Georgia's
State Water Plan

COOSA-NORTH GEORGIA
REGIONAL WATER PLANNING COUNCIL

September 30, 2020

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https://waterplanning.georgia.gov/

Meeting Agenda

- Registration
- Welcome and Introductions
- CNG Council Business
  - Approve Minutes and Agenda
  - Seed Grants Status
  - FY 2018 Seed Grant Project Update
- Council Updates
  - EPD Updates
  - Industrial and Energy Water and WW Forecasting
  - Municipal Water and WW Forecasting
  - Water Quality Updates
- Metro District Update
- Next Steps
- Adjourn

Introductions and Housekeeping

- Welcome
- Approve minutes from the last meeting
- Approve today's agenda
- Review meeting objectives

Meeting Objectives

Objectives

- Updates on Council business including council members and seed grants
- Discuss water quality and demand forecasting
- Discuss location and topics for future meeting

CNG Council Business

Brooke Anderson

CNG Council Business

- Approve Minutes and Agenda
- Seed Grants Status

FY 2018 Seed Grant Project Update

Gretchen Lugthart, NWGRC

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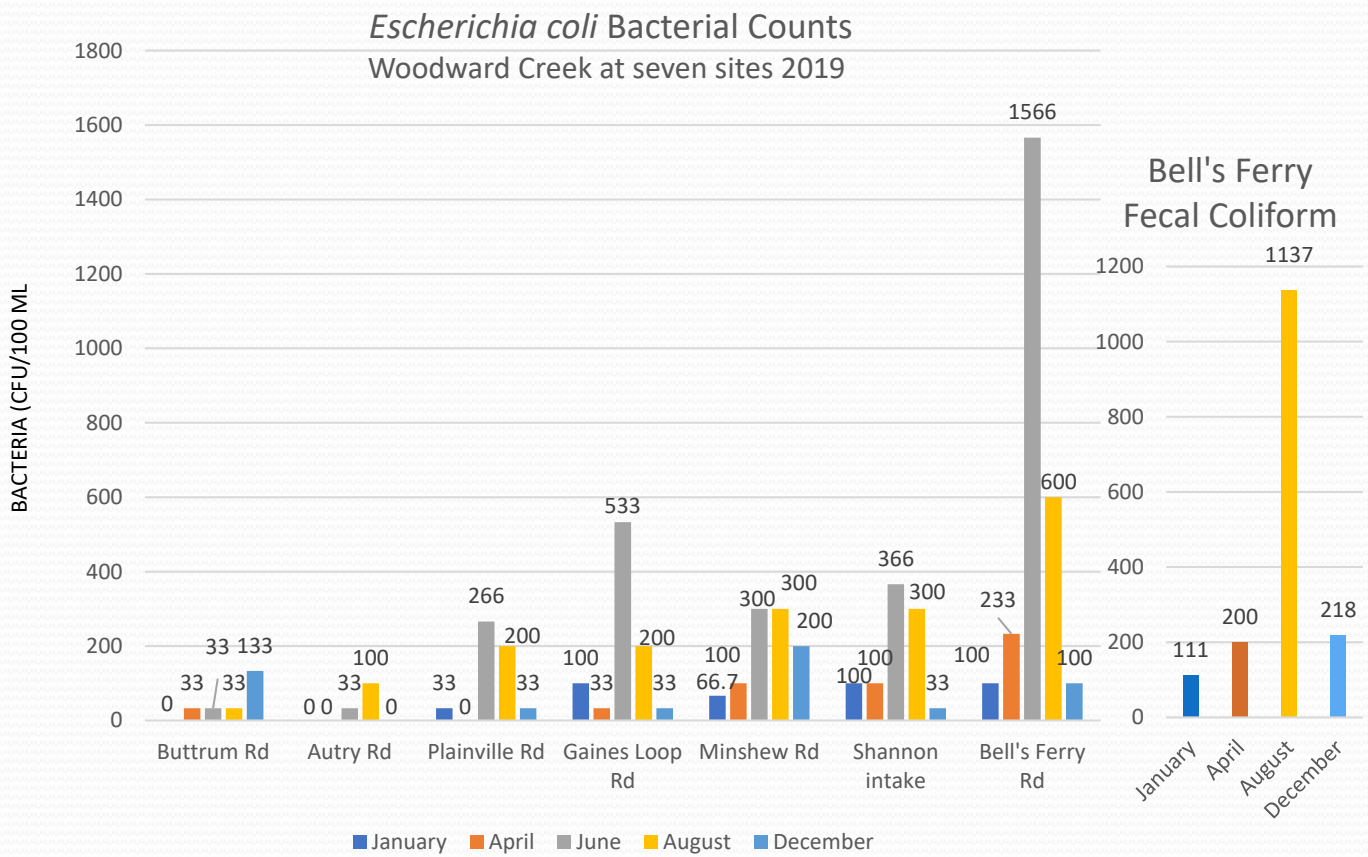
Woodward Creek Watershed and Upper Oostanaula Watershed

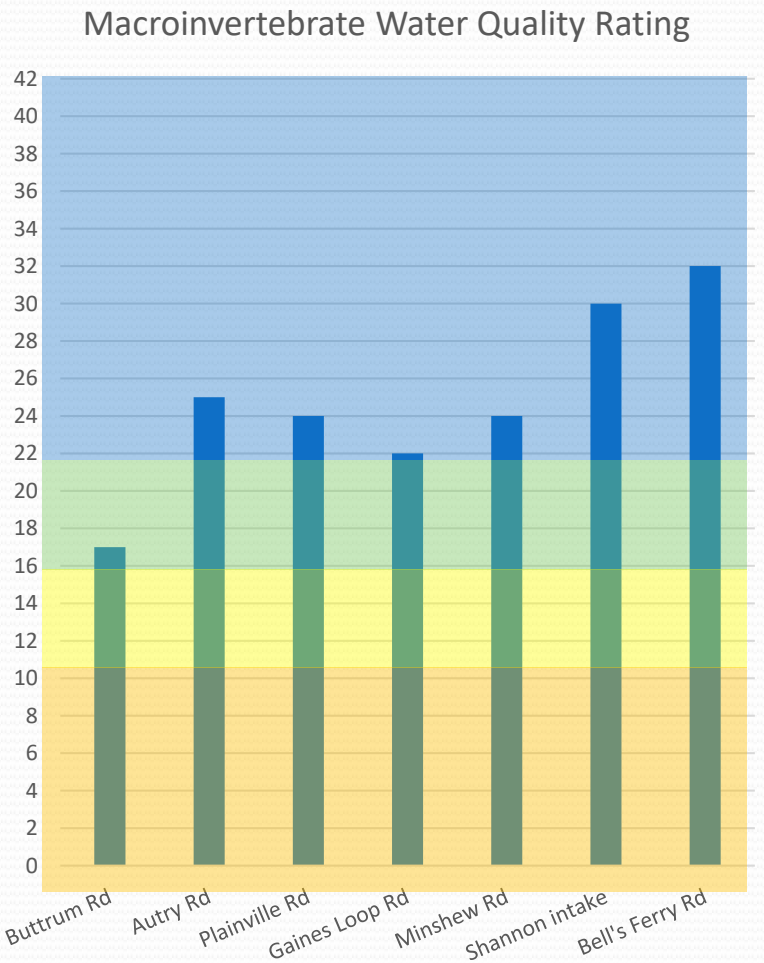
Goals:

- Update the Woodward Creek Watershed Management Plan
- Education and Outreach in the Lower Oostanaula Watershed

Bacterial levels

- Higher levels of *E. coli* in June and August
- Highest levels were at Bell's Ferry
- Generally higher levels at the five downstream sites compared to the two sites highest in the watershed





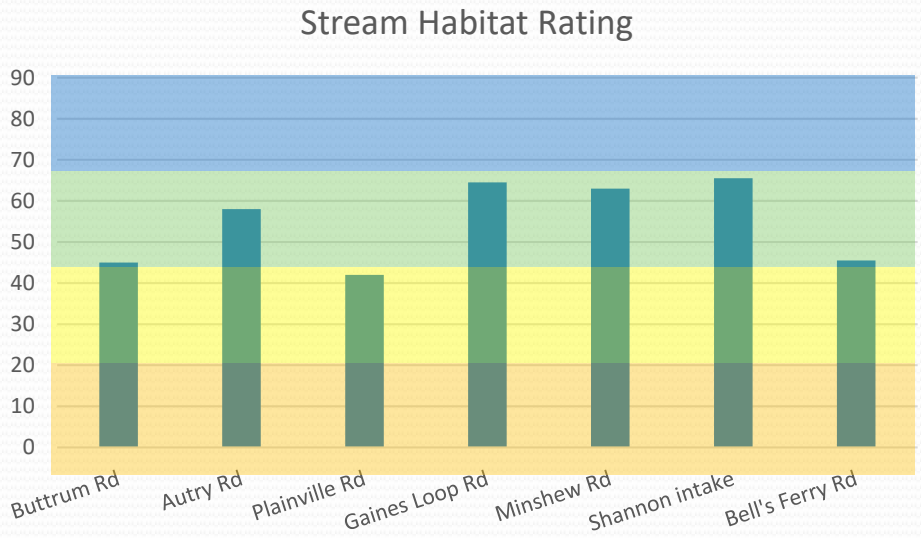
Excellent

Good

Fair

Poor

- In terms of macroinvertebrates, all sites are either excellent or good
- In terms of stream habitat, all sites are either good or fair



Macroinvert WQ Rating:
Excellent: >22
Good: 17-22
Fair: 11-16
Poor: <11

Stream Habitat WQ Rating:
Excellent: 69-90
Good: 46-68
Fair: 23-45
Poor: 0-22

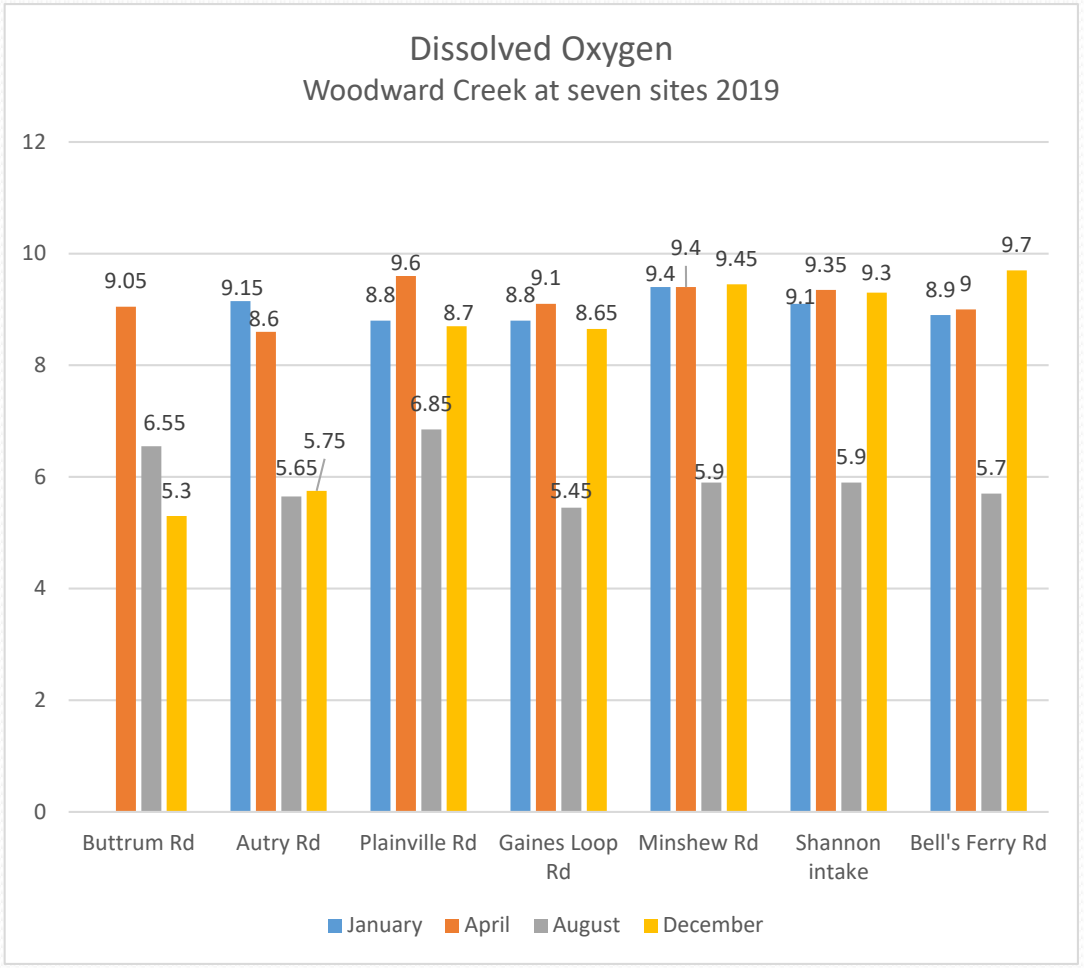
Other physical/chemical parameters measured:

