

# Water Use in Alabama

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# Overview

- Overview of Water Data Collection
  - Alabama Water Use Program
  - Partnership with USGS
  - Collaboration with other agencies
- Review of water use sectors and methodologies
- Brief review of 2010 report/products
- 2015 Report schedule and goals
- Wrap-up





# Overview of Water Data Collection

Alabama Water Use Program





# Alabama Water Use Program

- Who is required to register with OWR?
  - **ALL** Public Water Systems
  - All Non-Public and Irrigation users with a **capacity** to withdraw 100,000 gallons per day or more





# Alabama Water Use Program

- OWR issues Certificates of Use to registered users
- Only program in Alabama that collects water withdrawal data from all users
- Data is used to assess water usage patterns and trends





# Certificates of Use

- Two major requirements for COU holders
  - Notify the Office of Water Resources if there is any change in withdrawal capacity
    - Adding new wells, upgrading surface water intake capacities
    - This requires an official modification to COU
  - Report water usage annually on forms that are provided





# Annual Reporting Process

- Customized forms based on information in our data management application (eWater) sent out in December
- Due back to OWR by March 31<sup>st</sup> of the following year
- Process designed to make it as easy as possible
- On-line reporting will make it even easier
- Best of all – no fees required





# Information Uses

- Water Use Assessments
  - “Water Use in Alabama”
  - Watershed Assessments
- Demographic Analysis
- Demand Forecasting
- Water Resource Studies
- Analyzing Economic and Industrial Trends





# Water Use in Alabama





# Water Use in Alabama

- 5 year cycle
- County and eight digit HUC codes
- Multi agency effort
  - Both State and Federal partners
  - USGS is main partner
    - Coordinated to work within national report process and assistance with estimating methodologies in areas with limited data
    - OWR is the primary data resource to USGS for Alabama summary
  - ADEM, AGI, USDA-NASS, Census Bureau also involved





# Water Use in Alabama

- Eight sectors of Water Use are studied
  - Public Supply
  - Self-Supplied Residential
  - Irrigation
  - Livestock
  - Aquaculture
  - Industrial
  - Mining
  - Thermoelectric





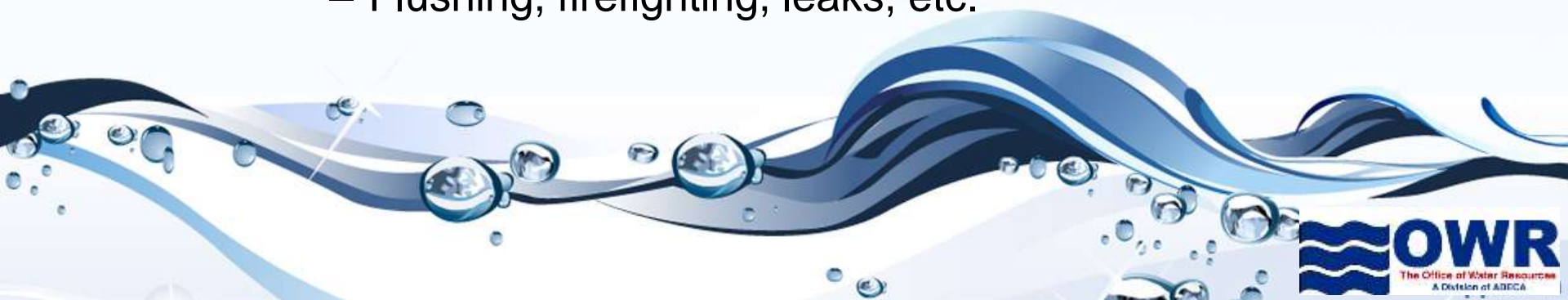
# Methodologies for Water Use Sectors





# Methodologies for Water Use Sectors

- Public Supply
  - eWater Database
  - ADEM MOR's
  - Surveys to obtain information not collected annually
    - Number of residential connections and amount of water sold
    - Number of commercial/industrial connections and amount of water sold
    - Water used within system / water lost
      - Flushing, firefighting, leaks, etc.





# Methodologies for Water Use Sectors (Con't)

- Self-supplied Residential
  - Public Water Survey
    - Estimated water use per capita based on residential use by rural Public Water Systems
  - US Census Bureau
    - Population served by private wells not collected directly
      - OWR developed methodologies to estimate population served based on old Census data





# Methodologies for Water Use Sectors (Con't)

- Irrigation
  - Used 2007 Census of Agriculture as well as eWater Database for row crop water use and acres irrigated
  - Used crop coefficients created by USGS during 2005 Water Use effort
    - Limitations with data
      - Censored for some small operations
      - Required some estimates to be made
  - Developed Golf Course Survey to use with eWater data to estimate acreage and water use for golf courses





# Methodologies for Water Use Sectors (Con't)

- Livestock and Aquaculture
  - Methodologies developed by USGS water-use personnel for National Water Use Report process
    - Based on water-use coefficients
    - Estimated from USDA-NASS Data





# Methodologies for Water Use Sectors (Con't)

- Mining
  - Methodologies developed by USGS personnel for National Water Use Report process
    - Based on production data collected by the USGS National Water–Use Information Program (NWUIP) personnel.
    - Estimates were developed using mine-production data and water-use coefficients.





# Methodologies for Water Use Sectors (Con't)

- Industrial and Thermoelectric
  - eWater database
    - Withdrawals collected as part of Annual Reporting Process





# Water Use in Alabama, 2010

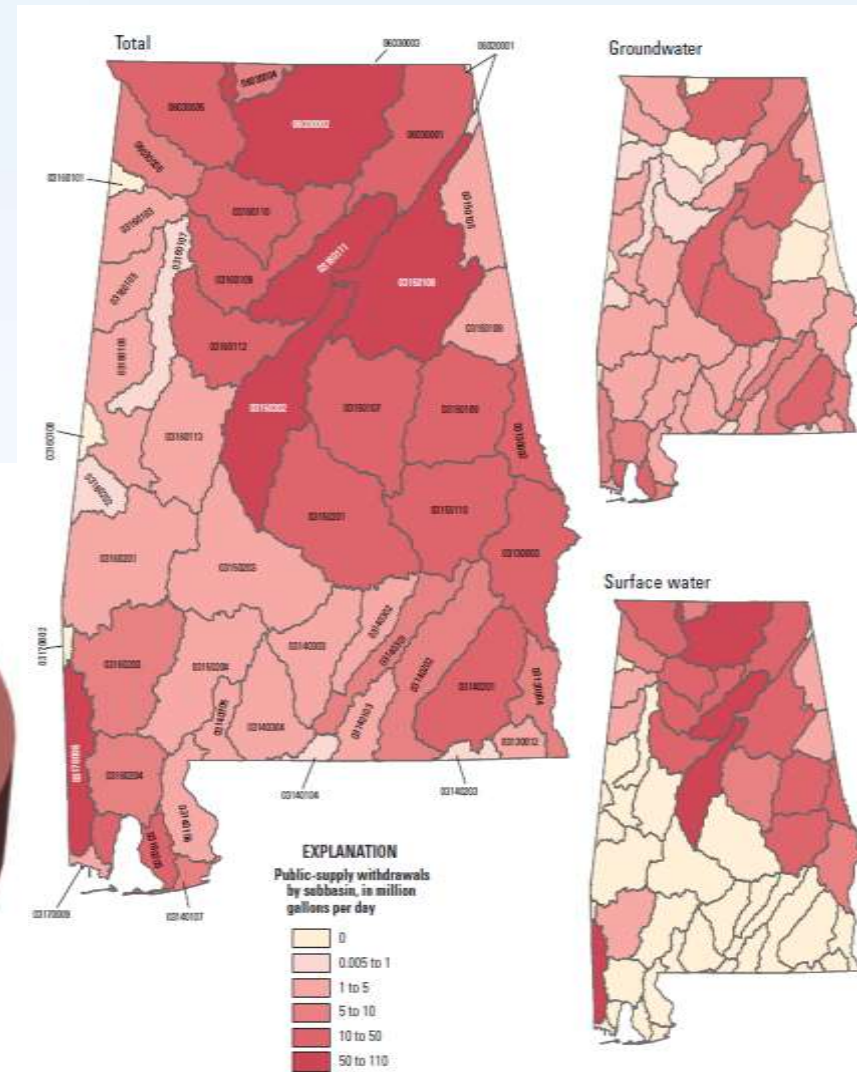
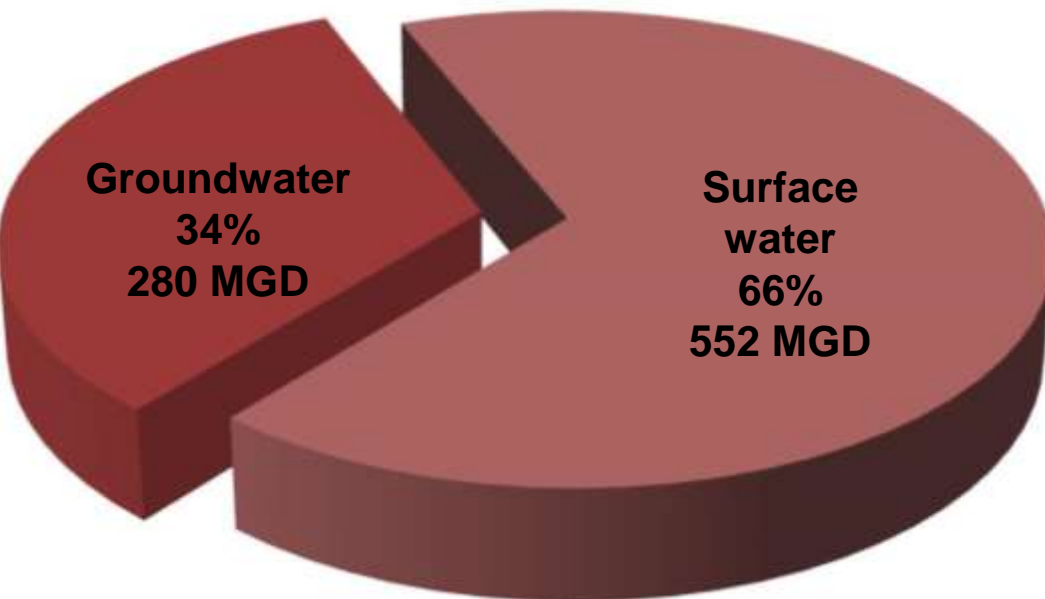
Results





