



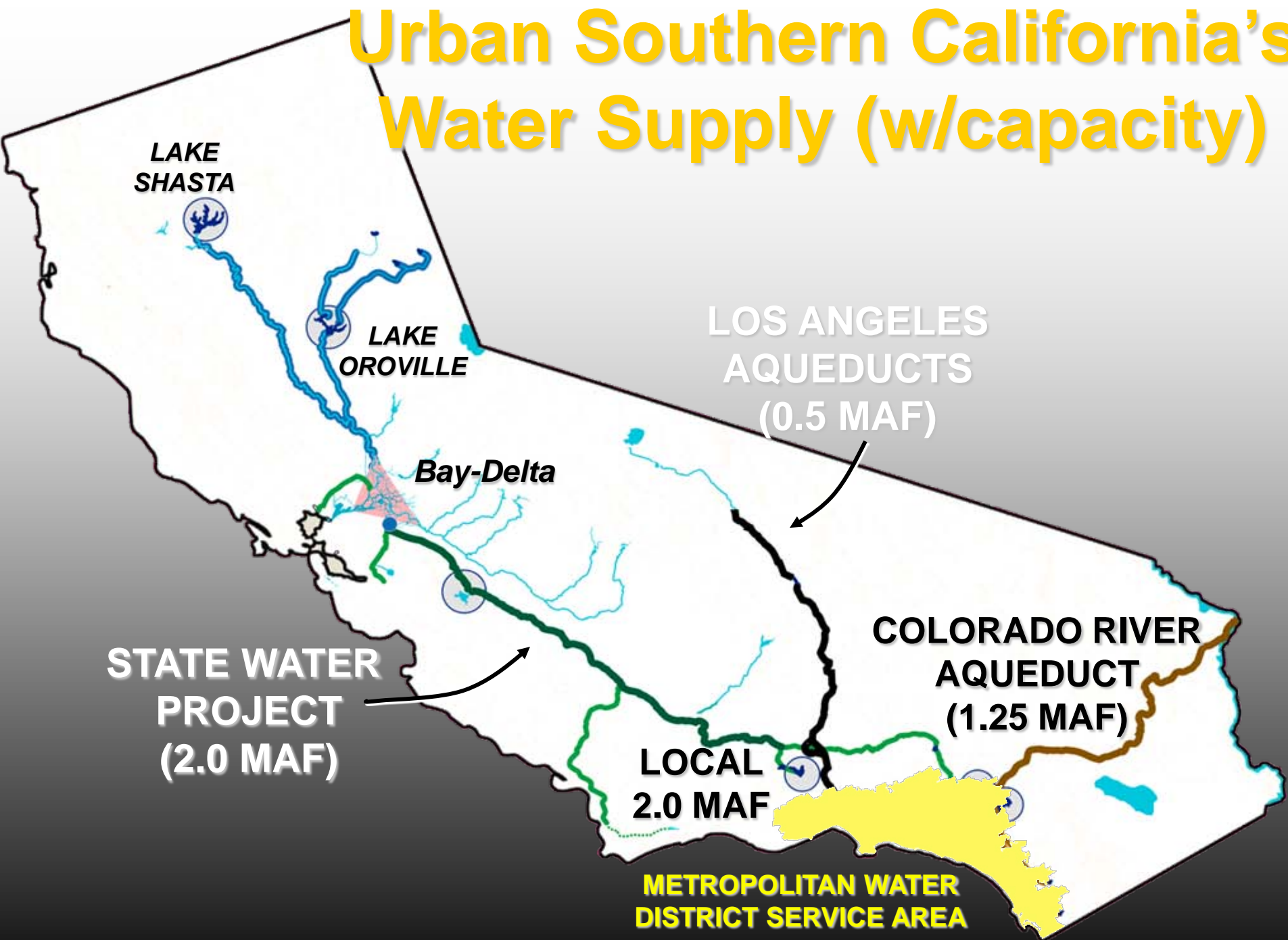
2010 WESTCAS Annual Conference

June 17, 2010

**The Colorado River: Helping California
Navigate Through a Water Supply Crisis**

**Bill Hasencamp
Manager, Colorado River Resources
Metropolitan Water District of
Southern California**

Urban Southern California's Water Supply (w/capacity)



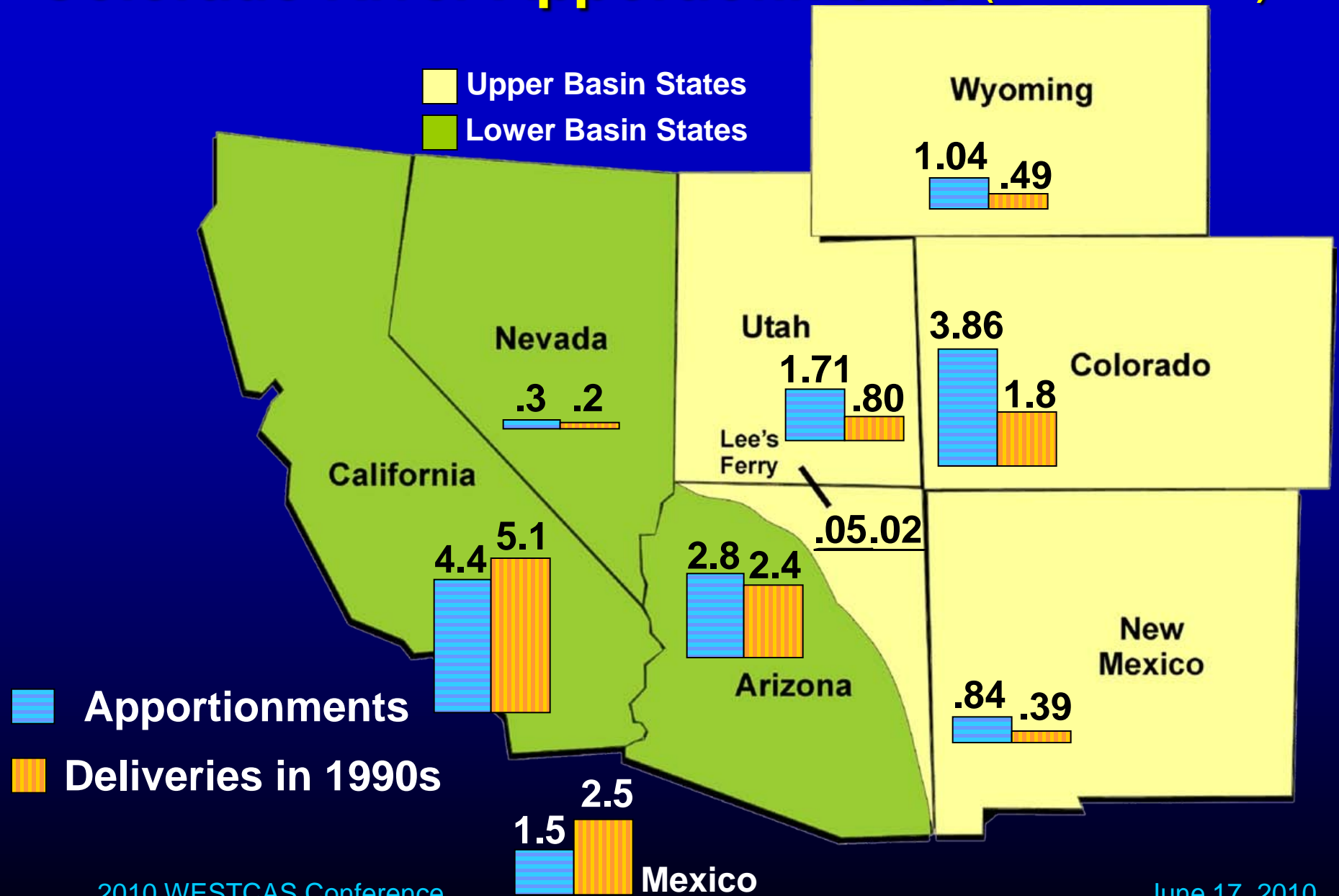
Overview of Presentation

- **MWD's Evolving View of Colorado River**
 - **1940s – 2002: The Boom Years**
 - **2003 – 2007: The Hard Landing**
 - **2008 – 2010: Responding to Crisis**
- **Current Challenges Facing the River**

