

CURRENT AGRICULTURAL DEMAND ESTIMATES – METHODS FOR UPDATE

Middle Ocmulgee Regional Water
Planning Council
March 30, 2016

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Overview of Presentation

▣ Background

- Who we are
- How the estimates and forecasts will be used

▣ Methods

- Round 1 Review
- Round 2:
 - Animal agriculture and horticultural sector water demands
 - Current agricultural (crop) use estimates
 - Agricultural demand forecasts

▣ Results

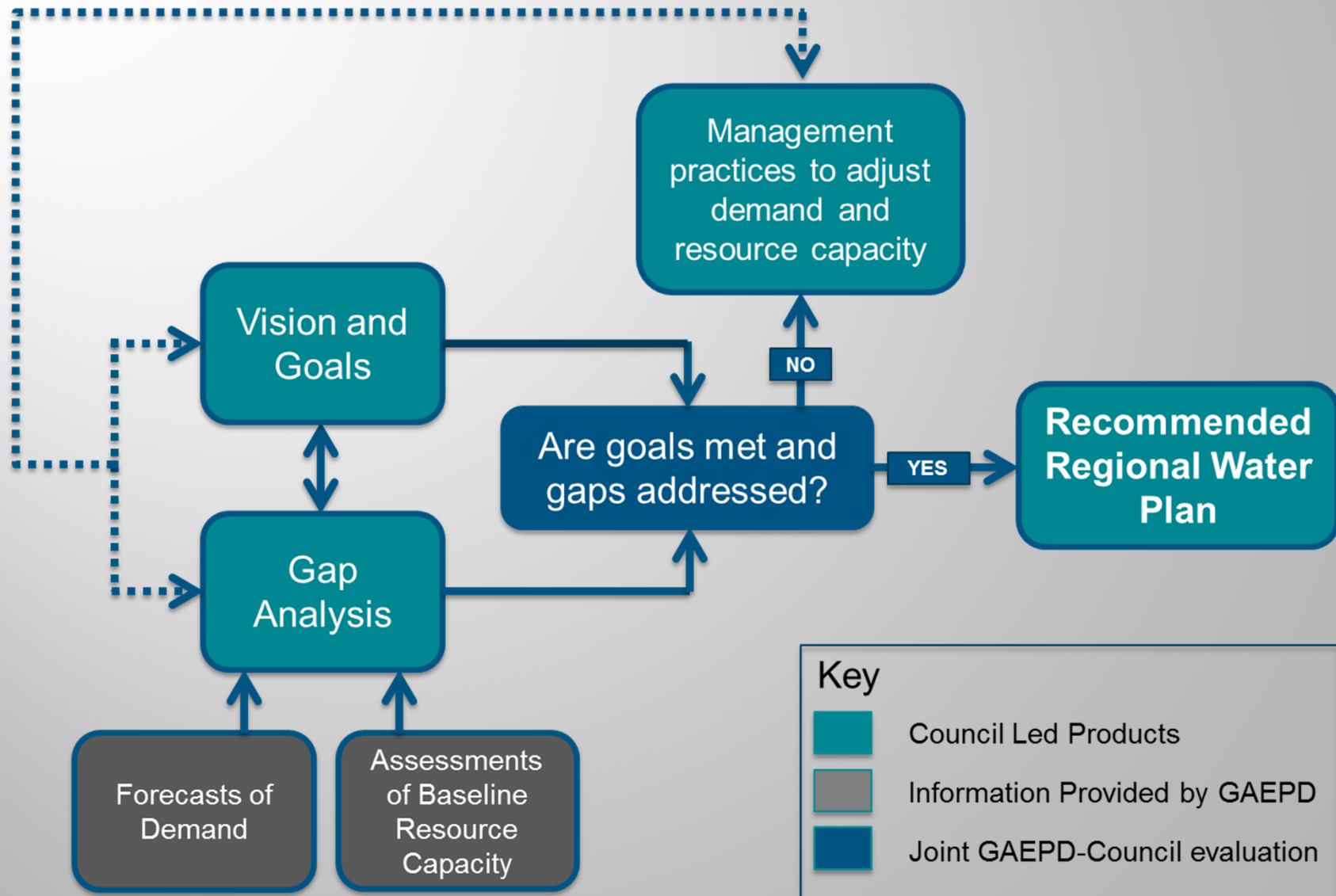
- Current demand – metered data
- Forecasts

Project Team

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



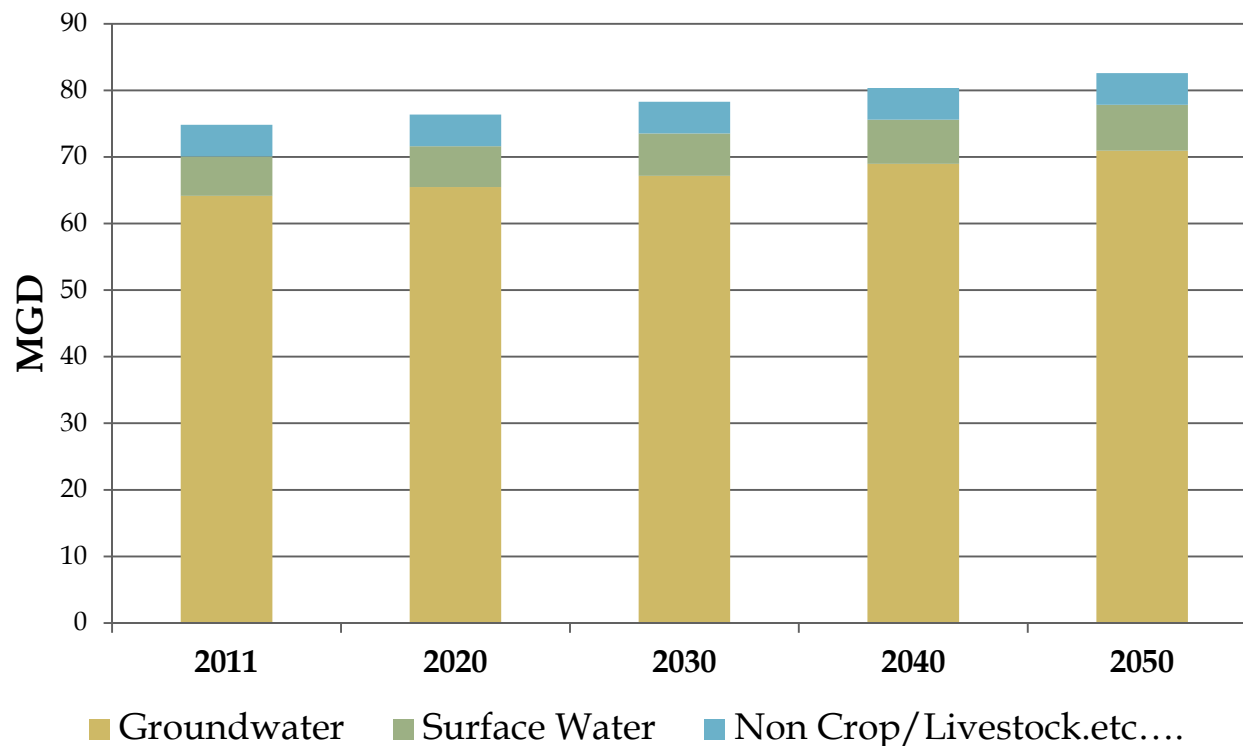
How the Results will be Used



Agricultural Water Demand Estimates: Round 1(2009-2010)

- ▣ Acreage – irrigated acres
- ▣ Water Use – what crops, and crop water use
- ▣ Other Ag Demand (livestock, nursery, golf course)

