

# RECLAMATION

*Managing Water in the West*

**North American Energy-Water Nexus Roundtable**

**The Colorado River:  
Operation and Current Conditions**

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**April 1, 2011**



U.S. Department of the Interior  
Bureau of Reclamation

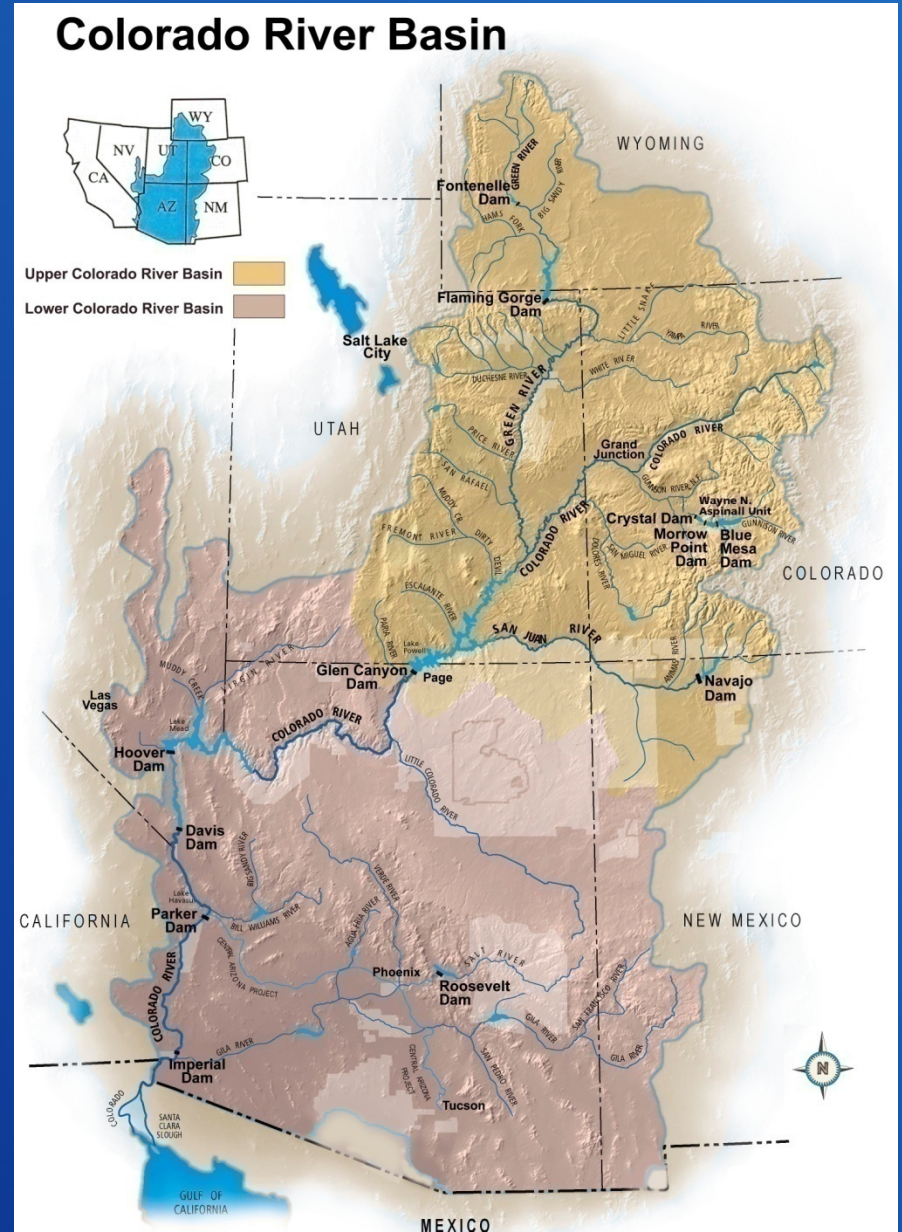
# The Colorado River: Operation and Current Conditions

