



Water Briefing

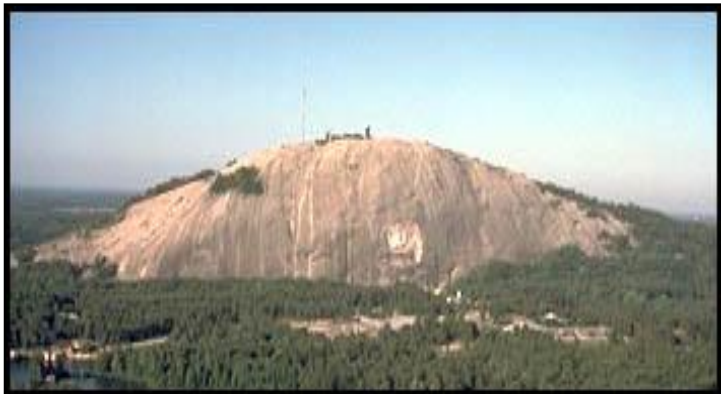
Pat Stevens

September 13, 2011

RLI



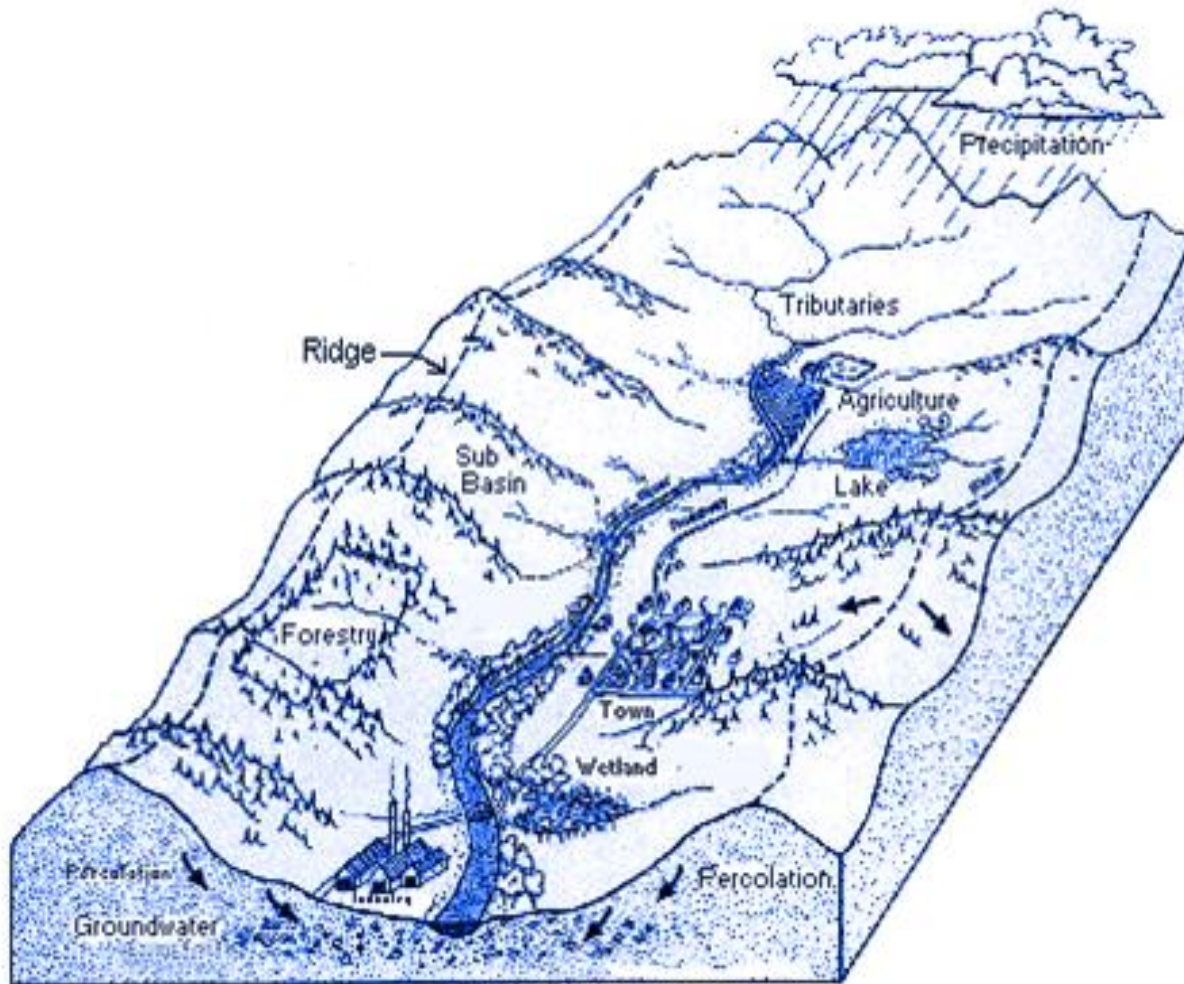
Surface Water Main Source in Metro Atlanta



- Rivers, streams main source of supply, headwaters of river basins
- Groundwater limited due to bedrock type
- Rainfall variable: 30 to 70 inches
- Reservoir storage essential for dry times
- No natural reservoirs



River Basins are Nature's Boundaries

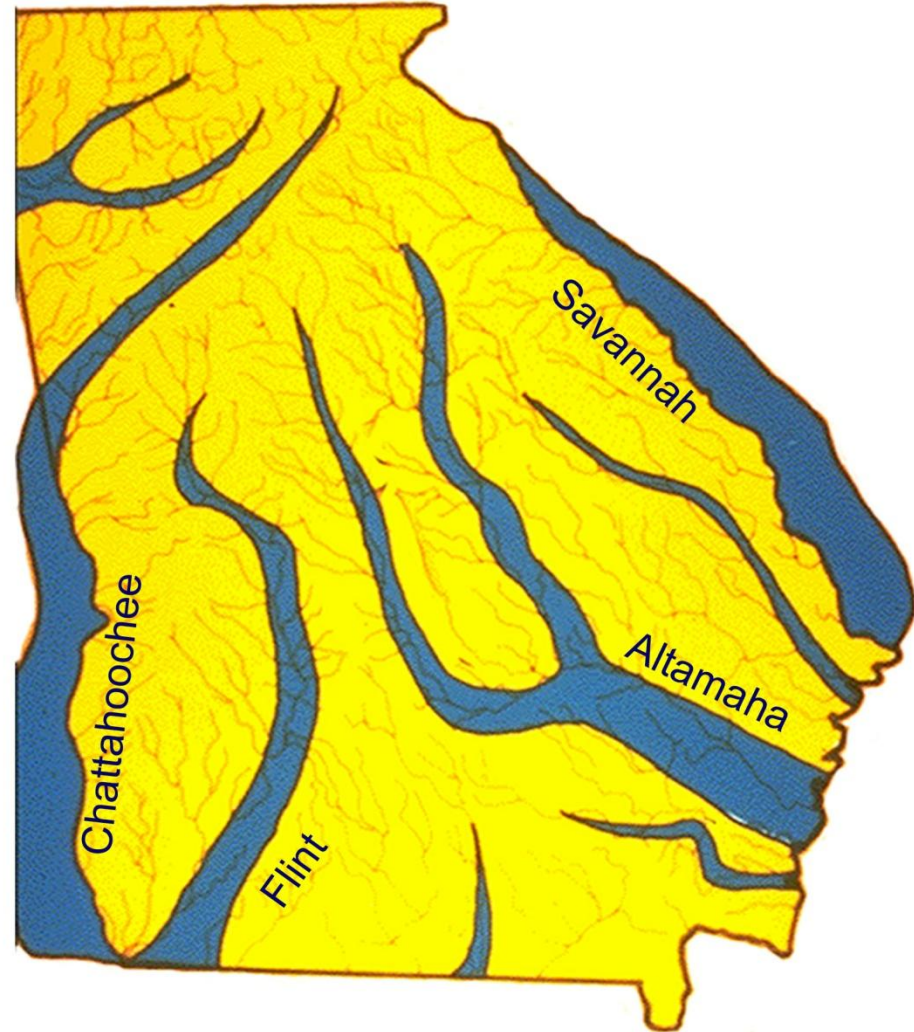
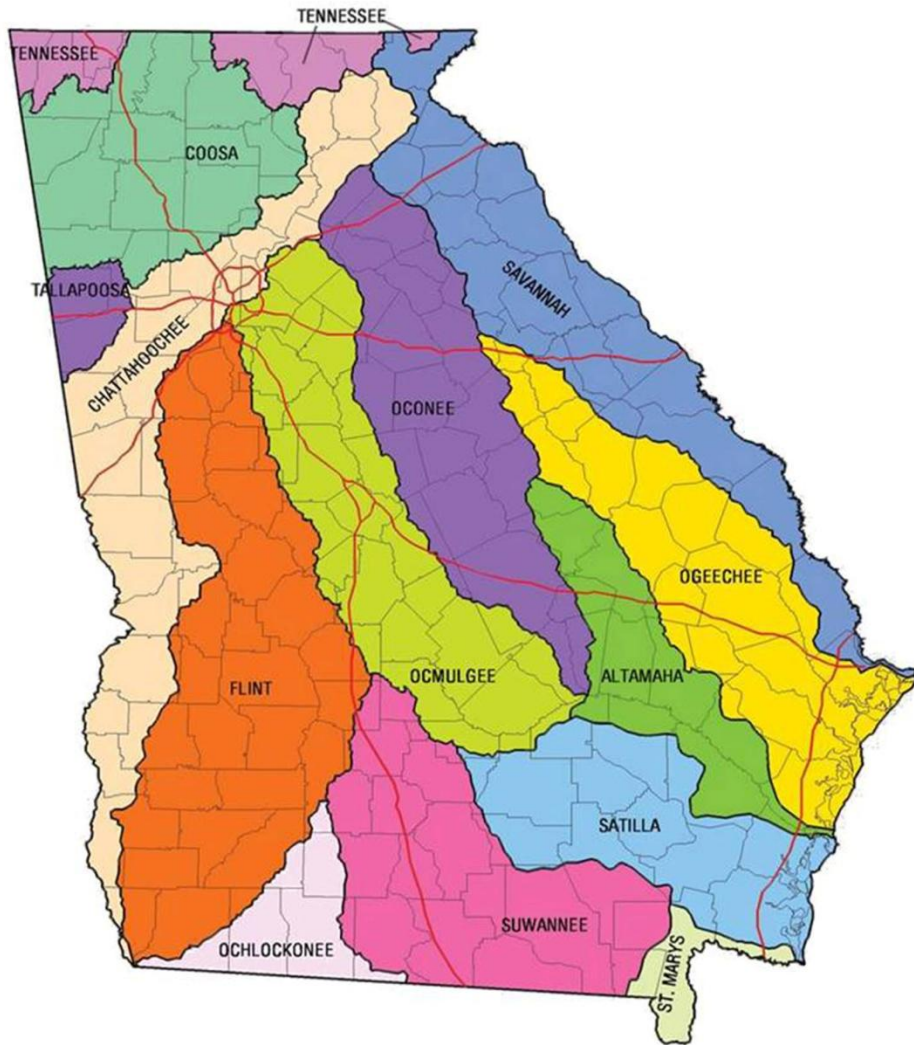


