Georgia's
State Water Plan

Regional Water Development and Conservation Plan Review and Revision
Suwannee-Satilla Water Planning Council
November 17, 2016

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Council Meeting 3 Agenda

Georgia's State Water Plan

Suwannee-Satilla 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 • Review and discuss management practices • Joint coordination items
2:15 p.m. – 2:25 p.m.	Council Meeting Business • *319h Grant Update* • *Approve meeting minutes from June 23, 2016 Council Meeting* • *Follow-up discussion from September 14, 2016 "Office Hours" Teleconference* • *Discuss optional Council Meeting 6 to finalize plan review & revision process* • *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

Suwannee – Satilla Specific Council Meeting (CM3)

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Summary of Available Resource Capacity

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De-Brief from Breakout Sessions

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

Demand Forecasting Summary Statistics

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

Counties with Highest Projected Population Growth	**% Change**	**Lanier**	**47%**
		Pierce	**46%**
		Lowndes	**43%**
	# People	**Lowndes**	**50,200**
		Coffee	**10,600**
		Tift	**8,900**

Counties with Lowest Projected Population Growth	**% Change**	**Turner**	**-40%**
		Brooks	**-20%**
		Berrien	**-19%**
	# People	**Berrien**	**-3,600**
		Turner	**-3,200**
		Brooks	**-3,000**

Demand Forecasting Statistics (cont.)

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

Counties with Highest Water Demand Increase (Excluding Agriculture)			
	% Change	Lanier	37%
		Pierce	33%
		Lowndes	25%
	MGD	Lowndes	6.0
		Coffee	1.1
		Tift	0.8

*Red text denotes counties with highest population growth statistics

Demand Forecasting Statistics (cont.)

- Water Demand by Source Type over the Planning Period (2015 – 2050)

Counties with Highest Surface Water Demand Increase (Excluding Agriculture)	% Change	Brantley	6%
		-	-
		-	-
	MGD	Brantley	0.1
		-	-
		-	-

Counties with Highest Groundwater Demand Increase (Excluding Agriculture)	% Change	Lanier	37%
		Pierce	33%
		Lowndes	25%
	MGD	Lowndes	6.0
		Coffee	1.1
		Tift	0.8

*Red text denotes counties with highest population growth statistics

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Demand Forecasting Statistics (cont.)

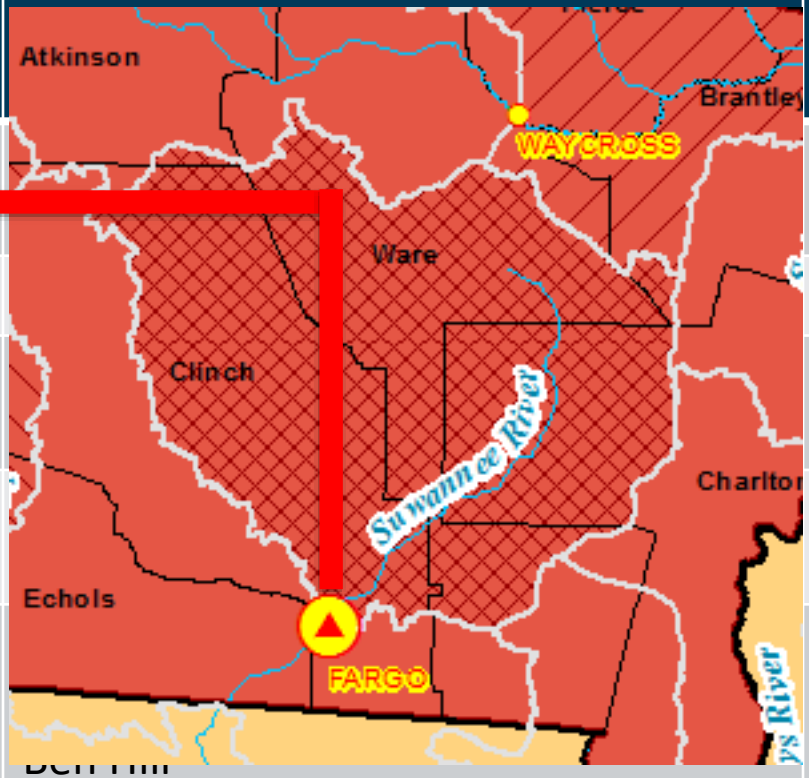
- Wastewater flows over the Planning Period (2015 – 2050)

Counties with Largest Increase in Wastewater Flows			
	% Change	Lanier	40%
		Pierce	37%
		Lowndes	29%
	MGD	Lowndes	6.6
		Coffee	1.7
		Tift	1.5

*Red text denotes counties with highest population growth statistics

Magnitude of Surface Water Gaps

- Round 2 Current Condition Results
- Preliminary analysis indicates that all surface water usage is agriculture-related

Node	Length of Shortfall (% of Time)	Average Shortfall (MGD)	Counties Affected**	Shared Resource with:
Fargo	3	<1		N/A
Jennings*	11	21		N/A
Pinetta*	11	27		Lower Flint Ochlockonee
Atkinson	10	15		Altamaha
Statenville	16	16		N/A

*Denotes node outside of region
**Counties affected were identified based on local drainage areas upstream of the planning node
Source: State Water Plan Surface Water Availability Resource Assessment (Zeng, 2016)

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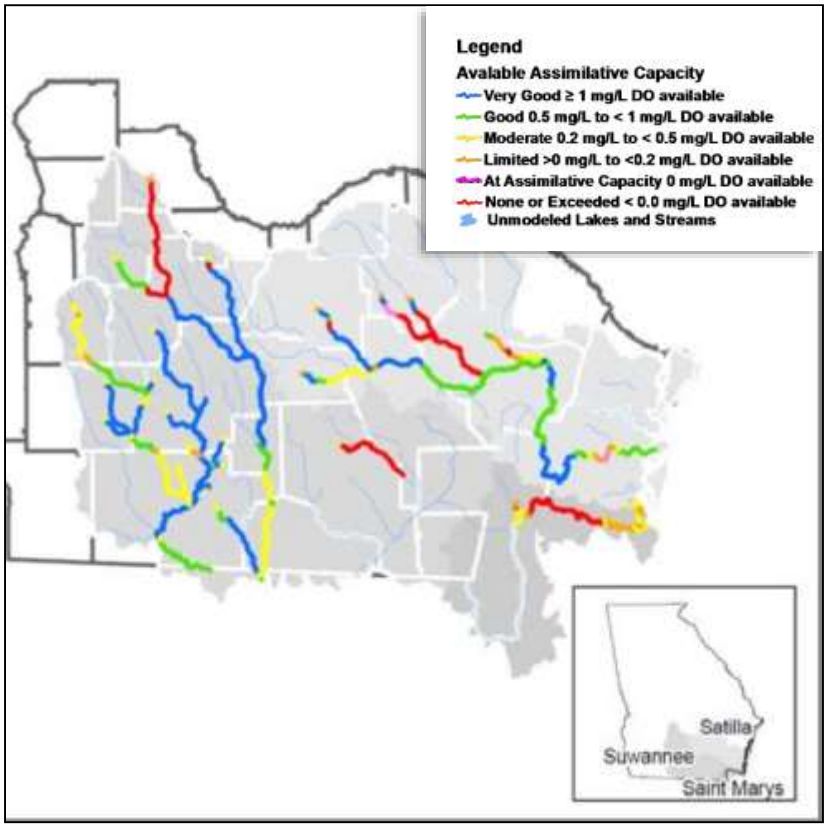
Surface Water Quality/Assimilative Capacity Gaps

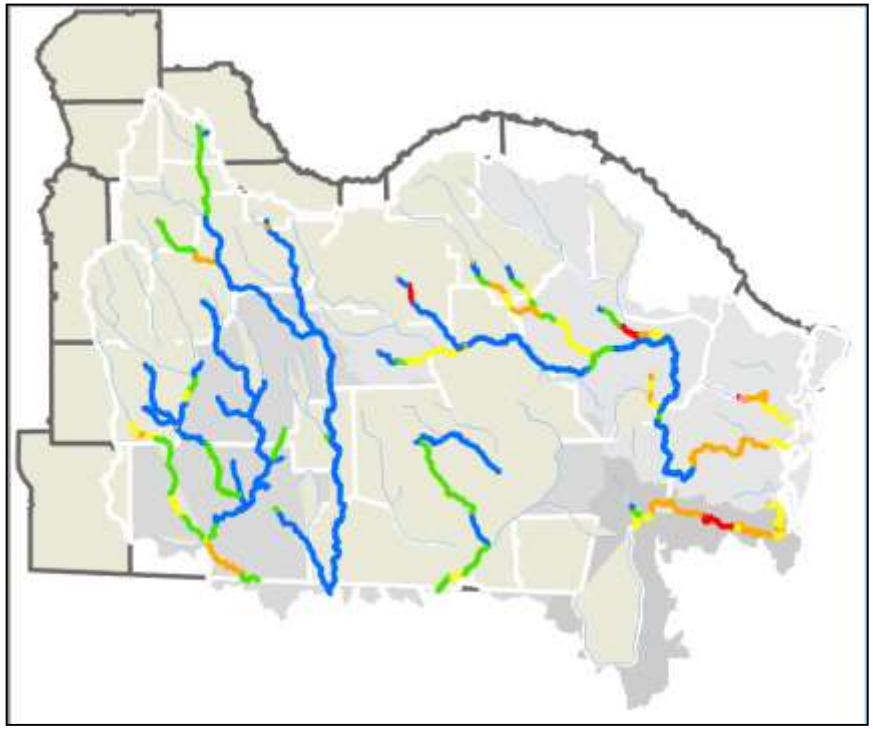
- Assimilative Capacity Assessment Round 2 Results
  - DOSAG & GA Estuary Models
  - 2000 thru 2012 (2012 is critical year)
  - Assimilative capacity for DO appears to be generally improving compared to Round 1 for future conditions **based on assumed permit limits**
  - Will work with EPD to quantify and identify specific reaches that have limited or exceed the assimilative capacity within the Suwannee-Satilla Region

Surface Water Quality/Assimilative Capacity Gaps

- Suwannee-Satilla Region – Results of DO Assimilative Capacity



Round 1 Future Condition



Current Updated Future Condition (2050)