Parameter	Woodward Creek range measured by NWGRC 2019	Georgia State Standard for streams designated as drinking water source
Conductivity (µs/cm)	Range: 60-280	No state standard
pH	Range: 6.5-7.25	range 6-8.5
Water Temperature (°C/°F)	Range: 6.9°C to 23.8 °C or 44 °F to 75 °F	not to exceed 32.2 °C or 90 °F
Dissolved Oxygen (mg/L or ppm)	Range: 5.3-9.7	daily average of 5, and no less than 4

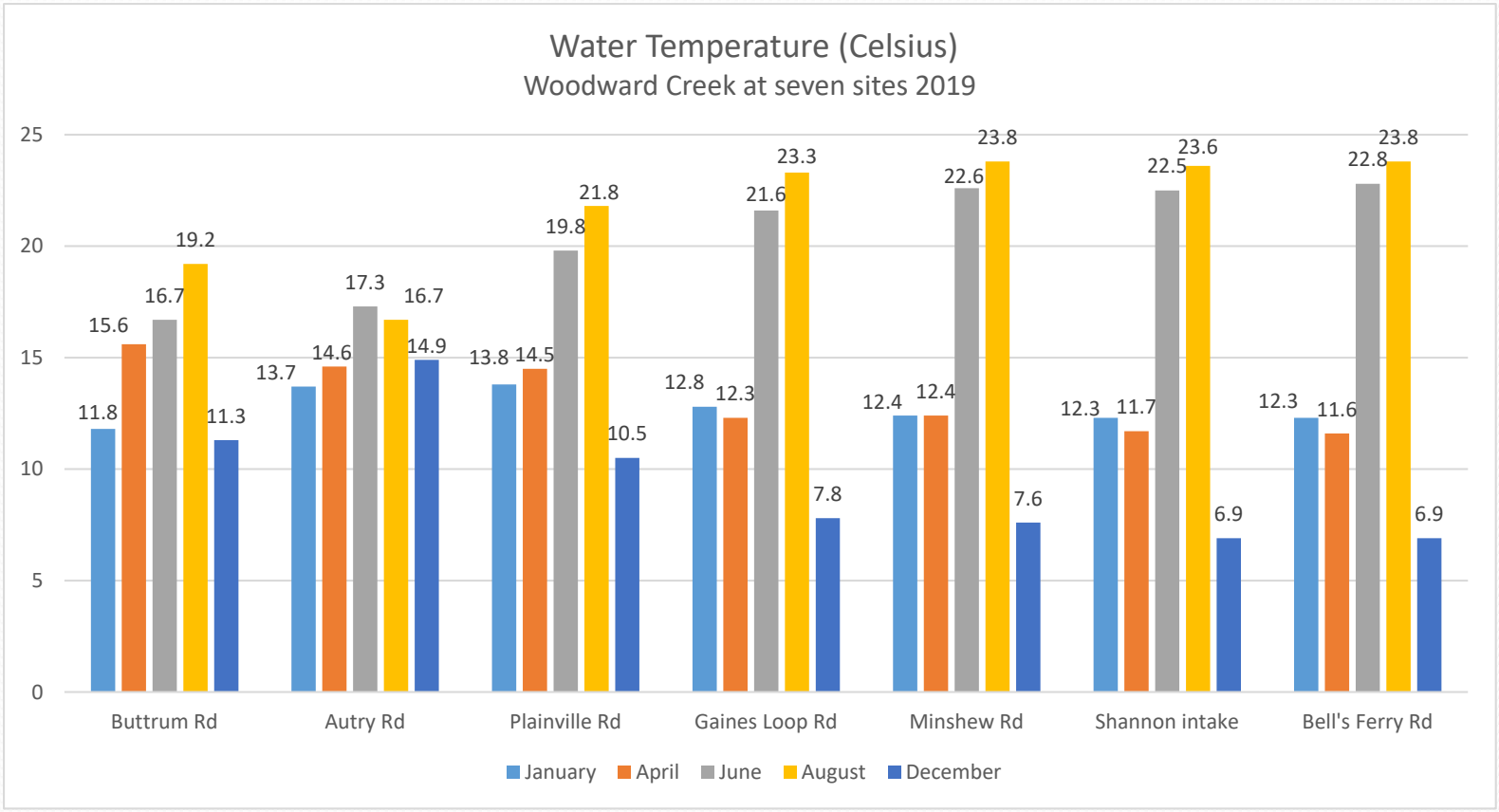
- no conductivity state standard, but this range is expected in stream water in North Georgia, with the lower values from very small streams near the headwaters. Overall, Georgia waters can be 0-1500 µs/cm
- pH: within state standard
- Water temperature: within state standard
- Dissolved Oxygen: within state standard, but could be higher in summer

Dissolved Oxygen

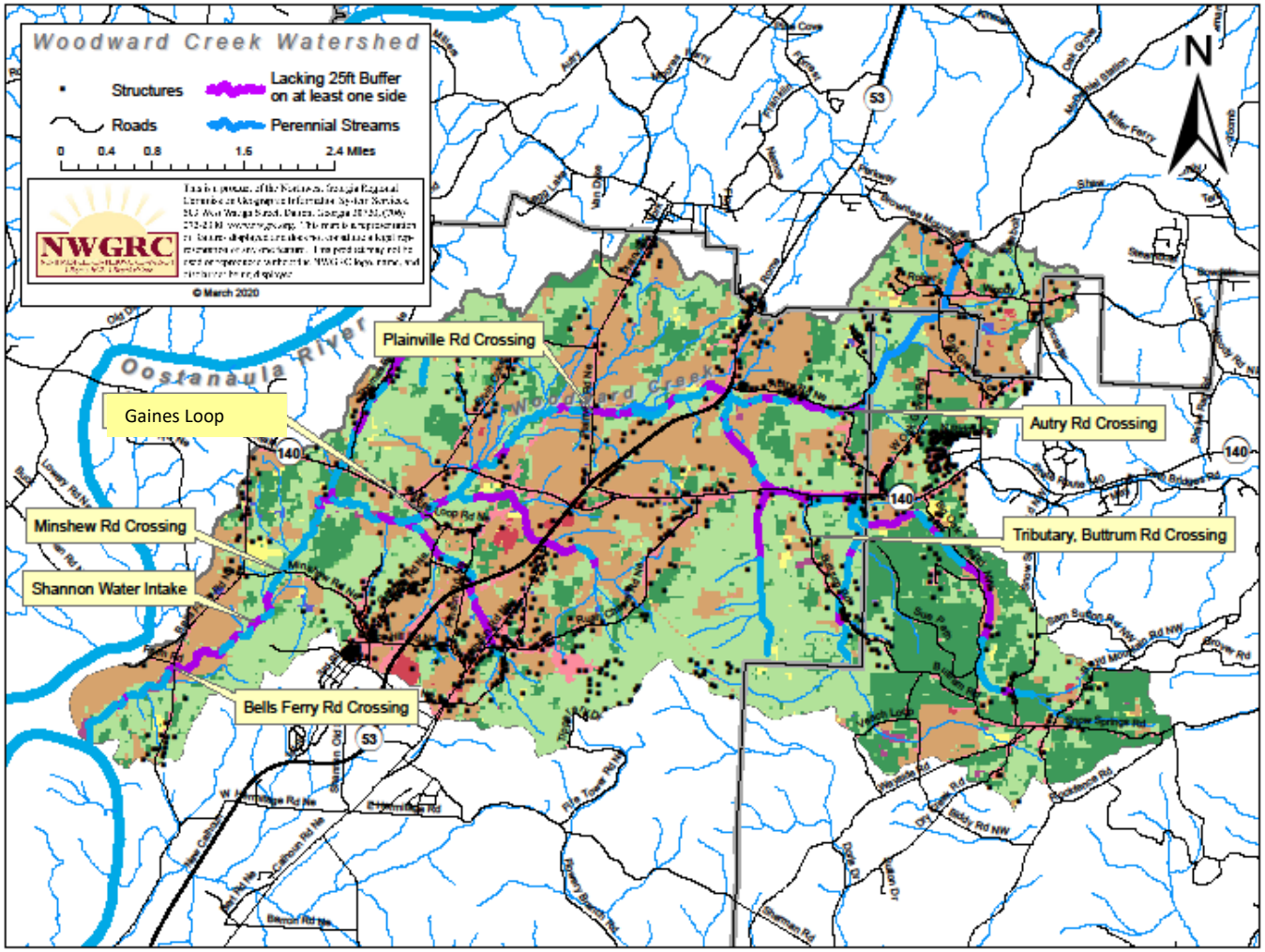
- August measures are low at every site
- Bacterial respiration may be depressing DO levels
- Cooling of stream by adding or enhancing forested buffers could improve DO values in stream water



Temperature Woodward Creek



- All the sites with elevated E.coli in summer are in or below the band of pasture in the middle of the watershed.
- Focus on restoring missing buffers (purple)



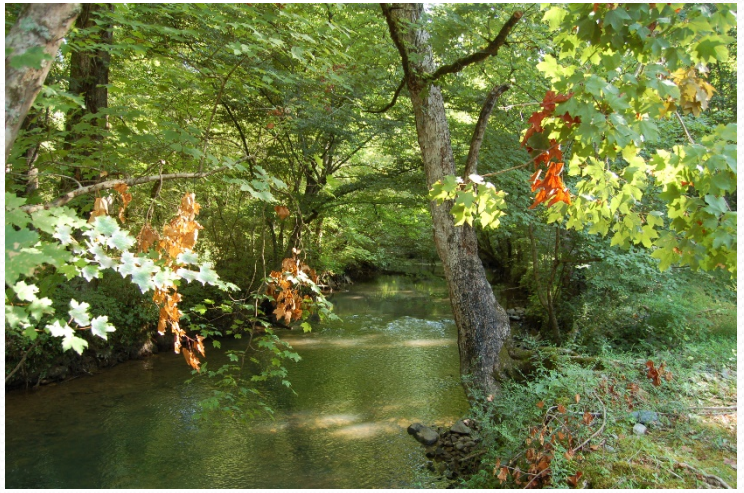
Solutions

- Septic system repair
- Agricultural BMPs
- Buffers
- Demonstration projects
- Green infrastructure
- Education/outreach
- Enforcement of existing regs
- Culvert/bridge assessment

Woodward Creek Watershed Management Plan

Update of the Management Plan produces a working, living document

- Tool to use in improving water quality in the watershed
- Defines problems in watershed
- Identifies costs of improvement and sources of funding
- Can be used by cities and counties and other organizations to obtain grant funds for specific projects



Woodward Creek at Shannon water intake in August 2019

Major Goal of “delisting” or removing the stream from the list of impaired waters

Major Goal of clean, clear water for all:

- drinking water
- swimming
- fishing
- boating
- fish and other wildlife

Woodward Creek at Autry Road in April 2019

Council Updates

Council Updates

- EPD Updates
- Industrial and Energy Water and WW Forecasting
- Municipal Water and WW Forecasting
- Water Quality Updates

Georgia EPD Updates

Christine Voudy, Georgia EPD

Regional Water Planning

- Regional Water Planning Process
- Industrial Forecasting
- FL v GA Litigation update
- Seed Grant

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Regional Water Planning

- Regional Water Plans reviewed and updated every 5 years
- Plan update process began early 2020, with Plans updated by 2022
- EPD working with contractors on developing updated information:
  - Forecasts of water demands
  - Resource Assessments

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Industrial Water Demand Forecast

- Industrial Sector forecast initially developed in 2011.
  - Encompasses most diverse sector type.
  - Future Industrial water demands based on employment growth
- 2017 Plan update Industrial forecast demands held steady.
- Early 2020, EPD formed Industrial stakeholder group
  - Was using employment growth still a viable option for forecasting Industrial growth?