- Overview of Basin
- Overview of the Interim Guidelines
- Current and Projected System Conditions

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# Colorado River Basin Hydrology

- 16.5 million acre-feet (maf) allocated annually
- 13 to 14.5 maf of consumptive use annually
- 60 maf of storage
- 15.0 maf average annual “natural” inflow into Lake Powell over past 100 years
- Inflows are highly variable year-to-year



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# Lower Basin Colorado River Management Objectives

Lake Mead



Lake Mohave



Hoover Dam

Davis Dam

Lake Havasu



Parker Dam

- Provide flood control and river regulation
- Meet water demands
- Generate hydropower
- Enhance and maintain ecosystem habitat
- Recover and protect endangered species
- Provide recreation

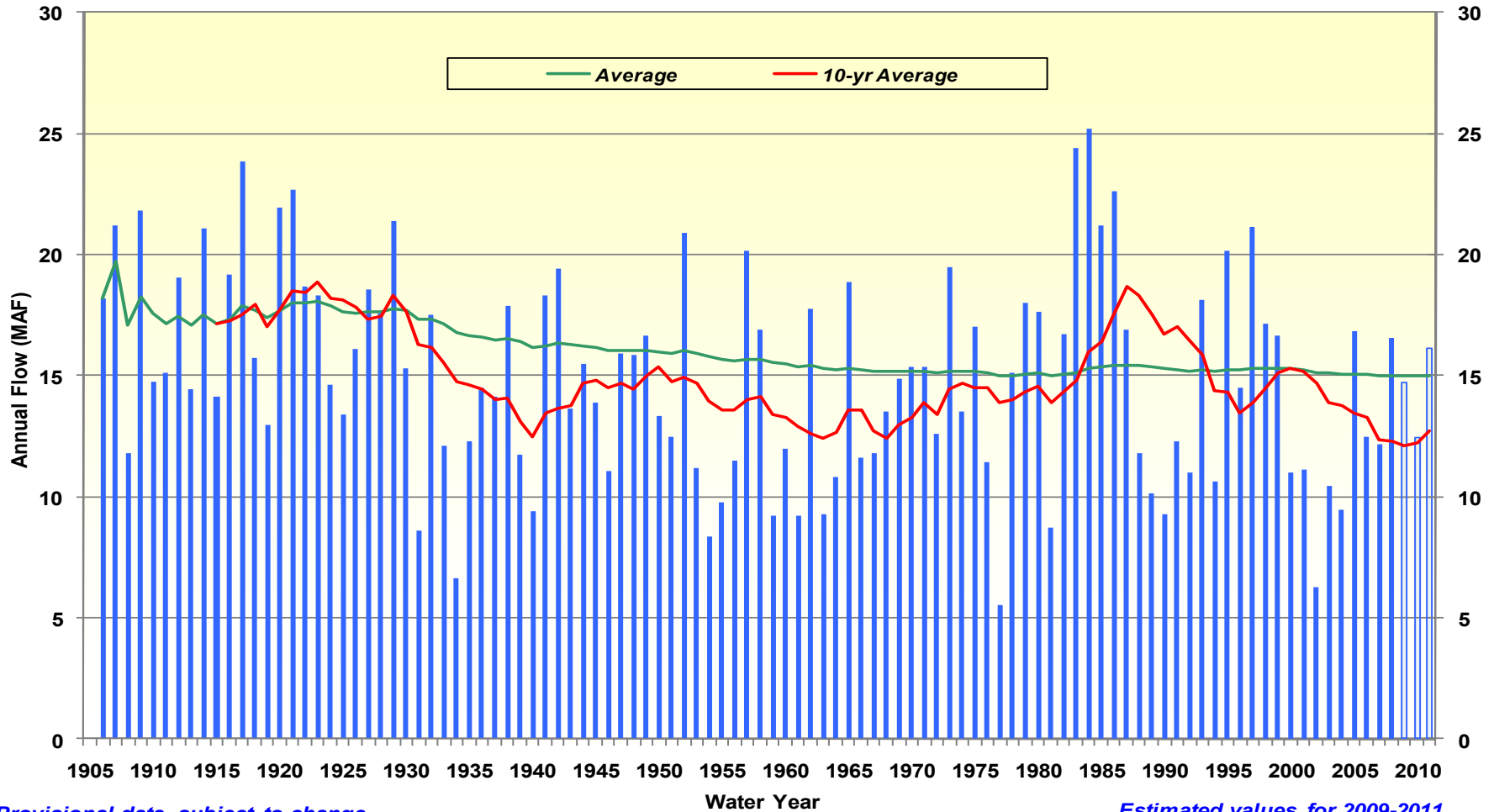
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# Natural Flow

