Eloy And Maricopa-Stanfield Basin Study

BUREAU OF RECLAMATION

PINAL PARTNERSHIP

Pinal Partnership
Government Relations Committee

May 23, 2023

Agenda

1. Welcome and Purpose
2. U.S. Bureau of Reclamation
3. The Colorado River: Overview, Operations, and Current Conditions
4. Supplemental Environmental Impact Statement for Near-term Colorado River Operations
5. Reclamation Funding Opportunities
   a. Bipartisan Infrastructure Law Funding
   b. Inflation Reduction Act
   c. WaterSMART Program
6. Eloy and Maricopa-Stanfield Basin Study
   a. Project Background
   b. Adaptation and Mitigation (A&M) Measures
   c. Next Steps
7. Questions/Discussion

Eloy and Maricopa-Stanfield Basin Study

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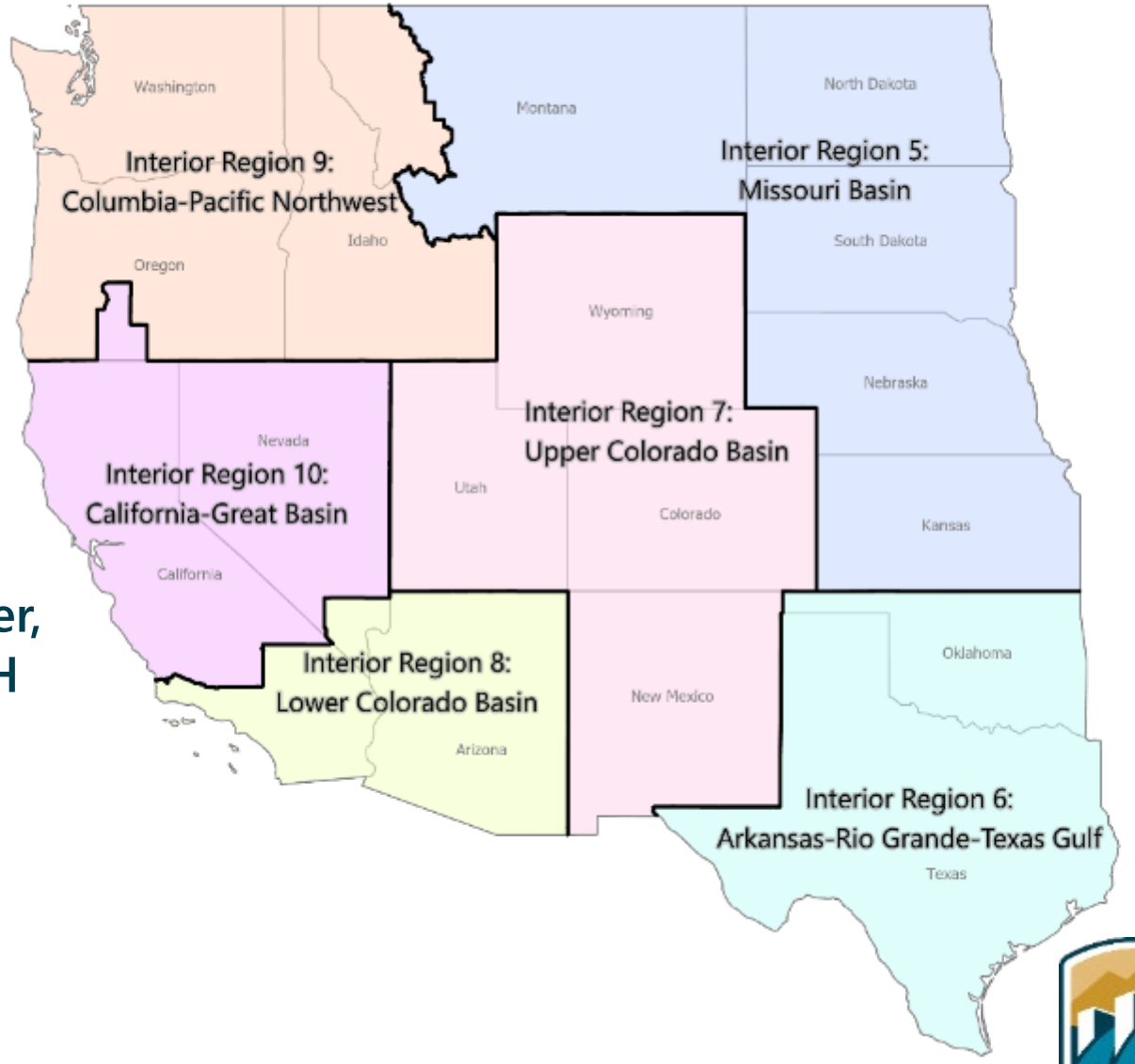
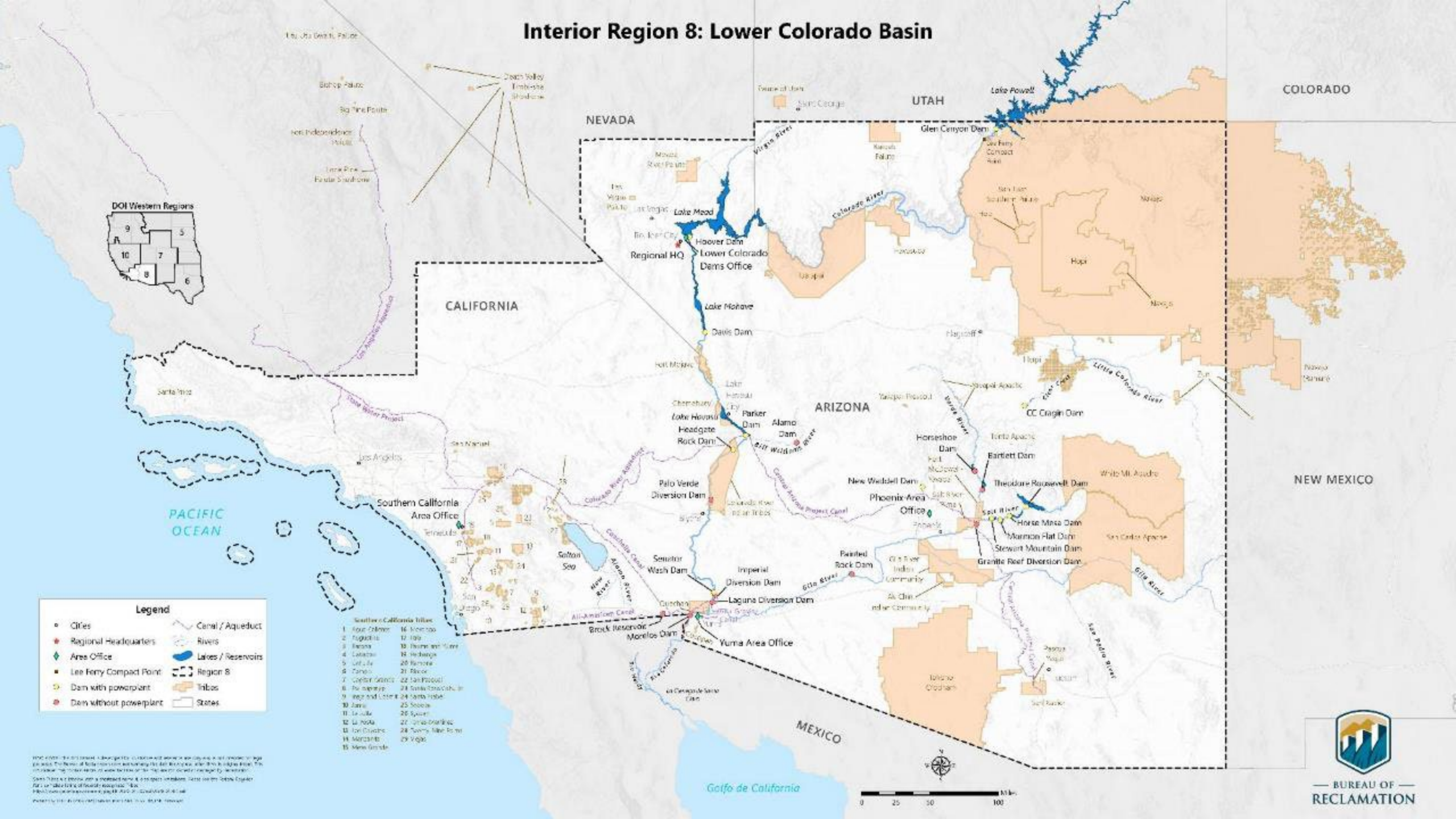
U.S. Bureau of Reclamation