Industrial Water Demand Forecast

Participating Industrial Stakeholders:

- Industry Trade Groups:
  - Georgia Poultry Federation
  - Georgia Mining Association
  - Georgia Paper and Forest Products Association
  - Georgia Association of Manufacturers
  - Georgia Chemistry Council
- Governor's Office of Planning and Budget
- Georgia Department of Economic Development
- Georgia Tech Research Institute
- Representatives from a cross-section of industries, including:
  - Mohawk Industries
  - Gerdau Steel
  - BASF
  - SAFT, Inc.
  - Milliken & Company
  - Packaging Corp. of America

Industrial Water Demand Forecast

- Initial stakeholder meeting held June 3rd.
  - Consensus was we need a better way to forecast Industrial demands.
- Broke into subgroups by major industry type
  - Paper and Forestry Products
  - Mining
  - Poultry and Food Processing
  - Manufacturing
- Three of the subgroups sent surveys to membership

Industrial Water Demand Forecast

- Survey questions included:
  - Average water use
  - Water source
  - Municipal customer
  - Average discharge
  - Receiving water bodies
  - Municipal wastewater customer
  - Anticipated changes in next 5 yrs/10yrs

Industrial Water Demand Forecast

- Next Steps
  - Share Information with Municipal Forecast Team where Municipal water use > 0.2 mgd
  - Draft Summary Reports will be sent to EPD for finalization – Late September 2020
  - Industrial Forecast completed – October 2020

- Georgia Department of Economic Development
  - Coordination with GDED on industry trends and available data to inform the forecast
  - If specific information about locations/amounts of water needs from new industries is available, it will be incorporated in the forecast
  - Region-specific information from the Councils regarding new industries can be analyzed during modeling efforts

Florida v. Georgia

- Florida filed complaint with S. Ct. in Oct. 2013
- Special Master Lancaster appointed
  - Trial held Oct. 31 – Dec. 1, 2016
  - Special Master's Report on Feb. 14, 2017
- Supreme Court
  - Oral arguments on Jan. 8, 2018
  - Ruling (remand) on June 27, 2018
- Special Master Kelly appointed on Aug. 9, 2018
  - Oral arguments held on Nov. 7, 2019
  - Report issued on Dec. 11, 2019
- Supreme Court
  - FL briefing exceptions on April 13, 2020
  - GA reply on June 26, 2020
  - FL sur-reply on July 27, 2020

https://www.ca10.uscourts.gov/special-master-142

Regional Water Plan Seed Grants

- Cost-Share: 60%/40%
- 10% Cash Match of Total project
- $75,000 State limit
- Letter of Endorsement Council Chair

- Grant Call NOW OPEN
- Pre-application meeting deadline 10/16/2020
- Application Deadline 10/31/2020
- https://epd.georgia.gov/outreach/grants/regional-water-plan-seed-grant-funds

Christine Voudy
Georgia Environmental Protection Division
(404) 463-4910
christine.voudy@dnr.ga.gov

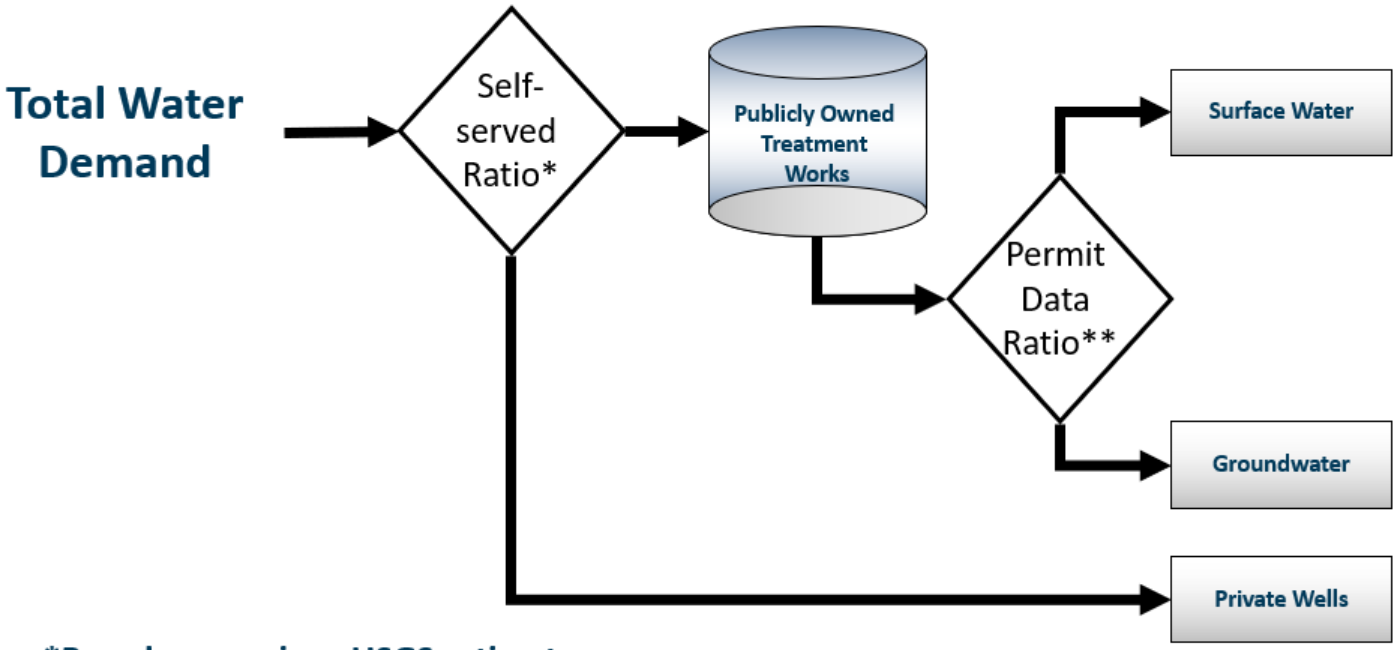
Municipal Water and WW Forecasting

Brian Skeens, Jacobs

Water Demand Forecasting – Municipal

- Black & Veatch/Jacobs planning contractor team preparing water demand forecasts for this sector
- Municipal Forecasting Stakeholder Group
  - Includes one representative from each Council & the Metro Water District (Brooke Anderson represents Coosa-North Georgia Council)
  - Initial Stakeholder Meeting held on April 16
    - Reviewed methodology and initial data collection
  - Second Stakeholder Meeting held on June 3
    - Reviewed draft forecast results
  - Next meeting to be held later this fall
- Information being collected by Industrial forecasting efforts will inform this forecast (municipally-supplied industries)

Municipal Water Demands



*Based on previous USGS estimates

**Based on existing GA EPD permit data

Municipal Water Demands – Self Supplied

- County % population self-supplied water (groundwater wells)

- Dawson Co. – based on prior input, will decrease % self supplied to 5% by 2060
- Habersham Co. – based on prior input, will decrease % self supplied to 13% by 2060
- Lumpkin, Murray, Pickens Counties – based on prior input, will hold population self supplied constant to 2060
- All others – Hold self supplied % constant to 2060

County	2017 Plan Percent Population Self Supplied	Self Supplied Per Capita	Updated Percent Population Self Supplied [1]
Catoosa County	16%	75	5%
Chattooga County	14%	75	5%
Dade County [3]	0%	75	6%
Dawson County [4]	32%	75	29%
Fannin County	46%	75	39%
Floyd County	1%	75	5%
Gilmer County	55%	75	52%
Gordon County	25%	75	13%
Habersham County [5]	44%	75	18%
Lumpkin County [6]	82%	75	73%
Murray County [6]	60%	75	25%
Pickens County [6]	26%	75	16%
Polk County	12%	75	3%
Towns County	7%	75	8%
Union County	35%	75	1%
Walker County	0%	75	10%
White County	47%	75	50%
Whitfield County	1%	75	5%

[1] Ratios as shown in the Estimated Use of Water in Georgia for 2015 and Water Use Tends, 1985-2015 (USGS, 2019).

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Municipal Water Demands – Public Supply

- Data collection was focused on 2019 average annual water withdrawals (as reported to EPD)
- Municipal water use:
  - Surface water use: 79.17 mgd
  - Groundwater use: 16.45 mgd
- Forecast (through 2060) will be informed by updated per capita use estimates and population projections

Municipal Water Demands – Per Capita

- Updated per capita demand values based on water audit submissions to EPD (forecasting team reviewing 2019 data)
- Water audits for small systems (less than 3,300 people) unavailable, so water use / population served used

Coosa - North Georgia Per Capita Water Demand (gpcd)

County	2011 Plan Per Capita Demand	2017 Plan Per Capita Demand	Updated Per Capita Demand [1]
Catoosa County	121	114	98
Chattooga County	164	165	137
Dade County	134	124	80
Dawson County	160	157	104
Fannin County	150	150	117
Floyd County	133	134	125
Gilmer County	141	142	202
Gordon County	159	158	174
Habersham County	170	174	165
Lumpkin County	166	167	176
Murray County	145	134	104
Pickens County	133	144	132
Polk County	167	170	136
Towns County	141	139	76
Union County	149	141	76
Walker County	145	145	112
White County	150	150	126
Whitfield County	224	230	259

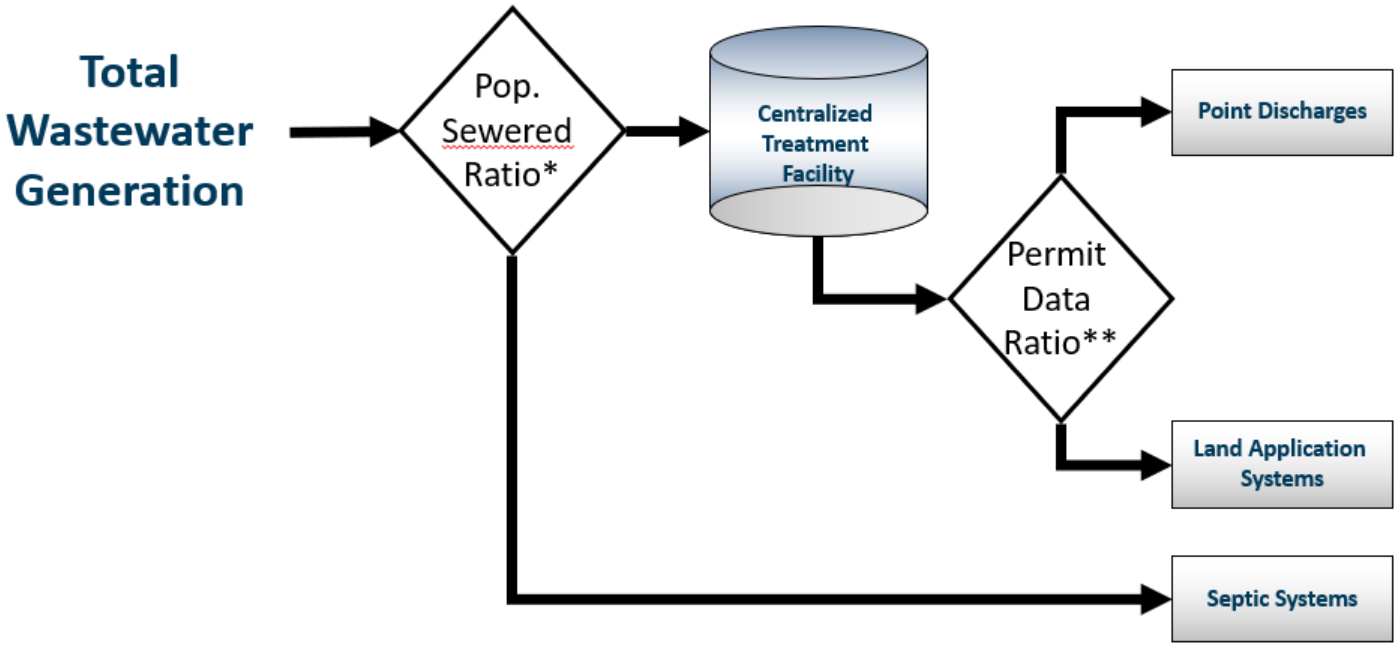
NOTES:

[1] Weighted average per capita calculated using the available 2015-2018 Water Loss Audits.

