

Governor's Drought Interagency Coordinating Group

Donald J. Gross, P.E.

Colorado River Management

Arizona Department Of Water Resources

May 17, 2016



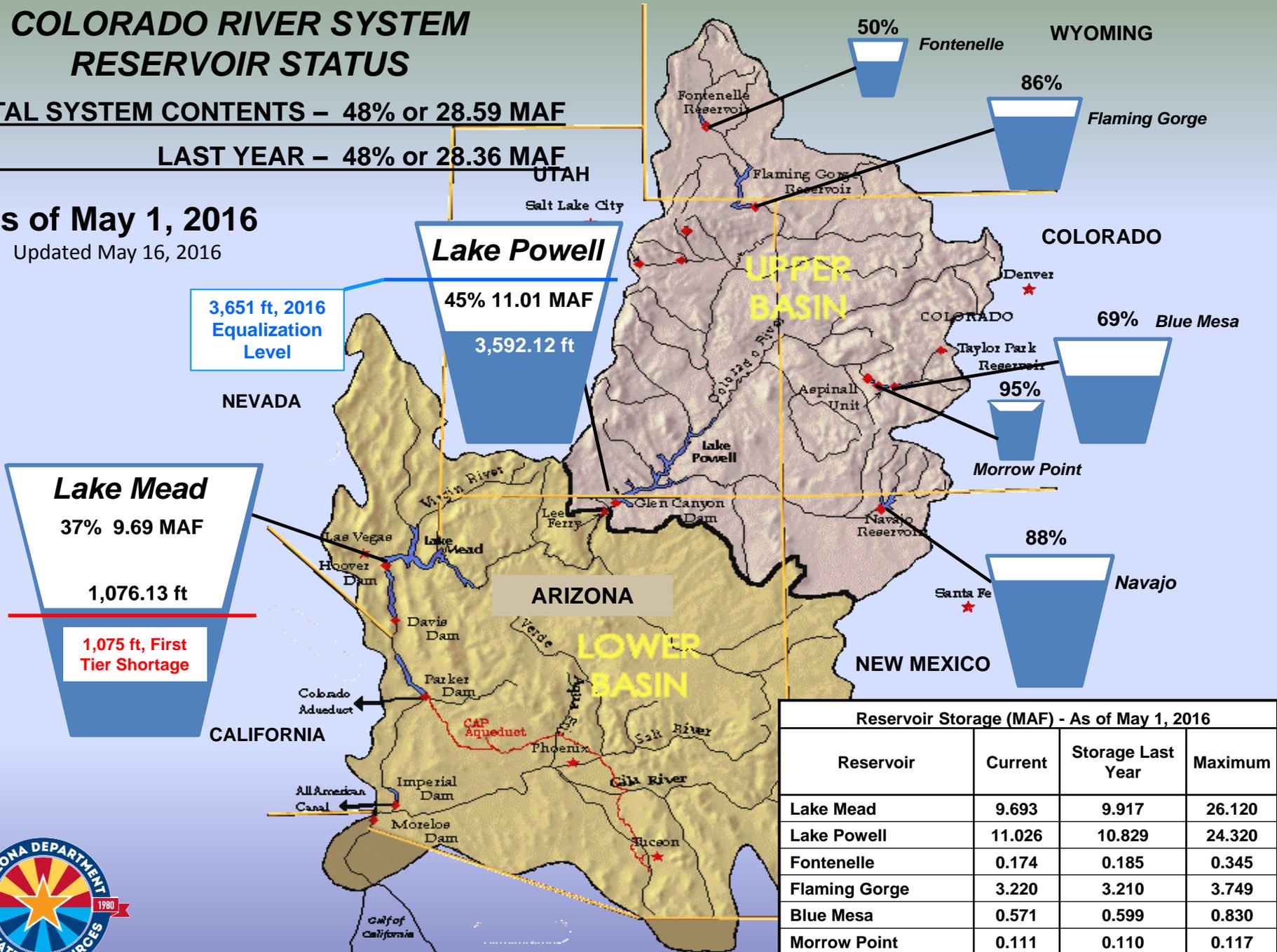
COLORADO RIVER SYSTEM RESERVOIR STATUS

TOTAL SYSTEM CONTENTS – 48% or 28.59 MAF

LAST YEAR – 48% or 28.36 MAF

As of May 1, 2016

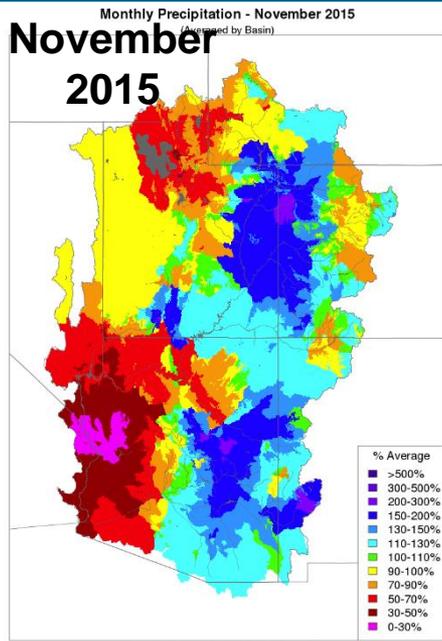
Updated May 16, 2016



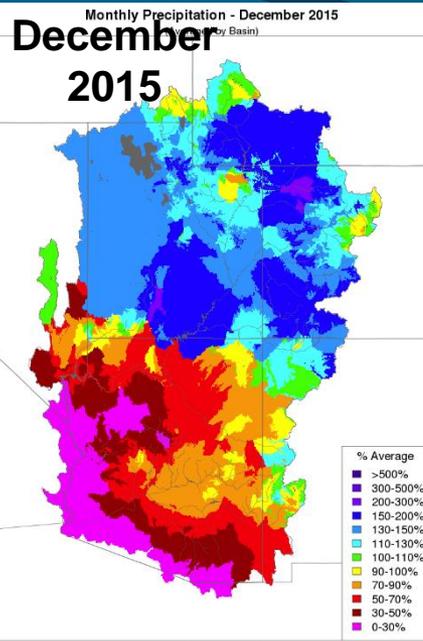
