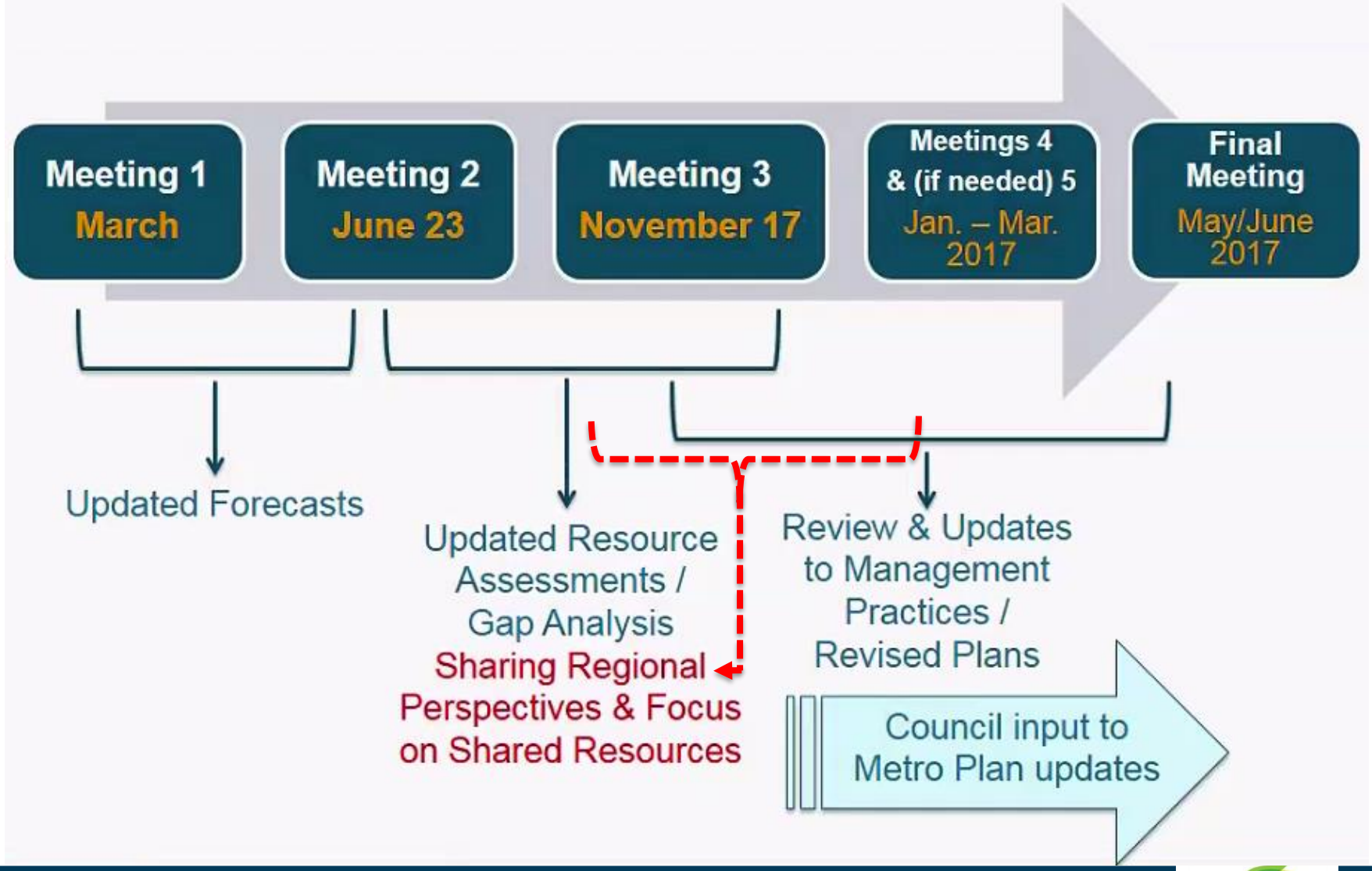
Georgia

Georgia's
State Water Plan

Next steps and Schedule for Remaining RWP updates

www.georgiawaterplanning.org

2016 – 2017 Regional Water Plan Review and Revision Schedule



Subcommittee and Schedule for Completion

- Editing Subcommittee Assignment
- Schedule for Completion
  - Tentative Final Editing Subcommittee meeting for week of March 20th and approval of draft
  - EPD Review Comments by Fri. March 24th
  - Publish Draft for 45-Day Public Review March 30th
  - May 15th to June 1st – Respond to Comments
  - Month of June – Final + Council Vote + EPD Approval

