Georgia's
State Water Plan

Regional Water Development and Conservation Plan Review and Revision
Savannah-Upper Ogeechee Water Planning Council
February 23, 2017

www.georgiawaterplanning.org

Savannah-Upper Ogeechee Council Meeting 4

Objectives:

1) Review Regional Water Plan Deliverables
2) Review Updates to Regional Water Plan Sections
3) Discuss Approach and Timelines for Remaining Regional Water Plan Updates

9:00 – 9:30 am	Registration
9:30 – 9:45	Welcome and Introductions • Approve Meeting Minutes from November 17, 2016 Individual Council Meeting • Approve Meeting Agenda • Schedule for Remaining Regional Water Plan Updates
9:45 - 10:15	Regional Water Plan Deliverables • Demand Forecast Technical Memorandum • Updates to Regional Water Plan Sections
10:15 - 10:45	Review Process to Update Management Practices
10:45 - 11:00	Break
11:00 - 11:45	Review and Discuss Management Practices
11:45 - 12:30 pm	Lunch
12:30 - 1:30	Continue Review and Discussion of Management Practices
1:30 - 1:45	Break
1:45 - 2:30	Finalize Review and Discussion of Management Practices
2:30 - 2:45	Wrap Up/ Next Steps/ Council Meeting 5 Preview
2:45 - 3:00	Public Comments/Local Elected Official Comments
3:00	Adjourn

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Savannah-Upper Ogeechee Council Meeting 4

Approve Meeting Minutes

Memorandum

To: *Savannah – Upper Ogeechee Regional Water Planning Council*

From: *Katherine Atteberry and Andrew Jarrett, Jacobs*

Date: *December 23, 2016*

Subject: *Savannah – Upper Ogeechee Council Meeting 3*
Regional Water Plan Review and Revision Process
Draft Meeting Summary (subject to Council review and approval)

This memorandum provides the meeting summary of the Savannah – Upper Ogeechee Regional Water Planning Council Meeting 3, held on November 17, 2016 at the Oconee Fall Line Technical College in Dublin, Georgia. A Joint Council Meeting was held for the six eastern Regional Water Planning (RWP) Councils (Altamaha, Coastal Georgia, Middle Ocmulgee, Suwannee-Satilla, Savannah- Upper Ogeechee and Upper Oconee) from 10 AM to 4 PM. The Savannah-Upper Ogeechee (SUO) RWP Council held a brief individual Council Meeting during the afternoon portion of the Joint Council Meeting. This memorandum provides a summary of the items

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Remaining Schedule

- Draft updated Plans completed before March 31
  - Input from Council during today's meeting
  - Further work/edit with Subcommittee, then back to full Council
  - Next Council meeting to be held on March 29
- Public Notice period: March 31 – May 15
- Updated Plans finalized in June

Forecast Technical Memorandum Review

- Introduction
  - General Methodology
  - Population Update
- Municipal Water Forecasting
- Municipal Wastewater Forecasting
- Industrial Forecasting
- Agricultural Water Forecasting
- Energy Water Forecasting
- Regional Summary

Section 3 Review

Section 3. Water Resources of the Savannah-Upper Ogeechee Water Planning Region

A summary of current surface water and groundwater use, results from the ~~Baseline~~ current conditions Resource Assessments developed by EPD and discussion of instream uses are provided in this section. This section's references to current conditions reflect the most recent data available at the time of the statistical development.

3.1 Major Water Use in the Region

Major water use and water returns are summarized for the Savannah-Upper Ogeechee region based on data compiled by USGS in the report 'Water Use in Georgia by County for 2010 and Water-Use Trends, 1985-2010'. In 2010~~2005~~, the region's daily water withdrawals averaged about 275~~291~~ million gallons per day (MGD) on an annual

In 2010~~2005~~, the Savannah-Upper Ogeechee Region withdrew over 275~~290~~ MGD for water supply (78 percent from surface water and 22 percent from groundwater sources). The region ~~generated~~ returned nearly 108~~190~~ MGD of wastewater in 2010~~2005~~; ~~85 percent was treated and returned to streams and 15 percent relied on septic tank~~52 percent from industry and 48 percent from municipal sources~~s~~. The region has abundant water supplies and over 90 ~~80~~ percent of the streams analyzed were found to have adequate capacity to handle pollutants. In addition to water supply, power generation, flood prevention and drought management, many streams and

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Section 4 Review

Section 4. Forecasting Future Water Resource Needs

From 2015~~0~~ to 2050, community growth in the region will increase population by ~~50~~ 24.5 percent. Water demands will increase steadily from 31625 MGD to ~~462~~ 4205 MGD. Concurrently, regional wastewater needs increase from ~~200~~ 178 MGD to 203~~589~~ MGD.

