Welcome

The meeting will begin shortly, in the meantime please:

- Keep your microphone muted during the meeting
- If you have a question/comment during the meeting type it in the chat box and it will be read and addressed
- If you experience any technical difficulties, please contact ADWR Help Desk at 602-771-8444 or tickets@azwater.gov

Phoenix Active Management Area Groundwater Users Advisory Council

June 2nd 2026

Meeting Agenda

1. Call to Order – Welcome & Introductions (*Chair*)

2. Meeting Logistics (*Cali Mauri, ADWR*)

3. Water Management Assistance Program (WMAP) Updates (*Tommy Thiatmaja, ADWR*)

Discussion and report of the WMAP fund balance.

4. WMAP Project Presentations

a) Arizona Project WET (*Lisa Townsend)*

Presentation on the accomplishments of Arizona Project WET, discussion and consideration of action to renew the contract.

b) El Mirage Water Conservation Program (*Nick Russo*)

Presentation on the accomplishments of the El Mirage Water Conservation Program.

c) Arizona Water Company (*James Wilson*)

Presentation on the accomplishments of the Arizona Water Company.

5. Hydrology Presentation (*Joe Holland, ADWR*)

Presentation on groundwater levels within the Phoenix AMA.

6. Call to the council (*Chair*)

7. Call to the public (*Chair*)

8. Adjournment (*Chair*)

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Meeting Logistics

- For guests joining online:
  - Please keep your microphone muted during the meeting
  - Type your question/comment in the chat box and it will be read and addressed
- During the Call to Public attendees will have the option to speak to the Council
- With any technical difficulties please contact ADWR Help Desk at 602-771-8444 or tickets@azwater.gov
- If you would like to be added to the GUAC mailing list, please email cmauri@azwater.gov stating: "Add (your email) to Phoenix AMA GUAC Mailing List"
- This meeting is being recording and will be posted to ADWR's website

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Water Management Assistance Program Fund

Current Balance: $754,163

Encumbered/committed: $454,645

Remaining Balance: $299,518

Phoenix Active Management Area
Groundwater Withdrawal Information

Year		2021	2022	2023	2024	2025	2026
WMAP	Fee	$0.25	$0.25	$0.25	$0.30	$0.35	$0.35
	Collected	$189,539	$206,495	$162,030	$229,462	$244,714	N/A
Admin & Enforcement	Fee	$0.50	$0.50	$0.50	$0.50	$0.50	$0.50
	Collected	$381,806	$412,991	$324,060	$327,803	$349,590	N/A
Water Bank	Fee	$2.50	$2.50	$2.50	$2.50	$2.50	$2.50
	Collected	$1,909,032	$2,064,955	$1,620,704	$1,639,014	$1,733,916	N/A
Total	Fee	$3.25	$3.25	$3.25	$3.30	$3.35	$3.35
	Collected*	$2,743,231	$2,906,467	$2,350,958	$2,418,368	$2,533,842	N/A

*In addition to WMAP, Admin & Enforcement and Water Bank, amount includes late fees, recovery wells fee, and Water Quality Fund fee

Current Projects being funded WMAP:

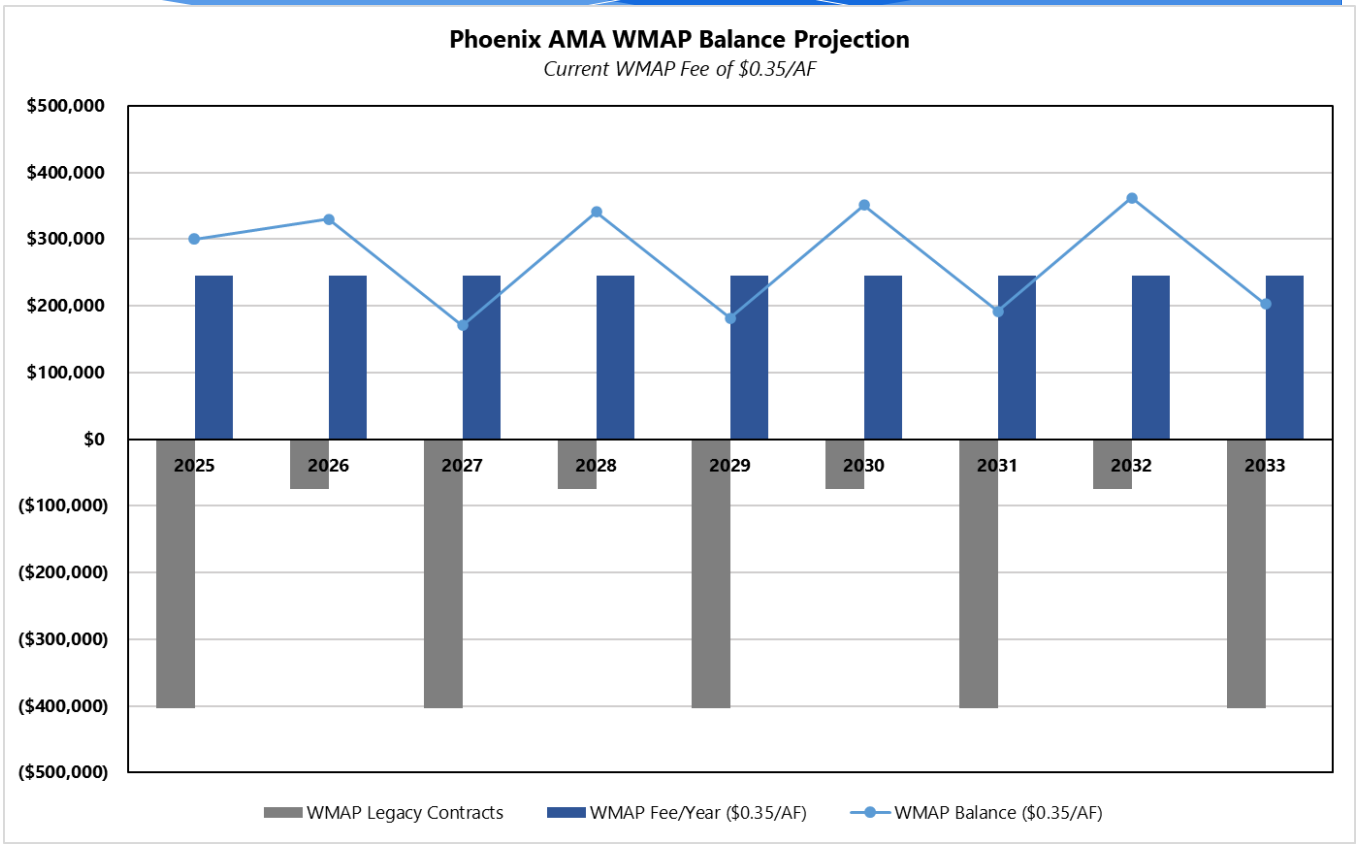
PROJECT NAME	CONTRACTOR	TOTAL FUNDING	REMAINING FUNDING	CONTRACT ENDS
Arizona Project WET	University of Arizona	$75,000	$15,000	7/31/2026
Residential Water Use	City of Phoenix	$139,000	$139,000	2/28/2027
Smartscape Professional Landscape Training	University of Arizona	$112,861	$84,646	8/30/2027
Water Conservation Management Program (WCMP)	Buckeye Valley Natural Resources Conservation District (NRCD)	$216,000	$216,000	12/31/2027

Current Projects being funded Groundwater Conservation Grant Projects:

PROJECT NAME	CONTRACTOR	TOTAL FUNDING	REMAINING FUNDING	CONTRACT ENDS
Using Project-Based STEM Education to Enhance Groundwater Conservation in Maricopa County Schools	University of Arizona – Arizona Project WET	$195,855	$0	Completed
Northern Avenue Lateral Surface Water Capacity Restoration	Maricopa Water District	$251,500	$0	Completed
El Mirage Water Conservation Program	City of El Mirage	$150,000	$0	Completed
Pecan to New Magma Reclaim Water Line	EPCOR Water	$250,000	$0	Terminated
Leak Detection Equipment Replacement	Arizona Water Company	$60,000	$0	Completed

Phoenix Active Management Area
WMAP Fee Projections $0.35:

Year	WMAP Fee/AF	WMAP Fee/Year	Cost of WMAP Legacy Contracts	Unobligated WMAP Balance	Unobligated WMAP Balance (After City of Phoenix Payout)
2025	**$0.35**	**$244,714**	**($403,861.00)**	**$299,518**	**$299,518**
2026	$0.35	$244,714	($75,000.00)	$469,232	$330,232
2027	$0.35	$244,714	($403,861.00)	$310,085	$171,085
2028	$0.35	$244,714	($75,000.00)	$479,799	$340,799
2029	$0.35	$244,714	($403,861.00)	$320,652	$181,652
2030	$0.35	$244,714	($75,000.00)	$490,366	$351,366
2031	$0.35	$244,714	($403,861.00)	$331,219	$192,219
2032	$0.35	$244,714	($75,000.00)	$500,933	$361,933
2033	$0.35	$244,714	($403,861.00)	$341,786	$202,786



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EXPERIENTIAL ENVIRONMENTAL EDUCATIONAL

Water Engagement in the Phoenix AMA

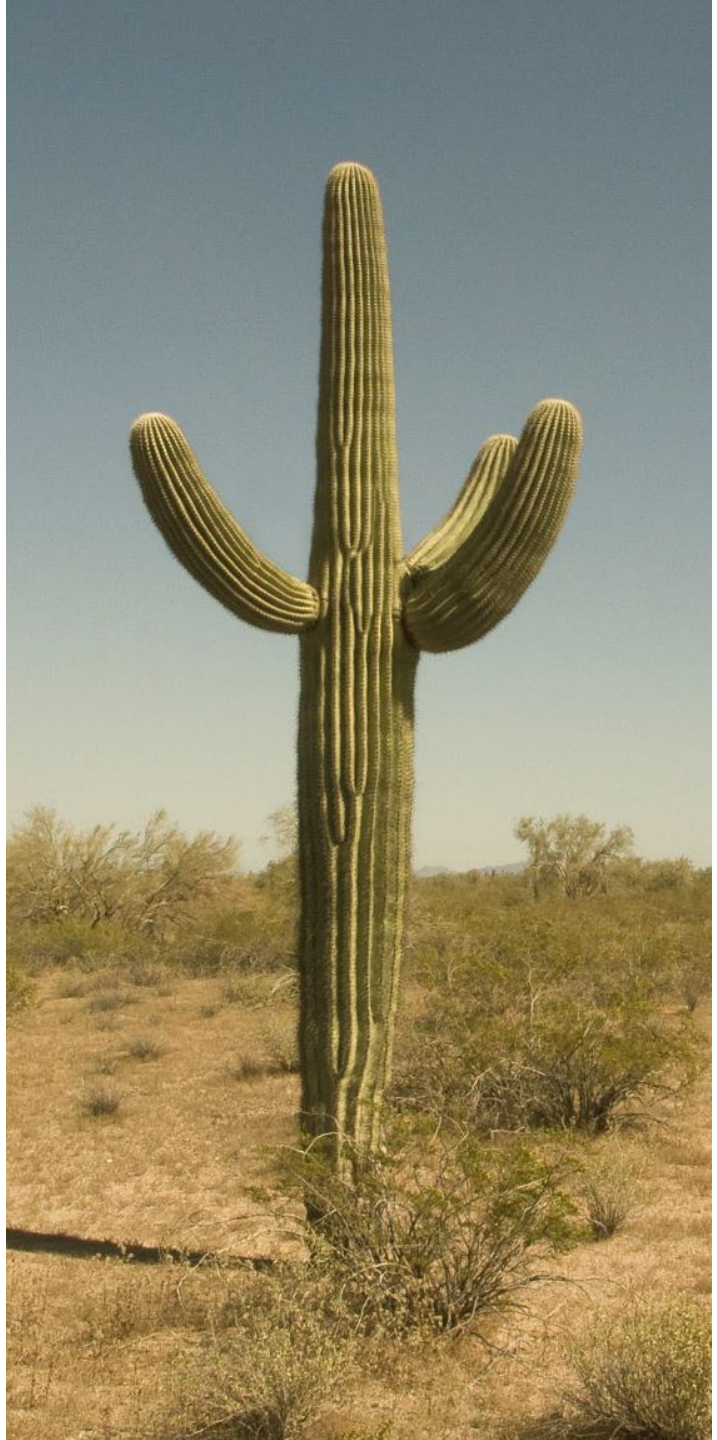
Cooperative Extension

ARIZONA project WET
WATER EDUCATION TODAY

Arizona Project WET

Since 1995

It is imperative that Arizonans understand the interconnectedness of water resources from a local, regional, and global perspective. Arizona Project WET (APW) brings to the surface water-use practices that affect availability, dependability, access, and sustainability. APW program objectives, centered in the unifying theme of water, engage teachers and students while bringing real-world relevancy to science, technology, engineering, art, and mathematics (STEAM) learning.



