



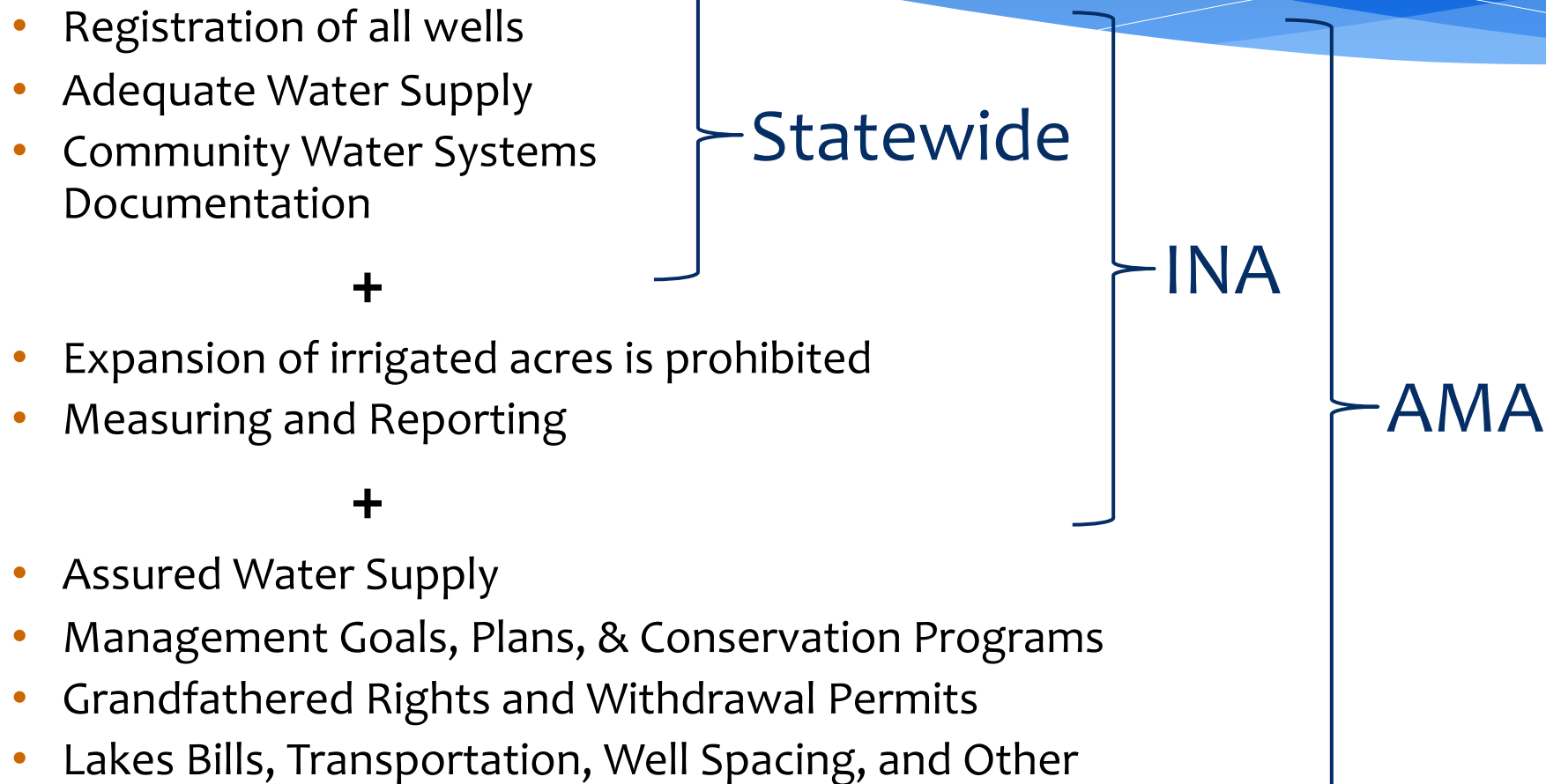
Managing Groundwater in Arizona

*Natalie Mast
AMA Director
Arizona Department of Water Resources*

*WRRC Conference
July 11, 2023*

Groundwater Management: Past

Regulatory Structure



Initial Active Management Areas (AMAs) & Irrigation Non-Expansion Areas (INAs)



Map from Phoenix AMA First Management Plan (1984)

Four AMAs

- Prescott AMA
- Phoenix AMA
- Pinal AMA
- Tucson AMA

Two INAs

- Joseph City INA
- Douglas INA (now superseded by Douglas AMA)

Also on this map: Harquahala INA (est. 1981)

Management Goals, Management Plans, & Conservation Programs

A.R.S. § 45-563 (A)

“The director shall develop a management plan for each initial active management area for each of five management periods... and shall adopt the plans only after public hearings... The plans shall include a continuing mandatory conservation program... designed to achieve reductions in withdrawals of groundwater.”