2011 RWP Ag Forecast



2015-2016 Ag Water Demand Update Components

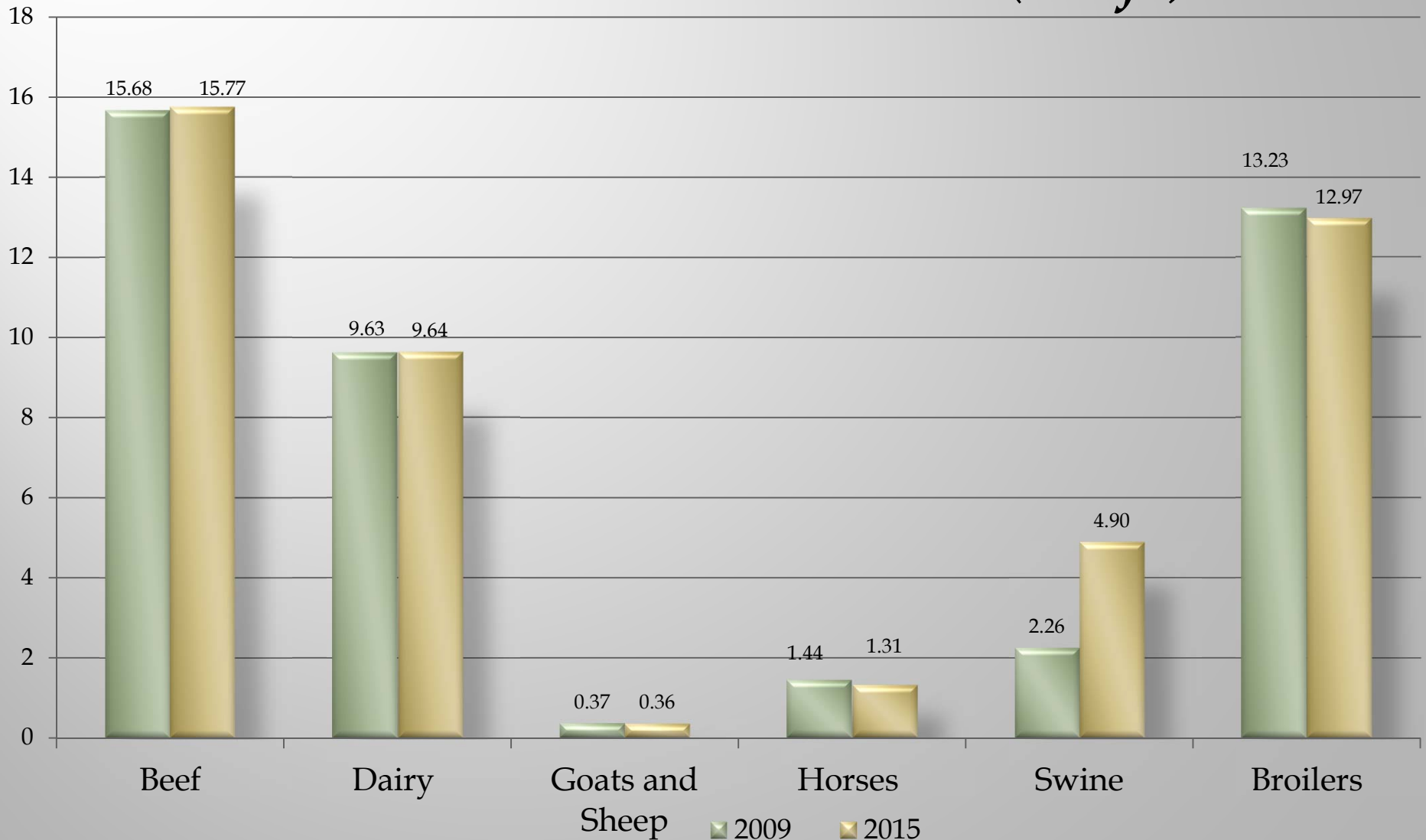
- ▣ Animal Agriculture
- ▣ Horticultural Sector Water Use
- ▣ **Current** Agricultural Water Use Estimates
- ▣ Agricultural Water Demand **Forecasts**

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

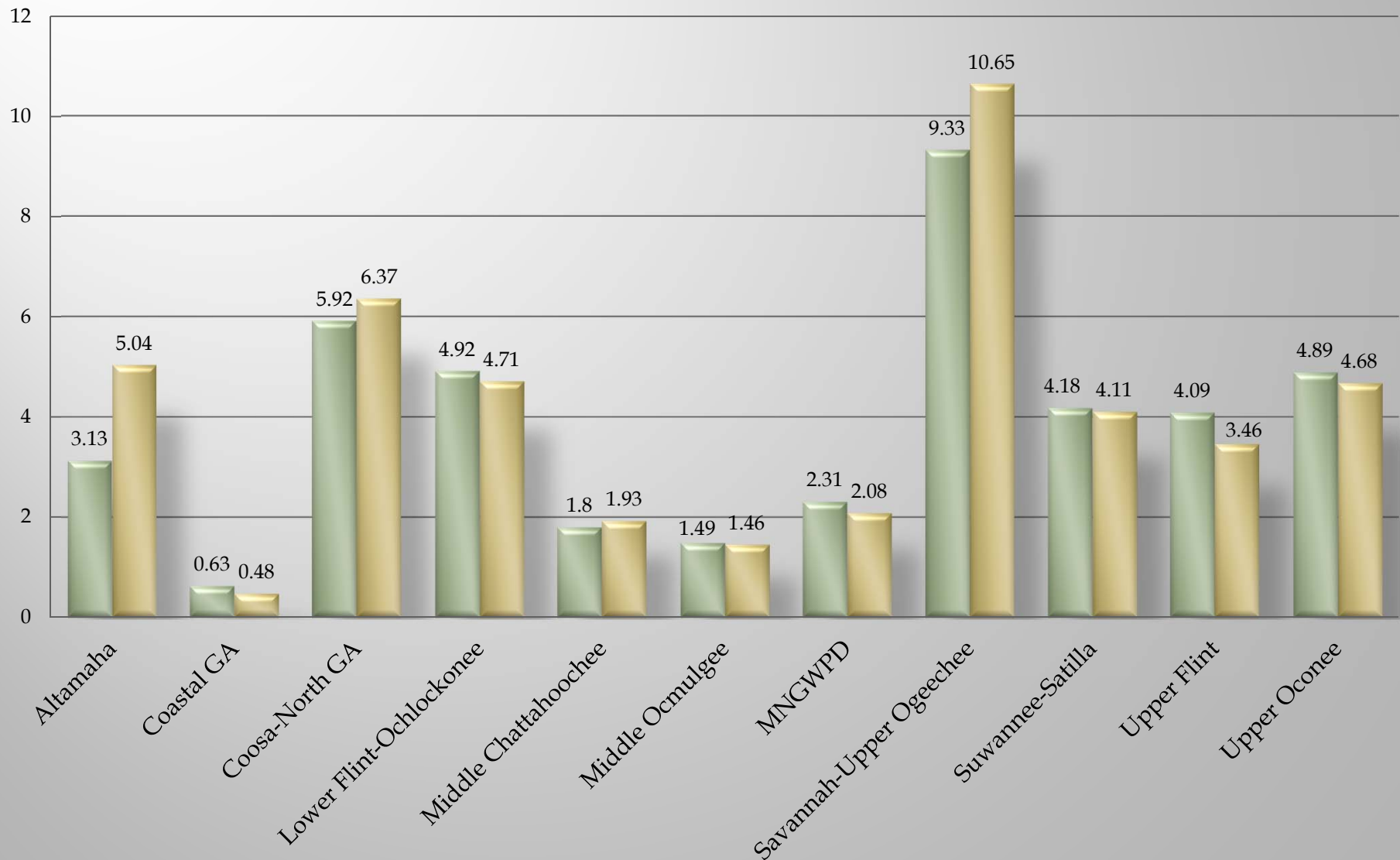
Animal Agriculture - Statewide Daily Water Use by Type of Animal

Statewide Total: 45 MGD (*draft*)



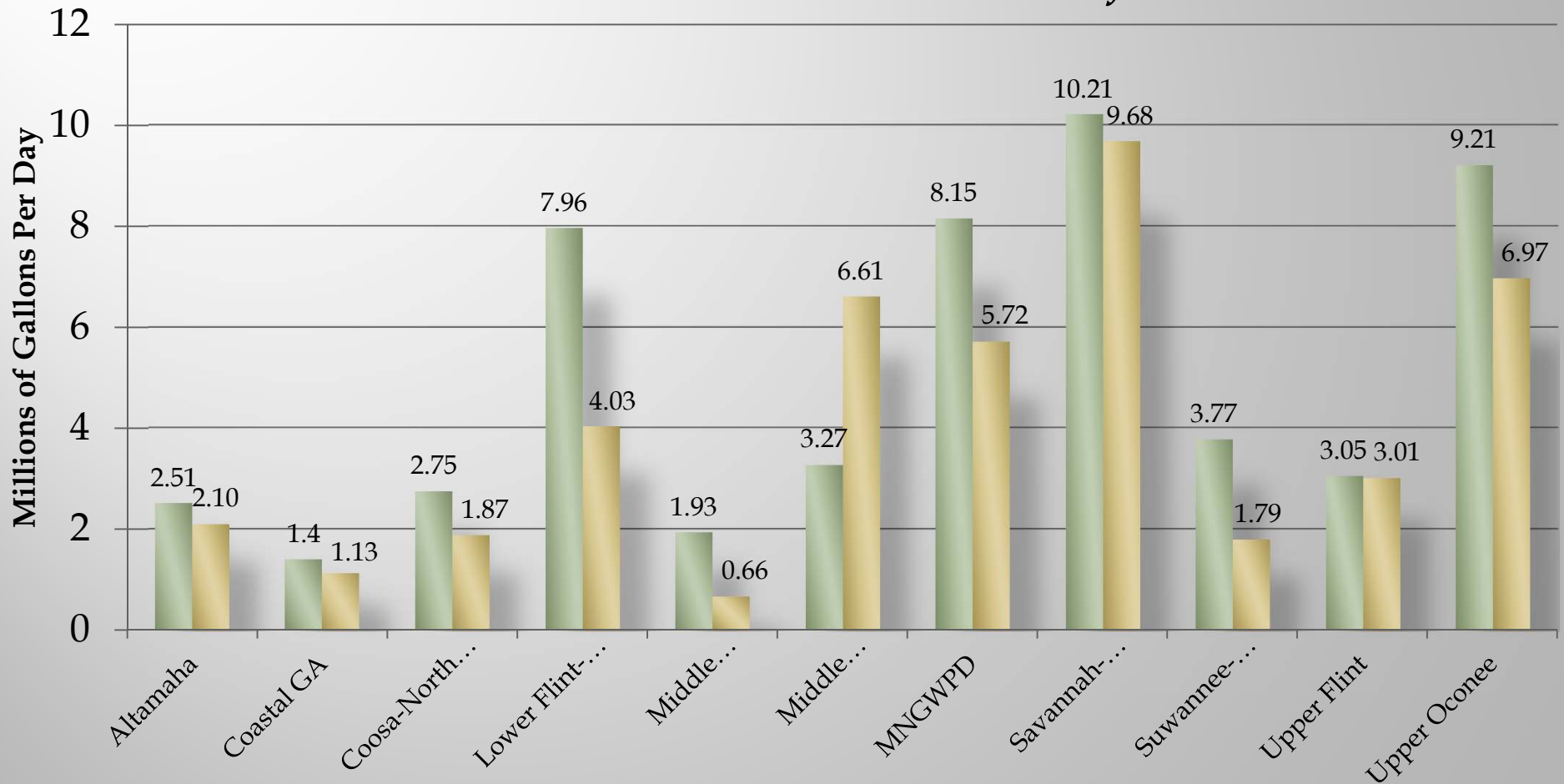
Animal Agriculture - Daily Water Use by Water Planning Region

