

Arizona's Integrated Water Management



Water Education Foundation
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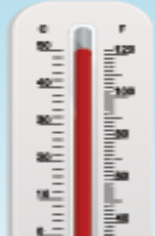
 **79%**
> 5 MILLION OR 79% LIVE IN
ONE OF 91 INCORPORATED CITIES
AND TOWNS IN ARIZONA

7.2 MILLION
 **POPULATION**

114,000

SQUARE MILES
OF LAND MAKE UP ARIZONA


7.6in
Yearly average
rainfall


122°F
Hottest recorded
temperature


**83% OF ARIZONA'S
WORKFORCE**
LIVES IN A CITY OR TOWN

 **3rd** **LOWEST IN
THE NATION**
IN STATE AND LOCAL GOVERNMENT
EMPLOYEES PER 100 RESIDENTS



**ARIZONA: THE NO. 1 MOST
ENTREPRENEURIAL STATE,**
WITH 520 STARTUPS PER 100,000 ADULTS

**ARIZONA
RANKS
TOP-FIVE
FOR NEW
RESIDENTS**

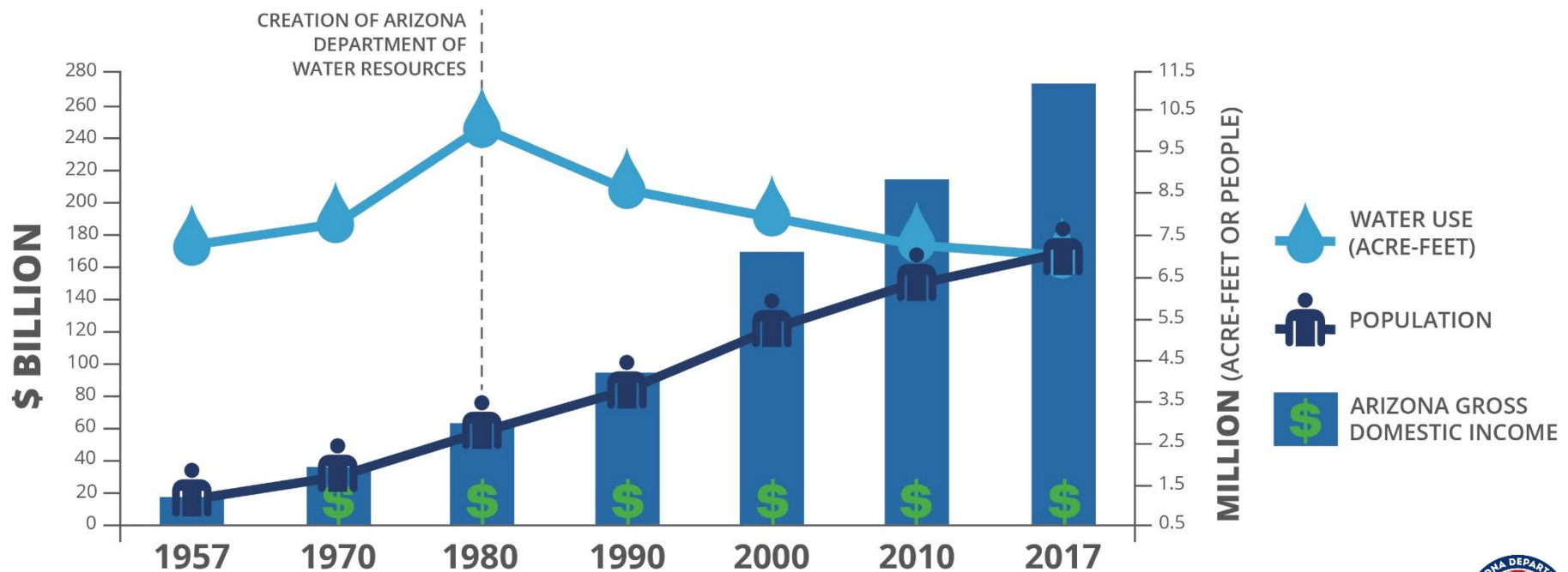
Arizona's Water Management Success

Population **increased** 6-fold

Gross domestic income **increased** 19-fold

Water consumption **reduced** 100,000 acre-feet

ARIZONA WATER USE, POPULATION, AND ECONOMIC GROWTH (1957 - 2017)