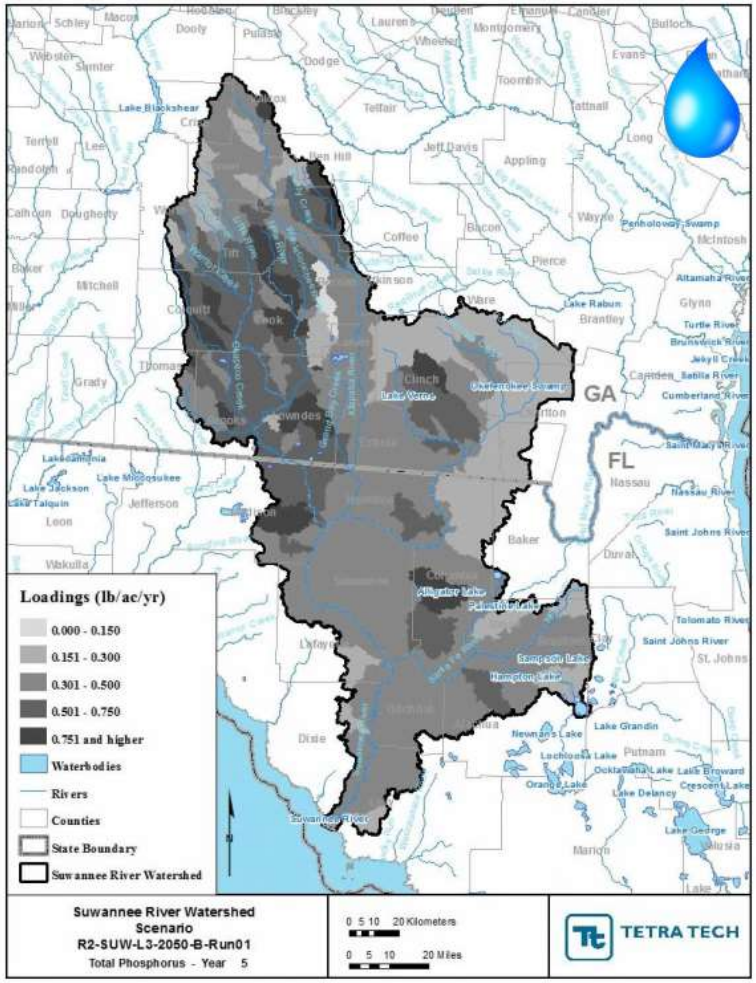
Surface Water Quality/Assimilative Capacity Gaps

- EPD also examined nutrient (TN and TP) in the region
  - Dry & Wet years
  - Areas of higher loadings in dry years can indicate point sources as potential cause (i.e., wastewater discharge)
    - Lowndes, Coffee, and Tift Counties show highest forecasted increases in wastewater discharge
  - Areas of higher loading in wet years are indicative on nonpoint source runoff
  - For nonpoint source loadings, Councils will want to re-visit their stormwater best management practices (BMPs)

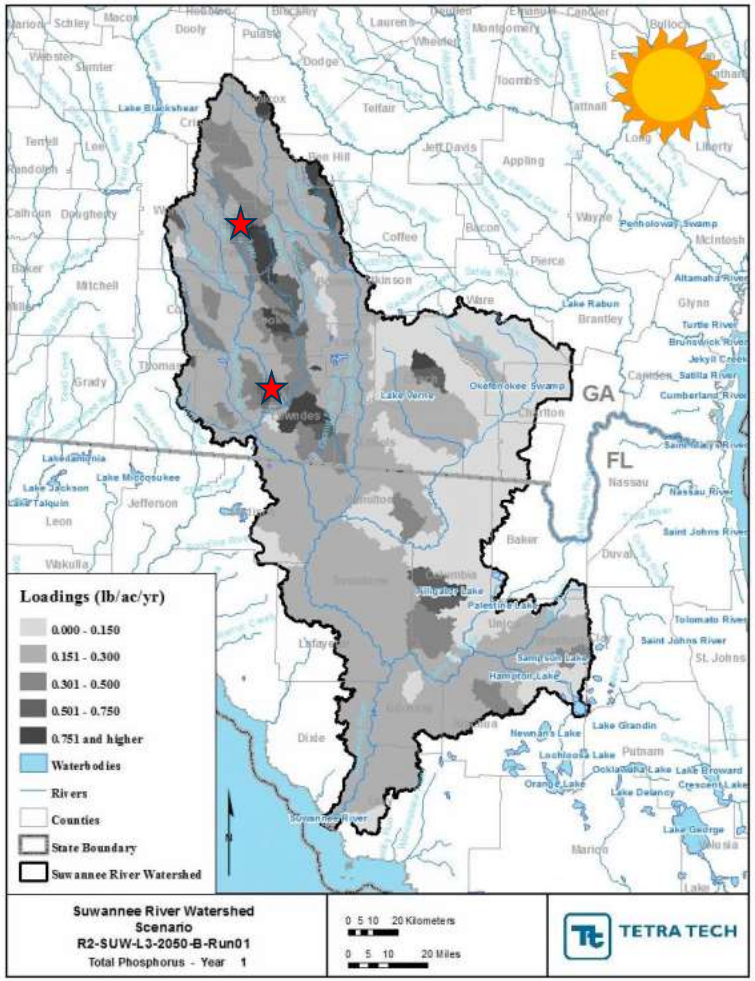
Surface Water Quality/Assimilative Capacity Gaps

SUWANNEE BASIN: TOTAL P "HEAT MAPS"

FUTURE CONDITIONS (2050)



FUTURE CONDITIONS (2050)



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

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Surface Water Quality/Assimilative Capacity Gaps

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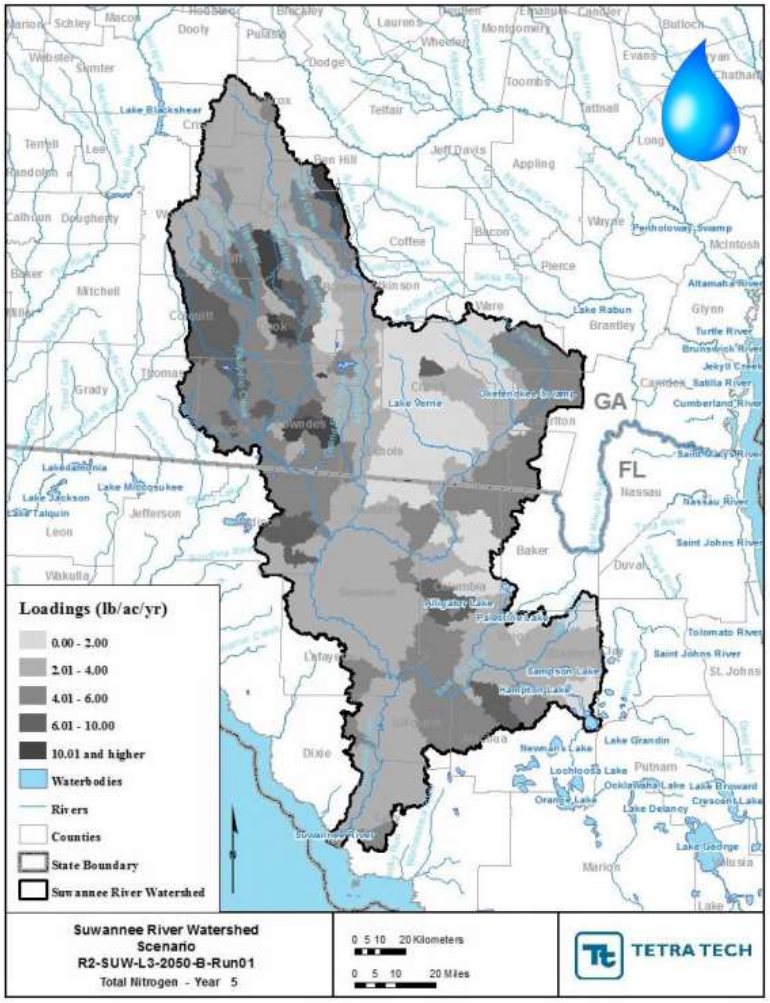
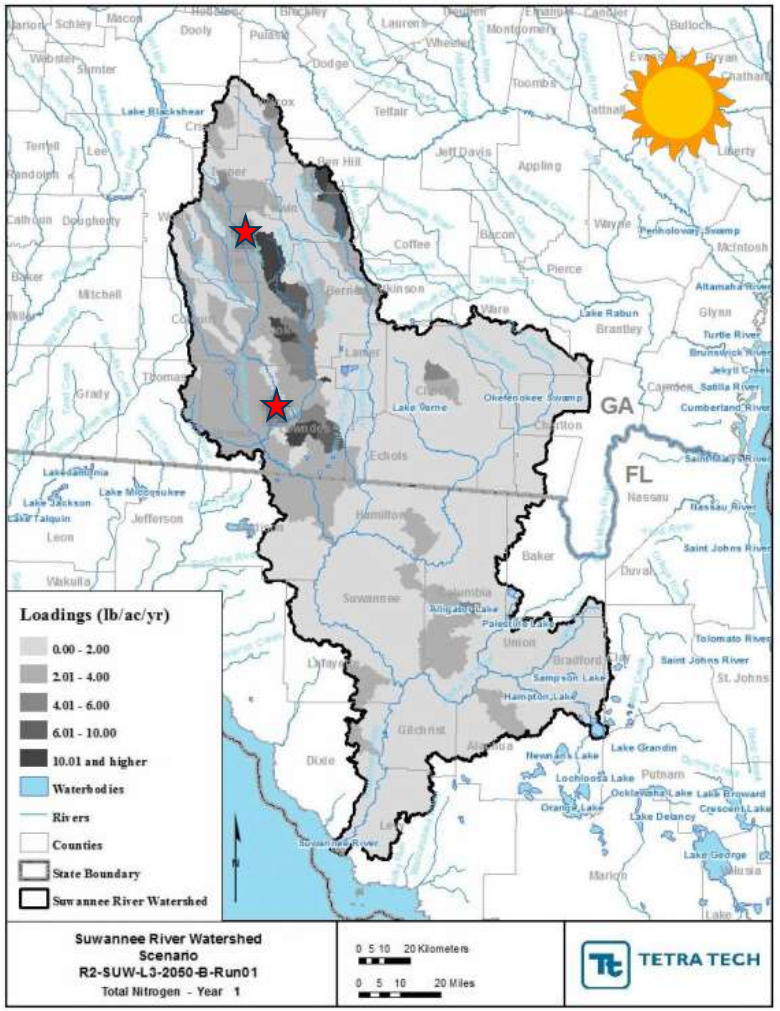
FUTURE CONDITIONS (2050)



FUTURE CONDITIONS (2050)