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**

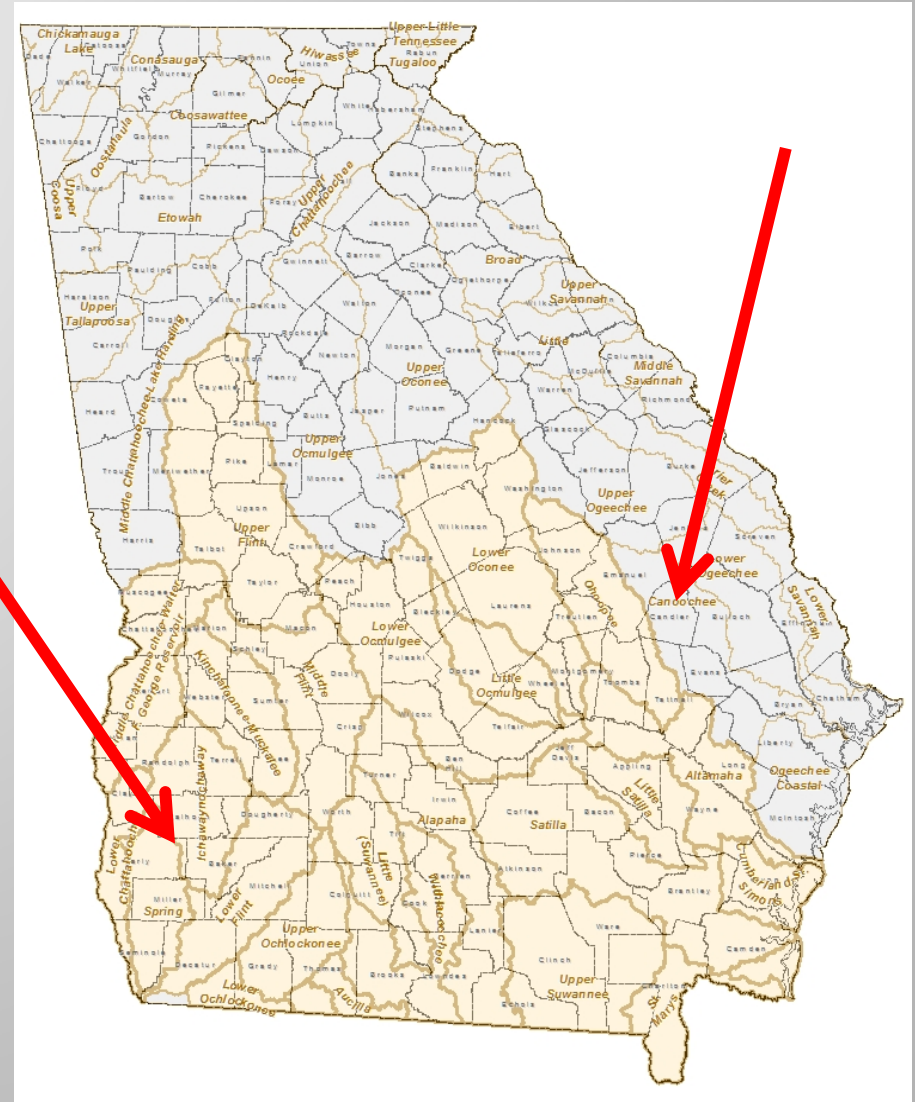
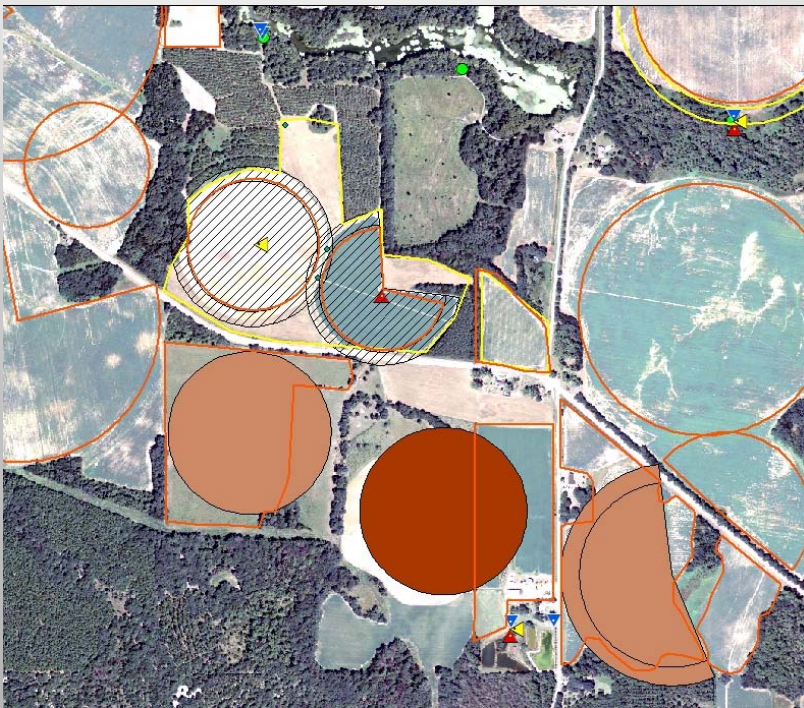
- ▣ Detailed mapping
- ▣ Desktop survey
- ▣ Review source assumptions