Water demand and wastewater flow forecasts, along with Resource Assessments (Section 3), form the foundation for water planning in the Savannah-Upper Ogeechee Region and serve as the basis for the selection of water management practices (Section 6). This section presents the regional water and wastewater forecasts ~~for ten-year intervals~~ from 2015~~10~~ through 2050 for four water use sectors: municipal, industrial, agricultural, and thermoelectric power generation. Detailed descriptions of the forecast generation methodology and data used are located in the supplemental document**s** *Technical Memorandum:* ~~–~~ *Savannah-Upper Ogeechee Water and Wastewater Forecasting (2017)*~~Agricultural Water Use Forecasts (May 2011~~*2017)* ~~and Technical Memorandum – Municipal and Industrial Water and Wastewater Forecasts (May 2011~~*2017),* ~~which can be found at the following web addresses:~~

~~http://www.savannahupperogeechee.org/pages/our_plan/documents/SupSec4_AgriculturalDemand_TM_SUO_May2011_FINAL.pdf~~

~~http://www.savannahupperogeechee.org/pages/our_plan/documents/SupSec4_Forecast_TM_SUO_May2011_FINAL.pdf.~~

4.1 Municipal Forecasts

Municipal water demand forecasts include water supplied to residences, commercial businesses, small industries, institutions, and military bases. The forecasts are

Section 5 Review

Office Hours Comments Addressed:

- Adding Table 5-1 note stating pool elevations for the "Current Minimum Percent of Conservation Storage Remaining" and "2050 Minimum Percent of Conservation Storage Remaining" columns.
- Editing Table 5-5 to show Columbia County Current Permitted Water Withdrawals at 53 MGD rather than 40.2 MGD
- Adding Table 5-6 notes to clarify Columbia County Permitted Capacity include future capacity for Columbia County or Grovetown

Section 5 Review

Table 5-6/ 5-8: Summary of Potential Gaps or Shortages by County

County	Surface Water Flow Regime Gap	Municipal Water Permitted Capacity Need	Municipal Wastewater Permitted Capacity Need	Water Quality - Assimilative Capacity Gap
Source	Table 5-2. 5-3	Table 5-4	Table 5-5	Figure 5-3
Banks		Yes/ No		
Burke	Yes		Yes	Yes
Columbia		Yes/ No	Yes	Yes
Elbert			Yes/ No	Yes
Franklin				Yes
Glascock	Yes	Yes		Yes
Hart		Yes/ No		
Jefferson	Yes		Yes/ No	Yes
Jenkins	Yes		Yes/ No	Yes/ No
Lincoln				
McDuffie		Yes/ No	Yes/ No	Yes
Madison		Yes	Yes	Yes*
Oglethorpe		Yes	Yes	
Rabun	Yes/ No		Yes/ No	Yes/ No
Richmond			Yes/ No	Yes
Screven	Yes	Yes/ No		Yes
Stephens			Yes	Yes
Taliaferro	Yes	Yes		
Warren	Yes			Yes
Wilkes				Yes
Total Counties	8/ 7	7/ 4	10/ 5	14/ 13

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Process to Update Management Practices

- Categorize Current Management Practices Today
  - Keep As-Is
  - Edit
  - Delete
  - Add New
- Identify Subcommittee to
  - finalize language for edited Management Practices
  - Finalize full set of revised Management Practices to present to the Council for approval

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Break

10:45 AM – 11:00 AM

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Review and Update Management Measures

Summary of Round 1 Water Conservation Management Practices – Savannah - Upper Ogeechee Regional Water Planning Council – *Water Conservation*[2]

Table 6-1A: Priority Water Management Practices Selected for the Savannah-Upper Ogeechee Planning Region				
Management Practice	**Applicable Area**	**Description/Definition of Action**	**Relationship of Action or Issue to Vision and Goals**	**Identification of Plan Elements for Review**
Water Demand Management Practices				
WD1 - Implement Tier 1 Water Conservation Practices and Other SB370 Requirements	ALL	• Tier 1 water conservation practices include those required by SB370 (Water Stewardship Act of 2010) and those anticipated in upcoming state-rule making: • Water providers will be required to (a) conduct water loss audit and report results to EPD using International Water Association standards and practices, and (b) Demonstrate progress toward Tier 1 water conservation goals and practices (non-farm water withdrawal permittees) in annual water conservation plan progress report • Local governments will be required to: a) Adopt ordinance restricting outdoor watering between the hours of 10am and 4pm (with some exemptions); b) Amend local building codes to require submetering for all newly constructed multi-unit residential, industrial and retail buildings;	Goals Addressed: 1 (economy and sustainability), 5 (water reuse/conservation), 6 (balance human needs v. habitat needs), 7 (regional planning) Gap Addressed: Potential Minimum Instream Flow Shortage in Ogeechee B	
		• Amend local building codes to require high efficiency plumbing fixtures (1.28 gal/flush) in all new construction; and • Amend local building codes to require high-efficiency cooling towers in new industrial construction EPD and existing agricultural withdrawal permittees will need to evaluate and comply with new requirement regarding classification of existing agricultural water permits by status (active, inactive and unused permits)		

