# Georgia's State Water Plan

Regional Water Development and Conservation Plan Review and Revision Altamaha Water Planning Council November 17, 2016

www.georgiawaterplanning.org

## Council Meeting 3 Agenda



#### Altamaha Regional Water Council Meeting 3 Agenda – Thursday November 17, 2016

#### Meeting Objectives:

- 1) Debrief with Council Members from Joint Meeting earlier in the day
- 2) Council Meeting Business

10:00 a.m 1:15 p.m.	Joint Council Meeting (Covered under separate agenda)		
1:15 p.m. – 2:15 p.m.	Debrief with Council Members from Joint Meeting earlier in the day		
	Comparison of available resource capacity		
	<ul> <li>Review and discuss management practices</li> </ul>		
	Joint coordination items		
2:15 p.m 2:25 p.m.	Council Meeting Business		
	319h Grant Update (Rahn Milligan from Pine Country RC&D)		
	Approve meeting minutes from June 23, 2016 Council Meeting		
	<ul> <li>Follow-up discussion from September 29, 2016 "Office Hours" Teleconference</li> </ul>		
	New Business		
2:25 p.m 2:30 p.m.	Public Comment Period		
2:40 p.m 4:00 p.m.	Joint Council Meeting (Covered under separate agenda)		
4:00 p.m.	Adjourn		



#### **Council Meeting Overview**

- De-Brief from Breakout Session A held with Upper Oconee, Middle Ocmulgee and members of Suwannee Satilla
- Summary of select forecast information
- Summary of Surface and Groundwater Resource
   Assessment information
- Preliminary approach to Shared Resource analysis and potential gaps
- Begin review of Management Practices based on updated Forecasts, resource Assessments and Regional Vision and Goals



# Georgia's State Water Plan

Summary of Select Demand and Available Resource Capacity

www.georgiawaterplanning.org

## **Demand Forecasting Summary Statistics**

Population Changes over the Planning Period (2015 – 2050)

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

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



#### Demand Forecasting Statistics (cont.)

• Water Demand over the Planning Period (2015 – 2050)

	% Change	Appling	25%
		Wheeler	22%
<b>Counties with Highest Water Demand</b>		Wayne	11%
Increase (Excluding Agriculture)	MGD	Appling	9.2
		Wayne	7.3
		Emanuel	0.4

\*Red text denotes counties with highest population growth statistics



#### Demand Forecasting Statistics (cont.)

 Water Demand by sector over the Planning Period (2015 – 2050)

		Appling	26%
	% Change	-	-
Counties with Highest Surface Water		-	-
Demand Increase (Excluding Agriculture)	MGD	Appling	9.0
		-	-
		-	-
	% Change ter	Wheeler	22%
		Wayne	11%
Counties with Highest Groundwater		Tattnall	11%
Demand Increase (Excluding Agriculture)	MGD	Wayne	7.3
		Emanuel	0.4
		Taamka	0.2

\*Red text denotes counties with highest population growth statistics



#### Demand Forecasting Statistics (cont.)

Wastewater flows over the Planning Period (2015 – 2050)

	% Change	Wheeler	<b>30</b> %
		Tattnall	<b>19</b> %
Counties with Largest Increase in		Emanuel	<b>16</b> %
Wastewater Flows	MGD	Wayne	7.7
		Emanuel	0.8
		Tattnall	0.6

\*Red text denotes counties with highest population growth statistics



# Magnitude of Surface Water Gaps

- Round 2 Current Condition Results
- Preliminary analysis indicates that surface water usage at planning nodes in the region is agriculture-related

Node	Length of Shortfall (% of Time)	Average Shortfall (MGD)	Counties Affected**	Shared Resource with:
Claxton	21	4	Candler, Evans, Emanuel, Tattnall	Coastal Georgia
Eden*	6	10	Emanuel	Coastal Georgia, UO
Kings Ferry*	6	23	Candler, Emanuel, Evans and Tattnall	Coastal Georgia, SUO, UO
Atkinson*	10	15	Appling, Jeff Davis and Wayne	Suwannee-Satilla
Statenville*	16	16	Wilcox	Suwannee-Satilla

\*Denotes node outside of region

\*\*Counties affected were identified based on local drainage areas upstream of the planning node



- Assimilative Capacity Assessment Round 2 Results
  - DOSAG & GA Estuary Models
  - 2000 thru 2012 (2012 is critical year)
  - Assimilative capacity for DO appears to be generally improving compared to Round 1 for future conditions due to more stringent permit limits that were assumed
  - Will work with EPD to quantify and identify specific reaches that have limited or exceed the assimilative capacity within the Altamaha Region
  - Distinguish between reaches that have naturally low DO and those with manmade influences



