

PORA WATER COMMITTEE

A Quick Look at Some Water
Issues for Sun City West and
Arizona
2021

ARIZONA WATER

COMES FROM THREE SOURCES:

1. Surface Water: Rivers, Lakes, Rain, Snowmelt.

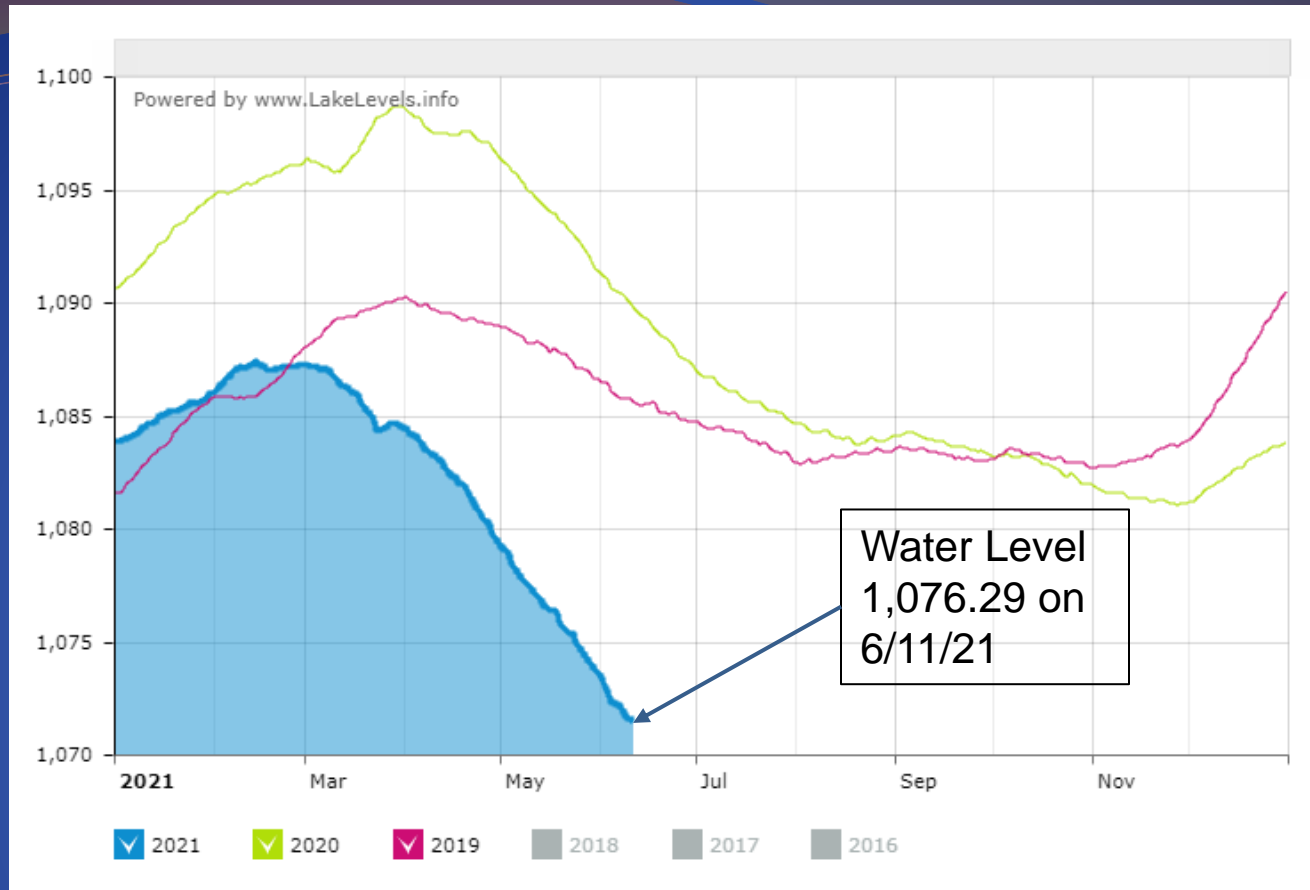
2. Groundwater: Water Wells

3. Recharged Water: *Natural* from aquifer contact with surface sources and *Artificial* from recharge ponds, injection wells.



Surface Water

Lake Mead Ring. The Water Level is 158 Feet Below Full Pool. This part of the Colorado River is the source of much of Arizona's water.

