

# Altamaha Regional Water Planning Council Meeting

February 3, 2022



**GEORGIA  
WATER PLANNING**

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# Council Meeting Agenda



## Georgia's State Water Plan

Council Meeting  
Altamaha Regional Water Council  
Draft Agenda – February 3, 2022

### *Objectives:*

- 1) Review Regional Water Planning Schedule, Vision and Goals and Memorandum of Agreement
- 1) Receive updates on the Agricultural Water Demand Forecasts and Demand Forecasts for the MNGWPD
- 2) Receive updates on the Surface Water Availability Resource Assessment
- 3) Receive updates on on-going Seed Grant Projects

- |                    |   |
|--------------------|---|
| 10:00 - 10:30 a.m. | Council Registration/Guest Sign-In  |
| 10:30 - 11:00 a.m. | Welcome and Introductions   |
|                    | Approve meeting minutes from April 1, 2021 Council Meeting  |
|                    | Approve meeting agenda  |
|                    | Regional Water Planning Overview/Schedule   |
|                    | Vision and Goals  |
|                    | Memorandum of Agreement   |
| 11:00 - 11:45 a.m. | Agricultural Water Demand Forecast Update (Mark Masters, GWPPC)   |
| 11:45 - 12:15 p.m. | Metro North Georgia Water Planning District Forecasting Updates (Danny Johnson, MNGWPD)   |
| 12:15 - 12:45 p.m. | Break for Lunch   |
| 12:45 - 1:15 p.m.  | Water and Wastewater Demand Forecasting Draft Plan Update (Danielle Honour, CDM Smith)  |
| 1:15 - 2:00 p.m.   | Surface Water Availability Resource Assessment Update - Oconee-Ocmulgee-Altamaha Basin - Results and Performance Metrics (Danielle Honour, CDM Smith) |
| 2:00 - 2:15 p.m.   | Break   |
| 2:15 - 2:30 p.m.   | Seed Grant/319(h) Grant Funding Update (Dr. Gary Hawkins/Rahn Milligan)   |
| 2:30 - 2:45 p.m.   | Next Meeting / Public Comments / Local Elected Official Comments  |
|                    | Wrap Up   |
| 2:45 p.m.          | Adjourn   |



An aerial photograph of a swampy landscape, likely a wetland or marsh. The water is dark and reflects the sky, surrounded by dense, dark green trees and vegetation. The sky is overcast and grey. The overall tone is dark and moody.

# Council Business

# Council Business

- Welcome and Introductions
- Approve meeting summary from April 1, 2021 Council Meeting
- Approve meeting agenda

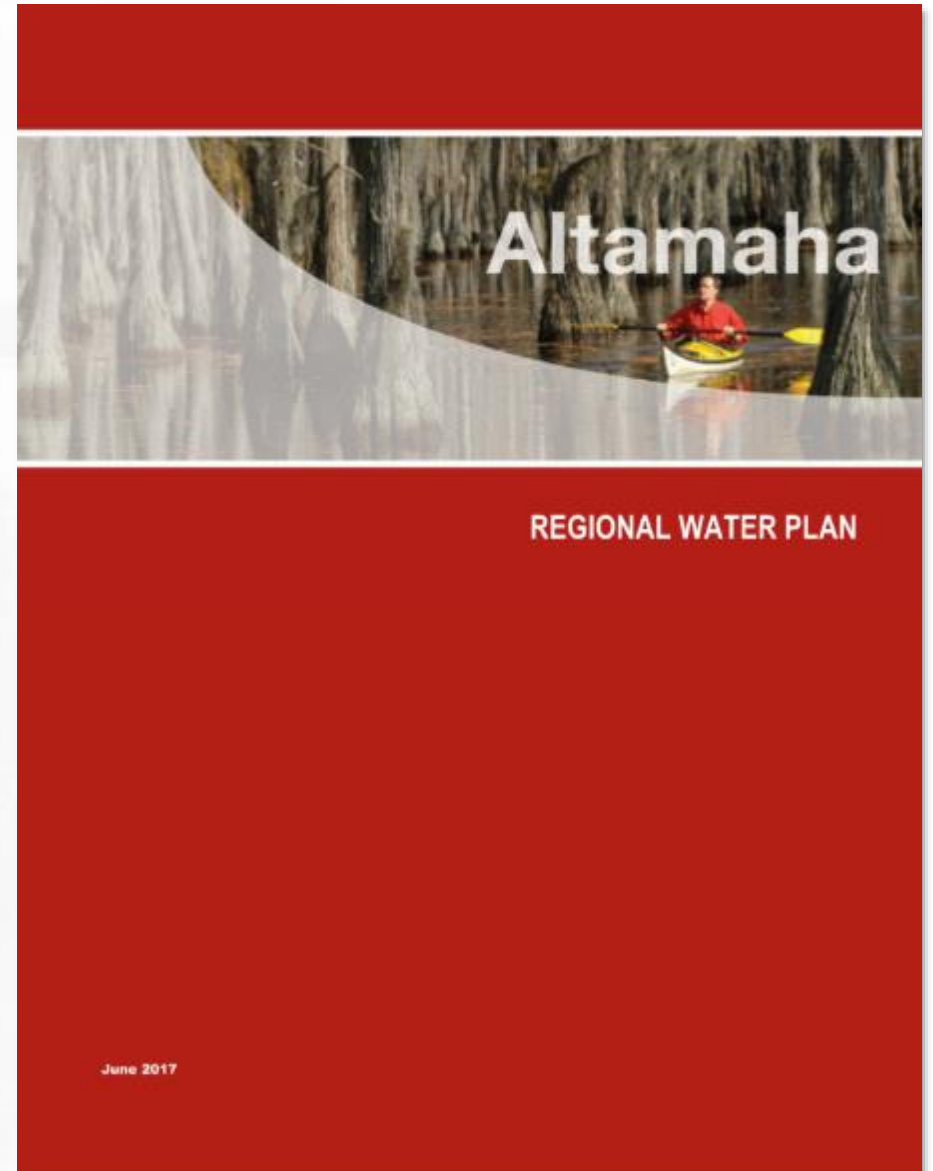
An aerial photograph of a wetland area, showing a complex network of water channels and dense forest. The water is dark, and the trees are a deep green. The sky is overcast and grey. The overall tone is somber and naturalistic.

# Regional Water Planning Overview

# Regional Water Planning Review and Revision Process


## 5-Year Review Process will focus on:

- Updated water demand and wastewater forecasts
- Updated Surface Water and Ground Water Availability Resource Assessments (Quantity)
- Updated Surface Water Quality / Assimilative Capacity Resource Assessment
- Refinement of Management Practices, if needed, to address potential water resource gaps





# Regional Water Planning Review and Revision Process

- With the support of the Planning Contractor (PC), the Council will:
  - Evaluate updated municipal & industrial water and wastewater demand forecasts 
  - Evaluate updated energy water demand forecasts 
  - Evaluate updated agricultural water demand forecasts 
  - Evaluate updated water resource assessments
  - Re-evaluate updated potential challenges
  - Re-evaluate management practices

# Regional Water Planning Review and Revision Process

- Jennifer Welte – Point of Contact, Project Manager for Review & Revision Process
- Dr. Elizabeth Booth – Surface Water Quality Resource Assessment
- Dr. Wei Zeng - Surface Water Availability Resource Assessment
- Christine Voudy – Groundwater Availability Resource Assessment
- Danielle Honour – CDM Smith, Planning Contractor



# Regional Water Planning Overview & Schedule

## Regional Water Plan Review and Revision Schedule

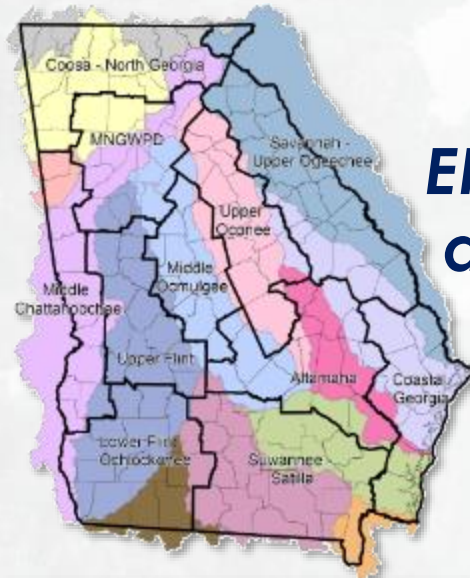
**Meeting One**  
4th Quarter 2021

**Meeting Two**  
1st Quarter 2022

**Meeting Three**  
2nd Quarter 2022

**Meeting Four**  
3rd Quarter 2022  
Draft Plan

**Meeting Five (Final)**  
4th Quarter 2022  
Incorporate  
Comments



***EPD targeted date of  
adoption of revised  
Regional Water Plan by  
December 2022***

An aerial photograph of a wetland area, showing a complex network of water channels and dense forest. The image is in grayscale, with the text 'Vision and Goals' overlaid in white. The background shows a vast expanse of water and trees, with some small structures visible in the lower right corner.

# Vision and Goals

# Vision and Goals

- In Round 1, each Council went through an extensive visioning process to develop Vision and subsequent supporting Goals
- Council Vision will guide and frame the selection of management practices
- Our Region's vision and goals reflect how we see resources managed to meet regional needs
- Vision and Goals were re-visited in Round 2 with no major changes



# Vision and Goals can carry forward into the 5-year update process

- Have any major water issues surfaced in the region?
- Has what you wish to see for this region regarding water resources changed substantially over the last 5 years?
- Are there any things on the horizon that may influence the vision for the region?
- If answers are substantively no, revisions to Vision and Goals are not necessary.

# Vision and Goals

## **Altamaha Adopted Vision**

*as adopted by the Council 10.28.10*

“The vision of the Altamaha Regional Water Planning Council is to 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.”



# Vision and Goals can carry forward into the 5-year update process

## GOALS

### WATER SYSTEMS/SUPPLY SUSTAINABILITY

- 1 Help ensure protection and management of surface and groundwater recharge areas to ensure sufficient long-term water supplies for the region.
- 2 Identify opportunities to maximize and optimize existing and future supplies.
- 3 Promote water conservation and water use efficiency for all water use sectors to allow for sufficient long-term water supplies.
- 4 Identify opportunities to better prepare for and respond to climate and water supply variability and extremes.
- 5 Identify and implement cost-effective water management strategies.



# Vision and Goals can carry forward into the 5-year update process

## ECONOMIC SUSTAINABILITY & DEVELOPMENT

1 Manage and develop water resources to sustainably and reliably meet domestic, commercial, agricultural, and industrial water needs.

2 Manage groundwater and surface water to encourage sustainable economic and population growth in the region.

3 Identify opportunities to minimize excessive regulations and the resulting negative economic impacts (especially in rural areas); while maintaining quality and quantity of water supply.

# Vision and Goals can carry forward into the 5-year update process

## QUALITY OF LIFE & PUBLIC HEALTH ENHANCEMENT

- 1 Ensure an adequate water supply of suitable quality to meet current and future human, environmental and recreational needs of the region and citizens of Georgia.
- 2 Optimize existing water and wastewater infrastructure, including identifying opportunities to implement regional water and wastewater facilities.
- 3 Identify opportunities to manage water, wastewater, and stormwater to improve water quantity and quality, while providing for wise land management, wetland protection, and wildlife sustainability.
- 4 Work collaboratively with other regions that share resources to help ensure that activities outside the Altamaha Region do not adversely impact the region.

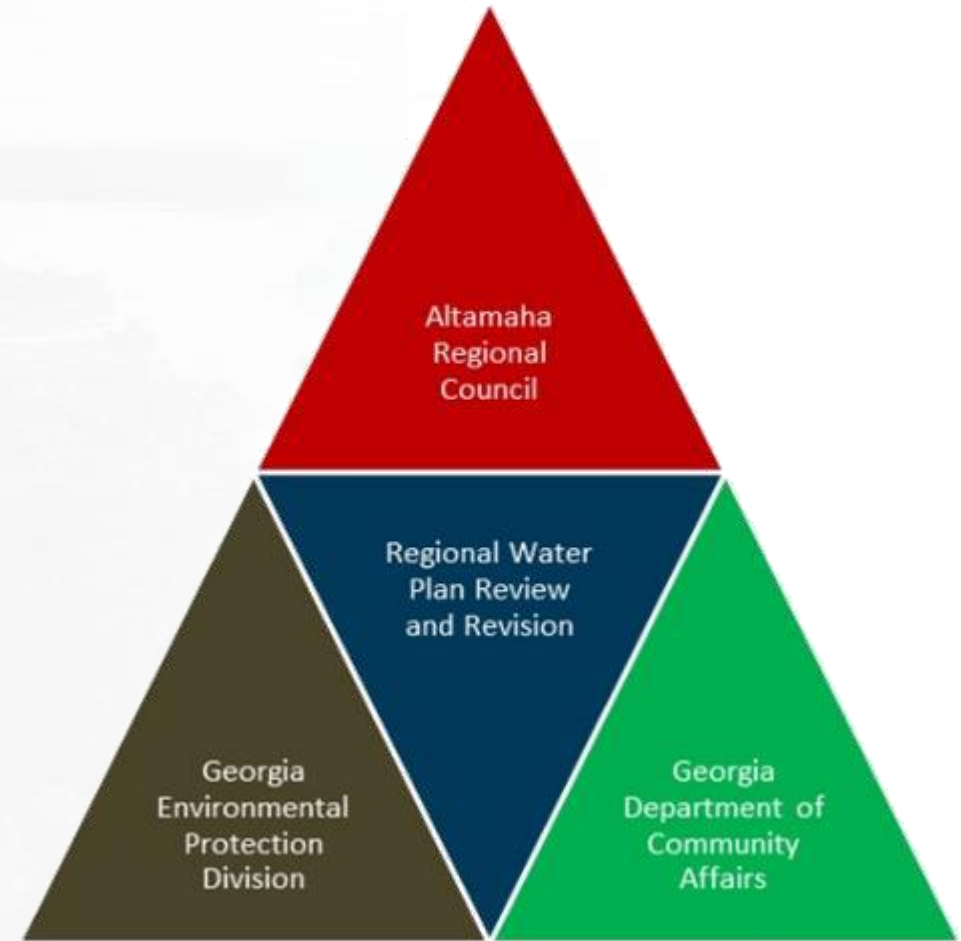
An aerial photograph of a wetland area, showing a complex network of water channels and dense forest. The image is in grayscale, with the text overlaid in white. The water channels are dark, and the forest is a lighter gray. The overall scene is a natural, undeveloped landscape.

# Memorandum of Agreement (MOA)



# Memorandum of Agreement

- Existing documents define responsibilities, operations, and relationships:
  1. Memorandum of Agreement (MOA)
    - a) Operating Procedures
    - b) Rules for Meetings
  2. Public Involvement Plan



# Memorandum of Agreement

- Establishes operating procedures, goals and objectives to govern actions and decisions for the Council
- Has a minimum of a 3-year term & can be renewed and amended upon written approval of all parties
- Defines Council, EPD and DCA responsibilities

# Operating Procedures and Rules for Meetings

- Documents to guide Council deliberations
- Includes practices shown to be effective and workable
- Designed to provide common approaches across councils
- Designed to support Council development of adoptable and implementable plan
- Legislative updates to the Georgia Open Meetings Act in 2021 authorizes virtual/teleconference participation by Council Members



# Public Involvement Plan



- Maintains transparency of the planning process
- Seeks input from key stakeholders
- Establishes communications with neighboring councils
- Includes mechanisms for public comments

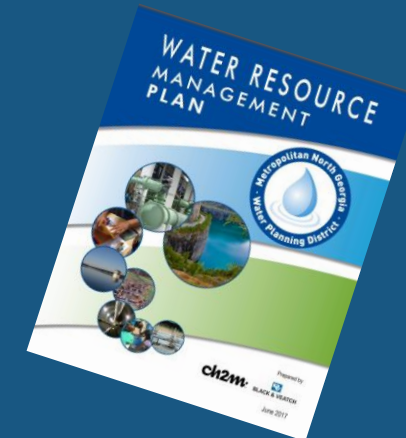


# Agricultural Water Demand Forecast Update

# MNGWPD Forecasting Updates



# 2022 Plan Update Schedule



	Sep-20	Dec-20	Mar-21	Jun-21	Sep-21	Dec-21	Mar-22	Jun-22	Sep-22	Dec-22
Data Collection/Resource Forecasting		◆	◆	◆						
Action Items Review and Update		◆	◆	◆	◆	◆	◆			
Appendix A - River Basin Profiles			◆	◆	◆	◆				
Appendix B - Facility Planning				◆	◆	◆	◆			
Stormwater Forecasting			◆	◆	◆	◆				
Supporting Efforts										
Localized Demands										
Drought Response Options Menu		◆	◆	◆	◆	◆	◆	◆	◆	
Watershed Resilience										
Full Draft Plan for Review								◆	◆	
Public Comment									◆	◆
EPD/Board Approval										◆



## Summary of Proposed Action Item Changes For the 2022 District Plan

For the integrated, wastewater, and watershed sections, no major new or expanded action items are proposed

Five new and expanded water conservation (WSWC) action items, which replace action items from 2017

Changes are being proposed in all action item sections to address things that are out-of-date, have been completed, or that are duplicative of state requirements

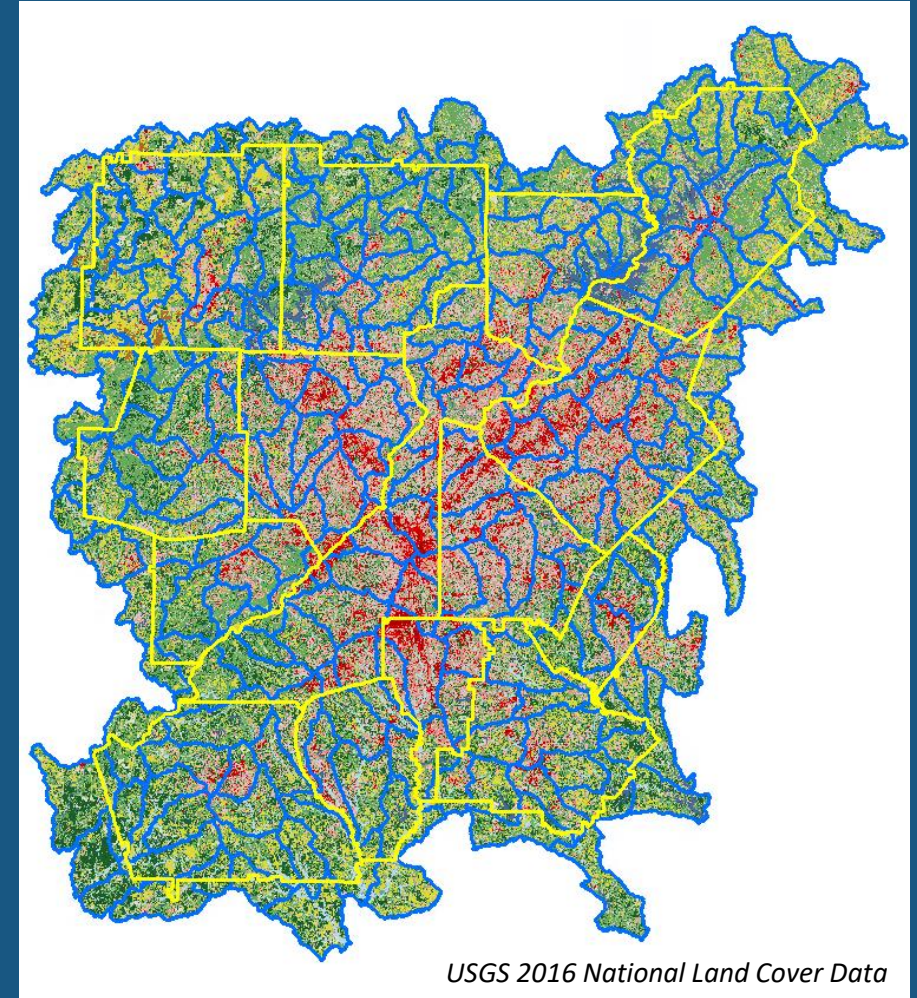
# Proposal for 5 New / Updated WSWC Action Items

1. New Residential Customer Leak Reduction Programs (WSWC-5)
2. New Plumbing Code Efficiency Requirements (WSWC-8)
3. Updated Landscape Irrigation System Efficiency Requirements (WSWC-10)
4. Updated Drought Response Ordinance Requirement (WSWC-13)
5. Updated Water Loss Control Program (WSWC-15)



# Stormwater Forecast Update

- Planning-level estimate of the total potential runoff management volume from development
- Calculated at a Basin Scale
- Using three Post-Construction SW Management Standards
  - Water Quality Volume
  - Channel Protection Volume
  - Overbank Flood Volume
- Four Planning Scenarios
  - predevelopment, 2019, 2030, & 2040



## Next Steps

First Quarter 2022 – Additional changes to be presented and reviewed by BACs, TCC, and Board for another round of comments

Second Quarter 2022 – Further revisions and Regional Water Council coordination

Third Quarter 2022 – Final proposals to be included in public comment version of plan

Fourth Quarter 2022 – Board to vote on final plan, including any new and expanded action items



An aerial photograph of a vast, swampy landscape. The terrain is a complex network of dark, dense trees and winding, light-colored water channels. The sky is overcast and grey. The word "Lunch" is centered in the middle of the image in a large, white, sans-serif font.