- U.S. Department of the Interior agency
- Established in 1902 in the 17 western United States
- Largest wholesaler of water in U.S., providing water to over 40 million people
- Provides water to irrigate 10 million acres of farmland, producing 60% of the nation's vegetables
- Second largest producer of hydroelectric power, with 58 powerplants producing 40 billion KWH
- Over 600 dams and reservoirs
- Includes Hoover, Davis, and Parker dams and infrastructure for water delivery on the lower Colorado River



Interior Region 8: Lower Colorado Basin

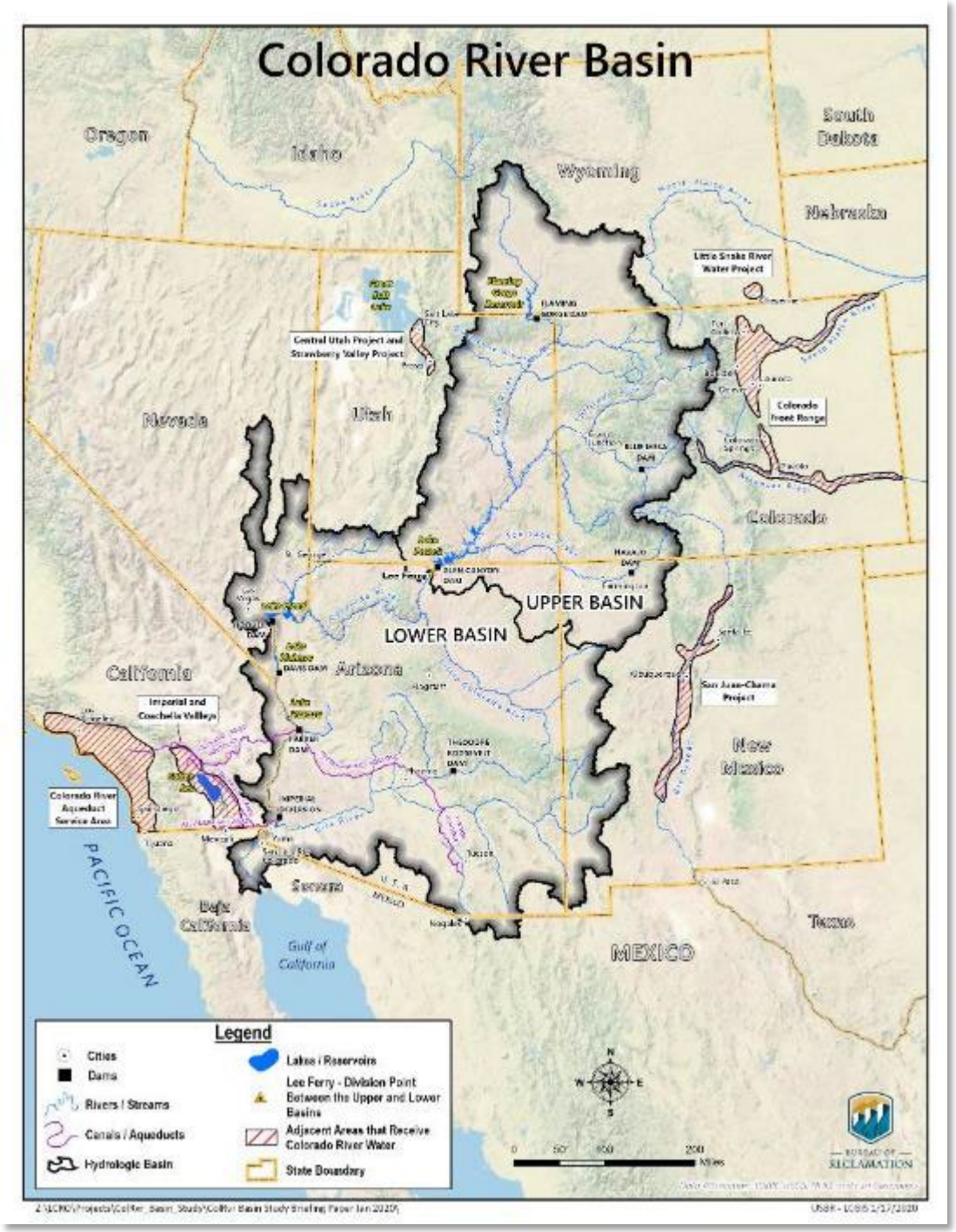


The Colorado River: Overview, Operations, and Current Conditions

- *Overview of Basin*
- Drought Response Efforts
- Current and Projected System Conditions

