



# The Arizona Water Banking Authority

## Manager's Introduction Latest Updates CAP M&I Firming

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Rebecca Bernat, Ph.D., Manager  
September 29, 2023



Grand Canyon National Park | 2014 | Credits: Magaly Frances



Calanque d'En Vau | 2013 | Credits: Rebecca F.A. Bernat



Map of France with main rivers

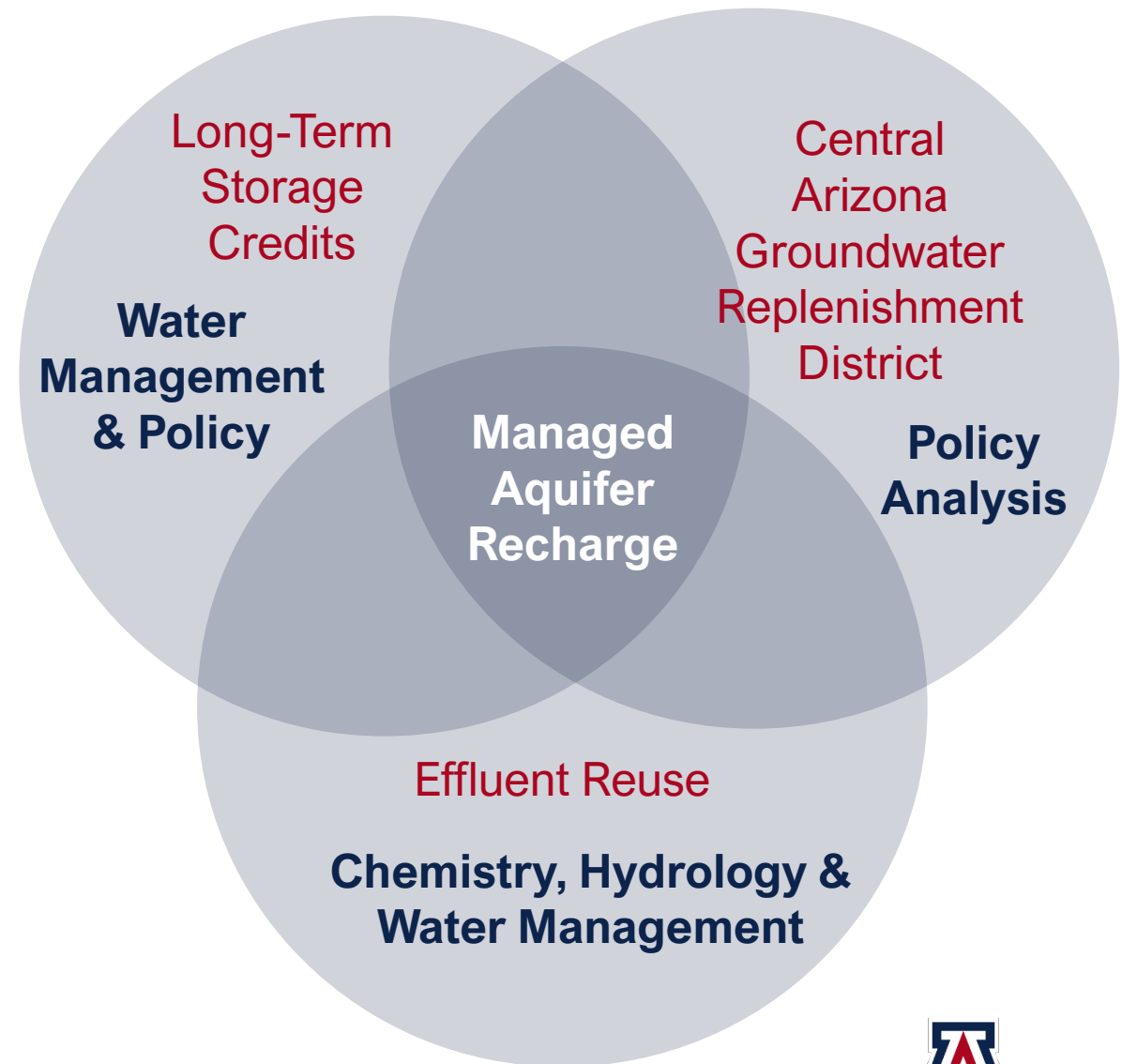


Top: Blondel Dam in the Town of Bollene, France  
 Right: Dock of the Blondel Dam  
 Credits: <https://www.montelimar-tourisme.com>