# Lunch

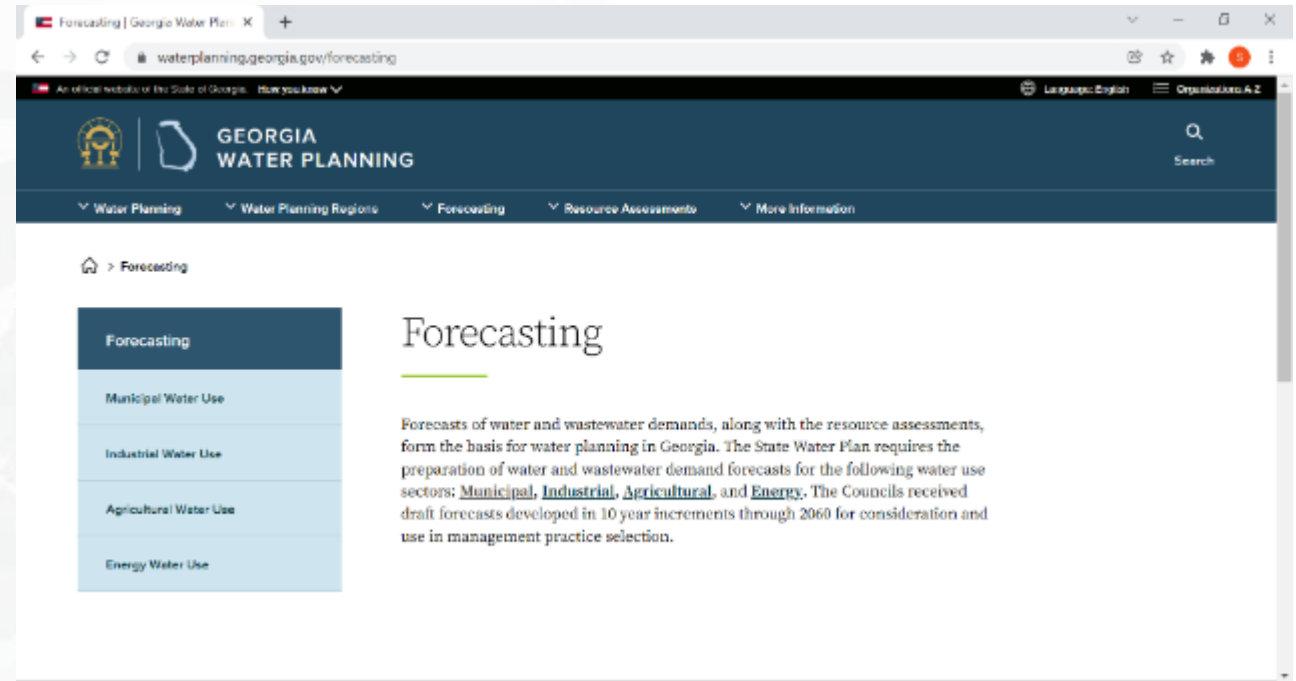




# Water and Wastewater Demand Forecasting Draft Plan Update

# Water and Wastewater Demand Forecast

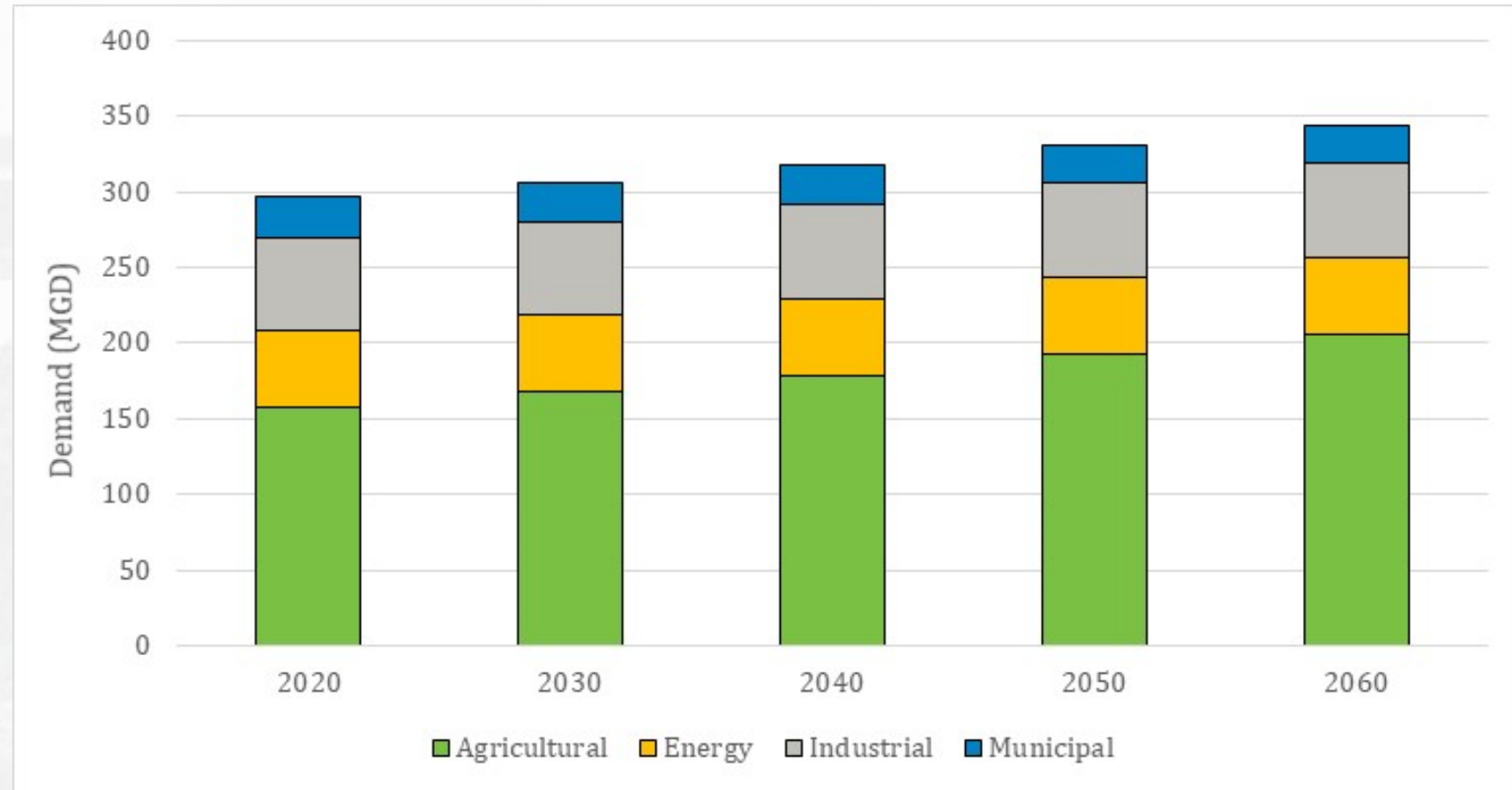
- Results previously shared with Council during April 2021 meeting
- Updates to Water and Wastewater Demand Forecasts for various sectors are available on the website
- Water and Wastewater Forecasting Technical Memorandum & Section 4 of the Regional Water Plan have been drafted



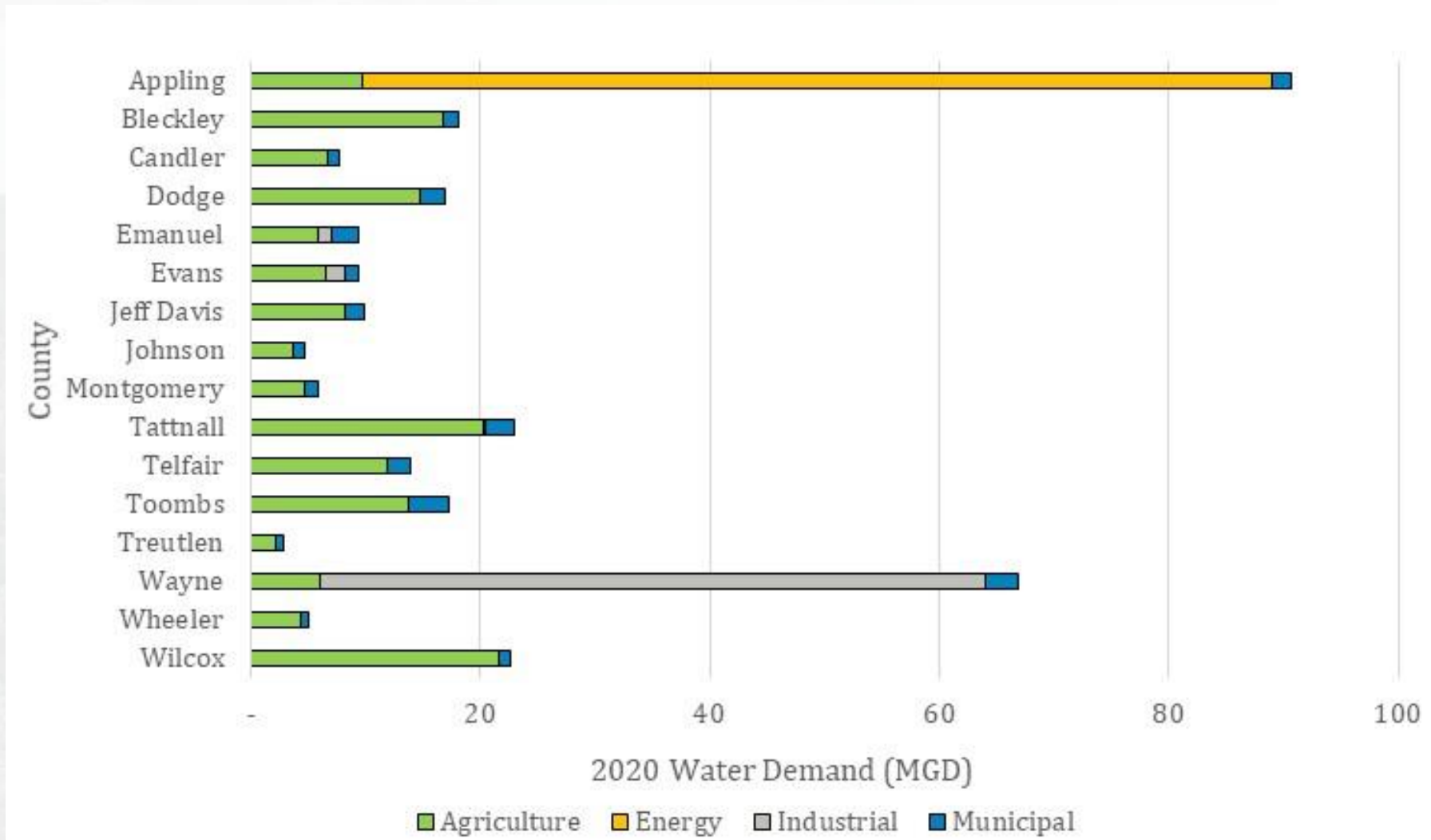
<https://waterplanning.georgia.gov/forecasting>

# Updated Water Demand Forecast for Altamaha

- Agriculture is 49% of total demand
- Energy demand remains constant from 2020 to 2060
- Industrial demand increases 3% from 2020 to 2060
- Total demand increases 15% from 2020 to 2060



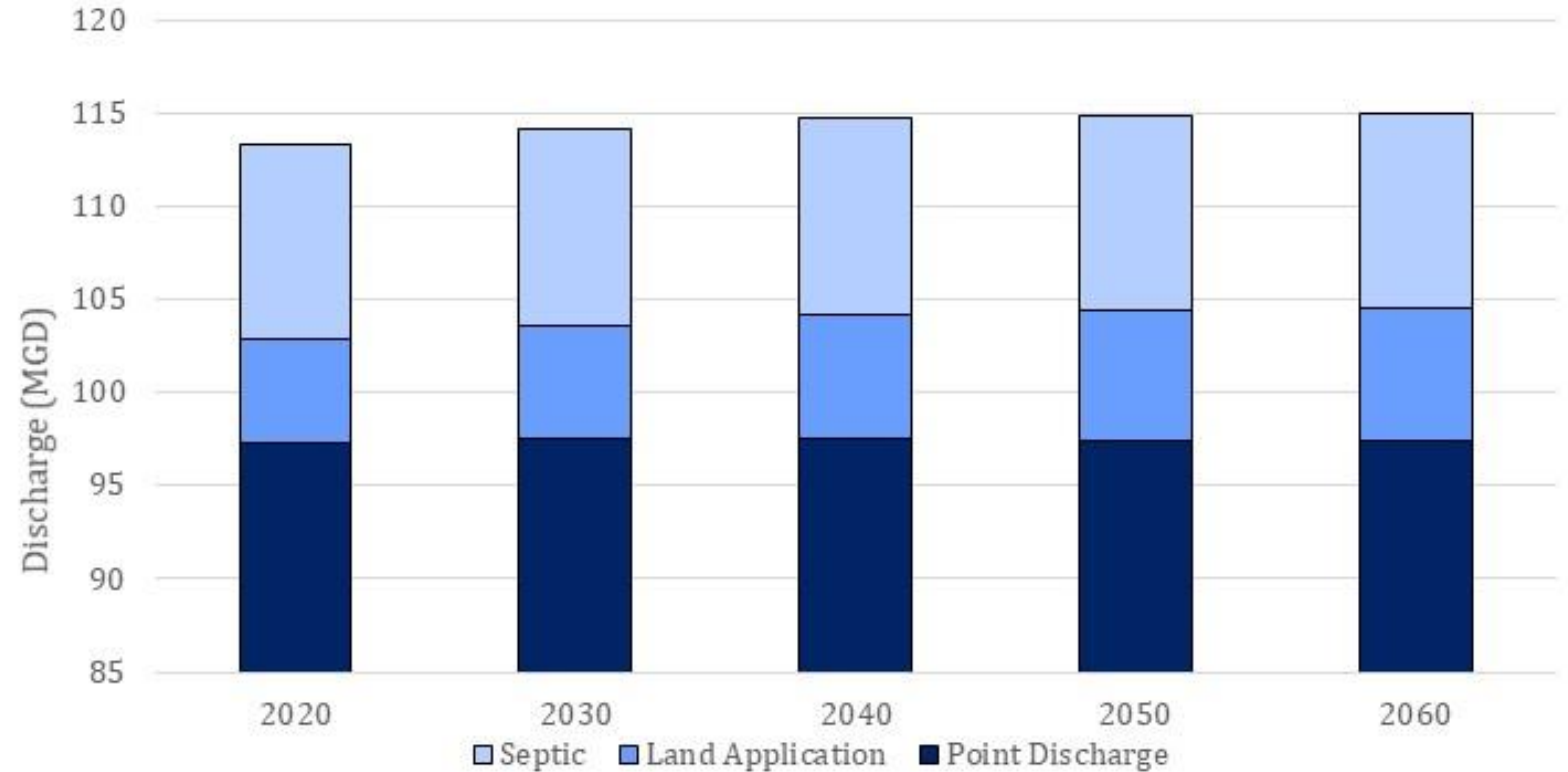
# Updated Water Demands by County



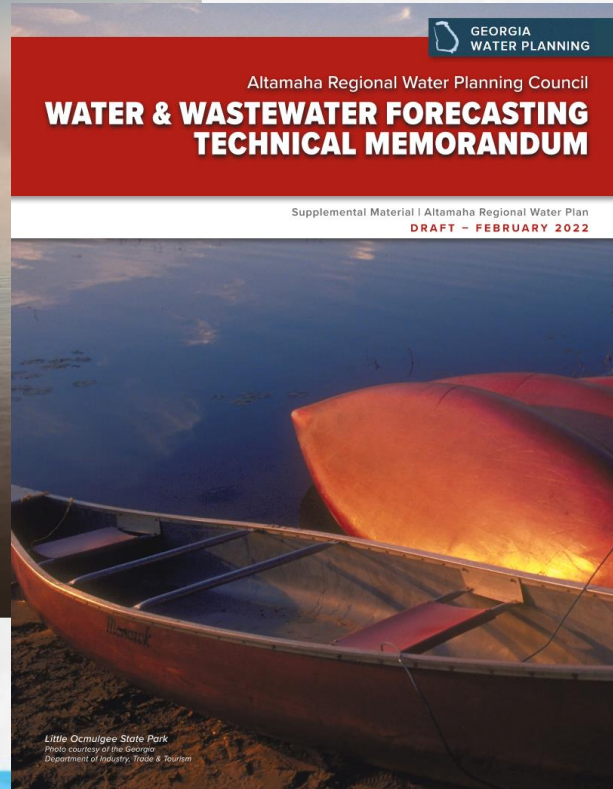


# Updated Wastewater Discharge Forecast for Altamaha

- Industrial is 53% of total discharge
- Point discharge is 86% of discharge method
- Municipal discharge decreases 0.2% and septic increases 0.7% from 2020 to 2060
- Total discharge increases 1.5% from 2020 to 2060



# Water & Wastewater Demand Forecast Documentation Updates



- Section 4 of the RWP and the TM include these completed forecasts:
  - Municipal/Energy/Industrial
- Agricultural demand forecast is drafted but we will finalize those results following this meeting
- Will send updated documents for your review and approval at the next Council Meeting



