


Drought on the Colorado and Lower Basin Contingency Planning

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What is SNWA?

- Joint Powers Agency formed in 1991
- Members include each of the large municipal purveyors in Southern Nevada
- Prior to 1991, each purveyor member had its own contract for Colorado River water through CRCN's contract with BOR
- Pooling of contracts in SNWA
 - allowed better management of resources
 - removed competition incentive between purveyor members
 - created a better platform for conservation
 - gave Southern Nevada a voice in crafting river policy

An aerial photograph of a city, likely Las Vegas, taken during sunset. The sky is a mix of blue and orange, with scattered clouds. The city below is densely packed with buildings and streets, with mountains visible in the distance. A text box is overlaid on the right side of the image.

Southern Nevada relies on Colorado River resources to meet 90 percent of its water demands.



Southern Nevada snapshot

Approximately:

- 8,000 square miles
- 2 million residents (70% of all Nevadans)
- 40 million annual visitors
- 4 inches annual rainfall

What We Do:



**Regional water
supply planning**



**Conservation
programming**



**Water
Quality**

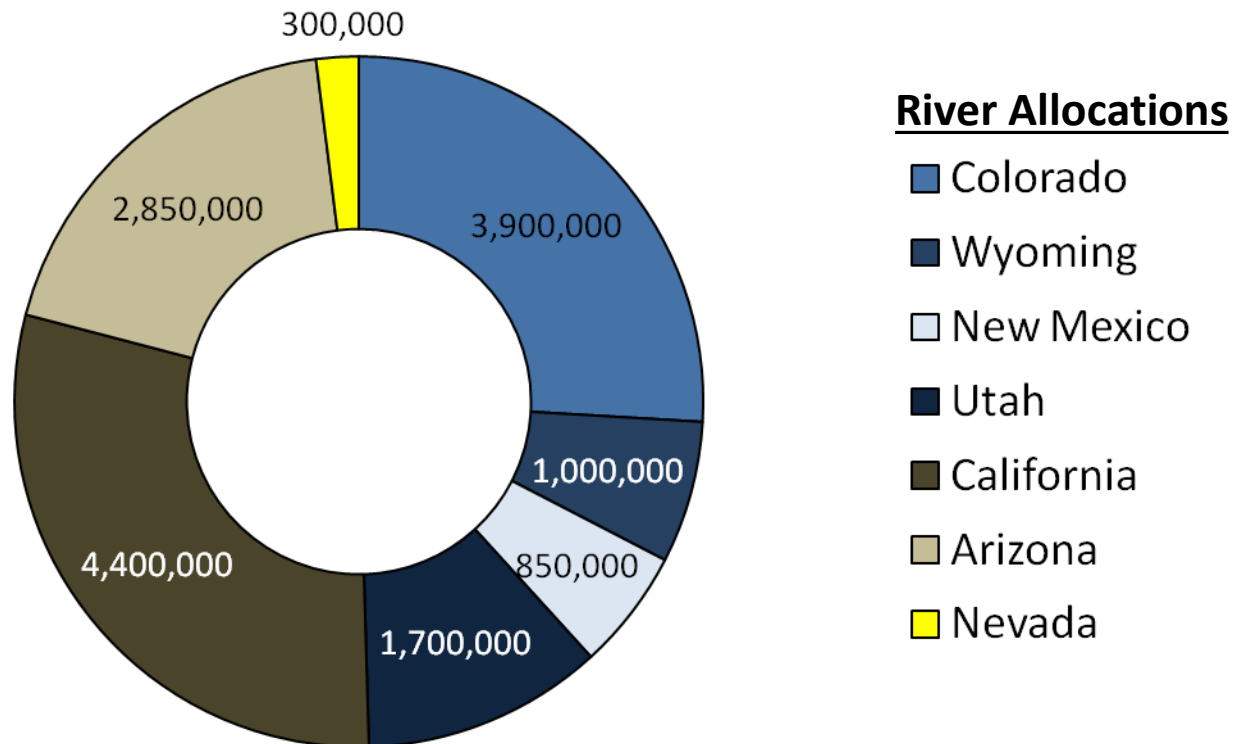


**Facility
construction**

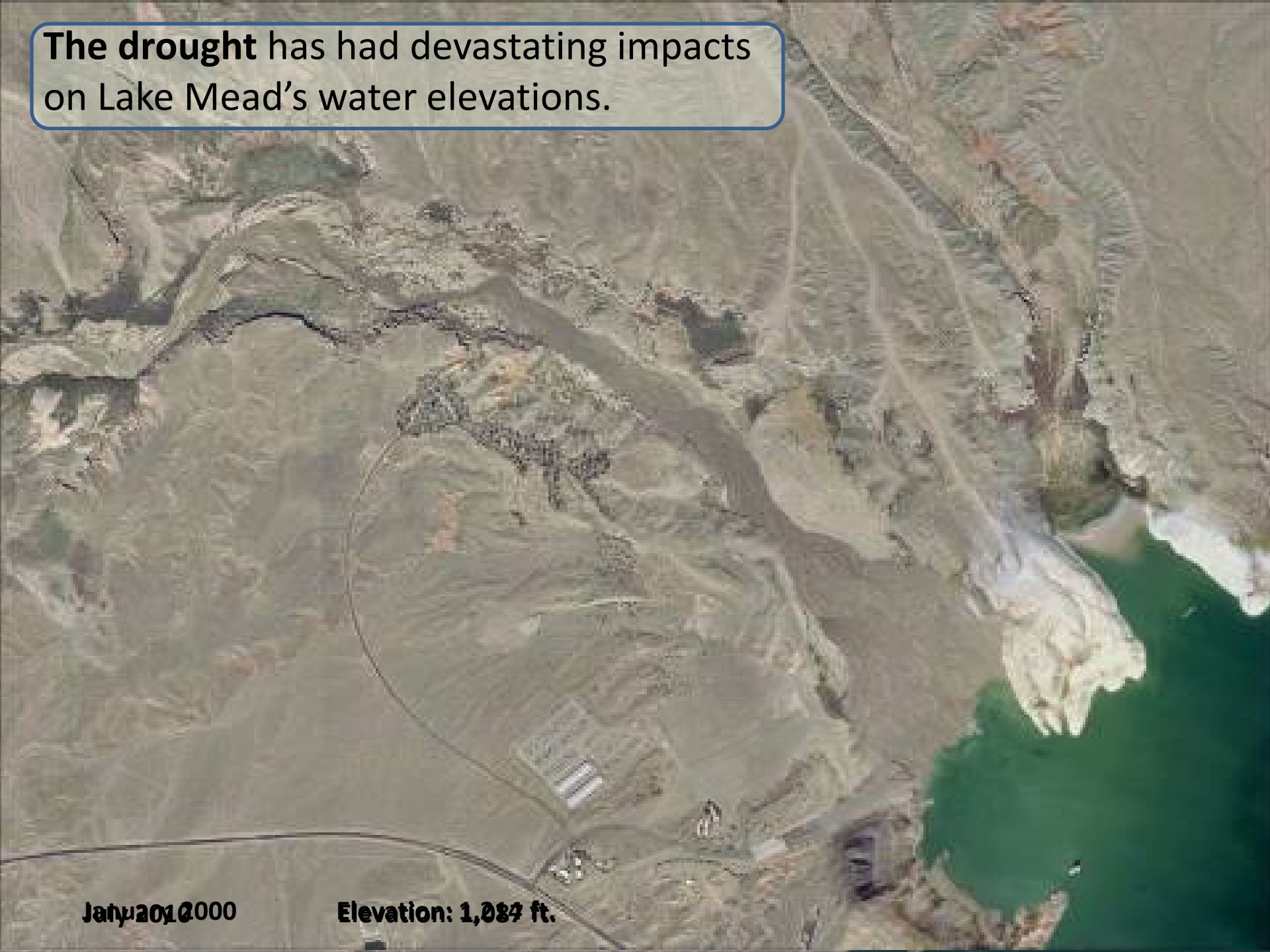


**Operate Major
Regional Facilities**

Nevada receives 300,000 acre-feet of Colorado River water annually.



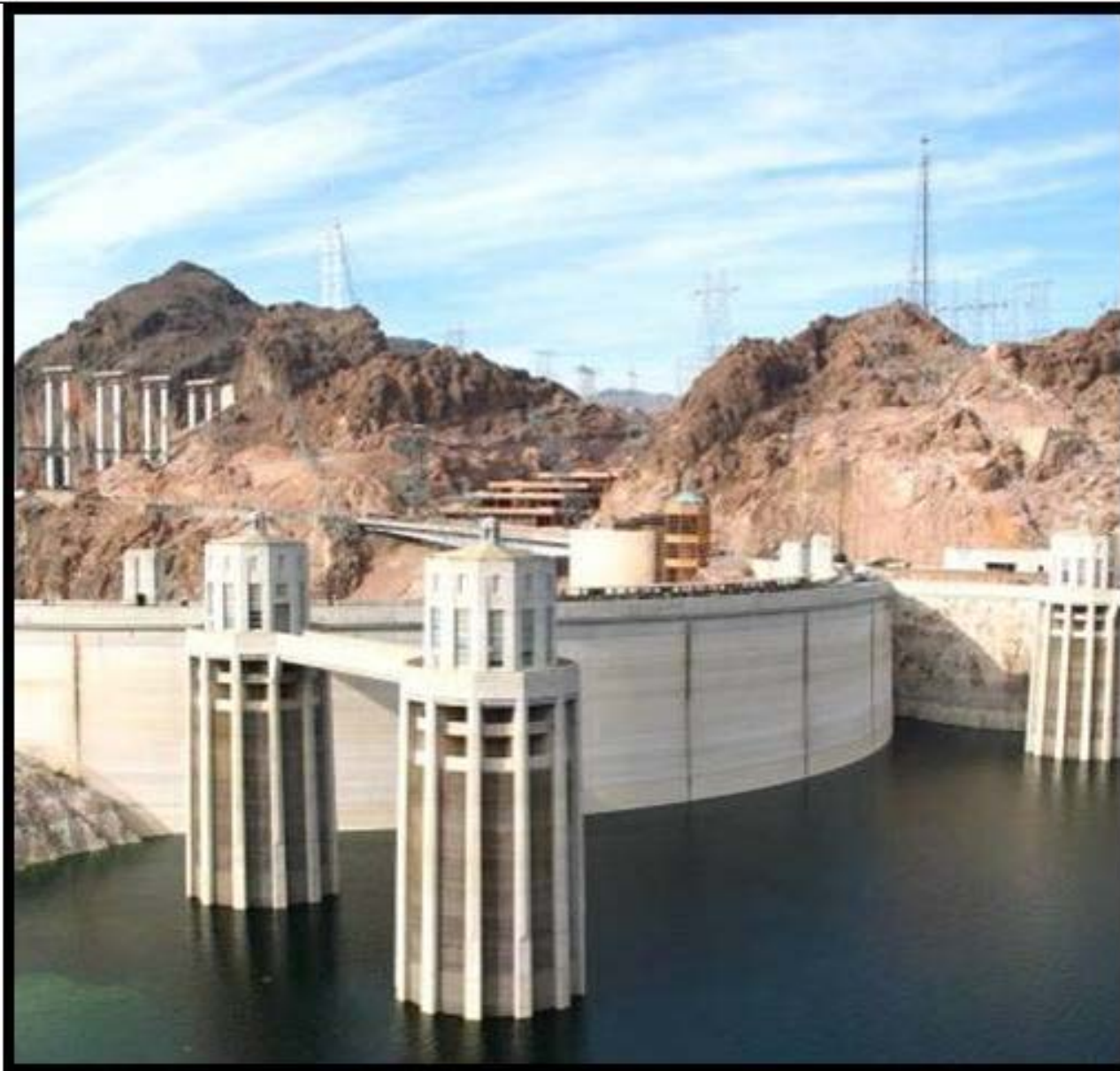
The drought has had devastating impacts on Lake Mead's water elevations.