Arizona's Water Future

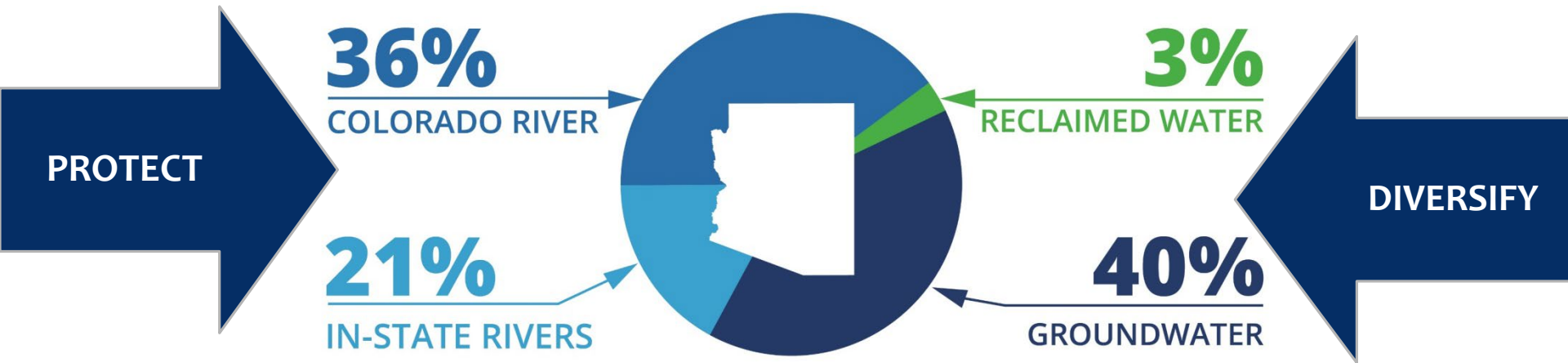
**If there's one thing
Arizona is the best in the
nation at – it's water.**

GOVERNOR DOUG DUCEY
THE STATE OF THE STATE ADDRESS (1.11.16)