Municipal Water Demands – Public Supply

- Transfers of water between municipal systems in different Counties of more than 0.1 mgd will be factored into the forecast
- 2019 Transfers (from EPD records):
  - Over 30 county-to-county transfers
  - 10 are more than 0.1 mgd
- These will be used for source demands for resource assessment modeling

Municipal Wastewater Demands



*Based on 1990 US Census Bureau data
**Based on existing GA EPD permit data

Municipal Wastewater – Septic

- County % population on septic systems
  - Will be held constant, unless specific input received
- Values shown in unshaded cells are from Georgia Dept. of Public Health data (through 2018)
- Values shown in shaded cells are from the 1990 Census housing characteristics for Georgia (used where DPH data was deemed inappropriate for use by forecasting team)

County	% Septic Users in 2020
Catoosa County	100%
Chattooga County	25%
Dade County	80%
Dawson County	75%
Fannin County	75%
Floyd County	45%
Gilmer County	70%
Gordon County	55%
Habersham County	55%
Lumpkin County	75%
Murray County	75%
Pickens County	75%
Polk County	73%
Towns County	75%
Union County	85%
Walker County	81%
White County	75%
Whitfield County	59%

Municipal Wastewater – Municipally Treated

- Data collection was focused on 2019 average annual wastewater discharges (as reported to EPD)
- Municipal wastewater flows in Coosa-North Georgia region:
  - Point source discharges: 35.51 mgd
  - Land application system (LAS): 11.575 mgd
- Forecast (through 2060) will be informed by population projections

Water Quality Updates

Elizabeth Booth, GA EPD

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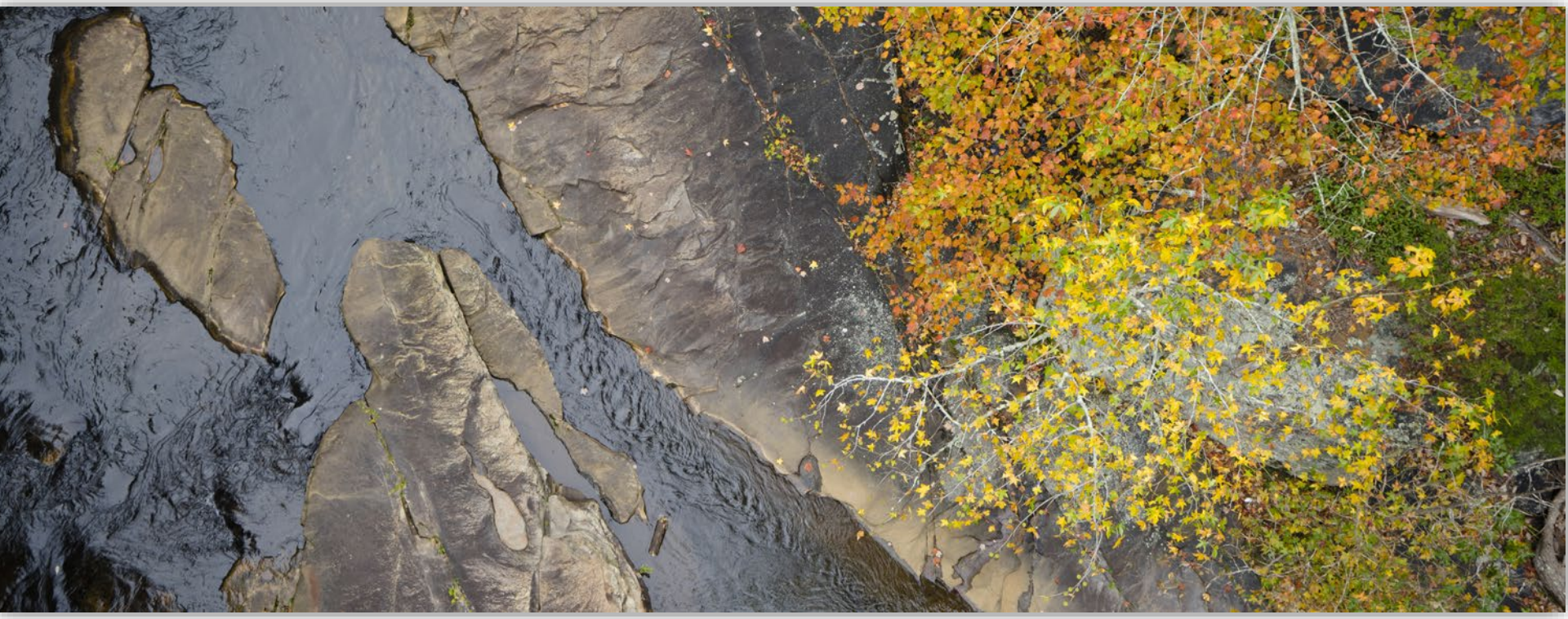
GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

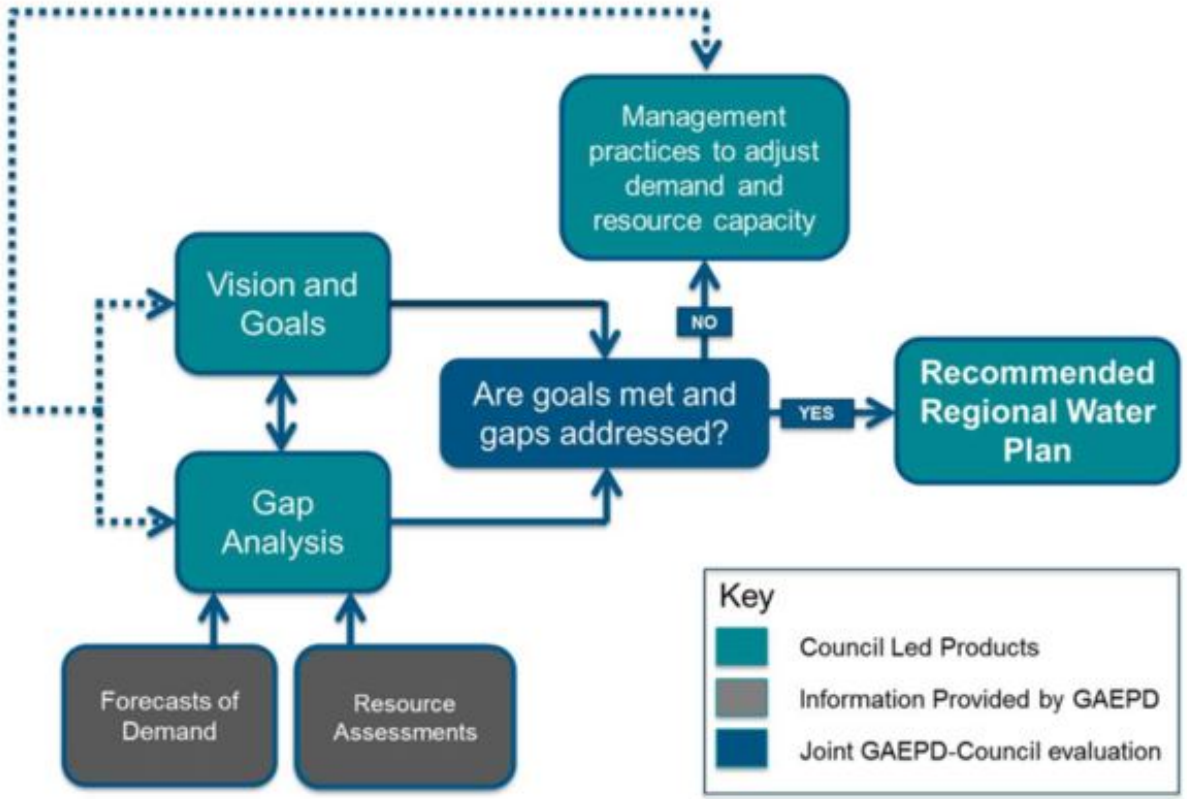
Current and Future Water Quality Resource Assessment



September 30, 2020

Elizabeth Booth, EPD

State Water Planning Process



CURRENT ASSIMILATIVE CAPACITY ASSESSMENT

Develop Models

Use available data & conservative assumptions

Calibrate models to existing conditions

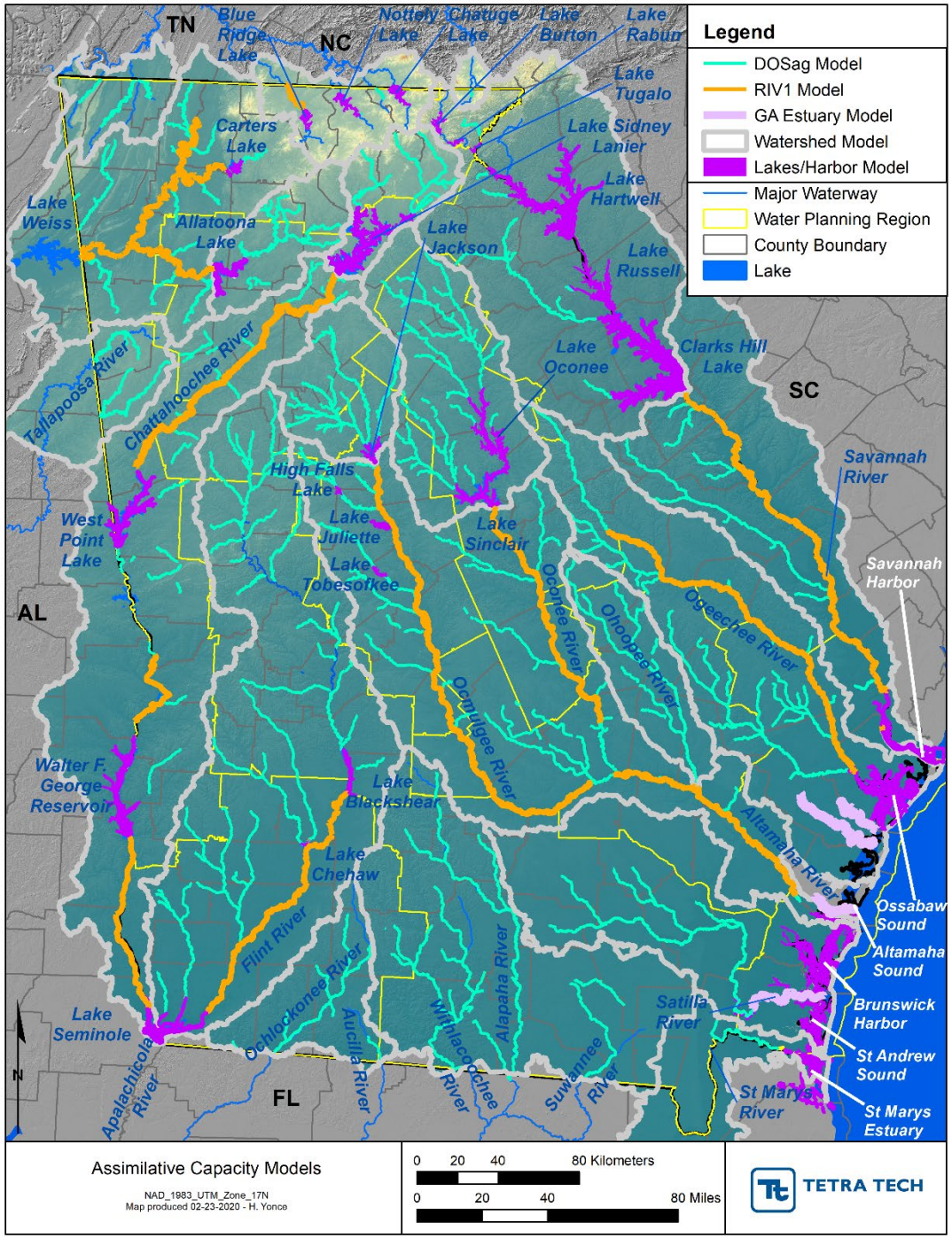
Evaluate models using current permits

Determine available assimilative capacity

Determine areas of concern

FUTURE ASSIMILATIVE CAPACITY ASSESSMENT

- Determine future needs
- Using the models we evaluation future permitted flow
- Incorporate model assumptions regarding future permits limits designed to meet water quality standards
- Determine areas of concern



Round 3 of the State Water Plan

2000-2019

ES

MODELS USED TO DETERMINE AVAILABLE ASSIMILATIVE CAPACITY

GA DOSAG

- Examines the effects of BOD and NH3 on DO

GA ESTUARY

- Examines the effects of BOD and NH3 on DO

GA RIV-1

- Examines the effects of BOD and NH3 on DO

Watershed Model (LSPC)