July 2010

Elevation: 1,087 ft.

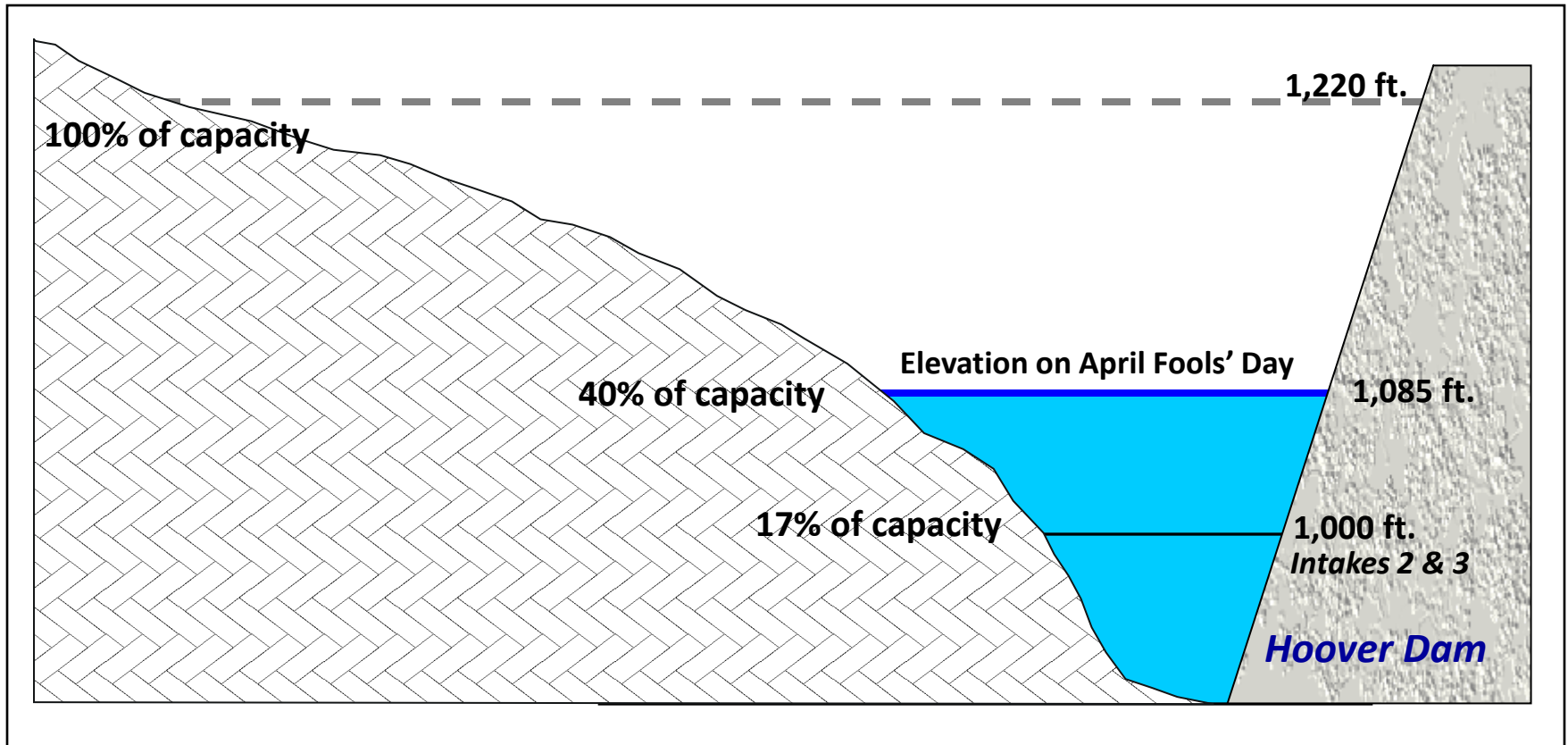
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Hoover Dam, 2000

