

# **Toward Groundwater Resilience in New Mexico:**

## **Building on the Foundation of Aquifer Mapping and Monitoring**

Presentation to the New Mexico Interim Water and Natural Resources Committee

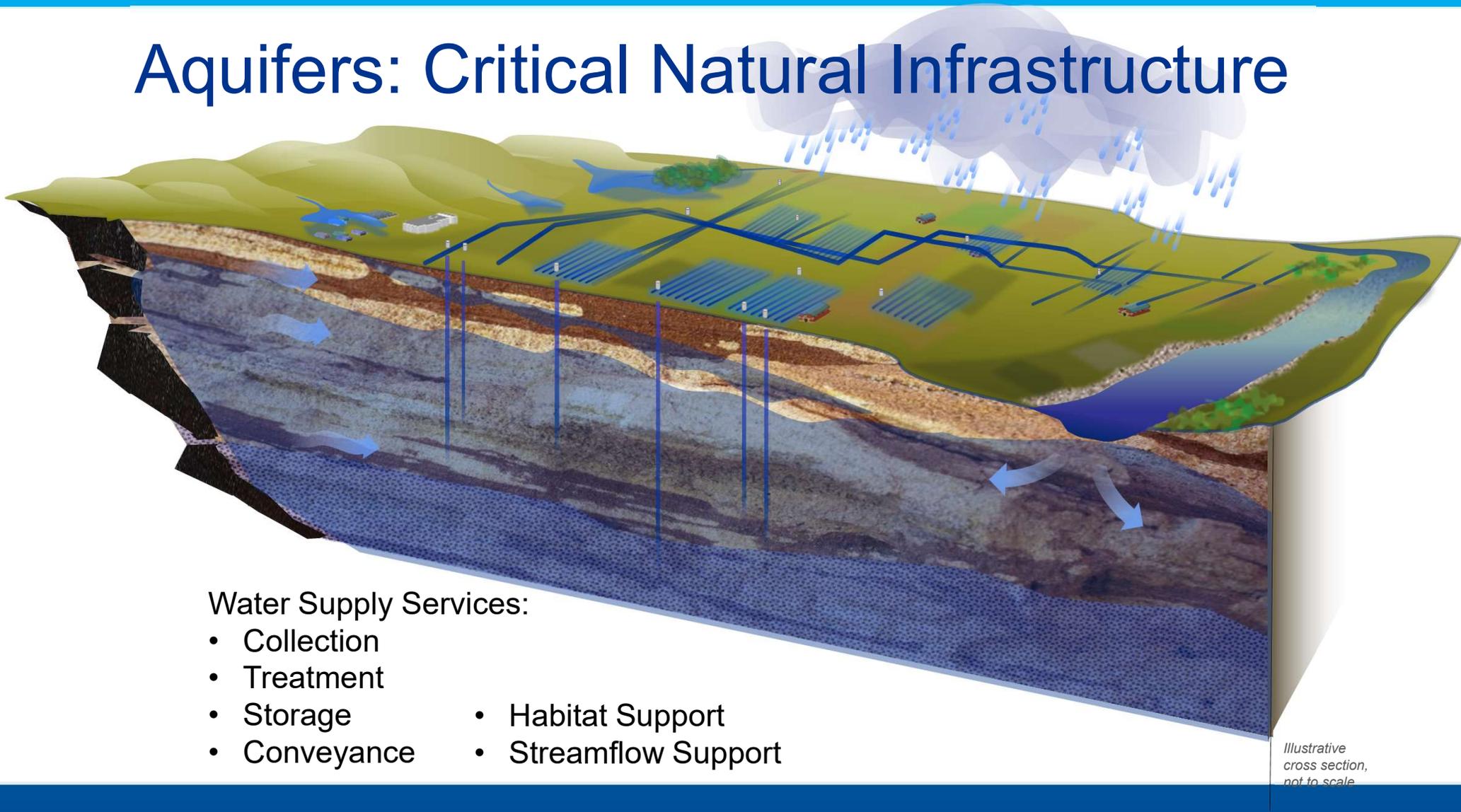
August 8, 2023

Dr. Maurice Hall  
Senior Advisor, Climate Resilient Water Systems  
Environmental Defense Fund