Reservoir Storage (MAF) - As of May 1, 2016			
Reservoir	Current	Storage Last Year	Maximum
Lake Mead	9.693	9.917	26.120
Lake Powell	11.026	10.829	24.320
Fontenelle	0.174	0.185	0.345
Flaming Gorge	3.220	3.210	3.749
Blue Mesa	0.571	0.599	0.830
Morrow Point	0.111	0.110	0.117
Navajo	1.490	1.170	1.700



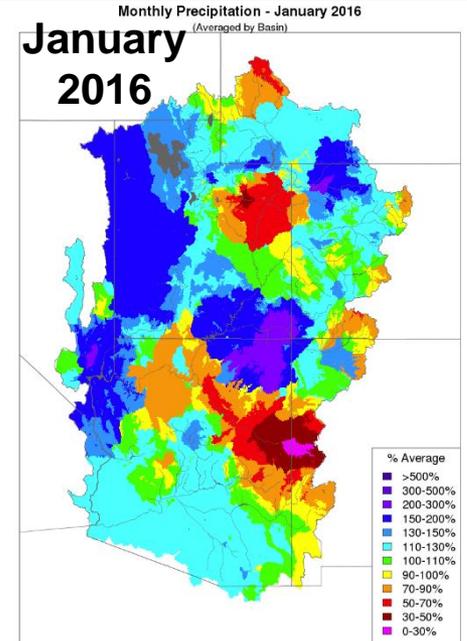
Data Source: US Bureau of Reclamation



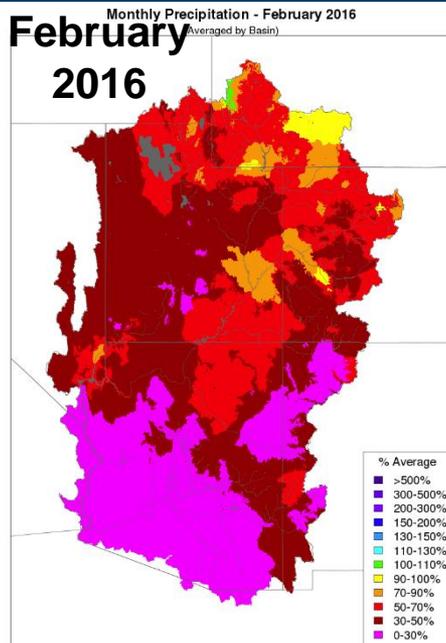
Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov