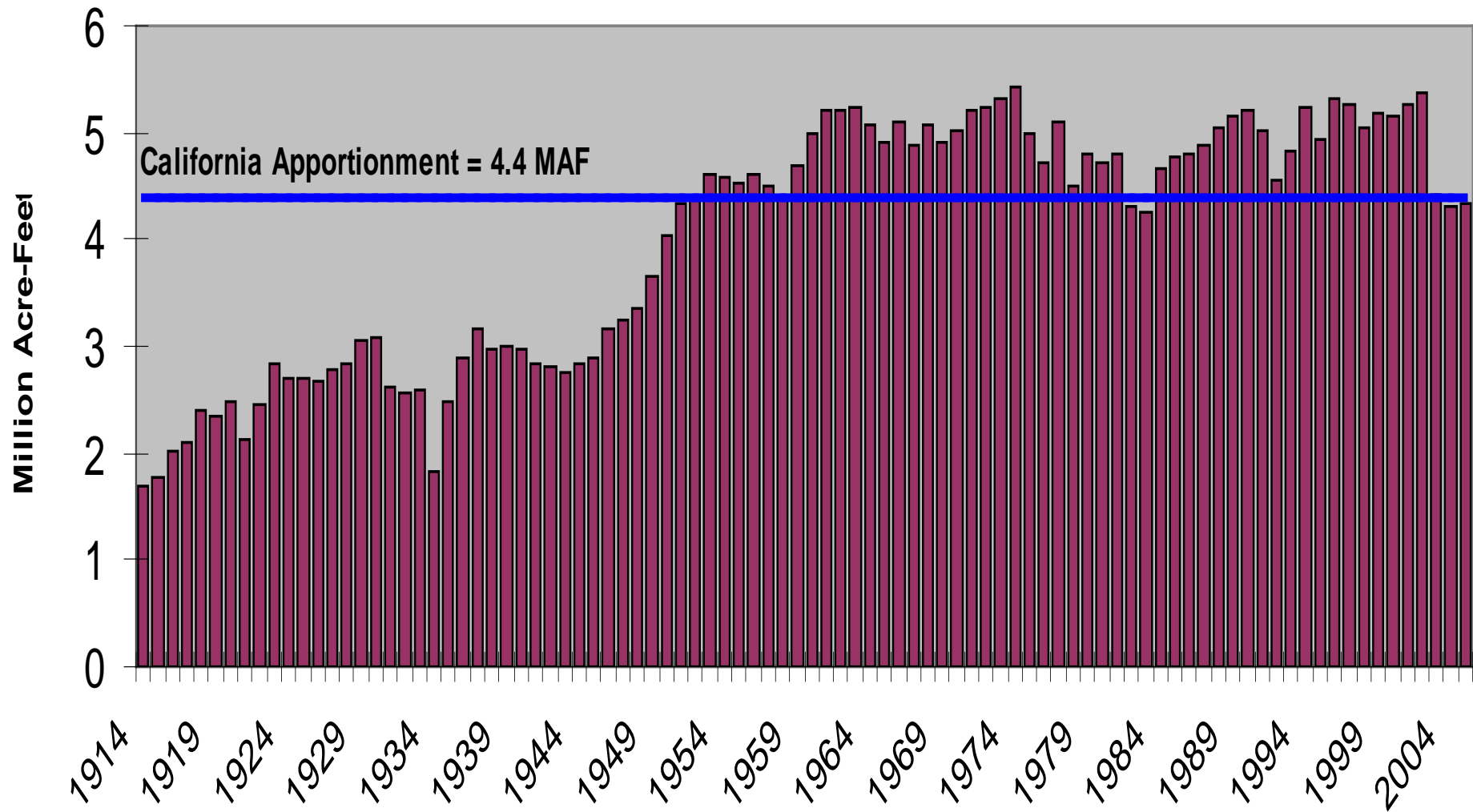
1940s – 2002: “The Boom Years”



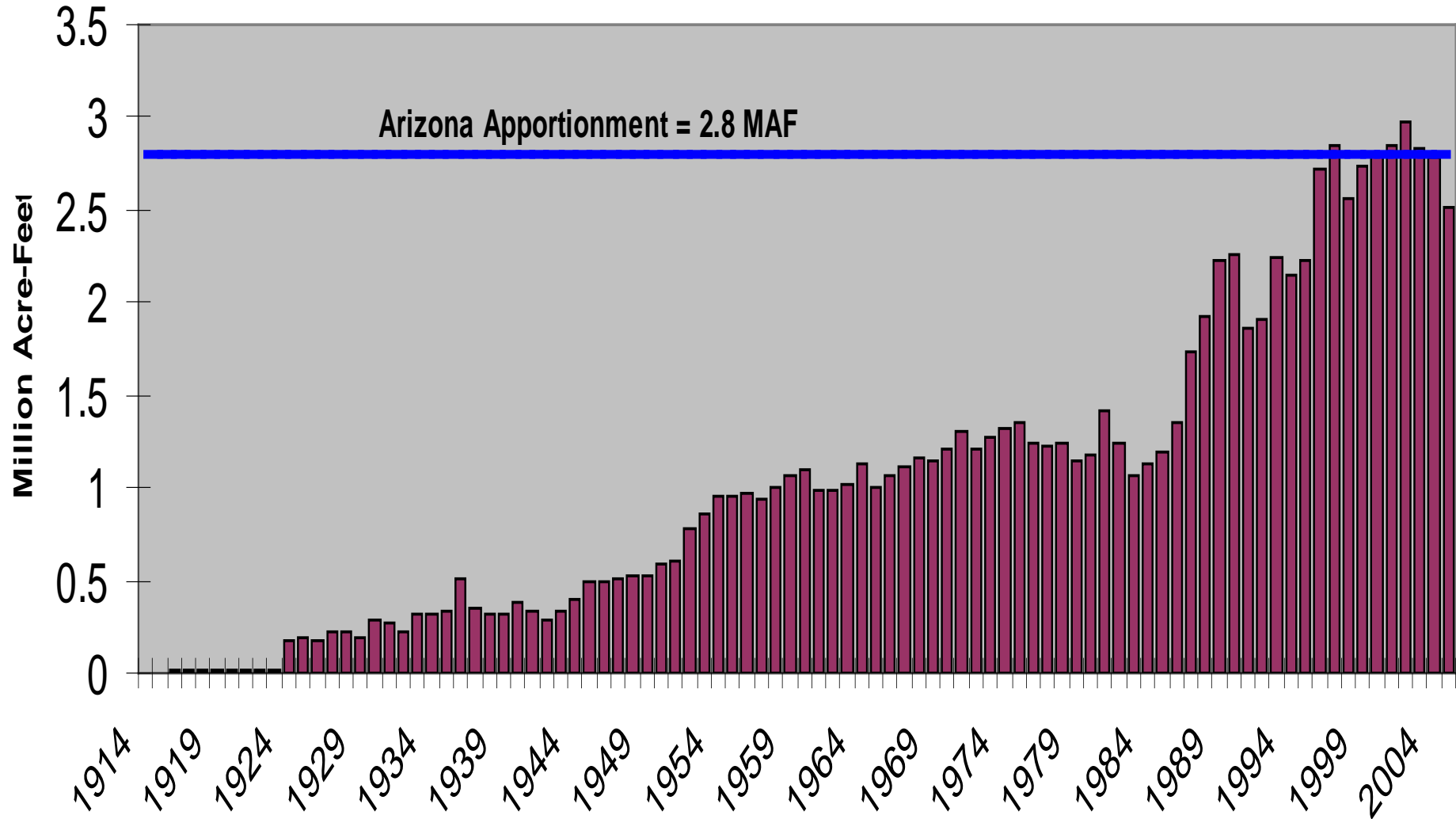
Colorado River Apportionments (Million acre-feet)



