



New Mexico
Desalination
Association



Enhanced Water Stewardship Using Nontraditional Waters

2025 New Mexico Water Conference – October 2025

**Mike Hightower
New Mexico Desalination Association**

- The NM Desalination Association was established in 2017 to promote and assist stakeholder knowledge of:
 - Desalination approaches, technologies, costs, and opportunities
 - New Mexico's brackish and nontraditional water resources
- Educate stakeholders on using desalination to create "New Water for New Mexico", in order to:
 - Support sustainable economic growth,
 - Protect the environment, and
 - Maintain social and cultural traditions.

More information at:

<https://nmdesal.com>

The New Mexico Desalination Association (NM Desal) is a 501-C3 non-profit corporation



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What's New Mexico's water problem?

New Mexico has limited fresh water resources, and climate analysis in the 50-year water plan (see Phillips et al 2022) in a business-as-usual scenario, NM will have an annual water deficit of 750,000 ac ft by 2075.

What is needed?

Active water stewardship of water resources to provide municipalities, industry, the environment, and agriculture with safe, secure, and reliable water supplies.

The problem



The solution



NEW MEXICO'S WATER FUTURE:

Scientists predict over the next 50 years...



New Mexico will have approximately 25% less water available in rivers and aquifers



New Mexico will be hotter and drier



Historical weather patterns, including precipitation, will change significantly

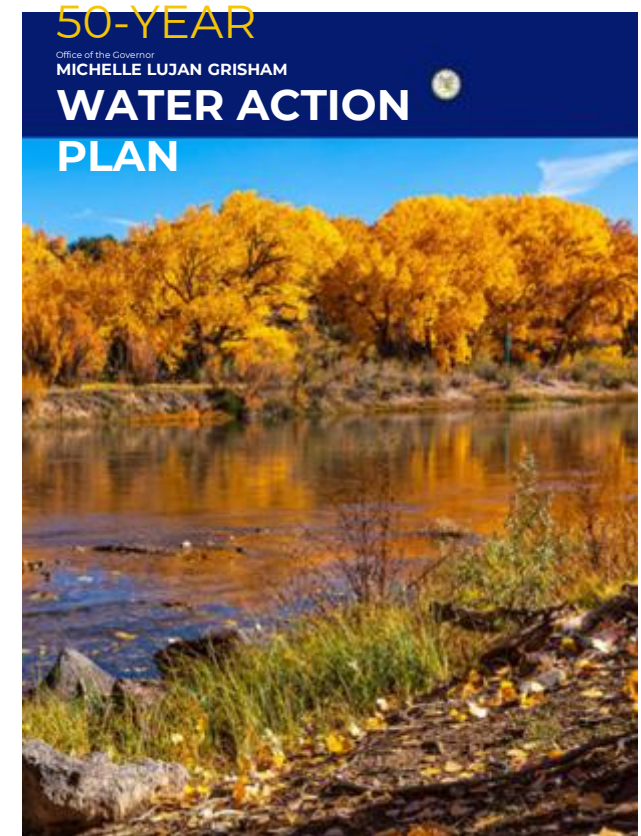


There will be more significant weather events, such as fires, flooding and drought

Without action, New Mexico will not have enough water to meet our needs

Within the next 50 years New Mexico will have a shortage of **750,000 acre feet of water**

Conservation, protection of existing water resources and development of new water resources will be required to meet this shortfall



OSE Water Policy and Infrastructure Task Force - December 2022

“...need to augment supply regionally, through such tools as brackish groundwater desalination, wastewater reuse, and treated or recycled produced water.”

Global water stress is driving a “One Water” concept

- Two of the United Nations’ 2000 Sustainable Development Goals identify **water reuse as a key to a more sustainable future**.
- The UN focus is on the social, health, environmental, and economic “**Value**” of water.
- “**Value**” is not synonymous with current price or cost!
- “**One Water**” is a concept that all water has “**Value**” including waste water if treated for appropriate use

