CURRENT AGRICULTURAL DEMAND ESTIMATES – METHODS FOR UPDATE

Altamaha Regional Water Planning Council

March 3, 2016

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Georgia Water Planning & Policy Center
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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

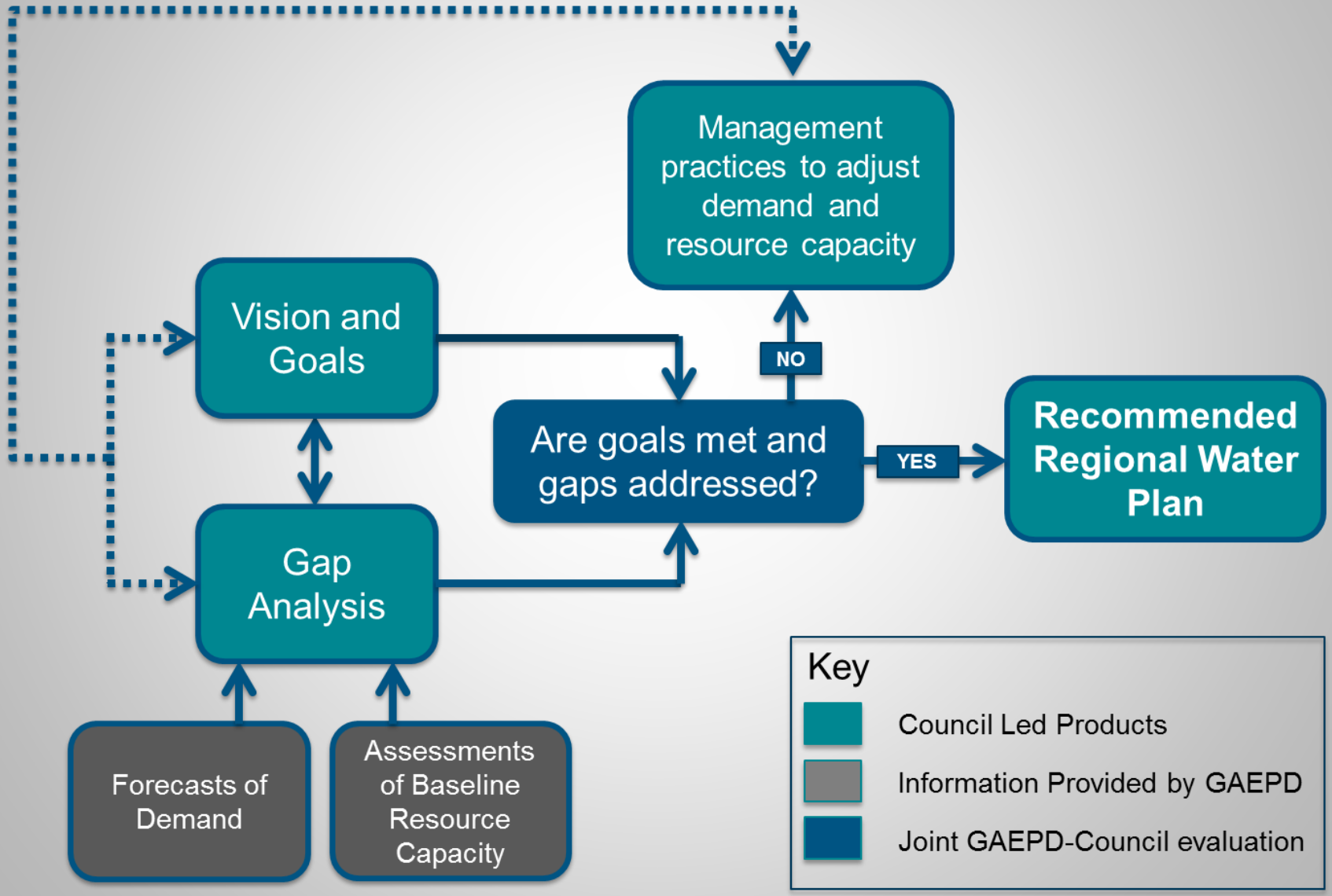
Project Team

- 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

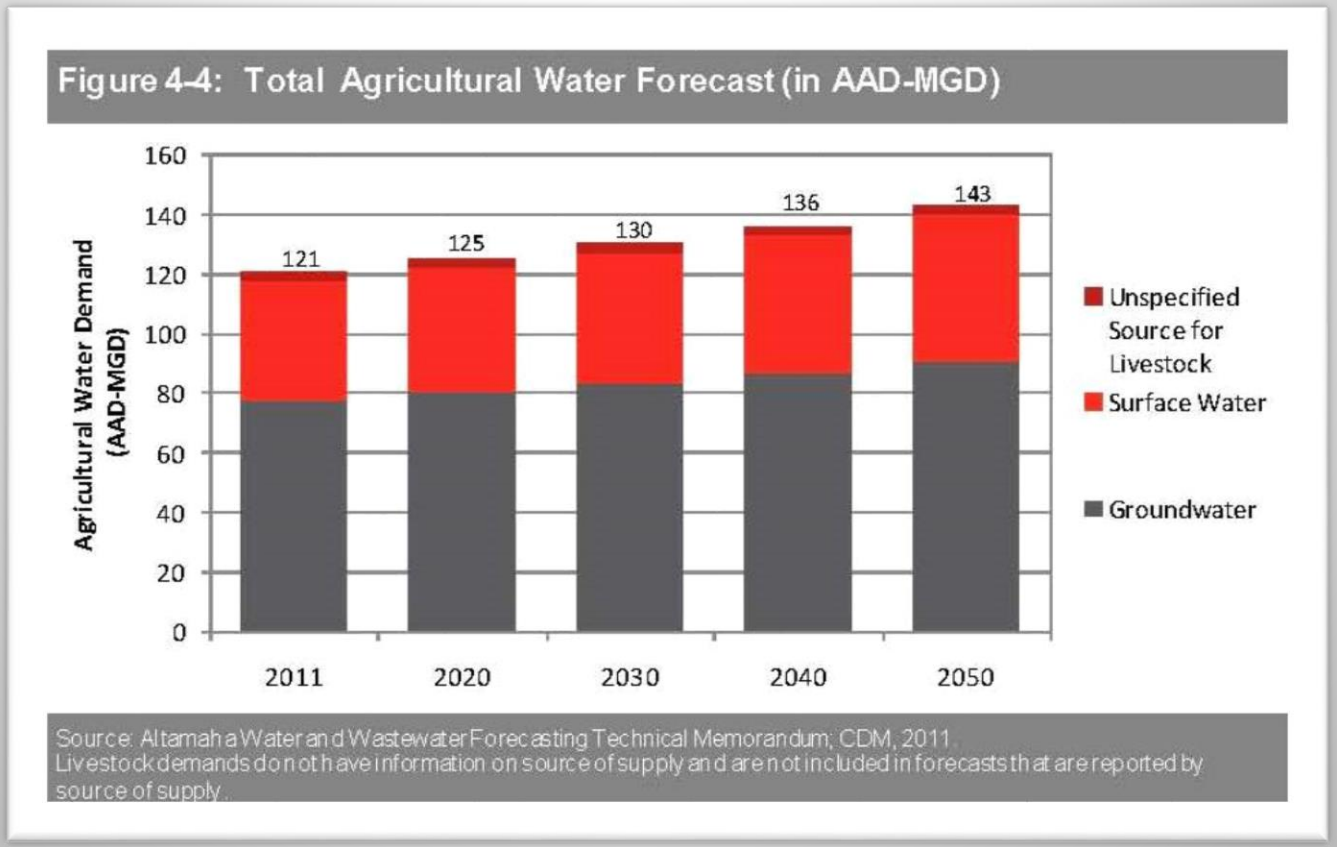
THE UNIVERSITY OF GEORGIA
COLLEGE OF AGRICULTURAL & ENVIRONMENTAL SCIENCES

How the Results will be Used



