Georgia's

# State Water Plan

## Regional Water Plan Review and Revision
## Upper Oconee
## Regional Water Planning Council
## Council Meeting 1
## March 22, 2016

www.georgiawaterplanning.org

# Introduction

- Registration and Public Comment sign in

- Welcome from Chairman Davis
- Acknowledge Elected Officials
- Council and Contractor Introductions
- Review Minutes from Last Meeting
- Review and Approve Agenda

Georgia

# Elected Official Comments and Public Comments

- Sign up for public comments during morning registration period (to ensure enough time is allotted)
- Please limit comments to 3 minutes total
- Council encourages written submission of comments as well, to ensure meeting summaries accurately reflect comments

Georgia

# Georgia EPD Contacts

- Lebone Moeti – Point of Contact, Upper Oconee
- Jennifer Welte – Project Manager for Review & Revision Process

- Dr. Elizabeth Booth – Surface Water Quality Resource Assessment
- Dr. Wei Zeng - Surface Water Quantity Resource Assessment
- Dr. Jim Kennedy – Groundwater Resource Assessment

# Introduction

## Planning Contractor – CDM Smith-Jacobs Team

- Primary Council Supports – Dale Jones, Jacobs
  Zakiya Seymour, Jacobs

- Overall Project Manager - Shayne Wood, CDM
- Technical Advisor - Rick Brown

Project Area Leads:

- Demand Forecasting – Bill Davis, CDM
- Water Availability Resource Assessments – Lee Wiseman, CDM
- Management Practices – Dale Jones, Jacobs

Georgia

Georgia's

# State Water Plan

## Review and Revision (Round 2 Planning) Overview and Schedule

www.georgiawaterplanning.org

# Review and Revision Overview and Schedule

## THANK YOU to Interim Planning Contractors:

- Carl Vinson Institute of Government, University of Georgia
  - Altamaha; Coastal; Savannah-Upper Ogeechee; Suwannee-Satilla
- Middle Georgia Regional Commission
  - Upper Oconee; Middle Ocmulgee
- North Georgia Regional Commission
  - Coosa
- Georgia Water Planning and Policy Center
  - Middle Chattahoochee; Lower Flint-Ochlockonee; Upper Flint

***Review and Revision Process will incorporate, as needed, the findings and conclusions that Council arrived at during the interim planning period***

Georgia

# Review and Revision Overview and Schedule

## 12 Month Process

**Meeting One**
1st Quarter 2016
(Today)

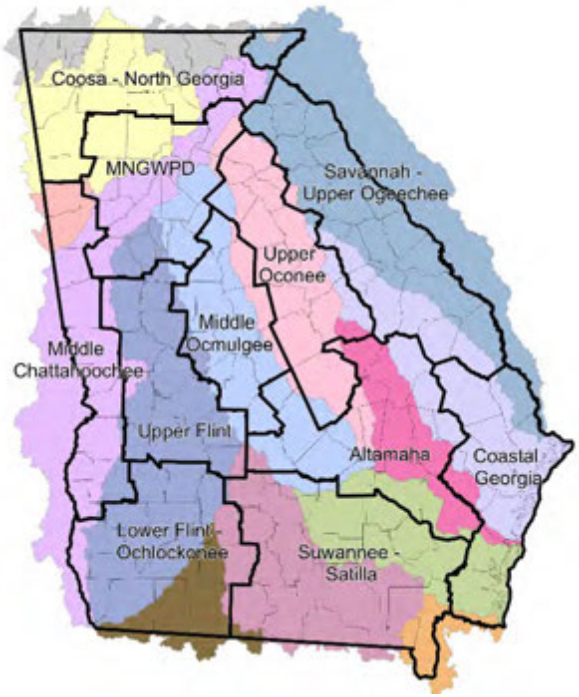
**Meeting Two**
Joint Council Meeting
2nd Quarter 2016

**Meeting Three**
3rd Quarter 2016

**Meeting Four**
4th Quarter 2016
Draft Plan

**Meeting Five (Final)**
1st Quarter 2017
Incorporate Comments

**Water Planning Regions**




***EPD adoption of revised Regional Water Plan by March 31, 2017***

Georgia

# Review and Revision Overview and Schedule

***Draft revisions to Regional Water Plans will be submitted in sections***

| Section 1<br>*Due: April 2016* | Section 2<br>*Due: July 2016* | Section 3<br>*Due: October 2016* |
|---|---|---|
| • M & I Forecasts<br>• Energy Forecast | • Agricultural Forecast<br>• Resource Assessment | • Forecast / Gap Updates<br>• Management Practices |

FINAL DRAFT – DECEMBER 2016

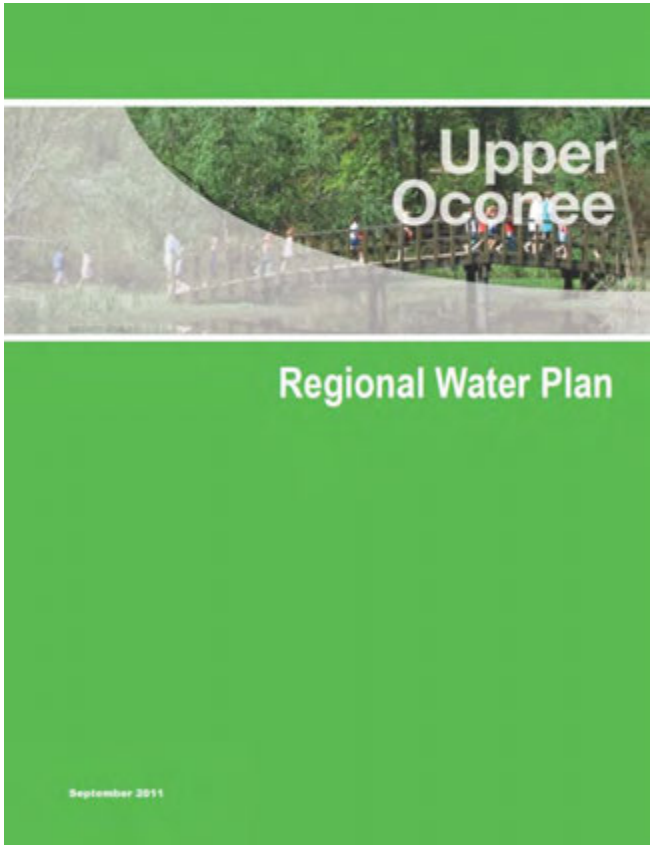
- 45-day comment period / concurrent review (EPD)
- **Feb 2017** Review and incorporate comments / changes (Council)
- **Feb 28, 2017** Council submits final plan to EPD

FINAL PLAN – EPD TO ADOPT MARCH 31, 2017

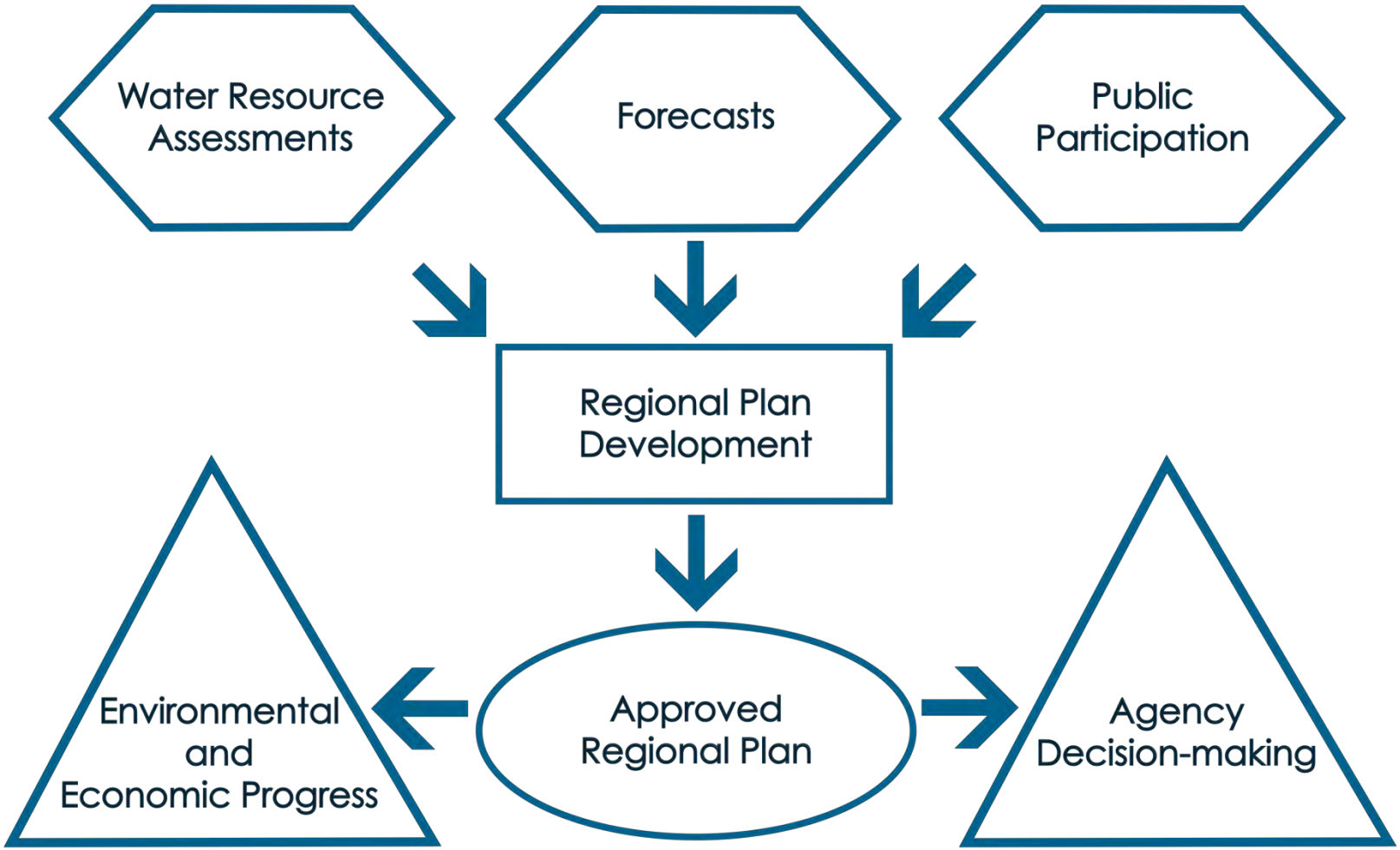
Georgia

# Review and Revision Overview and Schedule

- Councils will focus on:
  - Evaluating updated water demand and wastewater forecasts
  - Evaluating updated energy and agricultural forecasts
  - Reviewing existing Industrial forecasts
  - Evaluating updated Surface Water and Ground Water Availability Resource Assessments (**Quantity**); and updated Surface Water **Quality** Resource Assessment
  - Evaluating and refining Management Practices, if needed



# Water Planning Process



# Review and Revision Overview and Schedule

Revisions to Regional Water Plans and submission dates:

- **Plan Drafts** (Section Revisions)
  - 1st Draft – updates to M&I and Energy Forecasting (April 2016)
  - 2nd Draft – Updates to Agricultural Forecasting and Resource Assessment (July 2016)
  - 3rd Draft –Updates to Forecasts/Gap Information and Management Practices (October 2016)

- **Final Draft** (December 2016)
  - EPD will implement a 45-day comment period and conduct concurrent review
  - Council will review comments and incorporate changes in February 2017
  - Council will submit final recommended plan to EPD by February 28, 2017

- **Final Plan** will be adopted by EPD by March 31, 2017

Georgia

# 2011 Regional Water Plans

How were the 2011 Plans used?

- Used by EPD to Guide Permitting Decisions
- Used by EPD and GEFA to inform funding decisions
- Facilitated improvement to Resource Assessment Methods
- Facilitated additional research and data gathering for agricultural water use

- Select Projects/Activities Associated with Water Planning
  - Priority grant funding (Section 319(h) nonpoint source grant)
  - Aquifer Storage and Recovery pilot project in Flint River Basin
  - Ground water to surface water pilot project in Flint River Basin
  - Cretaceous well feasibility study to address Salt Water Intrusion

Georgia

# Georgia's State Water Plan

## Vision and Goals

www.georgiawaterplanning.org

# Vision and Goals

- In Round 1, each Council went through an extensive visioning process to develop Vision and subsequent supporting Goals
  - Goals and Vision are required by State Water Plan, Section 14
  - Council Vision will guide and frame the selection of management practices

Georgia

# Vision and Goals

## Upper Oconee Adopted Vision

*as adopted by the Council 11/18/2009, and revised 8/11/2010.*

**Create a regional plan that focuses on managing water as a critical resource vital to our health, economic, social and environmental well being. Build trusting partnerships with neighboring regions and develop an educated and engaged citizenry that embraces sound water management.**

Source: www.oconeeriversaudubon.org

# Vision and Goals

Source: georgiainfo.galileo.usg.edu

## Upper Oconee Adopted Goals

*as adopted by the Council 11/18/2009, and revised 8/11/2010.*

- Promote alternatives and technologies that conserve, reuse, return, and recycle water within the Upper Oconee region,
- Ensure that management practices balance economic development, recreation, and environmental interests,
- Educate stakeholders in the region on the importance of water quality and managing water as a resource including practices such as water conservation and increased water efficiency,
- Encourage the development of and accessibility to data and information to guide management decisions,
- Identify programs, projects, and educational messages to reduce non-point source pollution to protect water quality in lakes and streams,
- Recommend innovative strategies (water, sewer, and/or stormwater) that provide sufficient revenues to maintain a high level of service while promoting water conservation and efficiency, and
- Identify and plan measures to ensure sustainable, adequate water supply to meet current and predicted long-term population, environmental and economic needs.

# Vision and Goals

**Discussion:**

- Have any new major water issues developed in the region?
- Has your vision for this region regarding water resources changed substantially over the last 5 years?
- Are there any emerging issues on the planning horizon that would warrant changing your goals for the region?
- If answers are substantively no, revisions to your Vision and Goals may not be necessary.

Georgia

Georgia's

# State Water Plan

**Memorandum of Agreement**
**Operating Procedures**
**Meeting Rules**
**Public Involvement Plan**

www.georgiawaterplanning.org

# Council Responsibilities and Operations

Documents to:

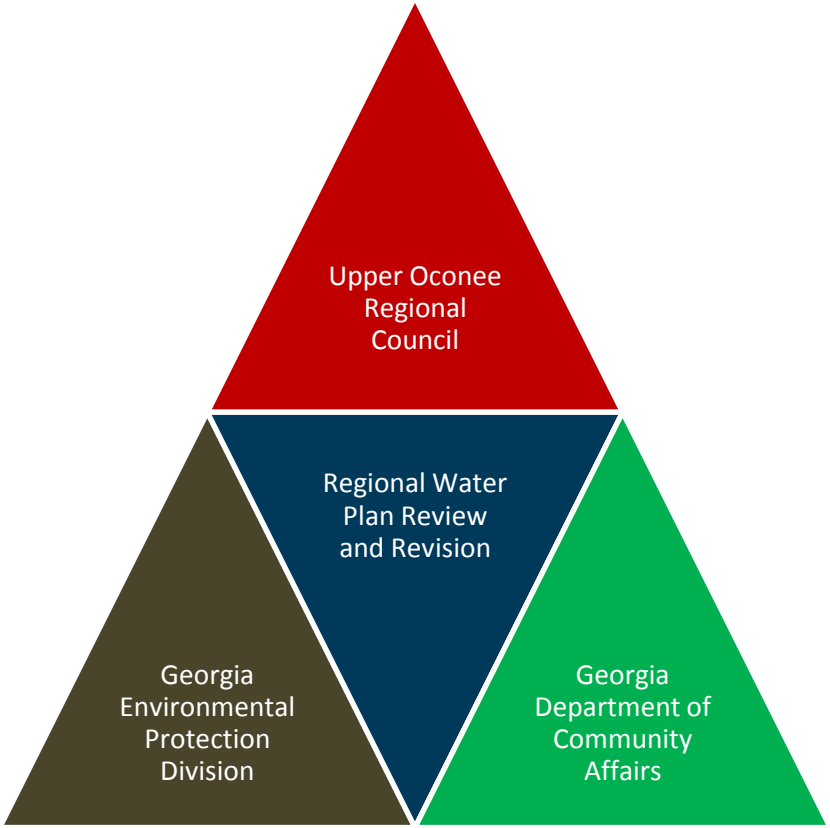
- Guide Council deliberations
- Provide common approaches across councils
- Support Council development of adoptable and implementable plan

1. Memorandum of Agreement (MOA)
   a. Operating Procedures
   b. Rules for Meetings
2. Public Involvement Plan

Georgia

# Memorandum of Agreement

- Defines Georgia EPD, Georgia Department of Community Affairs (DCA) and Water Planning Council responsibilities
- Establishes operating procedures, goals and objectives to govern actions and decisions for the Council



# Memorandum of Agreement

Georgia's
State Water Plan

Upper Oconee Regional
Water Planning Council

## Council Responsibilities:

- Submit drafts and final recommended plan to Director
- Identify management practices for the plan using provided data
- Adopt and follow operating procedures and rules for meetings
- Provide regional forum for local governments (inside and outside region) and coordinate with other Regional Councils
- Conduct open meetings and receive public comments in accordance with adopted Public Involvement Plan

Georgia

# Memorandum of Agreement

## EPD Responsibilities:

- Provide a Planning Contractor to assist the Regional Council
- Provide technical and planning guidance
- Provide information on water quantity capacity and assimilative capacity, water use and forecasts, and status of the region's waters
- Coordinate planning across regions
- Provide public notice on the draft plan
- Review drafts of the plan and provide feedback
- Adopt final complete and consistent plan

# Memorandum of Agreement

Georgia® Department of Community Affairs

## DCA Responsibilities:

- Provide information to identify inconsistencies between draft Plans and local and regional comprehensive plans
- Assist in developing a timeline for resolving inconsistencies
- Provide for Regional Council review and comment on local or regional comprehensive plans as they become due

Georgia

# Operating Procedures

- Decision Making
  - Councils aim for consensus, may vote for decisions
- Meetings and Governance
  - Meetings are open,
  - Noticed must be posted (Gov Delivery)
  - Meeting summaries recorded and distributed
- Amendments
  - Operating Procedures may be updated or altered for review and revision process, if necessary

Georgia

# Rules for Meetings

- Communications:
  - One person at a time, limit sidebars conversations
  - Stay on agenda items
  - Open-minded and seek a better understanding of different interests and perspectives and try to find common ground.
- Decision-making:
  - Discussion
  - Consensus: "Who can't live with this agreement or course of action as modified to meet the all of the interests expressed so far?"
  - Modifications
  - Voting (if necessary) or additional study/modifications via subcommittee

Georgia

# Public Involvement Plan

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

# Public Involvement Plan

## Procedural criteria

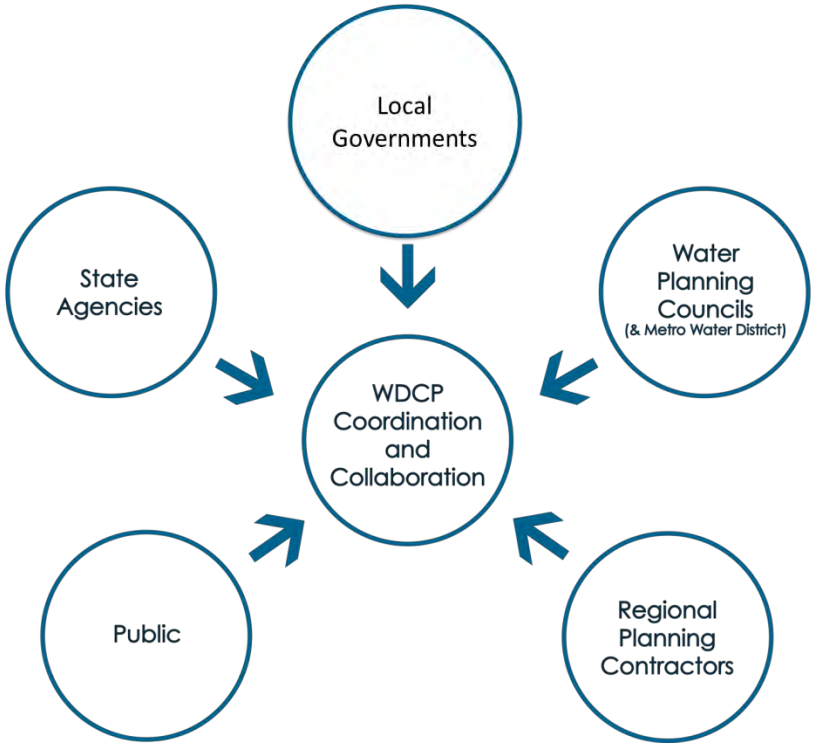
- Open meetings
- Public comment periods (Comments should pertain to topic(s) of meeting)
- 3 minutes per speaker
- Provisions for written comments

## Meeting Announcements

- Posted on e-Gov Delivery system at least two weeks prior to meetings
- Agendas and meeting summaries will be distributed

Georgia

# Council Responsibilities and Operations




Questions and Discussion?

Georgia's

# State Water Plan

## Updated Population Projections

www.georgiawaterplanning.org

# Updated Population Projections

- State and County population projections are prepared by the Governor's Office of Planning and Budget (OPB). https://opb.georgia.gov/

- These projections are used throughout the State for multiple purposes: Transportation Planning, Education Funding Allocation, and other Publicly Funded Projects.

- Updated population projections will be used in Regional Water Planning.

Georgia

# Updated Population Projections

## Population Projections Calculations:

Future Population =

Base Year Population + Births - Deaths + Net Migration

***While the population projection <u>model</u> has remained the same, the <u>data inputs</u> have changed based on new/updated information.***

# Updated Population Projections

## Updated Data Inputs

**Base Year Population**

Census Bureau Vintage 2013 Population Estimates (Age x Sex)

**Births**

GA Dept. of Public Health Fertility Rates 2008-2012 (Age x Sex)

**Deaths**

GA Dept. of Public Health Survival Rates 2008-2012 (Age x Sex)

**Net Migration**

Census Bureau Annual Population Estimates & Change Components 1990-2014

- County Net Migration: 2006-2014

American Community Survey 2006-2010

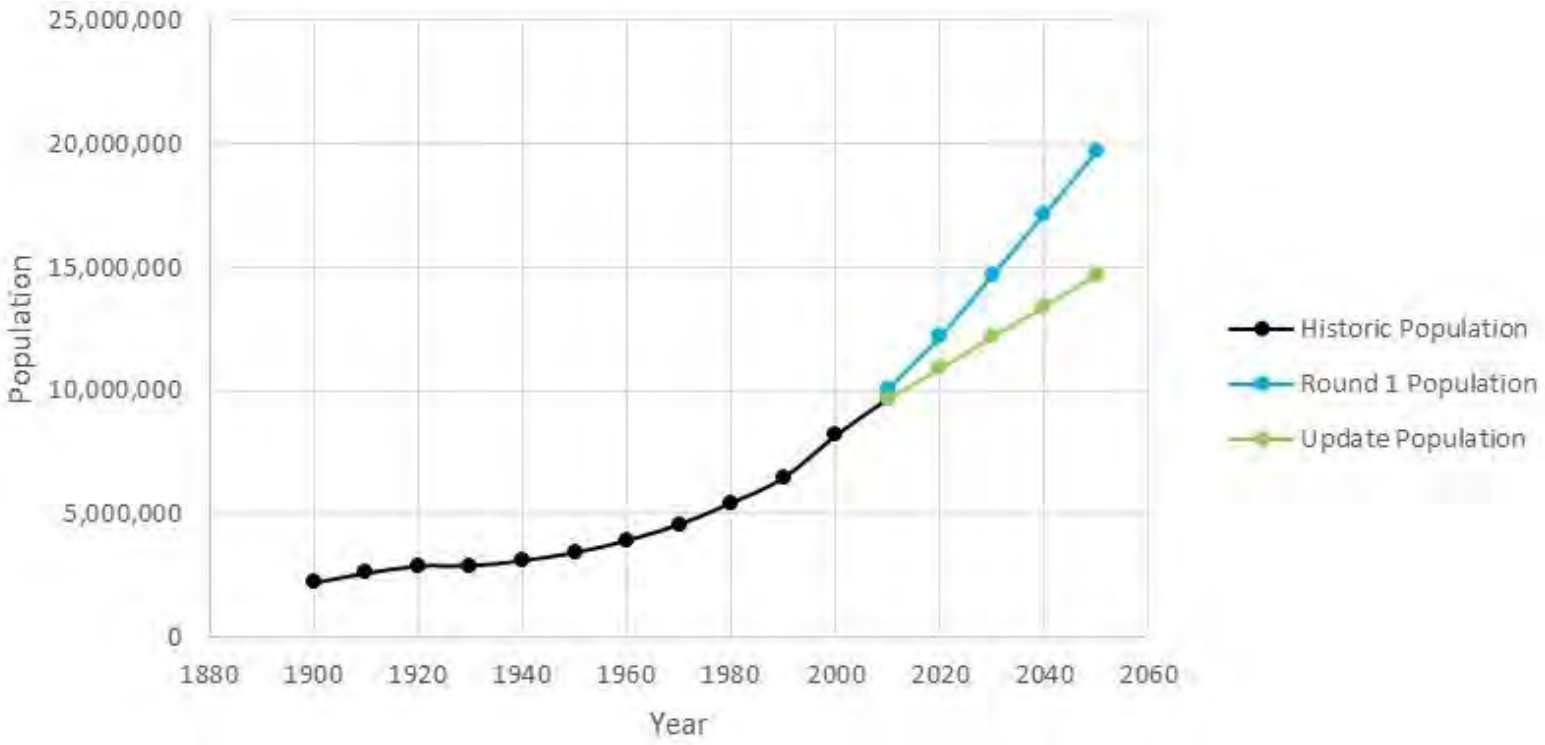
Georgia

# Georgia's Historic Population Growth and Projections

## Overall projected growth of the state population is slower than estimated in Round 1 Projections

Statewide Annual Growth Rate

Round 1: 1.69%  Update : 1.05%



# Georgia continues to grow, but current population projections are more in line with historic trends

***Concentrated Growth*** 50% of Georgia's population growth from 2010-2013 occurred in Fulton, Gwinnett, and Cobb Counties

***Migration Patterns*** In migration of people that are retirees and/or have associated low birth rates and tend to experience declining or flat population projections

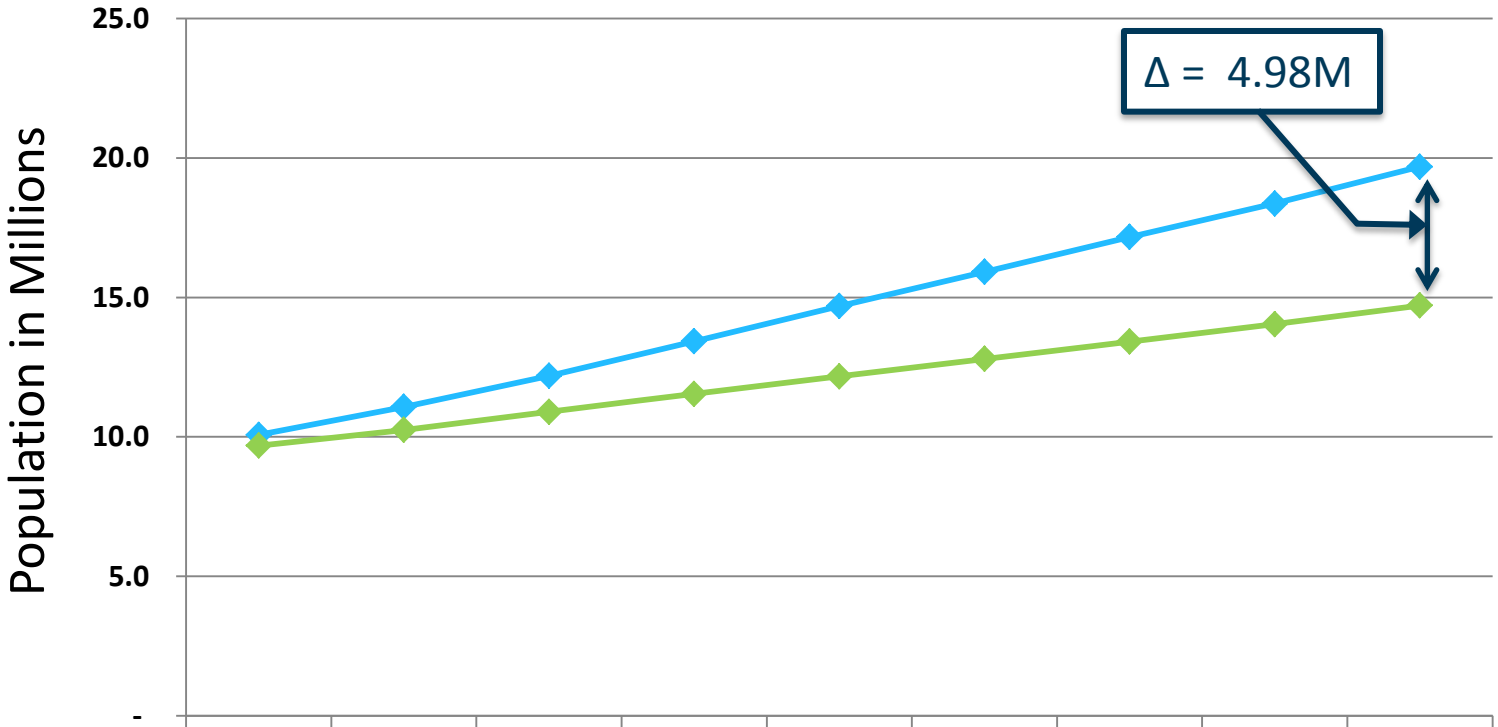
***Rural Counties*** Since the 2010 Census, approximately half of Georgia's counties have experienced a decline in population and those are primarily rural counties