Georgia's

State Water Plan

Public Comments/Local Elected Official Comments

Public Comments / Elected Official Comments

- Public Comments
- Elected Official Comments
- Wrap Up

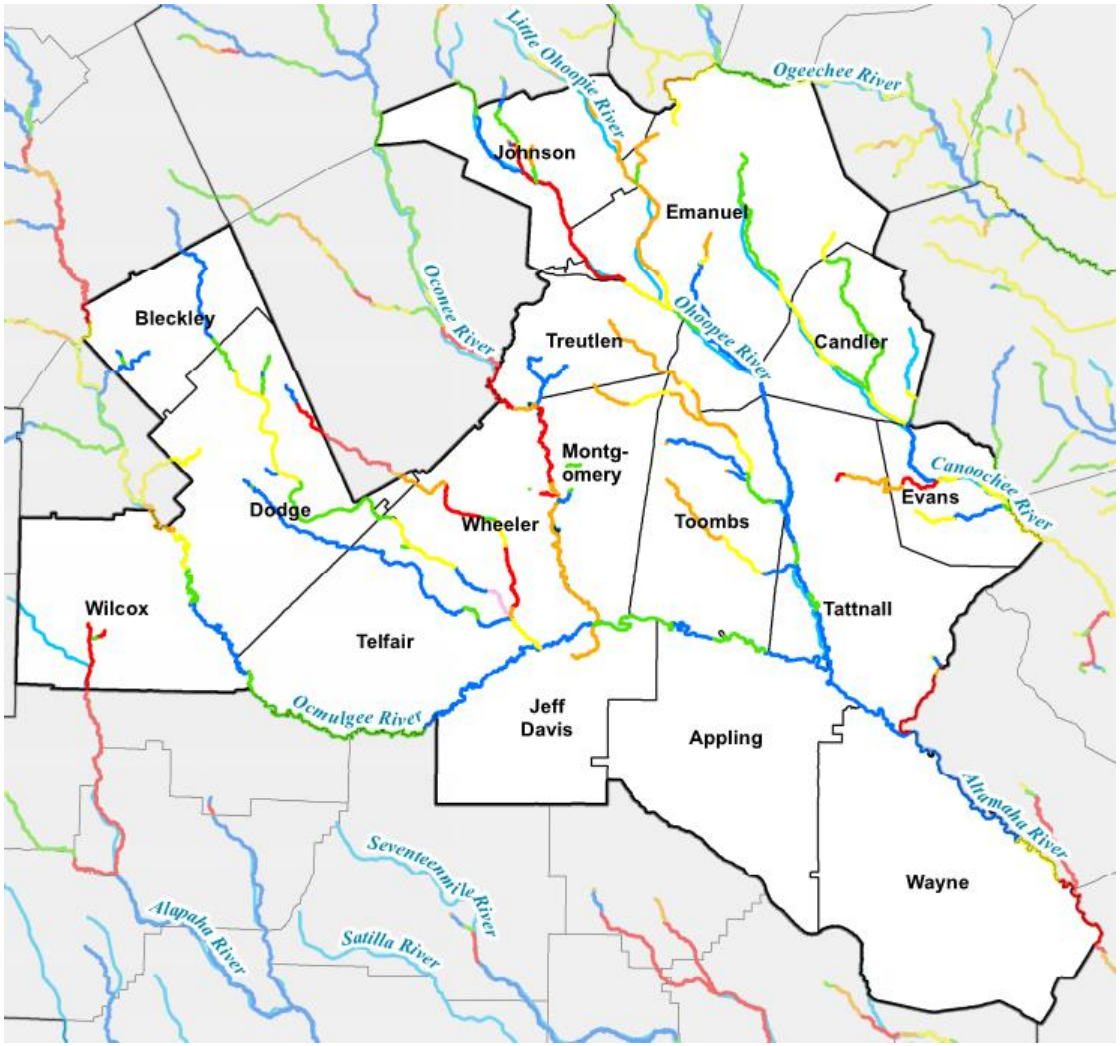
Thank You!

Questions? Comments? Need More Information?