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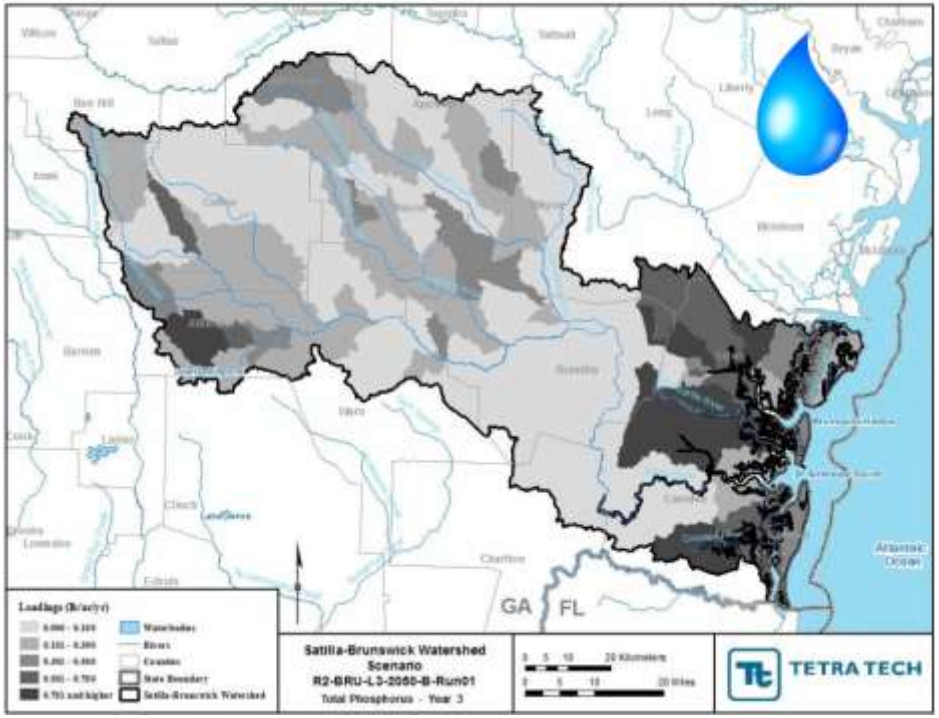
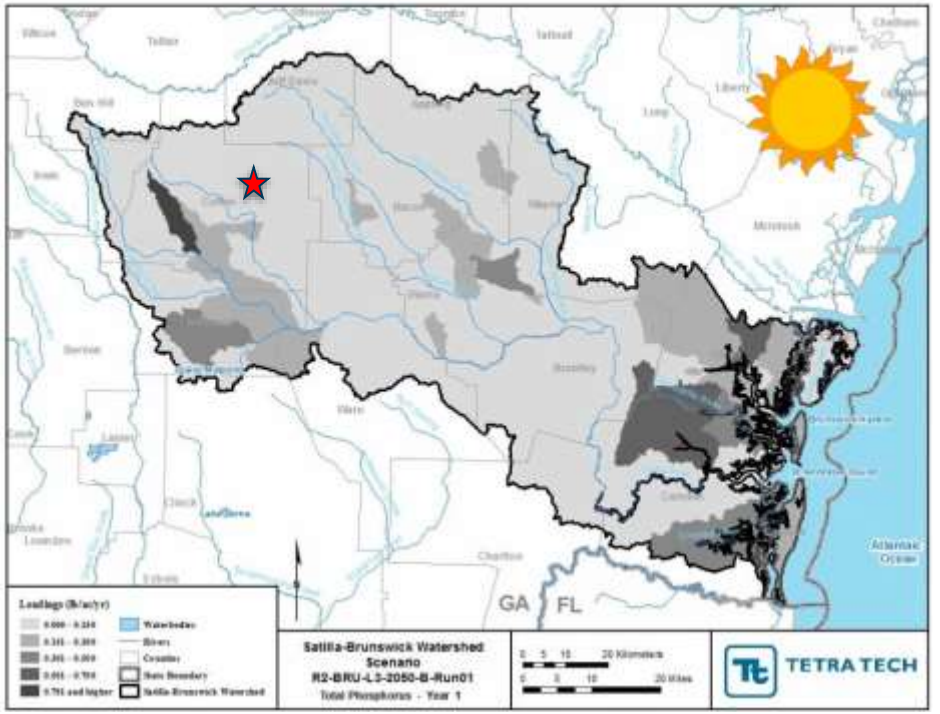
Surface Water Quality/Assimilative Capacity Gaps

SATILLA BASIN: TOTAL P "HEAT MAPS"

FUTURE CONDITIONS (2050)



FUTURE CONDITIONS (2050)



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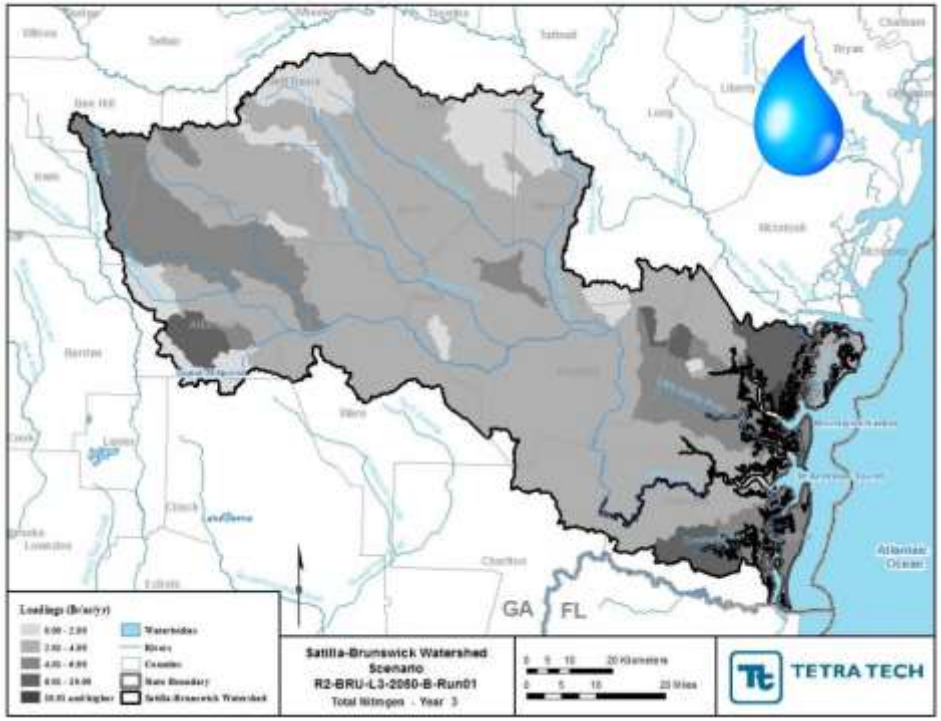
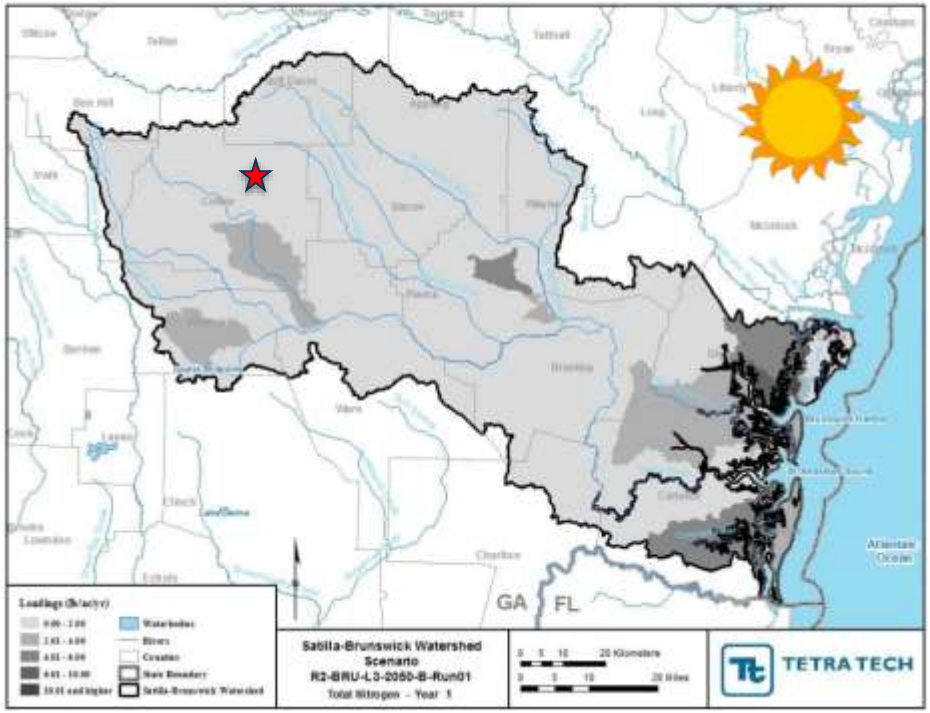
Surface Water Quality/Assimilative Capacity Gaps

SATILLA BASIN: TOTAL N "HEAT MAPS"

FUTURE CONDITIONS (2050)



FUTURE CONDITIONS (2050)



