UPPER FLINT

Upper Flint Council Meeting

May 13, 2022

GEORGIA WATER PLANNING

waterplanning.georgia.gov

Agenda

Objectives:

1. Review and discuss additional water resource assessment results
2. Review and discuss management practices and recommendations
3. Consider recommendations from Plan Review & Inter-Council Coordination Committees
4. Learn about recent studies on water system interconnectivity and biosolids management

10:00	Welcome, Agenda Review, Check-In with New Members
10:05	Chair's Report
10:10	Resource Assessment Results
11:15	Management Practices Review
12:00	Lunch
12:40	Management Practices Review (cont.)
1:15	Plan Review Committee Report
1:35	Inter-Council Coordination Committee Report
1:55	Recommendations Review
2:35	Break
2:45	Next Steps in Plan Review and Revision
3:00	EPD Report
3:10	Information Items: GEFA Study and Biosolids Report
3:40	Public Comment
3:50	Next Steps
4:00	Adjourn

Regional Water Plan Update

Regional Water Plan Review and Revision Schedule

Meeting One
4th Quarter 2021

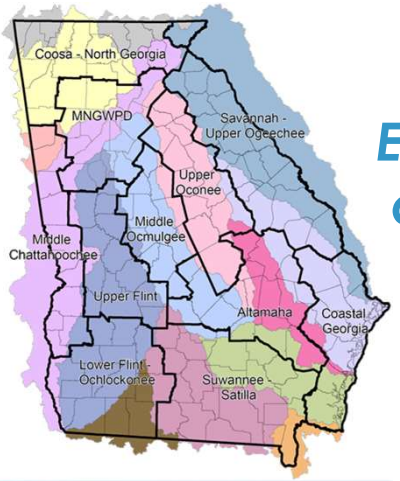
Meeting Two
1st Quarter 2022

Meeting Three ★
2nd Quarter 2022

Meeting Four
3rd Quarter 2022
Draft Plan Review

Meeting 4.5
3rd Quarter 2022
If needed to approve Draft Plan (virtual)

Meeting Five (Final)
4th Quarter 2022
Incorporate Comments



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

Introductions

DONALD CHASE

Council Chair for:
Upper Flint
dgmkchase@gmail.com
(478) 472-7726

JOHANNA SMITH
Georgia EPD

Liaison for:
Upper Flint
Johanna.Smith@dnr.ga.gov
(470) 632-3158

STEPHEN SIMPSON
Black & Veatch

Council Advisor for:
Upper Flint
simpsonsl@bv.com
(770) 521-8105

CORINNE VALENTINE
Black & Veatch

Council Advisor for:
Upper Flint
valentinec@bv.com
(770) 752-5256

JAKE DEAN
Black & Veatch

Council Advisor for:
Upper Flint
deanj1@bv.com
(770) 521-8153

KRISTIN ROWLES
GWPPC

Council Lead for:
Upper Flint
krowles@h2opolicycenter.org
(404) 822-2395

MARK MASTERS
GWPPC

Council Advisor for:
Upper Flint
mmasters@h2opolicycenter.org

MEAGAN SZYDZIK
GWPPC

Council Advisor for:
Upper Flint
mszydzik@h2opolicycenter.org
(770) 543-8497

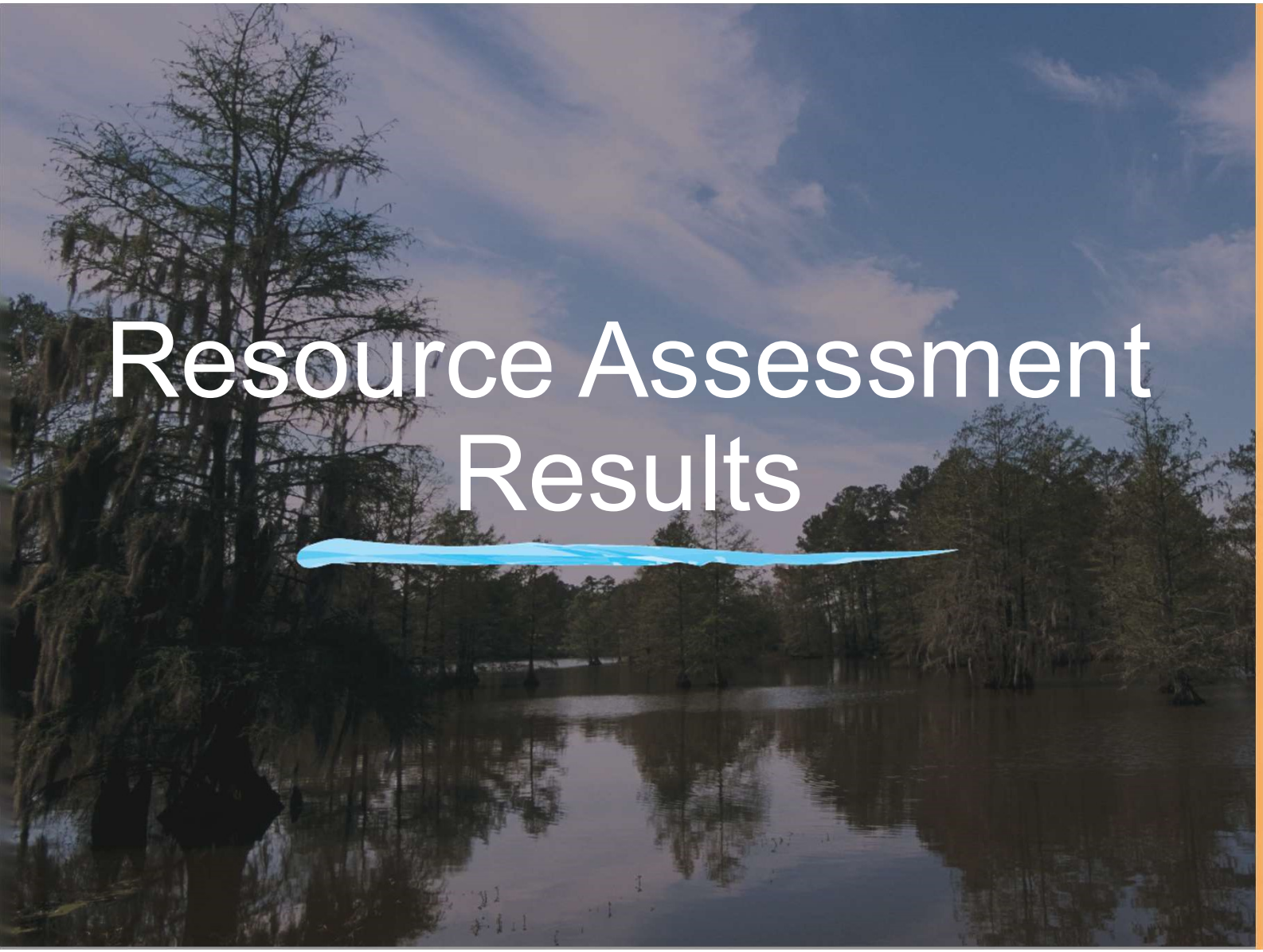
Upper Flint Council Members

Name	City	County
Brian Belcher	Ellaville	Schley
Barry Blount	Americus	Sumter
Michael Bowens	Vienna	Dooly
Gene Brunson	Reynolds	Taylor
Thomas Burnsed	Meansville	Pike
Donald Chase, Chair	Oglethorpe	Macon
Brad Ellis	Vienna	Dooly
Beth English	Vienna	Dooly
Steve Fry	Williamson	Pike
Adam L. Graft	Americus	Sumter
Rodney H. Hilley	Molena	Pike
Jack Holbrook (Alternate)	Preston	Webster
Terrell Hudson	Unadilla	Dooly
Raines Jordan, Vice Chair	Talbotton	Talbot
Brant Keller (Alternate)	Griffin	Spalding
Bob Melvin	Oglethorpe	Macon
Kenneth L. Murphy	Gay	Meriwether
Sen. Ed Harbison (Ex-Officio)		

Name	City	County
Lamar Perlis	Cordele	Crisp
Gary Powell	Buena Vista	Marion
Jim Reid	Americus	Sumter
Gordon Rogers	Talbotton	Talbot
Charles Rucks	Brooks	Spalding
Bill Sawyer	Ellaville	Schley County
Larry Smith	Montezuma	Macon
Marcus South	Thomaston	Upson
Randy L. Summerlin	Griffin	Spalding
Walter E. (Butch) Turner	Reynolds	Taylor
Brian Upson	Griffin	Spalding
George (Teel) Warbington (Alternate)	Vienna	Dooly
Rodney Wilson	Zebulon	Pike
Benjamin (Joel) Wood	Cordele	Crisp
Ben Haugabook		Macon

Chair's Report

Presented by Chairman Chase



Resource Assessment Results

Regional Water Planning Models

Water Planning Model Recap

1. Groundwater Availability
2. Surface Water Availability
3. Surface Water Quality

Regional Water Planning Models

Groundwater Availability

- Results presented at last meeting: March 16, 2022

Surface Water Availability

- Previously we focused on how the model works and how we measure results (***metrics***)
- Results will be shared today

Surface Water Quality

- Some model results were discussed at last meeting and more results will be discussed today

Regional Water Planning Model Results

***Metrics** are used to evaluate the results relative to outcomes of interest.*

Surface Water Availability

Do we have enough water to…

- meet demands?
- assimilate wastewater?
- support recreation?

Groundwater Availability

How does groundwater use affect our aquifers?

Does groundwater use cause adverse impacts?
(to users, aquifers, instream flows)

Sustainable Yield

Surface Water Quality

Is water quality adequate to support uses?
(drinking water, recreation, fishing)

How do wastewater discharges affect water quality (dissolved oxygen)?

Resource Assessment Results: Water Quality and Surface Water Availability

GEORGIA
WATER PLANNING

www.georgiawaterplanning.org

Draft Resource Assessment by ACF BEAM for Upper Flint Water Planning Region

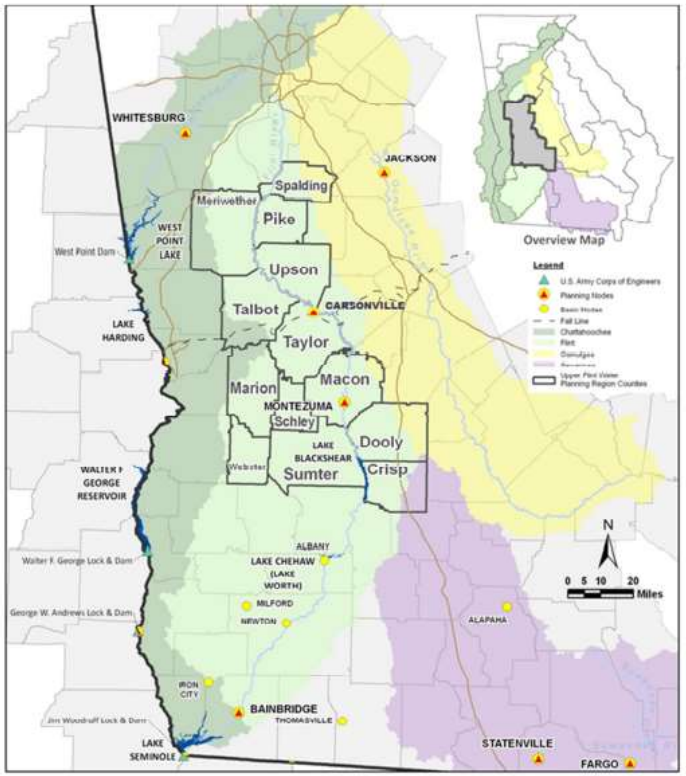
Georgia EPD

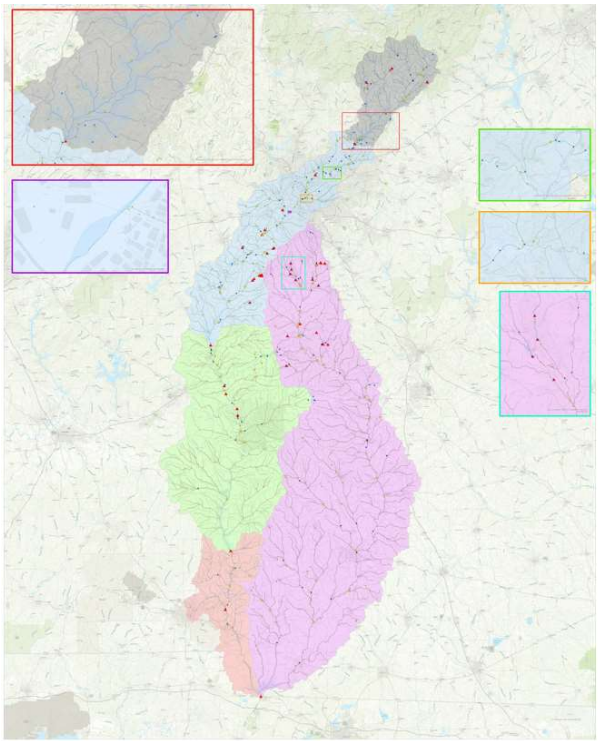
May 13, 2022

Presentation Outline

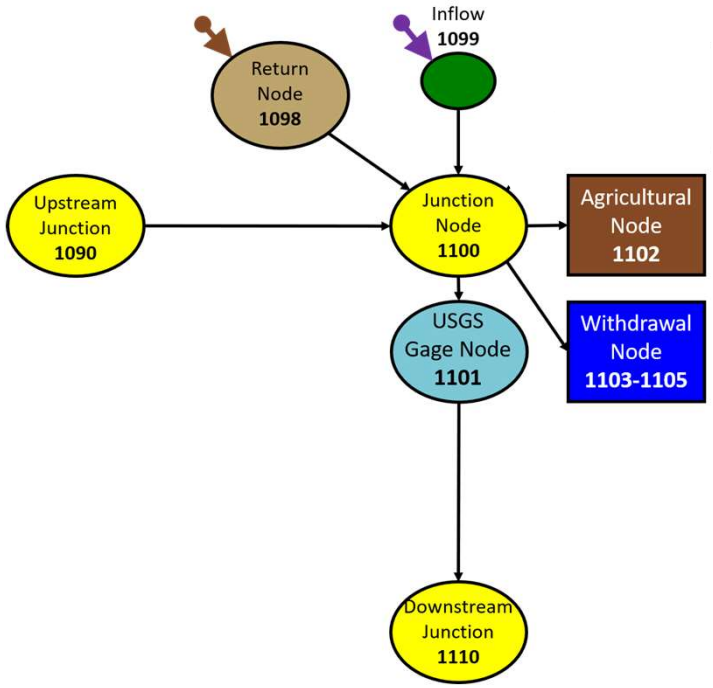
- Introduction and Model Settings
- Model Results Baseline Scenarios
  - Water Supply Challenges, Examples (water supply PMs)
    - City of Warm Springs
    - Roosevelt Warm Springs Institute
  - Wastewater assimilation Challenges, Example (wastewater assimilation PMs)
  - Carsonville Flow Results
- Additional Performance Measures to consider?

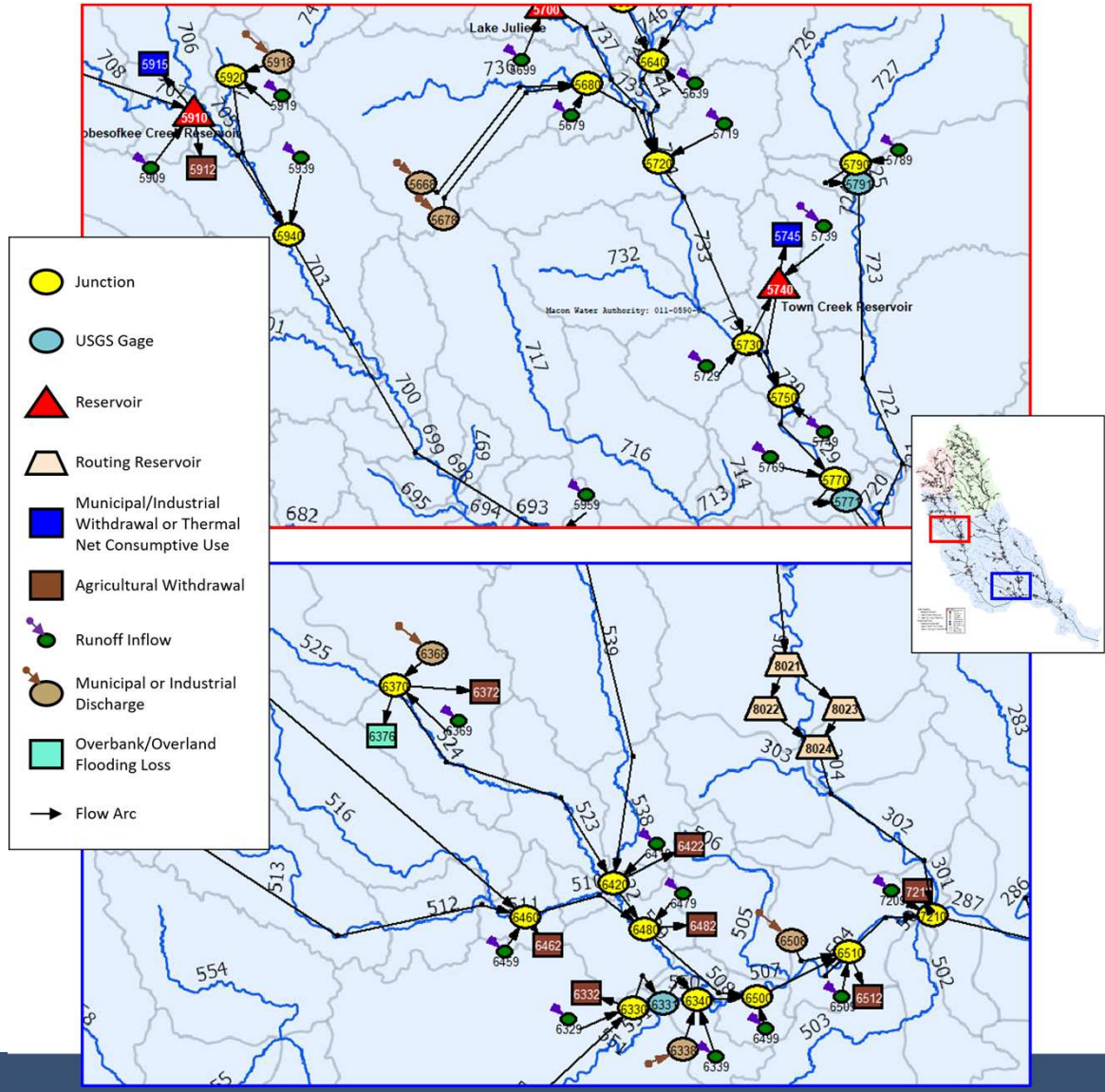
Upper Flint Region and ACF Model Domain





BEAM Node Types





ACF BEAM Model Baseline and Future Scenarios Settings

- Simulation Period (various hydrologic conditions): 1939-2018
- Withdrawal and Discharge amount: baseline: average of period 2010-2018 (i.e. marginally dry conditions);
- Instream Flow Protection Thresholds: per permit conditions
- Reservoir physical and operational data: from reservoir owner or EPD

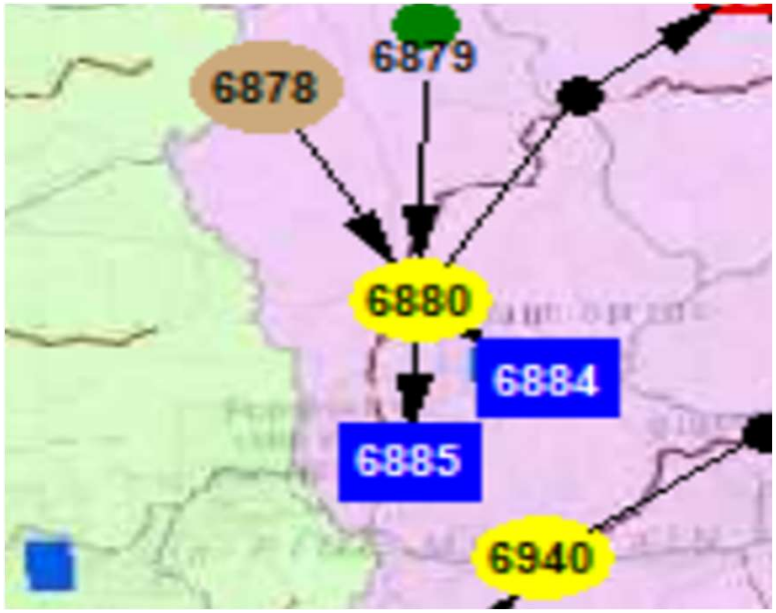
Water Supply Settings: Facilities Analyzed in BEAM Model for Upper Flint Region

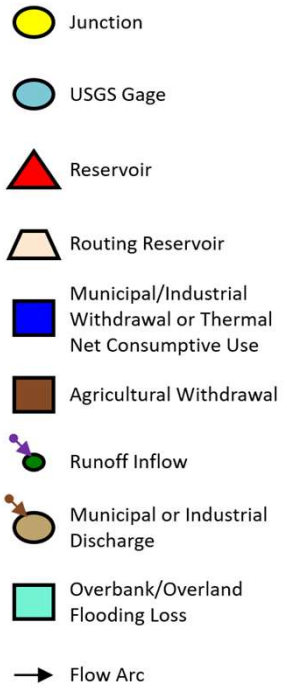
Facility	Total number
Municipal Withdrawal	10
Municipal Discharge	16
Industrial Withdrawal	5
Industrial Discharge	1
Energy Withdrawal	0

Note: Energy withdrawals are expressed as consumptive uses in modeling.

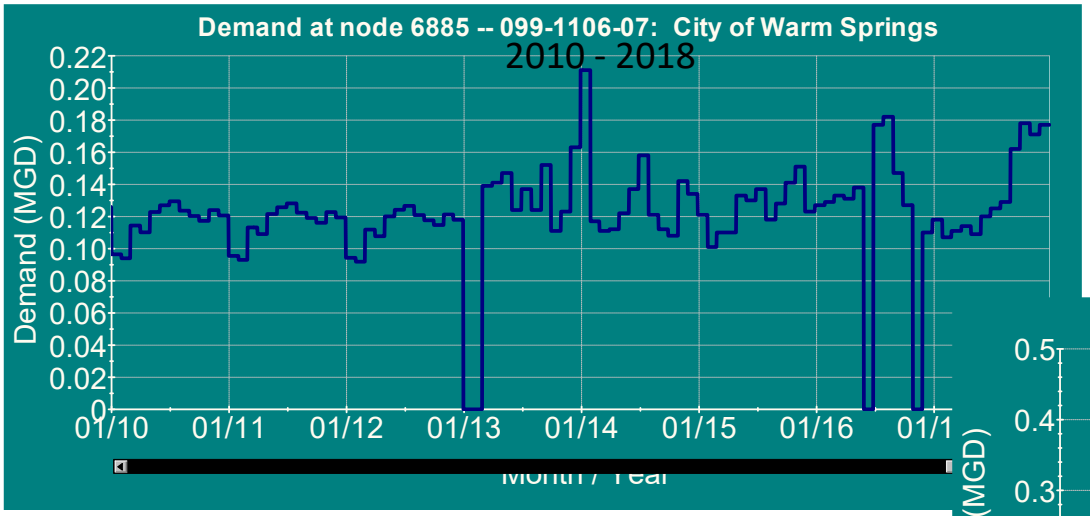
Example 1: Permit 099-1106-07 (BEAM Node 6885)

- Permit holder: City of Warm Springs
- Withdrawal limits: 0.33 mgd (daily)/0.24 mgd(monthly)

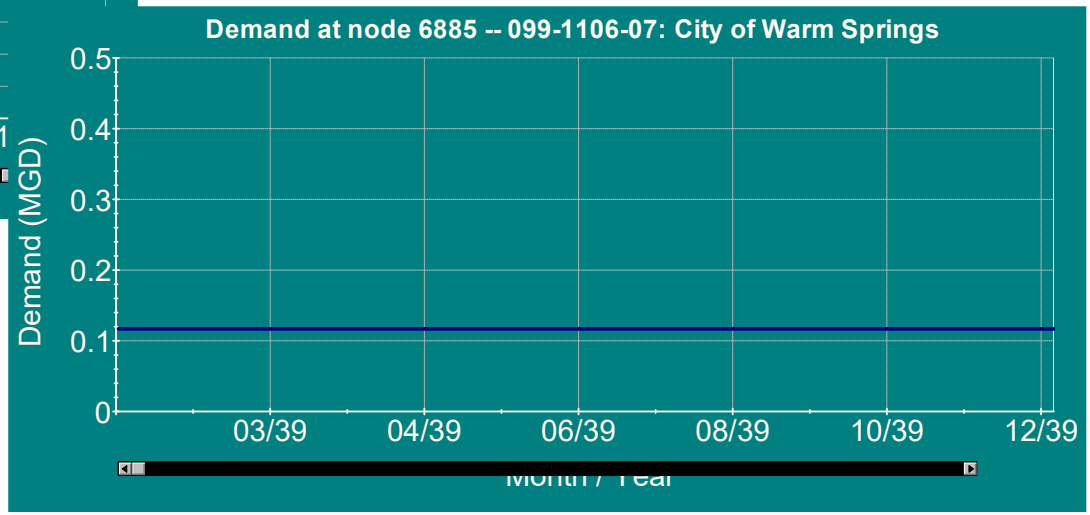




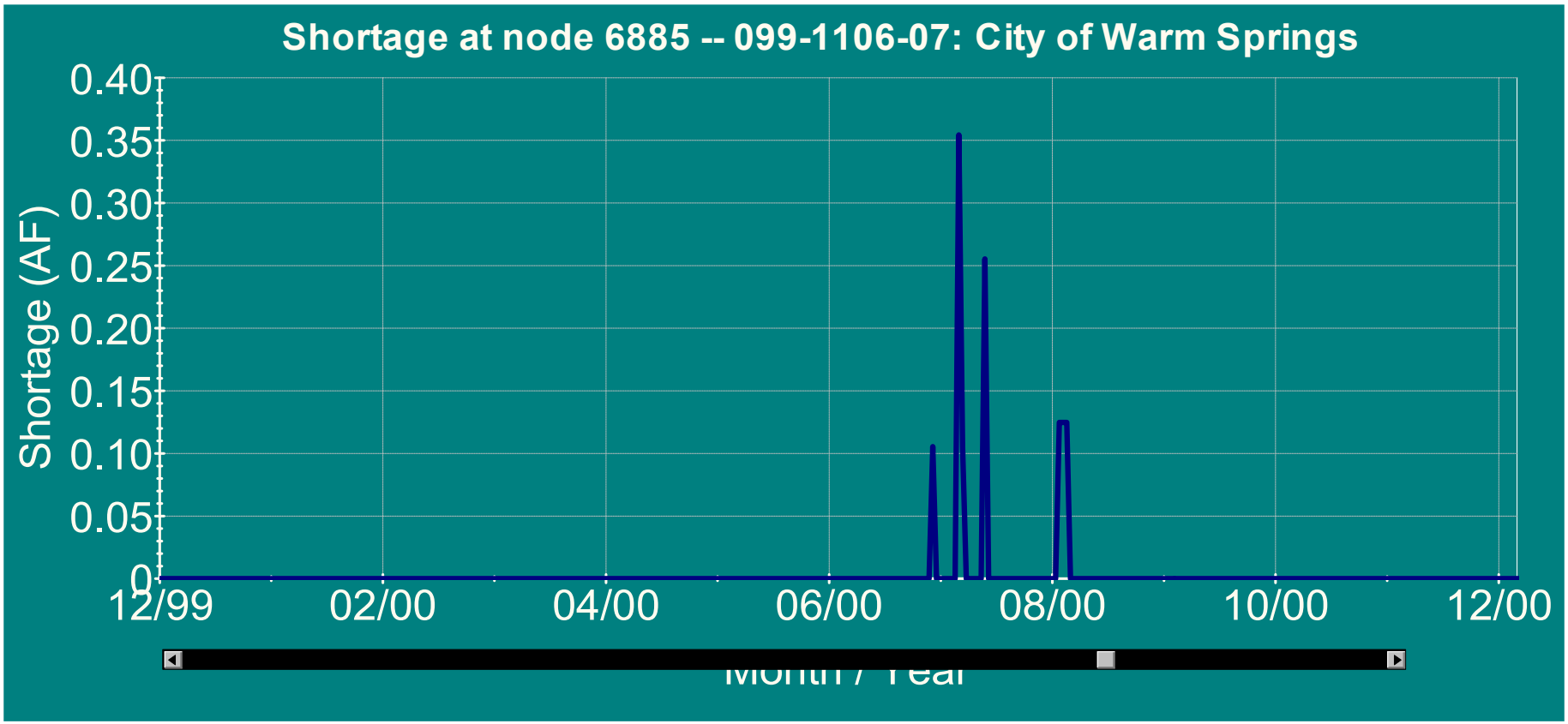
Permit 099-1106-07 Withdrawal Amount Setting- average of 2010-2018 and 2060 projection