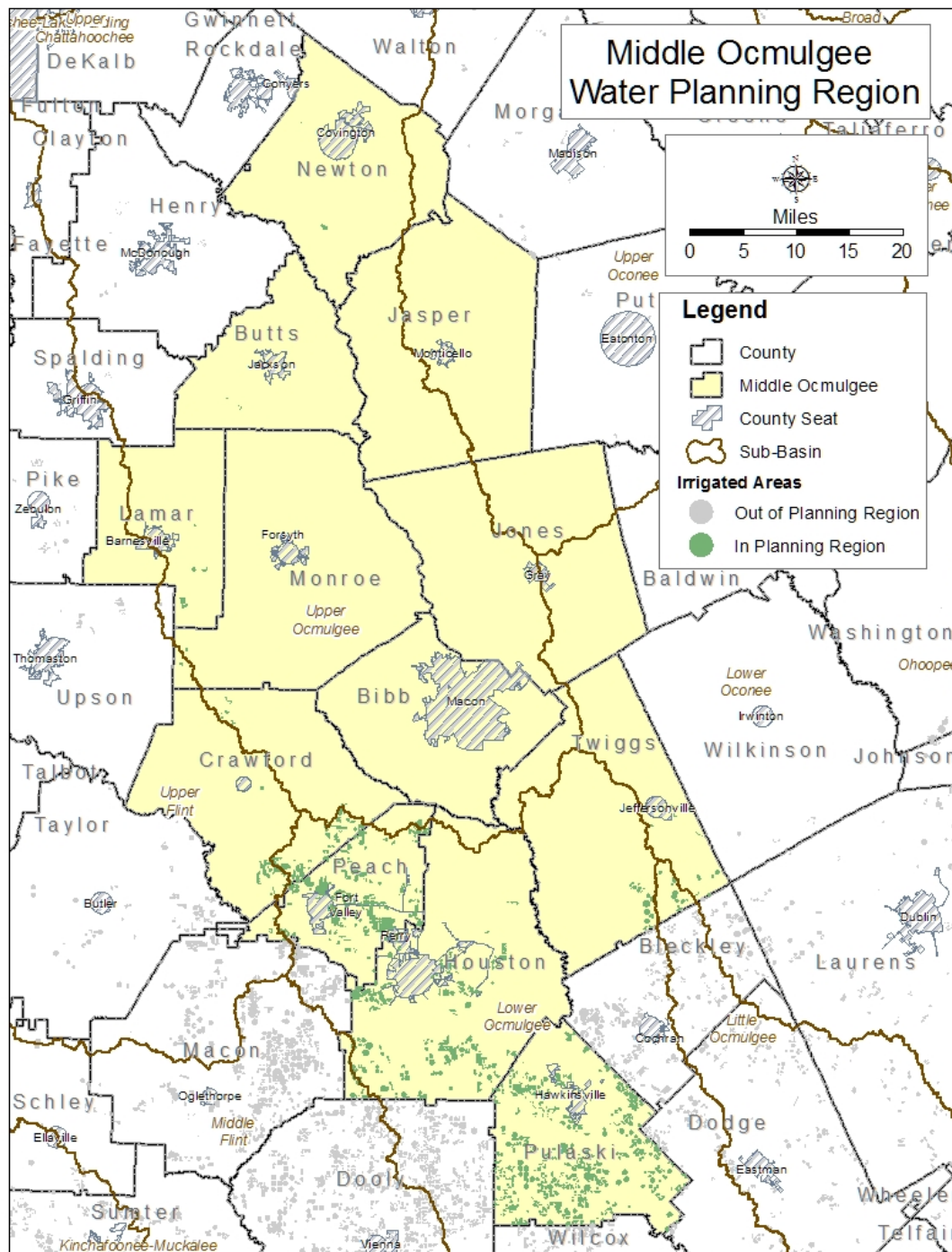
▣ **Water Use**

- ▣ Use of meter data for current demand (2010 – 2013)
- ▣ Replication of 2009-10 methods with revised acres

2015-16 Current Agricultural Water Use Estimates - Methods

- ▣ **Wetted Acreage Mapping**
 - ▣ Detailed mapping
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 - ▣ Review source assumptions





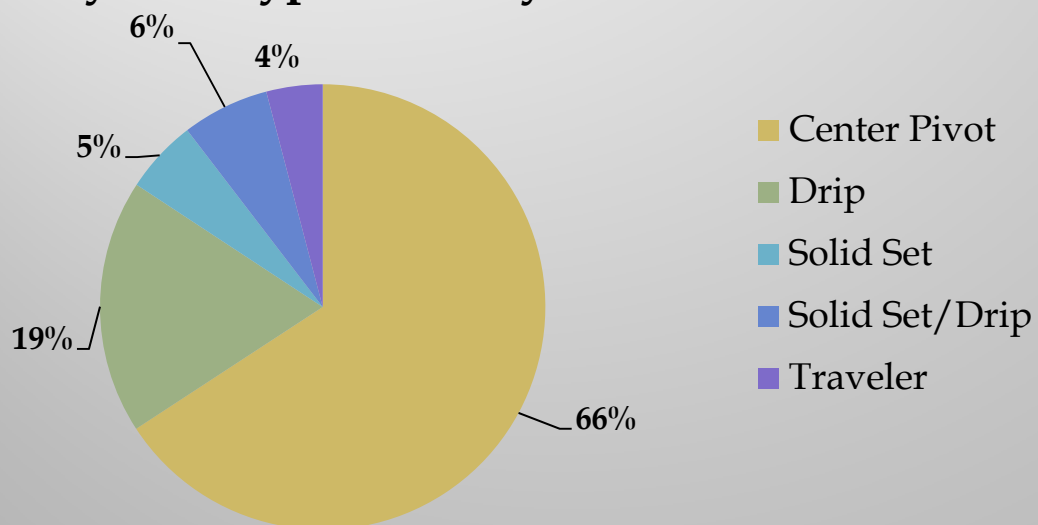
Irrigated Acres

County	2009	2014
BIBB	167	0
BUTTS	47	47
CRAWFORD	4,922	5,386
HOUSTON	10,957	14,649
JASPER	165	0
JONES	73	0
LAMAR	577	486
MONROE	148	116
NEWTON	212	212
PEACH	12,921	13,657
PULASKI	21,608	27,118
TWIGGS	2,175	2,765

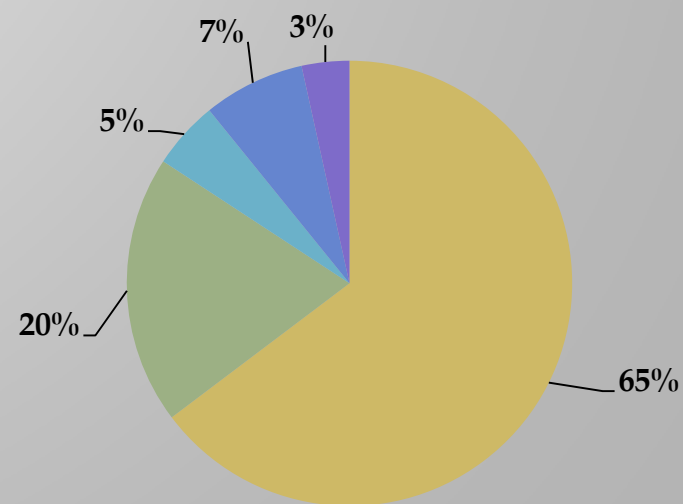
Middle Ocmulgee Georgia RWPC

	2009	2014	% Change
Total # of Fields	891	1,107	+ 24.2%
Total Acreage	53,972	64,437	+ 19.4%
Total GW Acreage	45,440	56,635	+ 24.6%
Total SW Acreage	8,532	7,802	- 8.6%
Total Center Pivots	509	727	+ 42.8%
Center Pivot Acreage	32,699	41,657	+ 27.4%

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

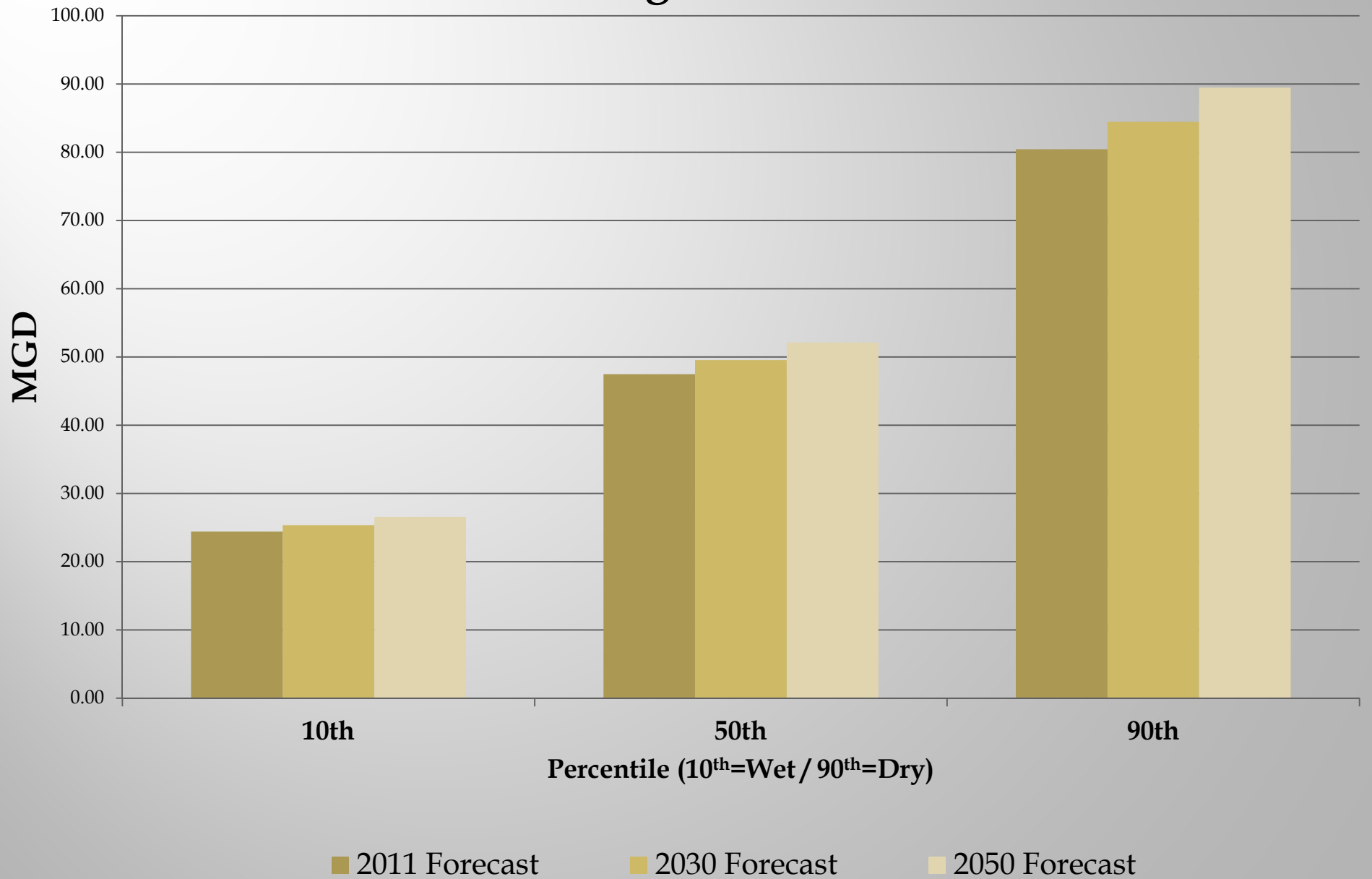
- ▣ Use of meter data for current demand (2010 – 2013)
- ▣ Replication of 2009-10 methods with revised acres