APW supports water stewardship and STEAM literacy by authentically and meaningfully engaging educators, students, and community members. Arizona Project WET's mission is to meet the needs of our community by using relevant, research-based educational strategies and techniques in helping people develop knowledge and skills that equip them to act for water stewardship. The APW team delivers water-focused programming with exceptional skill: meaningfully connecting content to participant and participant to action.

Water Cycle

Students track the movement of water molecules through the Arizona landscape reflecting the morphing, flowing, cyclical nature of water. The form and function of water varies depending on the molecules' position in the cycle. Students (and adults) reflect on how they fit into the closed circuit and the implications of human impact.

Groundwater

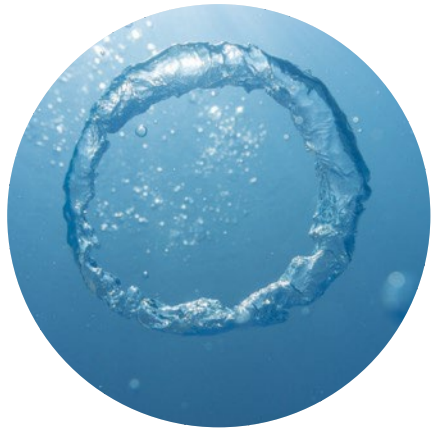
Students manipulate groundwater models to interpret the connection between groundwater recharge and discharge. Precipitation flowing through the watershed percolates into the ground and well-pumped groundwater affects the levels of surface water. Making water-wise choices and adopting water conservation practices helps lower the risk of overdraft and subsidence. Students reflect on how they might use/misuse groundwater.

Watershed

Students gather insights into the features of a watershed, exchanges between the elements, and the effects of human impact. Water flowing through our resident watershed(s) supports all life in the region. Students reflect on how their behaviors may help or hinder watershed health.

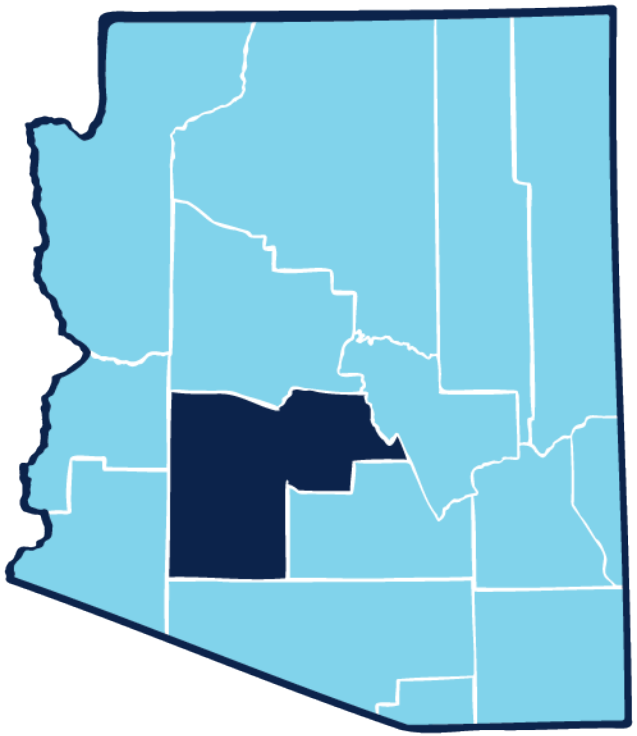
Water Sustainability

Students synthesize their water cycle, groundwater, and watershed reflections by connecting the challenges facing Arizonans to mindful, sustainable, and practical personal choices. Program participants commit to water conservation!



The purpose of this program is to educate K-12 students about their interconnected water resources and their importance to Arizona's future in support of Phoenix AMA's statutory goal of safe yield. Project goals target competency in understanding, modeling, and practice:

- Surface water in terms of a watershed components, dynamics, and its role in the hydrologic cycle
- The groundwater system in terms of its components, composition, and its role in the hydrologic cycle
- The effect of snowpack on water flow in a watershed
- The movement of water through diverse substrates
- Surface water/groundwater connections in Arizona
- Surface water management through containment, storage, and distribution
- Run-off and Pollution Reduction; maintaining and improving water quality
- Colorado River system allocations and uses
- The Central Arizona Project and the Shortage Sharing Agreements on the Colorado River
- Groundwater recharge and the Arizona Water Bank
- Water reuse and augmentation
- Water conservation technology
- The engineering design process



Task 1: Teacher Multi-Session Workshops
APW shall conduct 2 multi-day academies reaching 40+ educators within the Phoenix AMA. Educators will improve their skills in engaging learners in real-world, relevant science, technology, engineering, and math practices that focus on systems thinking and project-based problem solving. Participants will leave these workshops with myriad resources, and a supportive cohort, to lead their students through meaningful, Phoenix-centric applications of water-science instructional concepts.

Task 2: Teacher Single-Session Workshops
APW shall conduct up to 4 Single-Session workshops reaching 60+ educators within the Phoenix AMA. Participants will improve their skills in engaging students in real-world and relevant science, technology, engineering, and math learning that focuses on systems thinking and problem solving.

<u>Direct Student Outreach</u>
The Groundwater System
The groundwater system is one of Arizona's most important water reserves. Increasingly, in many areas of the state, water storage is managed by using the groundwater system. Arizona students are eager to understand this crucial system and its place in the water cycle. This ensures that water users also self-identify as sustainable decision makers: I/we manage this resource together.

Task 3: APW will deliver at least 12 Arizona Water Festivals for 4th grade students within the Phoenix AMA.

Task 4: APW will facilitate 20 Groundwater presentations for students within the Phoenix AMA.

Task 5: APW will stage the Water Scene Investigation Program in 2 Middle schools in the Phoenix AMA.

Task 6: APW will grow Planting for a Rainy Day, the Rainwater Harvesting Program, with 1 High School within the Phoenix AMA.

SRP Academy

Foundations of Water Education
Climate, Water, and Resilience

SRP Academy was held June 2nd – 6th 2025

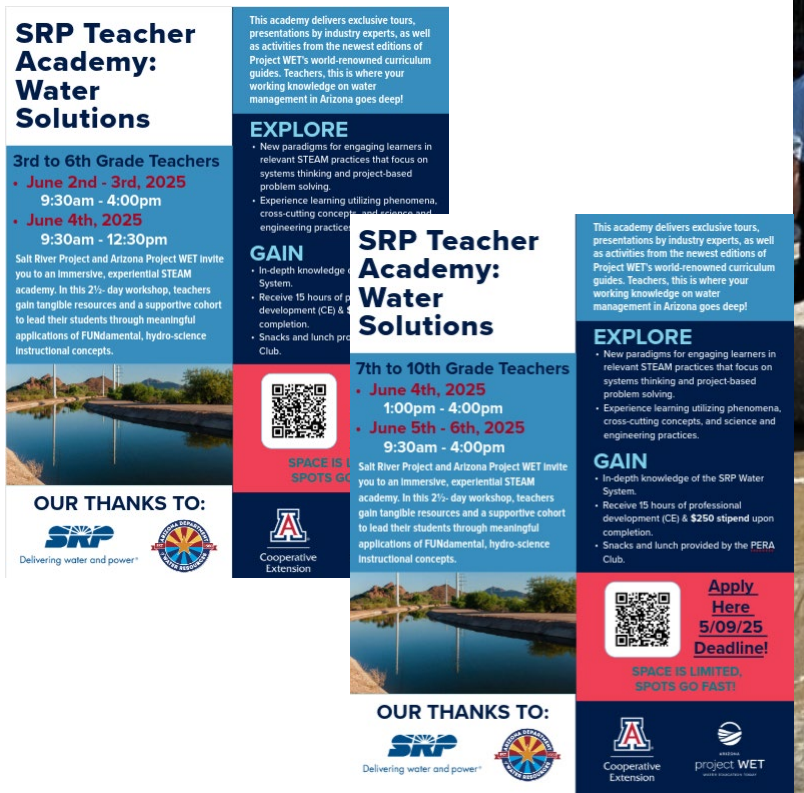
SRP's PERA Club: 1 E Continental Dr, Tempe, AZ 85288

- We had 21, 3rd-6th grade teachers attend from June 2nd-4th
- We had 7, 7th-10th grade teachers attend from June 4th-6th

Making Connections,

Gaining Perspective, and

Fostering Creativity



Foundations of Water Education

An APW and SRP STEAM Academy
June 2nd – 4th, 2025

In this 2.5-day academy, participants will apply Science and Engineering Practices and Cross-cutting Concepts to explore the Salt River Project (SRP) system. Educators will hear from SRP experts and visit Arizona Falls on the Arizona Canal to see, in person, parts of this amazing system. By the end of the workshop, participants will know how water from the Salt River Project system is essential to the environmental and socio-economic well-being of over 2.5 million people in the Phoenix metropolitan area. The *Foundations of Water Education* Academy is for upper, primary grade-level educators and hosted at the PERA Club in Tempe.

Educators improve their skills in engaging learners with relevant science, technology, engineering, and math practices that focus on systems thinking and project-based problem solving. Participants will leave these workshops with tangible resources, and a supportive cohort, to lead their students through meaningful applications of hydro-science instructional concepts.

Guiding Question(s):
How does Salt River Project ensure a reliable water supply for me, my students, and my community in the greater Phoenix metropolitan area… now and for years to come?

Learning Objectives:
Diversify teachers' instructional practice(s) and water-related content mastery through STEAM integration, student-directed learning, real-world application, and collaborative work. Deepen teachers' understanding of SRP's complex and invaluable water distribution system which provides approximately 50% of the Phoenix metropolitan area's water supply. Model activities for teachers, so that they may engage students in STEAM learning centered in the SRP system.

- **Model** the watershed including the groundwater system.
- **Describe** relationships between surface water and groundwater.
- **Relate** forest health to the stability of our watershed and water quality, including the impacts of vegetation, precipitation, development, drought, and fire on the Salt River and Verde River watersheds.
- **Engineer** a solution to use water within a river system to produce energy.
- **Design** the engineered SRP water management system of the Verde and Salt River.

Evaluation – participant pre and post Academy surveys reveal gains in understanding and skill.
Outcomes – participants will be able to model water sources, systems, and cycles, identifying their role as water users, and then consider/apply conservation best practices.

Climate, Water, and Resilience

An APW and SRP STEAM Academy
June 4th – 6th, 2025

In this 2 ½ -day academy, participants will apply Science and Engineering Practices and Cross-cutting Concepts to explore the Salt River Project (SRP) system. Educators will hear from SRP experts and visit "The Lab" to see, in person, this amazing operation. By the end of the workshop, participants will know how water from the Salt River Project system is essential to the environmental and socio-economic well-being of over 2.5 million people in the Phoenix metropolitan area. The *Foundations of Water Education* Academy is for secondary grade-level educators and hosted at the PERA Club in Tempe.

Educators improve their skills in engaging learners with relevant science, technology, engineering, and math practices that focus on systems thinking and project-based problem solving. Participants will leave these workshops with tangible resources, and a supportive cohort, to lead their students through meaningful applications of hydro-science instructional concepts.

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CAP Academy

Exploring the Colorado River

CAP Academy was held June 16th – 17th 2025
CAP Headquarters: 23636 N. Seventh St., Phoenix, AZ 85024
16, 5th-12th grade teachers in attendance

Making Connections,

Gaining Perspective, and

Fostering Creativity

Arizona project WET WATER EDUCATION TODAY

CAP Teacher Academy: Exploring the Colorado River
2-Day Academy
June 16th & 17th, 2025

Summary:

In this 2-day academy, participants will apply Science & Engineering Practices and Cross-cutting Concepts to explore the Colorado River Watershed. They will consider positions and perspectives regarding water access and use with evidence from past, present, and future Colorado River management plans.

At the workshop's conclusion, participants will make evident how Colorado River water from the Central Arizona Project aqueduct is essential to Arizona's environmental well-being and socio-economic success.

Guiding Question(s):

Does Arizona have a reliable and sustainable, long-term Colorado River water supply?

Can we ensure a reliable Colorado River water supply in Arizona for the next 50 years?

Learning Objectives:

By the end of this workshop, participants will be able to:

- **Reconstruct** the parts of Colorado River watershed including the inputs and outputs that affect the flow of water within the system over time.
- **Relate** the cause and effect of human impact on the surface water of the Colorado River basin/watershed.
- **Create** models and design solutions for ongoing Colorado River water management and distribution.

Evaluation:
Participants will be surveyed before and after the workshop to determine their knowledge gain as it pertains to the activities, discussions, and presentations addressing the learning objectives.

Horseshoe Bend on the Colorado River in the Grand Canyon National Park - Arizona

THE UNIVERSITY OF ARIZONA Cooperative Extension

CAP CENTRAL ARIZONA PROJECT
YOUR WATER. YOUR FUTURE.