[2] Table 6-1(a), Savannah - Upper Ogeechee Regional Water Plan (September 2011)

Approach to Updating Management Practices (Section 6)

1. Review 2017 Gaps

2. Update Management Practices

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Surface Water and Ground Water Availability

Gap Review

Groundwater

Surface Water

Management Practices

Water Demand Management

Water Supply Management

Education

Groundwater Availability – 2017 Gaps

No groundwater resource shortfalls expected over planning horizon

Surface Water Availability – 2017 Gaps

Savannah

- Water Demand (off stream needs) and Flow Regime (instream needs as specified by the Corps' Water Control Plan) can be fully met by available water and storage
- There is reserve storage in the major Corps storage reservoirs' conservation pool through the most critical drought
- Agreement allowing storage use will have to be reached with reservoir owners

Ogeechee

- Potential Gaps at Claxton, Eden, and Kings Ferry Nodes

Shared Resources Subcommittee Meeting

- Discussion

2011 Priority Water Demand Management Practices

WD1 - Implement Tier 1 Water Conservation Practices and Other SB370 Requirements	**Keep, Edit, or Delete**
WD2 – Evaluate/ Encourage Tier 2 (Non-Farm) Water Conservation Practices	**Keep, Edit, or Delete**
WD3 – Evaluate/Encourage Tier 3 & Tier 4 Agricultural Water Conservation Practices	**Keep, Edit, or Delete**
WD4 – Monitor Agricultural Use in the Ogeechee River	**Keep, Edit, or Delete**

2011 Additional Water Demand Management Practices

WD5 - Promote Full-Cost System Accounting/ Encourage Conservation-Oriented Rate Structure	**Keep, Edit, or Delete**
WD6 - Evaluate/ Encourage Tier 3 Water Conservation Practices	**Keep, Edit, or Delete**

Anything Missing?

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2011 Priority Water Supply Management Practices

WS1- Develop/Update Local Water Master Plans	**Keep, Edit, or Delete**
WS2 – Monitor Streamflow to Confirm the Frequency and Magnitude of the Predicted Gap	**Keep, Edit, or Delete**
WS3 – Conduct Instream Flow Studies	**Keep, Edit, or Delete**
WS4 - Increase Groundwater Supplies	**Keep, Edit, or Delete**
WS5 – Decrease Surface Water Use during Low Flow Periods	**Keep, Edit, or Delete**
WS6 - Increase Wastewater Returns to the Little Tennessee River	**Keep, Edit, or Delete**

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2011 Additional Water Supply Management Practices

WS7 - Maximize or Increase Existing Surface Water Reservoir Storage	**Keep, Edit, or Delete**
WS8 - Promote and Evaluate Beneficial Reuse	**Keep, Edit, or Delete**

Anything Missing?

2011 Priority Educational Initiatives

ED1 - Develop Regional Educational Program and Materials for Localized Implementation

Keep, Edit, or Delete

ED2 - Promote Coordinated Environmental Planning

Keep, Edit, or Delete

Anything Missing?

Lunch

11:45 AM – 12:30 PM

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Surface Water Quality/ Assimilative Capacity

Gap Review

Surface Water Quality

Management Practices

Water Quality Management

Education

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Surface Water Quality/Assimilative Capacity- 2017 Gaps

- Preliminary Results
  - Assimilative capacity for DO appears to be generally improving compared to Round 1

- Gaps
  - Additional permitted treatment capacity may be needed in fast growing counties to meet demands
  - Additional wastewater planning and monitoring needed to address limited assimilative capacity in several stream segments
  - Significant organic load reductions will be required for the Savannah River and Harbor for GA and SC discharges

2011 Priority Surface Water Quality Management Practices

WQ1 - Develop/ Update Local Wastewater Master Plans	**Keep, Edit, or Delete**
WQ2 - Upgrade Existing Wastewater Treatment Facilities	**Keep, Edit, or Delete**
WQ3 - Construct New Advanced Wastewater Treatment Facilities	**Keep, Edit, or Delete**
WQ4 - Develop and Implement TMDL Management Plan	**Keep, Edit, or Delete**

2011 Additional Water Quality Management Practices

WQ5 - Decrease Use of Land Application Systems (LAS) in Urban Areas	**Keep, Edit, or Delete**
WQ6 - Decrease Use of On-Site Sewage Management Systems (OSSMS)/ Septic in Urban Areas	**Keep, Edit, or Delete**
WQ7 - Evaluate Constructed Treatment Wetlands in Non-Urban/Low-Density Areas	**Keep, Edit, or Delete**
WQ8 - Develop Wastewater Collection System Asset Management Programs	**Keep, Edit, or Delete**
WQ9 - Develop Educational Programs and Support Maintenance for Homeowners with OSSMSs (Septic)	**Keep, Edit, or Delete**

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2011 Additional Water Quality Management Practices

WQ10 - Develop/ Implement Water Supply Watershed Protection Plan Measures	**Keep, Edit, or Delete**
WQ11 - Develop and Implement Stormwater Public Education and Outreach	**Keep, Edit, or Delete**
WQ12 - Develop/ Update Local Stormwater Master Plan	**Keep, Edit, or Delete**
WQ13 - Establish a Stormwater Utility	**Keep, Edit, or Delete**
WQ14 - Evaluate Water Quality Trading	**Keep, Edit, or Delete**

Anything Missing?