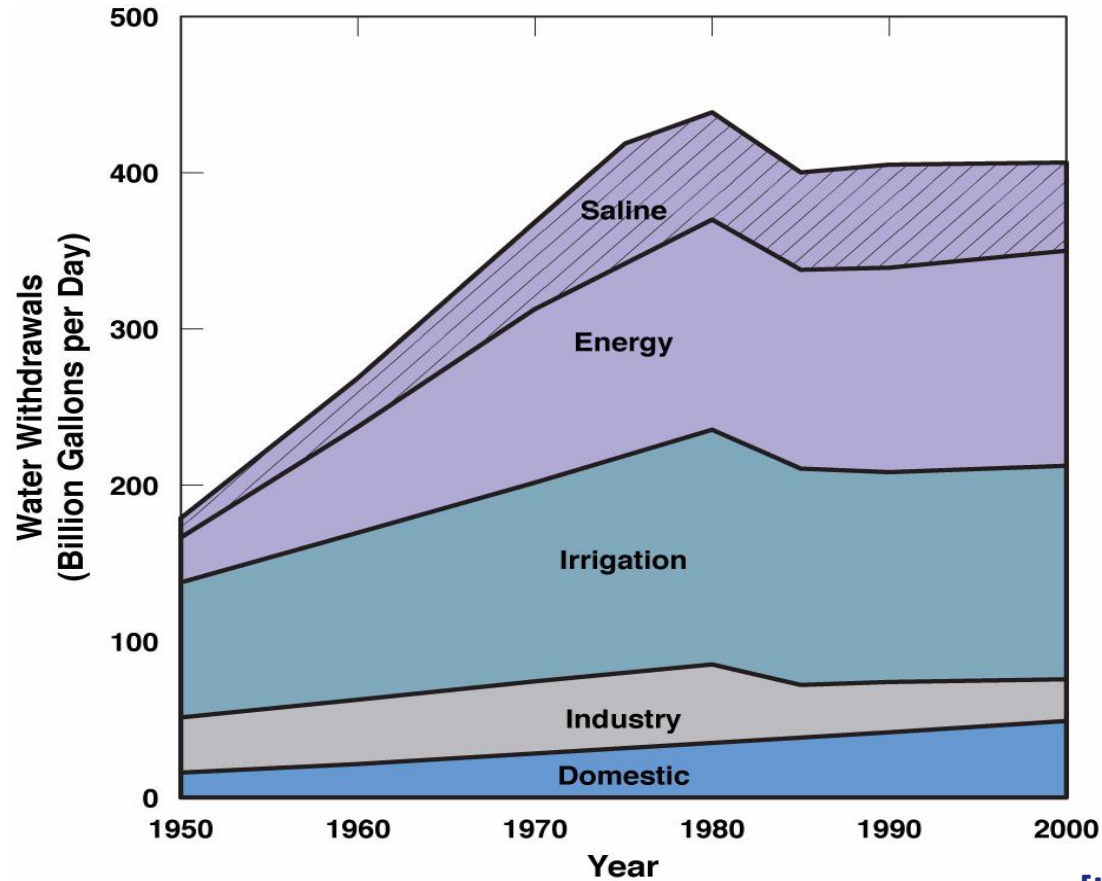


2021 World Water Development Report

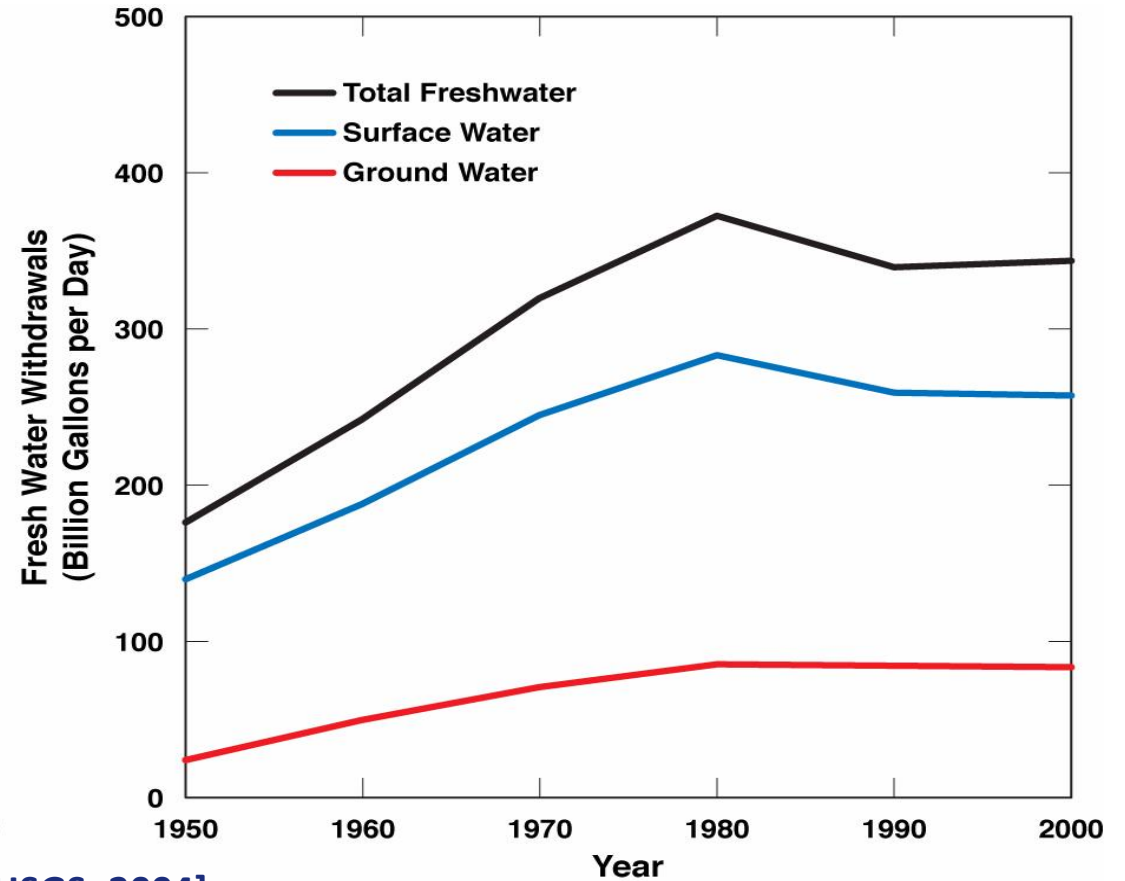
Health, environmental, social, and economic “Value” of water



All Major Fresh Surface and Ground Water Supplies in the U.S Have Been Appropriated