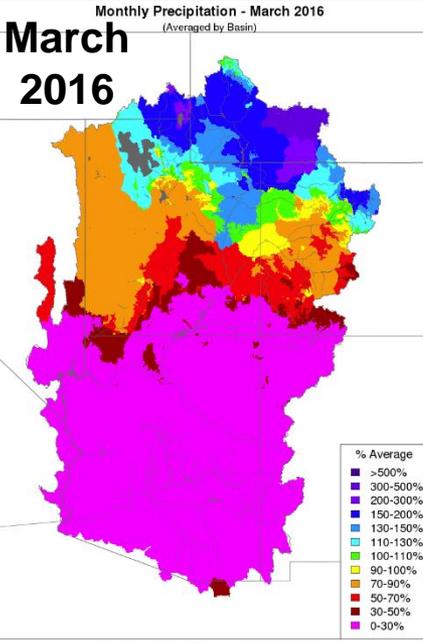
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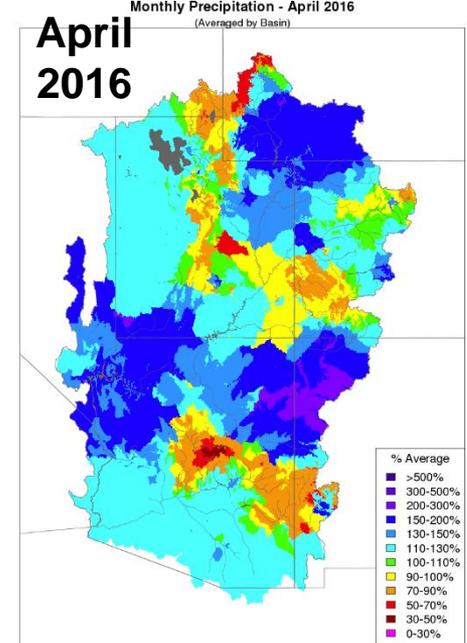
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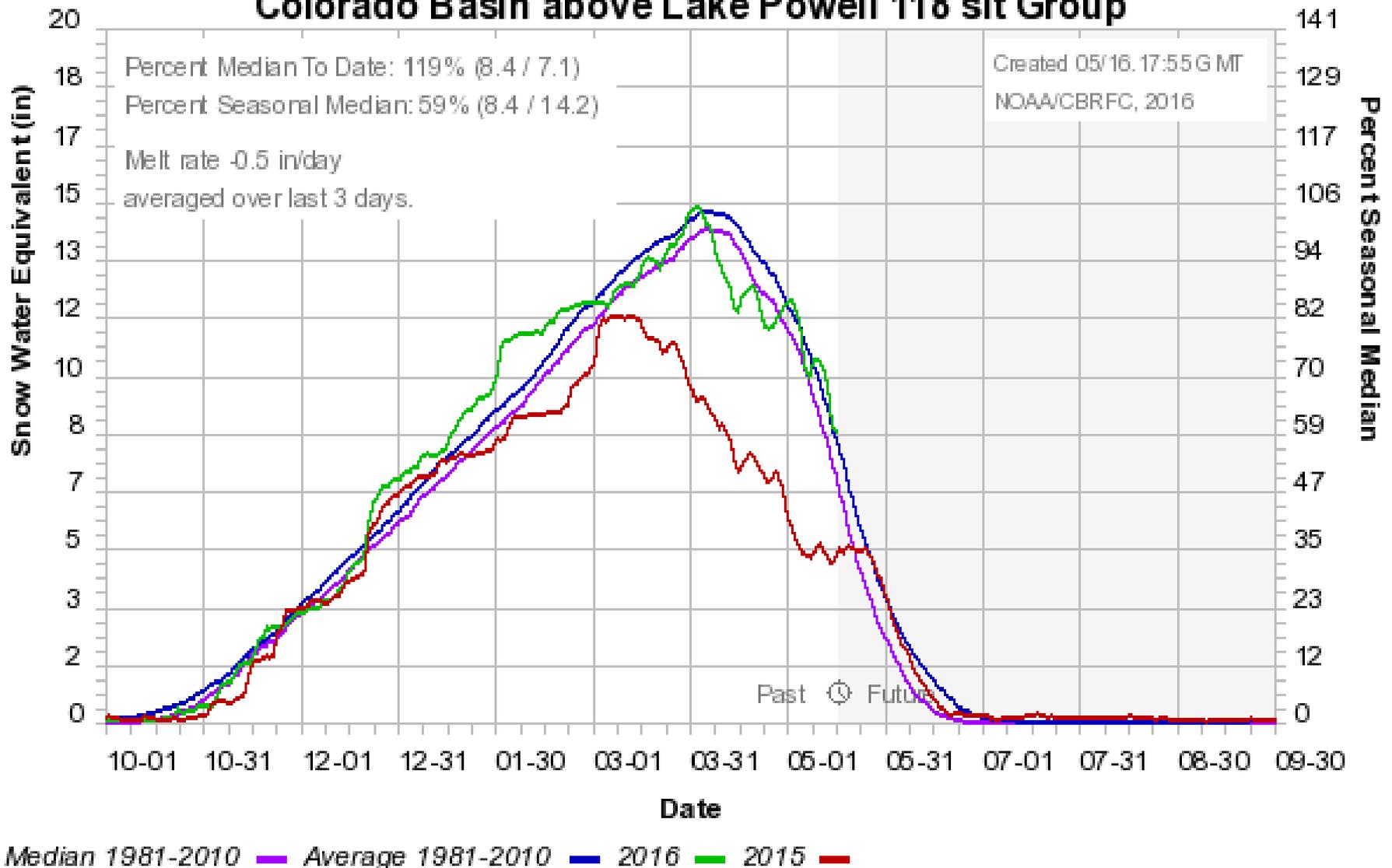
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Colorado Basin River Forecast Center

