

# ADWR BRIEFING

A photograph of a desert landscape. In the foreground, several tall saguaro cacti stand against a backdrop of dark, rocky hills. In the distance, a range of large, rugged mountains is covered in snow, set against a clear blue sky.

**Thomas Carr**  
**ADWR**  
**May 15, 2008**

# Water Supply of Arizona

**Colorado River  
2.8 MAF**

**Groundwater  
2.9 MAF**

**Salt River 0.6-  
1 MAF**

**Gila River  
0.4 MAF**

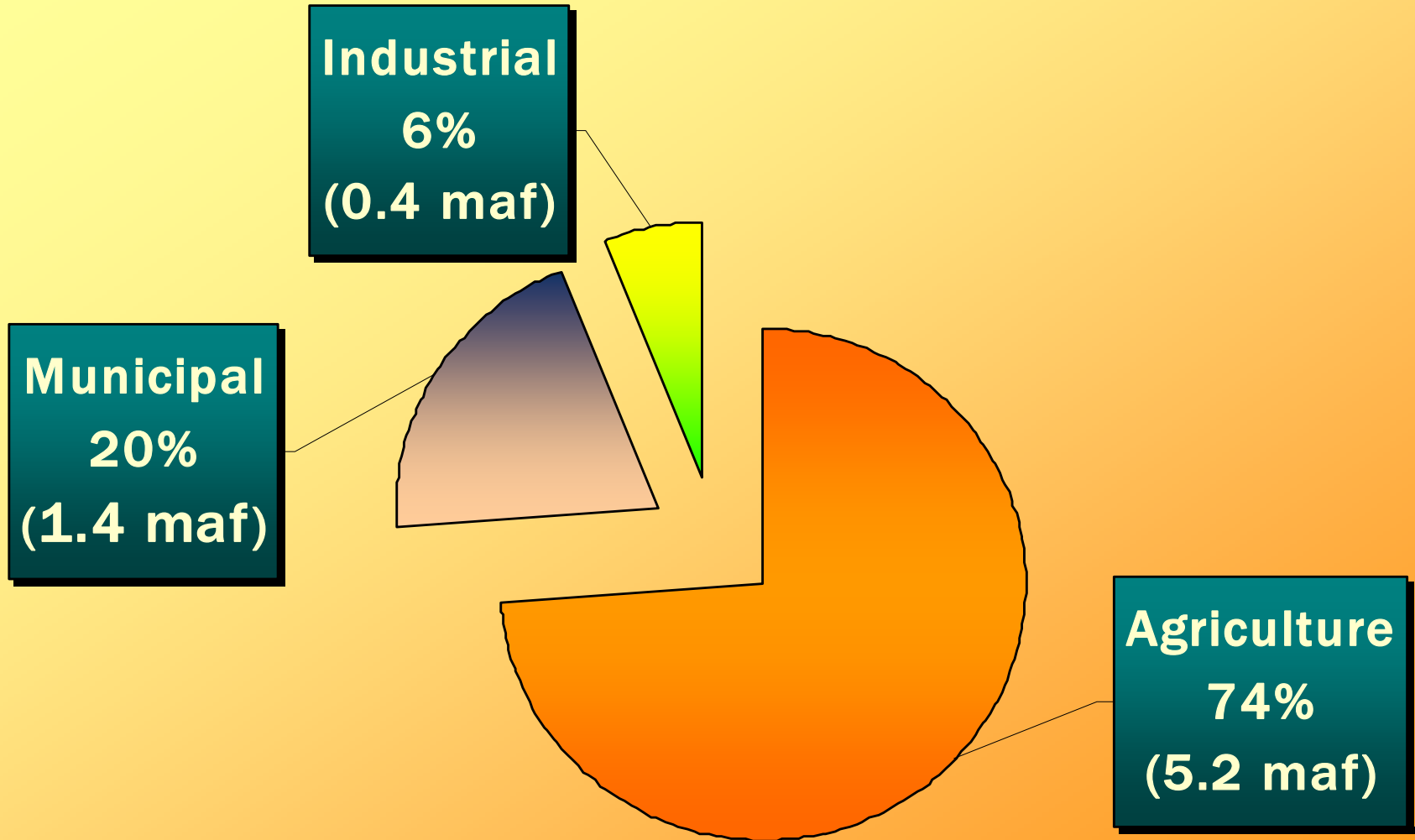


# Arizona Water Uses

## Annual Average – 2001-2003

Water Supply	Million Acre-Feet (maf)	% of Total
<b>SURFACE WATER</b>		
<b>Colorado River*</b>	<b>2.8</b>	<b>39.8 %</b>
<i>*adjusted for return flows</i> <b>CAP</b>	<b>1.5</b>	<b>21.3%</b>
<b>On-River</b>	<b>1.3</b>	<b>18.5%</b>
<b>In-State Rivers</b>	<b>1.0</b>	<b>14.2%</b>
<b>Salt-Verde</b>	<b>0.6</b>	<b>9.1%</b>
<b>Gila &amp; others</b>	<b>0.4</b>	<b>5.1%</b>
<b>GROUNDWATER</b>	<b>3.1</b>	<b>43.6%</b>
<b>RECLAIMED WATER</b>	<b>0.2</b>	<b>2.4%</b>
<b>Total</b>	<b>7.04 maf</b>	

# Use By Sector



# Arizona Water Supply

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A topographic map of the Lake Mead basin, showing the reservoir in blue and the surrounding terrain in shades of green and brown. The map includes contour lines and a network of roads.

## LAKE MEAD

Capacity - 25.88 maf

12 May 08 - 48% full

Contents - 12.38 maf

Elevation - 1,110'

**Projected (WY '08)**

Contents - 11.94 maf

Elevation - 1105 maf

46% full



An aerial photograph of Lake Powell, a large reservoir in a desert canyon. The water is dark blue, contrasting with the reddish-brown, eroded rock walls of the canyon. The reservoir has a complex, branching shape, following the natural contours of the canyon. The surrounding landscape is arid and rugged, with sparse vegetation and deep shadows in the canyon walls.