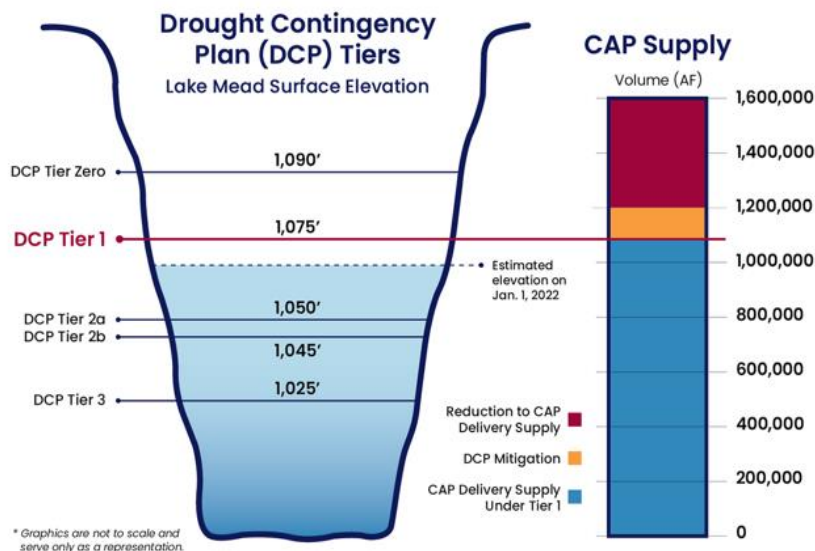


Surface Water - Lake

Lake Mead Water Level. High in the Spring, Low after Summer

2022 – Tier 1 Shortage

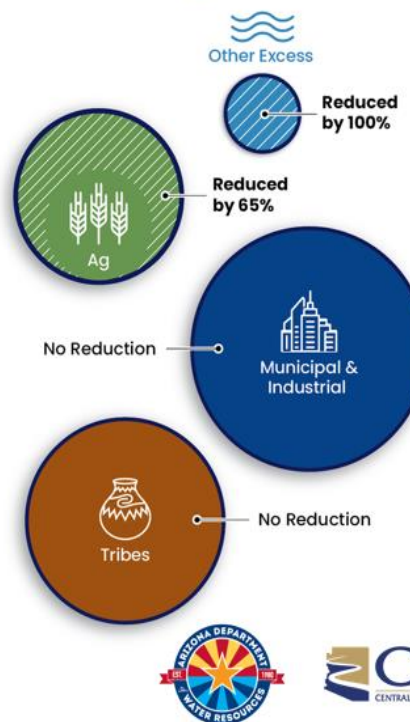
CAP Reductions



* Graphics are not to scale and serve only as a representation.

