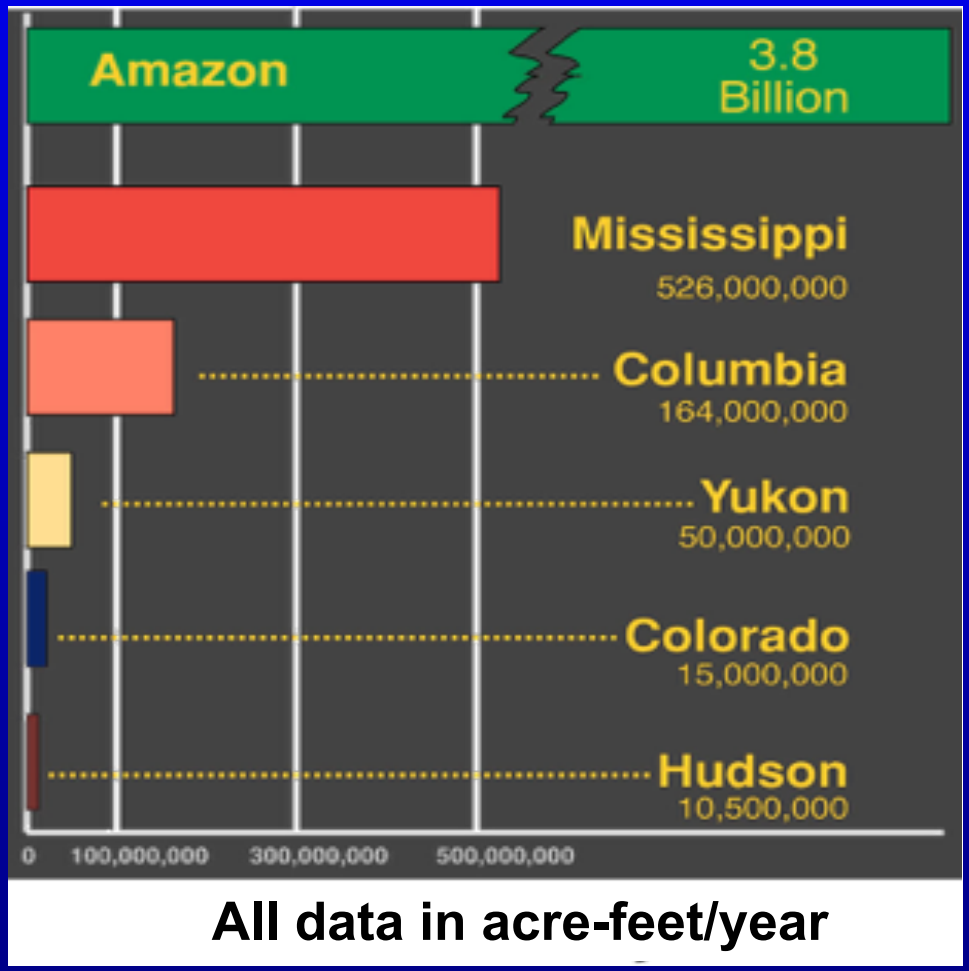
A Brief History of a Complicated River

Colorado River District

Protecting Western Colorado Water Since 1937

How Does the Colorado River Measure up?



All data in acre-feet/year

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Colorado River Basin Today

- Seven Basin States
- Almost 300,000 square miles
- 35 Million People and growing
- Up to 5.5 Million Irrigated Acres
- 10 Autonomous / Sovereign Tribes
- 2 Countries

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Colorado River Basin Tomorrow

- Seven Basin States
- Almost 300,000 square miles
- **80 Million People (increase of 91%?)**
- **4.6 Million Irrigated Acres** (decrease of 15%?)
- 10 Autonomous / Sovereign Tribes
- 2 Countries