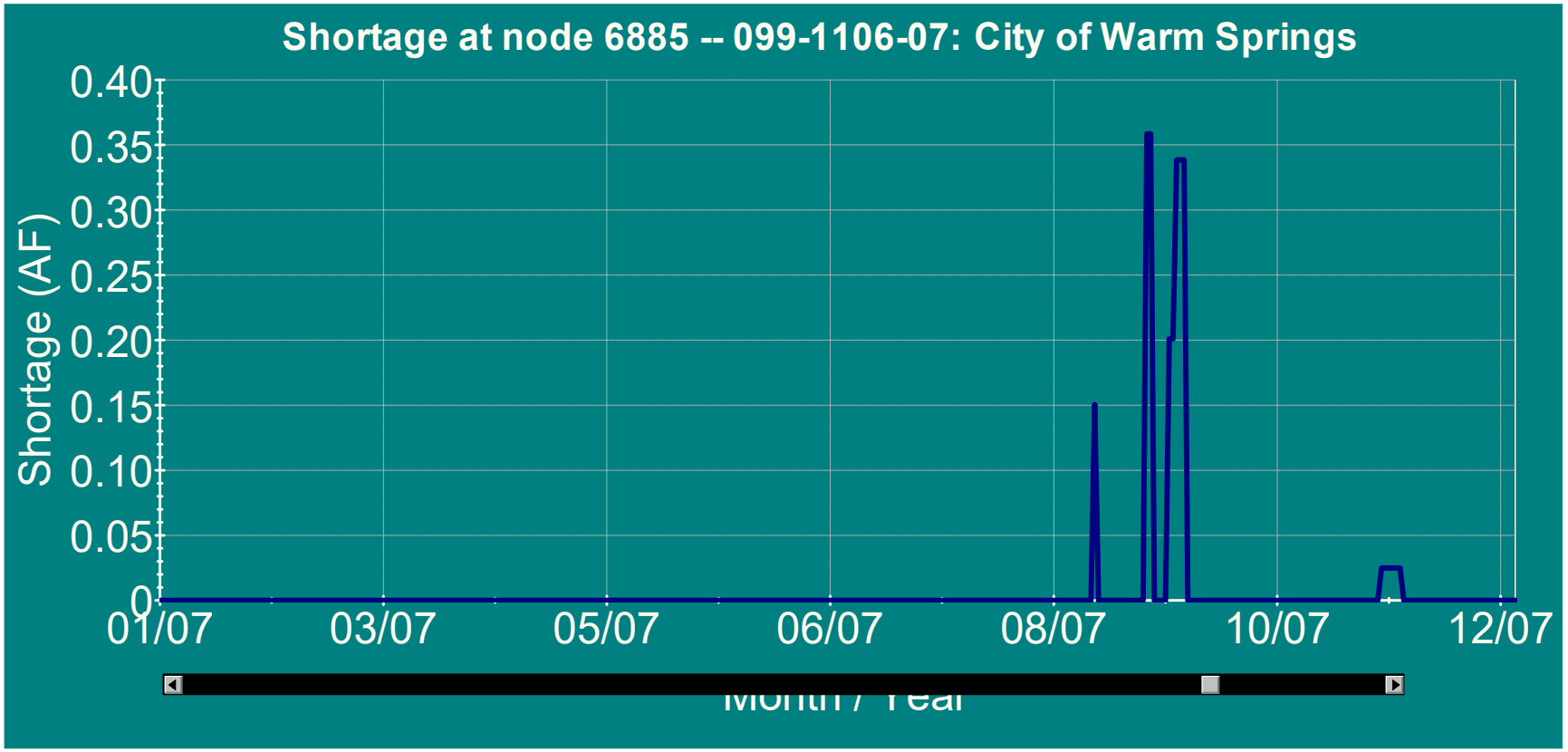
Baseline



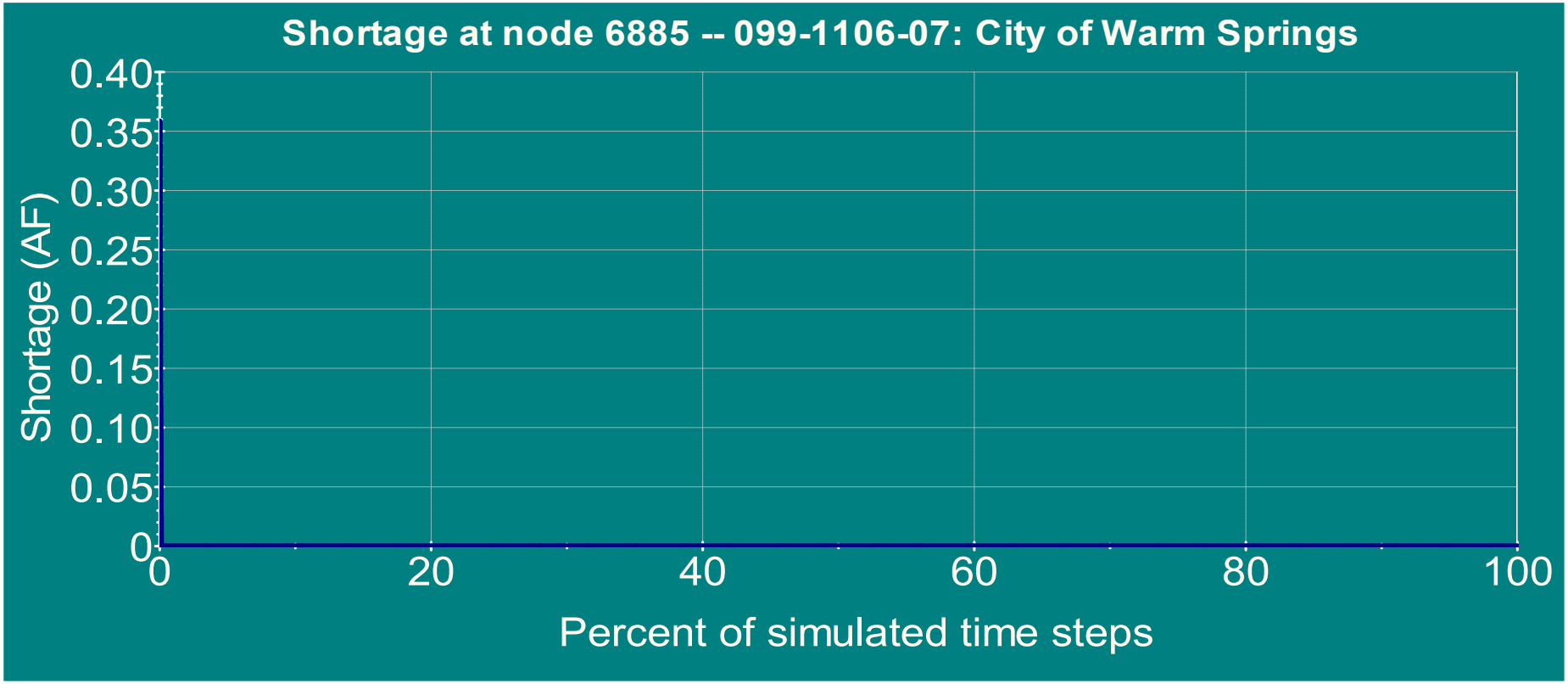
Water Supply Challenge in 2000



Water Supply Challenge in 2007

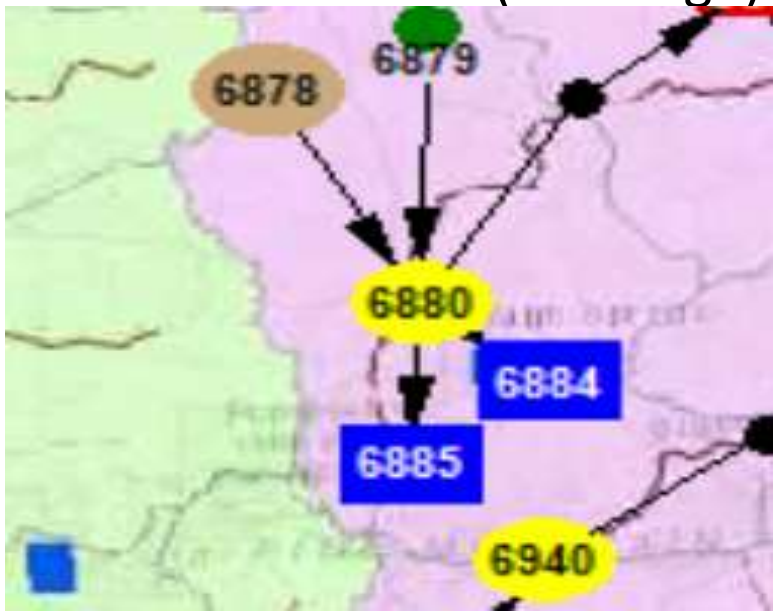


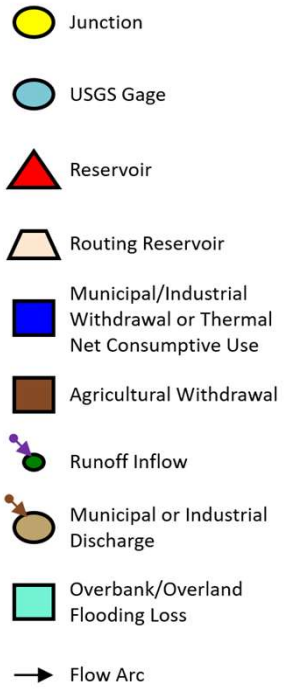
Water Supply Shortage Frequency in 1939-2018



Example 2: Permit 099-1106-04 (BEAM Node 6884)

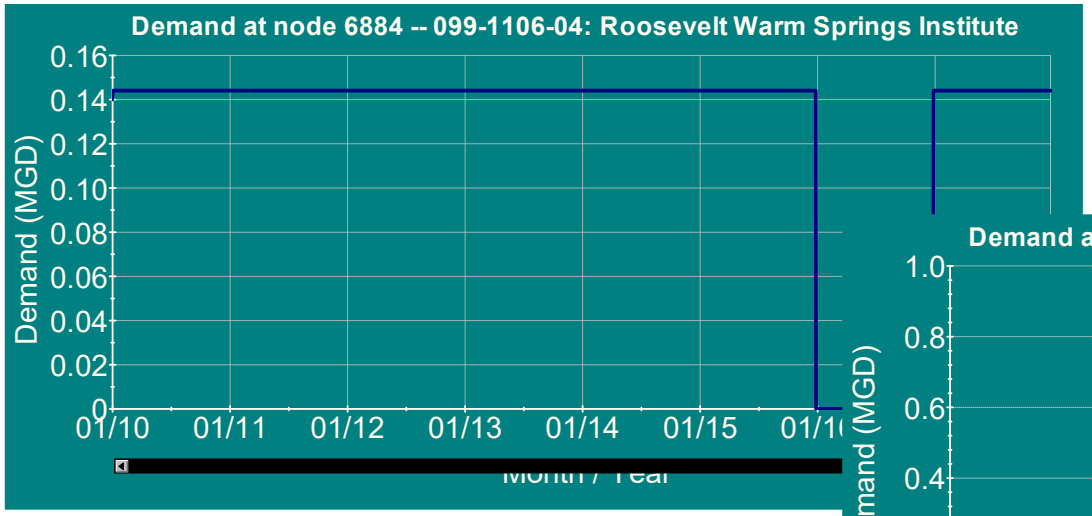
- Permit holder: Roosevelt Warm Springs Institute
- Withdrawal limits: 0.144 mgd (daily/monthly)
- Cascade Creek IFPT of 0.3 cfs (0.19 mgd)



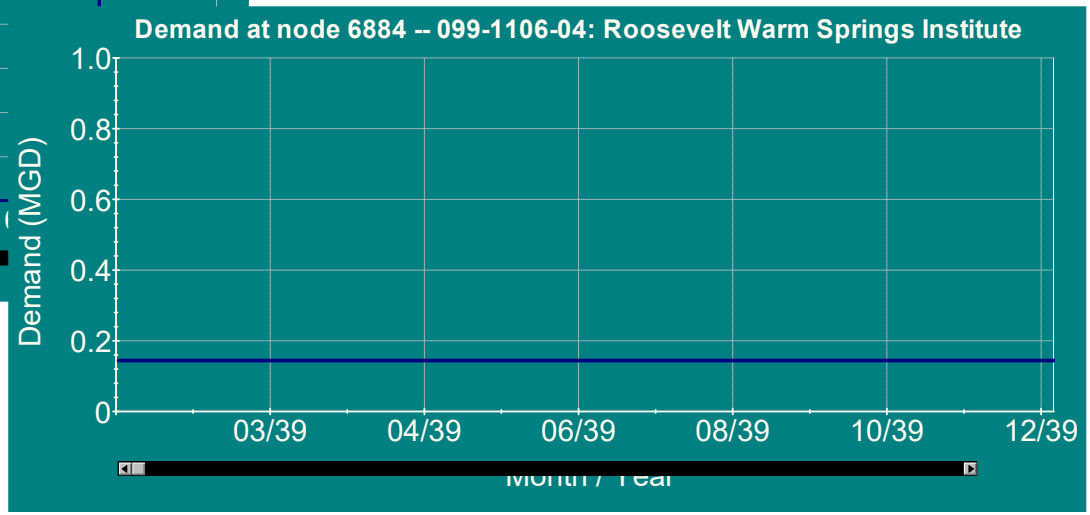


Permit 099-1106-07 Withdrawal Amount Setting- average of 2010-2018 and 2060 projection

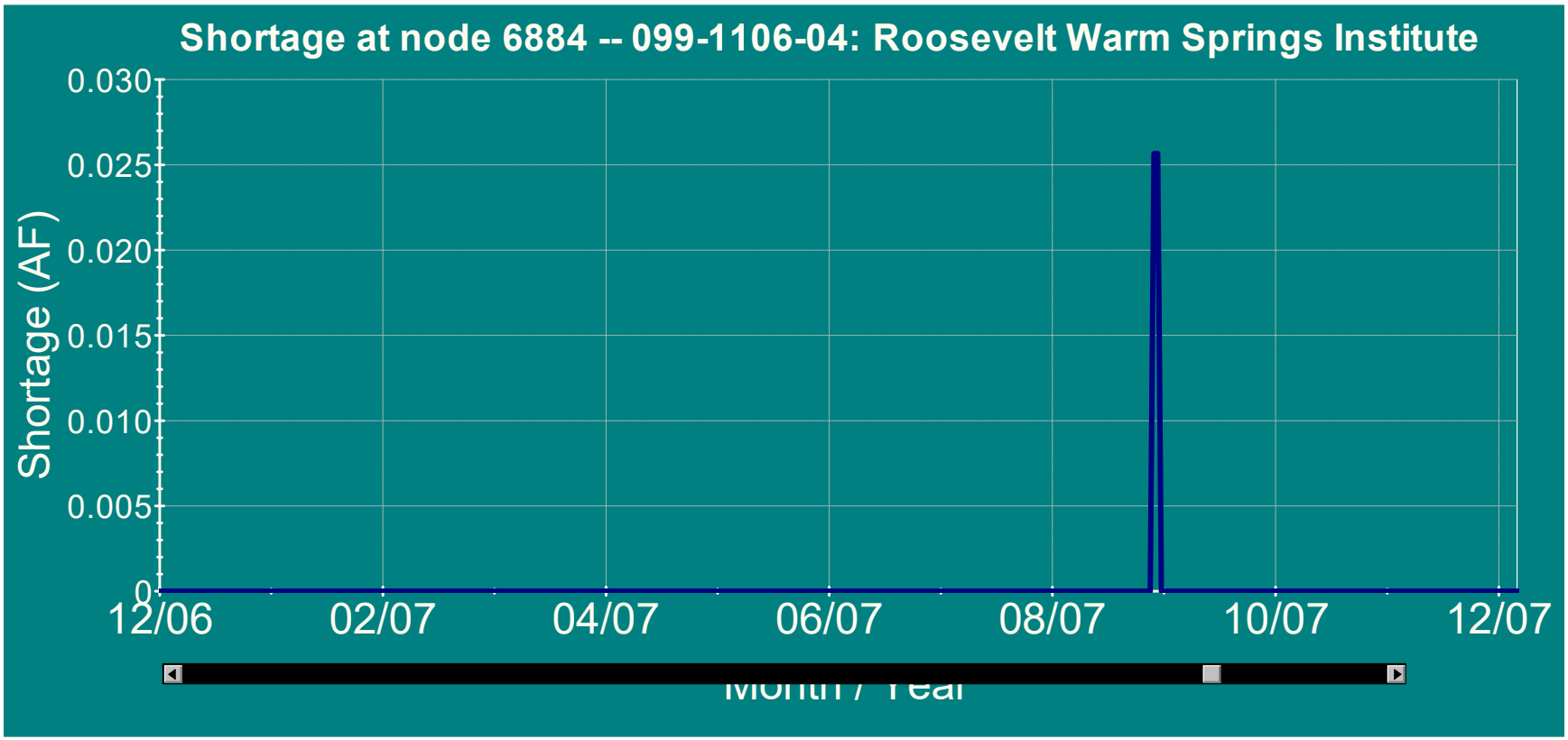
2010 - 2018



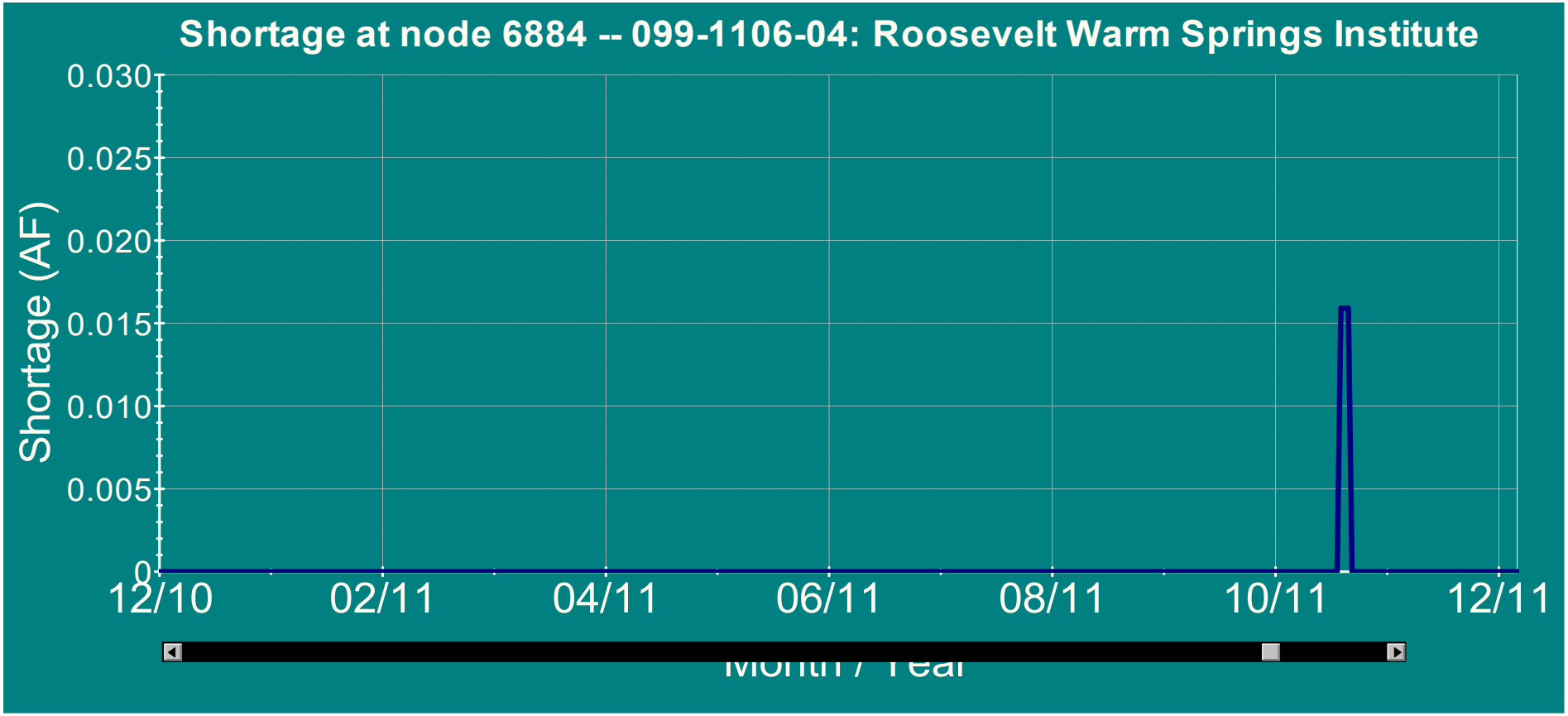
Baseline



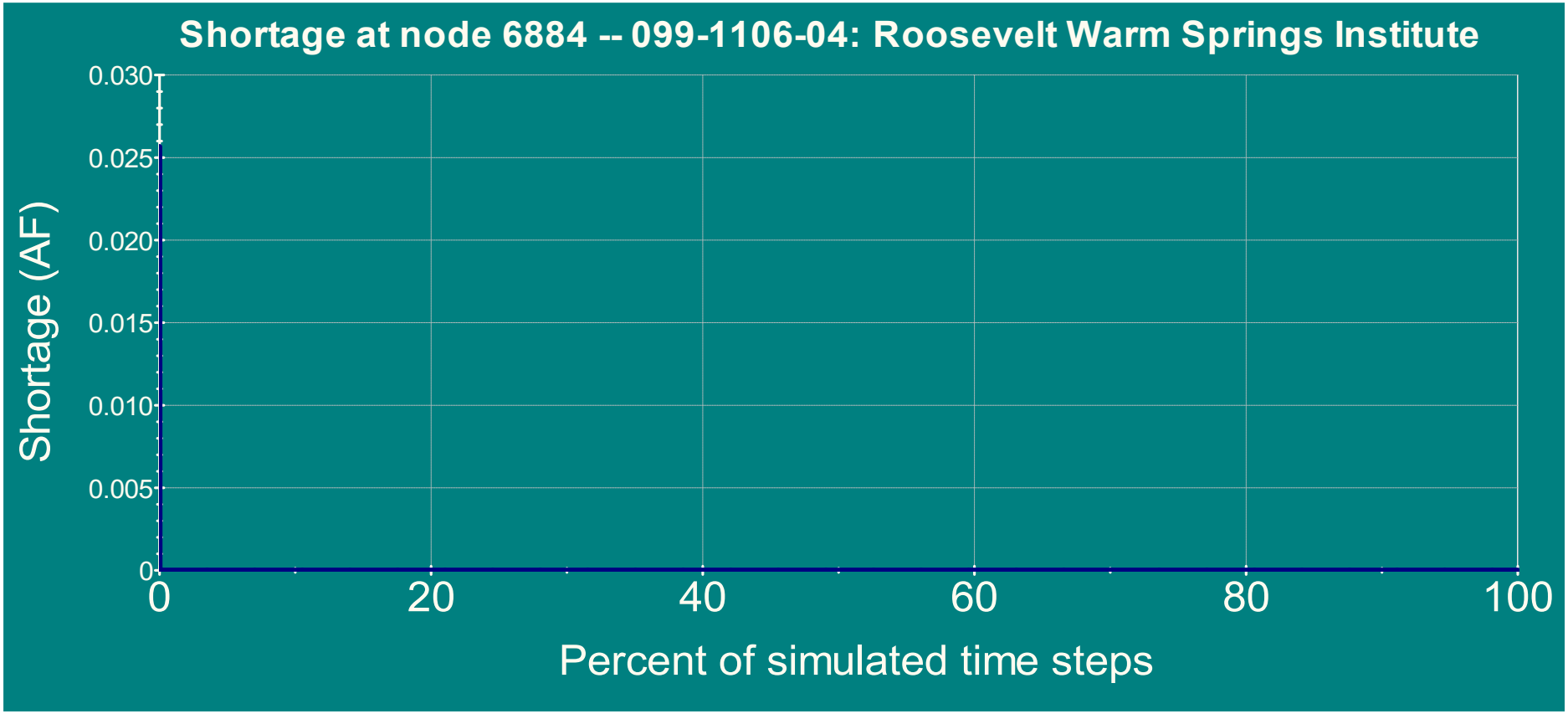
Water Supply Challenge in 2007



Water Supply Challenge in 2011



Water Supply Shortage Frequency in 1939-2018

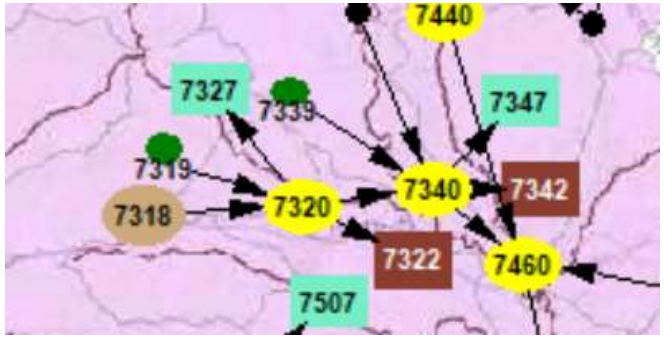


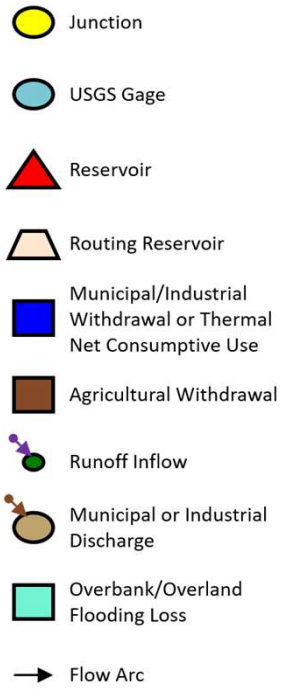
Wastewater Assimilation Challenge

- Wastewater increases with population growth, which may also bring challenge to water resource management.
- Effluent limitation is determined by two factors:
  - Available technology – technology based effluent limitations
  - Water quality standards – upholding water quality standards in the receiving water body - 7Q10 flow is usually used as low flow threshold for determining wastewater assimilation and NPDES permit limitations