ADWR's Approach to Water Management



Protect & Diversify our supplies



Source: ADWR, 2018



Manage Arizona's Water Demand



Source: ADWR, 2018



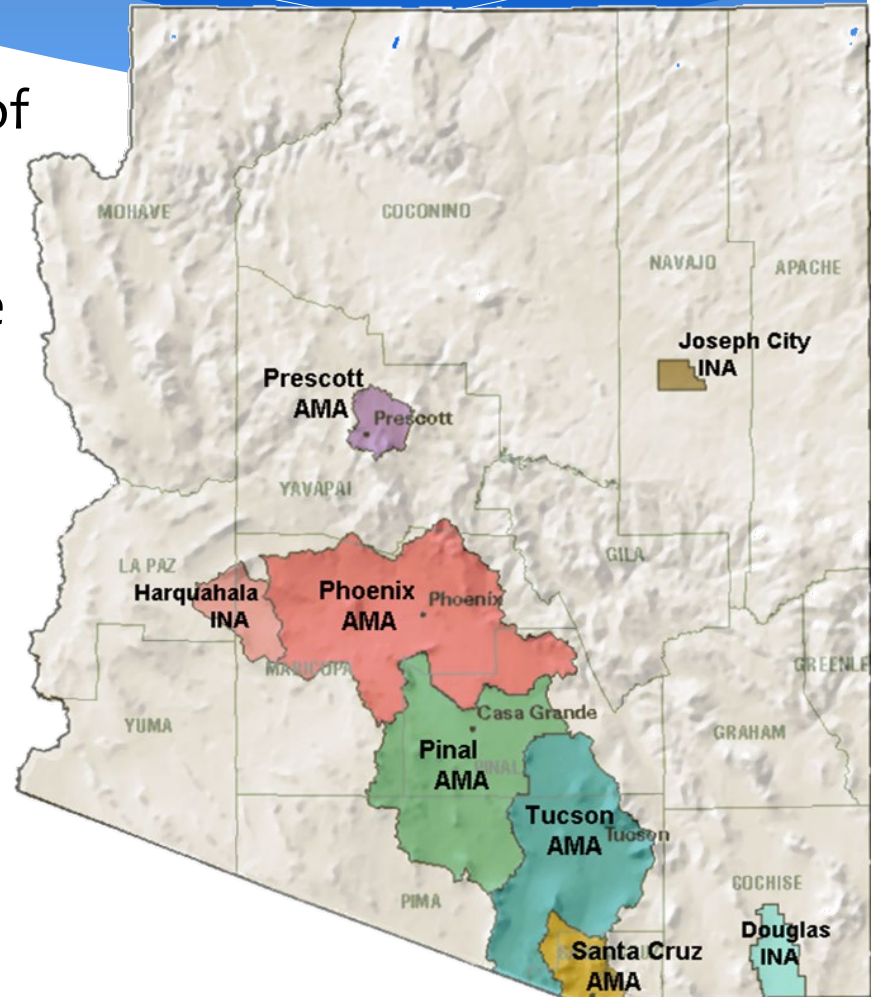
MANAGE

- *Groundwater Management Code
- *Adequate Water Supply
- *Assured Water Supply
- *Recharge & Recovery
- *Arizona Water Banking Authority



MANAGE – Groundwater Management Code

- Formed the Arizona Department of Water Resources
- Developed goals to control severe groundwater depletion
- Established Active Management Areas (AMAs) & Irrigation Non-Expansion Areas (INAs)
- Established water conservation regulations for water users & providers



MANAGE– Groundwater Management Code

- Registration of all wells
- Adequate Water Supply
- Community Water Systems Documentation

+

- Expansion of irrigated acres is prohibited
- Monitoring and Reporting

+

- Assured Water Supply
- Groundwater Withdrawal Fees
- Management Goals, Plans, & Conservation Programs

Statewide

INA

AMA



MANAGE - Adequate Water Supply

- Established in 1973 as a **Consumer advisory program**
 - Plats can be approved with inadequate determination
 - Disclosure of inadequate water supply required to first buyer
- **100- year Adequate Water Supply demonstration:**
 - Water Adequacy Reports, or
 - Serviced by water provider with Designation of Adequate Supply
- **Local governments can require adequacy**
 - Yuma County, Cochise County, Patagonia, Clarkdale



MANAGE- ASSURED Water Supply

- **Inside AMAs**
- **Established 1980; adopted 1995**
- **100-year AWS Demonstration:**
 - Certificate of Assured Supply, or
 - Commitment of Service by a water provider with Designation of Assured Supply
- **AWS is required for ADRE to issue Subdivision Public Report**

100 YEAR WATER SUPPLY REQUIREMENT:

Within most urban areas of the state a 100-year water supply must be proven before land can be developed.

100 YEAR WATER SUPPLY REQUIREMENTS

MUST BE:

- 
- ✓ LEGALLY AVAILABLE
 - ✓ FINANCIALLY AVAILABLE
 - ✓ GOOD QUALITY
 - ✓ PHYSICALLY AVAILABLE
 - ✓ MUST HAVE RENEWABLE SOURCES

MANAGE - Arizona Water Banking Authority

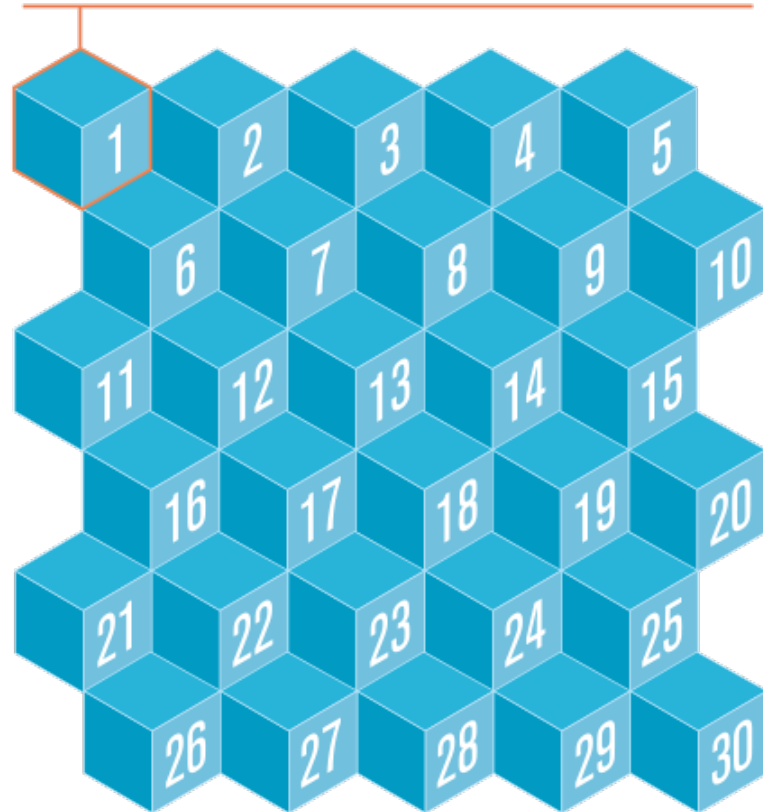
- Established 1996
- Stores unused Colorado River water to be used in times of shortage
- Bank stored **3.65 Million** acre-feet (**1.2 trillion** gallons)