Single-session Workshops

4th Grade Teacher Professional Development

Educators improve their skills engaging learners with real-world, relevant science, technology, engineering, and math practices that focus on systems thinking and project-based problem solving. Participants leave these workshops with myriad resources, and a supportive cohort, to lead their students through meaningful, Maricopa County-centric applications of water-science instructional concepts.

Making Connections, Gaining Perspective, and Fostering Creativity

The water festival unit of study kicks off with the teacher professional development workshop, which all teachers new to the program attend. During this workshop, APW instructors connect teachers with tangible reference points and supporting resources in physical science, engineering, and environmental science through exploration, inquiry, and technology.

Arizona Water Festival 2-Part Virtual Teacher Workshops:

Part A: Pre-Festival	Part B: Post-Festival
8/13/25, 1:30PM – 3:30PM	8/18/25, 6:00PM – 7:30PM
8/20/25, 1:30PM – 3:30PM	8/20/25, 4:30PM – 6:00PM
8/25/25, 6:00PM – 7:30PM	8/22/25, 1:30PM – 3:00PM
8/29/25, 1:30PM – 3:00PM	9/12/25, 1:30PM – 3:00PM
9/3/25, 4:30PM – 6:00PM	9/29/25, 6:00PM – 7:30PM
9/5/25, 1:30PM – 3:00PM	10/14/25, 6:00PM – 7:30PM
9/22/25, 6:00PM – 7:30PM	11/19/25, 4:00PM – 5:30PM
11/17/25, 6:00PM – 7:30PM	1/14/26, 4:30PM – 6:00PM
11/19/25, 2:00PM – 3:30PM	1/20/26, 6:00PM – 7:30PM
1/12/26, 4:30PM – 6:00PM	1/26/26, 6:30PM – 8:00PM
1/20/26, 4:00PM – 5:30PM	
1/26/26, 4:30PM – 6:00PM	

Tempe AWF Teacher Workshop
Bustoz Elementary School, Tempe
11/15/25, 10:00AM – 2:30PM

Wonders of Wetlands
Nina Mason Pulliam Rio Salado Audubon Center
4/22/26, 3:30PM – 5:30PM

Arizona Water Festival
Unit of Study

Arizona Water Festivals (AWF) instill a deeper understanding of water in the earth systems and Arizona's water resources through a 4th grade interdisciplinary curriculum unit driven by exploration and inquiry. The entirety of the AWF program encompasses:
Foundations of Water Education **professional development workshop** for participating 4th grade teachers

- Arizona Science Standard connection and integration
- 3-Dimensional Learning approaches
- Best practices for the 6-lesson classroom module

Pre-Festival survey to gauge students' existing subject-area knowledge
3 teacher-led, in-classroom Unit of Study lessons before the Water Festival
THE WATER FESTIVAL:

- 3 – 5 area schools per AWF
- 9 – 12 classes per AWF, on average
- 250 – 750 students in attendance per AWF, on average based on single or double session
- Community Volunteer training and place-based event support
- Municipal Park permits, when/if needed

3 teacher-led, in-classroom Unit of Study lessons after the Water Festival
Post-Festival STUDENT survey to measure knowledge gain.
Post-Festival TEACHER survey to evaluate programming and Unit of Study content elements.
Post-Festival VOLUNTEER survey to evaluate programming and Unit of Study content elements, and reflection on practice.

The AWF is attended by water professionals and community volunteers who engage participants in an experiential and fun exploration of the Groundwater System, Watershed Management, Water Stewardship, and the Arizona Water Cycle. By diving into hydrology through authentic, relevant, and meaningful water-focused activities, this "field day" event instills a deeper understanding of Arizona's varied and complex water resources. As a result, these 4th graders can put forward an evidence-based argument about the availability of water in their region and its impact on their lives.

Arizona Water Festival

Summary:

During the Arizona Project WET – Water Festival Unit of Study, 4th grade students explore the Arizona water cycle, map our regional watersheds, unearth the connection between groundwater and surface water, and learn how their behaviors impact water availability in Arizona. Students use this knowledge to develop accessible, community-focused solutions that simultaneously conserve water and promote sustainable decision-making.

Guiding Question(s):

Where is Arizona's water? What are the connections between people, water, and heat in the environment?

Learning Objectives:

- **Track** the movement of water molecules through the Arizona water cycle
- Understand how water moves through a watershed and **demonstrate** the human impact of changes to that natural system; city surfaces affect the movement of water, and those changes can be **observed/measured**.
- **Model** aquifer recharge and discharge connecting water availability to human behavior
- **Act** as environmental stewards, conserving water through both behaviors and available technologies, supporting resilient solutions that benefit the (biodiverse) community.

Science Standards	
This unit addresses, but is not limited to, the following standards:	
Elements of Life 4.L4U1.11	**Analyze and interpret environmental data to demonstrate that species either adapt and survive or go extinct over time.**
	When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die.
	For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all.
Elements of Earth & Space 4.E1U1.6/7	**Plan and carry out an investigation to explore and explain the interactions between Earth's major systems and the impact on Earth's surface materials and processes.**
	Rainfall helps shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around.
Elements of Earth & Space 4.E1U3.9	**Construct and support an evidence-based argument about the availability of water and its impact on life.**
	Nearly all of Earth's available water is in the ocean. Most freshwater is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere.
	About two-thirds of the surface of the Earth is covered by liquid water, which is essential to life.
Elements of Earth & Space 4.E1U2.10	**Define problem(s) and design solution(s) to minimize the effects of natural hazards*.**
	A variety of hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts.

* Natural hazards abound in Arizona. At the top of list: flash floods, severe weather, landslides and debris flows, earthquakes, and earth fissures.
University of Arizona Center for Natural Hazards

Fall 2025 – Arizona Water Festivals

10/23/25 FALL Peoria Water Festival
- Students: 535
- Teachers: 21
- Schools: 7
- Volunteers: 37

10/28/25 Buckeye Water Festival
- Students: 176
- Teachers: 8
- Schools: 3
- Volunteers: 20

11/5/25 – 11/6/25 Chandler Water Festival
- Students: 1,290
- Teachers: 54
- Schools: 16
- Volunteers: 58

Spring 2026 – Arizona Water Festivals

2/3/26 Tempe Water Festival
- Students: 650
- Teachers: 28
- Schools: 9
- Volunteers: 40

2/5/26 Phoenix Water Festival – Osborn USD
- Students: 259
- Teachers: 10
- Schools: 4
- Volunteers: 25

2/10/26 Queen Creek Water Festival
- Students: 380
- Teachers: 14
- Schools: 3
- Volunteers: 40

2/12/26 Avondale & Goodyear Water Festival
- Students: 918
- Teachers: 20
- Schools: 10
- Volunteers: 47

Spring 2026 – Arizona Water Festivals

2/20/26 Phoenix Water Festival – Pendergast USD
- Students: 876
- Teachers: 37
- Schools: 12
- Volunteers: 40

2/23/26 – 2/24/26 Gilbert Water Festival (2-day)
- Students: 1,692
- Teachers: 65
- Schools: 19
- Volunteers: 69

3/12/26 SPRING Peoria Water Festival
- Students: 596
- Teachers: 22
- Schools: 8
- Volunteers: 25

3/26/26 Phoenix Water Festival – Roosevelt USD
- Students: 288
- Teachers: 10
- Schools: 4
- Volunteers: 26

54%

1,202 MGal/Day

The groundwater system is one of Arizona's most important water reserves. Increasingly, in many areas of the state, water storage is managed by using the groundwater system. Arizona students are eager to understand this crucial system and its place in the water cycle. This ensures that water users also self-identify as sustainable decision makers: I/we manage this resource together.

The primary source of water in Maricopa County is groundwater.

Date	# of Presentations	School/Location
1/16/26	4	Mountain View Elementary (Waddell)
1/23/26	4	Imagine Rosefield (Surprise)
2/14/26	6	Rio Salado Audubon Center (Phoenix)
Date	**# of Presentations**	**School/Location**
3/24/26	2	Freedom Traditional Academy (Surprise)
4/11/26	4 hours ongoing	ADWR Water Awareness Month Festival
4/29/26	90-minute	Arizona Water Association 99th Annual Conference
5/12/26	3	Bicentennial South Elementary (Glendale)

WSI: Water Scene Investigation

THE UNIVERSITY OF ARIZONA Cooperative Extension

ARIZONA project WET WATER EDUCATION TODAY

Water Scene Investigation Curriculum Unit

Unit Summary

INTRODUCTION

You're on the scene with WSI. In this campy but complex Unit of Study, juvenile detectives of the ***Cold-Water Case Squad*** investigate and identify the cause of a calamity in the community. Student sleuths work together, finding the clues that protect lives and livelihood; solving the question, "What's in the WATER?" before time runs out!

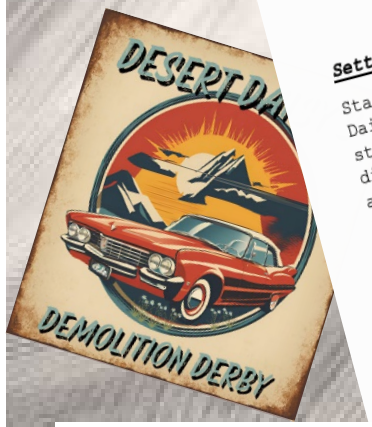
The Unit of Study is designed to help teachers meet the 6th-8th grade science standards using student-centered, 3-dimensional learning. This focuses on doing science: asking questions and defining problems, developing and using models, planning and carrying out investigations, analyzing and interpreting data and constructing explanations and designing solutions. Emphasis also falls on recognizing relationships that connect all sciences and other fields of study. Specifically, the Arizona Water Scene Investigation (WSI) Curriculum Unit puts students at the center of their own water case, observing the phenomena that relate to the environment in which they live. Launching the unit, an interactive case file leads into the processes driving possible water contaminants and builds clear relationships between this and the water cycle, watershed, groundwater and the importance of sustainability.

UNIT GUIDING QUESTIONS:

How is water polluted and how can we keep human activity from compromising the viability of our watershed, groundwater and water cycle systems?

OBJECTIVES:

- **Analyze** data to solve a mystery and identify potential groundwater pollutants.
- **Identify** surface forms of pollution and consider ways to reduce urban runoff and the flow of contaminants in water throughout a watershed.
- **Detect** the role of water in human/animal wellness and connect environmental health challenges to threats associated with a changing climate.
- **Conclude** that past solutions, developed with the best intentions, may create contemporary problems.
- **Act** as environmental stewards, conserving and keeping water clean through both behaviors and available technologies, supporting resilient solutions that benefit the (biodiverse) community.



Water Scene Investigation (WSI): Case Study

Setting the Scene:

Starting about 2 months ago many of the ostriches at Desert Daisy's Ostrich Oasis & Omelet Farm were behaving weirdly and starting to get sick. There have even been several that have died unexpectedly. The young seem to be getting the sickest and acting the strangest with an array of weird symptoms. There appears to be muscle weakness and loss of appetite and notable weight loss in some. Many eggs are starting to crack prematurely, and there is a higher rate than expected of eggs not hatching. This documented evidence can be seen in **Exhibit A**. A vet has been out and has taken some preliminary blood and stool tests, and you can see the veterinary medical examiner's notes in **Exhibit B**. Please look over the file and see if you can figure out what could be causing the ostriches to get sick and die at this farm.

s Ostrich Oasis & Omelet Farm. First noticed birds ently and some symptoms on May 3rd, 2024.

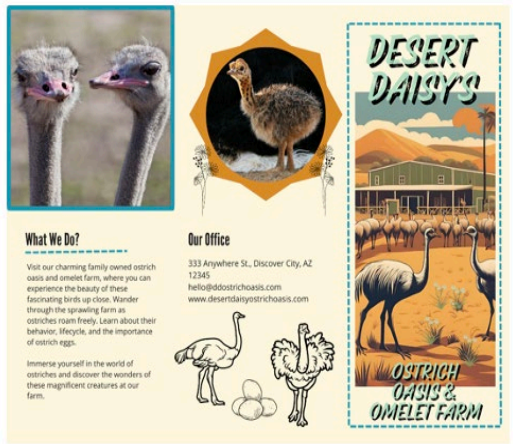
esert Daisy's brochure for more information about practices and the site map for the layout of the **xhibit C**

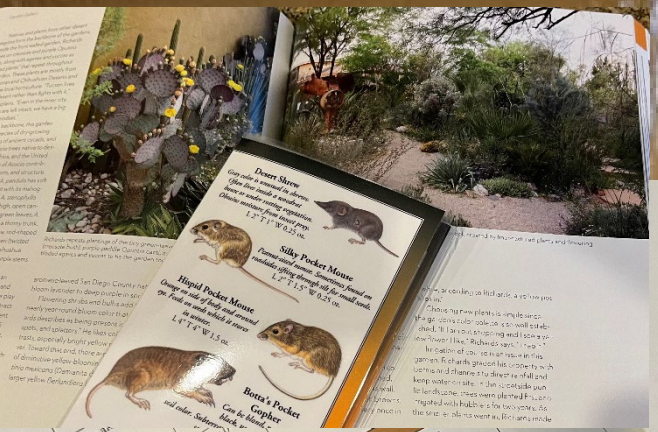
ted on a large strip of land spanning from Pinal to Pima County.

