

RECLAMATION

Managing Water in the West

Colorado River Basin:

- **System Conservation Pilot Program**
- ***Moving Forward* after the Colorado River Basin Study**

Colorado River Citizens Forum

Yuma, AZ

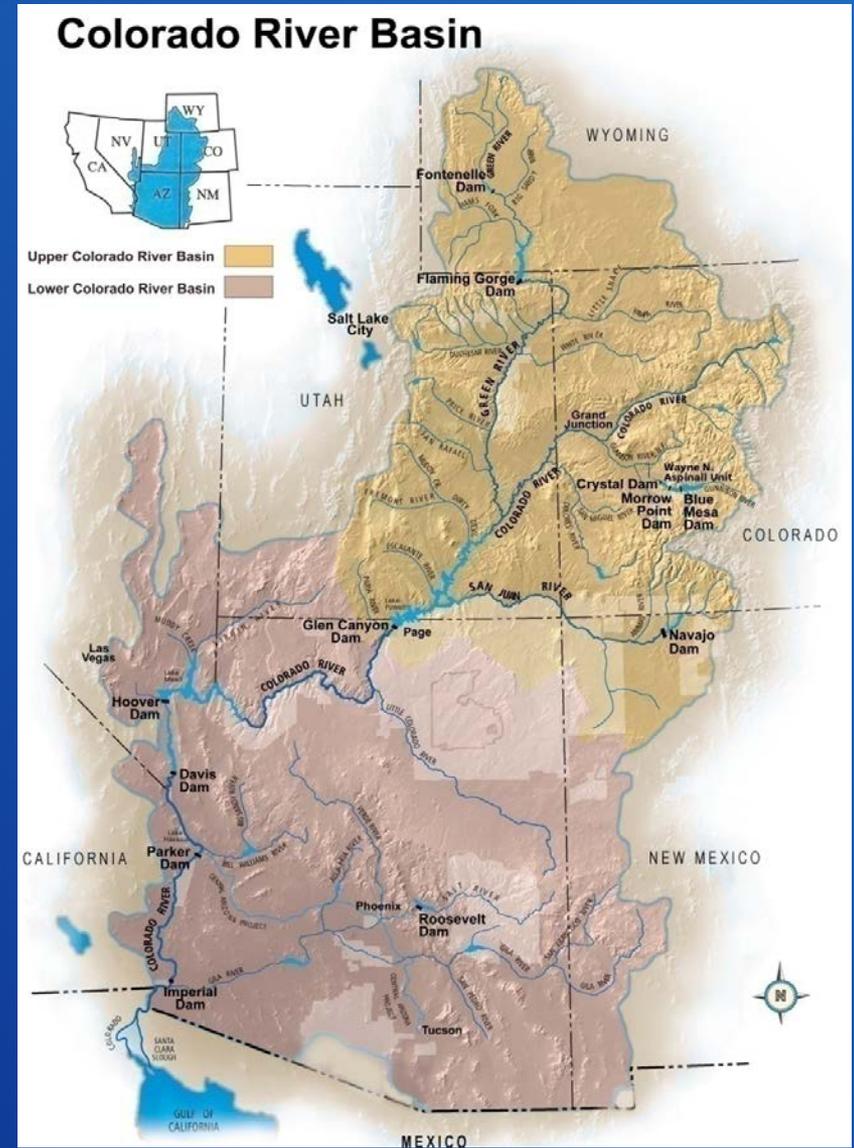
March 11, 2015



U.S. Department of the Interior
Bureau of Reclamation

Colorado River Hydrology

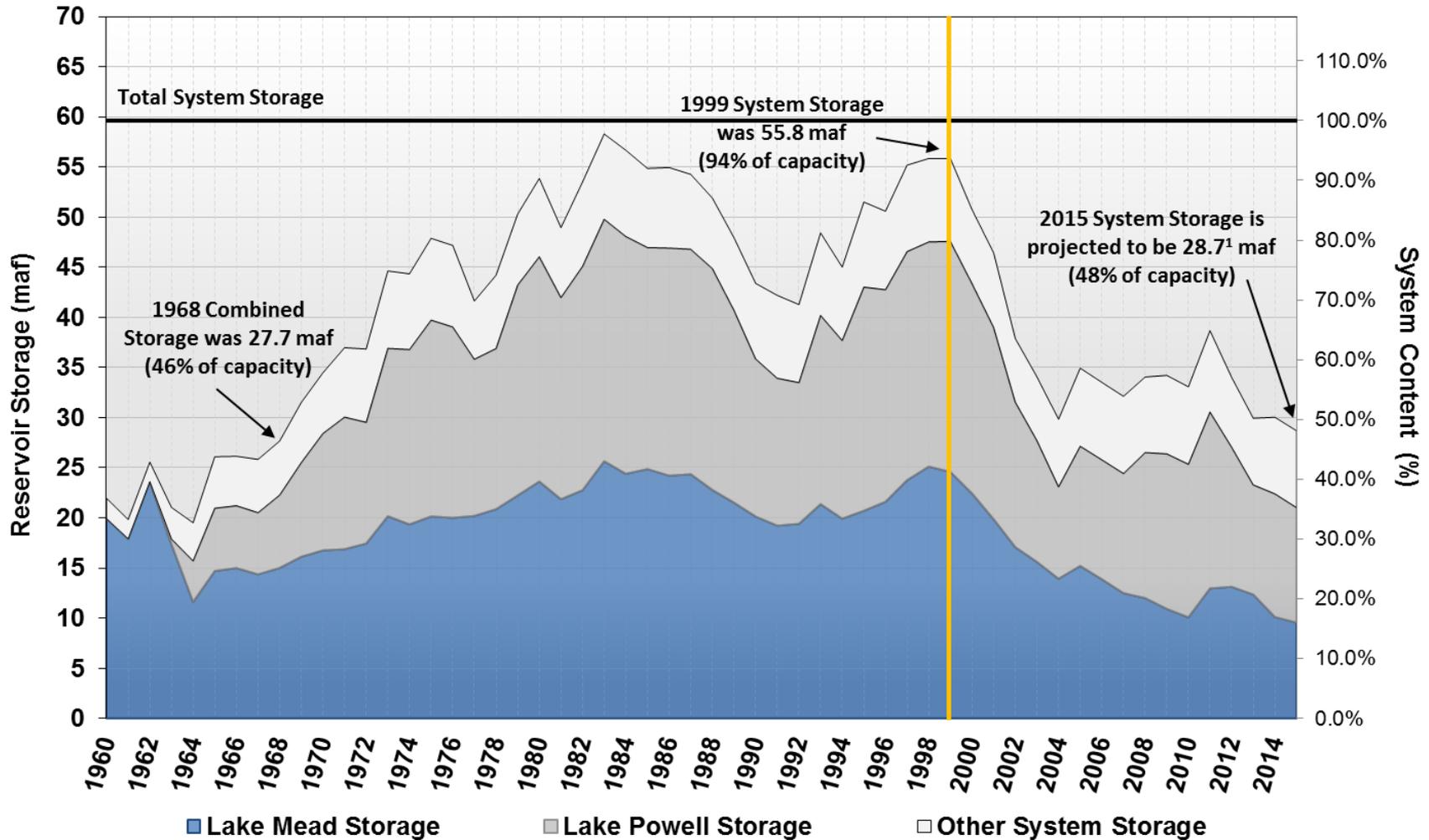
- 16.5 million acre-feet (maf) allocated annually
- 14.9 maf average annual “natural” inflow into Lake Powell over past 105 years; 16.4 maf average over entire River
- Consumptive uses and losses averaged 15.08 maf over past decade
- Agriculture uses approximately 70% of Colorado River water
- Of total consumptive uses, approximately 40% exported outside of hydrologic boundaries



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System Storage - End of Water Year Total Volumes

Water Years 1960 - 2015¹



¹ End of Water Year 2015 storage is based on projections from the February 2015 Most Probable 24-Month Study.

System Conservation Pilot Program

- Funding Partners: Reclamation, CAWCD, SNWA, MWD, Denver Water
- Goal is to examine the effect of Basin-wide solutions on declining levels in Lakes Powell and Mead
- Provides \$11 million for voluntary pilot projects that create system water
 - \$2.75 million for Upper Basin
- The Program went into effect July 2014 for at least through 2016

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,
DENVER WATER, AND
THE SOUTHERN NEVADA WATER AUTHORITY,
FOR A PILOT PROGRAM FOR FUNDING THE CREATION OF COLORADO RIVER
SYSTEM WATER THROUGH VOLUNTARY WATER CONSERVATION AND
REDUCTIONS IN USE