Agricultural Water Demand Estimates: 2009-2010

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



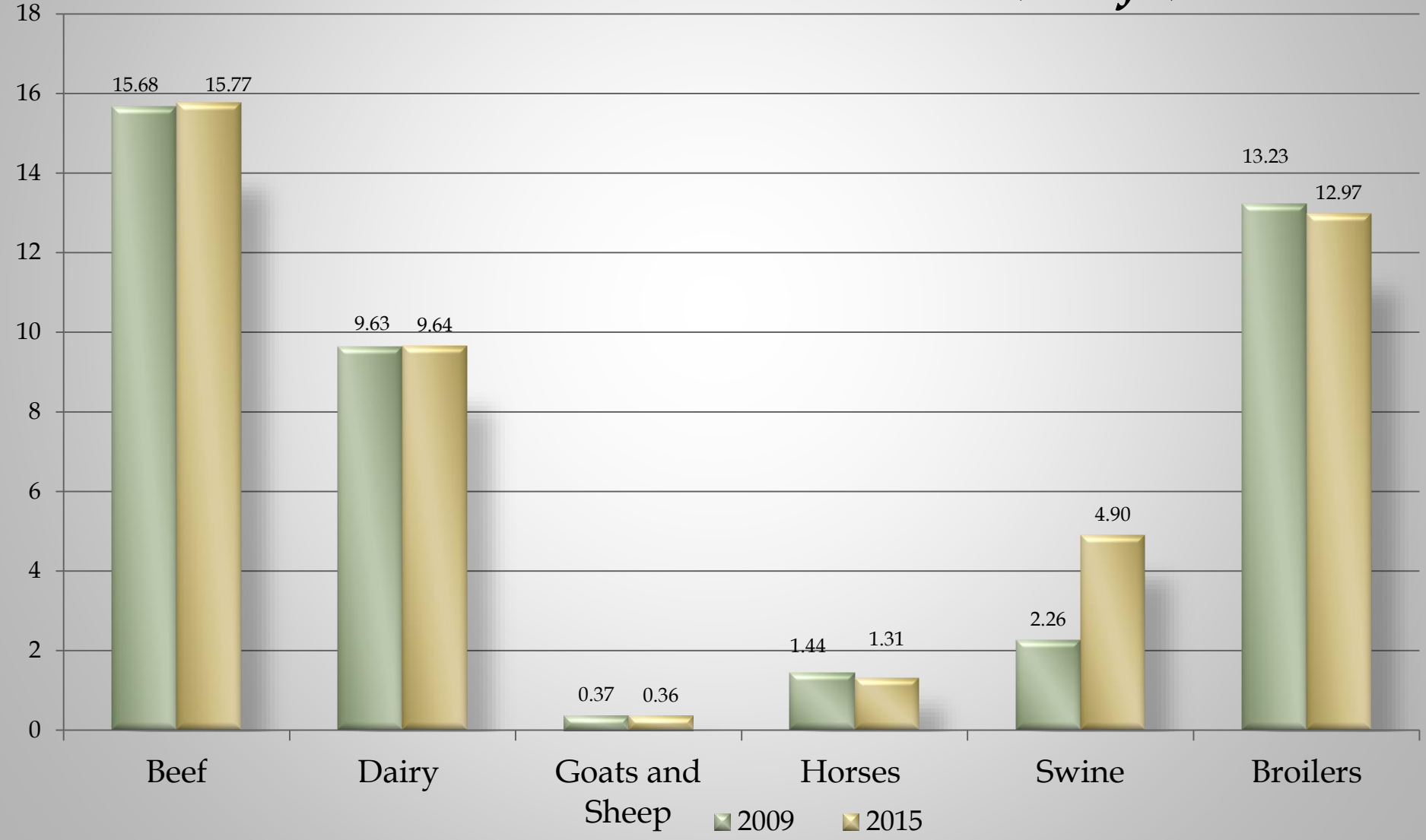
2015-2016 Ag Water Demand Update Components

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

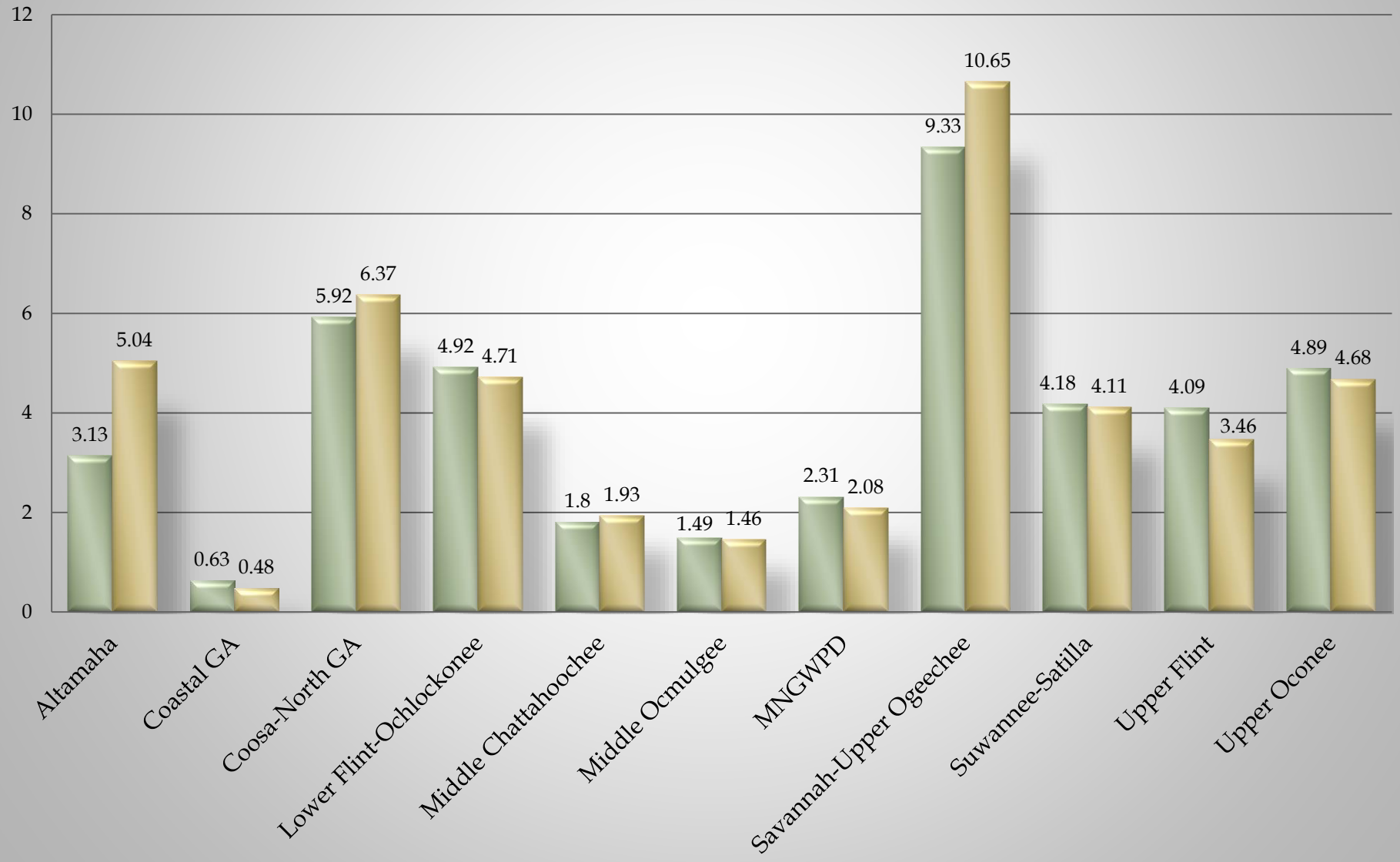
2015-16 Animal Agriculture and Horticultural Sector Water Use - Methods

- **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**

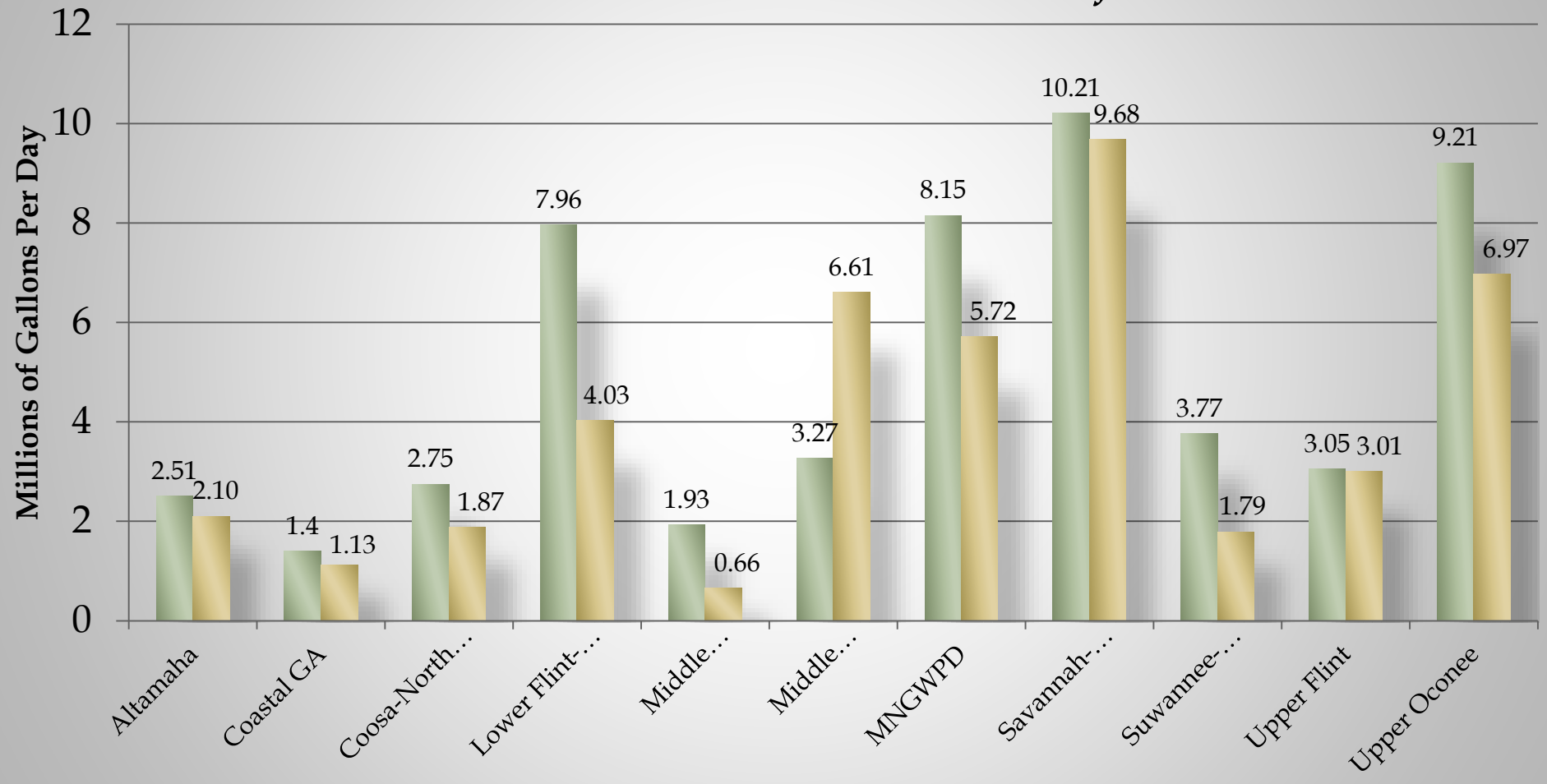
Animal Agriculture - Daily Water Use by Type of Animal Statewide Total: 45 MGD (*draft*)