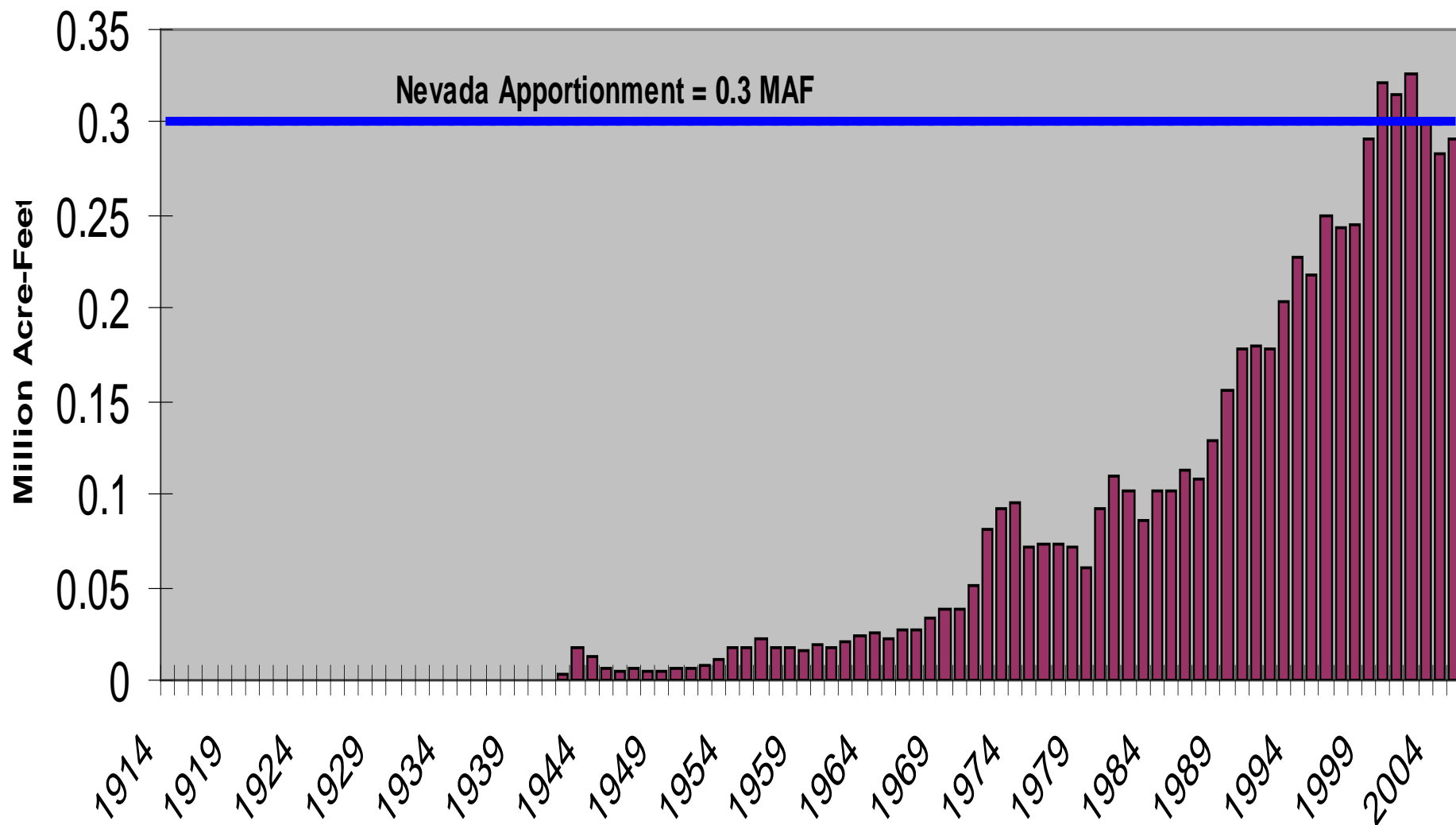
California Water Use: 1914 - 2005



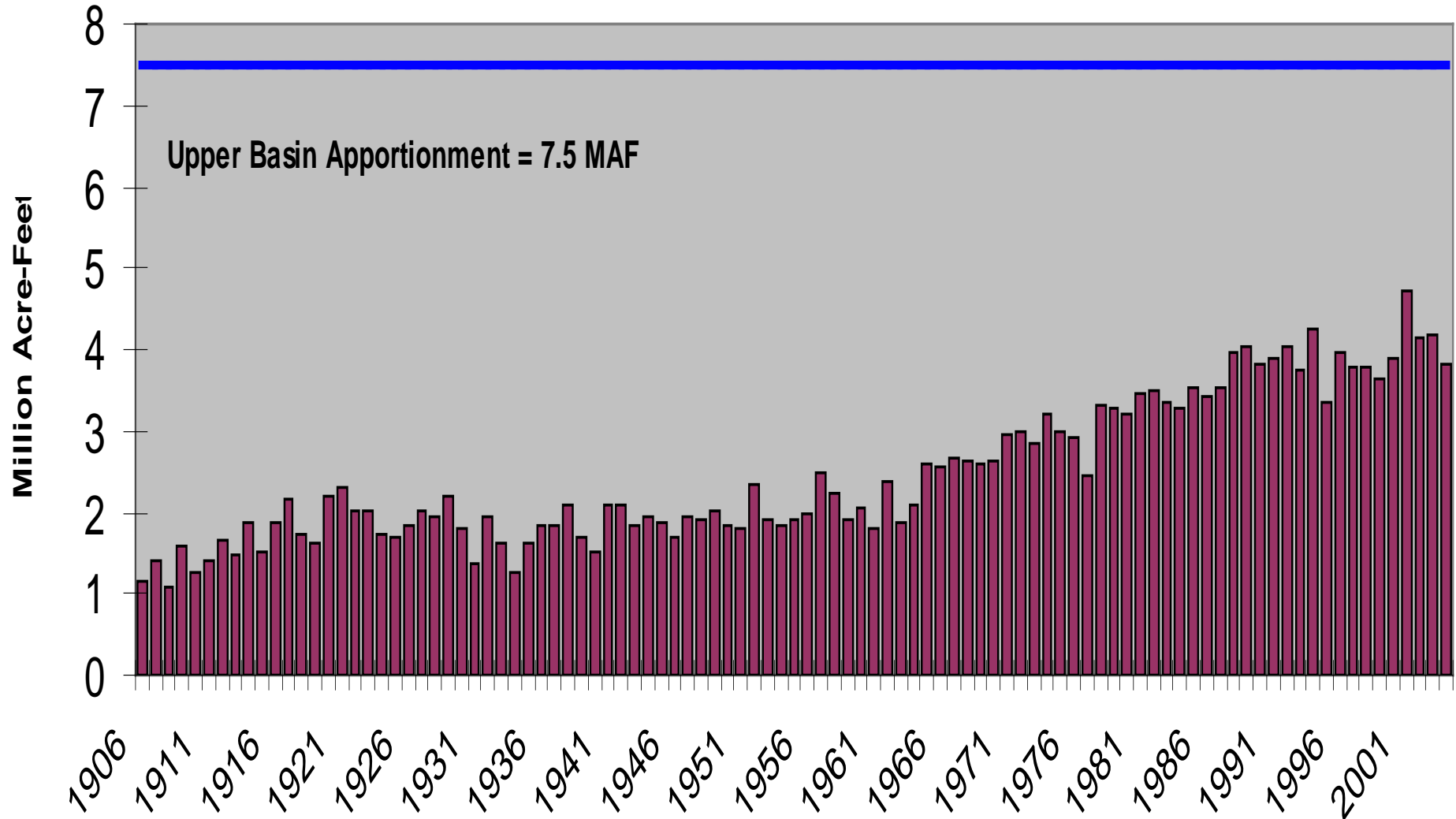
Arizona Water Use: 1914 - 2005



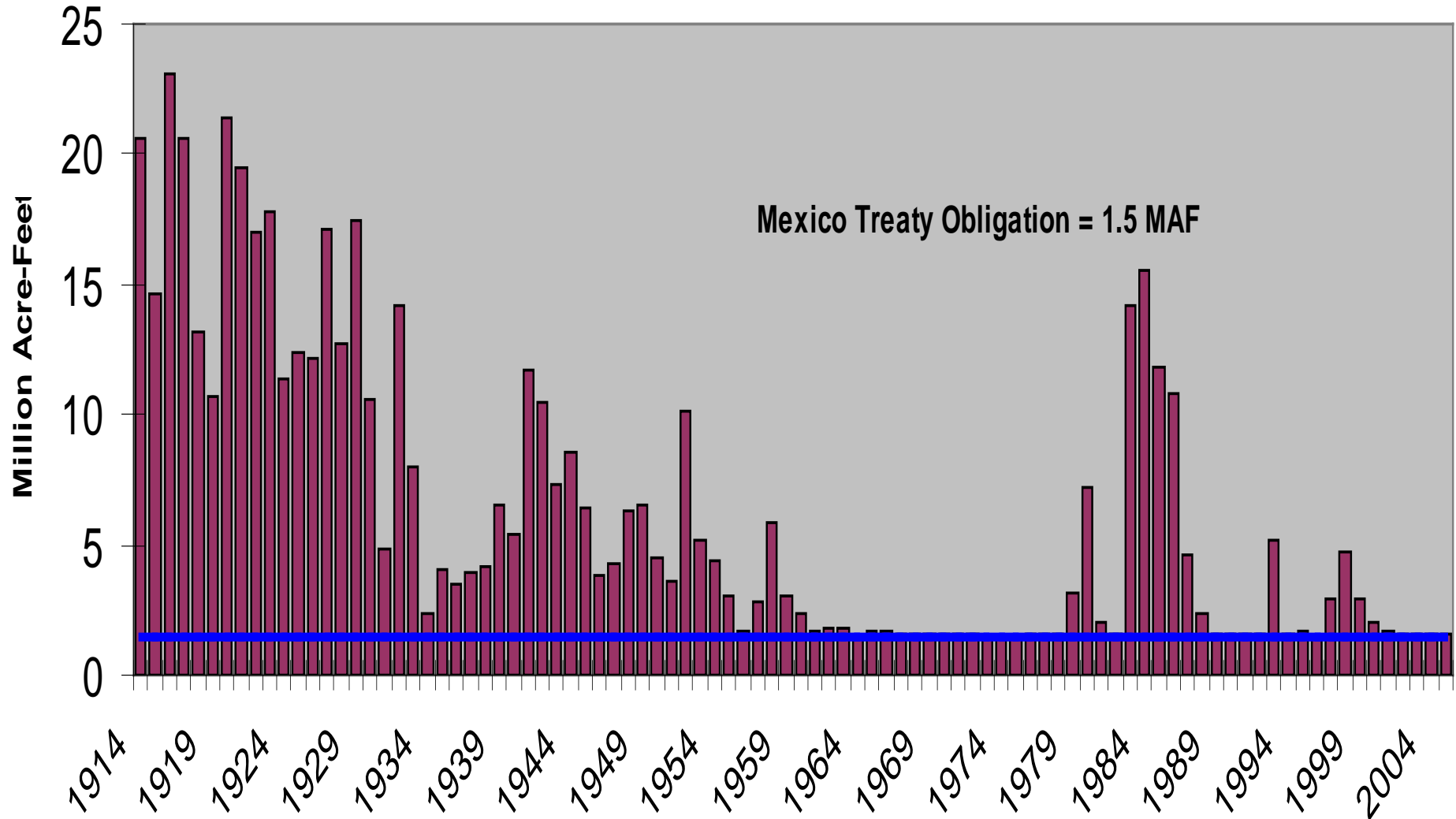
Nevada Water Use: 1914 - 2005



Upper Basin Water Use: 1906 - 2004



Mexico Water Deliveries 1914 - 2005





California Service Areas

NEVADA

Lake Mead

Hoover Dam

Colorado River

Lake Mohave

Davis Dam

ARIZONA

Lake Havasu

Parker Dam

Colorado River Aqueduct

Palo Verde I.D.