Georgia

# Updated Population Projections

**This update and future revisions are needed to appropriately plan for Georgia's water needs.**

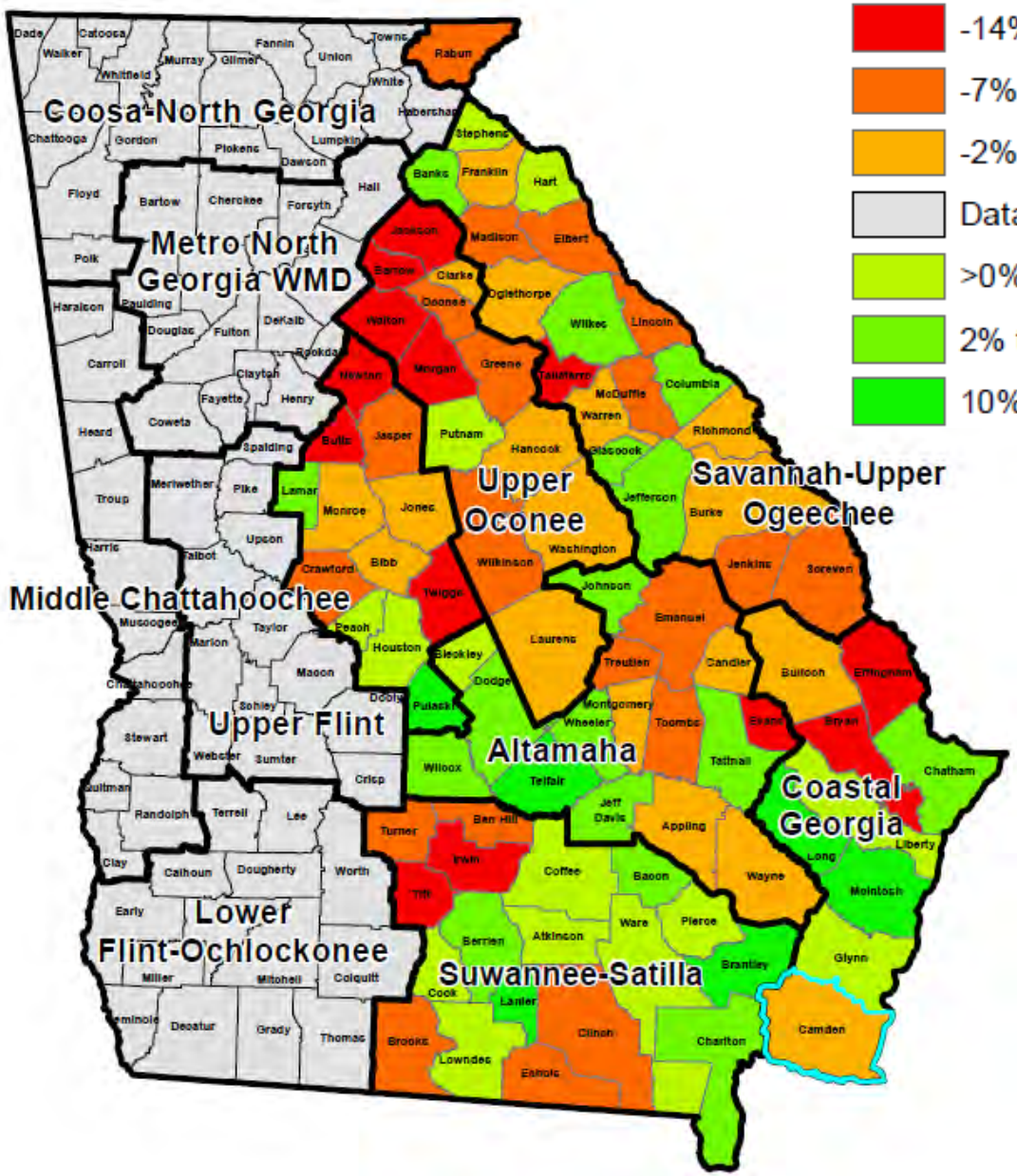
# State Population Projections




| | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|---|---|
| Round 1 | 10.07 | 11.08 | 12.19 | 13.43 | 14.69 | 15.91 | 17.17 | 18.37 | 19.69 |
| Update | 9.69 | 10.25 | 10.90 | 11.54 | 12.17 | 12.80 | 13.41 | 14.04 | 14.71 |

Georgia

# Georgia 2010 Population Projection Change




-14% to -7%

-7% to -2%

-2% to <0%

Data Unavailable

>0% to 2%

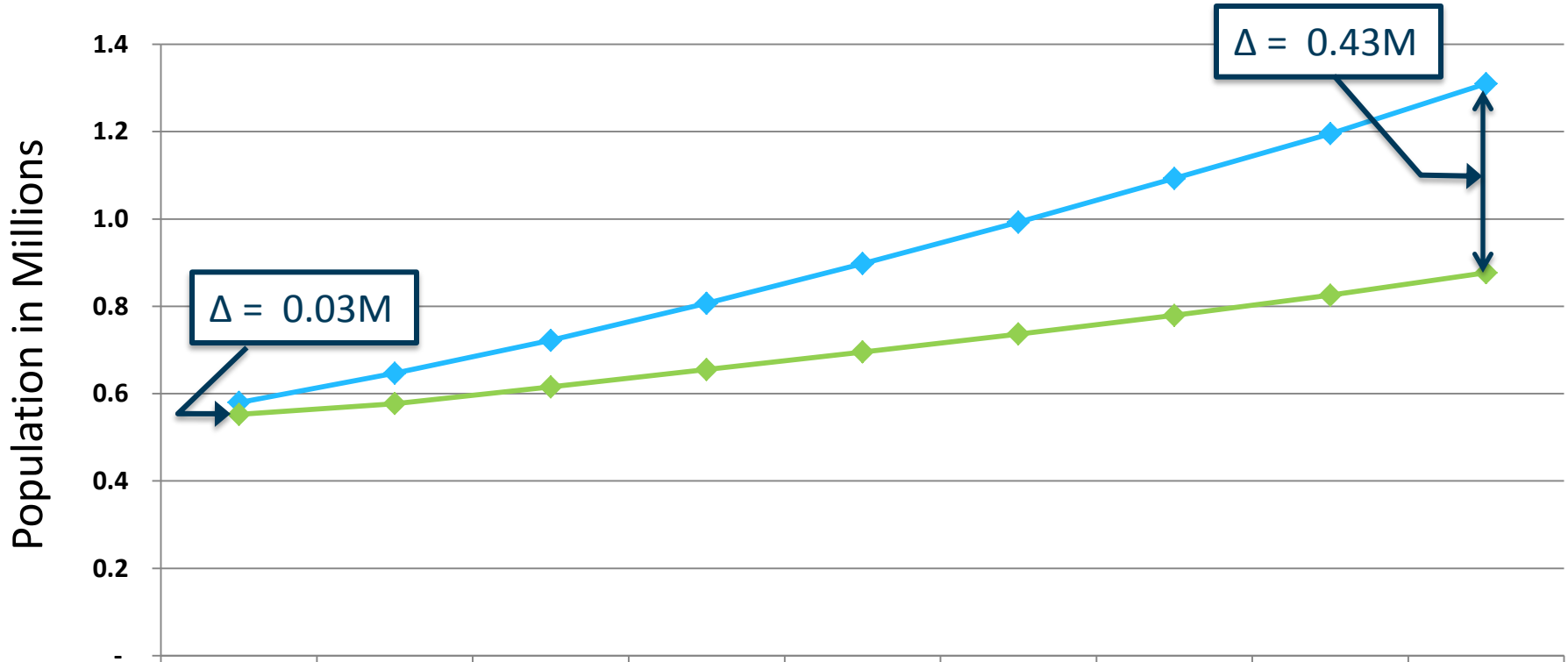
2% to 10%

10% to 22%

Round 1 Projections >> 2010 Census

Round 1 Projections << 2010 Census

# Upper Oconee Population Projections




| | 2010 | 2015 | 2020 | 2025 | 2030 | 2035 | 2040 | 2045 | 2050 |
|---|---|---|---|---|---|---|---|---|---|
| Round 1 | 0.58 | 0.65 | 0.72 | 0.81 | 0.90 | 0.99 | 1.09 | 1.20 | 1.31 |
| Update | 0.55 | 0.58 | 0.62 | 0.66 | 0.70 | 0.74 | 0.78 | 0.83 | 0.88 |

Georgia

# Questions & Discussion

Georgia

Georgia's

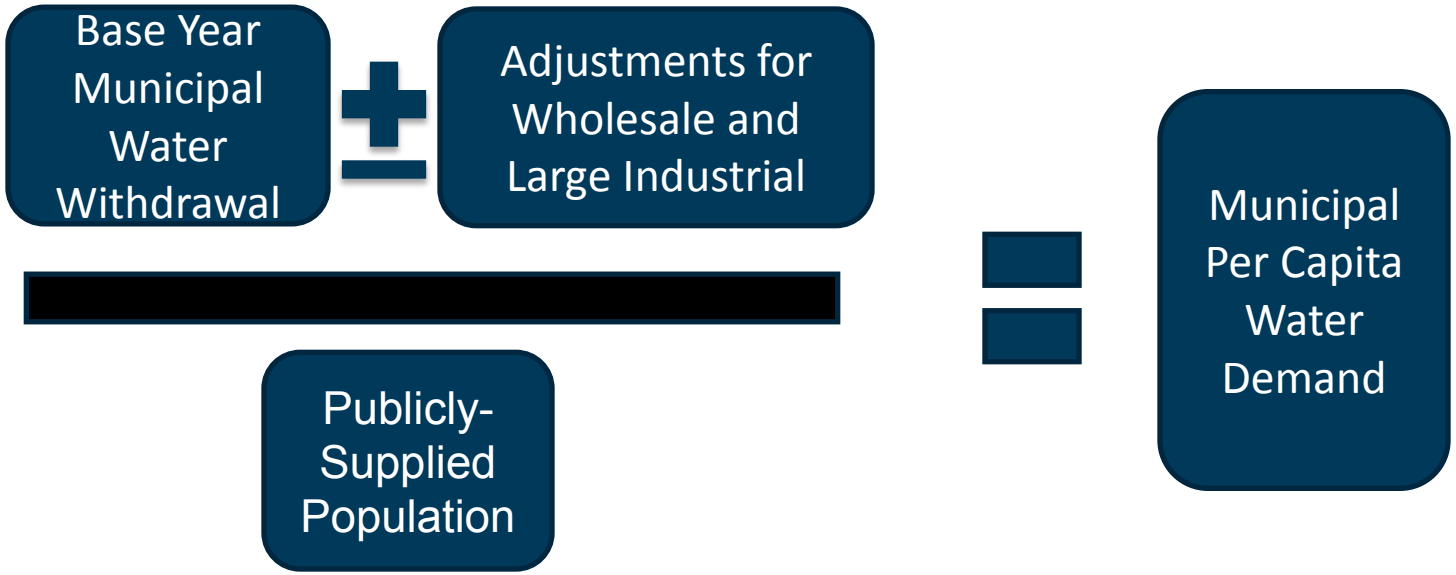
# State Water Plan

## Municipal Water Demand Forecast Update

www.georgiawaterplanning.org

# Calculating Per Capita Demand

- Municipal
  - public/private water systems
  - adjustment for wholesale and large industrial
  - Council feedback for region specific adjustment
- Self-Supply (i.e. private wells)
  - 75 gpcd demand (USGS)
  - Council feedback for region specific adjustment



# Projecting Municipal Water Demand

## Future Water Need:

Base Year Per Capita Water Demand **x** Future Population **=** Future Water Need

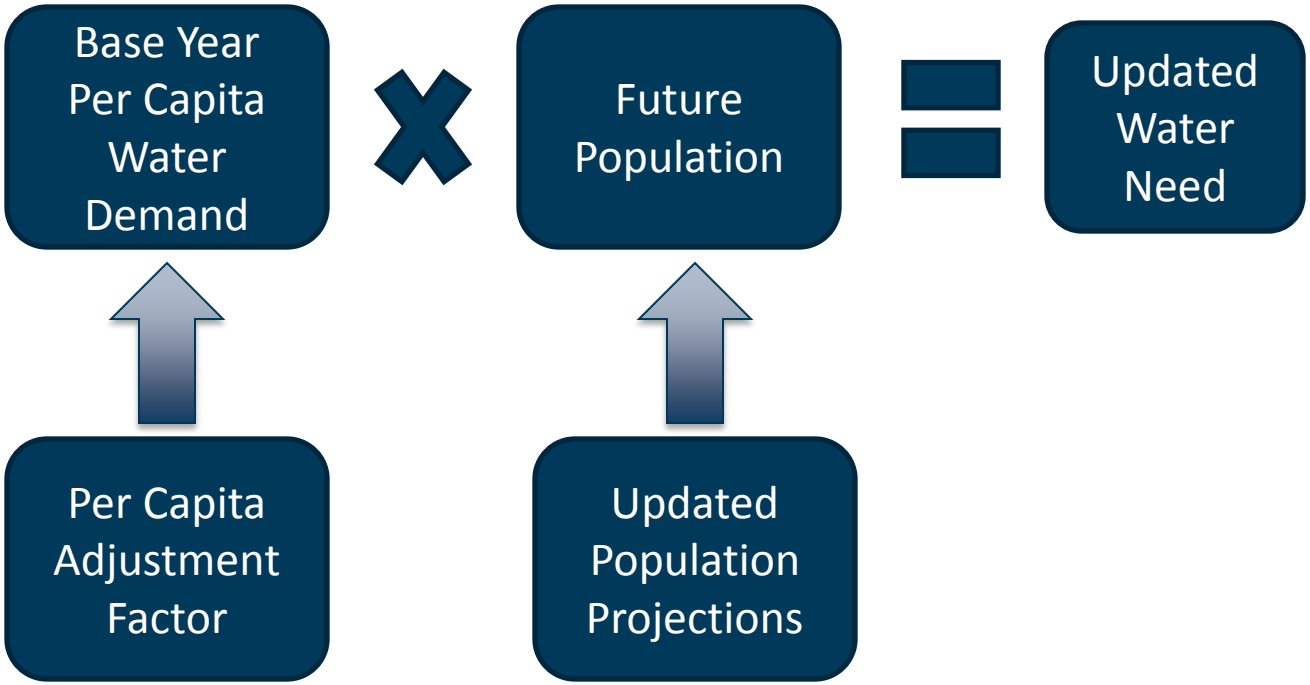
# Round 1 Methodology

- Estimated municipal water use and population served by municipalities in each county
- Calculated a weighted average (weighted by population served) for each county
- Reconciled the county average with USGS estimates
- Refined the county gpcd values given comments from regional councils

Georgia

# Projecting Municipal Water Demand

## Updated Municipal Water Need with Adjustment Factor:



# WDCP Updated Adjustment to GPCD

- EPD collected municipal water use and population served by municipalities and water systems from 2010 to 2014 (5 years)
- The % change was calculated for each year interval (2010 to 2011, 2011 to 2012, 2012 to 2013, and 2013 to 2014), and the average of those was calculated as the ***per capita water use adjustment factor***
- The adjustment factor was applied to the Round 1 gpcd values

Georgia

# Update Methodology

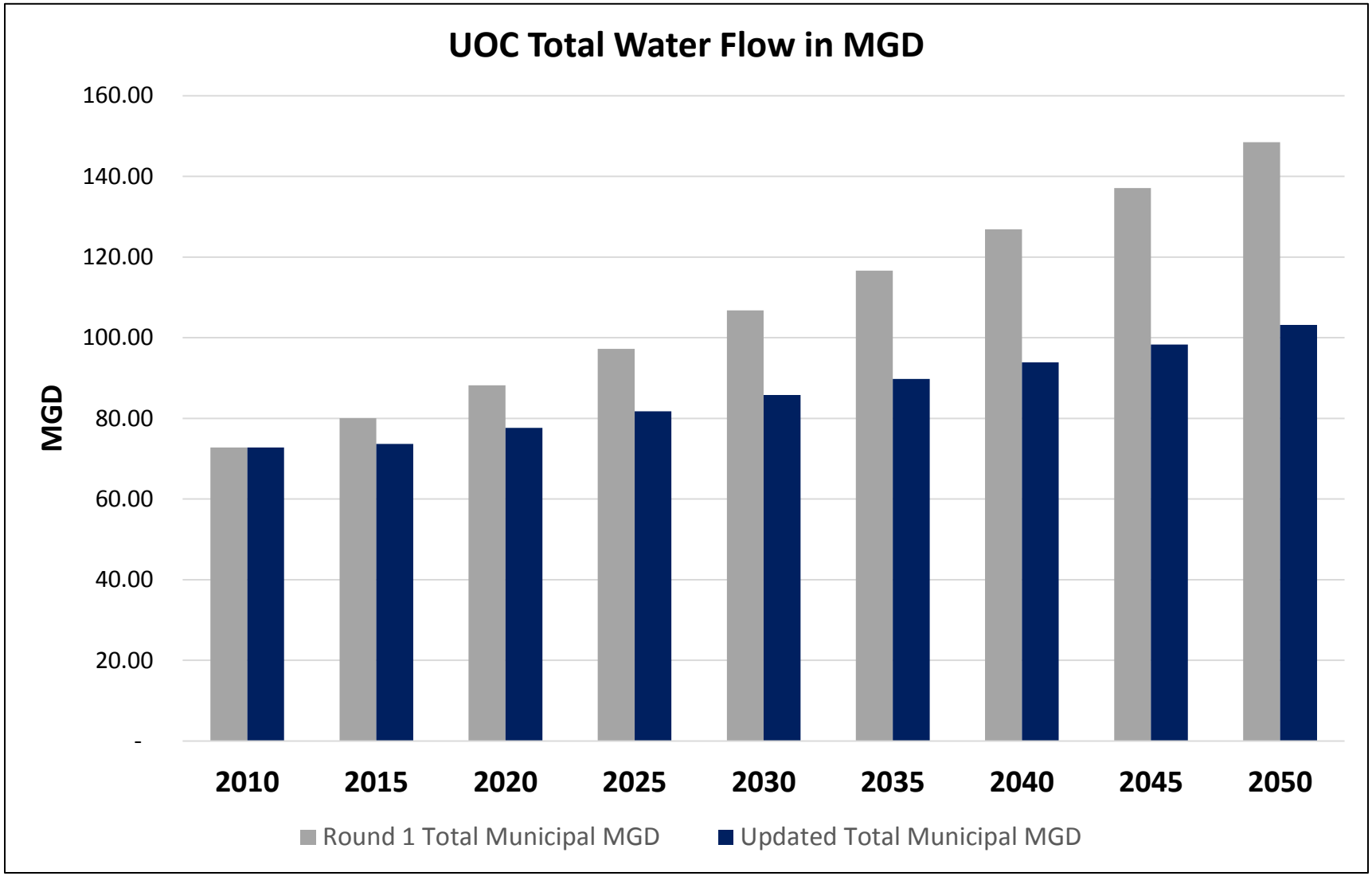
- New population projections
- Each county has the "municipal" water demand split between publicly-supplied (i.e., water provider) and self-supplied (i.e., private wells).
- The ratio of public-supplied to self-supplied water use in each county for Round 1 were maintained for Update

# Upper Oconee Municipal GPCD Change

| County | Round 1 GPCD | Adjustment Factor | Adjusted GPCD | GPCD Δ |
|---|---|---|---|---|
| **Baldwin** | 140 | -2.3% | 137 | -3.2 |
| **Barrow** | 153 | 0.4% | 153 | 0.6 |
| **Clarke** | 157 | 6.7% | 167 | 10.5 |
| **Greene** | 153 | 4.5% | 160 | 6.9 |
| **Hancock** | 125 | -3.8% | 120 | -4.8 |
| **Jackson** | 111 | -1.4% | 110 | -1.5 |
| **Laurens** | 157 | -3.1% | 153 | -4.9 |
| **Morgan** | 164 | -0.3% | 163 | -0.5 |
| **Oconee** | 142 | -4.7% | 136 | -6.7 |
| **Putnam** | 131 | -1.1% | 129 | -1.5 |
| **Walton** | 138 | 2.4% | 142 | 3.4 |
| **Washington** | 195 | -2.1% | 191 | -4.1 |
| **Wilkinson** | 132 | 2.0% | 135 | 2.6 |

Georgia

# Water Forecast Update Results



# Summary: Upper Oconee Region

- Small relative change
- Less than 5% change across most counties
- 10 out of 13 counties have less than 5 GPCD change
- Round 1 Regional Average GPCD: 146.0
- Updated Regional Average GPCD: 145.8

Georgia

# Additional GPCD Analysis by EPD

- EPD will continue to evaluate and refine the additional source of information
- Planning Considerations:
  - Regional and statewide planning are conducted at a different scale than that used in facility planning and permitting
  - Data requirements, local and site specific conditions are unique
- We will keep Council engaged and informed as this work progresses

Georgia

Georgia's

# State Water Plan

## Municipal Wastewater Demand Forecast Update

www.georgiawaterplanning.org

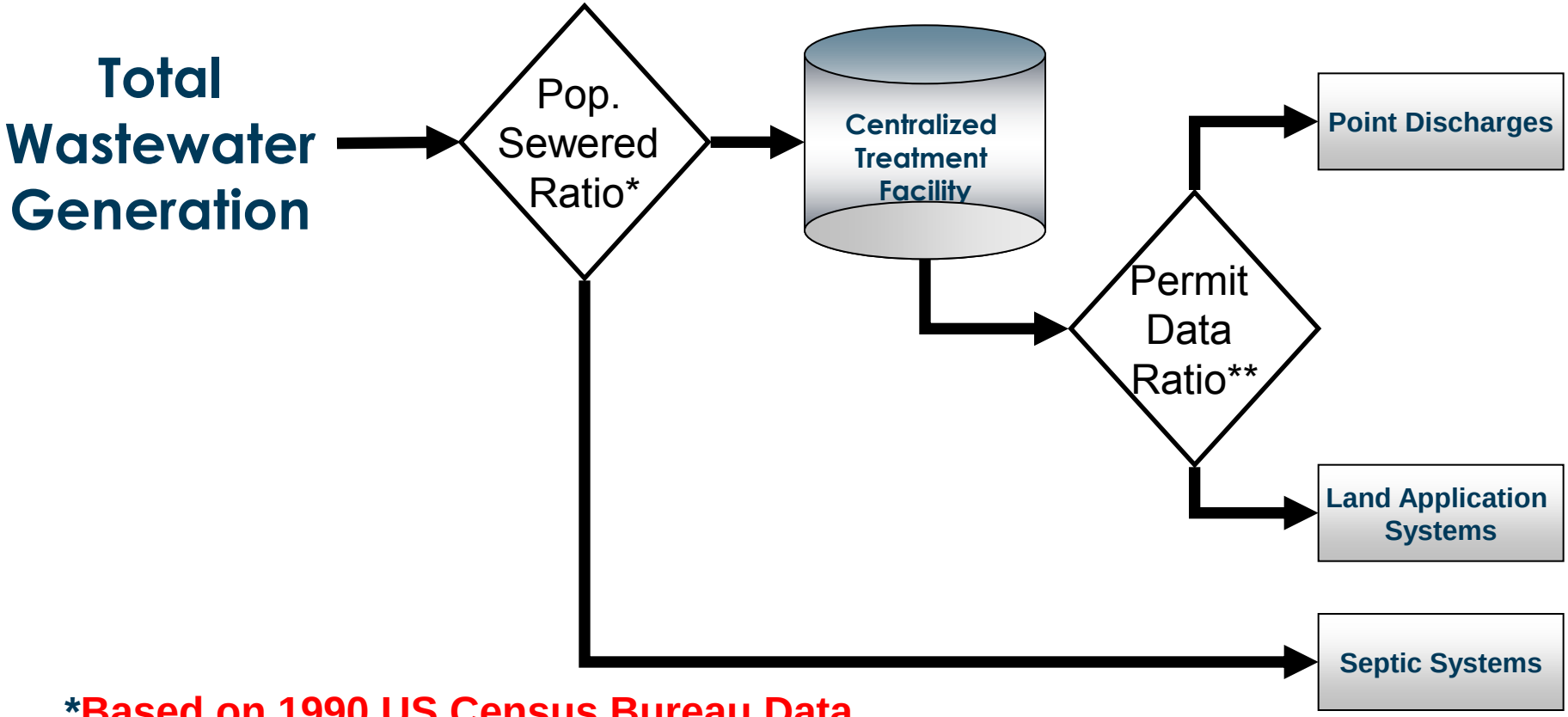
# Round 1 Municipal Wastewater Calculation

Projected Municipal Water Use **x** Percent Average Indoor Water Use **x** * Infiltration/ Inflow ( 1 + % I/I ) **=** Total Wastewater Generation

* Water Planning Region-specific values were determined with Regional Councils:
  - All sanitary sewer systems experience I&I
  - Inflow is stormwater entering at points of direct connection
  - Infiltration is groundwater entering through cracks and/or leaks
  - Average I&I percentage estimated for each water planning region based on input from water users