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

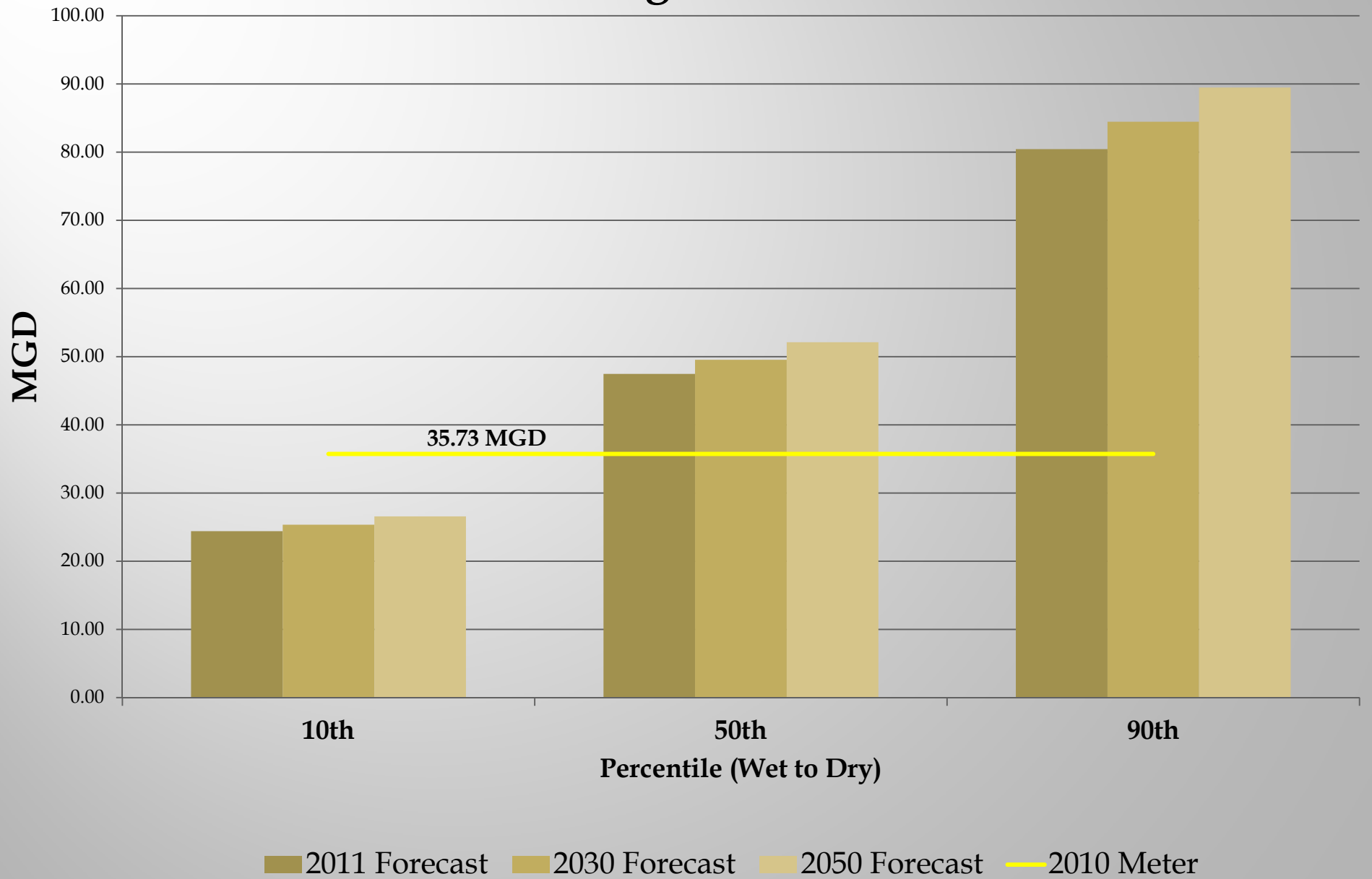
Results

Current Demand Estimate from Meter Data

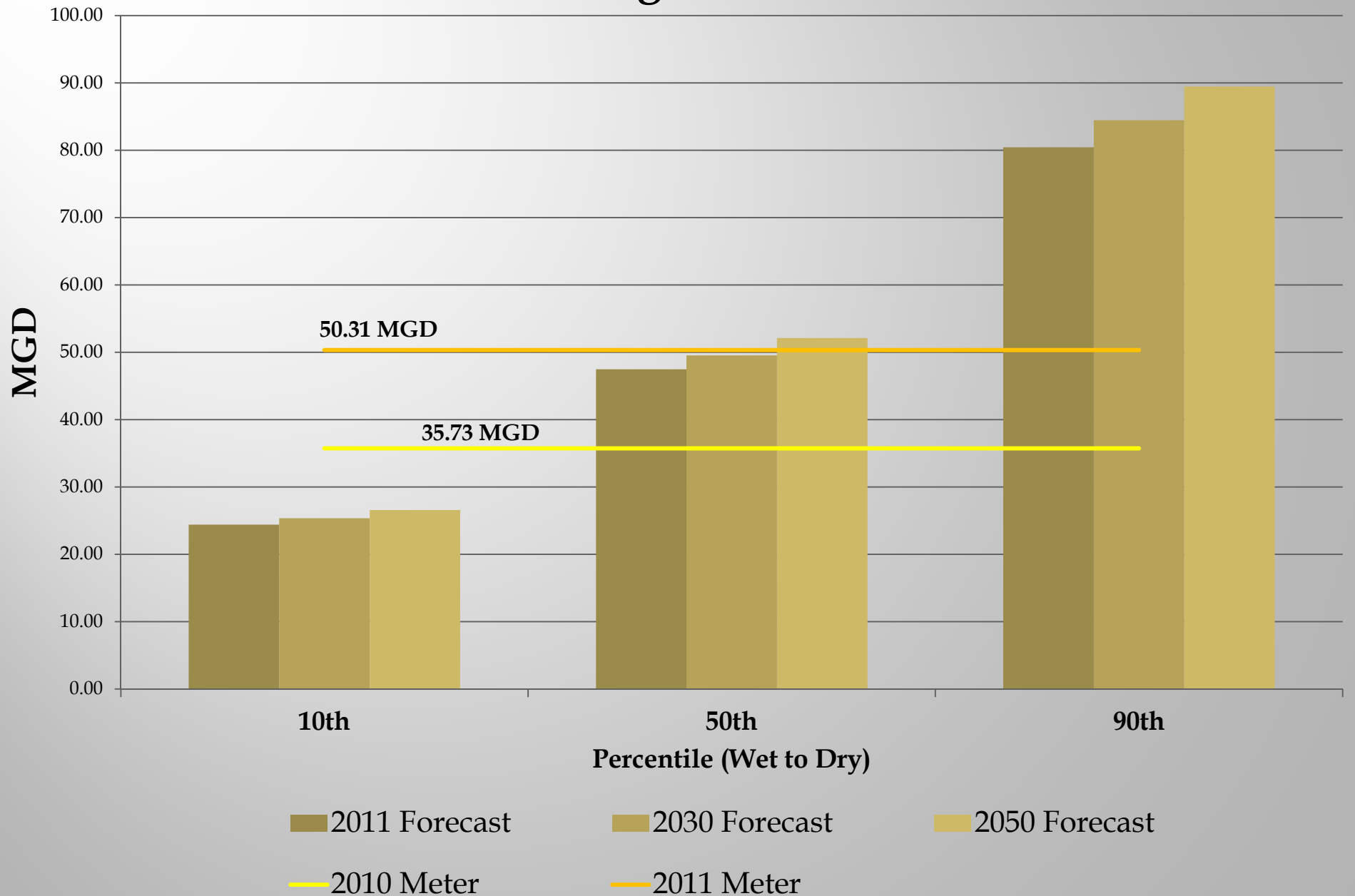
Middle Ocmulgee - Groundwater



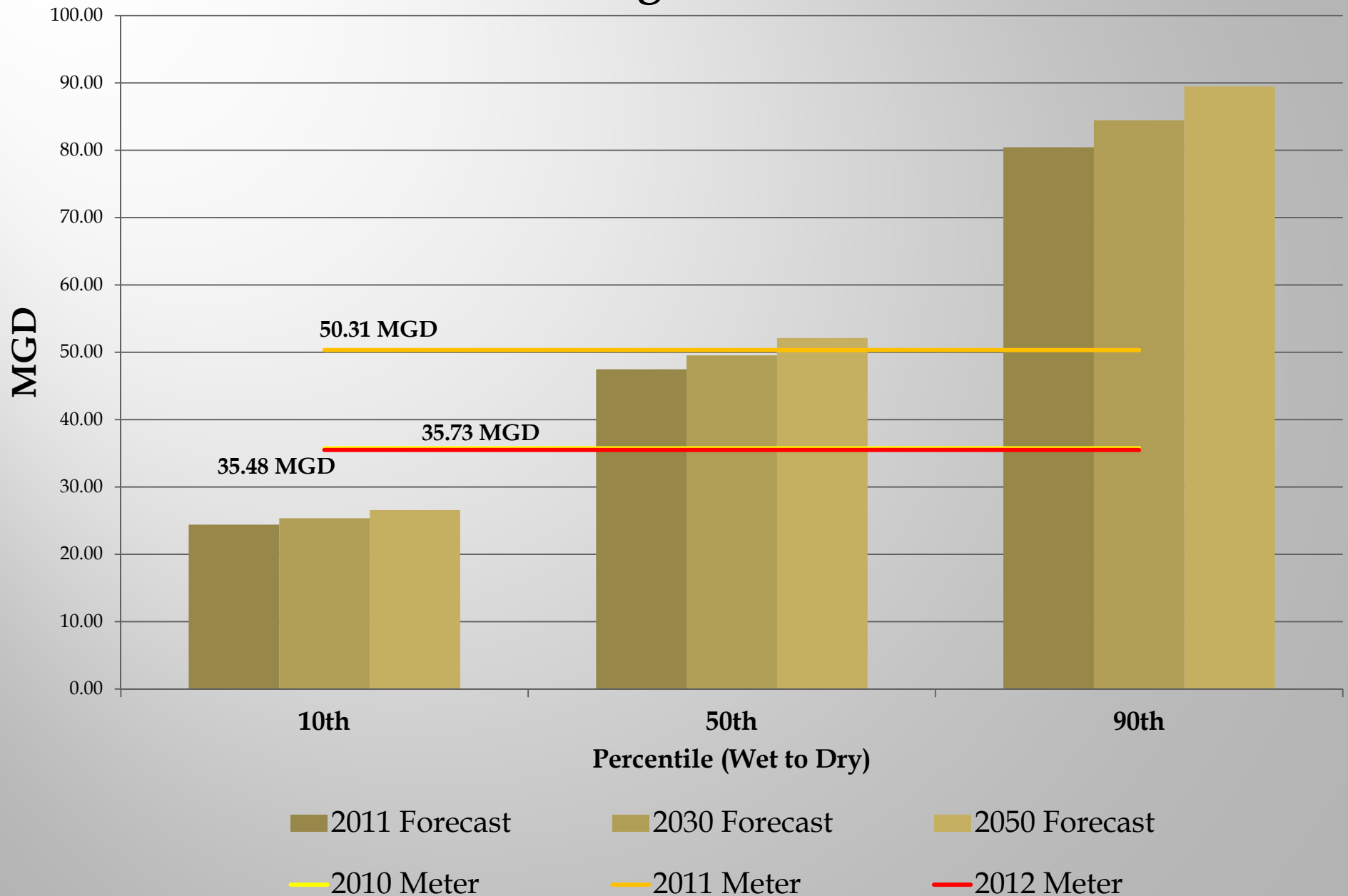