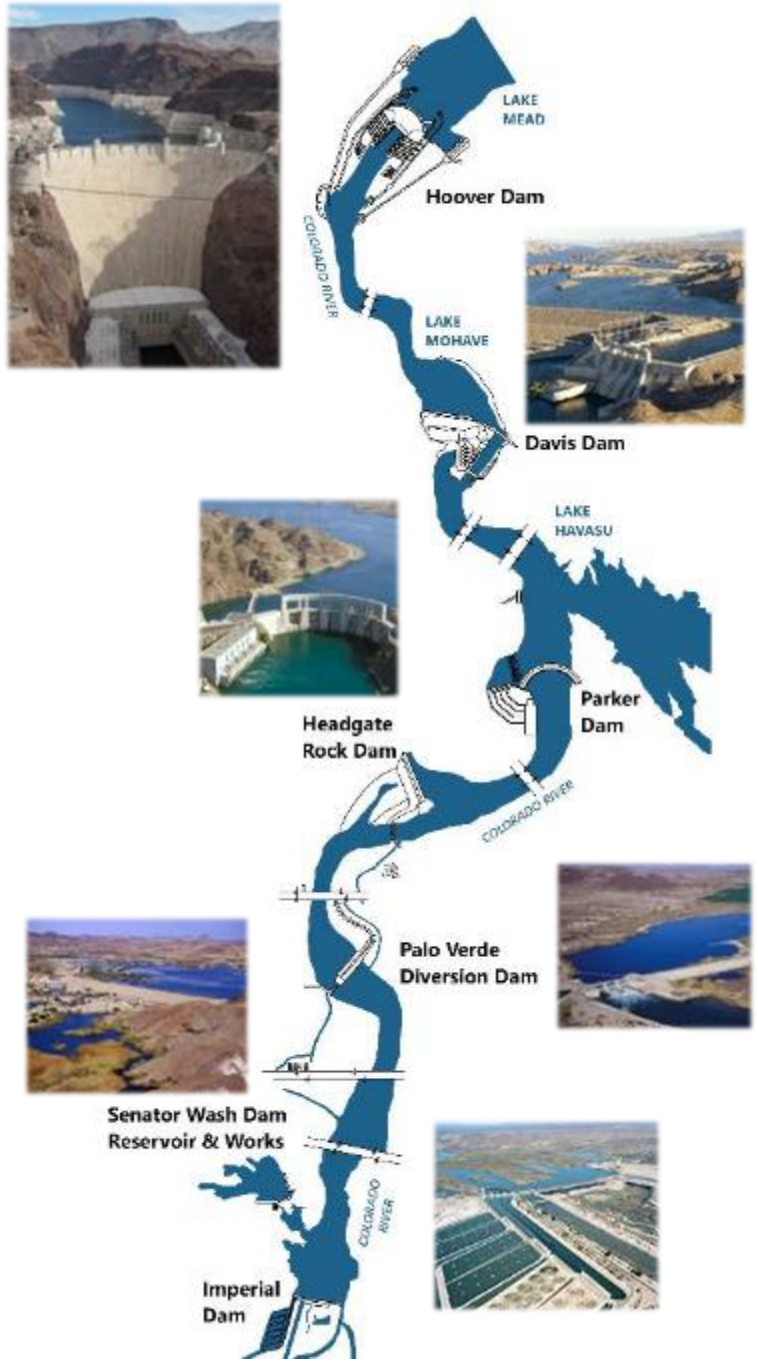
Colorado River Basin Hydrology

- 16.5 million acre-feet (maf) allocated annually
  - 7.5 maf each to Upper and Lower Basins
  - 1.5 maf to Mexico
- 16 maf average annual "natural flow" (from historical record)
  - 14.8 maf in the Upper Basin and 1.3 maf in the Lower Basin
- Inflows are highly variable year to year
- 60 maf of storage (about 4 times the annual average inflow)
- Operations and water deliveries governed by the "Law of the River"



Lower Colorado River Management Objectives

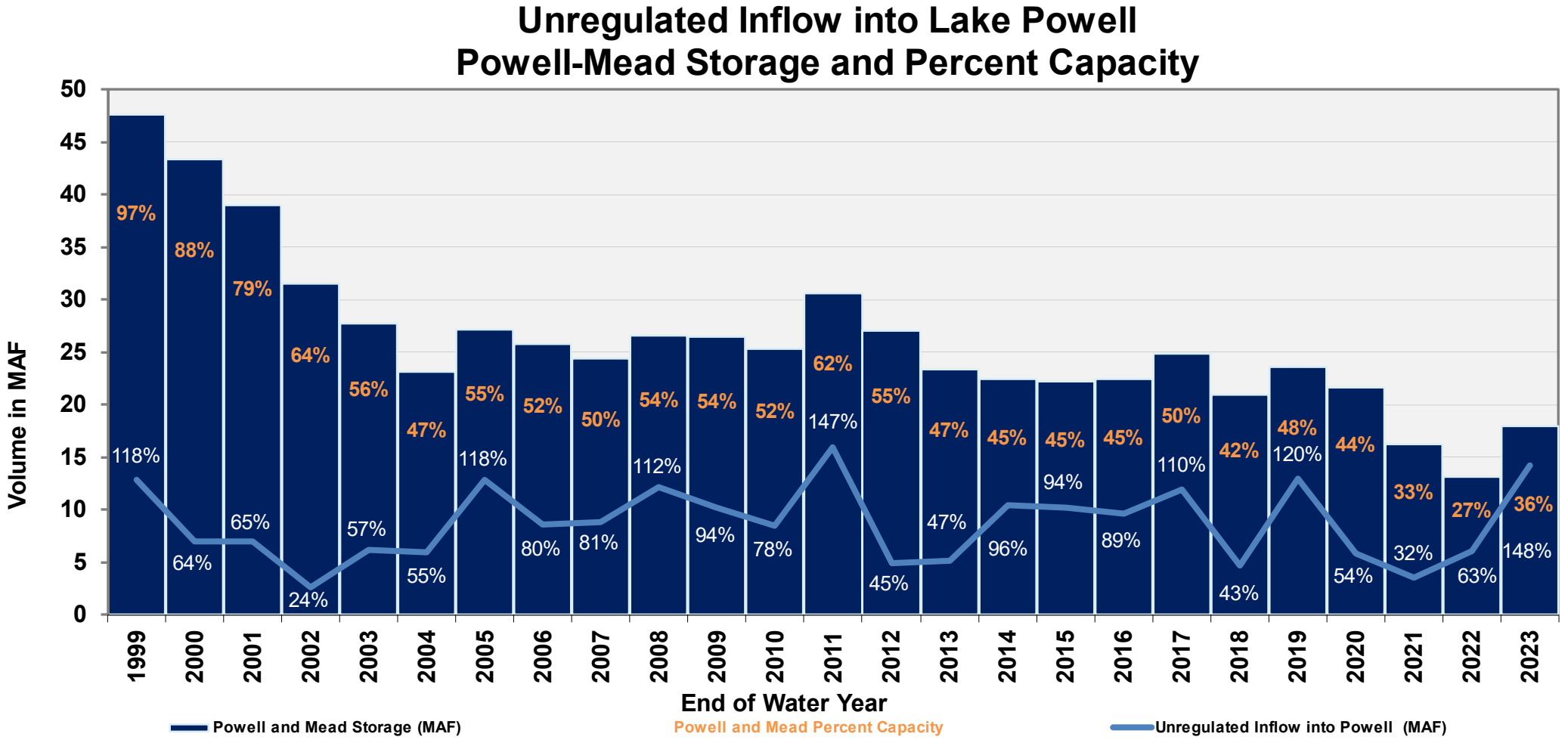
- Provide flood control and river regulation
- Meet U.S. water orders
- Meet water delivery and salinity requirements under the 1944 U.S.-Mexico Water Treaty and Minutes
- Generate hydropower
- Implement LCR Multi-Species Conservation Program
- Support recreational opportunities



Lower Colorado River "Water Master" Role

- Boulder Canyon Project Act of 1928 established the Secretary of the Interior as Water Master of the Lower Colorado River
- Mission of Boulder Canyon Operations Office: Implement the Water Master role for the Secretary of the Interior
  - Develop Annual Operating Plan for Colorado River Reservoirs
  - Schedule water releases from Hoover, Davis, and Parker Dams
  - Administer water entitlements
  - Approve U.S. water orders
  - Account for all water use

State of the System (Water Years 1999-2023)[1,2]



[1] Values for Water Year 2023 are projected. Unregulated inflow is based on the latest CBRFC forecast dated May 4, 2023. Storage and percent capacity are based on the May 2023 24-Month Study.