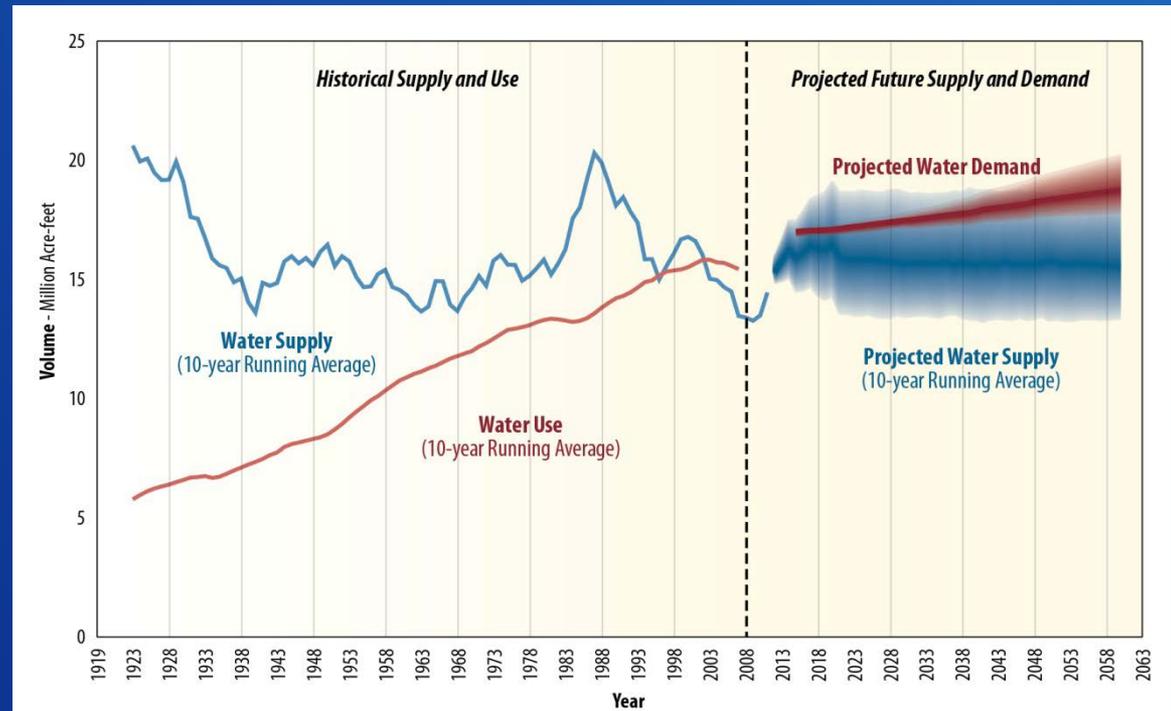
1. PREAMBLE: THIS AGREEMENT (“Agreement”) is entered into this 30th day of July, 2014 (“Effective Date”), by and between the UNITED STATES OF AMERICA (“United States”), represented by the Secretary of the Interior (“Secretary”) acting through the officials executing this Agreement, the CENTRAL ARIZONA 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 water district duly organized under California law (“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

System Conservation Pilot Program

- In November, 17 pre-proposals submitted by 14 water users including tribes, irrigation districts, and municipalities
- Proposed conservation measures include efficiency and conveyance improvements, land fallowing, water reuse, and landscape conversion
- Pre-proposals were evaluated by Reclamation and the funding partners
- Entities are involved in further discussion or have been notified proposal does not meet Program criteria
- Anticipate that first implementation agreements will be signed this Spring

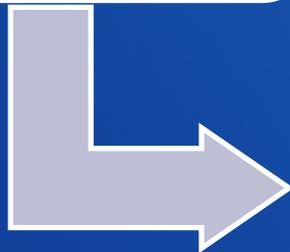
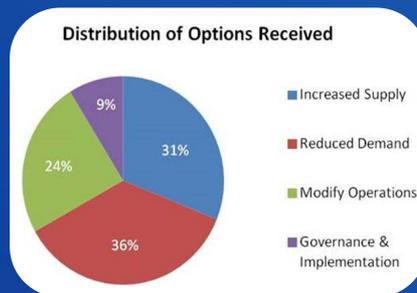
Recap of the Colorado River Basin Water Supply and Demand Study

- Completed in 2012 and conducted by Reclamation and the Basin States, in collaboration with stakeholders throughout the Basin
- Objective was to assess potential future imbalances and options to address those imbalances
- Found that a range of imbalances is plausible