# Public supply

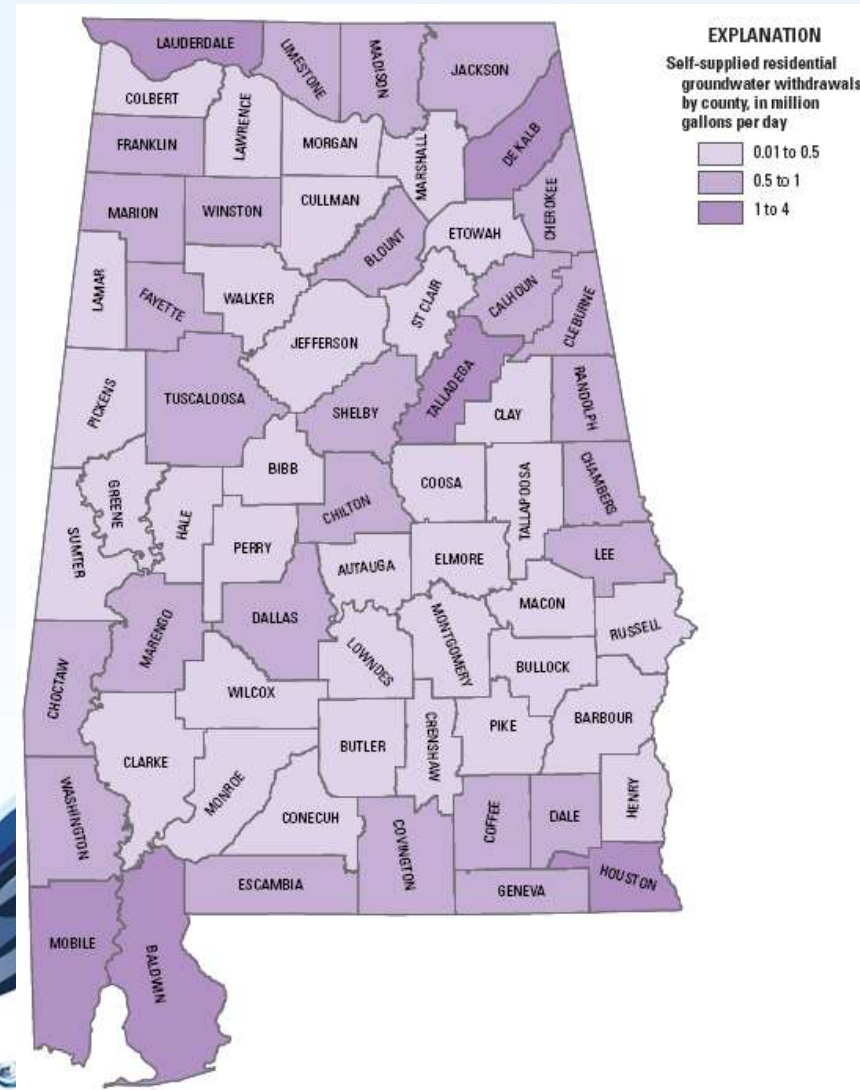
- Source – eWater data
- 2010 estimate - 833 MGD
- 2% increase from 2005





# Self supplied residential

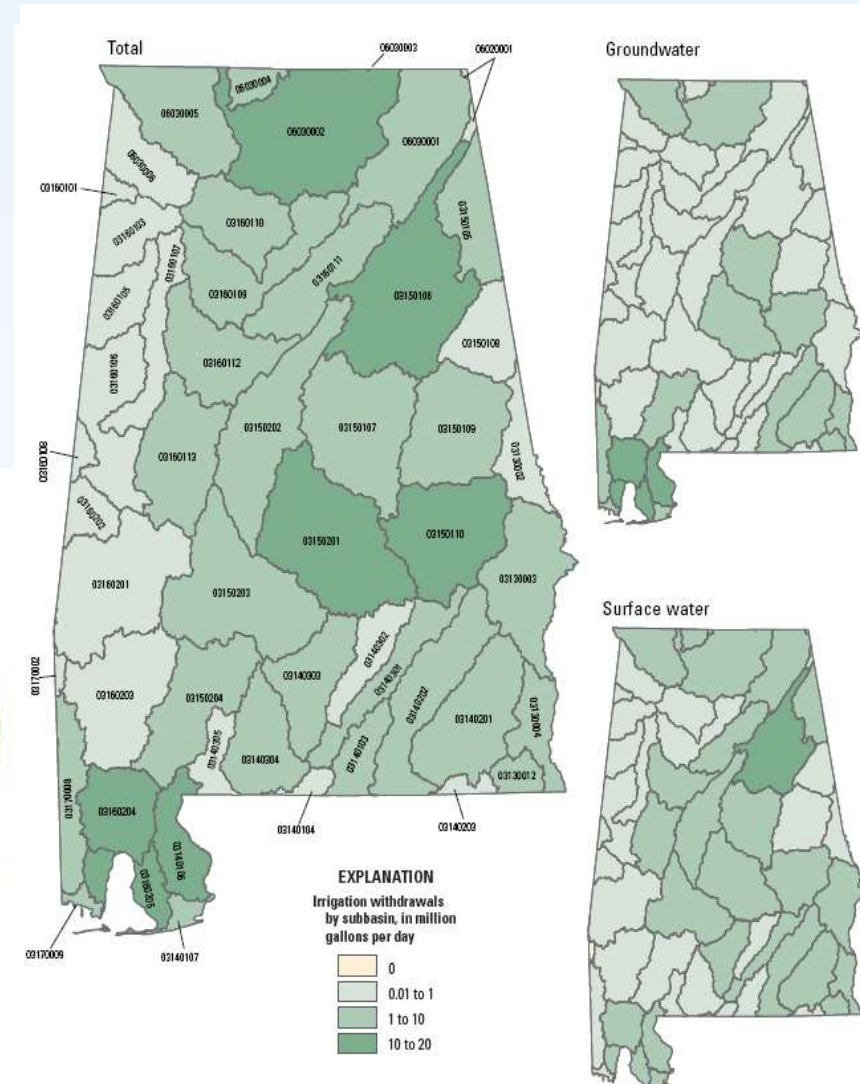
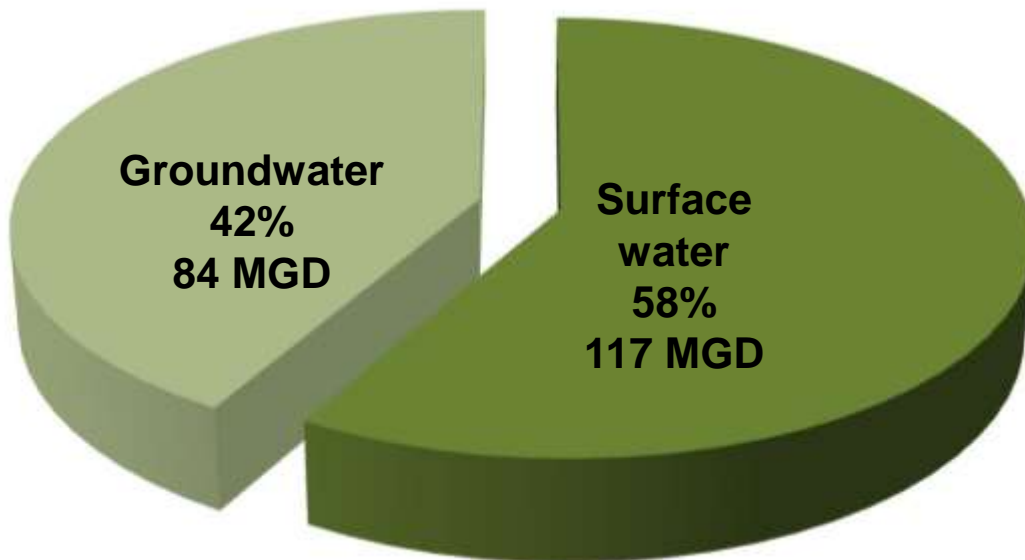
- Sources – Survey and Census, eWater data
- 2010 estimate - 38 MGD
  - 100% groundwater
- 3% decrease from 2005