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2011 Priority Educational Initiatives

ED1 - Develop Regional Educational Program and Materials for Localized Implementation

Keep, Edit, or Delete

ED2 - Promote Coordinated Environmental Planning

Keep, Edit, or Delete

Anything Missing?

Break

1:30 PM – 1:45 PM

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Implementing Water Management Practices (Section 7)

7.1 Implementation Schedule and Roles of Responsible Parties (Change as Management Practices change)

7.2 Fiscal Implications of Selected Management Practices (No Changes)

7.3 Alignment with Other Plans (No Changes)

7.4 Recommendations to the State (Subcommittee)

Savannah-Upper Ogeechee Council Meeting 4

- Wrap Up
- Next Steps
- Council Meeting #5

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Georgia's
State Water Plan

Public Comment Period

- Please limit comments to 3 minutes total
- Council encourages written submission of comments as well

Thank You!

Questions? Comments? Need More Information?

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Andrew.Jarrett@jacobs.com

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Optional Slides

Demand Forecasting Summary Statistics

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

Counties with Highest Projected Population Growth	**% Change**	**Columbia**	**115%**
		Franklin	**16%**
		Glascock	**15%**
	# People	**Columbia**	**163,300**
		Franklin	**3,700**
		Madison	**3,200**

Counties with Lowest Projected Population Growth	**% Change**	**Lincoln**	**37%**
		Taliaferro	**30%**
		Warren	**28%**
	# People	**Lincoln**	**-2,800**
		Elbert	**-2,600**
		Wilkes	**-2,200**

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Demand Forecasting Statistics (cont.)

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

Counties with Highest Water Demand Increase (Excluding Industry and Agriculture)			
	% Change	Burke	145%
		Columbia	111%
		Franklin	27%
	MGD	Burke	68
		Columbia	20
		Franklin	0.7

*Red text denotes counties with highest population growth statistics

Georgia

Demand Forecasting Statistics (cont.)

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

Counties with Highest Surface Water Demand Increase (Excluding Industry and Agriculture)	% Change	Burke	153%
		Columbia	120%
		Hart	83%
	MGD	Burke	69
		Columbia	20
		Hart	1

Counties with Highest Groundwater Demand Increase (Excluding Industry and Agriculture)	% Change	Madison	11%
		Columbia	3%
		Glascock	0.4%
	MGD	Madison	0.3
		Columbia	0.0
		Glascock	0.0

*Red text denotes counties with highest population growth statistics

Georgia

Demand Forecasting Statistics (cont.)

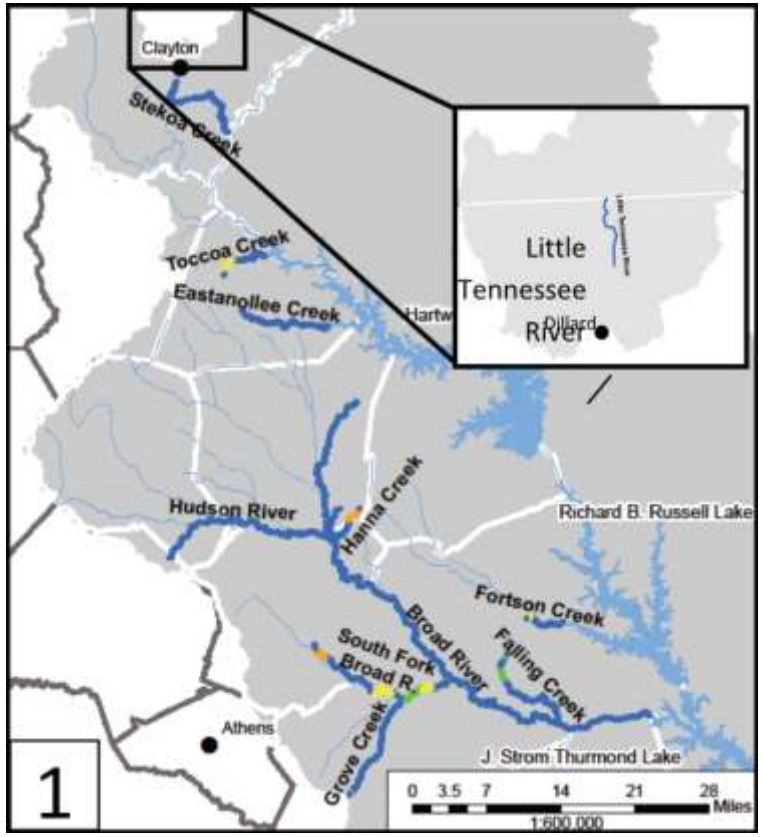
- Wastewater flows over the Planning Period (2015 – 2050)