Management Goals

A.R.S. § 45-562 for Initial AMAs

A.R.S. § 45-569 for Subsequent AMAs

Safe-yield:

“A groundwater management goal which attempts to achieve and thereafter maintain a long-term balance between the annual amount of groundwater withdrawn in an active management area and the annual amount of natural and artificial recharge in the active management area.”

(A.R.S. § 45-561(12))

Prescott, Phoenix, and Tucson AMAs:

Safe-yield by the year 2025

Pinal AMA:

To allow development of non-irrigation uses and to preserve existing agricultural economies in the AMA for as long as feasible, consistent with the necessity to preserve future water supplies for 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

Management Plans

A.R.S. § 45-563 (A)

“The director shall develop a management plan for each initial active management area for each of five management periods... and shall adopt the plans only after public hearings... The plans shall include a continuing mandatory conservation program... designed to achieve reductions in withdrawals of groundwater.”

Assured & Adequate Water Supply

Requirements

Physical, Legal, & Continuous Availability

Financial Capability

Quality

Assured:
Consistency with Management Plan & Goal

Adequate Water Supply

Outside AMAs

Notification Step

- Water Report provided to first buyer – can indicate inadequate water supply

Mandatory Adequacy

Outside AMAs,
Local governments may opt-in

Permitting Step

- Required to obtain water adequacy report

Assured Water Supply

Inside AMAs

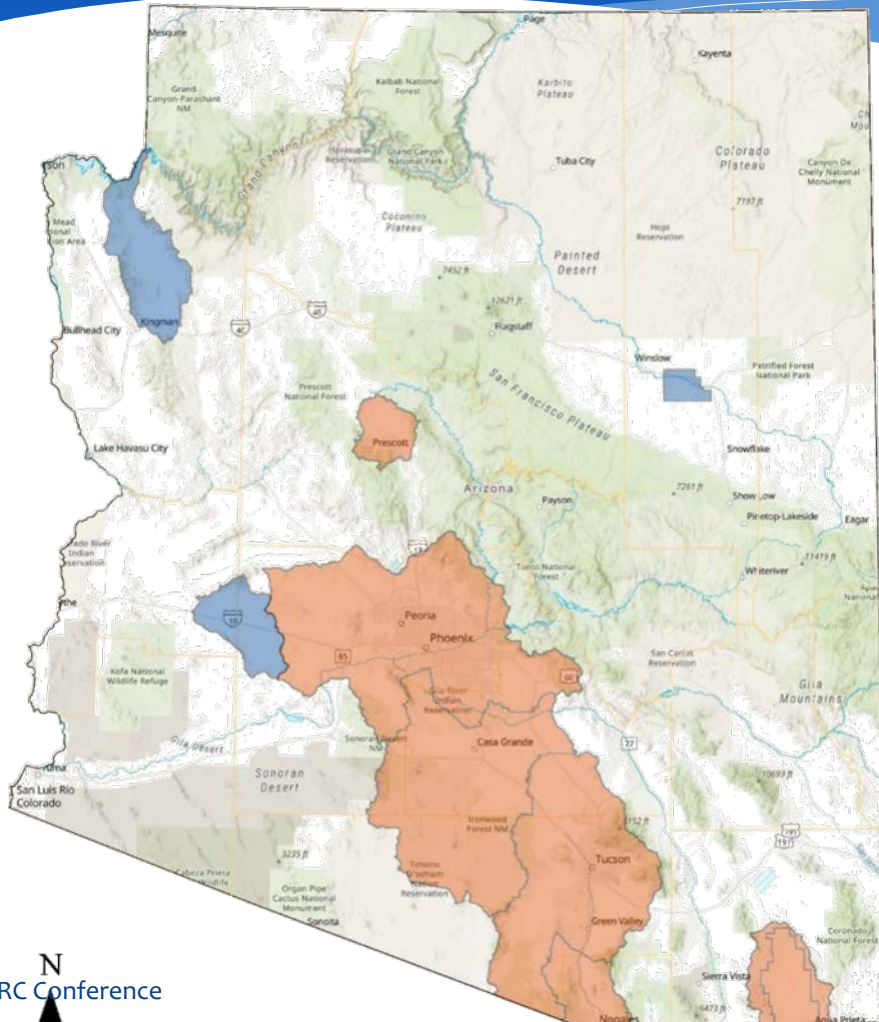
Permitting Step

- Required to obtain determination of Assured Water Supply

7/11/2023

Groundwater Management: Present

Existing Active Management Areas (AMAs) & Irrigation Non-Expansion Areas (INAs)