[2] Percentages on the light blue line represent percent of average unregulated inflow into Lake Powell for a given water year. The percent of average is based on the period of record from 1981-2010 for Water Years 1999-2021. Percent of average from Water Year 2022 to present is based on the period of record from 1991-2020.

Water Year Snowpack and Precipitation[1]
as of May 15, 2023

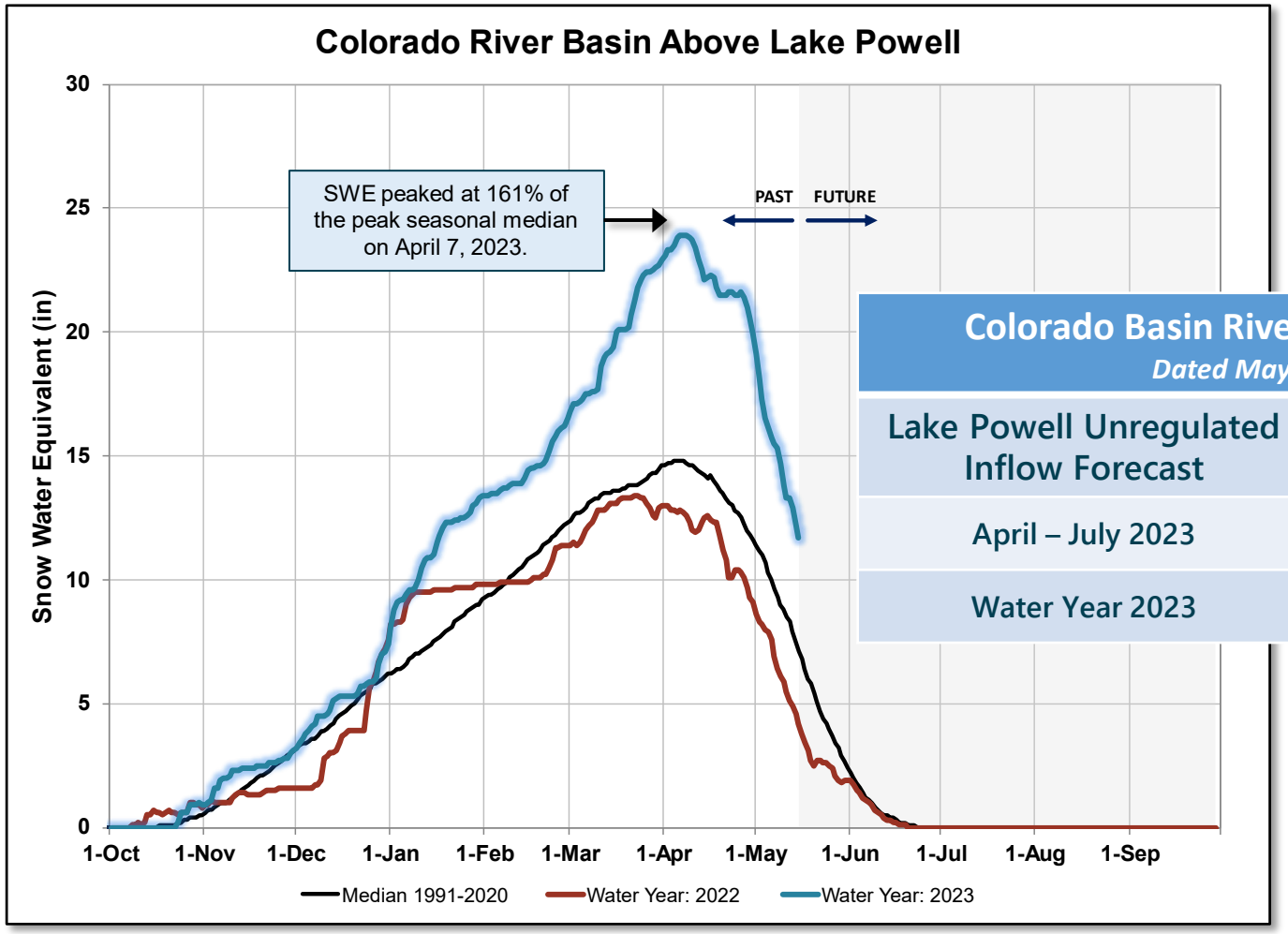
Colorado River Basin above Lake Powell

Water Year 2023 Precipitation (year-to-date)

121% of average

Current Snowpack

155% of median



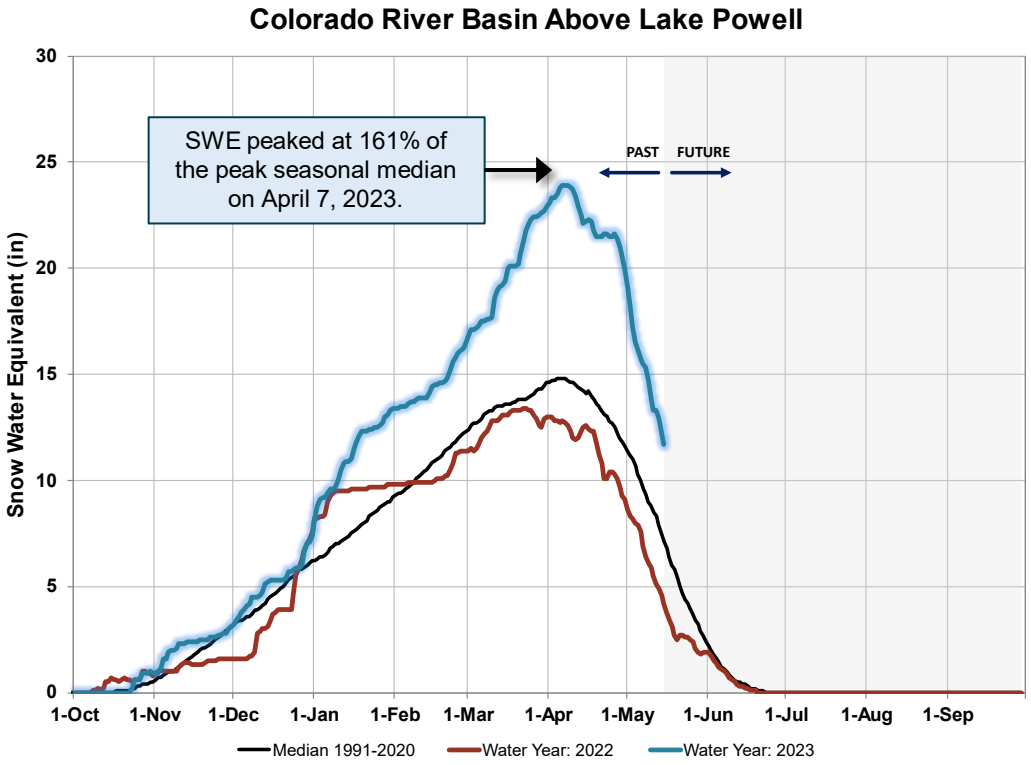
Colorado Basin River Forecast Center
Dated May 4, 2023

Lake Powell Unregulated Inflow Forecast	maf	% of Average
April – July 2023	11.00	172%
Water Year 2023	14.17	148%