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

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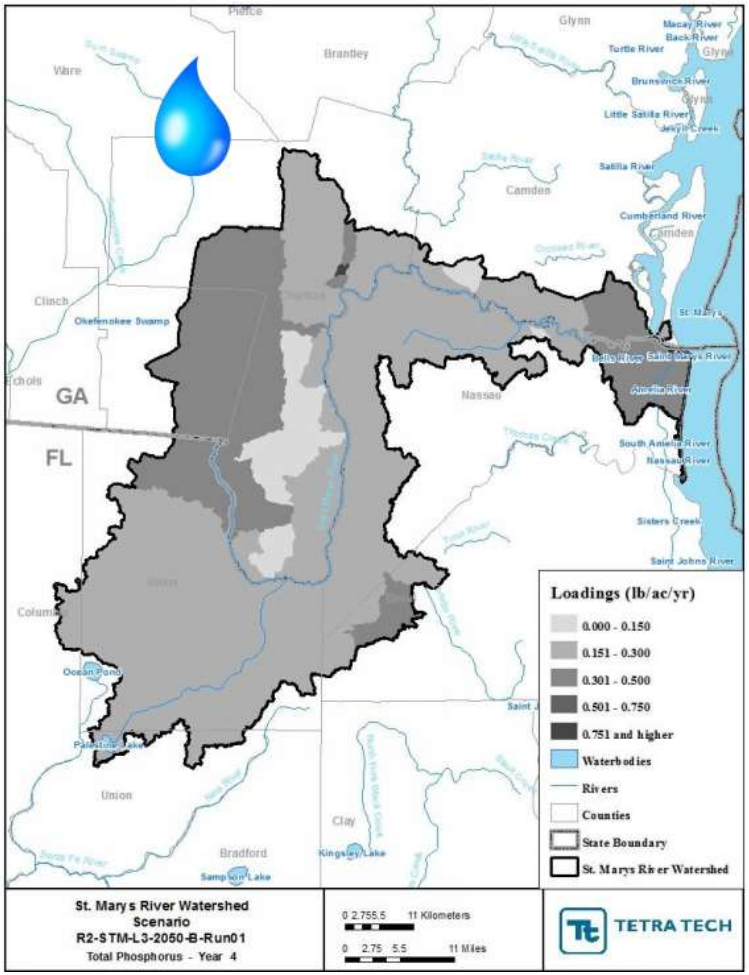
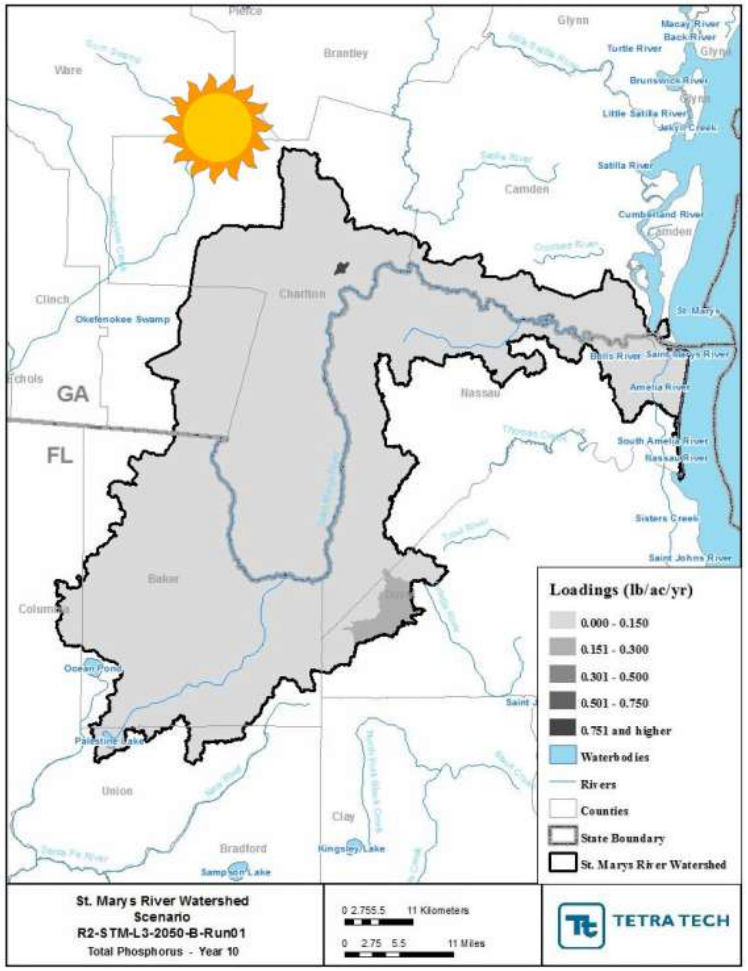
Surface Water Quality/Assimilative Capacity Gaps

ST. MARYS BASIN: TOTAL P "HEAT MAPS"

FUTURE CONDITIONS (2050)



FUTURE CONDITIONS (2050)



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Surface Water Quality/Assimilative Capacity Gaps

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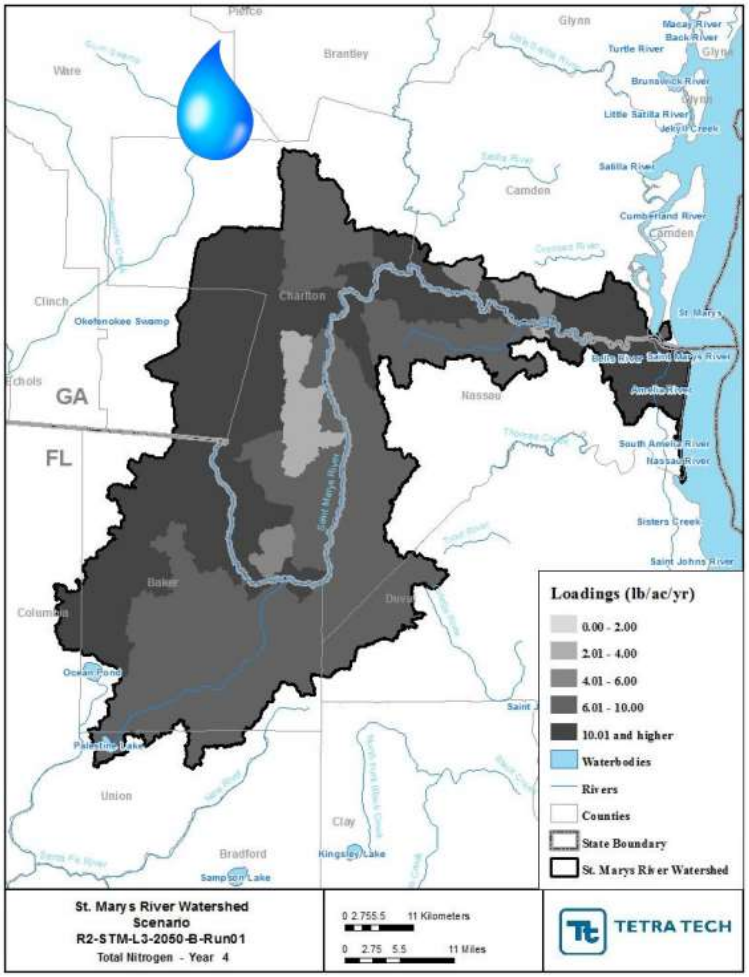
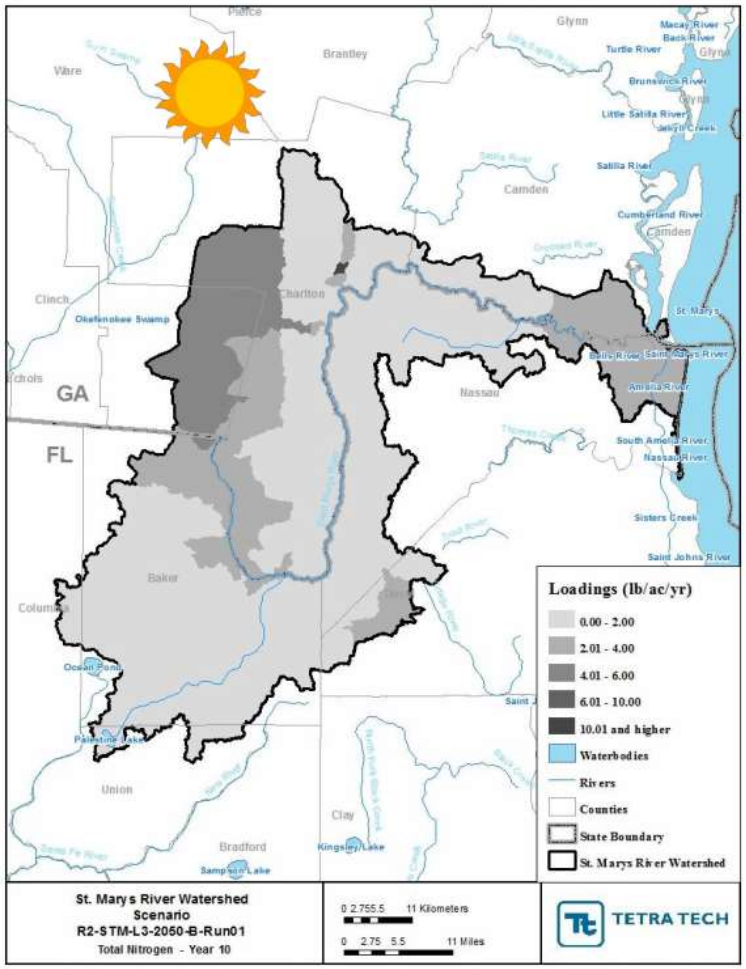


FUTURE CONDITIONS (2050)



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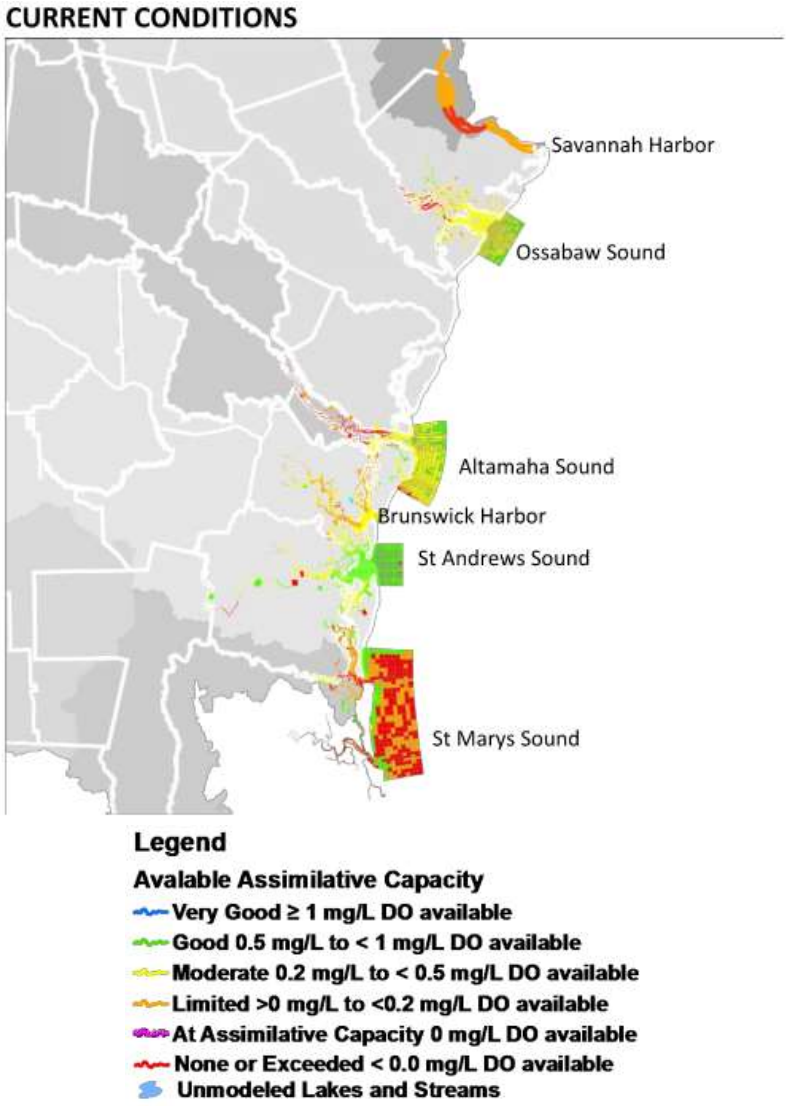
Surface Water Quality/Assimilative Capacity Gaps

- EFDC Lake & Estuary Model Results
  - Limited assimilative capacity in lower reaches of St. Mary's River and Sound
  - Lower assimilative capacity may be due to slower moving waters which contribute to naturally low DO levels



Suwannee-Satilla Region Gap Summary

- Surface Water Resource:
  - All the potential gaps are surface water quantity related
    - Atkinson, Fargo, Jennings, Pinetta, Statenville
  - Brantley County is the only county with non-agricultural surface water use
    - Associated with Atkinson and Fargo planning nodes with potential 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
  - Surface water flow is influenced by a number of natural and human induced factors including climate, land use, channel and flow alterations, etc.