Six AMAs

- Prescott AMA
- Phoenix AMA
- Pinal AMA
- Tucson AMA
- Santa Cruz AMA (est. 1994, considered “initial”)
- Douglas AMA (est. December 1, 2022)

Three INAs

- Joseph City INA
- Harquahala INA (est. 1981)
- Hualapai Valley INA (est. December 19, 2022)

Methods to Establish a New...

Irrigation Non-Expansion Area

- Local Initiation (A.R.S. § 45-433)
 - Petition
 - Hearing
- Director Designation (A.R.S. § 45-432)
 - Hearing
 - Harquahala INA
 - Hualapai Valley INA

Active Management Area

- Local Initiation (A.R.S. § 45-415)
 - Petition
 - Election
 - Douglas AMA
 - Willcox – did not pass
- Director Designation (A.R.S. § 45-412 et seq)
 - Hearing

Subsequent INAs - Establishment

- Prohibition on the irrigation of acreage not historically irrigated
- Requirement for measurement of withdrawals from non-exempt wells
- Application for irrigation authorities
 - No deadline
- Annual reports

Subsequent AMAs - Establishment

- Prohibition on expansion of irrigated acres
- Measuring and reporting requirements
- ~~Withdrawal fees (not authorized)~~
- Creation of GUAC
- Management Goal
 - A.R.S. § 45-569(A)
- Management Plan
 - A.R.S. § 45-569(B)
- Wells Requirements
 - Impact Analysis for new Non-Exempt Wells
- Grandfathered Rights and Withdrawal Authorities
 - Applications available: <https://new.azwater.gov/ama/douglas-ama>
- Assured Water Supply

Management Goals

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A.R.S. § 45-569 for Subsequent AMAs

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(A.R.S. § 45-561(12))

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Santa Cruz AMA:

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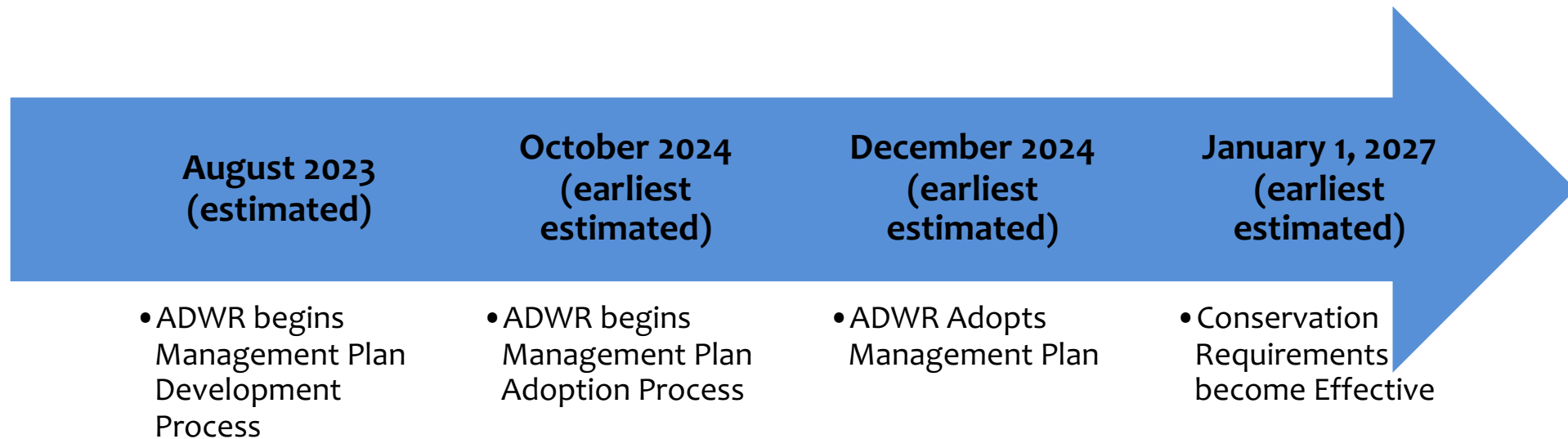
Douglas AMA (PROPOSED):

To support the general economy and welfare of water users in the basin by attempting to reduce the rate of aquifer depletion by 2035 and every 10 years thereafter.