Counties with Largest Increase in Wastewater Flows			
	% Change	Columbia	112%
		Franklin	30%
		Hart	19%
	MGD	Columbia	13
		Franklin	0.8
		Hart	0.6

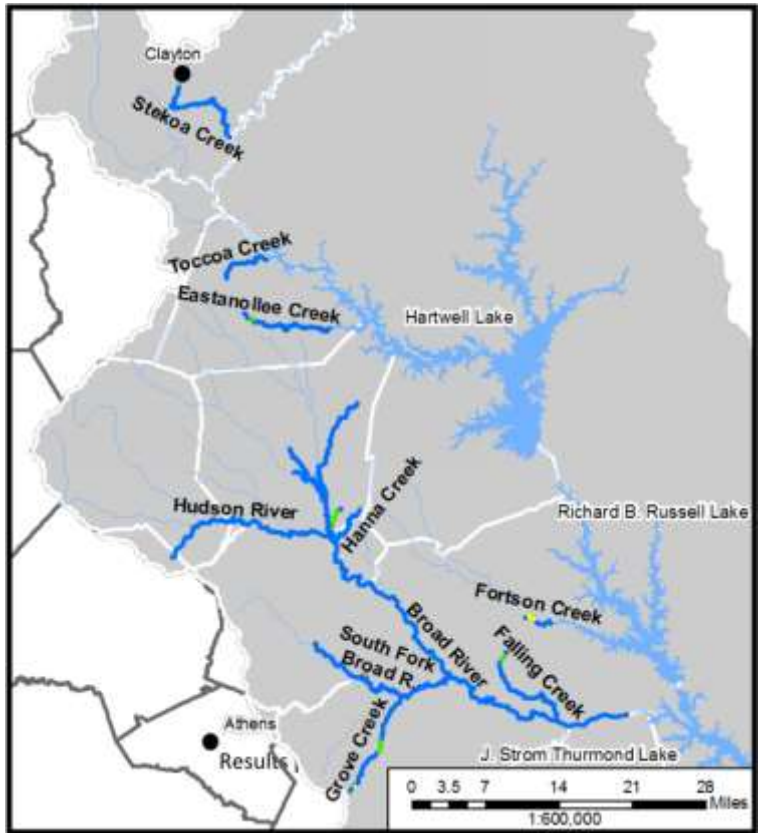
*Red text denotes counties with highest population growth statistics

Surface Water Quality/Assimilative Capacity Gaps

- Savannah 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
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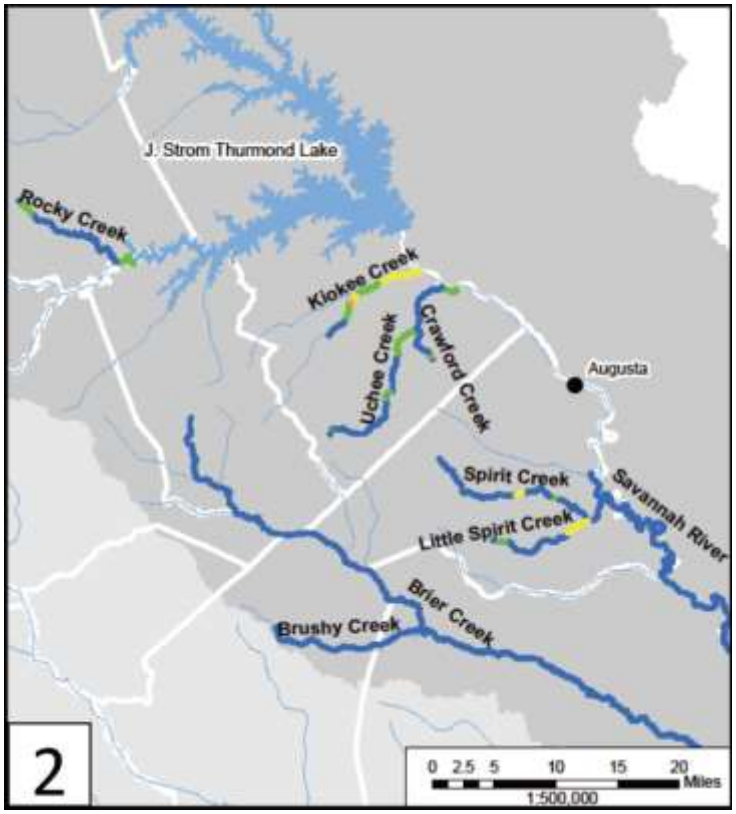
- Limited >0 mg/L to <0.2 mg/L DO available
- At Assimilative Capacity 0 mg/L DO available
- None or Exceeded < 0.0 mg/L DO available
- Unmodeled Lakes and Streams