## Colorado River at Lees Ferry Gaging Station, Arizona

### Water Year 1906 to 2011

Colorado River at Lees Ferry, AZ - Natural Flow



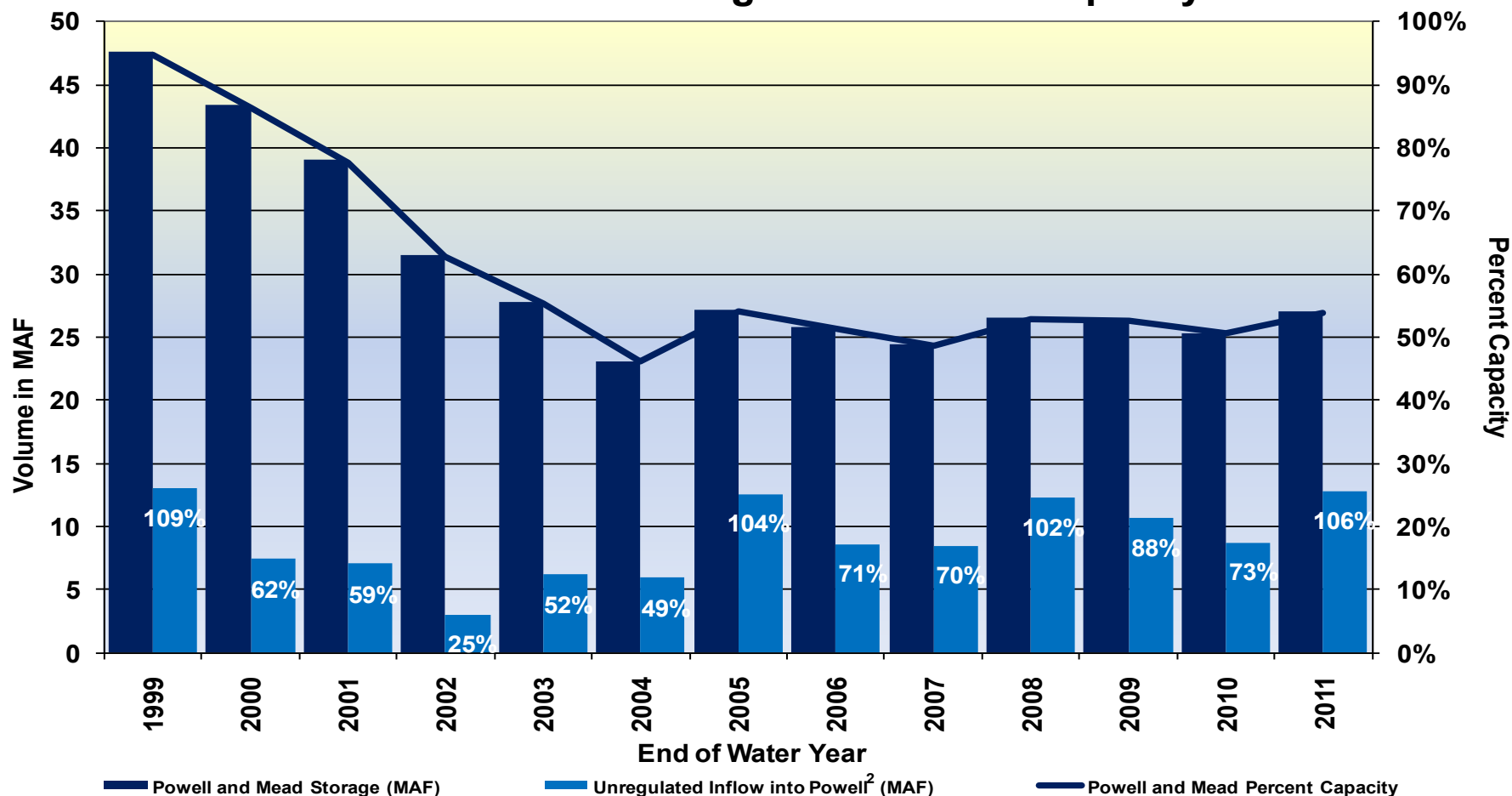
Provisional data, subject to change

Estimated values for 2009-2011

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# State of the System (Water Years 1999-2011<sup>1</sup>)

## Unregulated Inflow into Lake Powell Powell-Mead Storage and Percent Capacity



<sup>1</sup> Values for water year 2011 are projected. Unregulated inflow is based on the latest CBRFC forecast. Storage and percent capacity are based on the March 2011 24-Month Study.