- Examines the effects of Total P , Total N, and BOD

Lake and Estuary Models (EFDC)

- Examines the effects of nutrients on Chlorophyll *a*
- Examines the effects of BOD and NH3 on DO

WATER QUALITY RESOURCE ASSESSMENT

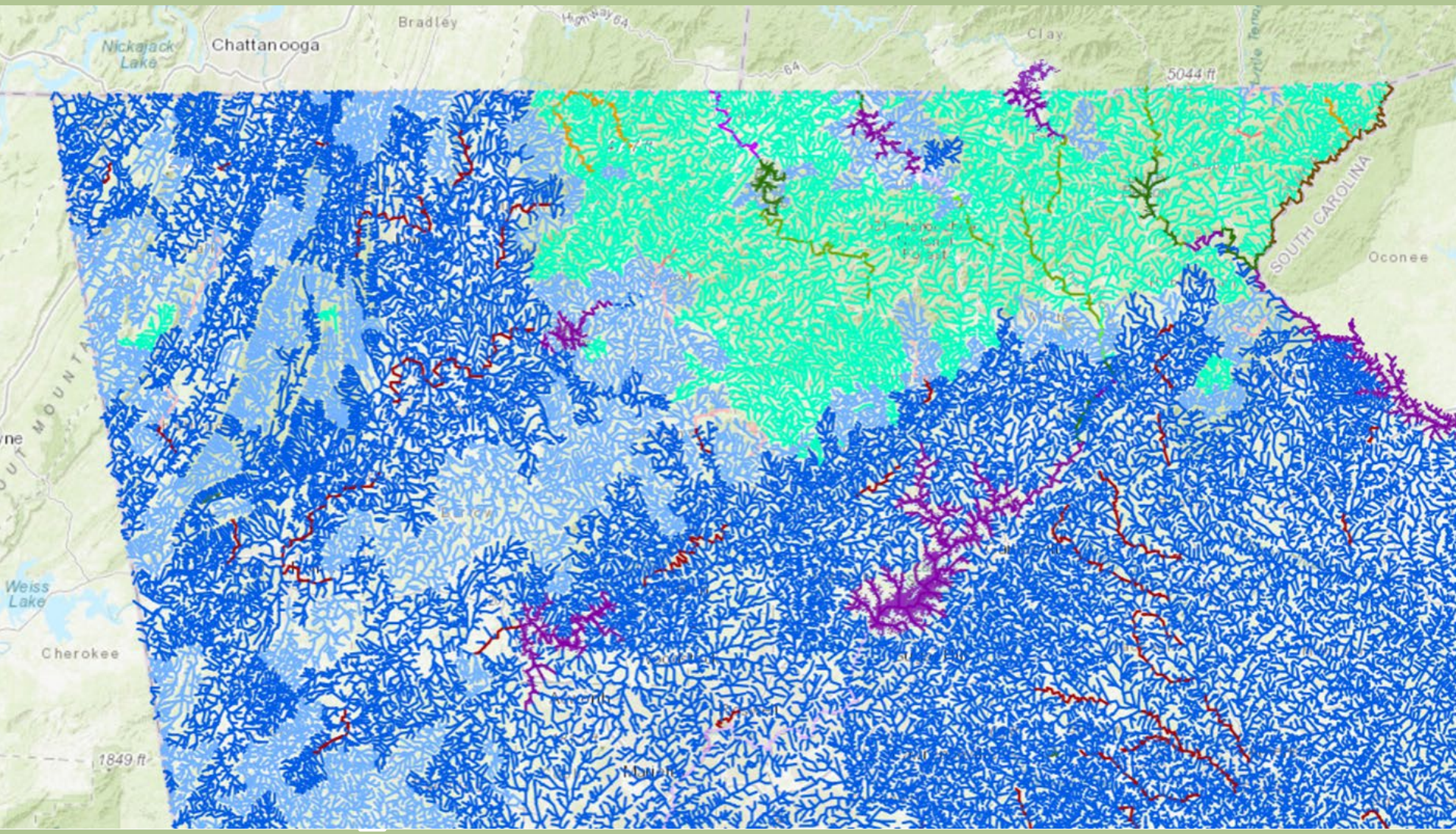
Parameters of Concern

- Biochemical Oxygen Demand
- Ammonia
- Total Nitrogen
- Total Phosphorus
- Heat Loads

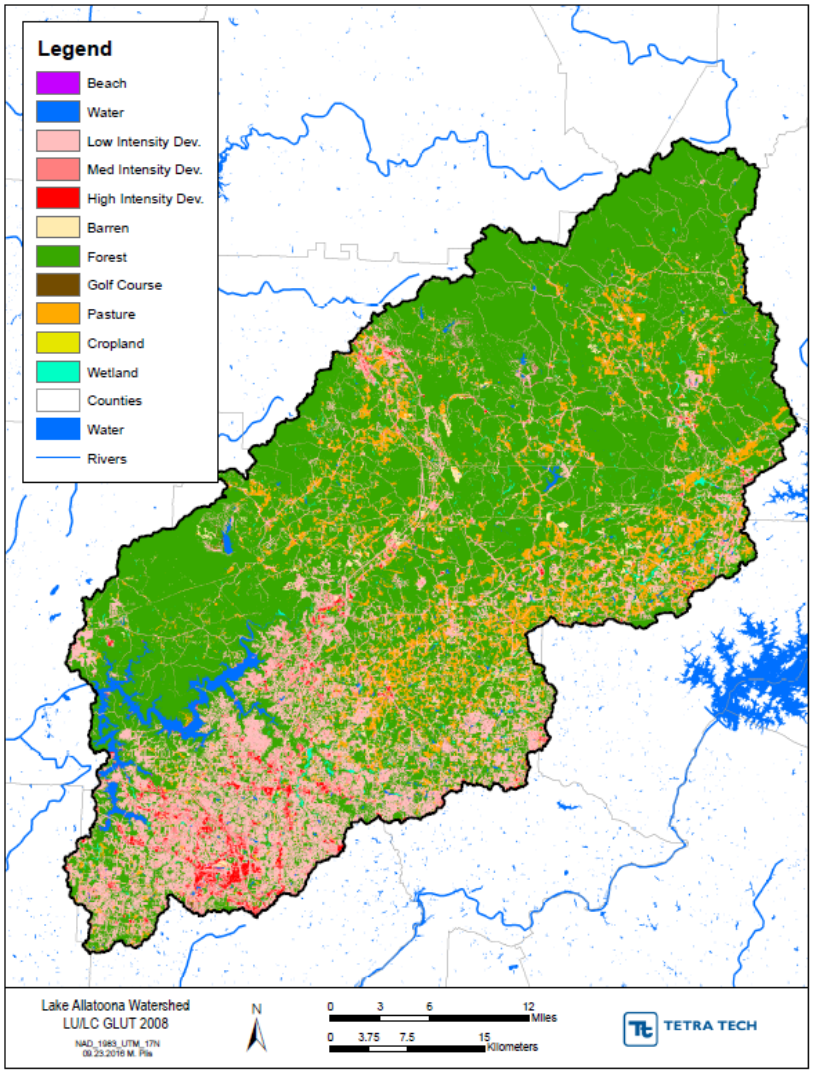
Water Quality Standards Effected

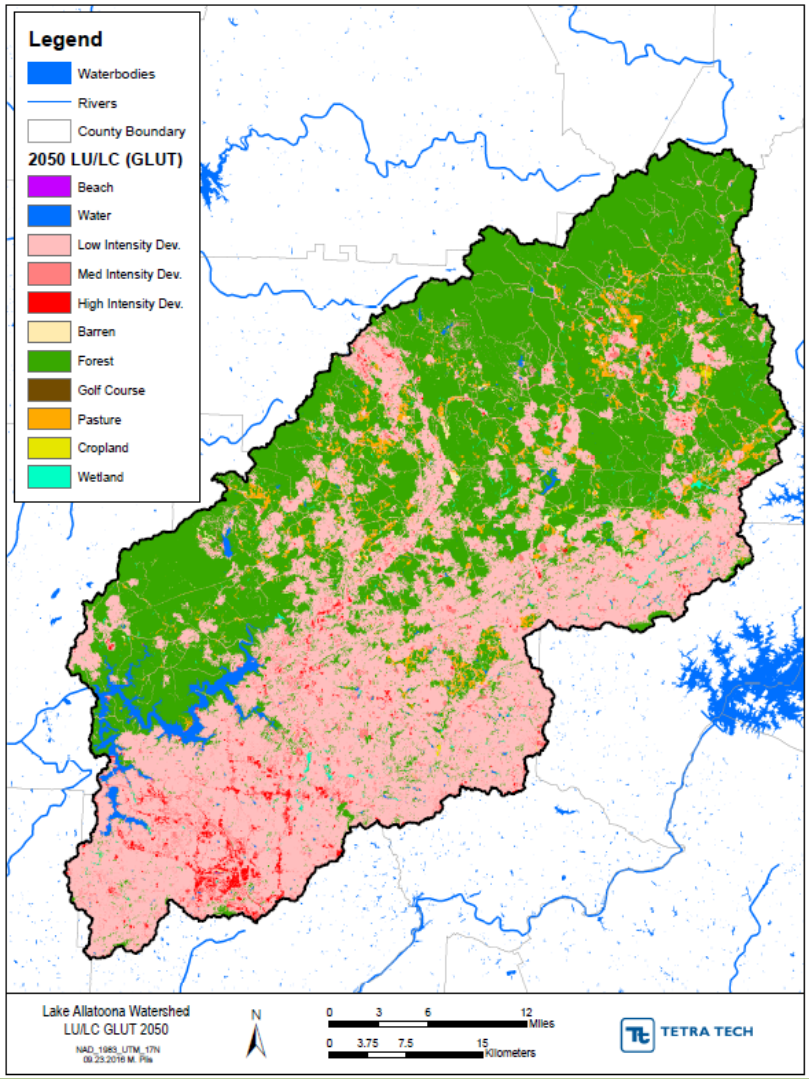
- Dissolved Oxygen
- Chlorophyll *a* (Algae)
- Nutrients
- Temperature

DESIGNATED USES

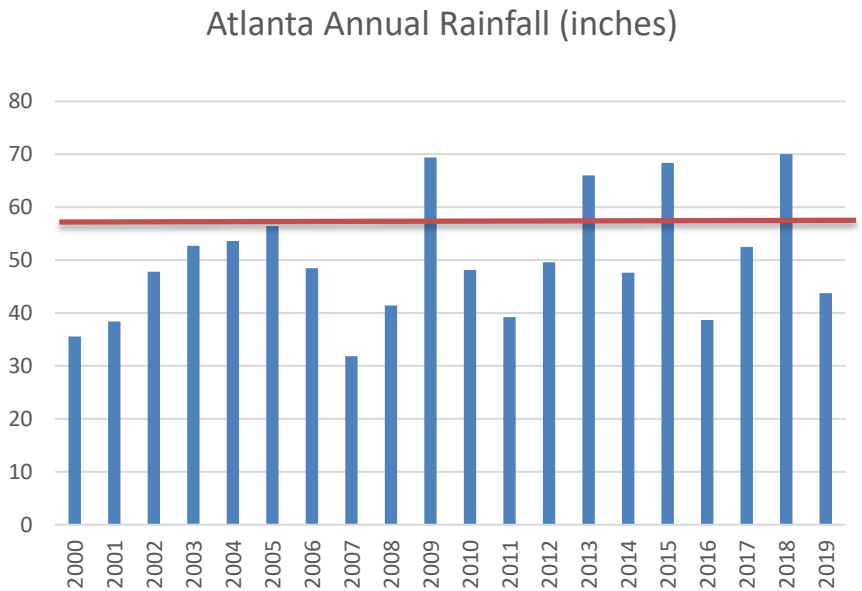


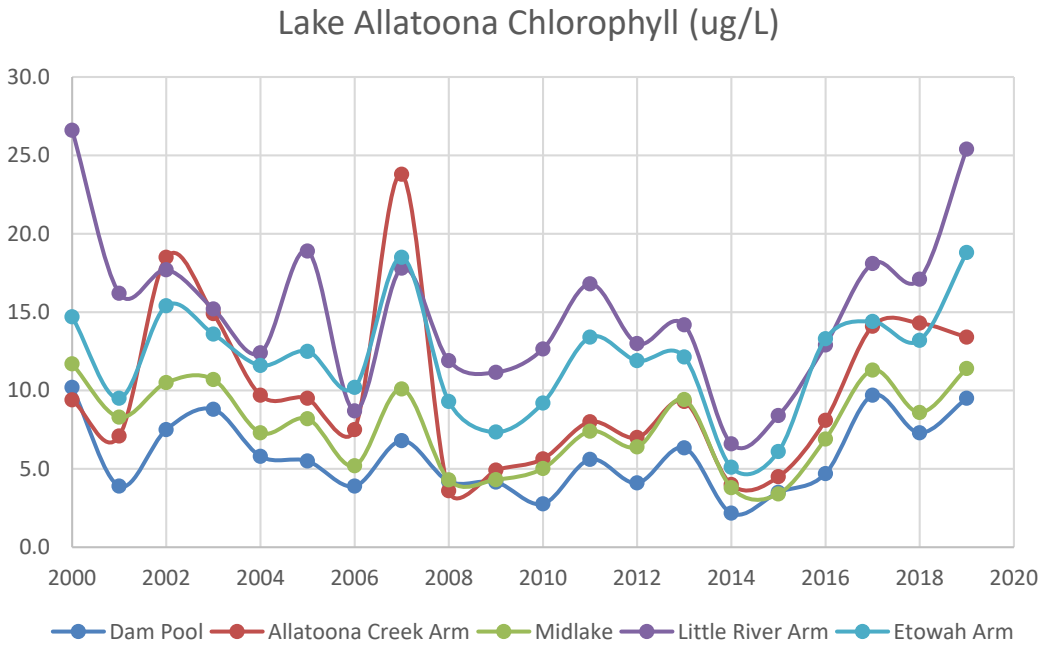
LANDUSE CHANGES (2008-2050)