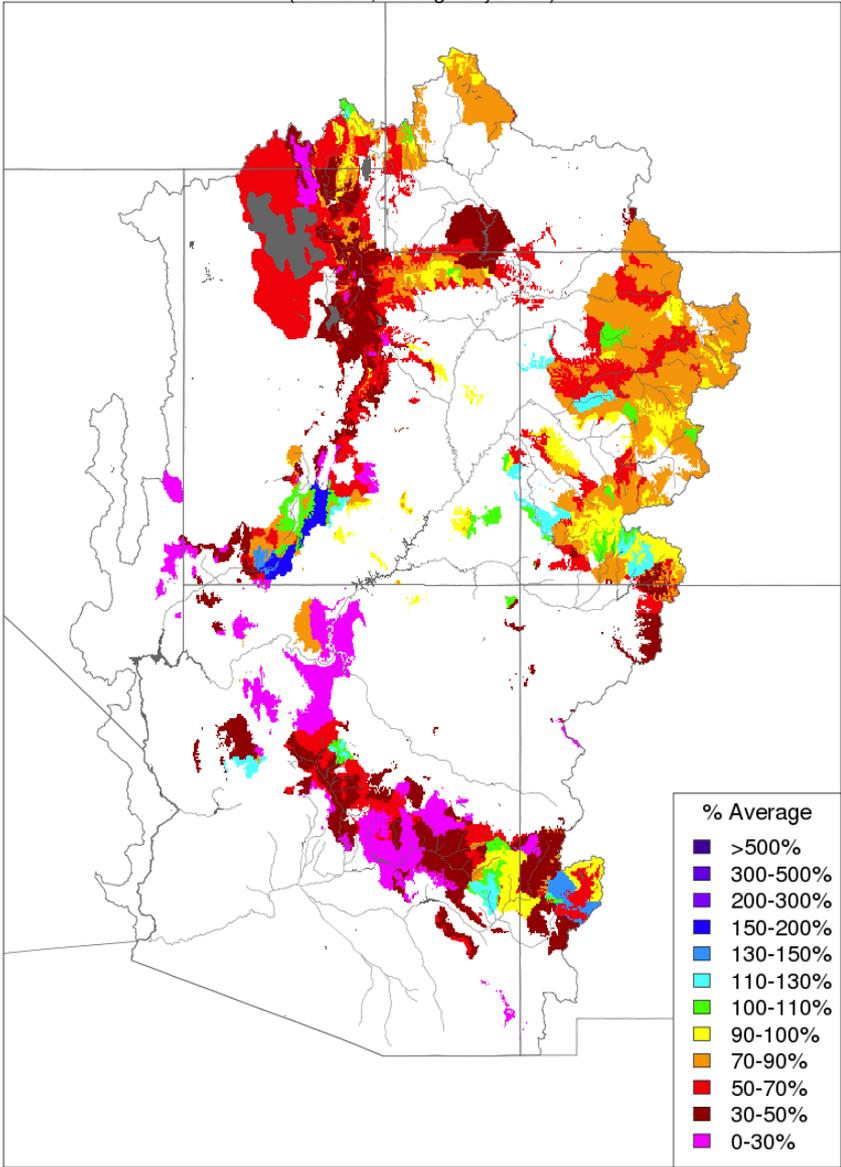
Colorado Basin above Lake Powell 118 sit Group



(Source: Colorado Basin River Forecast Center)

Soil Moisture - Fall - 2015 (November 15)