Produced by Lane Council of Government

- Land area drained by a river and tributary streams called a drainage basin, watershed or river basin. Larger areas are referred to as river basins which are made up of smaller watersheds or sub-basins.
- A ridge line is the dividing line between two basins or watersheds.



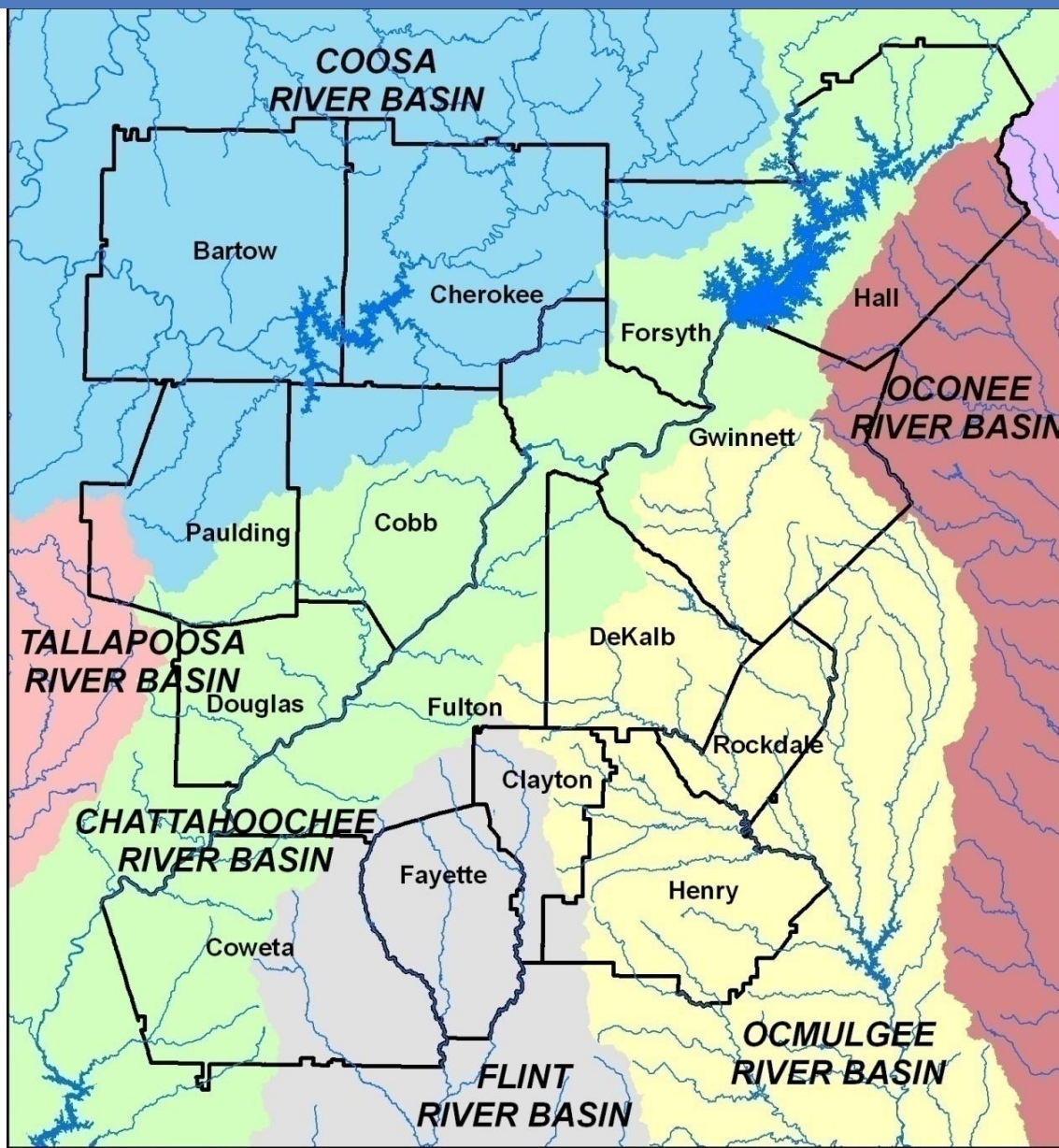
GA Major River Basins and Relative Flow of Major Rivers