MANAGE - Recharge

ARIZONA HAS STORED NEARLY 3 TRILLION GALLONS OF WATER FOR FUTURE USE. THAT IS EQUIVALENT TO SERVING THE CITY OF PHOENIX FOR 30 YEARS.

**CITY OF PHOENIX 1 YEAR WATER SUPPLY:
100 BILLION GALLONS**



Arizona Water Users Save Water for Non-Rainy Days



MONITOR

- * **AMA Water Users Annual Reports**
- * **Community Water Systems Report**
- * **Article V Decree Accounting Report**
- * **AWBA Annual Operating Plan**



Community Water systems (CWS)

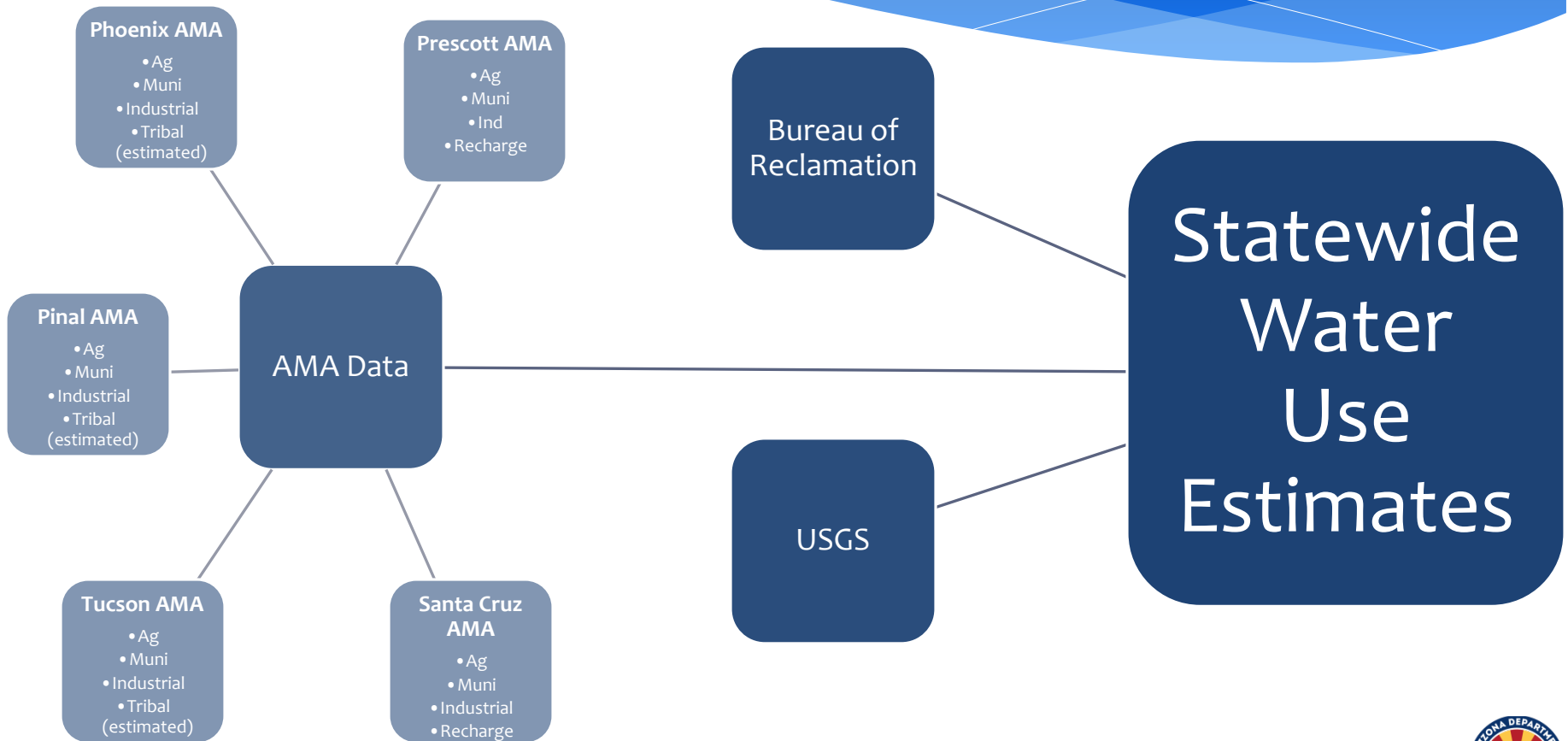
Community Water System (CWS) = Any drinking water provider that serves water to at least 15 connections or 25 year-round residents (from RV Parks to large cities).