Coachella Valley W.D.

Coachella Canal

Senator Wash Reservoir

Imperial Dam

Yuma Project

All American Canal

CALIFORNIA

Los Angeles Aqueduct

California Aqueduct

MWD

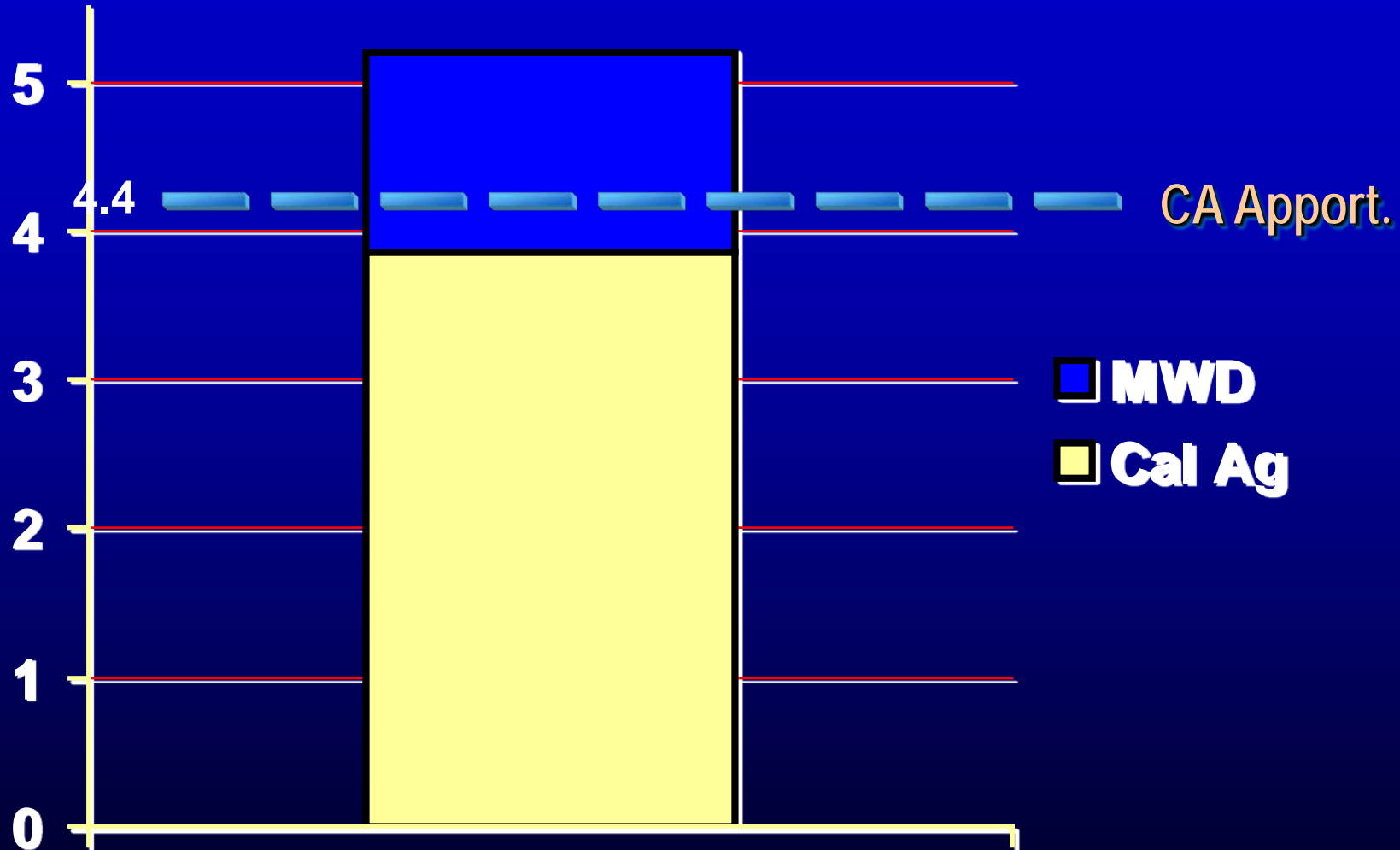
PACIFIC OCEAN

UNITED STATES
MEXICO

Salton Sea

California's 7-Party Agreement

For Colorado River Water



California's 1931 Seven Party Agreement

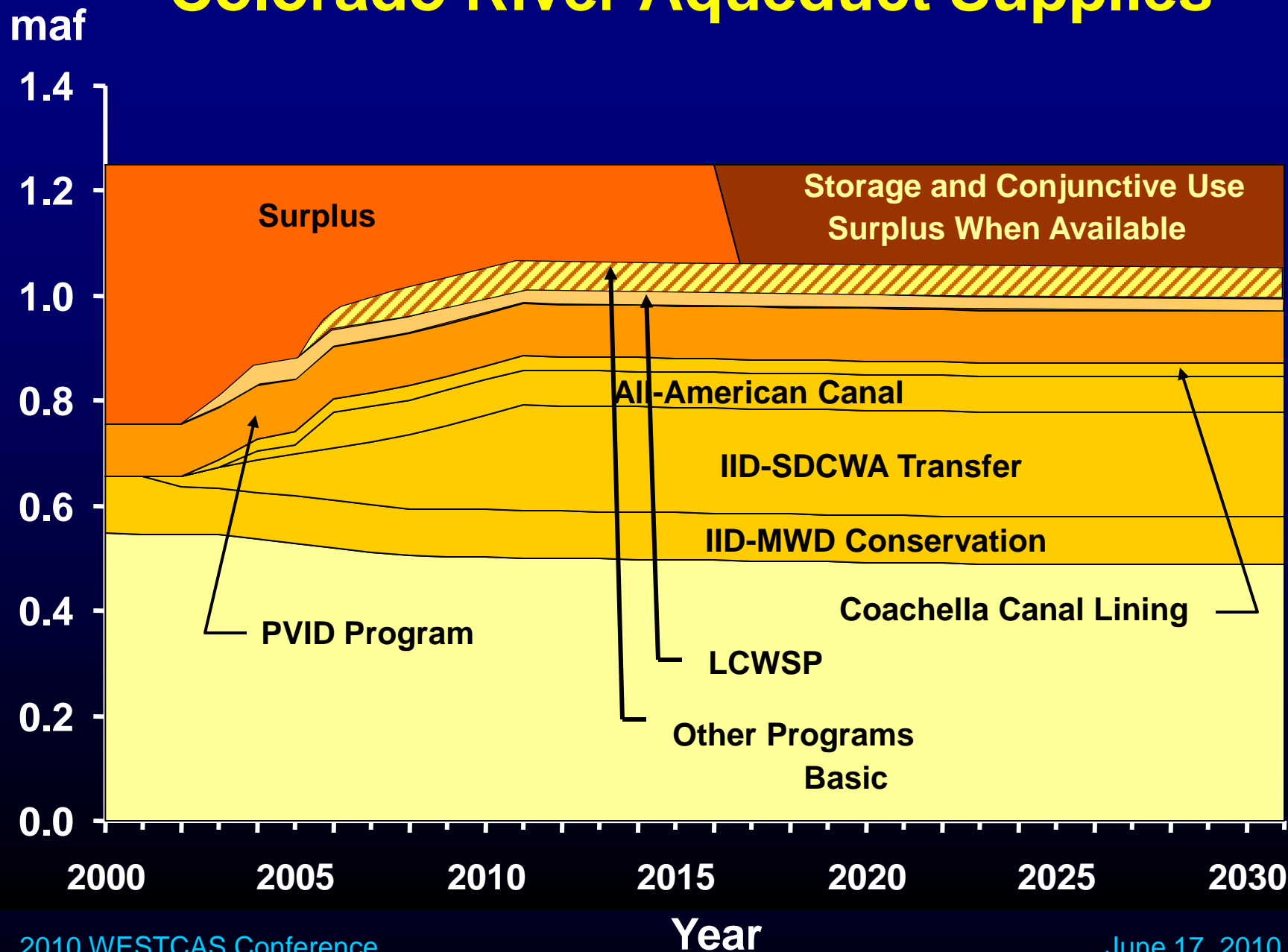
<u>Priority</u>		<u>1931 Agr. (maf/yr)</u>
1	PVID	3.850
2	Yuma Project	
3(a)	IID & CVWD	
3(b)	PVID	
4	MWD	0.550
5	MWD	0.662
6	IID, CVWD, PVID	0.300
7	Additional Ag Use	--

4.4

California's Plan to Reduce Colorado River Use

- **Reduce Agricultural Demand**
 - Fund Water Conservation Programs
 - All-American Canal Lining Project
 - Efficiency Improvements
 - Land Fallowing Programs
 - Pay Farmers to not Grow Crops
- **Keep Colorado River Aqueduct Full**
 - Full Surplus when Lake Mead > 1145' (62% of cap.)
- **Plan Allows “Boom Years” to Continue**