To learn more, please visit: www.cap-az.com/colorado-river-shortage

2022 Reduction to CAP Users After DCP Mitigation

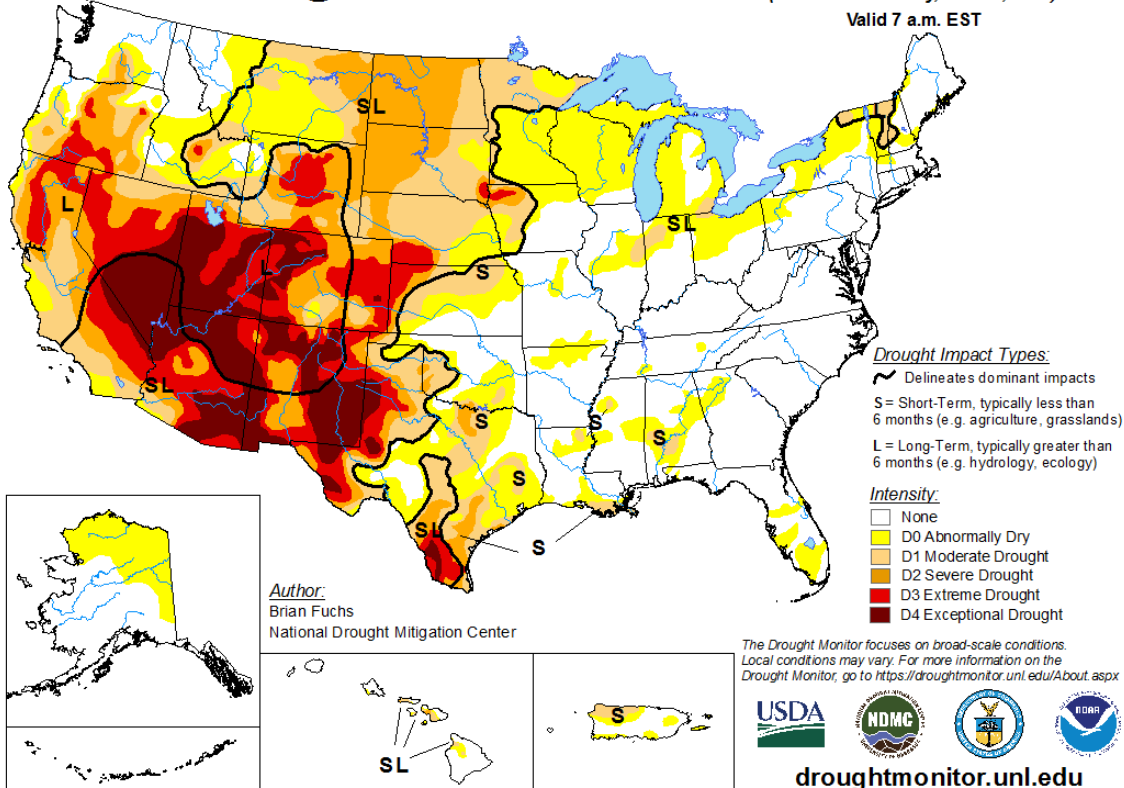


AZ Drought Contingency Plan

Note: Agriculture CAP Water Reduced by 65%

U.S. Drought Monitor

March 9, 2021
(Released Thursday, Mar. 11, 2021)
Valid 7 a.m. EST



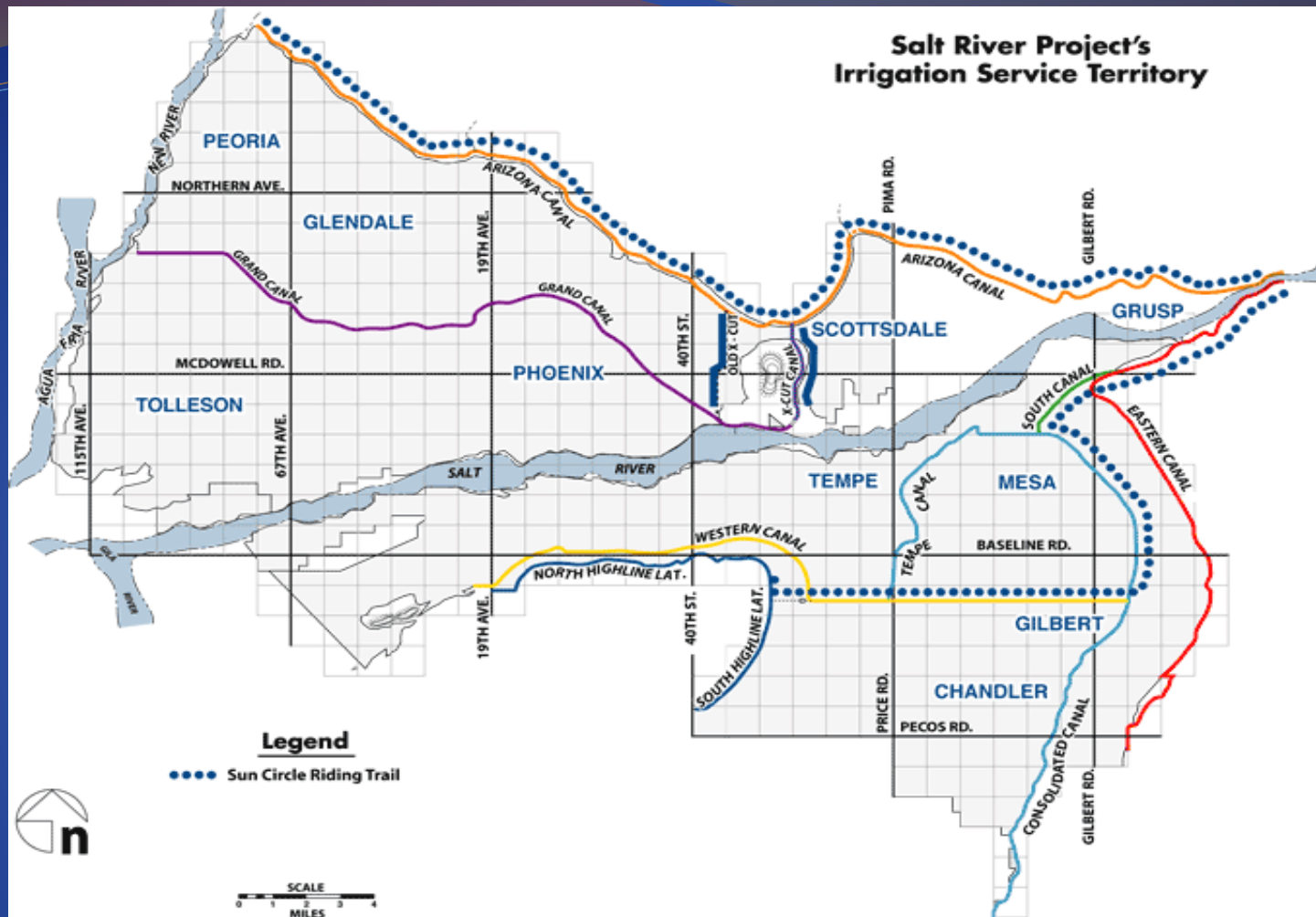
Drought Monitor 3-9-2021

The Desert Southwest is in a 21-Year Drought
Now "Exceptional" for Much of Arizona



Surface Water - CAP

Central Arizona Project Canal - 336 miles.
Provides 40% of the State's Water Needs.
It is Subject to Lake Mead Fluctuations