# Irrigation

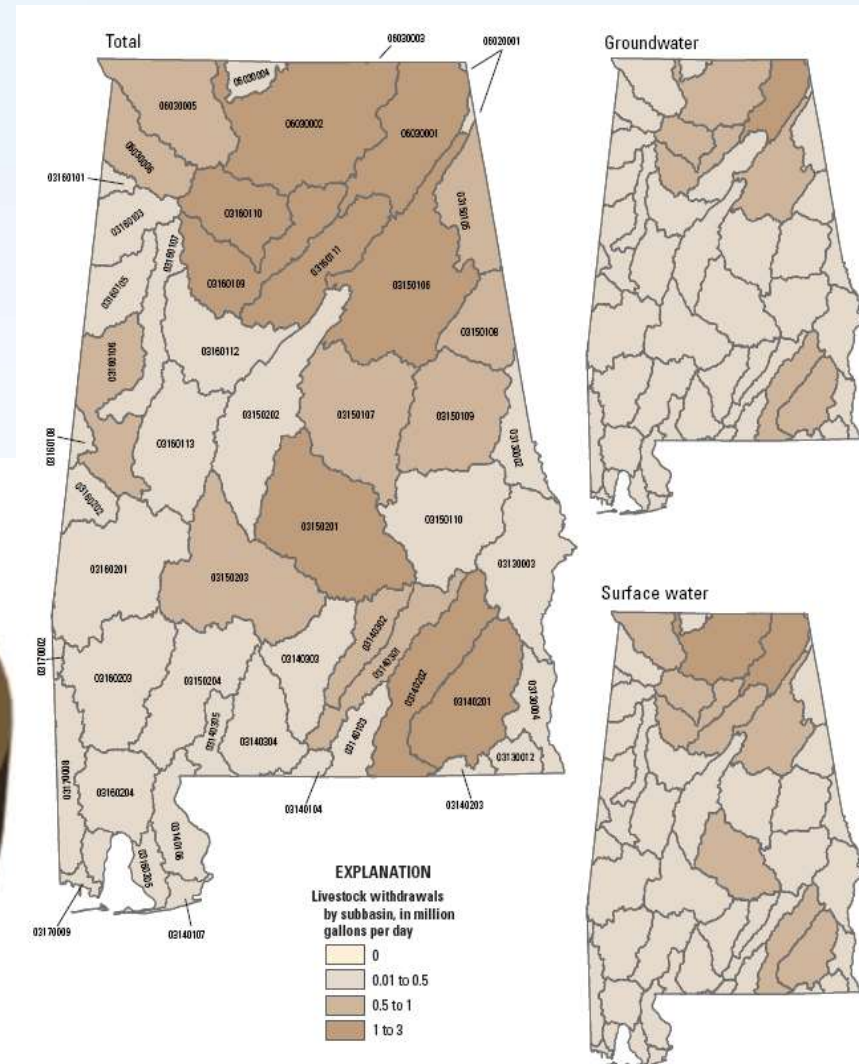
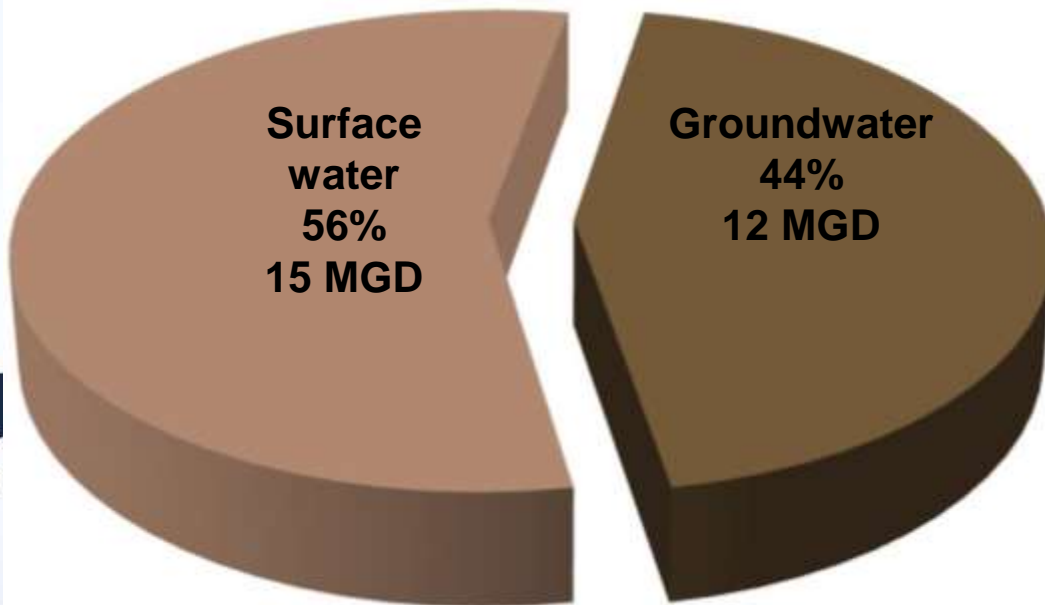
- Sources - Census of Agriculture, Ag and Industries, USGS, eWater data
- 2010 estimate - 202 MGD
- 17% Increase from 2005





# Livestock

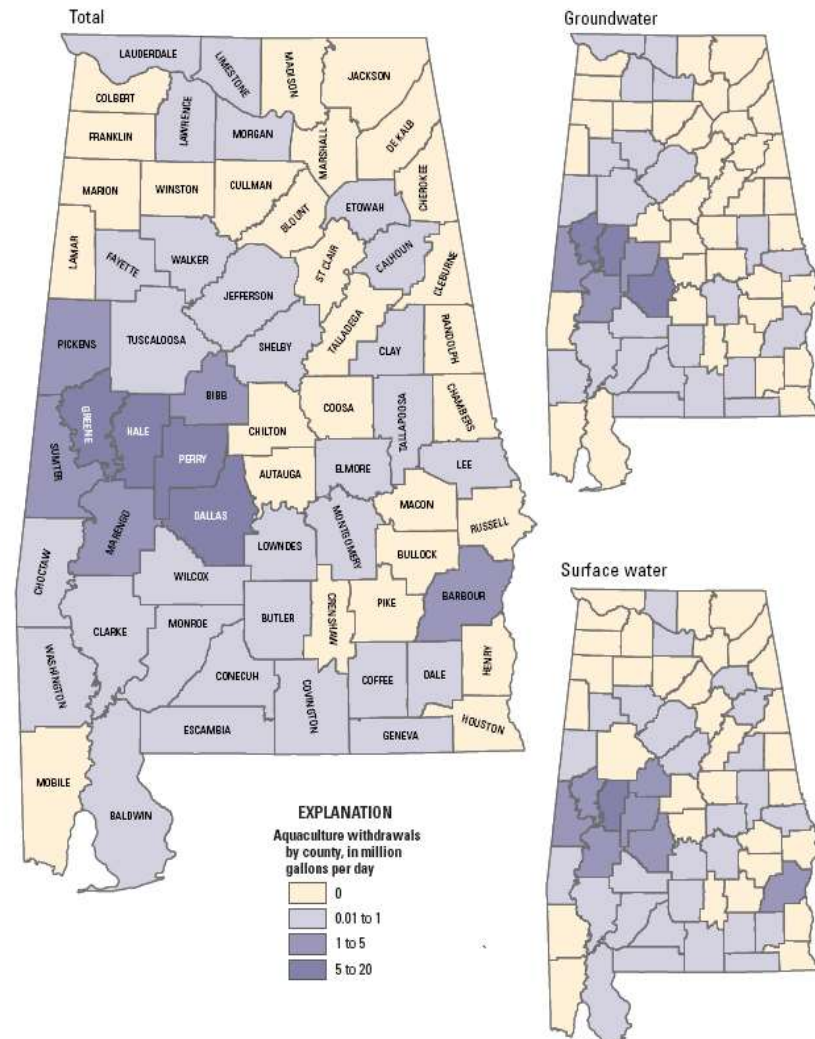
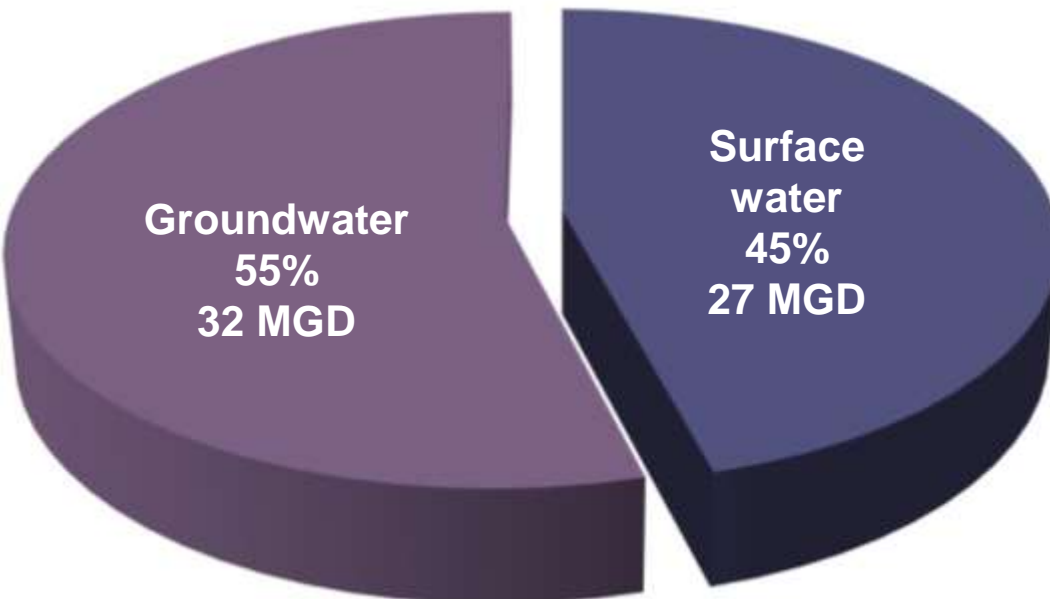
- Data Sources – Census of Agriculture and USGS
- 2010 estimate - 27 MGD
- 6% decrease from 2005