Suwannee-Satilla Region Gap Summary (cont.)

- Groundwater Resource
  - Consistent with Round 1, there are no gaps identified
  - Lowndes, Coffee, and Tift Counties have highest forecasted increases 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

Suwannee-Satilla Region Gap Summary (cont.)

- Assimilative Capacity/Water Quality:
  - Assimilative capacity for DO appears to be generally improving compared to Round 1
  - Areas of higher loadings in dry years can indicate point sources as potential cause (i.e., wastewater discharge)
    - Lowndes, Coffee, and Tift Counties show highest forecasted increases in wastewater discharge
    - High TN and TP loading areas near Lowndes and Tift Counties
  - Areas of higher loading in wet years are indicative on nonpoint source runoff
    - Re-visit BMPs for nonpoint source loadings

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Shared Resources

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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

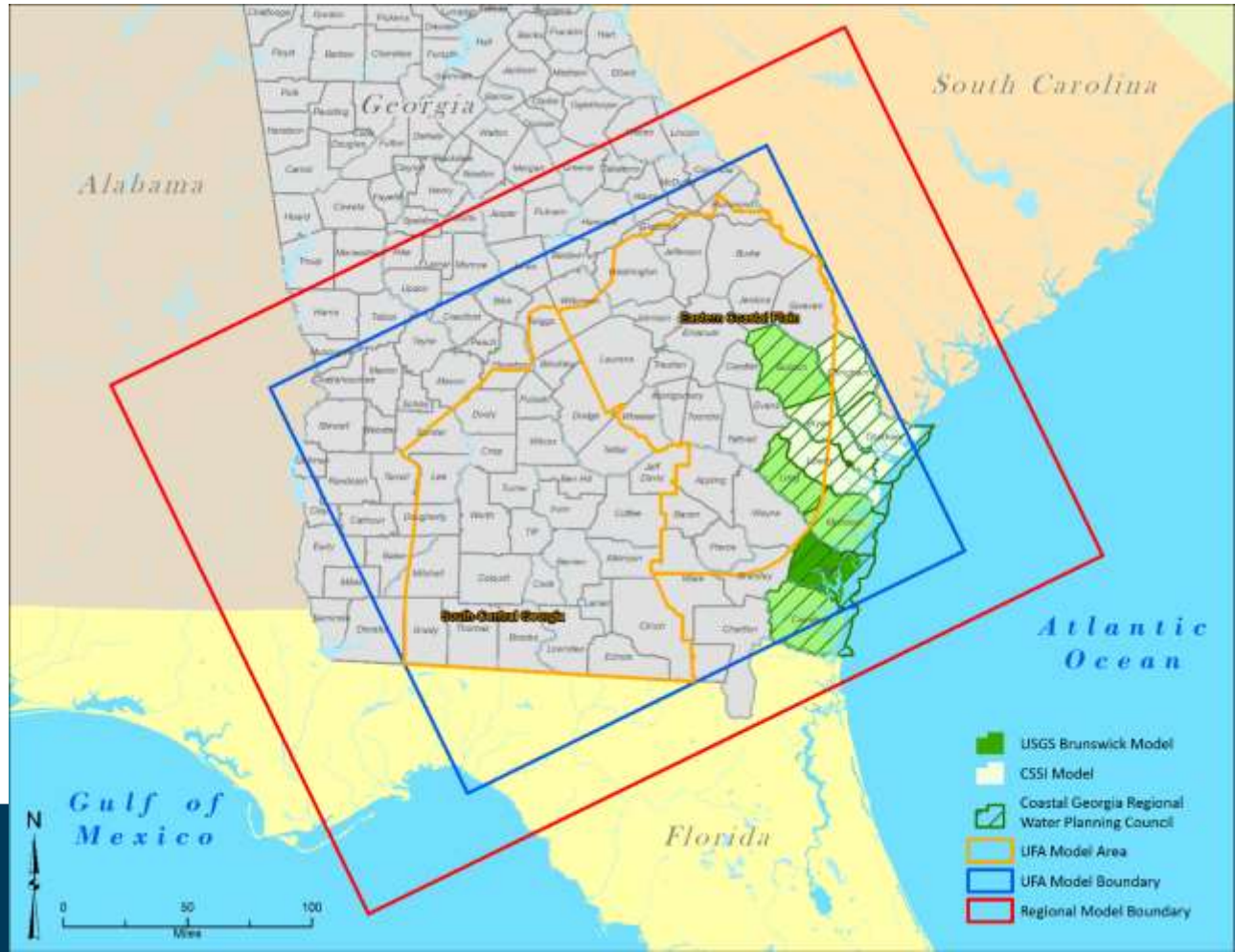
Shared Resources

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

South Central and Dougherty Plain



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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)

Suwannee-Satilla RWPC Vision

Manage water resources in a sustainable manner under Georgia's regulated riparian and regulated reasonable use laws to support the state's and region's economy, to protect public health and natural resources, and to enhance the quality of life for all citizens; while preserving the private property rights of Georgia's landowners, and in consideration of the need to enhance resource augmentation and efficiency opportunities.

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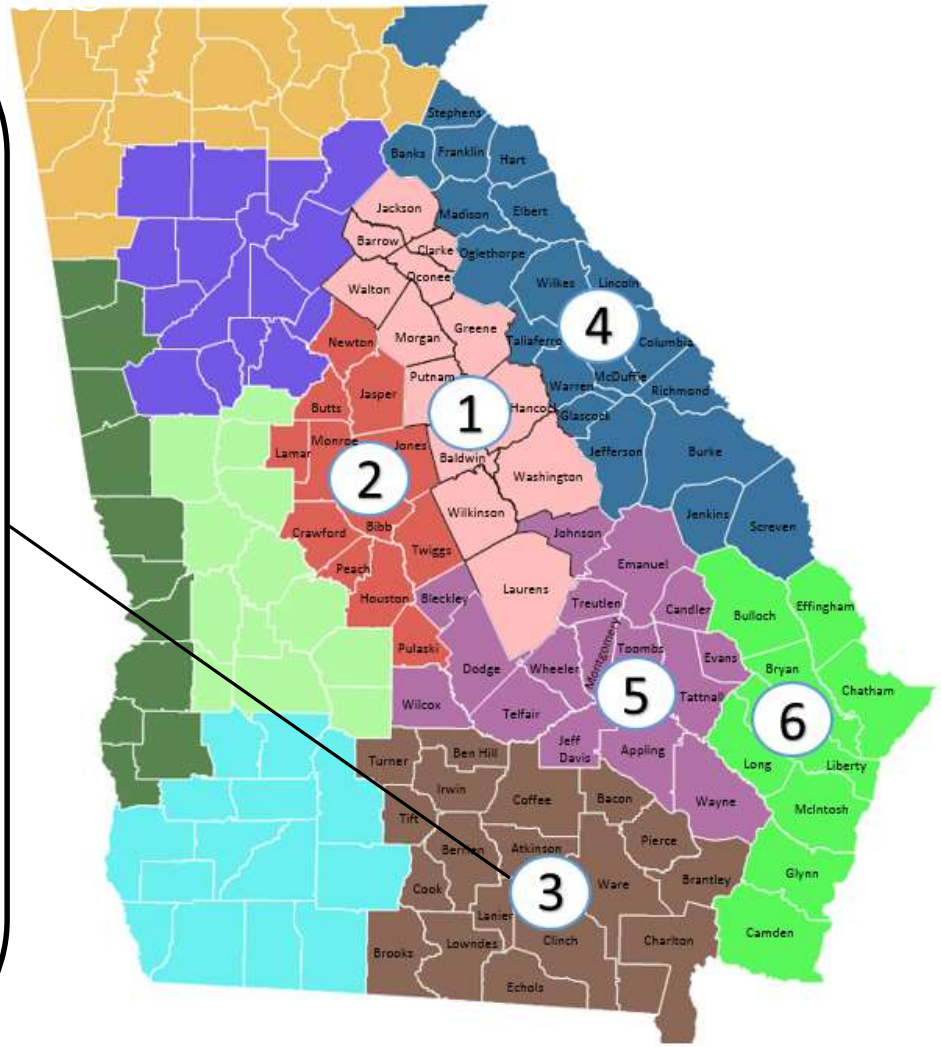
Suwannee-Satilla Water Planning Region

1. Manage and develop water resources to sustainably and reliably meet domestic, commercial, industrial water needs, and agricultural water needs including all agricultural sectors (this includes the agro forestry economy of the region).
2. Manage ground and surface water to encourage sustainable economic and population growth in the region.
3. Manage the region's and state's water resources in a manner that preserves and protects private property rights.
4. Ensure an adequate water supply of suitable quality to meet current and future human needs, while protecting environmental resources.
5. Identify opportunities to optimize existing and future supplies, and water and wastewater infrastructure.
6. Promote efficient use and management of surface and groundwater resources to allow for sufficient supplies for current and future generations.
7. Protect and manage surface and groundwater recharge areas to ensure sufficient long-term water supplies for the region.
8. Protect, maintain, and where appropriate and practicable, identify opportunities to enhance water quality and river base flows.
9. Protect and maintain regional water-dependent recreational opportunities.
10. Identify opportunities to manage stormwater to improve water quantity and quality.
11. Identify and implement cost effective water management strategies.
12. Seek to provide economically affordable power and water resource service to all citizens of the region.
13. Identify and implement actions to better measure and share water use data and information.