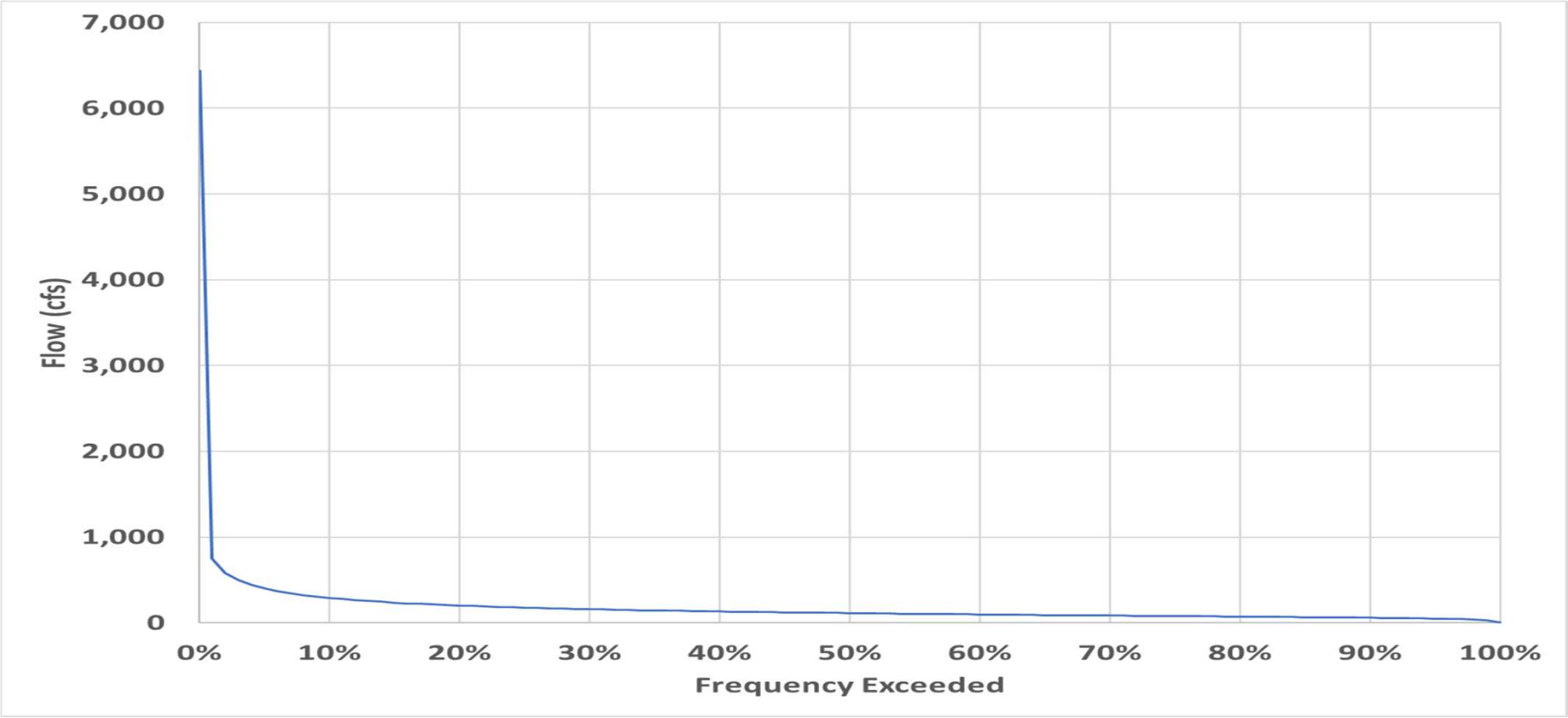
Wastewater Assimilation Challenge Example 1: Permit GA 0020729 (BEAM Node 7318)

- Permit holder: City of Reynolds (Reynolds WPCP)
- Permitted monthly discharge flow: 0.4 mgd
- 7Q10 Flow at discharge location: 33.39 cfs

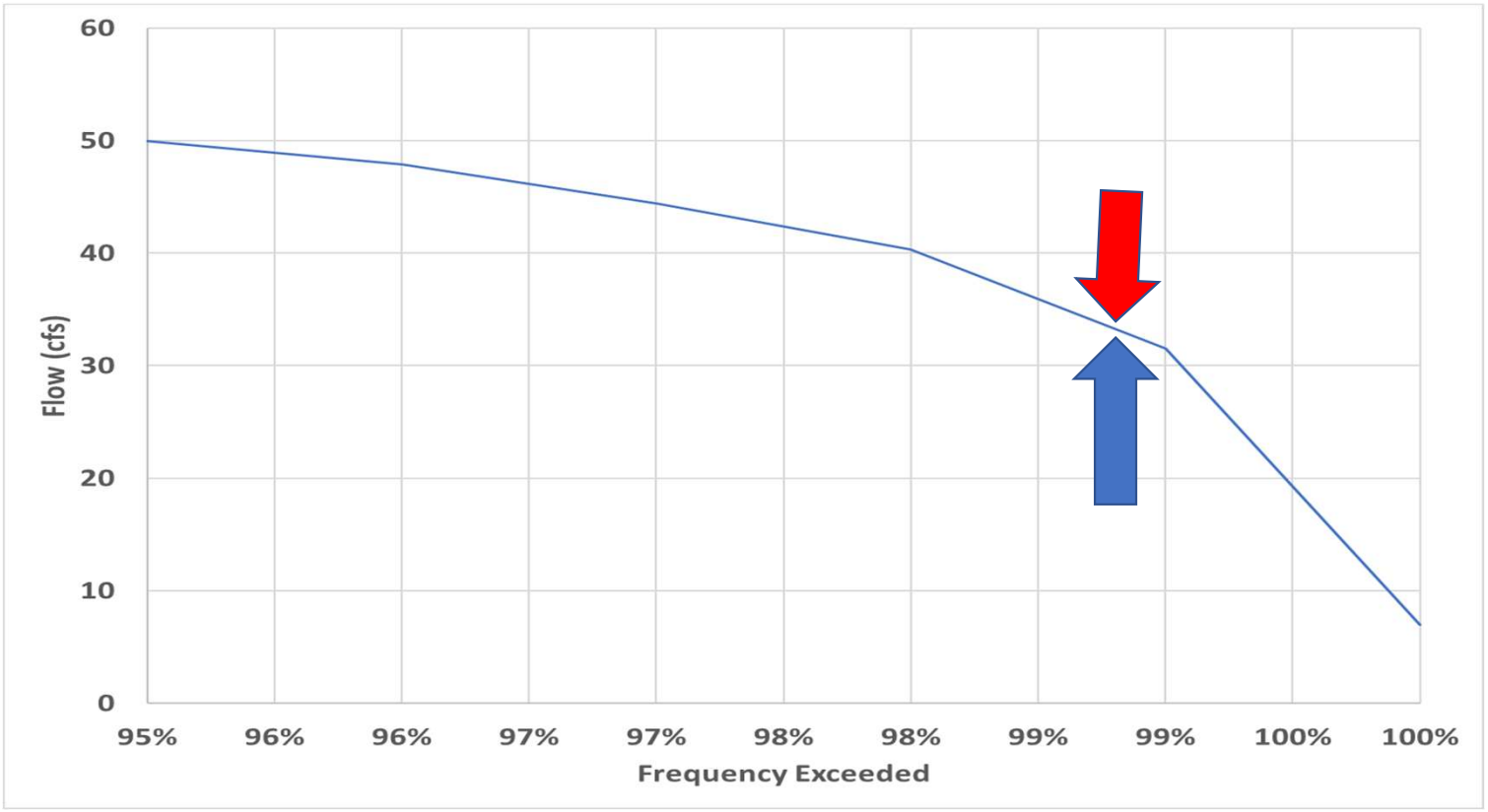




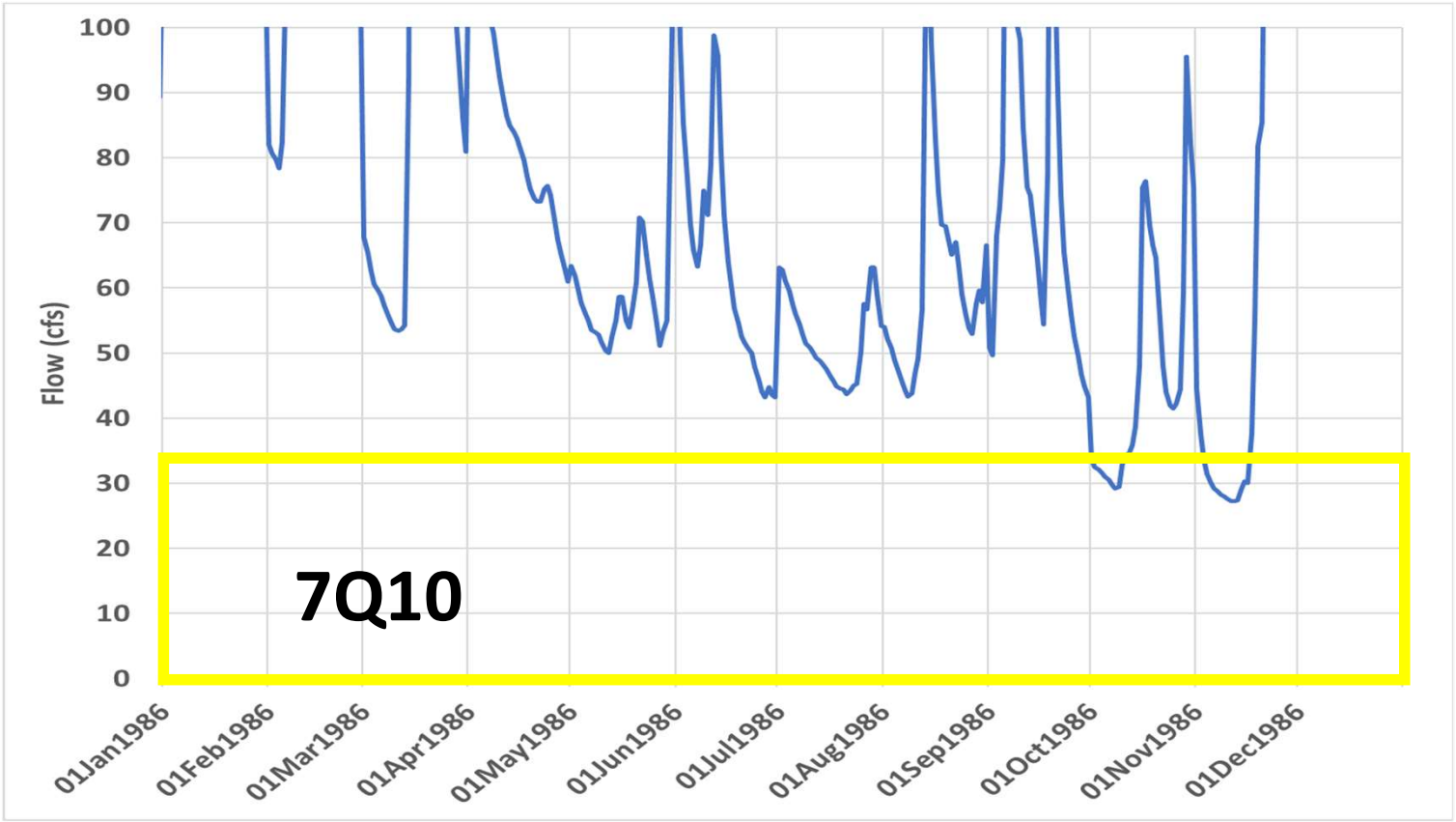
Simulation Results at GA 0020729 Location Flow Frequency



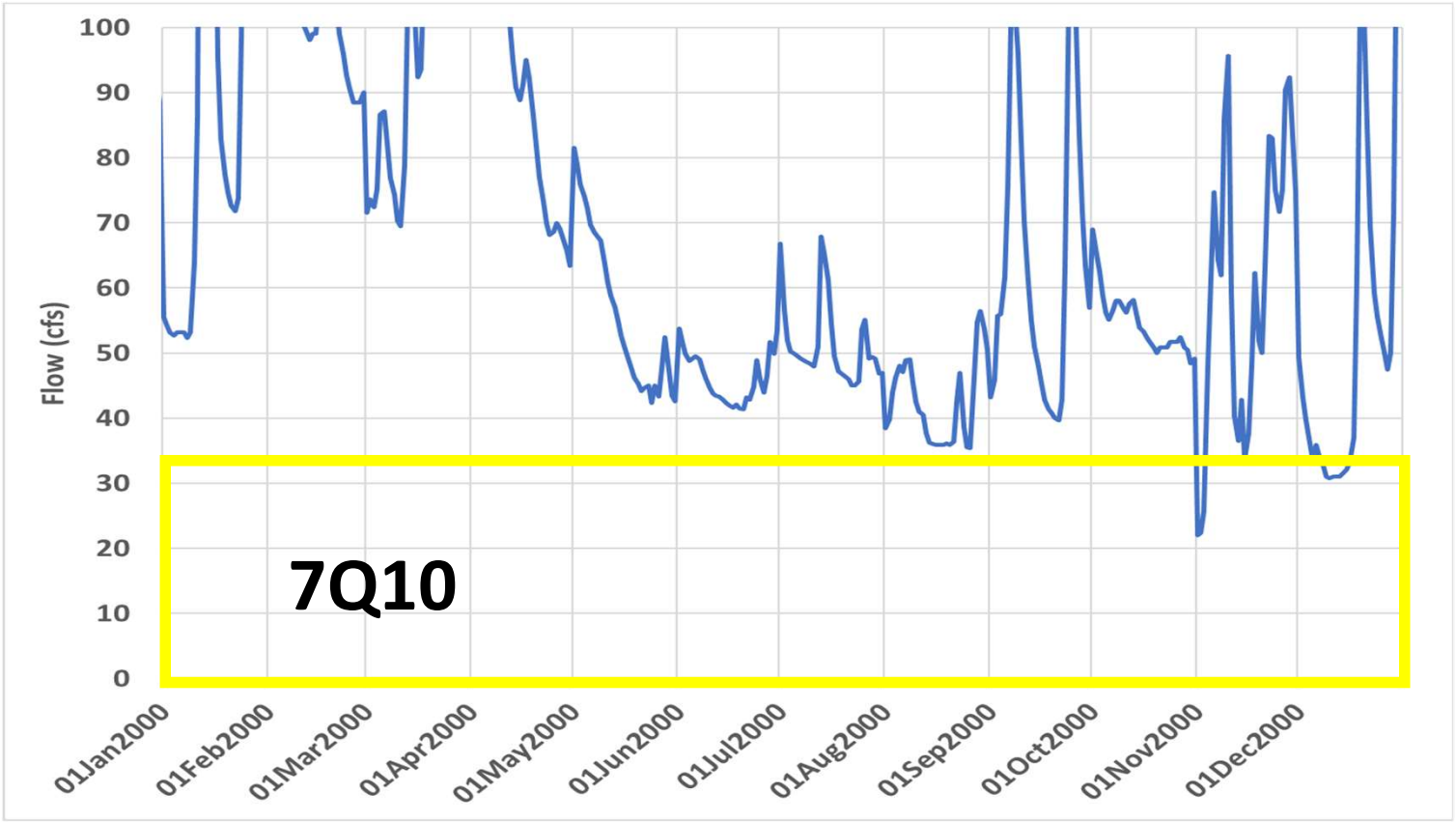
Simulation Results at GA 0020729 Location Flow Frequency (low end) (7Q10 = 33.39 cfs)



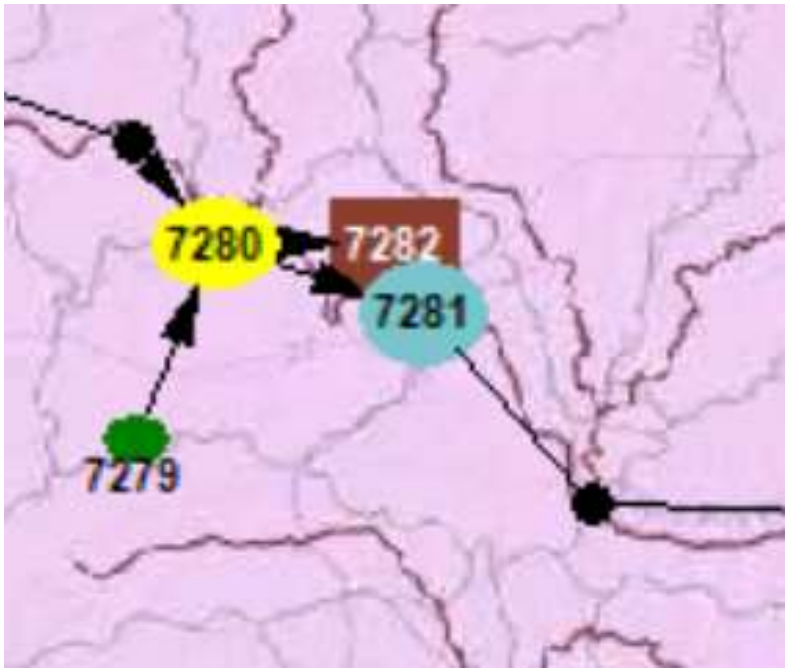
Simulation Results at GA 0020729 Location Flow in 1986

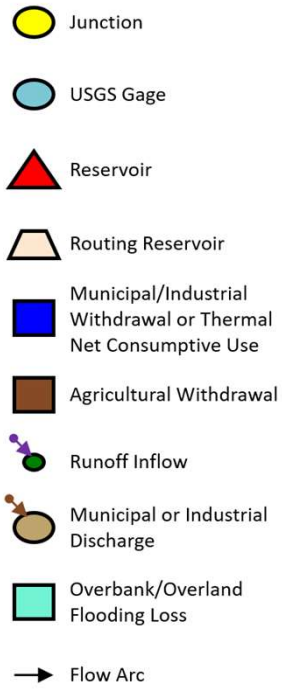


Simulation Results at GA 0020729 Location Flow in 2000

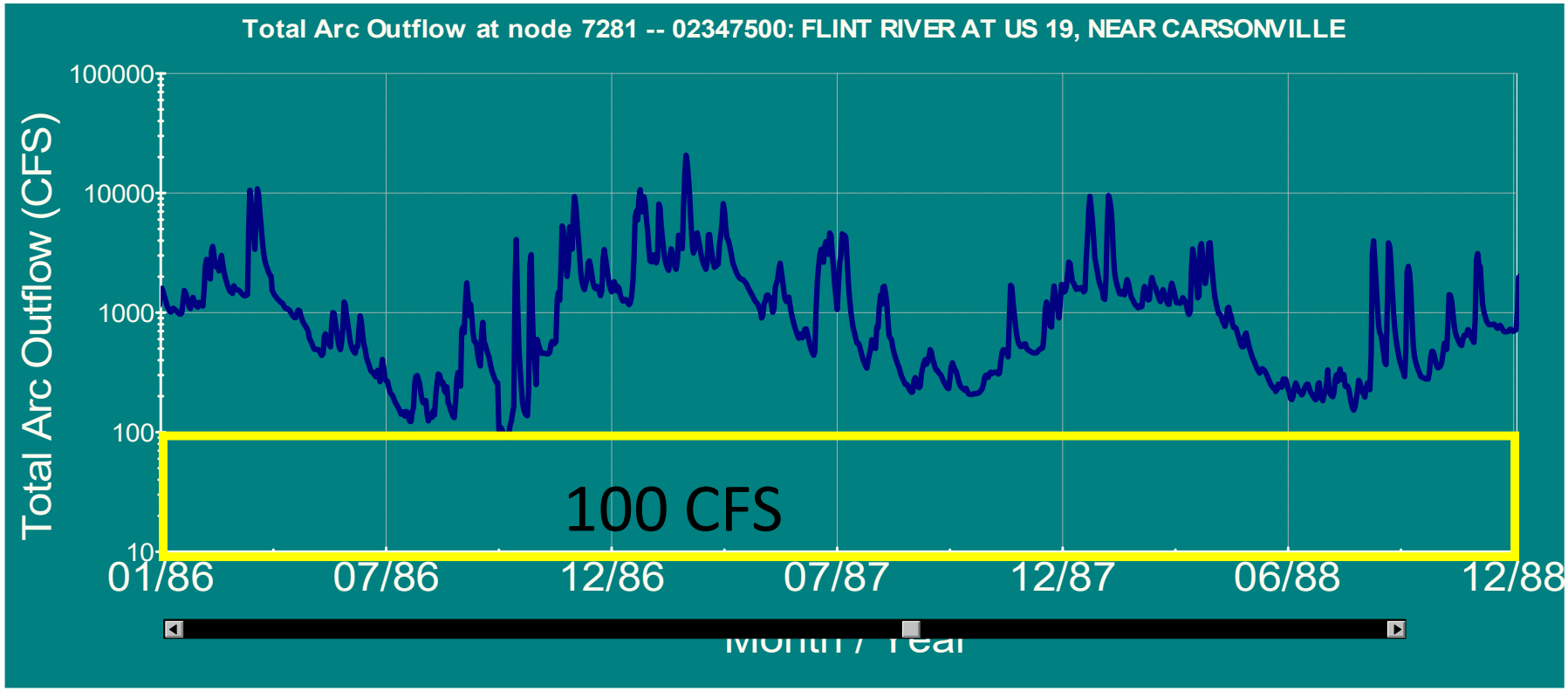


Carsonville Flow Condition (BEAM Node 7281)

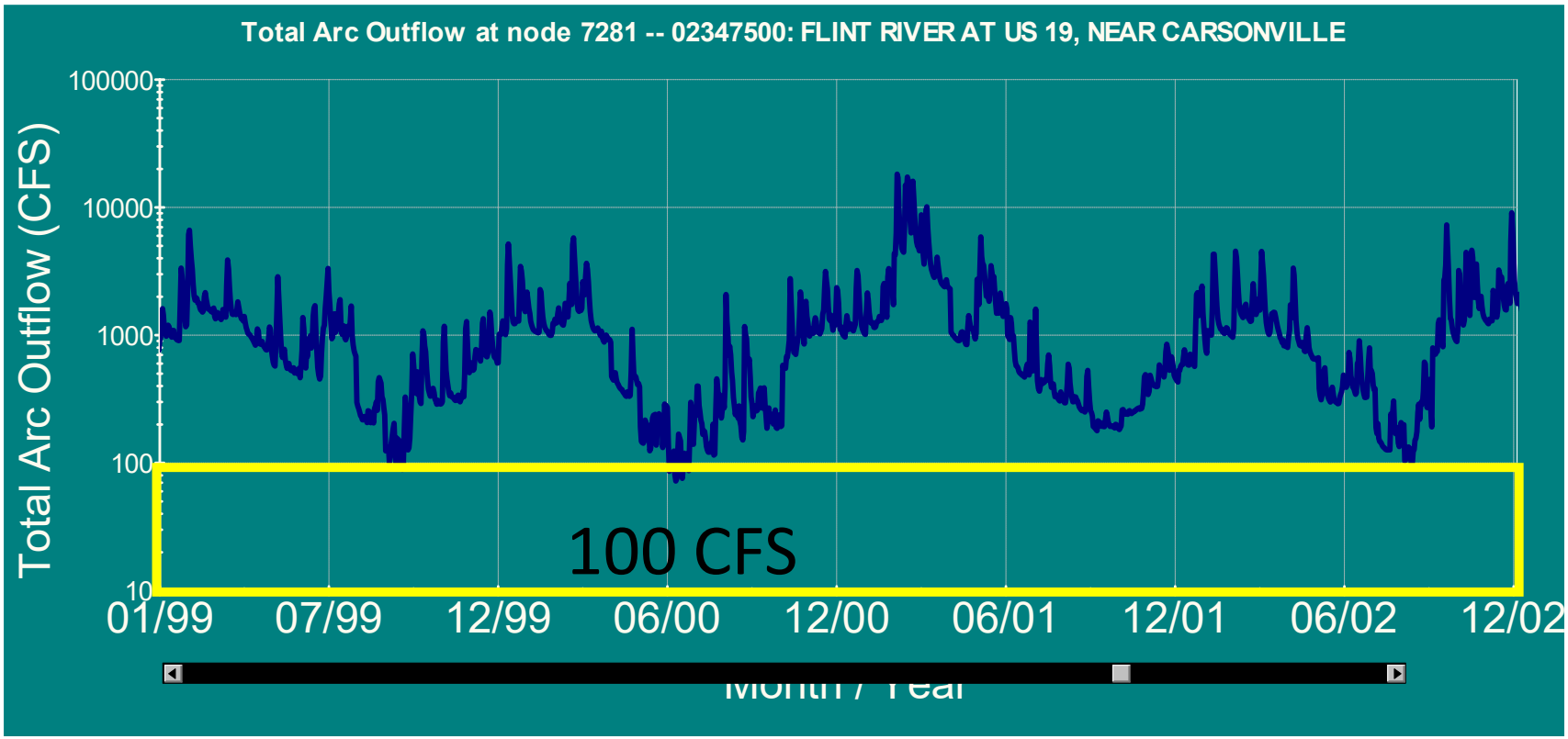




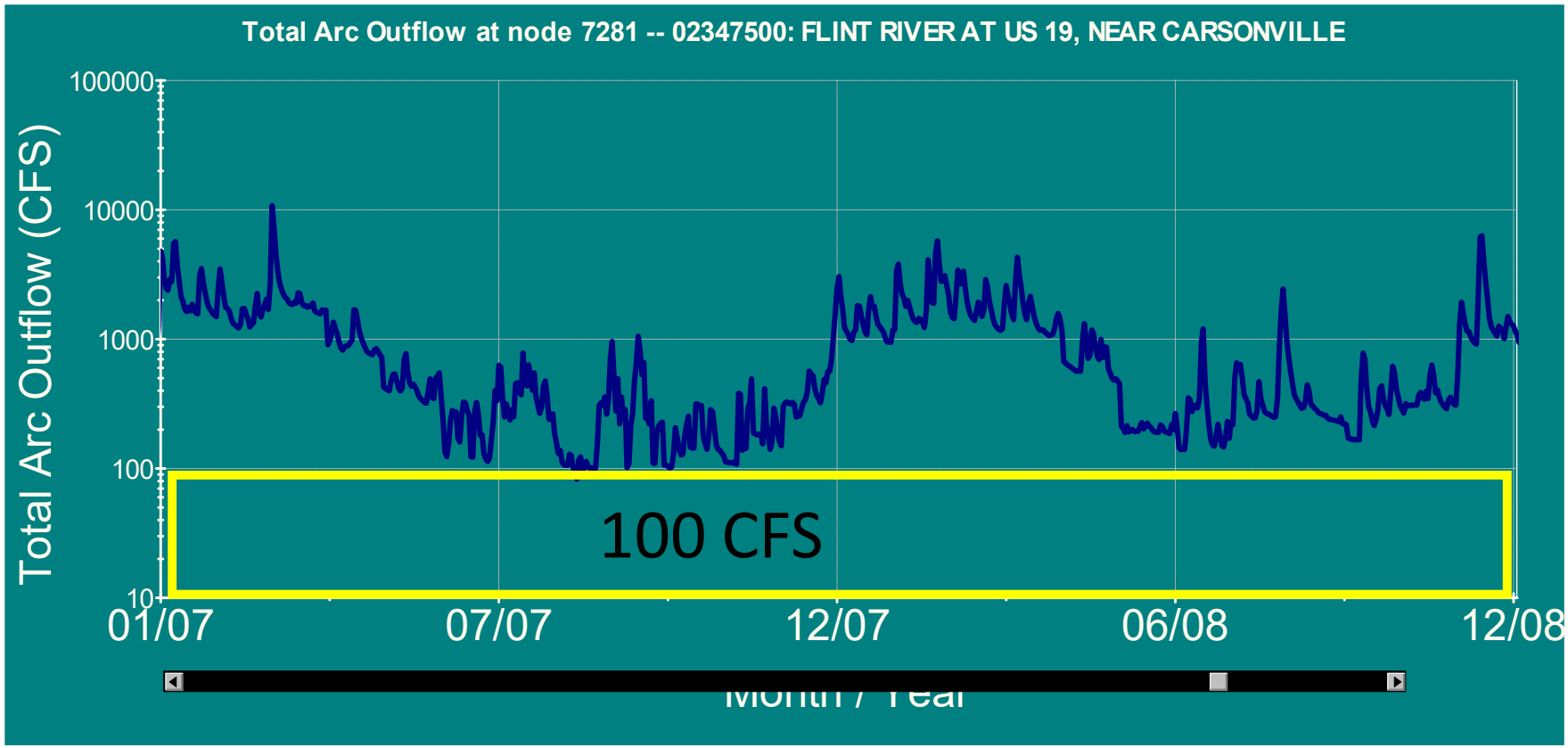
Simulation Results at USGS 02347500 Location Flow in 1986-1988