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

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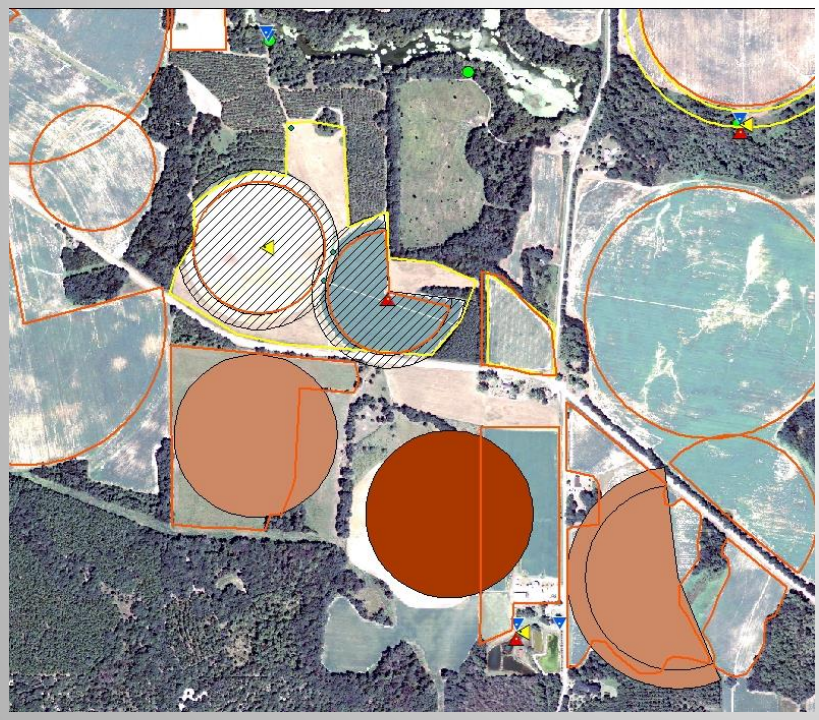
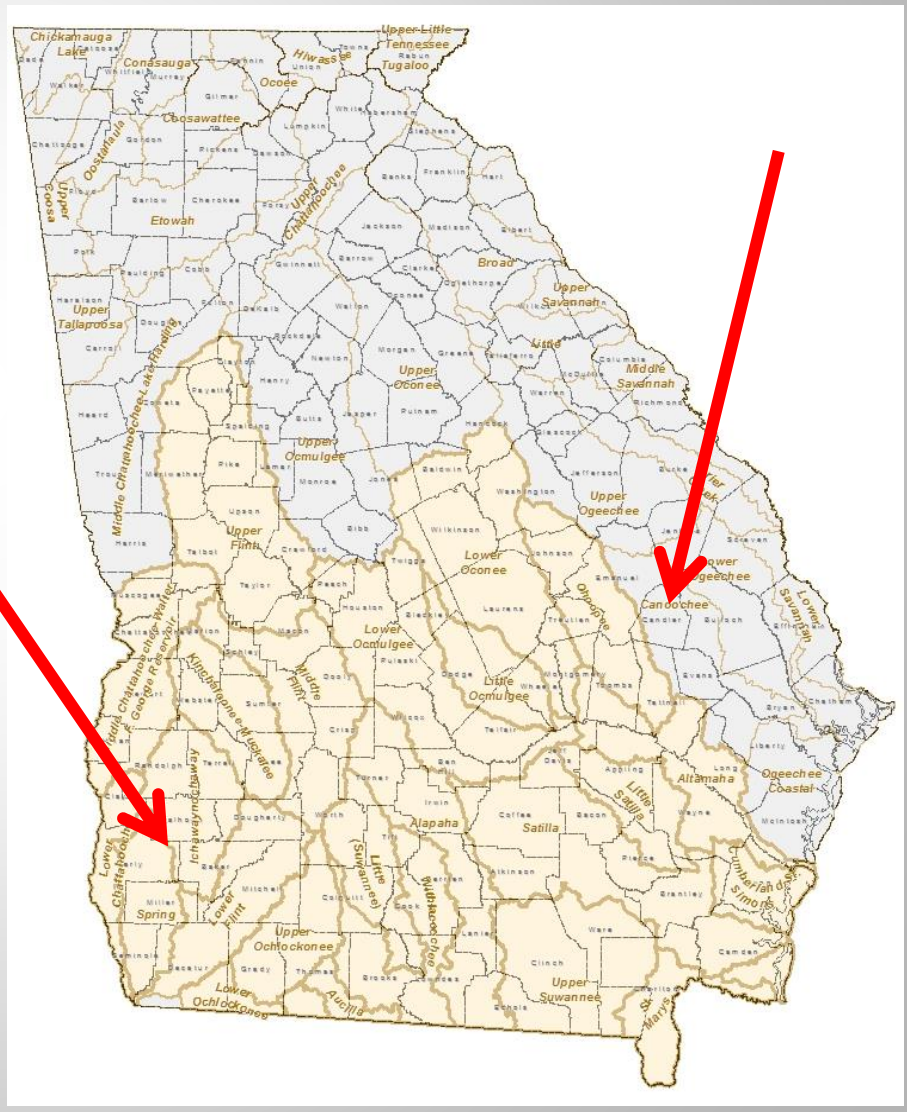
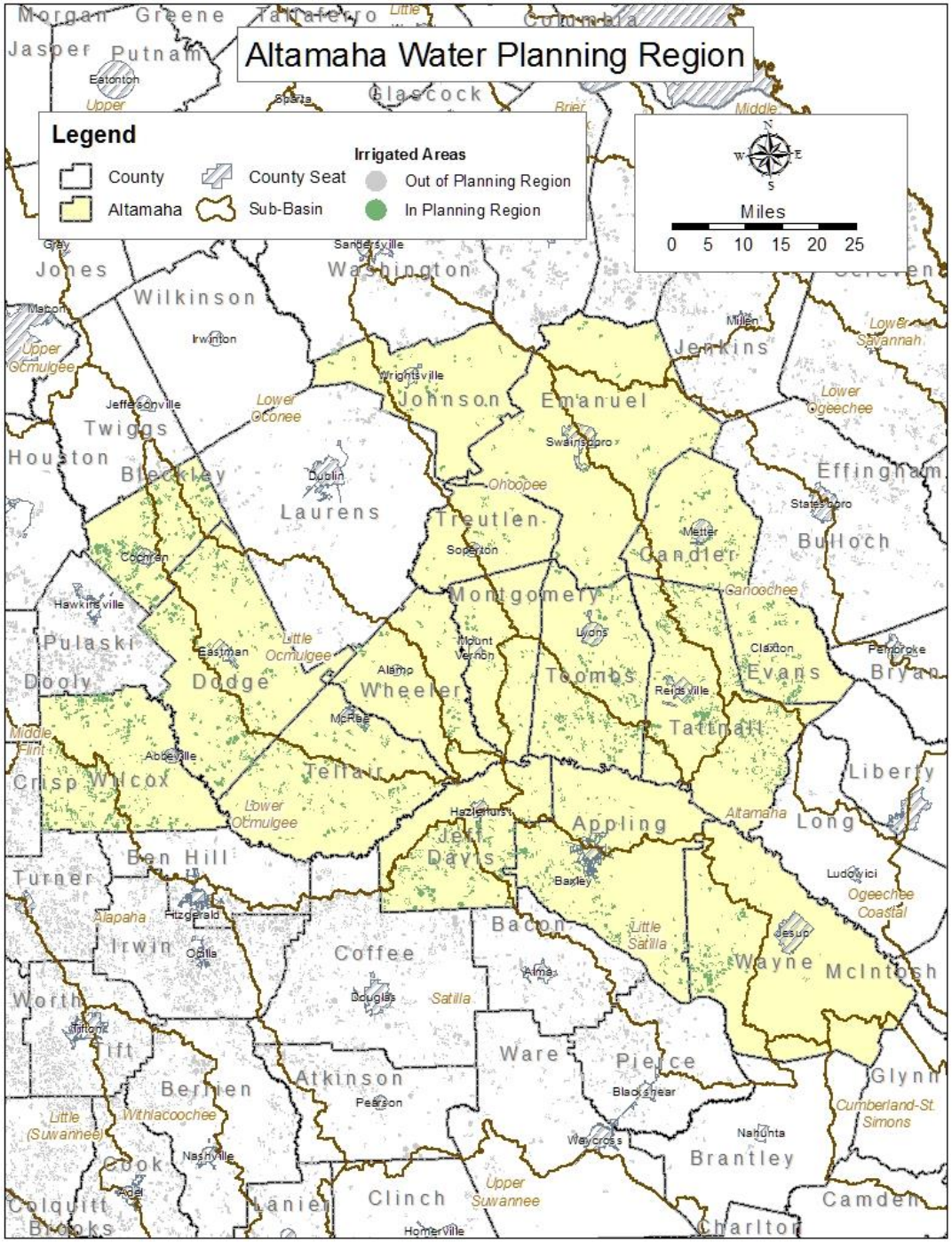