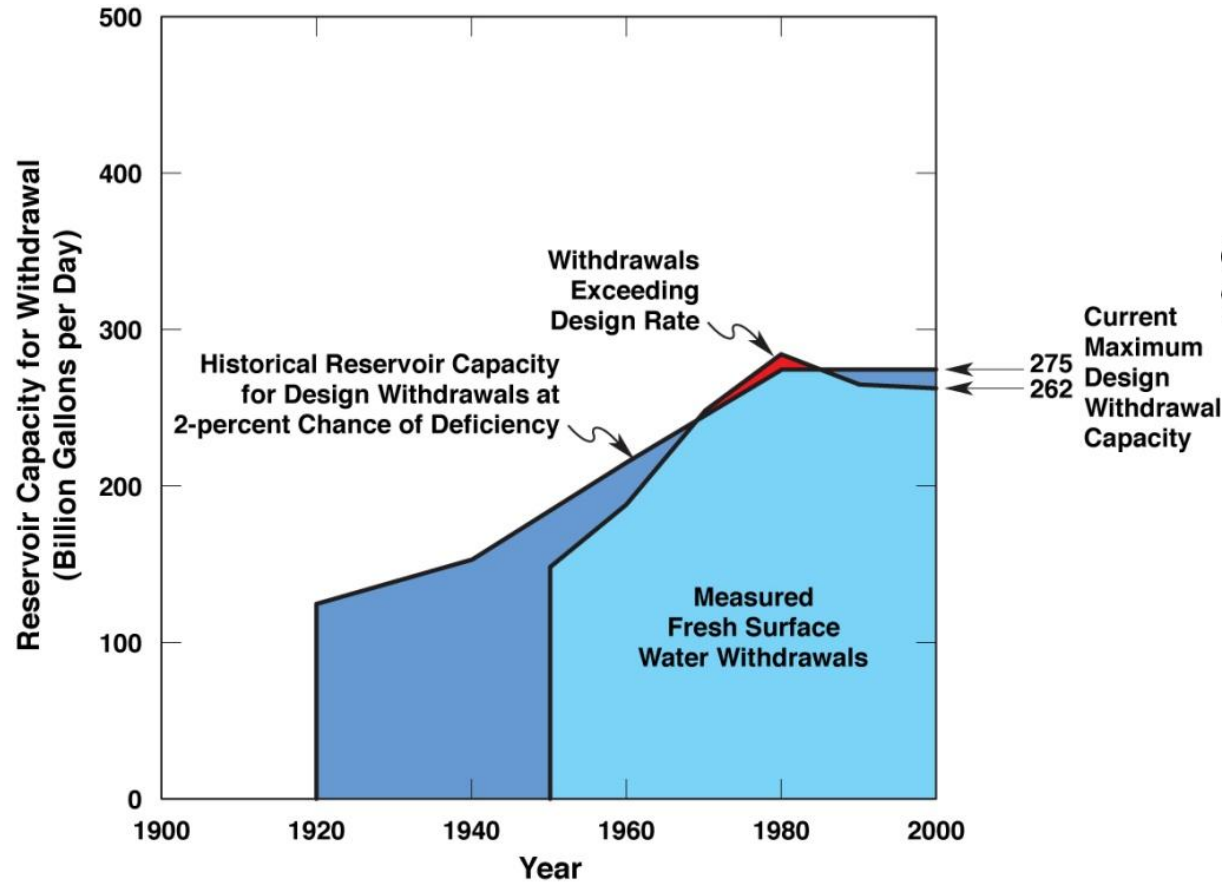


[USGS, 2004]



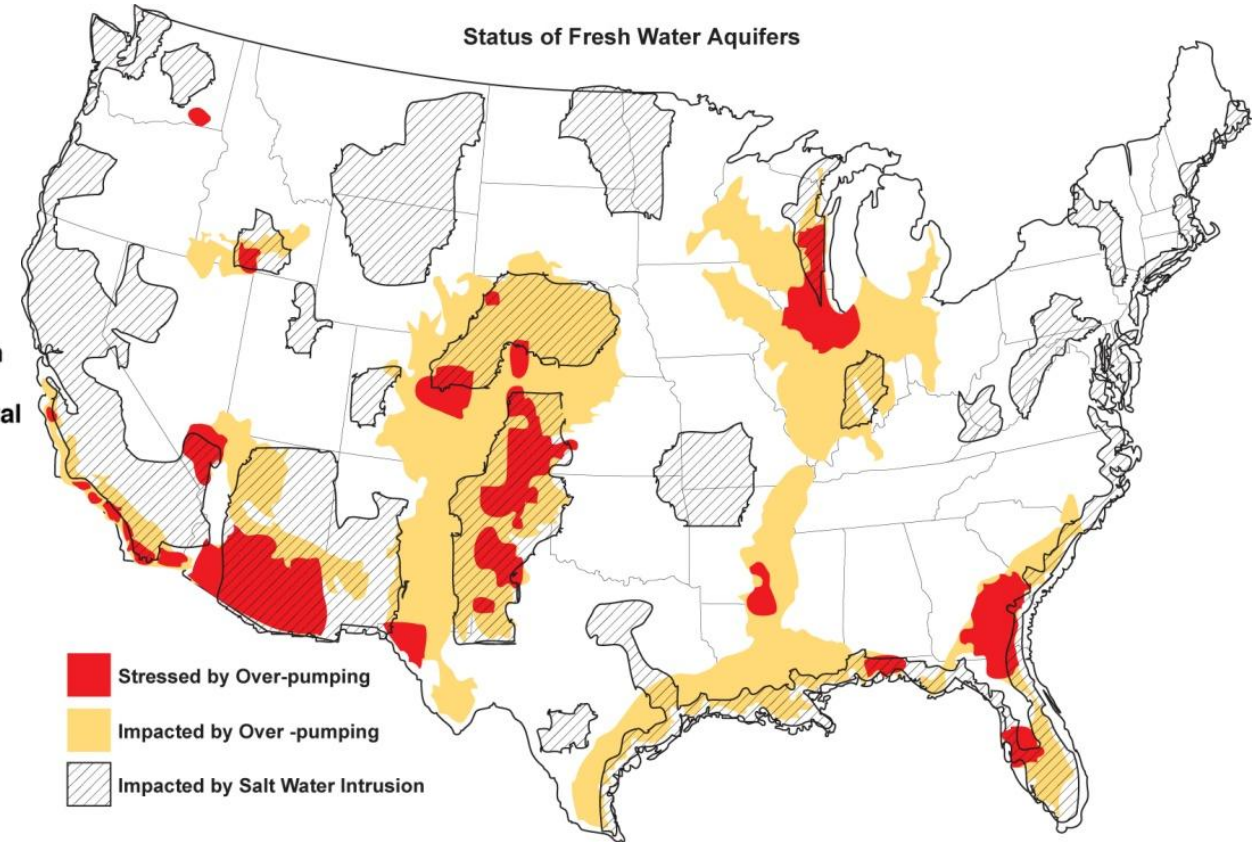
Do industry, agriculture, and energy need fresh water?