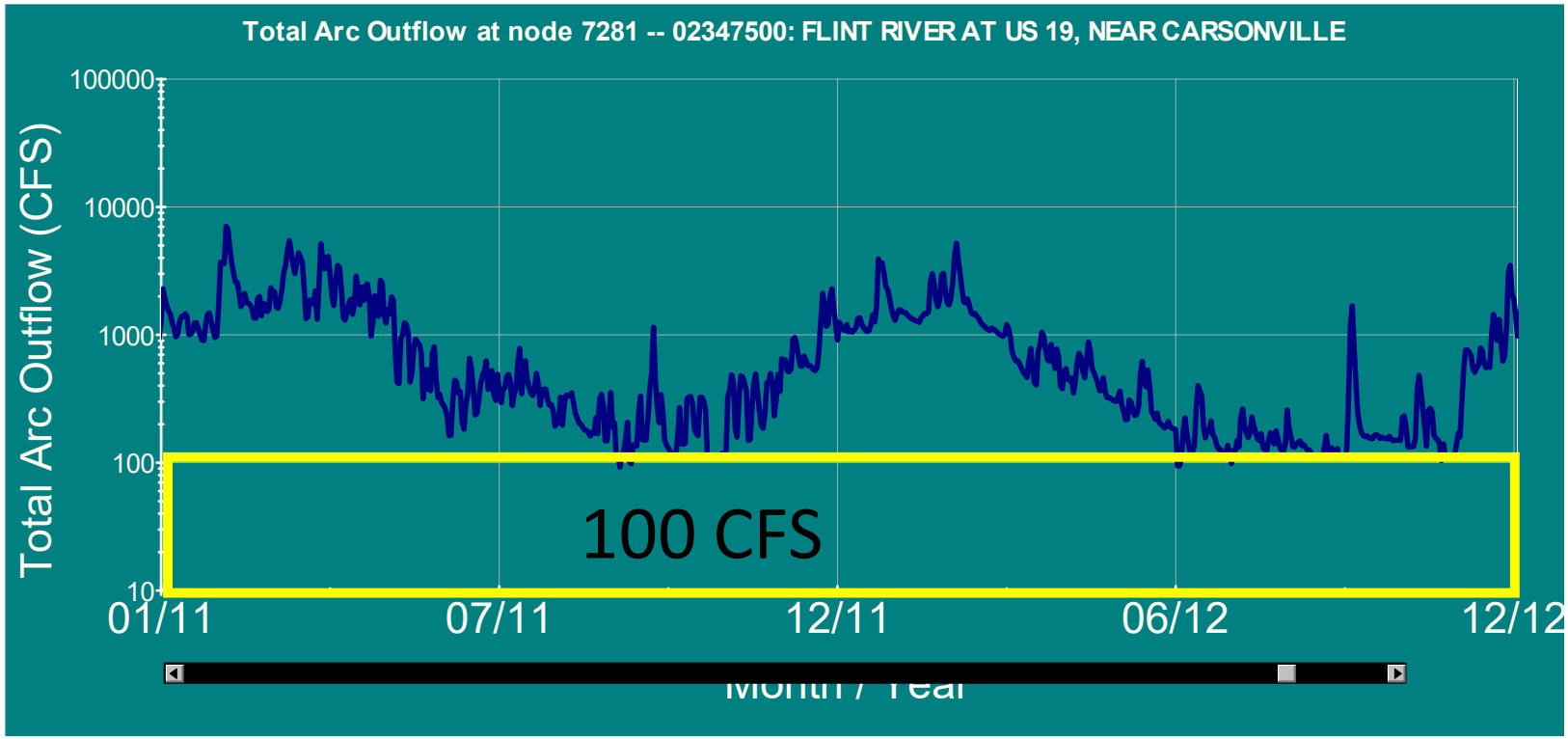
Simulation Results at USGS 02347500 Location Flow in 1999-2002



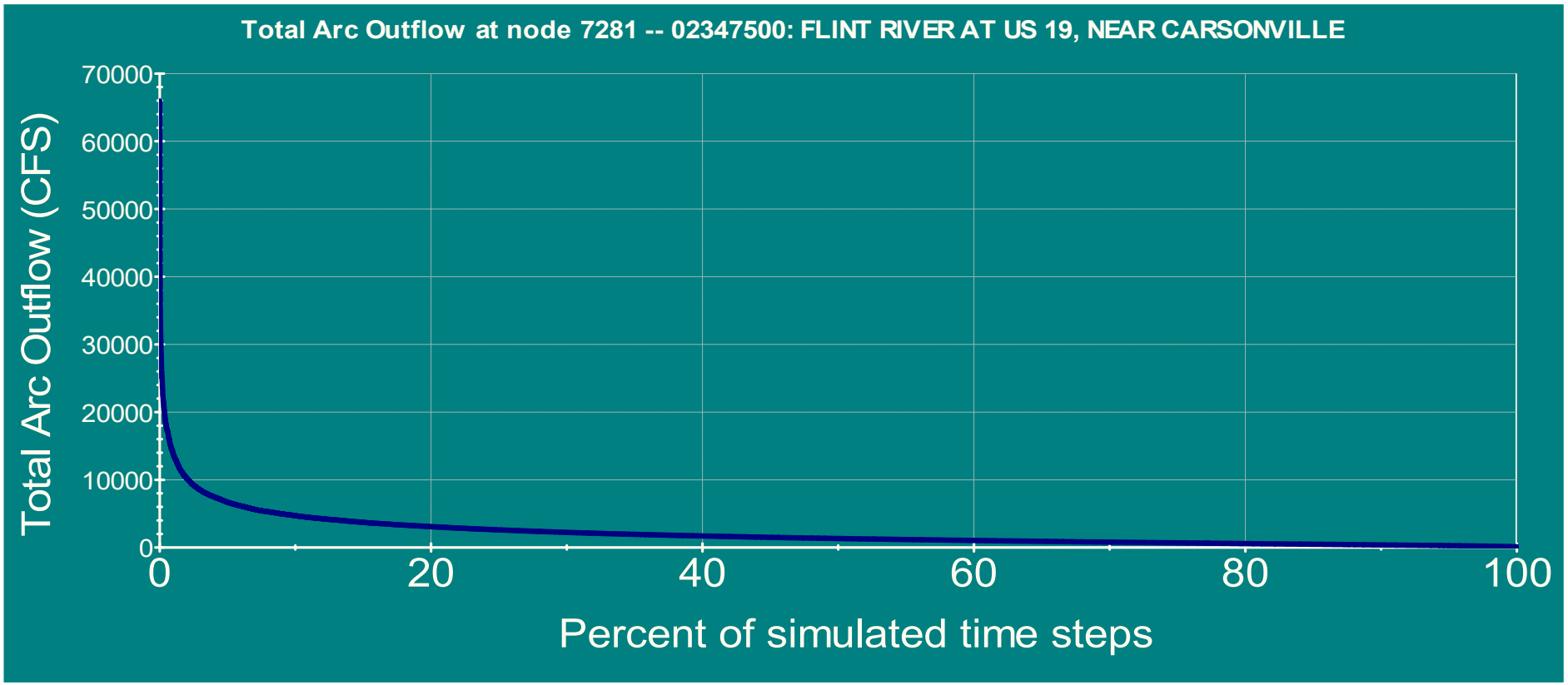
Simulation Results at USGS 02347500 Location Flow in 2007-2008



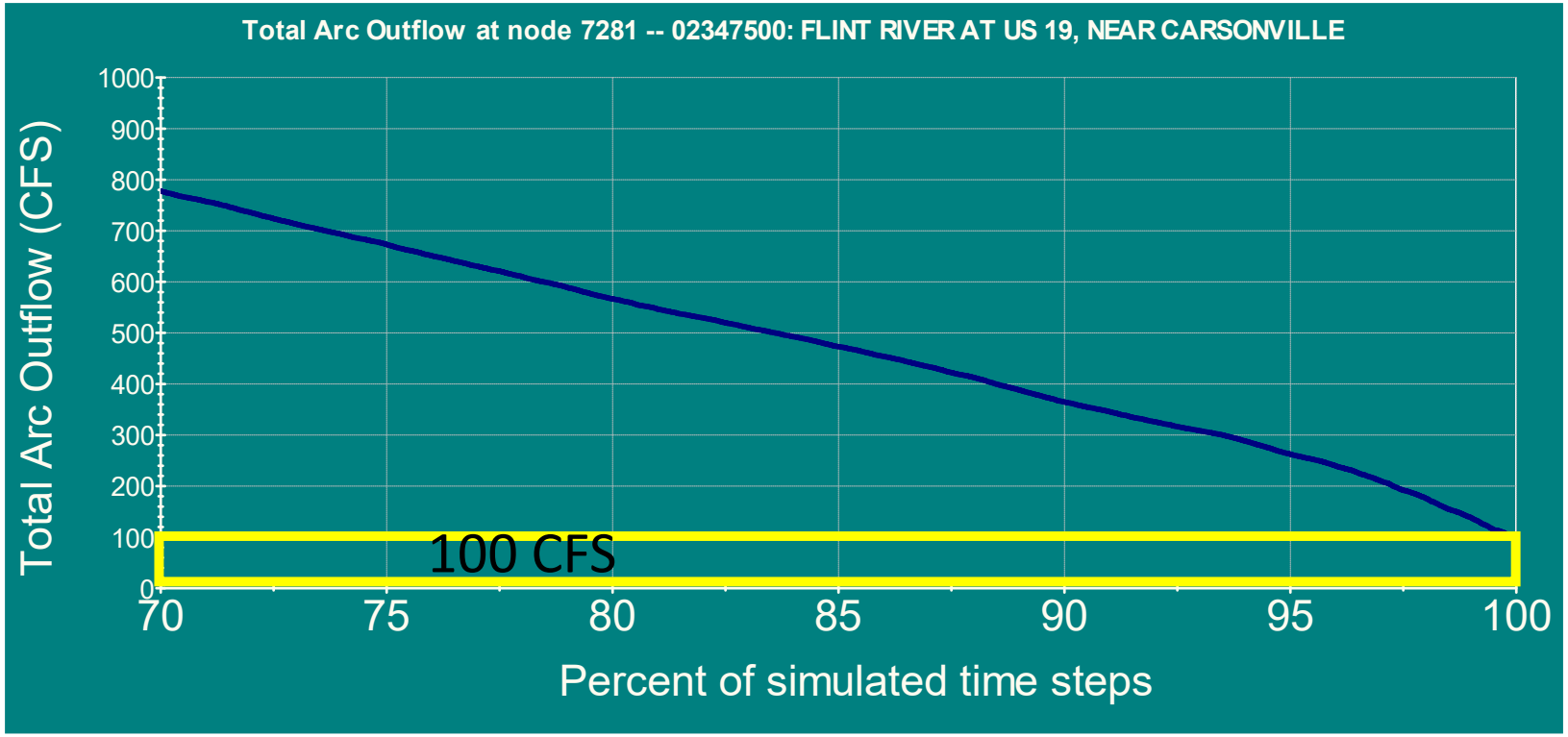
Simulation Results at USGS 02347500 Location Flow in 2011-2012



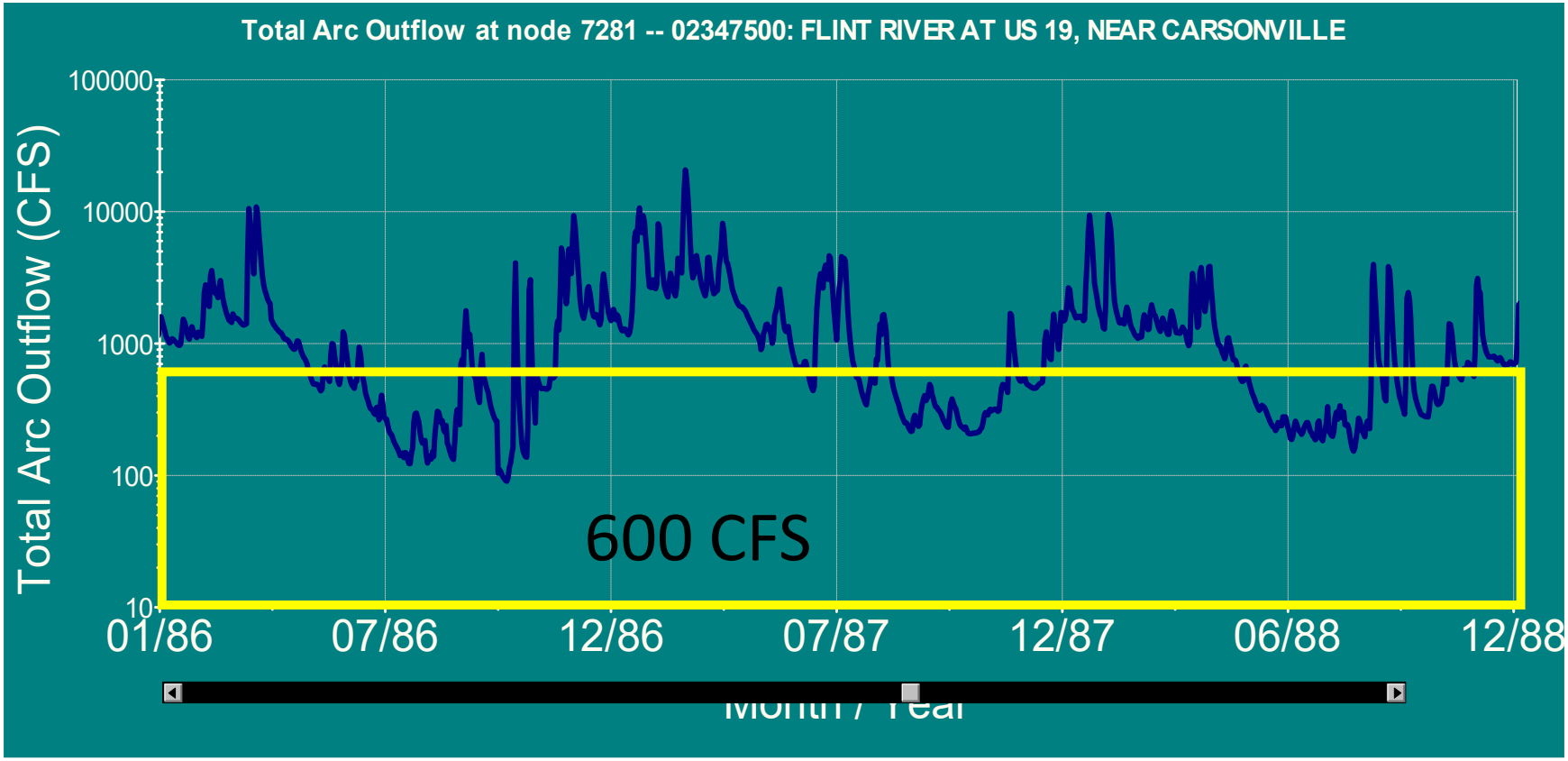
Simulation Results at USGS 02341500 Location Flow Frequency



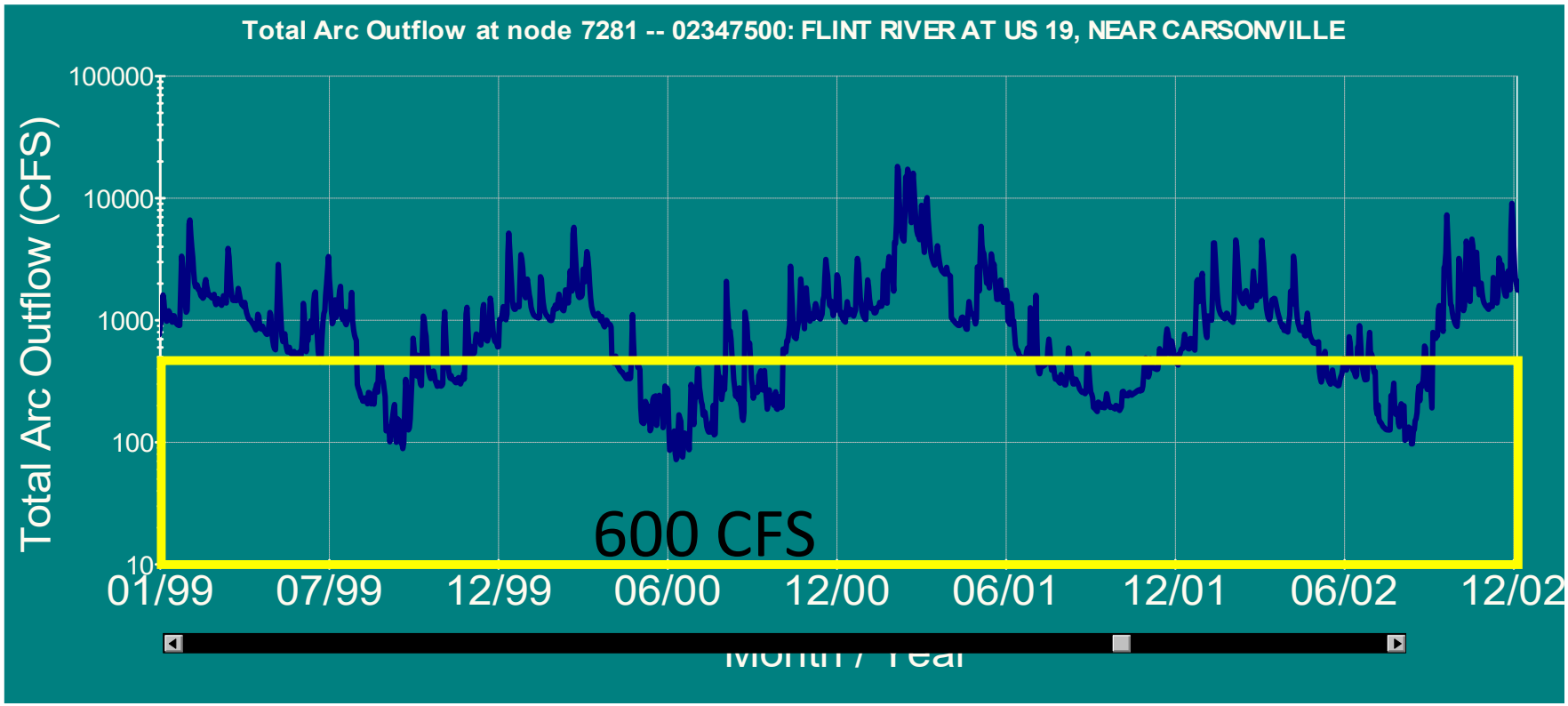
Simulation Results at USGS 02341500 Location Flow Frequency (low end)



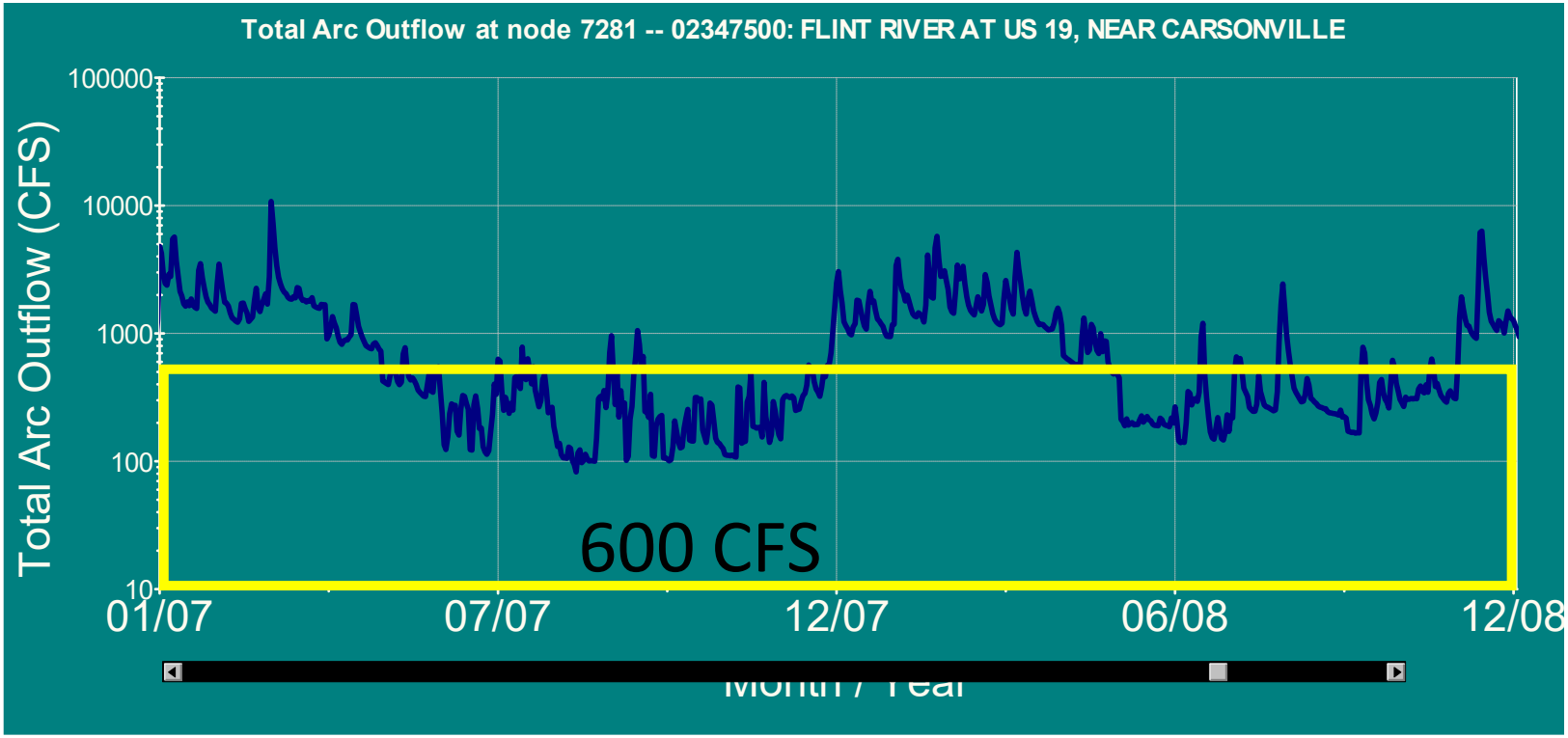
Simulation Results at USGS 02347500 Location Flow in 1986-1988



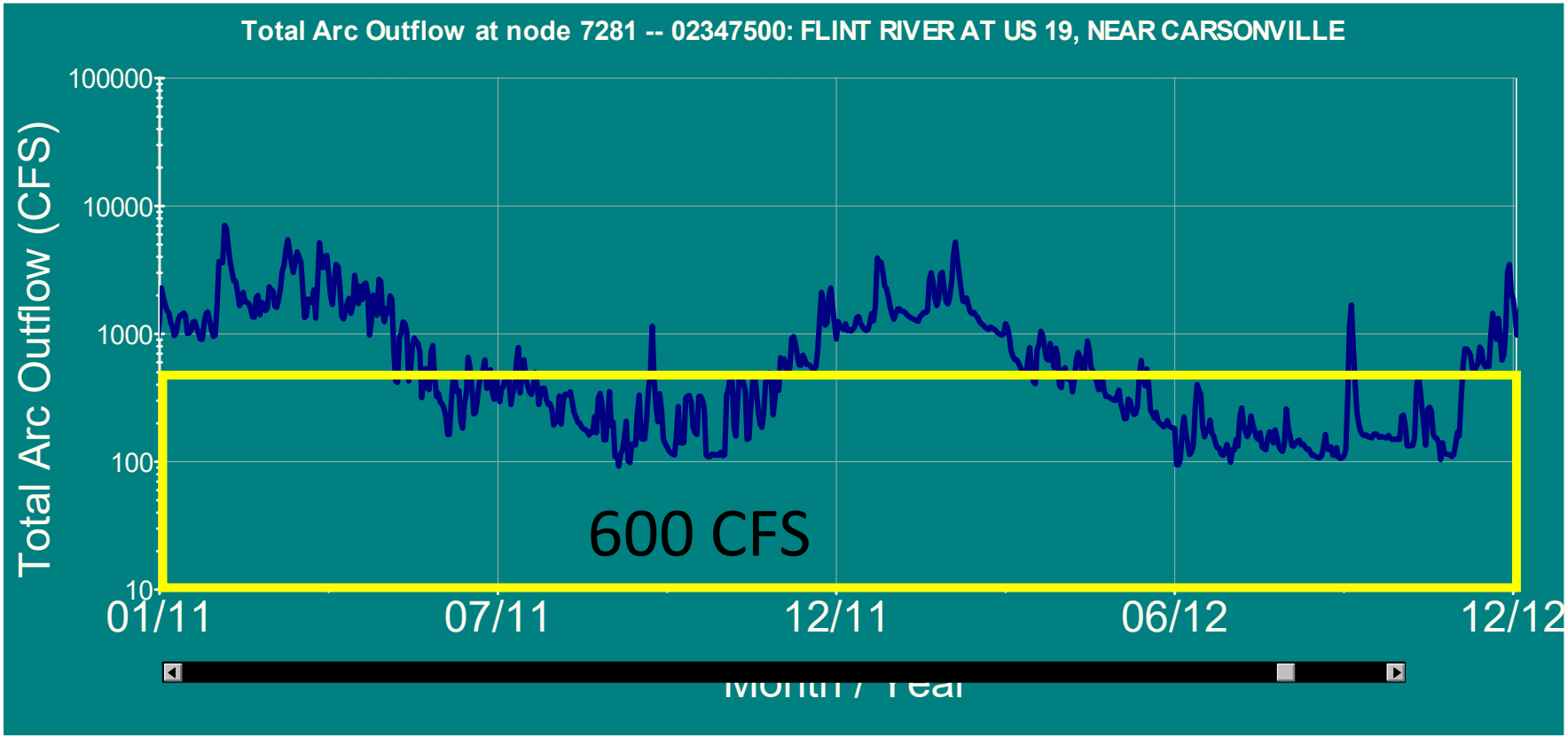
Simulation Results at USGS 02347500 Location Flow in 1999-2002



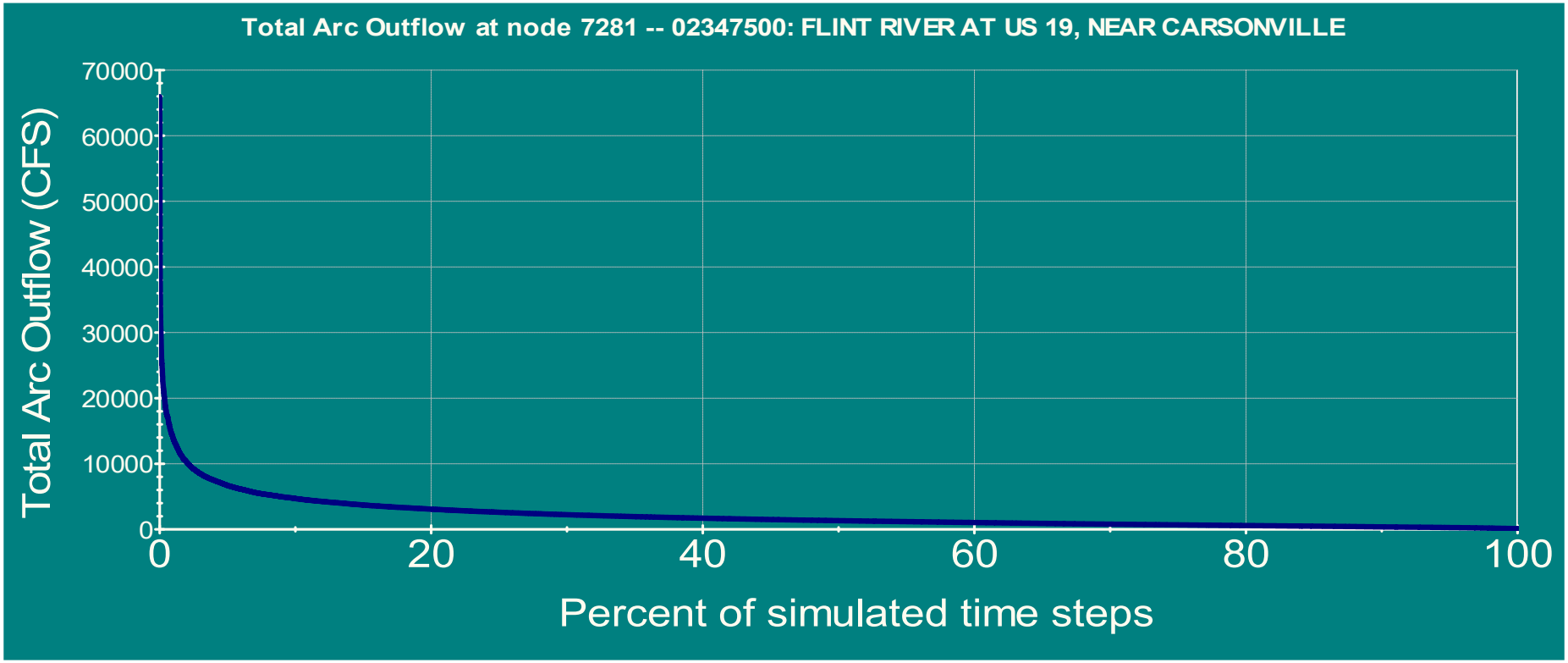
Simulation Results at USGS 02347500 Location Flow in 2007-2008



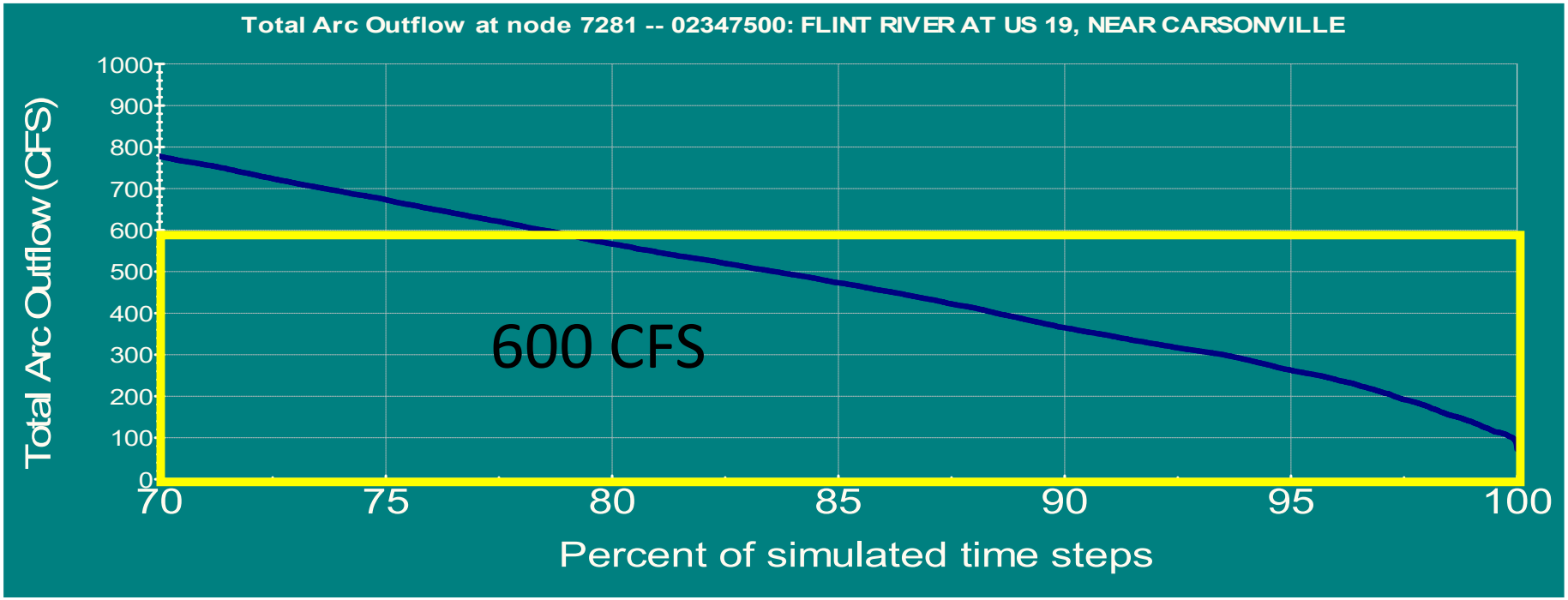
Simulation Results at USGS 02347500 Location Flow in 2011-2012



Simulation Results at USGS 02341500 Location Flow Frequency



Simulation Results at USGS 02341500 Location Flow Frequency (low end)



Summary

- Moderate water supply challenges under baseline water use conditions
- Moderate wastewater assimilation challenges under baseline water use conditions
- Flow at Carsonville under baseline water use conditions
- Additional evaluation can be added according to stakeholders' inputs
- RA team will provide updates in Tech Memo and presentations as additional results become available

Questions?