## **LAKE POWELL**

**Capacity – 24.32 maf**

**12 May 08 – 47% full**

**Contents – 11.52 maf**

**Elevation – 3,598'**

**Projected (WY '08)**

**Contents – 15.38 maf**

**Elevation – 3635'**

**63 %**

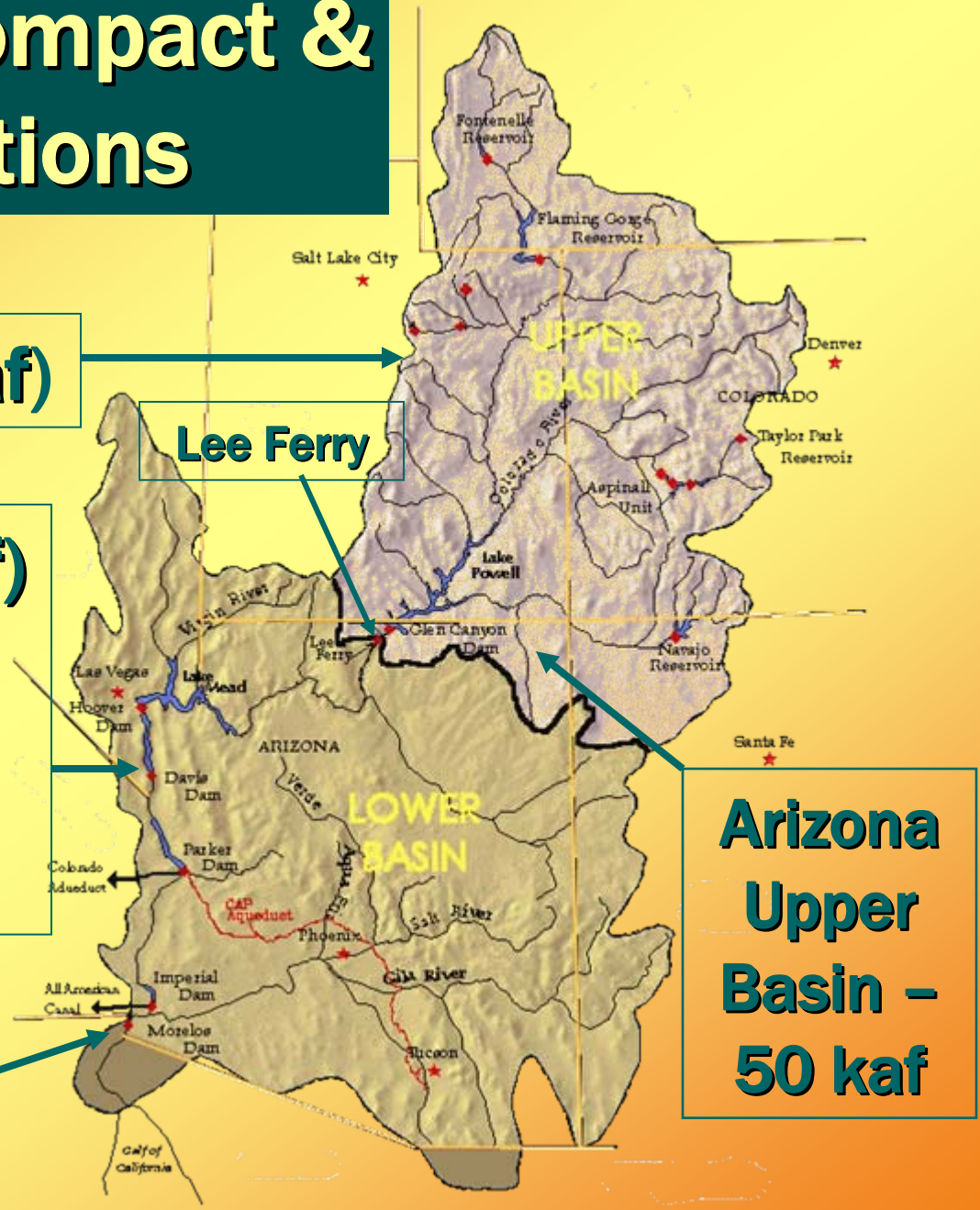
# Colorado River Compact & Treaty Allocations