# Surface Water Availability Draft Resource Assessment



# Outline

- **Basin Environmental Assessment Model (BEAM) Review**
- **Model Results Baseline Scenario**
  - Examples of Water Supply Challenges (Water Supply Performance Metrics (PMs))
  - Examples of Wastewater Assimilation Challenges (WW Assimilation PMs)
- **Performance Metric Examples**
  - Performance Metric at Macon for Boating (Recreational PMs)
  - Performance Metric for Fish Habitats (Habitat PMs)
  - Additional PMs to Consider





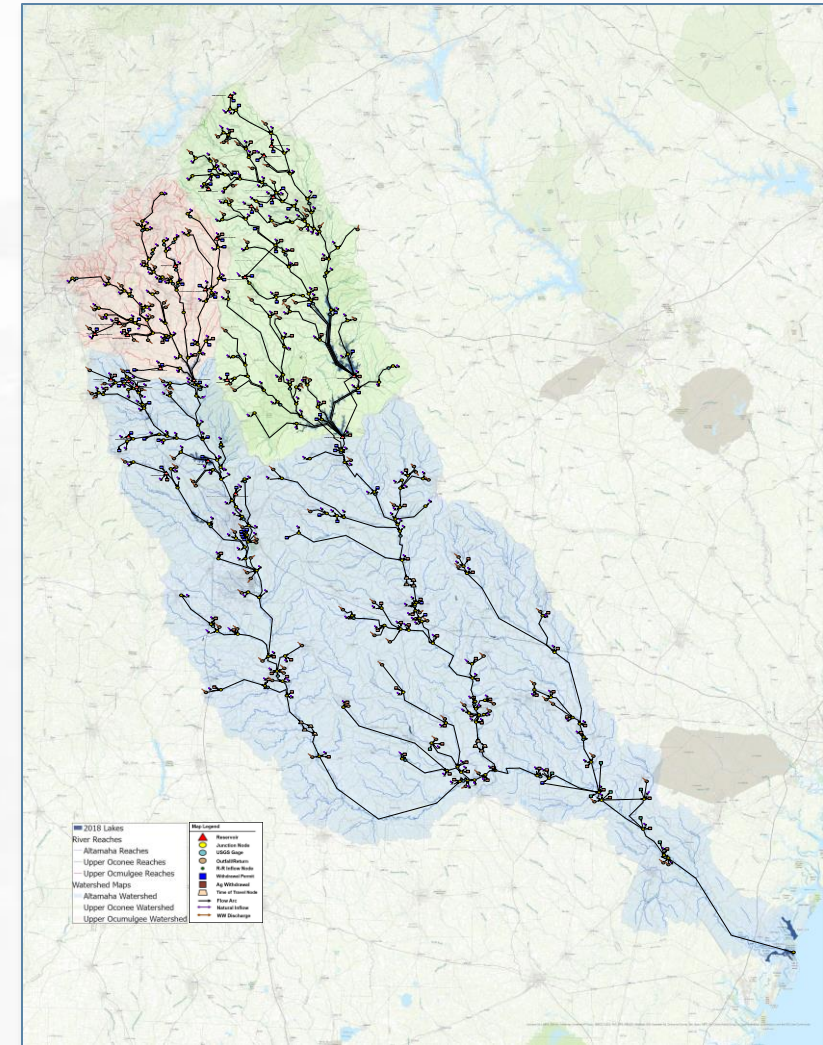
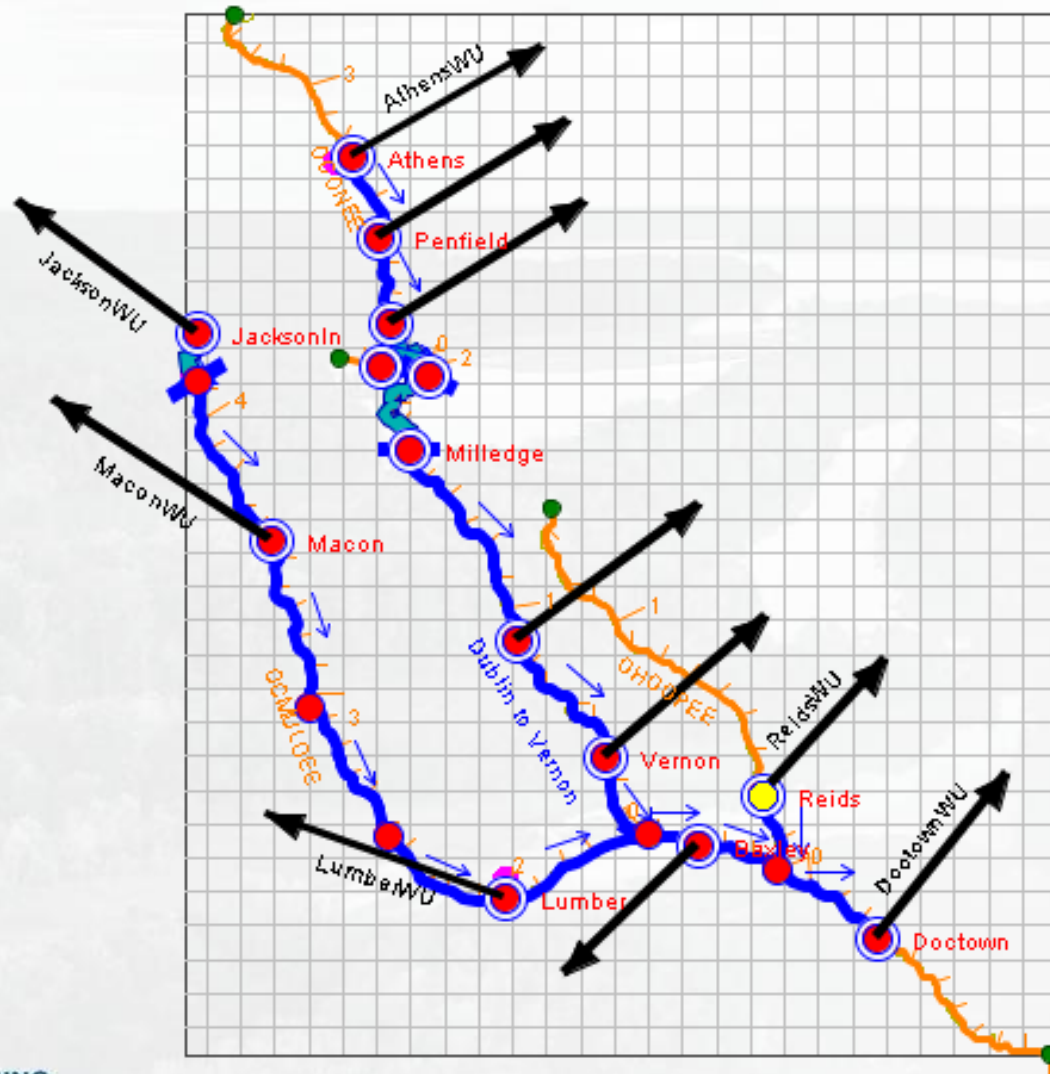
**GEORGIA**  
DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL PROTECTION DIVISION

## OOA BEAM Model Development

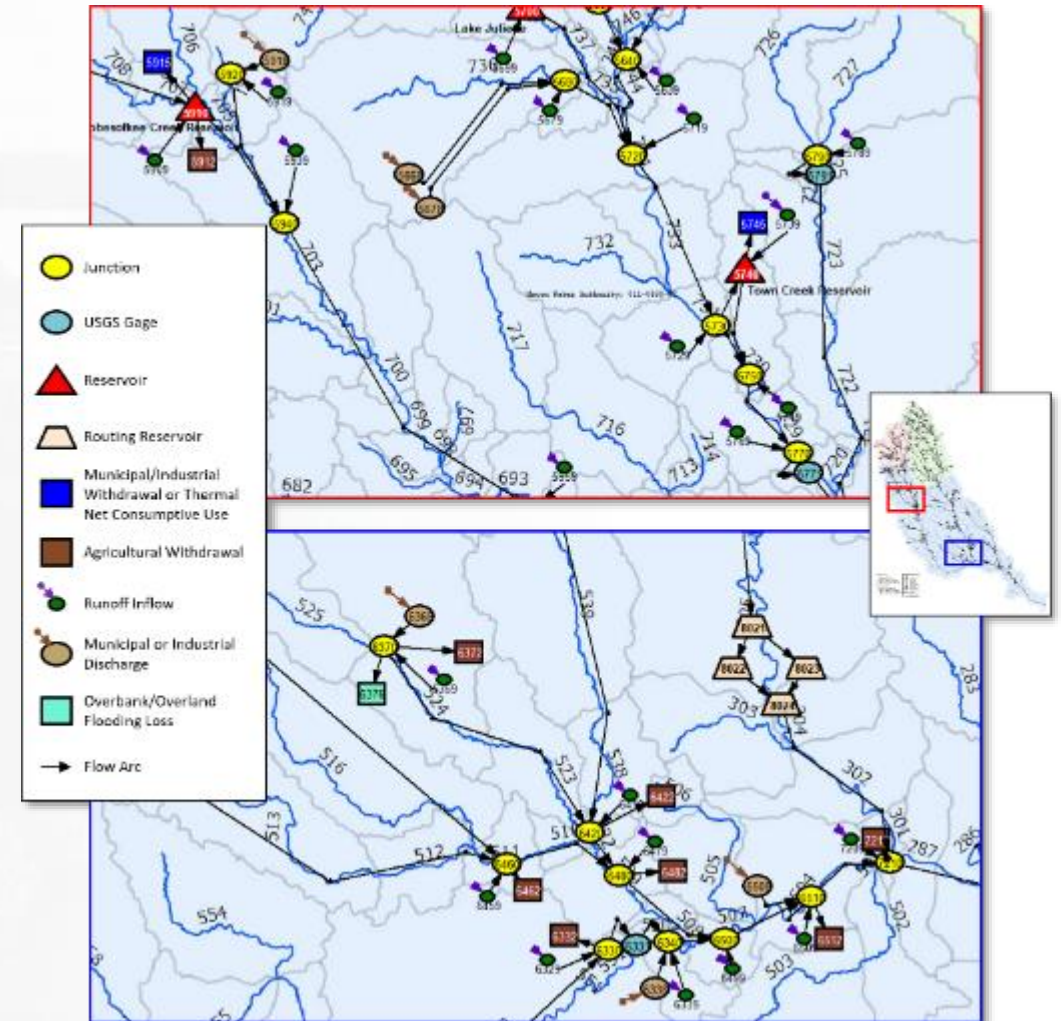
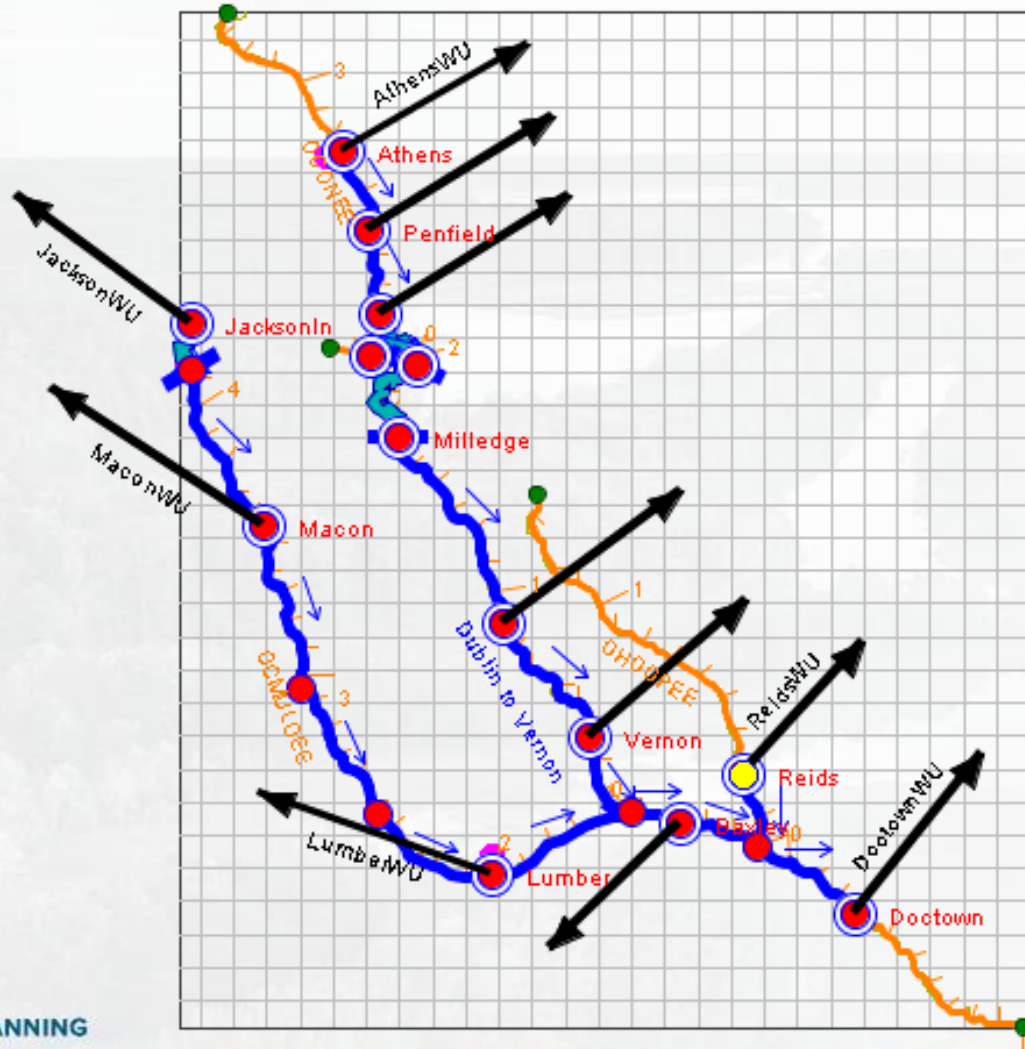
Surface Water Availability Resource Assessment:  
Oconee-Ocmulgee-Altamaha Basin

# ResSim (Prior Model) and BEAM Schematics

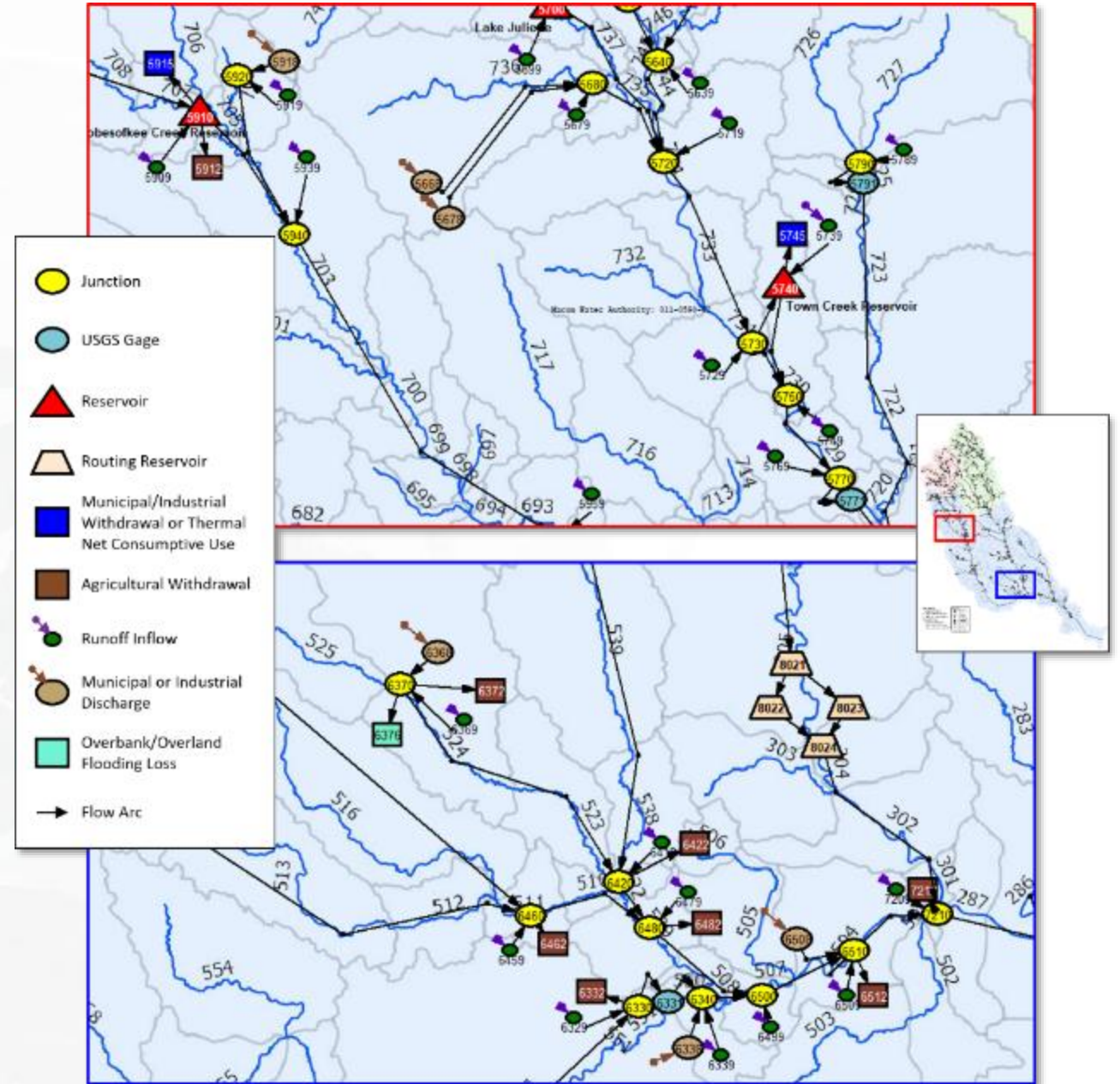
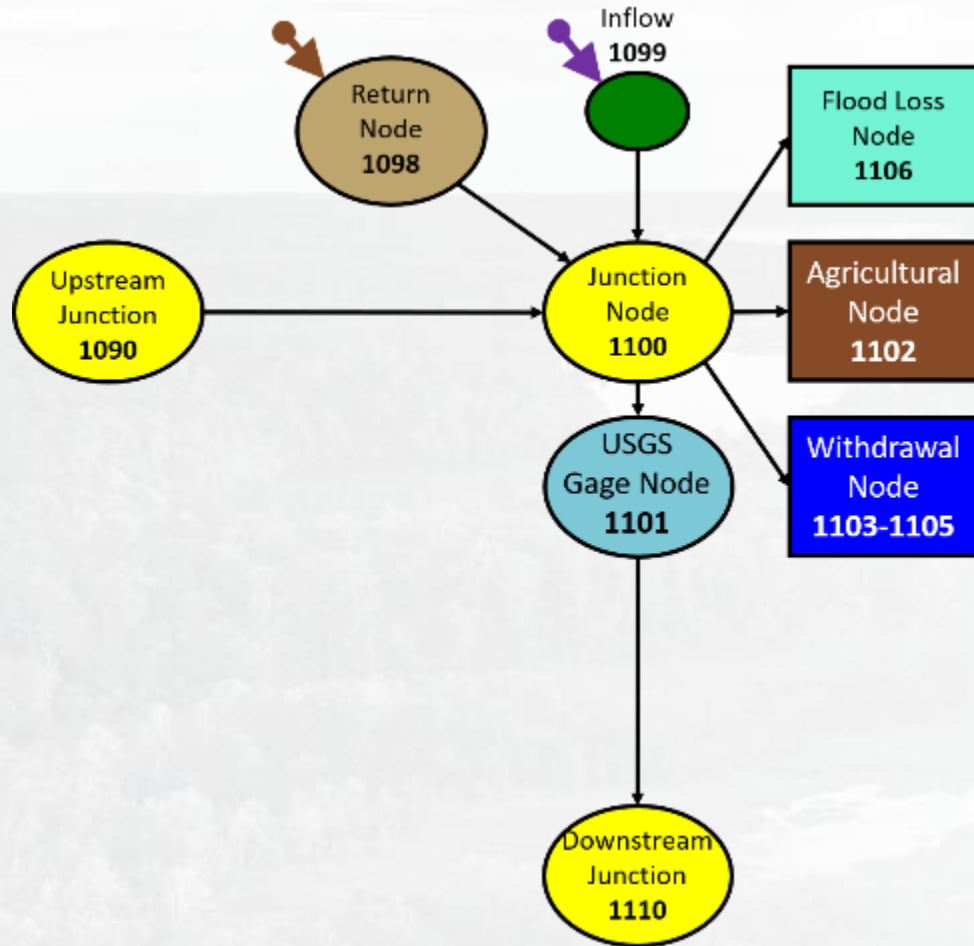