[1]*Statistics are based on the 30-year period of record from 1991-2020.*

Water Year 2023
Precipitation & Snowpack[1]
as of May 15, 2023

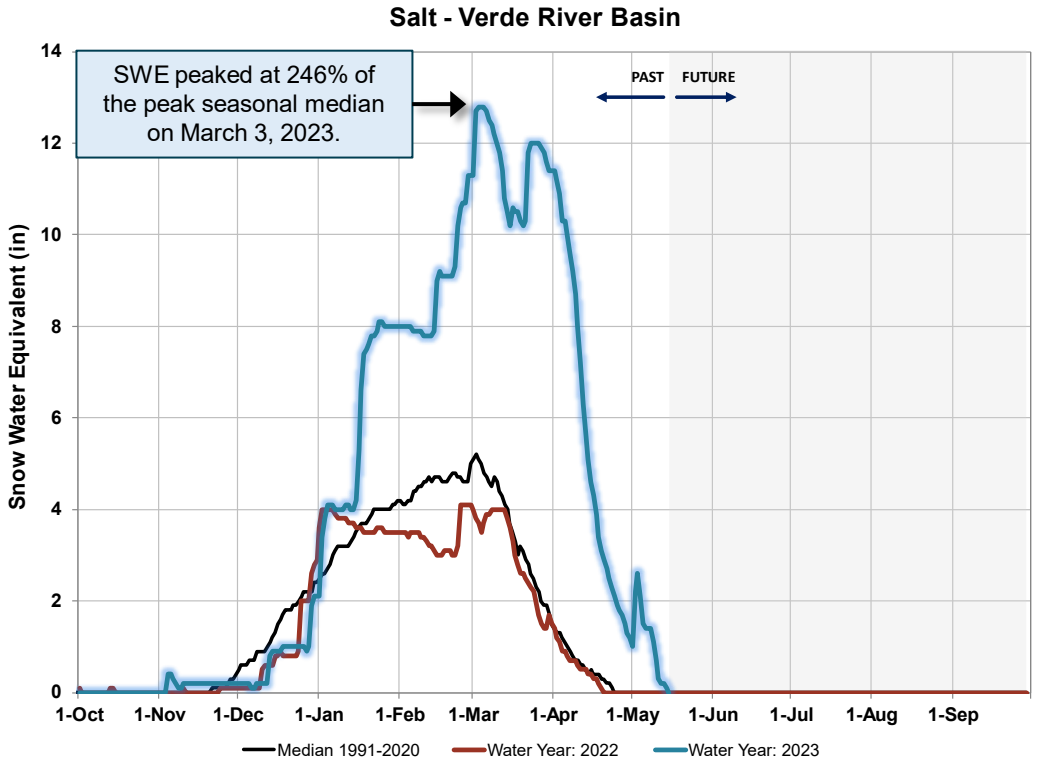
Upper Colorado River Basin



Precipitation - 121%

Basin Snowpack - 155%

Salt - Verde River Basin



Precipitation - 155%

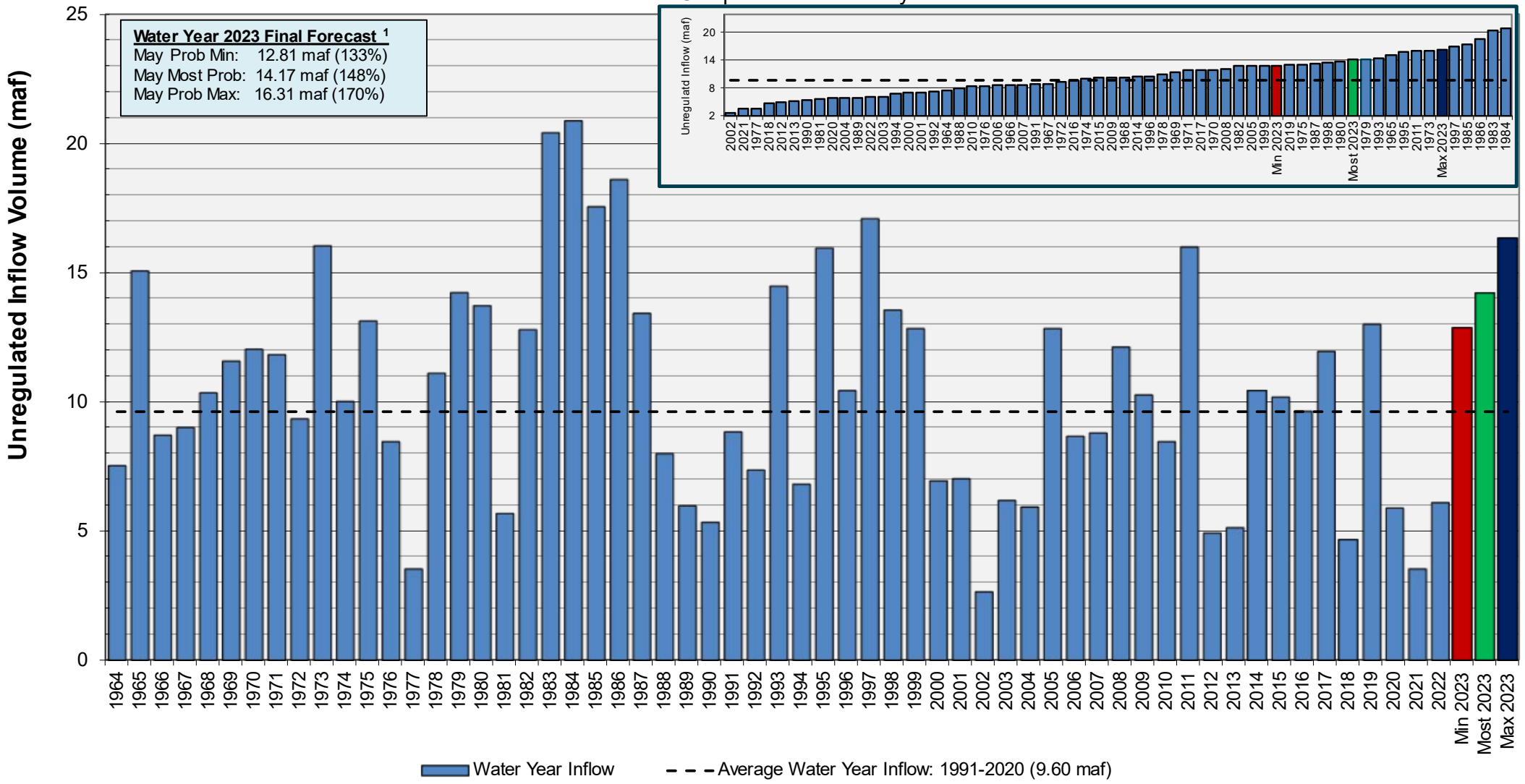
Basin Snowpack - NA%

[1] Percent of normal precipitation is based on an arithmetic mean, or average; percent of normal snowpack is based on the median value for a given date. Water Year statistics are based on the 30-year period from 1991-2020.