# Aquifers: Critical Infrastructure for New Mexico's Water Resilience

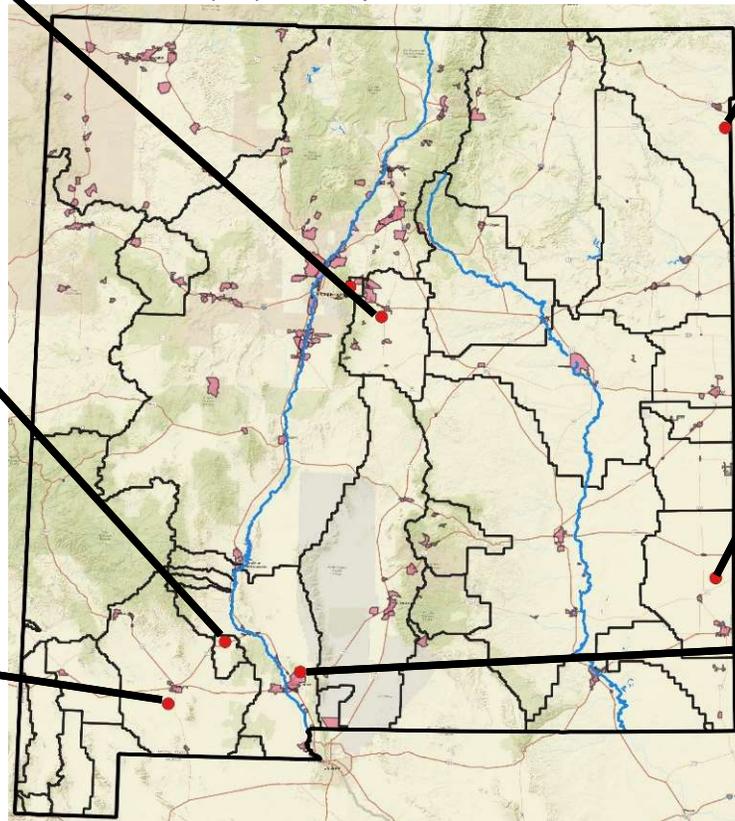
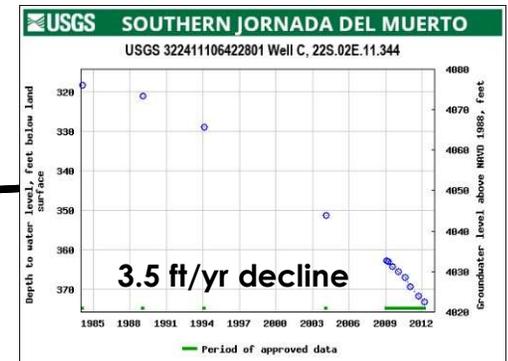
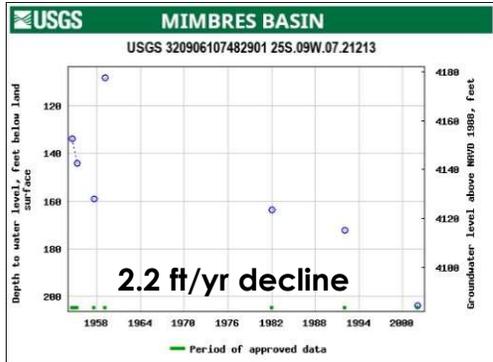
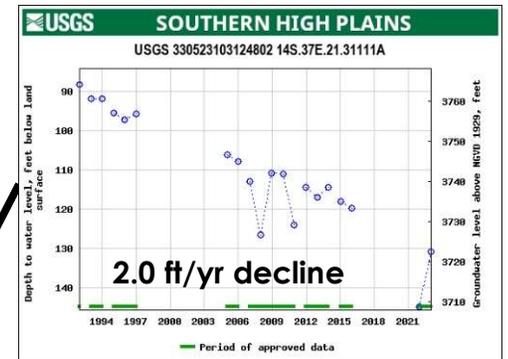
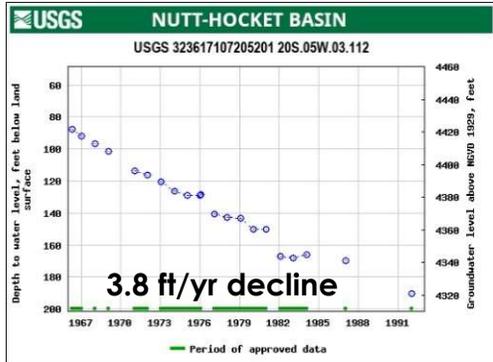
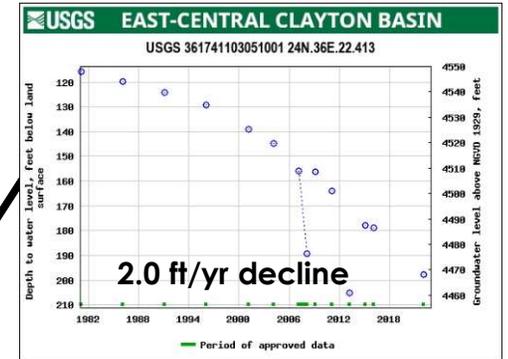
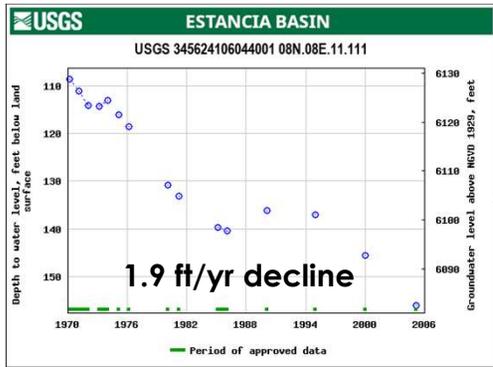
- 92% of New Mexico's community water systems rely on groundwater.
- 54% of irrigated acreage exclusively utilizes groundwater and another 15% utilizes supplementary groundwater.
- Many of the regions experiencing declines have no alternative supply options.