Management Goal Process & Timeline



Management Plan



Types of Grandfathered Rights (GFRs)

- **Irrigation Grandfathered Right (IGFR or IGR)**
 - Allows the holder to irrigate acres of land that were irrigated in the five years preceding the call for the election
 - Tied to the land
- **Type 1 Non-Irrigation GFRs**
 - Created from the permanent retirement of an IGFR, may be used for non-irrigation purposes
 - Maximum of 3 acre-feet/acre, but may be less
- **Type 2 Non-Irrigation GFRs**
 - Right that can be used for non-irrigation purposes, based on non-irrigation pumping in the five years preceding the designation of the AMA
 - Flexible, may be sold separately from the land. May not be divided, but a portion may be leased, and it may be used anywhere within the AMA

Douglas AMA GFR Application Deadline: March 1, 2024

“... a person claiming the right to withdraw or receive and use groundwater pursuant to a grandfathered right shall file an application for a certificate of grandfathered right with the department not later than fifteen months after the date of the designation of the active management area...” (A.R.S. 45-476(A))

Failure to apply for a GFR by the deadline will result in the waiver and relinquishment of any right to use groundwater.

Applications available: <https://new.azwater.gov/ama/douglas-ama>

Groundwater Management: Future

Governor's Water Policy Council



- Created by Executive Order on January 9, 2023
- Tasked with providing recommendations to update, revise, and improve Arizona's water management framework

1) The Governor's Water Policy Council (the "Council") is created to analyze and recommend updates, revisions and additions to the GMA and related water legislation, which shall include, without limitation, analysis and recommendations for groundwater management outside current Active Management Areas.

Objective: AWS Review & Recommendations

Objective:

Review and make recommendations for changes to Assured Water Supply policies—legislatively, administratively, or by executive action—to address the challenges revealed by Assured Water Supply modeling projections, while continuing to:

- strengthen the integrity of the Assured Water Supply program,
- protect consumers and aquifers, and
- ensure future growth is not reliant on mined groundwater.

AWS Principles

- Proposals must protect the strength and integrity of the Assured Water Supply program.
- Proposals should enable future growth without reliance on mined groundwater.
- Proposals may not reduce the 100-year requirement or increase the depth to which groundwater may be pumped.
- Proposals must ensure there is water before growth.
- Proposals must protect consumers.

Objective: Recommendations for a Water Management Framework

Objective:

Develop recommendations for a water management framework to assist rural Arizona communities to manage their groundwater resources.


"The Governor's Water Policy Council is created to analyze and recommend updates, revisions and additions to the GMA and related water legislation, which shall include, without limitation, analysis and recommendations for groundwater management outside current Active Management Areas."

Data & Analysis

ADWR Data

Basin Name, Sub-Basin Name: All | Measurement Source: All | Measurement Remarks: All | Measurement Method: All | Measurement Date: 3/29/1891 - 7/6/2023