Honourdm@cdmsmith.com
Jennifer.Welte@dnr.ga.gov

Georgia

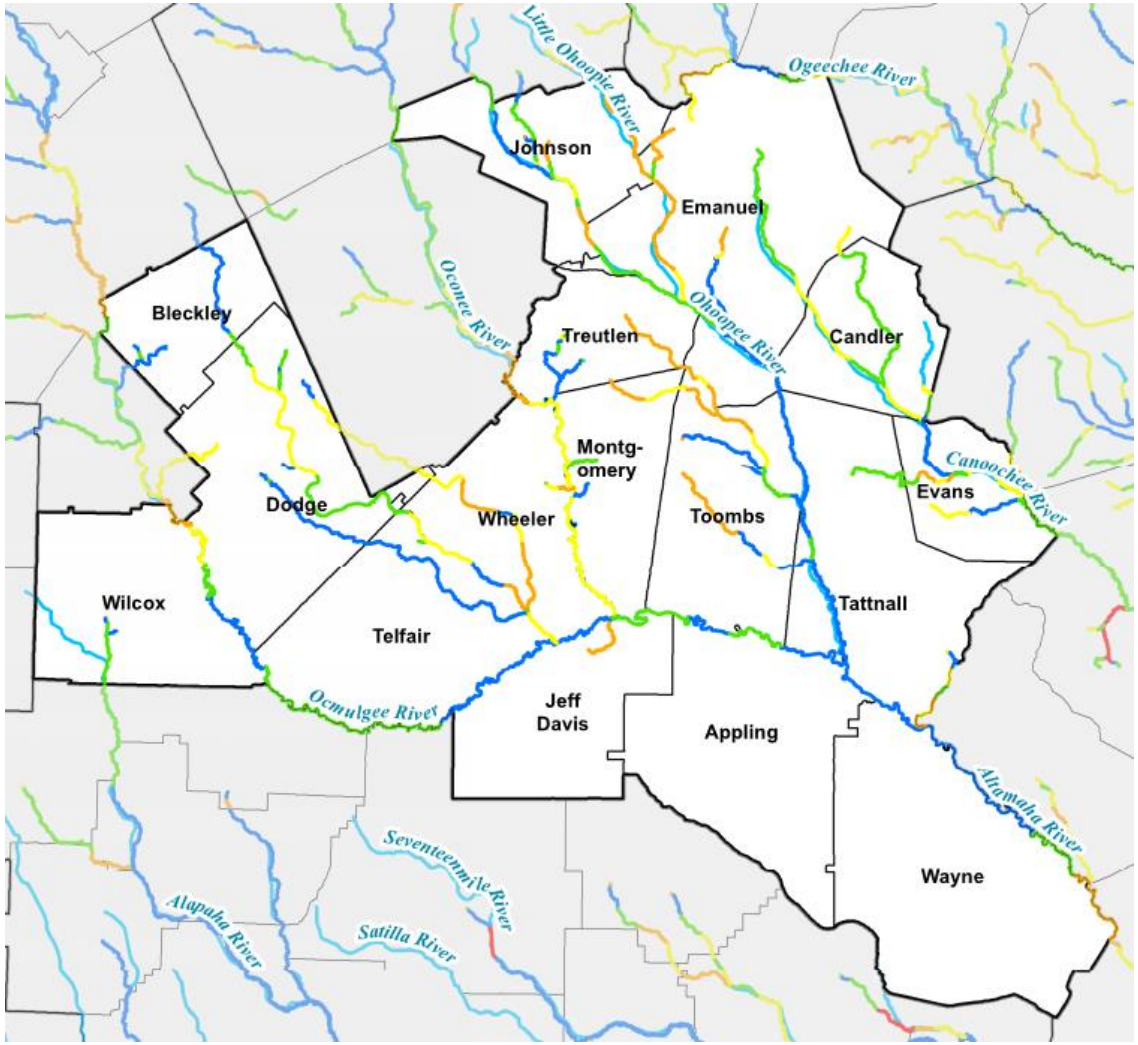
Assimilative Capacity Results Within Planning Region



Updated Existing Condition

Georgia

Assimilative Capacity Results Within Planning Region (cont.)