Georgia

# Municipal Wastewater Discharges

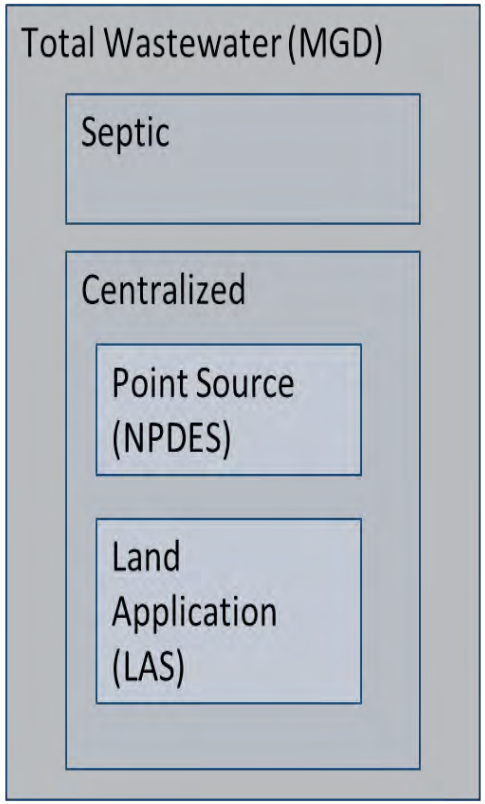



*Based on 1990 US Census Bureau Data

**Based on Existing GA EPD Permit Data

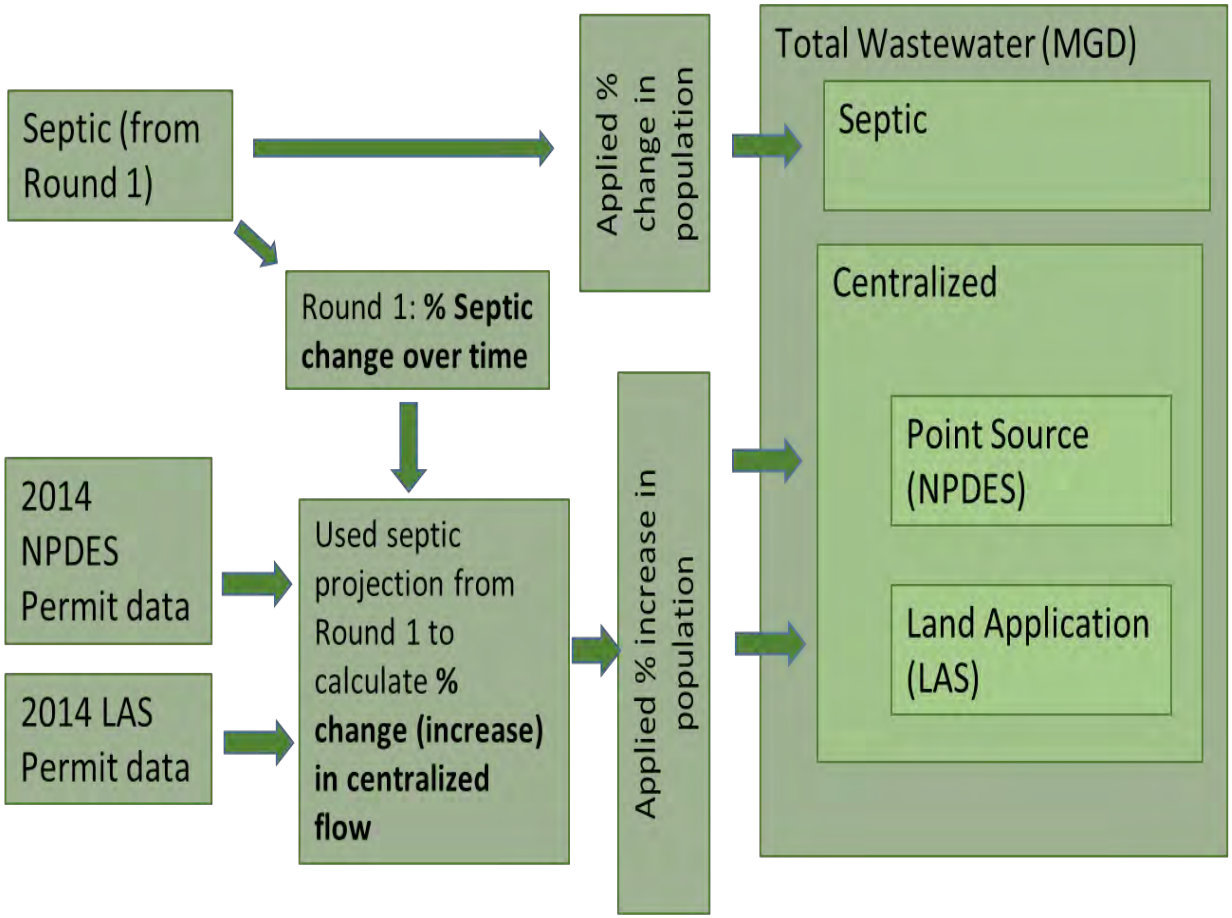
# Municipal Wastewater Forecast Update

*Round 1 Total Wastewater: estimated from Water Forecasts*

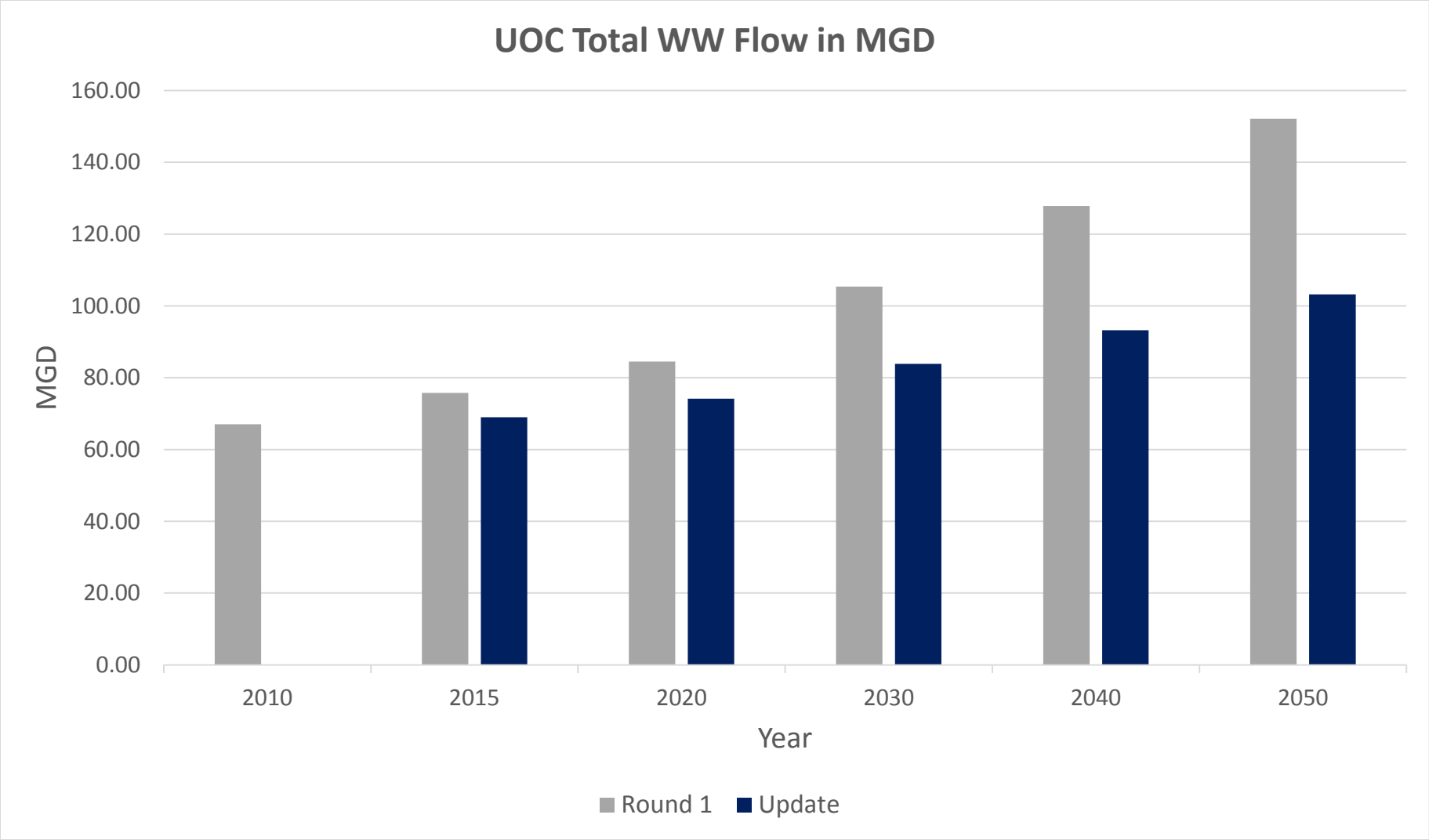



Total Wastewater = Septic + Centralized

*Round 2 Total Wastewater: calculated from EPD Permit Information and Round 1 Septic Numbers and Projections*



# Municipal Wastewater Forecast Update Results




Information on this slide has been updated since presented in the meeting

Georgia's

# State Water Plan

## Industrial Water and Wastewater Demand Forecast Review

www.georgiawaterplanning.org

# Industrial Water Needs

- Water is needed for industrial processes, sanitation, cooling and some domestic (employee) use
- Water need is linked to production
- Employment is linked to production
- Updates of employment data are not available, therefore industrial forecasts are not being updated at this time

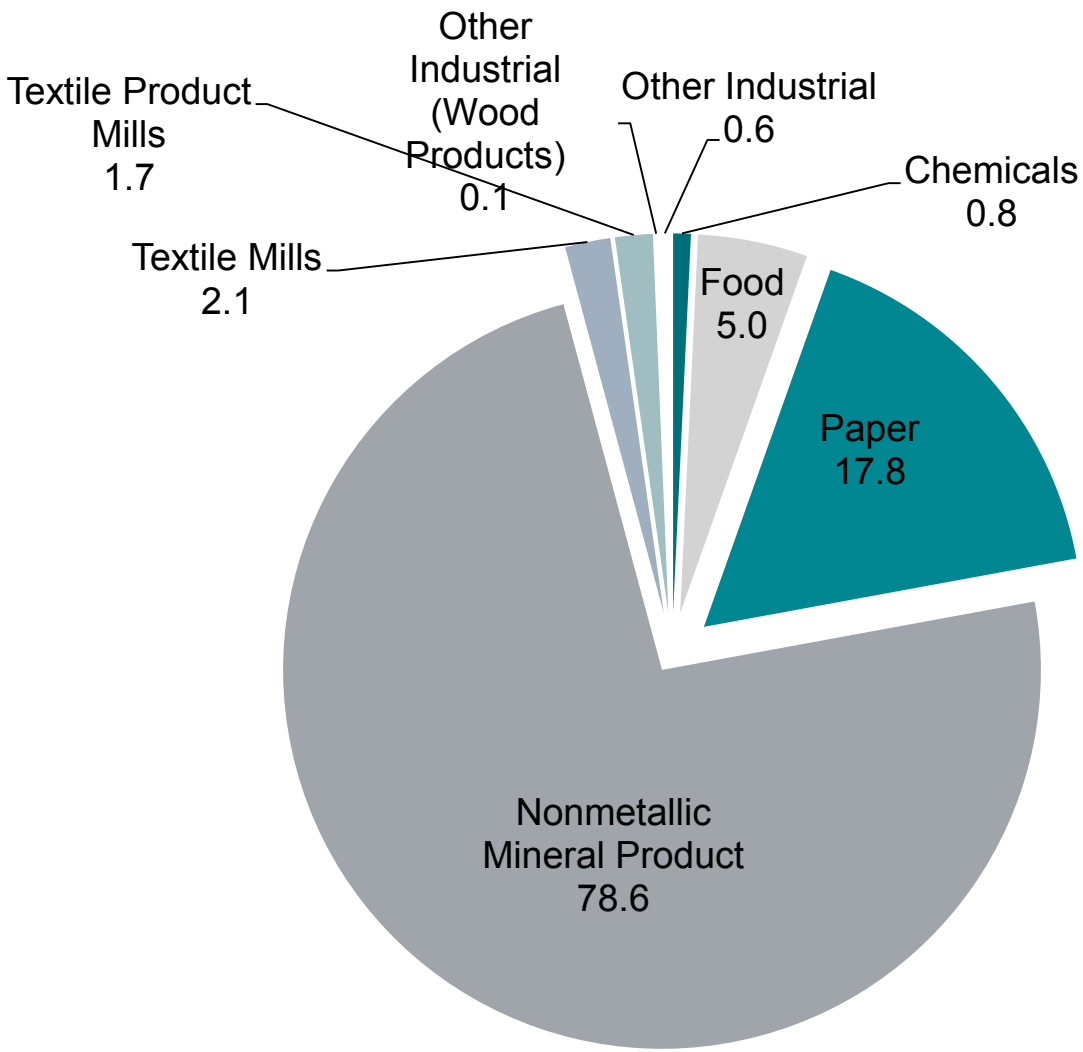
Georgia

# Industrial Water & Wastewater Demand

- EPD recommends maintaining Round 1 estimates of industrial water & wastewater forecasts
- Regional Councils are encouraged to review Round 1 projections and identify any significant changes that may have occurred

Georgia

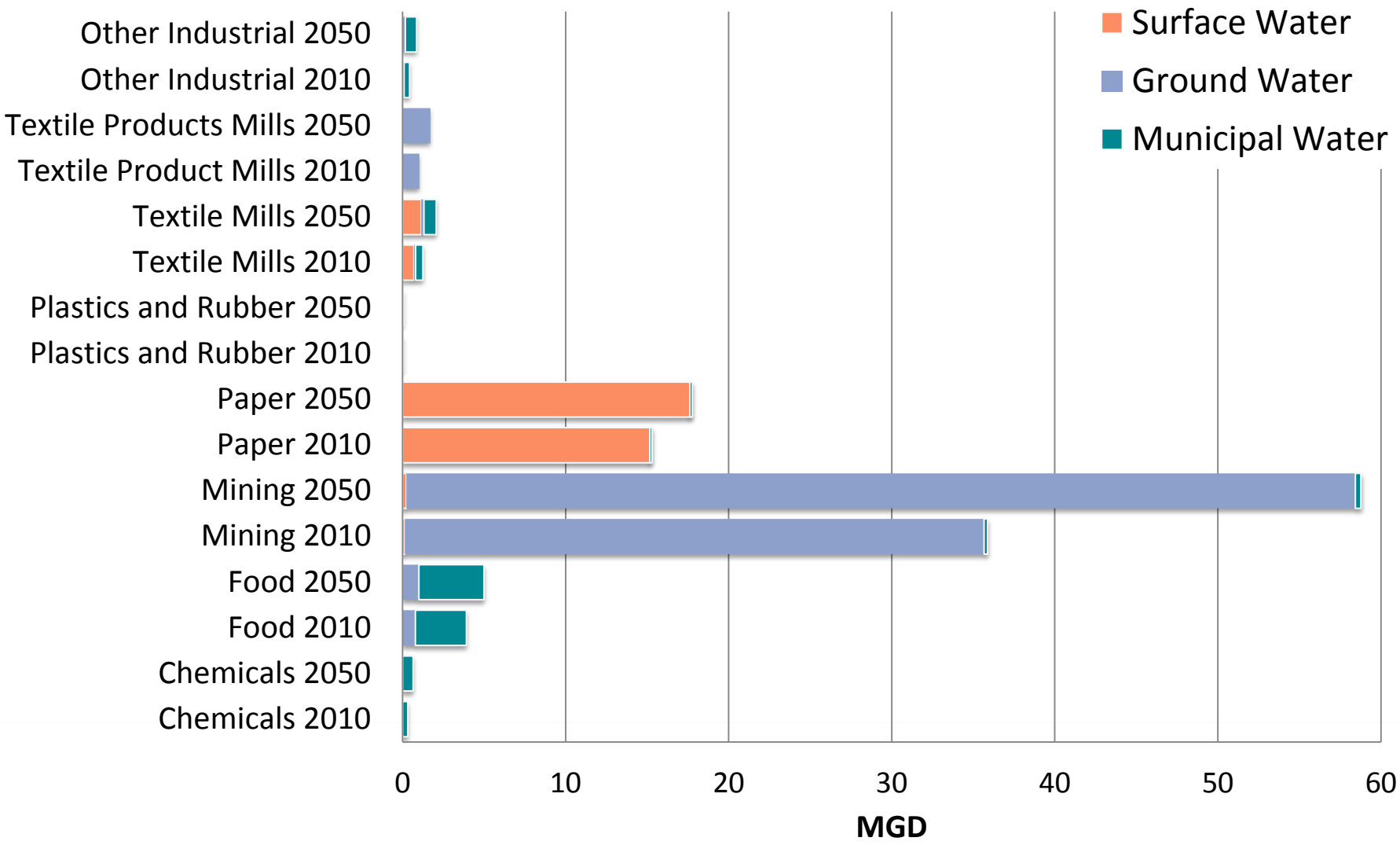
# Region Industrial Water Demand Forecast



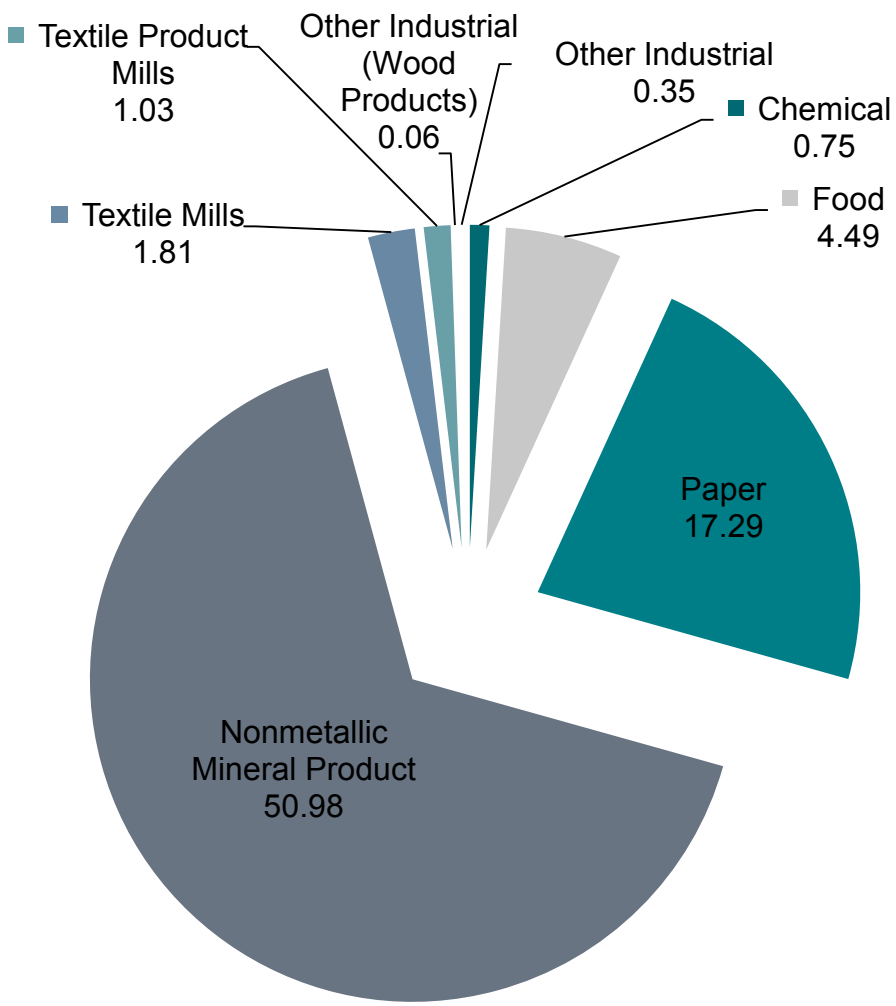

**Withdrawals by Industry (MGD): Upper Oconee 2050**

# Region Industrial Water Demand Forecast

## Withdrawals by Industry by Source (MGD): Upper Oconee 2010 and 2050

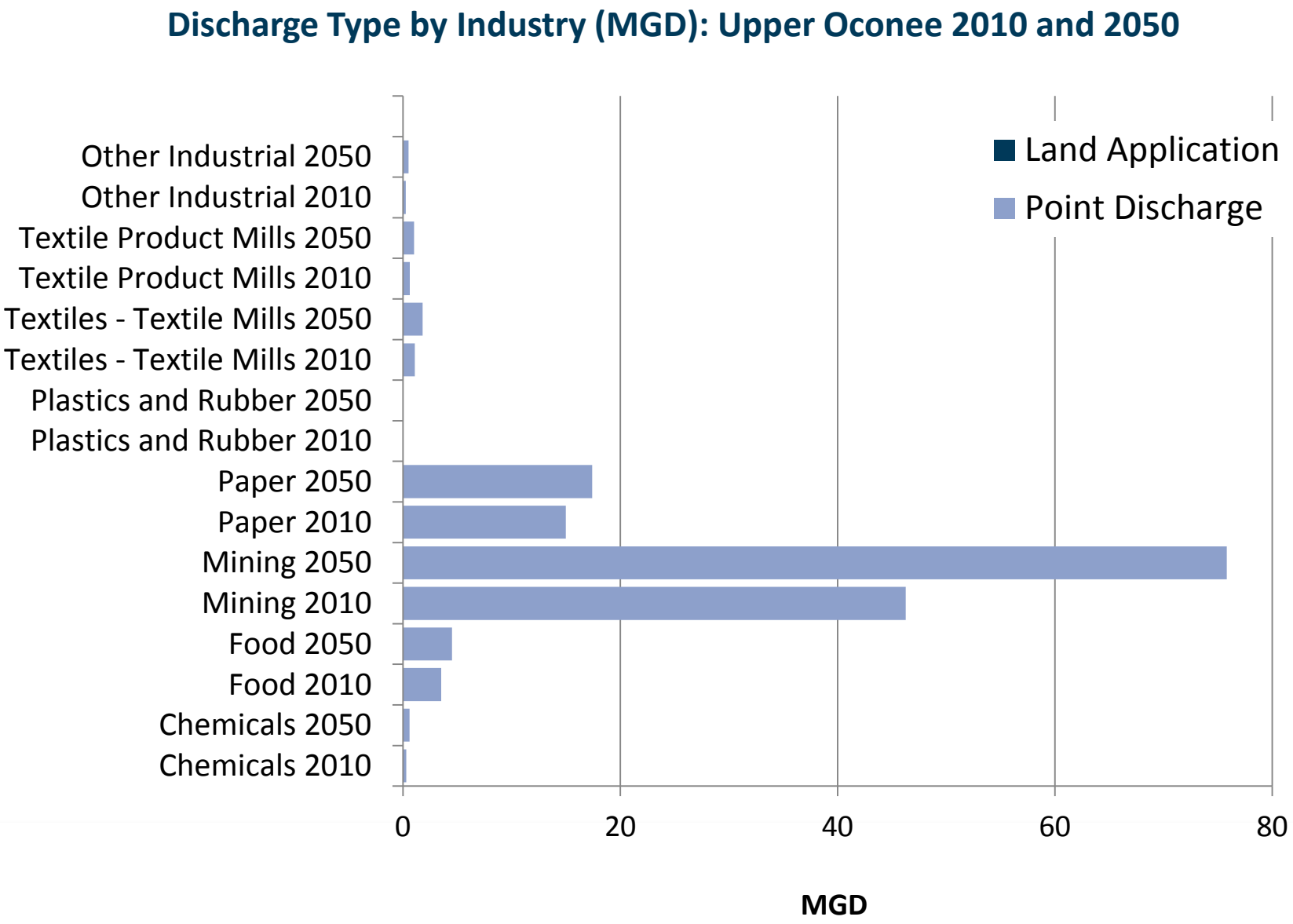


# Region Industrial Wastewater Demand Forecast




**Wastewater by Industry (MGD): Upper Oconee 2050**

# Region Industrial Wastewater Demand Forecast



# Questions & Discussion

Georgia

Georgia's

# State Water Plan

## EPD Section 319(h) Georgia's Nonpoint Source Implementation Grant Funding

www.georgiawaterplanning.org

# Section 319(h) NPS Grant Special Award: Regional Water Councils

March 22, 2016

Mary Gazaway, Grants Unit
Georgia EPD, NonPoint Source Program

# Special Award: RWC

- Dedicated funds to develop or revise a 9-element Watershed Management Plan
- Plan must target a Priority Watershed
- **Funds awarded to partner / subgrantee selected by Council**
- **Cost-Share 60%/40% Total = $35,000 Federal / $23,333 Match**
- Complete by June 2018

Georgia

# Example In-kind Match Services

| | |
|---|---|
| ✓ Salaries / Wages & Fringe Benefits | ✓ Structural Designs |
| ✓ Professional Fees | ✓ Outreach Products & Events |
| ✓ Labor | ✓ Media Buys & Production |
| ✓ Supplies & Materials | ✓ Surveys |
| ✓ Equipment (Leases or Purchases) | ✓ Publications |
| ✓ Office / Meeting Space Rent | ✓ Audits & Appraisals |
| ✓ Office Utilities | ✓ Indirect Charges |
| ✓ Volunteer Hours | ✓ Public Land Conservation |

**In-kind match value must not exceed fair market cost or rental rates. Rates for volunteer services can be found on the following websites:**

https://explorer.dol.state.ga.us/vosnet/Default.aspx
www.bls.gov/bls/blswage.htm
www.independentsector.org/volunteer_time

# Watershed Management Plan?

- Addresses nonpoint sources of water pollution
- First step towards improving water quality
- Builds stakeholder capacity and buy-in: water resource management & protection
- Can leverage other watershed activities
- Eligible for additional future funding to implement the Plan

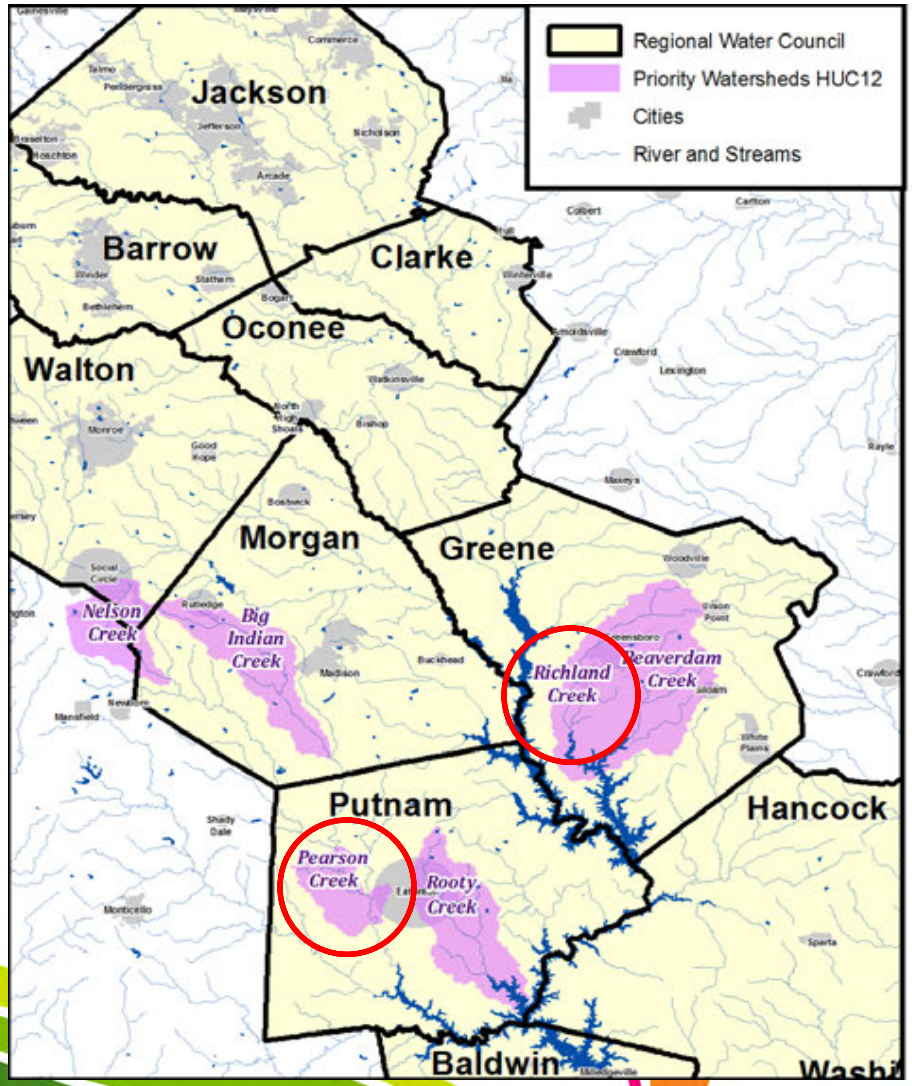
Georgia

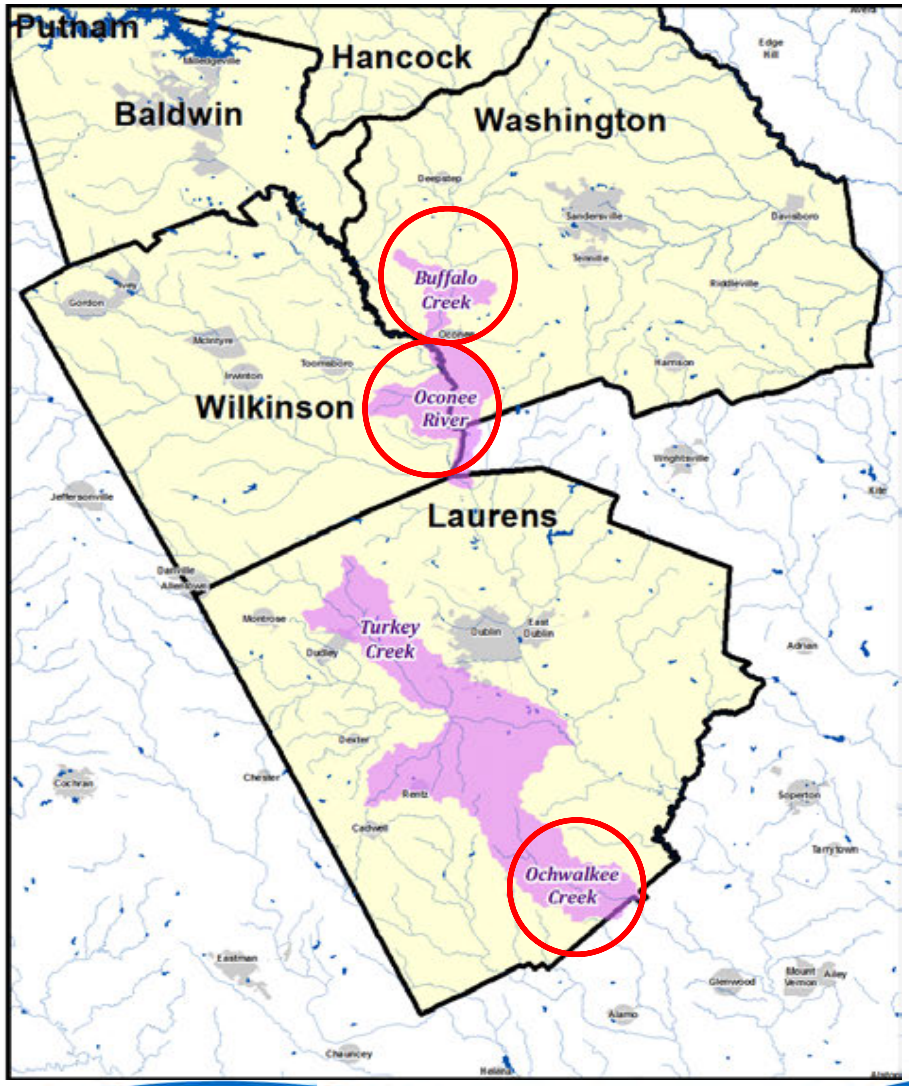
# Next Steps

- Council targets priority watershed; selects partner as "subgrantee" to write the Plan
- **Subgrantees must be public entities or local governments**
- Submits proposed work plan to GAEPD
- GAEPD will provide assistance, if needed
- Negotiated contract to start June 2016