To save fresh water – we need to use non-traditional water sources



Sandia 2007

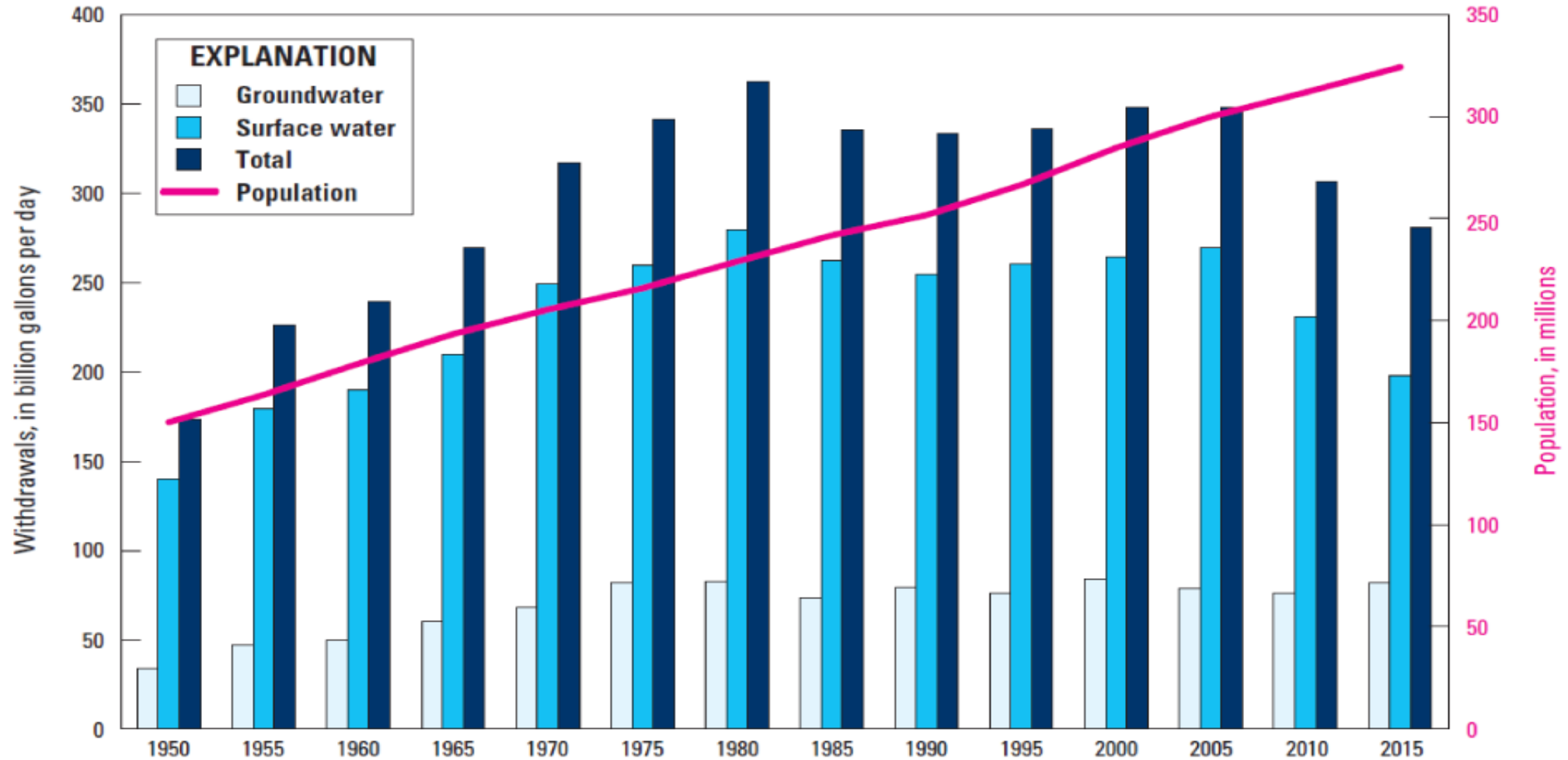
No increase in fresh surface water storage capacity since 1980