# Research Objectives

- HOW DOES MANAGED AQUIFER RECHARGE ENABLE STAKEHOLDERS TO COMPLY WITH WATER LAW?
- HOW TO COMBINE SUSTAINABLE USE OF GROUNDWATER WITH URBAN DEVELOPMENT?
- HOW TO MONITOR CONTAMINANTS OF EMERGING CONCERN IN MUNICIPAL WELLS?





# Southwest Water Resources

Monitoring Surface Water Extents of Remote  
Stock Ponds in the Southwestern United States  
Using Earth Observing Systems for Enhanced  
Water Resources Management

Rainey Aberle, Rebecca Bernat, Michael Corley, Lukman  
Fashina, & Kyle Paulekas

Idaho - Pocatello | Summer 2021

DEVELOP





# Water Extent Monitoring Tool

**Surface Water Identification and Forecasting Tool**

The SWIFT tool detects small water bodies in arid environments using water detection indices in a Random Forest Classification. Use the tools below to assess water area per grazing allotment.

Select layers to display

Background

Methodology

**Results**

Conclusions





**Thomas Buschatzke – Chair**  
Director of the Arizona Department of Water Resources



**Mark Clark – Vice Chair**  
Representing mainstem Colorado River contractors



**Joseph Olsen, P.E.**  
Knowledgeable in water resource management



**Eric Braun – Secretary**  
Representing CAP M&I subcontractors



**Mark Taylor**  
Representing CAWCD, designated by  
CAWCD Board President Terry Goddard



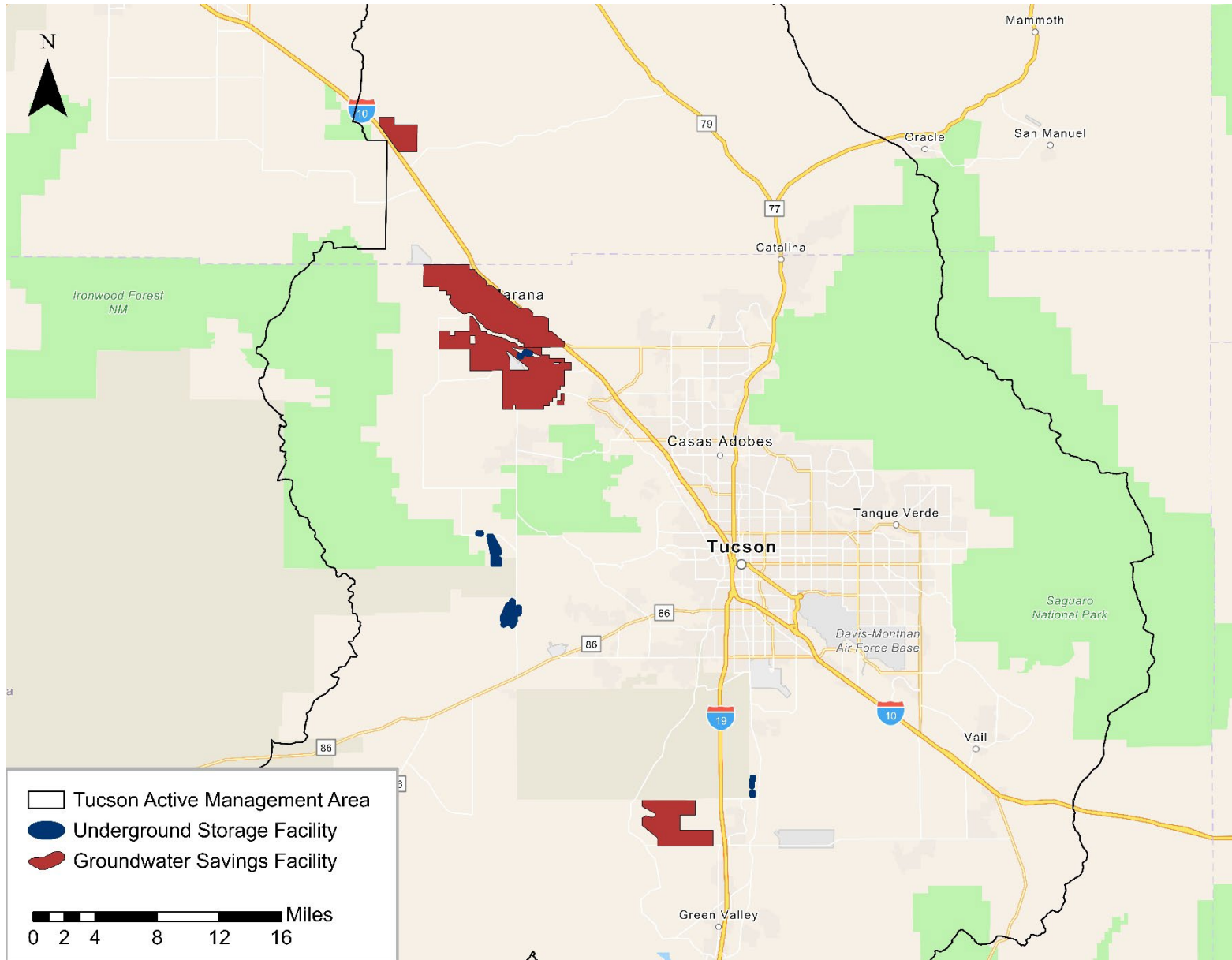
**Senator Sine Kerr**  
Ex officio member, designated by  
Senate President Warren Petersen