Reporting Requirements:

- Annual Water Use Report
 - 5-year System Water Plan
 - Water Supply Plan
 - Drought Preparedness Plan
 - Conservation Plan
- Apply to all CWSs
 - ~200 large & ~600 small systems
 - Help CWSs reduce vulnerability to drought and be prepared to respond to drought & water shortage
 - Regulations established by the state legislature in 2005



ADWR Data Compilation



Compiled AMA data is available at new.azwater.gov/ama/ama-data
Statewide Water Use information is available at www.arizonawaterfacts.com



EVALUATE

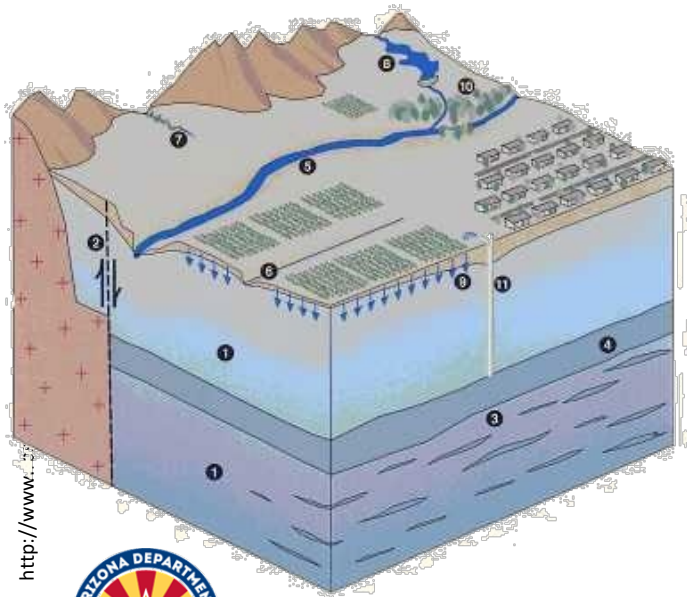
- * **Planning Studies**
- * **Use of Models**
 - * **Groundwater**
 - * **CRSS**
 - * **24 MS**
 - * **MTOM**
 - * **GoldSIM**