Georgia

Surface Water Quality/Assimilative Capacity Gaps

- Savannah Basin GA DOSAG Model Results



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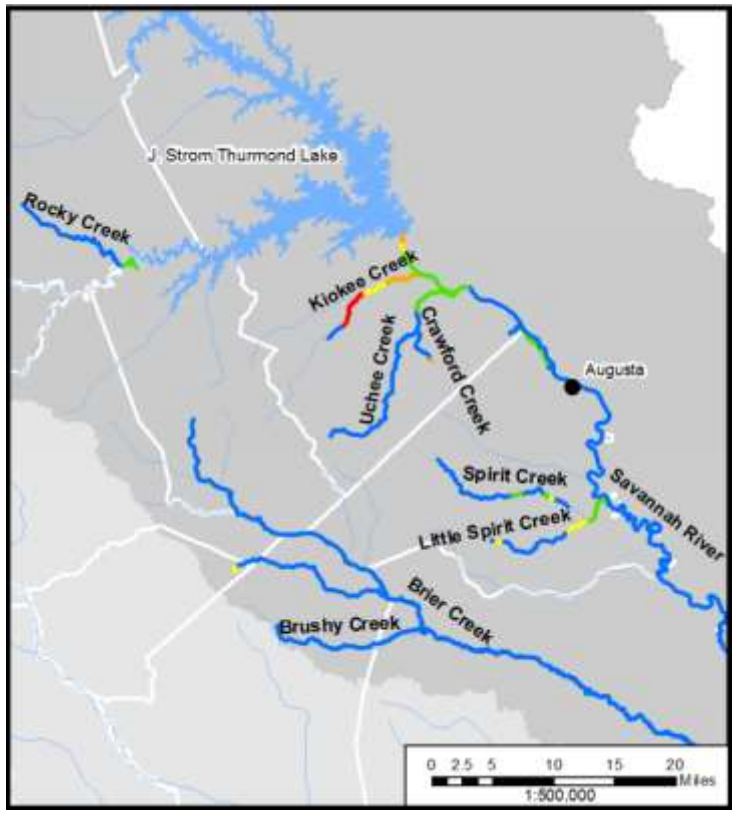

Update

Legend

Available Assimilative Capacity

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Georgia

Surface Water Quality/Assimilative Capacity Gaps

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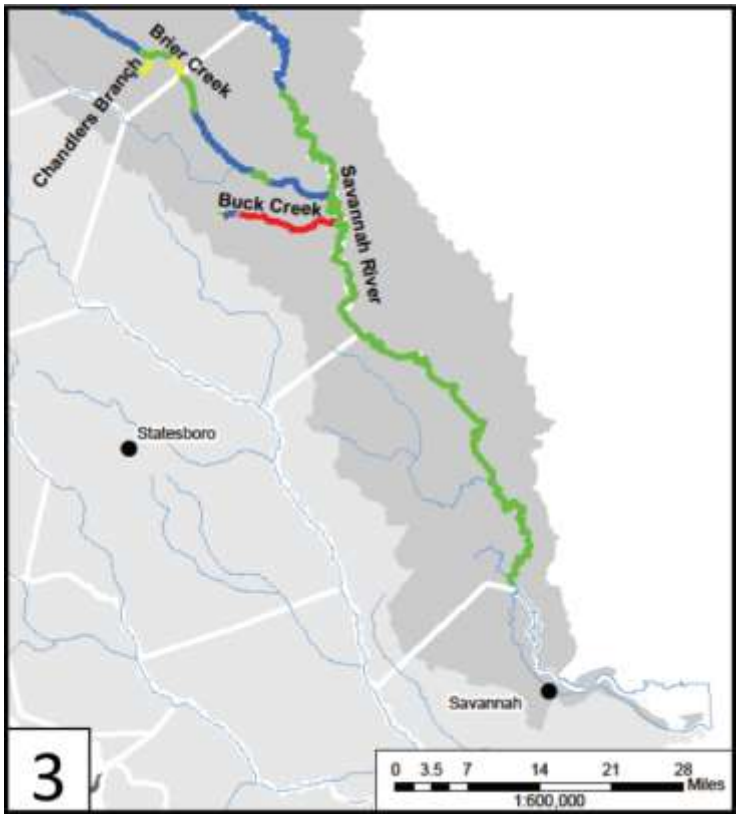