**Upper Basin (7.5 maf)**

**Lower Basin (7.5 maf)**

- CA - 4.4 maf
- AZ - 2.8 maf
- NV - 0.3 maf

**Mexico 1.5 maf**

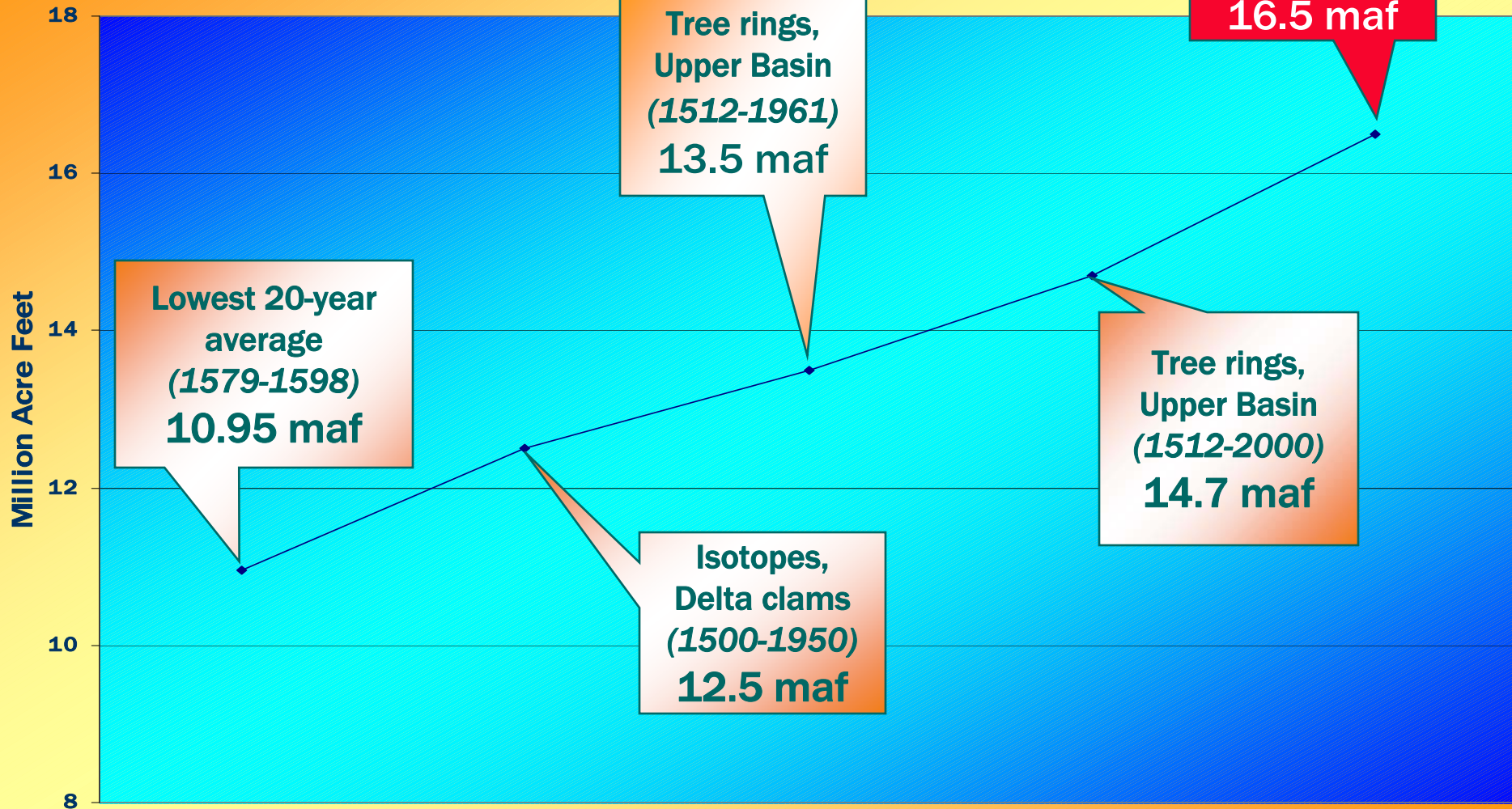


**Arizona Upper Basin - 50 kaf**



# Colorado River Flows

Estimated past flow averages



**Depending on which study you  
subscribe to, the Colorado  
River is over-appropriated by  
1.8 to 4.0 maf**



At The End of the Day...

# Upper Division Issues

- **Colorado River over-appropriated**
- **Upper Basin unable to develop full use of apportionment**
- **Compact requires Upper Basin to release 75 maf ten-year average**
- **Leads to potential for a Lower Basin "Compact Call"**

# **“Compact Call”:**

**If Upper Division states do not meet 1922 Compact requirement to provide 75 maf every 10 years, the Lower Division States could demand that the Upper Division States cut off their junior water right holders and send their water to the Lower Division States.**



At The End of the Day...

# Lower Division Issues

- **Colorado River over-appropriated**