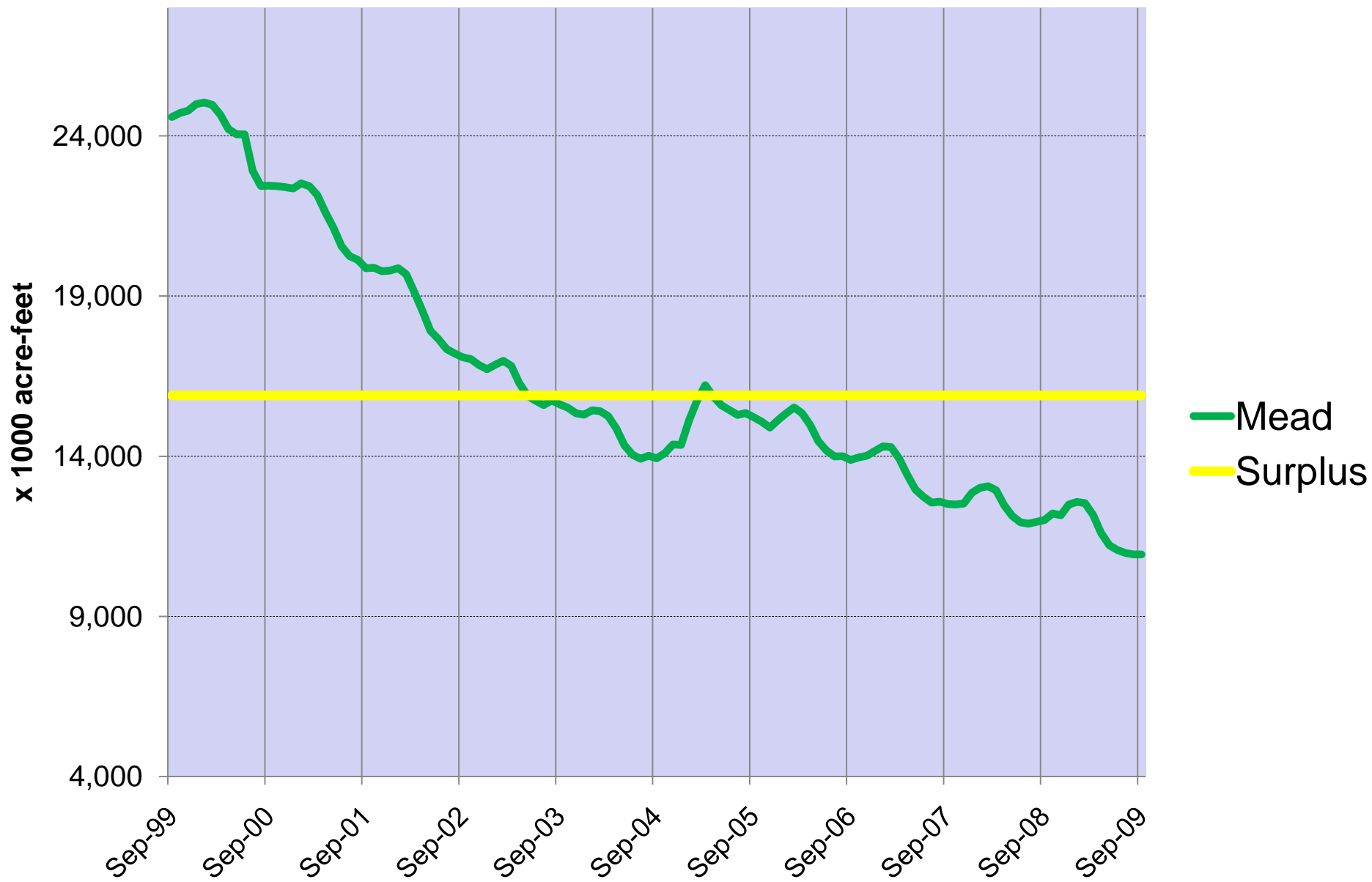
Colorado River Aqueduct Supplies



2003 – 2007: “The Hard Landing”

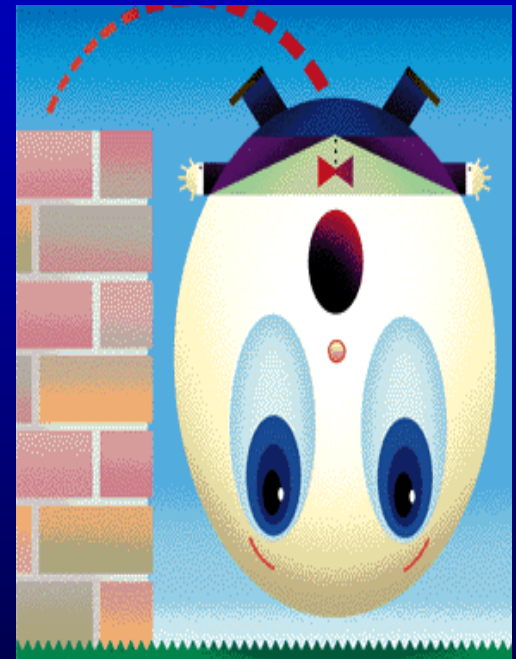


Lake Mead Storage 2000 – 2009



Overnight Water Supply Crash

- Cutback Began Jan. 1, 2003
- 2002 Available Supply:
 - 1,250,000 Acre-feet
- Initial Approved Supply 2003:
 - 513,000 Acre-feet



Diverse Supplies Help MWD Manage CRA Cutback



Storage and Transfers



2008 – 2010: “The Crisis”



... the Cause of Statewide Water Rationing?

Delta Smelt



THE WALL STREET JOURNAL.

REVIEW & OUTLOOK

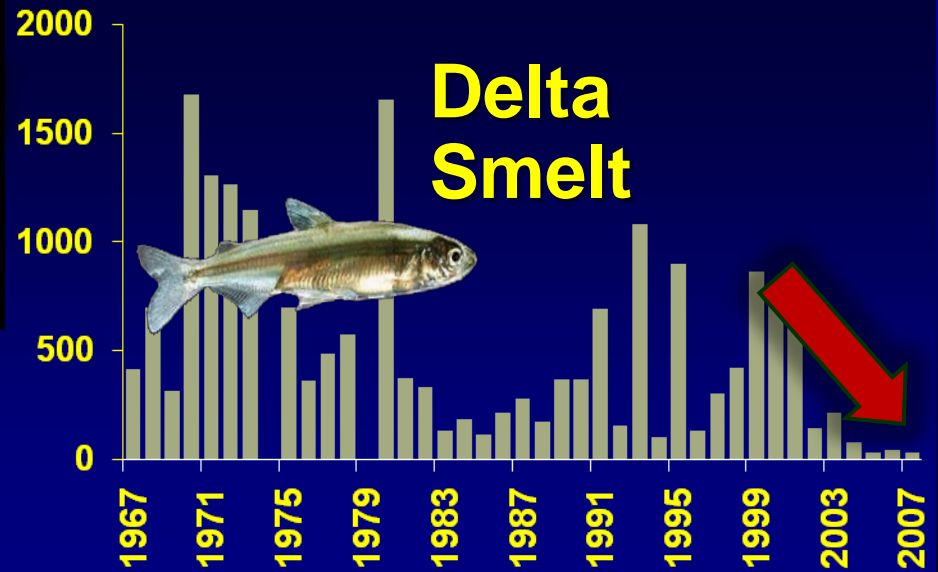
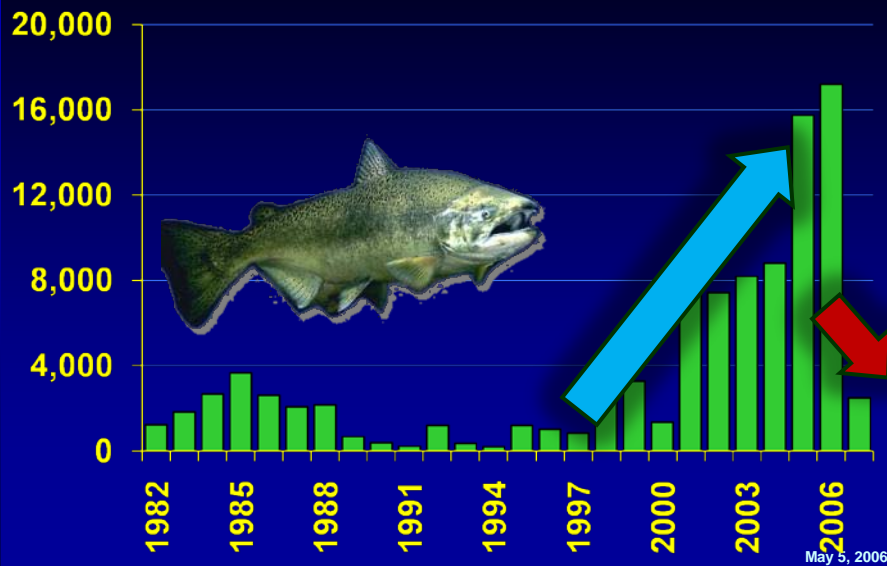
SEPTEMBER 1, 2009, 7:24 P.M. ET