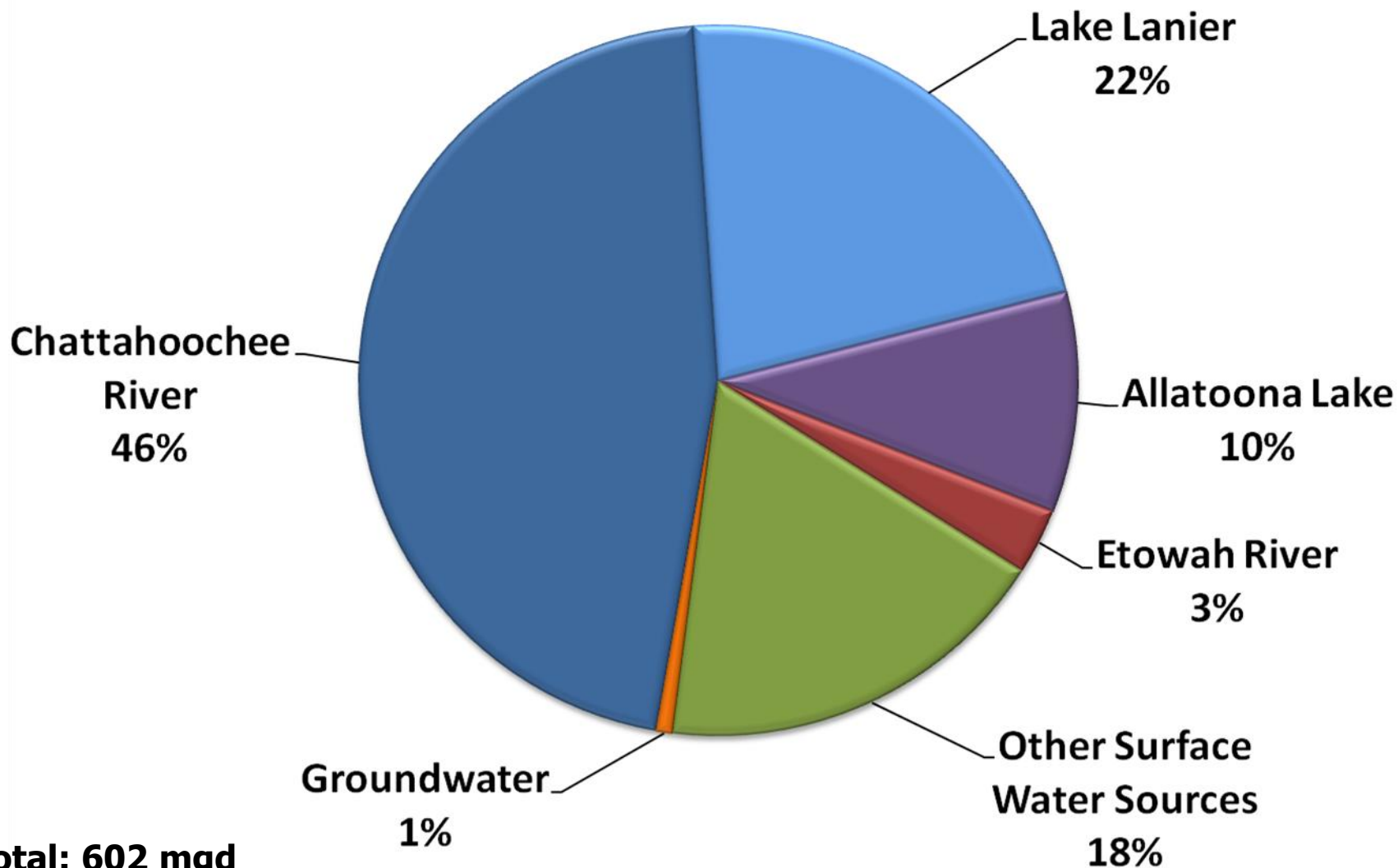
Metro Atlanta Supply by Basin

74% Chattahoochee
14% Coosa
8% Ocmulgee
4% Flint





Water Supply by Source Metro Water District in 2006

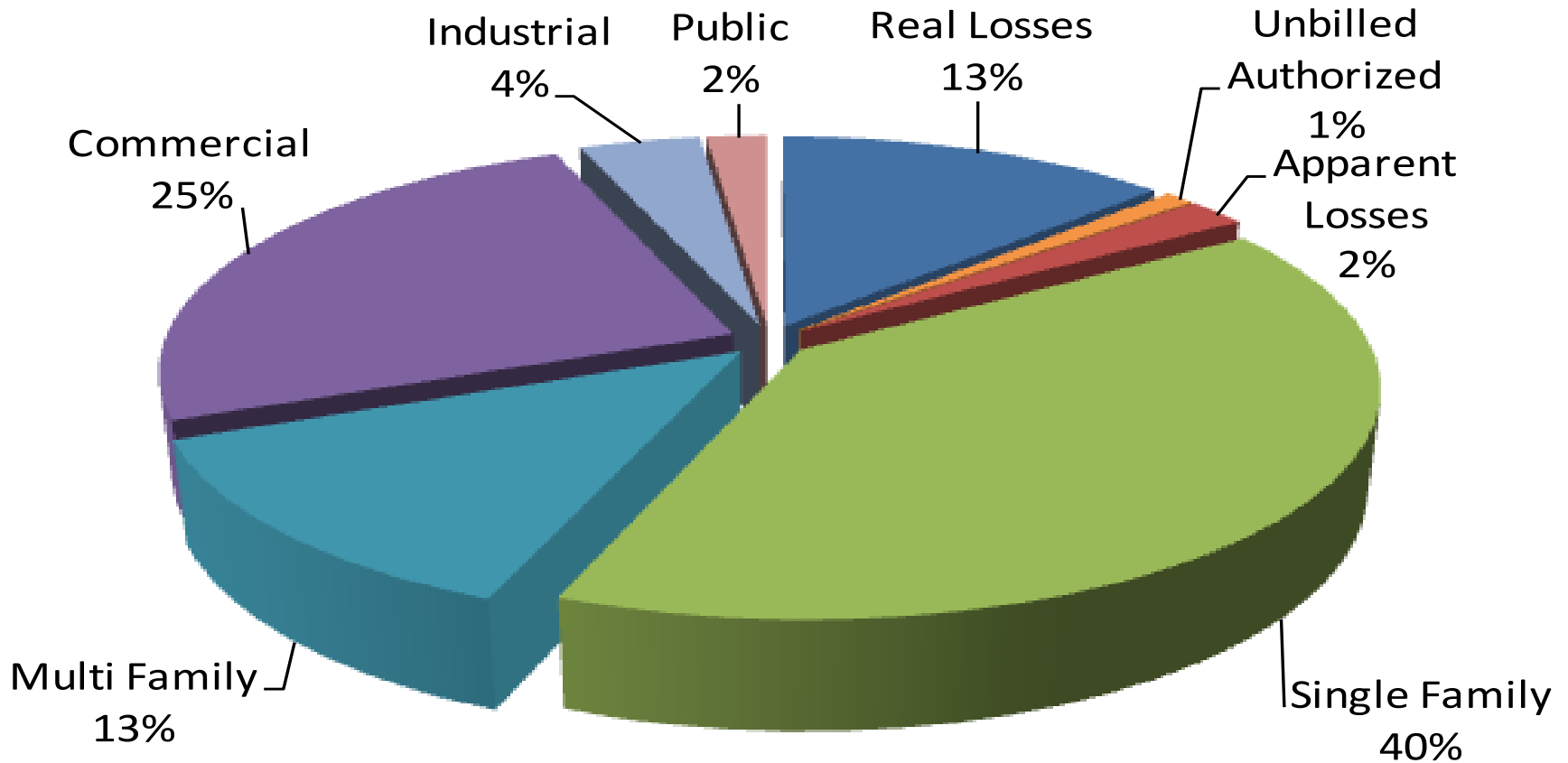


Total: 602 mgd
Not including thermoelectric



How Do We Use Water?

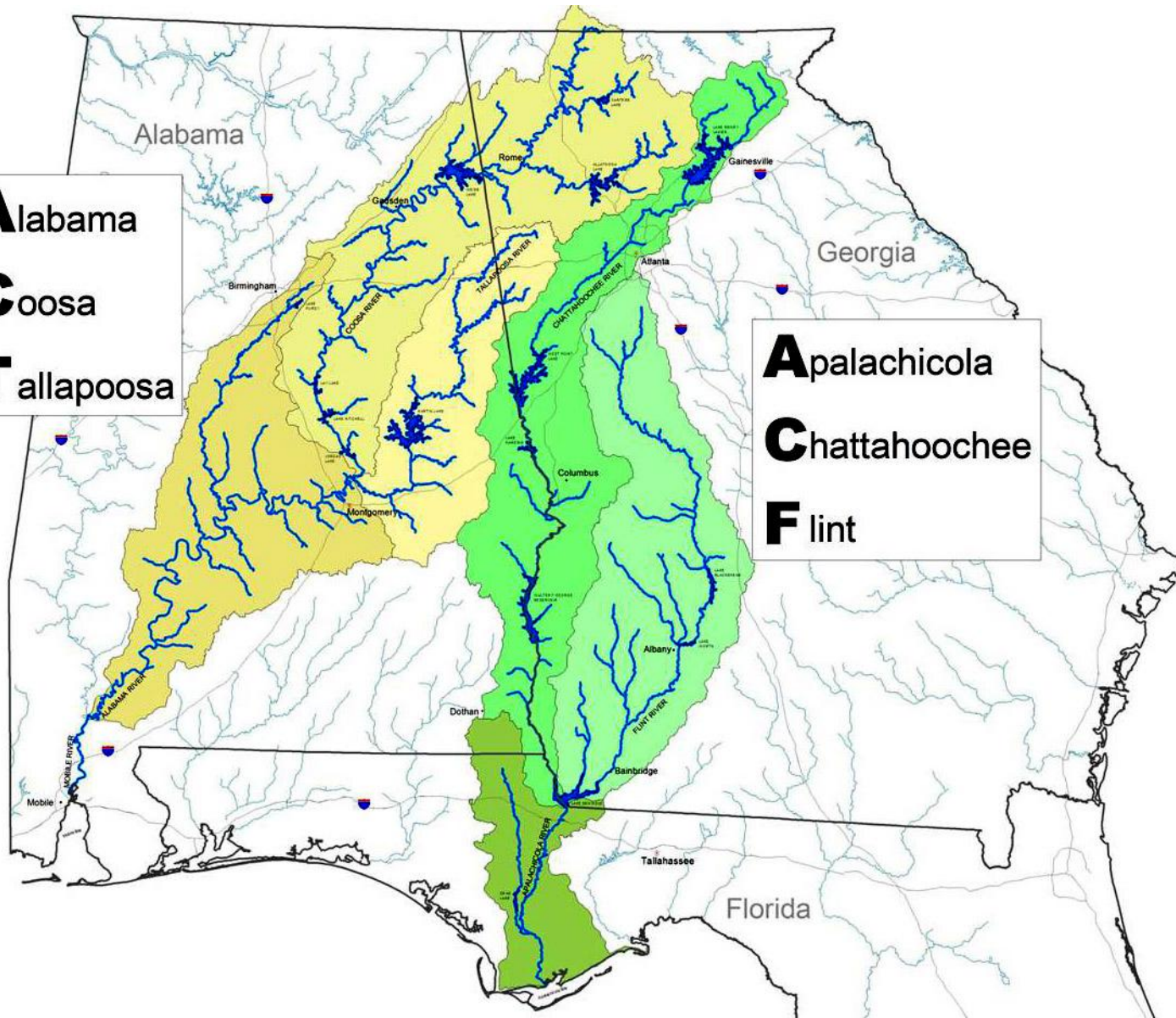
District Water Use



Residential sector uses 53% of region's water



Major Sources are Shared



Alabama
Coosa
Tallapoosa

Apalachicola
Chattahoochee
Flint

- Water Supply
- Hydropower
- Flood Control
- Recreation
- Waste Assimilation
- Navigation
- Agriculture
- Fish & Wildlife
- Endangered Species
- Apalachicola River and Bay