Contact Information:

Wei Zeng, Ph.D., Professional Hydrologist
Manager, Water Supply Program
Watershed Protection Branch, Georgia EPD
470-251-4897 (Zoom Phone) New!
470-898-3891 (Cell)

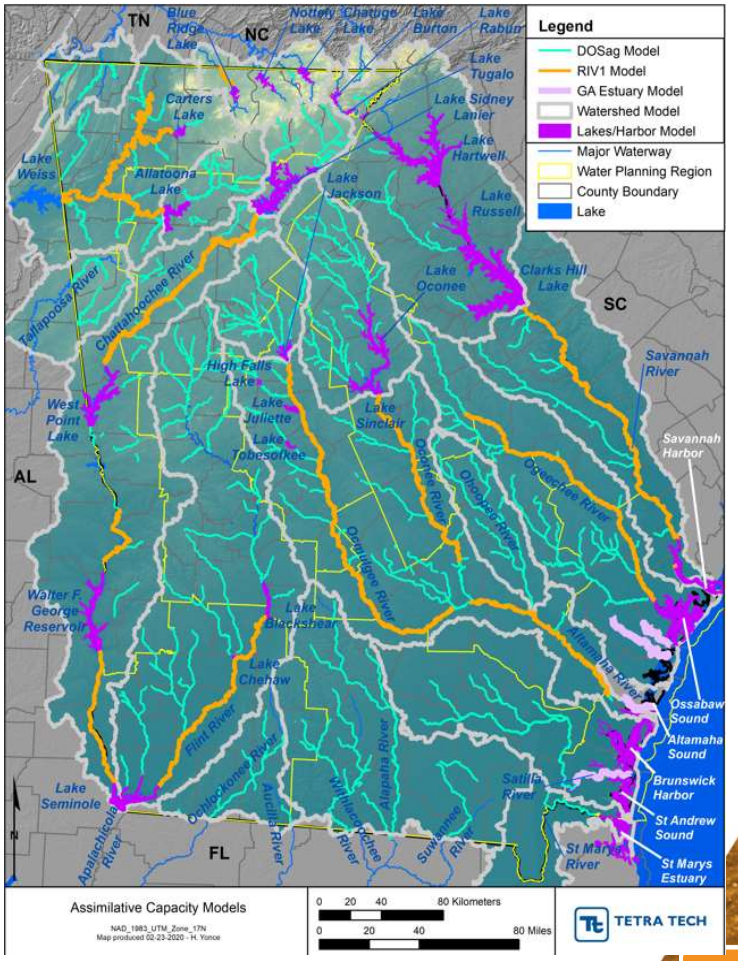
Wei.Zeng@dnr.ga.gov

Water Quality Resource Assessment

Results under Future Conditions

Watershed Modeling

- **These models are not updated at this time, but updates are underway**
  - **Time-varying landuse inputs**
  - **Updated meteorological conditions**
- **Current Conditions:**
  - **dischargers at 2014 permit limits**
- **Future Conditions:**
  - **2050 assumed permit limits based on previous forecasted flows**



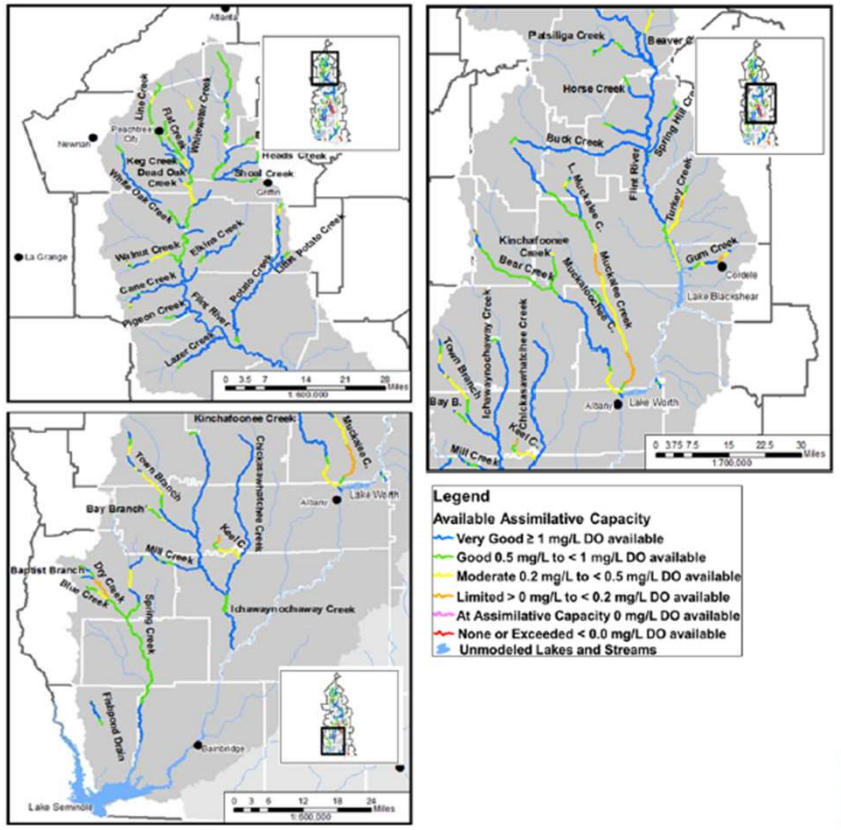
Dissolved Oxygen Modeling

- **Future Conditions addressed in Plan Section 5.3**

  Figure 5-1 shows the modeled assimilative capacity at assumed future (2050~~60~~60) permitted flow and effluent limits.

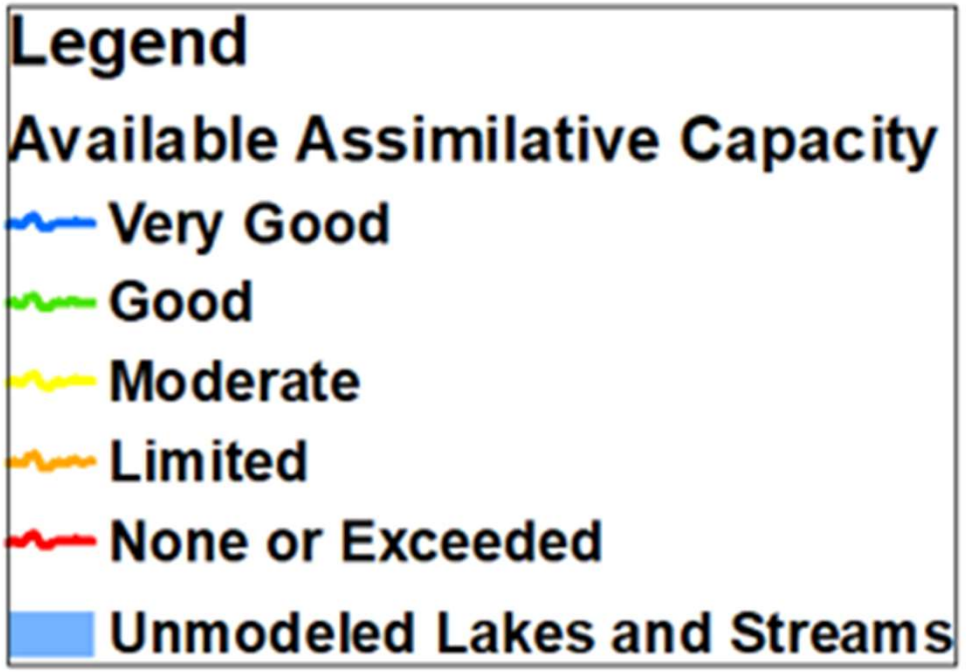
- Figure 5-1: Results from Upper, Middle & Lower Flint Basin

Figure 5-1: Assimilative Capacity Results from Dissolved Oxygen Assessment: Flint Basin (2050)

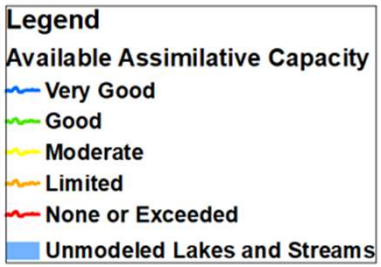


Dissolved Oxygen Modeling

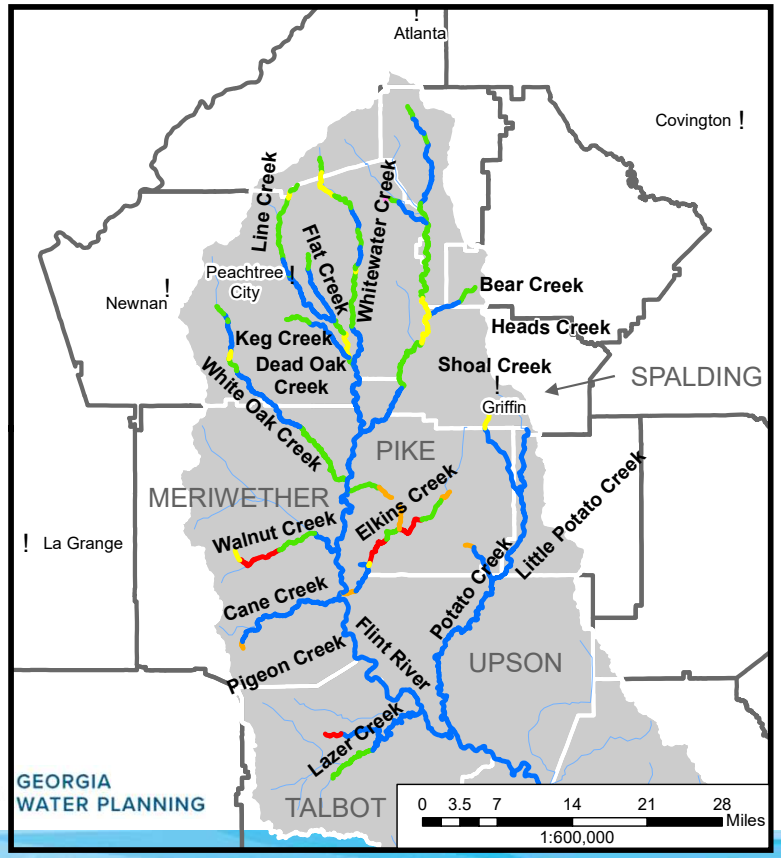
- **Current Conditions**
  - 2019 Permit Limits
- **Future Conditions**
  - 2060 Assumed Permit Limits
- **DOSAG and Riv-1 Models:**
  - High temp, low flow conditions
- **Assimilative Capacity**
  - How DO levels compare to water quality standard of 5.0 mg/L (or natural conditions)



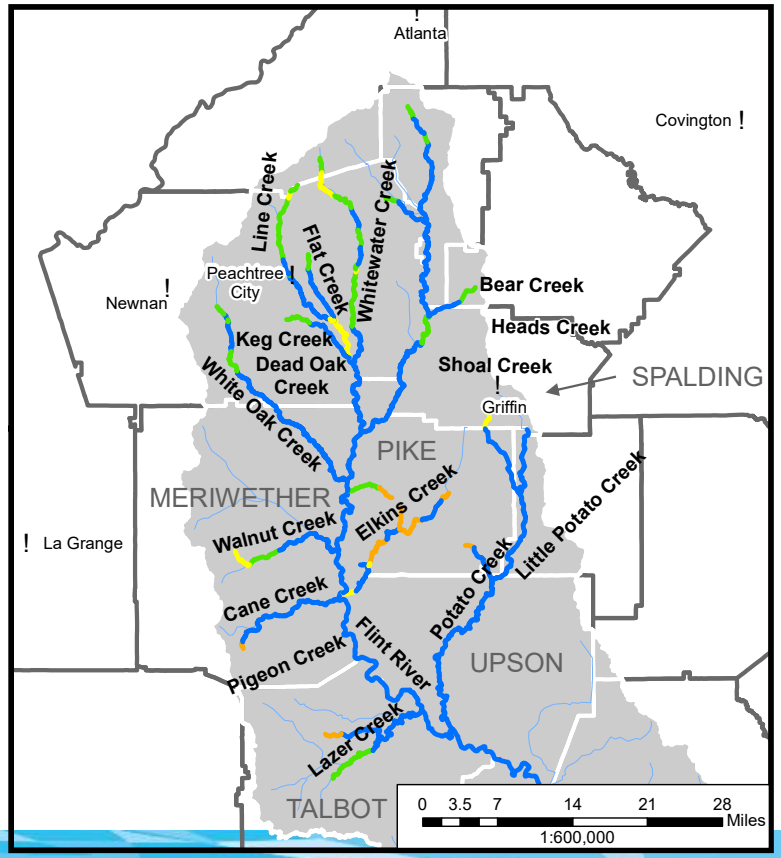
DO Conditions: Upper Flint Basin

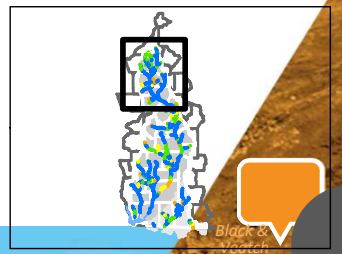


Current Conditions



Future Conditions

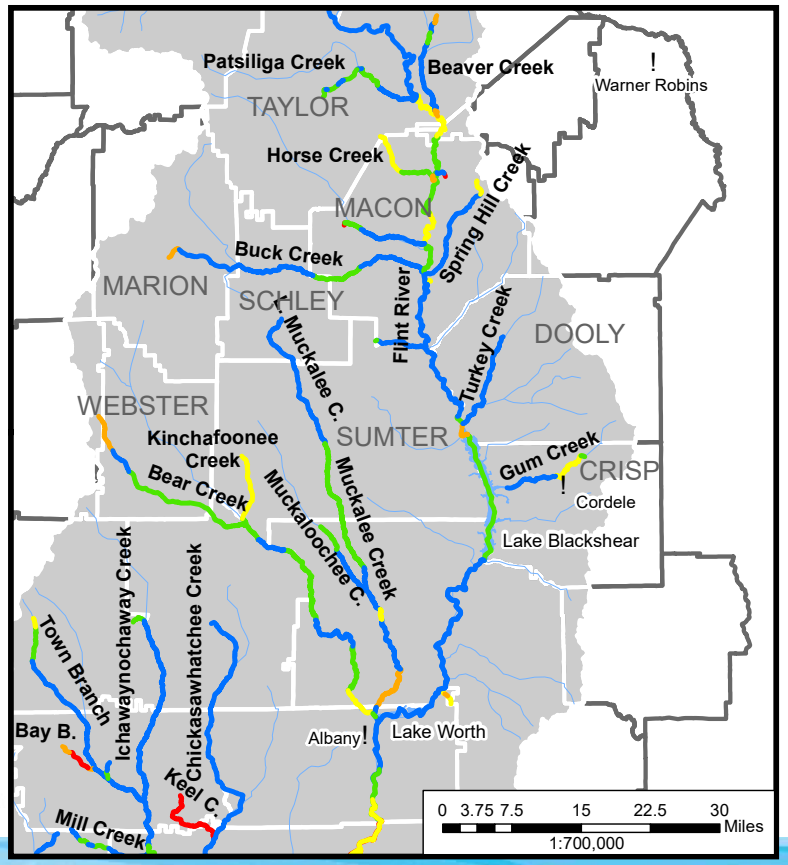




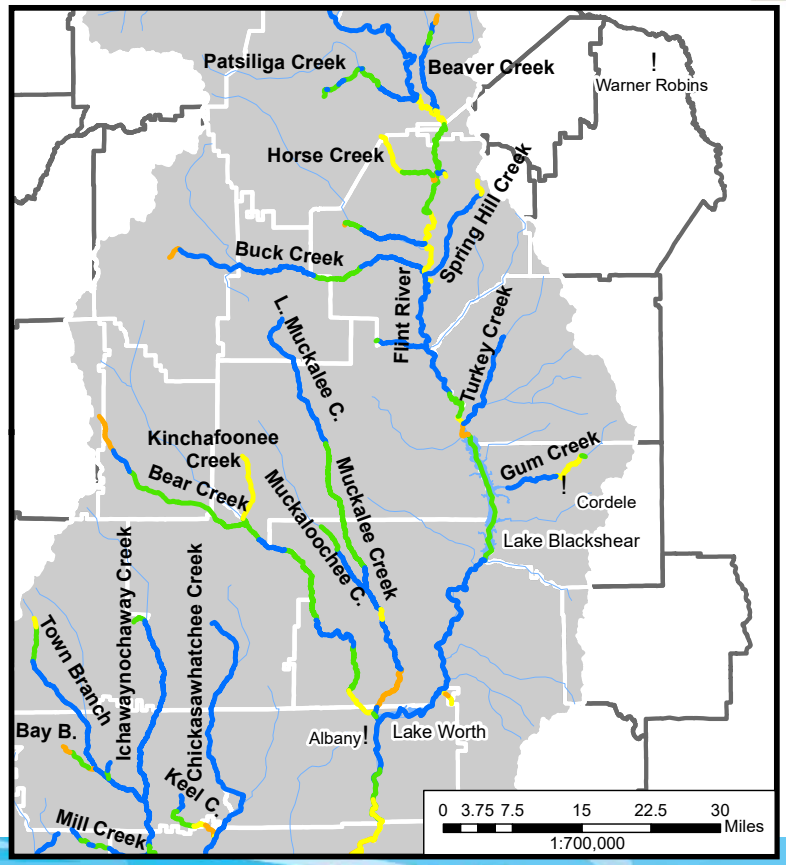
GEORGIA WATER PLANNING

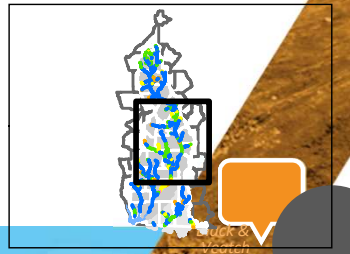
DO Conditions: Middle Flint Basin

Current Conditions



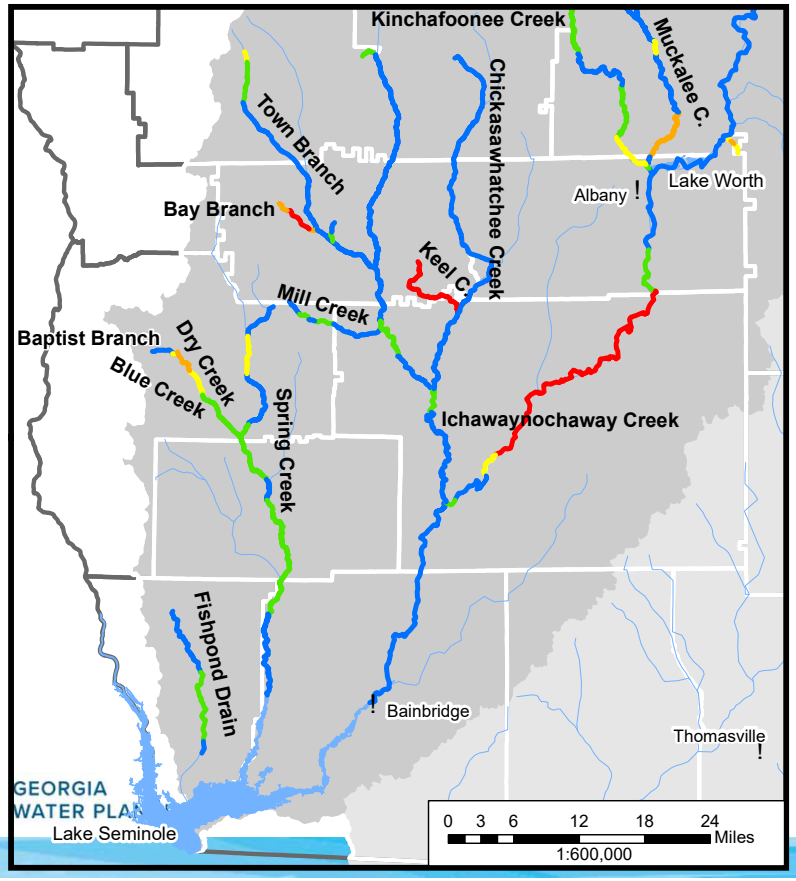
Future Conditions



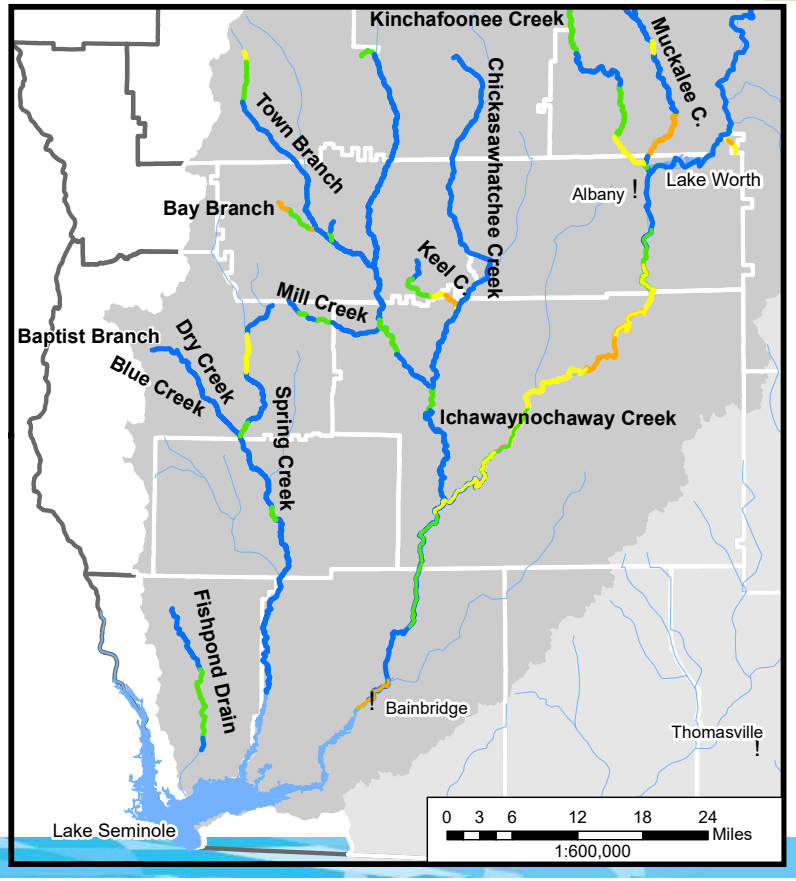


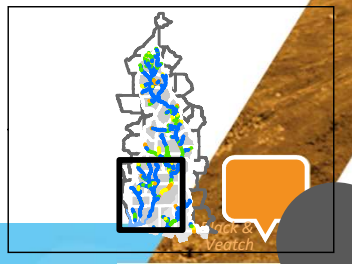
DO Conditions: Lower Flint Basin

Current Conditions



Future Conditions





Management Practices Review

Small Group Discussions: Management Practices Review

1. Demand and Returns Management Practices
2. Supply and Flow Augmentation Management Practices
3. Water Quality Management Practices

- Which Management Practices are most important to you? (And why?)
- Are there any that should be added/removed?
- Which Management Practices need to be updated? (Committee work)

Plan Review Committee Report

Gordon Rogers

Plan Review Committee Members

- Donald Chase
- Adam Graft
- Raines Jordan
- Brant Keller
- Gordon Rogers

Plan Review Committee Activity

- Meeting: May 5, 2022
- Reviewed Draft Sections 1, 2, & 4
- Committee meeting notes and edited plan sections in pre-meeting packet
- Major topics discussed:
  - Upstream (Metro) influence on region
  - Population projections
  - Graphs/charts (Section 4)
- Committee recommendation – Approve these sections (as edited by committee) as current working drafts
- Note: Further edits to these sections are expected. Any substantial edits will be reviewed by committee/Council.