California's Man-Made Drought

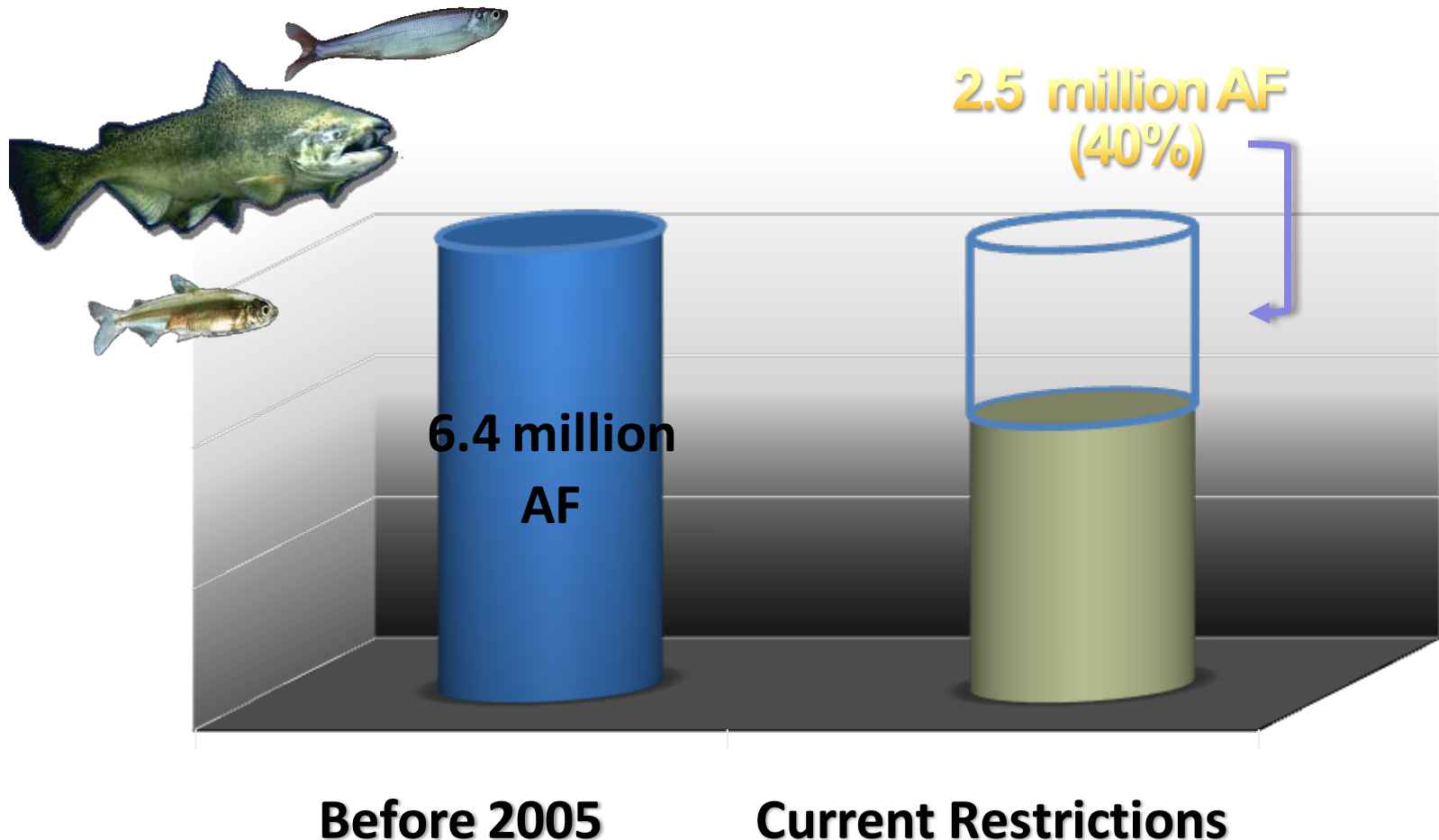
Delta Fisheries

A Downturn for Delta Smelt & Salmon

Sacramento River Winter-Run Salmon



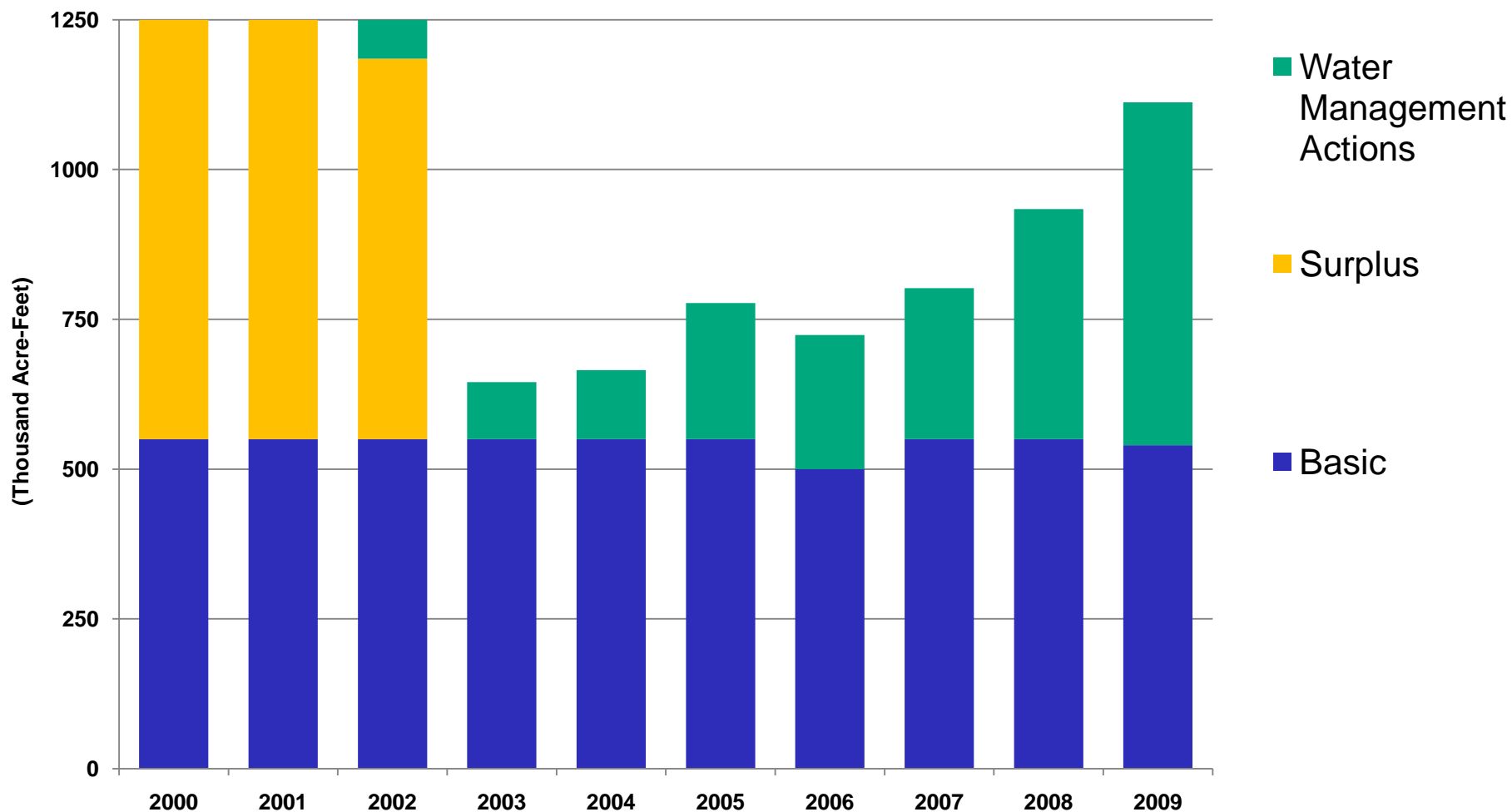
Recent Regulatory Restrictions Causing Supply Cutbacks to State/Fed Contractors