Planning For the Future Metro Water District 2035 Plans

***Water District
develops regional
plans***

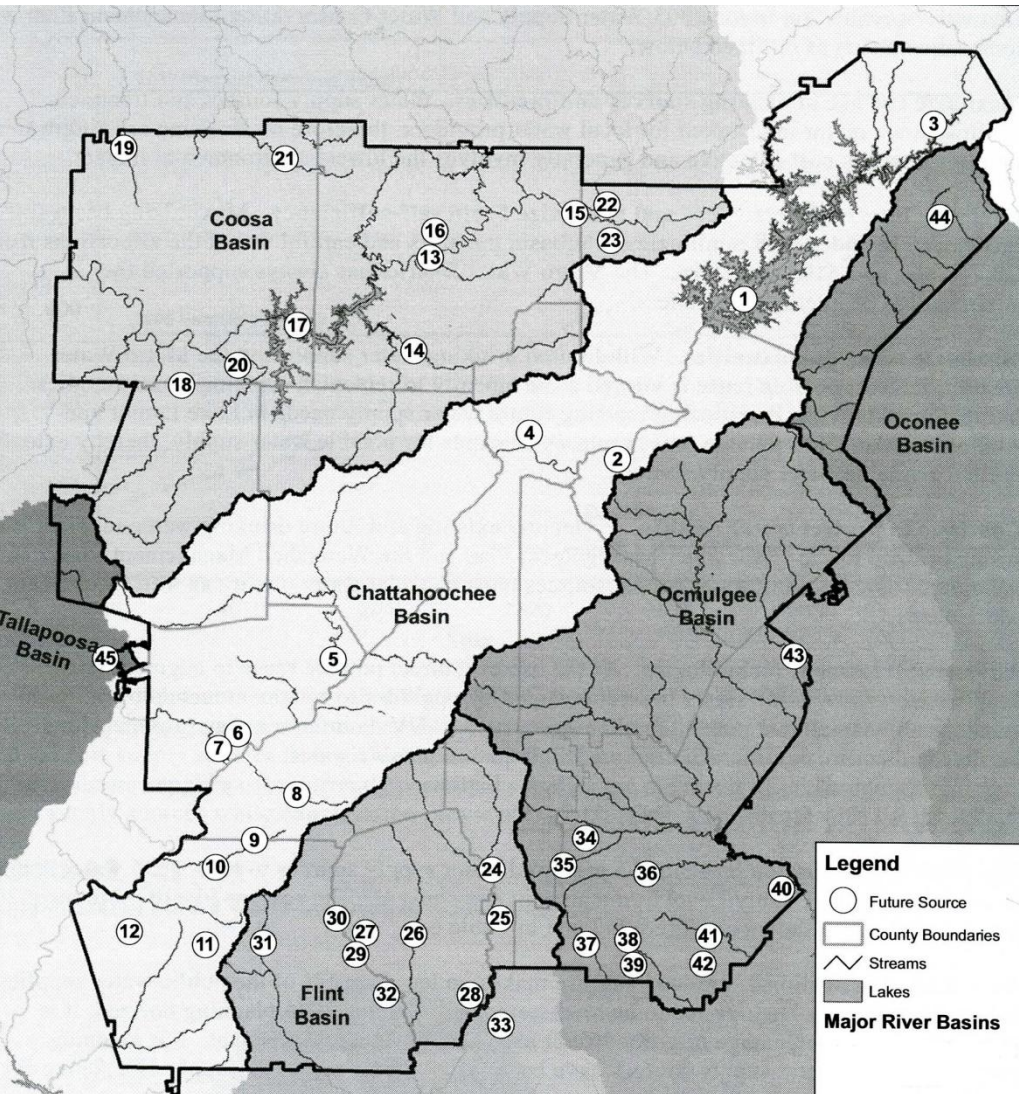


Original Plans Adopted – September 2003

Updated Plans Adopted – May 7, 2009



District Water Supply and Water Conservation Plan



- Lanier/Chatt and Allatoona withdrawals expand/continue as primary sources
- Continue use of existing smaller reservoirs
- Construct 6 new reservoirs
- 10% reuse goal
- Minimize consumptive uses/interbasin transfers
- Return highly treated reclaimed wastewater to source
- *Aggressive Water Conservation*



Metro Water District Plan Required Conservation Measures

1. Conservation pricing
2. Replace old, inefficient toilets
3. Pre-rinse spray valve education
4. Rain sensor shut-off on new irrigation systems
5. Sub-unit meters in new multi-family buildings
6. Water system leak reduction and repair
7. Residential water audits
8. Low-flow retrofit kits to customers
9. Commercial water audits
10. Education programs
11. Install HET toilets and urinals in government buildings
12. Require new car washes to recycle
13. Expedited Water Loss Reduction (Chattahoochee Basin)
14. Multi-Family HET Rebates (Chattahoochee Basin)
15. Point of Use Leak Detection Meters (Chattahoochee Basin)
16. Private Fire Line Meters (Chattahoochee Basin)
17. Dedicated Water Conservation Programs (Chattahoochee Basin)
18. Water Waste Policy
19. High Efficiency Plumbing Fixtures

Plus Georgia Water Stewardship Act 2010



I'm In Water Conservation Campaign

www.mydropcounts.org



Share with



 145 Pledges Made

[Take the Pledge!](#)

[HOME](#) [OUR WATER STORY](#) [WHO'S CONSERVING?](#) [PLEDGE TO CONSERVE](#) [WAYS TO CONSERVE](#) [KIDS](#) [EDUCATORS](#) [BUILD A MOVEMENT](#)

Every Drop of Water Counts in Metro Atlanta

Your drop counts too! And, in metro Atlanta, all of us need to band together to conserve water for each other and our neighbors downstream. Let's dive into learning about water conservation in our region and how you can pledge to use water wisely.



Our Water Story

Did you know we use about 600 million gallons of water per day in the metro Atlanta area? Where does all this water come from and how do we use it?

[About Water](#)

Take the Water Conservation Pledge!



You're here because you cared enough to click so become a part of the movement. It doesn't take much and there are a lot of simple ways to help.

[Take the Pledge!](#)



[Get Inspired!](#)



Interactive Map

Want to know who else is "In" for water conservation in metro Atlanta. See all of those that have taken the "I'm In" pledge.

[View Map](#)

Who's In?

Your neighbor, teacher, boss, or maybe even a favorite local celebrity...



How Are You Doing?

Use this calculator to see how much water you use. Then take the pledge and decide how you're going to conserve.

[Calculator](#)



Measuring Progress

1. Implementation of Plan Measures
 - Annual Survey/Report Local Implementation
 - GA EPD Compliance Audits

2. Water Use Trends
 - Water Metrics Report

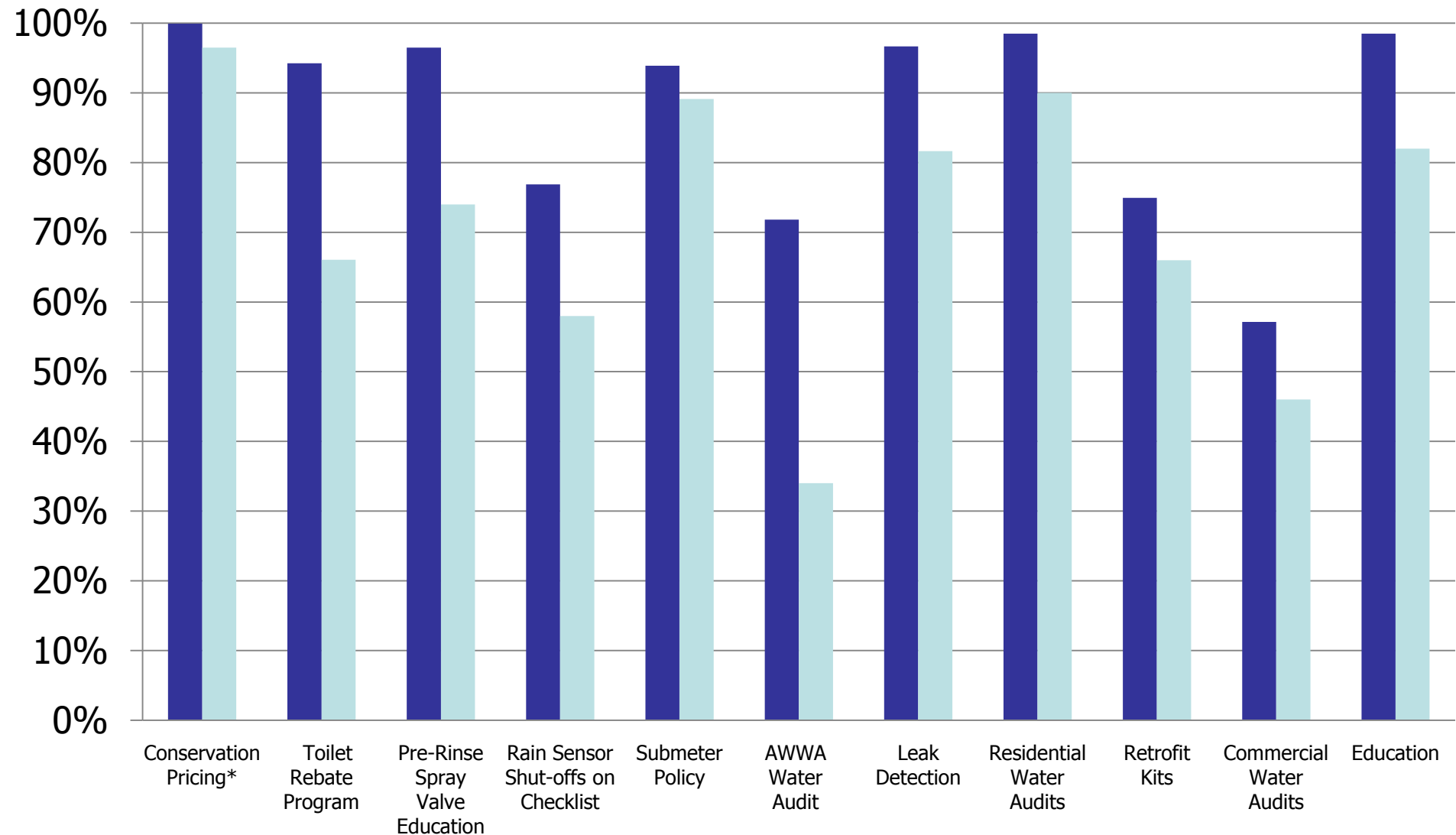
Reports are posted on Metro District website:
www.northgeorgiawater.org