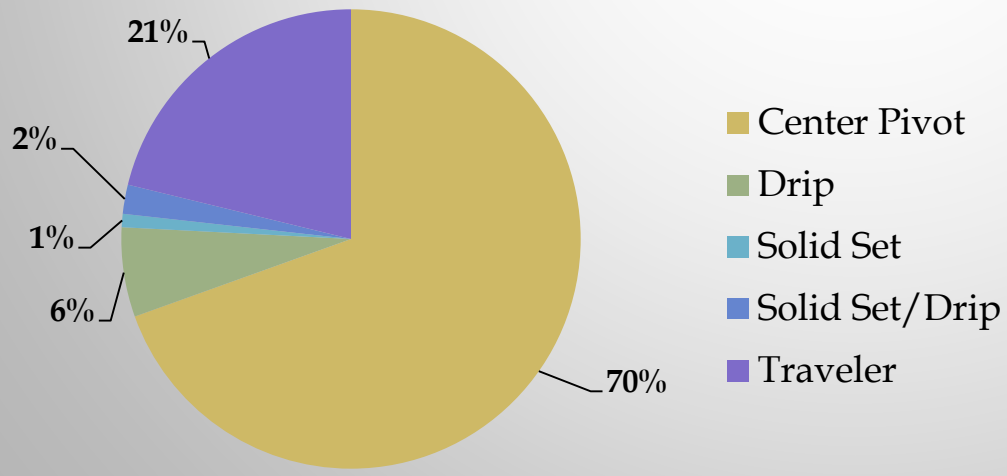
Irrigated Acres

County	2009	2014
Appling	7,901	11,233
Bleckley	13,434	16,160
Candler	6,048	7,045
Dodge	16,167	19,404
Emanuel	4,757	6,582
Evans	7,379	6,902
Jeff Davis	10,650	13,865
Johnson	1,993	3,850
Montgomery	2,134	3,826
Tattnall	19,238	20,235
Telfair	8,431	11,871
Toombs	12,521	15,651
Treutlen	1,426	2,427
Wayne	4,851	6,922
Wheeler	4,657	5,604
Wilcox	18,416	23,728

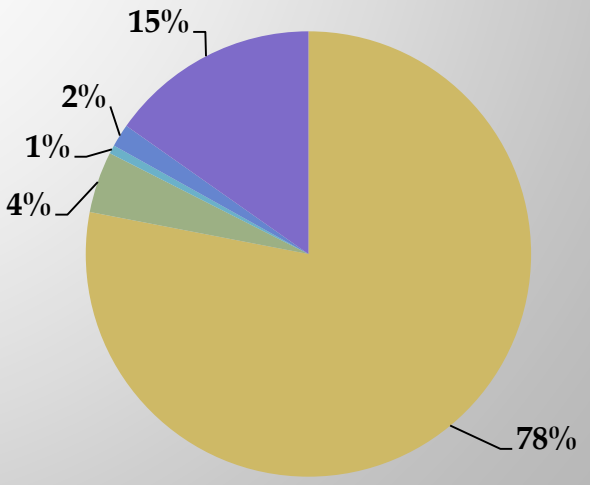
Altamaha River RWPC

	2009	2014	% Change
Total # of Fields	3,607	4,590	+ 27.3%
Total Acreage	140,003	175,302	+ 25.2%
Total GW Acreage	77,553	113,767	+ 46.7%
Total SW Acreage	62,450	61,535	- 1.5%
Total Center Pivots	2,057	3,190	+ 55.1%
Center Pivot Acreage	92,218	136,722	+ 48.3%

System Type - % of Systems



System Type - % of Acreage



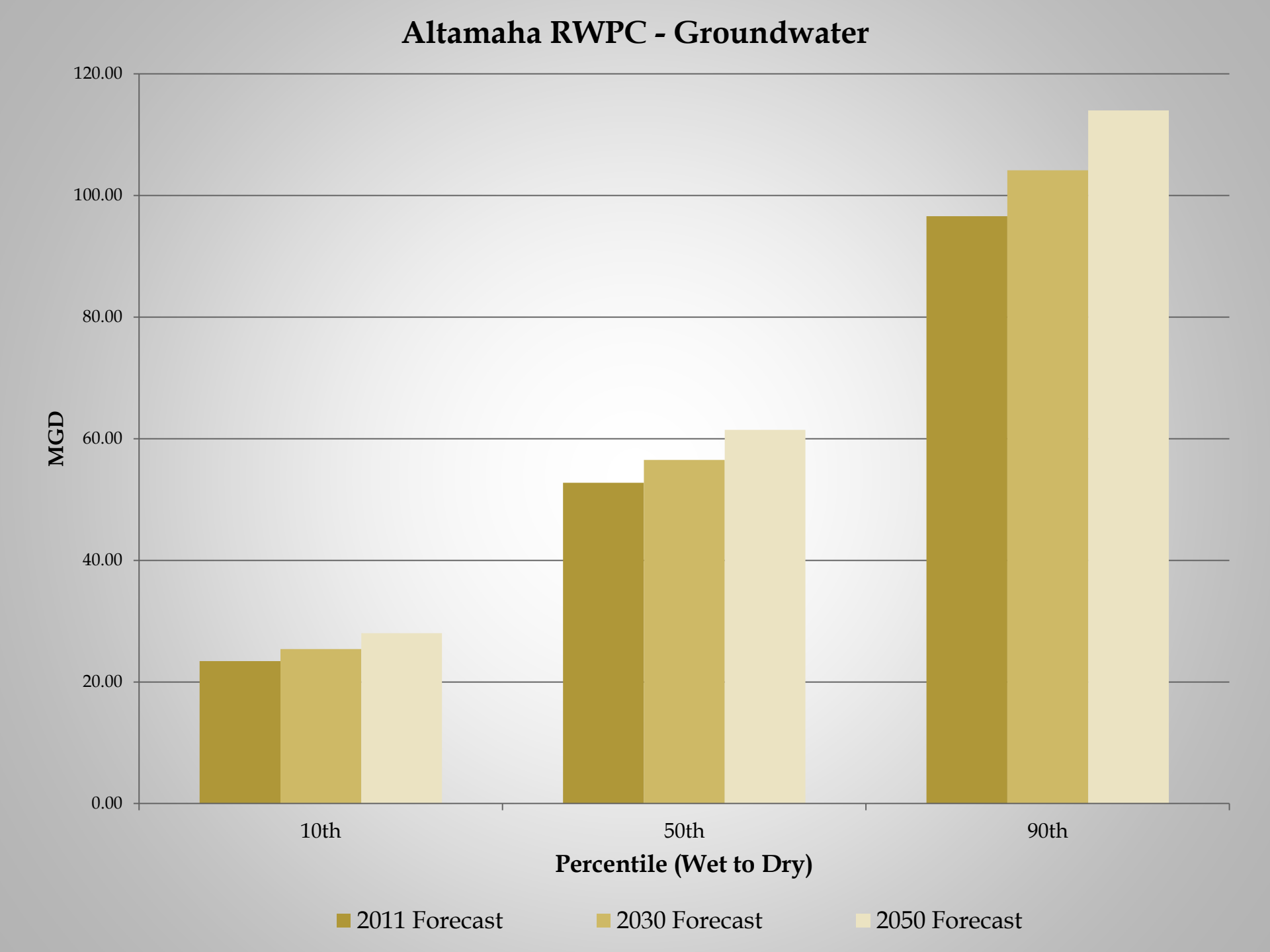
2015-16 Current Agricultural Water Use Estimates - Methods