Middle Ocmulgee - Groundwater



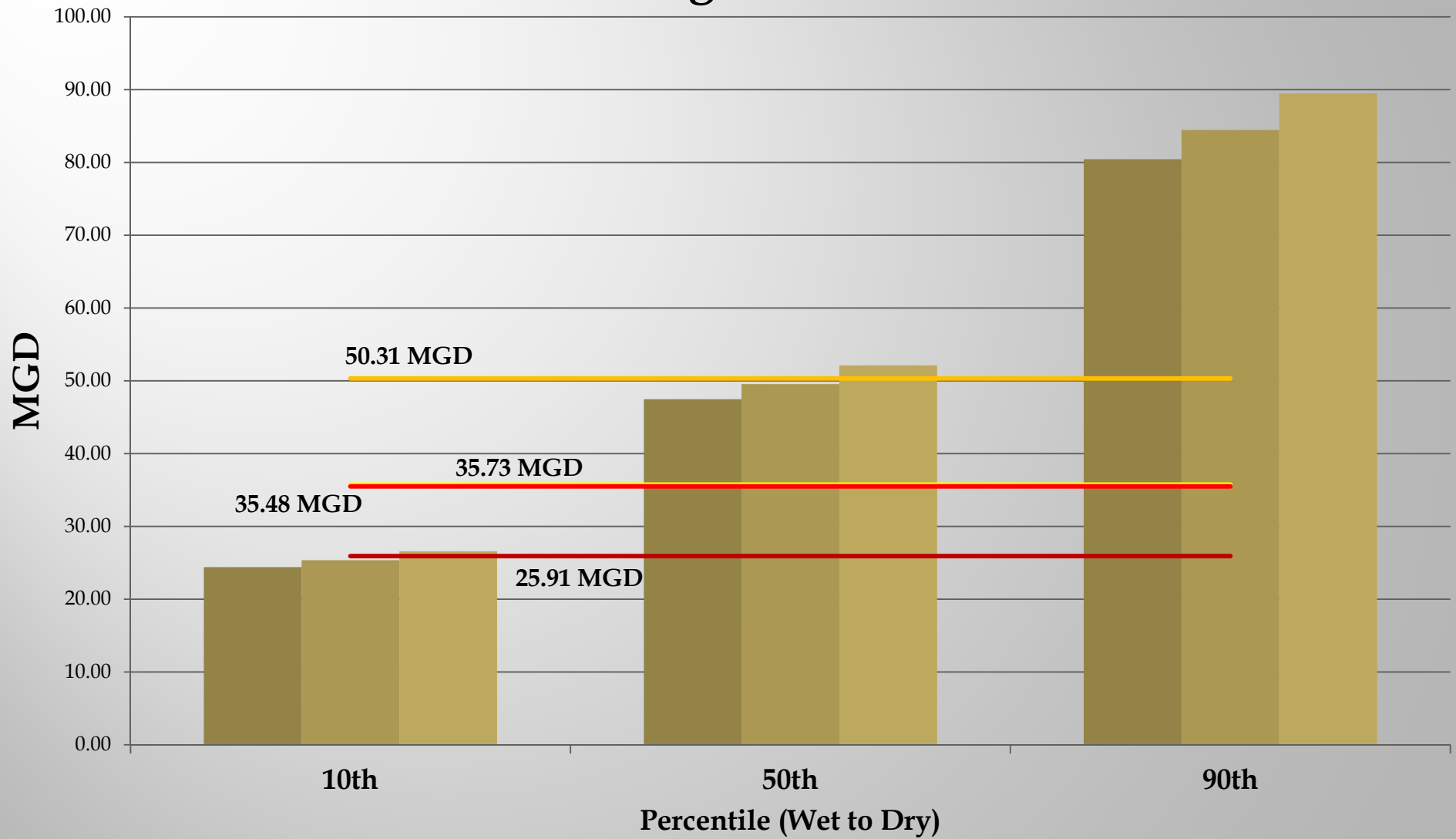
Middle Ocmulgee - Groundwater



Middle Ocmulgee - Groundwater

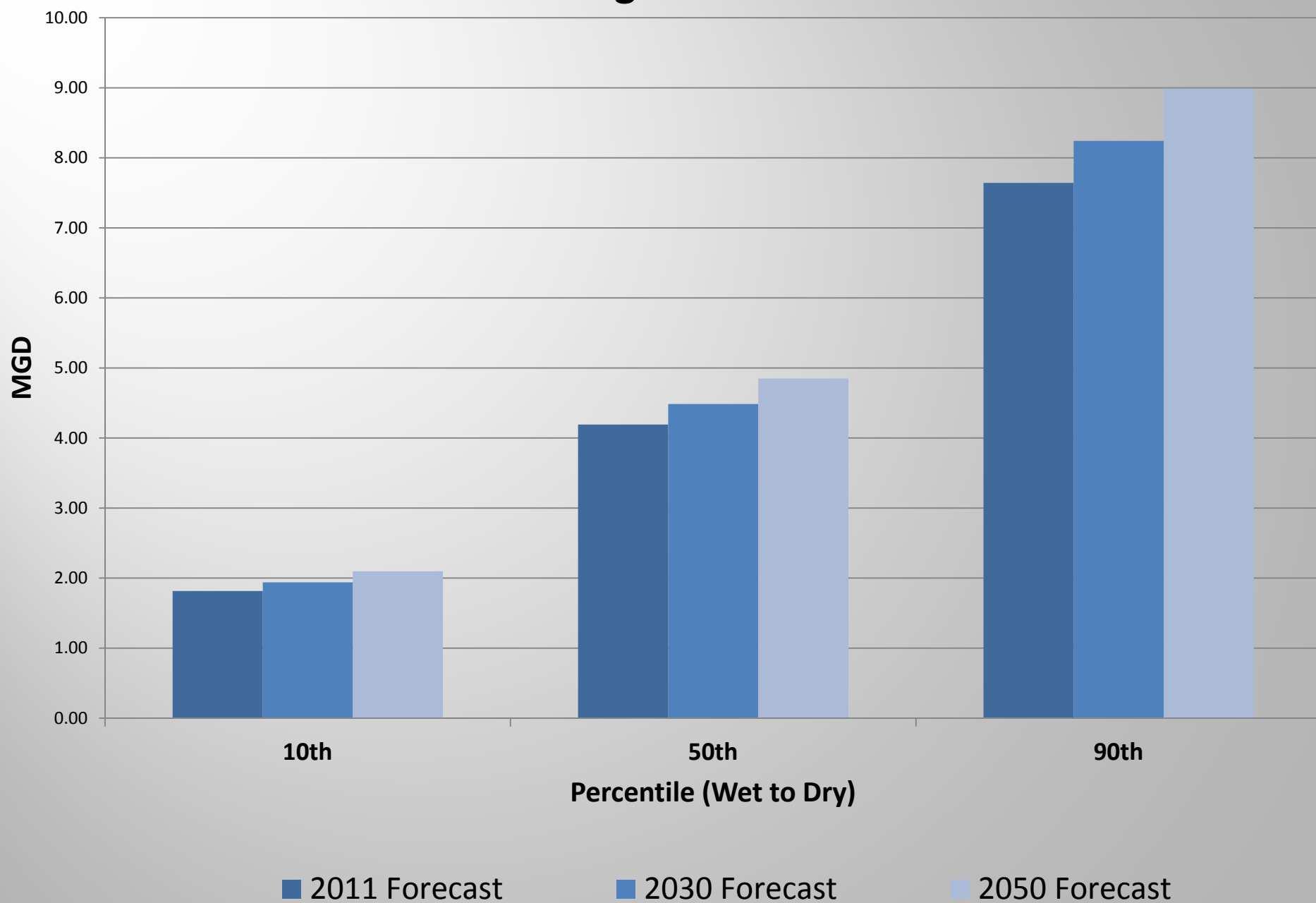


Middle Ocmulgee - Groundwater

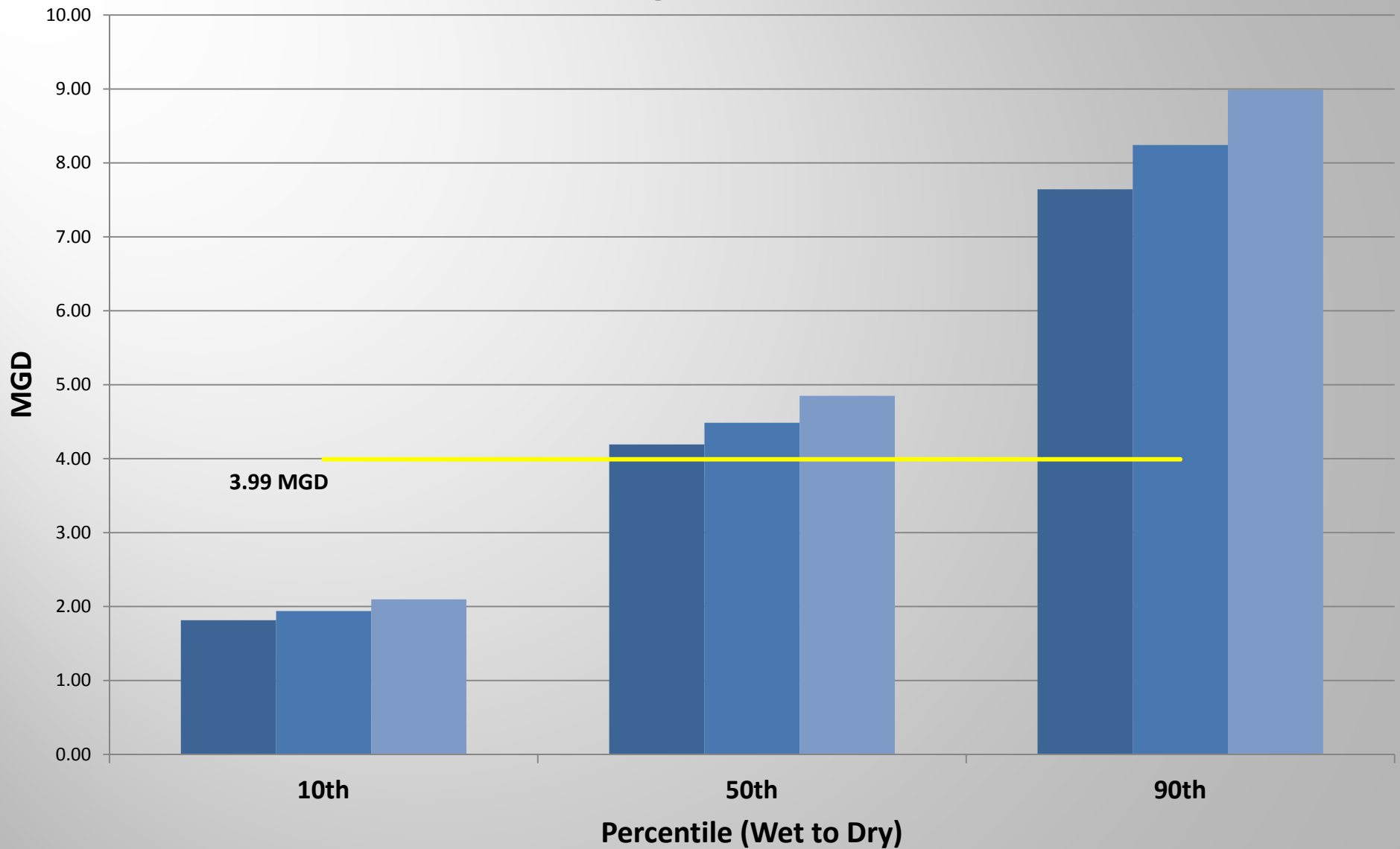


2011 Forecast 2030 Forecast 2050 Forecast 2010 Meter