Water Conservation Measures Implementation 2010

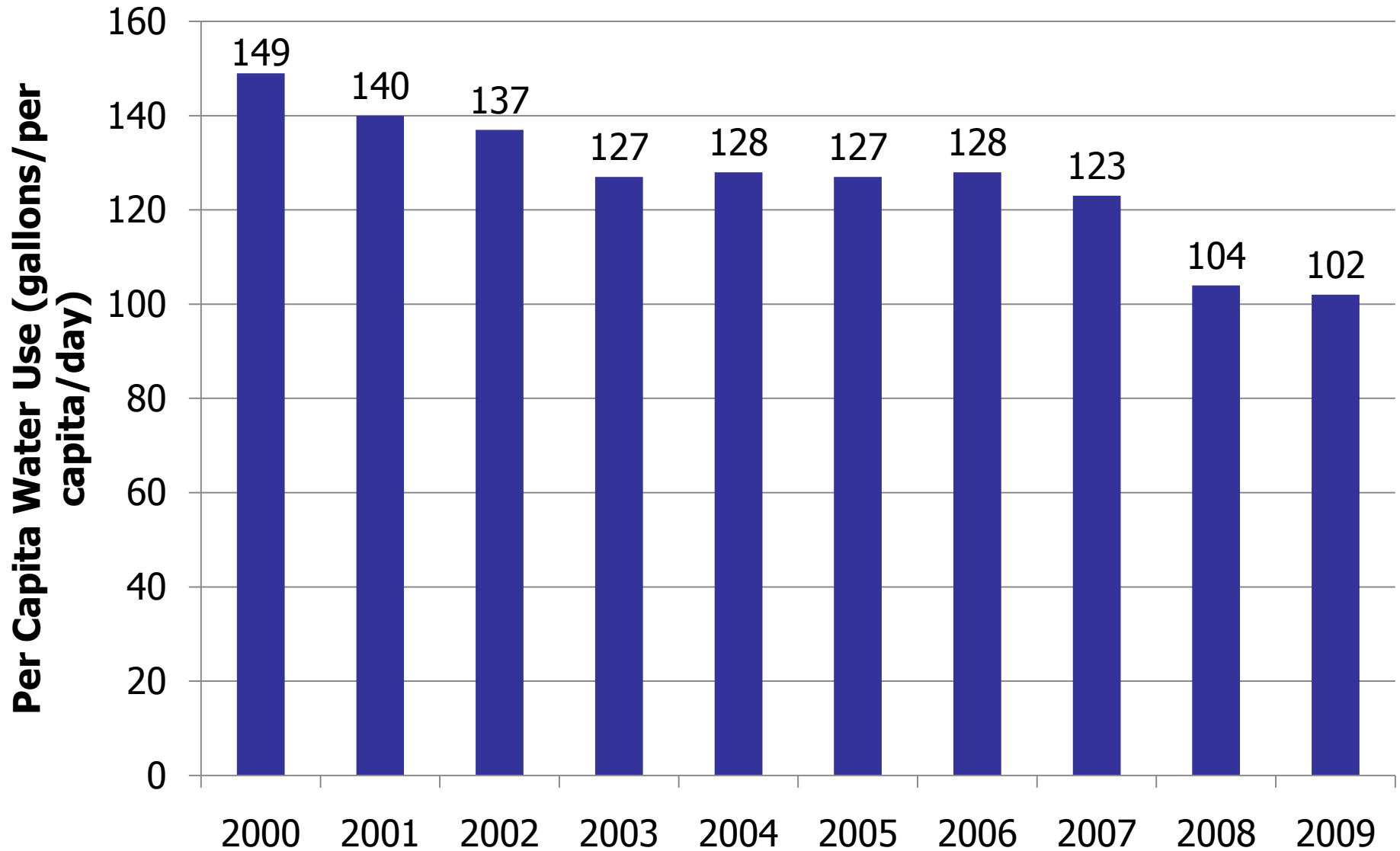
■ Percent of Population

■ Percent of Utilities

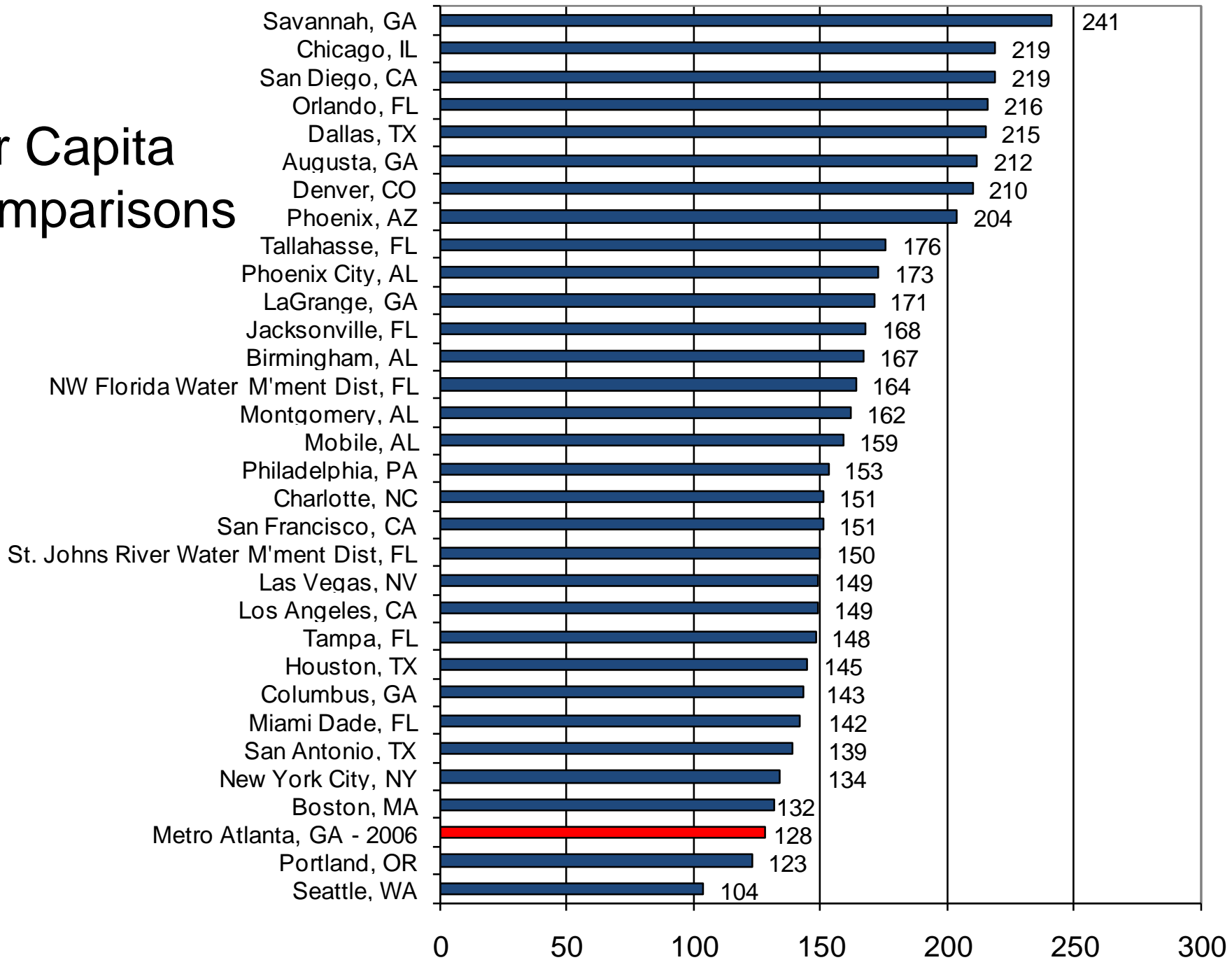




Metro Water District Per Capita Water Use



Per Capita Comparisons





- Metro Atlanta is a national leader in water conservation and water use efficiency
- Water Metrics trends confirm progress



Issues

- Interbasin Transfers
- Tri – State Water Wars
- Consumptive Use
- SW GA / Lower Flint agriculture water use
- Navigation
- Apalachicola River and Bay
- Water Quality – nutrient standards, bacteria standards, nonpoint source pollution control
- Financing Sustainable Water Management
- Post 2035



Tri-State Water Wars



- **1989 - Lanier & Allatoona reallocation reports**
- **1990 - Alabama files suit and Florida joins**
- **1992 - Three states agree to study**
- **1997 - Interstate compacts to negotiate water allocations**
- **2003 – Governors’ Memos of Agreement on ACF and ACT**
- **2003 – ACF Compact dissolves / negotiations fail**
- **2004 – ACT Compact dissolves / negotiations fail**
- **2005 – Litigation Continues**
- **2009 – District Court rules Lanier water supply illegal**
- **2011– Court of Appeals panel reverses District Court**



The Litigation

- Only Supreme Court can allocate water among states
- Fl & Al focusing legal attacks against Corps operation of federal reservoirs
- Eight different cases: Seven consolidated in ACF focused on Lake Lanier; one in ACT focused on Lake Allatoona
- Parties include Alabama, Florida, Georgia, AL Power, SeFPC, ARC, City of Atlanta, Cobb County Marietta WA, Fulton County, DeKalb County, Gwinnett County, Gainesville, Columbus, Lake Lanier Assoc., Apalachicola



The Litigation

- **ACF Phase 1:** AL and FL challenges to Corps authority to operate Lanier for water supply
- **ACF Phase 2:** FL challenges that Corps reservoir operations harm endangered species in Florida
- **ACT:** AL challenges to Corps operation of Allatoona for water supply, CCMWA contract and Hickory Log Creek project



ACF Case Phase 1

- Phase 1: Authority to operate Lanier for Water Supply
 - District Court order July 2009 -- no water after July 2012
 - Reversed and vacated by 11th Circuit Court of Appeals on June 28, 2011
 - Circuit Court held water supply is an authorized purpose of Lake Lanier on equal footing with hydropower, navigation, and flood control.
 - Corps must reconsider GA water supply request for 705 mgd from Lanier



AL and FL have requested en banc rehearing



ACF Case Phase 2

- Phase 2: Endangered Species in Apalachicola River
 - District Court in July 2010 dismissed all claims by Florida re: Corps operations
 - Florida appeal pending but stayed at FL request
 - New biological opinion expected September 2011.