- **Upper Basin will develop ability to use more of apportionment**
- **Increased chance of Lower Basin shortages**
- **Unpredictable outcome of “Compact Issue” litigation**

**Working with all the Basin States to minimize the possibility of Lower Division shortages and a “Compact Call” on the Upper Division by exploring:**

- **Augmenting the water in the Colorado River**
- **Conjunctively managing Lakes Mead and Powell**
- **Reducing the delivery of Colorado River water in excess of treaty requirements**



**The 7 Basin States letter to the Secretary of Interior, dated February 3, 2006, referred a Basin States preferred alternative for consideration in the ongoing NEPA process.**

# Lake Mead Step Shortage

<b>Mead elevation (ft)</b>	<b>Stepped Shortage</b>	<b>Mead Live Storage</b>
<b>1,075 to 1,050</b>	<b>400 kaf</b>	<b>9.37 to 7.47 maf</b>
<b>&lt;1,050 to 1,025</b>	<b>500 kaf</b>	<b>7.47 to 5.80 maf</b>
<b>&lt;1,025 to 1,000</b>	<b>600 kaf</b>	<b>5.80 to 4.33 maf</b>
<b>&lt;1,000</b>	<b>Increased reductions to be consistent with consultation(s)</b>	<b>&lt;4.33 maf</b>