<sup>2</sup> Percentages at the top of the light blue bars represent percent of average unregulated inflow into Lake Powell for a given water year based on the 30-year average from 1971 to 2000.

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# Colorado River Drought

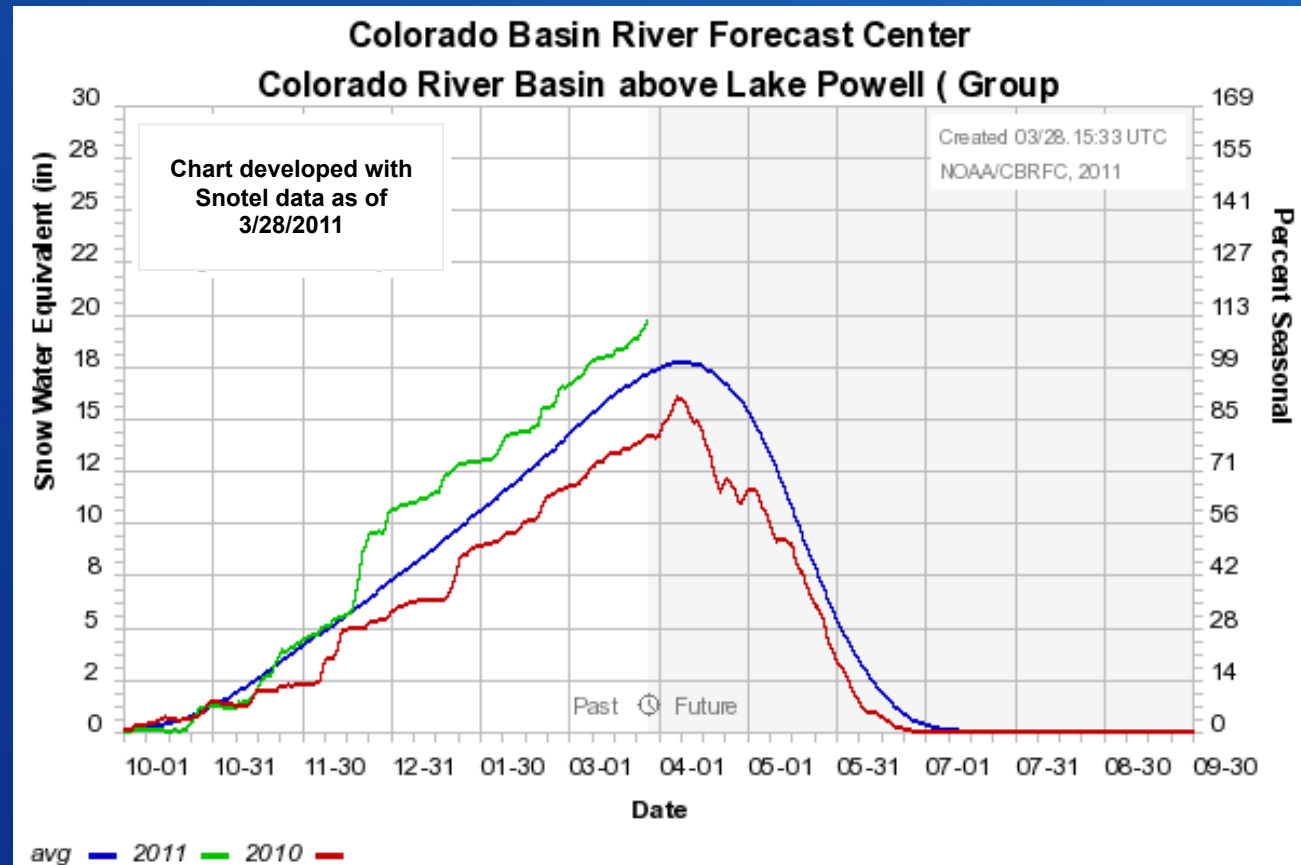
- 2000-2010 was the driest 11-year period in the 100-year historical record (WYs 2009 and 2010 data are estimated)
- Tree-ring reconstructions show more severe droughts have occurred over the past 1200 years (e.g., drought in the mid 1100s)
- Forecasted 2011 April through July runoff is 116% of average as of March 15
- Not unusual to have a few years of above average inflow during longer-term droughts (e.g., the 1950s)