**Representative Austin Smith**  
Ex officio member, designated by  
Speaker of the House Ben Toma

# The AWBA

- Established in 1996 to store unused portion of Arizona’s Colorado River entitlement
- Provides backup supplies (firming) in times of shortage for certain Fourth Priority Colorado River users and Nevada
- Inter-agency support
  - Arizona Department of Water Resources
  - Central Arizona Water Conservation District



# AWBA LTSC Location in the Tucson AMA



# Firming the Gila River Indian Community

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## Community Settlement Obligation:

- Up to 15,000 AF per year (NIA CAP water)
- Tier 1 Shortage in 2022: firmed 6,429 AF using firming credits
- Tier 2a Shortage in 2023: firming 14,575 AF using firming credits

## Credits Accrued for the Community:

- 105,390 LTSCs
- 22,996 AF of firming credits
- 33,790 AF of Intentionally Created Surplus firming credits

# Agreement to Exchange LTSCs

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## Component of the Implementation Plan of the Lower Basin Drought Contingency Plan

- CAP M&I subcontractors stored water in Pinal AMA in 2022
- These storing entities will receive LTSCs in the Pinal AMA in 2023
- The AWBA agreed to exchange up to 11,400 AF of LTSCs in the Tucson AMA for LTSCs in the Pinal AMA

# AWBA Development of LTSCs - Estimates

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## 2024 Preliminary Plan of Operation

- Estimated funds available in the Tucson AMA: \$8.6 million
- Estimated credit development: 23,860 LTSCs (\$360/AF)

## September 13, 2023 Commission Meeting

- Discussion of future LTSC pricing
- Discussion on the AWBA ability to purchase effluent LTSCs

# Estimated AWBA Firming Volumes in the Tucson AMA

Operational Tier	CAP M&I Firming (acre-feet)		
	2024	2025	2026
Normal Year	0	0	0
Tier 1 Shortage	0	0	0
Tier 2a Shortage	1,235	3,601	4,160
Tier 2b Shortage	12,150	14,517	15,076
Tier 3 Shortage	28,793	31,159	31,718