Georgia

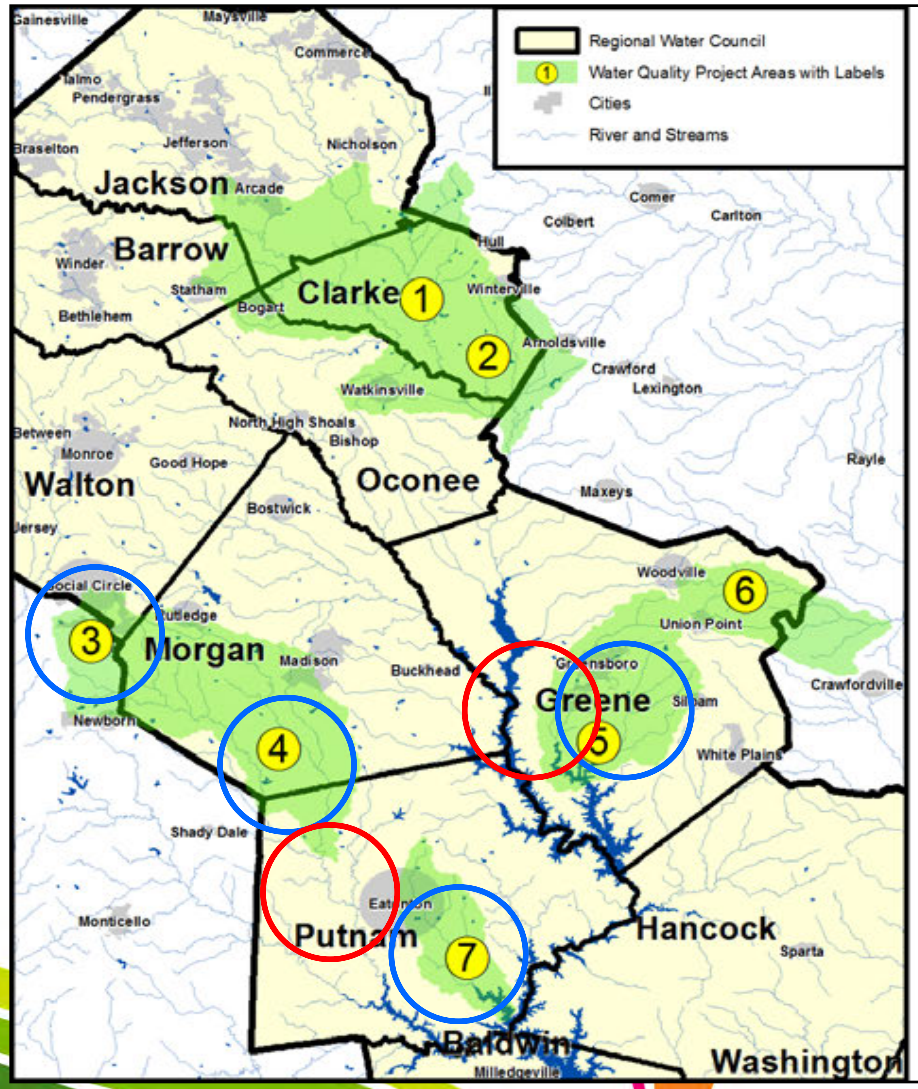
# Priority Watersheds: UORWC

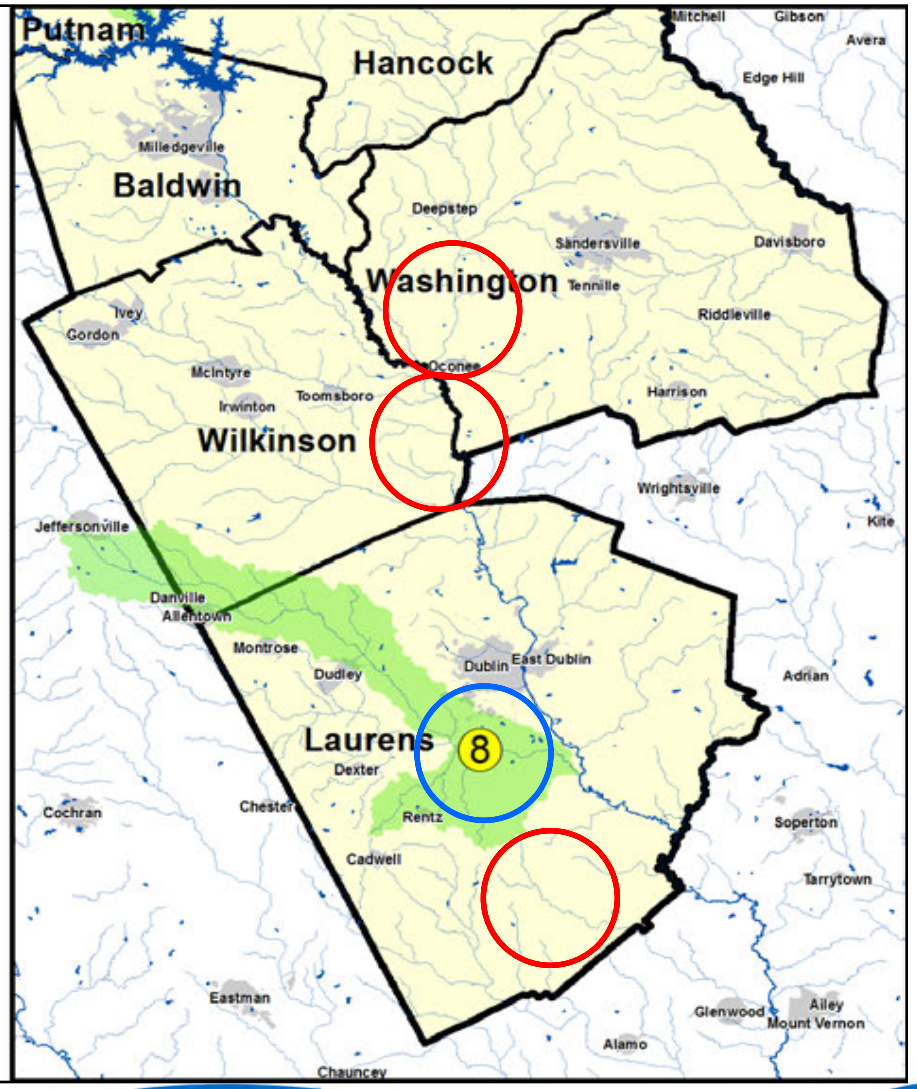



Georgia

# EPD WQ Projects 2010-Current




Georgia

# Potential Partners in Priority Watersheds

- Regional Commissions:
  - Northeast Georgia RC
  - Middle Georgia RC
  - Central Savannah River Area RC
  - Heart of Georgia-Altamaha RC
- Resource Conservation & Development Councils
  - Oconee River RC&D Council
  - Pine Country RC&D Council

Georgia

# Elements of a WMP

1. **Stream Selection:** Define scope of watershed planning efforts.
2. **Formation of Stakeholder Committee:** Identify & engage relevant stakeholders in watershed.
3. **Source Assessment:** Explain techniques & methods that will be applied to effectively detect & prioritize impairment sources.
4. **Characterization of Current Conditions:** Describe current water quality concerns & ongoing management practices in the watershed.

Georgia

# Elements of a WMP

5. **Recommended Management Practices:** Classify solutions that best control water quality impairments.
6. **Working with Public:** Recommend strategies to engage the public & maximize plan implementation.
7. **Activity Schedule** & **Measures of Success:** Develop schedule of activities & measures of success for plan.
8. **Long-Term Monitoring:** Establish monitoring plan to collect & analyze water quality data.
9. **Implementation, Evaluation & Revision:** Propose tactics on moving forward with plan implementation.

Georgia

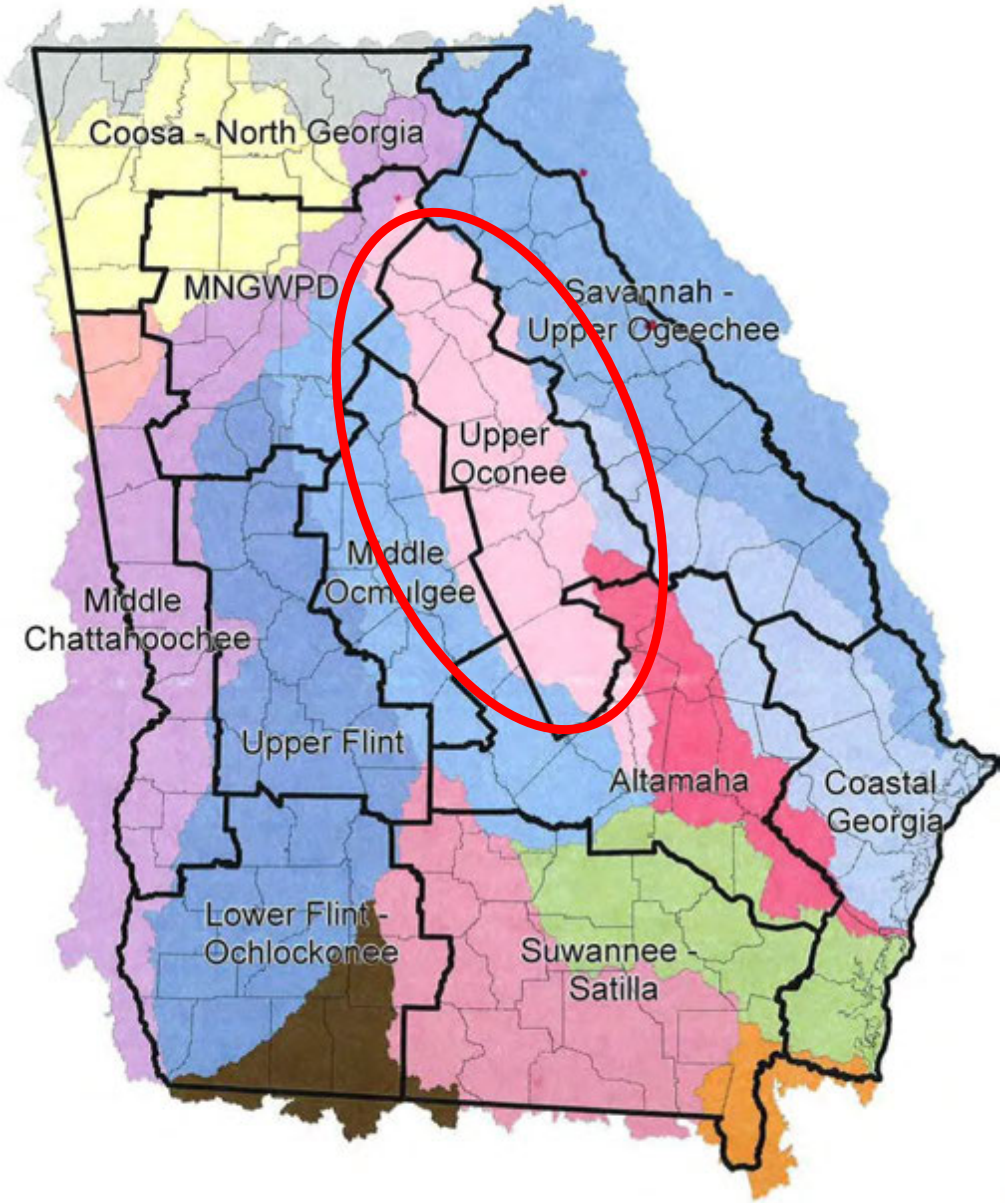
# Questions?

Mary Gazaway

404-651-8522

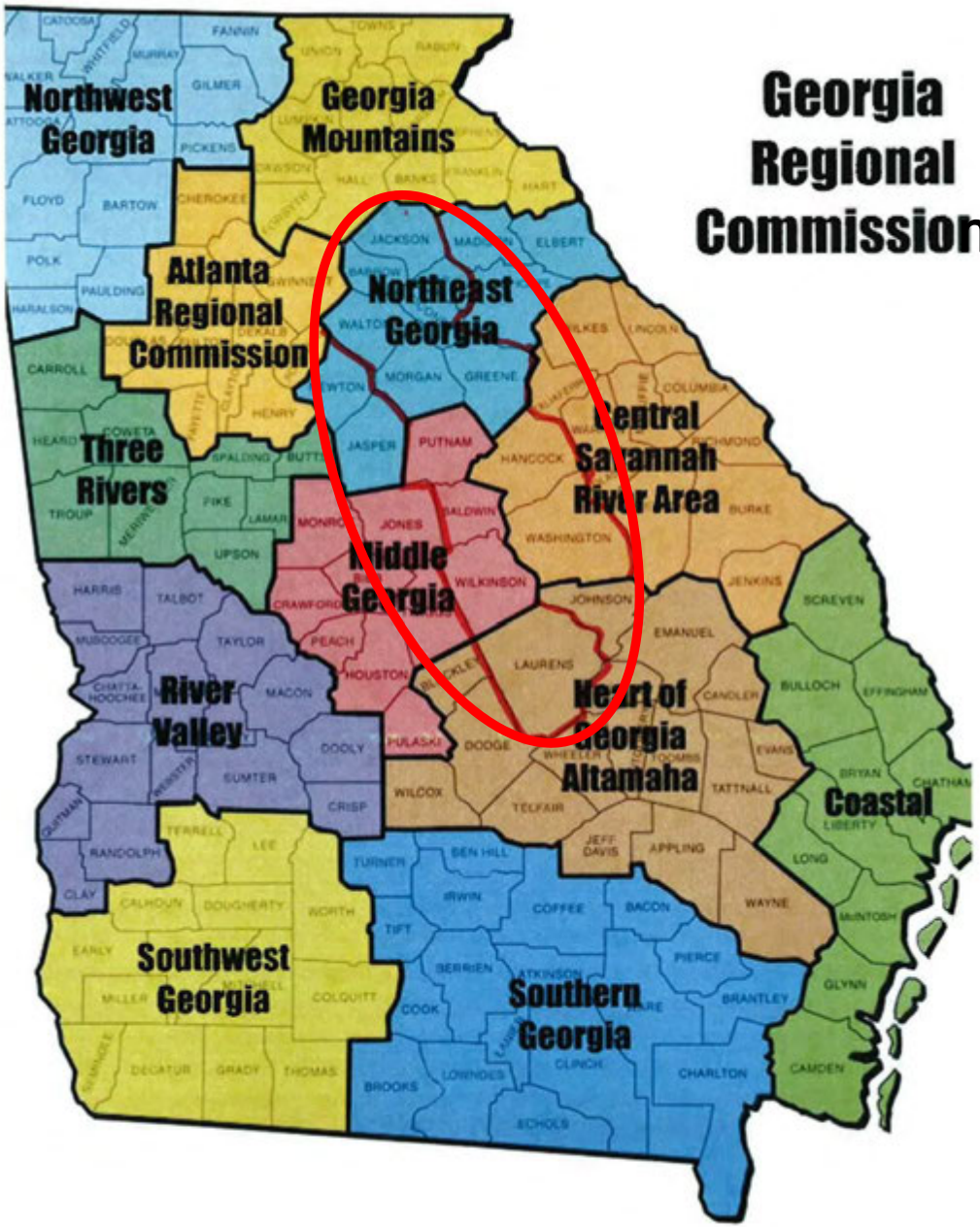
mary.gazaway@dnr.ga.gov

# Water Planning Regions

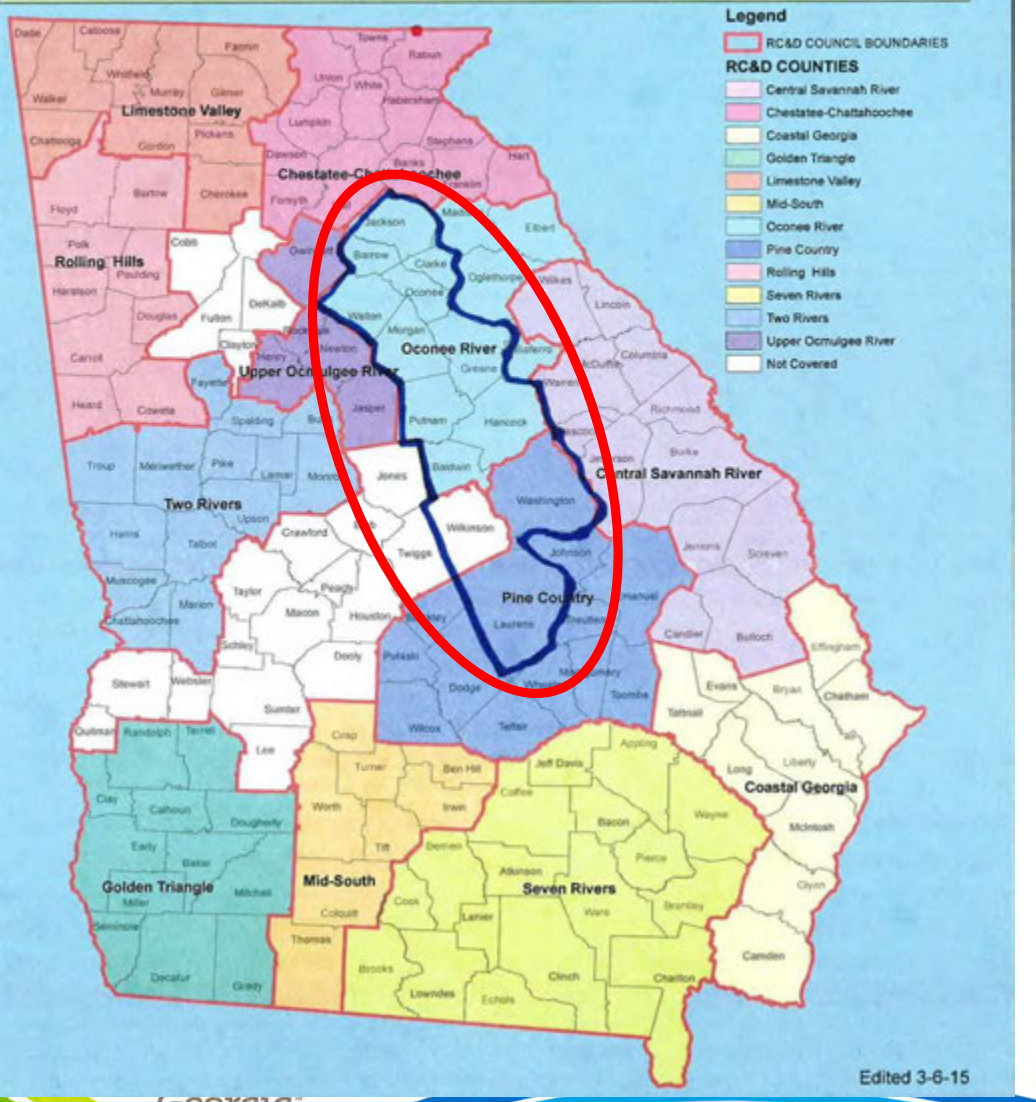



Georgia

# Georgia Regional Commissions

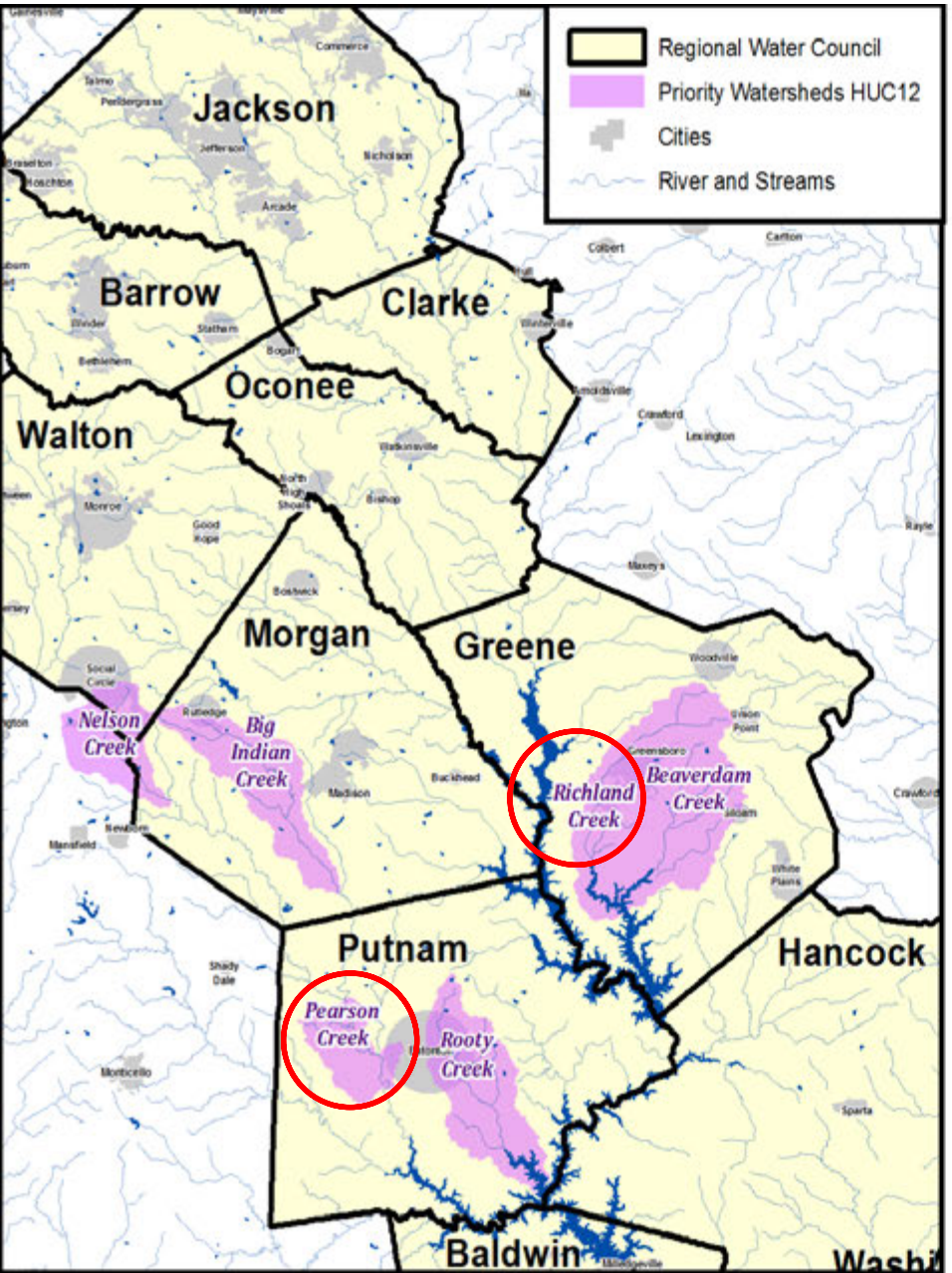


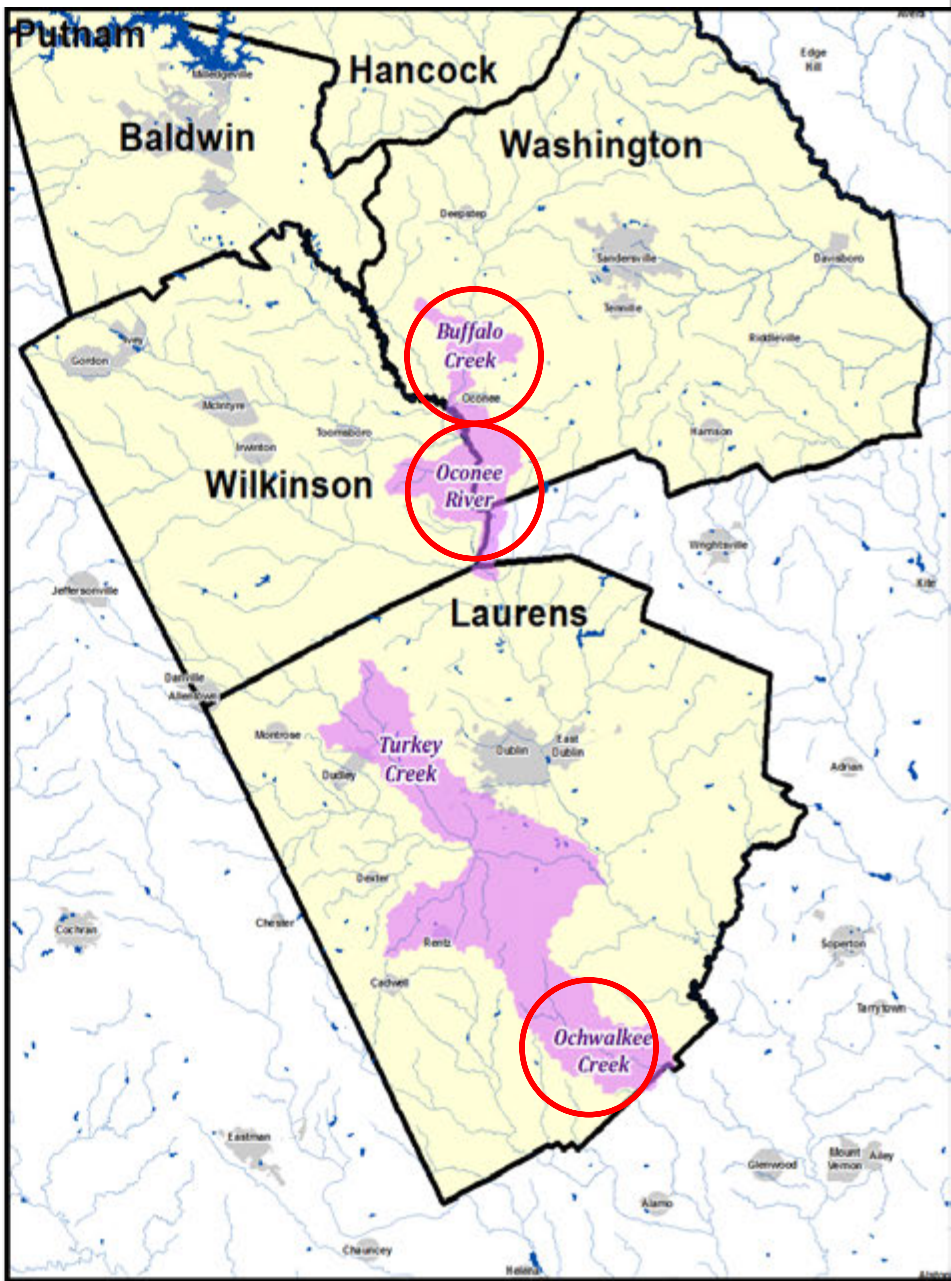
# GEORGIA
# Resource Conservation & Development (RC&D) Councils