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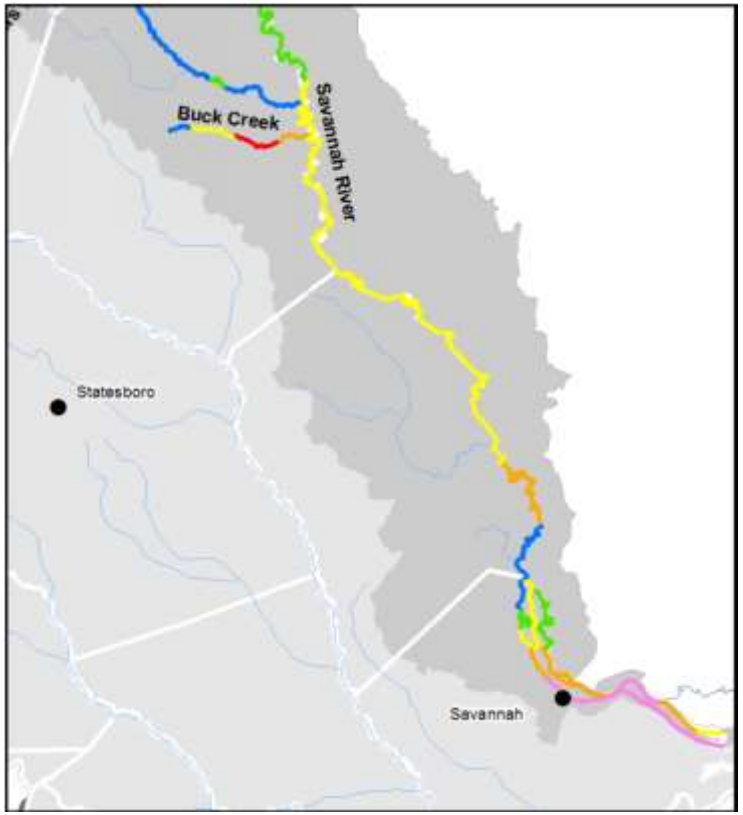

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Surface Water Quality/Assimilative Capacity Gaps

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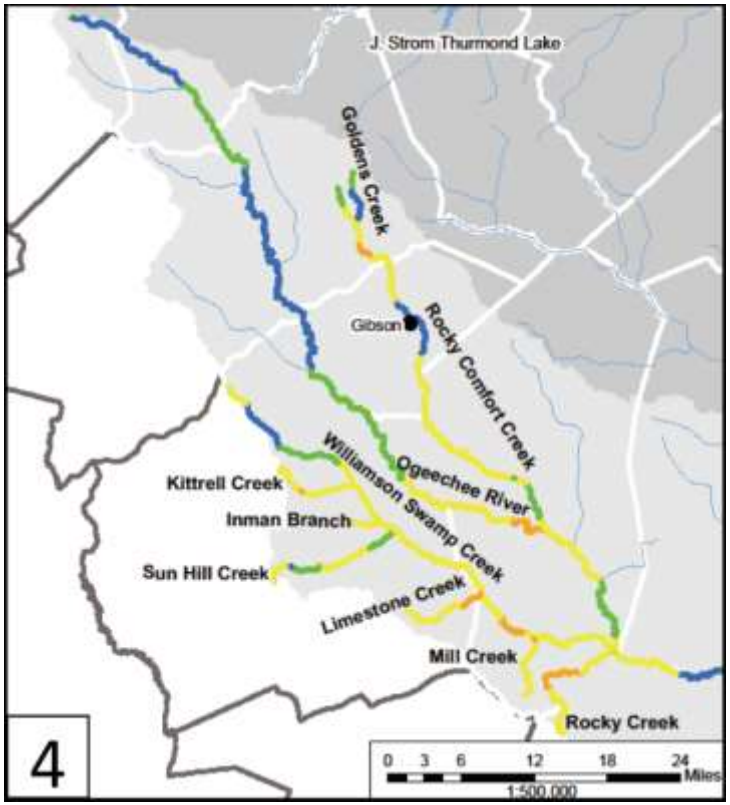