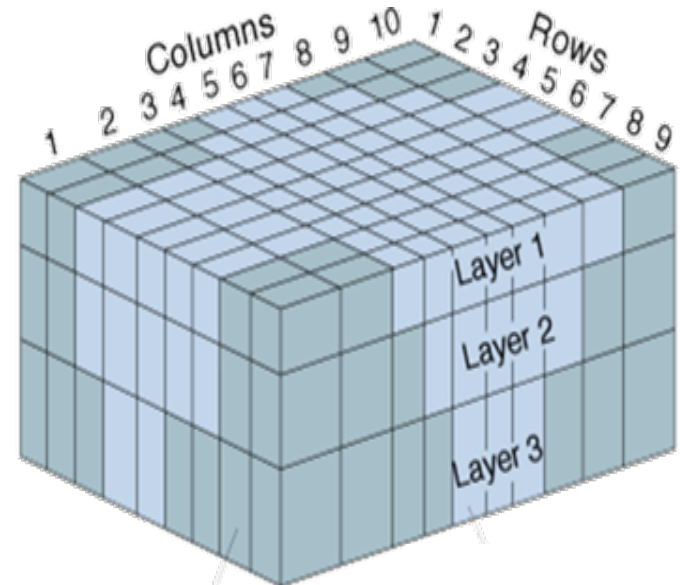
EVALUATE - ADWR Groundwater Modeling



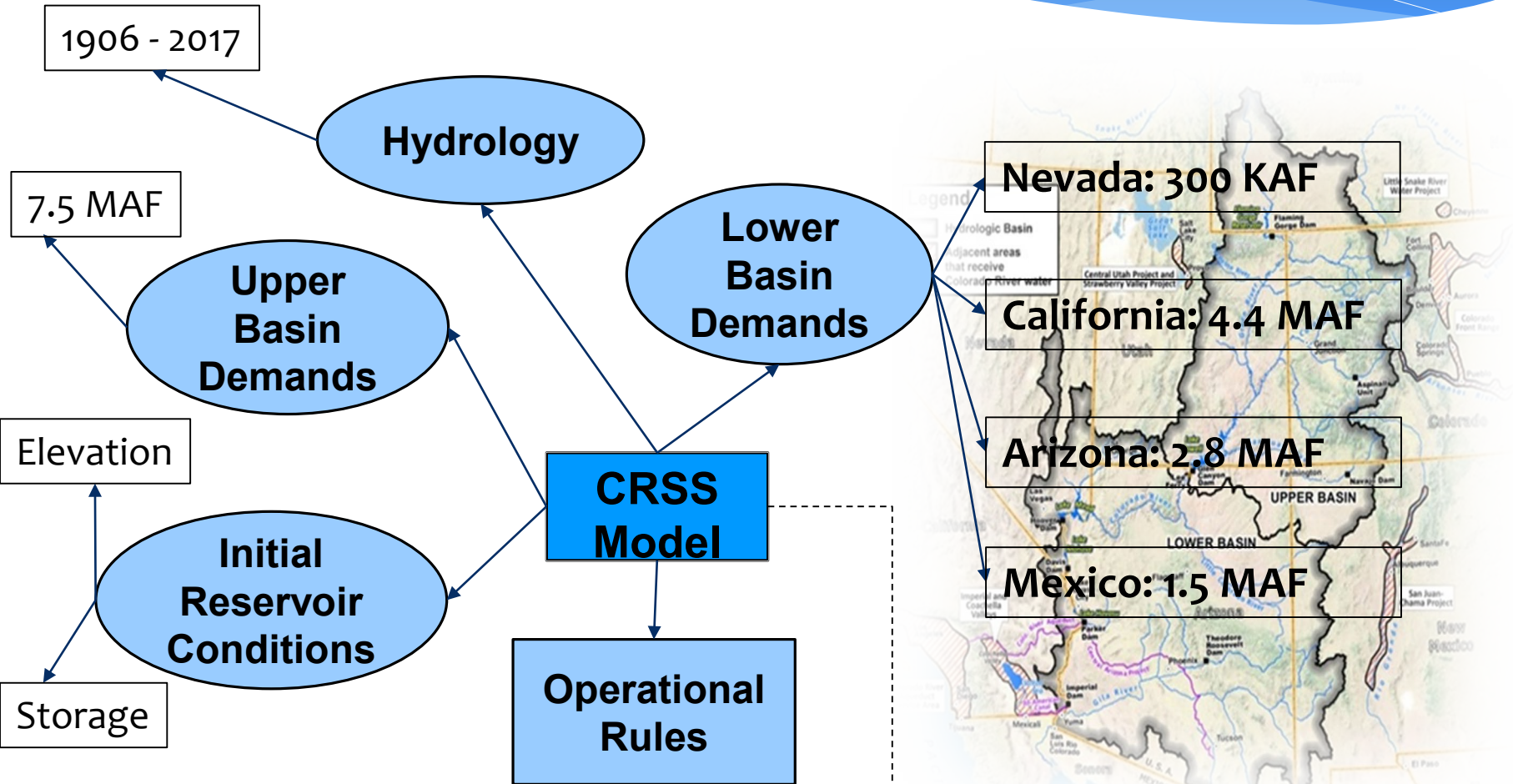
<http://farm2.static.flickr.com>



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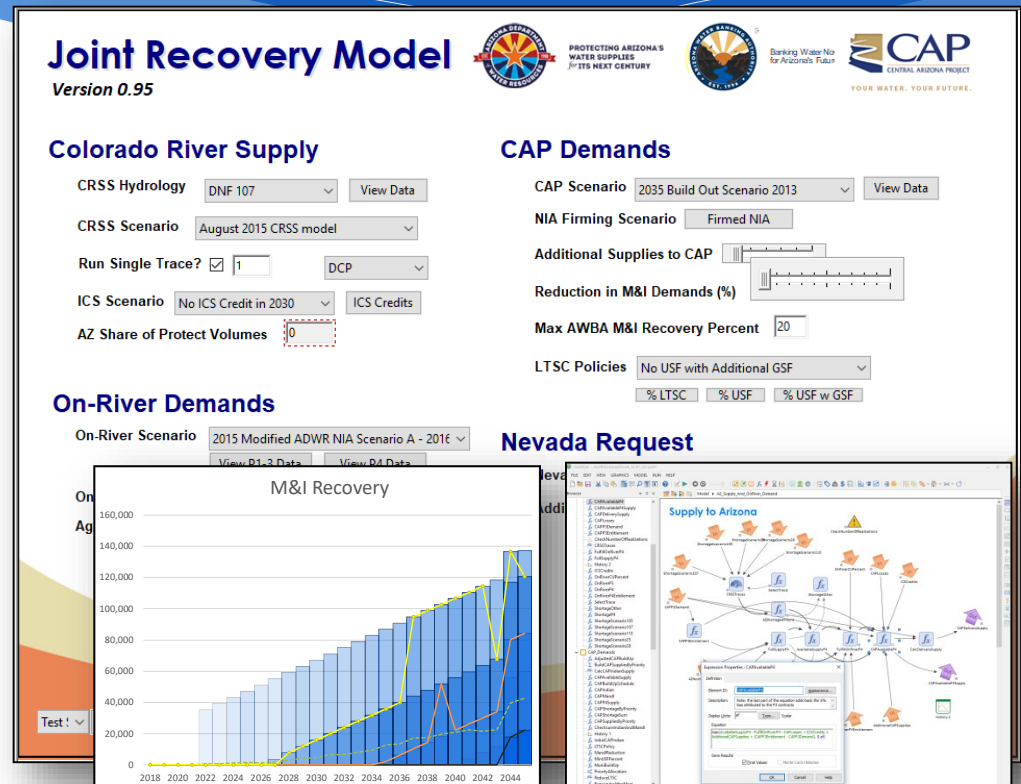


EVALUATE - Colorado River Modelling



EVALUATE - Joint Recovery Model

- * A tool for evaluating the timing, frequency and magnitude of AWBA recovery, over a wide range of scenarios
- * Also suitable for other types of shortage analysis
- * Part of an effort to develop shared analytical tools



ACTION

- *Governor's Council**
- *Management Plans**
- *Groundwater Users
Advisory Council**



ACTION - AMA Management Plans

5 Management Periods through 2025

5 Management Plans

- Contain the details for the implementation of the Groundwater Management Act in each AMA
- Conservation Programs for each sector (Ag., Muni., Ind.)
- Increasing conservation measures in each subsequent Plan
- Progressing toward the AMA's Management Goal

5 Management Goals

Phoenix, Prescott & Tucson AMAs:

To achieve safe-yield by the year 2025

Pinal AMA:

To preserve Agriculture economy for as long as feasible, while considering the need to preserve groundwater for future non-irrigation uses

Santa Cruz AMA

To maintain a safe-yield condition in the AMA and to prevent local water tables from experiencing long term declines



Governor's Water Augmentation, Innovation and Conservation Council

- * Created by Governor's Executive Order, January 31, 2019, as part of DCP
- * Investigate long-term augmentation to benefit Arizona, and strategies for conservation and innovation
- * Meets Quarterly and may form working groups
- * Chaired by Director of ADWR
- * Includes previous members of the GWAC plus Speaker of the House, President of the Senate and House and Senate Minority Leaders, or their legislative designees, plus others as appointed by the Governor
- * Shall consider a communication plan for Arizona to accurately convey Arizona's water resiliency and efforts to maintain resiliency going forward