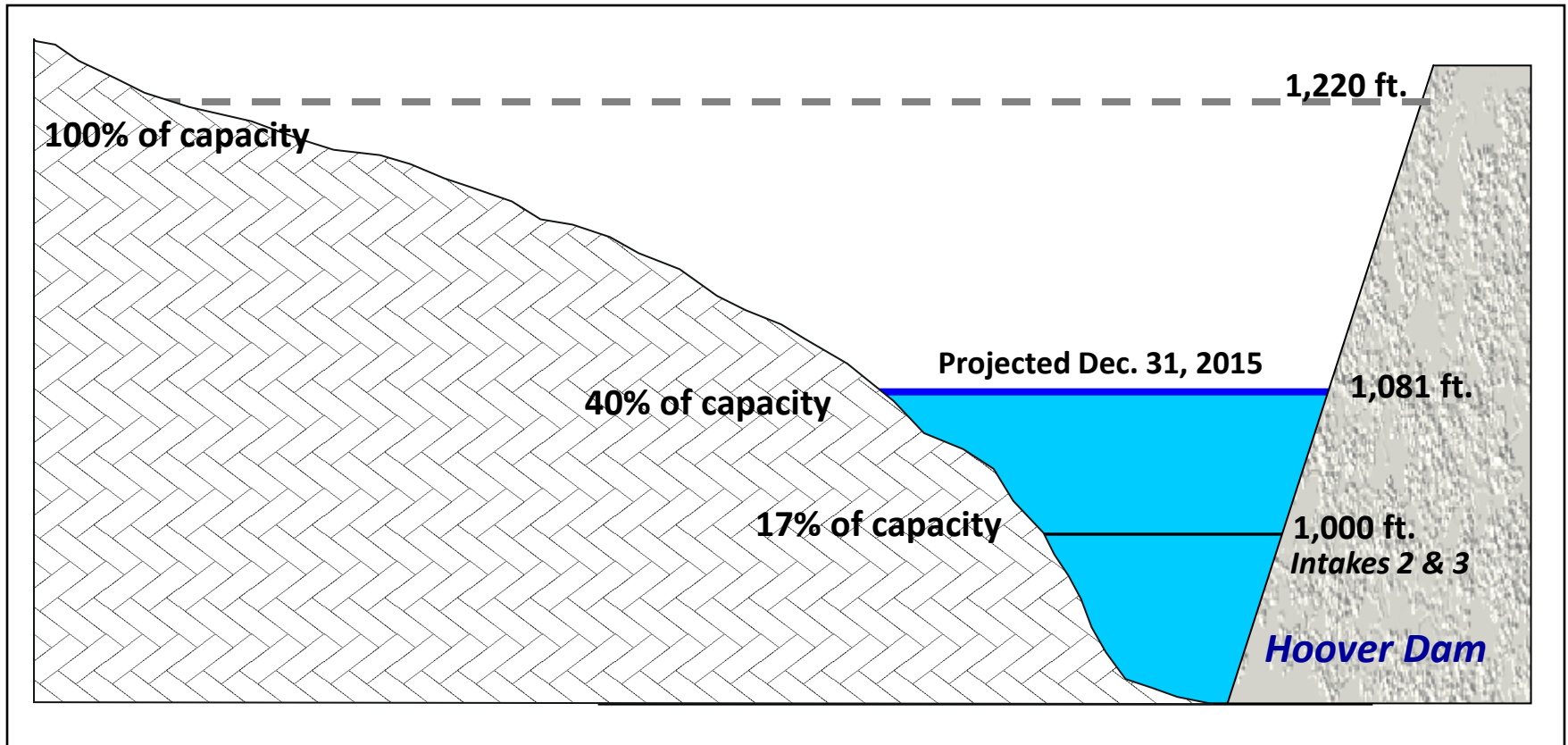
Drought Update

Lake Mead Capacity - Current



Drought Update

Lake Mead Capacity – Projected (Dec. 31, 2015)