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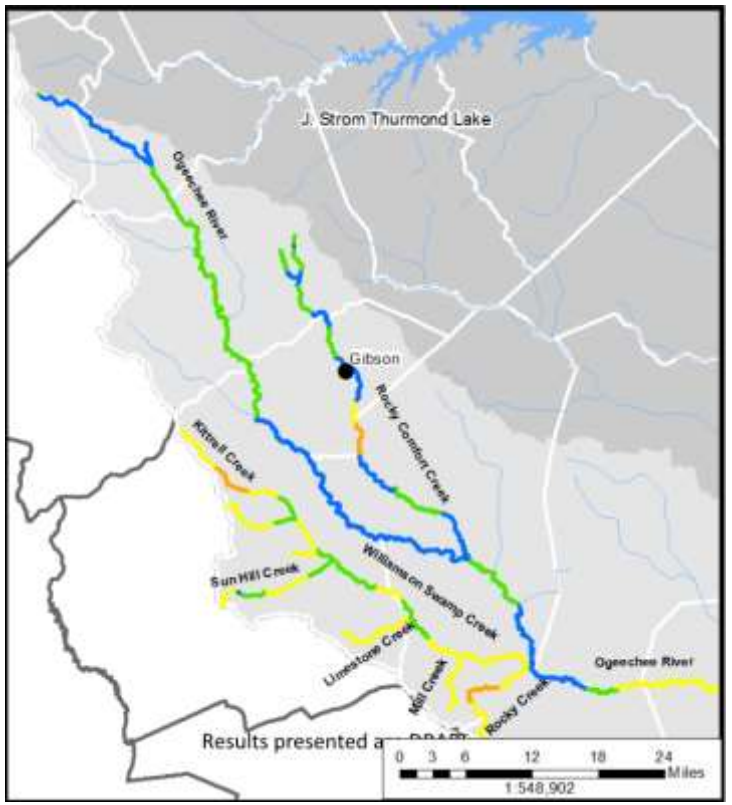

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Surface Water Quality/Assimilative Capacity Gaps

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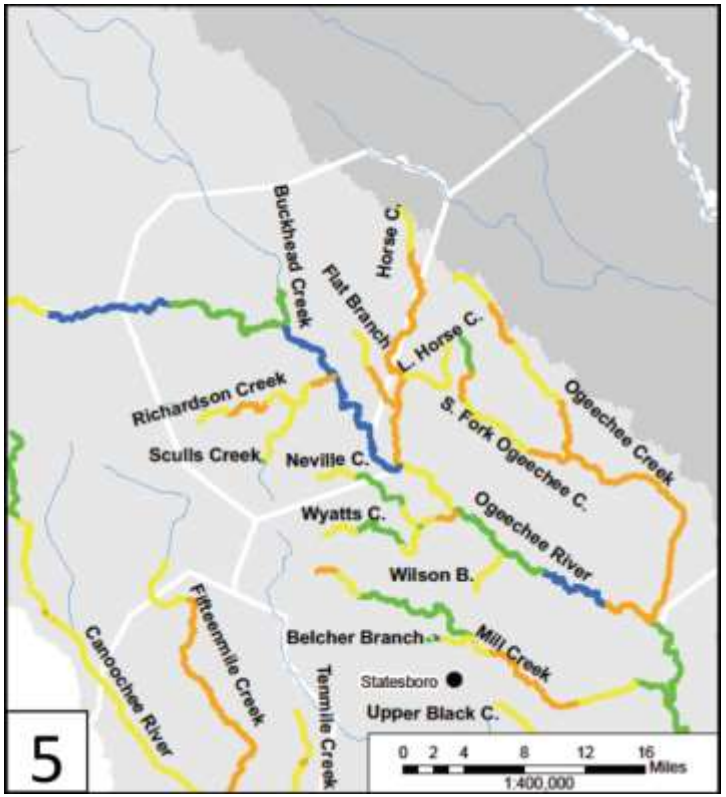

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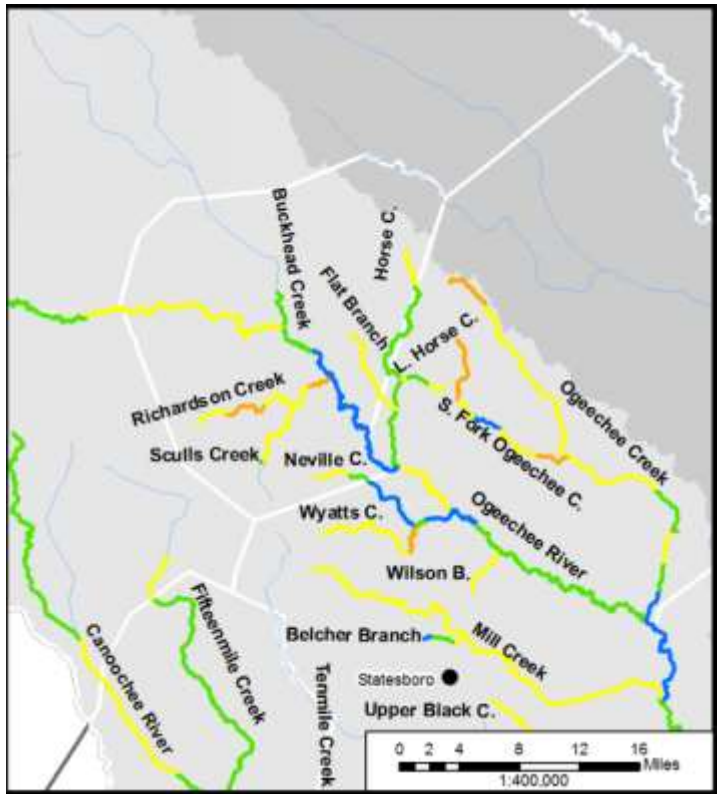

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