# Aquaculture

- Data Sources – Census of Agriculture and USGS
- 2010 estimate 59 MGD
- 21% decrease from 2005





# Industrial

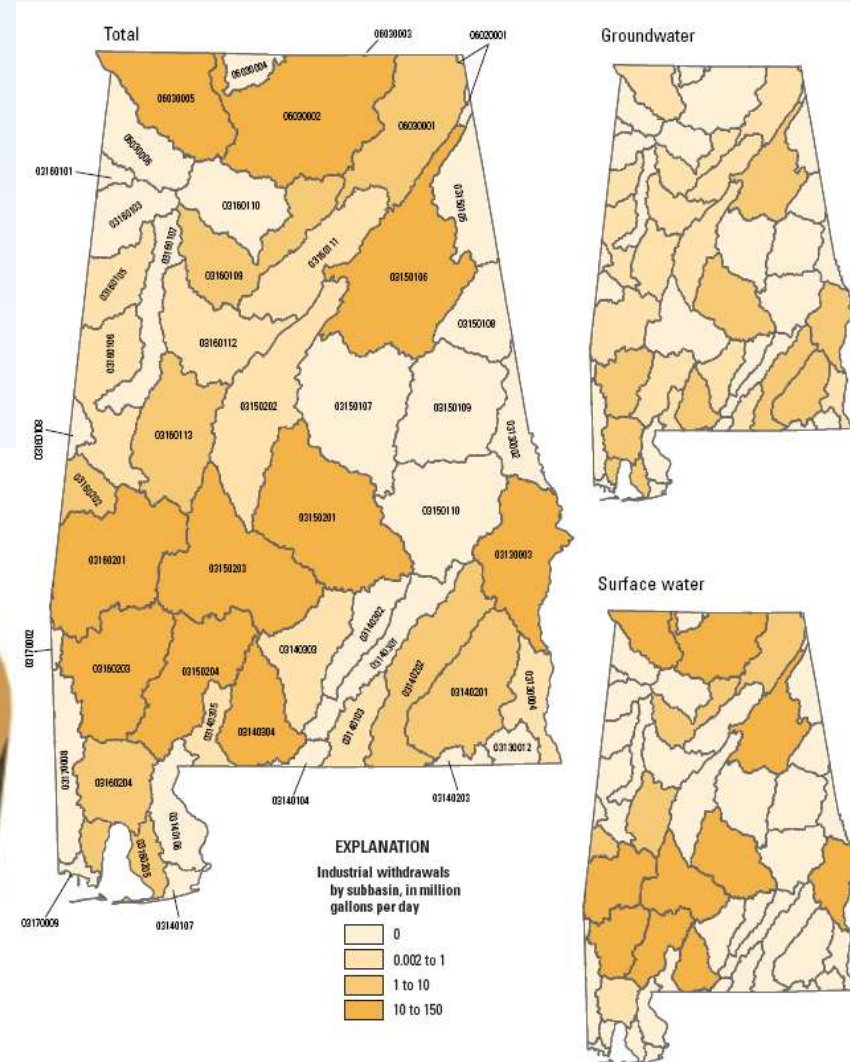
- Data Source – eWater data
- 2010 estimate – 562 MGD
- 6% decrease from 2005

Groundwater

5%

28 MGD

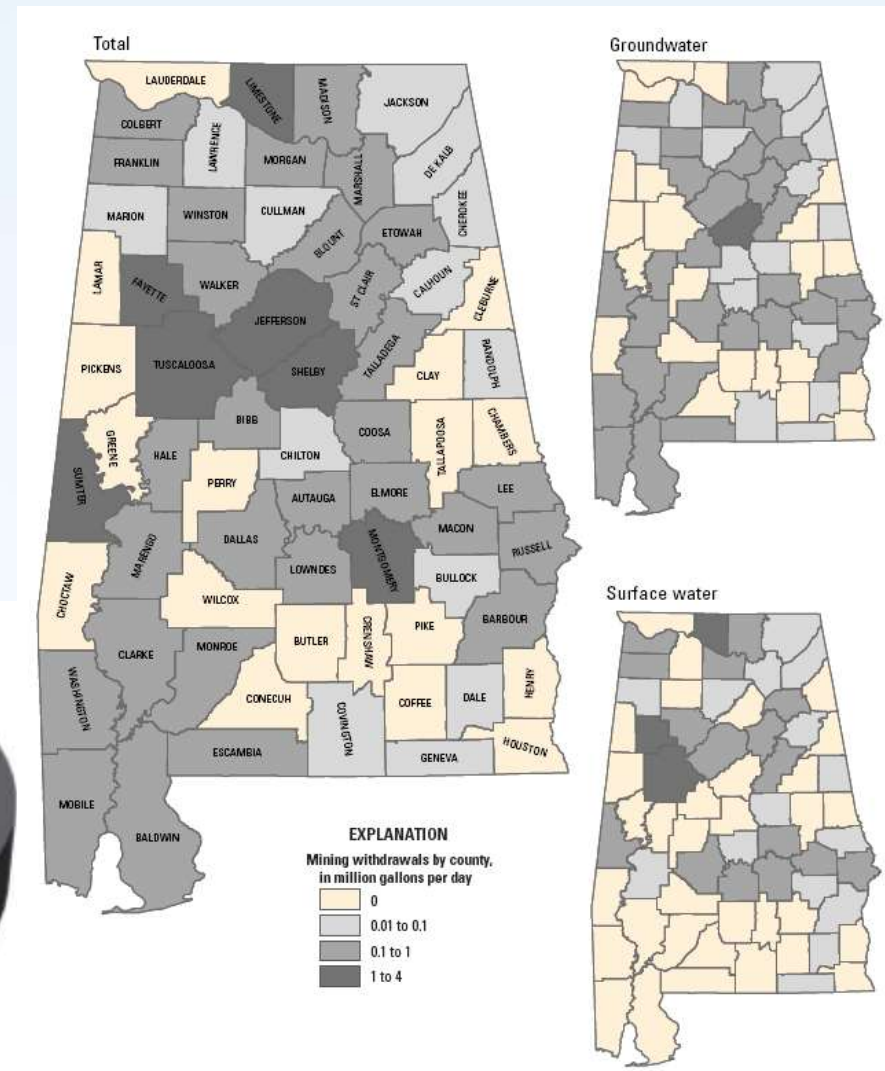
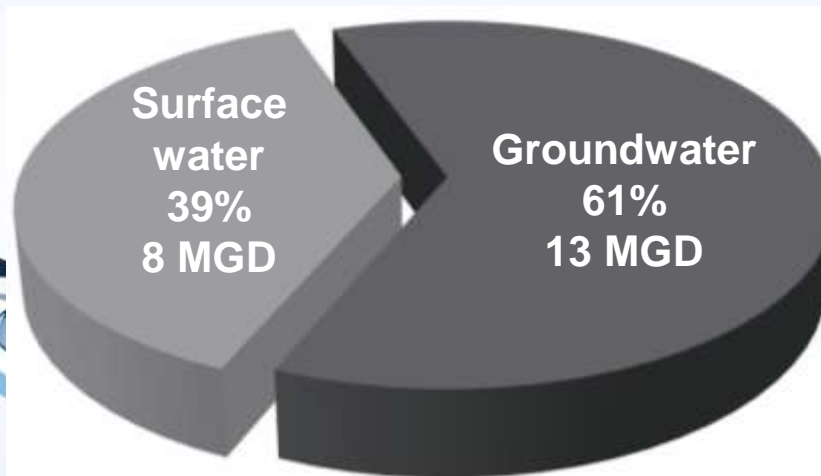
Surface  
water  
95%  
535 MGD