2011 Meter 2012 Meter 2013 Meter

Middle Ocmulgee - Surface Water

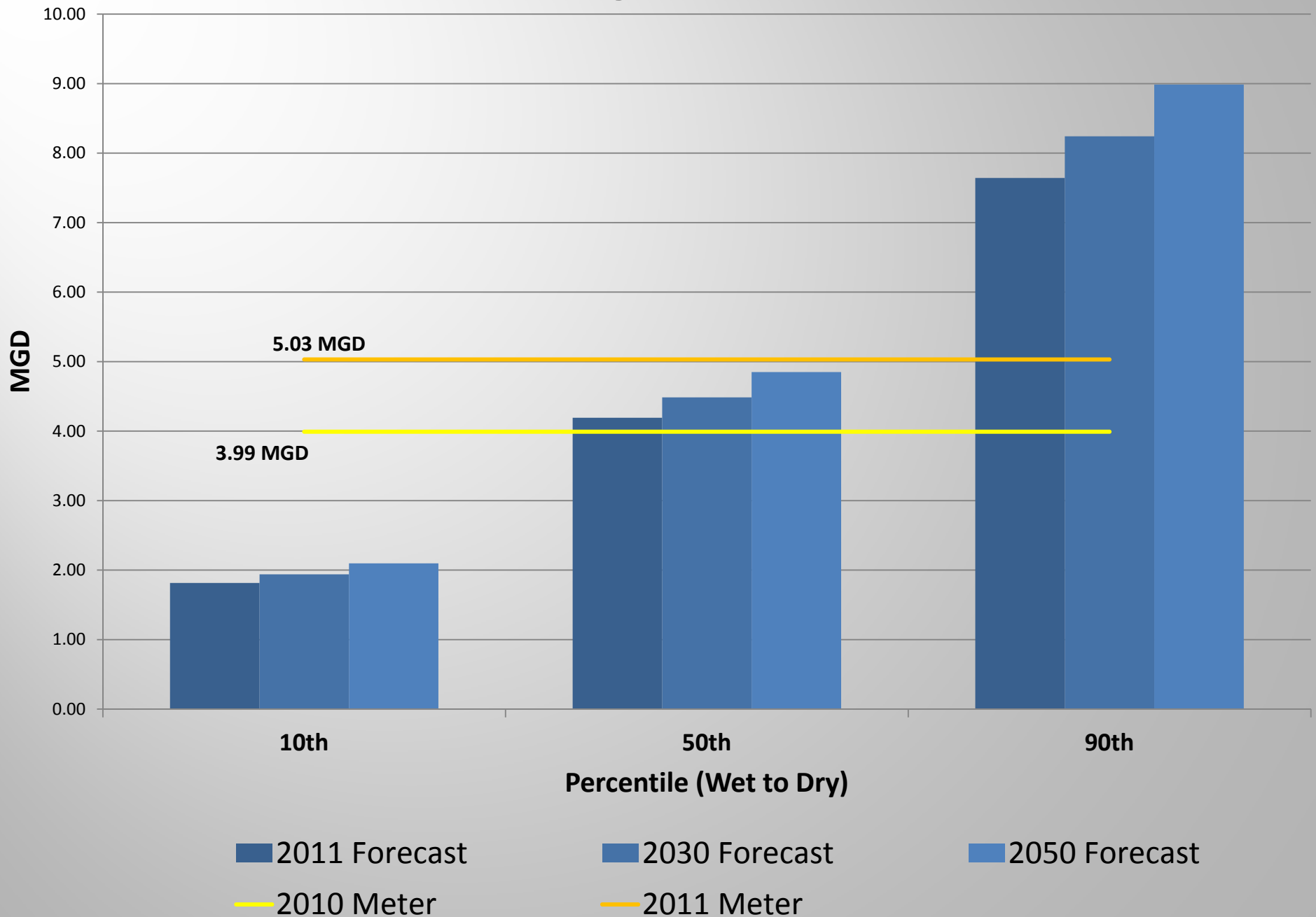


Middle Ocmulgee - Surface Water

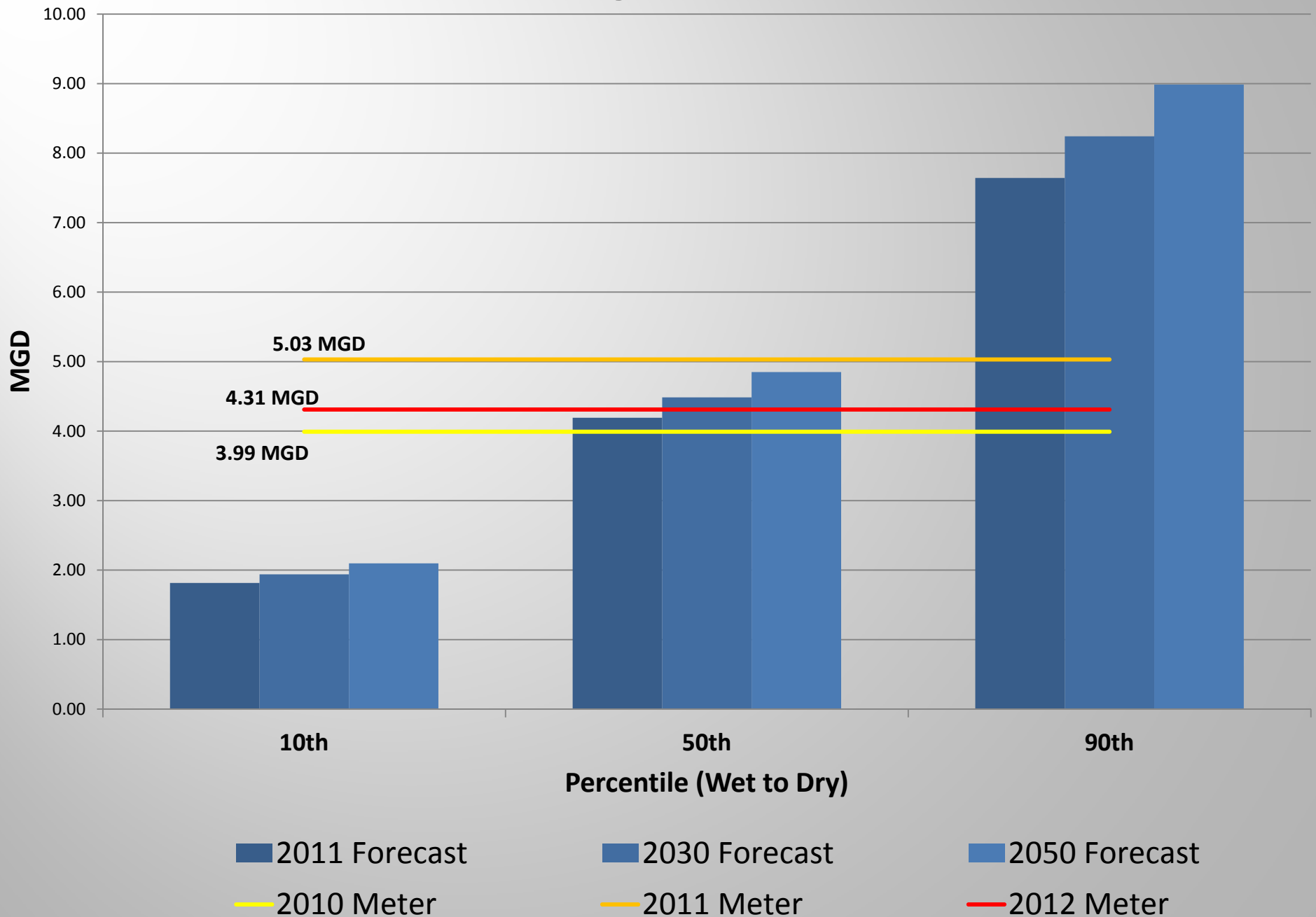


■ 2011 Forecast ■ 2030 Forecast ■ 2050 Forecast — 2010 Meter