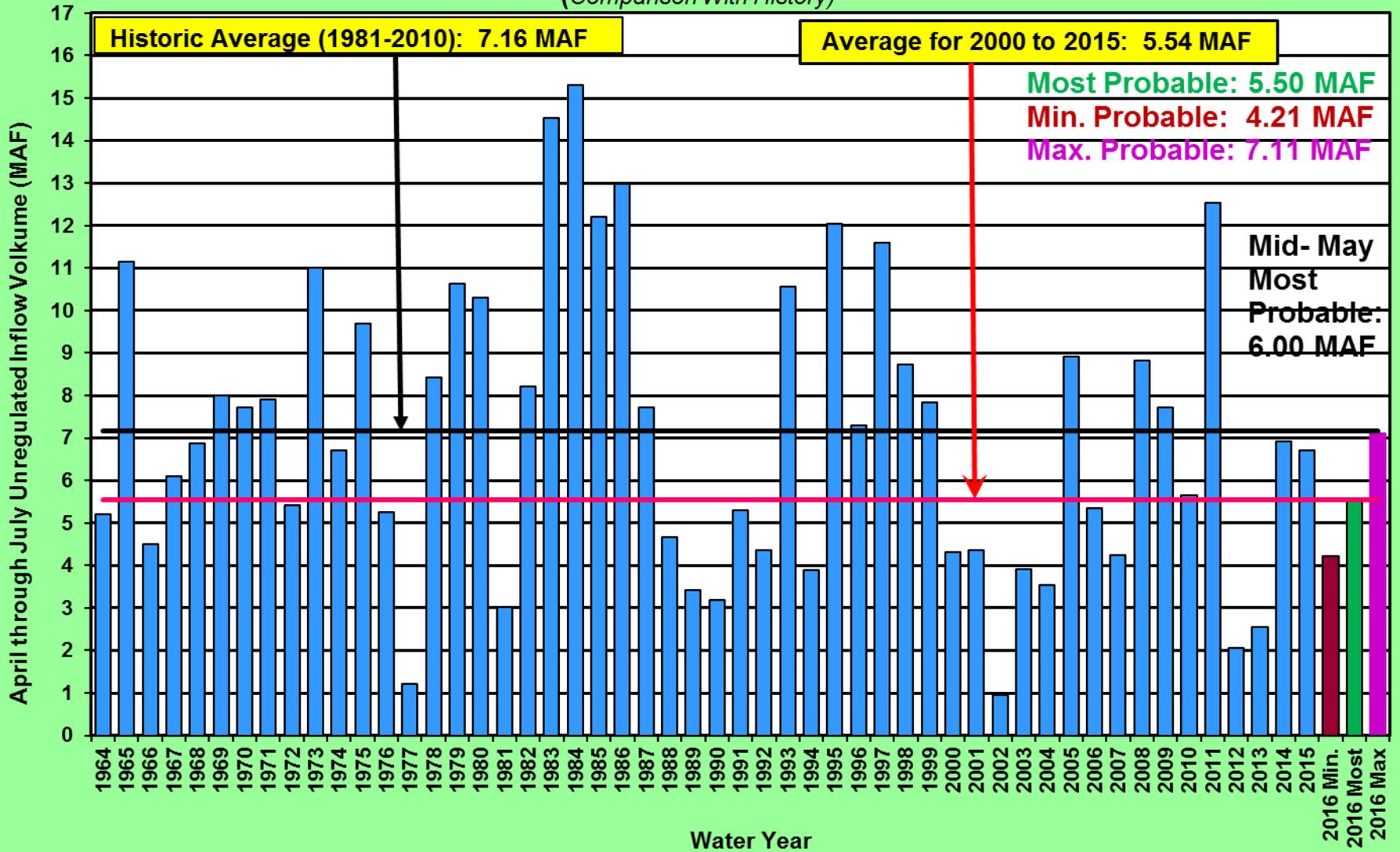
(Modeled, Averaged by Basin)



Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov

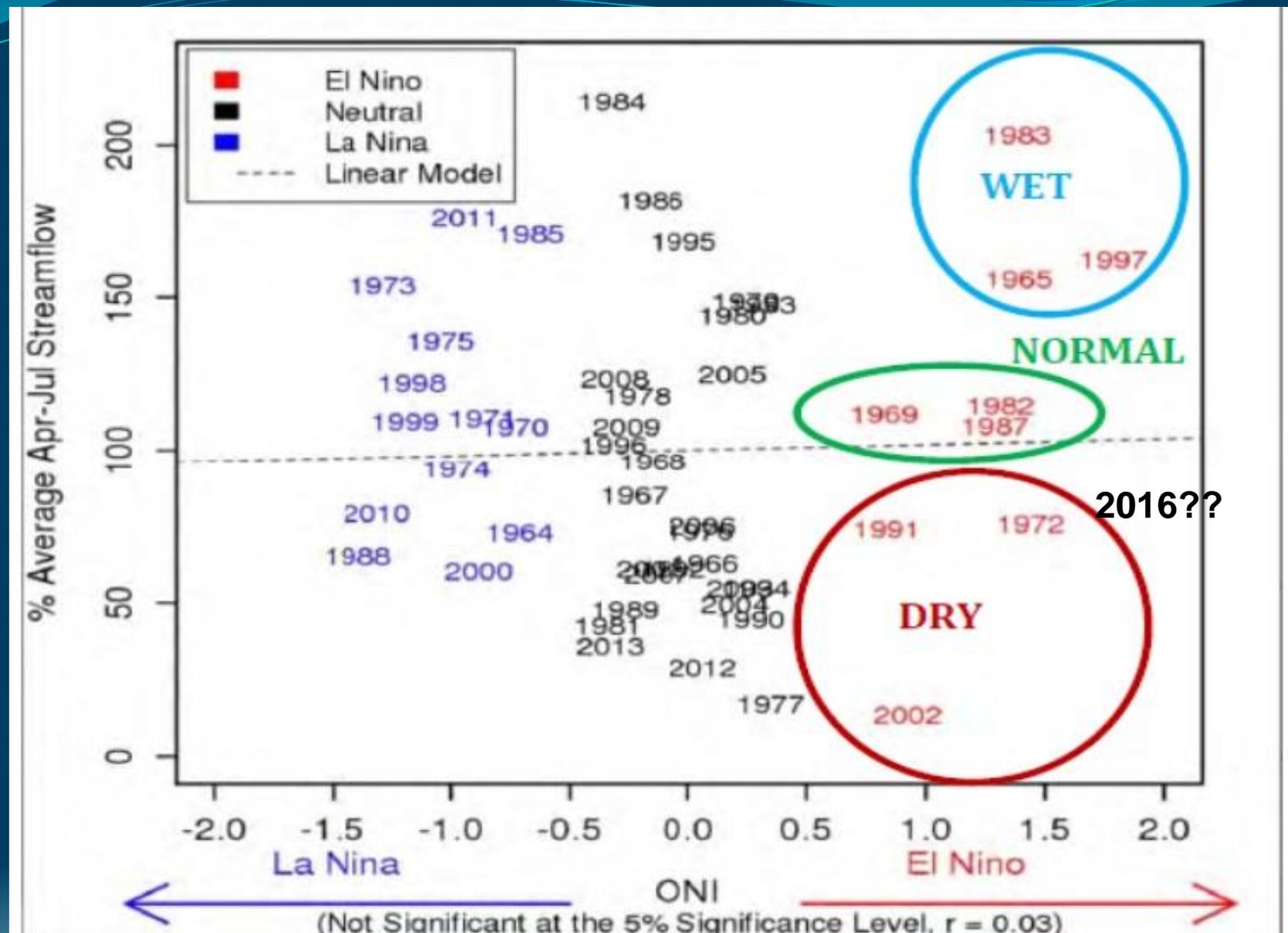
(Source: Colorado Basin River Forecast Center)