# Mining

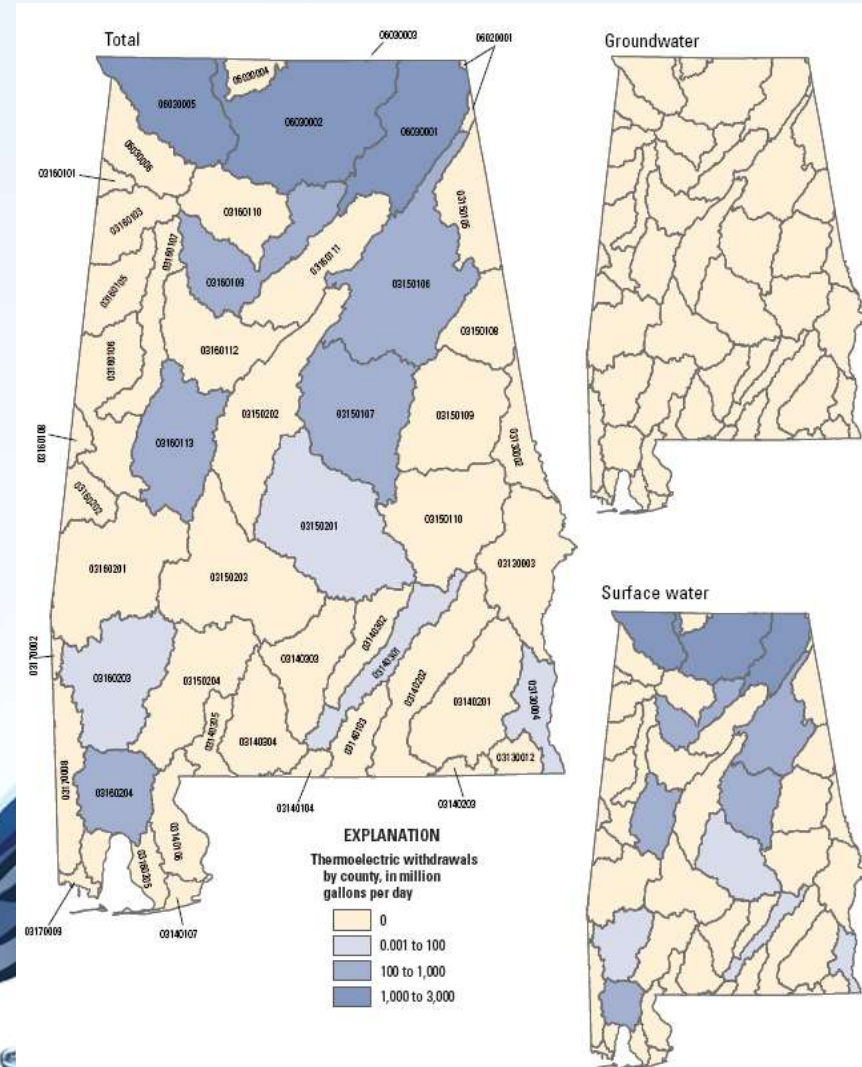
- Data Sources – USGS, eWater data
- 2010 estimate – 21 MGD
- 25% decrease from 2005





# Thermoelectric Power

- Data Source – eWater Data
- 2010 Estimate - 8,257 MGD (8.3 BGD)
  - All Surface water
- 0.2% decrease from 2005