Surface Water – Arizona Canal

Transports Salt River Water to Glendale, Peoria, Scottsdale



Water Recharge

Recharge Basin for Reclaimed
Wastewater or Excess CAP Water



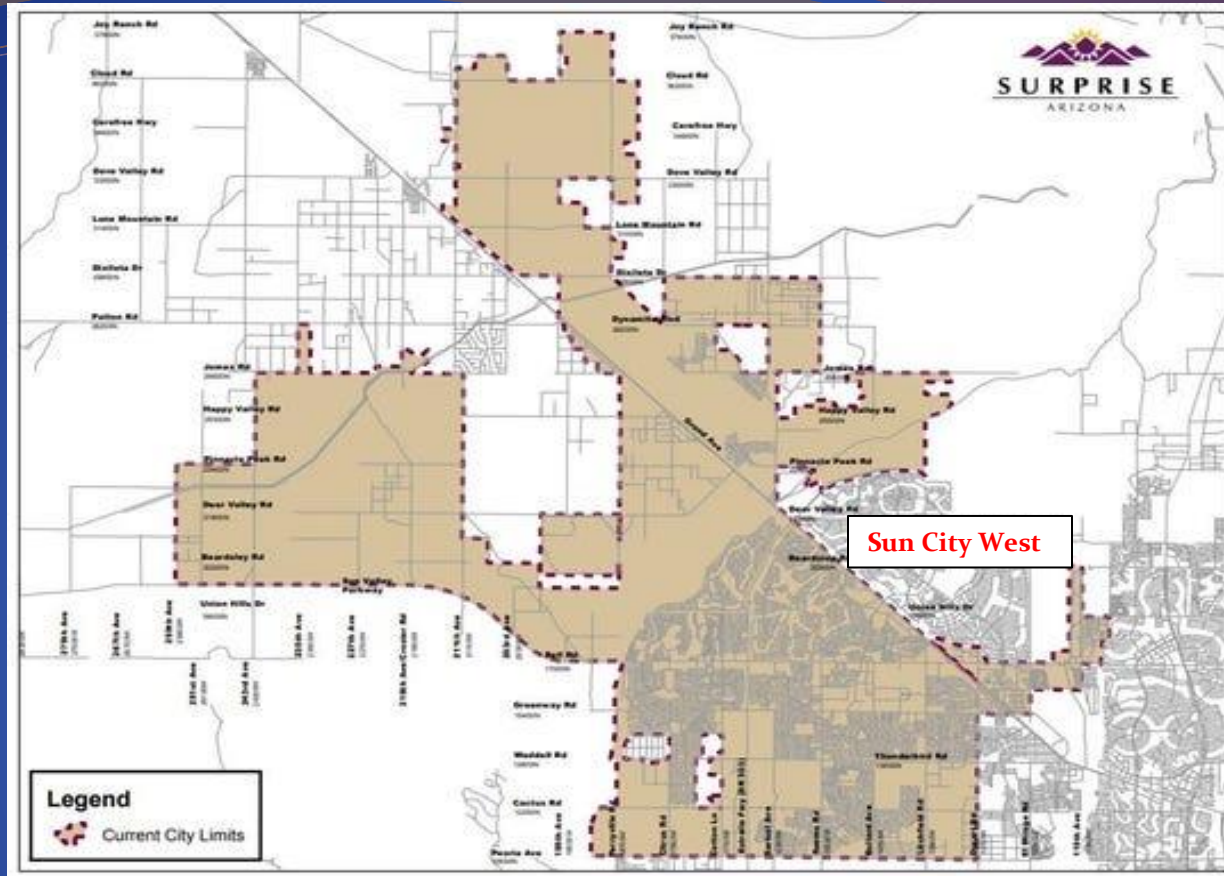
Groundwater Pumpinng

Typical SCW Water Well-200+ Hp Motor.
Approximately 1000 feet deep. These wells
provide 100% of SCW water.



Groundwater Depletion

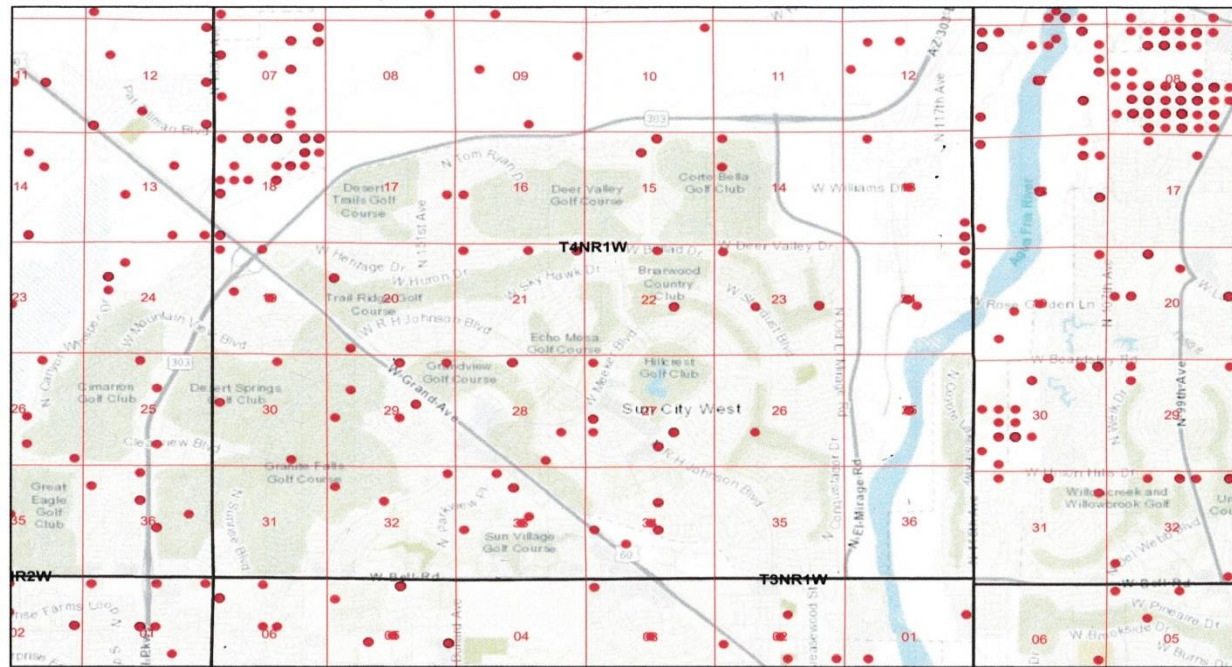
Ground Fissure from Overpumping & Subsidence in Eastern Pinal County, Arizona



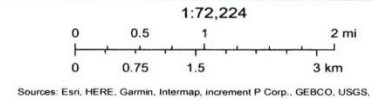
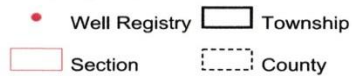
Groundwater?