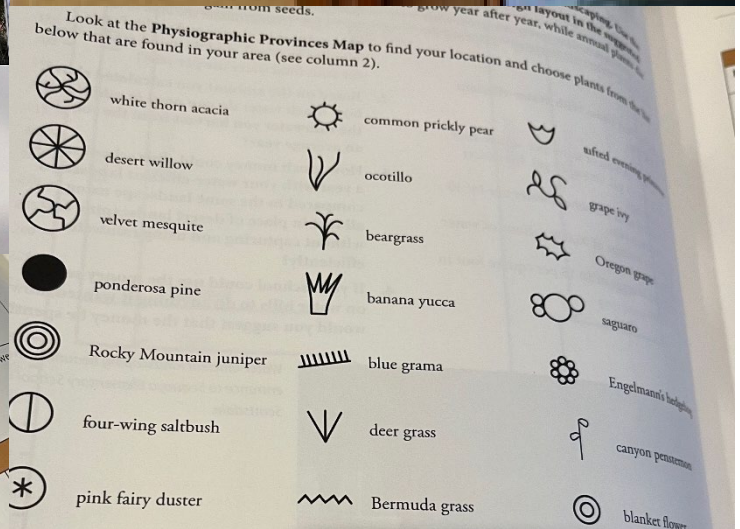
nd:

re research detectives have discovered that the Ostrich ed to be Desert Daisy's Demolition Derby back in the late Please see **Exhibit D**. This was quite the gathering place hosted weekly races along with great cookouts and decent oom facilities considering the times. Because of the use of site, this area was never fully tarmacked but rather much of

Exhibit C:







THE UNIVERSITY OF ARIZONA Cooperative Extension

ARIZONA project WET WATER EDUCATION TODAY

Planting for a Rainy Day - Curriculum Unit:

INTRODUCTION

Planting for a Rainy Day (PfaRD) is a unit of study designed to help students understand the interaction between Arizona environments and rainwater. During this unit students consider the stormwater challenges in developed environments compared to "natural" ones. Students explore how rainwater may be managed in and around communities. They design rain garden basins that can address drought/flooding issues by employing STEAM skills and academic practices. The big ideas of this learning unit are:

1. Excessive heat, flooding, habitat loss, and water sustainability are concerns that exist in almost all developed/urban areas.
2. Find examples of these issues within the "watershed" of the school grounds.
3. Design a sustainable rain garden basin to mitigate excessive heat, flooding, and habitat loss.

Students identify a "hot, dry" patch of pavement in their personal watershed (home/school/community) and determine storm water drainage patterns. By calculating the amount of runoff that can be collected in the area, and then applying rainwater harvesting and smart landscaping techniques, students will design an attractive water-wise rain-garden basin habitat that can help reduce flooding, support biodiversity and create a cooler, healthier community.

UNIT GUIDING QUESTIONS:

How can we harvest rainwater to transform an impermeable plot of land into an outdoor oasis?

OBJECTIVES:

- **Define** transpiration and evaporation to explain how these water cycle processes are related to plant and animal adaptations for water conservation and temperature management.
- **Identify** native plants and animals that live in Arizona's deserts and decide which native plants are appropriate for creating a water-wise, biodiverse healthy garden.
- **Analyze** the "watershed and groundwater systems" of their school grounds, determining rainwater drainage patterns, surface porosity and temperatures, and places where water leaves the grounds or connects to groundwater.
- **Calculate** the amount of rainwater that can be collected from roofs of varying sizes to develop strategies for storing and using rainwater while also implementing strategies for natural cooling and remediating "hot pockets" on school grounds.
- **Explore** the connections between the processes of the water cycle, the urban watershed environment, and the groundwater system, in creating a rain garden basin that can also contribute to a healthy ecosystem/habitat and community.
- **Create** design drawings for a water-wise garden with supporting details and documentation (species list, water use, plant hardiness, wildlife interaction, and seasonal implications) that support a water efficient, biodiverse desert urban landscape.

Funds granted by this contract will be used to 1) continue and diversify the Arizona Project WET (APW) educator professional development portfolio: multi-session and single-session, place-based, integrative workshops that leverage fun, learner-based inquiry, and 3-Dimensional learning across grade-band cross-cutting concepts and standards. 2) support Arizona Water Festivals (AWF) by building capacity in current markets: Avondale, Buckeye, Gilbert (2), Goodyear, Peoria (2), and Phoenix (2), as well as facilitating the real potential for expanding AWF's in emerging markets: Queen Creek, Surprise, and Tempe. 3) allow APW to continue outreach with Groundwater STE(A)M presentations incorporating place-based activation throughout the region.

Arizona Project WET aims to educate, engage, and connect Phoenix AMA community members (residents, local businesses, K-12 students, educators, administrators, and municipal stakeholders) through educational outreach to raise awareness of current and future challenges to Arizona's water resources and sustainable solutions to help mitigate them.

In the 26/27 academic year, Arizona Project WET will…

- Conduct **one (1) multi-day academy** and **one (1) single-day workshop** reaching 40+ educators within the Phoenix AMA.
- Deliver no fewer than **ten (10**) **Arizona Water Festivals** for 4th grade students within the Phoenix AMA.
- APW will deliver experiential *Groundwater* presentations within the Phoenix AMA at no more than **five (5) community events**, including but not limited to WAM, STE(A)M nights, and/or Science & Nature fairs.

Funding Period/Length of Contract

August 1, 2026 – June 30, 2027

Funding Requested, $75,000

Arizona Project WET

Measurements

APW has a strong record of programmatic evaluation and self-reflection that not only provides evidence of content area knowledge gain but also informs our practice and program improvement. A number of tools will be used to measure the outcomes and impacts of this Unit of Study.

Participant Counts

APW collects self-reported data relating to the number of participants engaged in each activity, including numbers of schools, students, teachers, and community members.

Members of the Phoenix GUAC,

We appreciate your time, attention, and consideration.

We are happy to answer any questions you may have about Arizona Project WET, Teacher Workshops, Groundwater Presentations, Arizona Water Festivals, or any other elements of our statewide reach.

Water Education is in our Nature.

Thank you for the opportunity.

Lisa Townsend, Director

Water Resources Research Center

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THE UNIVERSITY OF ARIZONA Cooperative Extension

ARIZONA project WET WATER EDUCATION TODAY

Meeting Agenda

1. Call to Order – Welcome & Introductions (*Chair*)
2. Meeting Logistics (*Cali Mauri, ADWR*)
3. Water Management Assistance Program (WMAP) Updates (*Tommy Thiatmaja, ADWR*)

Discussion and report of the WMAP fund balance.

4. WMAP Project Presentations

a) Arizona Project WET (*Lisa Townsend)*

Presentation on the accomplishments of Arizona Project WET, discussion and consideration of action to renew the contract.

b) El Mirage Water Conservation Program (*Nick Russo*)

Presentation on the accomplishments of the El Mirage Water Conservation Program.

c) Arizona Water Company (*James Wilson*)

Presentation on the accomplishments of the Arizona Water Company.

5. Hydrology Presentation (*Joe Holland, ADWR*)

Presentation on groundwater levels within the Phoenix AMA.

6. Call to the council (*Chair*)
7. Call to the public (*Chair*)
8. Adjournment (*Chair*)

GROUNTWATER CONSERVATION GRANT

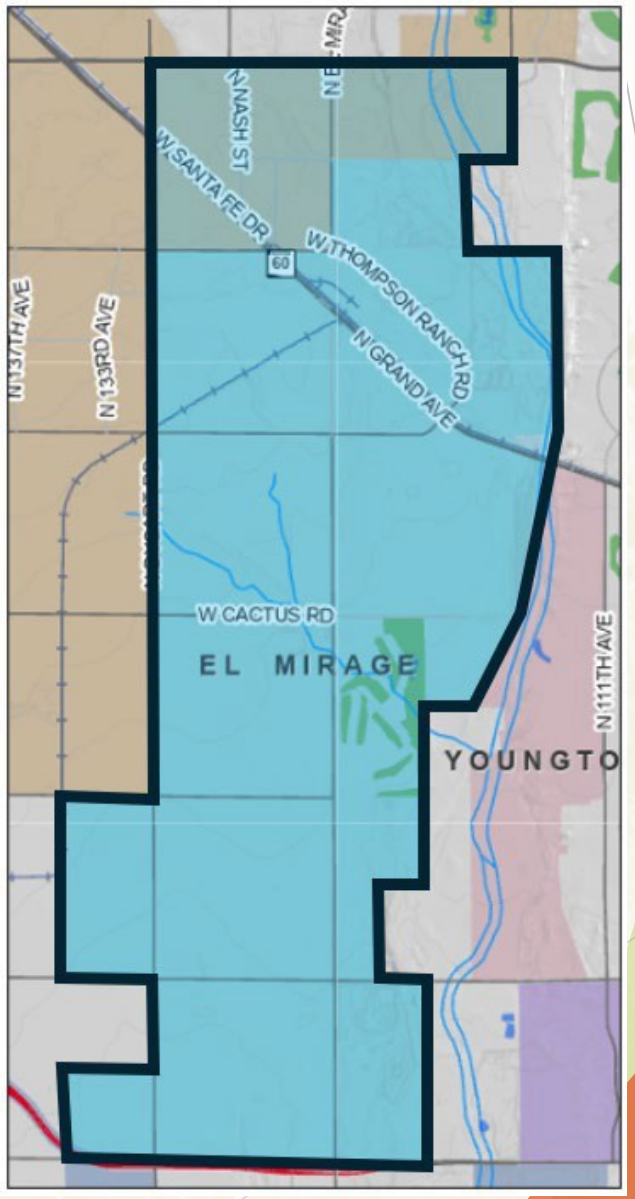
City of El Mirage

City of
EL MIRAGE
Arizona

GRAND HERITAGE, BRIGHT FUTURE!

City of El Mirage

- Assured Water Supply
- 40,000 Service Area
- West Valley Suburb
- Residential
- 10 Square Miles
- 5000 Acre Feet Year
- Agriculture / Light Industrial
- Groundwater



Water Conservation Program

Xeriscape

Booster Station Meters

Outreach and Education

Smart Software

Xeriscape – Turf Rebate Program

- 23 properties participated
- 100K gallons saved annually
- $10K total rebates

Booster Station Meters

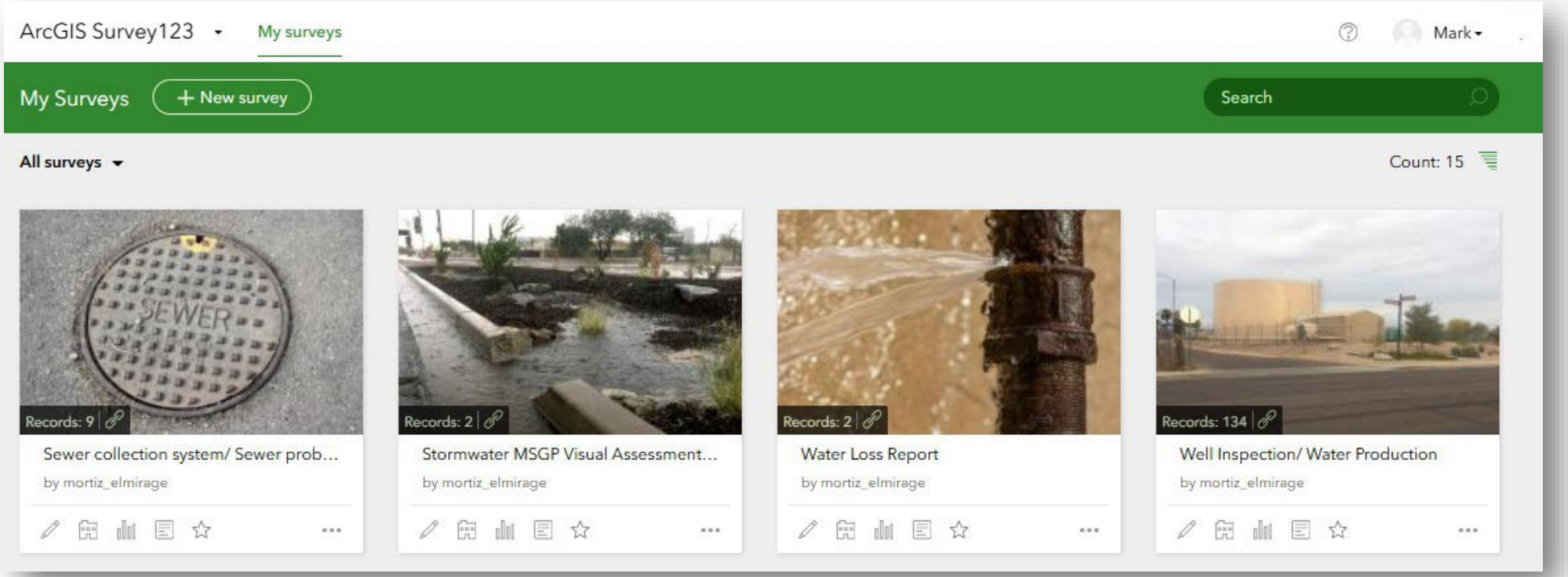
- Critical system points – booster stations
  - Canterbury, Sunnyvale, Thompson Ranch, Rockwood*, Alto
  - Provide verification for well production meters
  - Assist in capital planning to improve system efficiency
  - Decrease lost and unaccounted for water volume