# Shortage Sharing

- **Nevada** 4% - 8%
- **California** 0%
- **Mexico** 17%
- **Arizona** 79% - 75%



# AZ-NV Shortage Sharing

## Agreement activated if Secretary of Interior declares shortage on Colorado River:

- Agreement covers up to 500,000 acre-feet in Lower Division U.S. shortages:
  - Federal government handles shortages to Mexico
- Initial proposals:
  - Arizona proposed - AZ 93% of shortage, NV 7% (approx.)
  - Nevada proposed - AZ 96% / NV 4% (approx.)
- Compromise agreement:
  - AZ share 96%, NV 4% (approx.)
  - NV pays AZ \$8 M
    - To purchase water to replace shortage differential
    - Differential water volume based on probability of occurrence
    - Payment is non-refundable

# Augmentation

- **All states will pursue augmentation projects including but not limited to:**
  - **Weather modification (cloud seeding)**
  - **Desalination**
  - **Vegetation management**
- **States have hired a consultant for long-term augmentation feasibility studies**

# Long Term Augmentation

- **DESALINATION**

- **California potential for exchange**
- **Mexico potential for exchange**
- **Costs (U.S. Desalination Association):**
  - **\$2,000/af (1992)**
  - **\$600/af (2007)**
- **Worldwide:**
  - **11,000 plants in 120 countries**
  - **Saudi Arabia – 70% of country's water supply**
  - **Global capacity – 4 billion gals/day**
- **Future benefits:**
  - **Reduce/eliminate need to bring water from interior (Colorado River) to coast (Southern California)**



# The World's Oceans



**Coverage:**

**71% of Earth's surface**

**Volume:**

**1.11 quadrillion acre-feet, or**

**A column of water 1 mile square &  
300 million miles high**

# Final 7 States Agreement

- **Conjunctive management of Lakes Mead and Powell**
- **Intentionally Created Surplus (ICS)**
- **Wheeling other water in Colorado River System**
- **System Augmentation**
- **Staged shortages for the Lower Division States**

# HJR 2001

## 7 Basin States Agreement

- **Forbearance: Authorizes ADWR Director to forbear ordering these special types of water created & owned by other Basin states under specific circumstances**
- **Need**
  - **Surplus is intentionally created by another state (Nevada or California)**
  - **“Law of the River” does not recognize these types of water**
  - **Augments supply on the River**
  - **Achieves comity with our neighbors on the Colorado River**
  - **Reduces interim surplus available to other states under the Interim Surplus Guidelines (ISG)**
  - **Reduces the frequency and magnitude of Arizona’s shortages**