# ResSim (Prior Model) and BEAM (Zoomed In) Schematics

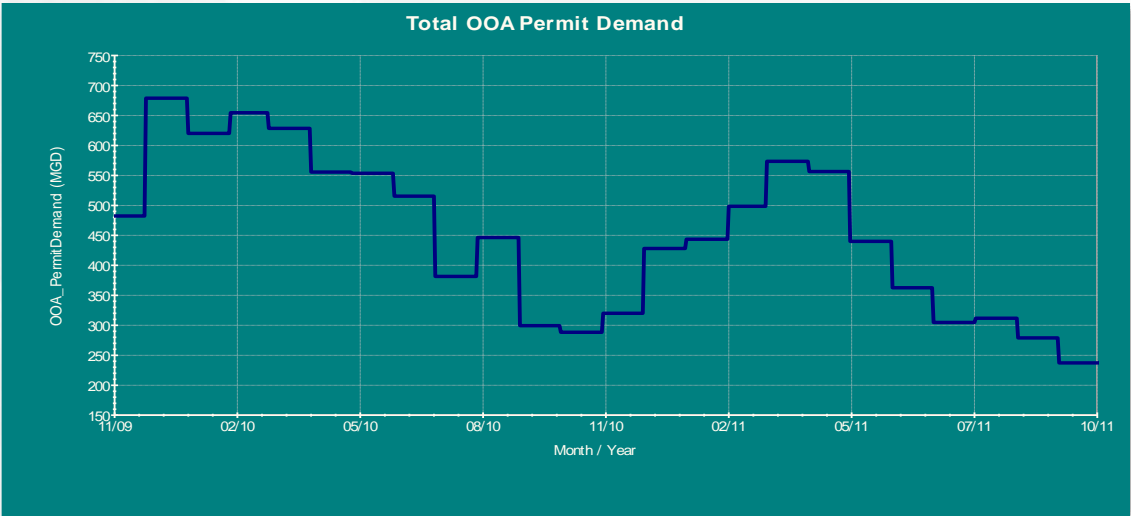
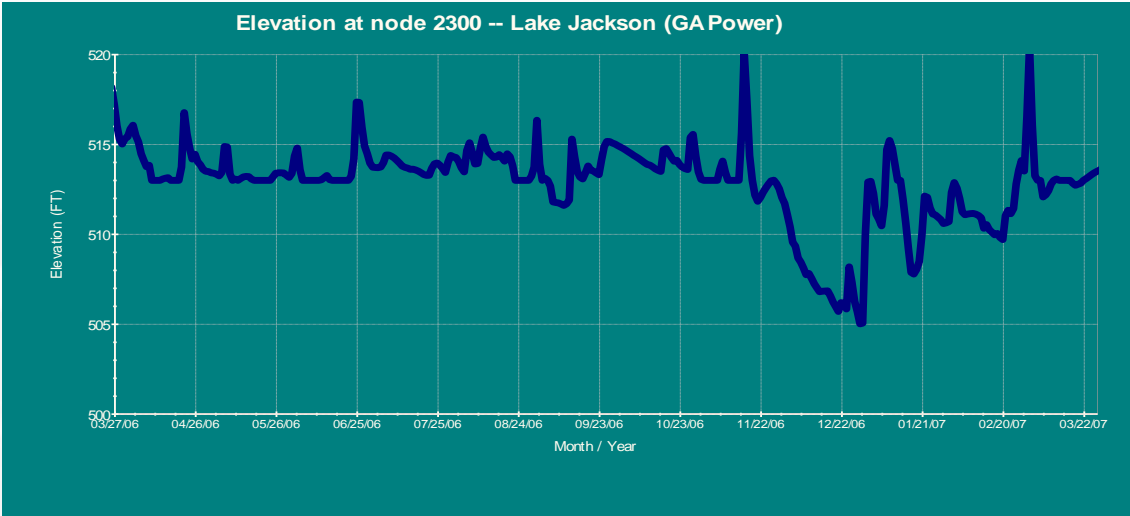
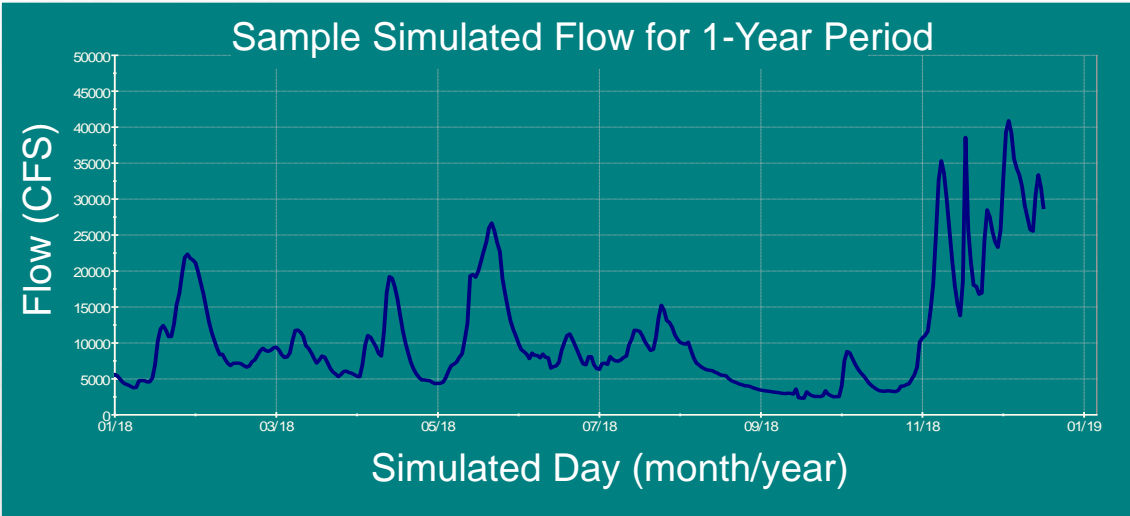


# BEAM Node Types





# Sample Model Output



# OOA BEAM Model Baseline Settings

- Simulation Period (Hydrologic Conditions): 1939-2018
- Withdrawal and Discharge amount: average of period 2010-2018 (i.e., marginally dry conditions)
- Instream Flow Protection Thresholds: per permit conditions

# Water Supply Settings: Facilities Analyzed in BEAM Model for Altamaha Region

Facility Type	Total Number of Facilities in the Region
Municipal Surface Water Withdrawals	None
Municipal Discharges	21
Industrial Surface Water Withdrawal	None
Industrial Discharge	1
Energy Surface Water Withdrawal/Discharge	1

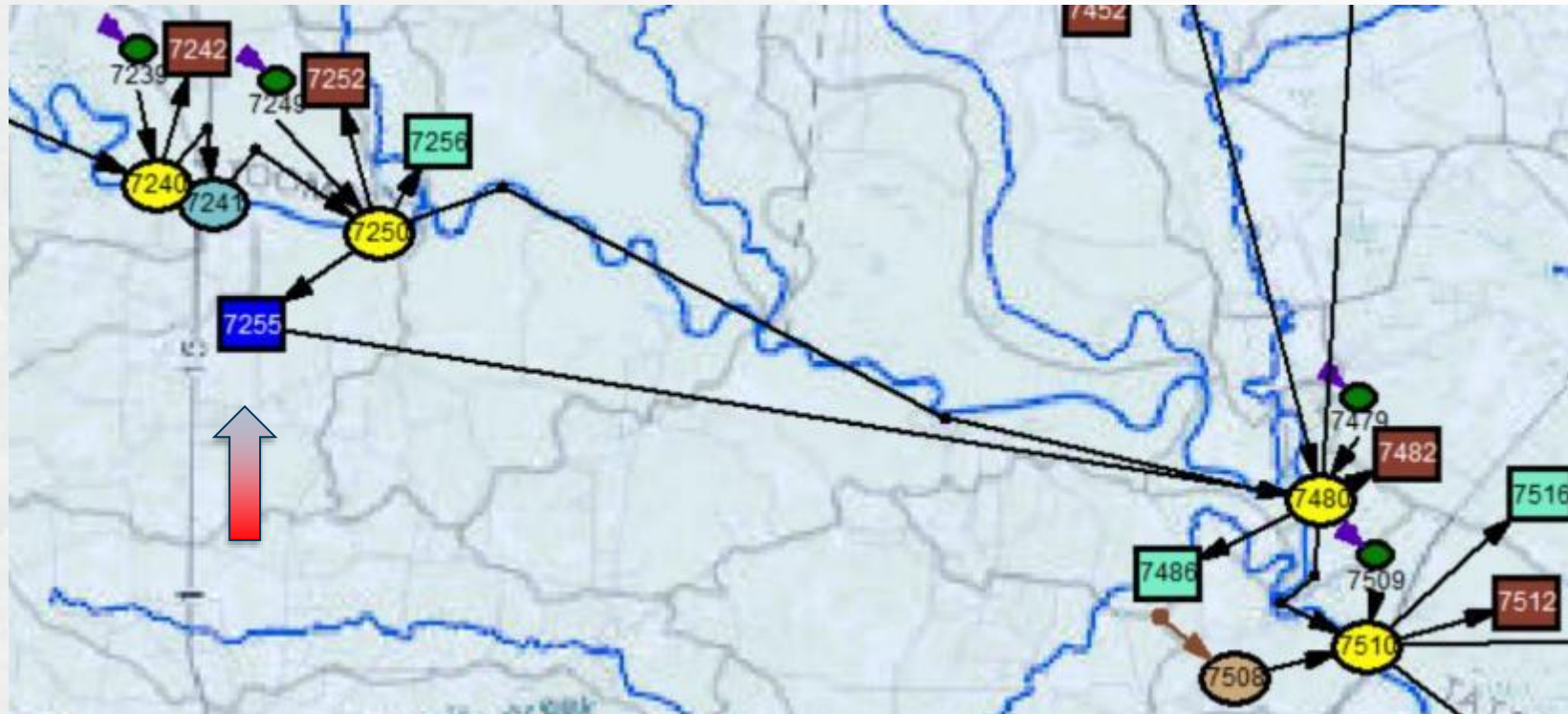
# Draft Surface Water Resource Availability Assessment Results

- Water Supply Challenges Example
  - Georgia Power Co - Plant Hatch
- Wastewater Assimilation Challenges Examples
  - City of Hazlehurst (Bully Creek WPCP)
  - Lumber City (Lumber City WPCP)
- Performance Metric Examples
  - Recreational Boating at Macon
  - Performance Metric for Fish Habitats



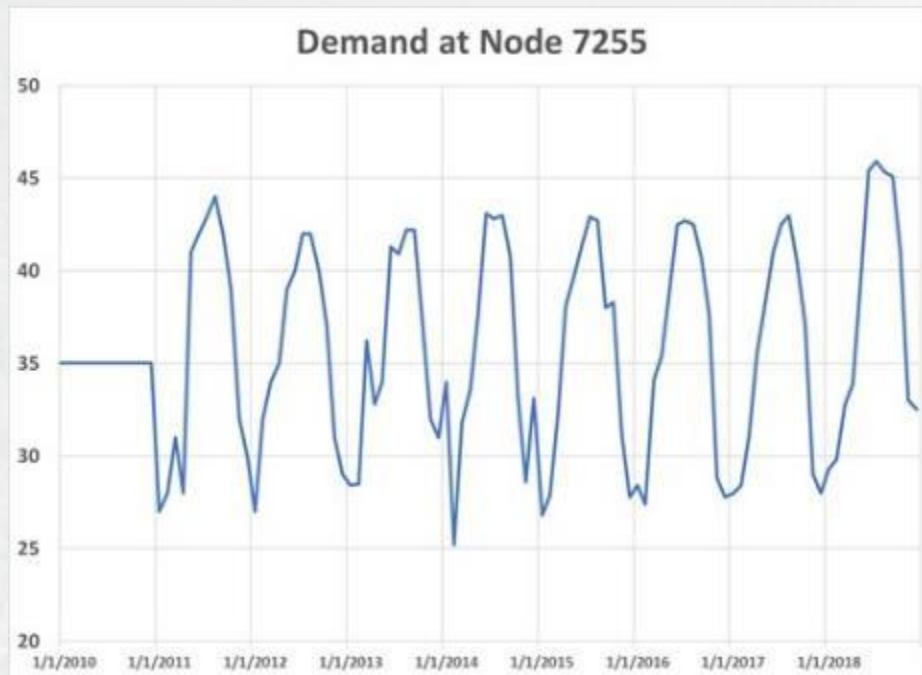
# Water Supply Challenge Example: Permit 001-0690-01 (BEAM Node 7255)

- Permit holder: Southern Nuclear Operating Company - Plant Hatch
- Withdrawal limit: 103.6 mgd (daily)/85 mgd (monthly)

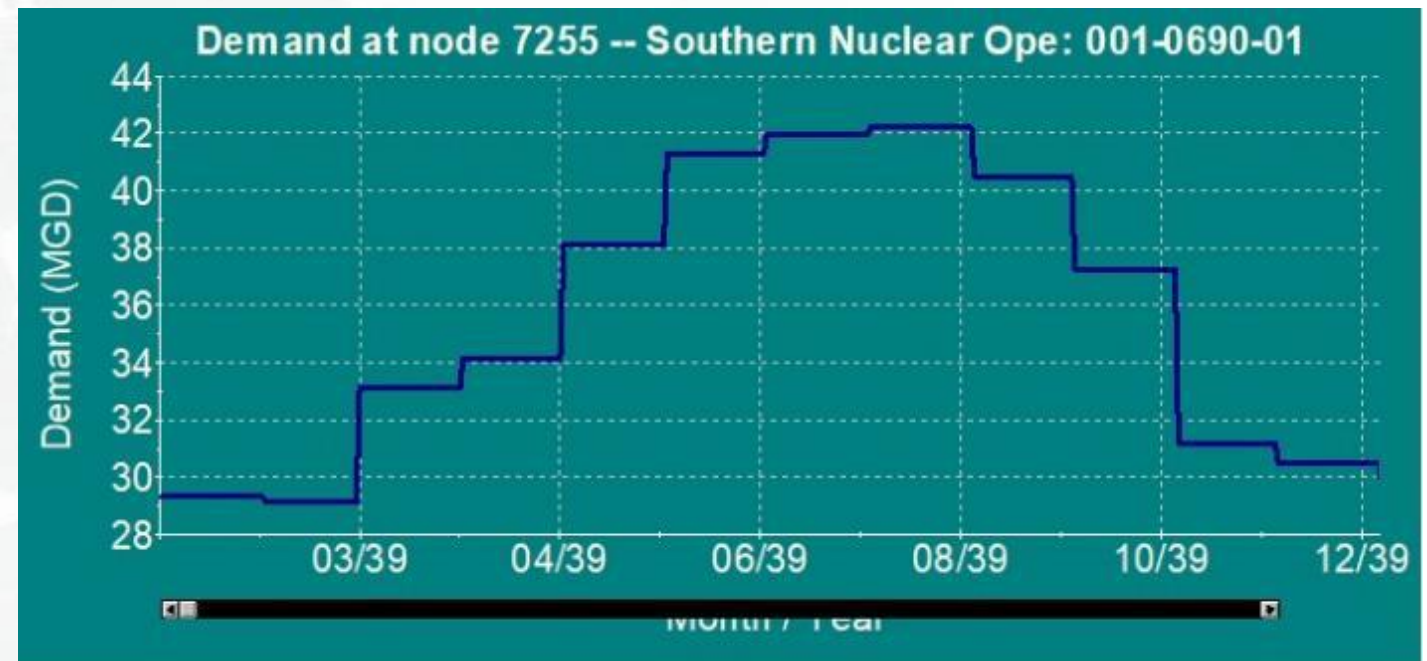


# Permit 001-0690-01 Withdrawal Amount Setting - Average of 2010-2018

2010 - 2018

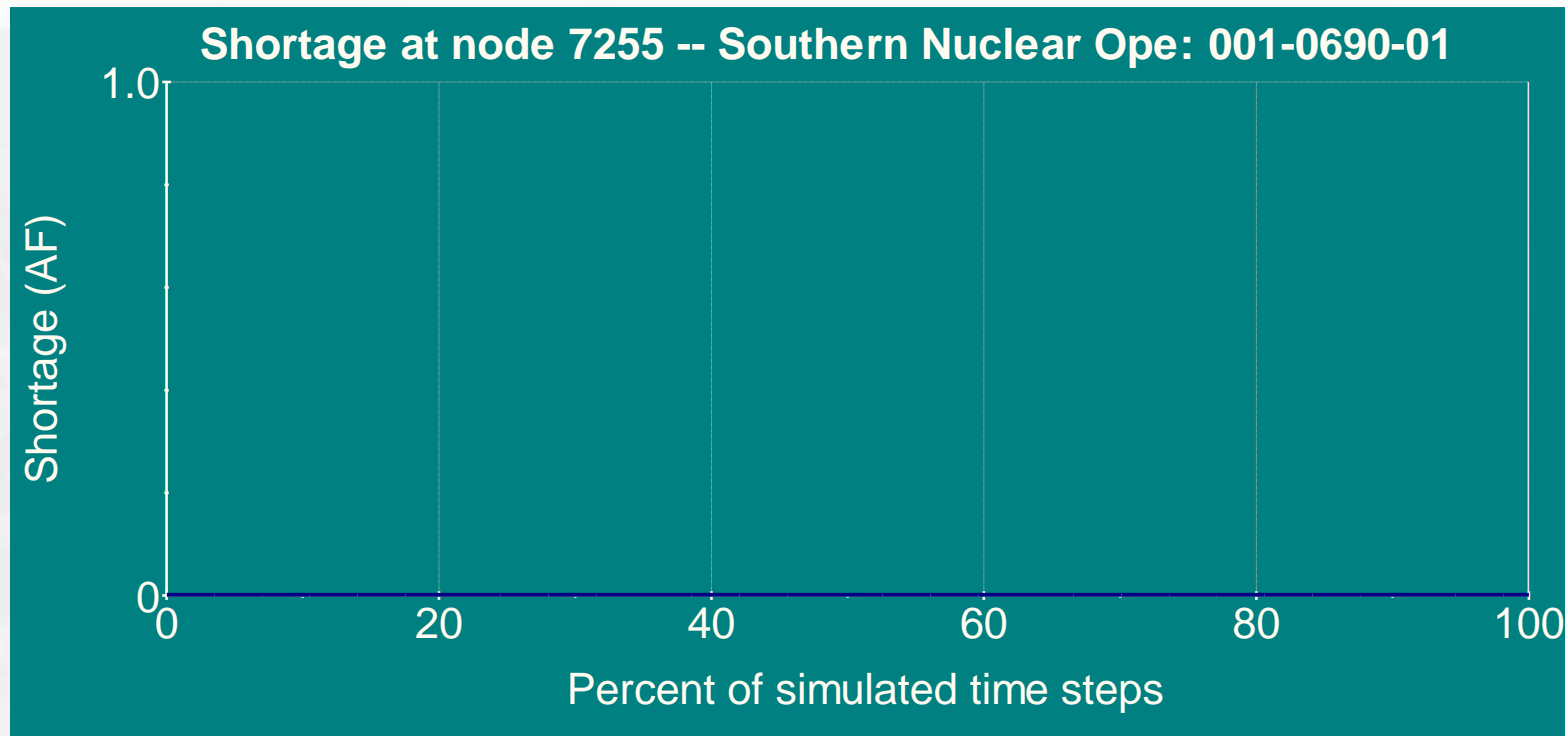


Baseline



# Simulated Water Supply Challenge Frequency

- Shortage at all times remaining at zero indicates no challenges encountered



# Discussion

- Do you want to adopt this performance metric as part of your plan?
- Future conditions will be included in the next update in Resource Assessment for comparison with the baseline
- What additional performance measure would you like to see in assessing water supply?