Outreach and Education

- 147 conservation kits given
- City events – 60K resident outreach
- Library seed program
- Xeriscape classes

Smart Software Improvements

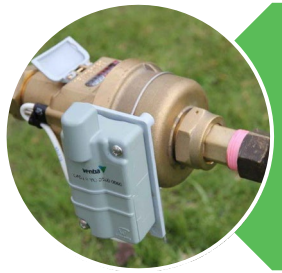
- Dropcountr – real time monitoring and customer access
- ArcGIS – Survey 123 – geotagging for water loss events



PROGRAMS

Xeriscape

- Over five years
- Program development/education
- Residential rebate
- Encourage low water use trees/plant vs turf



Booster Station Meters

- Over one year
- Purchase/install 5 critical system meters
- Decreases lost water on system side

Outreach & Education

- Over five years
- Provide resources for annual community seminars
- Water education in local schools
- Community/residential tools

WaterSmart

- Over one year
- Initial implementation of software
- Use existing AMI equipment
- User education and outreach

Thank You

Carmen Jimenez

Senior Environmental Technician

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Nick Russo

Public Works Director

623.876.4235

nrussso@elmirageAZ.gov

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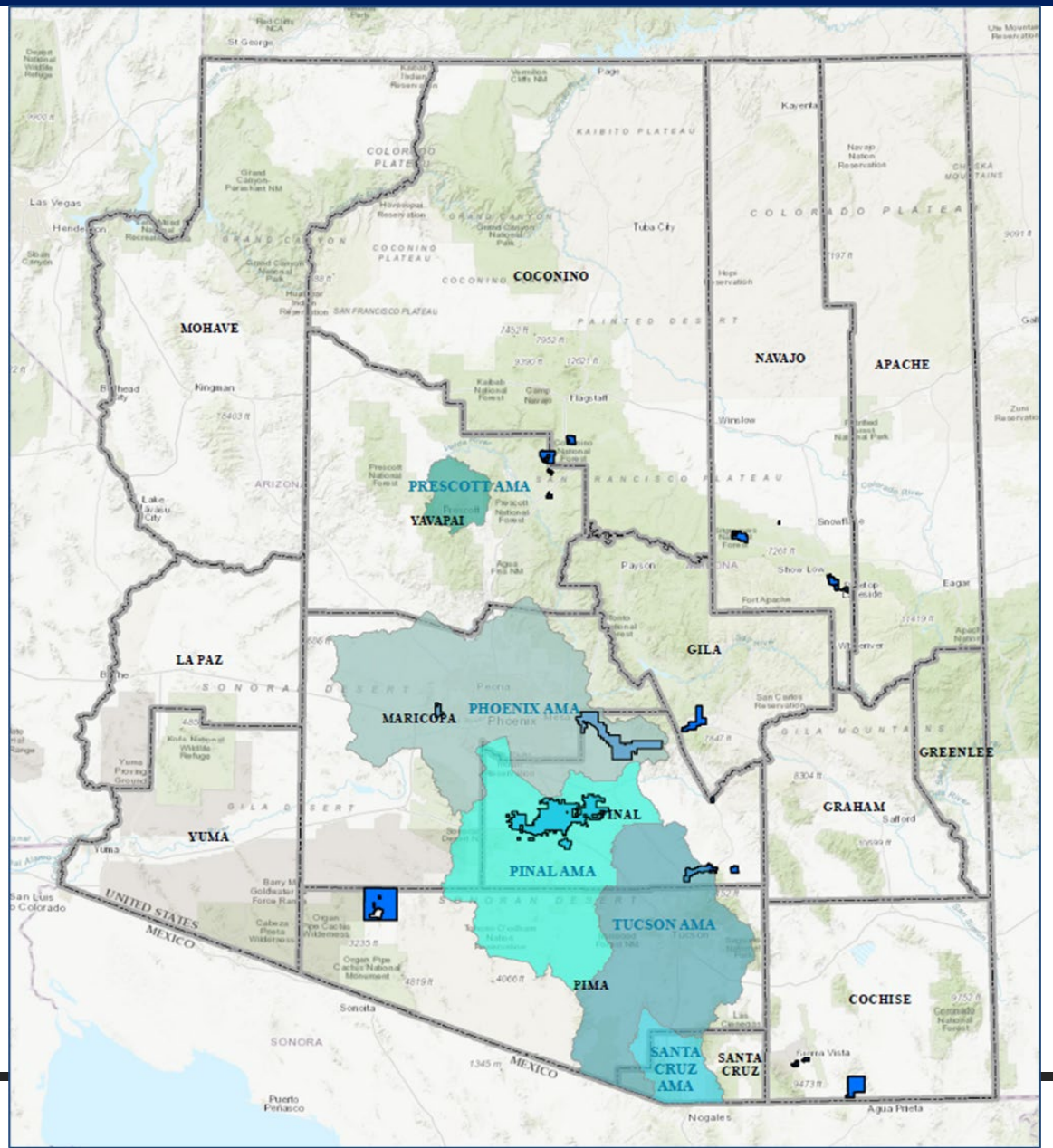
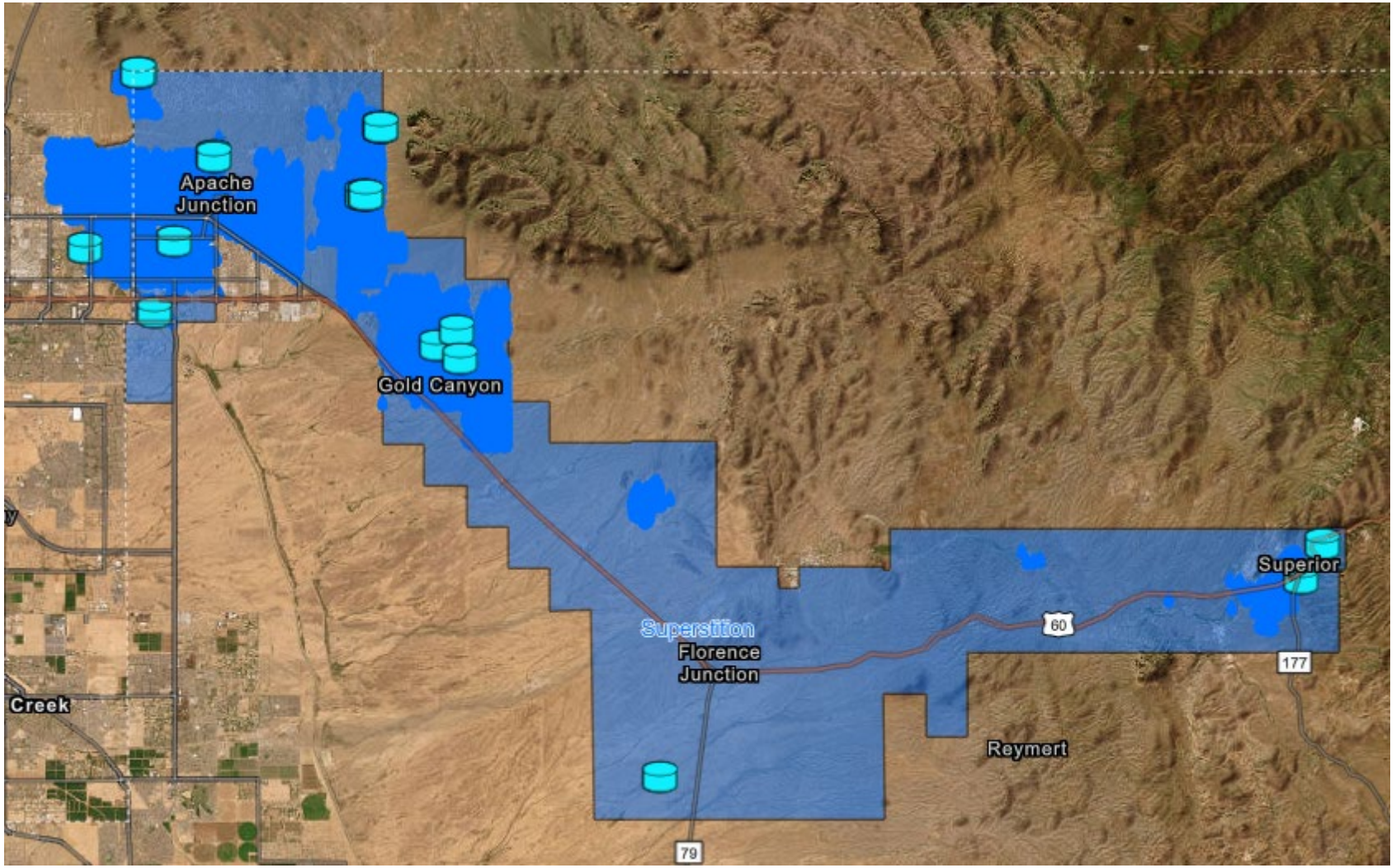
ARIZONA WATER COMPANY
LEAK DETECTION GRANT RESULTS
April 29, 2026

Arizona Water Company - Overview

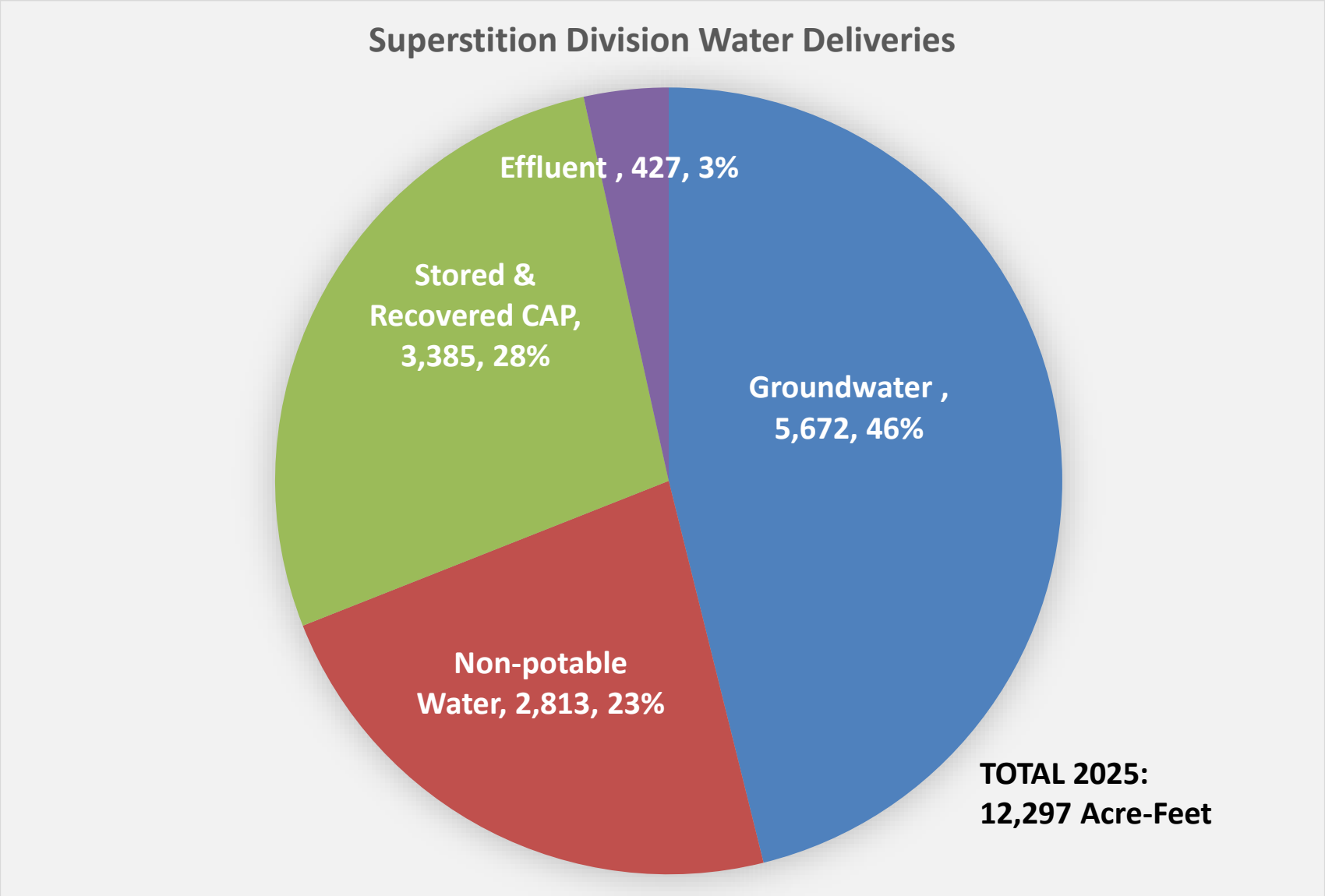
- 109,000 Water Service Connections
- Established in 1955
- 24 Water Systems
- 27 Communities in Eight Counties
- Serving over 320,000 People
- 12 Local Community Offices
- 282 Employees