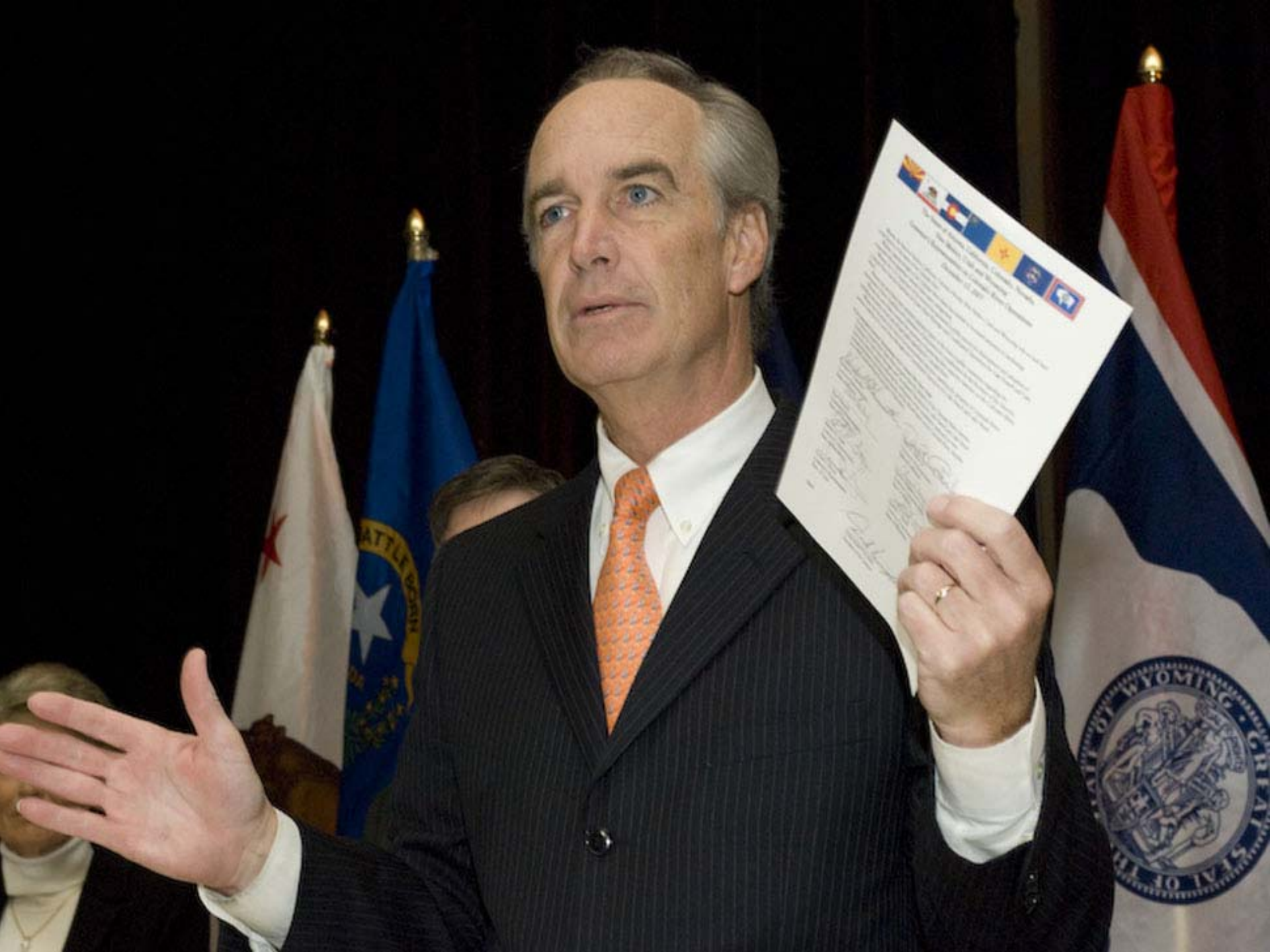


# Final 7 States Agreement

- **Agreement with 7 Basin States signed on April 23, 2007**
- **7 States letter to the Secretary commenting on DEIS and transmitting all signed documents dated April 30, 2007**
- **Secretary selected the 7 Basin States alternative as the preferred alternative in June 2007**
- **Agreement with Nevada on shortage sharing signed June 2007**
- **Final EIS October 1, 2007**
- **7 States joint letter of comment on FEIS – December 1, 2007**

# Record of Decision

**On December 13, 2007 the Secretary of the Interior, Dirk Kempthorne signed the Record of Decision that was consistent with the 7 States alternative and Arizona's compromise regarding operation of Lake Powell when Lake Mead is approaching Shortage elevations.**



# Forbearance Agreements

**On December 14, 2007 the Governor's Representatives of the 7 Basin States signed the forbearance agreements and associated exhibits thereby finalizing the 7 States Agreement. Secretary Kempthorne described the agreement as "the most significant event on the Colorado River since the signing of the Colorado River Compact in 1922".**





**First Time In 85  
Years All 7  
Basin States  
Agree On  
Major  
Colorado River  
Issues**



# Ever Vigilant

**Even with our success we must  
keep our guard up**

# Arizona Navy Lake Havasu Command

LONDON BRIDGE

ADWR





# Arizona Navy v. California - 1934

## Stop Parker Dam!

### ISSUE:

- California had wealth to build huge water delivery systems to farmers and Los Angeles
- Arizona feared it would never get its full Colorado River entitlement

### ACTION:

- Moeur dispatched 60 fully armed Arizona National Guardsmen
- Guardsmen commandeered the "Julia B" paddle wheeler from Parker