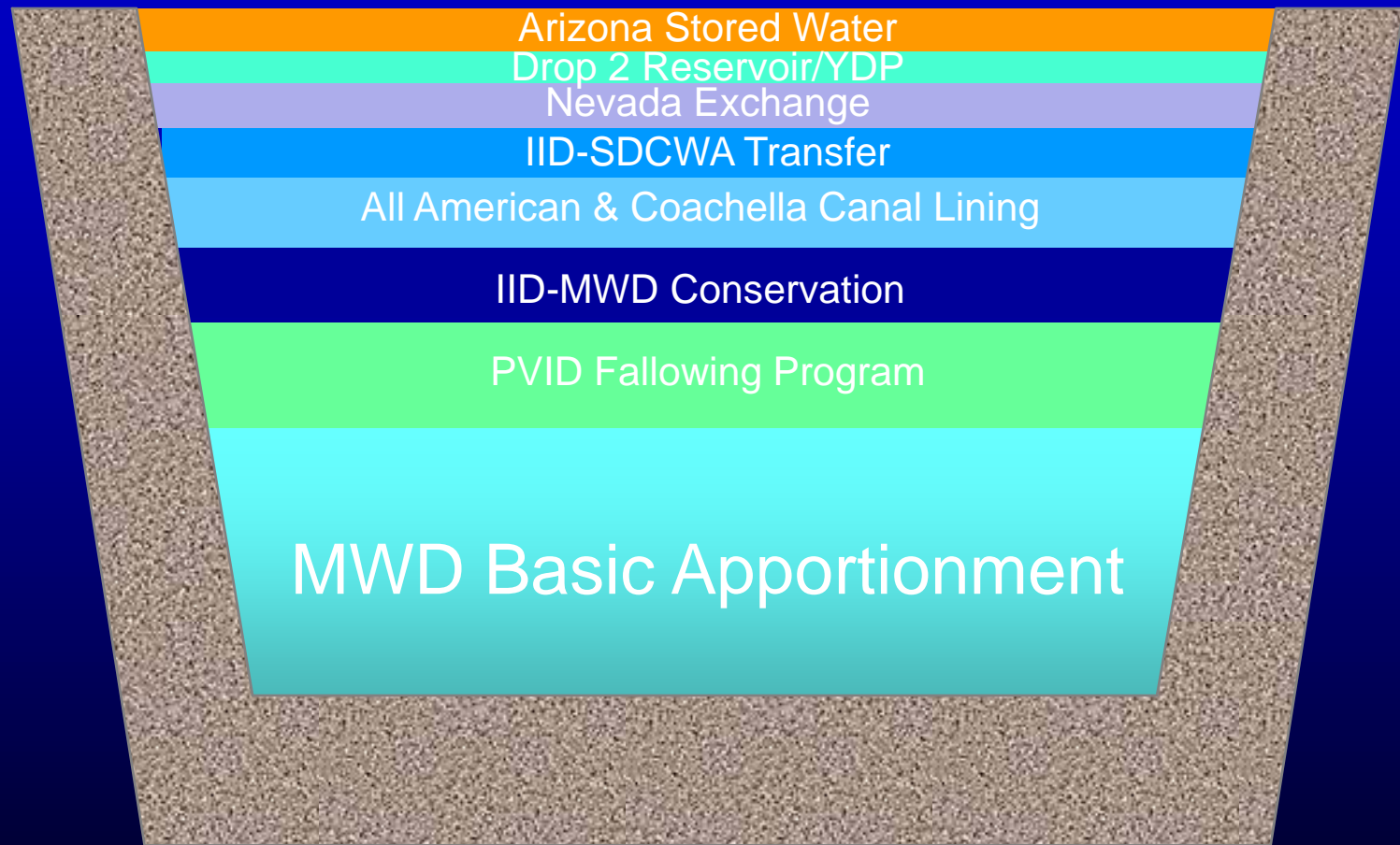
Responding to Crisis: New Partnerships



Colorado River Deliveries, 2000-2009



2010 Colorado River Aqueduct Supplies



Challenges Facing Colorado River

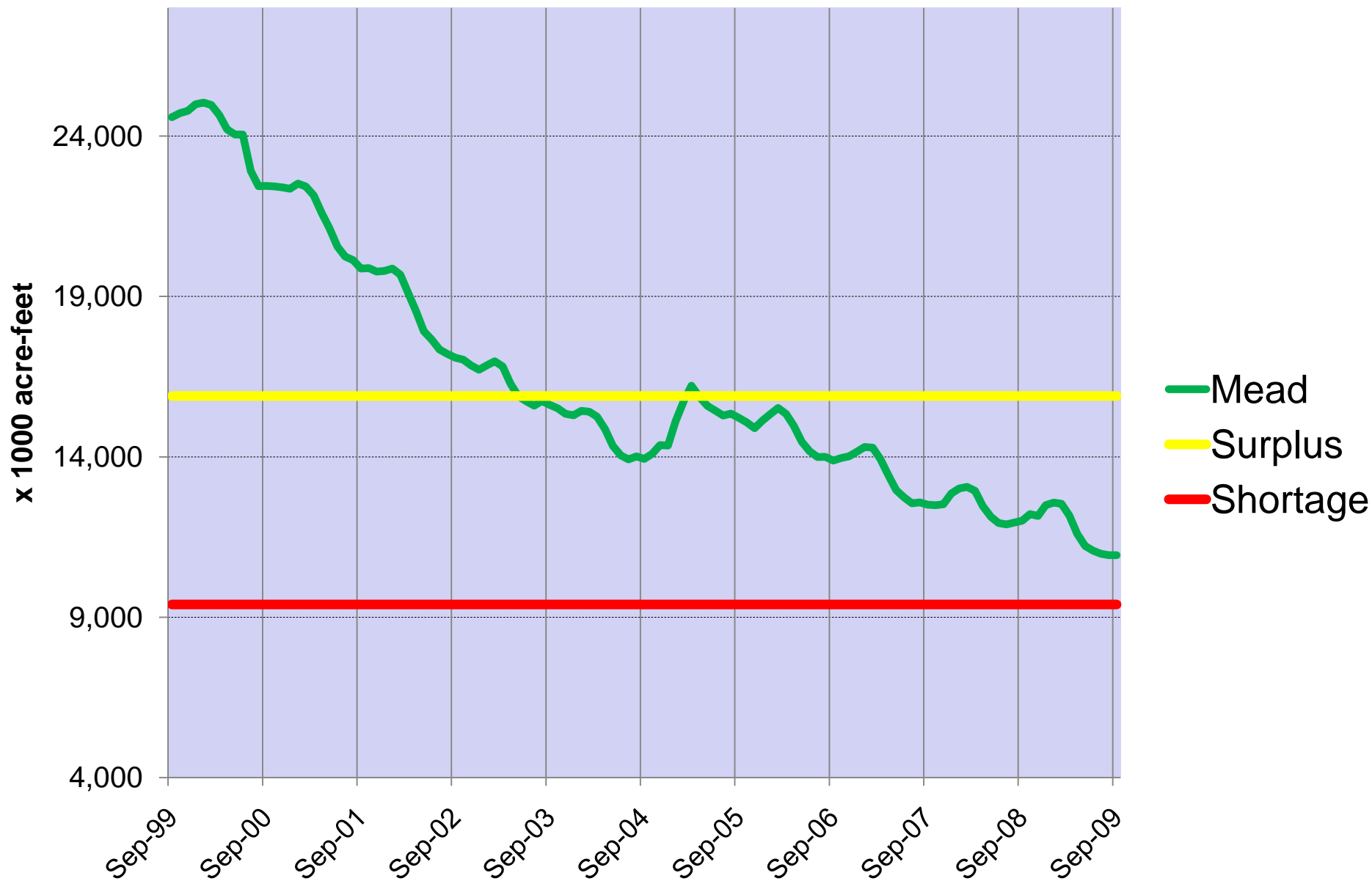


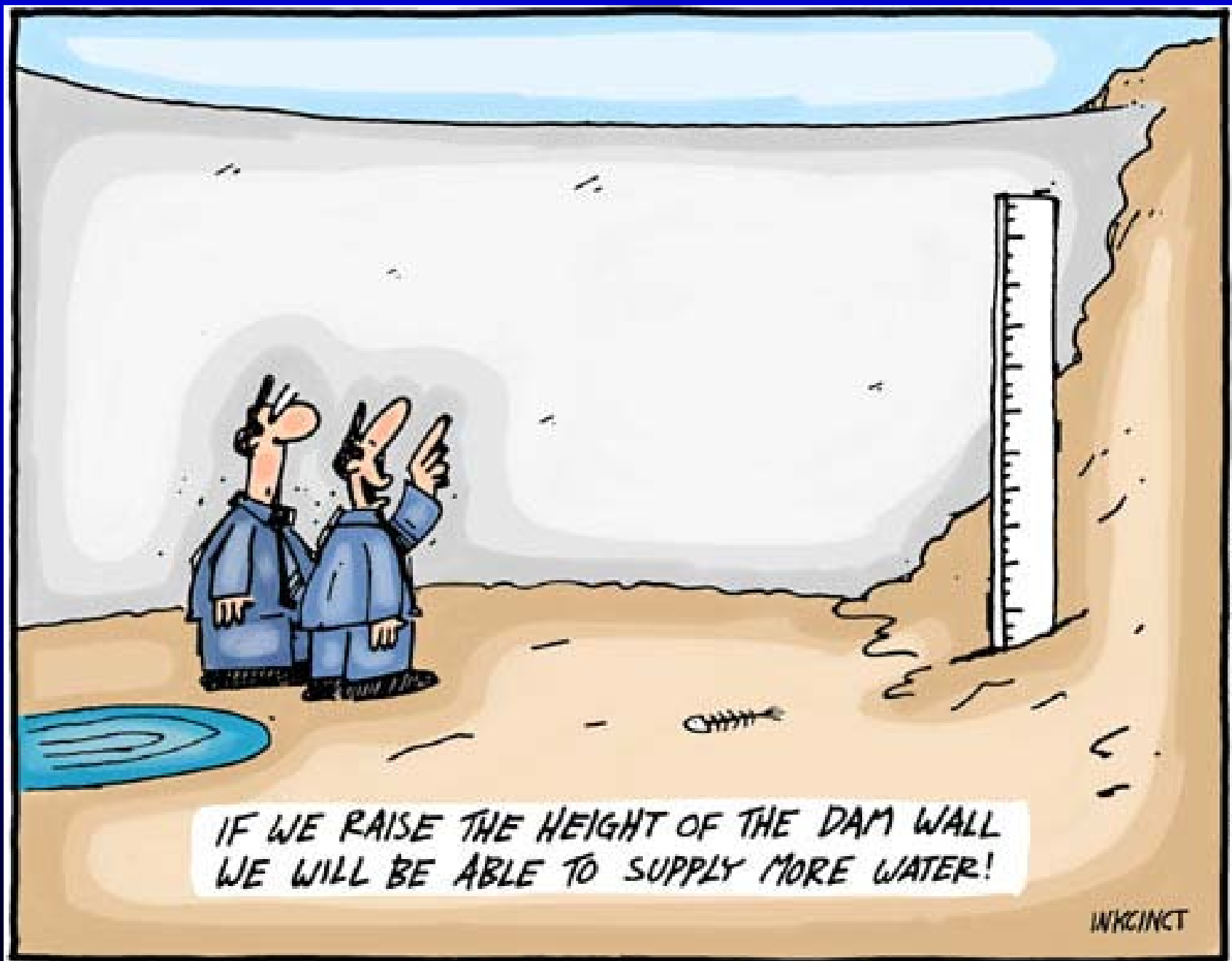
Drought Conditions and Risk of Shortages