Arizona Water Company – Superstition Division



Water Supply Portfolio – Superstition Division



Leak Detection Grant Overview

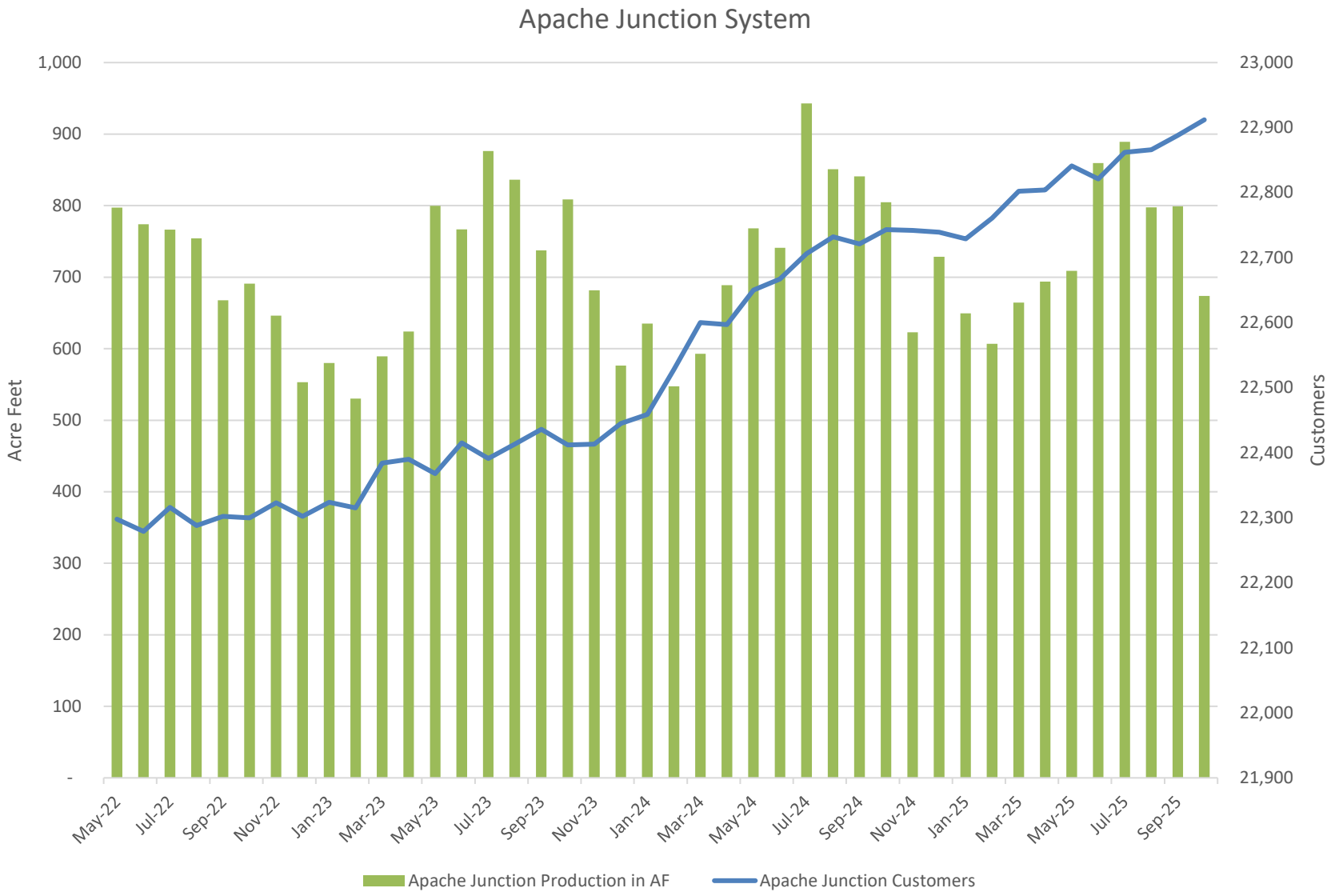
- Equipment purchased in 2022
  - (2) Echologics Leakfinder ST Correlator
  - (1) Z-Corr 8-Logger Correlation System
  - (4) FCS S-30 Geophones
  - (2) Dell Latitude Rugged 5430 Laptops
- Equipment used in our Superstition Division

Leak Detection Grant Overview

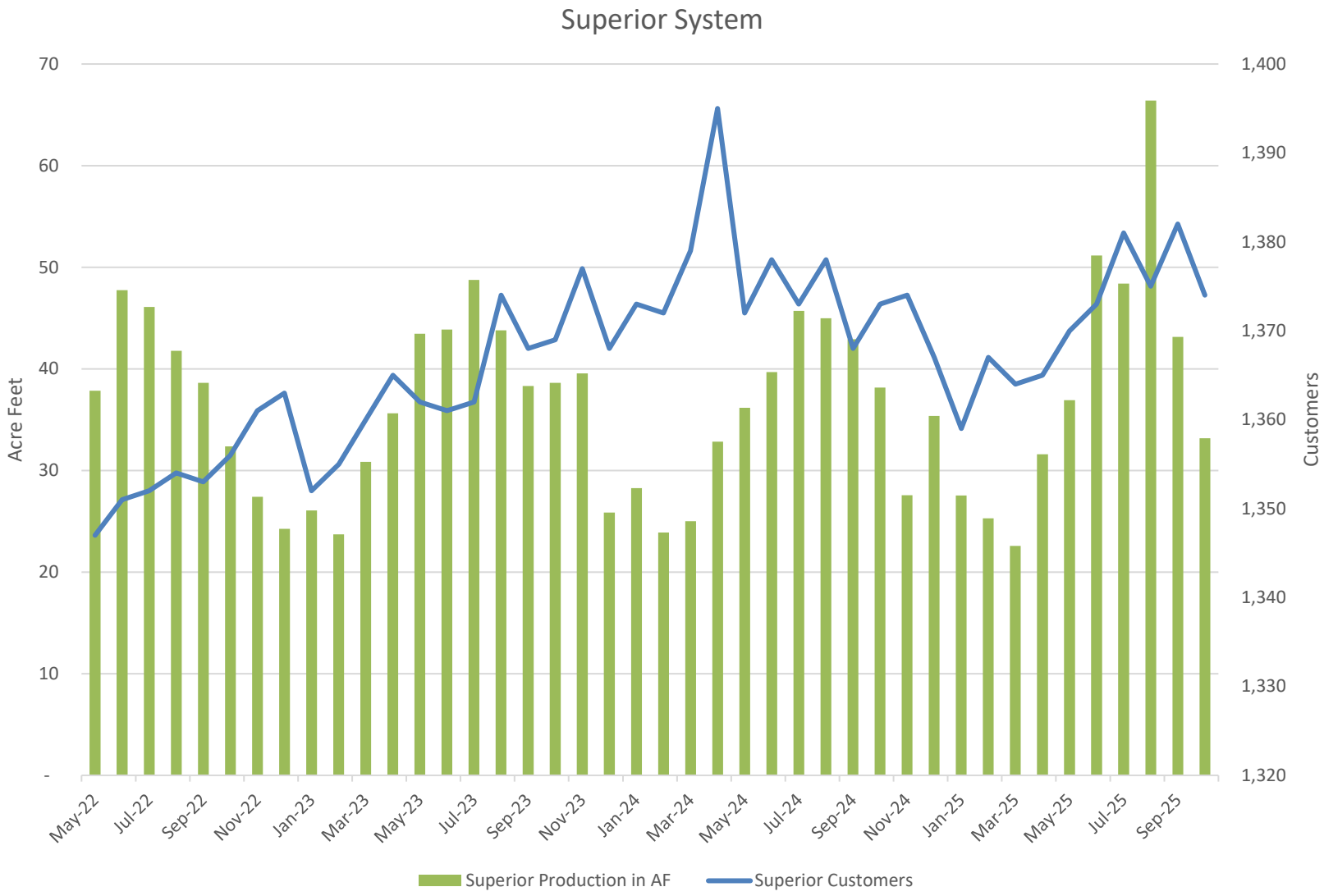
Data	TOTAL
Length of Pipe Surveyed	1,864,737 ft/ 353 miles
Leak Detection Man Hours	3,350 hours over 3 years
Number of Leaks	454
Estimated Loss of Gallons	25,758,971 gal/ 79 acre-feet


echologics

Leak Detection Grant Data



Leak Detection Grant Data



Thank you for listening!

Questions?

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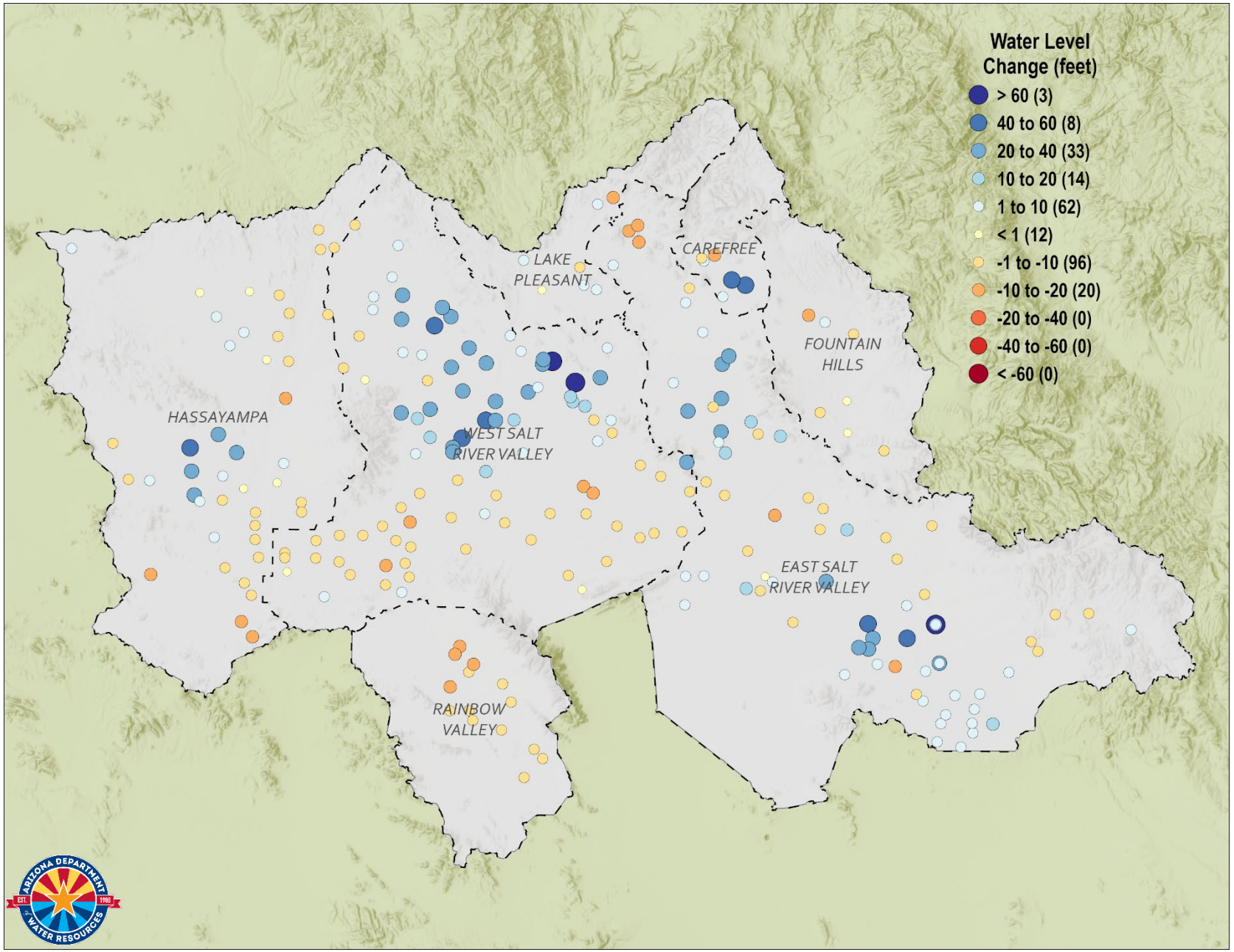
PHX AMA WATER LEVEL CHANGE OVERVIEW