• Altamaha Region – Results of DO Assimilative Capacity





• Altamaha Region – Results of DO Assimilative Capacity





- EPD also examined nutrient (TN and TP) loading in the region
  - Dry & Wet years
  - Areas of higher loadings in dry years can indicate point sources as potential cause (i.e., wastewater discharge)
    - Emanuel, Wayne and Tatnall Counties show highest forecasted (MGD) increases in wastewater discharge
  - Areas of higher loading in wet years are indicative on nonpoint source runoff
    - Lower reaches of Ocmulgee and Oconee Rivers and confluence with Altamaha River
  - For nonpoint source loadings, Councils will want to re-visit their stormwater best management practices (BMPs)



#### **FUTURE CONDITIONS (2050)**

#### **FUTURE CONDITIONS (2050)**



**★** Denotes Counties with large forecasted increases (mgd) in wastewater discharge



#### **FUTURE CONDITIONS (2050)**



Georgia

**FUTURE CONDITIONS (2050)** 

Denotes Counties with large forecasted increases (mgd) in wastewater discharge

- EFDC Lake & Estuary Model Results
  - Limited assimilative capacity in lower reaches of Altamaha River
  - Lower assimilative capacity may be due to slower moving waters which contribute to naturally low DO levels





## Altamaha Region Gap Summary

- Surface Water Resource:
  - All potential gaps are surface water quantity related
    - Claxton, Eden, Kings Ferry, Atkinson, Statenville
  - All non-agricultural surface water use occurs at planning nodes with no gaps
  - Therefore, management practices can:
    - Focus on agriculture to address potential surface water gaps
    - Consider groundwater as a resource to make up a portion of the potential gap
    - Consider other demand reduction options
    - Other
  - Surface water flow is influenced by a number of natural and human induced factors including climate, land use, channel and flow alterations, etc.



## Altamaha Region Gap Summary (cont.)

- Groundwater Resource
  - Consistent with Round 1, there are no gaps identified
  - Emanuel, Tatnall, Toombs and Wayne Counties have highest forecasted increases (mgd) in groundwater use
  - Continue water conservation practices
  - Resource may be used to address portion of potential surface water gap
  - Potential gaps in groundwater in Coastal Region
    - Increased coordination & discussion between Councils
    - Portions of Altamaha region subject to the 24 County Coastal Permitting Plan



## Altamaha Region Gap Summary (cont.)

- Assimilative Capacity/Water Quality:
  - Assimilative capacity for DO appears to be generally improving compared to Round 1 for future conditions
    - Due to assumptions regarding tighter permit limits
  - Areas of higher loadings in dry years can indicate point sources as potential cause (i.e., wastewater discharge)
    - Emanuel, Wayne and Tatnall Counties show highest forecasted increases in wastewater discharge
  - Areas of higher loading in wet years are indicative of nonpoint source runoff
    - Lower reaches of Ocmulgee and Oconee Rivers and confluence with Altamaha River
    - Re-visit BMPs for nonpoint source loadings





www.georgiawaterplanning.org

#### Shared Resources

- Surface Water
  - Addressing potential gaps will require evaluating surface water resource availability and demands at the watershed level
  - Council boundaries and demand forecast summaries are county based
  - GIS and other tools will allow a look at potential gaps from a watershed perspective using county based demand forecasts



#### Shared Resources

 A closer look at spatial relationships of planning nodes, watershed (local drainage areas or LDAs), adjoining councils, and county locations will inform the selection of management practices and implementation considerations





#### Shared Resources

 Groundwater – Floridan Aquifer model boundaries used for determining sustainable yield – this resource is utilized in multiple planning regions





# Georgia's State Water Plan Management Practices

www.georgiawaterplanning.org

#### 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)



#### 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.



Georgia

### Developing a Water Plan Decision Framework



#### 2011 RWP Recommended Management Practices

Altamaha Council Road Map to Address Water Supply Needs and Regional Goals

- Utilize surface water and groundwater within the available resource capacity
- Water Conservation
- Data collection and research to confirm frequency, duration, severity, and drivers of surface water gaps (forecast methodology/assumptions and resource assessment modeling)
- Evaluate and ensure that current and future surface water permit conditions do not contribute to 7Q10 low-flow concerns
- Encourage sustainable groundwater use as preferred supply in regions with surface water 7Q10 low-flow concerns
- Identify incentives and a process to sustainably replace a portion of existing surface water use with groundwater use to address 7Q10 concerns
- Evaluate potential to use existing storage to address 7Q10 low-flow concerns
- Education to reduce surficial aquifer ground water use impacts to 7Q10 concerns

