

New Mexico
Desalination
Association



Sources of Unconventional Waters

Where does all of it come from?

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New Water for New Mexico

Sources of Unconventional Waters

- 1) **Brackish Groundwater**
- 2) **O& G Produced & Mining**
- 3) **Muni**
- 4) **Power Plants**
- 5) **Chem & Petrol Refining**
- 6) **Ag Runoff**

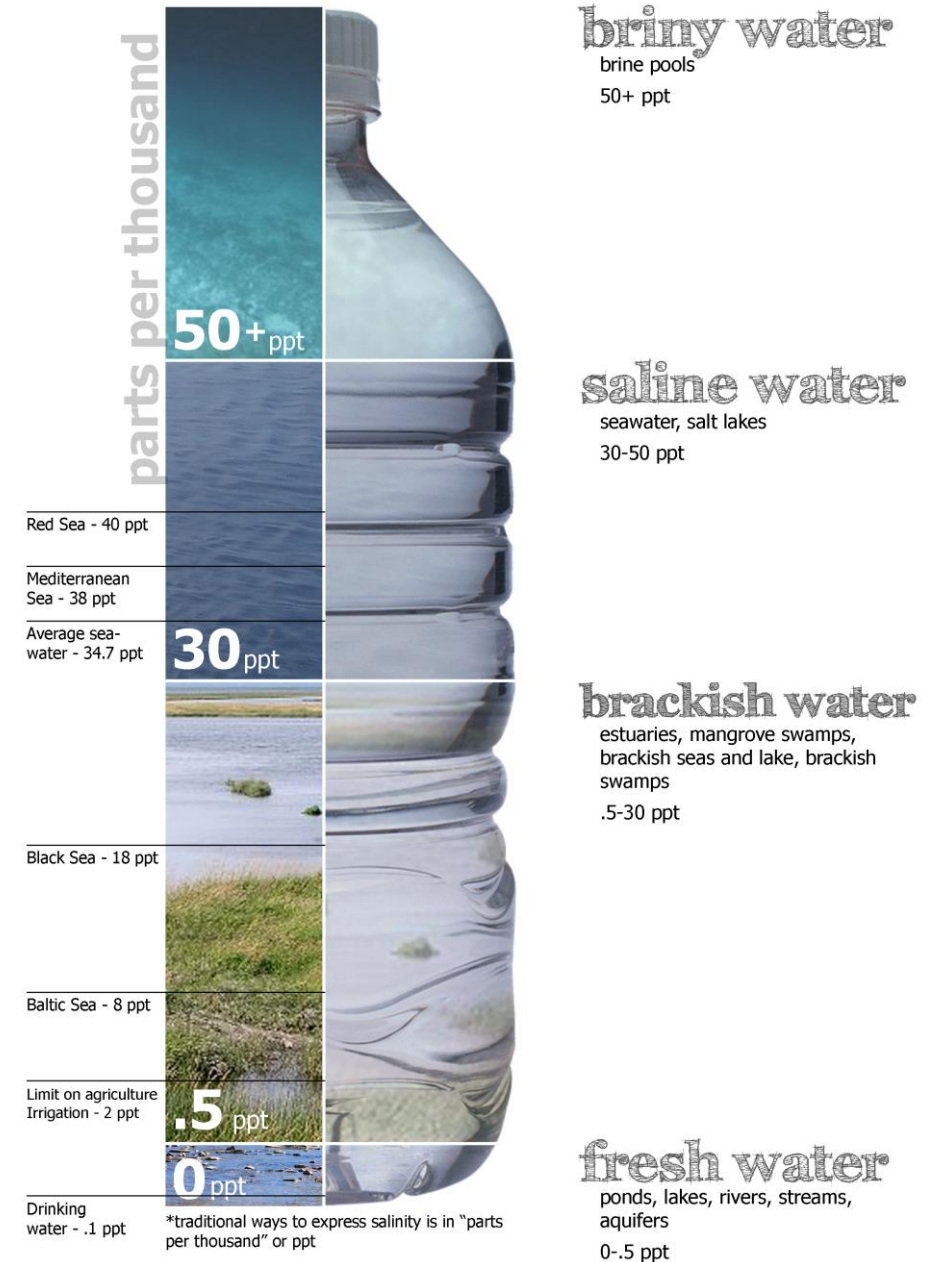


Type of Contaminants in Unconventional Waters

- **Solids**
- **Sulphur**
- **Metals**
- **Hydrocarbons**
- **Other carbons (bugs, etc)**
- **Radioactive materials**
- **Scalants**
- **Dissolved Solids**
- **Other organic and inorganics**

Brackish Groundwater

- Salt between freshwater and seawater
- May contain suspended solids
- Also may contain the “Usual Suspects” of groundwater
 - Suspended Solids
 - Dissolved metals
 - Dissolved hydrocarbons
 - Scalants