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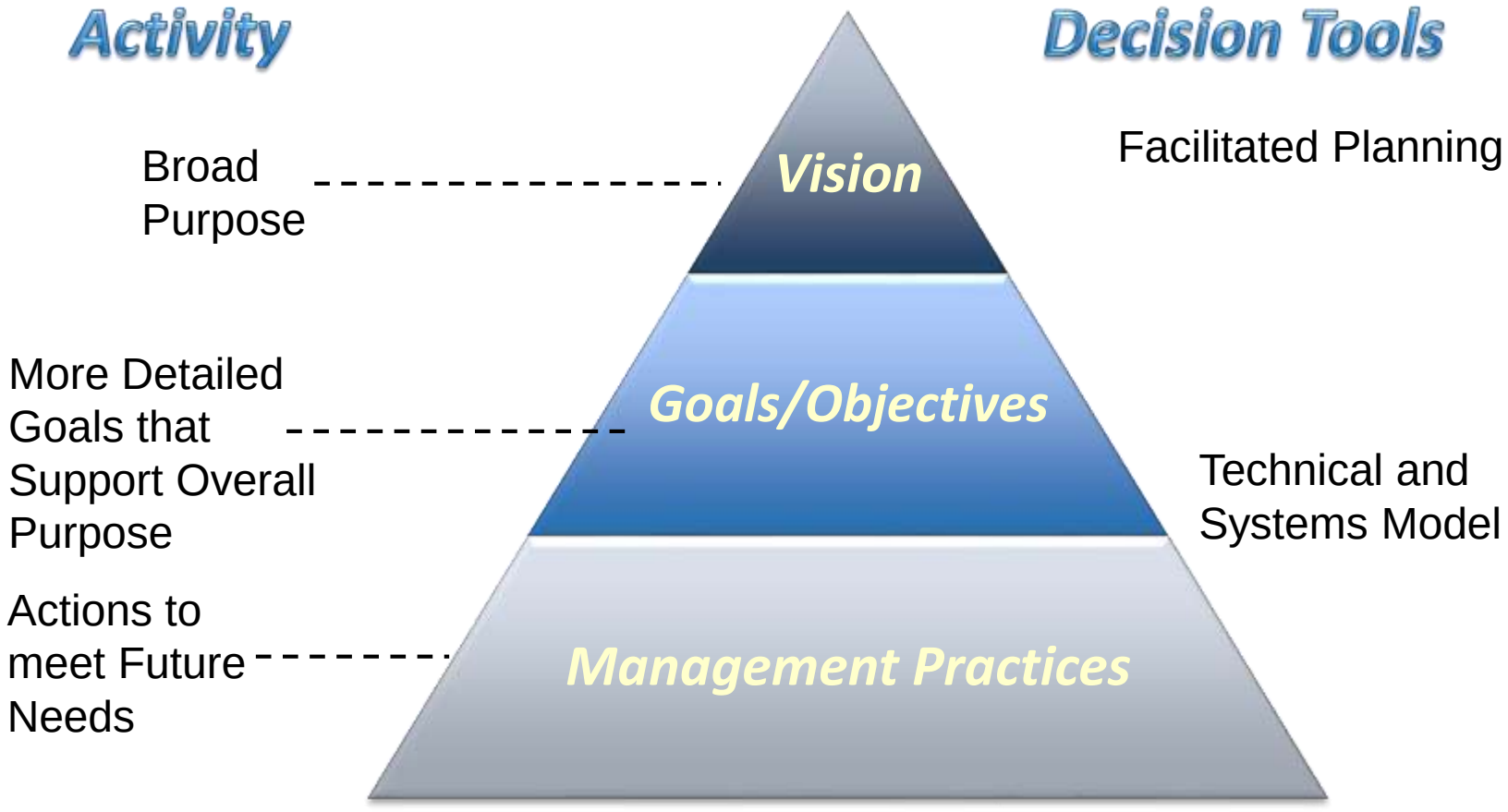
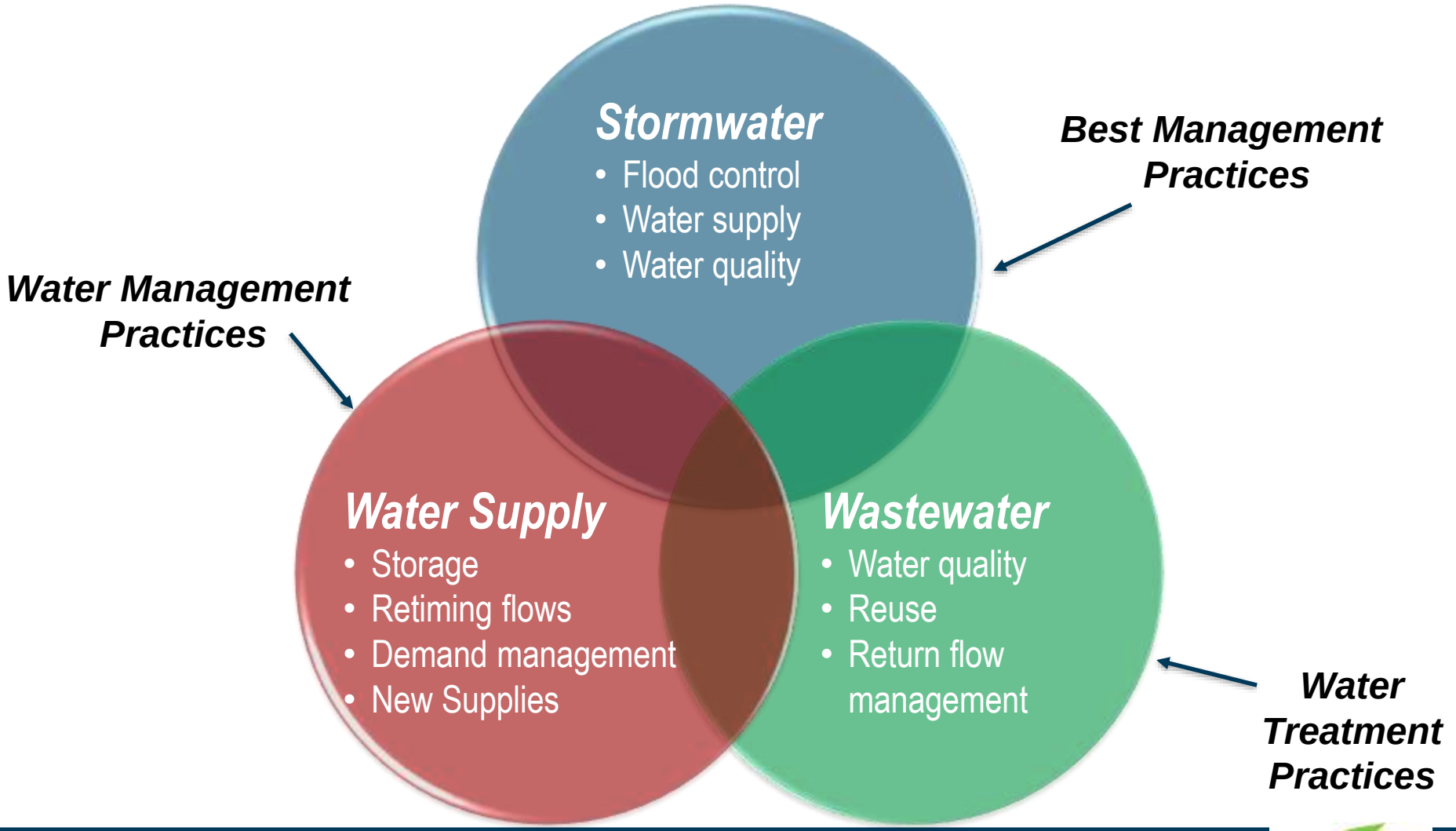
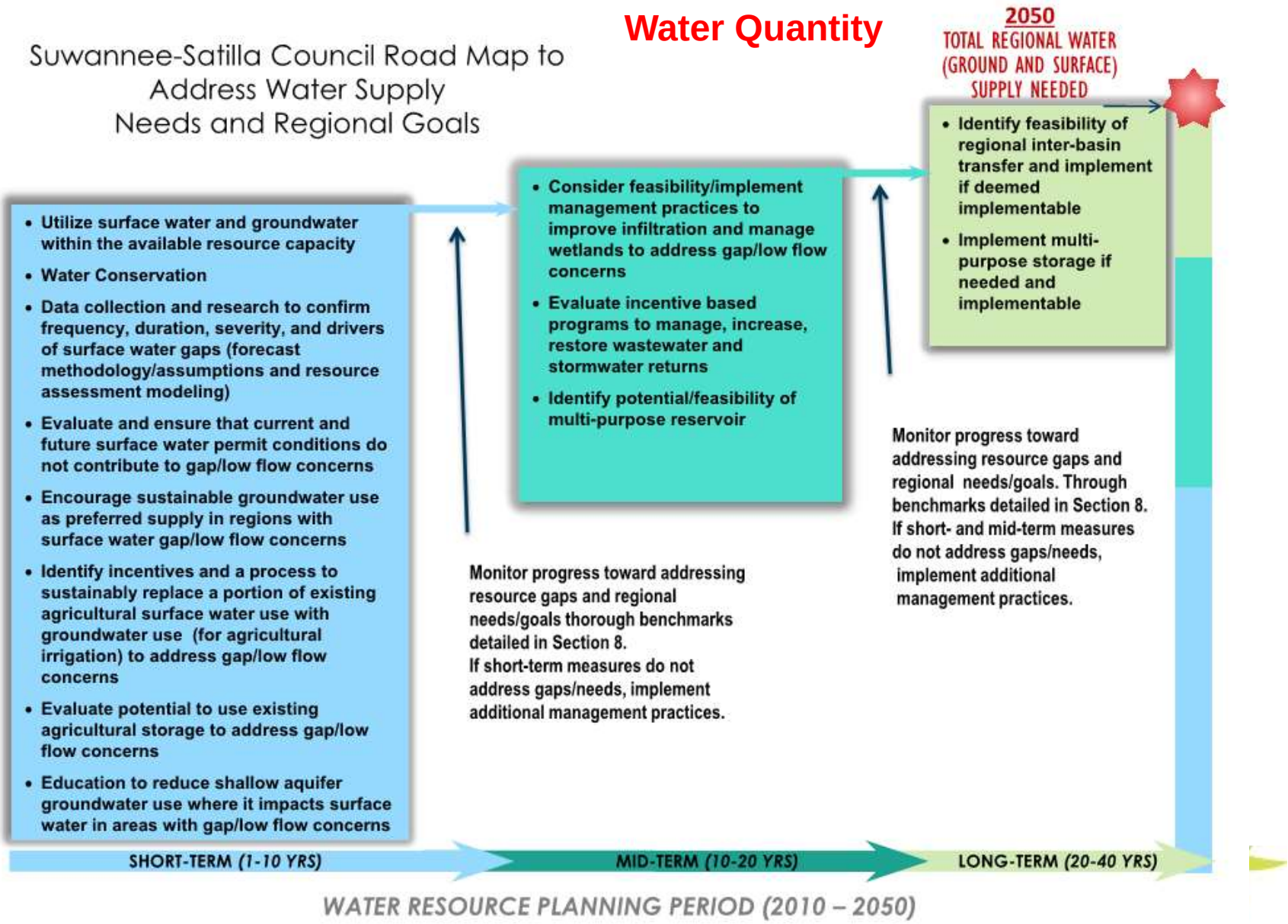
Developing a Water Plan Decision Framework