Georgia

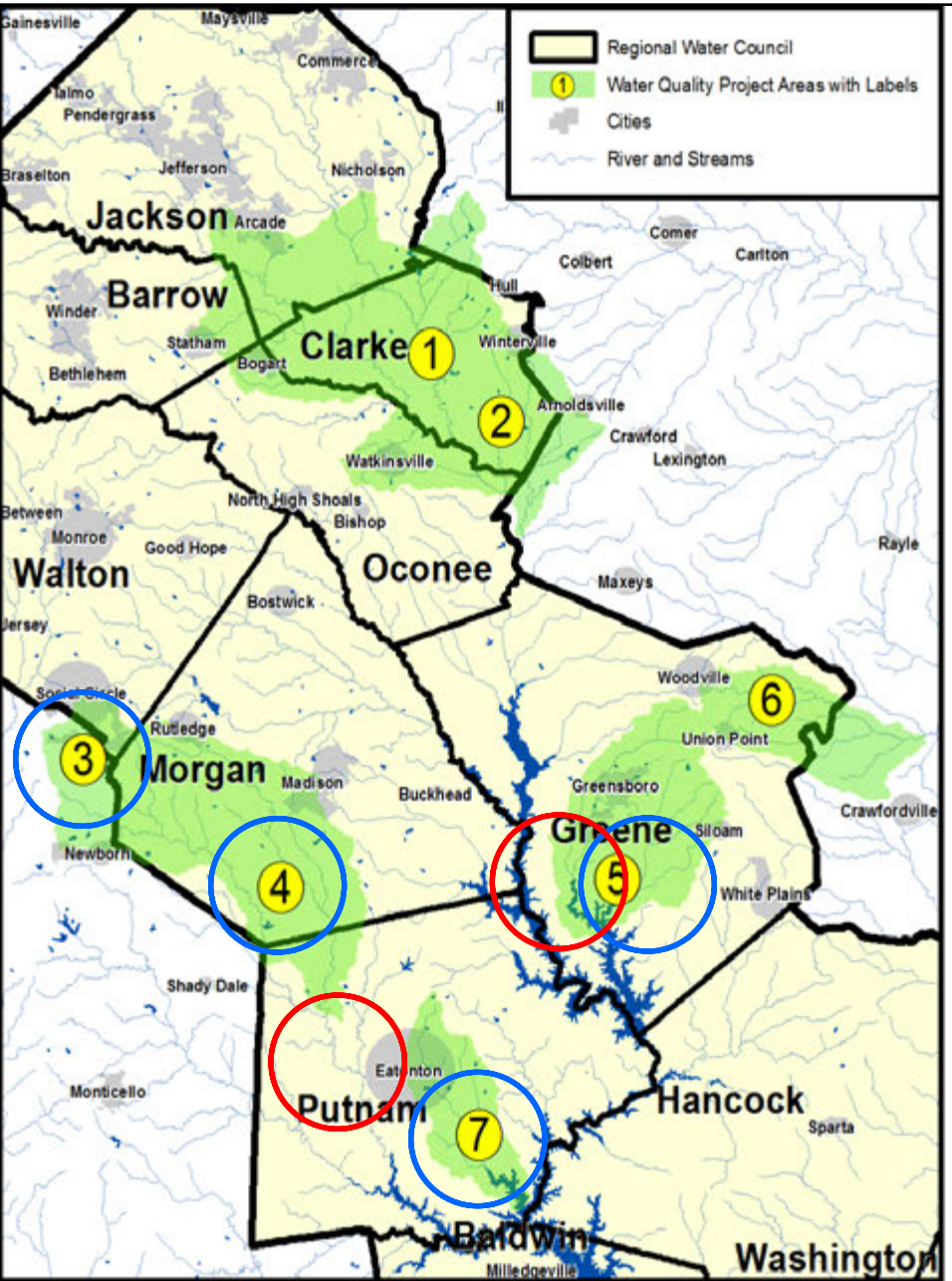
# Priority Watersheds: UORWC

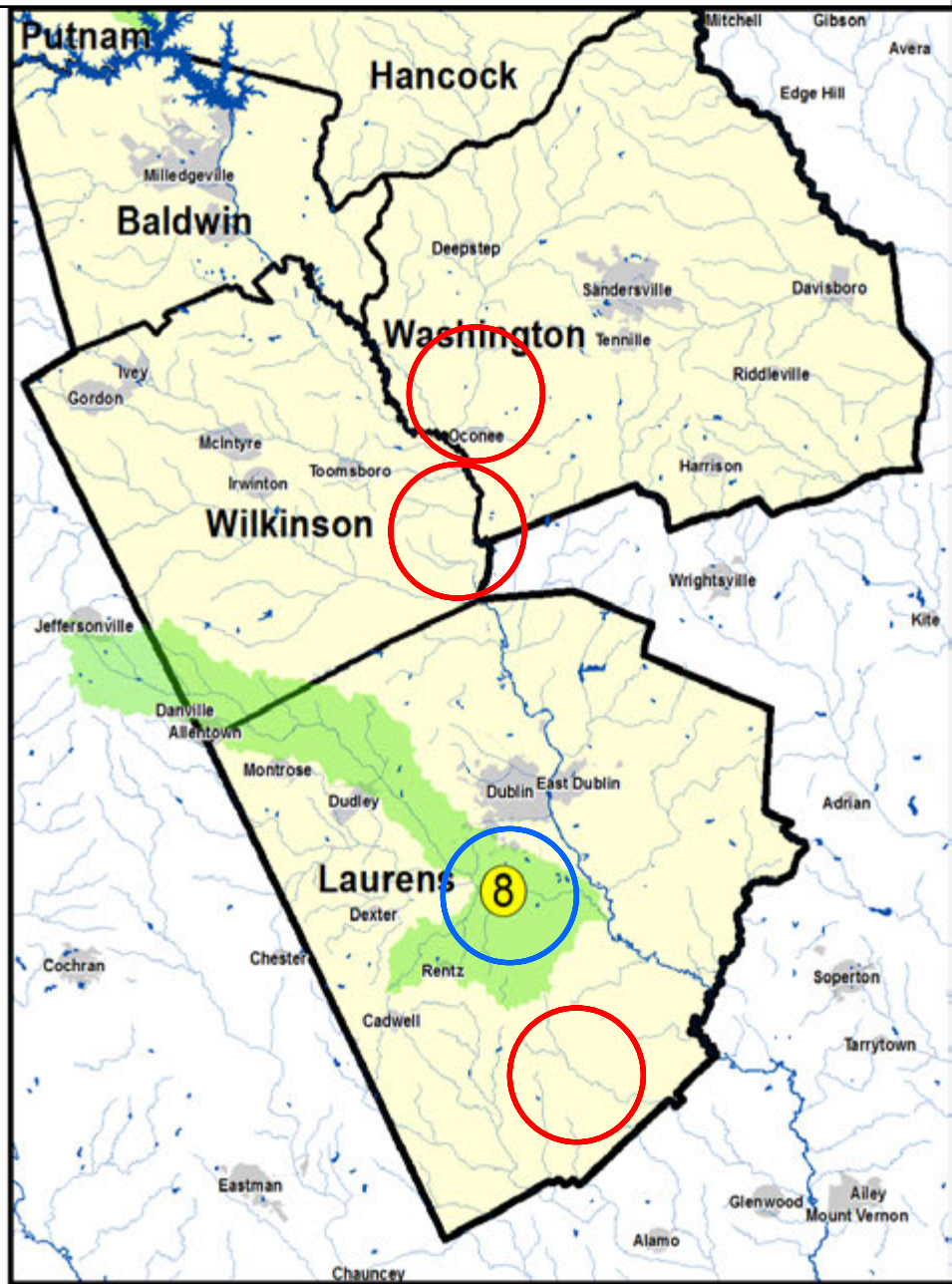


| HUC12 | Name | Watershed | County |
|---|---|---|---|
| 030701011101 | Town Creek-Richland Creek | Town Creek-Richland Creek | Greene |
| 030701011102 | Upper Beaverdam Creek | Upper Beaverdam Creek | Greene |
| 030701011103 | Lower Beaverdam Creek | Lower Beaverdam Creek | Greene |
| 030701011104 | Little Creek-Richland Creek | Little Creek-Richland Creek | Greene |
| 030701011401 | Nelson Creek-Little River | Nelson Creek-Little River | Newton |
| 030701011405 | Upper Big Indian Creek | Upper Big Indian Creek | Morgan |
| 030701011406 | Middle Big Indian Creek | Middle Big Indian Creek | Morgan |
| 030701011502 | Pearson Creek-Little River | Pearson Creek-Little River | Putnam |
| 030701011802 | Upper Rooty Creek | Upper Rooty Creek | Putnam |
| 030701011803 | Lower Rooty Creek | Lower Rooty Creek | Putnam |
| 030701020407 | Wheeler Creek-Buffalo Creek | Wheeler Creek-Buffalo Creek | Washington |
| 030701020801 | Oochee Creek-Oconee River | Oochee Creek-Oconee River | Wilkinson |
| 030701021103 | Horse Branch-Turkey Creek | Horse Branch-Turkey Creek | Laurens |
| 030701021104 | Bluewater Creek-Turkey Creek | Bluewater Creek-Turkey Creek | Laurens |
| 030701021105 | Reedy Creek-Turkey Creek | Reedy Creek-Turkey Creek | Laurens |
| 030701021304 | Upper Ochwalkee Creek | Upper Ochwalkee Creek | Laurens |

# EPD WQ Projects 2010-Current



**EPD Water Quality Projects**

**2010 – Current**

**Potential Partners**

| Label | Waterbody Name | Project Title | Start Date | End Date | Contractor |
|---|---|---|---|---|---|
| 1 | North Oconee River | North Oconee River (Lilly Branch) Watershed Management Plan | 12/30/2011 | 4/30/2013 | UNIVERSITY OF GEORGIA |
| 2 | North Oconee River | Septic System Maintenance Education and Inventory Program Development in Athens-Clarke County | 1/23/2012 | 3/31/2014 | ATHENS-CLARKE COUNTY |
| 3 | Little River 030701011401 | Revising the TMDL Implementation Plan for the Little River Watershed (Newton / Walton Co. HUC-12 030701011401) | 2/2/2012 | 7/31/2014 | NEWTON COUNTY |
| 4 | Big Indian Creek | Implementation of the Agricultural Components of the Big Indian Creek TMDL Plan | 2/7/2011 | 9/30/2014 | OCONEE RIVER RC&D COUNCIL |
| 5 | Beaverdam Creek | Revise and Implement TMDL Implementation Plans for the Beaverdam Creek (Greene County) HUC-10 Watershed | 5/1/2015 | 4/30/2018 | OCONEE RIVER RC&D COUNCIL |
| 6 | Little River 0306010501 | Revision of TMDLIP into WMP and Reduction of Fecal Pollution in Little River | 1/3/2012 | 9/30/2015 | CENTRAL SAVANNAH RIVER RC&D |
| 7 | Rooty Creek | Rooty Creek TMDL Implementation Plan Revision | 11/6/2013 | 9/30/2014 | OCONEE RIVER RC&D COUNCIL |
| 8 | Turkey Creek | Developing a Comprehensive Watershed Management and Implementation Plan for the Turkey Creek Watershed | 12/17/2012 | 9/30/2014 | HEART OF GEORGIA-ALTAMAHA REGIONAL COMMISSION |

**Additional Potential Partners:**

CENTRAL SAVANNAH RIVER AREA REGIONAL COMMISSION
MIDDLE GEORGIA REGIONAL COMMISION
NORTHEAST GEORGIA REGIONAL COMMISSION
PINE COUNTRY RC&D COUNCIL

For more information contact:

Mary Gazaway, Grants Unit
EPD NonPoint Source Program
mary.gazaway@dnr.ga.gov

Georgia's

# State Water Plan

## Energy Forecast Updates

www.georgiawaterplanning.org

# Energy Water Use Forecast Updates

## Energy generation facilities contribute uniquely to the entire Statewide power portfolio

Each power facility has a unique water to power production signature

- Fuel Type (coal, natural gas, nuclear)
- Prime Mover (thermal energy into mechanical energy)
- Cooling Type (single pass vs. evaporative)

The relative contribution of each facility can change over time as facilities retire or are brought on-line

## Energy water needs are forecasted based upon facility type and total power production (est. from population projections)

Baseline: Expected energy need based on regression analysis & new population projections

High Demand: Standard error from the regression analysis is used to estimate 95% upper limit

Georgia

# Energy Water Use Forecast Updates

## Energy Water Use Calculations are based upon:

Energy Water Use (per generating unit) =

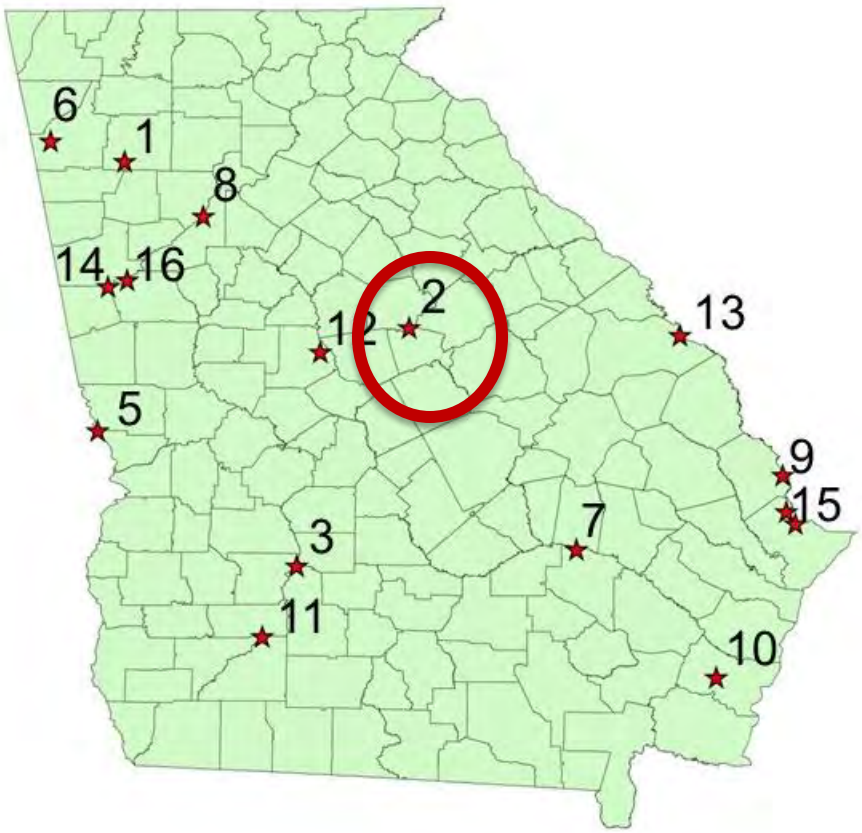
$$\frac{\text{Water Withdrawal Requirements [gal/MWh]} \times \text{Power Generation [MWh]}}{\text{Water Consumption Requirements [gal/MWh]} \quad \text{Power Generation [MWh]}}$$

***While the energy water use calculations are still based upon the previous <u>relationship</u> between population and energy needs, the energy needs have changed based on <u>new population projections</u>.***

Georgia

# Energy Water Use Forecast Updates

## Thermoelectric Power Facilities in Georgia with Water Withdrawal Permits




| Facility Name | County |
|---|---|
| 1. Plant Bowen | Bartow |
| 2. Plant Branch | Putnam |
| 3. Crisp County Power Comm-Steam | Worth |
| 4. Gum Power Plant LLC | Mitchell |
| 5. H Allen Franklin[1] | Lee (Alabama) |
| 6. Plant Hammond | Floyd |
| 7. Plant Hatch | Appling |
| 8. Plant Jack McDonough | Cobb |
| 9. Plant McIntosh | Effingham |
| 10. Plant McManus | Glynn |
| 11. Plant Mitchell | Dougherty |
| 12. Plant Scherer | Monroe |
| 13. Voglte | Burke |
| 14. Plant Wansley | Heard |
| 15. Plant Wentworth (Kraft) | Chatham |
| 16. Plant Yates | Coweta |

[1] Plant is physically located in Alabama; water withdrawal permit from Georgia EPD

# Energy Water Use Forecast Updates

## Water and Power Results are not complete yet

Energy forecast still under development with input from the Energy Ad Hoc group

Assumptions:

Hydropower generation is constant

Small percentage of the energy needs will be met through renewable (wind & solar) energy

Four hydropower facilities in the region have negligible consumptive use

The decommissioning of Plant Branch will decrease both water withdrawals and consumption

Georgia

# Metro District Plan Updates

www.georgiawaterplanning.org

# Metro Water District Plan Update

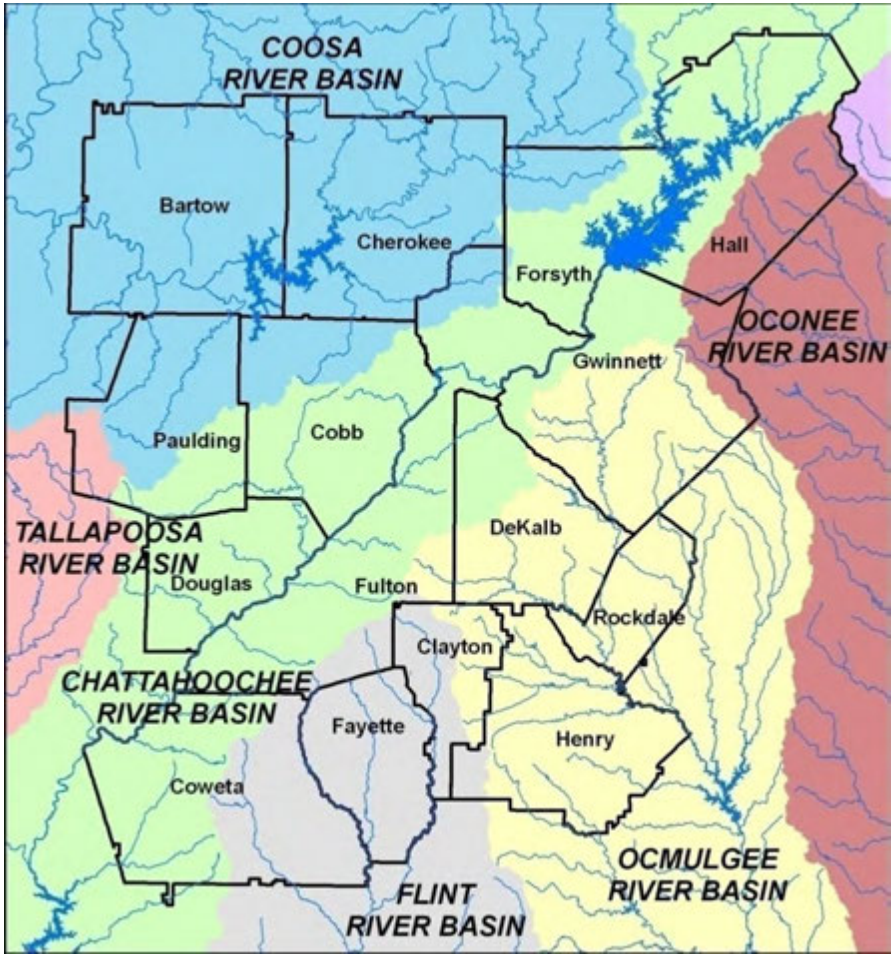
March/April 2017

Danny Johnson, Manager

October
*Rock Quarry*
Mary Waldrop of Powder Springs, GA

# Metropolitan North Georgia Water Planning District

- Created in 2001 by state law
- 15 Counties
- 92 Cities
- 6 Major River Basins



# Governing Structure

- 26 Board Members
  - 16 Elected Officials
    - 15 Counties + City of Atlanta
  - 10 Citizens Members
    - 6 from Governor
    - 2 from Lieutenant Governor
    - 2 from Speaker of the House

# Stakeholder Involvement

## Governing Board

## 6 Basin Advisory Councils

- Coosa
- Lake Lanier
- Oconee
- Ocmulgee
- Chattahoochee
- Flint

## Technical Coordinating Committee

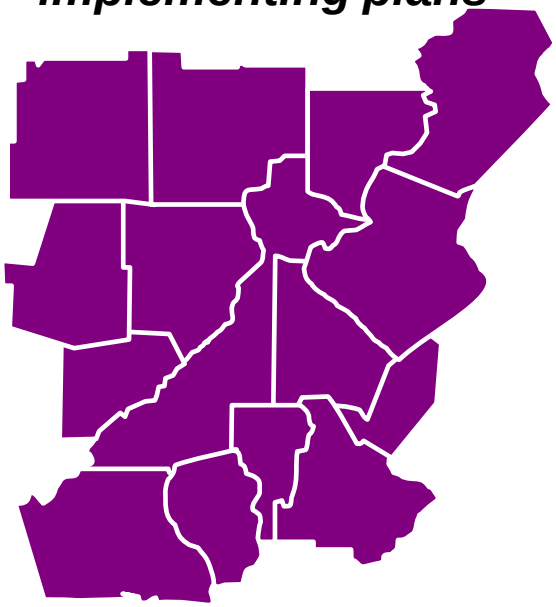
Sub-committees

- Water Supply-Water Conservation
- Wastewater
- Watershed
- Public Education

# District, Local Governments & GA EPD Share Responsibilities

***Water district develops regional plans***

***Local governments responsible for implementing plans***



Original Plans Adopted – September 2003

**Updated Plans Adopted – May 7, 2009**

# EPD Exercises Its Permitting Authority

- EPD shall not issue new or increase existing permits unless the local government is in compliance with the plans
  - "good faith" exception
- Local governments may become ineligible for state grants or loans for failure to comply
- Inclusion in the plan does not guarantee EPD will issue permit

June

*End of Our Fishing Day*

Dave Archbold of Peachtree City, GA

# Integrated Water Resource Management Plan Update

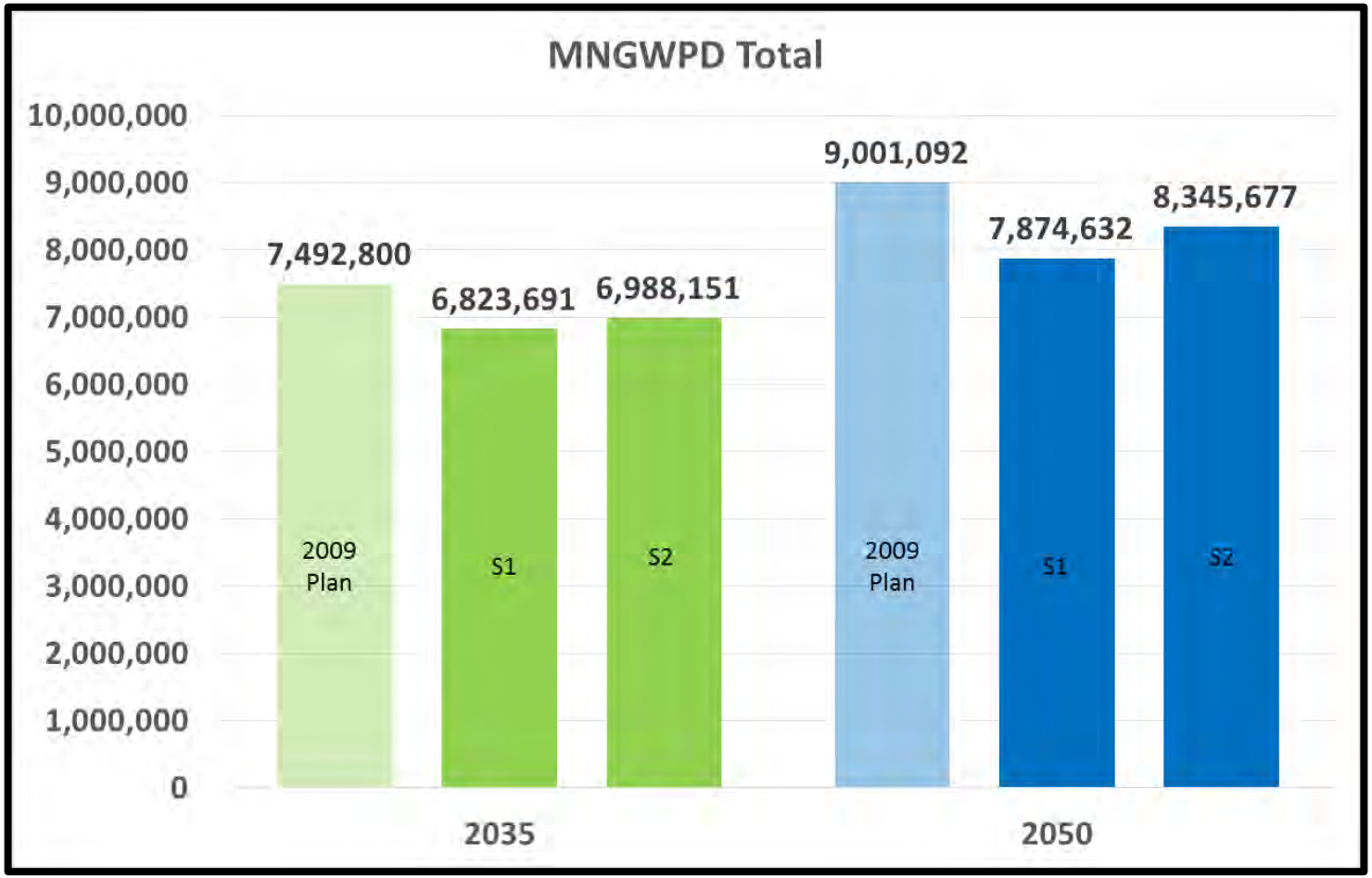
# Well developed objectives will shape the 2017 plan update

- ✓ Using the 2009 plan as a **foundation**, build on or modify sections that need improvement while addressing new requirements and challenges as described in this scope of work.
- ✓ Update the plan **consistent** with Georgia Environmental Division (EPD) guidance, District Governing Board, TCC and BACs guidance and the scope of work detailed below.
- ✓ Advance the District's on-going approach to **integrated water planning.**
- ✓ **Update** the plan with the most current data and information covering a wide range of areas including management issues, plant capacities, demand forecasts, etc.

Metropolitan North Georgia Water Planning District

# Water Demand Forecasting

# Population Projections

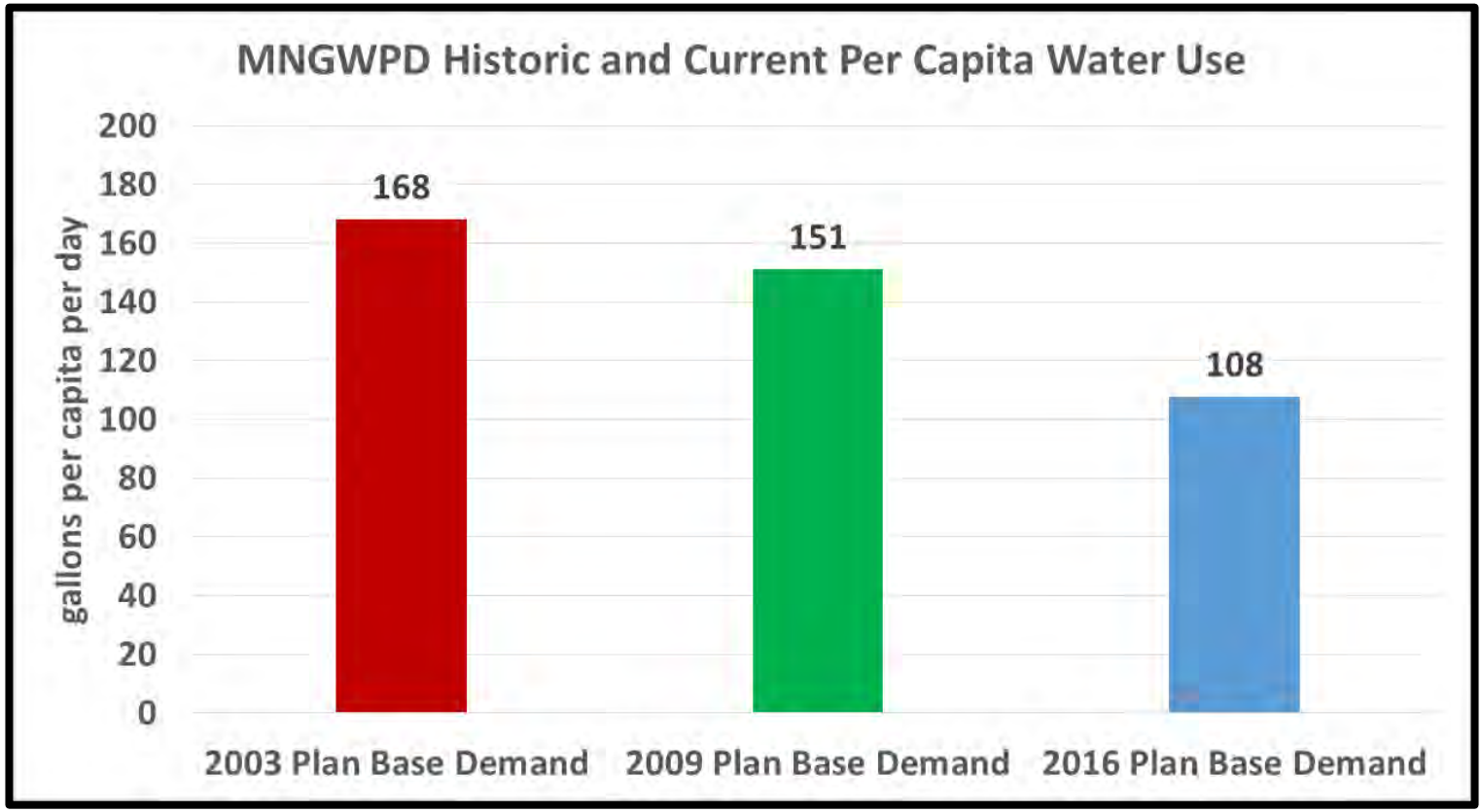


# Key Forecast Inputs and Assumptions

Same water demand methodology as previous two plans

- Baseline water consumption calculation
- Water demand forecast with plumbing code impacts (toilets, urinals, showerheads, clothes washers)
- County-wide annual water demand forecasts to 2050