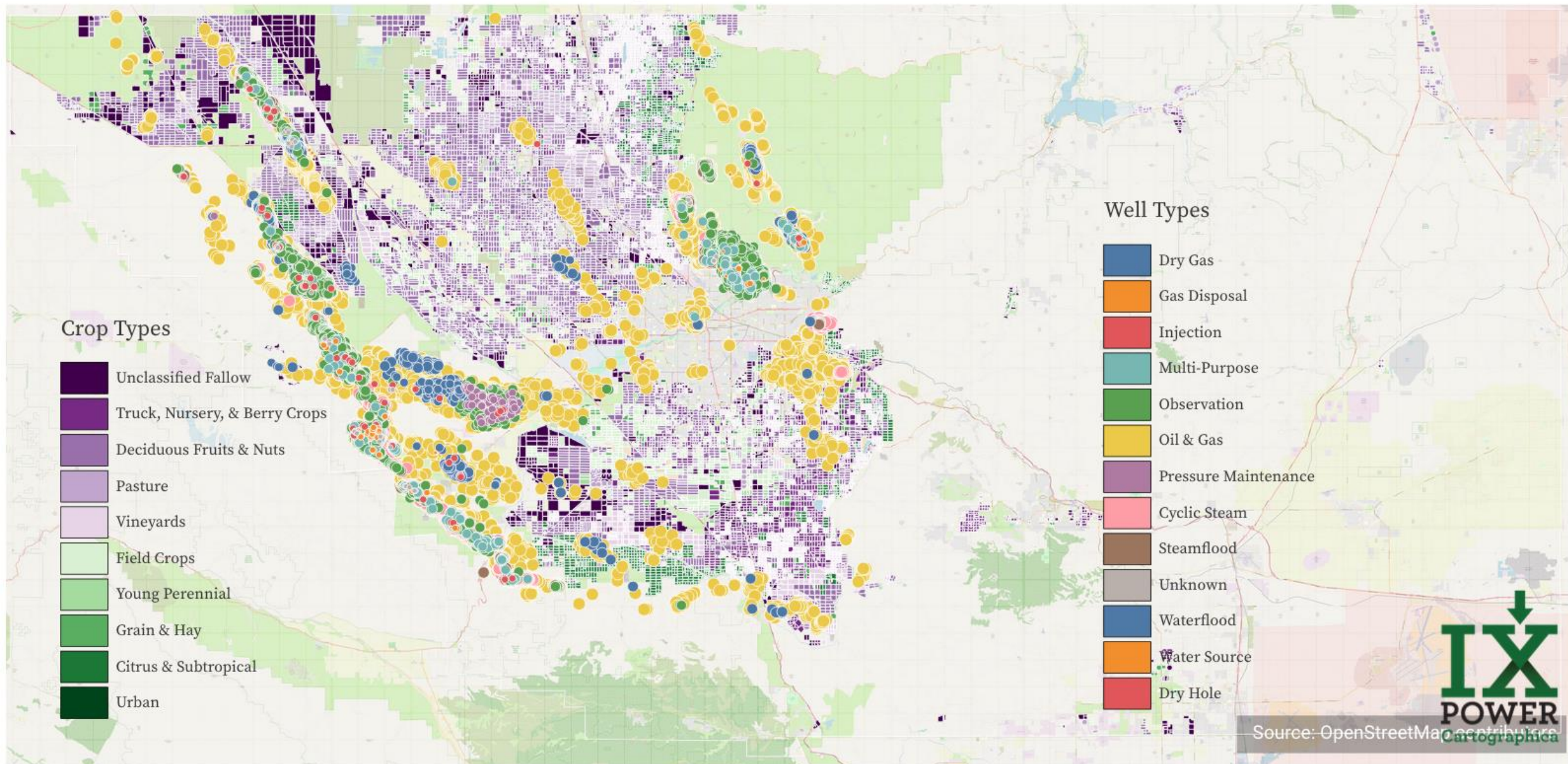


O&G Produced Water

- Every (42 gal) barrel (bbl) also brings up from 1 to 99 or more bbls of water
- TDS from very low to 150K ppm or more
- Groundwater so also contains the Usual Suspects



Kern County, CA - Wells and Farm Land



Mining Runoff

- Surface Seepage
- Runoff
- Production Effluent
- Contains
 - pH issues (acidic)
 - Usual Suspects (solids, dissolved organics, metals)



Municipal

- **Outflow from houses, parks, office buildings, street runoff**
- **Relatively small concentrations of suspended & dissolved organic & inorganic solids**
- **”Other Stuff ”**



Steam-Based Power Plants

- **Burn something to make heat; heat creates steam which turns a turbine**
- **Chemical & thermal wastewater power cycle, ash handling, air pollution control systems, coal piles, yard and floor drainage**
- **Ideal candidate for minimal liquid discharge & mineral recovery**



San Juan plant

Chem & Petrol Refining

- Cooling water
- Process water & steam (heavily polluted)
- Stormwater
- Sanitary sewage water
- Contaminants
 - Liquid hydrocarbons, suspended and dissolved solids, mercaptans, phenols, H_2S , NH_3 , cyanides, H_2SO_4



Agricultural Runoff

- 42% of freshwater withdrawals
- Pollutes lakes, rivers, & beaches
 - Sediment
 - Nutrients
 - Nitrogen, phosphorus and potassium from chemical fertilizers and manure
 - Pathogens
 - Bacteria, viruses (animal waste)
 - Pesticides & Herbicides
 - Metals
 - Salts



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WATER

MACHINES • RECLAMATION

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