- Consider feasibility/implement management practices to improve infiltration, manage wetlands, and aquifer storage to address 7Q10 lowflow concerns
- Evaluate incentive based program to manage/increase/restore wastewater and stormwater returns
- Identify potential/feasibility of multipurpose reservoir

#### 2050 TOTAL REGIONAL WATER

(GROUND AND SURFACE) SUPPLY NEEDED

- Identify feasibility of regional interbasin transfer and implement if deemed implementable
- Implement multi-purpose storage if needed and implementable

Monitor progress toward addressing resource gaps and regional needs/goals thorough benchmarks detailed in Section 8. If short- and mid-term measures do not address gaps/needs, implement additional management practices.

addressing resource gaps and regional needs/goals through benchmarks detailed in Section 8. If short-term measures do not address gaps/needs, implement additional management practices.

Monitor progress toward

SHORT-TERM (1-10 YRS)

#### MID-TERM (10-20 YRS)

LONG-TERM (20-40 YRS)

WATER RESOURCE PLANNING PERIOD (2010 - 2050)

#### 2011 RWP Recommended Management Practices

Altamaha Council Road Map to Address Water Quality Needs and Regional Goals

- Point Sources support and fund current permitting and waste load allocation process to improve treatment of wastewater and increase treatment capacity
- Point Sources data collection and research to confirm discharge volumes and waste concentrations, and receiving stream flows and chemistry
- Non-point Sources data collection to confirm source of pollutants and causes; encourage stormwater ordinances, septic system maintenance, and coordinated planning
- Non-point Sources ensure funding and support for BMP programs by local and state programs including:
  - Urban BMPs
  - Rural BMP
  - Forestry BMPs
  - Agricultural BMPs
- Non-point Source Existing Impairments TMDL listed streams
  - Improve data on source of pollutant and length of impairment
  - Identify opportunities to leverage funds and implement non-point source BMPs

SHORT-TERM (1-10 YRS)

- Point Sources continue wastewater master planning updates and waste load allocation
  - Pursue additional non-point source controls and need for stormwater ordinances

Monitor progress toward addressing resource gaps and regional needs/goals through the benchmarks detailed in Section 8. If short-term measures do not address gaps/needs, implement additional management practices.

#### 2050

#### TOTAL REGIONAL WATER QUALITY NEED

- Point Sources continue wastewater master planning updates and waste load allocation
- Pursue additional nonpoint source controls and need for stormwater ordinances

Monitor progress toward addressing resource gaps and regional needs/goals through the benchmarks detailed in Section 8. If short- and mid-term measures do not address gaps/needs, implement additional management practices.

MID-TERM (10-20 YRS)

LONG-TERM (20-40 YRS)

WATER RESOURCE PLANNING PERIOD (2010 - 2050)

#### **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?



# Interim Planning Period

- Regional Assessment of Implementation Status Report (2014)
- Many accomplishments achieved in the Altamaha region in the areas of:
  - Water Demand Management
  - Wastewater & Water Quality
  - Stormwater & Water Quality
  - Information Needs
- Made specific recommendations
  - Implementing Entities
  - Enhancing Inter-Council Planning



ubmitted by the Carl Vinson Institute of Government at the University of Georgie on behalf of the Altamaha Regional Water Council



# Path Forward for Developing Management Practices

- Potential surface water gaps appear largely related
  to agricultural surface water use
- Potential surface water gaps involve use across
   multiple council boundaries
- Consider formation of a multi-council subcommittee to work with agricultural users from affected regions and other key stakeholders
- The Coastal Georgia Council is also considering a subcommittee to focus on Floridan Aquifer use/gaps in Bryan, Chatham, Effingham, and Liberty counties (red and yellow zones)



#### **De-Brief from Breakout Sessions**

- What did the Council learn during the Breakout Sessions and what are the implications for their Plan updates?
- Can the Council identify any specific management practices that need to be addressed in light of the result of the Resource Assessment updates?
- What topics or messages would be most beneficial to bring back and share with other Councils at the Joint Council Meeting?
- Has the Council identified any further joint coordination items that the Council wants to see occur prior to finalizing updates of their Plans?



# Council Meeting Business

• See Agenda



# Thank You! Questions? Comments? Need More Information? <u>Honourdm@cdmsmith.com</u> Jennifer.Welte@dnr.ga.gov