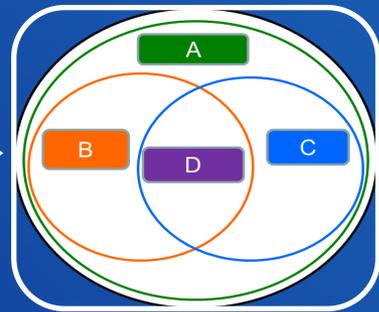
Analysis of Options & Strategies

- Over 150 options were submitted that represented a wide range of ideas
- Representative options were grouped to form portfolios that represented different strategies
- Each portfolio performed well in reducing resource vulnerability – tradeoffs explored
- There are no silver bullets; a wide range of solutions are needed



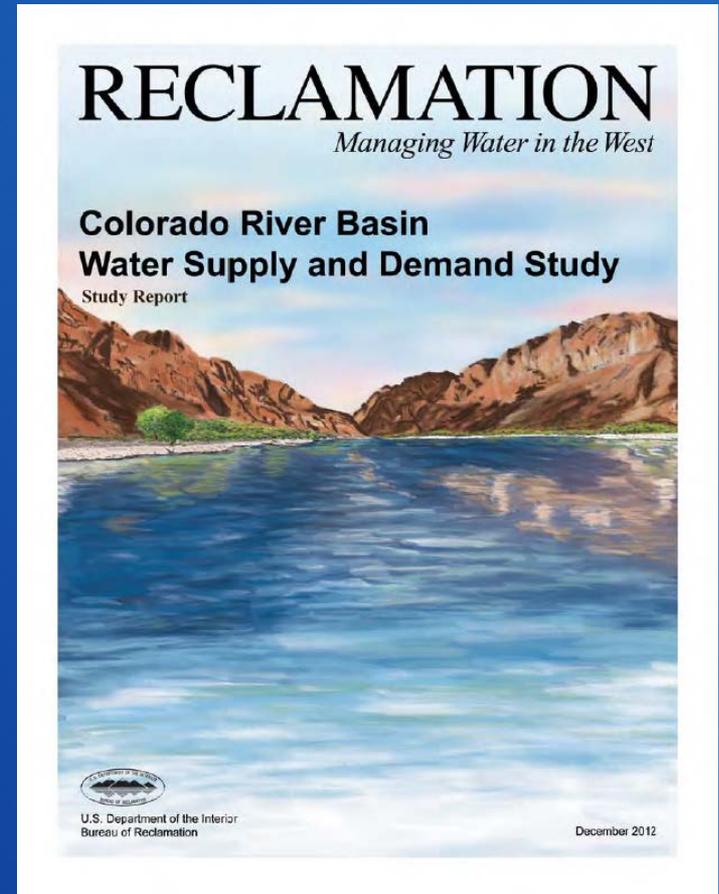
Representative Options (40)

- M&I Conservation
- Reuse
- Ag Conservation
- Water Transfers
- Water Banking
- Etc.