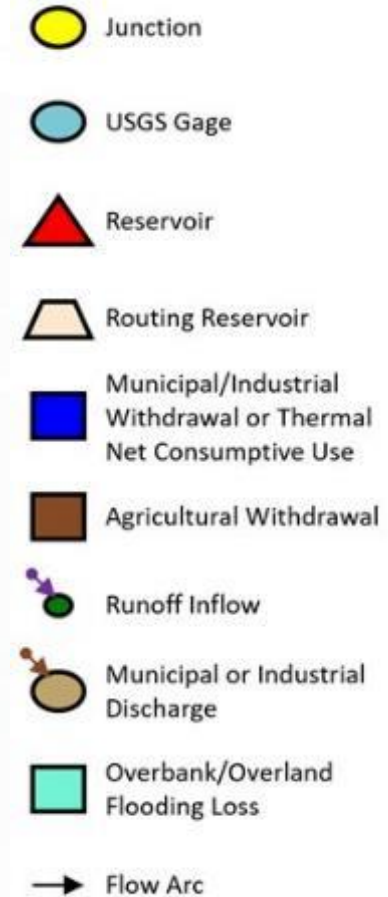
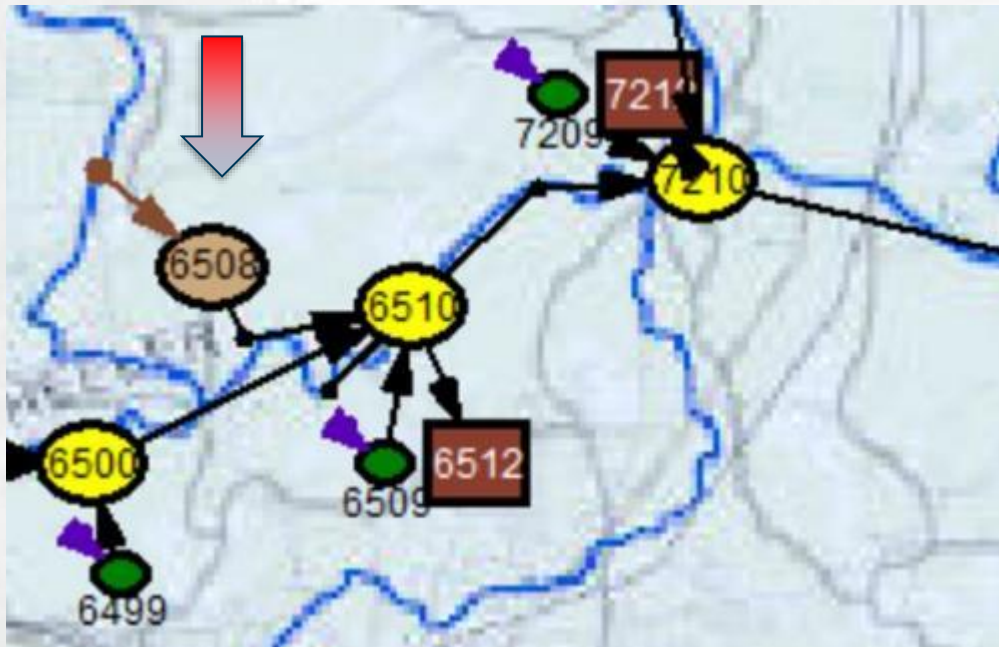


# Wastewater Assimilation Challenge for NPDES Permits

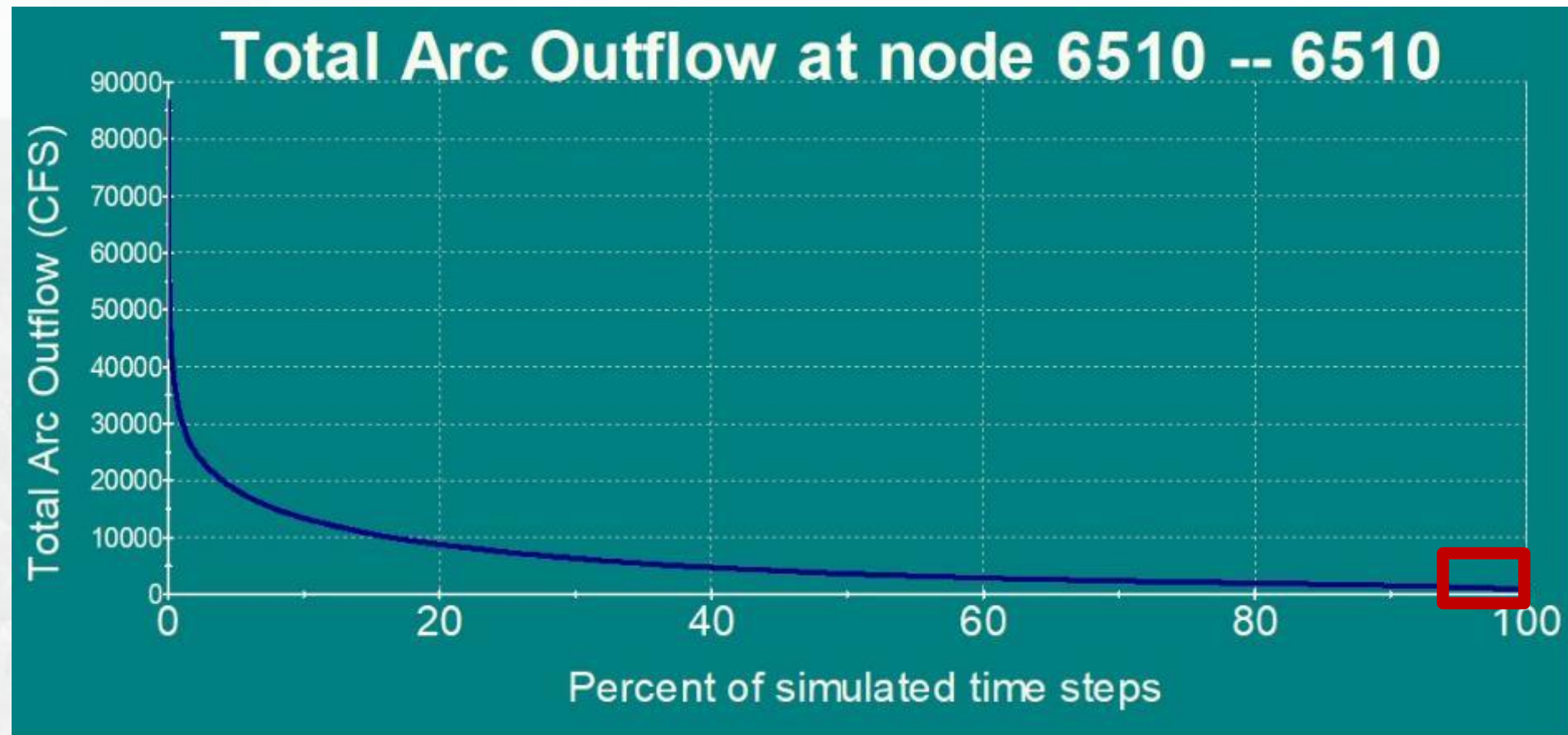
- Effluent limitations serve as the primary mechanism in NPDES permits for controlling discharges of pollutants to receiving waters.
- When developing effluent limitations for an NPDES permit, a permit writer must consider:
  - Limits based on both the technology available to control the pollutants (i.e., technology-based effluent limits)
  - Limits that are protective of the water quality standards of the receiving water (i.e., water quality-based effluent limits).
- 7Q10 is a representative flow threshold for receiving waterbody

# Wastewater Assimilation Challenge Example: Permit GA 0036765 (BEAM Node 6508)

- Permit holder: City of Hazlehurst (Bully Creek WPCP)
- Permitted monthly discharge flow: 1.5 mgd (2.3 cfs)
- 7Q10 Flow at discharge location: 1,219 cfs



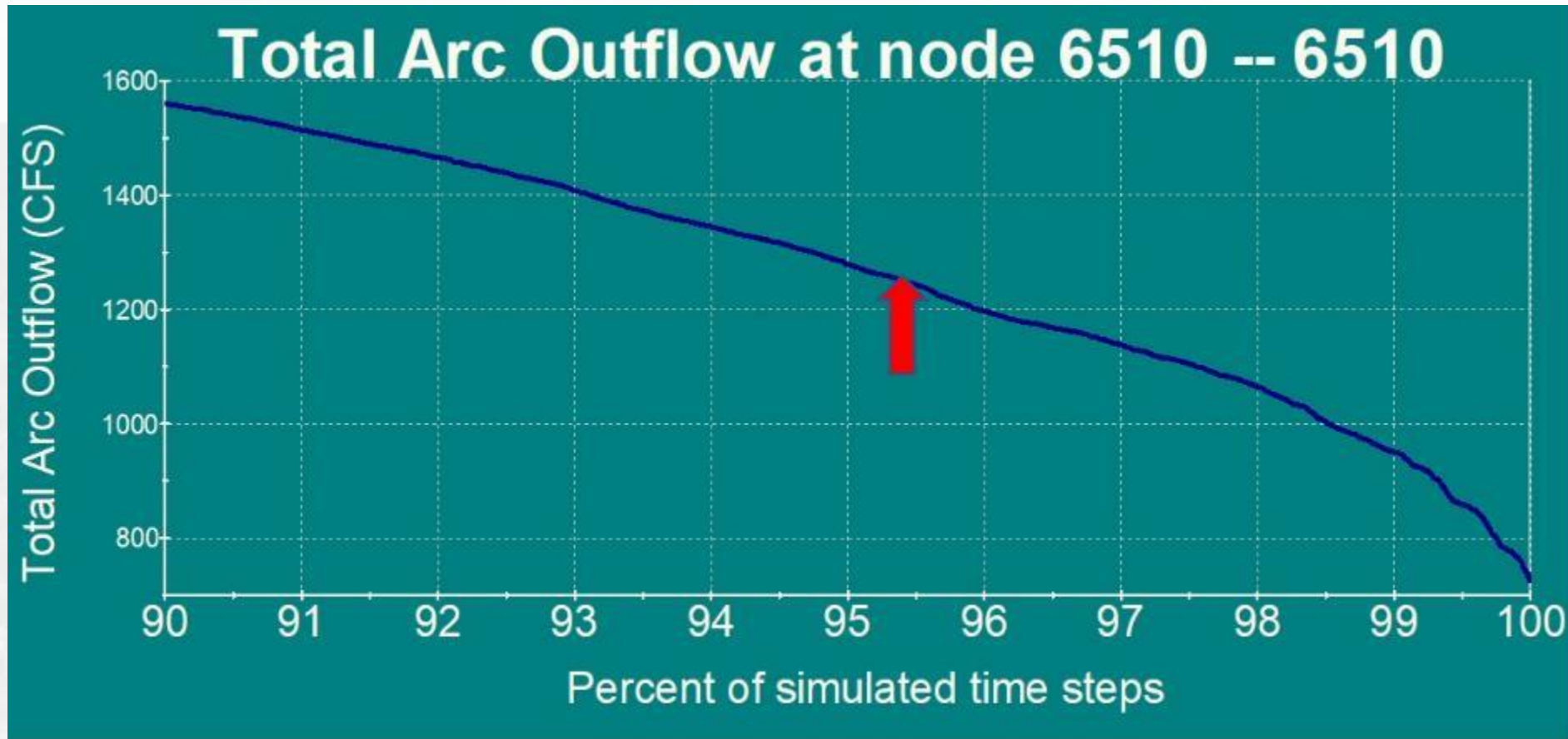
# Simulation Results at GA 0036765 Location Flow Frequency





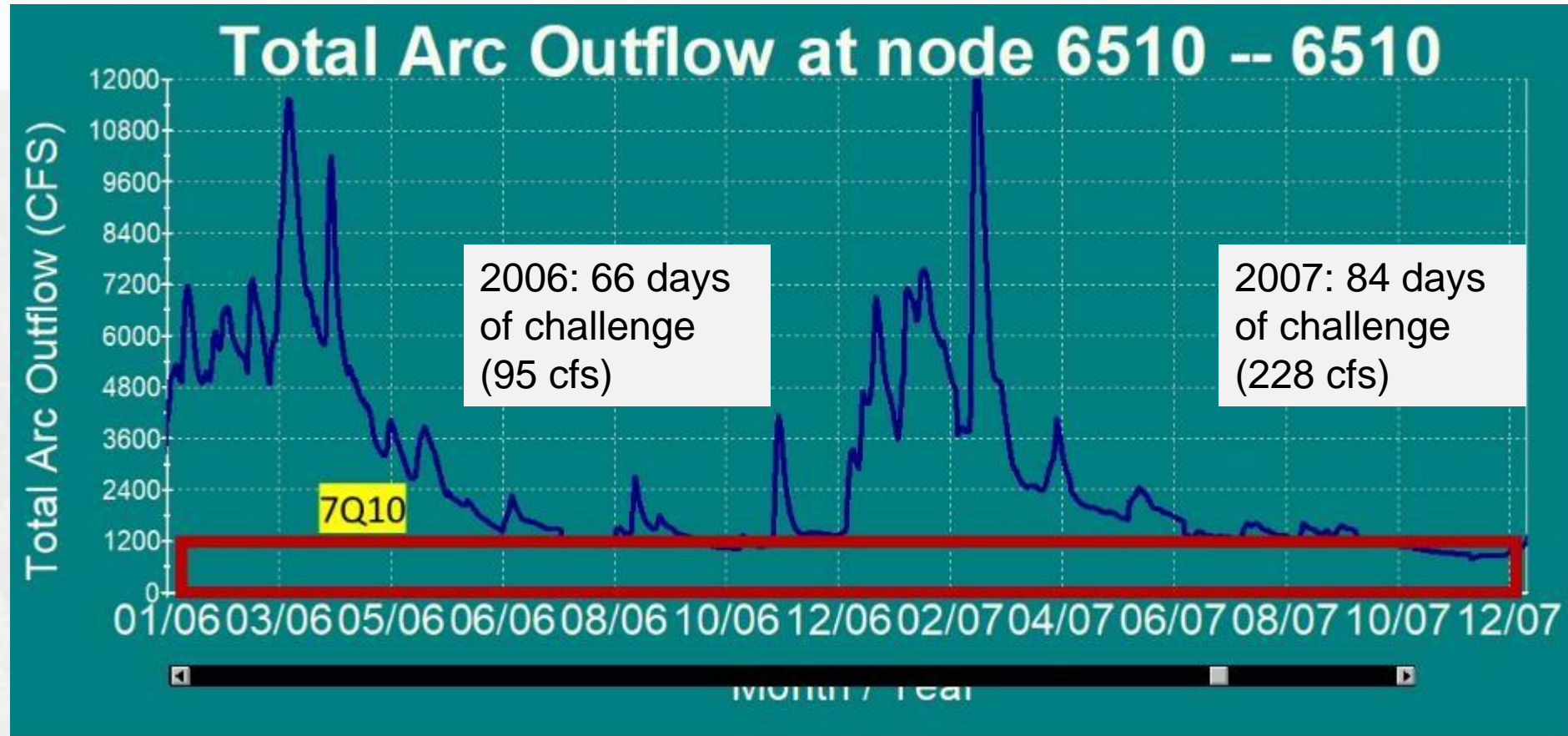
# Simulation Results at GA 0036765 Location