ACT Case

- Negotiations are at an impasse
- Alabama asked for litigation to resume
- 11th Circuit Court decision to dismiss the Alabama case in ACF impacts ACT
- Judge asked parties to brief the issue of jurisdiction by submitting motions to dismiss by September 14.



Defending Water Rights

- Metro Water Providers working together for best case
- Need to continue to demonstrate wise water use

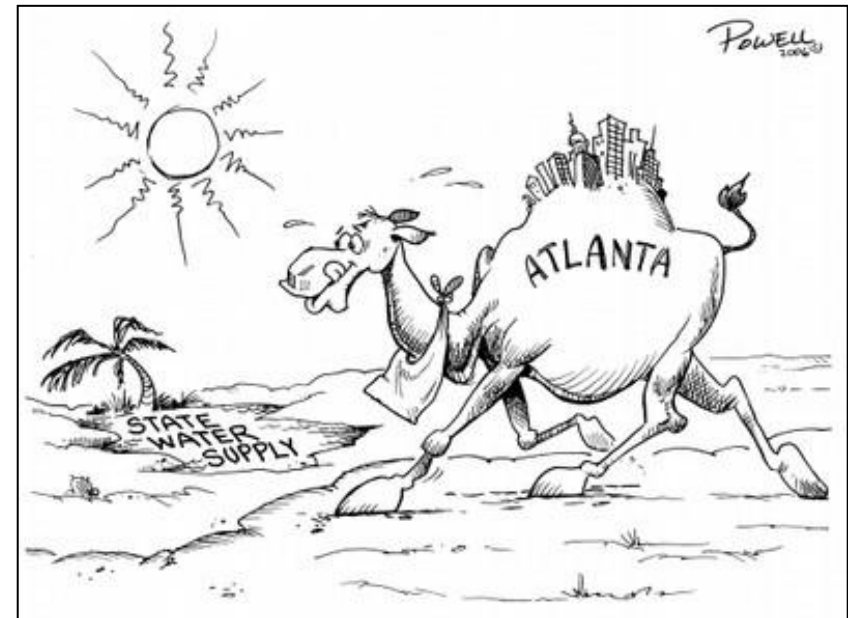


Contrary to Some Opinions

Metro Atlanta Water Use is not the Problem

- Metro Atlanta's Consumptive Water Use is 1% of the water in ACF basin above Florida line in normal year,
- 2 to 3% in extreme drought year

• Average annual consumptive use is 250 cfs, compared to average annual discharge at Florida state line of 21,000 cfs





SW GA Agriculture Use Impacts Chattahoochee River Users

Agriculture consumptive use in SW GA: is 500mgd (775cfs) or 3 times metro Atlanta's use. It is considered 100% consumptive

GA EPD estimates that the Flint River drops below sustainable levels due to agriculture groundwater and surface water withdrawals 13% of the time by 227mgd and on a max day as much as 889mgd

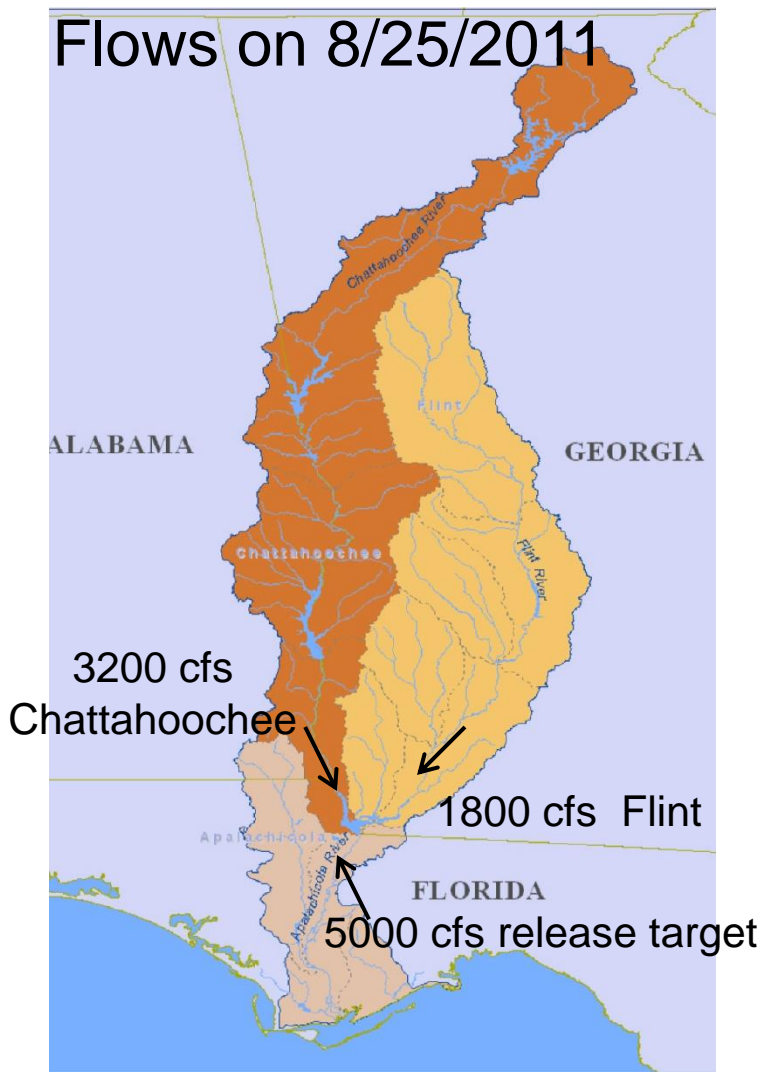
Corps flow target just below Woodruff Dam/Lake Seminole GA/FLA state line. Any shortfalls or gaps in the Flint River flows reduce the flows to this target point. The Corps makes releases from their reservoirs on the Chattahoochee River to maintain flows below Woodruff. Thus water from the Chattahoochee River is used to compensate or mitigate for "gaps" in the Flint River basin.





Withdrawals in the Flint Basin Impact Storage on the Chattahoochee in Drought

Flows on 8/25/2011



Assuming 2006/07 demands, the flow from the Flint River would have been about 2900 cfs on 8/25/2011 without depletions due to agriculture groundwater and surface water withdrawals .

Preliminary estimates of total drawdown of Chattahoochee Reservoirs caused by Flint depletions from May through August 2011 is 150 kaf (equivalent to 4 ft in Lake Lanier)

Data source: USGS gages at Columbia, AL (RM 46) and Bainbridge, GA adjusted for additional drainage area



Navigation to Columbus/Bainbridge

- No reservoir operation plan can provide reliable navigation.
- Three dams/reservoirs on Flint River that were part of the original system (intended to help support this channel) were never built.
- The Chipola Cutoff in Florida diverts at least 25% of the flow of the Apalachicola River and returns it downstream.
- Shoaling/sand bars in the Apalachicola River; Florida opposes dredging.