- Shortage has never been declared
- Could occur as early as 2012
- Would result in loss of water supplies; risk of losing stability



Lake Mead Storage 2000 – 2009





State's Response to Drought

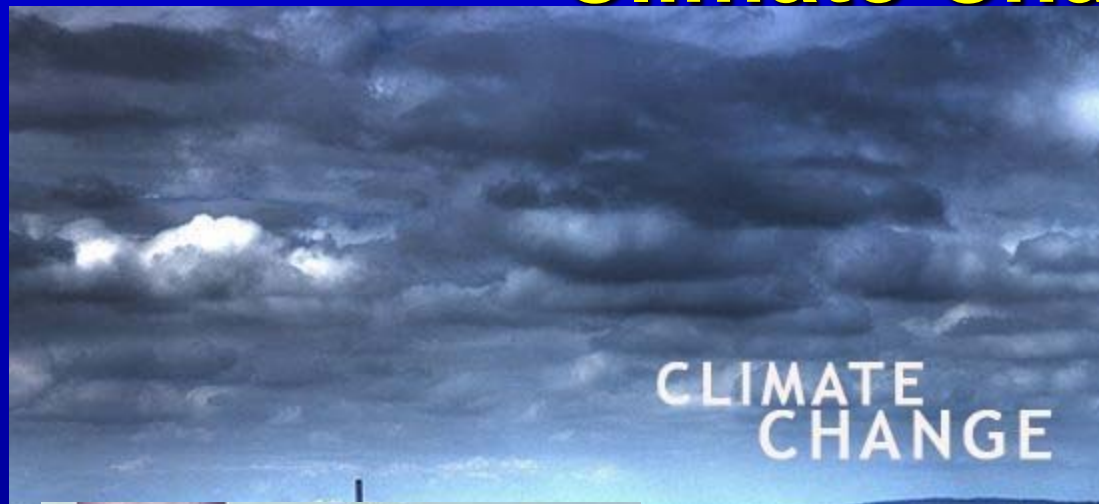
- California success example for other states
- Nevada successful in significantly reducing demand
- Agricultural partnerships are critical





30/11 2006-663P © John Ditchburn

Climate Change



Climate Change Impacts to Colorado River Basin

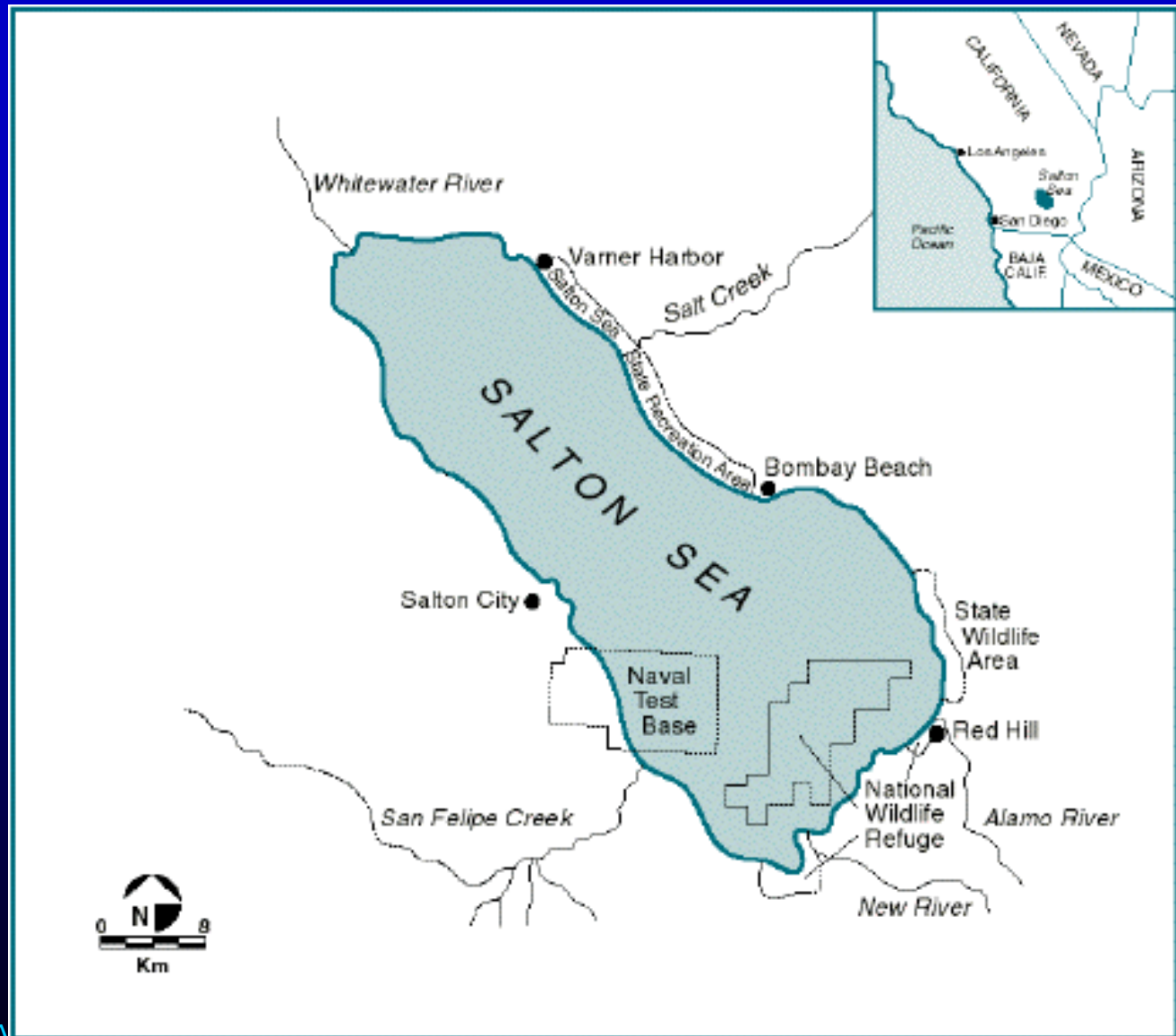
- Colorado River bulls' eye of climate change
 - Reduced runoff
 - Increased Demands from warmer temperatures
- Supply and Demand imbalance expected to increase
- States and Reclamation embarking on sustainability study
 - Recommend actions to address long-term supply demand imbalance

QSA Lawsuit

- CA judge invalidated QSA
- Transfers will continue through appeals process
- Federal officials to honor federal agreements

QUANTIFICATION SETTLEMENT AGREEMENT
by and among
IMPERIAL IRRIGATION DISTRICT,
a California irrigation district;
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA,
a California metropolitan water district
and
COACHELLA VALLEY WATER DISTRICT,
a California county water district
Dated October 10, 2003

Salton Sea at Center of QSA Lawsuit



Water Quality Issues



Water Quality Issues

<i>Location</i>	<i>Concern</i>	<i>Status</i>
Las Vegas Wash	Perchlorate	Implemented Control Measures/ Continued Monitoring
Topock, CA	Chromium VI	Investigating Long-term Solutions
Moab, UT	Uranium	Uranium Pile Being Moved Away from Colorado River
Las Vegas Area Discharges	Wastewater releases containing nutrients, pathogens, pharmaceuticals	MOU among MWD, SNWA, Clean Water Coalition to Address Issues
CO River Basin-Wide	Salinity	Colorado River Basin Salinity Control Program has reduced salinity by 75 ppm

Colorado River Basin

Uranium

Perchlorate

Chromium

COLORADO
RIVER
DELTA

COLORADO
RIVER
AQUEDUCT

All-
American
Canal

GULF
OF
CALIFORNIA

NV

CA

UT

WY

CO

NM

MEXICO

AZ

RIVER

UPPER
BASIN

LAKE POWELL

LEE
FERRY

LAKE
MEAD

LAKE MOJAVE

LAKE HAVASU

LOWER
BASIN

GILA RIVER

COLORADO

Binational Agreement on Shortages

- 2007 Guidelines for shortages only applied to United States
- Shortages to Mexico to be determined later
- Reclamation and States developing comprehensive binational proposal



Crisis in Mexico: April 5, 2010





















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Mexico and U.S. Discussing Short-term Agreement

- **May allow Mexico to store water in U.S.**
- **May allow Mexico to sell water to U.S. to fund infrastructure repair**
- **Attempting to reach agreement in next 90 days**

Summary

- CA has adapted to living with less water in a way to meet the state's needs
- Several challenges continue:
 - Drought
 - Climate Change
 - Water Quality
 - Binational Issues
- States have a track record of working successfully together to confront issues



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