Limits of City of Surprise. Development Continues to the West and NW of SCW

Water Wells in and Near SCW



October 4, 2020



Groundwater

Water Wells in and Near SCW



Groundwater Gone

Irrigation Leak in SCW



Groundwater Gone
Irrigation Leak Continued



Groundwater Gone

Swimming Pool Draining in SCW



Groundwater Treatment

Use the Sewer Cleanout Piping to
Send Water to the Wastewater
System for Treatment and
Recharge



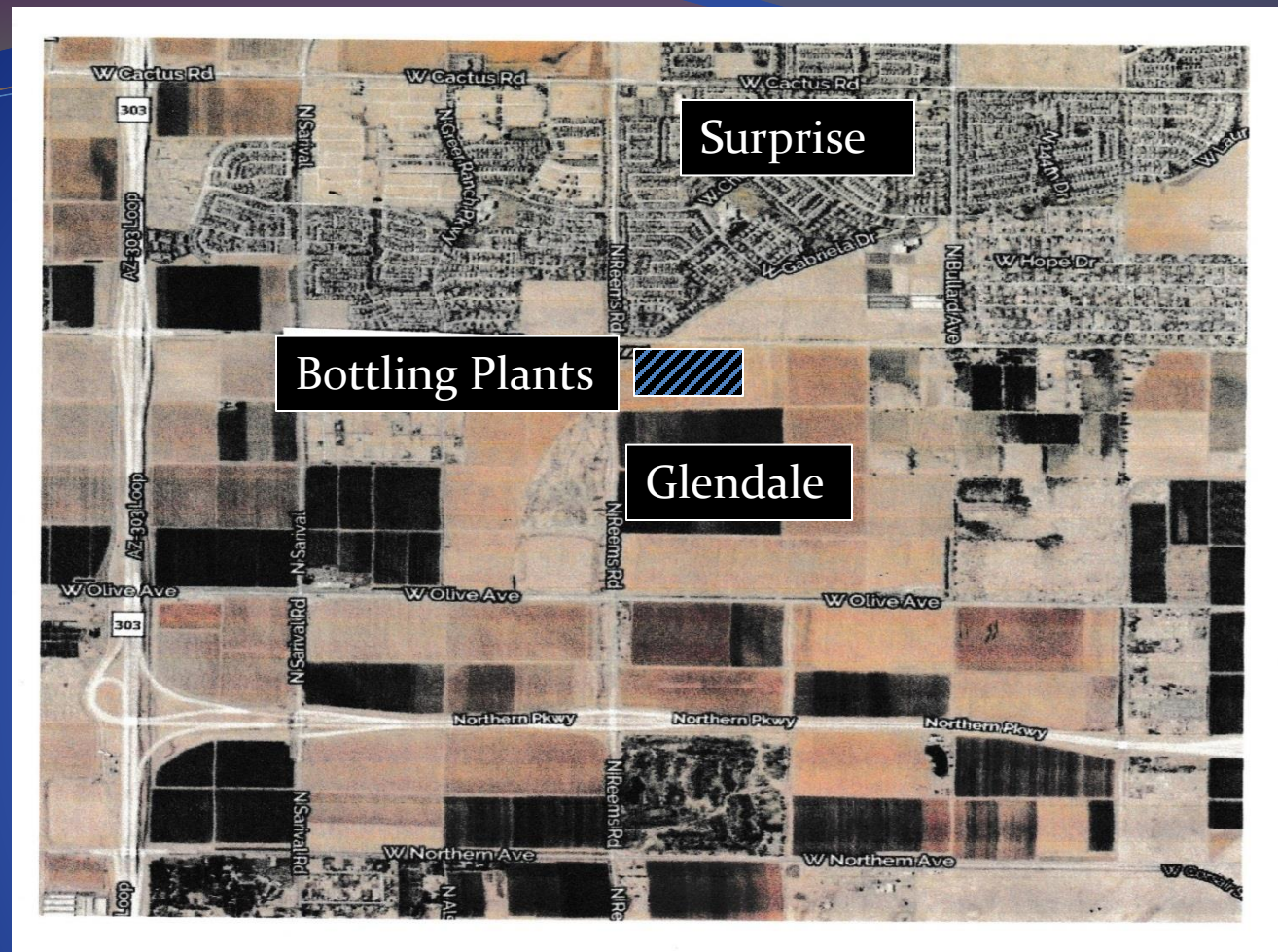
Groundwater Gone

Swimming Pool Draining Continued



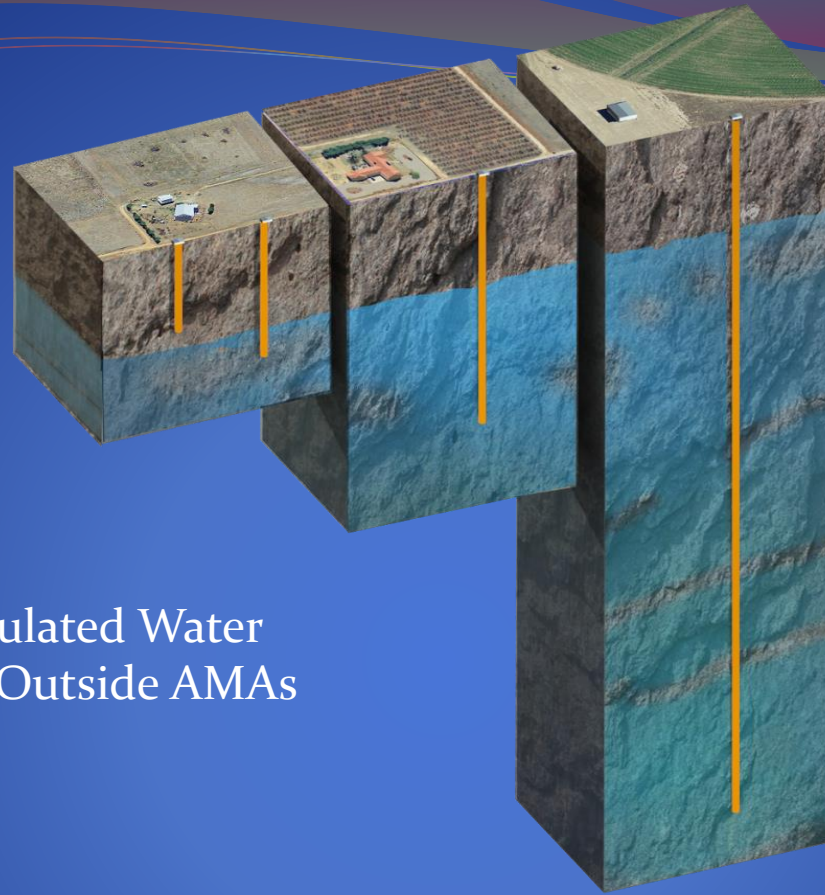
Surface Water & Groundwater

Bottling Plants in Glendale



Surface Water & Groundwater

Bottling Plants: Surprise to the North,
Glendale to the South



Unregulated Water
Wells Outside AMAs

Groundwater Pumping

Water Wells for: Small Farmer (400'-600') versus
Big Farmer (1010') and Mega Farmer (2500')