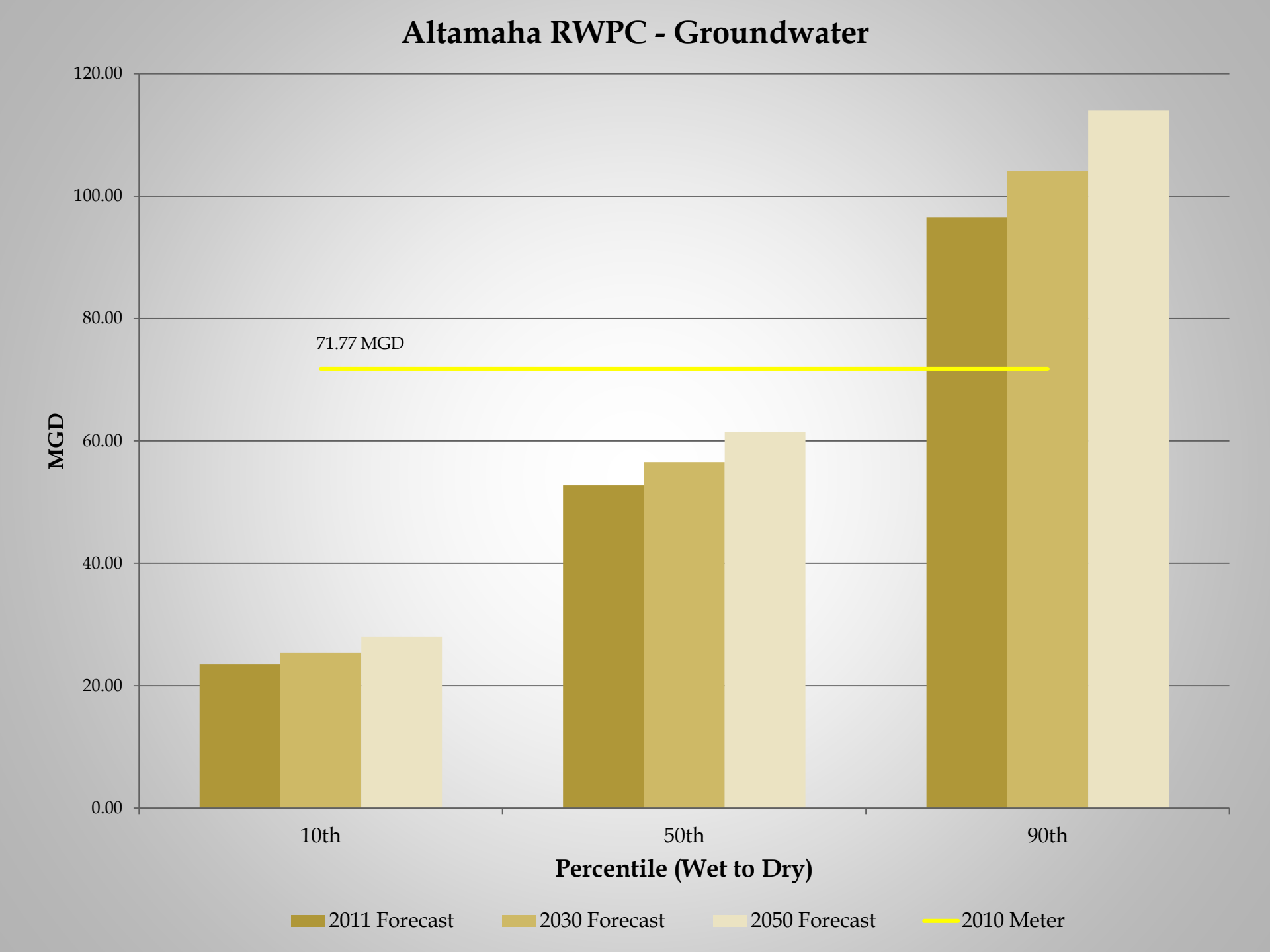
- Wetted Acreage Mapping
  - Detailed mapping
  - Desktop survey
  - Review source assumptions
- **Water Use**
  - Use of meter data for current demand (2010 – 2013)
  - Replication of 2009-10 methods with revised acres

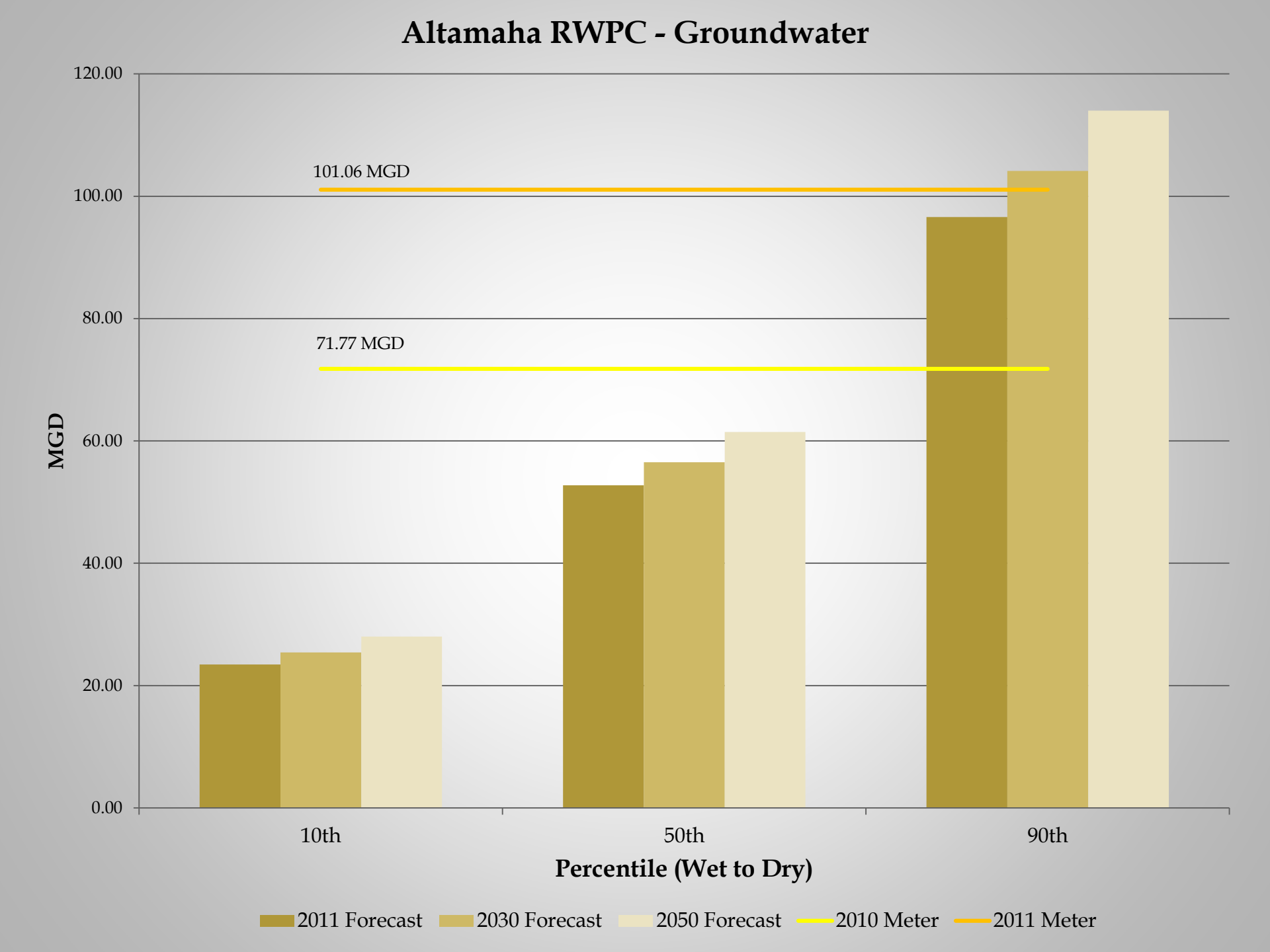
Average Meter Application Rates (inches)				
	2010	**2011**	**2012**	**2013**
Groundwater	8.48	11.94	8.42	6.15
Surface Water	6.87	8.67	7.43	4.53

Results

Current Demand Estimate from Meter Data


Altamaha RWPC - Groundwater
120.00
100.00
80.00
60.00
40.00
20.00
0.00
MGD
10th
50th
90th
Percentile (Wet to Dry)
2011 Forecast
2030 Forecast
2050 Forecast


Altamaha RWPC - Groundwater
120.00
100.00
80.00
60.00
40.00
20.00
0.00
MGD
71.77 MGD
10th
50th
90th
Percentile (Wet to Dry)
2011 Forecast
2030 Forecast
2050 Forecast
2010 Meter