Inter-Council Coordination Committee Report

Brant Keller

Inter-Council Coordination Committee

Members

- Donald Chase
- Brant Keller

Inter-Council Coordination Committee

April 19, 2022
Metro Water District Presentation

- Attended and Reviewed Plan

May 5, 2022
Inter-Council Coordination Meeting

- Discussed the Metro Water District Plan Update
- Discussed Council's Letter to Metro Water District

June 2022
Inter-Council Coordination Meeting

- Include Councils of:
  - Upper Flint
  - Lower Flint – Ochlocknee
  - Middle Chattahoochee
- Currently Scheduling

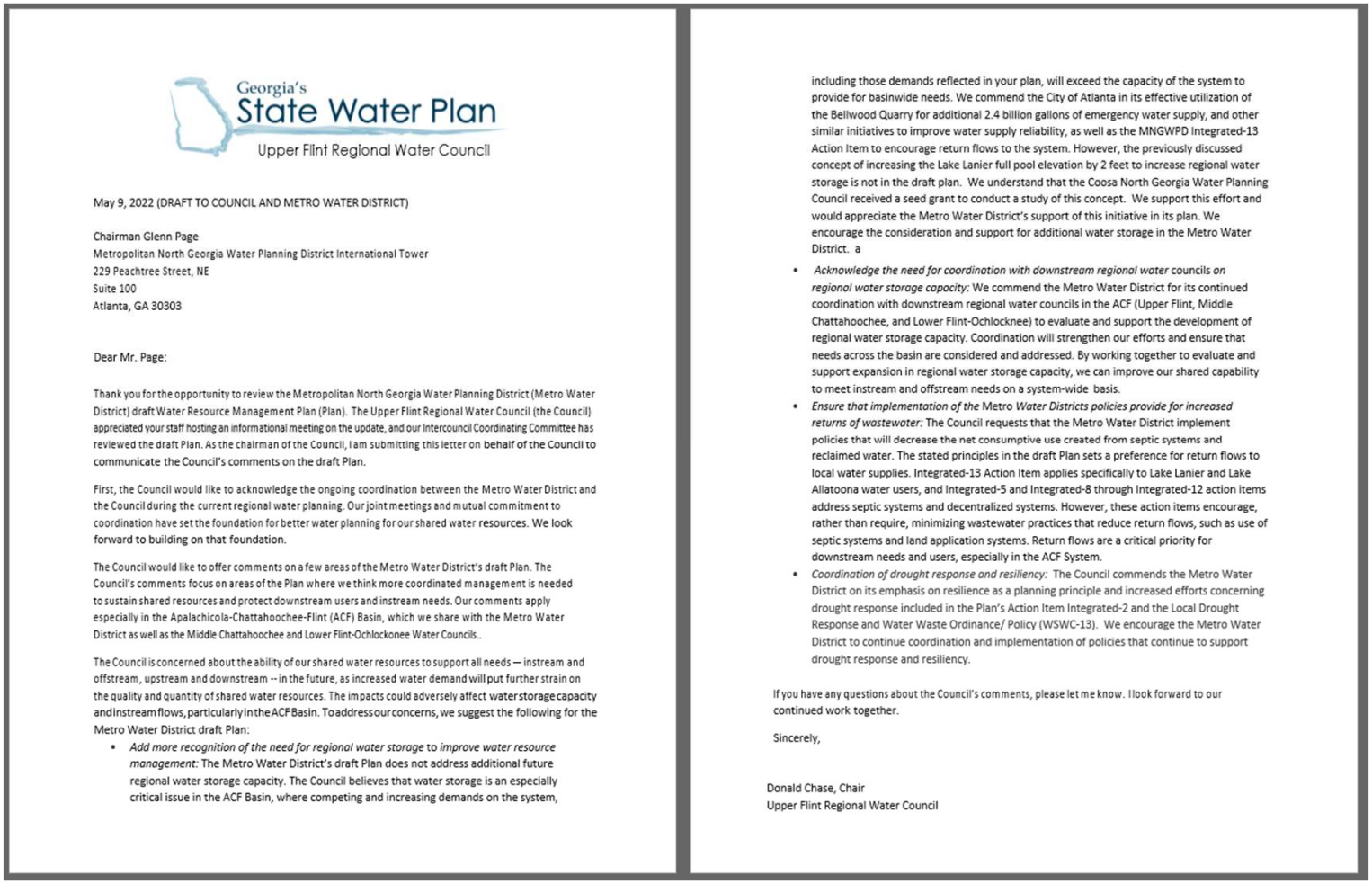
Inter-Council Coordination Committee Report

Meeting on May 5, 2022

1. Discussed the Metro Water District Plan Update
   - Big question is what do resource models say about the area
   - Continuing concern over consumptive use related to septic tanks (Fayette, Coweta in MNGWPD and Spalding in UFL)
   - Coosa North Georgia (CNG) Council recieved a seed grant to study raising summer pool
   - Acknowledgement that City of Atlanta converting Bellwood Quarry as raw water storage

2. Recommendations to Metro Water District Plan Update
   - Need to work drought response and resiliency into the letter
   - ARC high level language: water recharge to the Flint (special committee), empty quarry in Griffin (supplied by reuse, river intake). Other opportunities

Letter to Metro Water District – Recommendation to Council



Georgia's State Water Plan
Upper Flint Regional Water Council

May 9, 2022 (DRAFT TO COUNCIL AND METRO WATER DISTRICT)

Chairman Glenn Page
Metropolitan North Georgia Water Planning District International Tower
229 Peachtree Street, NE
Suite 100
Atlanta, GA 30303

Dear Mr. Page:

Thank you for the opportunity to review the Metropolitan North Georgia Water Planning District (Metro Water District) draft Water Resource Management Plan (Plan). The Upper Flint Regional Water Council (the Council) appreciated your staff hosting an informational meeting on the update, and our Intercouncil Coordinating Committee has reviewed the draft Plan. As the chairman of the Council, I am submitting this letter on behalf of the Council to communicate the Council's comments on the draft Plan.

First, the Council would like to acknowledge the ongoing coordination between the Metro Water District and the Council during the current regional water planning. Our joint meetings and mutual commitment to coordination have set the foundation for better water planning for our shared water resources. We look forward to building on that foundation.

The Council would like to offer comments on a few areas of the Metro Water District's draft Plan. The Council's comments focus on areas of the Plan where we think more coordinated management is needed to sustain shared resources and protect downstream users and instream needs. Our comments apply especially in the Apalachicola-Chattahoochee-Flint (ACF) Basin, which we share with the Metro Water District as well as the Middle Chattahoochee and Lower Flint-Ochlockonee Water Councils..

The Council is concerned about the ability of our shared water resources to support all needs — instream and offstream, upstream and downstream -- in the future, as increased water demand will put further strain on the quality and quantity of shared water resources. The impacts could adversely affect water storage capacity and instream flows, particularly in the ACF Basin. To address our concerns, we suggest the following for the Metro Water District draft Plan:

- *Add more recognition of the need for regional water storage to improve water resource management:* The Metro Water District's draft Plan does not address additional future regional water storage capacity. The Council believes that water storage is an especially critical issue in the ACF Basin, where competing and increasing demands on the system, including those demands reflected in your plan, will exceed the capacity of the system to provide for basinwide needs. We commend the City of Atlanta in its effective utilization of the Bellwood Quarry for additional 2.4 billion gallons of emergency water supply, and other similar initiatives to improve water supply reliability, as well as the MNGWPD Integrated-13 Action Item to encourage return flows to the system. However, the previously discussed concept of increasing the Lake Lanier full pool elevation by 2 feet to increase regional water storage is not in the draft plan. We understand that the Coosa North Georgia Water Planning Council received a seed grant to conduct a study of this concept. We support this effort and would appreciate the Metro Water District's support of this initiative in its plan. We encourage the consideration and support for additional water storage in the Metro Water District. a
- *Acknowledge the need for coordination with downstream regional water councils on regional water storage capacity:* We commend the Metro Water District for its continued coordination with downstream regional water councils in the ACF (Upper Flint, Middle Chattahoochee, and Lower Flint-Ochlocknee) to evaluate and support the development of regional water storage capacity. Coordination will strengthen our efforts and ensure that needs across the basin are considered and addressed. By working together to evaluate and support expansion in regional water storage capacity, we can improve our shared capability to meet instream and offstream needs on a system-wide basis.
- *Ensure that implementation of the Metro Water Districts policies provide for increased returns of wastewater:* The Council requests that the Metro Water District implement policies that will decrease the net consumptive use created from septic systems and reclaimed water. The stated principles in the draft Plan sets a preference for return flows to local water supplies. Integrated-13 Action Item applies specifically to Lake Lanier and Lake Allatoona water users, and Integrated-5 and Integrated-8 through Integrated-12 action items address septic systems and decentralized systems. However, these action items encourage, rather than require, minimizing wastewater practices that reduce return flows, such as use of septic systems and land application systems. Return flows are a critical priority for downstream needs and users, especially in the ACF System.
- *Coordination of drought response and resiliency:* The Council commends the Metro Water District on its emphasis on resilience as a planning principle and increased efforts concerning drought response included in the Plan's Action Item Integrated-2 and the Local Drought Response and Water Waste Ordinance/ Policy (WSWC-13). We encourage the Metro Water District to continue coordination and implementation of policies that continue to support drought response and resiliency.

If you have any questions about the Council's comments, please let me know. I look forward to our continued work together.

Sincerely,

Donald Chase, Chair
Upper Flint Regional Water Council

Inter-Council Coordination Committee

Next meeting will be coordinated with Lower Flint – Ochlocknee and Upper Flint in June 2022

Discussion Topics:

1. Review 2017 Plans - Section 7.4 Recommendations to the State: Coordinated Recommendations with Neighboring Councils
2. Develop Updated Coordinated Recommendations with Neighboring Councils
3. Present to Council at August Meeting

Recommendations Review

Kristin Rowles

Recommendations to the State
Section 7.4 of 2017 Plan

- Information Needs
- Water Policy Recommendations
- Coordinated Recommendations with Neighboring Councils

Information Needs

1) Incorporate more ***actual*** water use/resource conditions data into forecasts and resource assessments
   - Ag meter data – good improvements have been made
   - Make use of data collected by local governments and water & wastewater utilities in region
2) Evaluate impacts of ***low flow conditions*** in model results for Bainbridge
   - Determine low flow thresholds below which adverse ecosystem impacts are predicted
3) Evaluate additional ***low flow statistics*** for use in water availability resource assessment (20% AAD, stratified 7Q10, one-day minima, 3Q30, others)
4) Improve ***energy sector*** water use forecasts
   - Not geographically specific
   - Need to account for greater cooling tower efficiency, energy conservation, power production forecasts, water quality

Information Needs

5) Increase the number of ***nodes*** in surface water availability model to support more detailed understanding of conditions (e.g., new node between Montezuma and Bainbridge)
6) Cooperatively review ***Unimpaired Flows*** dataset for ACF (GA, FL, AL, USACE)
   - Account for impacts from land use change, water withdrawals, returns, net evaporation, other human influences
7) Improve ***groundwater assessment*** to support better understanding of:
   - Impacts of aquifer use on aquifers and streamflow
   - How to support protection of aquifer recharge areas
8) Evaluate costs & benefits of reducing minimum threshold for ***water withdrawal permits*** (surface and groundwater)

Information Needs

9) Conduct comprehensive assessment of baseline water conservation and water quality ***Best Management Practices*** by agricultural producers
   - Expand survey of water efficiency equipment adoption in Lower Flint River Basin to whole basin
   - Georgia Forestry Commission BMP implementation tracking is a model
10) Evaluate full ***water cycle impacts*** of irrigation and evaporative water loss from reservoirs
11) Improve ***agricultural water meter*** program
   - Comprehensive installation of meters
   - Maintenance inspections
   - More data: monthly use, crops, inputs
   - Continue to report aggregate results
   - Continue to prepare data for use in resource assessments

Information Needs

12) Evaluate ***water conservation*** practices – implementation and effectiveness
    - Conservation = priority focus of this plan
    - Difficult to measure progress/impact
    - Need more information to assess implementation and benefits
13) Evaluate impacts of small/medium ***impoundments*** on stream flows (intercepted drainage, evaporative loss, water quality) to assess their impacts
14) Improve how ***farm pond withdrawals*** are incorporated into resource assessments
15) Evaluate ***water quality use designations*** in Upper Flint Region (through the Triennial Review) to reflect actual conditions (use, quality)

Water Policy Recommendations

1) General Assembly should provide ***funding for Regional Water Planning*** to:
   - Continue regional water planning
   - Monitor plan implementation
   - Refine resource assessments

2) General Assembly and implementing agencies should explore all possible sources of ***funding for Regional Water Plan implementation***
   - Funding for implementation is the Council's highest priority.
   - Financial incentives and reimbursement for plan implementation will expedite progress toward the Plan's goals

3) EPD and other agencies should design ***water conservation*** policies/regulations to:
   - Recognize and credit water users for conservation practices that they have already implemented
   - Prioritize addressing consumptive over non-consumptive uses
   - Emphasize cost effectiveness

Water Policy Recommendations

4) **Inter-basin Transfer** (IBT)
   - State policy should not preclude IBT as an option for future water management, as needed and following thorough scientific and economic evaluation
   - 2011 DNR Board Rules guide thorough ***evaluation***
   - Evaluate feasibility of ***reversing*** existing IBTs that affect the Flint River Basin with cost/benefit analysis (e.g., City of Griffin analysis from 2016)

5) ***Irrigation suspension*** during drought
   - Should be a last resort, voluntary, and with notification by March 1
   - Earlier notification better to inform planting decisions; better drought prediction tools will help
   - Reliable funding needed

6) General Assembly should clarify regulatory definition of ***stream buffer*** for consistent application (also in MP WQ-3)

Water Policy Recommendations

7) General Assembly should legislate ***authority to the regional water planning councils*** to manage, plan, and provide oversight of water resources and provide funding from State appropriations for this purpose

8) Council urges timely resolution of ***interstate conflict in ACF***
   - Develop a tristate framework to address interstate management and include the regional water councils in this framework
   - Council requests support to make changes in plan as needed to address settlement/resolution/decision in interstate litigation or similar events that might change how the Basin is managed

9) Continue ***coordination and cooperation among water planning regions*** (Middle Chattahoochee, Lower Flint Ochlockonee, Metro District)

Coordinated Recommendations with Neighboring Councils

1) More water storage capacity in the ACF (e.g., better use of existing, additional new storage)
2) Use of actual/current data in resource assessments
3) Interstate planning organization for ACF (consider transboundary institution recommendation of the ACF Stakeholders)

Next Steps in Plan Review and Revision

Kristin Rowles

Regional Water Plan Update

Regional Water Plan Review and Revision Schedule

Meeting One
4th Quarter 2021

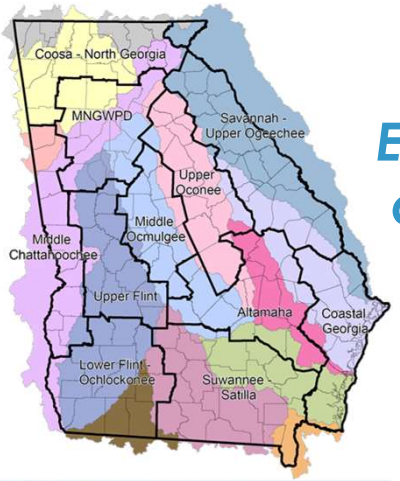
Meeting Two
1st Quarter 2022

Meeting Three ★
2nd Quarter 2022

Meeting Four
3rd Quarter 2022
Draft Plan Review

Meeting 4.5
3rd Quarter 2022
If needed to approve Draft Plan (virtual)

Meeting Five (Final)
4th Quarter 2022
Incorporate Comments



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

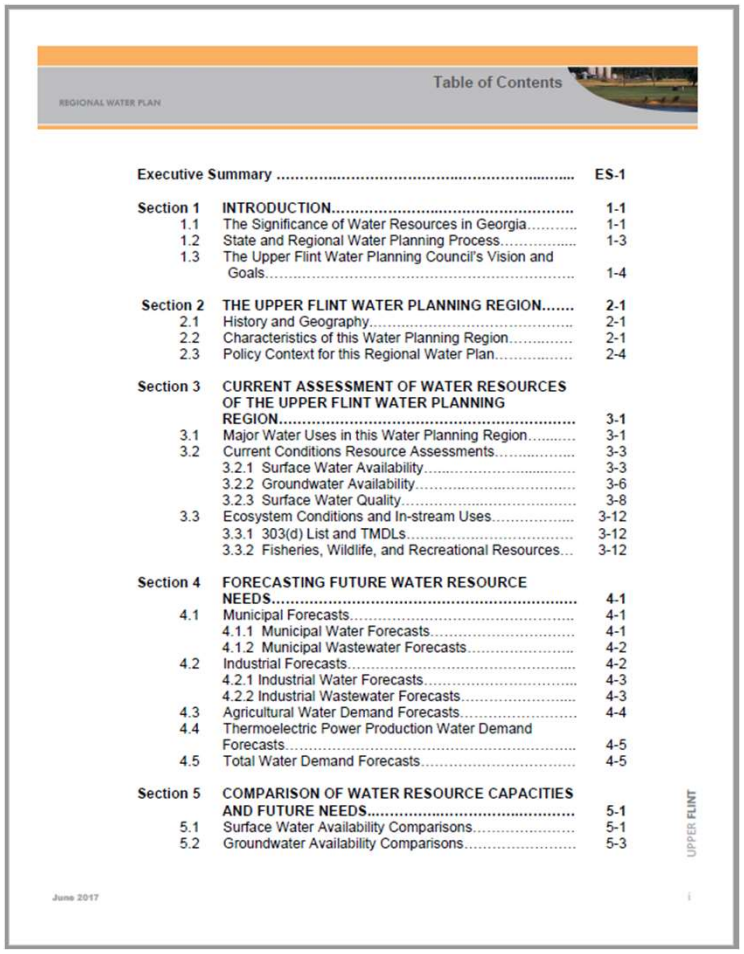


Table of Contents

REGIONAL WATER PLAN

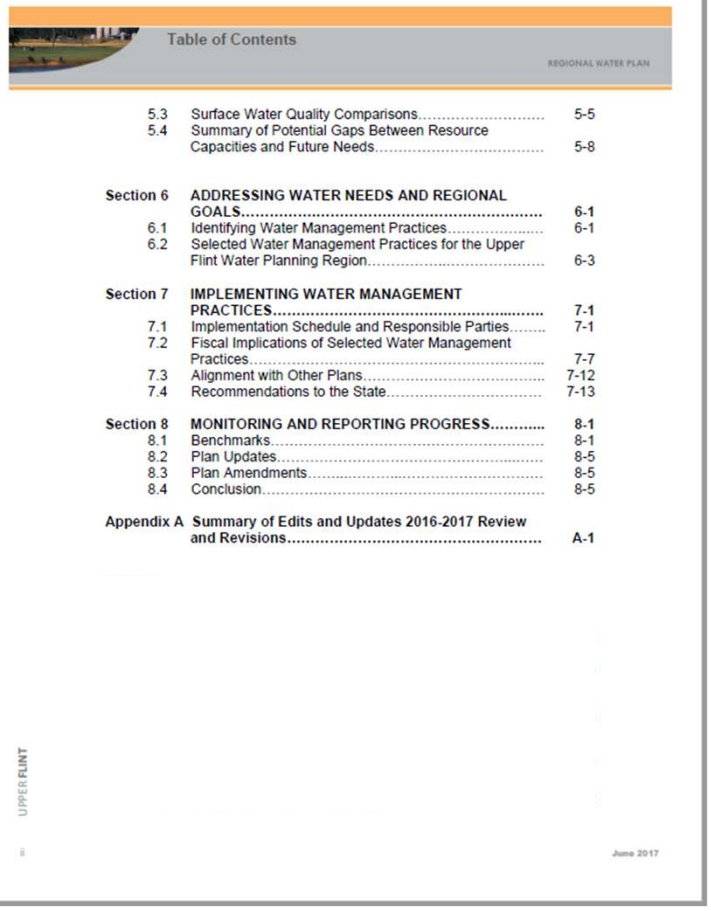


Table of Contents

REGIONAL WATER PLAN

Regional Water Plan Update – Before Today

Regional Water Plan Review and Re

Meeting One
4th Quarter 2021

Meeting Two
1st Quarter 2022

Meeting Thre
2nd Quarter 20

(Final)
2022
ate
nts

Plan Review Committee

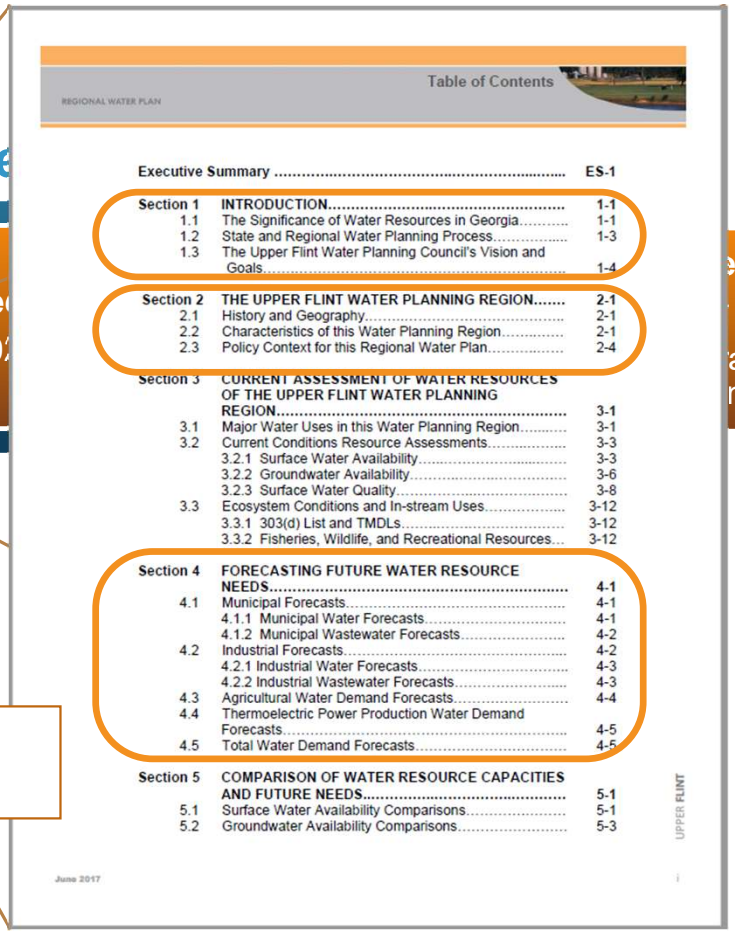


Table of Contents

REGIONAL WATER PLAN

UPPER FLINT

June 2017

i

GEORGIA WATER PLANNING

Regional Water Plan Update – Today's Discussion

Regional Water Plan Review and Revisior

Meeting One
4th Quarter 2021

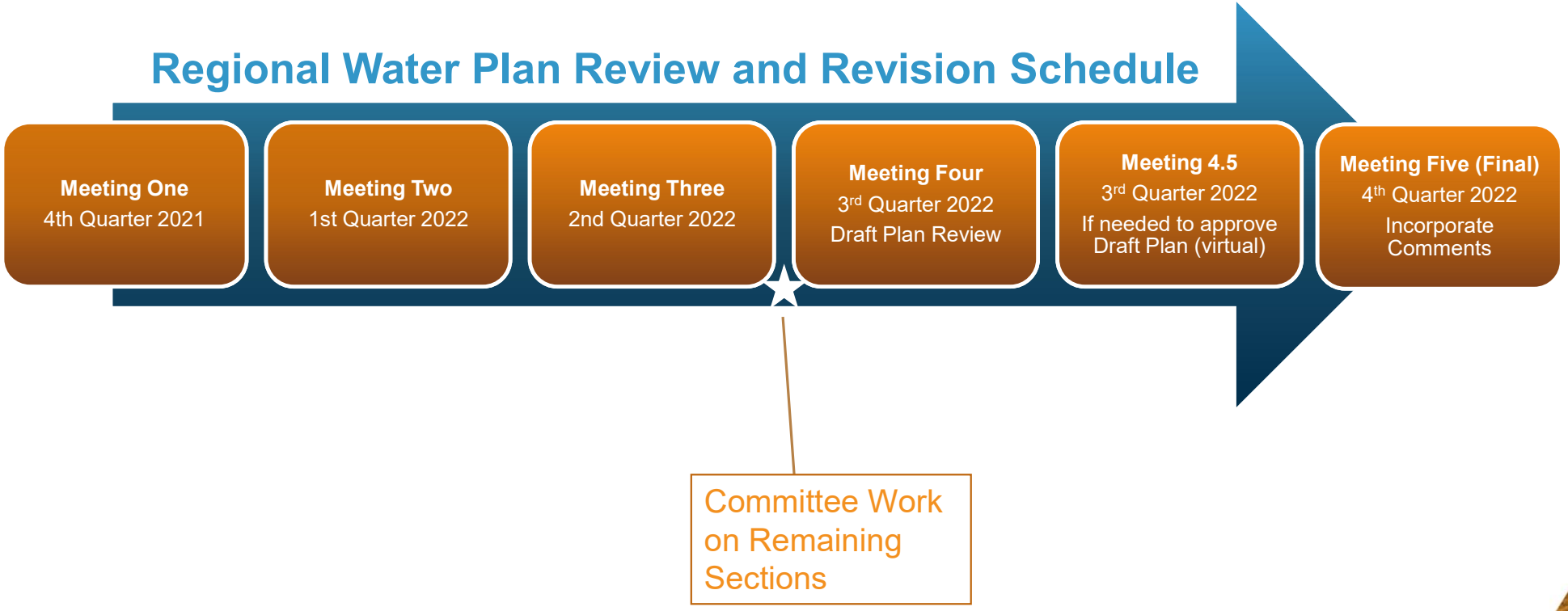
Meeting Two
1st Quarter 2022

Meeting Three
2nd Quarter 2022

Table of Contents

GEORGIA WATER PLANNING

Regional Water Plan Update – Next Steps



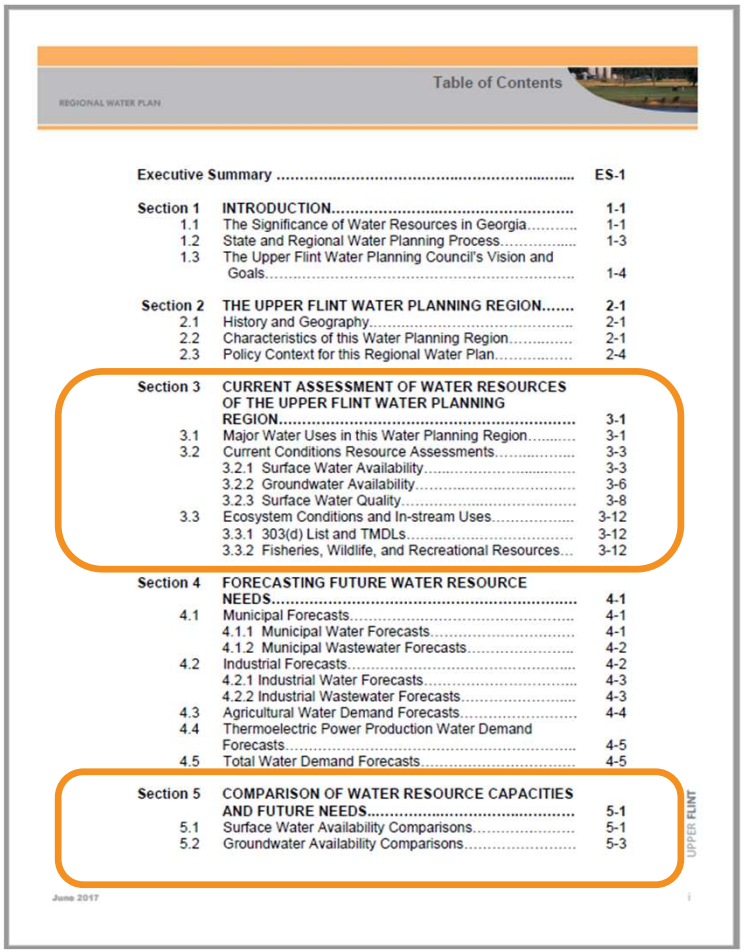


Table of Contents

REGIONAL WATER PLAN

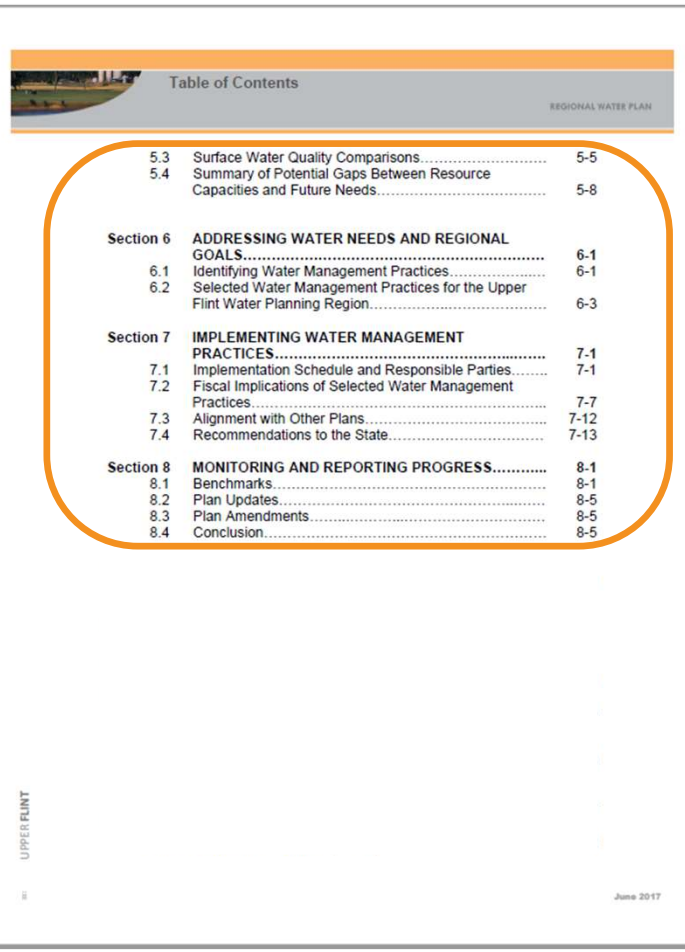


Table of Contents

REGIONAL WATER PLAN

Committee Work – Next Steps

Inter-Council Coordination	Recommendations to the State – Coordinated Recommendations with Neighboring Councils
Plan Review	
…	
…	

EPD Report

Johanna Smith, GA EPD

Information Items: GEFA Georgia Water Supply and Redundancy Study and GEFA Biosolids Report

Amanda Carroll, Georgia Environmental Finance Authority

Steve Simpson, Black & Veatch

Georgia Water Supply Redundancy Study

Upper Flint Water Planning Region

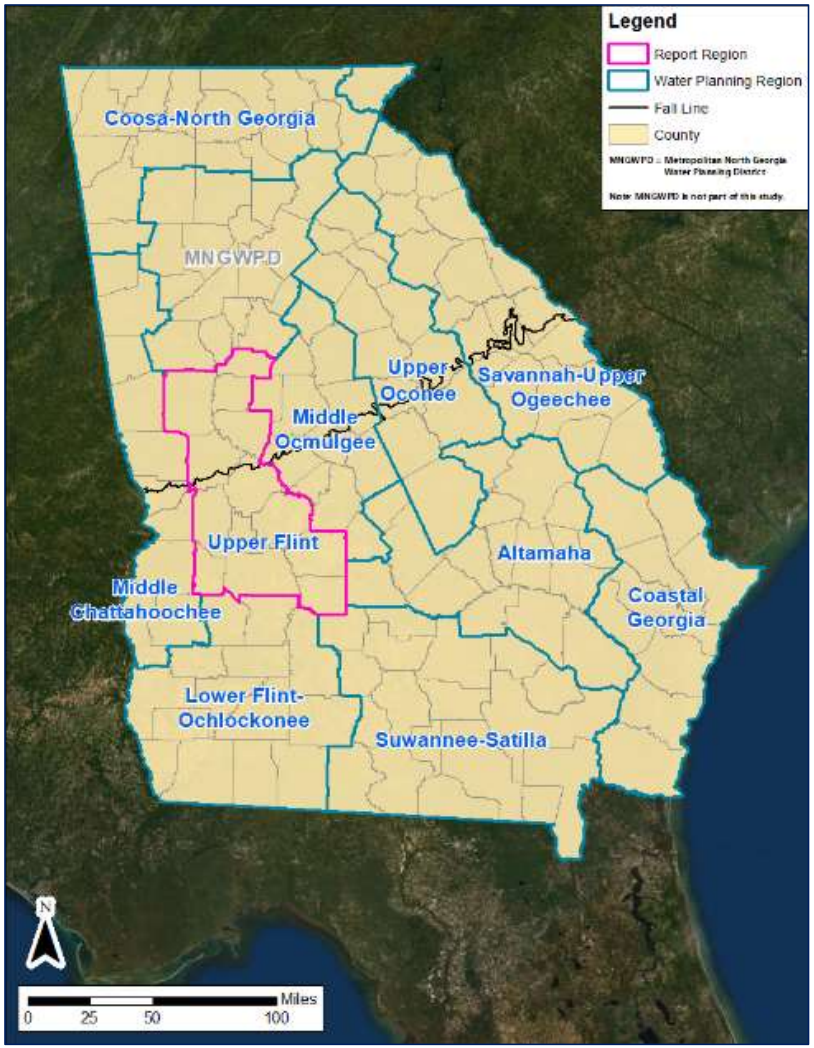
Georgia Environmental Finance Authority

See full report for details: Wood, April 14, 2022

May 2022

Study Objectives

- For qualified water systems (i.e., public system usually serving over 3,300 people):
  - Evaluate drinking water supply, demand, treatment, storage, distribution, and interconnectivity
  - Identify redundant water supply sources
  - Emergency supply and deficit under existing (2015) and future (2050) conditions
  - Evaluate potential projects
  - Recommend projects using decision-based prioritization tool



wood.