ESA-listed species in the ACF

Gulf sturgeon



Fat three-ridge



Purple bankclimber

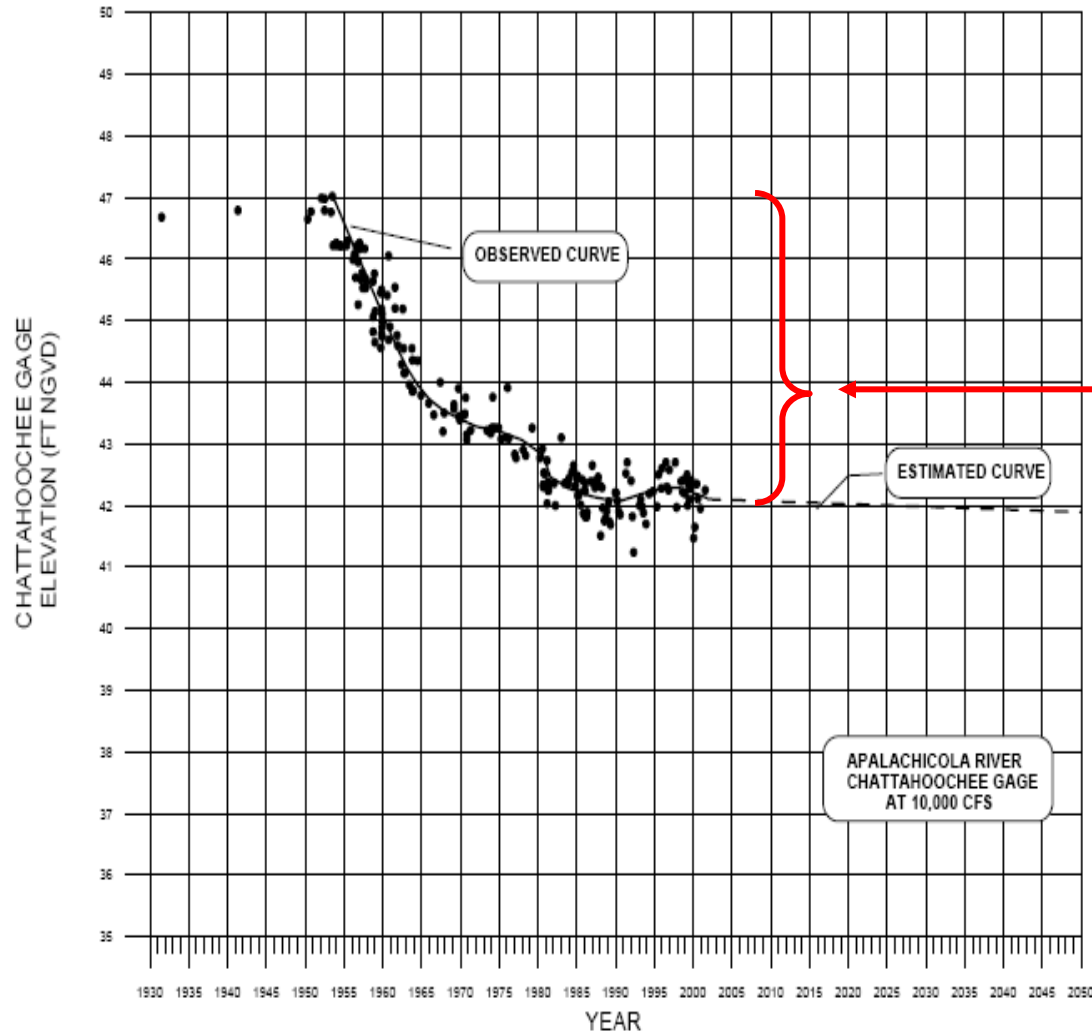


Shiny-rayed pocketbook





Dredging and Scour Have Lowered the Channel of the Apalachicola River



- Channel degradation has lowered the level of the Apalachicola River below Woodruff Dam by about **5 feet.**

- Metro Atlanta water use: Less than **2 inches.**



Result: Reduced Spawning Habitat



Rock Ledge at RM 105.5—
primary spawning ground for
Gulf Sturgeon in Apalachicola
River.

- Water must be 8.5 to 17.8 feet deep for 2 weeks.
- According to USGS, an additional ***10,000 cfs*** is required to compensate for the effects of dredging and scour in the channel.
- This is ***40 times*** the average daily use (250 cfs) of Metro Atlanta.



Chipola Cutoff

- Chipola Cutoff, a manmade cutoff, is diverting a large part of the flow of the Apalachicola River.
- This was a major factor in the dewatering of Swift Slough—and resulting mussel die-off—in 2006.



Chipola Cutoff



Chipola
Cutoff

Swift
Slough



Concerns for the Oyster Fishery?

- They say salinity, due to reduced freshwater input.
 - Metro Atlanta's impact on freshwater is just 1%.
 - No evidence of any linkage between Metro Atlanta water use and oyster harvest
- Other factors:
 - Red-tide
 - Hurricanes
 - Water quality, run-off
 - Sikes Cut
 - Drought



Sikes Cut Draws Salt Water into Apalachicola Bay



Sikes Cut

Drought

DROUGHT IS INEVITABLE AND PART OF CLIMATE VARIATION

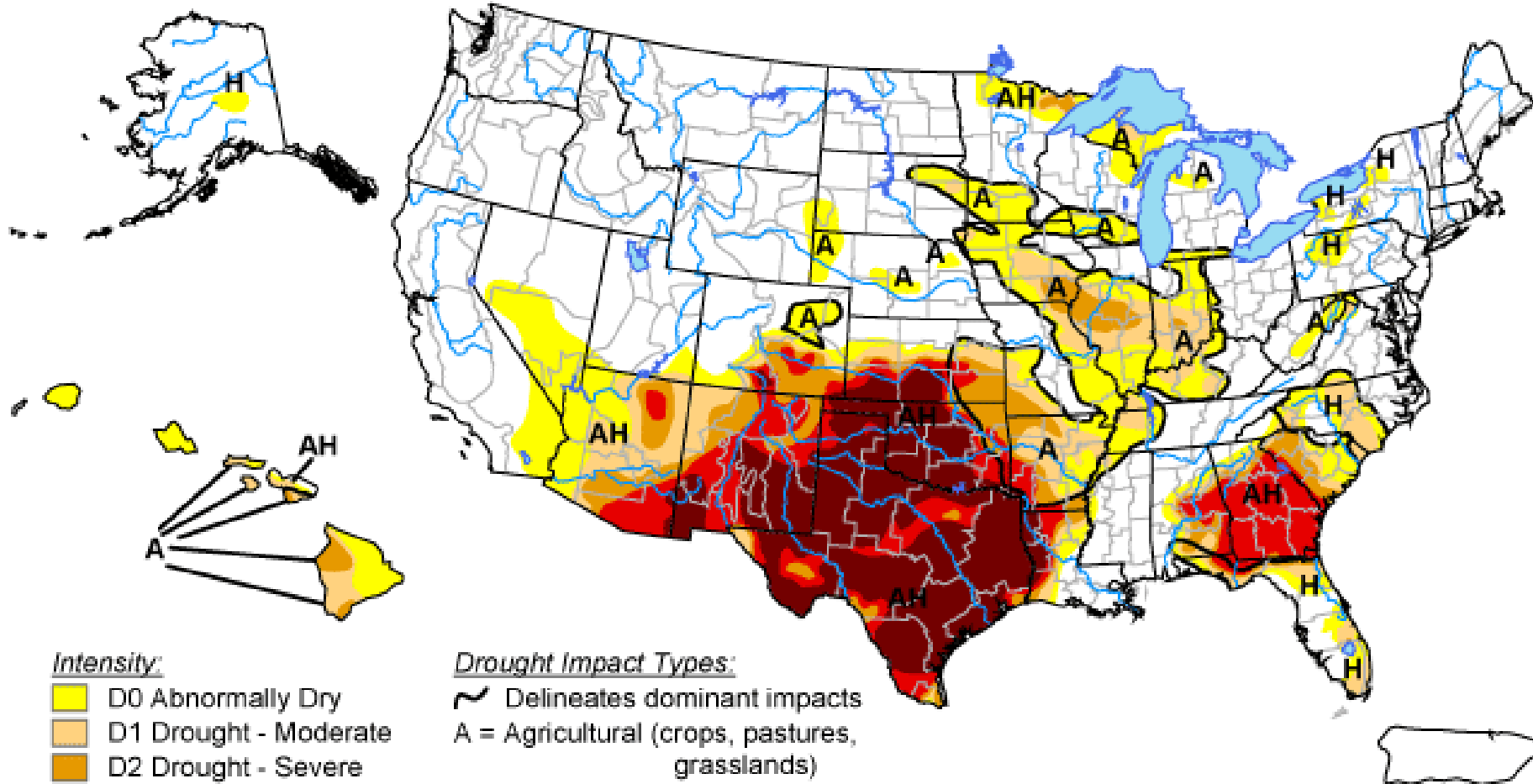
- Water systems must plan for severe drought








U.S. Drought Monitor

September 6, 2011


Valid 8 a.m. EDT



Intensity:

-  D0 Abnormally Dry
-  D1 Drought - Moderate
-  D2 Drought - Severe
-  D3 Drought - Extreme
-  D4 Drought - Exceptional

Drought Impact Types:

-  Delineates dominant impacts
- A = Agricultural (crops, pastures, grasslands)
- H = Hydrological (water)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.



Released Thursday, September 8, 2011

Author: Mark Svoboda, National Drought Mitigation Center

<http://drought.unl.edu/dm>

U.S. Drought Monitor

September 6, 2011

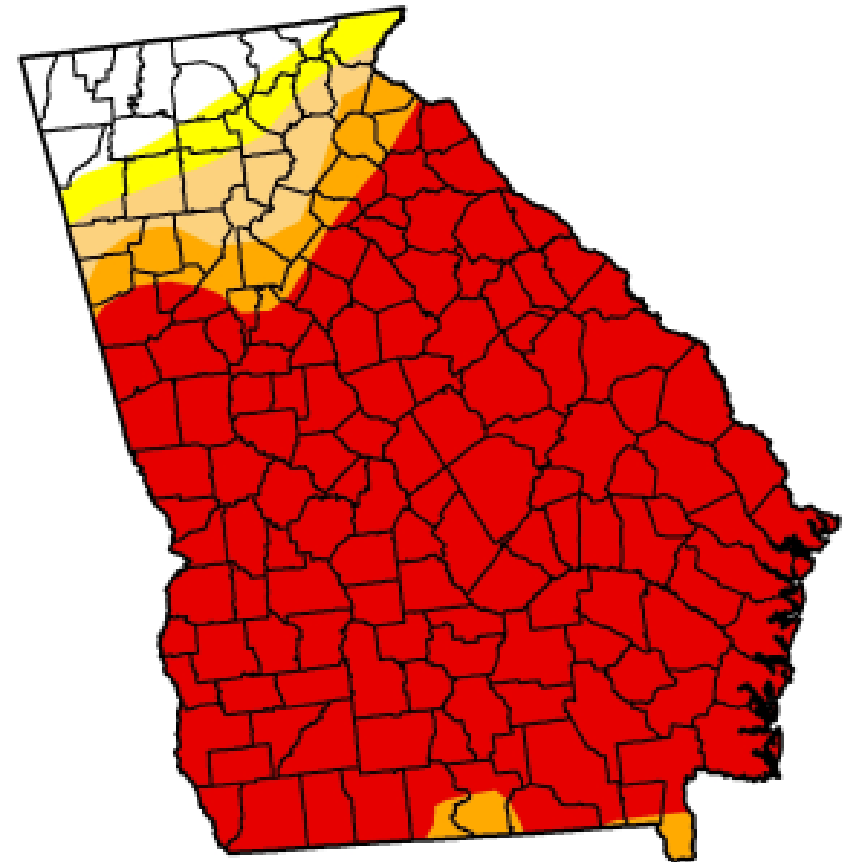
Valid 7 a.m. EST

Georgia

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	5.35	94.65	91.23	86.43	80.42	0.00
Last Week (08/30/2011 map)	0.00	100.00	99.99	90.82	79.64	0.00
3 Months Ago (06/07/2011 map)	0.62	99.38	81.28	71.81	54.91	5.77
Start of Calendar Year (12/28/2010 map)	2.42	97.58	85.37	40.34	6.49	0.00
Start of Water Year (09/28/2010 map)	4.80	95.20	39.24	5.11	0.00	0.00
One Year Ago (08/31/2010 map)	59.28	40.72	10.01	0.00	0.00	0.00