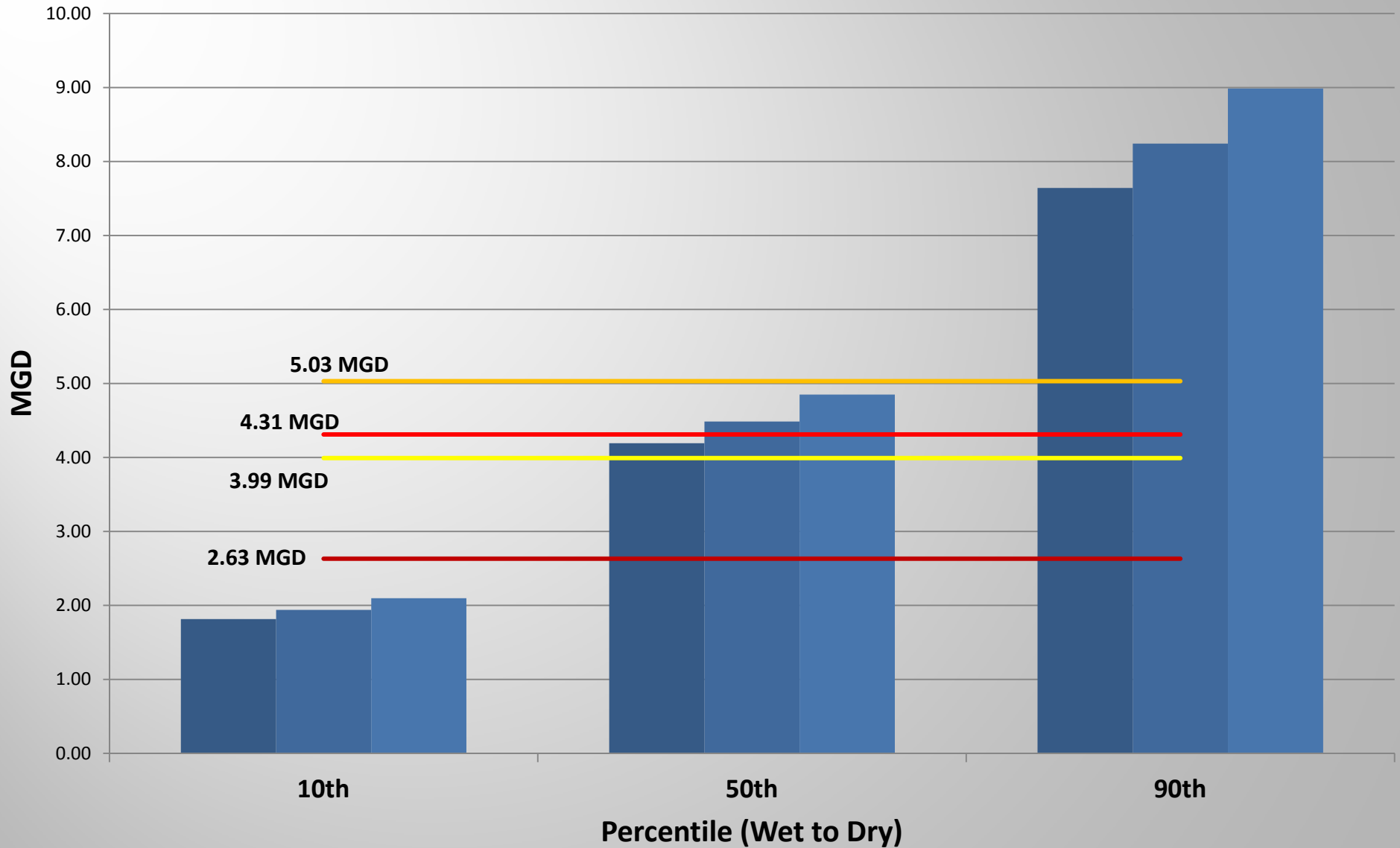
Middle Ocmulgee - Surface Water



Middle Ocmulgee - Surface Water



Middle Ocmulgee - Surface Water



2011 Forecast

2030 Forecast

2050 Forecast

2010 Meter

2011 Meter

2012 Meter

2013 Meter

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