## Flow Frequency (low end) (7Q10 = 1219 cfs)

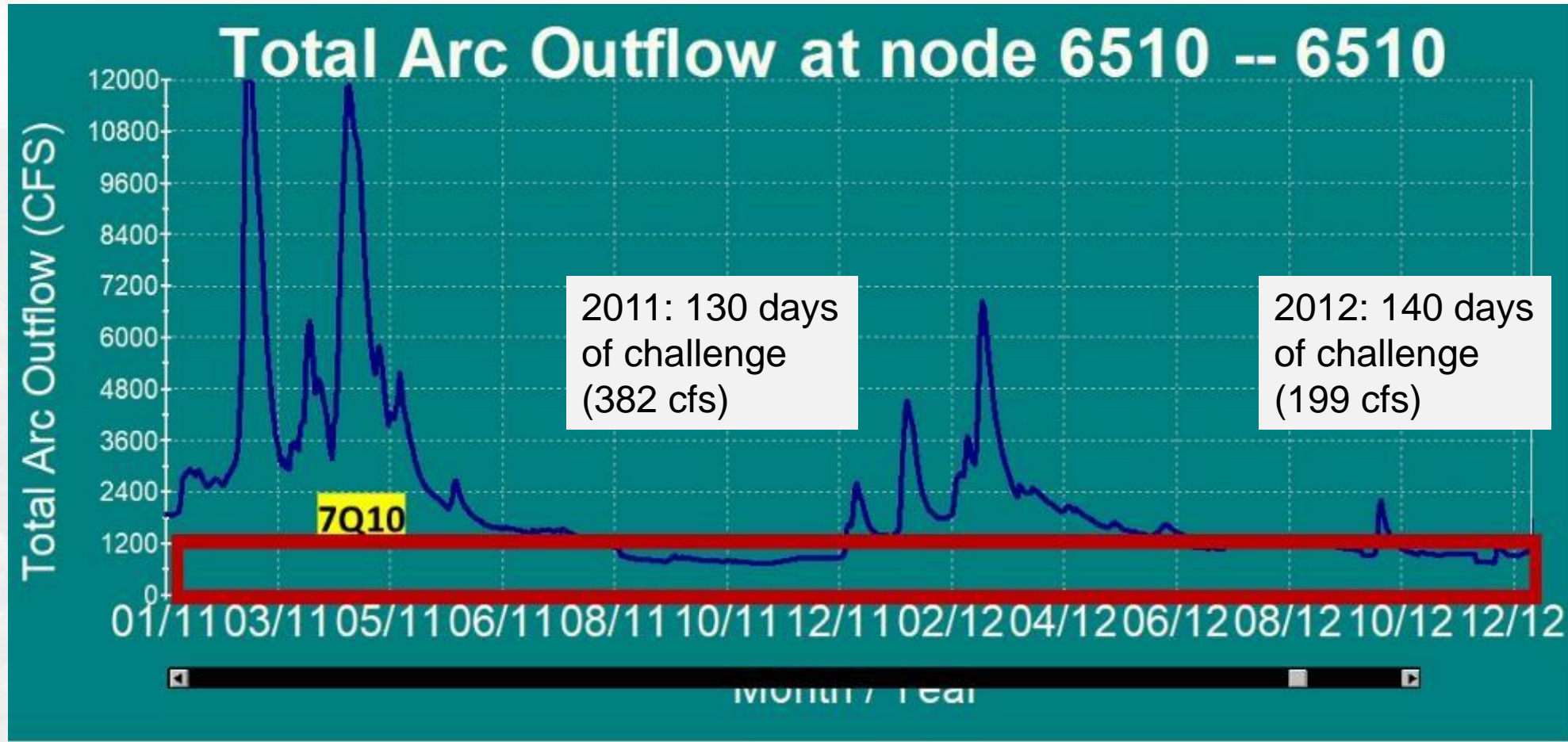




# Simulation Results at GA 0036765 Location Flow in 2006-2007

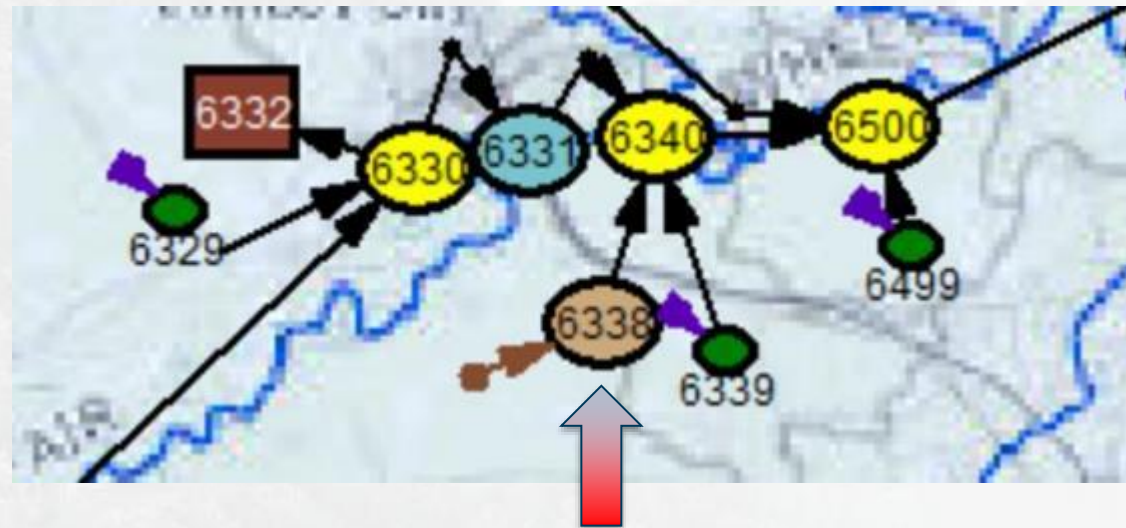


# Simulation Results at GA 0036765 Location Flow in 2011-2012



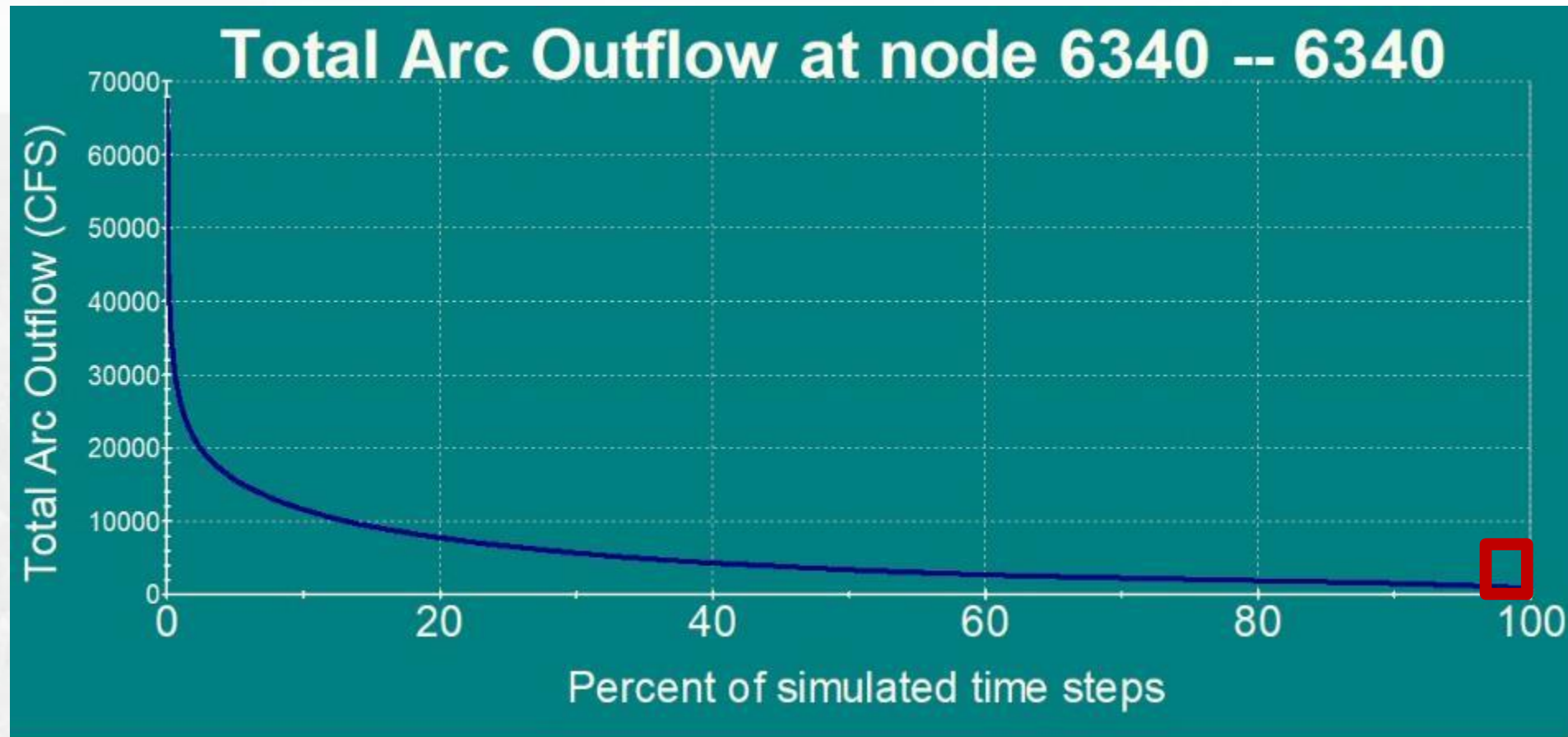
# Wastewater Assimilation Challenge Example: Permit GA 0050199 (BEAM Node 6338)

- Permit holder:Lumber City (Lumber City WPCP)
- Permitted monthly discharge flow: 0.5 mgd (0.77 cfs)
- 7Q10 Flow at discharge location: 965 cfs





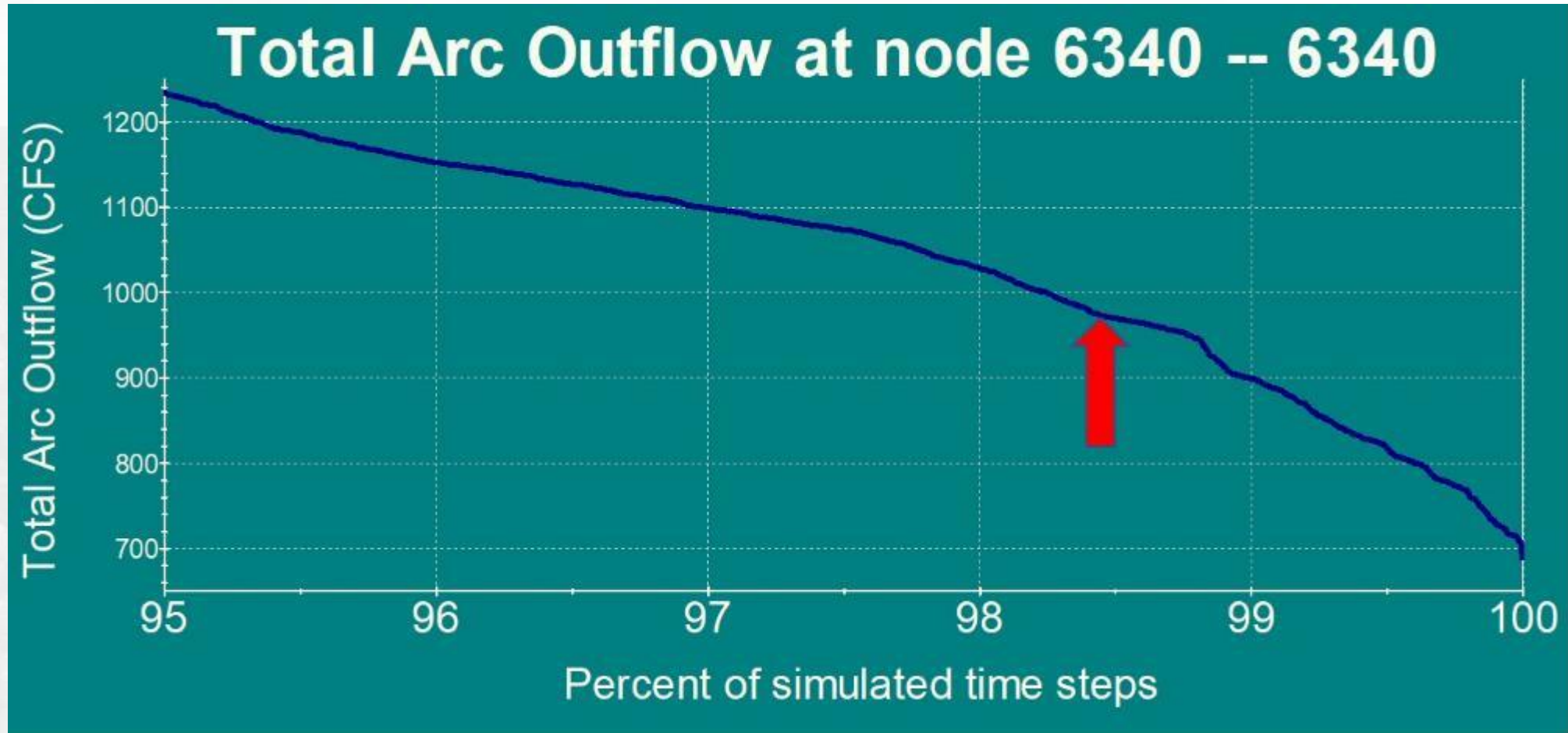
# Simulation Results at GA 0050199 Location Flow Frequency



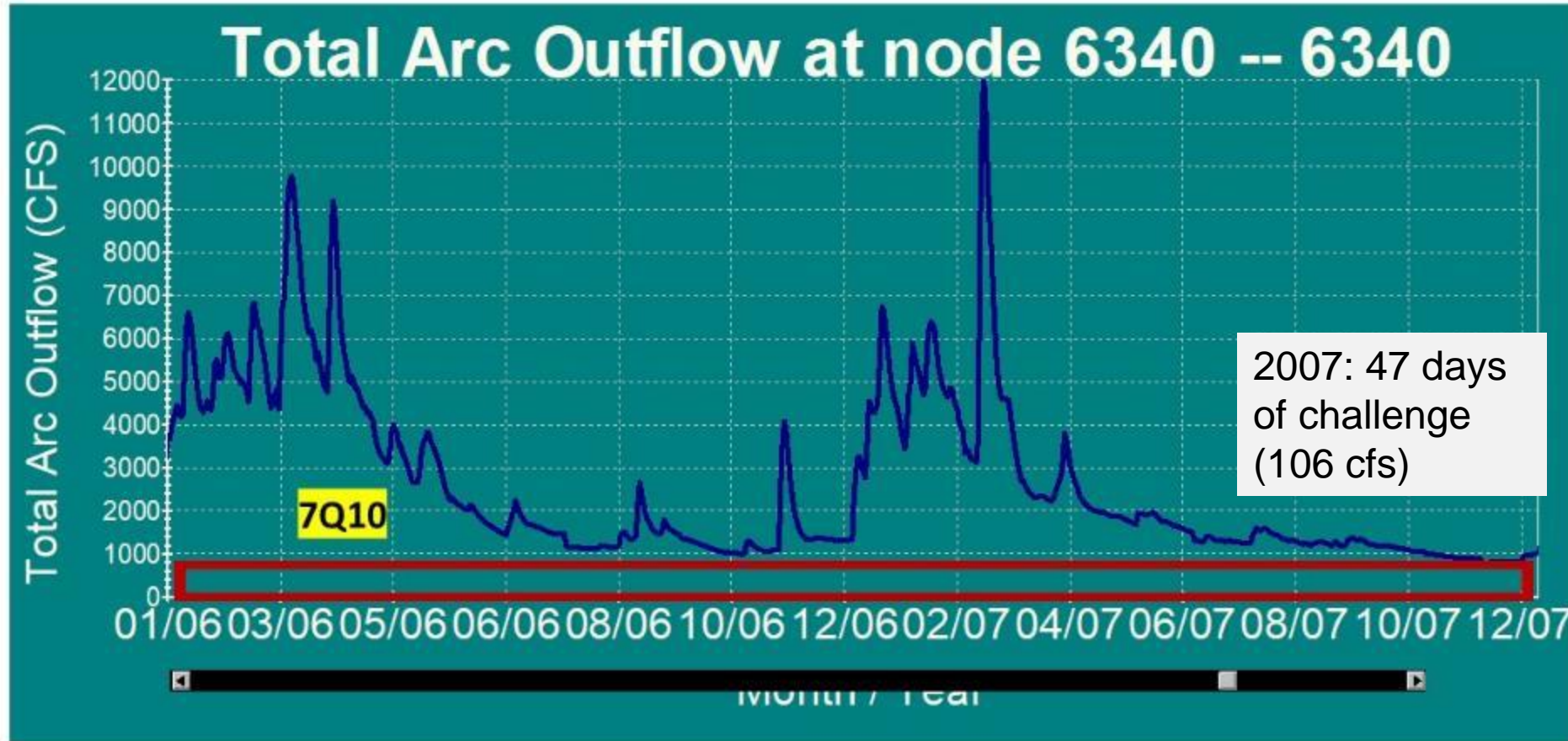


# Simulation Results at GA 0050199 Location

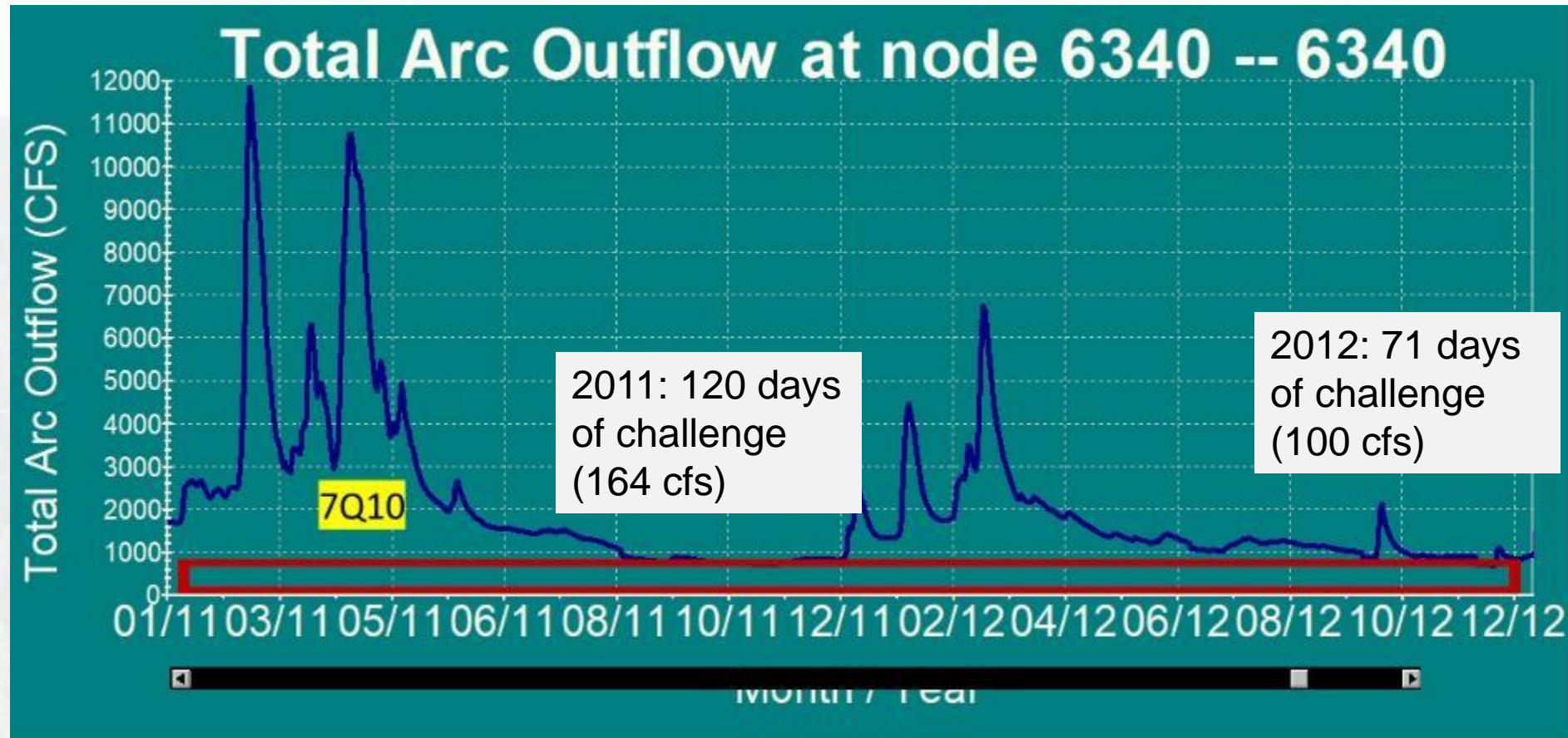
## Flow Frequency (low end) (7Q10 = 965 cfs)



# Simulation Results at GA 0050199 Location Flow in 2006-2007



# Simulation Results at GA 0050199 Location Flow in 2011-2012





# Discussion

- Do you want to adopt this performance metric as part of your plan?
- Future conditions will be included in the next update in Resource Assessment for comparison with the baseline
- What additional performance measure would you like to see in assessing wastewater assimilation?