Beyond the Mirage

"The Future of Water in the West." A PBS
Documentary about the Colorado River:
beyondthemirage.org

NOTES FROM "BEYOND THE MIRAGE"

Colorado River:

Look at the Colorado River "System." Users: Cheyenne, Salt Lake City, Rio Grande (Albuquerque), Las Vegas, CAP (Arizona), Southern California and Mexico.

The CAP (Central Arizona Project) canal is 336 miles long is supplied by the Colorado River. It supplies 40% of Arizona's water needs, mostly for agriculture and population centers (Phoenix and Tucson).

Population and industry are increasing. Therefore, water usage is increasing.

Is this the 15th year of a 15 year drought or is it the 15th year of a 50 year drought?

There is no silver bullet.

Western snowpack is critical to maintain the river levels.

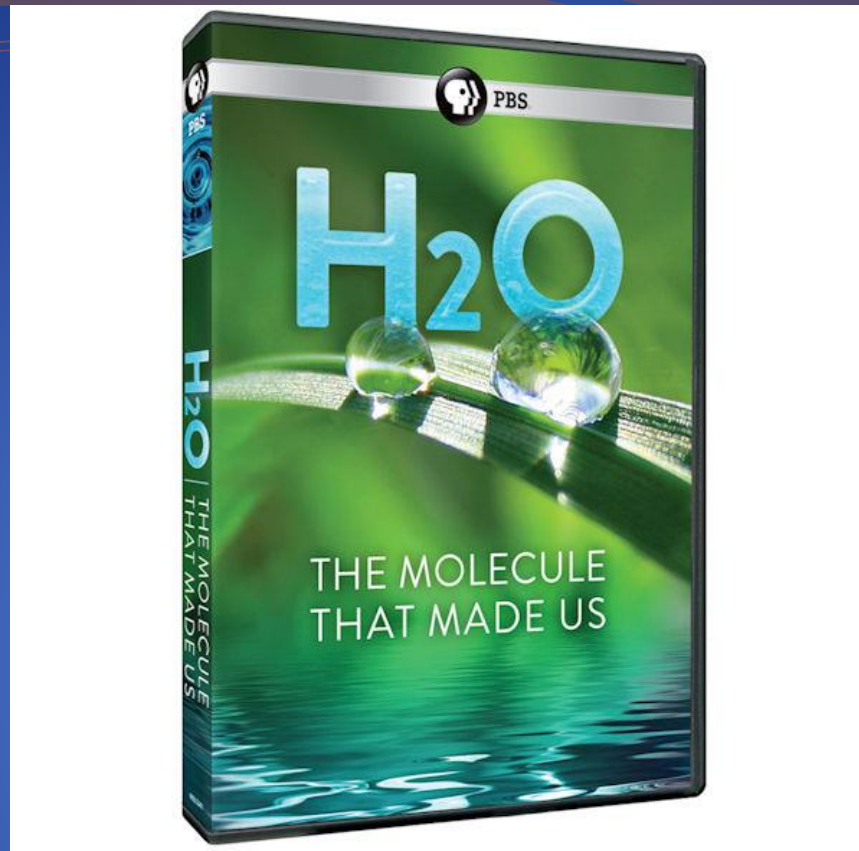
The river is overallocated.