Altamaha RWPC - Groundwater
120.00
100.00
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60.00
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101.06 MGD
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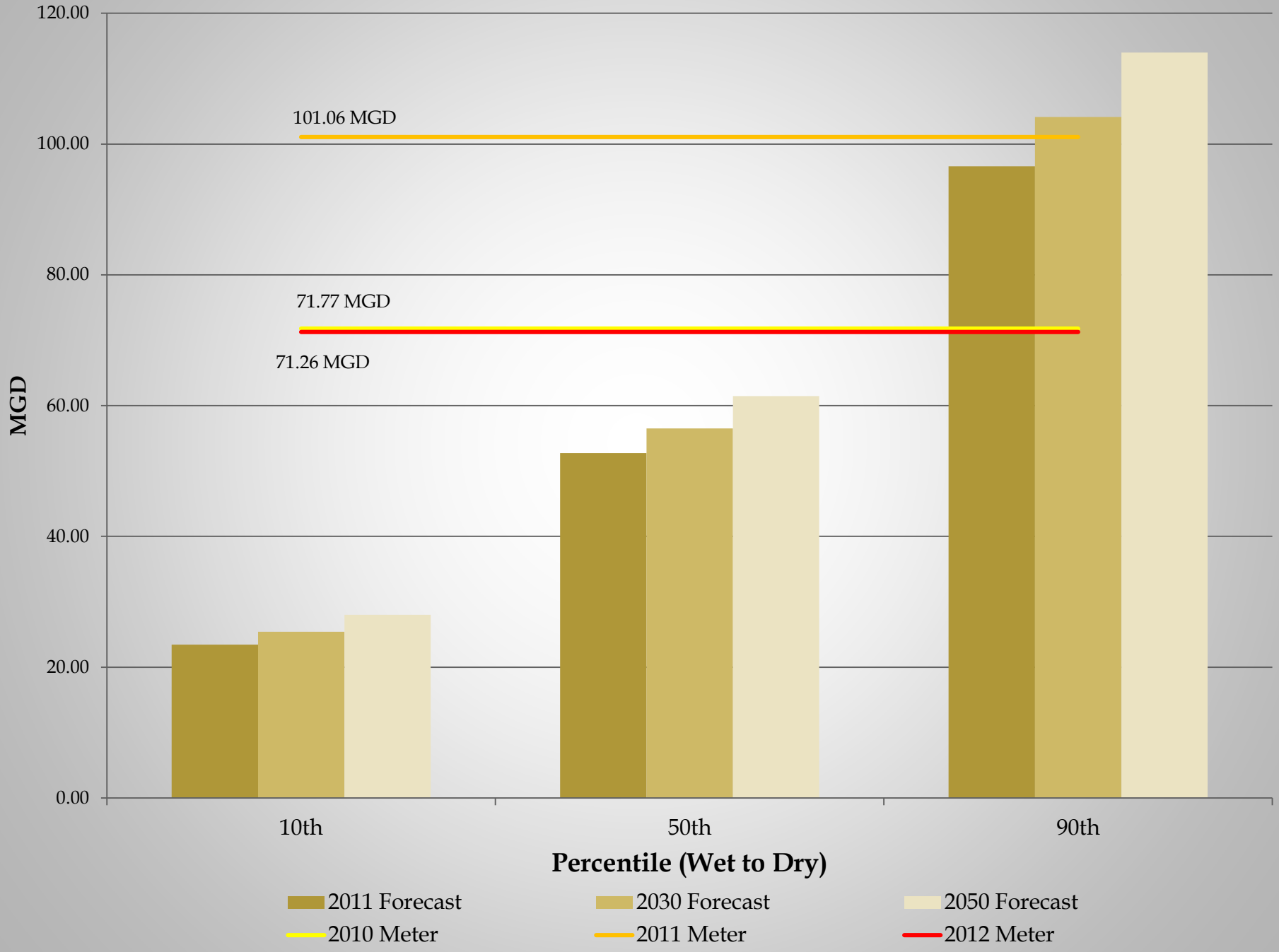

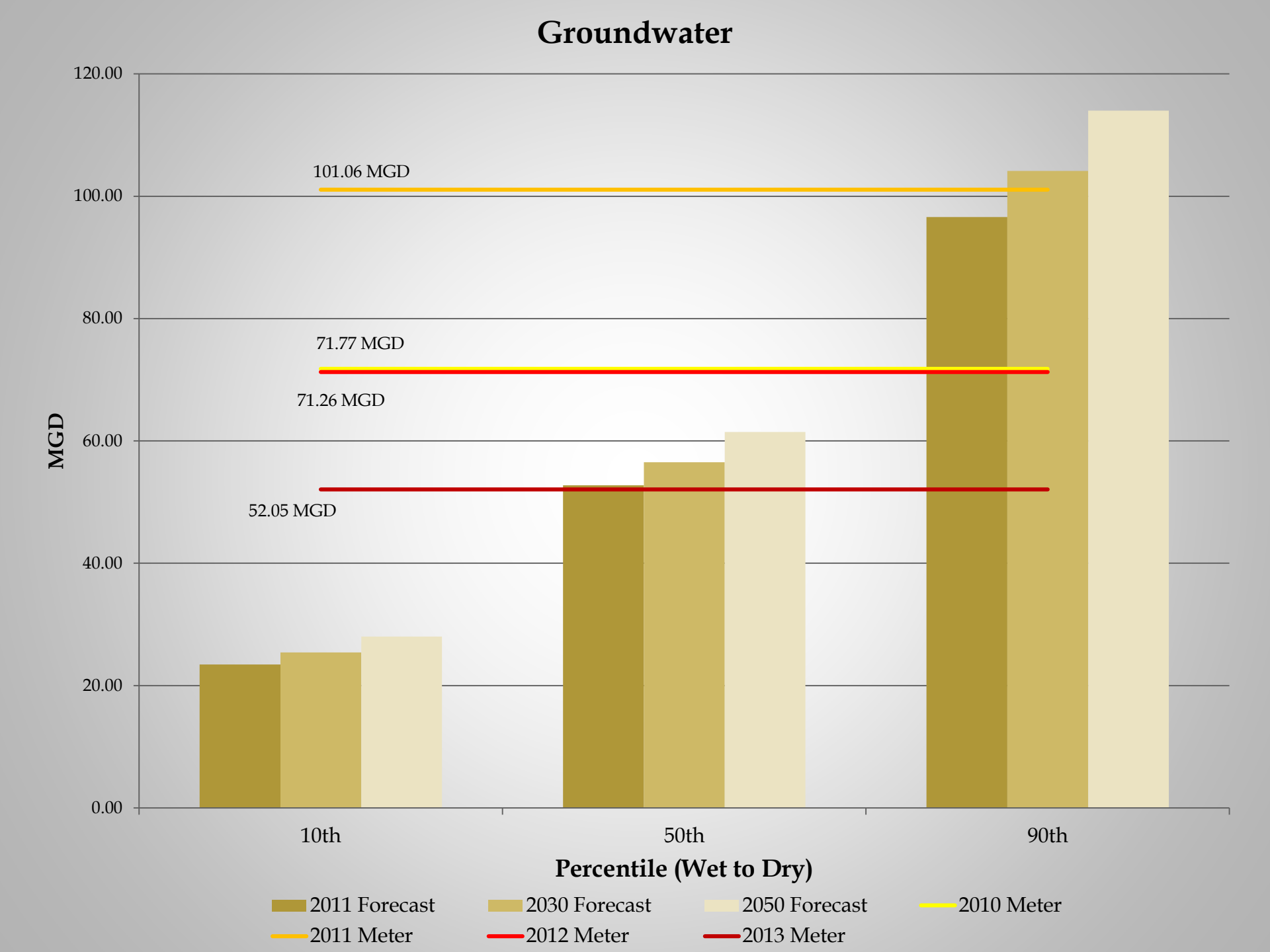
Groundwater
120.00
100.00
80.00
60.00
40.00
20.00
0.00
MGD
101.06 MGD
71.77 MGD
71.26 MGD
52.05 MGD
10th
50th
90th
Percentile (Wet to Dry)
2011 Forecast
2030 Forecast
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2010 Meter
2011 Meter
2012 Meter
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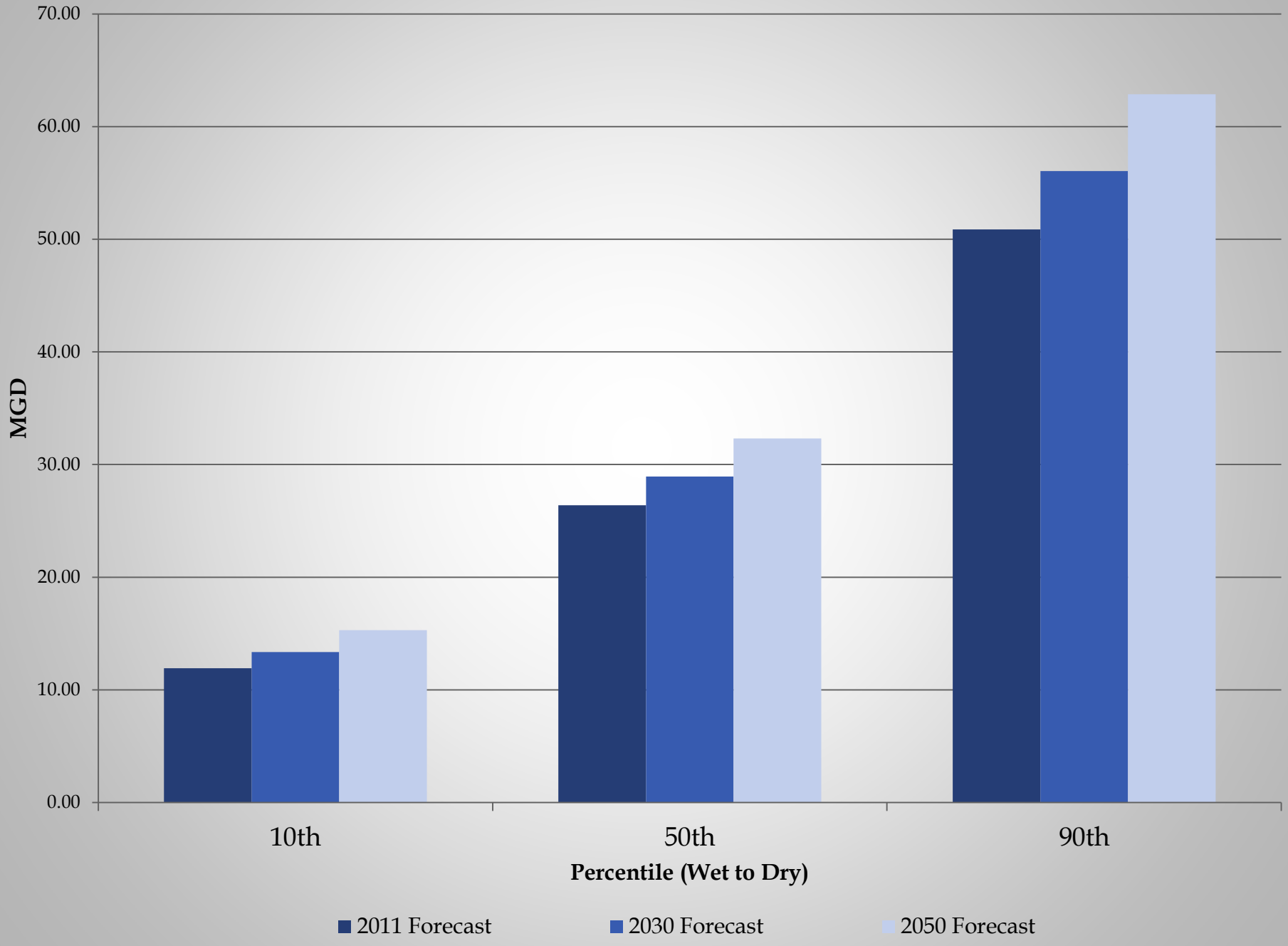
Altamaha RWPC - Surface Water