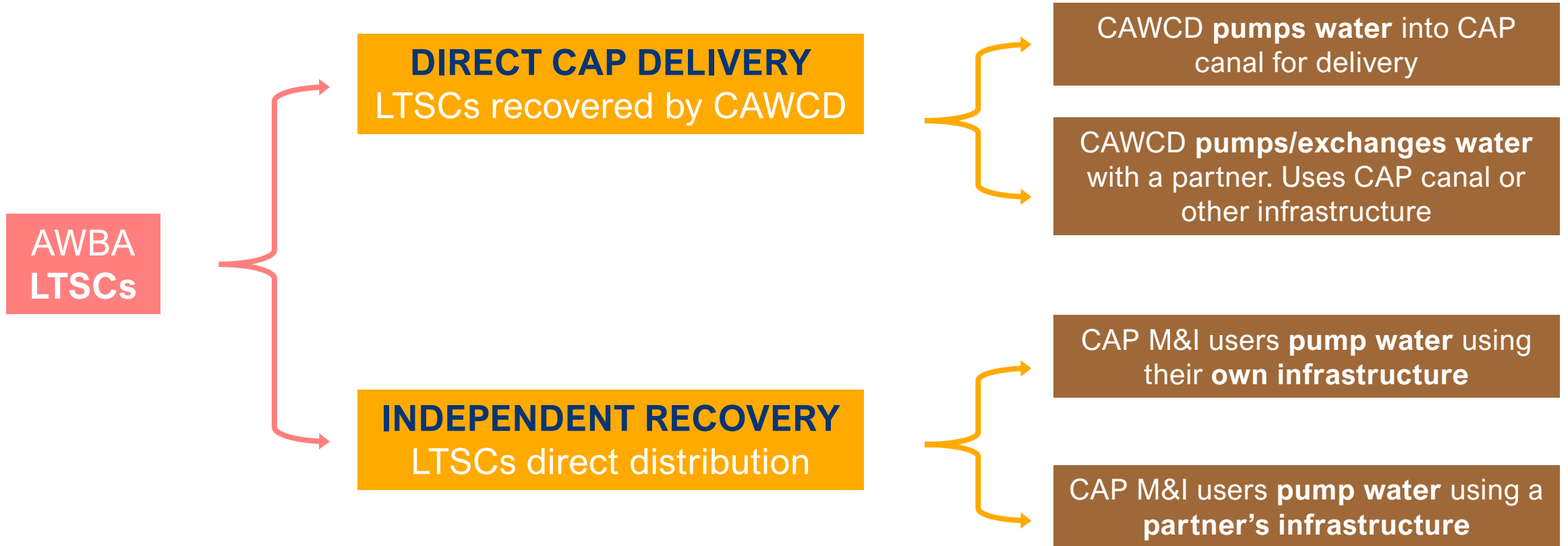
Estimated AWBA Firming Volumes in the Tucson AMA (from April 2023 data)



# Stakeholder Meetings to Discuss Firming Policies

April 11, 2023 Meeting	May 2, 2023 Meeting
78 attendees	72 attendees
44% of attendees were CAP M&I subcontractors	39% of attendees were CAP M&I subcontractors
Received feedback from CAP M&I subcontractors: <ul style="list-style-type: none"><li>- Phoenix AMA: 12 comments</li><li>- Pinal AMA: 2 comments</li><li>- Tucson AMA: 3 comments</li></ul> Received feedback from AMWUA and Headwater Consulting	Received feedback from 1 CAP M&I subcontractor and AMWUA  Received written comments from 2 CAP M&I subcontractors

# Different Firming Methods for CAP M&I Subcontractors



# AWBA is hiring a Water Resources Specialist

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## Posted on AZ State Jobs!

- Compiling, analyzing, and interpreting water use data and hydrologic modeling results.
- Assisting in developing annual operating plans and reports in collaboration with other governmental organizations and public and private entities.
- Preparing and posting meeting materials (documents and presentations) onto the AWBA website.
- Presenting analyses and results to AWBA Commission members, other agencies, and public forums.



# Thank you



Colorado River in Mohave County | January 2022 | Credits: Brian F. O'Neill