Water Withdrawals by Type

- Groundwater (GW)
  - 57% of region's 2010 water supply

Withdrawal Category	Withdrawal (MGD)	Percentage (%)
Agriculture	68	75%
Municipal	12	13%
Domestic/ self-supply	7	8%
Mining	2.8	3%
Industrial	1.4	1%

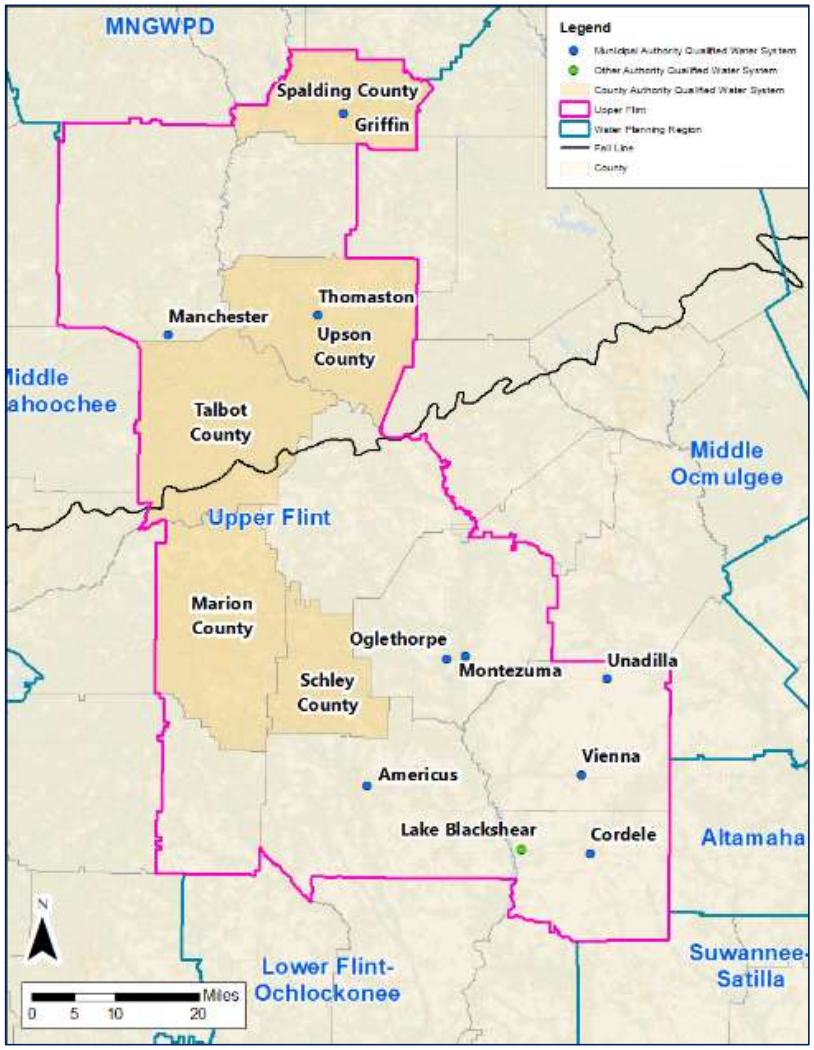
- Surface Water (SW)
  - 43% of region's 2010 water supply

Withdrawal Category	Withdrawal (MGD)	Percentage (%)
Agriculture	41	61%
Municipal	15	22%
Industrial	11	17%

Values from:
Upper Flint Regional Water Plan. June 2017.

Region Qualified Water Systems

County	Qualified Water System	Raw Water Sources
Sumter	Americus	Groundwater Wells (6)
Crisp	Cordele	Groundwater Wells (6)
Spalding	Griffin	Surface Water (3)
Crisp	Lake Blackshear	Groundwater Wells (2)
Meriwether	Manchester	Surface Water (2)
Marion	Marion County	Groundwater Wells (3)
Macon	Montezuma	Groundwater Wells (4)
Macon	Oglethorpe	Groundwater Wells (3)
Schley	Schley County	Groundwater Wells (2)
Spalding	Spalding County	Wholesale Purchase
Talbot	Talbot County	Wholesale Purchase
Upson	Thomaston	Surface Water (3)
Dooly	Unadilla	Groundwater Wells (3)
Upson	Upson County	Groundwater Wells (2)
Dooly	Vienna	Groundwater Wells (6)

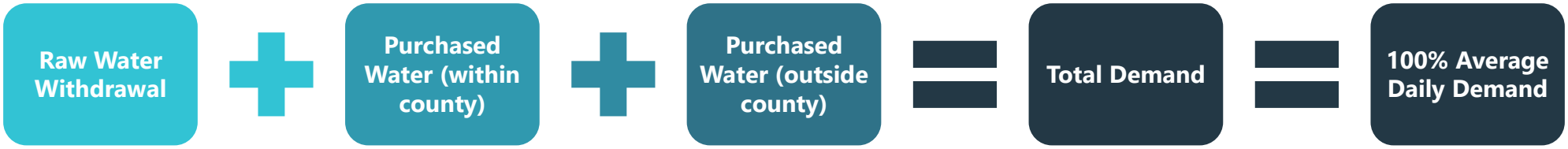


wood.

Identify Redundant Water Supply Sources

- Redundancy is valuable in this context
  - Excess capacity or duplicate parts that perform if other parts fail
- Three sources of redundancy considered:
  1. Excess capacity
     - Sufficient excess capacity for 13/13 systems in 2015 and 12/13 systems in 2050
  2. Raw and potable water sources
     - EPD's groundwater and surface water resource availability models indicate varying levels of sufficiency or insufficiently for aquifers and surface water nodes
     - Potential surface water source/storage options identified (e.g., expanded reservoirs, watershed dams, quarries)
  3. Interconnections
     - Some systems have the potential to interconnect

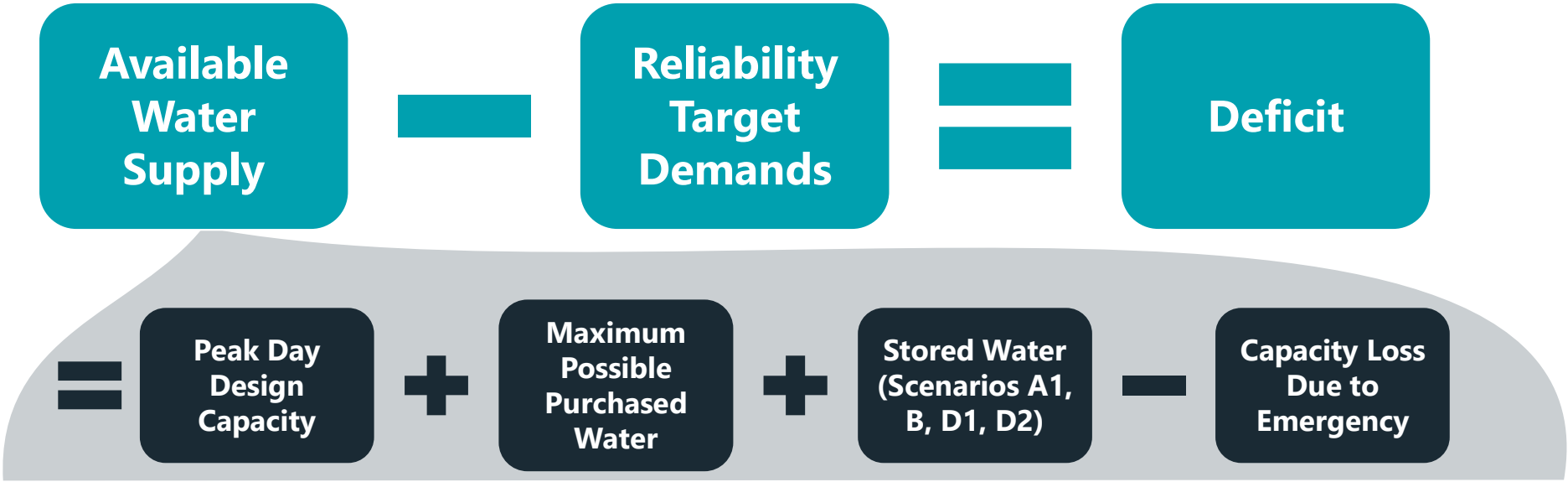
Emergency Planning Benchmarks



- Reliability targets: 100%, 65%, and 35% of average daily demand
- Each reliability target applied to 2015 and 2050 total demand to give an overview of water availability

Water Supply Risk Evaluations

Evaluate system capability to supply sufficient water to customers during a given emergency



Water Supply Risks and Emergency Scenarios

	Water Supply Risk	Emergency Scenario	Type	Duration (Days)
A.	Failure of largest water treatment plant (WTP)	A1. Power supply failure of largest WTP	Short-term	1
		A2. Critical asset failure at largest WTP (e.g., loss of clearwell, loss of chemical treatment)	Short-term	30
B.	Short-term catastrophic failure of a water distribution system	Critical transmission main failure from largest WTP or interconnection	Short-term	1
C.	Short-term contamination of a water supply within distribution system	Contamination of distribution system triggers a boil water notice	Short-term	3
D.	Short-term contamination of a raw water source	D1. Biological contamination of largest raw water source	Short-term	1
		D2. Chemical contamination of largest raw water source	Short-term	1
E.	Full unavailability of major raw water sources due to federal or state government actions	--	Long-term	>365
F.	Reduced availability of major raw water sources due to federal or state government actions	--	Long-term	>365
G.	Failure of an existing dam that impounds a raw water source	Dam failure for largest impoundment	Short-term	30
H.	Water supply reduction due to drought	Raw water supply available is 40% of ADD due to drought	Short-term	120

Water Supply Risks: Evaluation Results

- 2015 deficits:

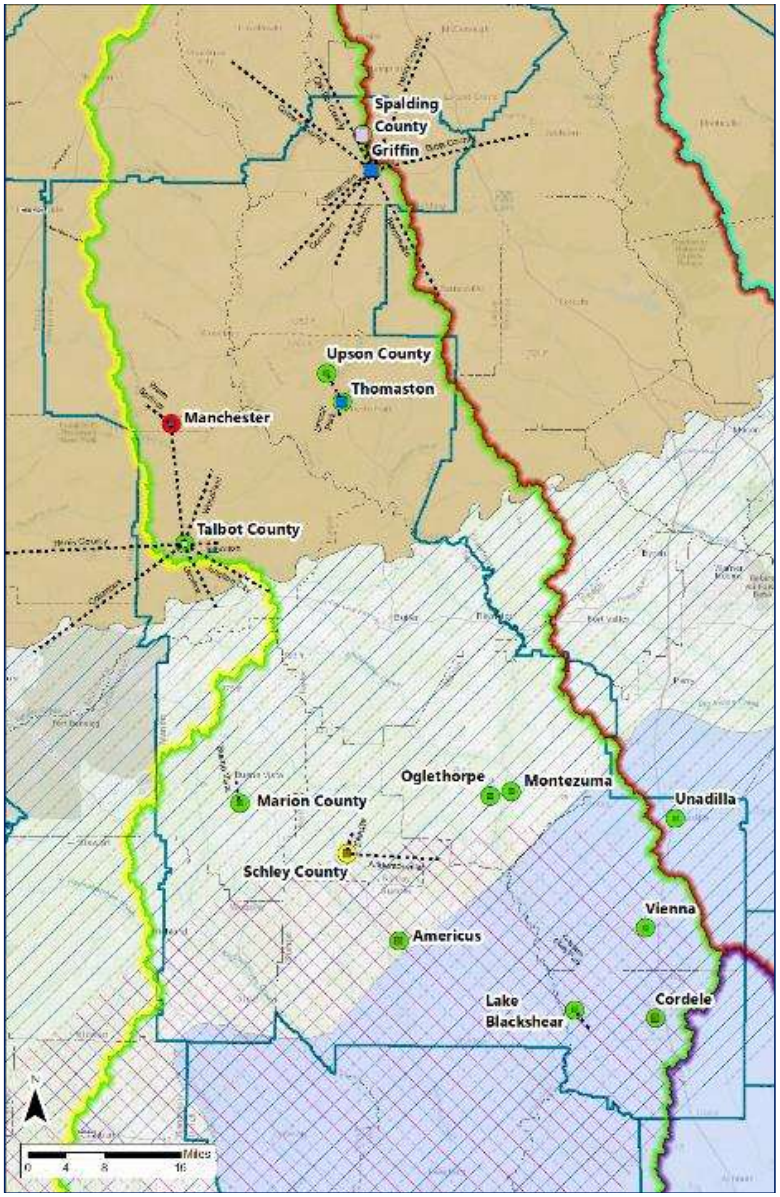
Qualified Water System	100% ADD	65% ADD	35% ADD
Manchester	◊	◊	◊

- 2050 deficits:

Qualified Water System	100% ADD	65% ADD	35% ADD
Griffin	◊	◊	
Manchester	◊	◊	◊
Schley County	◊		

- Surface water systems generally perform less favorably because their often single water treatment plant (WTP) design lacks inherent redundancy.
- Groundwater systems generally perform well because their multi-well, multi-WTP design offers inherent redundancy

Schematic of Key System Data



Water Planning Region
County
Interconnection
Claiborne and Clayton Aquifers
Cretaceous Aquifer
Crystalline Aquifer
Floridan Aquifer
Chattahoochee River Basin
Flint River Basin
Ocmulgee River Basin
Suwannee River Basin

2050 Total Demand (MGD)

0 -1
1-2
2-5
> 5

Raw Water Source

Groundwater
Surface Water
Groundwater and Surface Water
Wholesale Purchase

2050 Deficit Type

None
100% ADD
65% ADD
35% ADD

Potential Project Development

- Scenario(s) rendering systems with less water supply were further evaluated
  - Logical, implementable projects retained for systems with less available supply
    - Not all systems have projects
- Potential conceptual-level redundancy projects developed
- For this region, four project types:

  1. New interconnection
  2. Upgrade existing interconnection
  3. Restore existing interconnection
  4. New well and GW WTP (includes backup generator) (internal project)

Potential Projects

Project Number	Qualified Water System(s) Benefitted	Potential Project Description
1	Americus Schley County	Interconnection: Americus-Schley County 50 feet along Lacross Road
2	Griffin Spalding County	Upgrade existing interconnection: Clayton County
3	Griffin Spalding County	Upgrade existing interconnection: Henry County
4	Griffin Spalding County	Upgrade existing interconnection: Butts County/Jackson/Jenkinsburg
5	Manchester	Restore existing interconnection: Manchester-Warm Springs
6	Montezuma Oglethorpe	Interconnection: Montezuma-Oglethorpe 1 mile along Riverview Dr/Walnut St
7	Unadilla	New Well and WTP

Prioritization Criteria and Weighting

- Potential projects prioritized based on performance under weighted quantitative and qualitative criteria
  - 8 criteria
    - E.g., population benefitted; cost; potential environmental, system, and community impacts
  - 4 scores (1 through 4)
  - 3 weights (1 through 3)

Potential Projects Sorted by Final Rank Order

Project Number	Systems Benefitted	Potential Project Description	Cost ($)	Final Rank
1	Americus Schley County	Interconnection: Americus-Schley County 50 feet along Lacross Road	$ 47,600	1
3	Griffin Spalding County	Upgrade existing interconnection: Henry County	$ 760,300	2
5	Manchester	Restore existing interconnection: Manchester-Warm Springs	$ 50,000	3
7	Unadilla	New Well and WTP	$ 2,130,800	4
2	Griffin Spalding County	Upgrade existing interconnection: Clayton County	$ 3,573,500	5
4	Griffin Spalding County	Upgrade existing interconnection: Butts County/Jackson/Jenkinsburg	$ 5,322,200	6
6	Montezuma Oglethorpe	Interconnection: Montezuma-Oglethorpe 1 mile along Riverview Dr/Walnut St	$ 1,846,700	7

Conclusion

- Upper Flint Region has one 2015 deficits and three 2050 deficits
- Potential projects identified can assist Councils and systems in understanding the types of upgrades that could benefit the Water Planning Region
- Interconnection redundancy projects highlight the potential for systems to interconnect
- Internal infrastructure redundancy projects highlight the potential for a future management practice: encourage public water systems to enhance their water supply redundancy and treatment/unit process redundancy

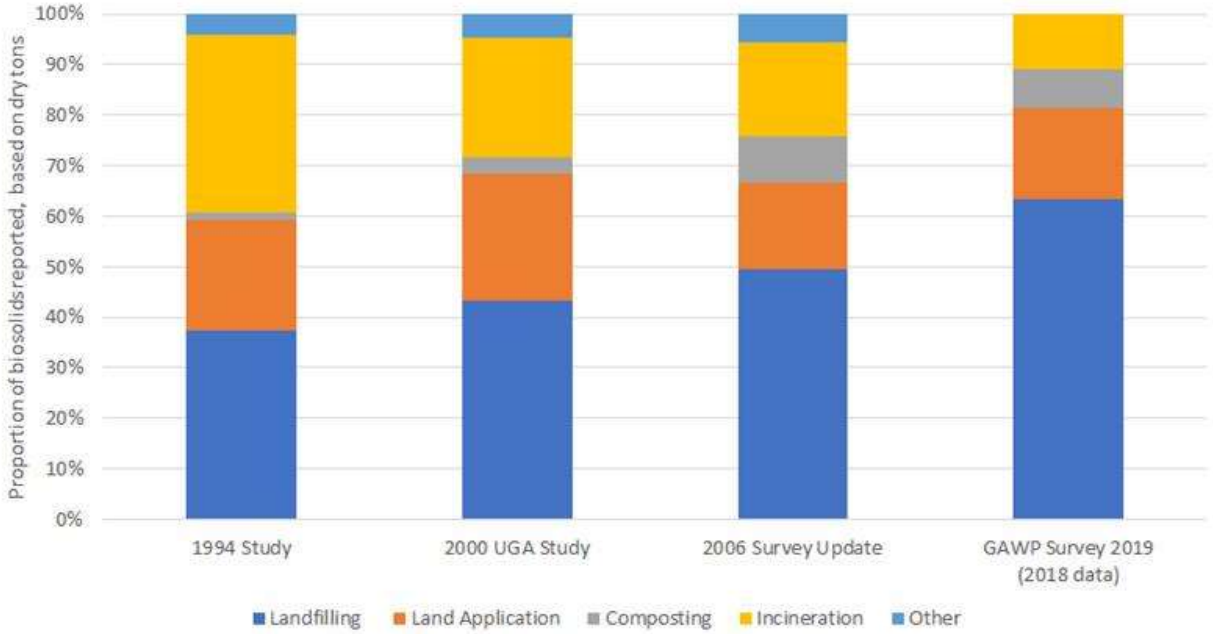
Questions?


wood.

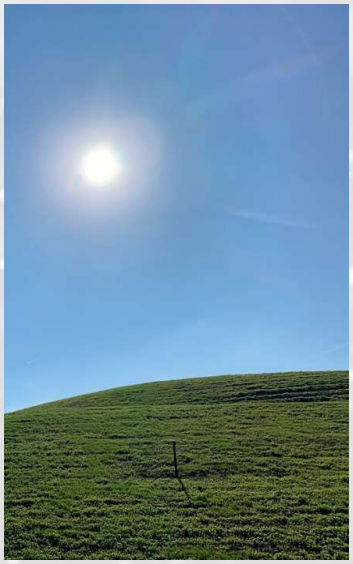
GEFA Biosolids Assessment and Prepared Study

May 2022

Biosolids Management: Drivers and Trends



Photos courtesy of GA EPD, Presentation to MNGWPD WW TCC Meeting, January 24, 2019