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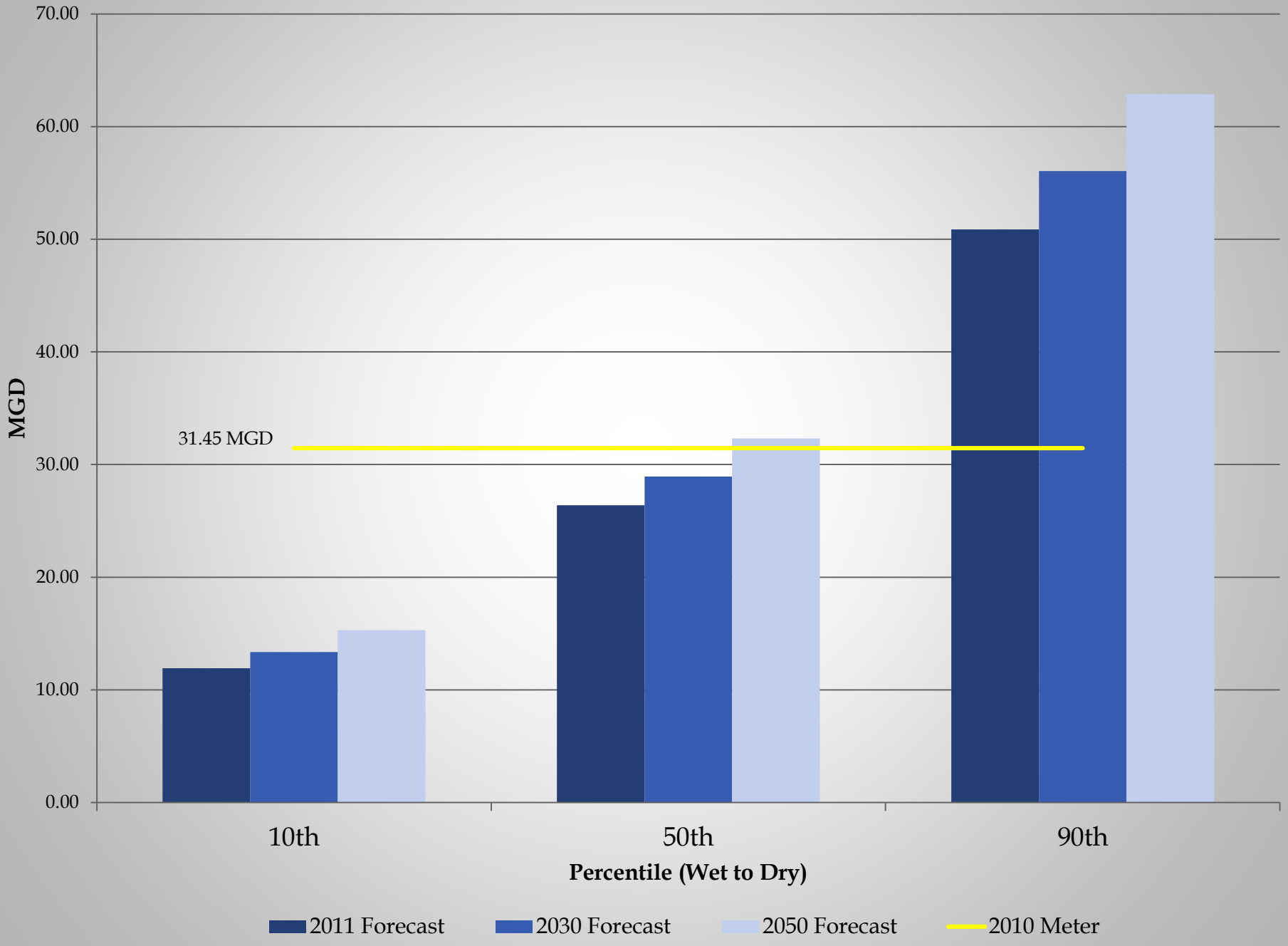

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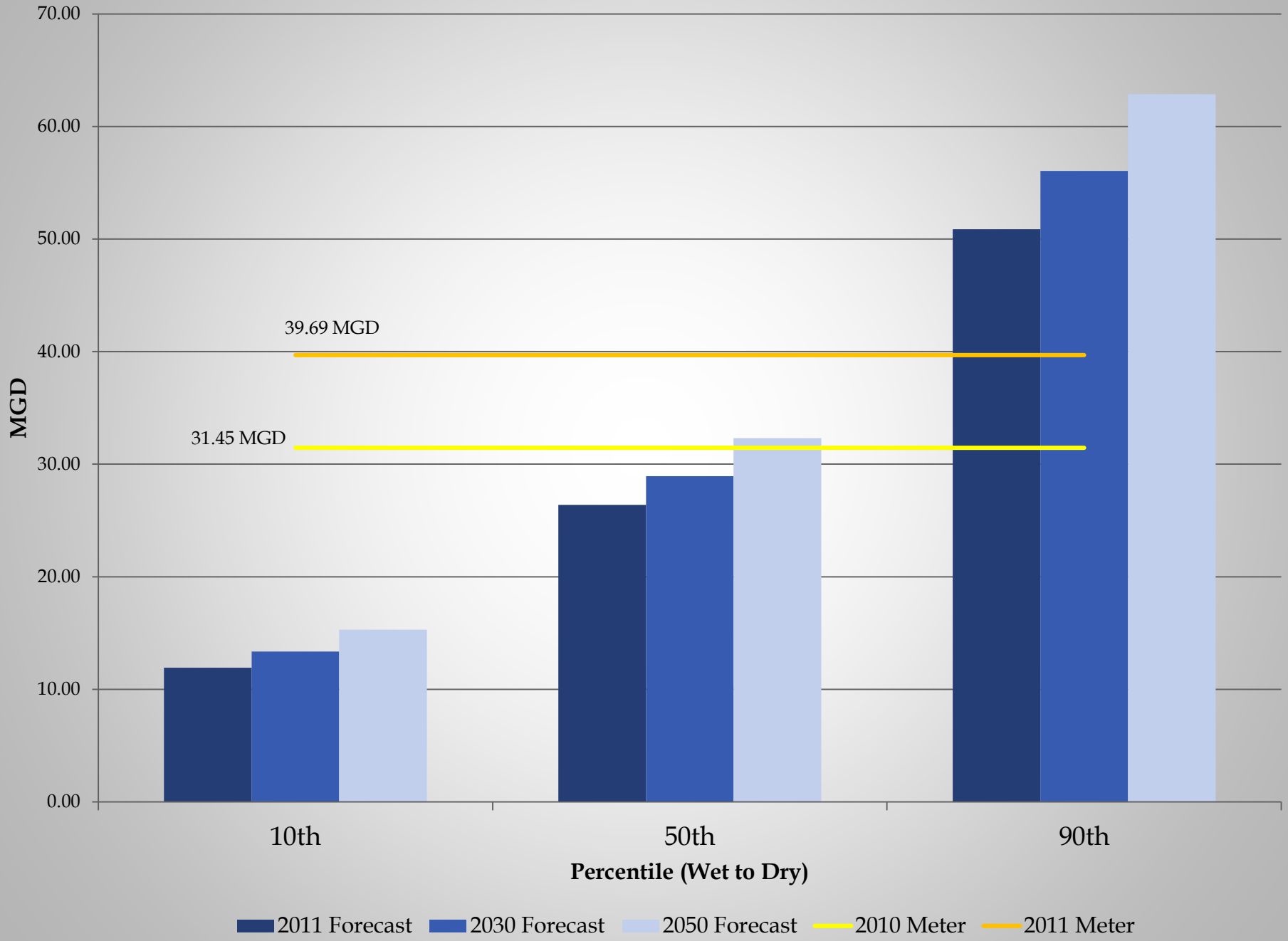