Lake Powell Water Year Unregulated Inflow

Forecast as of May 4, 2023

Comparison with History



[1]*Water Year statistics are based on the 30-year period of record from 1991-2020.*

The Colorado River:
Overview, Operations, and Current Conditions

- Overview of Basin
- Drought Response Efforts
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Colorado River Drought

Lake Mead near Hoover Dam in 2000

Lake Mead near Hoover Dam in 2022

Drought Plans

- 2007 Interim Guidelines
  - Established a shortage framework for the Lower Basin
  - Incentivized storage of water in Lake Mead
- Drought Contingency Plan of 2019
  - Supplement to 2007 Interim Guidelines
  - Mandatory reductions at specific Lake Mead elevations
  - Established foundation for Upper Basin water storage as part of a future demand management program.

The Colorado River:
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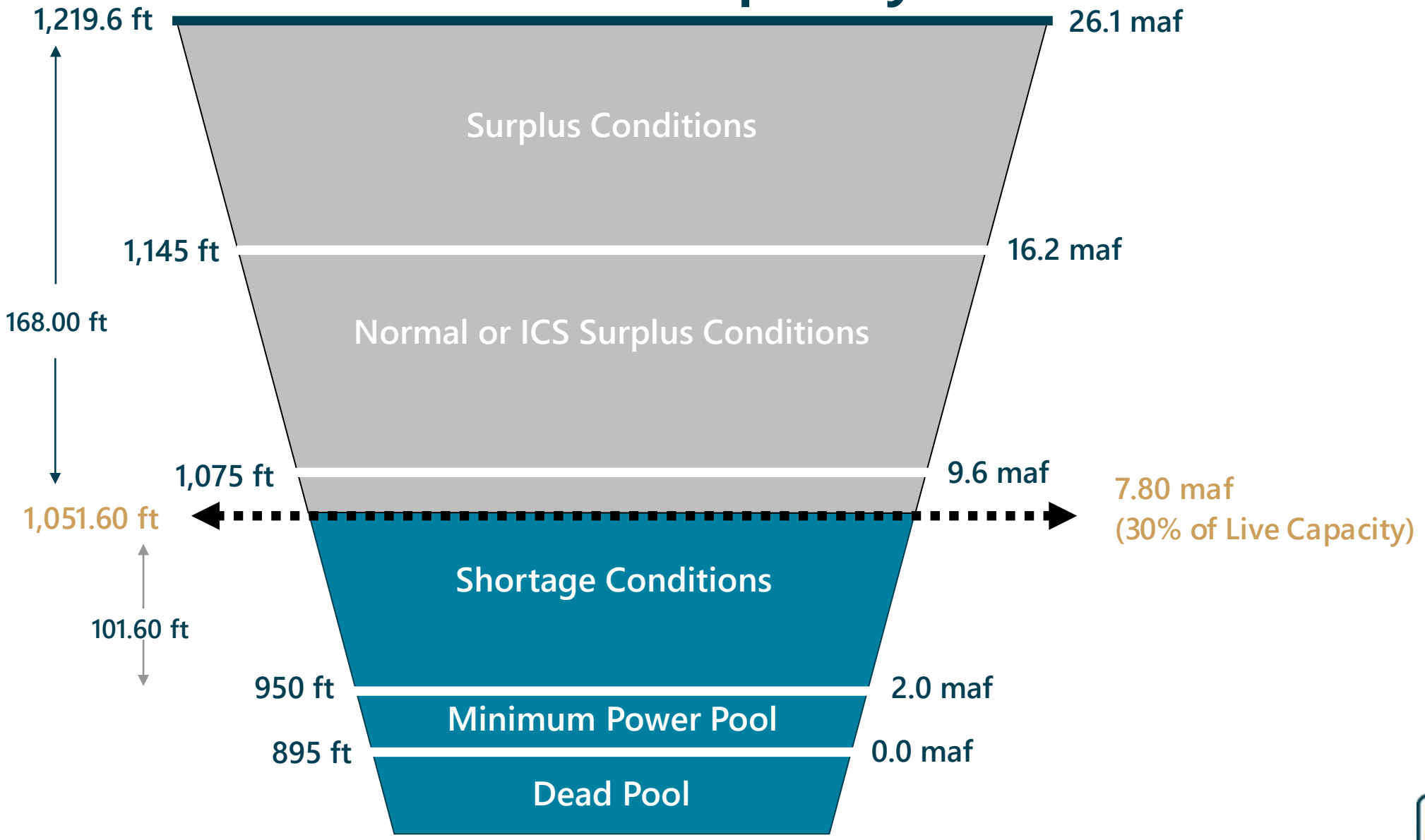
Colorado River Basin Storage
(as of May 14, 2023)

Reservoir	Percent Full	Storage (maf)	Elevation (feet)
Lake Powell	27%	6.33	3,538.09
Lake Mead	30%	7.80	1,051.60
Total System Storage	36%	21.11	- - -

Total system storage was 34% of capacity, or 20.33 maf in storage, at this time last year.

Lake Mead Capacity

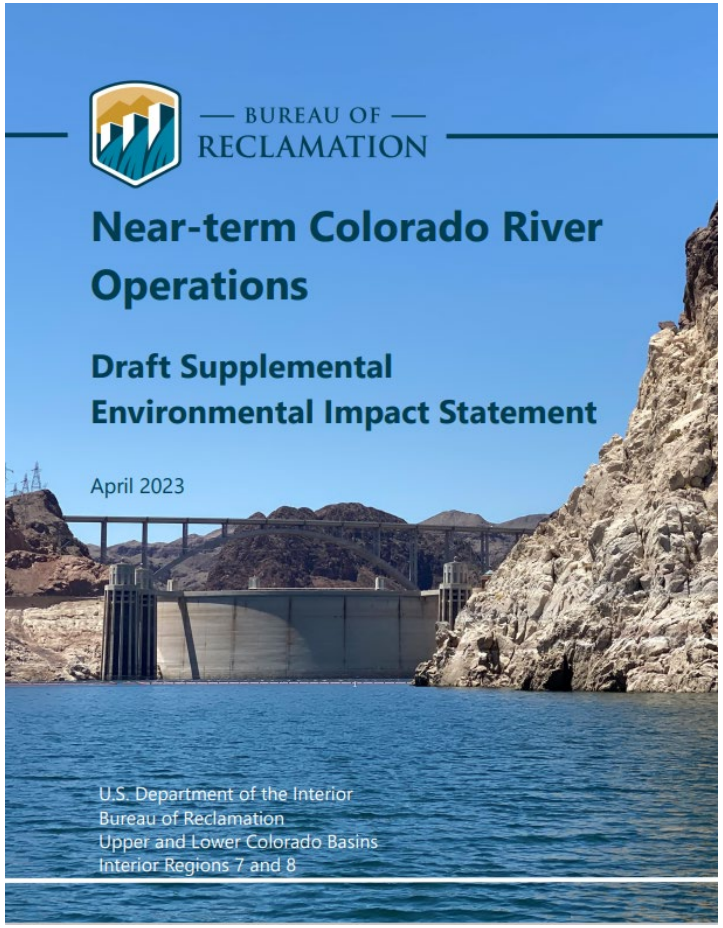


Not to scale

As of May 14, 2023

Supplemental Environmental Impact Statement for Near-term Colorado River Operations

- The supplement is to the Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead, referred to as the 2007 Interim Guidelines.
- This week, three Lower Basin States submitted a consensus-based proposal.
- Temporarily being withdrawn from the Federal Register to fully analyze the states' proposal and include in a future publication.
- See press release at www.doi.gov for details.



https://www.usbr.gov/ColoradoRiverBasin/SEIS.html

Reclamation Funding Opportunities

- Bipartisan Infrastructure Law (BIL)
- Inflation Reduction Act (IRA)
- WaterSMART program

Bipartisan Infrastructure Law (BIL) Funding for WaterSMART over five years (2022-2026)

- $100 million: Cooperative Watershed Management Program
- $100 million: Multi-Benefit Projects to Improve Watershed Health
- $250 million: Aquatic Ecosystems Restoration and Protection Projects
- $250 million: Desalination Projects
- $400 million: WaterSMART Grants
- $450 million: Large Scale Water Recycling
- $550 million: Water Reclamation and Reuse Program

➢ More information about BIL implementation available at usbr.gov/bil/

Note: BIL is also known as the Infrastructure Investment and Jobs Act.