Spring GUAC 2026 Meeting

6/2/2026



GWSI 2012-2022

- ADWR's Groundwater Site Inventory
- Kyl Center for Water Policy website
- 126 water level increase
- 122 water level decrease
- Zero values included to represent scale of loss in other parts of the state

GWSI 2012-2022 Overview

248 Wells

Max positive change 130.1 ft

Max negative change -38.8 ft

Average (Mean) 0.3 ft

Middle (Median) 3.25 ft

PHX AMA SubBasin	# Wells	WL Rise	WL Drop
CAREFREE	6	4	2
EAST SALT RIVER VALLEY	77	50	27
FOUNTAIN HILLS	7	1	6
HASSAYAMPA	43	17	26
LAKE PLEASANT	7	5	2
RAINBOW VALLEY	14	0	14
WEST SALT RIVER VALLEY	94	49	45
Total	248	126	122

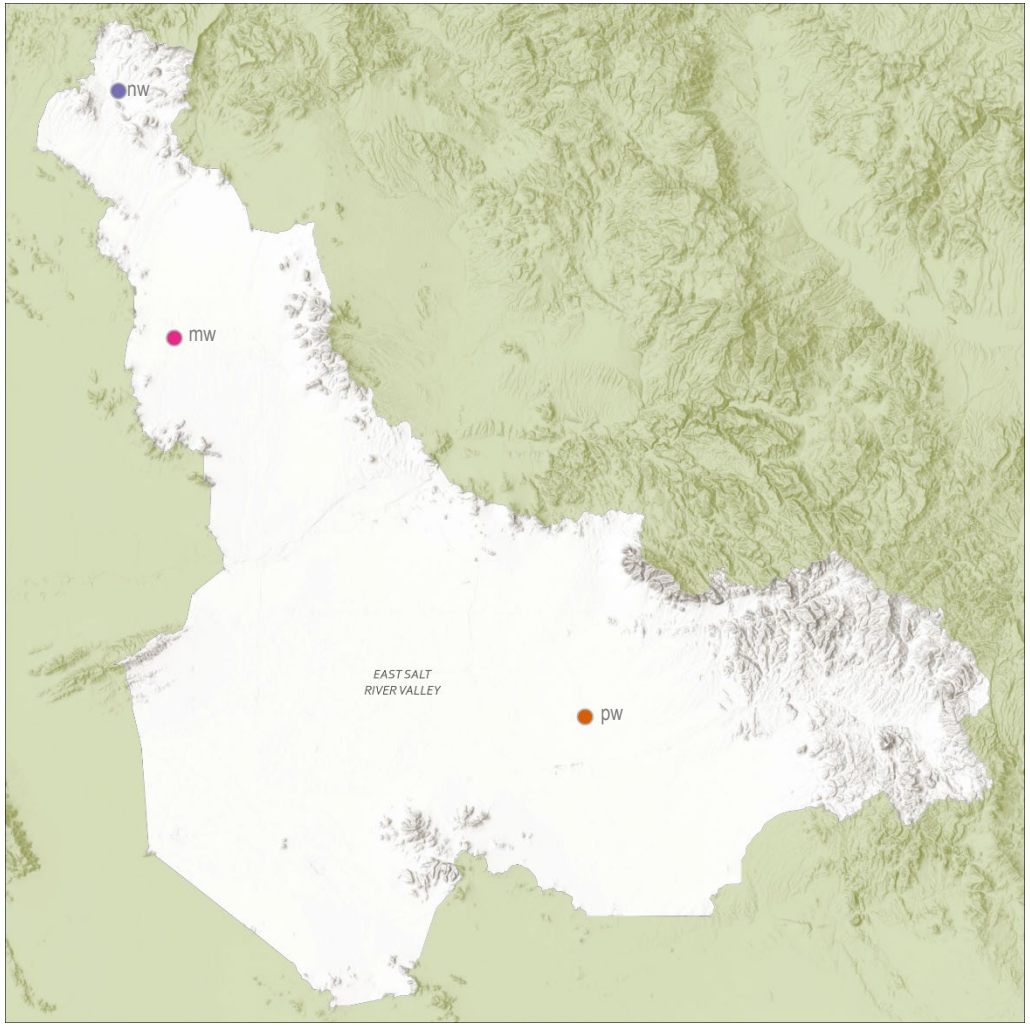
2022-2026 Snapshot

- Look at trends on a subset of the 2012-2022 Water Level data
- Three wells from each subbasin
  - Well with greatest positive change
  - Well with the greatest negative change
  - Well located in the middle of the dataset
    - Could be positive or negative
- Calculate how the water level has changed on these well

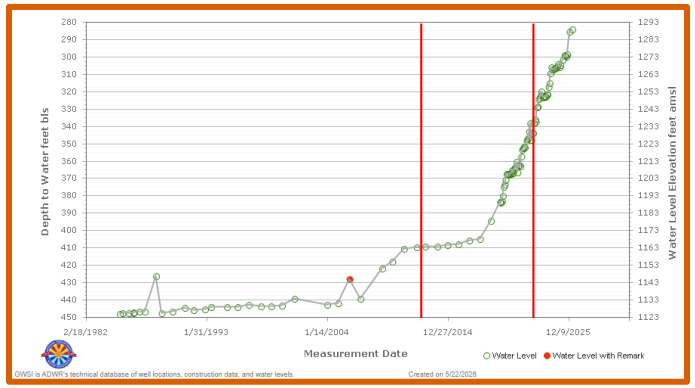
2022-2026 Snapshot

PHX AMA Subbasin	Positive Well (pw)	Mean Well (mw)	Negative Well
CAREFREE	+5.99 (+53.66)	-2.1 (+2.6)	-2.4 (-20.5)
EAST SALT RIVER VALLEY	+64.2 (+61.2)	+7.1 (+4.9)	-14.6 (-38.8)
FOUNTAIN HILLS	-2.8 (+3.9)	-1.9 (-1.1)	+6.7 (-31.1)
HASSAYAMPA	-8.3 (+51.2)	-4.6 (-2.6)	+10.8 (-36.25)
LAKE PLEASANT	+2.0 (+4.4)	+4.1 (+1.2)	+0.7 (-22.6)
RAINBOW VALLEY	-7.4 (-4.1)	-4.5 (-9.2)	-6.4 (-37.3)
WEST SALT RIVER VALLEY	+26.2 (+130.1)	+6.1 (+1.8)	+19.9 (-25.5)