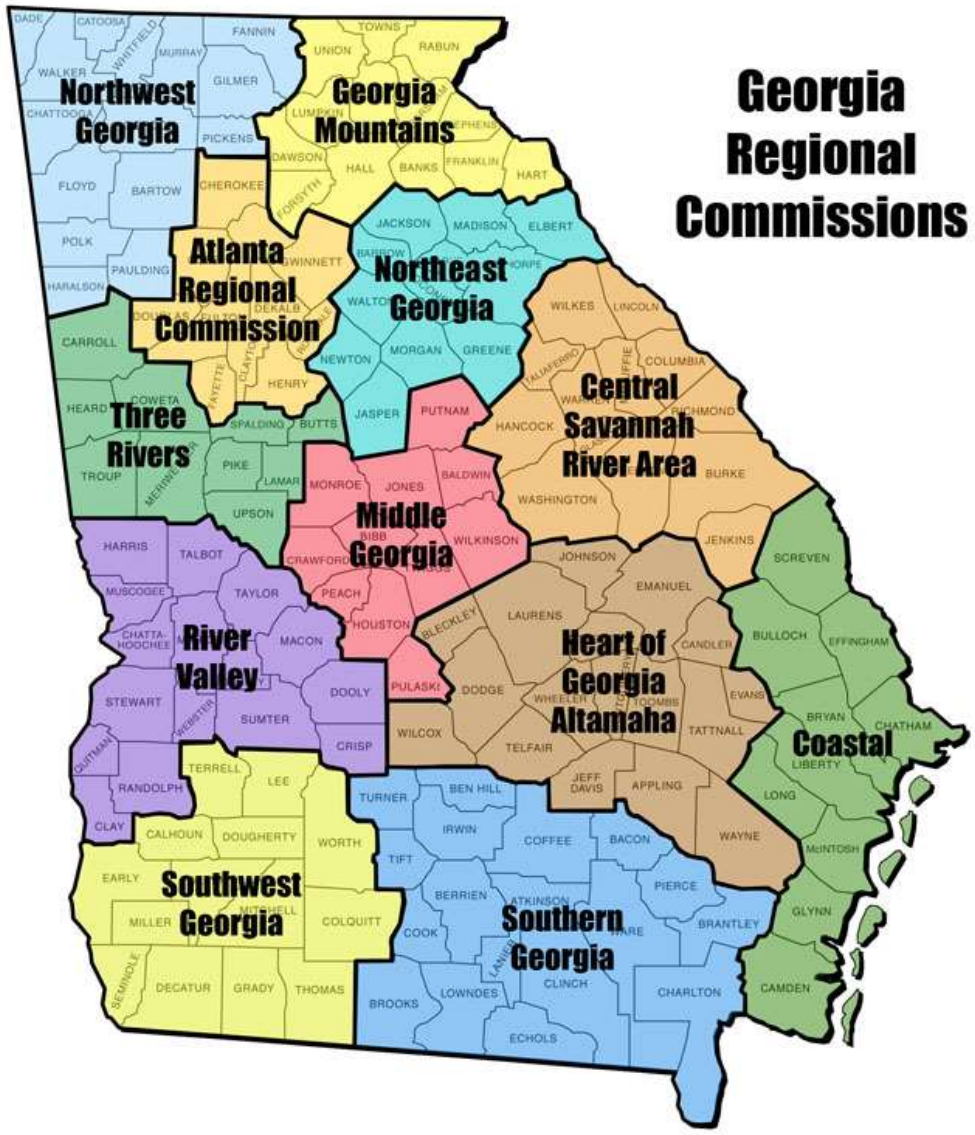
Landfilling

Land Application

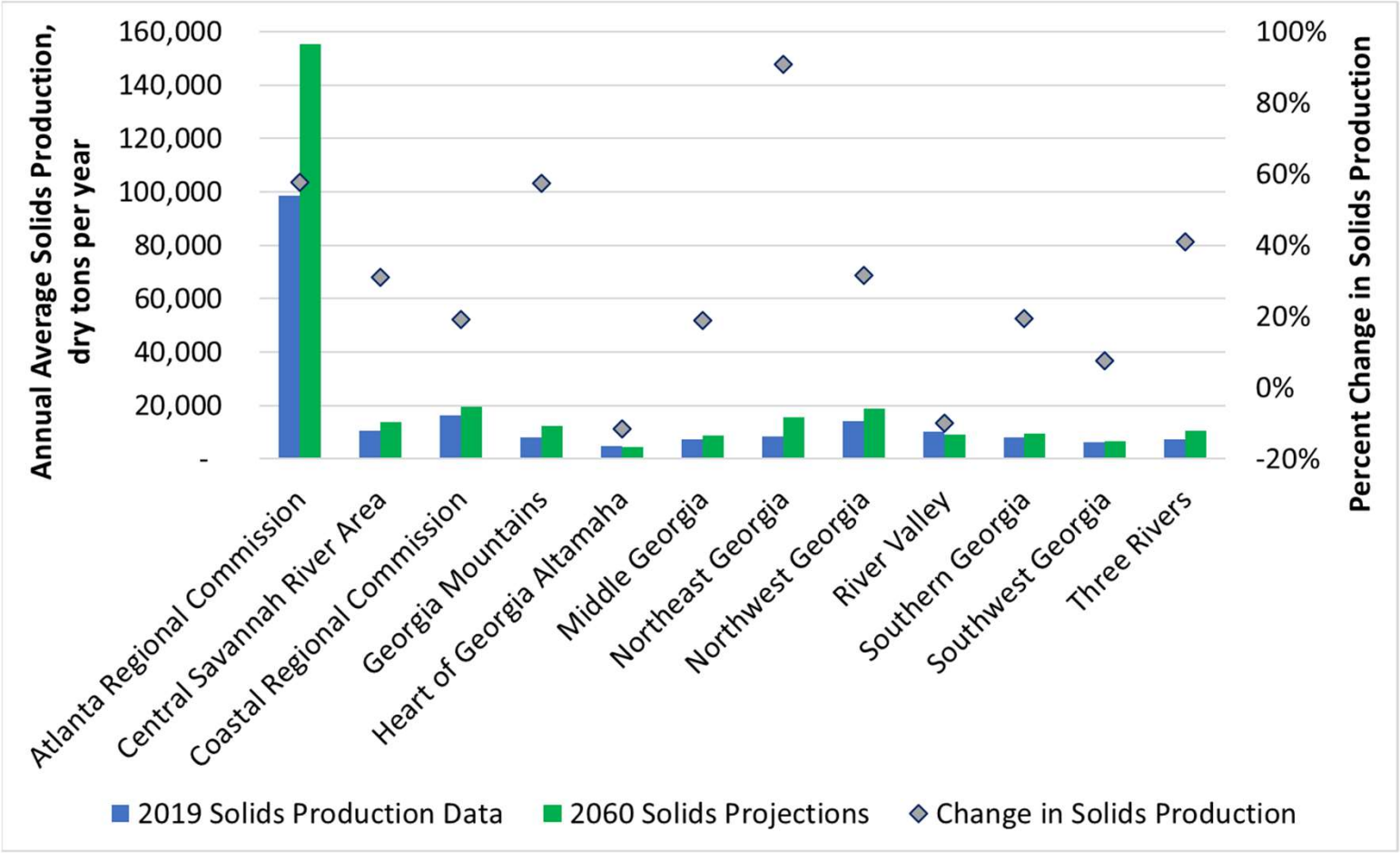
Incineration

Key Trends for Solids Management

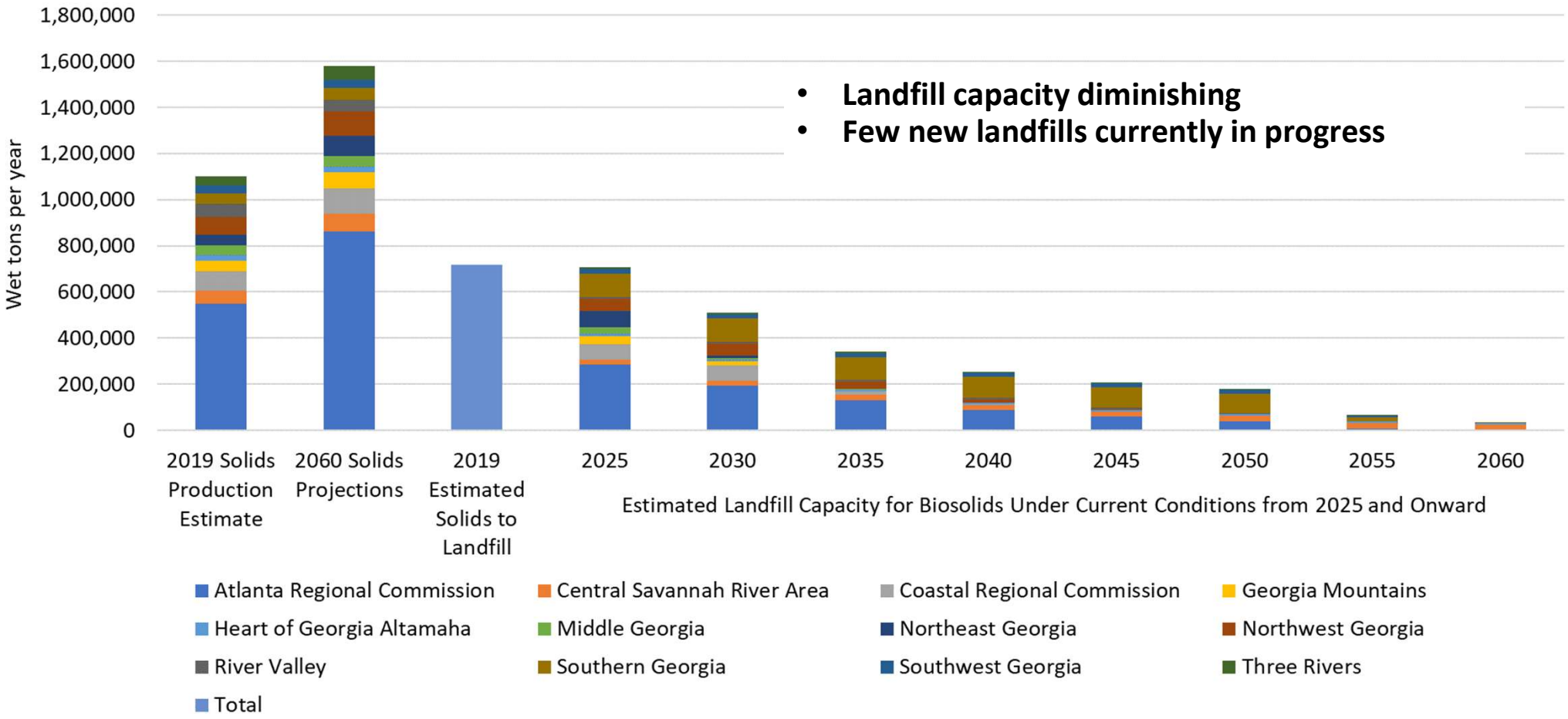
- Landfilling
  - HMCW concerns dominate
  - Tip fees likely to remain high
  - Potential limited biosolids acceptance
- Land application
  - Class B field storage logistics
  - Local jurisdiction resistance
  - PFAS-based restrictions
- Incineration
  - Permitting, cost may limit potential use


Georgia
Regional
Commissions
Northwest
Georgia
Georgia
Mountains
Atlanta
Regional
Commission
Northeast
Georgia
Central
Savannah
River Area
Three
Rivers
Middle
Georgia
River
Valley
Heart of
Georgia
Altamaha
Coastal
Southwest
Georgia
Southern
Georgia
DADE
CATOOSA
WHITFIELD
FANNIN
TOWNS
UNION
RABUN
WALKER
MURRAY
GILMER
CHATTOOGA
PICKENS
LUMPKIN
STEPHENS
DAWSON
HALL
BANKS
FRANKLIN
HART
FLOYD
BARTOW
CHEROKEE
FORSYTH
JACKSON
MADISON
ELBERT
POLK
PAULDING
GWINNETT
BARROW
OGLETHORPE
HARALSON
DEKALB
WALTON
WILKES
LINCOLN
COBB
FULTON
CLAYTON
OCONEE
CARROLL
NEWTON
MORGAN
GREENE
TALIAFERRO
WARREN
TAYLOR
COLUMBIA
FAYETTE
HENRY
HEARD
COWETA
JASPER
PUTNAM
HANCOCK
RICHMOND
SPALDING
BUTTS
TROUP
PIKE
MERIWETHER
LAMAR
MONROE
JONES
BALDWIN
BURKE
WASHINGTON
UPSON
MIDDLE
WILKINSON
JENKINS
SCREVEN
HARRIS
TALBOT
CRAWFORD
JOHNSON
EMANUEL
MUSCOGEE
TAYLOR
PEACH
BLECKLEY
LAURENS
CHATTA-
HOOCHEE
MACON
HOUSTON
CANDLER
BULLOCH
EFFINGHAM
PULASKI
DODGE
WHEELER
TOOMBS
EVANS
STEWART
SUMTER
DOOLY
WILCOX
TELFAIR
TATTNALL
BRYAN
CHATHAM
QUITMAN
WEBSTER
CRISP
LIBERTY
TERRELL
LEE
JEFF
DAVIS
APPLING
LONG
RANDOLPH
TURNER
BEN HILL
IRWIN
COFFEE
BACON
WAYNE
CLAY
CALHOUN
DOUGHERTY
WORTH
TIFT
McINTOSH
EARLY
BERRIEN
ATKINSON
PIERCE
MILLER
MITCHELL
COLQUITT
COOK
WARE
BRANTLEY
GLYNN
SEMINOLE
DECATUR
GRADY
THOMAS
BROOKS
LOWNDES
CLINCH
CHARLTON
CAMDEN
ECHOLS

Current and Projected Solids Production Estimates

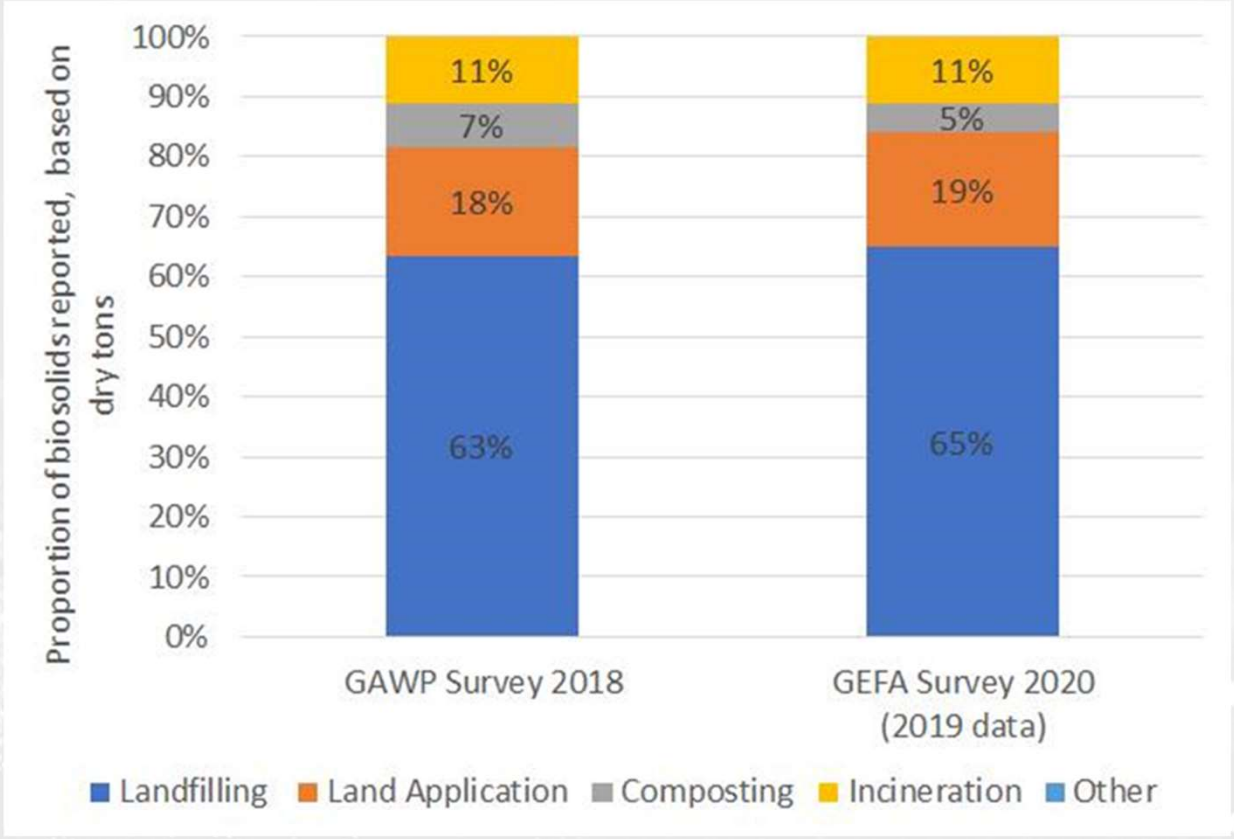


Comparison of Solids Production and Landfill Capacity* for Biosolids

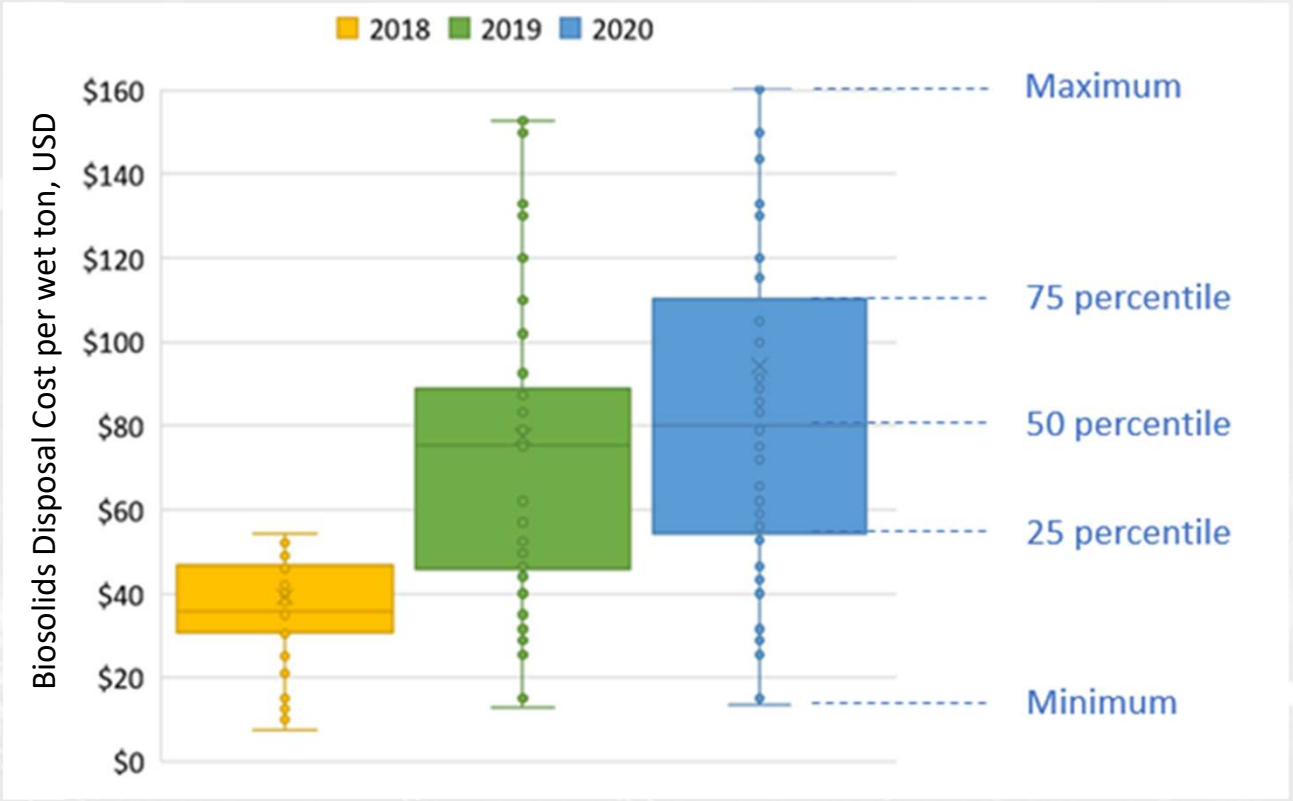


* Based on estimated closure dates from EPD, and assumes biosolids acceptance ratios remain constant

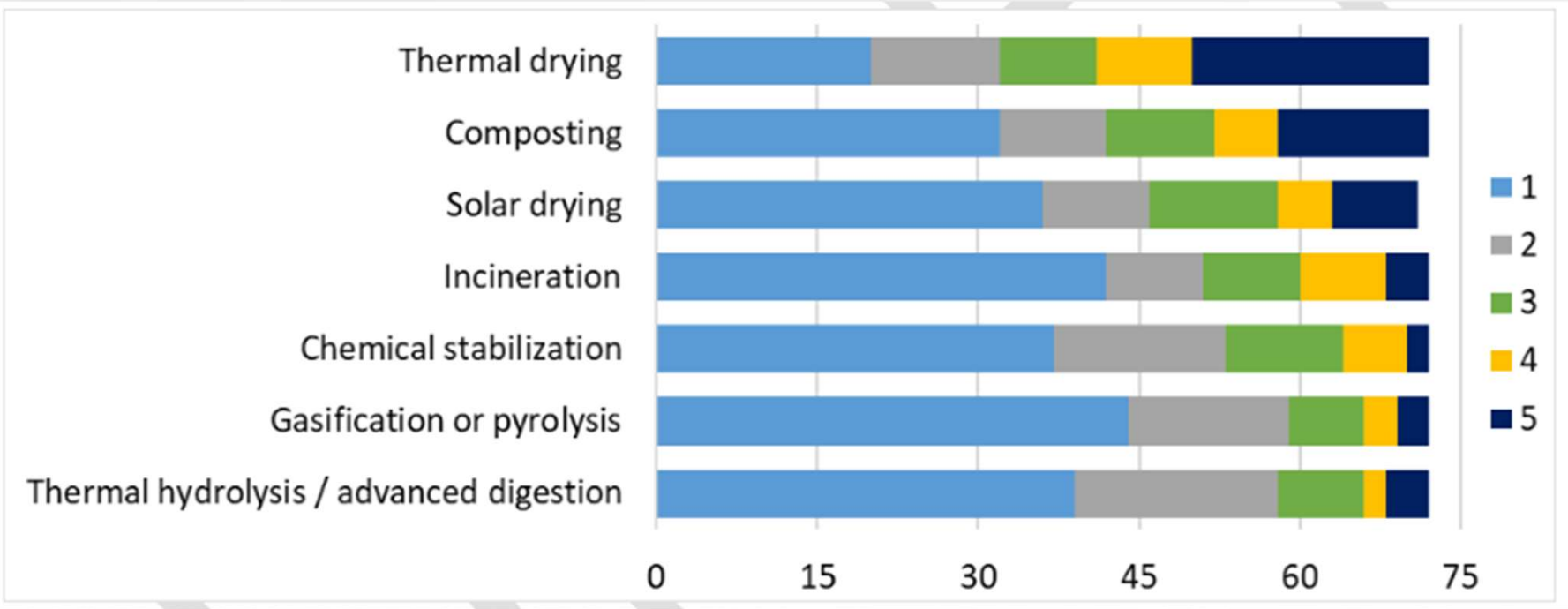
Survey Update: Biosolids End Use in Georgia



Survey Update: Biosolids End Use or Disposal Cost

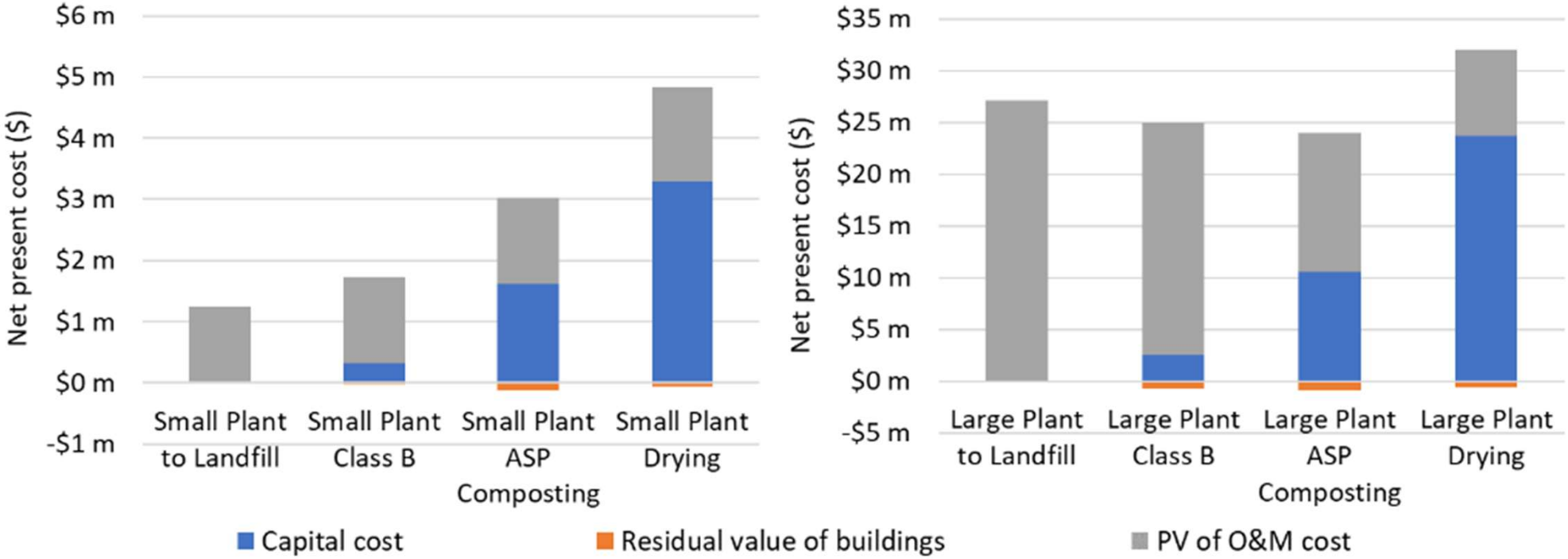


Utility Interest in Implementing Alternative Solids Treatment Processes



Ranked in order of highest interest (1=little to 5=high)

Technology Cost Evaluation



Regionalization for smaller plants could result in scale efficiencies

Market Assessment

1 Rotary Drum Heat Dried Biosolids
- Uniform hard pellet or grain
- 0.5-4 mm diameter
- Density 40-45 lb/cf

2 Granular Belt Heat Dried Biosolids
- Somewhat uniform and hard granule
- 0.5-4 mm diameter
- Density 40-45 lb/cf

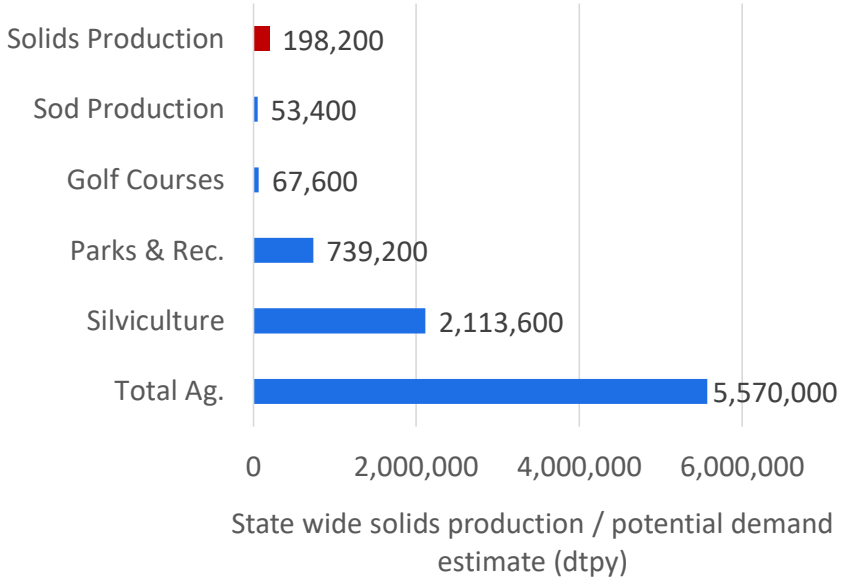
3 Extruded Belt Heat Dried Biosolids
- Irregular shape, somewhat friable
- 2-8 mm diameter
- Density 20-25 lb/cf

4 Paddle Heat Dried Biosolids
- Somewhat uniform and hard granule
- 0.5-4 mm diameter
- Density 40-45 lb/cf

5 Biosolids Compost
- Mulch-like appearance
- Size varies (bulking agents used and screening)
- Density 25-35 lb/cf

6 Lime Stabilized Biosolids (Class A)
- High pH product
- Consistency of wet dirt, but can be dried
- Density 70-100 lb/cf

Market Assessment



2% market penetration required to make use of all biosolids in GA

Agriculture
Large volume market, familiarity with biosolids, cost/ease of use matter

Silviculture
Potentially large market, potential impacted by market forces, demos/education needed

Sod Farms
Small market, mixed reception, positive lime-stabilized biosolids experience

Golf Courses
Familiarity with biosolids, dried pellets/compost of greatest interest, cost/uniformity/size matter

Parks & Recreation
Potential for dried pellets and compost, cost critical

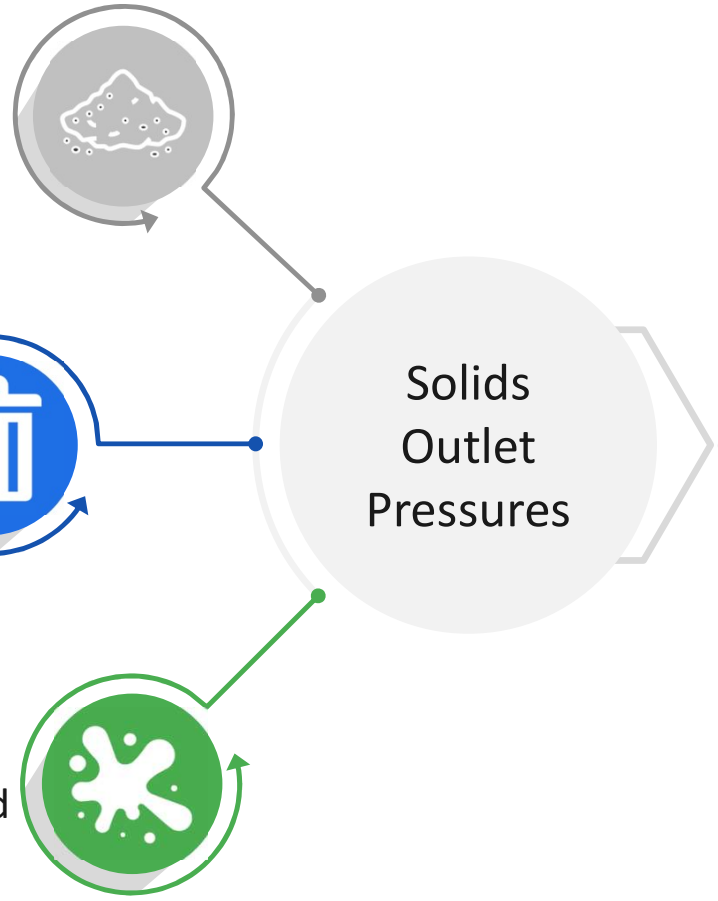
General Urban Uses
Some familiarity (pellets/compost), compost market not expanding, education needed.

Gap Analysis Summary

- GA solids production is increasing

- More than half of existing GA MSW landfills may fill within next 30 years

- Capacity issues potentially exacerbated by HMCW restrictions



Concerns

- Landfilling dominant practice in GA
- Solids production will exceed available landfill capacity

Addressing the Gap

- Consider new processes/ alternative outlets for up to 77,000 dt/yr solids
  - Class B land application
  - Class A product for agricultural or urban uses

GEFA Funding Available for Biosolids Projects

Georgia Fund	Clean Water SRF
State funded	Federally funded
Water, wastewater, and solid waste infrastructure projects	Wastewater infrastructure and pollution prevention projects
$3 million per year maximum loan amount	$25 million per year maximum loan amount
Interest rate of 1.63% for a 20-year loan	Interest rate of 1.13% for a 20-year loan
	Scoring criteria not well aligned to biosolids drivers

Notes and Recommendations to GEFA

- Consider potential biosolids specific funding initiative
- Provide additional guidance for utilities seeking biosolids funding
- The Water Infrastructure Finance and Innovation Act of 2014 (WIFIA) can also provide funding for biosolids projects (EPA administered)

Questions?

Steve Simpson
simpsonSL@bv.com

Greg Knight
knightGJ@bv.com

Bernadette Drouhard
drouhardB@bv.com

Amanda Carroll
acarroll@gefa.ga.gov

Public Comment

Next Steps

Next Steps

- Next Meeting: August 24 – Draft Plan Review
- Committees to work on plan revisions
  - Inter-Council Coordination – Joint meeting with neighboring Councils
  - Plan Review
  - Others…

Thank You

Upper Flint