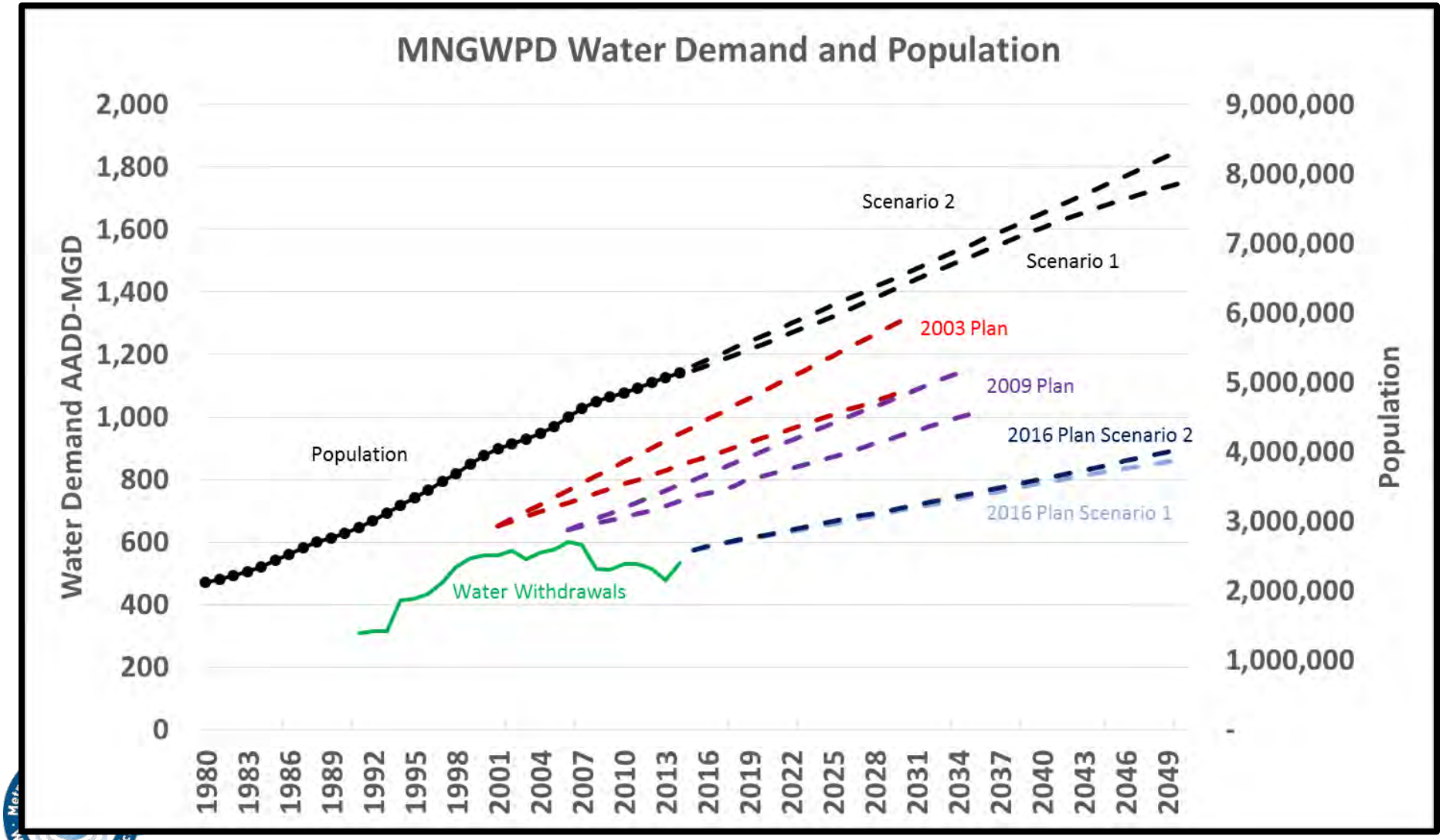
# Per Capita Water Demand



# Summary of 2050 Water Demand Forecasts (AAD-MGD)

| County | Base Demand (2014) | 2009 Plan - 2050 (extrapolated) | Scenario 1 2050 Baseline w/plumbing codes | Scenario 2 2050 Baseline w/plumbing codes |
|---|---|---|---|---|
| MNGWPD Total | 560 | 1,202 | 862 | 898 |

# Historical Forecast Comparison



# Water Supply Water Conservation

- Water demand forecasts completed
- Updating
  - Existing water supplies and facilities
  - Facility Phasing Plans
- Water conservation action items
  - Conservation program expansion
  - New commercial conservation programs

November

*Mallard Foggy Takeoff*

John Bensley of Lawrenceville, GA

# Wastewater Management

- Wastewater demand forecasts
- Updating
  - Existing water supplies and facilities
  - Facility Phasing Plans
- Wastewater action items
  - Improving reliability of infrastructure
  - Digital mapping requirements
  - Additional recommendations for septic management

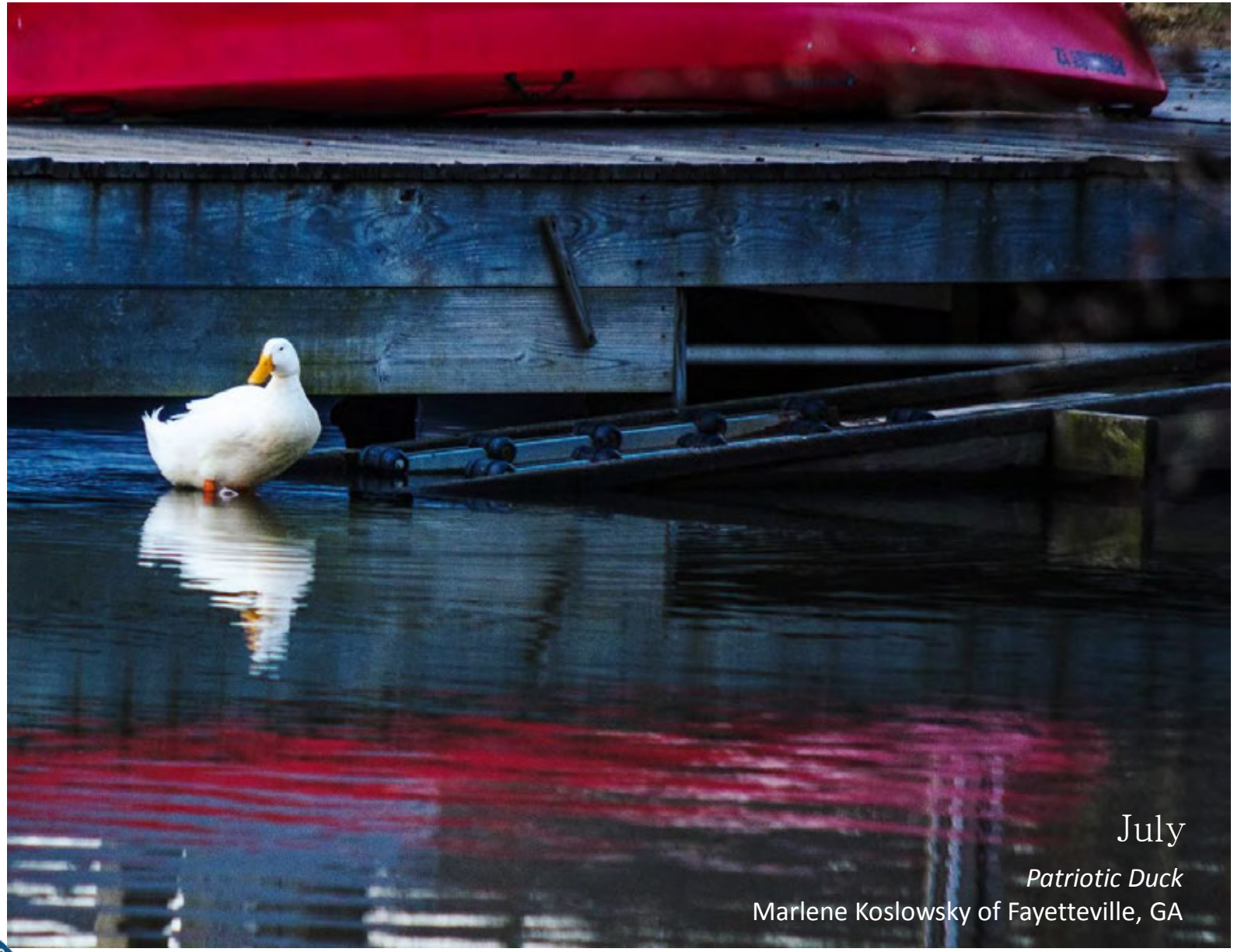
## September and Grand Prize

*Dragon Boat on Olympic Course*

Terry Baker of Gainesville, GA

# Watershed Management

- Updated river basin profiles
- Strategy development
  - Nonpoint Source (NPS) Pollution
  - Green Infrastructure
- Streamline monitoring elements to match State Watershed Protection Plan Requirements
- Development of materials/handouts to support local implementation of action items



July

*Patriotic Duck*

Marlene Koslowsky of Fayetteville, GA

# Public Education and Outreach

- Best management practice case studies
- Integrated Public Education and Outreach Plan
  - Minimum Requirements Tables
  - Education Focus for Target Audiences Table

February
*Early One Frosty Morn*
Jon Heard of Cumming, GA

# Development of Integrated Plan

- Draft plan ready this summer
- We welcome and want your reactions and feedback

# Questions?

# Additional Info

# Public Education

- Minimum number of education activities required based on population
- Educational videos, brochures, press releases, and much, much more!

- Webpages:

  www.northgeorgiawater.org

  www.mydropcounts.org

H LINE!

LIFEGUARD
I
Water!

981
967

Metropolitan North Georgia Water Planning District

# High School Video Contests

- 2015 – Here's the Scoop on Pet Waste
- 2014 – FOG Clogs

<u>Winning Videos</u>

www.youtube.com/user/MNGWaterDistrict

# Regional Toilet Rebate Program

As of May 1, 2015, toilet rebate programs in the District have rebated **over 100,000 toilets totaling over $8.8 million in credits!!! Total estimated savings 2.4 million gallons per day or 18 million full bathtubs each year!**

Georgia's

# State Water Plan

## Current Agricultural Water Demand Estimate and Method for Updates

www.georgiawaterplanning.org

# CURRENT AGRICULTURAL DEMAND ESTIMATES – METHODS FOR UPDATE

Upper Oconee Regional Water
Planning Council
March 22, 2016

xxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxx
xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

# Overview of Presentation

- Background
  - Who we are
  - How the estimates and forecasts will be used
- Methods
  - Animal agriculture and horticultural sector water demands
  - Current agricultural use estimates
  - Agricultural demand forecasts
- Results
  - Current use
  - Forecasts

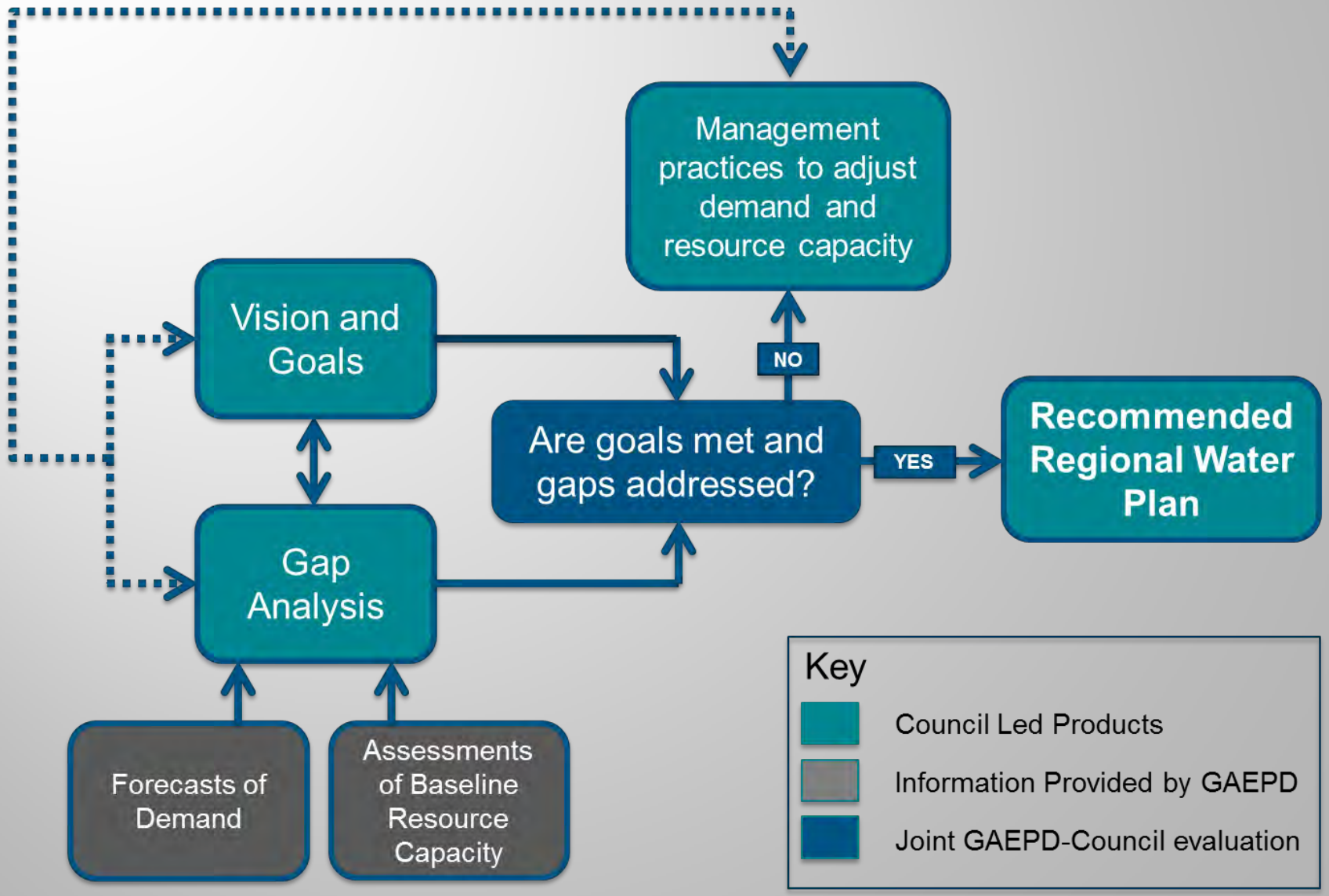
# Project Team

- Albany State University – Georgia Water Planning and Policy Center (Lead)
- University of Georgia Agricultural and Applied Economics

GEORGIA Water PLANNING & POLICY CENTER ALBANY STATE UNIVERSITY

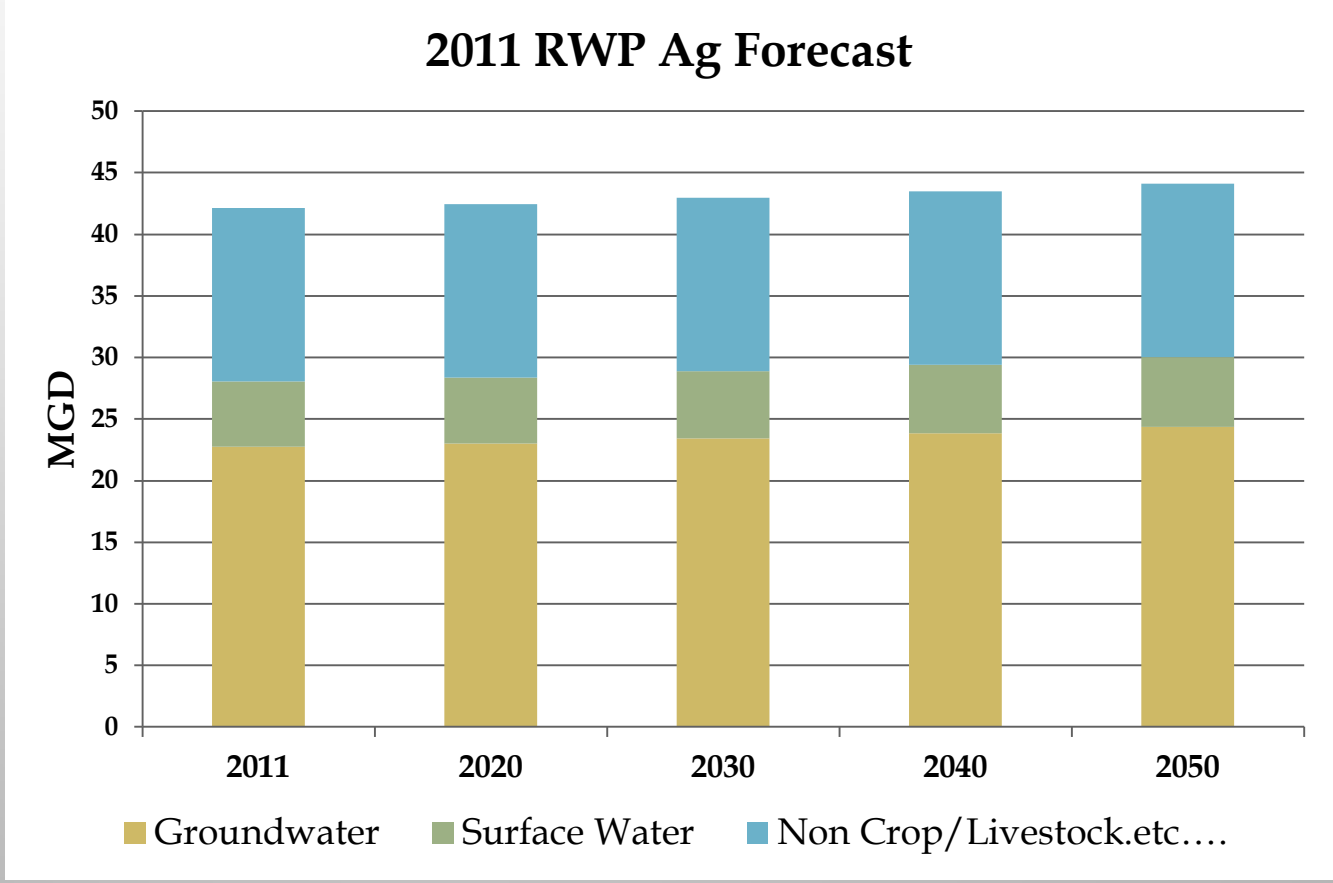
THE UNIVERSITY OF GEORGIA COLLEGE OF AGRICULTURAL & ENVIRONMENTAL SCIENCES

# How the Results will be Used



# Agricultural Water Demand Estimates: 2009-2010

- Acreage
- Water Use
- Other Ag Demand (livestock, nursery, golf course)



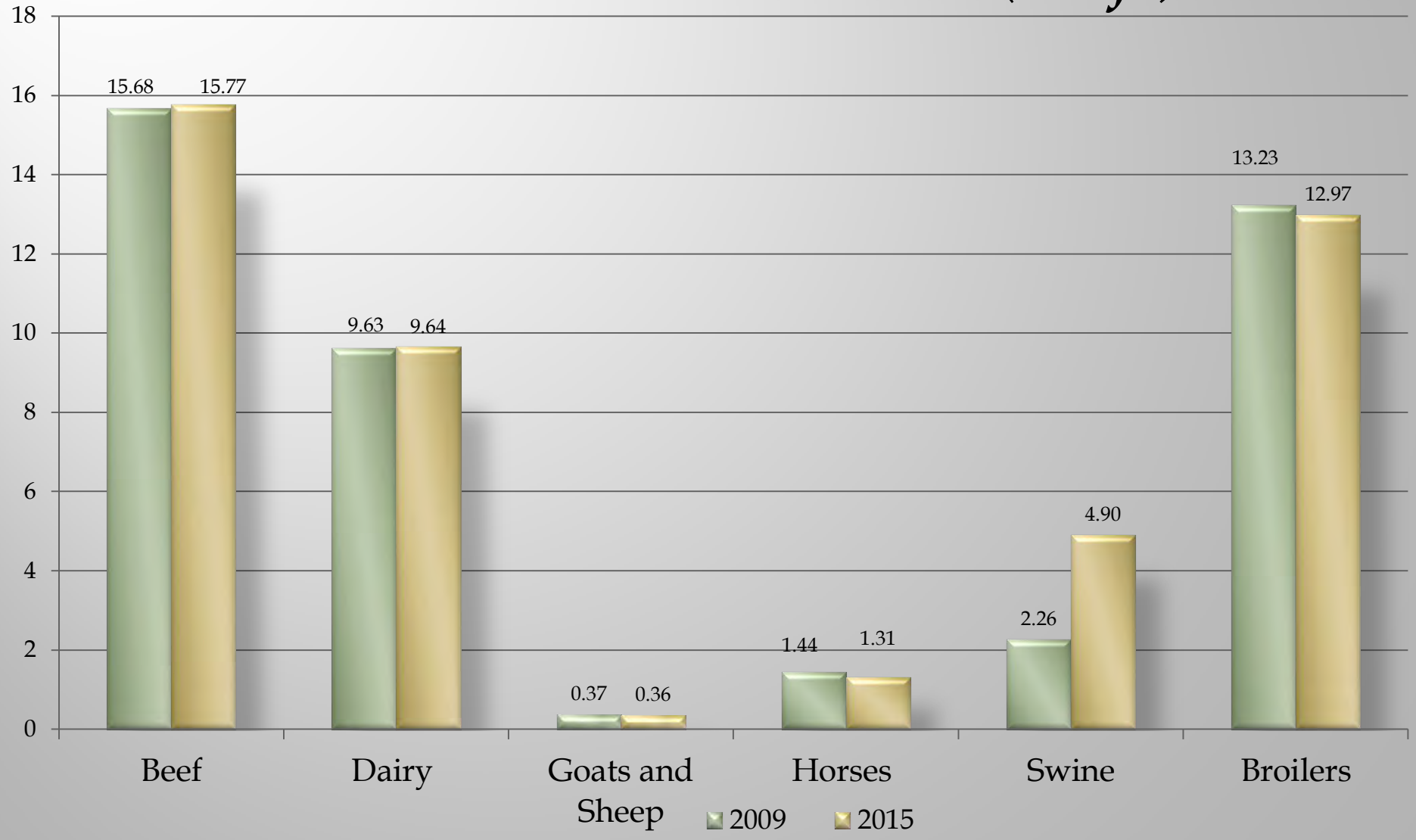
# 2015-2016 Ag Water Demand Update Components

- Animal Agriculture and Horticultural Sector Water Use
- Current Agricultural Water Use Estimates
- Agricultural Water Demand Forecasts

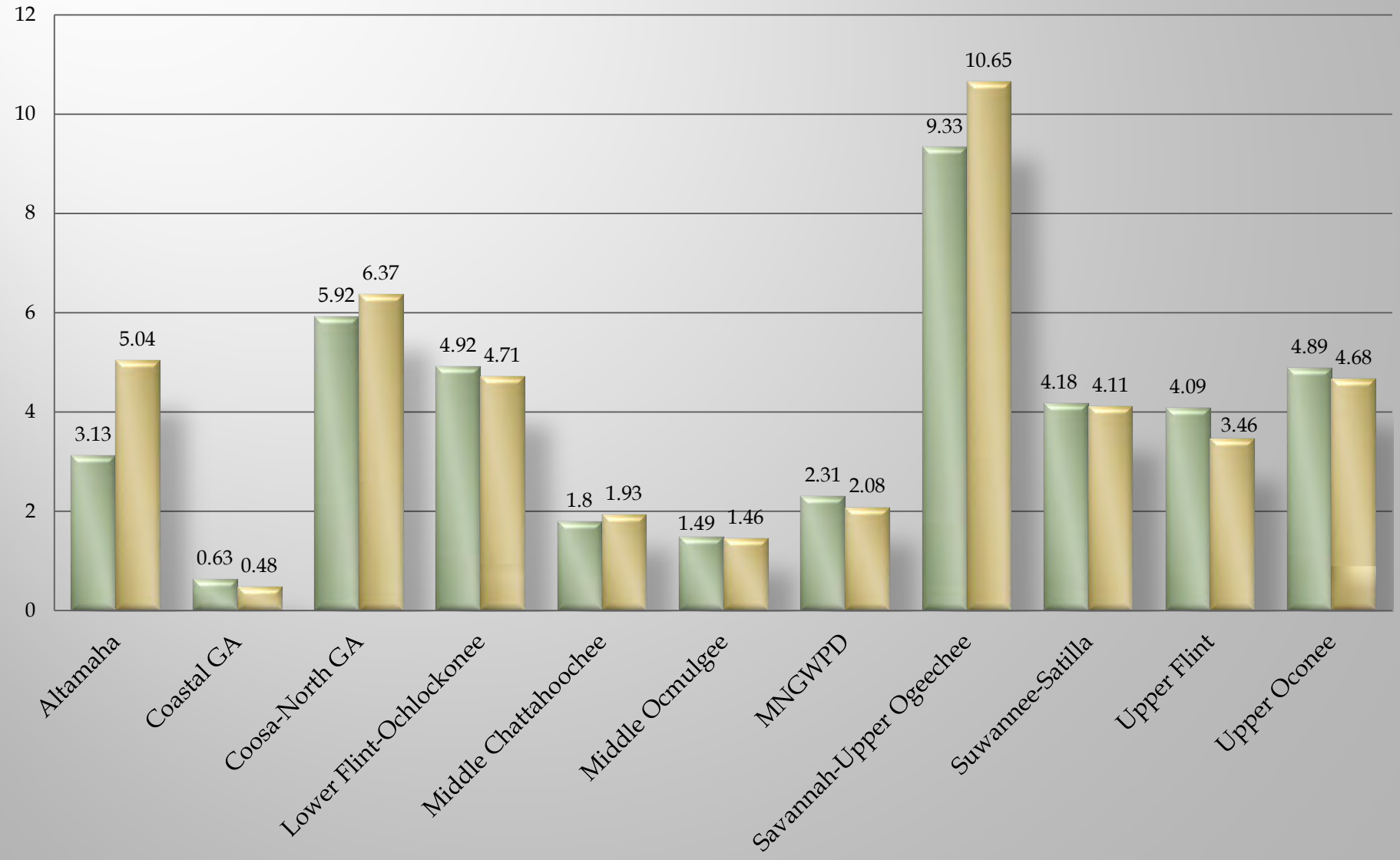
# 2015-16 Animal Agriculture and Horticultural Sector Water Use - Methods

- **Update current water use estimates based same methods used for 2009-2010 estimates**
- **Animal Agriculture**
  - Head per county x Water needs per head
  - Data sources: GA Farm Gate Survey, USDA NASS
- **Horticultural Sector**
  - Area per county (nursery/greenhouse) x Water needs per unit area
  - Data sources: GA Farm Gate Survey
- **Review by industry experts**

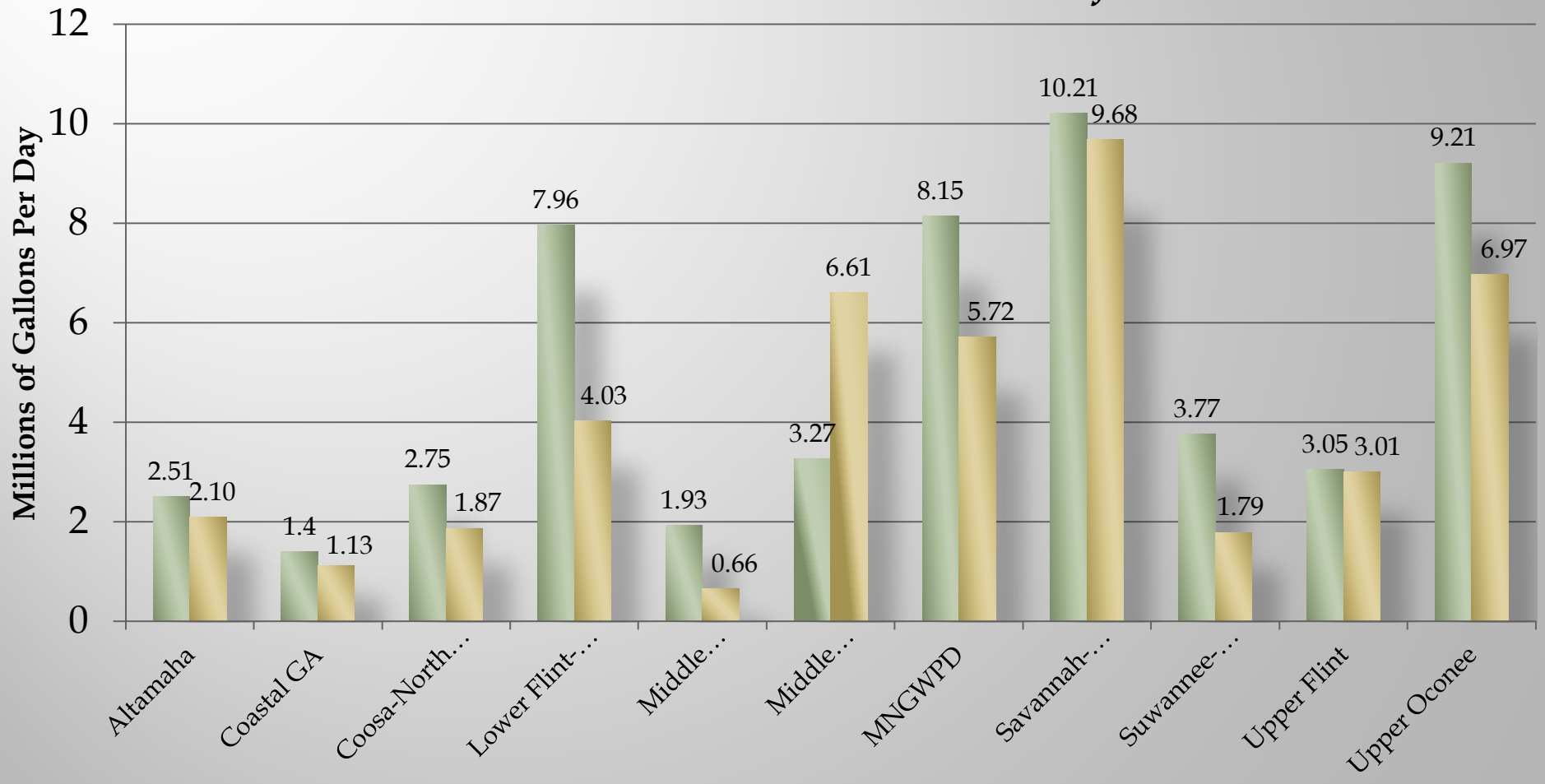
# Animal Agriculture - Daily Water Use by Type of Animal Statewide Total: 45 MGD (*draft*)