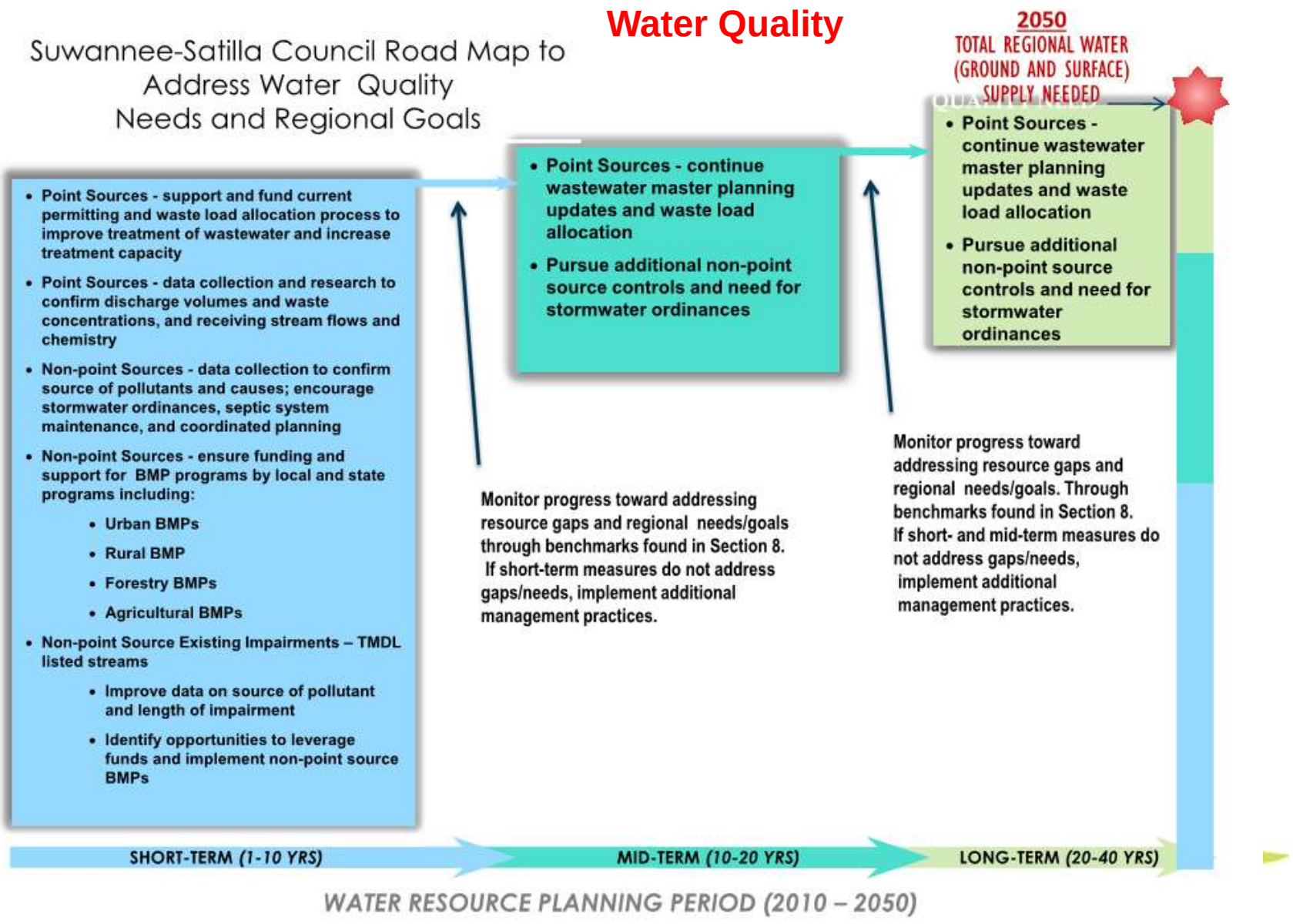
Developing a Water Plan Decision Framework



2011 RWP Recommended Management Practices



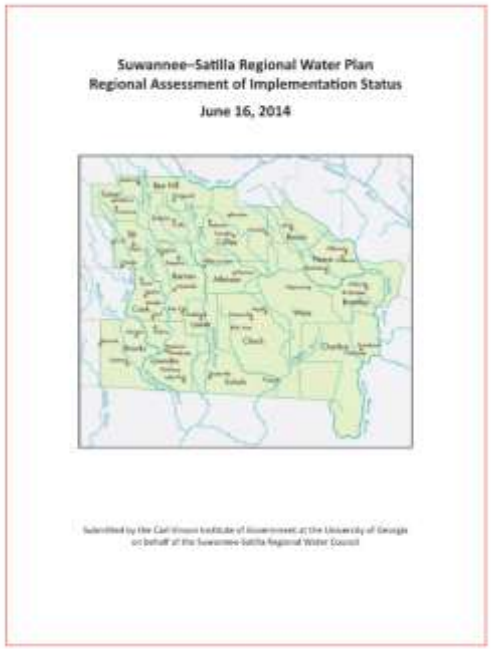
2011 RWP Recommended Management Practices



Interim Planning Period

- Regional Assessment of Implementation Status Report (2014)
- Many accomplishments achieved in the Suwanee-Satilla region in the areas of:
  - Water Demand Management
  - Wastewater & Water Quality
  - Stormwater & Water Quality
  - Data and Information Needs

Councils made recommendations for <u>implementing entities</u> to work with as we move into final phase of updating the management practices and recommendations in the plan update.



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Management Practices

- 77 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?

Council Meeting Business

- *319h Grant Update*
- *Approve meeting minutes from June 23, 2016 Council Meeting*
- *Follow-up discussion from September 14, 2016 "Office Hours" Teleconference*
- *Discuss optional Council Meeting 6 to finalize plan review & revision process*
- *New Business*

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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?

Thank You!

Questions? Comments? Need More Information?

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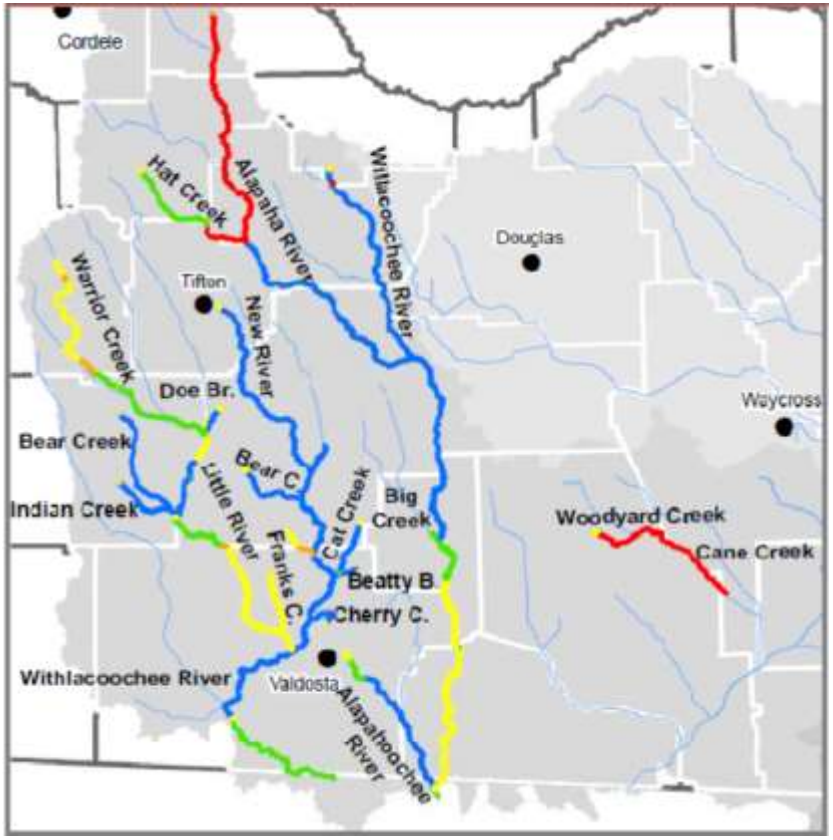
woodsh@cdmsmith.com