# Aquifers: Critical Natural Infrastructure



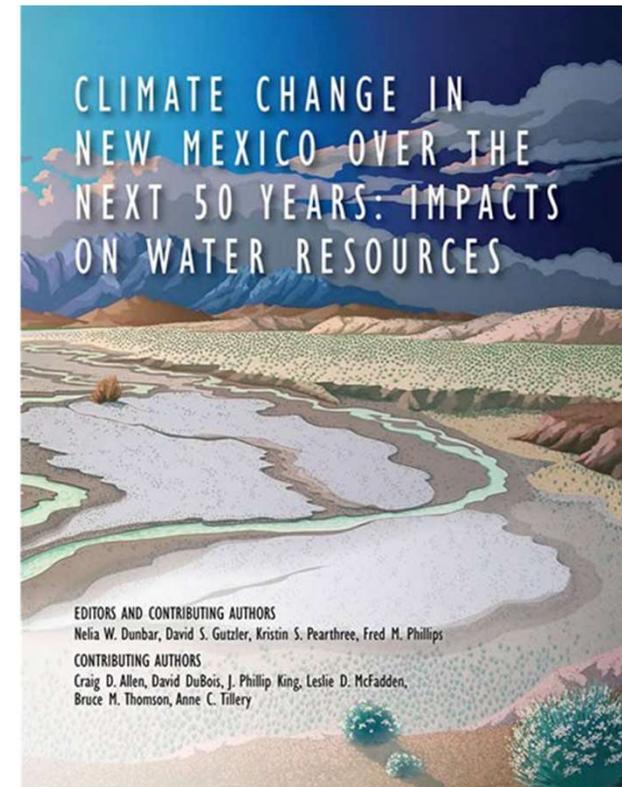
# New Mexico's Groundwater: Troubling Trajectories

Adapted from Robert Pine, Hydrology Consultant, Presentation AGWT Conference, Albuquerque, NM July 12, 2023



## ***Climate Change: Accelerating the Need for Proactive Groundwater Management***

- Climate change will result in greater demands for groundwater
- Higher Temperatures mean higher evaporation rates (less groundwater recharge)
- Need calibrated hydrological models for recharge and runoff specifically for NM
- Need quantitative and geographically distributed measurements of NM aquifer water levels and public accessibility of such data



Source: Dunbar, N.W., Gutzler, D.S., Pearthree, K.S., Phillips, F.M., Bauer, P.W., Allen, C.D., DuBois, D., Harvey, M.D., King, J.P., McFadden, L.D., Thomson, B.M., and Tillery, A.C., 2022, *Climate change in New Mexico over the next 50 years: Impacts on water resources: New Mexico Bureau of Geology and Mineral Resources, Bulletin 164*, 218 p. <https://doi.org/10.58799/B-164>

# Potential of Proactive Groundwater Management

- **Leadership in New Mexico**
  - Pecos Valley Artesian Conservancy District (<https://pvacd.com/>)
  - Ogallala Land and Water Conservancy (<https://www.ogalwc.org/>)
- Arizona's New Active Management Area
- Capturing Floodwaters in California

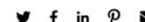
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## ARIZONA CAPITOL TIMES

### Douglas groundwater measure enhances conservation

Camryn Sanchez And Jakob Thorington Arizona Capitol Times // November 24, 2022



*Douglas-area voters recently passed Proposition 422, a ballot measure that establishes an active management area (AMA) in the Douglas Basin restricting groundwater pumping. A second ballot initiative would have created another AMA for the adjacent Willcox Basin, pictured here, but voters rejected that proposal. PHOTO COURTESY OF ARIZONA DEPARTMENT OF WATER RESOURCES*

Southeast Arizona residents took matters into their own hands to protect a groundwater basin through a citizens initiative, although a sister measure failed.

Douglas-area voters recently passed Proposition 422, a ballot measure that establishes an active management

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*View from a drone of a groundwater recharge project at Ball Ranch near San Joaquin River in Fresno County, California. Photo taken by the Department of Water Resources March 30, 2023. (<https://water.ca.gov/Programs/Groundwater-Management/Groundwater-Recharge>)*

# Toward More Resilient Groundwater Management for New Mexico

- If we are to leave future generations a functional system of water resources in New Mexico, strengthening our groundwater management is critical
- An essential foundation: Aquifer Mapping and Monitoring
- State and local agencies, NGOs, and academic partners are working to build a “Groundwater Alliance” to:
  - Bring together diverse interests to focus on how we improve New Mexico’s groundwater resilience
  - Build common understanding of challenges and opportunities in groundwater management
  - Support increased investment to monitor and manage groundwater resources

**Thank you!**