# Water Year Snowpack and Precipitation as of March 28, 2011

Colorado River  
Basin above  
Lake Powell

Water Year  
Precipitation  
(year-to-date)  
117%

Current Snowpack  
118%



Source: CBRFC

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# Impetus for the Interim Guidelines



- Seven years of unprecedented drought
- Increased water use
- To date, there has never been a shortage in the Lower Basin and there were no shortage guidelines
- Operations between Lake Powell and Lake Mead were coordinated only at the higher reservoir levels “equalization”

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# Interim Guidelines<sup>1</sup> - A Robust Solution

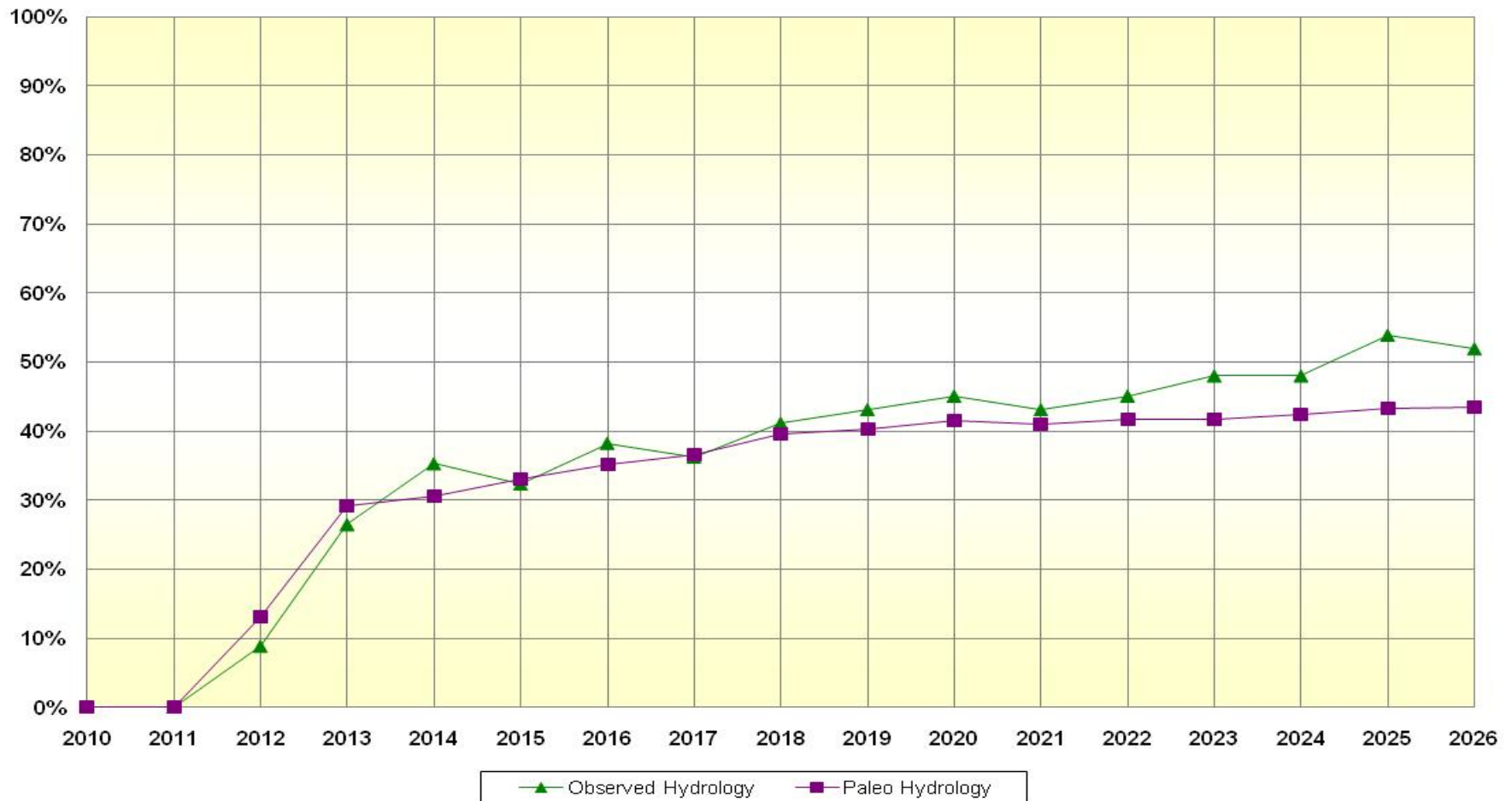
- Operations specified through the full range of operation for Lake Powell and Lake Mead
- Encourage efficient and flexible use and management of Colorado River water through the ICS mechanism
- Strategy for shortages in the Lower Basin, including a provision for additional shortages if warranted<sup>2</sup>
- In place for an interim period (through 2026) to gain valuable operational experience
- Basin States agree to consult before resorting to litigation

1. Issued in Record of Decision, dated December 13, 2007; available at <http://www.usbr.gov/lc/region/programs/strategies.html>

2. Mexico water deliveries are not directly affected by these guidelines

# Lower Basin Shortages

Probability of Occurrence of Any Amount  
*projected by August 2010 CRSS*



# Colorado River Basin Storage

(as of March 27, 2011)

Current Storage	Percent Full	MAF	Elevation (Feet)
Lake Powell	53%	12.86	3,611
Lake Mead	43%	11.17	1,096
Total System Storage*	53%	31.56	NA

\*Total system storage was 32.76 maf or 55% this time last year

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An aerial photograph of a large concrete dam with a curved crest, situated in a deep, arid canyon. The reservoir behind the dam is filled with clear, blue-green water. The surrounding landscape is rugged and rocky, with steep cliffs and sparse vegetation. The sun is high, casting shadows on the dam's surface.

# The Colorado River: Operations and Current Conditions

For further information:  
<http://www.usbr.gov/lc/region>

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