Lake Powell Unregulated Inflow April through July (Comparison With History)



Data Source: United States Bureau of Reclamation and Colorado Basin River Forecast Center

Lake Powell Inflow and El Nino



Lake Powell and Lake Mead Operational Table

Operational Tiers for Water/Calendar Year 2016 Determined from Reclamation's *August 2015 24-Month Study*

Lake Powell			Lake Mead		
Elevation (feet)	Operation According to the Interim Guidelines	Live Storage (maf) ¹	Elevation (feet)	Operation According to the Interim Guidelines	Live Storage (maf) ¹
3,700	Equalization Tier Equalize, avoid spills or release 8.23 maf	24.3	1,220	Flood Control Surplus or Quantified Surplus Condition Deliver > 7.5 maf	25.9
3,636 - 3,666 (2008-2026)	Upper Elevation Balancing Tier ² Release 8.23 maf; if Lake Mead < 1,075 feet, balance contents with a min/max release of 7.0 and 9.0 maf	15.5 - 19.3 (2008-2026)	1,200 (approx.) ²	Domestic Surplus or ICS Surplus Condition Deliver > 7.5 maf	22.9 (approx.) ²
	3,602.46 ft		1,145	Normal or ICS Surplus Condition Deliver ≥ 7.5 maf	15.9
3,575	<i>Jan 1, 2016 projection</i>	9.5	1,105	1,082.33 ft	11.9
	Mid-Elevation Release Tier Release 7.48 maf; if Lake Mead < 1,025 feet, release 8.23 maf		1,075	9.4	<i>Jan 1, 2016 projection</i>
3,525		5.9	1,050	Shortage Condition Deliver 7.167 ⁴ maf	7.5
3,490	Lower Elevation Balancing Tier Balance contents with a min/max release of 7.0 and 9.5 maf	4.0	1,025	Shortage Condition Deliver 7.083 ⁵ maf	5.8
3,370		0	1,000	Shortage Condition Deliver 7.0 ⁶ maf Further measures may be undertaken ⁷	4.3
			895		0

Diagram not to scale

¹ Acronym for million acre-feet

² This elevation is shown as approximate as it is determined each year by considering several factors including Lake Powell and Lake Mead storage, projected Upper Basin and Lower Basin demands, and an assumed inflow.