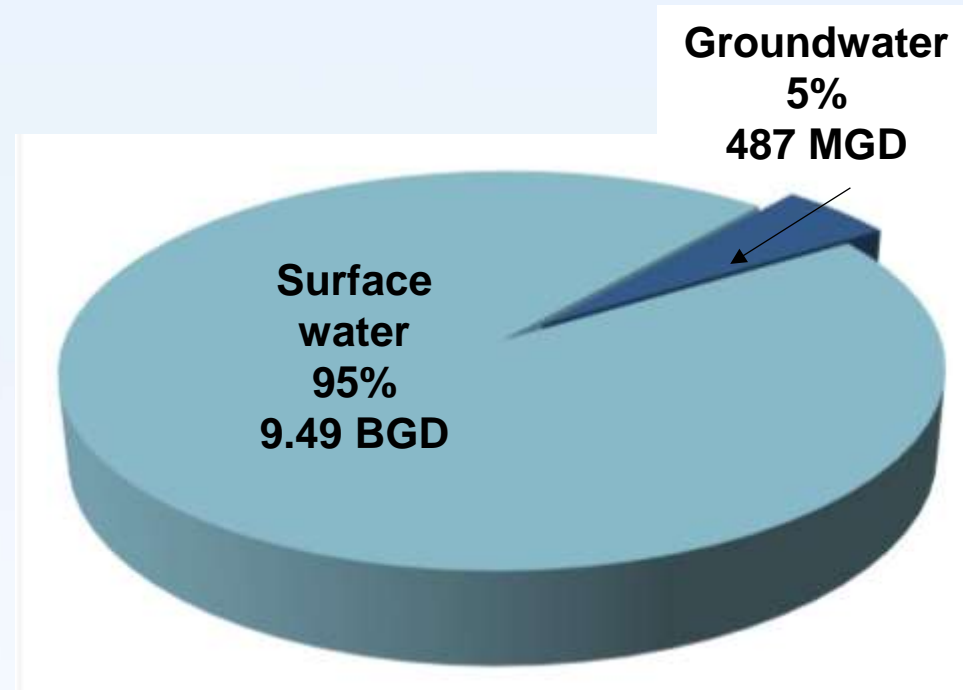
# Total Water Withdrawals



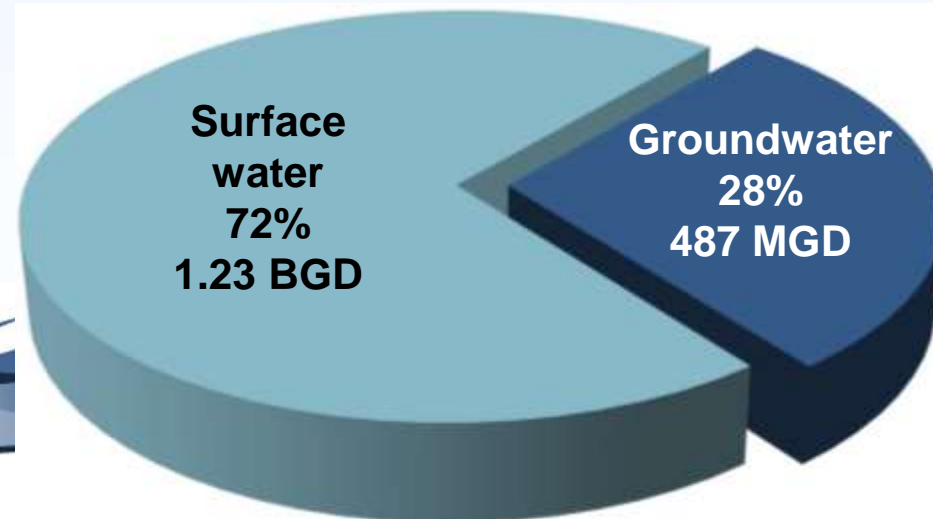


# Total 2010 Water Withdrawals

- 2010 Estimate with Thermoelectric withdrawals – 9.98 BGD

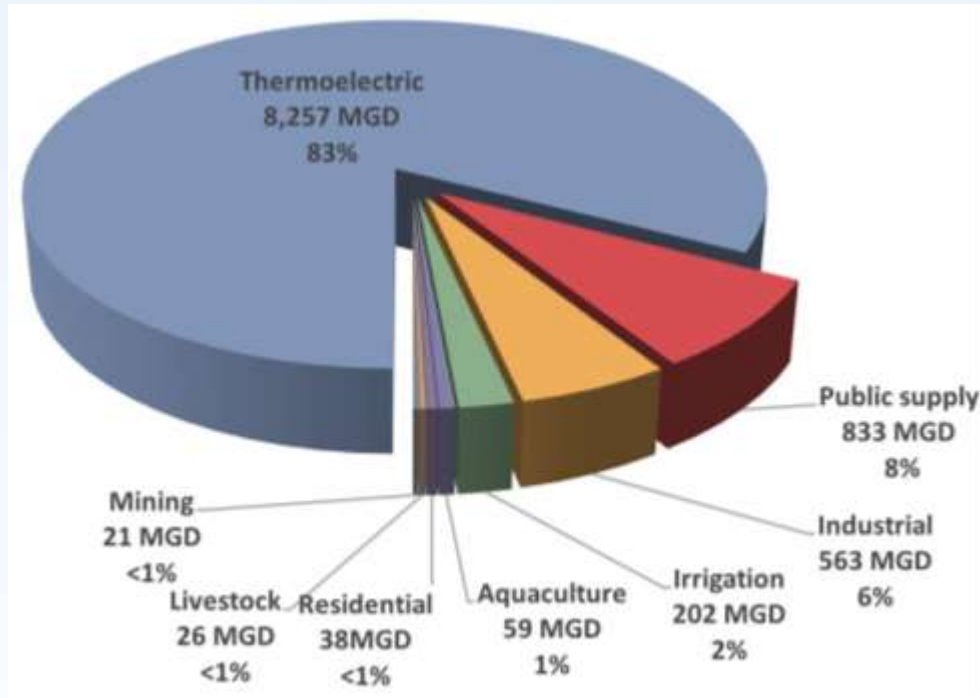


- 2010 Estimate without Thermoelectric withdrawals – 1.74 BGD



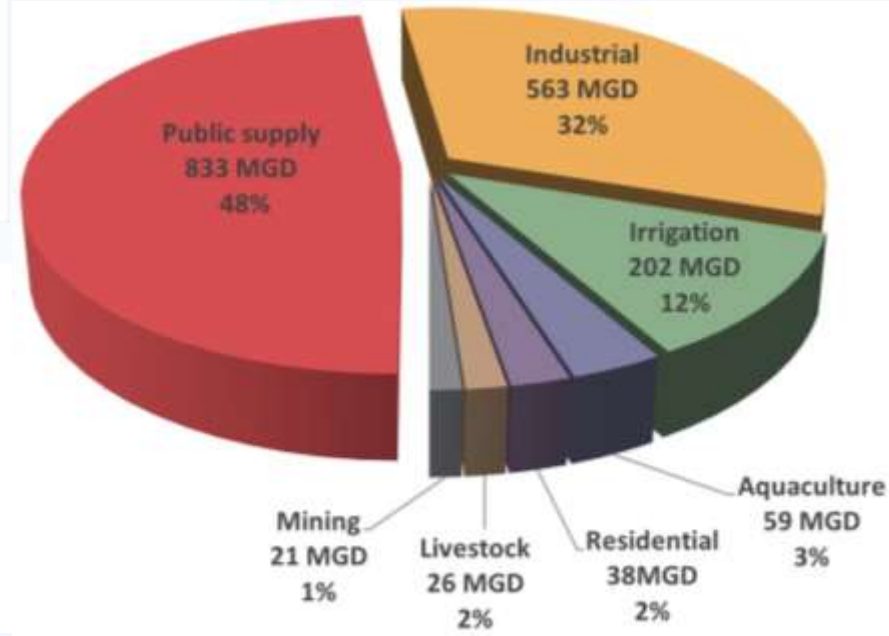
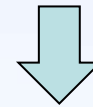


# Total 2010 Water Withdrawals



With Thermoelectric  
withdrawals

Without Thermoelectric  
withdrawals



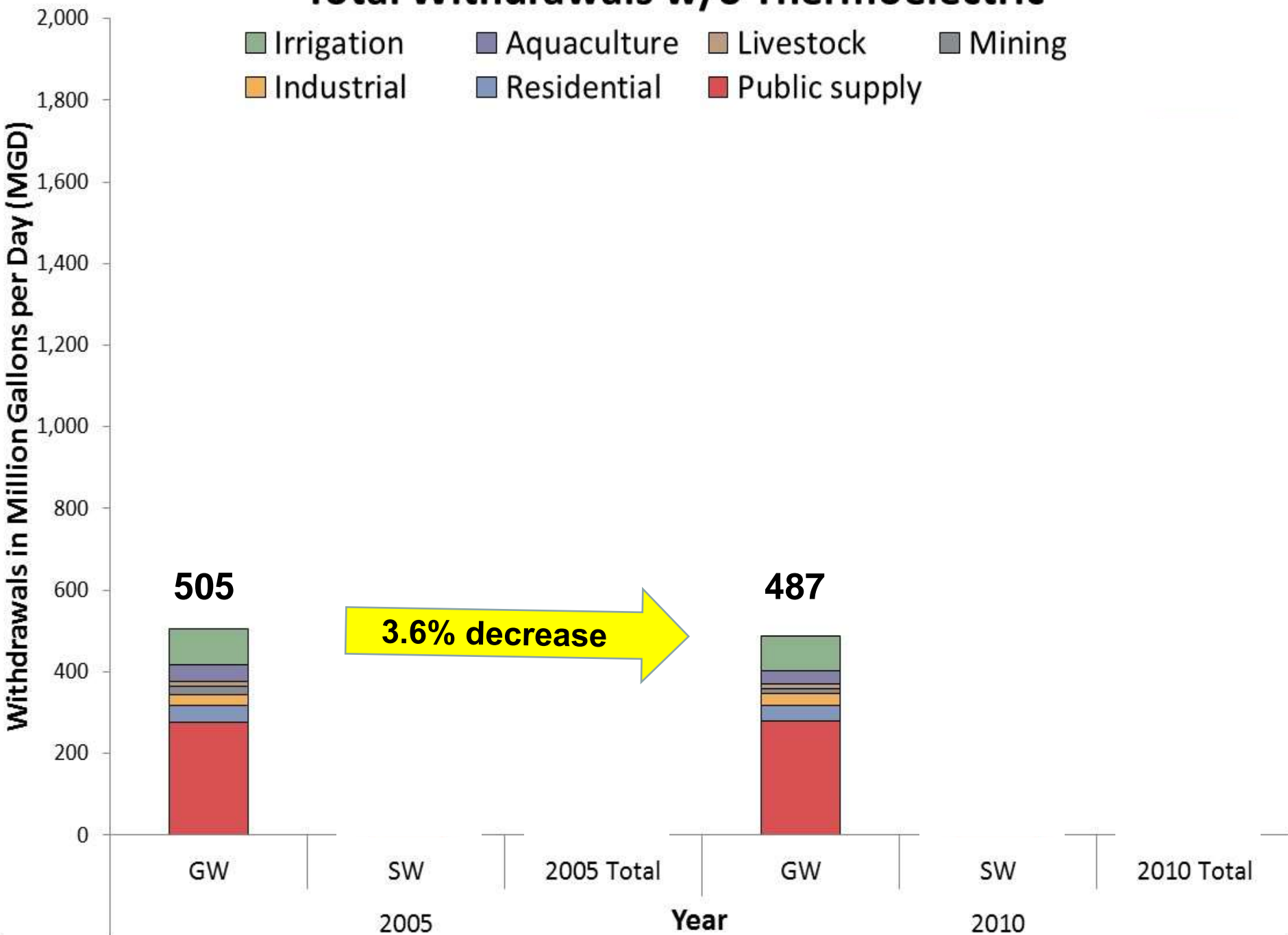


# Total Water Withdrawals Comparing 2005 to 2010





## Total Withdrawals w/o Thermoelectric





# Total Withdrawals w/o Thermoelectric

- Irrigation
- Aquaculture
- Livestock
- Mining
- Industrial
- Residential
- Public supply

Withdrawals in Million Gallons per Day (MGD)