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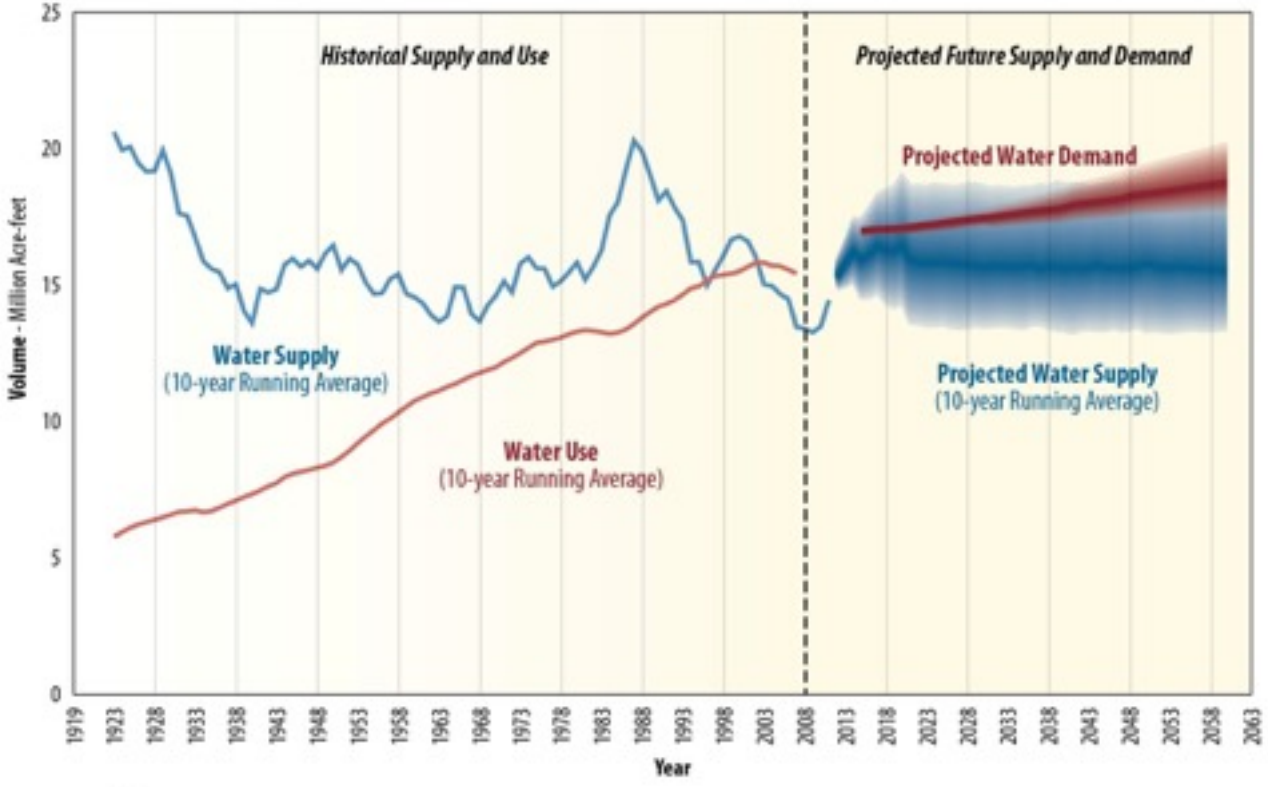
Projected Future Colorado River Basin Water Supply and Demand

- Average supply-demand imbalances by 2060 are approximately 3.2 million acre-feet
- This imbalance may be more or less depending on the nature of the particular supply and demand scenario
- Imbalances have occurred in the past and deliveries have been met due to reservoir storage



Notes:

Water Supply represents natural flow as measured at the Colorado River above Imperial Dam, Arizona

Water Use and Demand include deliveries to Mexico in accordance with the 1944 Treaty with Mexico and losses such as those due to reservoir evaporation, native vegetation, and operational inefficiencies.

Projected Water Supply is computed as the average 10th, 50th (median), and 90th percentiles of the Study's 4 water supply scenarios. The average of the medians is indicated by the darker shading.

Projected Water Demand is represented by the Study's 6 water demand scenarios. The median of the scenarios is indicated by the darker shading.

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1922 Colorado River Compact

- Divides the Colorado River (incl tributaries), into an Upper and Lower Basin
- Boundary between the two basins is Lee Ferry, Arizona
- Lower Division: Nevada, California & Arizona
- Upper Division: Wyoming, Colorado, New Mexico & Utah
- Arizona, Utah and New Mexico have lands within both basins

Why did Colorado Want a Compact?

- **Upper Basin States** concerned with the interstate application of prior appropriation doctrine.

- **California** wanted basin support for federal legislation to build Hoover Dam and the All-American Canal.

Law of the River Allocations

- 7.5 MAF to Upper Basin (%'s)[1]
- 7.5 MAF to Lower Basin (4.4 CA; 2.8 AZ; 0.3 NV)[2]
- 1.0 MAF additional to Lower Basin[3]

(*i.e.,* tributary development)

- 1.5 MAF to Mexico[4]