Updated Future (2050) Condition*

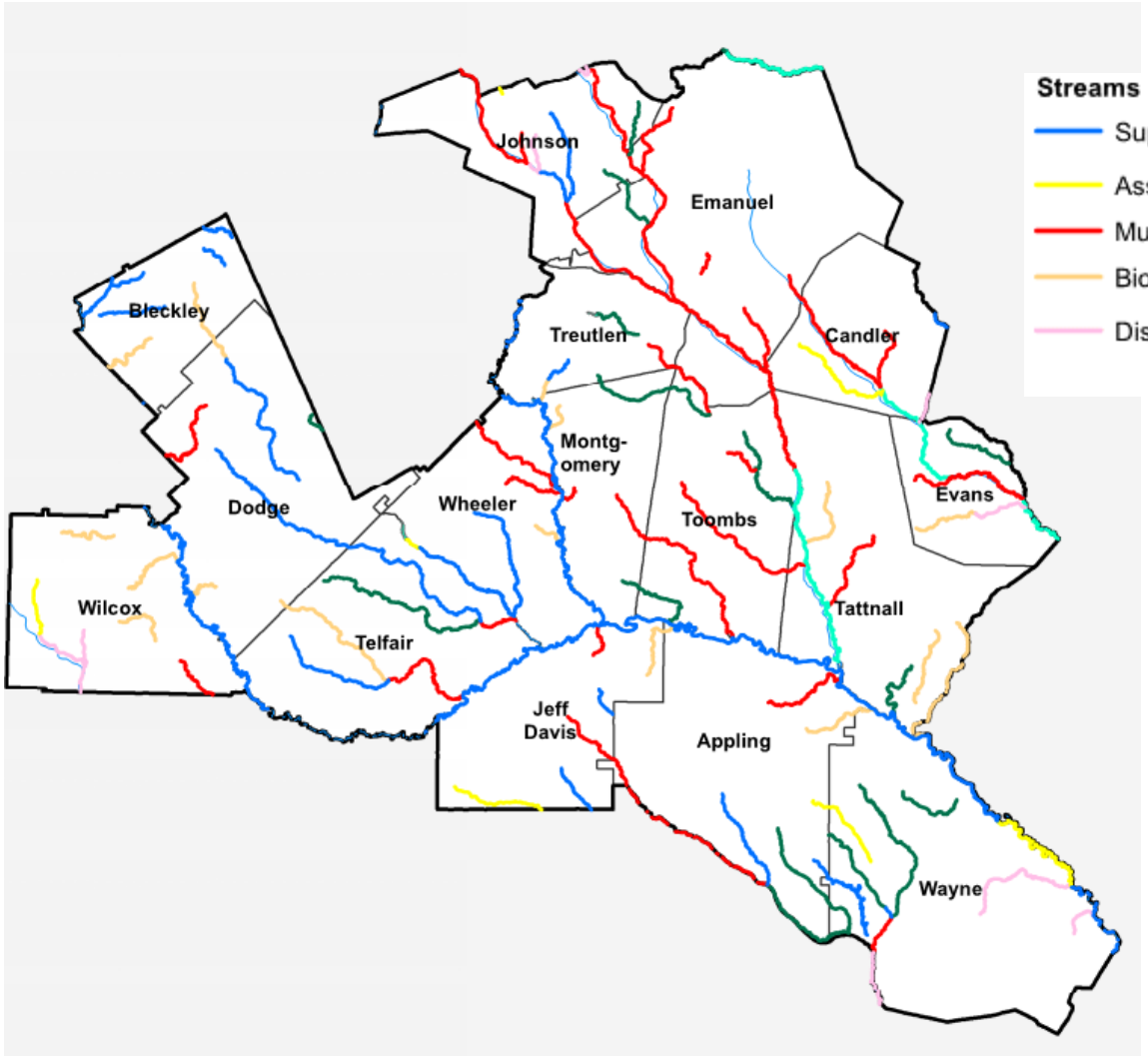
Available Assimilative Capacity

- Very Good
- Good
- Moderate
- Limited
- At Assimilative Capacity
- Exceeded
- Unmodeled Lakes and Streams

*Assimilative capacity for DO appears to be generally improving for future conditions **due to more stringent permit limits that were assumed by EPD**

Georgia

Impaired stream segments based on 2014 303(d) list



Source: 2014 303(d) list of Rivers, Streams, Lakes, and Reservoirs published by EPD