Georgia

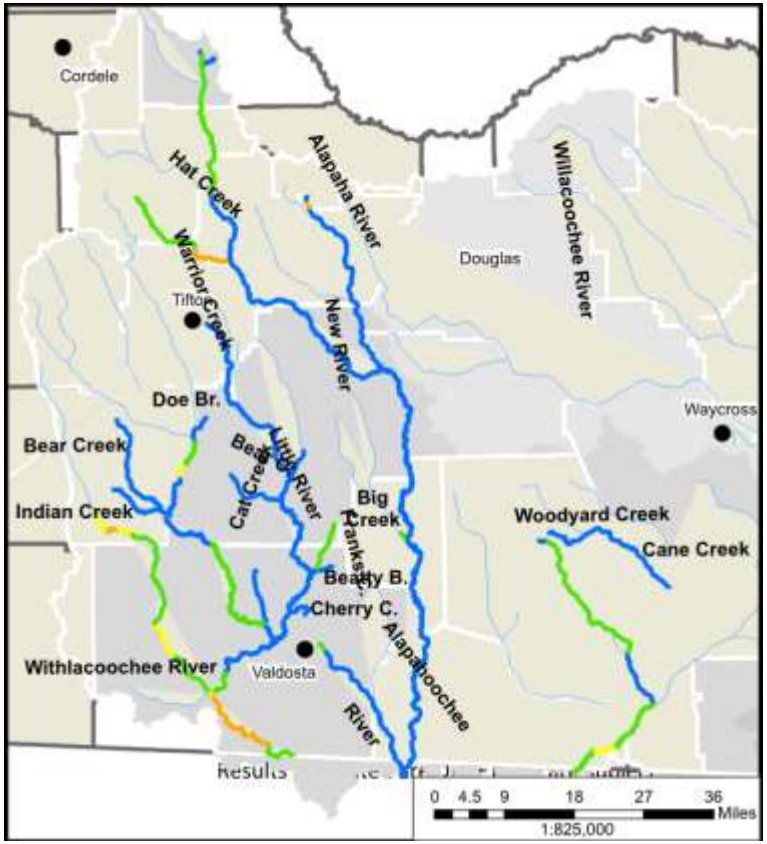
Optional Slides

Surface Water Quality/Assimilative Capacity Gaps

- Suwannee Basin GA DOSAG Model Results



Round 1



Update

Legend

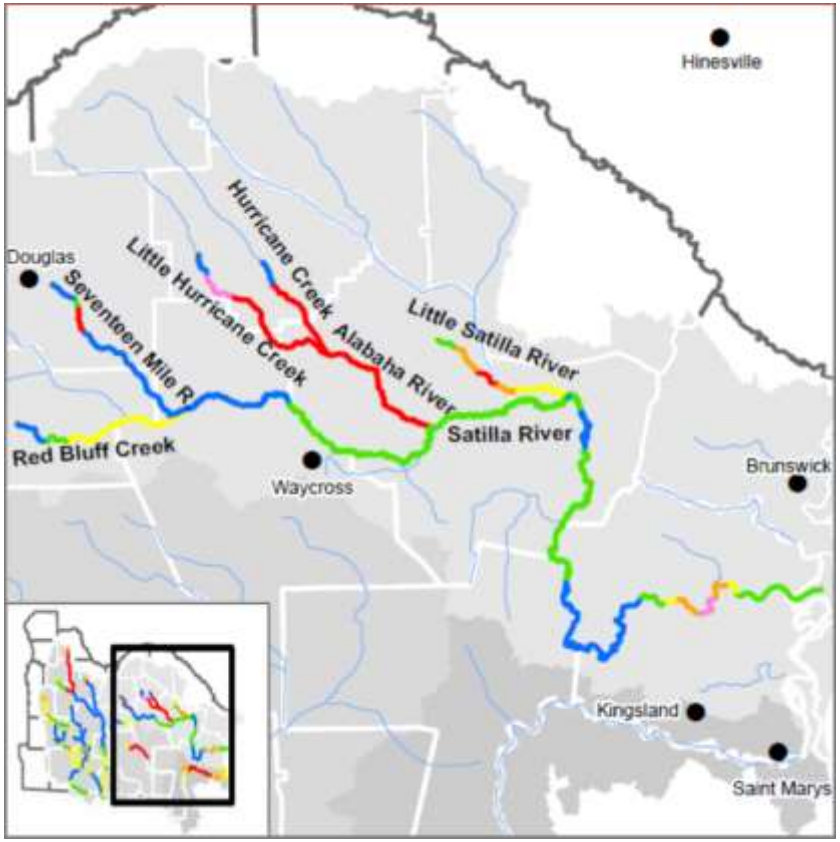
Avalable Assimilative Capacity

- Very Good ≥ 1 mg/L DO available
- Good 0.5 mg/L to < 1 mg/L DO available
- Moderate 0.2 mg/L to < 0.5 mg/L DO available
- Limited >0 mg/L to <0.2 mg/L DO available
- At Assimilative Capacity 0 mg/L DO available
- None or Exceeded < 0.0 mg/L DO available
- Unmodeled Lakes and Streams

Georgia

Surface Water Quality/Assimilative Capacity Gaps

- Satilla Basin GA DOSAG & GA Estuary Model Results



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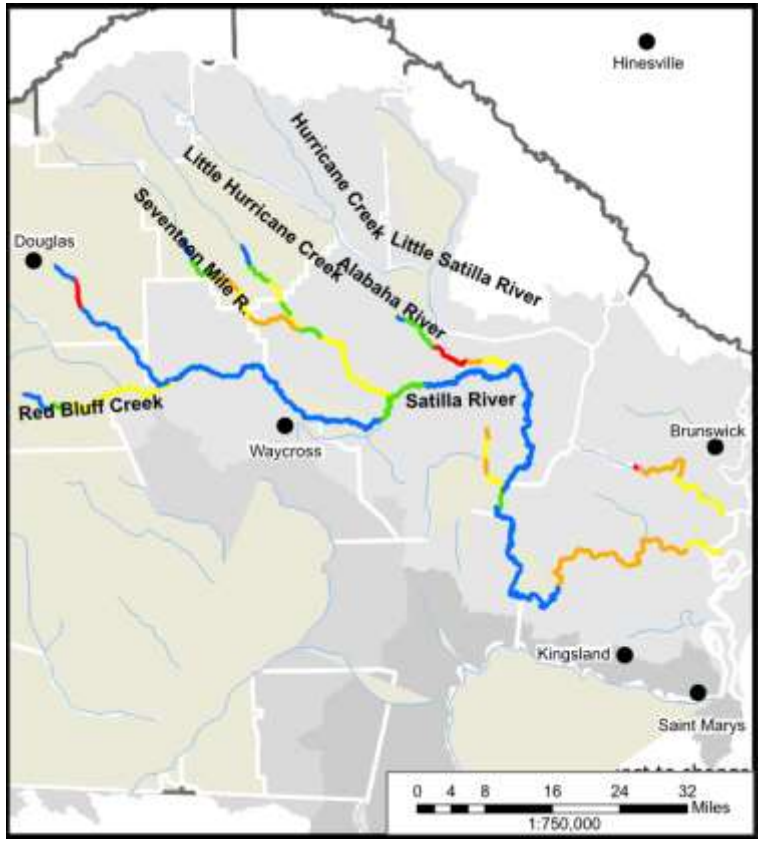

Update

Legend

Available Assimilative Capacity

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- At Assimilative Capacity 0 mg/L DO available
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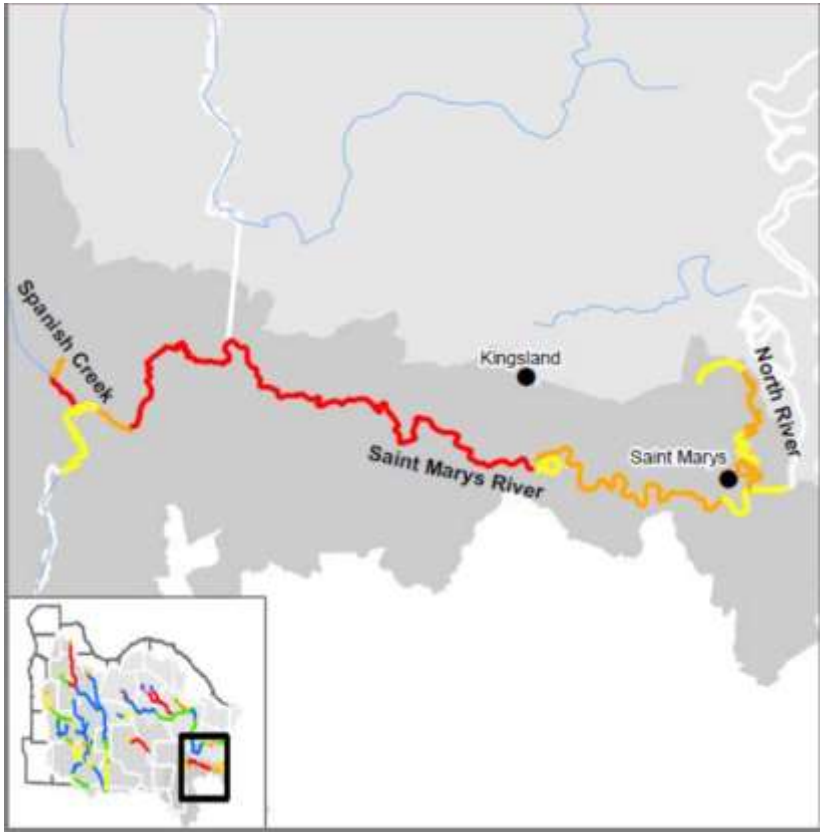
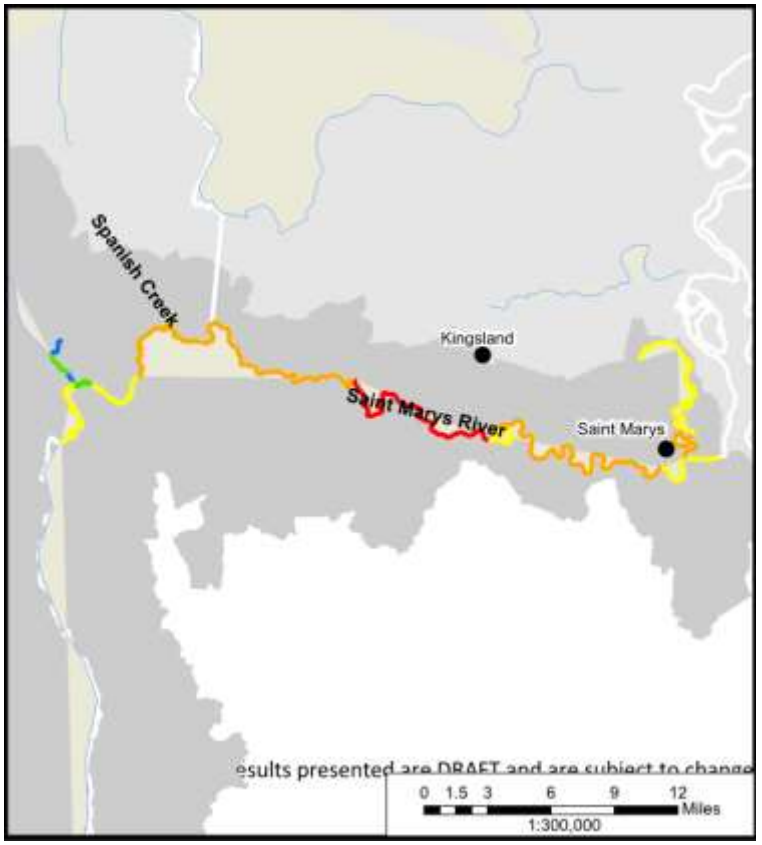
Surface Water Quality/Assimilative Capacity Gaps

- St. Marys Basin GA & GA Estuary DOSAG Model Results



Round 1



Update

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- At Assimilative Capacity 0 mg/L DO available
- None or Exceeded < 0.0 mg/L DO available
- Unmodeled Lakes and Streams

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