CLIMATE CHANGES



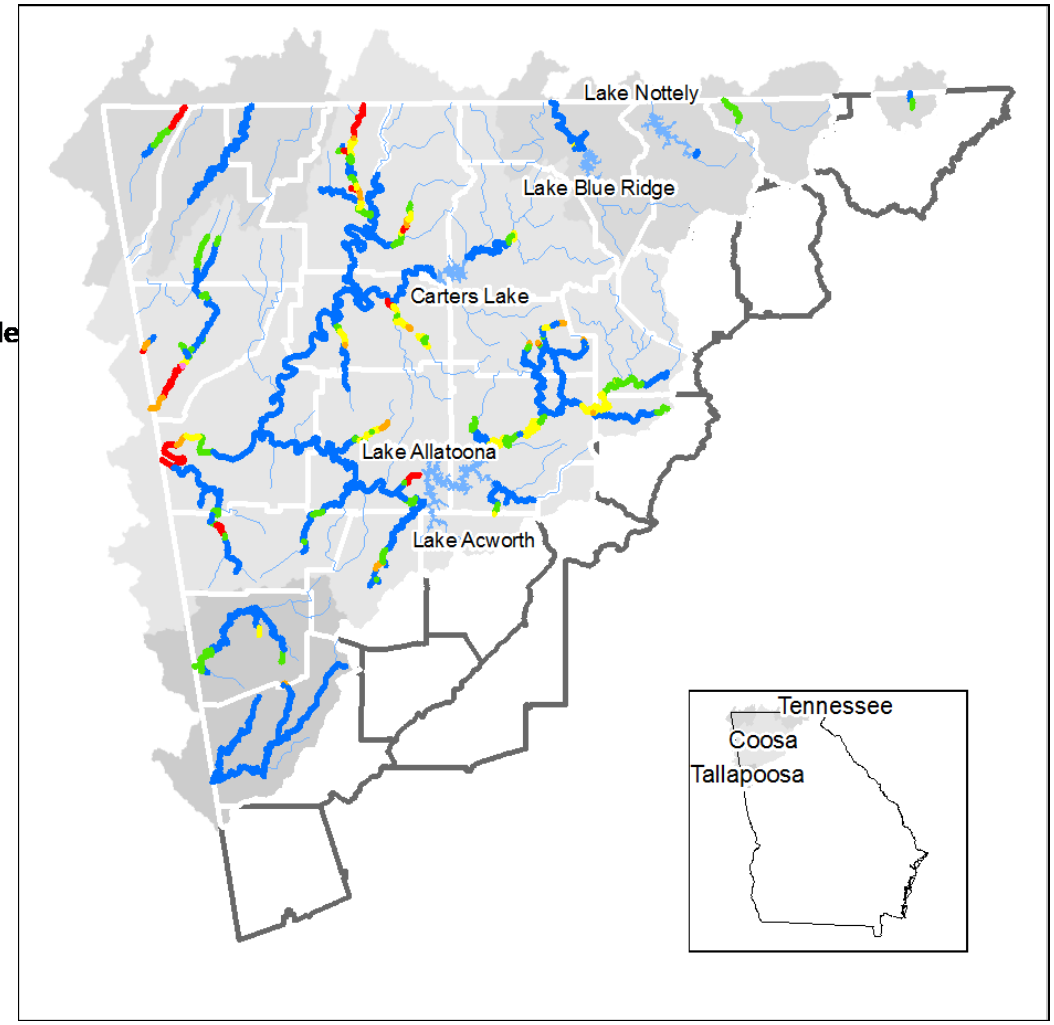


Current Permitted

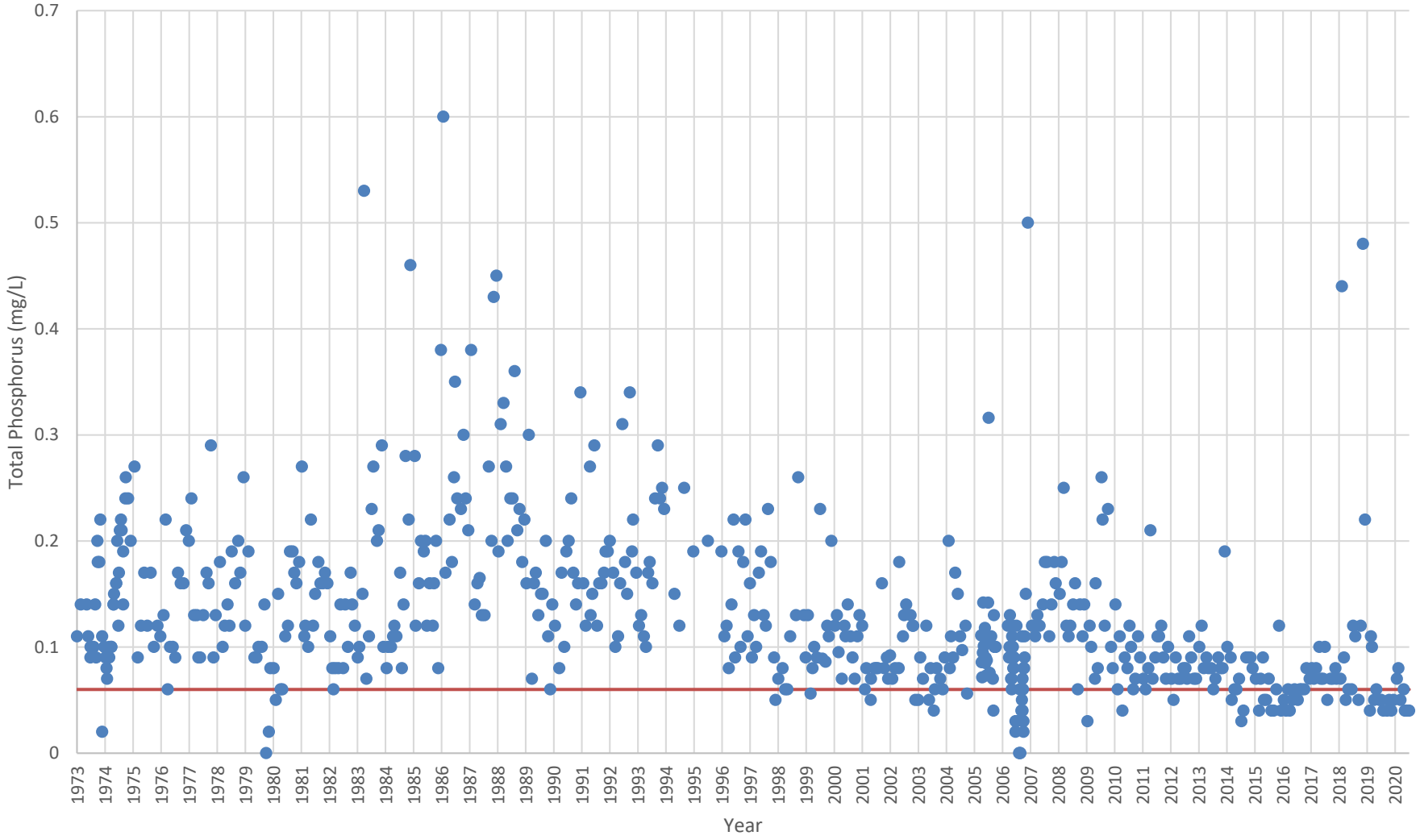
Legend

Available Assimilative Capacity

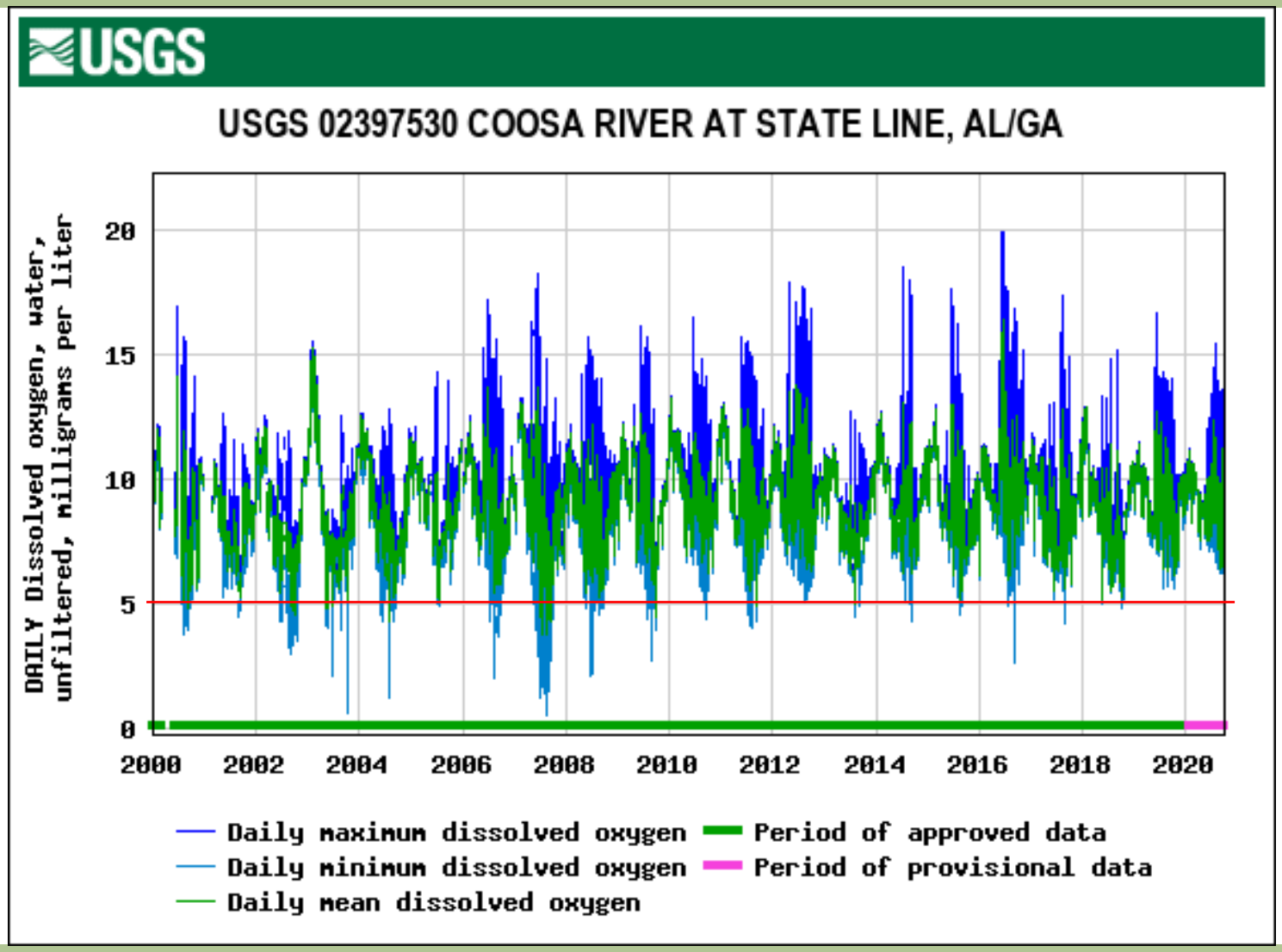
- Very Good ≥ mg/L DO available
- Good 0.5 mg/L to < 1 mg/L DO available
- Moderate 0.2 mg/L to < 0.5 mg/L DO available
- Limited > 0 mg/L to < 0.2 mg/L DO available
- At Assimilate Capacity 0 mg/L DO available
- None or Exceeded <0.0 mg/L DO available
- Unmodeled Lakes and Streams