1,254

No Change

1,254

505

487

GW

SW

2005 Total

GW

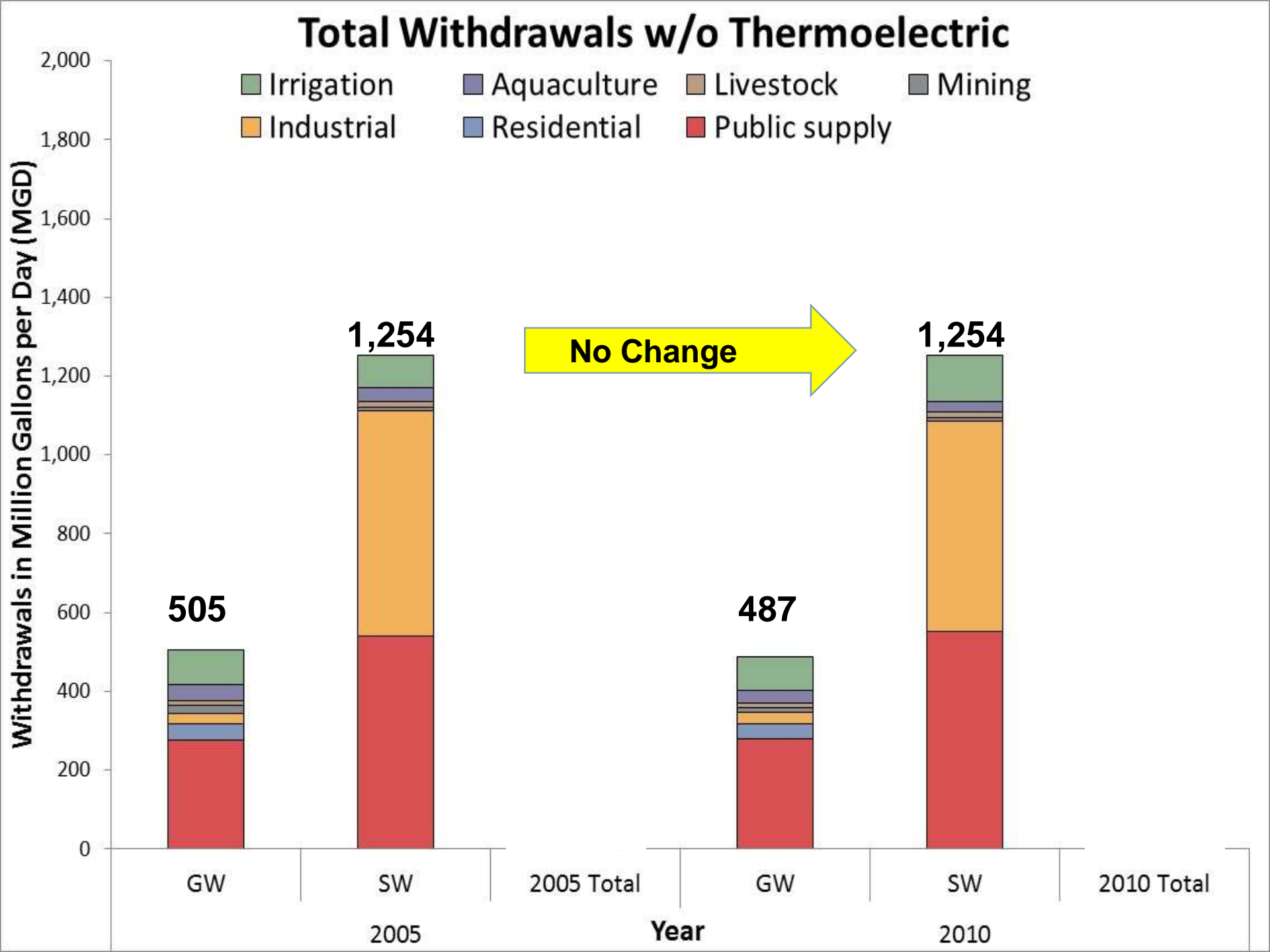
SW

2010 Total

2005

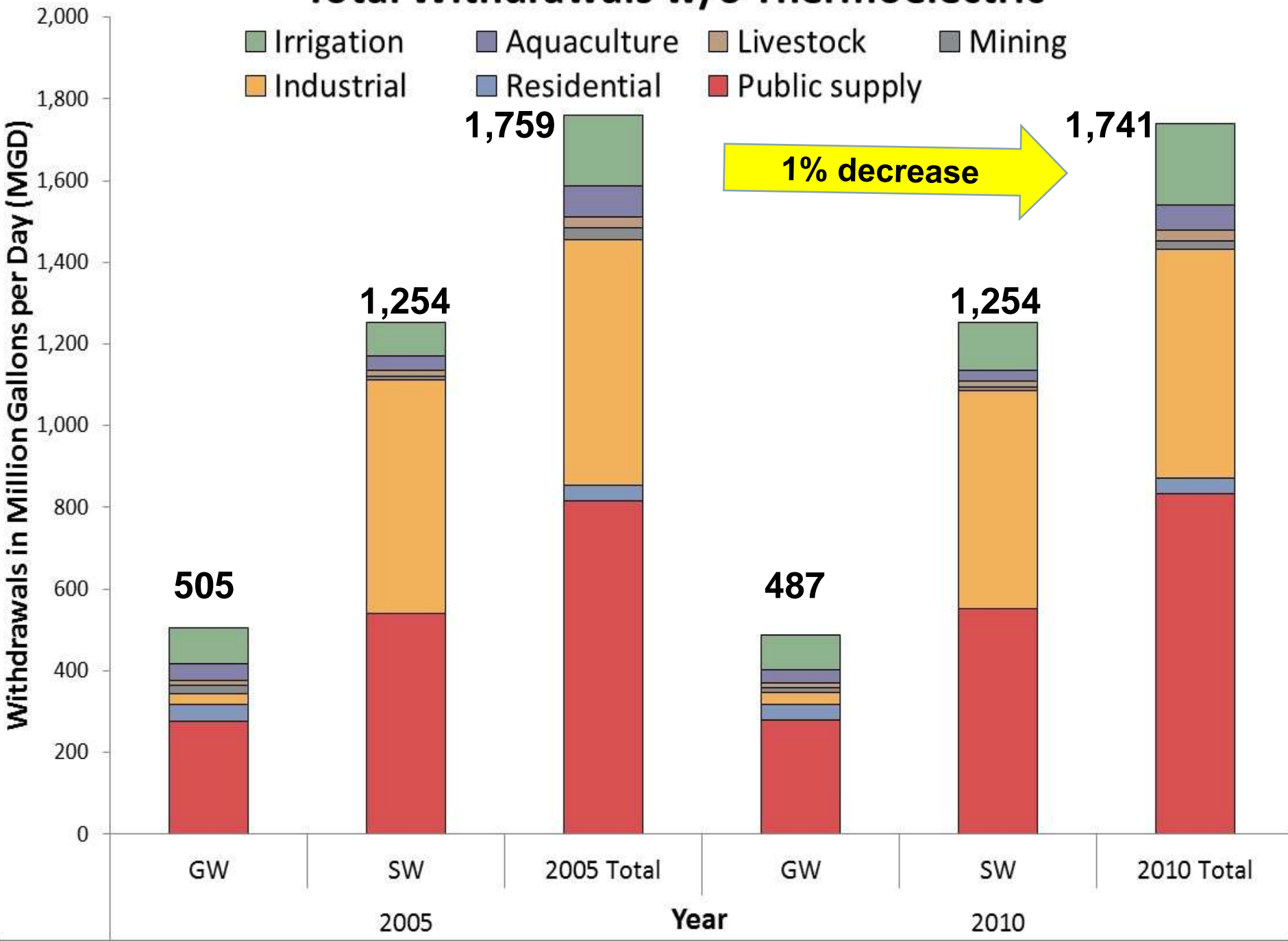
Year

2010



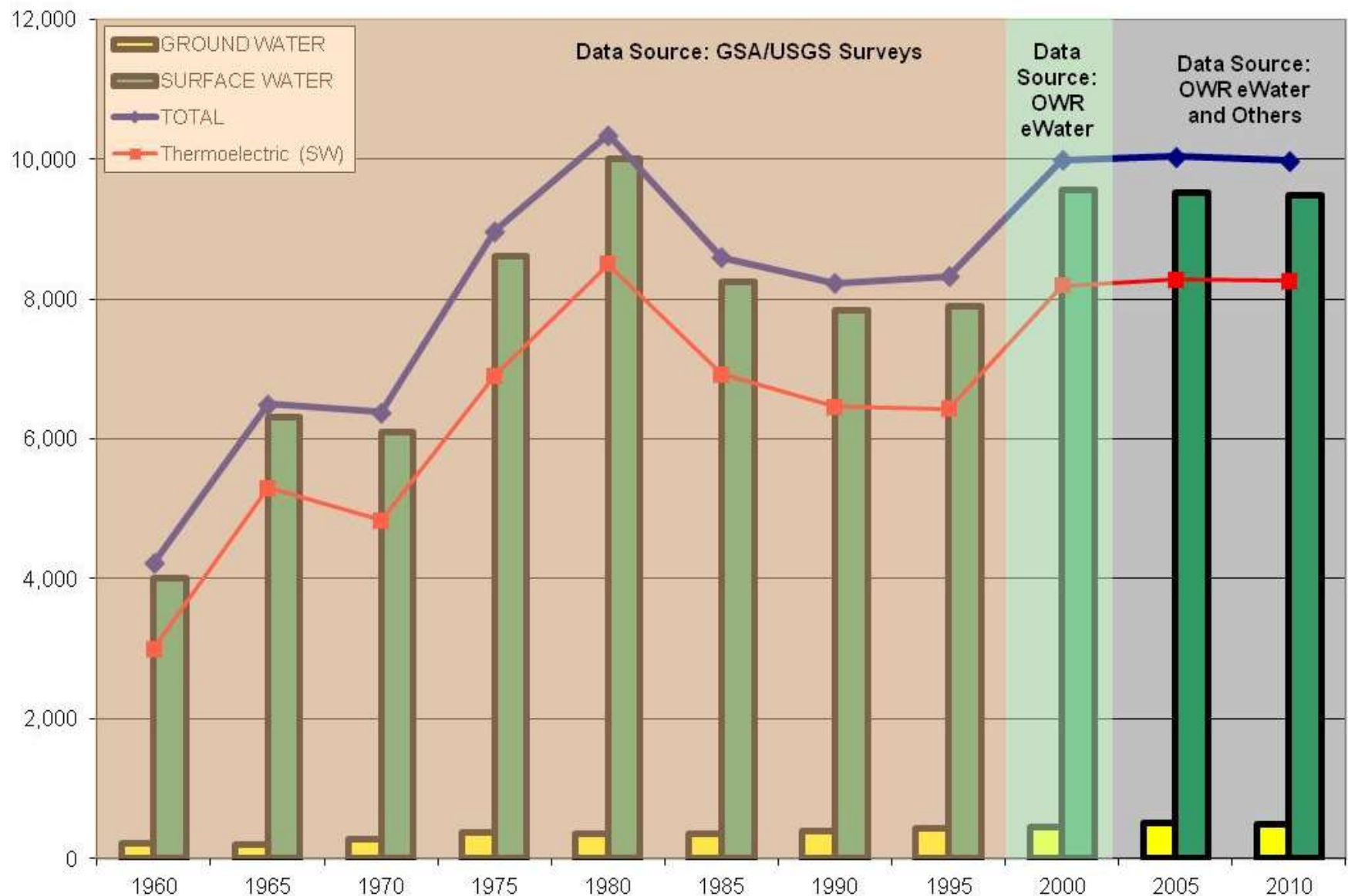


# Total Withdrawals w/o Thermoelectric





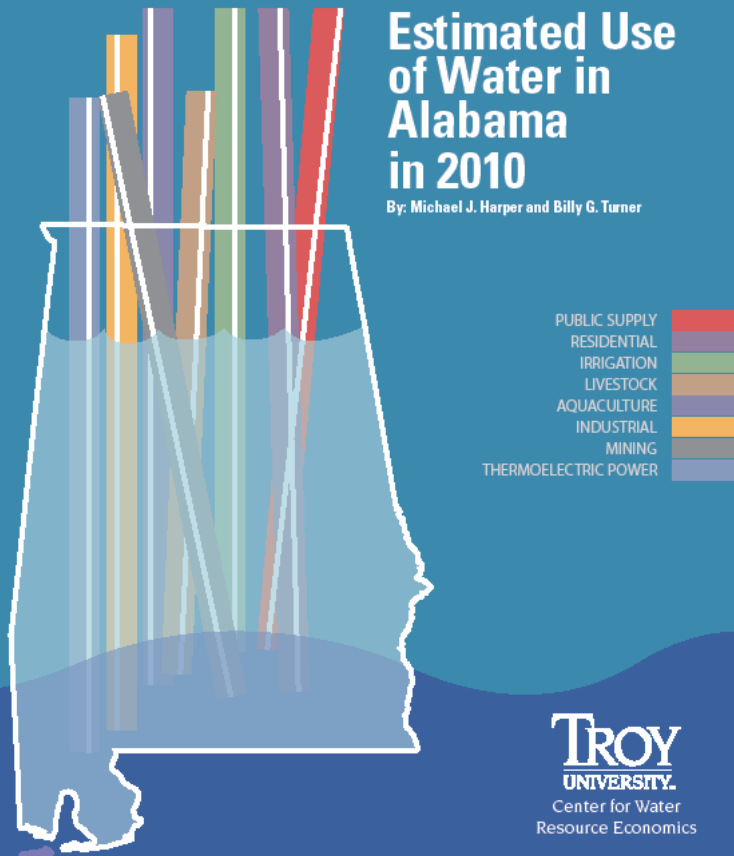
# Total Alabama Water Withdrawals 1960 - 2010





## Estimated Use of Water in Alabama in 2010

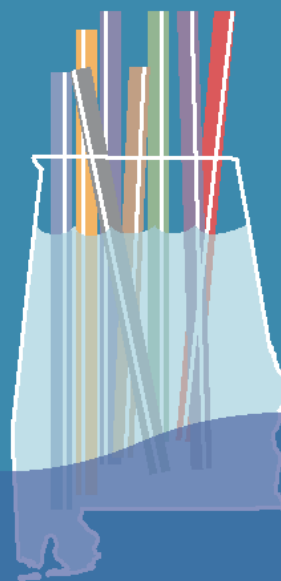
By: Michael J. Harper and Billy G. Turner



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UNIVERSITY  
Center for Water  
Resource Economics

## Water in Alabama, 2010

PUBLIC SUPPLY  
RESIDENTIAL  
IRRIGATION  
LIVESTOCK  
AQUACULTURE  
INDUSTRIAL  
MINING  
THERMOELECTRIC POWER



This fact sheet, prepared by the Alabama Office of Water Resources in cooperation with the Troy University Center for Water Resource Economics, provides summaries of data and information contained in the report entitled, "Estimated Use of Water in Alabama in 2010." That report assesses water withdrawals in all 67 counties and 53 eight-digit hydrologic unit code sub-basins covering the entire state. It summarizes water withdrawal information at the state and county level for eight categories that include public supply, self-supplied residential, irrigation, livestock, aquaculture, industrial, mining, and thermoelectric power. It also summarizes withdrawal information at sub-basin level for five categories that include public supply, irrigation, livestock, industrial, and thermoelectric power. The primary source of the information is the Alabama Water Use Reporting Program, which has existed since the passage of the Alabama Water Resources Act in 1993. Additional data used is the result of cooperation with several state and federal agencies and institutions. The fact sheet and report are accessible at <http://water.alabama.gov> and also available on request as a CD-ROM through ADECA-OWR.

### KEY FINDINGS:

- Total withdrawals were 9,998 million gallons per day (MGD) for Alabama in 2010. Surface water provided 95% of the total and groundwater provided the remaining 5%.
- Total withdrawals, excluding thermoelectric power, were 1,741 MGD. Surface water provided 78% of the total and groundwater provided the remaining 22%.