Governor's Water Augmentation, Innovation & Conservation Council Committees

Post-2025 AMAs Committee: Identify water management challenges facing the AMAs and propose strategies to address them

Non-AMA Groundwater Committee: Better understand Arizona groundwater challenges in rural non-AMA areas; Identify and develop alternatives to address groundwater issues

Desalination Committee: Investigate desalination opportunities within the state to augment the state's water supplies

Long-term Augmentation Committee: Investigate weather modification, watershed management, recharge, storage, and other types of augmentation



Groundwater Users Advisory Council

MEMBERS:

- Groundwater Users Advisory Council (GUAC) for each AMA
- Consists of 5 members appointed by the Governor
- Serve a 6- years term (without compensation)

Duties & Responsibilities

- Advise the ADWR Director and the Area Director for the AMA
- Make recommendations on groundwater management programs and policies
- Comment on draft management plans before they are promulgated
- Make recommendations on expenditure of groundwater withdrawal fees to fund conservation, augmentation and research of water availability projects and programs

Arizona's Water Resource Challenges

Driving Forces

- Arizona has been experiencing long-term drought since the mid-90s
- Population & economic growth will increase demand for water

Short-term Challenges

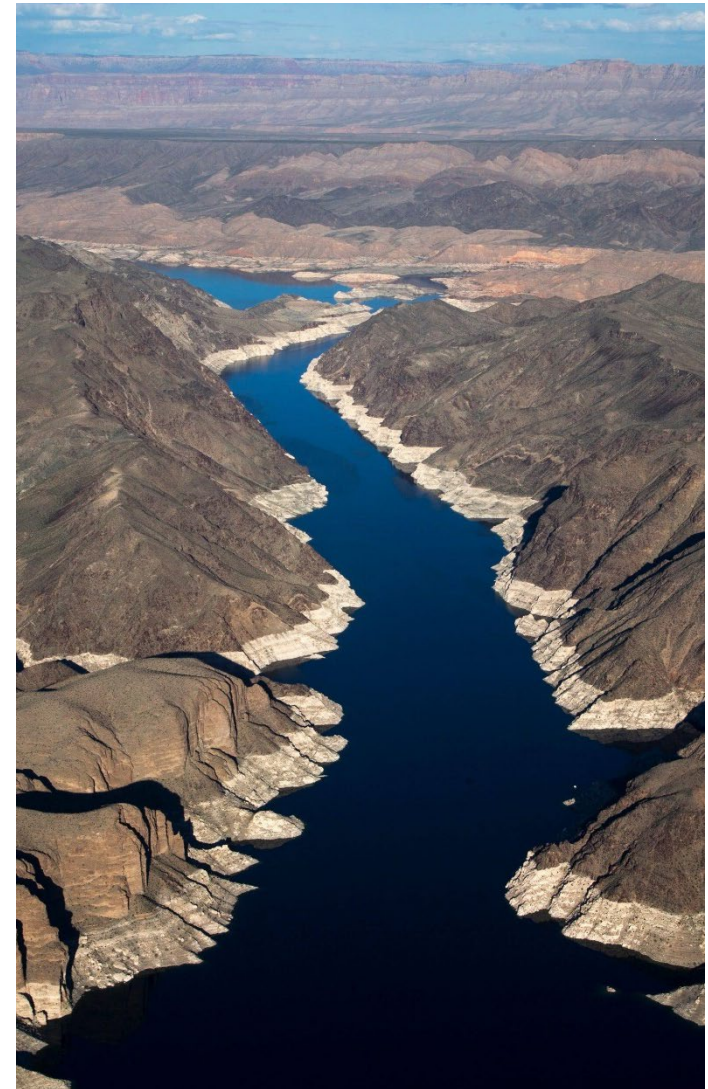
- Risks to Colorado River Supply
 - Shortage on the Colorado River System is likely at some point
 - Recurring Lower Basin structural deficit

Medium-term Challenges

- Water resources in rural areas of the state are more stressed
 - Primary water source is groundwater
 - Lack of groundwater regulation
 - Lack of groundwater data
 - Lack the resources to address their issues

Long-term Challenges

- Growing statewide imbalance between existing water supplies and demand projected in the next 25 years and 50 years



Questions?

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