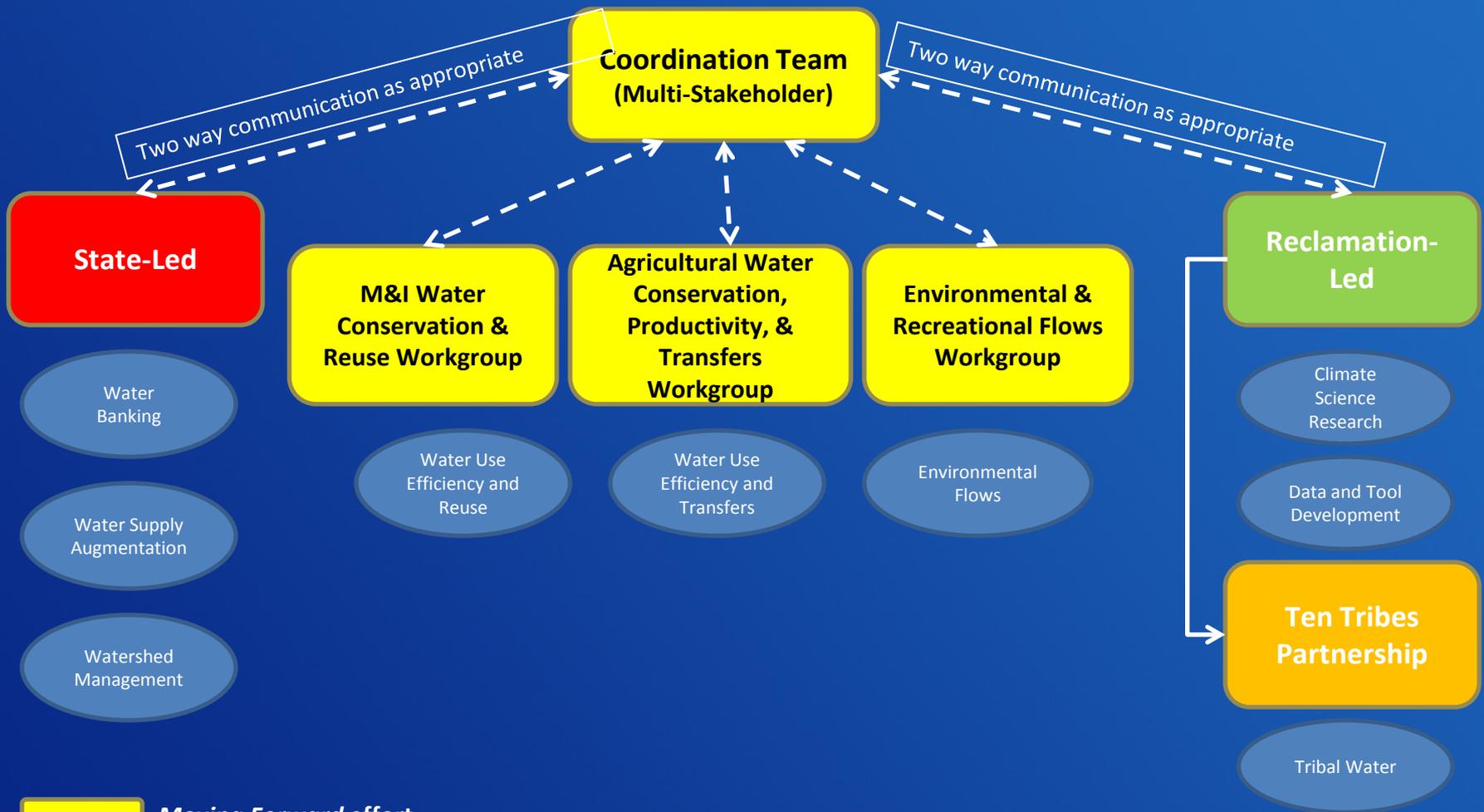
Study Summary

- The system is vulnerable if we do nothing
- Doing something greatly reduces that vulnerability and makes the system more resilient but does not eliminate vulnerability
- In the near term, all portfolios show that conservation, transfers, and reuse are cost-effective ways to reduce vulnerability
- In the longer term, more tradeoffs emerge to achieve an acceptable level of risk in terms of options, cost, resources, and other implications



<http://www.usbr.gov/lc/region/programs/crbstudy.html>

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- Moving Forward effort*
- State-led
- Reclamation-led
- Tribes/Reclamation-led
- Area identified in Basin Study where next steps should be taken

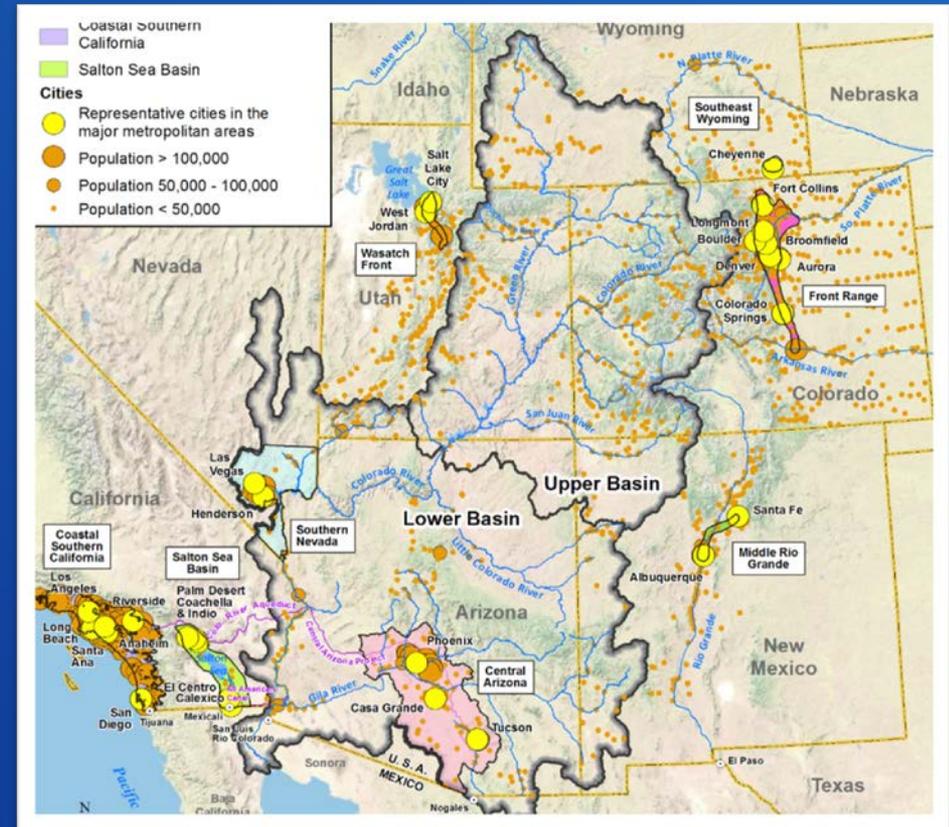
Next Steps Areas Identified in the Basin Study