Shannon 2008

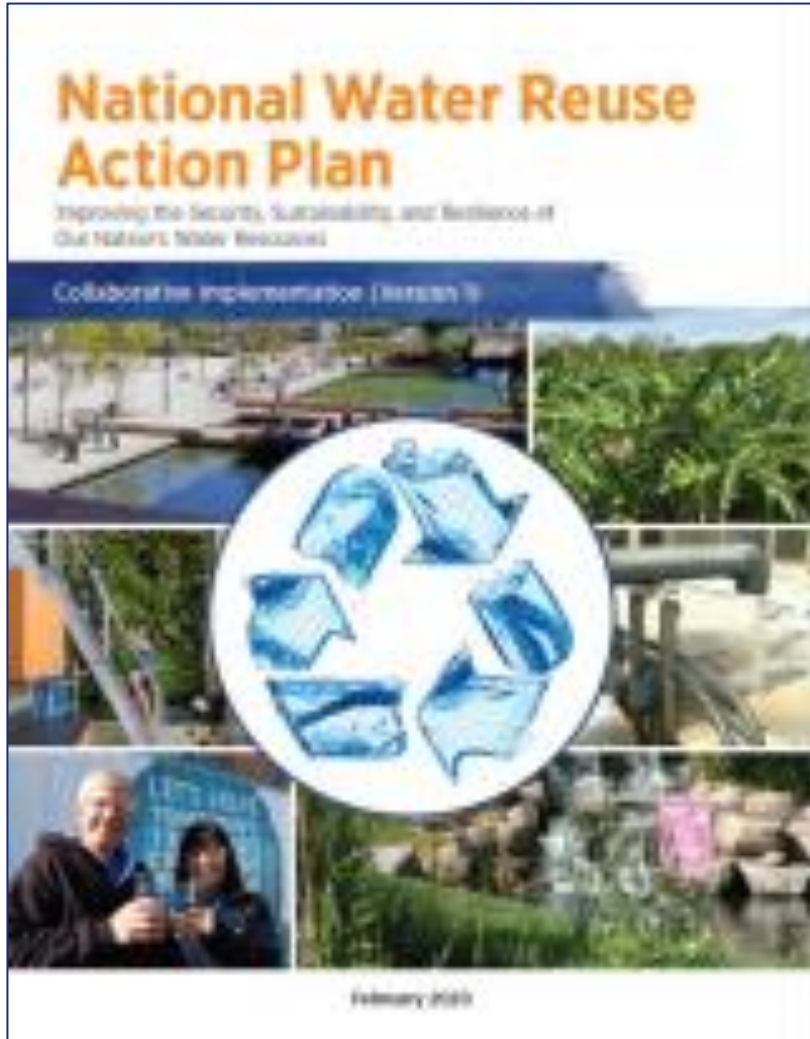
Most major fresh groundwater aquifers are over-stressed

Fresh Water Issue - No New Supplies Available



Trends in population and freshwater withdrawals by source, 1950–2015

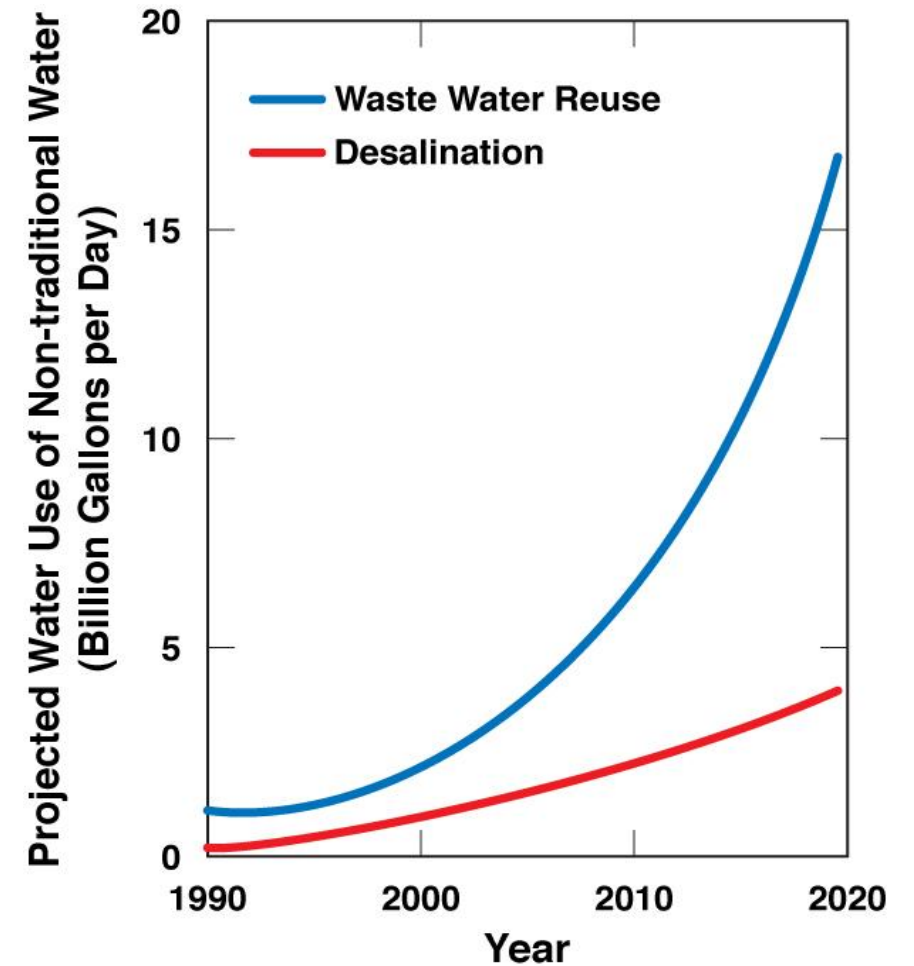
EPA National Water Reuse Action Plan – Mar 2020