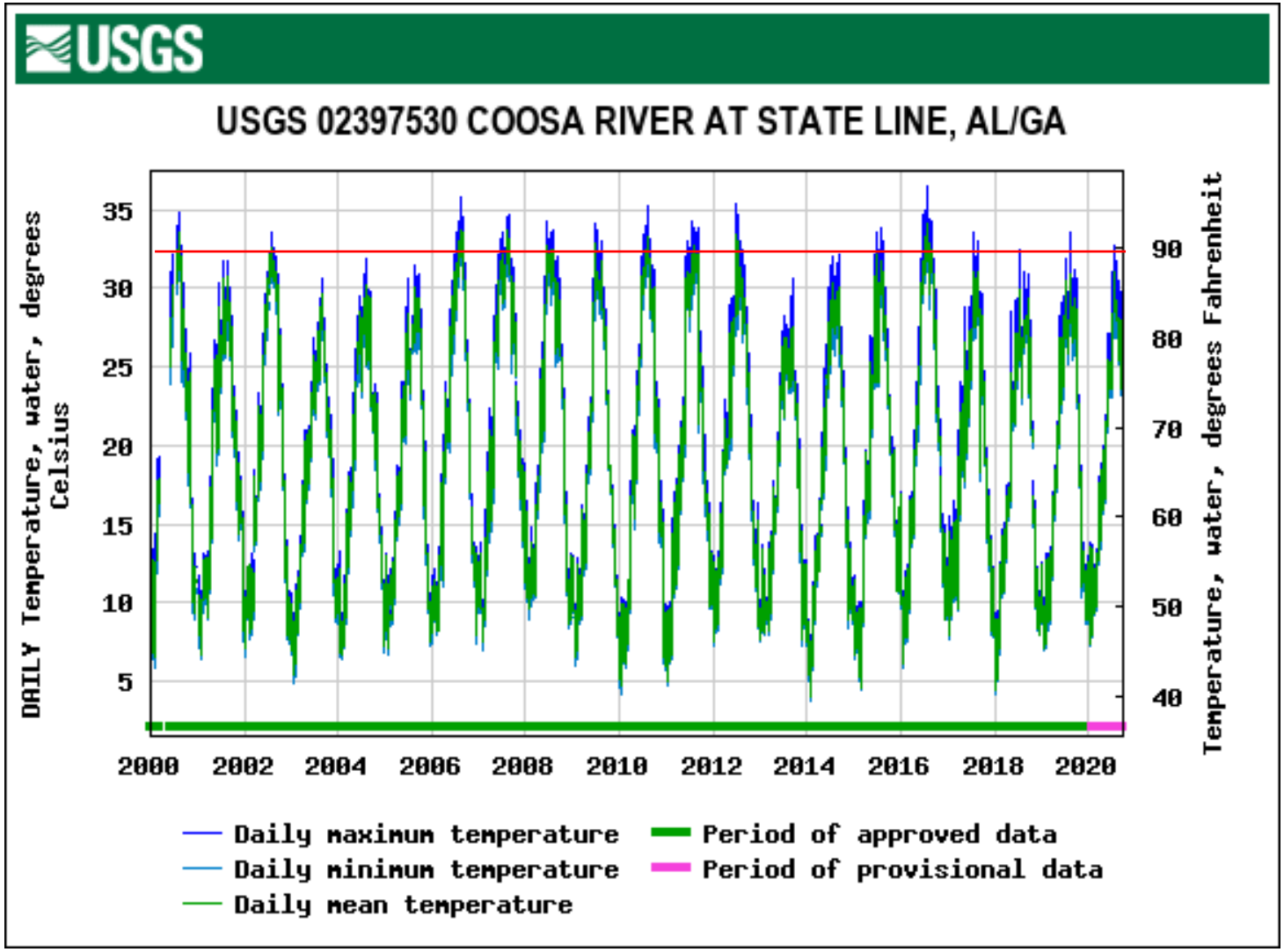
TOTAL P LEVELS
COOSA RIVER AT THE STATELINE



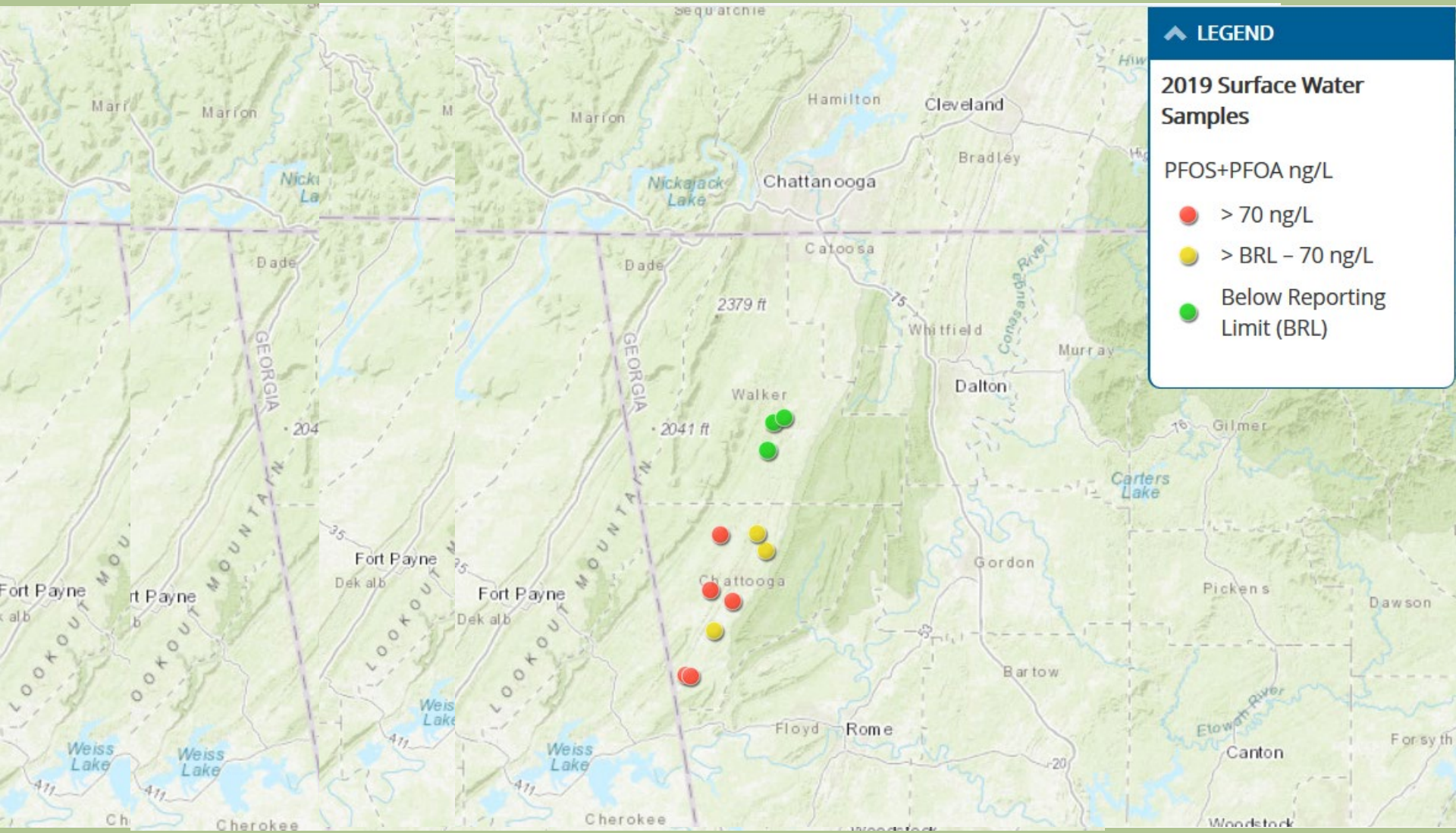
DISSOLVED OXYGEN LEVELS
COOSA RIVER AT THE STATELINE



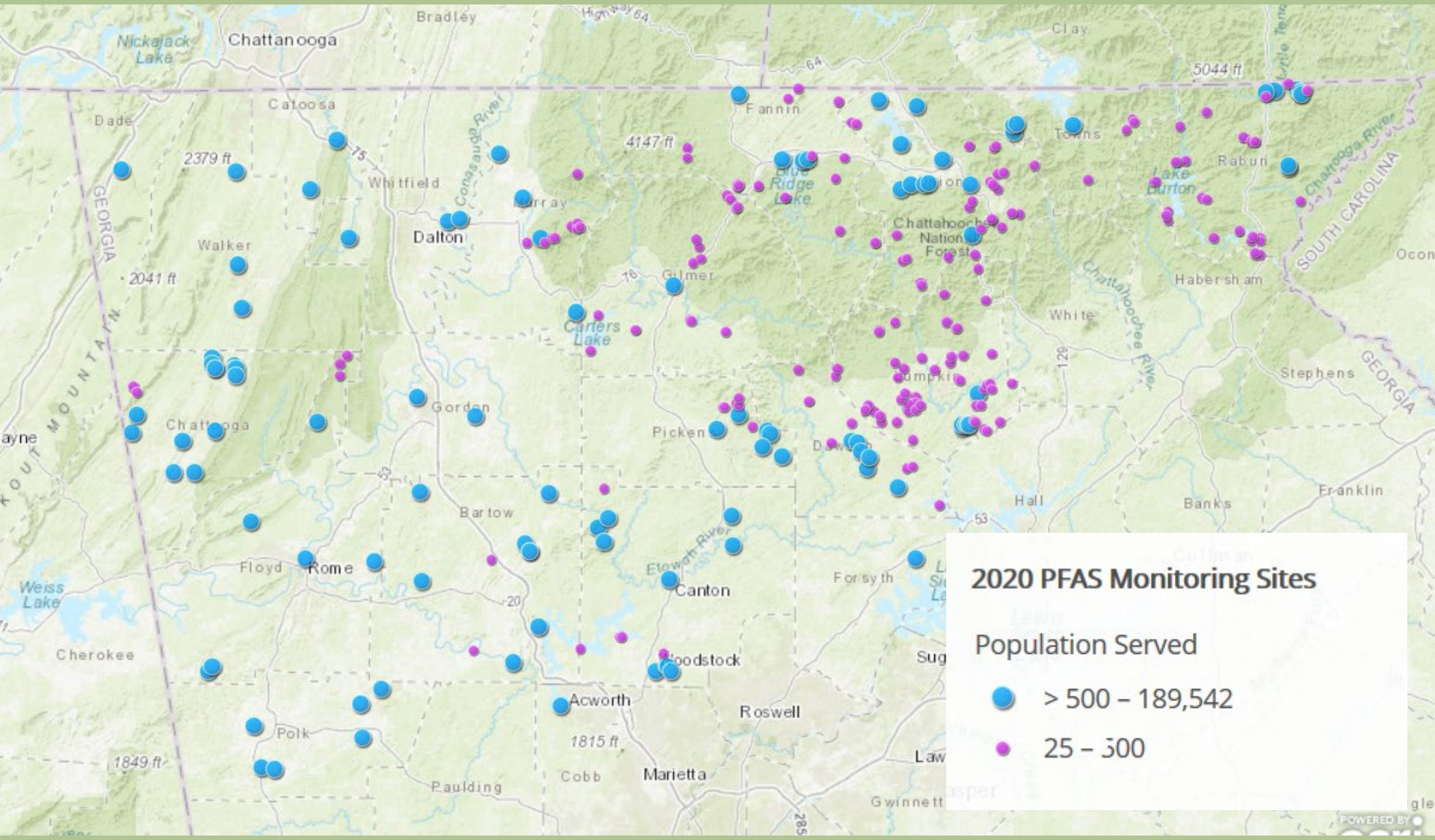
TEMPERATURE LEVELS
COOSA RIVER AT THE STATELINE



HISTORIC PFAS DATA



FUTURE PFAS MONITORING PLAN



POTENTIAL CHANGES TO FUTURE PERMITS

- Permit Updates
  - Increased Flows
  - Tighter BOD Limits
  - Tighter DO Limits New or Tighter Ammonia (NH_3) Limits
  - New or Tighter TP Limits
  - New TN Limits
  - New Temperature Limits
  - Emergent Pollutants

QUESTIONS?