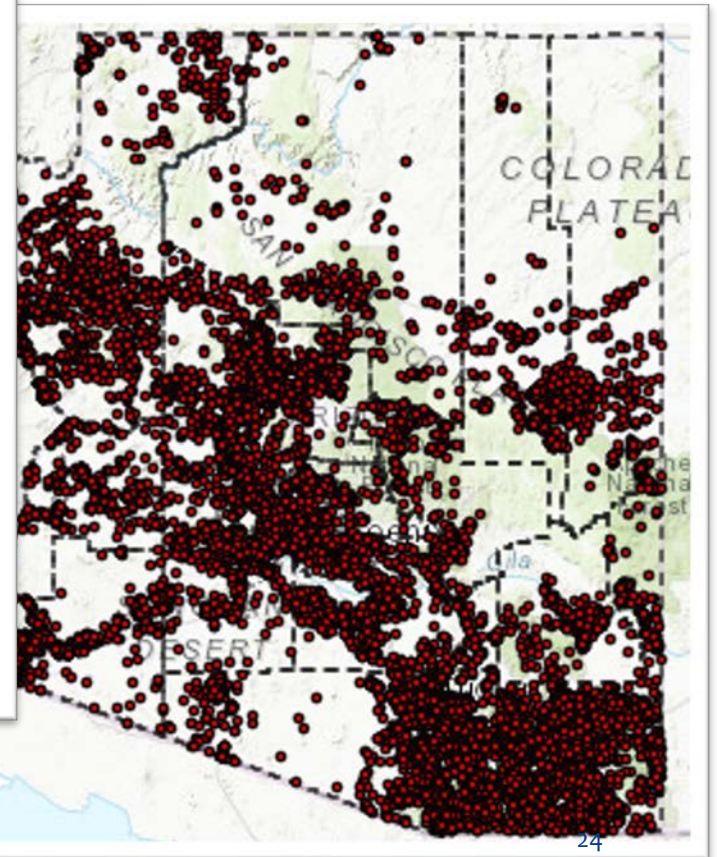
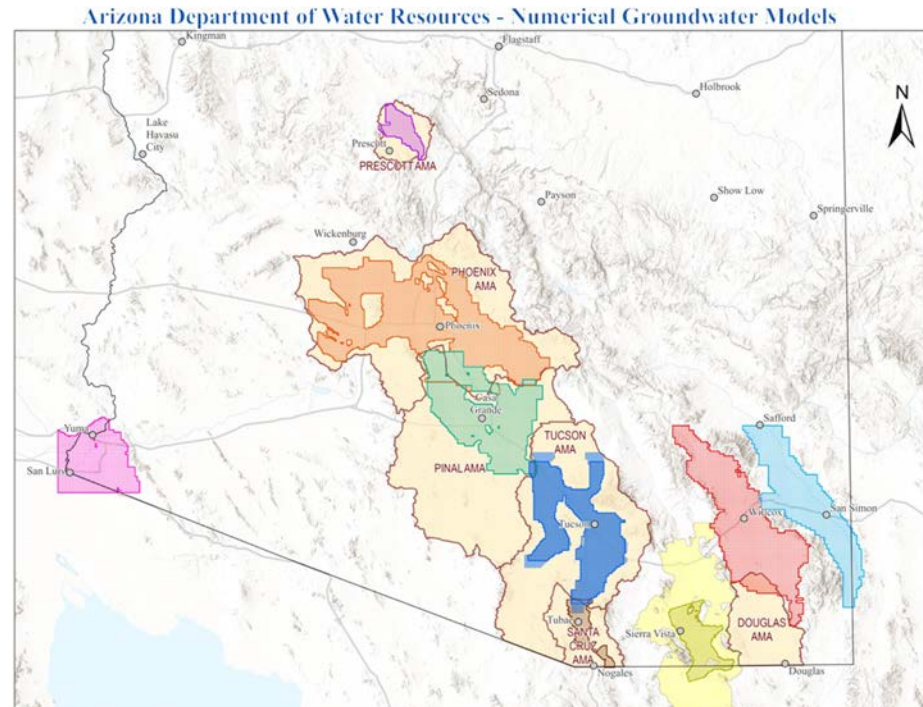
Number of Sub-Basins Displayed: 84



Depth-To-Water (DTW) Statistics by Basin - Discrete Water Level Measurements

Basin Name	Count DTW	Max DTW	Min DTW	Avg DTW	Median DTW	Std Dev DTW	Remarkd W/Ls
AGUA FRIA BASIN	827	574.00	0.00	76.15	39.50	111.43	75
ARAVAIPA CANYON BASIN	465	622.40	3.71	65.50	59.60	61.33	62
BIG SANDY BASIN	1,436	951.70	0.00	136.51	68.42	169.80	133

- BILL WILLIAMS BASIN
- BONITA CREEK BASIN
- BUTLER VALLEY BASIN
- CIENEGA CREEK BASIN
- COCONINO PLATEAU BASIN
- DETRITAL VALLEY BASIN
- DONNELLY WASH BASIN
- DOUGLAS BASIN
- DRIPPING SPRING WASH B
- DUNCAN VALLEY BASIN
- GILA BEND BASIN
- GRAND WASH BASIN
- HARQUAHALA BASIN
- HUALAPAI VALLEY BASIN
- KANAB PLATEAU BASIN
- LAKE HAVASU BASIN
- LAKE MOHAVE BASIN
- LITTLE COLORADO RIVER P BASIN
- LOWER GILA BASIN
- LOWER SAN PEDRO BASIN
- MCMULLEN VALLEY BASIN
- MEADVIEW BASIN
- MORENCI BASIN
- PARIA BASIN
- PAVEDO BASIN
- Total