### RESULT:

- Work on Parker Dam was halted until the issue was settled



Arizona Governor  
B. B. Moeur





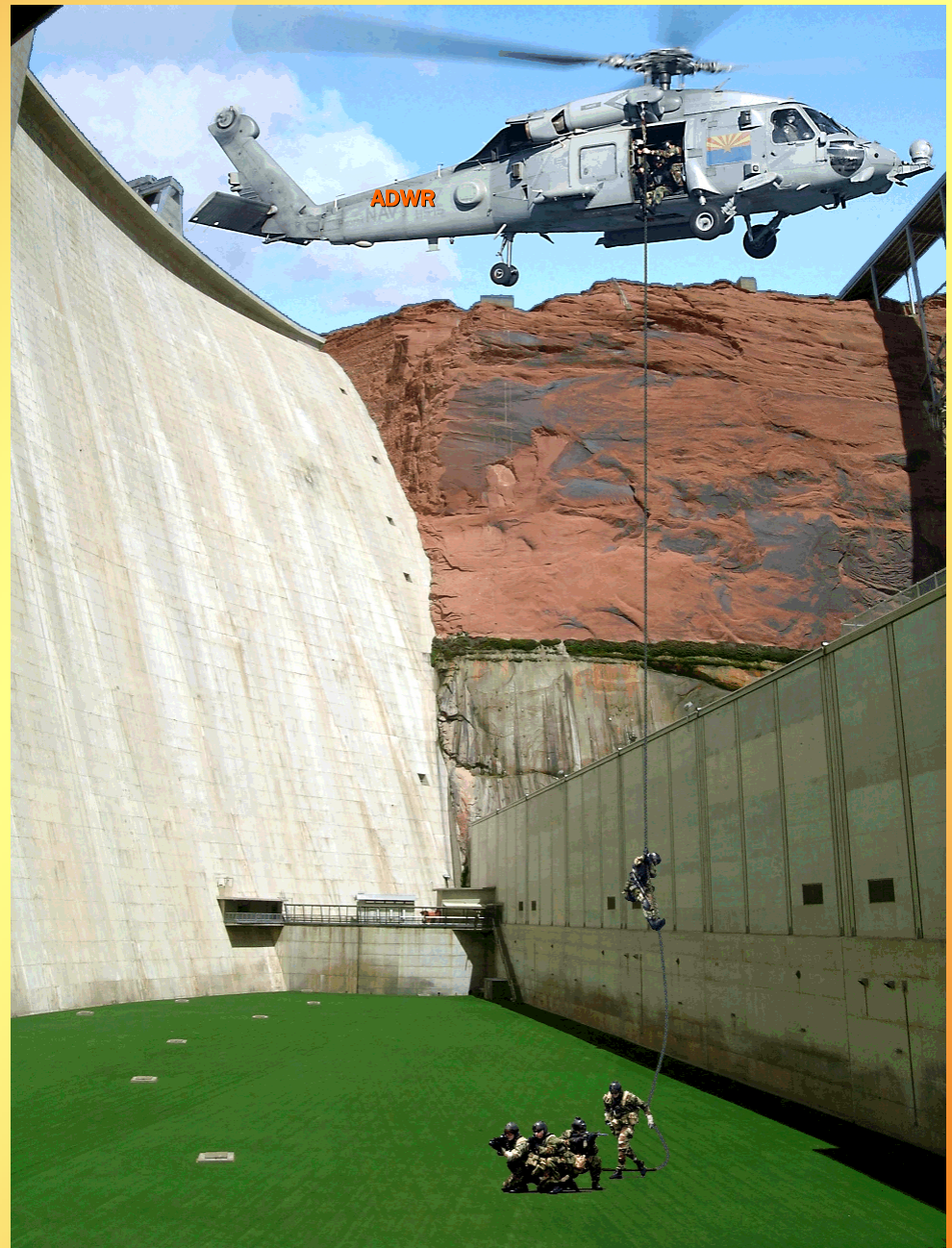
# Arizona Navy Lake Mead Command

“Securing Arizona’s  
Water Future”

*ADWR mission*



# Arizona Navy Glen Canyon Dam Special OPS Training 2007





# Arizona Navy



**Lower Basin No - Fly Zone**