Metro District Update

Danny Johnson, MNGWPD

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Metropolitan North Georgia Water Planning District Update

- Scope of Work for 5-year Plan Update
  - Forecasting
    - Will include biosolids for first time
  - Facility Planning
  - Action Item Assessment and Update
  - Technical Resource Studies
    - Residential water demands
    - Drought response options menu
    - Watershed resilience evaluation
    - Cost-Benefit Analysis
- Schedule

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HIGHLIGHTS FROM THE STATEWIDE BIOSOLIDS MANAGEMENT SURVEY

For full survey results, contact Danny Johnson
(djohnson@atlantaregional.org)

Biosolids Management in Georgia: Results of the GAWP Statewide Survey

Georgia Association of Water Professionals

2020 GAWP Virtual Annual Conference

Mike Thomas, GAWP & *Danny Johnson*, MNGWPD

Background

Since 2018, the disposal of wastewater biosolids to landfills has become more difficult and costly due to recent slope instabilities:

- 2014 Pine Ridge Landfill
- 2014 Eagle Point Landfill
- 2018 Eagle Point Landfill
- 2017 Greentree Landfill, Pennsylvania

GAWP Biosolids Survey

Data collected for 2018 calendar year

Did not include water plant residuals

Survey sent to all GAWP Utility Members – October 2019

52 communities responded **99** facilities

EPD's Annual Biosolids Reports reviewed

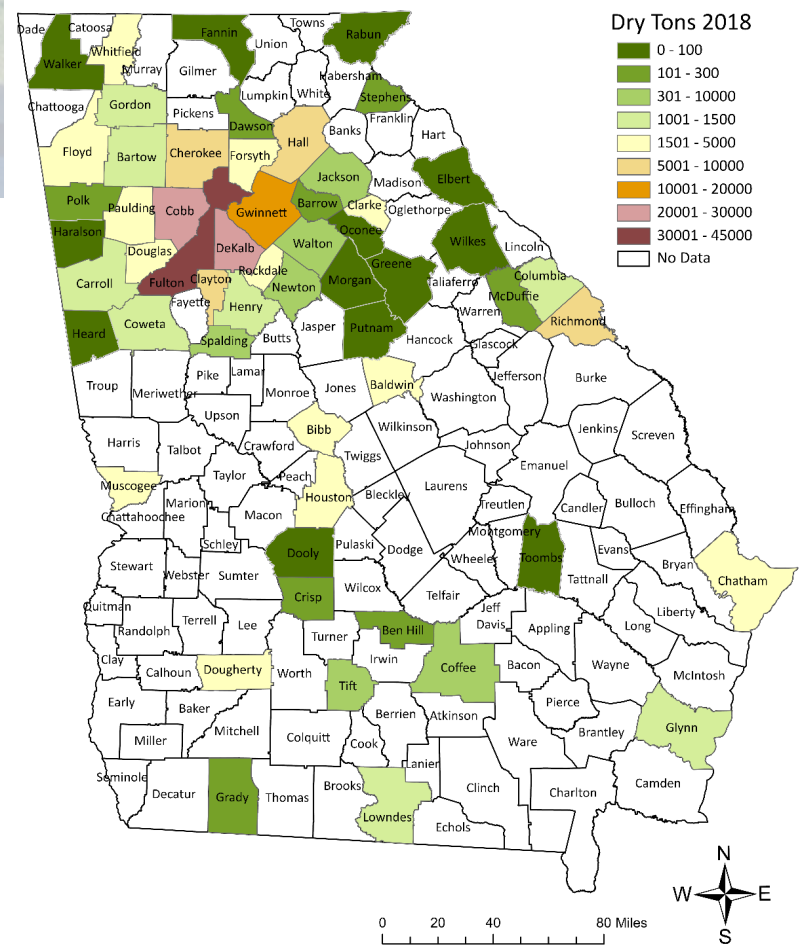
21 communities **28** facilities

TOTAL

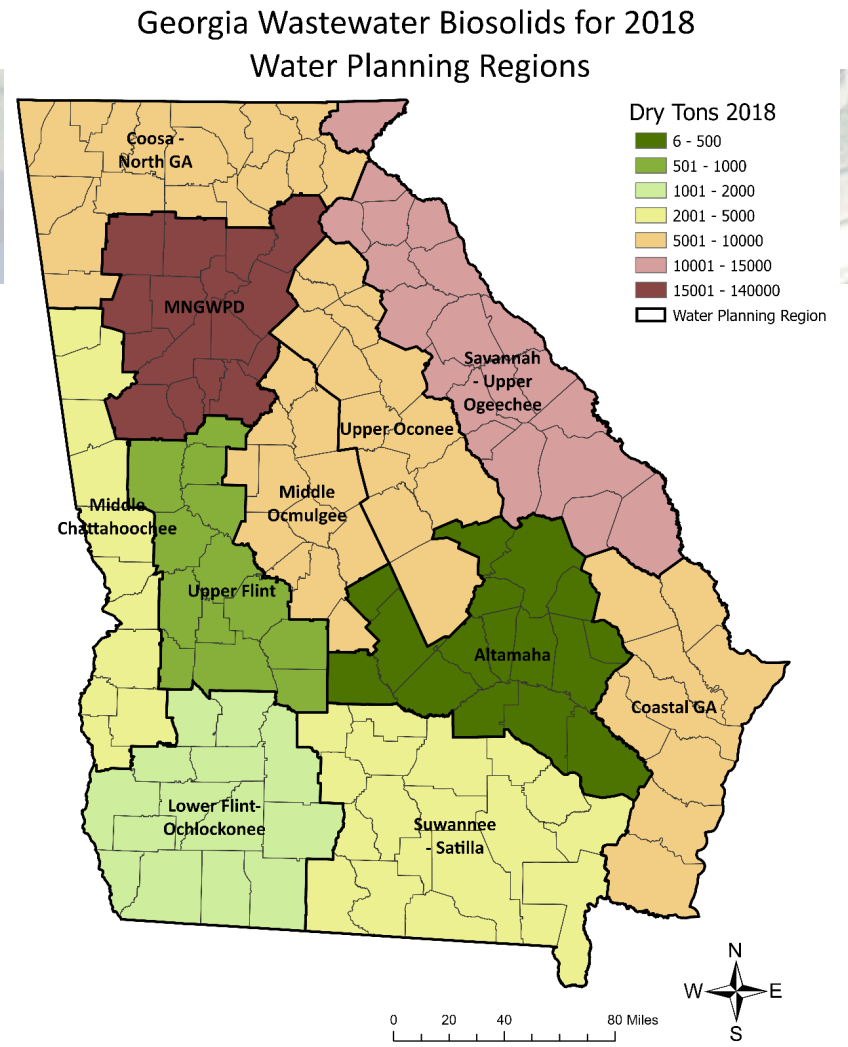
73 communities **127** facilities

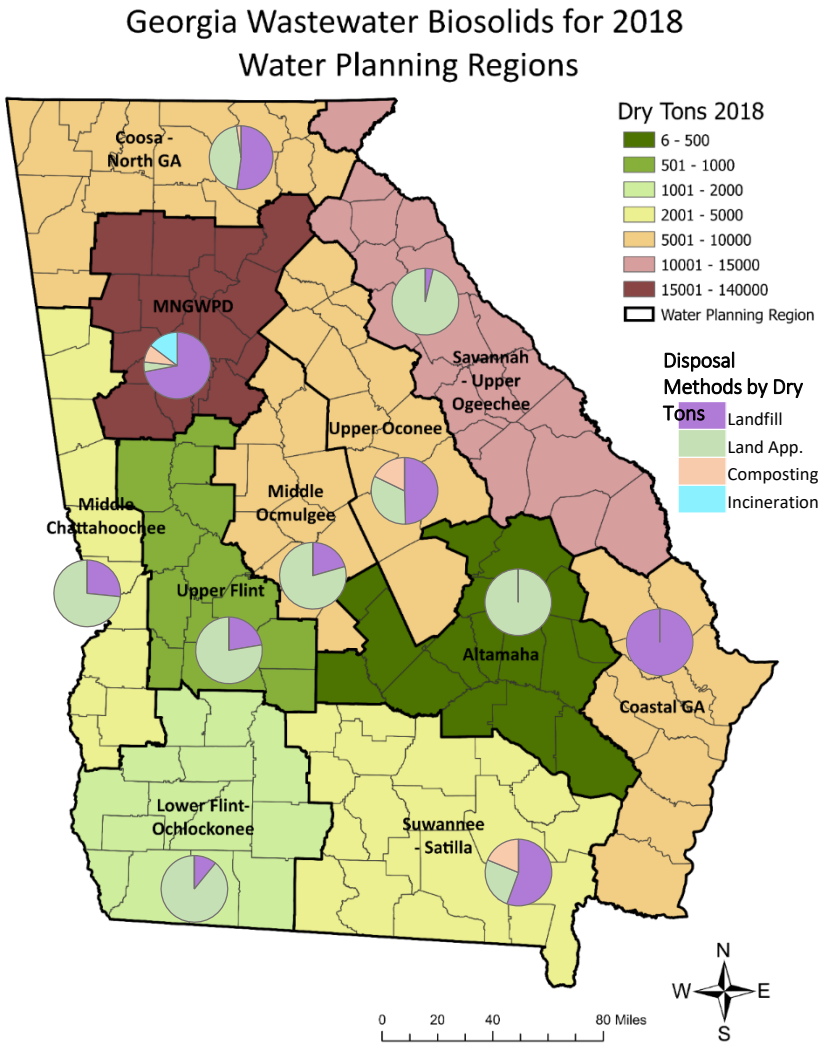
Dry Tons by County

Georgia Wastewater Biosolids for 2018



Dry Tons by Regional Water Council





Disposal Method by Dry Tons
Regional Water Council

Most common disposal methods

- Landfill – 65% of Dry Tons
- Land Application – 16% of Dry Tons

Only incinerator used in 2018 was by the City of Atlanta

Composting:

- 8% of Dry Tons
- 16 Facilities

Recapping Biosolids Management Trends

Landfilling – Regulatory pressures likely to continue

More utilities looking at advanced drying technology

- Now cost effective
- Beneficial reuse options

Land application is still an option

- Public perception, PFAS/PFOA, available land difficult for large utilities

Incineration

- Air quality, fuel costs, ash disposal

Regional Solutions

- Multiple under consideration

Next Steps

Brooke Anderson

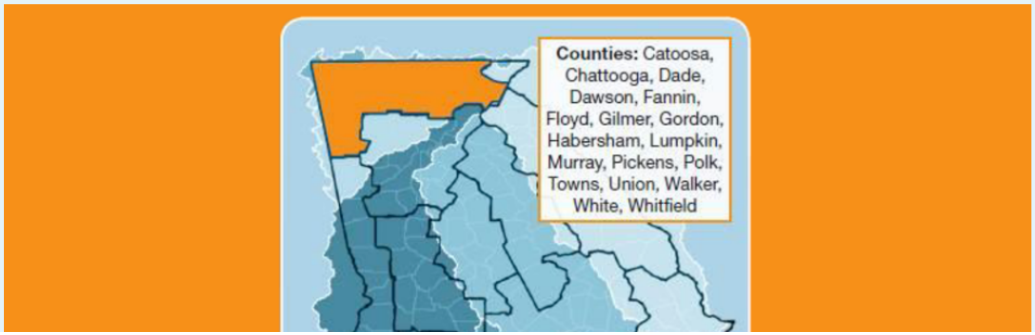
Georgia®

Next Steps

- Adjourn

Thank You!

Coosa-North Georgia



Upcoming Meetings

SEPTEMBER 30

COOSA-NORTH GEORGIA WATER PLANNING COUNCIL MEETING ON SEPTEMBER 30, 2020

> All Upcoming Meetings

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