# Animal Agriculture - Daily Water Use by Water Planning Region
# Statewide Total: 45 MGD (*draft*)



# Daily Water Use by Horticultural Nurseries (Container, In-Ground, and Greenhouse), Millions of Gallons Per Day Statewide Total: 43.56 MGD (*draft*)

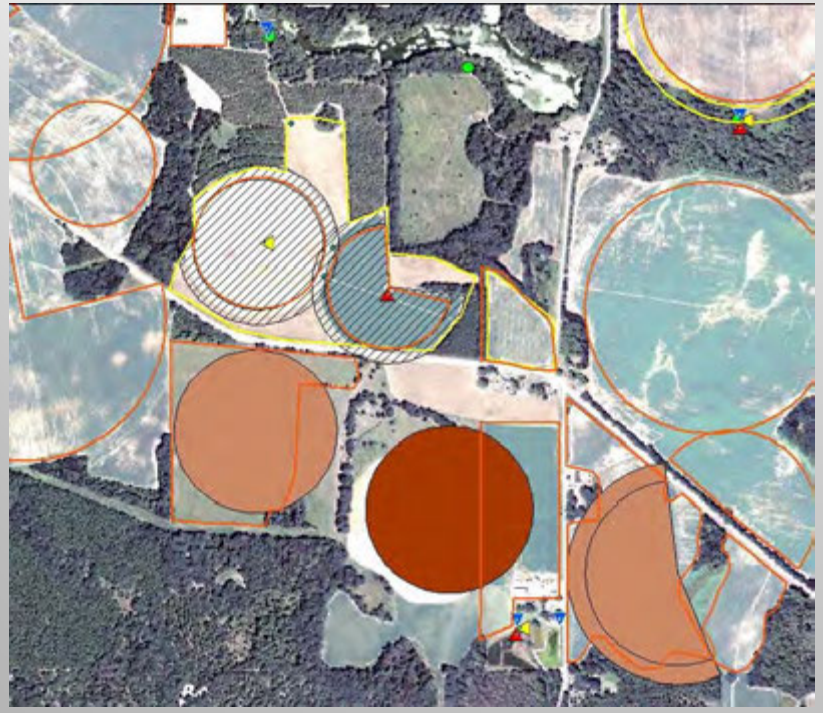


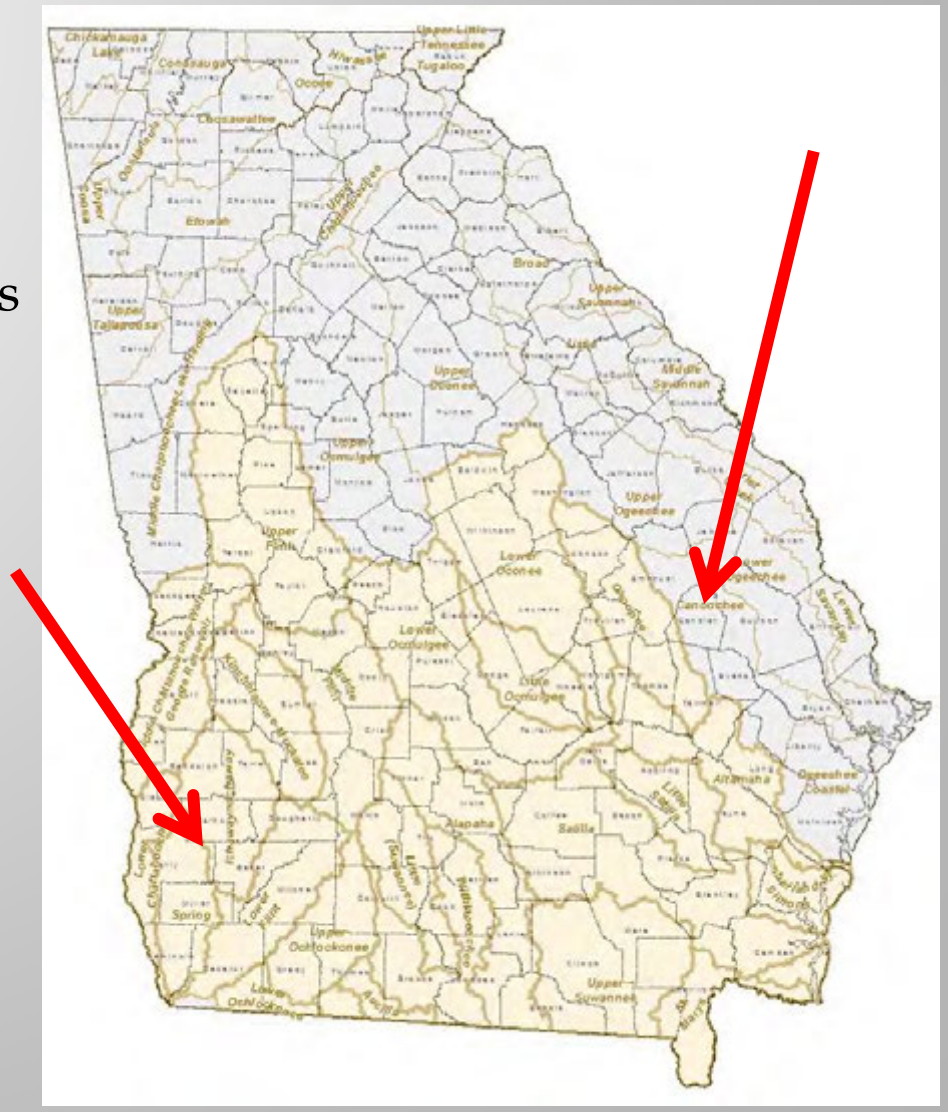
# 2015-16 Current Agricultural Water Use Estimates - Methods

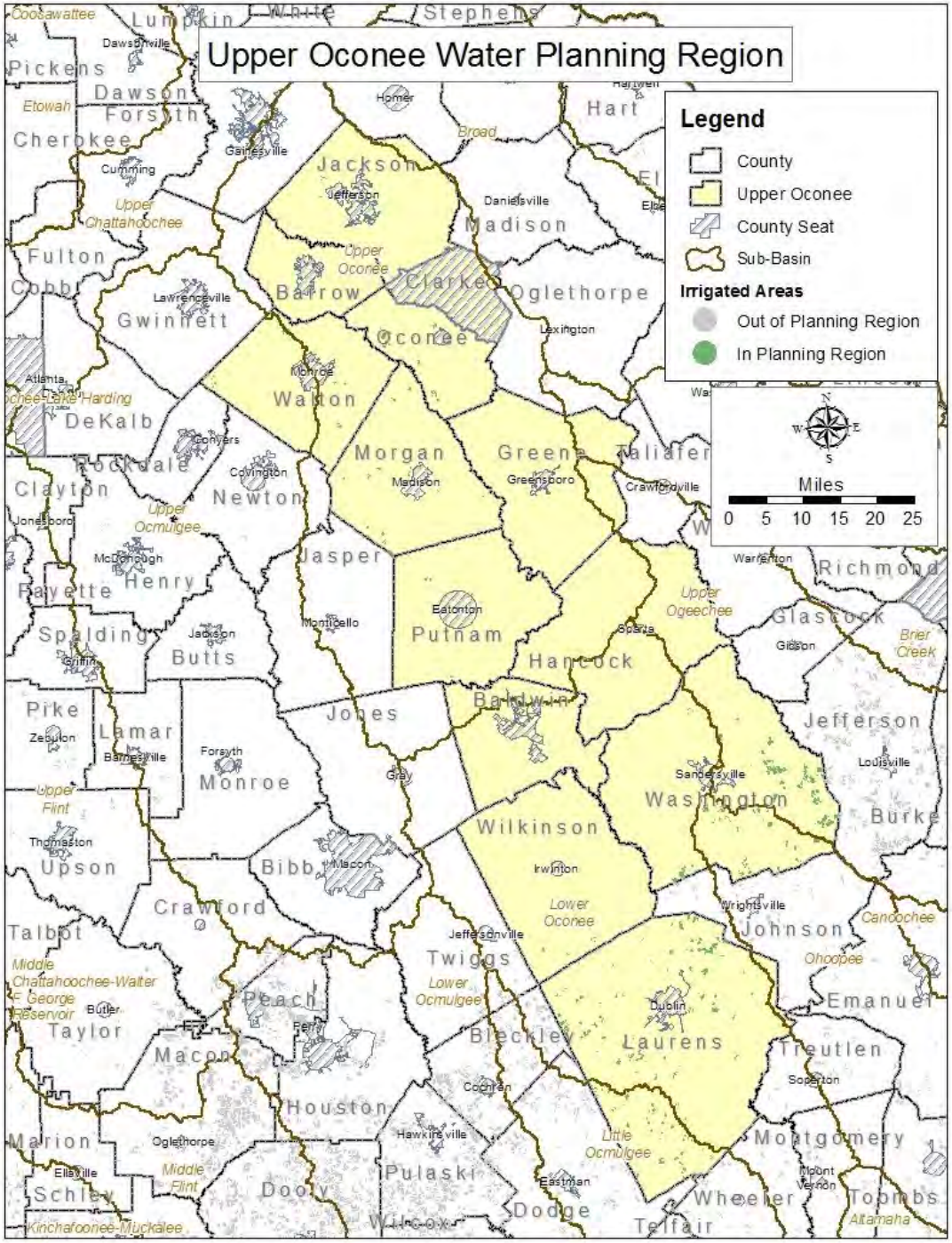
- **Wetted Acreage Mapping**
  - Detailed mapping
  - Desktop survey
  - Review source assumptions

# 2015-16 Current Agricultural Water Use Estimates - Methods

- **Wetted Acreage Mapping**
  - Detailed mapping
  - Desktop survey
  - Review source assumptions







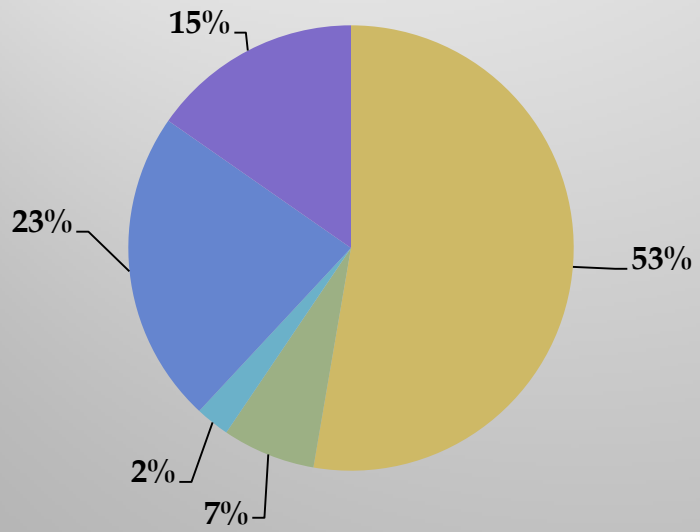

# Irrigated Acres

| County | 2009 | 2014 |
|---|---|---|
| Baldwin | 0 | 0 |
| Barrow | 0 | 0 |
| Clarke | 106 | 114 |
| Greene | 55 | 0 |
| Hancock | 312 | 47 |
| Jackson | 114 | 113 |
| Laurens | 8,303 | 10684 |
| Morgan | 953 | 1272 |
| Oconee | 1,328 | 1304 |
| Putnam | 399 | 391 |
| Walton | 974 | 930 |
| Washington | 7,388 | 10875 |
| Wilkinson | 75 | 244 |

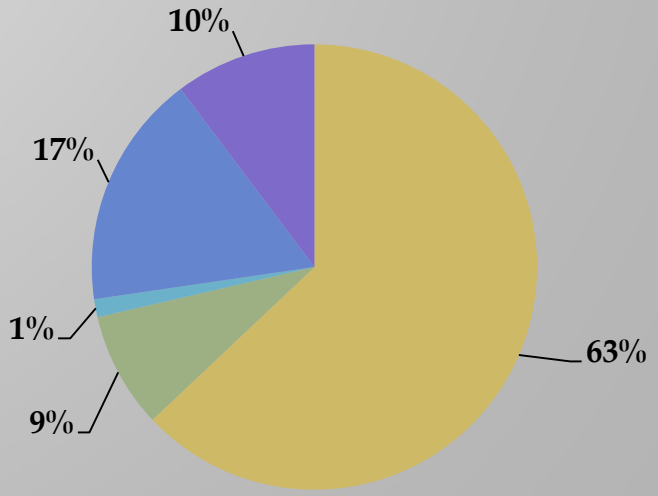
# Upper Oconnee Georgia RWPC

| | 2009 | 2014 | % Change |
|---|---|---|---|
| Total # of Fields | 444 | 542 | + 22.1% |
| Total Acreage | 20,007 | 26,113 | + 30.5% |
| Total GW Acreage | 12,548 | 19,624 | + 56.4% |
| Total SW Acreage | 7,459 | 6,489 | - 13.0% |
| Total Center Pivots | 234 | 368 | + 57.3% |
| Center Pivot Acreage | 12,597 | 19,307 | + 53.3% |

**System Type - % of Systems**



**System Type - % of Acreage**



# 2015-16 Current Agricultural Water Use Estimates - Methods

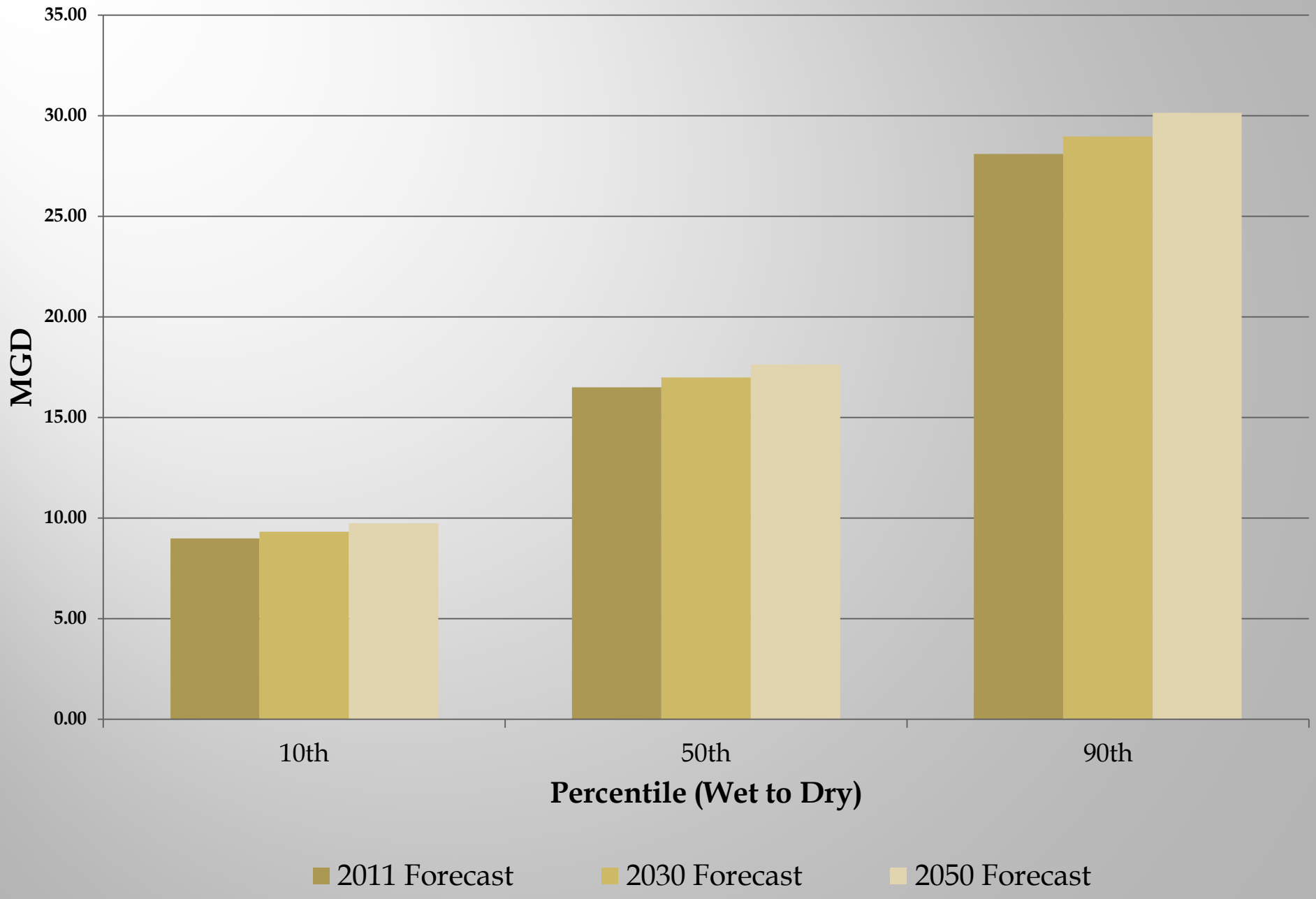
- Wetted Acreage Mapping
  - Detailed mapping
  - Desktop survey
  - Review source assumptions
- Water Use
  - Use of meter data for current demand (2010 – 2013)
  - Replication of 2009-10 methods with revised acres

| Average Meter Application Rates (inches) | | | | |
|---|---|---|---|---|
| | **2010** | **2011** | **2012** | **2013** |
| Groundwater | 8.48 | 11.94 | 8.67 | 6.15 |
| Surface Water | 6.87 | 8.67 | 7.43 | 4.53 |