Inflation Reduction Act (IRA) of 2022

- The drought provision provides $4 billion dollars to the Bureau of Reclamation, more than doubling its annual budget.
- Legislation to tackle climate crisis

➢ More information about IRA at usbr.gov/inflation-reduction-act

WaterSMART Program Framework

Supports water supply reliability for multiple water users

WaterSMART Program Website Links

Basin Study Program	Basin Studies - usbr.gov/watersmart/bsp/ Applied Science Grants - usbr.gov/watersmart/appliedscience/
Water Recycling and Desalination Programs	Title XVI Program - usbr.gov/watersmart/title/ Large Scale Water Recycling Program – usbr.gov/watersmart/largescale/ Desalination Projects - usbr.gov/watersmart/desalination/
WaterSMART Grants	Water and Energy Efficiency Grants (WEEG) - usbr.gov/watersmart/weeg/ Small-Scale Water Efficiency Grants (SWEP) - usbr.gov/watersmart/swep/ Environmental Water Resources Projects - usbr.gov/watersmart/ewrp/
Water Conservation Field Services Program (WCFSP)	usbr.gov/lc/region/g4000/wtrconsv.html
Drought Response Program	usbr.gov/drought/
Cooperative Watershed Management Program (CWMP)	usbr.gov/watersmart/cwmp/
Aquatic Ecosystem Restoration Projects	usbr.gov/watersmart/aquatic/
Planning and Project Design Grants	New program currently under development. More information coming soon.

- Note: Successful proposals from prior years are available on the program websites

More Information about Funding Opportunities

- WaterSMART funding announcements are posted on the Grants.gov website.
- Reclamation's WaterSMART Website, Funding Schedule, Dashboard, and Data Visualization Tool: usbr.gov/watersmart/
- To request to receive WaterSMART Program updates, complete the request form on the WaterSMART website. Or, send an email to watersmart@usbr.gov.
- Notice of Funding Opportunity (NOFO) open or expected in coming months for:
  - Aquatic Ecosystem Restoration Program (closes June 1, 2023)
  - Water Conservation Field Services Program (WCFSP) (closes June 1, 2023 and October 13, 2023)
  - Applied Science Grants (expected to open May 2023)
  - Planning and Project Design Grants (expected to open May 2023)
  - Drought Resiliency Projects (expected to open May 2023)
  - Large Scale Water Recycling (expected to open early June 2023)
  - Title XVI Projects & Desalination Construction (expected to open late June 2023)
  - Cooperative Watershed Management Program: Phase I (expected to open early July 2023)
  - Small-Scale Water Efficiency Projects (SWEP) (expected to open early August 2023)

Information:

Colorado River:

- Operations and Current Conditions, https://www.usbr.gov/lc/riverops.html
- Supplemental Environmental Impact Statement

Colorado River Basin | Bureau of Reclamation (usbr.gov)

- **Submit comments to** CRInterimops@usbr.gov

Funding:

WaterSMART | Bureau of Reclamation (usbr.gov)

Small Storage Program | Bureau of Reclamation (usbr.gov)

Home | GRANTS.GOV

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Basin Studies

Basin Study Program

Note: These are collaborative studies, not grants.

Objective: Evaluate current and future water supply and demand imbalances; identify strategies to meet future water demands.

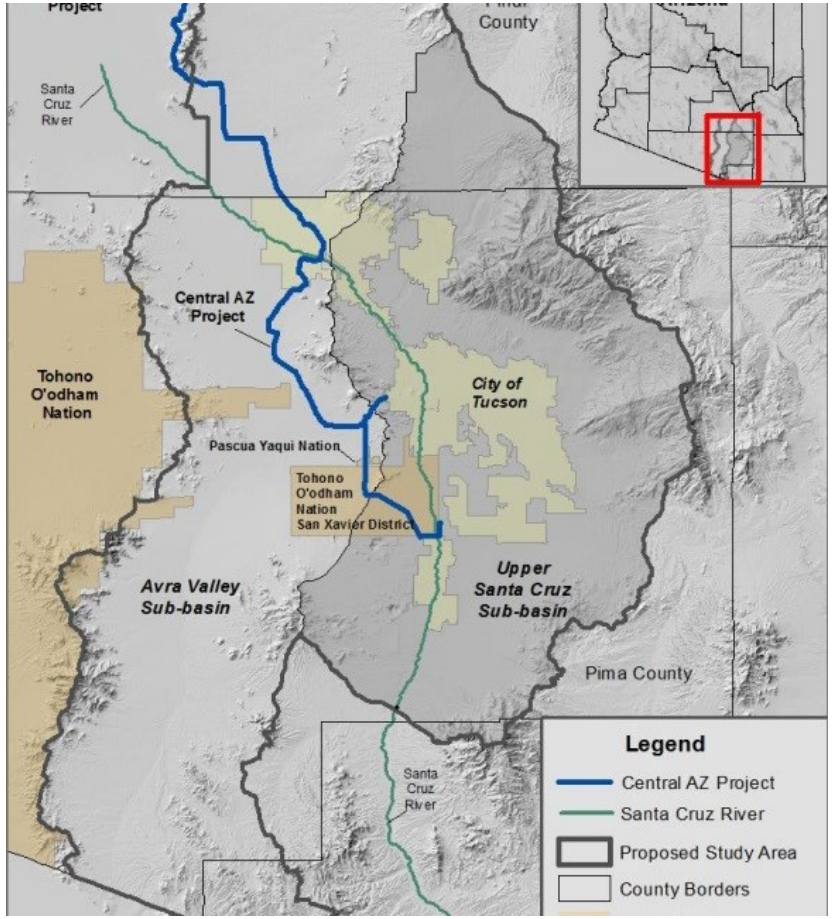
(1) State-of-the-art projections of future water supply and demand
(2) Analysis of how the basin's existing water and power operations and infrastructure will perform in the face of changing water realities
(3) Development of strategies to meet current and future water demands
(4) Trade-off analysis of strategies identified

Funding

- 50% non-Federal cost share required

Basin Studies in Arizona:

- Colorado River Basin Water Supply and Demand Study – completed in 2012
- West Salt River Valley Basin Study – completed in 2023
- Lower Santa Cruz River Basin Study – final report coming soon
- Eloy and Maricopa-Stanfield Basin Study – in progress