17.5 MAF Total Allocated 'on paper'

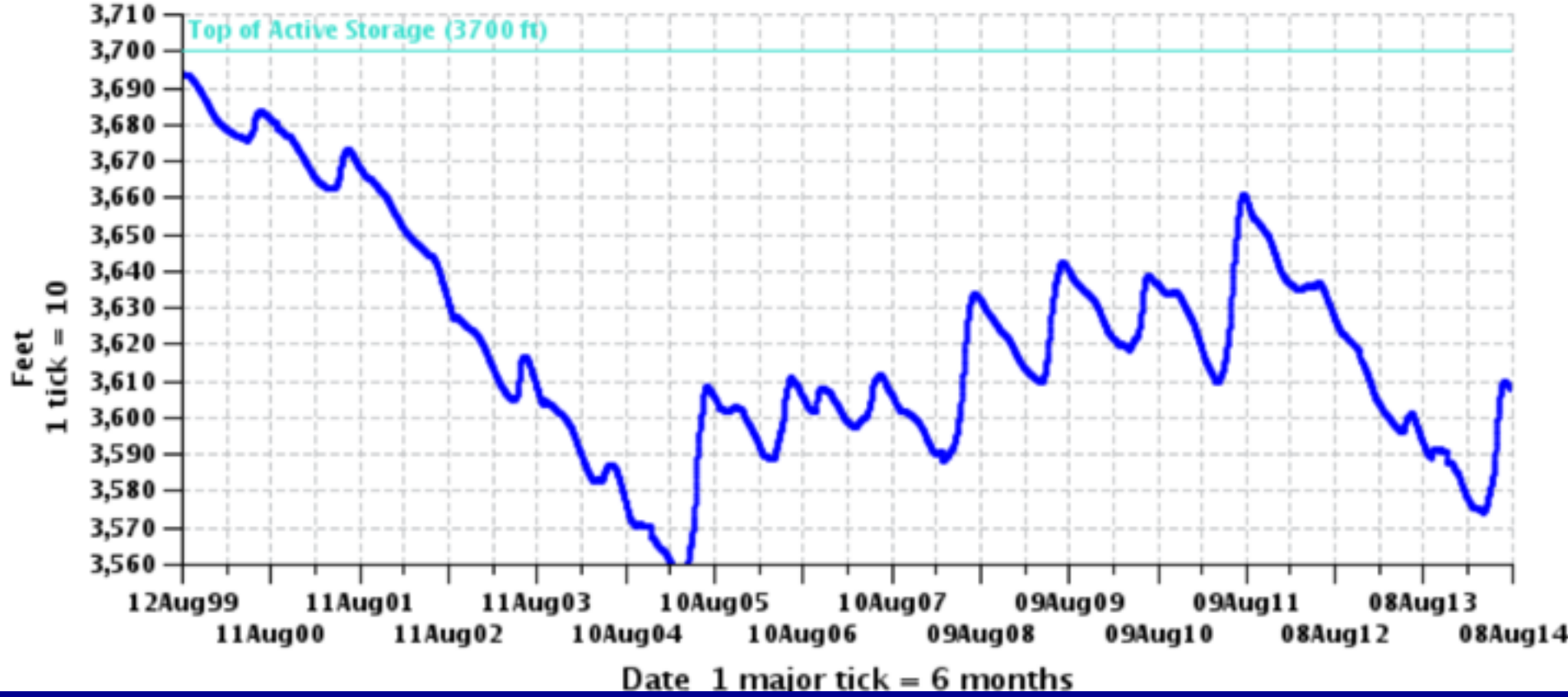
[1] 1922 Colorado River Compact, 1948 Upper Colorado River Compact

[2] Colorado River Compact, 1929 Black Canyon Project Act, 1964 AZ v. CA

[3] 1922 Colorado River Compact

[4] Treaty of 1944

Lake Powell Elevation
Middle of Aug. 1999 - 2014



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The Problem

- **Challenge from Interior:**
  - What if the current drought were to continue into the future?
  - Have a plan in place by 2015 (MOA or similar)
- **The Goal:**
  - Identify actions that can "bend the curve", i.e., reduce the risk of losing power production or being unable to deliver water
- **Possible Solutions:**
  - Extended Operation of CRSP reservoirs
  - Demand Management
  - Cloud seeding / other augmentation

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LAKE POWELL OPERATIONS

- Controlled by the 2007 Interim Guidelines
- Lakes Powell and Mead operated in a coordinated manner
- What happens at Powell affects Mead and vice versa
- In WY 2014 delivery is 7.48 maf -9.0 in WY 2015

Lake Powell Operational Tiers (subject to April adjustments or mid-year review modifications)		
Lake Powell Elevation (feet)	Lake Powell Operational Tier	Lake Powell Active Storage (maf)
3,700		24.32
	Equalization Tier equalize, avoid spills or release 8.23 maf	
3,636 – 3,666		15.54 – 19.29
(see table below)	**Upper Elevation Balancing Tier** release 8.23 maf, if Lake Mead < 1,075 feet, balance contents with a min/max release of 7.0 and 9.0 maf	(2008 – 2026)
3,575		9.52
	Mid-Elevation Release Tier release 7.48 maf, if Lake Mead < 1,025 feet, release 8.23 maf	
3,525		5.93
	Lower Elevation Balancing Tier balance contents with a min/max release of 7.0 and 9.5 maf	
3,370		0