- Focus on fit-for-purpose treatment and reuse of waste water
- In five major areas:
 - Thermo-electric cooling water
 - Agricultural waste water
 - Municipal waste water
 - Produced water
 - Storm water
- Major treatment needs are organics removal and desalination to reduce TDS

- Nearly 100 inland desalination facilities across Texas produce 138 million gallons of water per day from the 2.7 billion acre-feet of brackish water
- Alice City, Texas recently hired Seven Seas Water to build a brackish desal facility paying \$2.20/1000 gallons for 15 years.

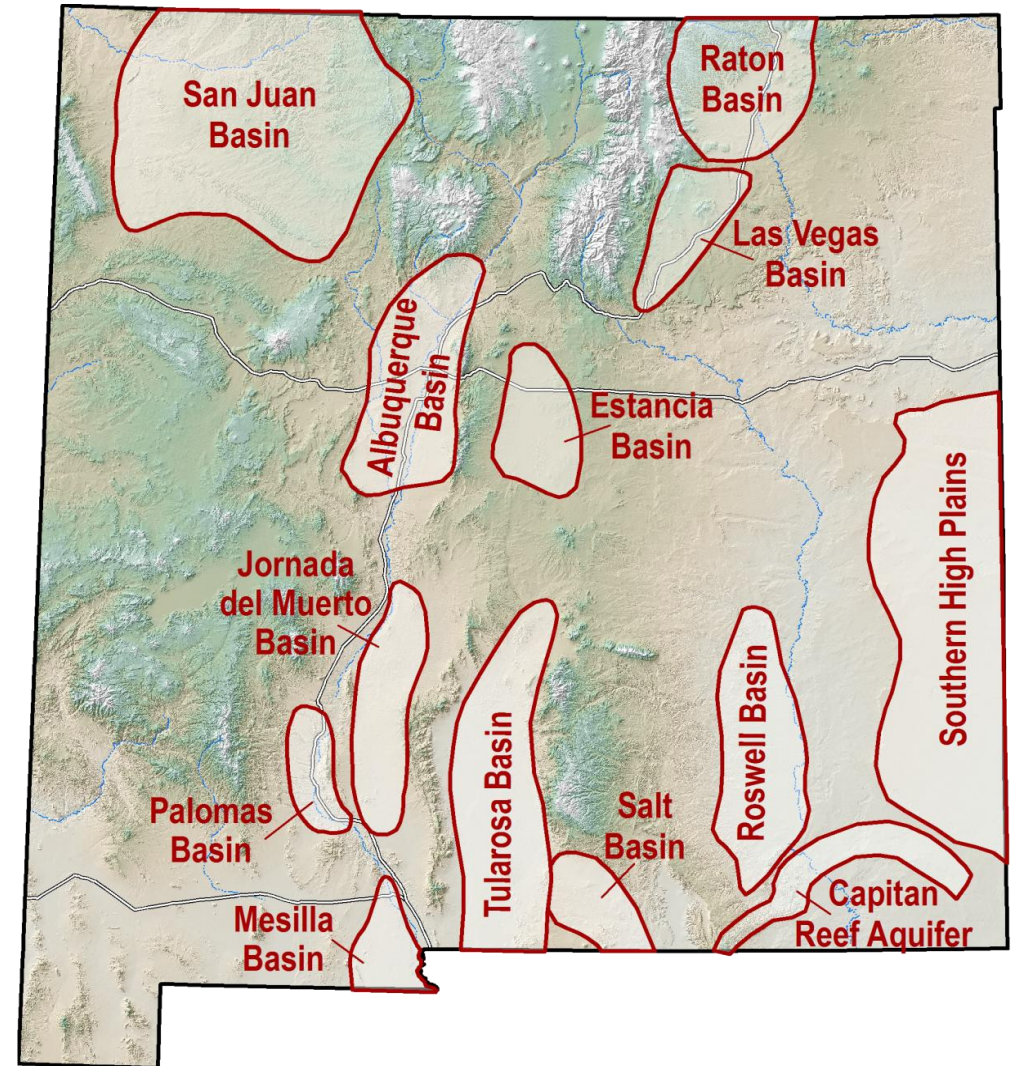
- Wastewater reuse growing at 15% per year
- Desalination – growing at 10%/yr
 - 100 brackish groundwater plants producing 138 MGD in TX in 2025
 - 10 plants in AZ, 60 plants in CA, 120 plants in FL, 16 plants in Indiana, and 15 in North Carolina
 - 10 industrial/single well municipal systems in NM using desalination technology producing about 5-10 MGD
- NM SWS funding of \$45 M for proposed desal projects just completed.