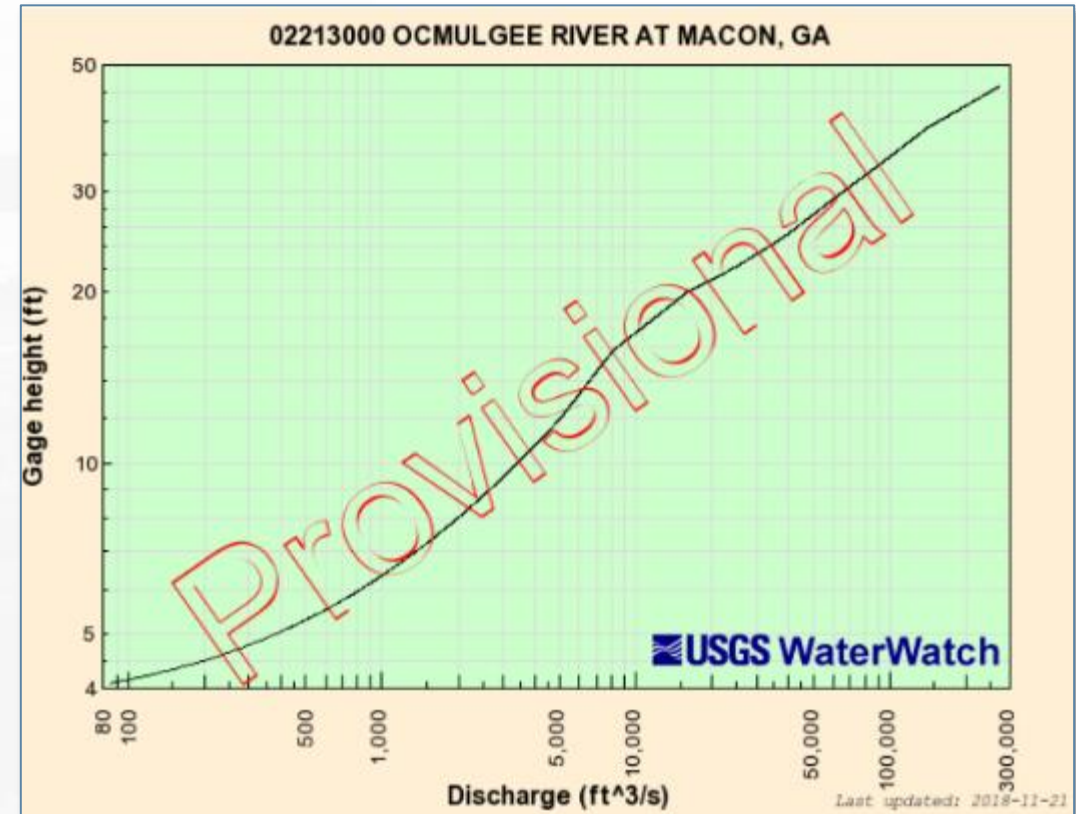
# Using Flow to Create Boating/Paddling Performance Metric

For Informational Purposes Only

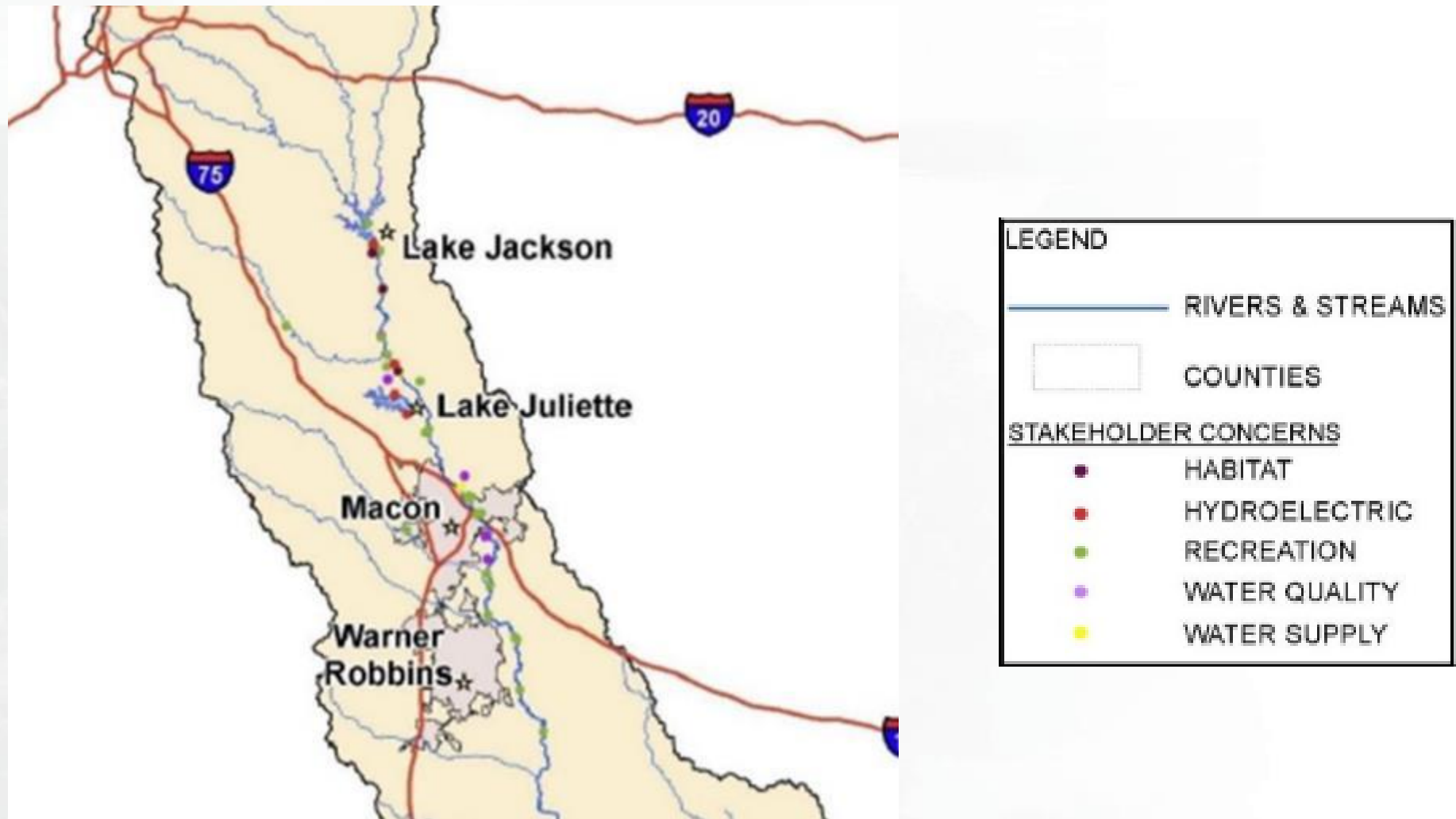
- Convert stream flow to stage

Table 11. Low-flow metrics for Ocmulgee River recreational boating

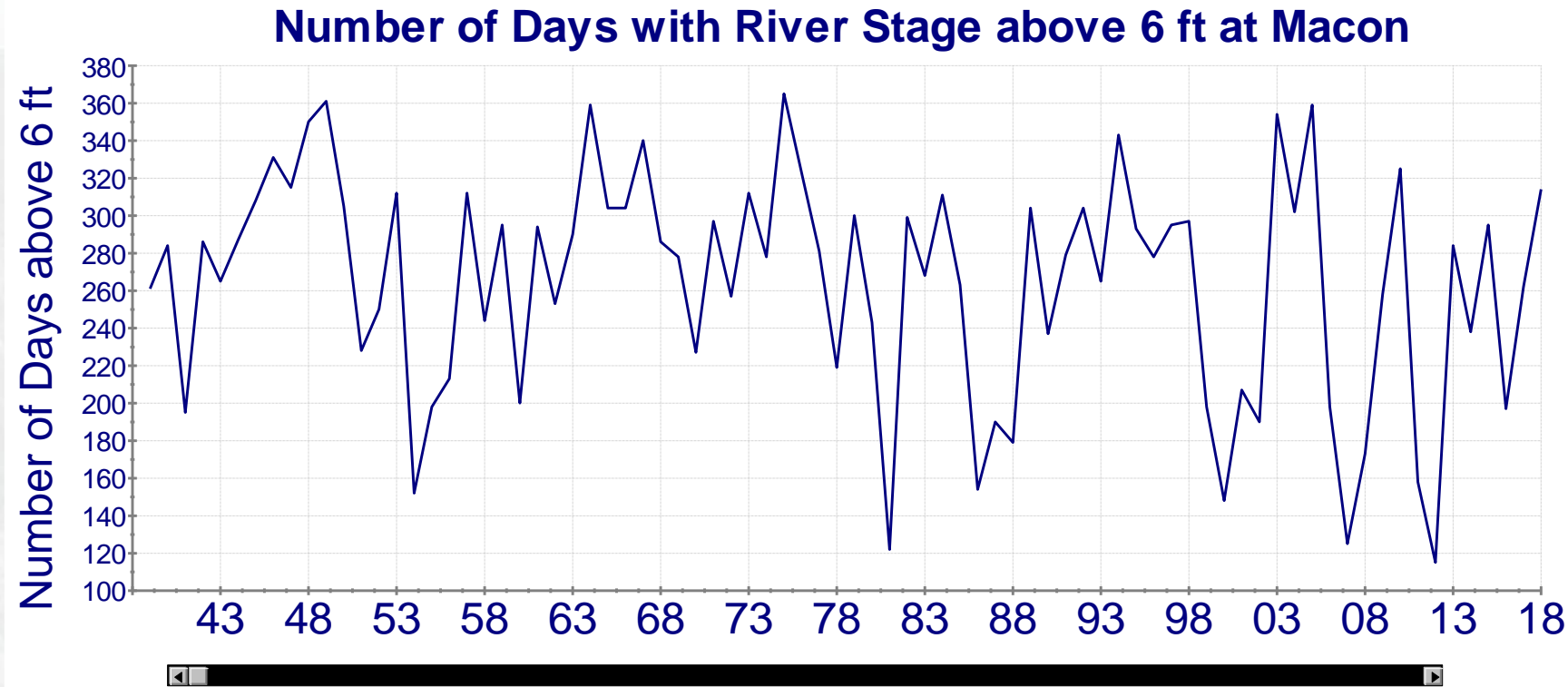
River Service	Metric	Source
Kayaking/canoeing	Amount of time that kayaking or canoeing is not ideal (i.e., gage height $\leq 6.0$ feet) due to low water conditions	Personal communication with Kathleen O' Neal (Ocmulgee Outdoor Expeditions)
Boating	Amount of time that boating is not ideal (i.e., gage height $\leq 7.5$ feet) due to low water conditions	Viable stage for kayaking/canoeing + 1.5 feet (average shaft length of short- and long-shaft small engines); (lboats, 2009)




# Locations of Recreational Interests – Stakeholder Input



# Performance Metric example: Macon, GA for Boating



  
Better

# Reach Habitat

- Shallow/Fast

- Species: Spottail Shiner and Bluehead Chub



[https://en.wikipedia.org/wiki/Spottail\\_shiner](https://en.wikipedia.org/wiki/Spottail_shiner)

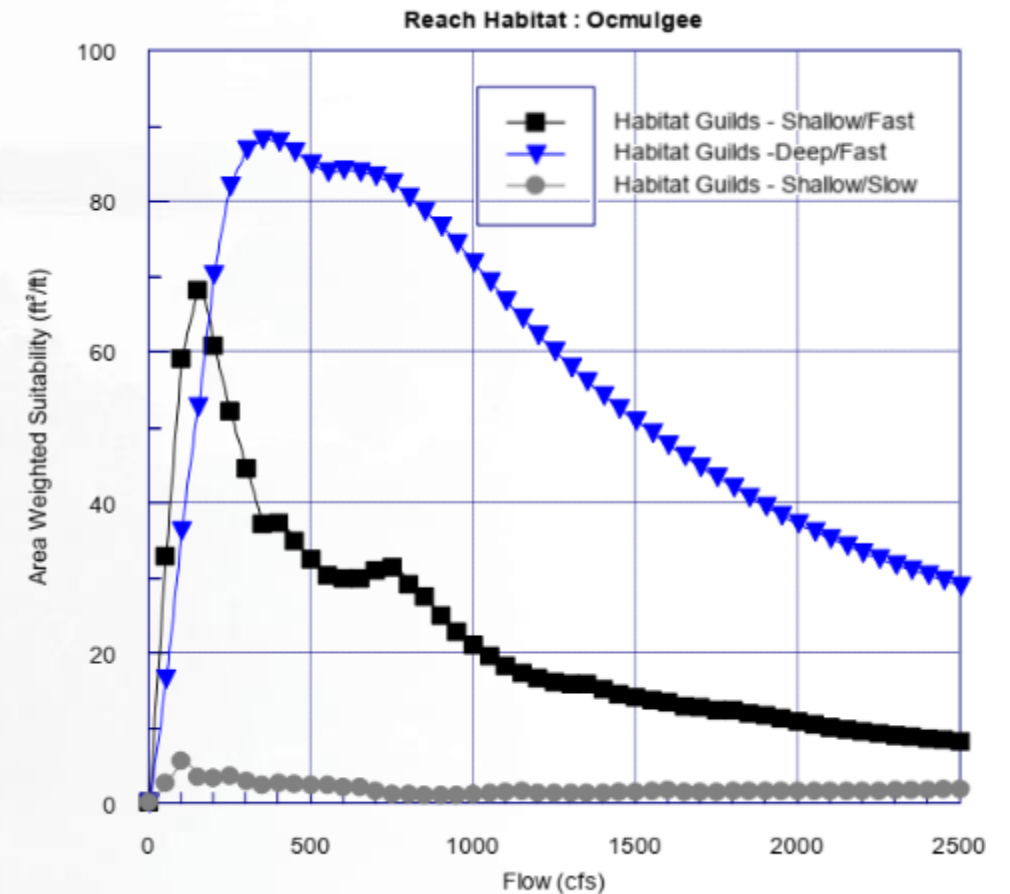
- Deep/Fast

- Species: Largemouth Bass



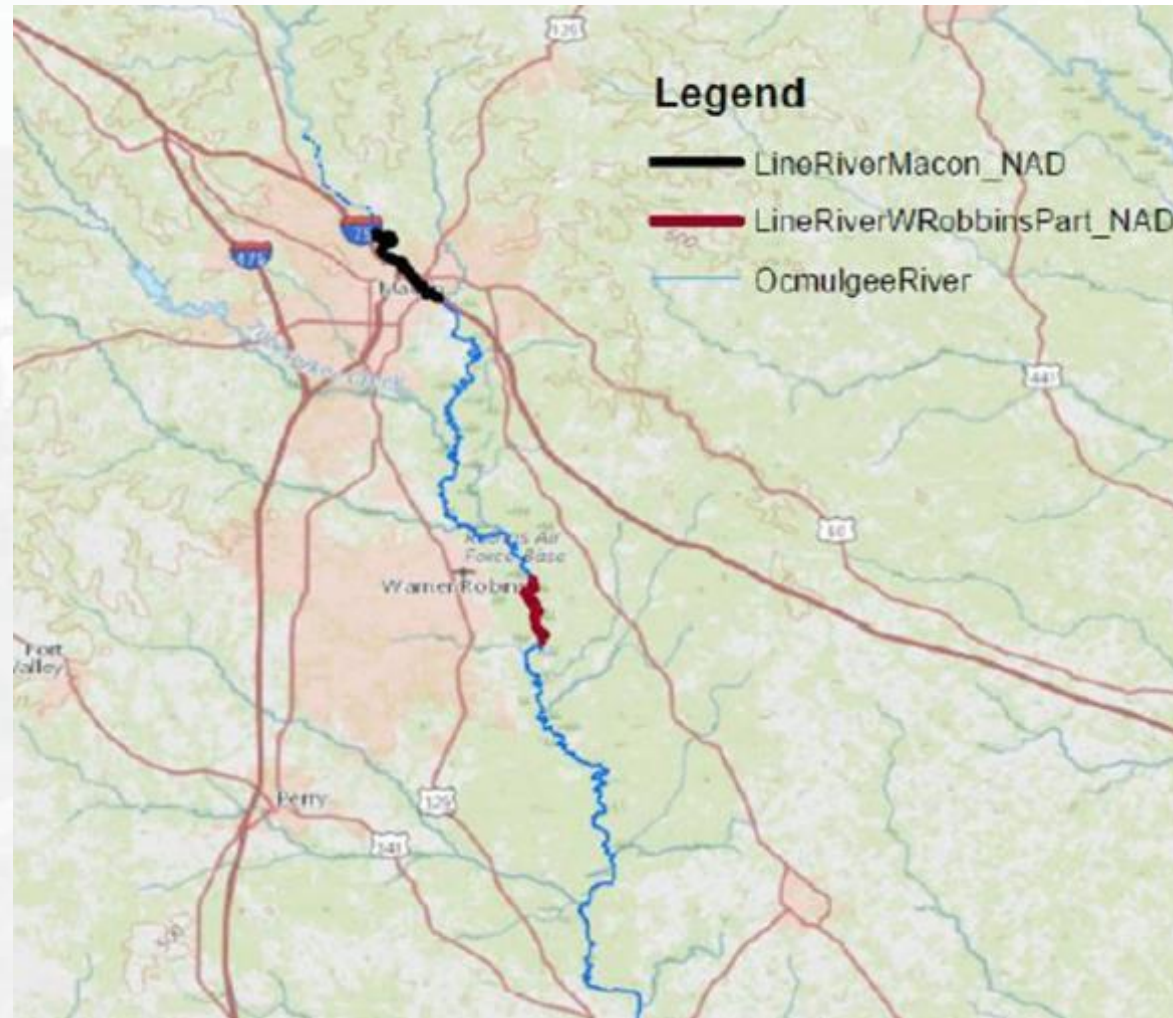
[http://www.fishbase.org/fishbase/freshwater-fish-of-america/largemouth\\_bass.html](http://www.fishbase.org/fishbase/freshwater-fish-of-america/largemouth_bass.html)