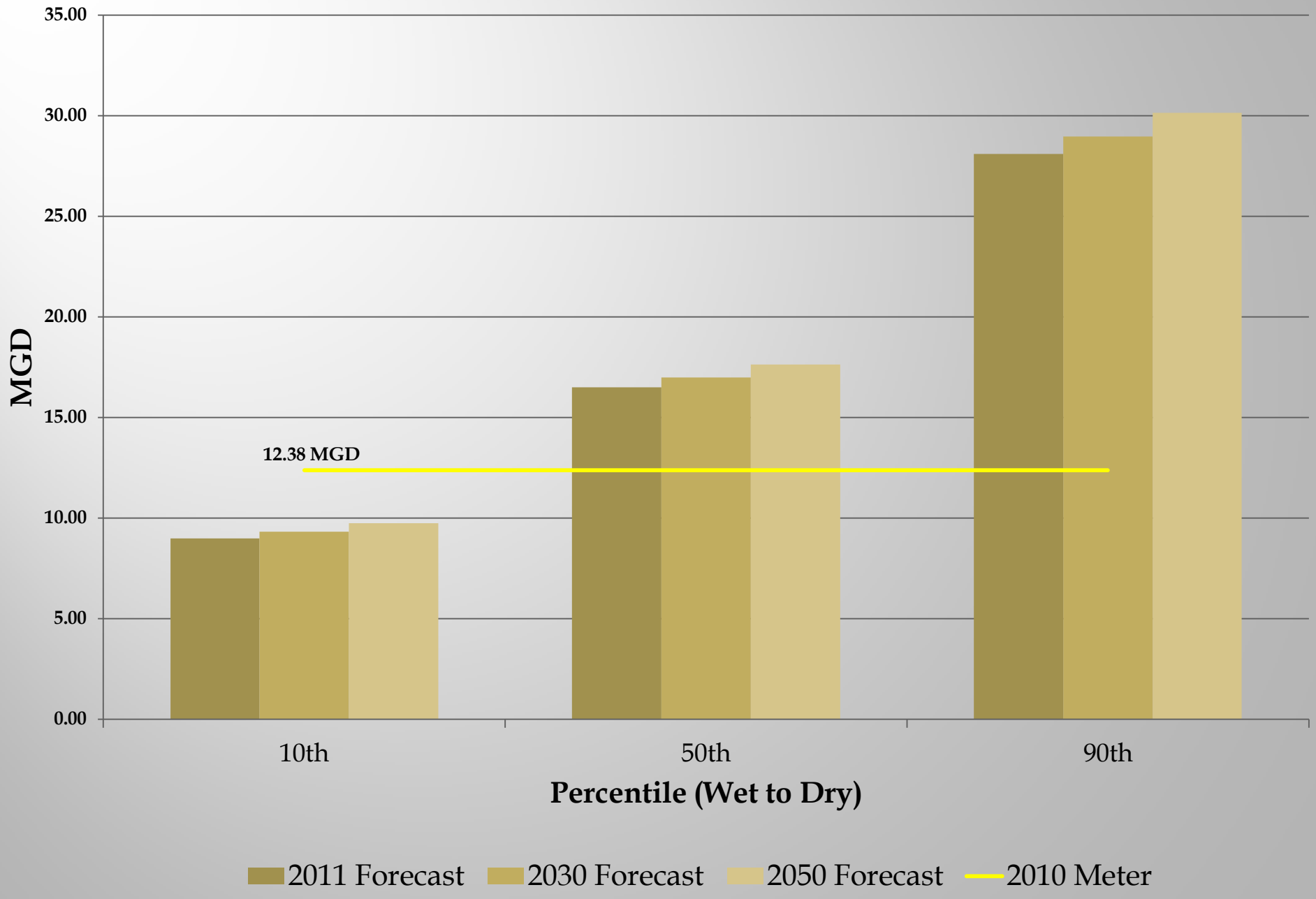
# Results

## Current Demand Estimate from Meter Data

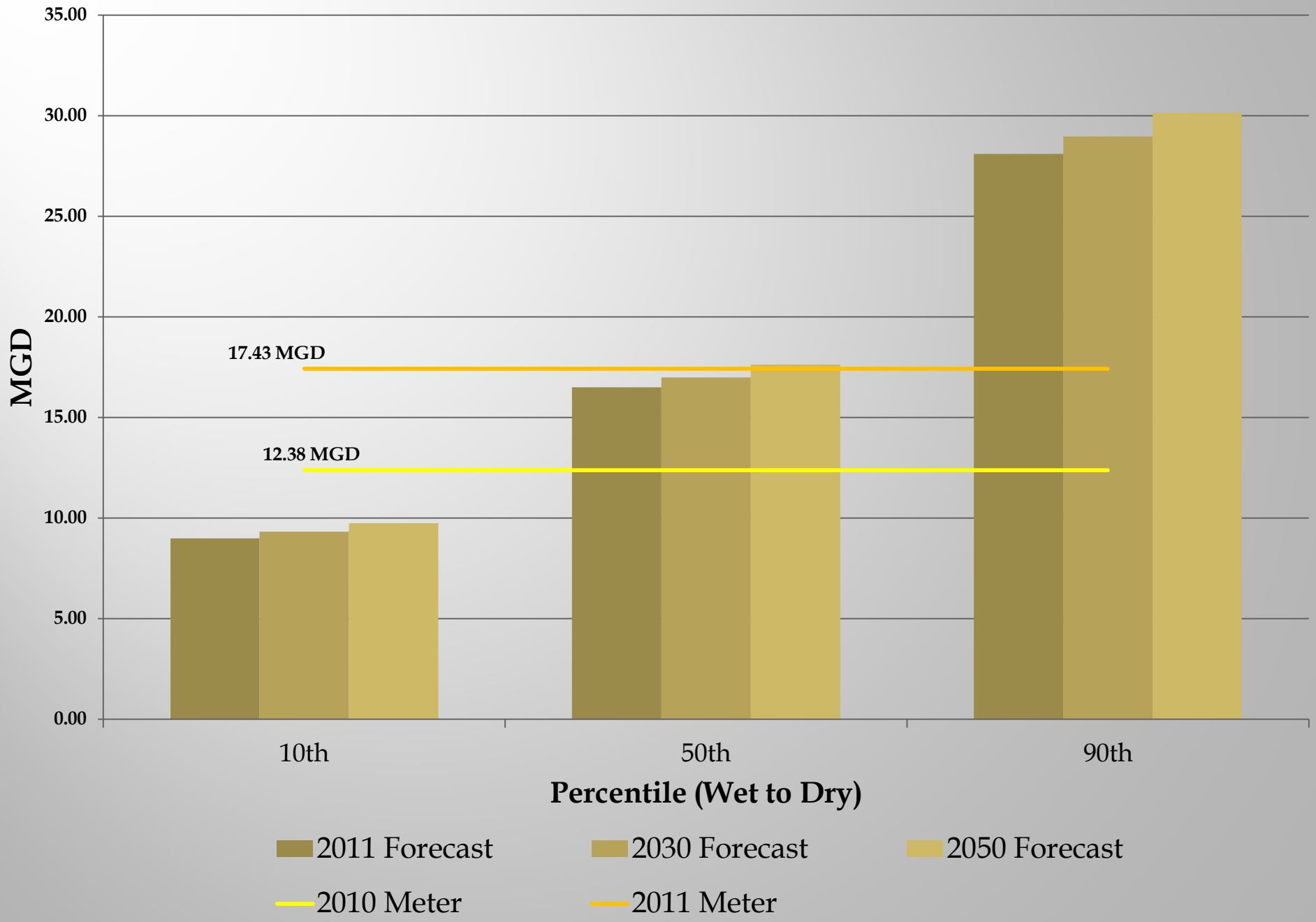
# Upper Oconee - Groundwater



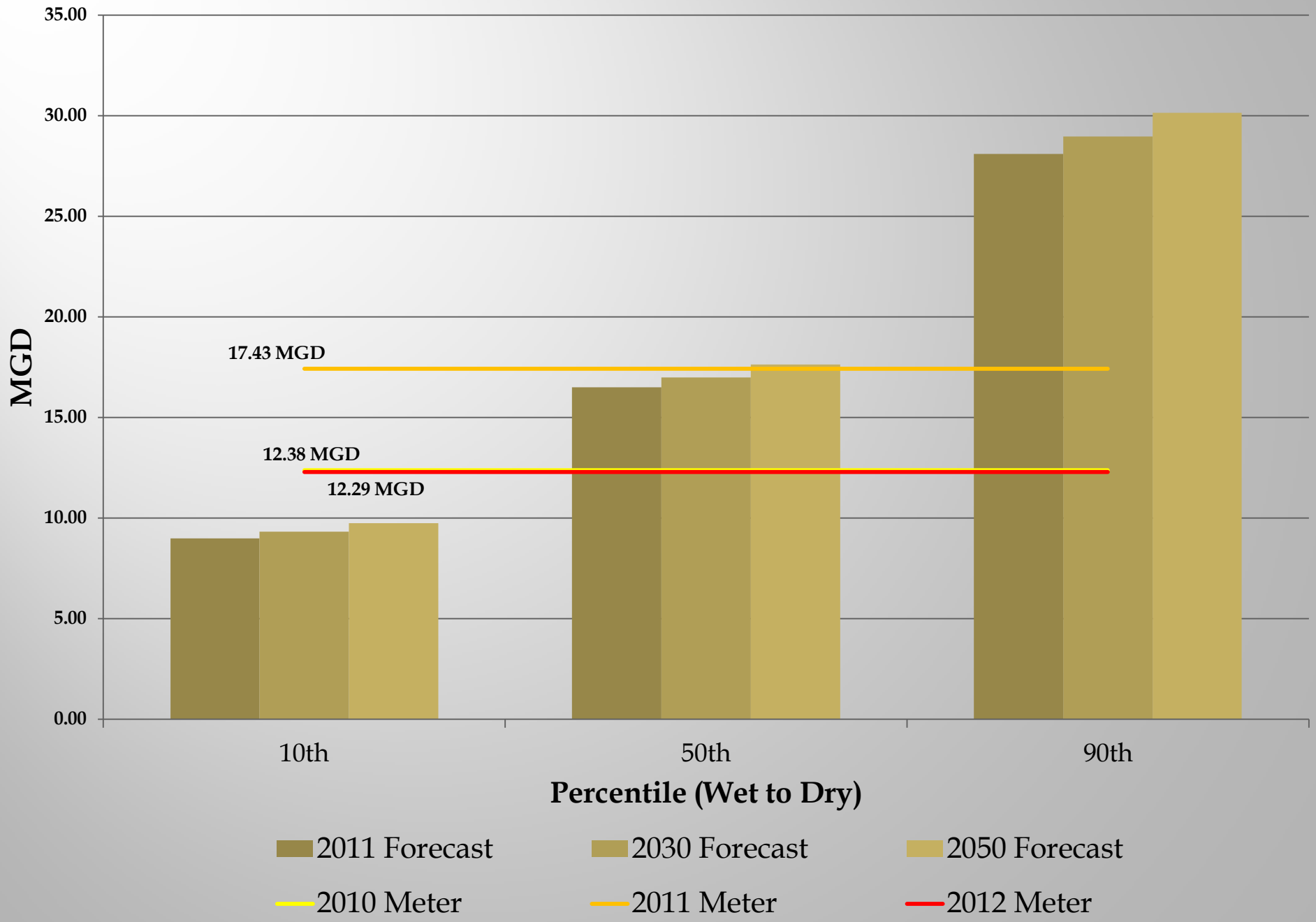
# Upper Oconee - Groundwater



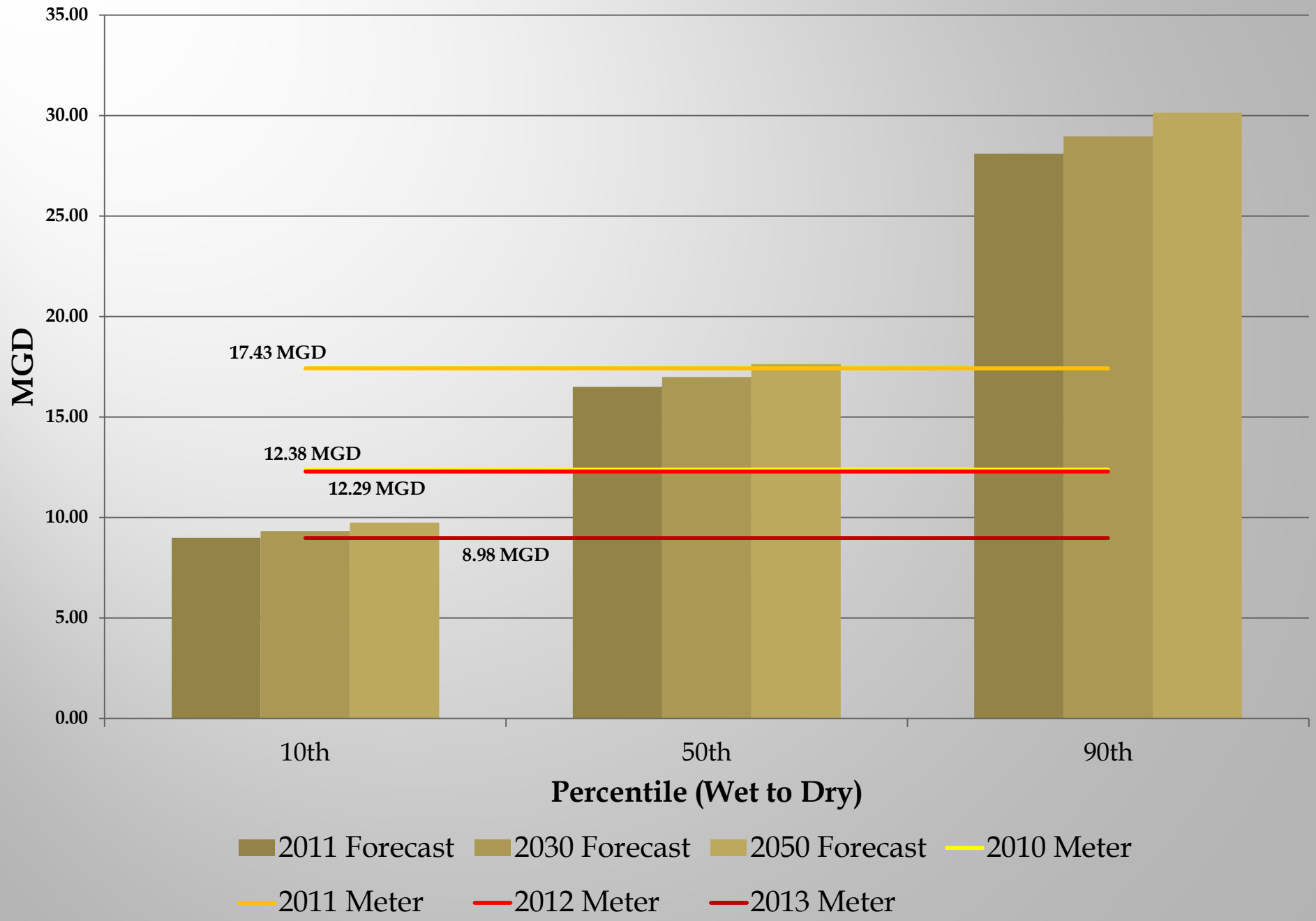
# Upper Oconee - Groundwater



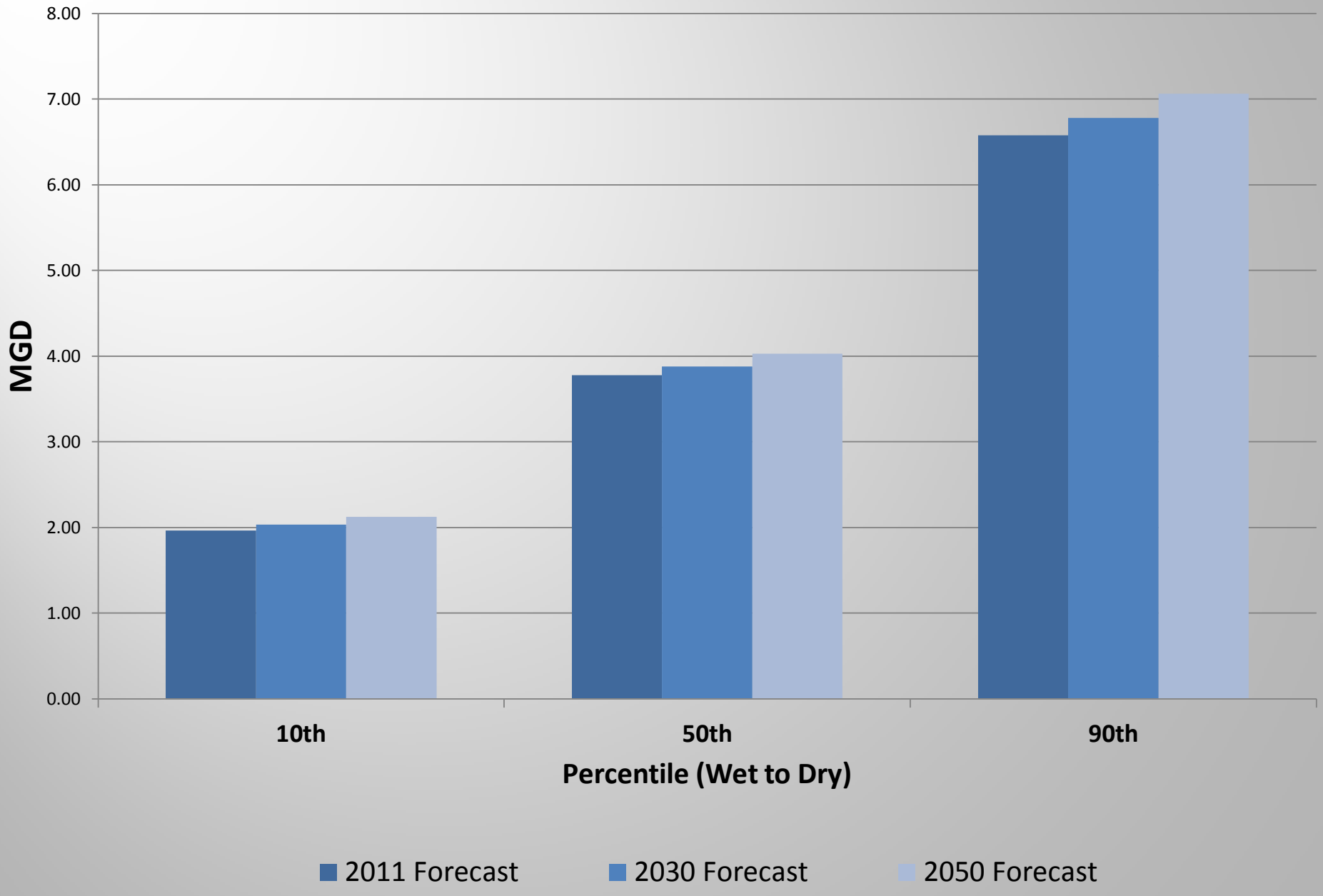
# Upper Oconee - Groundwater



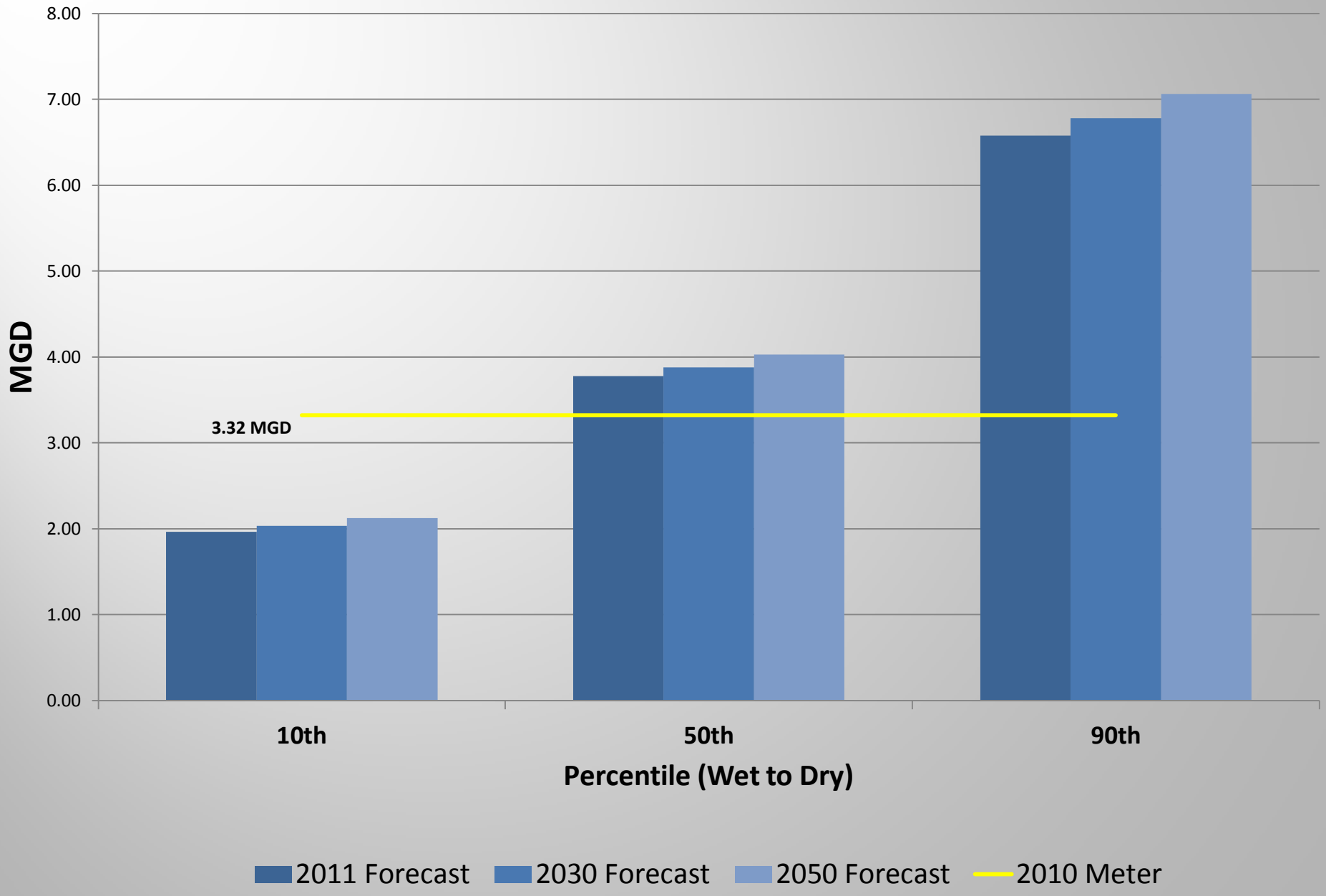
# Upper Oconee - Groundwater



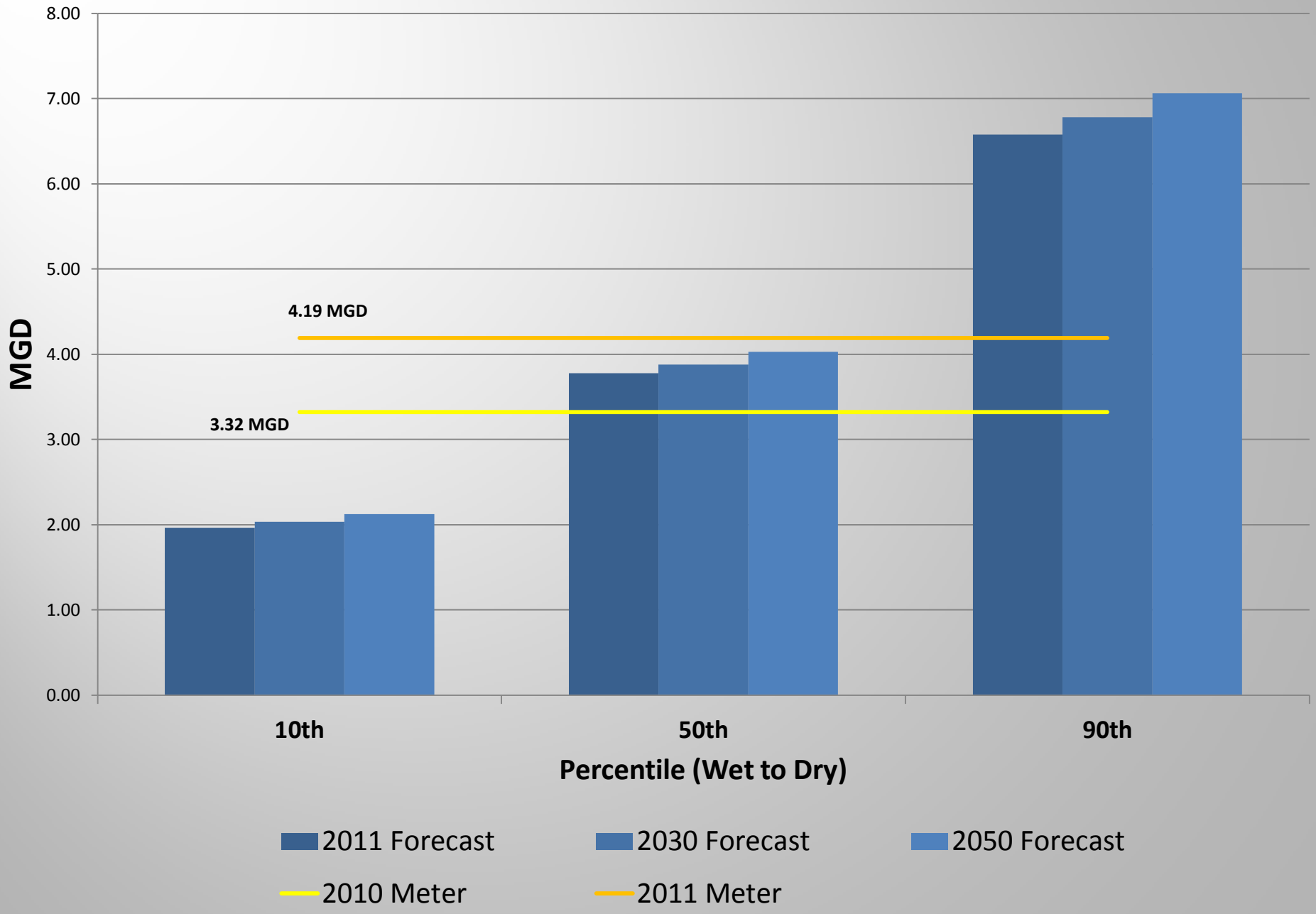
# Upper Oconee - Surface Water



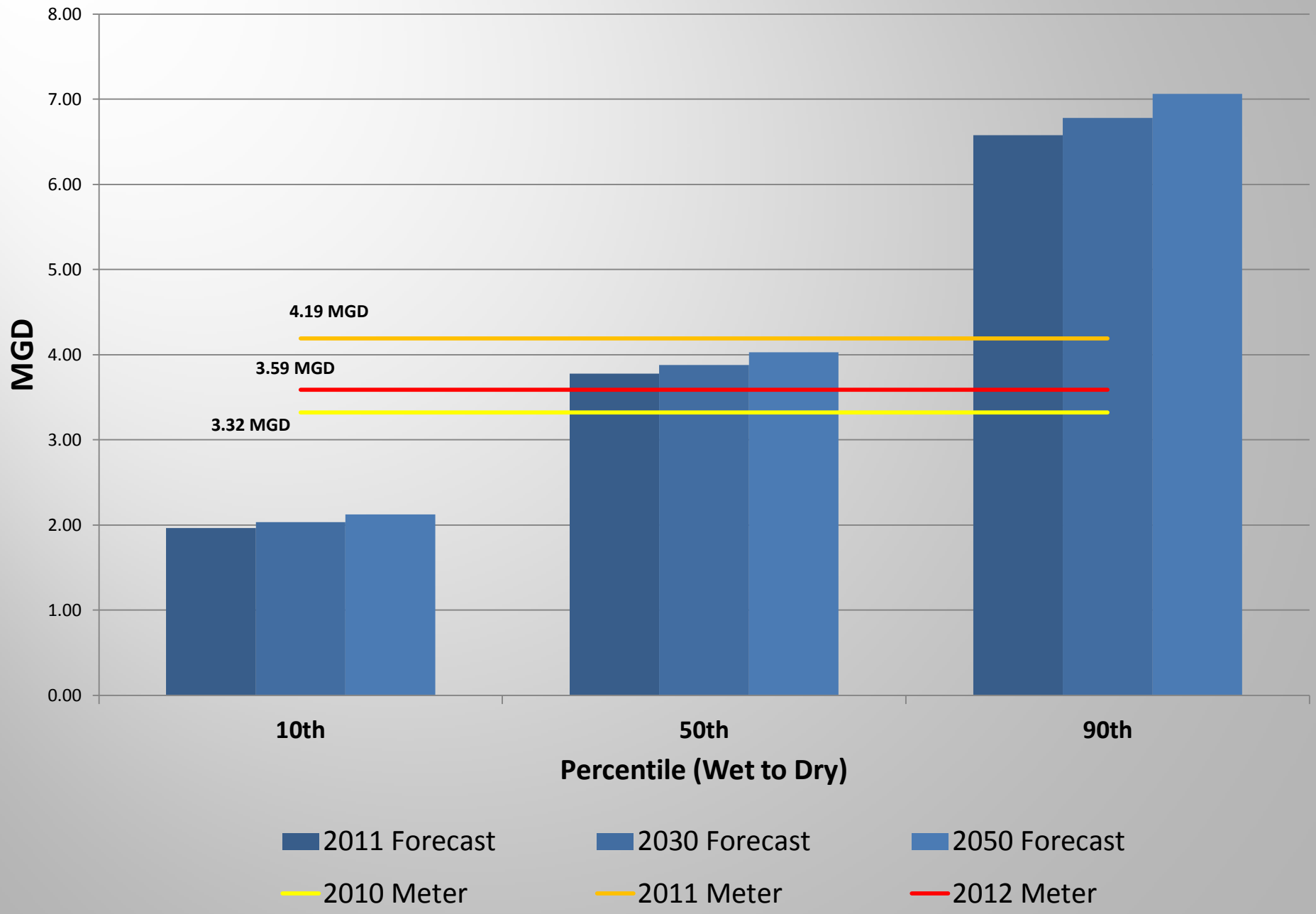
# Upper Oconee - Surface Water



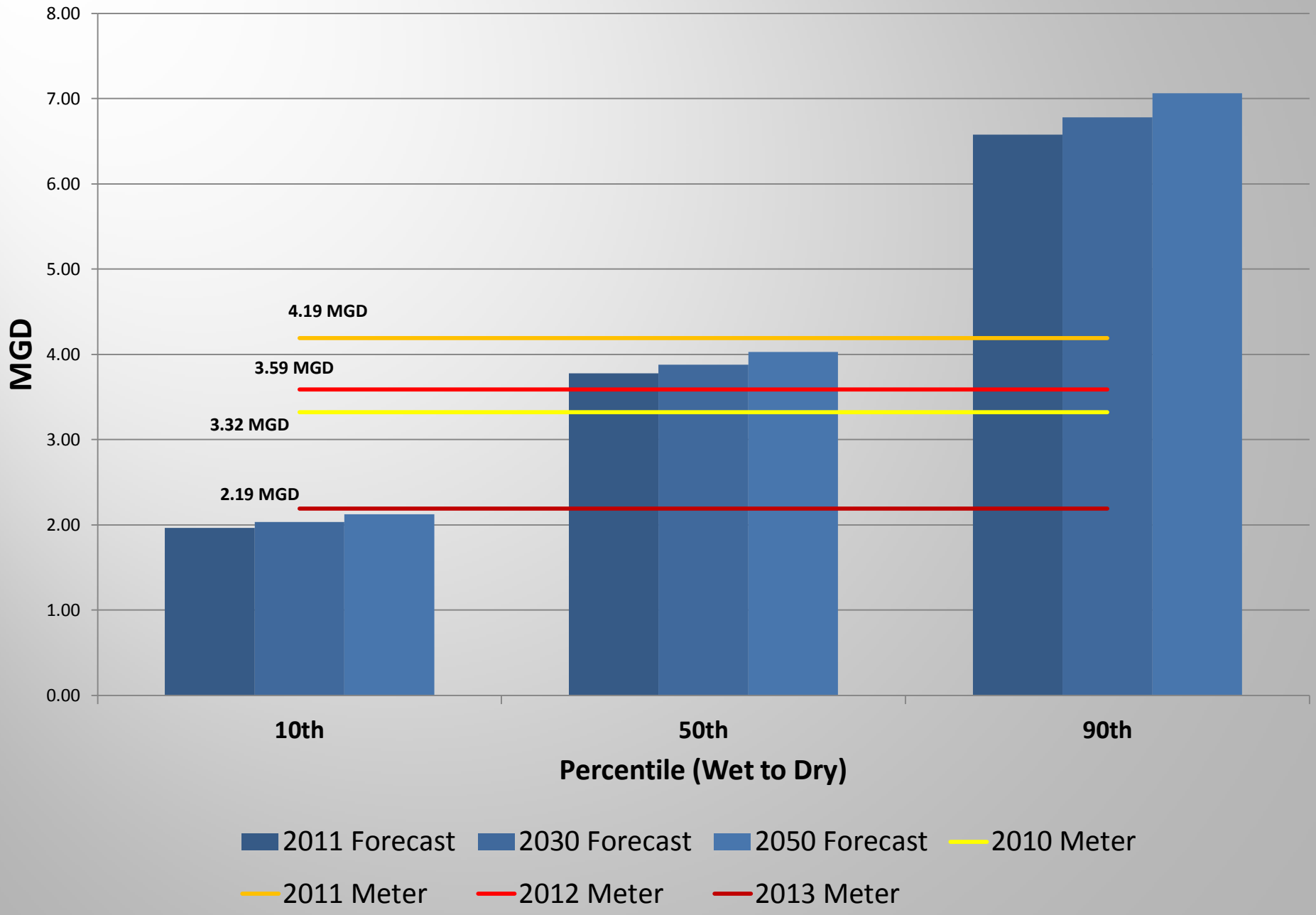
# Upper Oconee - Surface Water



# Upper Oconee - Surface Water



# Upper Oconee - Surface Water



# 2015-16 Agricultural Water Demand Forecasts - Methods

- **Approach:** Look to past trends and consider foreseeable changes
- **Acreage**
- **Crop projections through 2050** - modeled based on multiple data sources:
  - USDA Projections, Southeast Model, Georgia Model, Data Trends
- **Crop water needs** - wet, normal, dry years
  - Review estimates used in 2009-2010 and revise if needed

# Current and Forecast Agricultural Water Use

- Current and forecast use by basin, water planning region, drainage area (node), county and aquifer.
- Use in dry, normal and wet years
- Used to support resource assessment modeling and water planning council plan development
  - Forecasts will be available during second water planning council meetings of 2016

Georgia's
# State Water Plan

**Other Business**
**Public Comments**
**Wrap Up**
**Next Meeting**

# Technical Subcommittees

- Any existing Technical Subcommittees may establish new membership, if desired
- If needed, technical subcommittees may be appointed to continue to review key topics
- Input needed by April 15, 2016 to EPD
- Possible Technical subcommittee input?:
  - Per capita Demand
  - Water and Wastewater Demand Forecast
  - Industrial Demand Forecast
  - Energy and Agricultural Forecasts

Georgia

# Elected Official Comments and Public Comments

- Sign up for public comments during registration period (to ensure enough time is allotted)
- Please limit comments to 3 minutes total
- Council encourages written submission of comments as well, to ensure meeting summaries accurately reflect comments

Georgia

# Next Steps

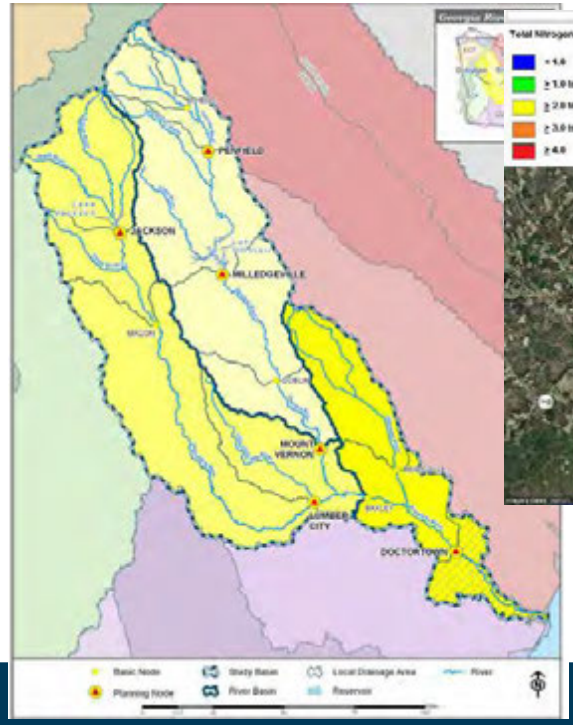
- Council Meeting 2: Joint Council Meetings
- Councils will meet together:
  - Coastal Georgia
  - Savannah-Upper Ogeechee
  - Delegates (Upper Oconee, Altamaha, Suwannee-Satilla)

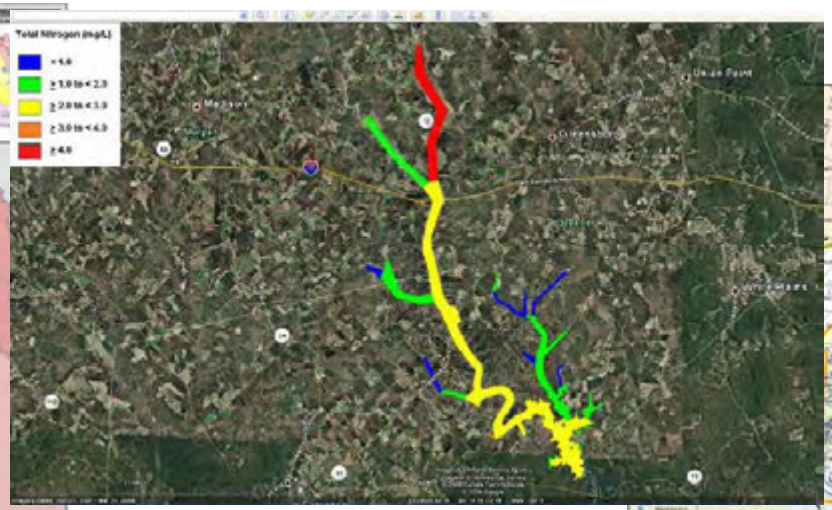
  - Upper Oconee
  - Middle Ocmulgee
  - Altamaha
  - Suwannee-Satilla
  - Delegates (Upper Flint, Lower Flint-Ochlocknee)
- Topics: Resource Assessments and Gap Analysis
- To be scheduled: June 2016, Dublin, GA

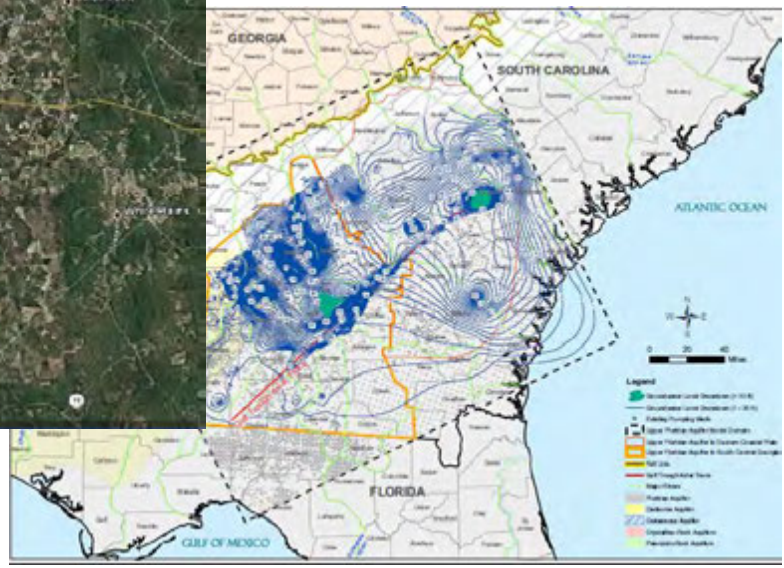
Georgia

# Next Steps

- Updates to Resource Assessments will focus on both surface water and groundwater and changes, if any, to the Gap Analysis conducted in Round 1



# Next Steps

- Looking ahead to Council Meeting 3
- Topics:
  - Review and Refine Management Practices
  - Resource Assessment modeling scenarios

- To be scheduled: August/September 2016

Georgia

# Thank You!

## Questions? Comments? Need More Information?

Dale.Jones@jacobs.com
Zakiya.Seymour@jacobs.com
Lebone.Moeti@gaepd.org

Council Meeting Evaluation: Please let us know what went well at this meeting, and any suggestions for next meeting.

Georgia