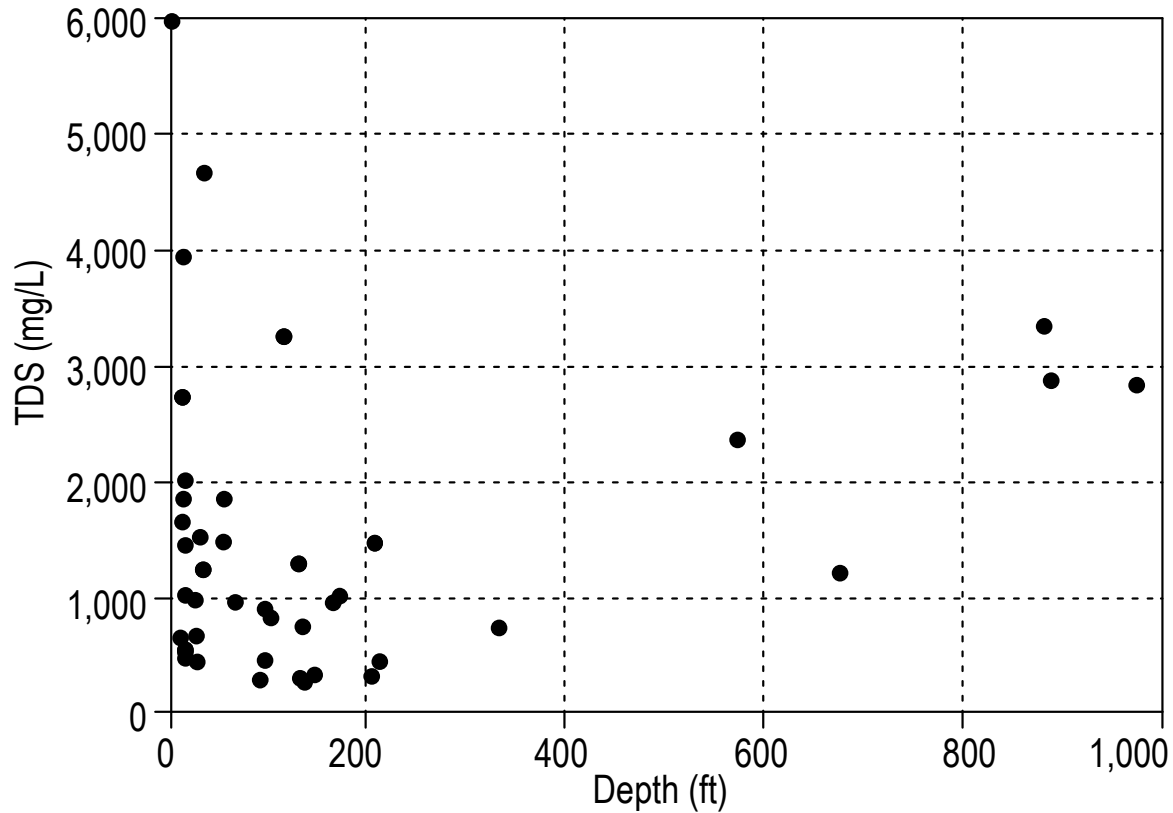
(Based on Water Reuse 2007, Mickley 2003)

Major Brackish Water Locations in NM

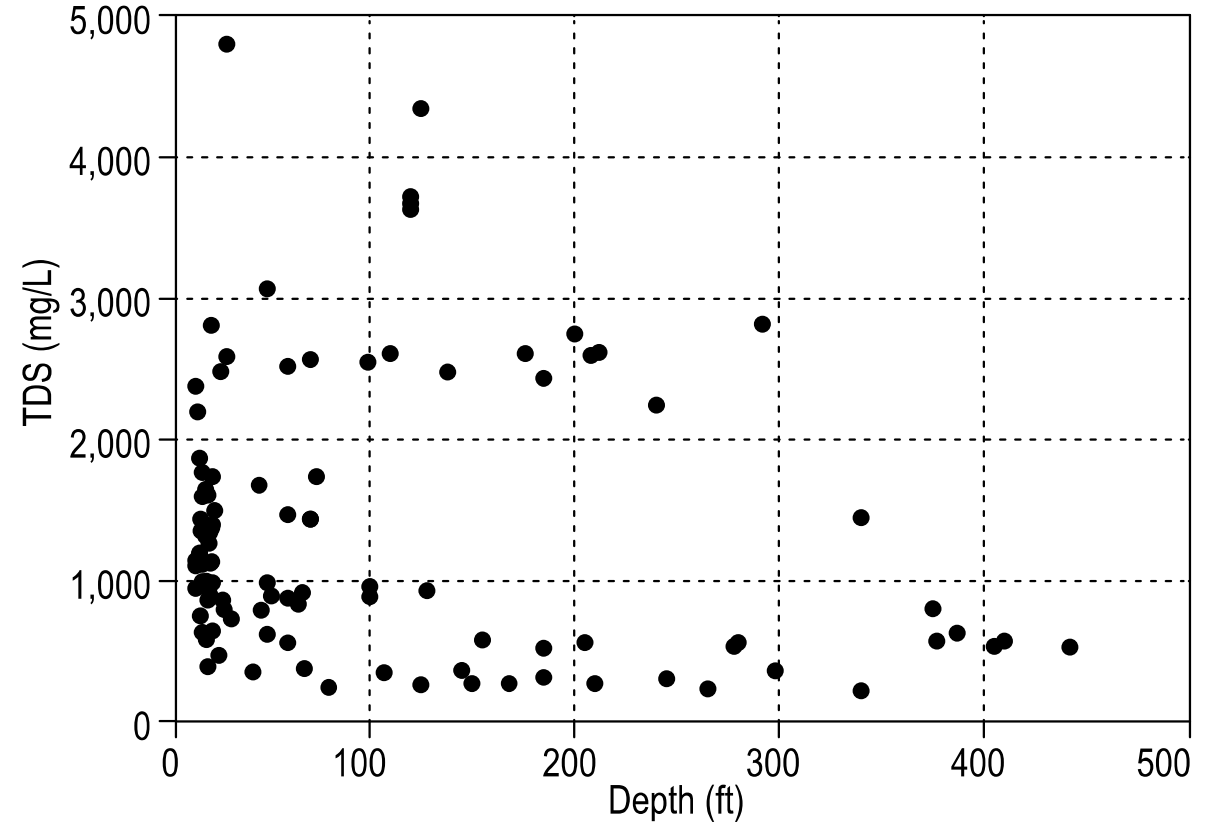
- NM estimates about 2 billion acft of recoverable brackish water
 - Viability and aquifer yields still need to be quantified
 - Strategic Water Supply has provided funding to initiate those efforts
- TX estimates about 2.7 billion acft of recoverable brackish water, mostly in western TX