Moving Forward Effort

- **Goal is to work together to identify positive solutions that can be implemented to address challenges**
- **Phase 1 began with the formation of:**
 - Coordination Team
 - M&I Water Conservation and Reuse Workgroup
 - Agricultural Water Conservation, Productivity, and Transfers Workgroup
 - Environmental and Recreational Flows Workgroup
- Phase 1 nearly complete; report anticipated to be released in coming months

M&I Water Conservation and Reuse Workgroup

- Co-Chairs – Denver, MWD, Arizona Municipal Water Users
- Workgroup Tasks:
 - Quantify historical trends in water conservation and reuse
 - Quantify potential additional savings
 - Highlight successful programs and identify future opportunities
- Challenges – Not one solution fits all communities



Historical M&I Conservation Successes

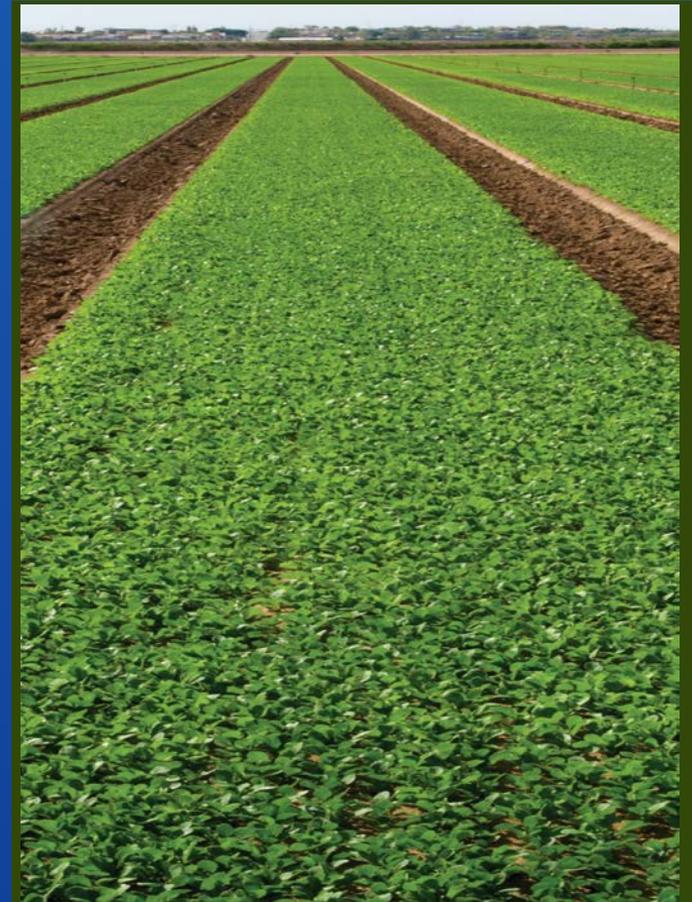
- Municipal use
 - Per capita use decreased by 11 percent to 38 percent since 1990
 - At least 1.7 MAFY saved as compared to 1990 per capita levels
- Municipal and industrial reuse
 - 700 KAFY reuse in 2012
 - Treated wastewater used for non-municipals uses including groundwater recharge, agricultural uses, and wetland habitats
 - In some metropolitan areas, greater than 90 percent of the reusable supply is currently being reused
- Accounting for both changes in per capita use and water reuse, M&I water use could have been nearly 2.4 MAFY higher in 2010