ARIZONA DEPARTMENT OF WATER RESOURCES, 1110 W. WASHINGTON ST. SUITE 310, PHOENIX, AZ 85007

ANNUAL WATER WITHDRAWAL AND USE REPORT SHORT FORM 2022

OWNER OF GROUNDWATER RIGHT

TYPE OF RIGHT

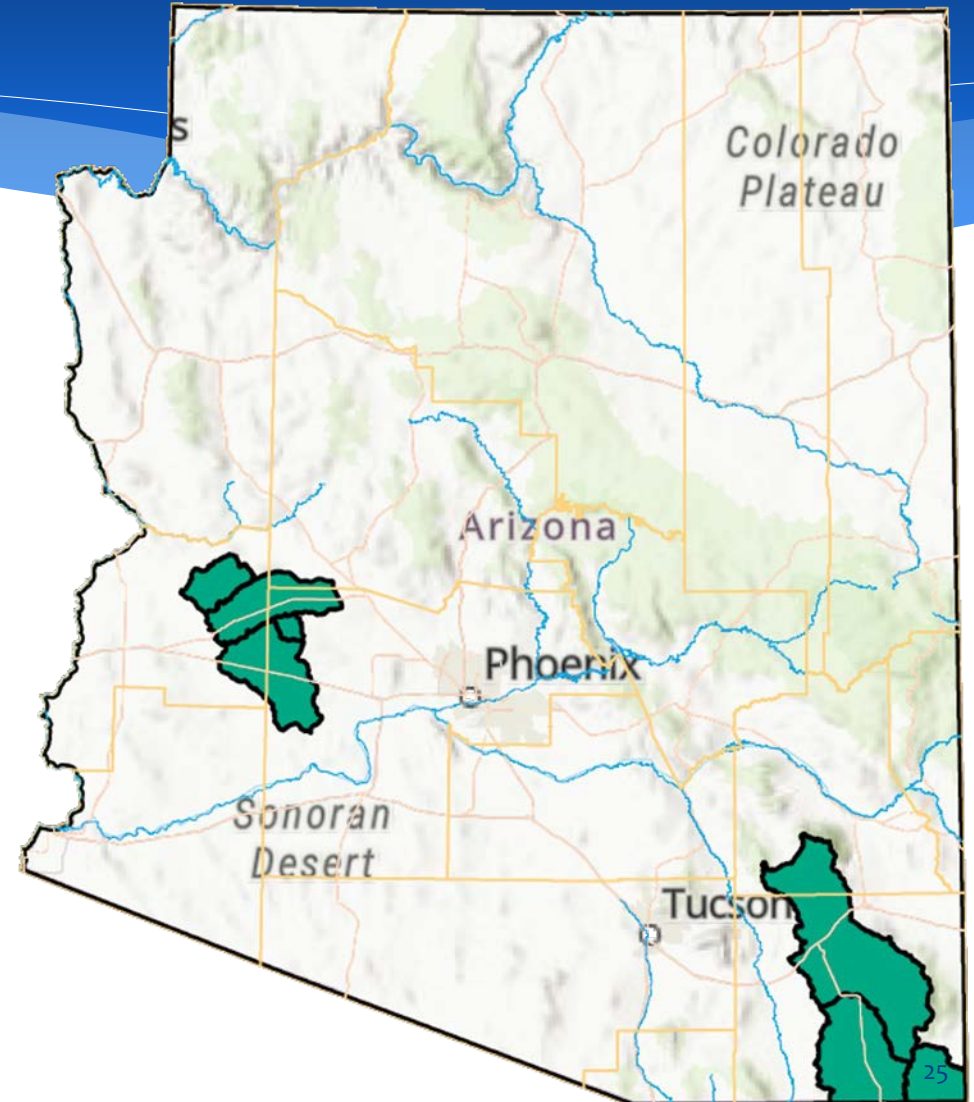
RIGHT/PERMIT NO.



Water Supply & Demand Analysis

A.R.S. § 45-105(B)(14)

“Not later than December 1, 2023 and on or before December 1 of each year thereafter, prepare and issue a water supply and demand assessment for at least six of the [fifty-one] groundwater basins established pursuant to section 45-403. The director shall ensure that a water supply and demand assessment is completed for all groundwater basins at least once every five years...”



“In Arizona, we’re going to have to make tough policy choices about water management. We’ll have to make choices about which aspects of our lifestyle we can give up and which we will maintain.”

ADWR Director Tom Buschatzke

Questions?

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AMA Director

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PROTECTING
ARIZONA'S WATER SUPPLIES
for **CURRENT & FUTURE GENERATIONS**