Wet years only slow the decline.

Our groundwater should be savings; however, when surface water is insufficient or inaccessible, we must pump groundwater.

Desalination Plants offer hope in Israel and California: many permitting problems; large carbon footprint.

The desert southwest is growing. Water is the new oil.



H₂O the Molecule that Made Us

A PBS Documentary. Episode III - Crisis:
"Dry Areas are Getting Drier and Wet
Areas are Getting Wetter."

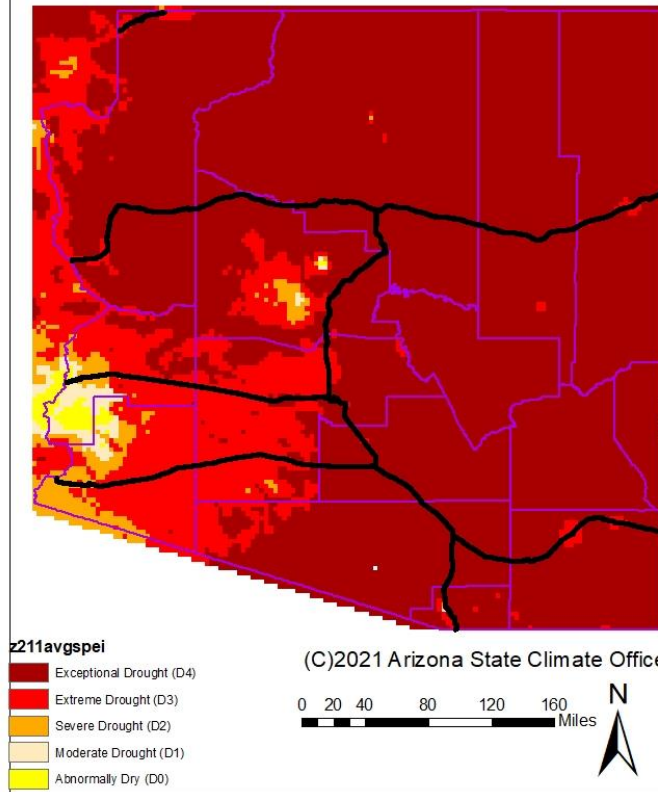
Notes from “H₂O – The Molecule that Made Us”

The notes below were taken only from – Episode III “CRISIS” that focuses on present and future water concerns.

These are random notes, not in any particular order, but important because of their relationship to water issues worldwide.

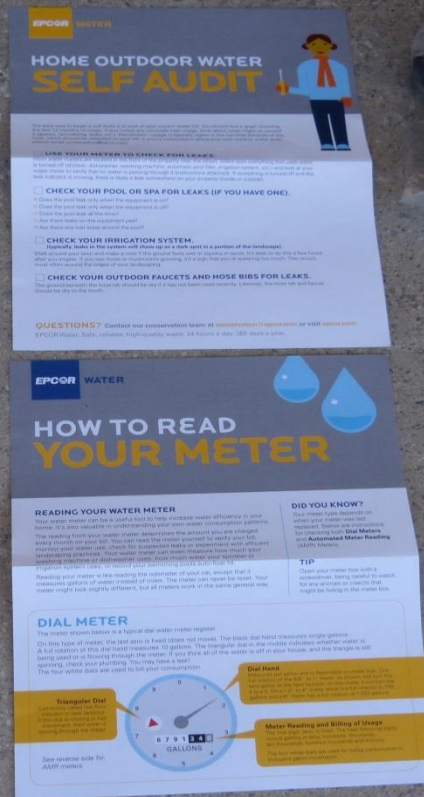
- In Gaza, 97% of water wells are unusable. The area will soon become unlivable.
- Within 10 years there will be a worldwide water shortage of 40%.
- NASA data shows dry areas are getting dryer and wetter areas are getting wetter.
- Scientists are frustrated; nobody listens.
- Cape Town Africa has almost no water.
- In drought areas many farmers are giving up – no rain.
- Water previously going to today's drought areas is instead going to other areas in the form of storms.
- US Midwest is experiencing more superstorms, about 10% stronger than earlier years.
- Flooding is increasing in storm areas – note hurricane Florence.
- Hurricanes have become 60% more powerful over the past 50 years.
- California water demand is unsustainable.
- Drought situation is worse than the public understands.
- Industrial Agriculture doesn't care about people; locals are not considered.
- The world needs food so more pumping is needed.