- Thermoelectric power accounted for 87% of the total surface water withdrawals.
- Public-supply withdrawals accounted for 8% of the total withdrawals, and 48% of total withdrawals excluding thermoelectric.
- Self-supplied industrial withdrawals accounted for 6% of total withdrawals and 32% of total withdrawals excluding thermoelectric.
- More surface water was withdrawn than groundwater for all categories except aquaculture, mining, and self-supplied residential.
- Total water use in 2010 was slightly less than total water use in 2005. Total water withdrawals decreased 0.4% from 2005 to 2010 (10,033 MGD to 9,998 MGD, respectively).
- Public-supply withdrawals increased 2% from 816 MGD in 2005 to 833 MGD in 2010.
- Self-supplied industrial withdrawals decreased 6% from 600 MGD in 2005 to 562 MGD in 2010.

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Resource Economics

# Pick up your copy at the OWR display booth!



# 2010 Water Use Report Wrap-up

- Very little change in total water withdrawals from 2005 to 2010
  - Even with some population growth and less rainfall
- 2010 report is available on our website at <http://water.alabama.gov>
- Interactive website coming soon
- Pick up your copy of the 2010 “Water Use in Alabama” CD and Fact Sheet at OWR display booth





# Looking Ahead 2015 Water Use Report





# 2015 Water Use Report

- 2015 Annual Reports to be mailed out this December
  - Package will include the Public Water Survey, just like 2005 and 2010 to collect more detailed information on:
    - Population served
    - Residential connections/water sold
    - Commercial/industrial connections/water sold
    - In-systems uses and losses
      - Flushing, firefighting, leaks, etc.





# Wrap Up

- OWR is the primary agency in Alabama to collect and assess water usage patterns throughout the state
- OWR has developed good estimates of water usage for Alabama for 2005 and 2010
- We are beginning the process for the 2015 report
- This data and information is fundamental to our ability to understand water usage in Alabama and support efforts to enhance water management programs and policies





# Thank You!

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