Eloy and Maricopa-Stanfield (EMS) Basin Study

Primary Goal:

Help water managers plan for uncertain future in water resources

Central Arizona Project Canal near Florence

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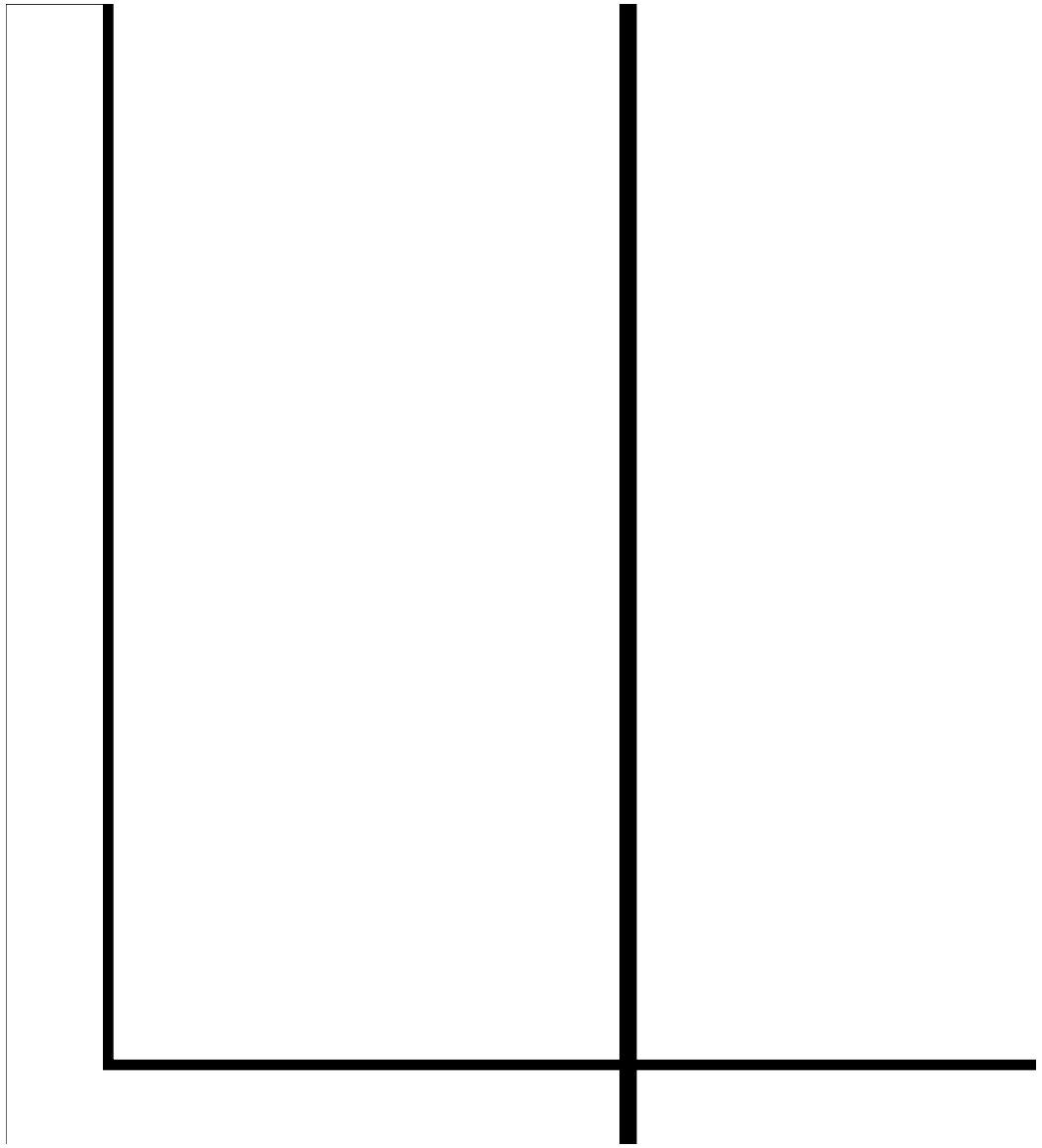
EMS Basin Study – Study Area



- Located south of Phoenix metropolitan area in Pinal County
- Study area: 1575 sq. mi.
- Pinal Active Management Area (AMA) as defined by Arizona Department of Water Resources (ADWR)
- Water demand has historically been dominated by agriculture sector
- Agriculture and agribusiness contributes $1.1 billion to local economy

Pinal County Major Attributes

- Agriculture sector
- Rapid growth

Basin Study Tasks

1
Develop Climate Projections

2
Conduct Supply and Demand Assessment

3 & 4
Update and Run Groundwater Model

5
Conduct Infrastructure Analysis

6
Adaptation and Mitigation Strategies

7
Conduct Economic/Trade-Off Analysis

8
Prepare Basin Study Report

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Adaptation & Mitigation Strategies

A&M Category	Strategy
Municipal Conservation & Reuse	(1) Effluent Utilization – Direct Potable Reuse (DPR)
	(2) Effluent Utilization – Indirect Potable Reuse (IPR)
	(3) Green Stormwater Infrastructure (GSI) & Low Impact Development (LID)
	(4) Reduce Municipal Sector Per Capita Water Use
Changes to Agricultural Practices & Land Use	(5) Pay for Acres to Come Out of Production
	(6) Convert to Less Water Intensive Crops
	(7) Convert Agricultural Lands to Developed Lands
	(8) Improve Irrigation Efficiency
Supply & Infrastructure Investments	(9) Build Infrastructure for Regional Aquifer Recharge
	(10) Build a Regional Water Treatment Plant
	(11) Import Supplies – New Infrastructure
	(12) Import Supplies – Existing Infrastructure

Strategy Rankings (weighted scores)

Strategy	A&M Category	Economic Criteria	Environmental Criteria	Social Criteria	Overall Rank
(1) Effluent Utilization – Direct Potable Reuse	3rd	8th	4th	10th	8th
(2) Effluent Utilization – Indirect Potable Reuse	**2nd**	**2nd**	**8th**	**2nd**	**3rd**
(3) Green Stormwater Infrastructure and Low Impact Development	4th	11th	12th	7th	12th
(4) Reduce Municipal Sector Per Capita Water Use	**1st**	**1st**	**5th**	**1st**	**1st**
(5) Pay for Acres to Come Out of Production	4th	12th	1st	11th	7th
(6) Convert to Less Water Intensive Crops	**1st**	**5th**	**2nd**	**8th**	**2nd**
(7) Convert Agricultural Lands to Developed Lands	**2nd**	**4th**	**3rd**	**5th**	**4th**
(8) Improve Irrigation Efficiency	3rd	10th	6th	4th	6th
(9) Build Infrastructure for Aquifer Recharge	**1st**	**7th**	**7th**	**3rd**	**5th**
(10) Build a Regional Water Treatment Plant	3rd	9th	10th	6th	10th
(11) Import Supplies – New Infrastructure	4th	6th	9th	12th	11th
(12) Import Supplies – Existing Infrastructure	2nd	3rd	11th	9th	9th

Questions / Discussion

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Thank You

For more information:

http://pinalpartnership.com/ems-basin-study

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