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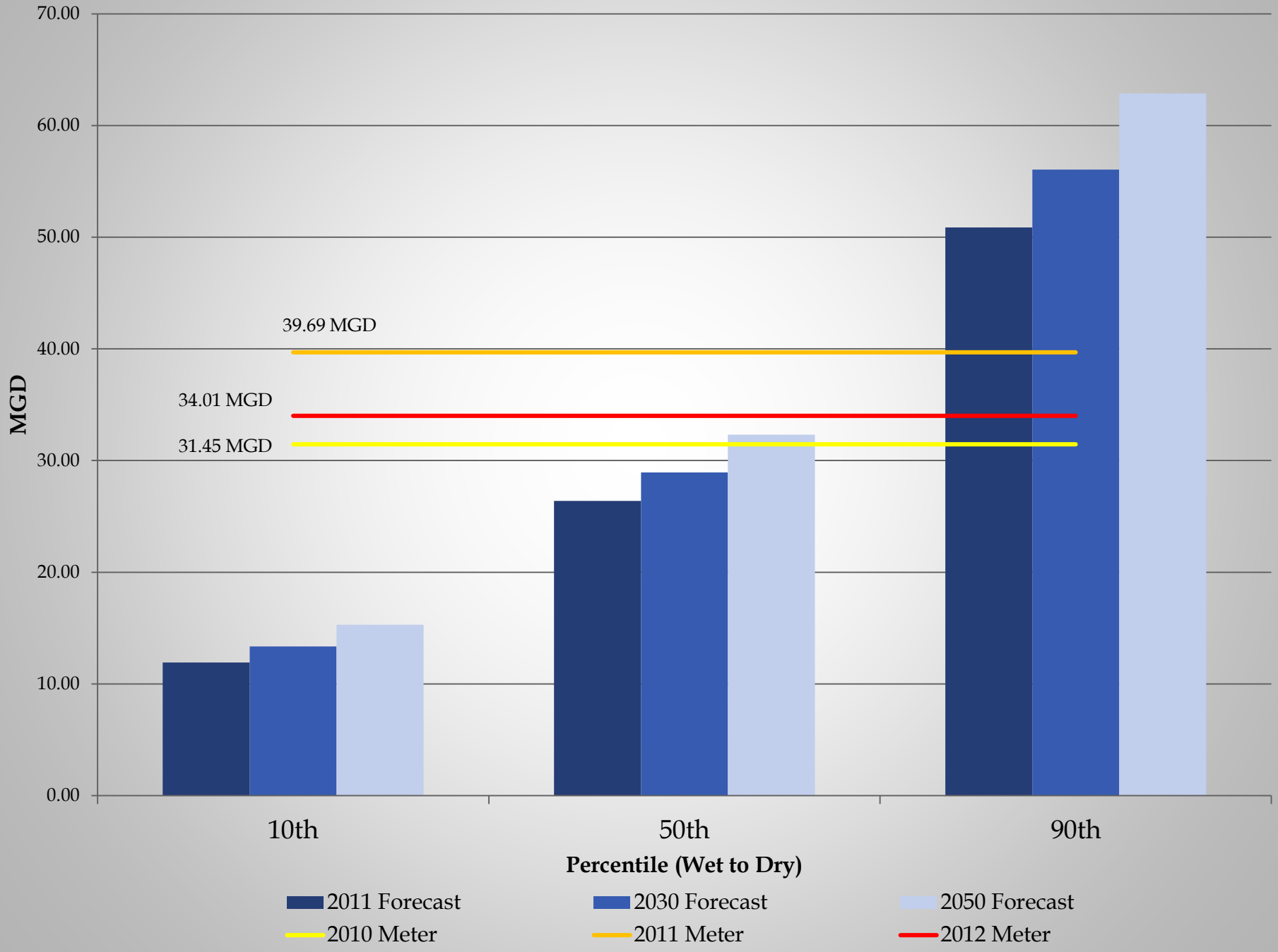

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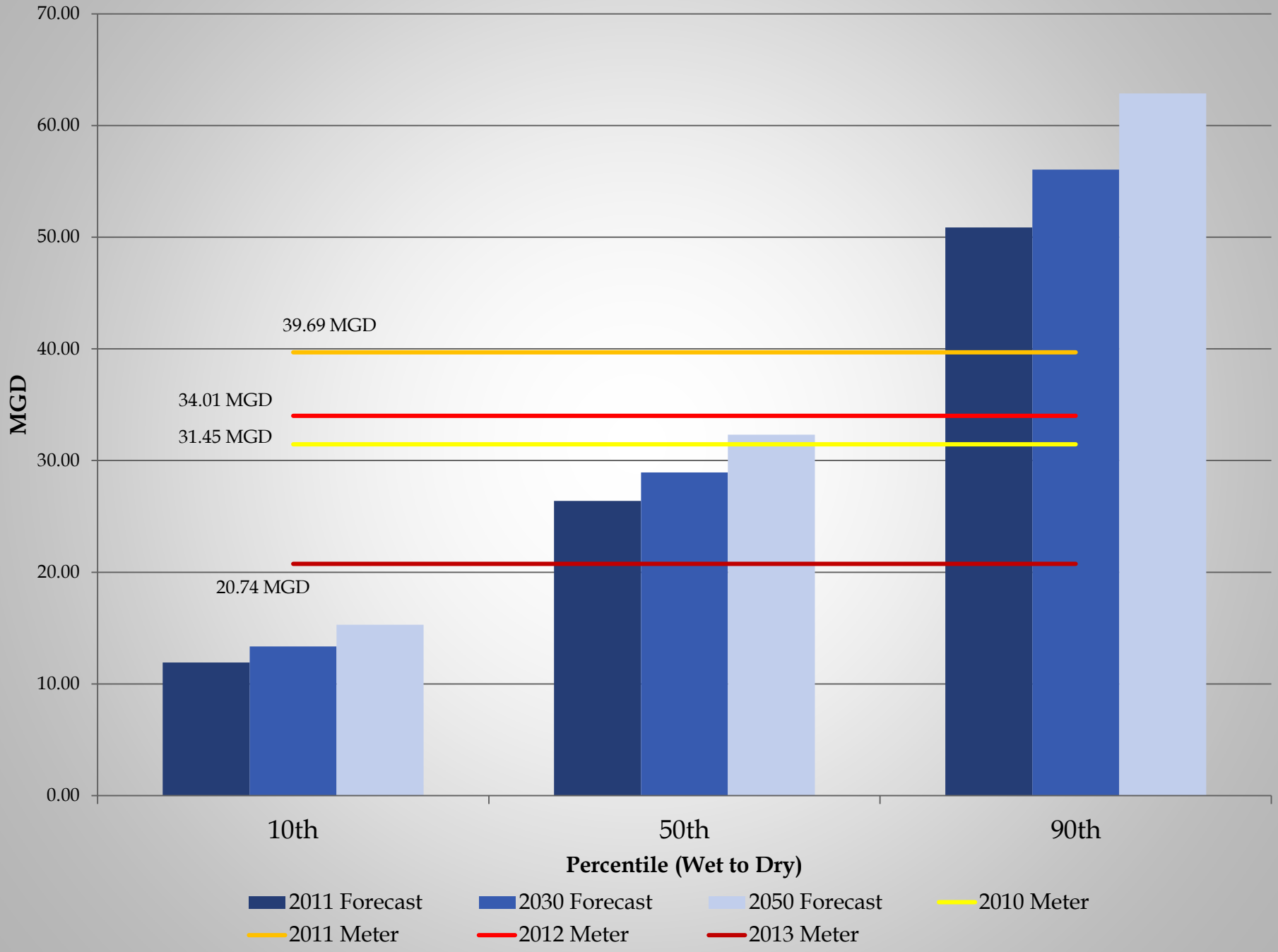

2015-16 Agricultural Water Demand Forecasts - Methods

- **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

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