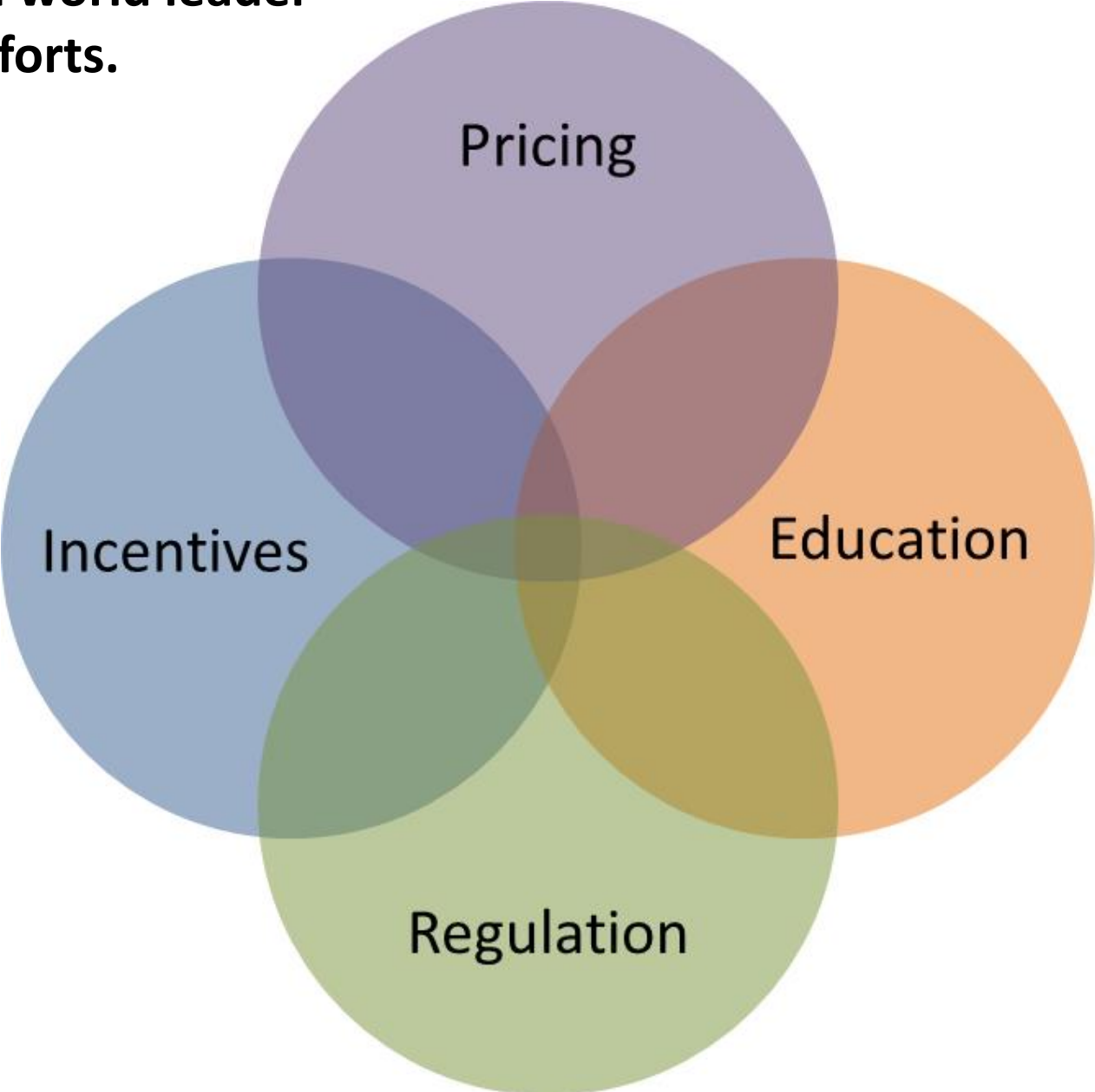


How do low Lake Mead elevations impact Southern Nevada?



- Compromised water quality
- Additional treatment and power costs
- New facility or facility upgrade costs
- Supplemental resource costs
- Loss of operational flexibility

**Southern Nevada is a world leader
in its conservation efforts.**





Conservation programs:

Development codes

Landscape rebates

Watering restrictions

Fixture retrofit kits

Water audits

Car wash coupons

Efficient irrigation programs

Water Efficient Technologies

Pool cover rebates

Water Smart Contractor program

Water Smart Home program

Water Upon Request program

Water Conservation Coalition

Water Smart Innovations Conference

Conservation Helpline

Demonstration Gardens

H2O University

Water waste investigations

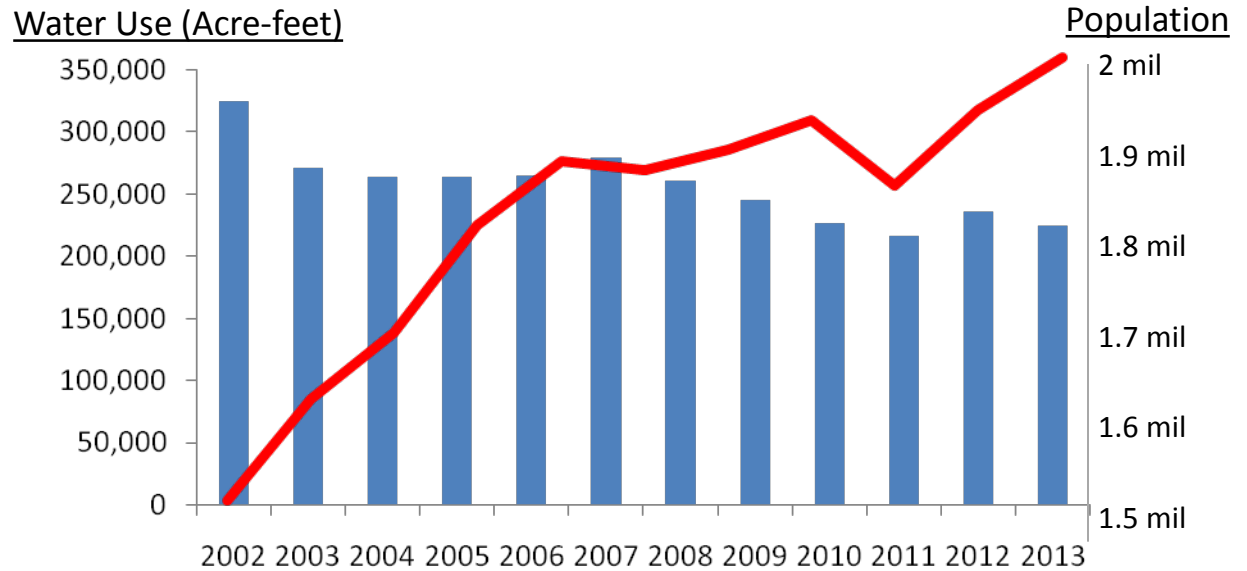


Since Water Smart Landscapes Program inception:

- \$210 million invested to date
- 80 billion gallons saved
- 175 million square feet of turf converted



Southern Nevada consumptively used about 32 billion gallons less water in 2014 than in 2002, despite annual population increases and millions of annual visitors.