Long-Term Drought January 2021



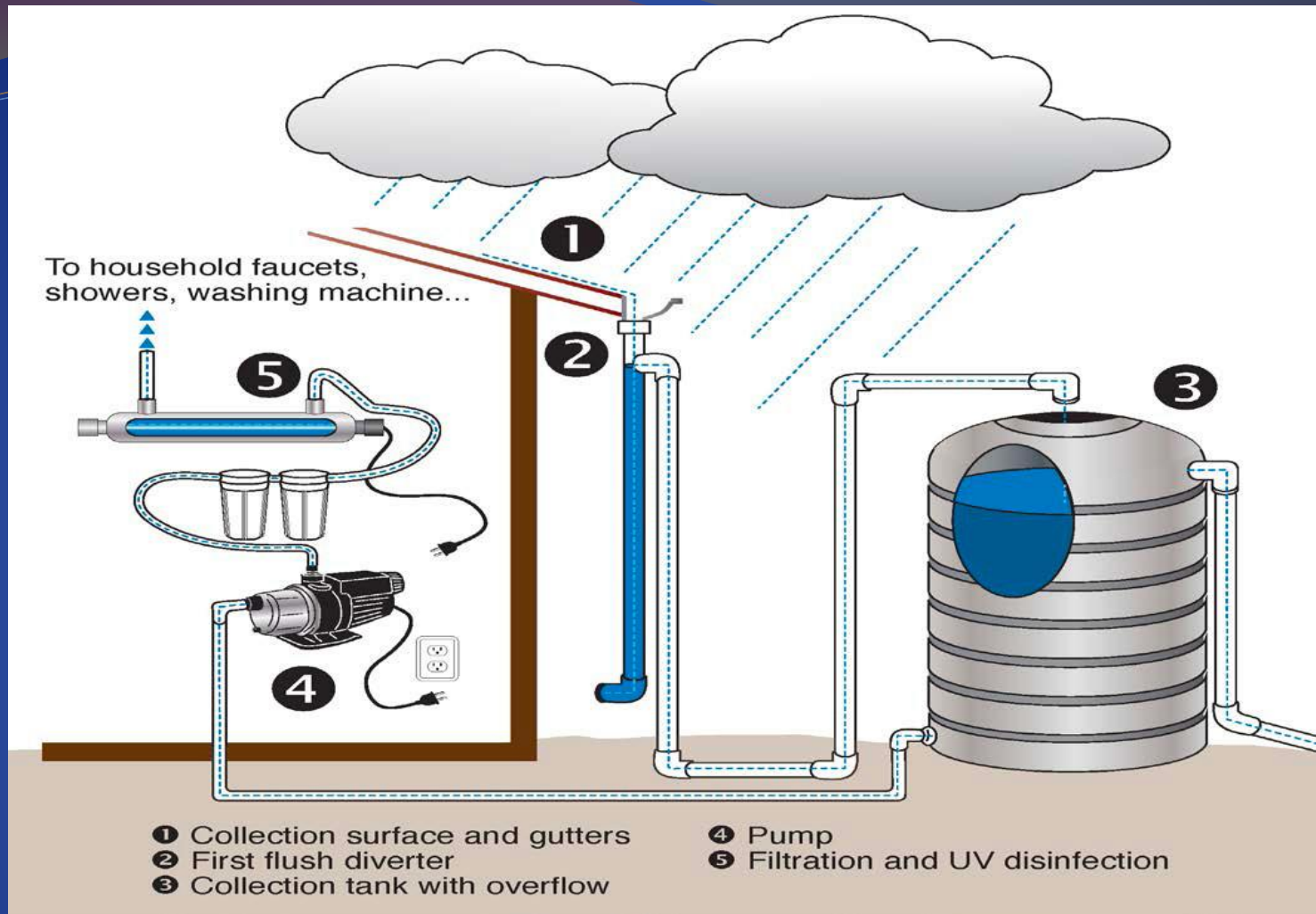
Long Term Drought for Arizona

“Exceptional Drought Status”



Water Conservation Kit

Available by Request on Internet At "Water Conservation Kit-Epcor"



Rainwater for Potable Use

Basic Capture and Treatment System

The Myth of Safe-Yield: Pursuing the Goal of Safe-Yield Isn't Saving Our Groundwater



Kathleen Ferris, Senior Research Fellow
Sarah Porter, Director

A New Groundwater Well

How Many More will we See?

CREDITS

Information Presented in this Document has been
Researched and/or Supplied by:

- Arizona Department of Water Resources (ADWR): *new.azwater.gov*
- Arizona Republic: *environment.azcentral.com*
- Ian James: ian.james@azcentral.com
- Arizona Water News: *azwaternews.com*
- ASU Cronkite News: *cronkitenews.azpbs.org*
- Water Resources Research Center: *wrrc.arizona.edu*
- Beyond the Mirage, documentary by Arizona Public Media, PBS, U of A: *beyondthemirage.org*
- H2O, The Molecule that Made Us: *PBS documentary*
- Layperson's Guide to Arizona Water, *U of A, wrrc*

Our Water

Any Questions?

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This presentation is a Work in Progress.
Please visit periodically for occasional
updates.

Your PORA Water Committee
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