³ Subject to April adjustments which may result in a release according to the Equalization Tier

⁴ Of which 2.48 maf is apportioned to Arizona, 4.4 maf to California, and 0.287 maf to Nevada

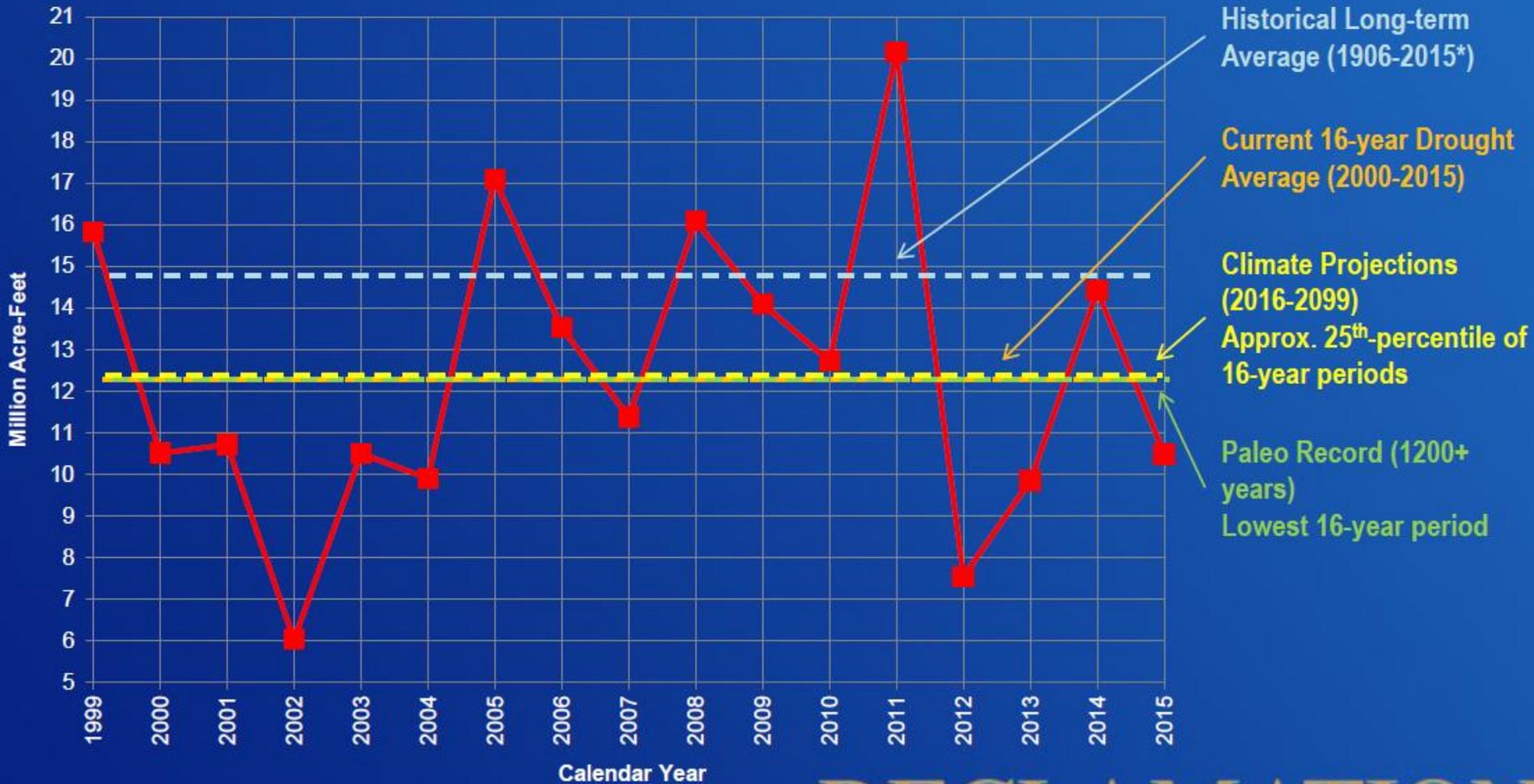
⁵ Of which 2.40 maf is apportioned to Arizona, 4.4 maf to California, and 0.283 maf to Nevada

⁶ Of which 2.32 maf is apportioned to Arizona, 4.4 maf to California, and 0.280 maf to Nevada

⁷ Whenever Lake Mead is below elevation 1,025 feet, the Secretary shall consider whether hydrologic conditions together with anticipated deliveries to the Lower Division States and Mexico is likely to cause the elevation at Lake Mead to fall below 1,000 feet. Such consideration, in consultation with the Basin States, may result in the undertaking of further measures, consistent with applicable Federal law.

Current 16-year Drought (2000-2015)