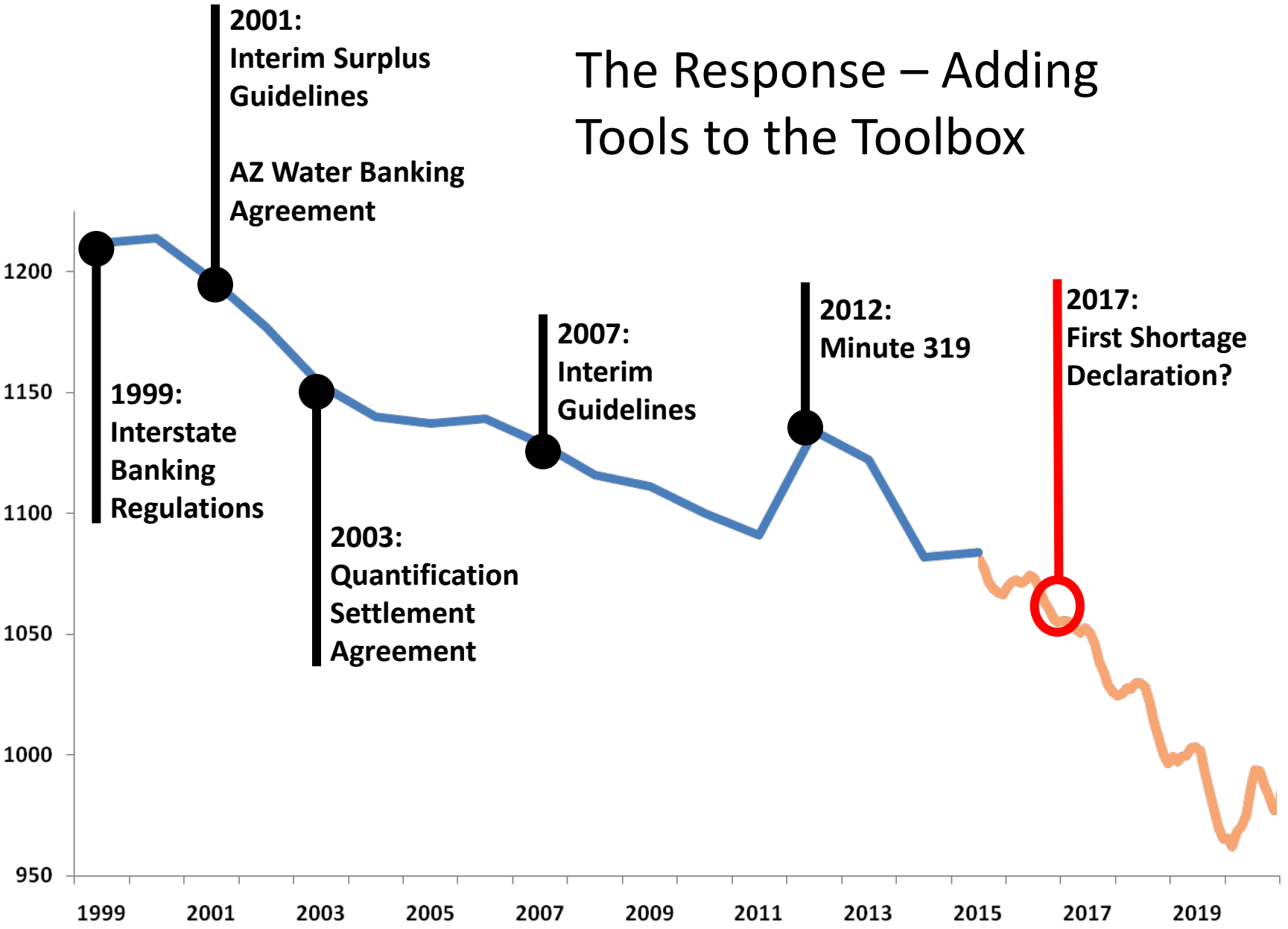


In Good Company...

- **Phoenix** reduced use by 35% since 1980
- All of **Scottsdale's** reclaimed water is reused for turf irrigation or recharge
- Ag and urban conservation efforts by water agencies in **MWD's** service territory have reduced CO River water use by 20% since 2002
- **Southern California** imports less water today than it did 20 years ago despite significant increases in population
- **Denver Water** has reduced overall use by 20 percent and saved more than 1 million acre-feet of water since 2002, while serving an ever-increasing population



The Response – Adding Tools to the Toolbox



July 2014 Pilot System Conservation Agreement

Agreement No. 14-XX-30-W0574

AGREEMENT AMONG
THE UNITED STATES OF AMERICA, THROUGH THE
DEPARTMENT OF THE INTERIOR,
BUREAU OF RECLAMATION,
THE CENTRAL ARIZONA WATER CONSERVATION DISTRICT,
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA,
THE SOUTHERN NEVADA WATER AUTHORITY,
DENVER WATER AND
FOR A PILOT PROGRAM FOR FUNDING THE CREATION OF COLORADO RIVER
SYSTEM WATER THROUGH VOLUNTARY WATER CONSERVATION AND
REDUCTIONS IN USE