Case Studies and Future Opportunities

- Workgroup reviewed over 400 conservation and reuse programs
 - Selected 34 programs as case studies
- Examples of conservation opportunities
 - Increase indoor/outdoor water use efficiency
 - Integration of water and energy efficiency
 - Implement measures to reduce system loss
 - Develop/expand resources to assist in conservation efforts
- Challenges to additional conservation
 - extent to which actions have already been implemented
 - the cost of conservation measures
 - cost of existing and new water supplies
 - public acceptance
 - other factors

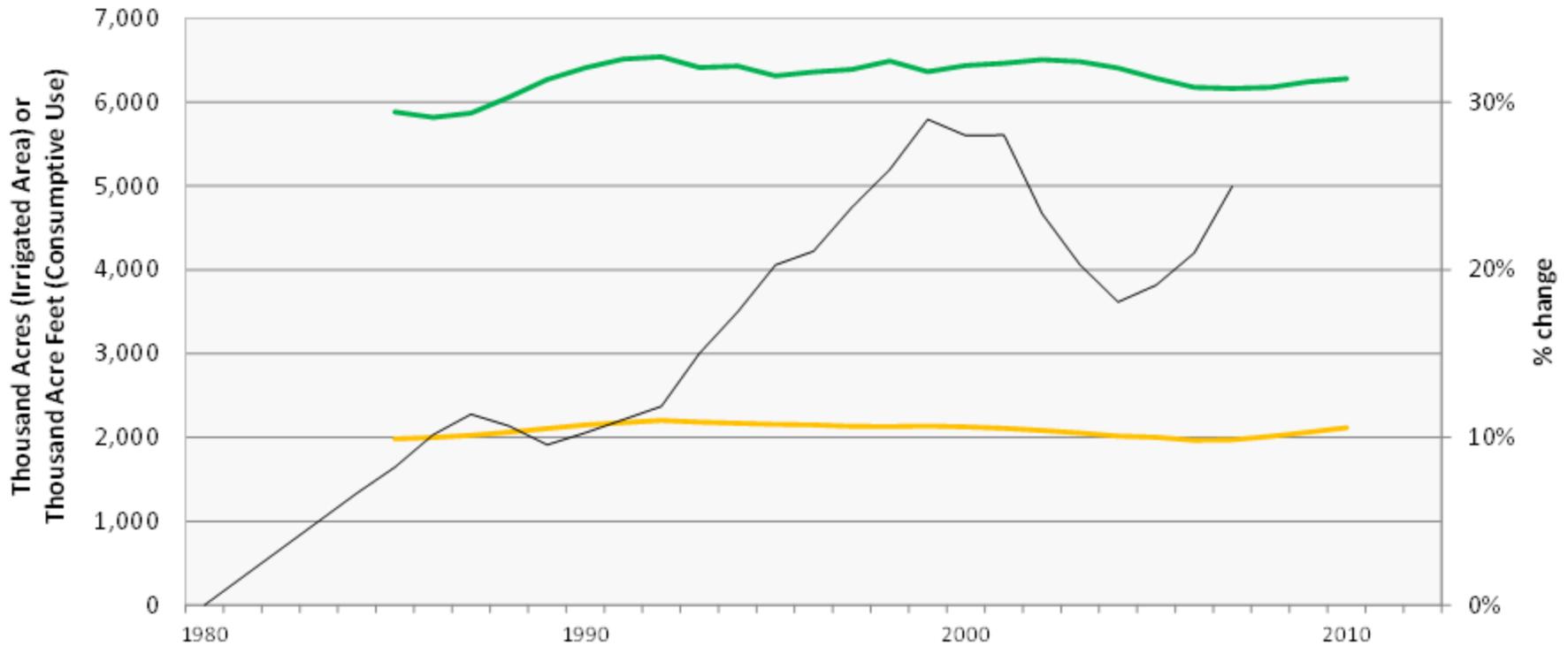
Agricultural Water Conservation, Productivity and Transfers Workgroup

- Co-Chairs – Colorado State University, IID, BOR
- Workgroup Tasks:
 - Quantify historical trends agricultural conservation and transfers of Colorado River water (both in and outside of the Basin)
 - Document Ag water conservation programs that have been successful to date
 - Identify existing future plans for these types of activities, and estimate what potential savings could come from these existing plans
- Challenges – concern about preservation of agricultural productivity