Most NM Ground Water Basins Contain Zones of Brackish Water that are Easily Recoverable

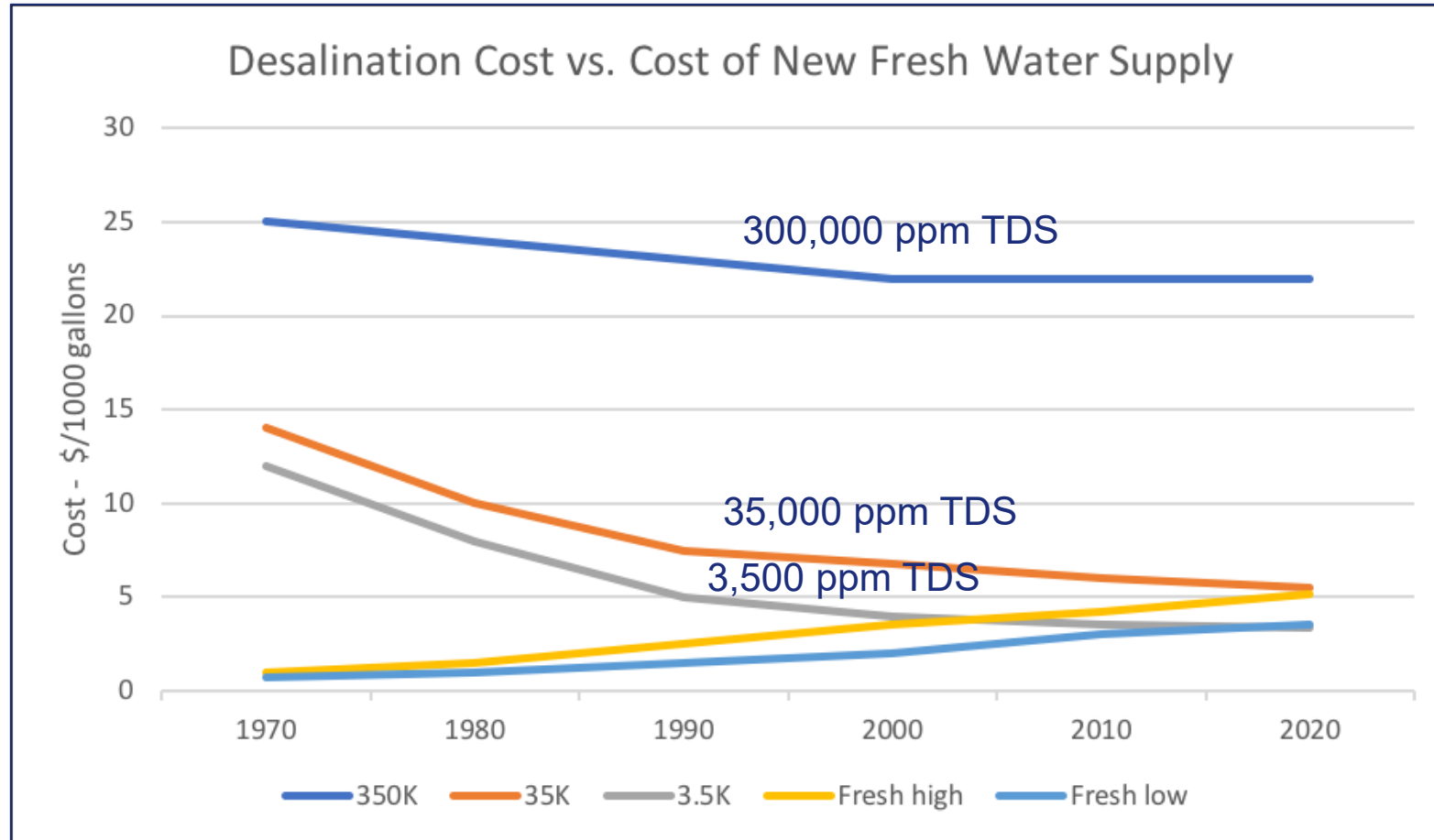


Raton and Las Vegas Basins



Palomas (T or C) Basin

Decreasing Treatment/Increasing Fresh Water Costs



(EWRI Hightower 2018)

Major NM Desal Public Outreach Efforts

- Nov 2018 Workshop on produced water reuse for NM EMNRD
- October 2019 Regional Workshop with AMTA on High Recovery Desal and Concentrate Reuse
- 2020 – Supported establishment of the NM Produced Water Research Consortium
- 2020 papers
 - Industrial Aquifer designation of brackish groundwater
 - Drought support using portable desal systems
- 2022 - Drought response planning for rural communities using desal systems
- Monthly newsletter and speaker