1. PREAMBLE: THIS AGREEMENT ("Agreement") is entered into this 20th day of July, 2014 ("Effective Date"), by and between the UNITED STATES OF AMERICA ("United States"), represented by the Secretary of the Interior ("Secretary") acting through the officials executing this Agreement, the CENTRAL ARIZONA WATER CONSERVATION DISTRICT, a multi-county water conservation district duly organized and existing under the laws of the State of Arizona ("CAWCD"), the METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA, a regional public corporation and political subdivision of the State of California, a municipal corporation and political subdivision of the State of California ("MWD"), DENVER WATER, a municipal corporation and political subdivision of the State of Colorado ("DW"), and the SOUTHERN NEVADA WATER AUTHORITY, a political subdivision of the State of Nevada ("SNWA"), each being referred to individually as "Party" and collectively as the "Parties", and pursuant to the Act of Congress approved June 17, 1902 (32 Stat. 388), designated the Reclamation Act, and acts amendatory thereof or supplementary thereto, the Act of March 4, 1921 referred to as the Contributed Funds Act (41 Stat. 1404, 43 U.S.C. § 395), the Act of January 12, 1927 (44 Stat. 957, 43 U.S.C. § 397a), the Act of December 21, 1928 (45 Stat. 1057), designated the Boulder Canyon Project Act, the Act of April 11, 1956 (70 Stat. 105), designated the Colorado River Storage Project Act, the Act of September 30, 1968 (82 Stat. 885), designated the Colorado River Basin Project Act, the Act of

1

- Two year pilot funded by BOR, Denver, MWD, CAP, and SNWA
- \$11 million (\$2.75 million in Upper Basin) – real money, but baby steps
- Evaluate feasibility of mitigating drought impacts through compensated voluntary reductions in use or loss
- Protection of critical elevations in both Powell and Mead
- Benefits of reductions inure to system as a whole and NOT to any one entitlement holder

Selection Criteria – Program Goals



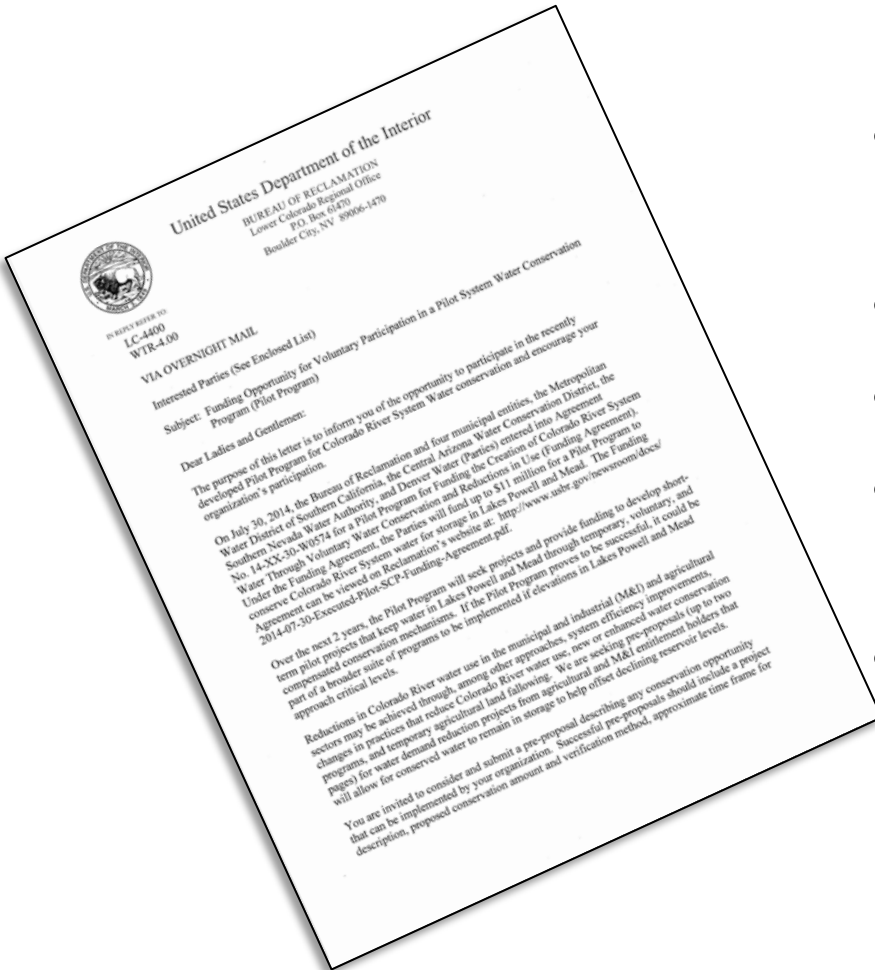
- Sector diversity
- Geographic diversity – including MX
- Cost/acre-foot of conserved water
- Relative size of project
- Comparative ease of administering contract with user and confirming reduction in use
- Project timing
- Required compliance
- Third party impacts
- Downstream “juniors” or need for forbearance
- Relative measurability of benefits to system
- Ability to leverage other money
- WaterSMART program evaluation criteria

System Conservation Status: Upper Basin

- Concerns/Outreach
 - Movement of water into Powell, below upper basin agriculture
 - Sheparding water to Powell
 - (mis)perception that lower basin interests are buying up water in the upper basin to fix long term supply/demand imbalance
- Upper Colorado River Commission passed resolution to “Support pilot programs such as those contemplated under the July 30, 2014 System Conservation Agreement”
 - Can use SCA as evaluation of demand management in UB
 - Ideally suited to do outreach relating to benefits of maintaining Powell elevations

System Conservation Status: Lower Basin

- BOR is administering the program in the lower basin
- Sent pre-proposal solicitation October 5
- Received 14 pre-proposals
- Geographically diverse
- Sector diverse – tribes, municipalities, irrigation districts
- Include efficiency, channel lining, fallowing, municipal evap capture, tributary conservation, and landscape conversions
- Price diverse (\$100 - \$1000/af)
- Don't have sufficient funds for all