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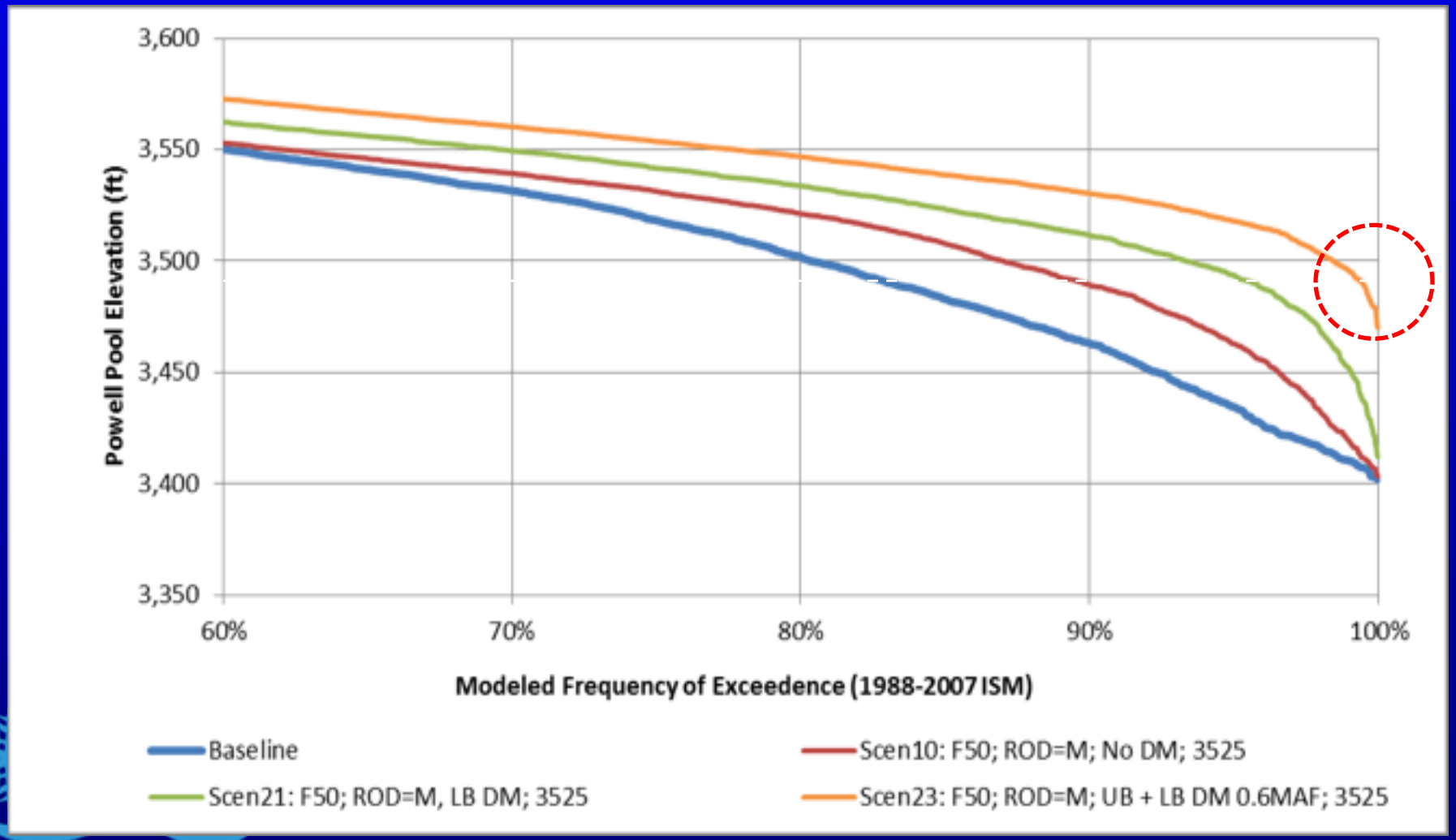
Example of Basin-wide "synergy" for Lake Powell



CURRENT ISSUES

1. THE COLORADO WATER PLAN
2. AGRICULTURAL TRANSFERS
3. NEW TRANSMOUNTAIN DIVERSIONS
4. RECREATION FLOWS
5. ENVIRONMENTAL FLOWS
6. INTERSTATE OBLIGATIONS

LONG TERM QUESTIONS

- FUTURE HYDROLOGY – DRYER?
- OVERUSE OF THE WATER SUPPLY
- ROLE OF MARKETS IN REALLOCATION – LEGAL ISSUES?
- FUTURE OF AGRICULTURE
- GOVERNANCE


THE SOURCE.
Colorado Rocky Mountains
www.ColoradoRiverDistrict.org
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Photo credit: NOAA