Ag Productivity in the Basin

Representative Consumptive Use, Irrigated Acres, and Change in Productivity



— Consumptive Use (KAF), 5-year average — Irrigated Acres (thousands), 5-year average — Change in Productivity (%), 5-year average

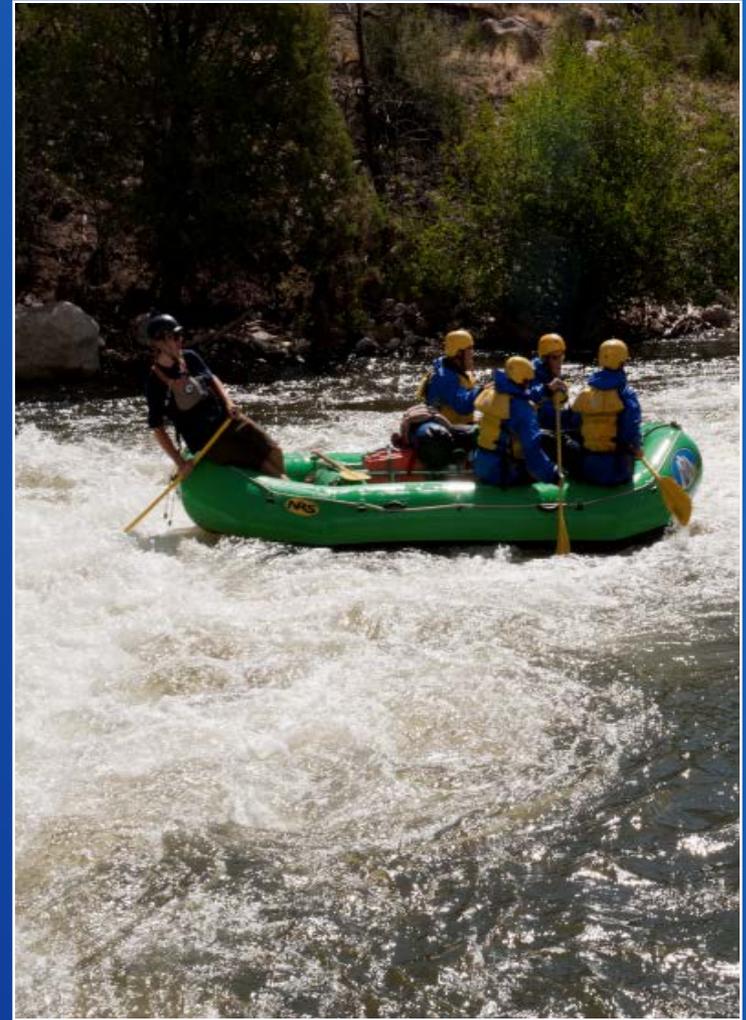
Case Studies and Future Opportunities

- Workgroup identified 15 case studies as examples of ongoing or planned projects
- Examples of Conservation opportunities
 - Improved water quality
 - Drought protection
 - Conserved water for other uses
 - Partnerships
- Challenges to additional conservation
 - Legal
 - Financial
 - Environmental
 - Political
 - Social



Environmental and Recreational Flows Workgroup

- Co-Chairs – Colorado, the Nature Conservancy, BOR
- Workgroup Tasks:
 - Develop Guiding Principles
 - Identification and assessment of 4 Focal Reaches
 - Explore existing programs that benefit environmental, recreational, and hydropower resources
 - Identify opportunities to protect and restore environmental and recreational resources
- Challenges – First-of-its-kind environmental & recreational assessment



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Workgroup Activities

- Developed Guiding Principles to provide a common platform and guidance for approaching tasks and issues.
- Selected four focus reaches using an analytical and consensus-based process in the Basin and completed an assessment of each focus reach.
- Colorado River interests have taken meaningful steps to protect or improve ecological and recreational resources.

Case Studies and Future Opportunities

- Compiled 78 existing programs as examples of existing mechanisms used for the protection or restoration of ecological and recreational resources
- Explored opportunities that could provide ecological and recreational benefits, while ideally benefitting, or at the least, not harming other resources
- Recognized that potential future action would need further exploration and analysis.

Colorado River Basin Updates



Questions?

For more information

- Lower Colorado River Operations: <http://www.usbr.gov/lc/riverops.html>
- Basin Study: <http://www.usbr.gov/lc/region/programs/crbstudy.html>
- Moving Forward:
<http://www.usbr.gov/lc/region/programs/crbstudy/MovingForward/index.html>

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