2014 Lower Basin Memorandum of Understanding

- Participants – BOR, SNWA, CRCN, MWD, CRBC, CAWCD, and ADWR
- Goal – To voluntarily develop additional quantities of water stored in Lake Mead to reduce the risk of reaching critical reservoir elevations (Protection Volumes)
- Protection Volume goals are set as follows (for the time period from 2014-2017):
 - MWD 300 kaf
 - CAWCD 345 kaf
 - SNWA 45 kaf
 - Reclamation 50 kaf
 - Total: 740 kaf
- The goals are the first step in achieving a larger goal of developing between 1.5 and 3.0 maf of Protection Volume through 2019
- There are also agreements to immediately begin discussing long-term sustainability issues in the Lower Basin and various reconsultation provisions

The Bigger Picture

- Adding Stakeholders to Consultations
- August 2016 Consultation regarding additional protection volumes necessary to reach 1.5 to 3.0 maf by 2019
- Consultation/negotiations throughout the term regarding existing supply/demand imbalance and longer term sustainability
- Immediate Consultations if Mead projected to be below 1060 at the end of any year

CAP Reservoir Protection Volume Plan

- **345 KAF** in '14 – '17
 - Intentional creation of system water
 - Total ~ **145 kaf**
 - Extraordinary Conservation ICS Program: Demand Reduction
 - Up to 100 kaf/yr in '15 and '16
 - Total up to 200 kaf
 - Attempting to achieve 345 kaf by end of 2016
 - Shortage projected in '17 with NO ACTION

CAP's Reservoir Protection Volume Plan (values in 1,000 af)

NAME	'14	'15	'16	'17	Total	Note
YMIDD Following	7	7	7	0	21	System water
Ag Pool EC-ICS	0	81	80	0	161	9 CAP Ag Districts
Supply Replacement EC-ICS	0	15	15	0	30	PHX in '15, Others '16
Creation of Az Unused ("2.B. VI")	30	59	44	0	133	Intentional forbearance
TOTAL	37	162	146	0	345	

January 2013 – Normal Snowpack



January 2015 – 25% of Normal



April 2015 – 5% of Normal





Folsom Lake

Lake Folsom



Lake Mendecino



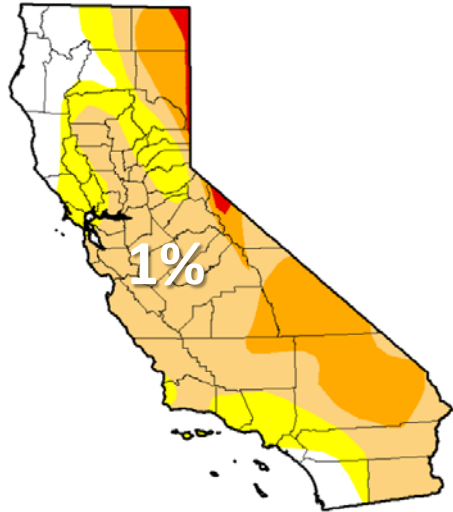
Drought Conditions Leading to 2015

Extreme and Exceptional Intensity Percentage

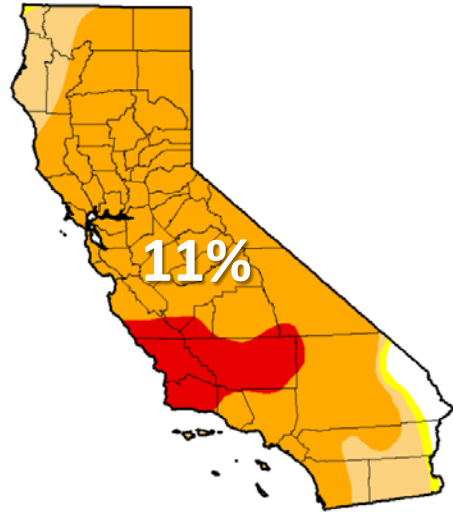
OCT 2011



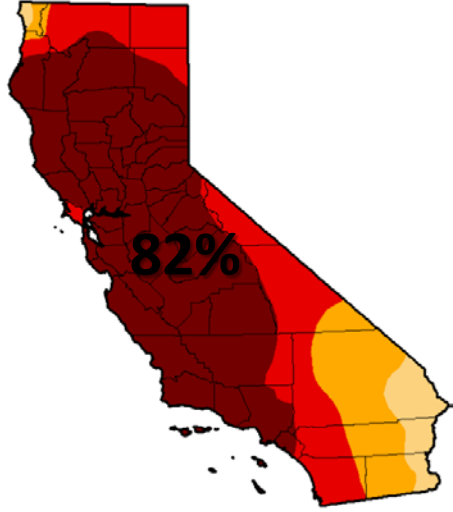
OCT 2012



OCT 2013



OCT 2014



None

Abnormal

Moderate

Severe

Extreme

Exceptional

80%

**2011 SWP
Allocation**

65%

**2012 SWP
Allocation**

35%

**2013 SWP
Allocation**

5%

**2014 SWP
Allocation**

Unprecedented Conditions



- WY 2012- 2013
Below average runoff
- CY 2013
Driest on record
- Jan 2014
Lowest snowpack
- WY 2014
4th lowest runoff
- 2014 SWP Allocation
5% - lowest
- 2014 Temps
Record high temperatures



Moving forward, it will take a suite of tools to minimize Southern Nevada's drought risks.

Foremost among these tools is continued interstate cooperation with Colorado River stakeholders.



SOUTHERN NEVADA WATER AUTHORITY®