Intensity:



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<http://drought.unl.edu/dm>



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National Drought Mitigation Center,

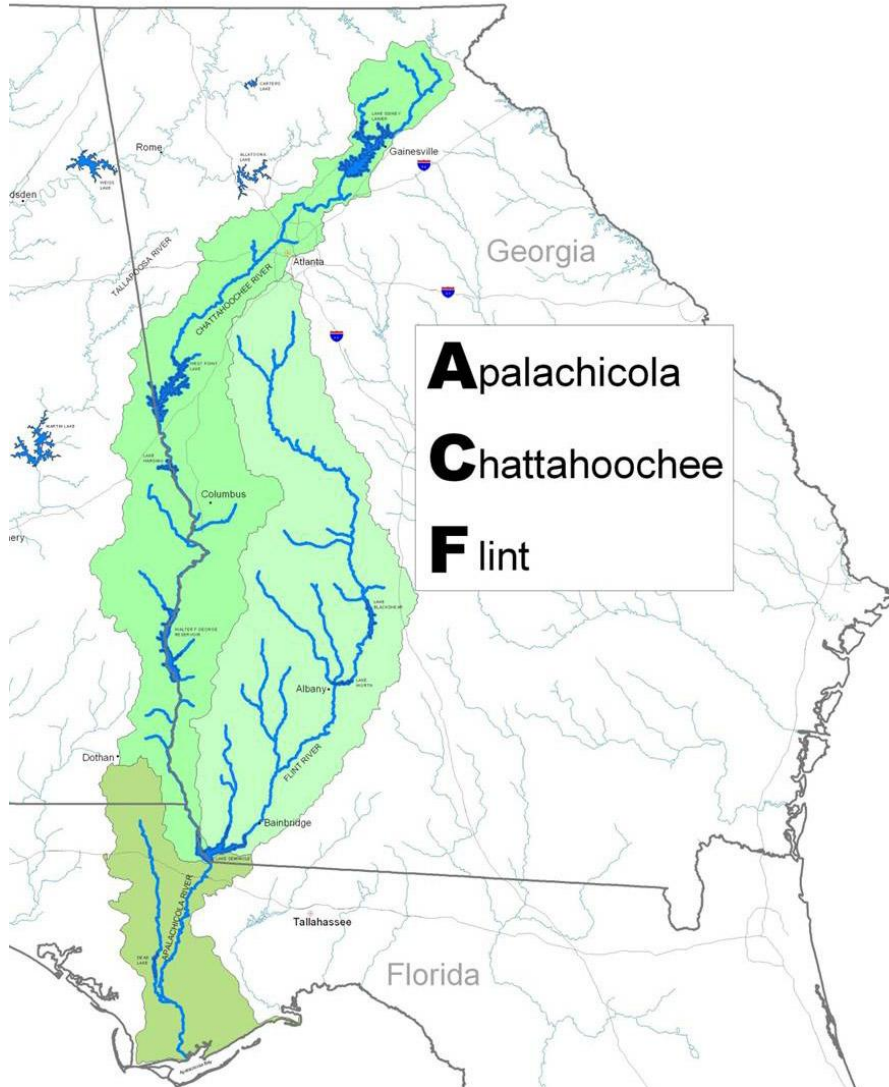


Current Drought Restrictions

- Outdoor watering for planting, growing, and managing plants only between hours of 4 p.m. and 10 a.m.
- Outdoor watering for any other purpose is restricted to odd/even schedule
 - Odd-numbered addresses : Tues, Thurs, Sun
 - Even-numbered addresses: Mon, Wed, Sat



Lanier Cannot Drought Proof the Entire Basin



Location limits how much water it can capture

Only 5% of land area in basin drains to Lanier

Although Lanier is a large lake and represents 60% of the storage in the federal reservoirs, it controls only 9% of the river flow above the Florida line

Flows at the Florida line are 11 times greater than at Buford, most streams in the basin enter below Buford

It is not possible to drought proof the entire basin with a lake that only controls 9% of the flow



Wastewater Treatment Issues



- High treatment levels for small streams and sensitive lakes
- Septic systems consumptive, limited in clay soils and hard to retrofit
- Sustainable use requires maximizing returns of treated wastewater to source



District Wastewater Management Plan

- To meet 2035 treatment demands:
- Return Highly Treated Wastewater to Source



- 21 New Facilities
- 50 Expansions of Existing
- 23 Decommissions

Plan includes maintenance and rehabilitation requirements



Stormwater Pollution



- Stormwater runoff is leading source of water pollution





Watershed Management Plan

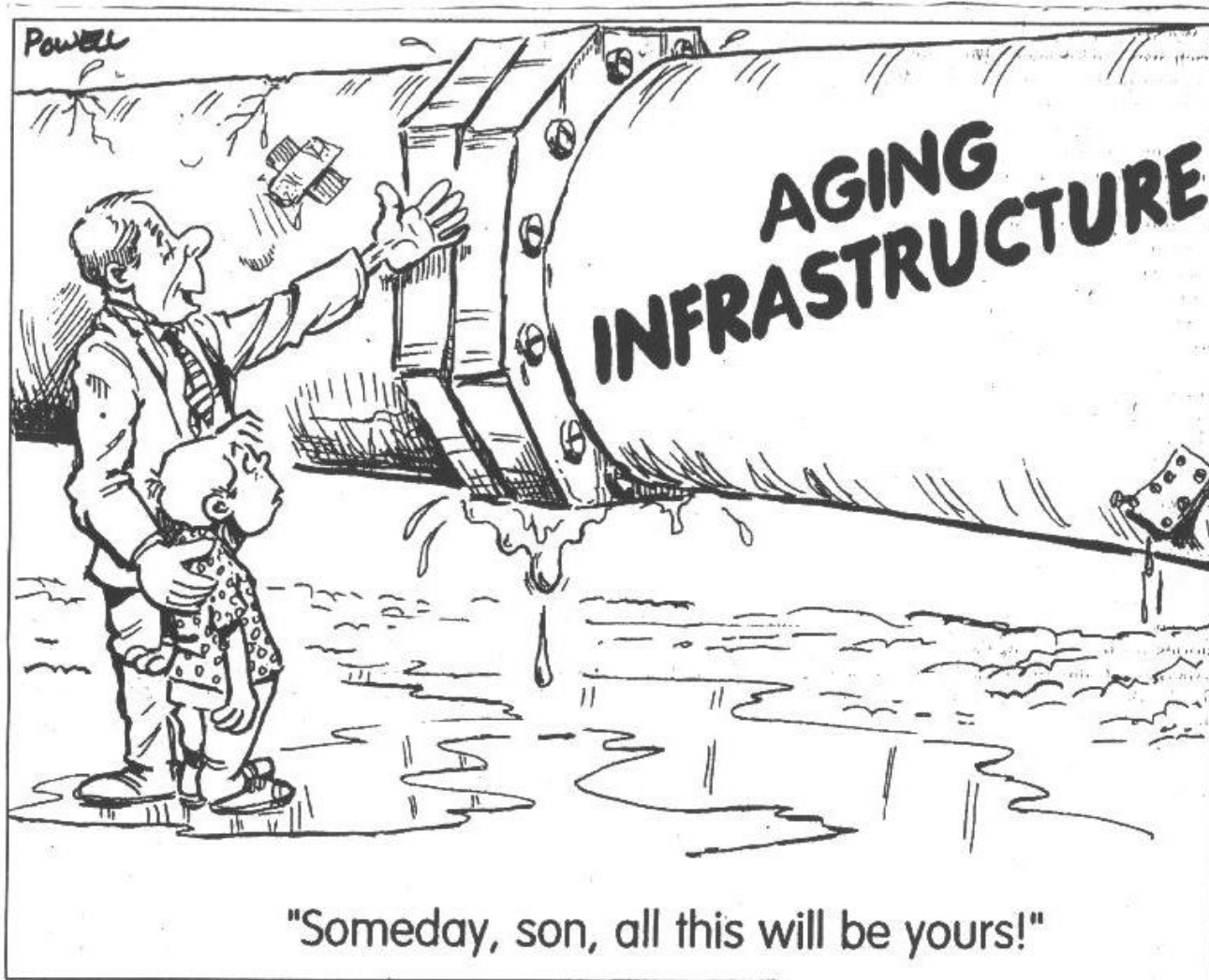
Details strategies for effective watershed and stormwater quantity management and water quality protection

- Requirements for five model ordinances
- Additional management measures for holistically addressing community issues
- Suite of optional watershed protection measures





Pay Now or Pay More Later





Resources

**Metropolitan North Georgia Water
Planning District**

www.northgeorgiawater.org

Water Conservation Campaign

www.mydropcounts.org



Thank you