Natural Flow at Lees Ferry



*2013-2015 natural flows are provisional

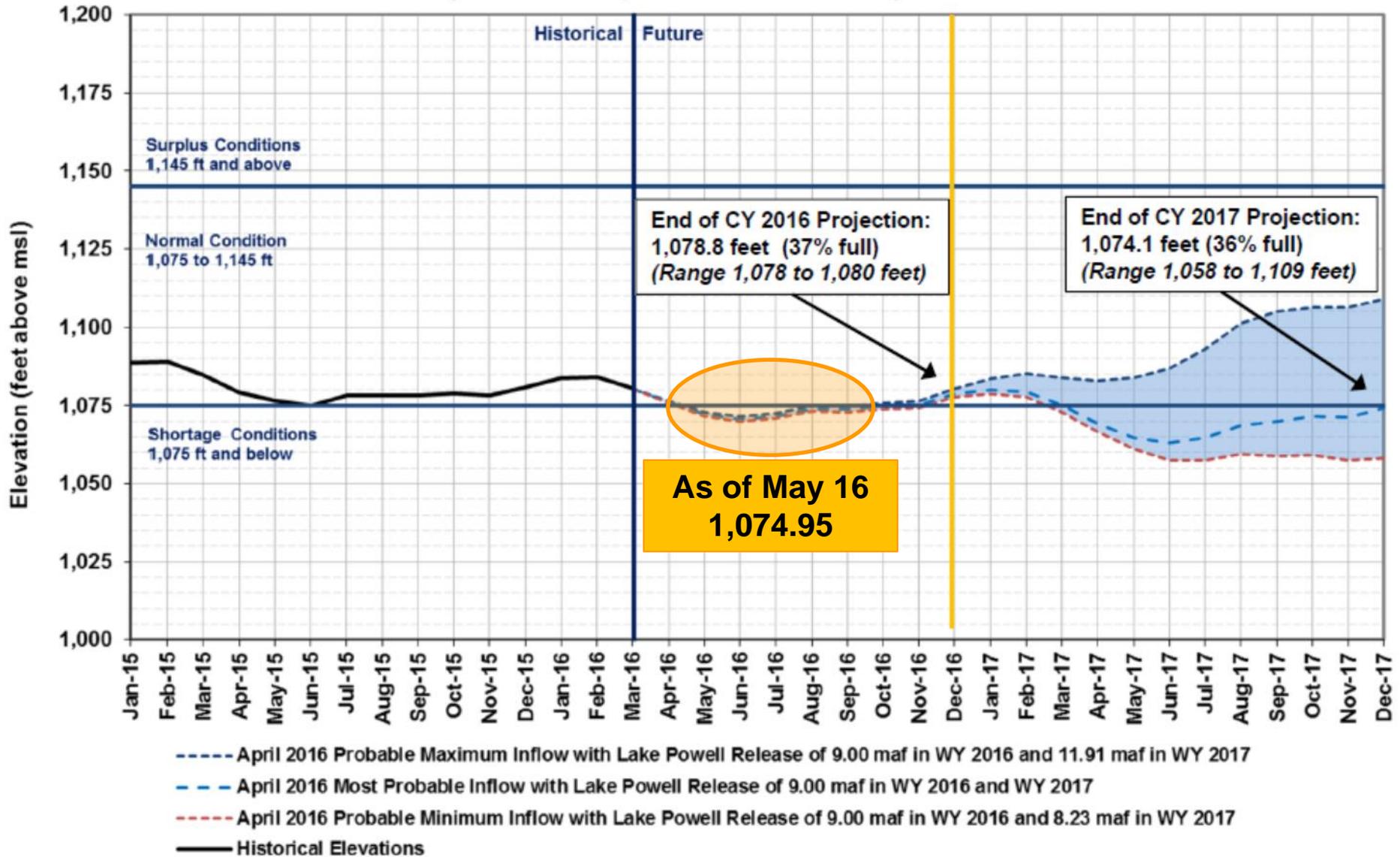
RECLAMATION

Lake Mead End of Month Elevation 1999 to Present



Lake Mead End of Month Elevations

Projections from April 2016 24-Month Study Inflow Scenarios



Potential For Shortages

- Water Year 2016 release from Lake Powell will be 9.0 MAF, which was adjusted upward from 8.23 MAF in April 2016
- 10% probability of Tier 1 shortage in the Lower Basin in 2017 (based the 9.0 MAF release in water year 2015)
- 56% probability of Tier 1 shortage in the Lower Basin in 2018 (with 9.0 MAF release in water year 2017)

The above was Based on Reclamation's April 2016 Colorado River modeling.



Probabilities of Lower Basin Shortage

	2017	2018	2019	2020	2021
Probability of any level of shortage (Mead \leq 1,075 ft.)	10	56	64	64	61
1 st level shortage (Mead \leq 1,075 and \geq 1,050 ft)	10	56	46	40	33
2 nd level shortage (Mead $<$ 1,050 and \geq 1,025 ft)	0	$<$ 1	18	18	18
3 rd level shortage (Mead $<$ 1,025)	0	0	$<$ 1	6	10

From Bureau of Reclamation April 2016 Colorado River modeling projections for 2017 through 2021.





**PROTECTING THE COLORADO RIVER & LAKE MEAD:
5 ISSUES FOR THE MAY 18 BRIEFING ON CHALLENGES PRESENTED BY
POTENTIAL SHORTFALLS IN COLORADO RIVER WATER ALLOCATIONS**



Questions?