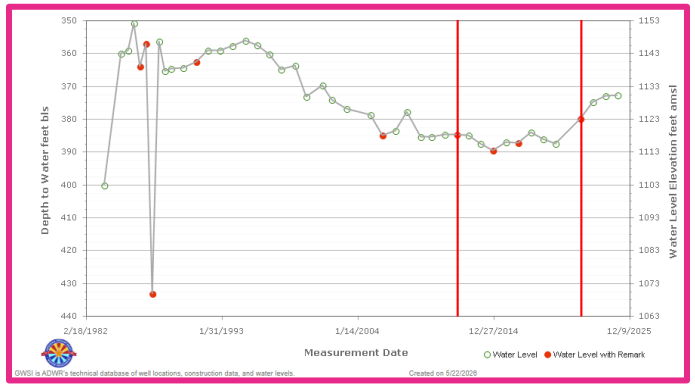
East Salt River Overview



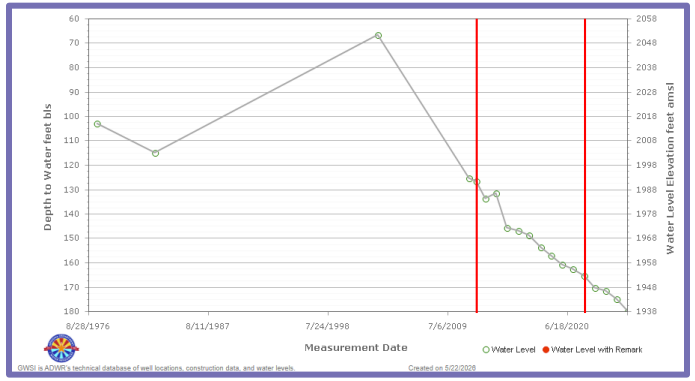
Positive



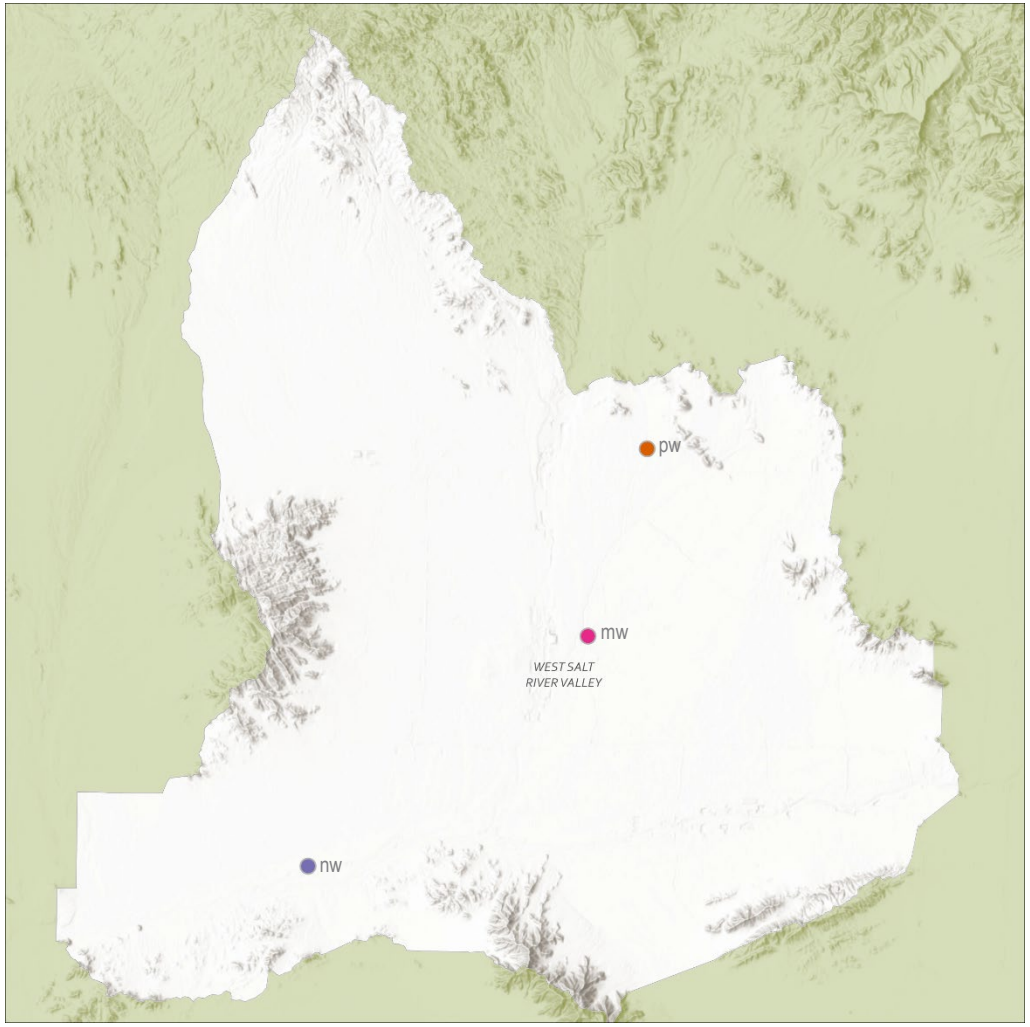
Mean



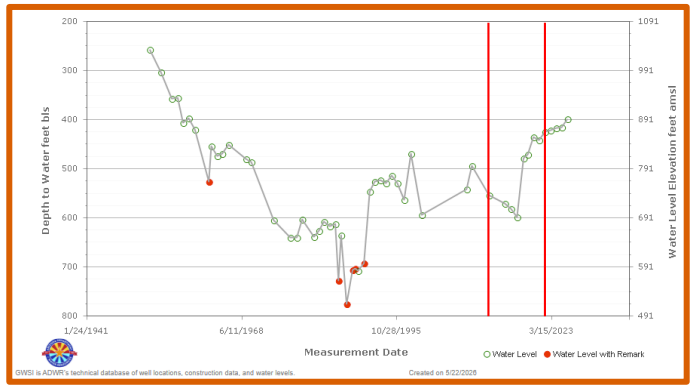
Negative



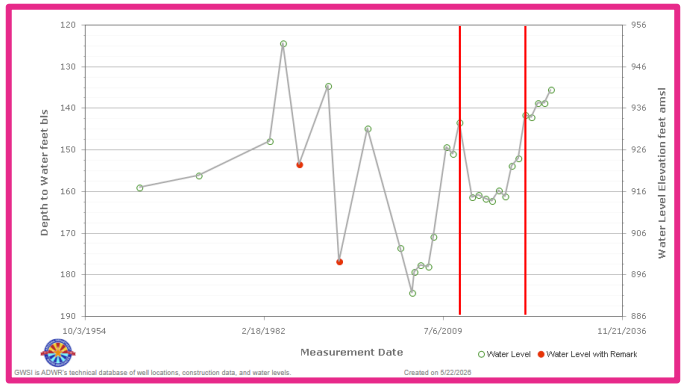
West Salt River Overview



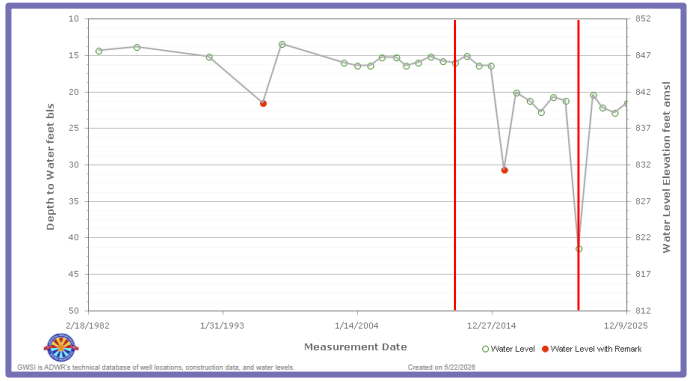
Positive



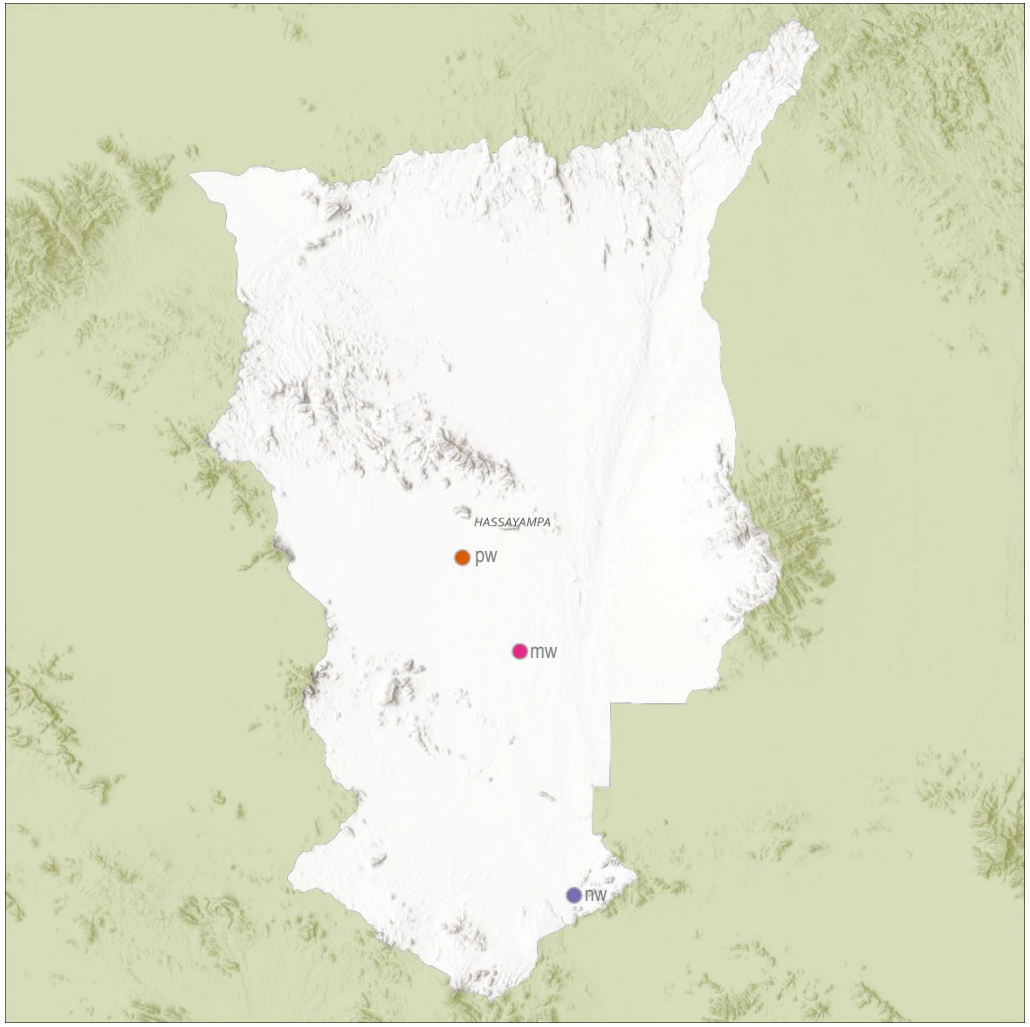
Mean



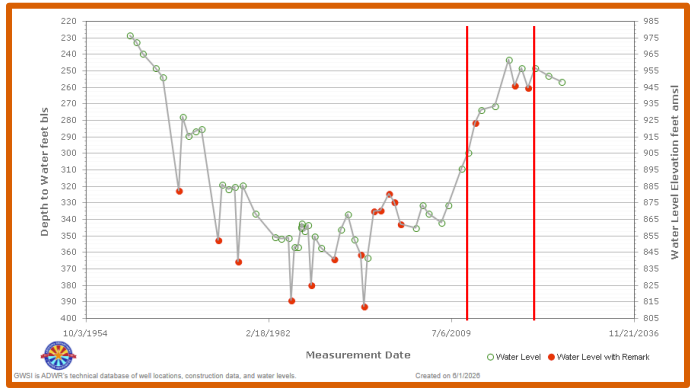
Negative



Hassayampa Overview



Positive



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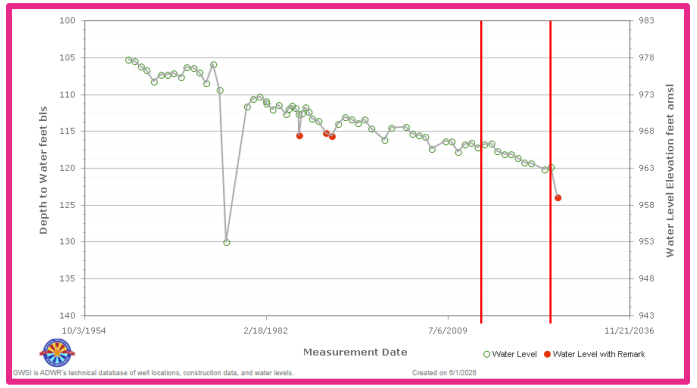

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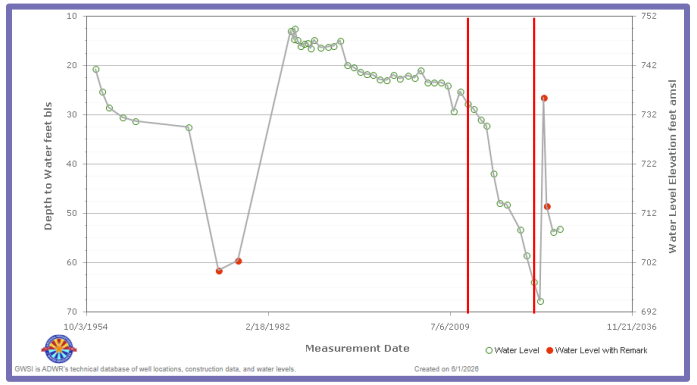


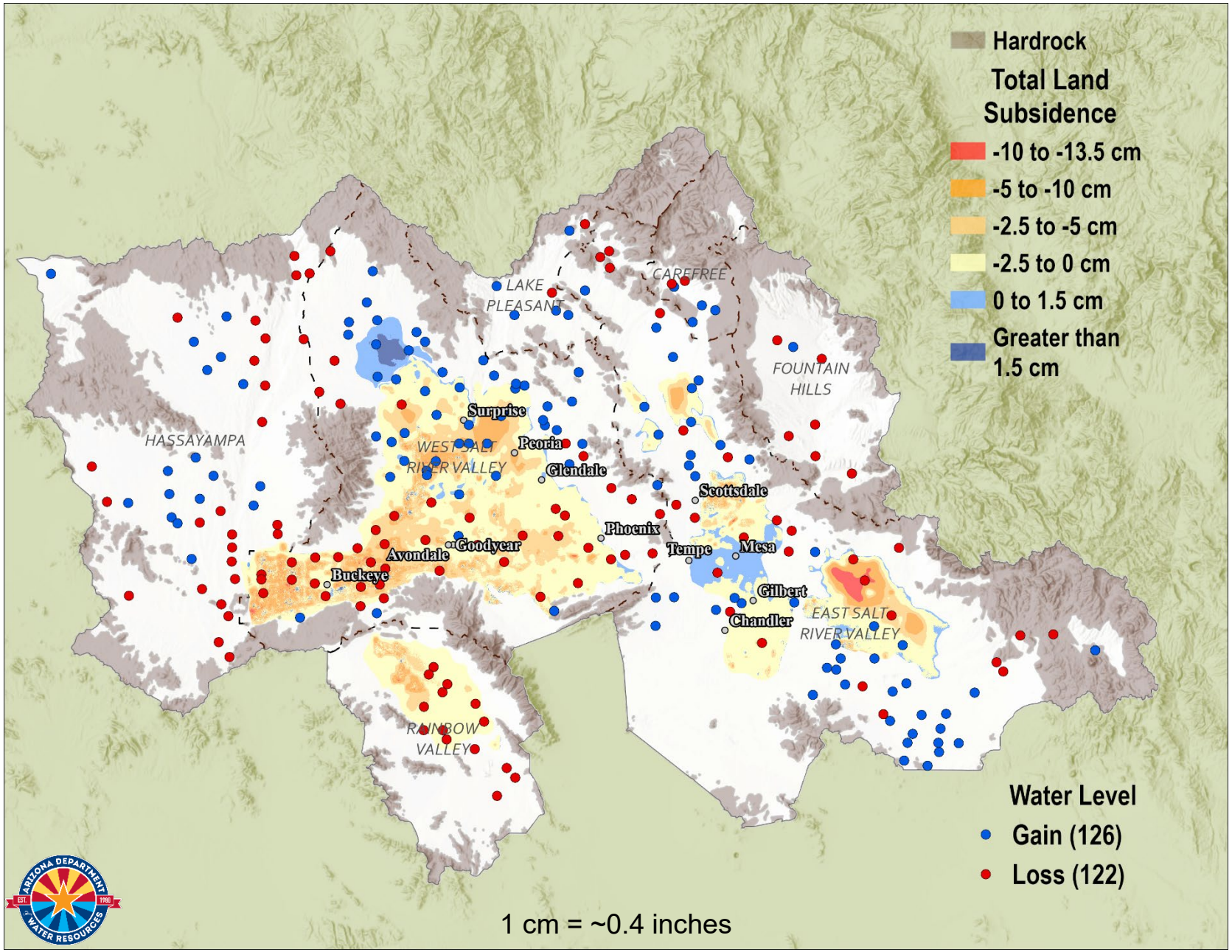
So, what did that mean?

Between 2022 and 2026

- In four of the seven Phoenix subbasins, the well with the most positive water level change between 2012-2022 continued the trend of water level increase
- In four of the seven Phoenix subbasins, the well with the most negative water level change between 2012-2022 reversed the trend of and saw an increase in water level
- Of the wells in the middle of the dataset only one changed it trend, flipping from a positive water level change to a negative

Subsidence and Wells

- Radarsat-2 InSAR
  - 2010-2025
- GWSI
  - 2012-2022



Negative Subsidence Areas

Water Level Change	Count	Average Subsidence
Positive	31	-2.42 cm
Negative	47	-3.93 cm

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3. Water Management Assistance Program (WMAP) Updates (*Tommy Thiatmaja, ADWR*)

Discussion and report of the WMAP fund balance.

4. WMAP Project Presentations

a) Arizona Project WET (*Lisa Townsend)*

Presentation on the accomplishments of Arizona Project WET, discussion and consideration of action to renew the contract.

b) El Mirage Water Conservation Program (*Nick Russo*)

Presentation on the accomplishments of the El Mirage Water Conservation Program.

c) Arizona Water Company (*James Wilson*)

Presentation on the accomplishments of the Arizona Water Company.

5. Hydrology Presentation (*Joe Holland, ADWR*)

Presentation on groundwater levels within the Phoenix AMA.

6. Call to the council (*Chair*)
7. **Call to the public (*Chair*)**
8. Adjournment (*Chair*)

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