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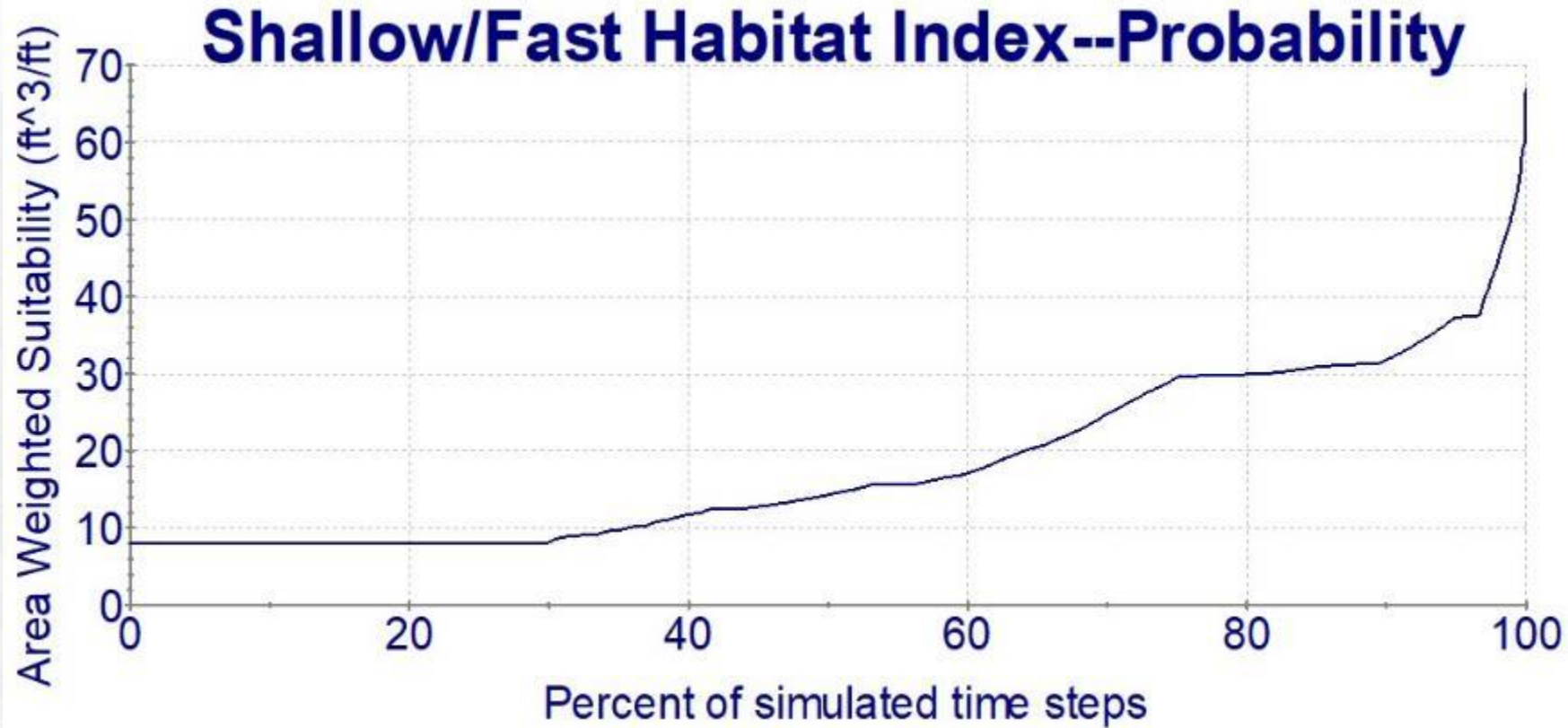





# Reaches of the Ocmulgee River Where Bathymetric Data Allow for Habitat Assessment

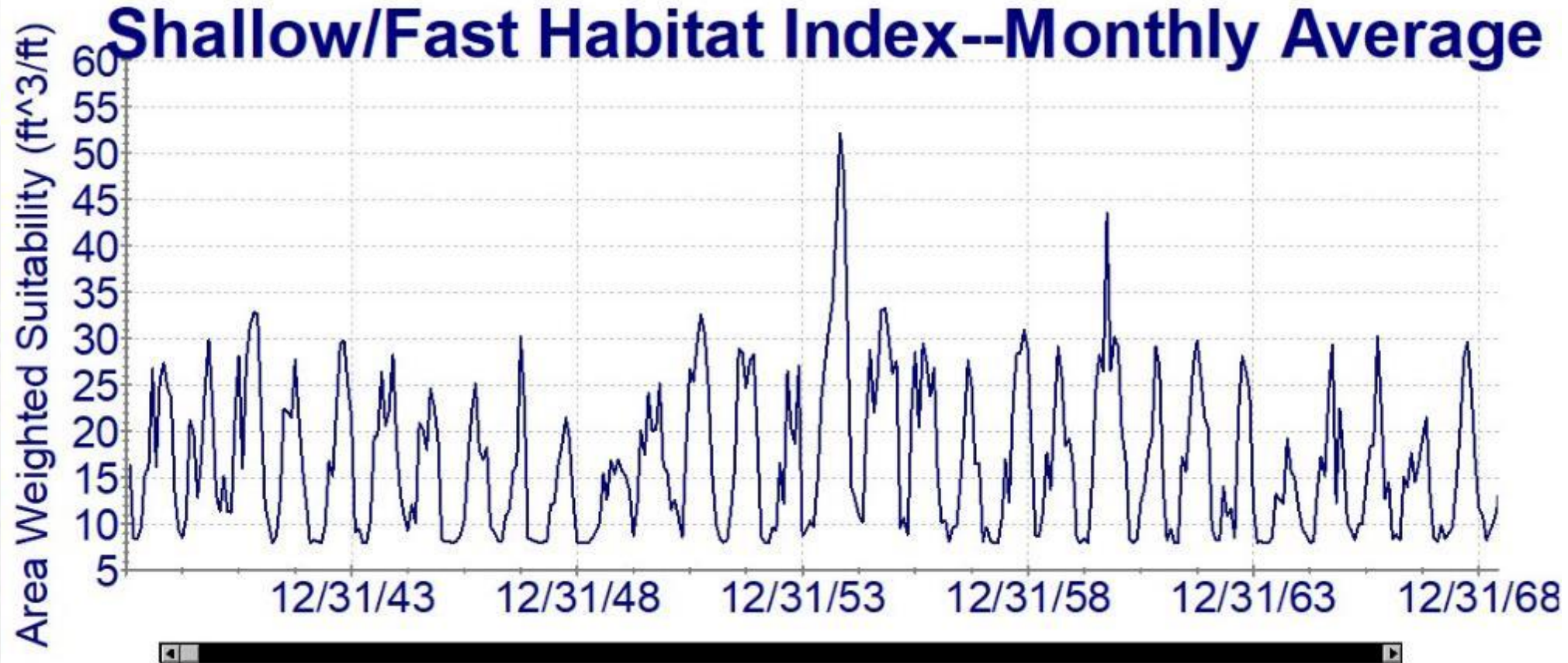


# Performance Metric-Shallow/Fast Habitat Frequency



  
Better

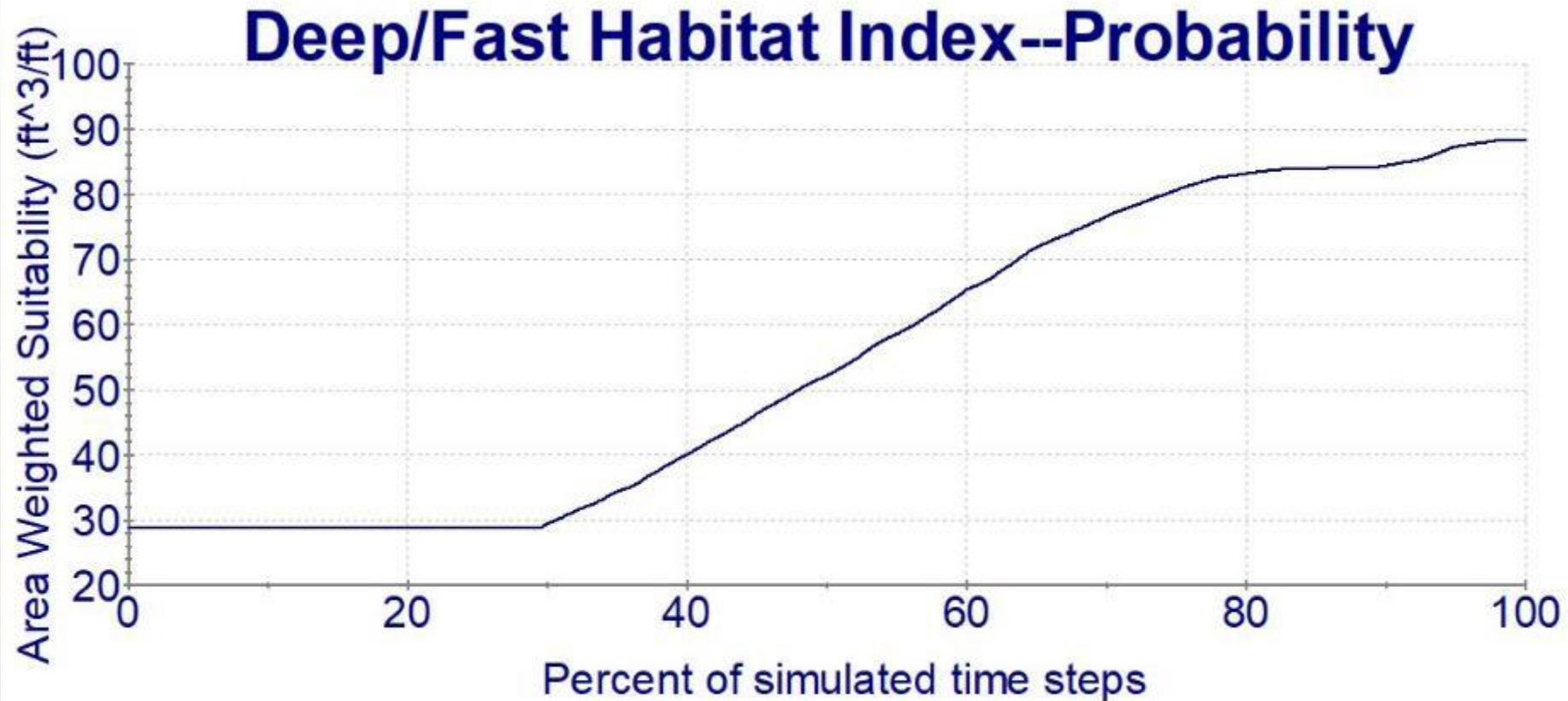
# Performance Metric-Shallow/Fast Habitat (Monthly Average)




  
Better



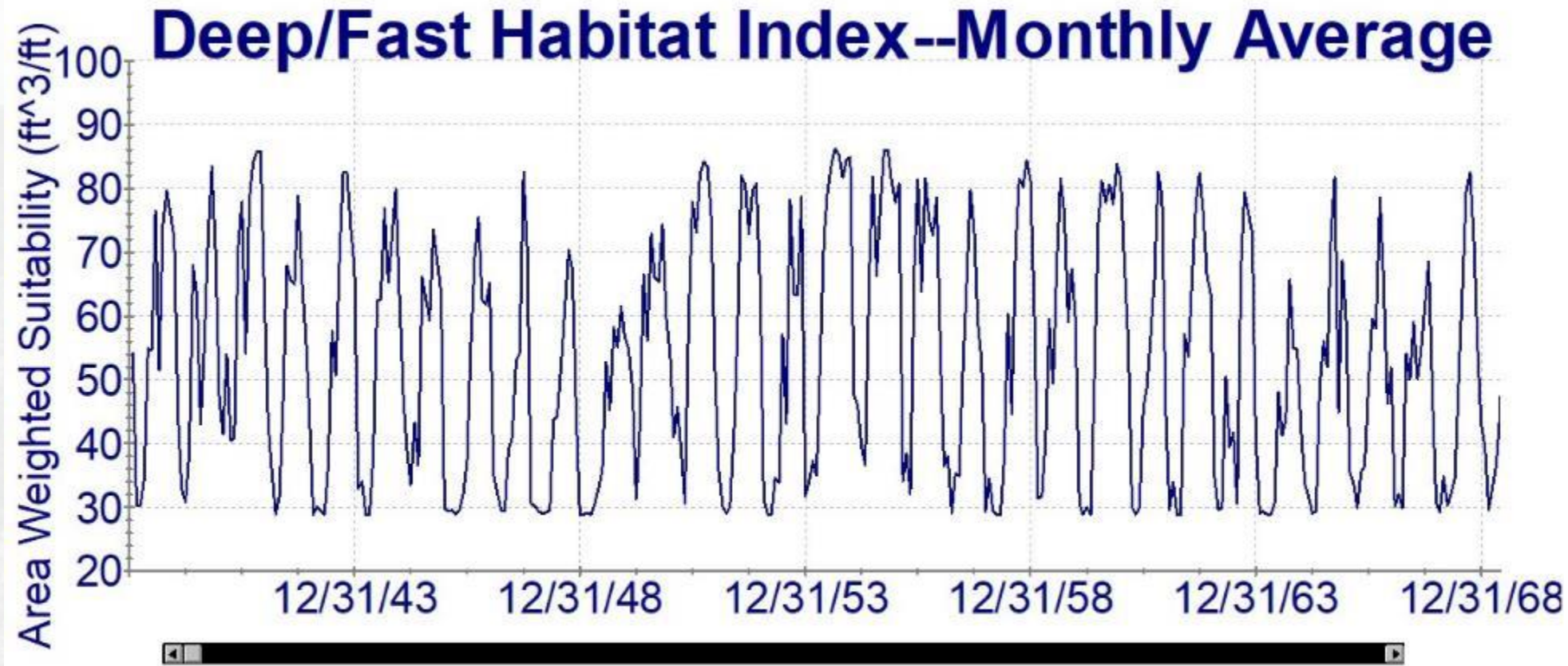
# Performance Metric-Deep/Fast Habitat Frequency



  
Better



# Performance Metric-Deep/Fast Habitat (Monthly Average)



# Discussion

- Do you want to adopt similar performance metric as part of your plan?
- Future conditions will be included in the next update in Resource Assessment for comparison with the baseline.
- What additional performance measure would you like to see in assessing river recreation or river habitats?

# Questions?

Georgia Environmental Protection Division

Watershed Protection Branch

Wei Zeng, Ph.D., Professional Hydrologist

Manager, Water Supply Program

[Wei.Zeng@dnr.ga.gov](mailto:Wei.Zeng@dnr.ga.gov)

470-251-4897 (Zoom Phone) New!

470-898-3891 (Cell)

*Acknowledging Hazen and Sawyer team for developing BEAM model and for developing material for this presentation*

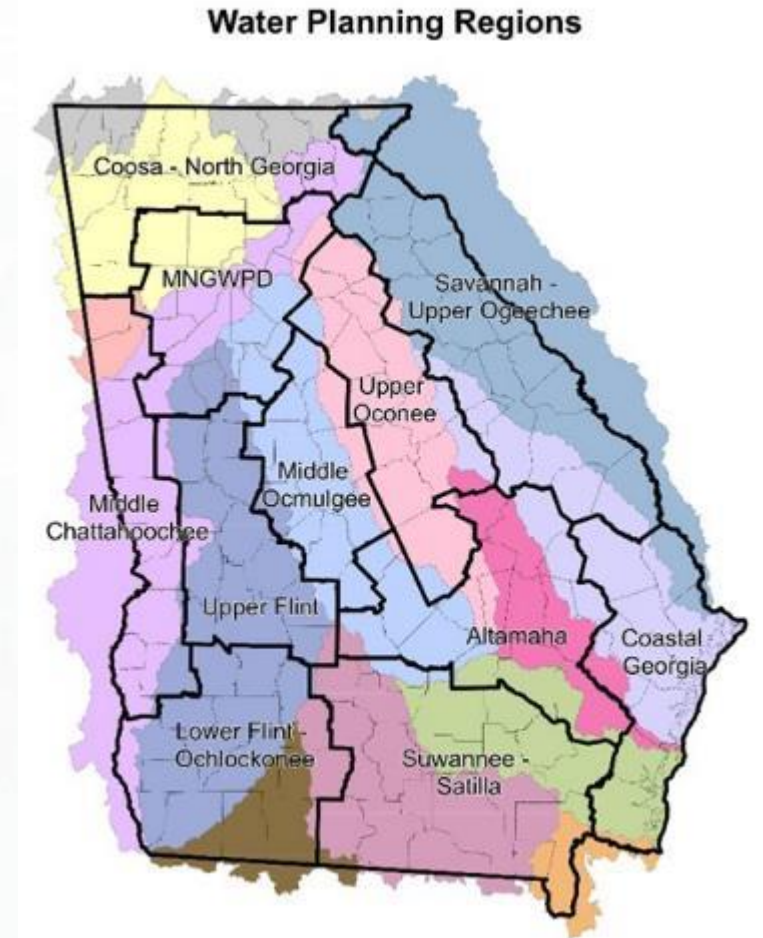


An aerial photograph of a wetland area, showing a complex network of water channels and dense forest. The image is in grayscale, with a dark blue overlay at the top and bottom. The text "Seed Grant Updates" is centered in white.

# Seed Grant Updates

# Ongoing EPD Regional Water Plan Seed Grant Funded Project Updates

- Seed Grant was awarded to Dr. Gary Hawkins (Crop and Soil Science Department, University of Georgia)
- Included three of the RWP Councils: Altamaha, Coastal and Suwannee-Satilla
- Implements two of the management practices common to all the RWPs and one management practice specific to our region



# EPD Regional Water Plan Seed Grant Funded Project Update

Water Plan Region	Management Practice	Description	Area Addressed
Coastal Altamaha Suwannee-Satilla	NPS-2 Research and Address Impairment Issues	Monitor and determine sources of nutrient-pollutant loading. Develop management programs to mitigate impairments.	Urban
Coastal Altamaha Suwannee-Satilla	NPSA-1 Soil Erosion Reduction Measures	Encourage implementation of conservation tillage and cover crops to reduce soil erosion.	Agriculture
Altamaha Suwannee-Satilla	WC-12 Application Efficiency Technologies	Encourage and improve use of crop water management technologies and techniques.	Agriculture



# Ongoing EPD Regional Water Plan Seed Grant Funded Project Updates

- Pine Country RC&D in collaboration with University of Georgia (Dr. Hawkins) prepared a project proposal to address Erosion and Nutrient Management Practices in the region
- Addresses multiple nonpoint source management practices in the RWP (NPSR-1, NPSA-2, NPSA-3 and NPSA-4)

An aerial photograph of a wetland area, showing a network of water channels and dense forest. The image is in grayscale, with a dark blue sky and a light blue water body. The text "Public Comments/Local Elected Official Comments" is overlaid in white.

# Public Comments/Local Elected Official Comments

An aerial photograph of a swampy landscape, likely a wetland or marsh. The image shows a complex network of water channels and dense, dark green trees. The sky is overcast and grey. The overall tone is somber and naturalistic.

# Next Meeting



# Regional Water Planning Overview & Schedule

## Regional Water Plan Review and Revision Schedule

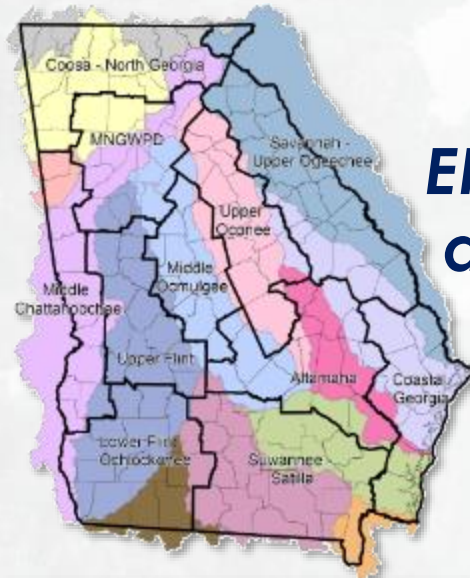
**Meeting One**  
4th Quarter 2021

**Meeting Two**  
1st Quarter 2022

**Meeting Three**  
2nd Quarter 2022

**Meeting Four**  
3rd Quarter 2022  
Draft Plan

**Meeting Five (Final)**  
4th Quarter 2022  
Incorporate  
Comments



***EPD targeted date of  
adoption of revised  
Regional Water Plan by  
December 2022***

# Thank You!

Questions? Comments?  
Need More Information?

[Honourdm@cdmsmith.com](mailto:Honourdm@cdmsmith.com)  
[Jennifer.Welte@dnr.ga.gov](mailto:Jennifer.Welte@dnr.ga.gov)