Presentations for the
Plateau Water Planning Group
Regular Meeting
March 17, 2022

Item VI.

Texas Water Development Board Updates

William Alfaro

# Region J TWDB Update 3-17-22

1. **Update on Interregional Planning Council**
   - The deadline to submit Planning Council nominations was extended to April 22, 2022.
   - Anticipated Board appointment in June 2022

**Please send the following information for each *nominee and alternate*:**

- The interest category the individual represents
- Committee membership (if applicable)
- A brief background statement including time served on the planning group
- Contact information (email, phone number, and mailing address)
- Any other supporting information deemed relevant by the planning group

# Region J TWDB Update 3-17-22

**2. Upcoming contract amendments**

- Anticipated summer 2022

- Contract amendments will include anticipated total project cost, full scope of work, and updated contract guidance documents (Exhibits C and D)

- RWPG sponsors (UGRA) will not have to submit a second funding application this cycle to incorporate this amendment

**3. Certification of administrative costs**

- water planning rules (§355.92(c)) and the regional water planning contract require that the RWPG or its Chairperson certifies that administrative costs are *eligible* for reimbursement and are *correct* and *necessary*

- including travel expenses, website of postage fees, and Political Subdivision personnel cost that can be billed under Task 10, Administration and Public Participation

# Region J TWDB Update 3-17-22

**4. Rule amendments**

- On December 16, 2021, the TWDB Board approved publishing proposed rule amendments to Regional Water Planning (31 Texas Administrative Code Chapter 357) and State Water Planning Guidelines (31 Texas Administrative Code Chapter 358).

- Proposed rules were published in the Texas Register on December 31st
- Public Comment received until January 31, 2022
- You can find the proposed rules on the TWDB website at the following link: https://www.twdb.texas.gov/about/rules/index.asp
- Final rules to be presented to TWDB Board in Spring

# Region J TWDB Update 3-17-22

**6. Sixth Cycle landing page**

http://www.twdb.texas.gov/waterplanning/rwp/planningdocu/2026/index.asp
(communications, working schedule, contract documents, administrative documents)

- RegionalWaterPlanning@twdb
  email address is now being used for broadcast communications to RWPGs regarding regional water planning

Item XIV.

WSP Update on Regional Water Planning Schedule

And

Item XV. Draft non-municipal water demand projections: Livestock; Manufacturing; and Steam-Electric Power

Jennifer Herrera

Andrew Feigenbaum

WSP Technical Consultant Presentation

# PLATEAU RWPG Meeting

## March 17, 2022

# Update on Regional Water Planning Schedule

| TASK | DESCRIPTION |
|---|---|
| 1 | Planning Area Description |
| 2A | Non-Pop Water Demand Projections |
| 2B | Pop Water Demand Projections |
| 3 | Water Supply Analyses |
| 4A | Identification of Water Needs |
| 4B | Identification of Potentially Feasible WMSs |
| 4C | Technical Memorandum |
| 5A | Evaluation & Recommendation of WMSs |
| 5B | Water Conservation Recommendations |
| 6 | Impacts of Plan & Consistency with Protection of Resources |
| 7 | Drought Response Information, Activities & Recommendations |
| 8 | Unique Sites & Policy Recommendations |
| 9 | Infrastructure Financing Analysis |
| 10 | Public Participation & Plan Adoption |
| 11 | Implementation & Comparison to Previous Plan |
| 12 | Prepare & Submit Prioritization of Projects |

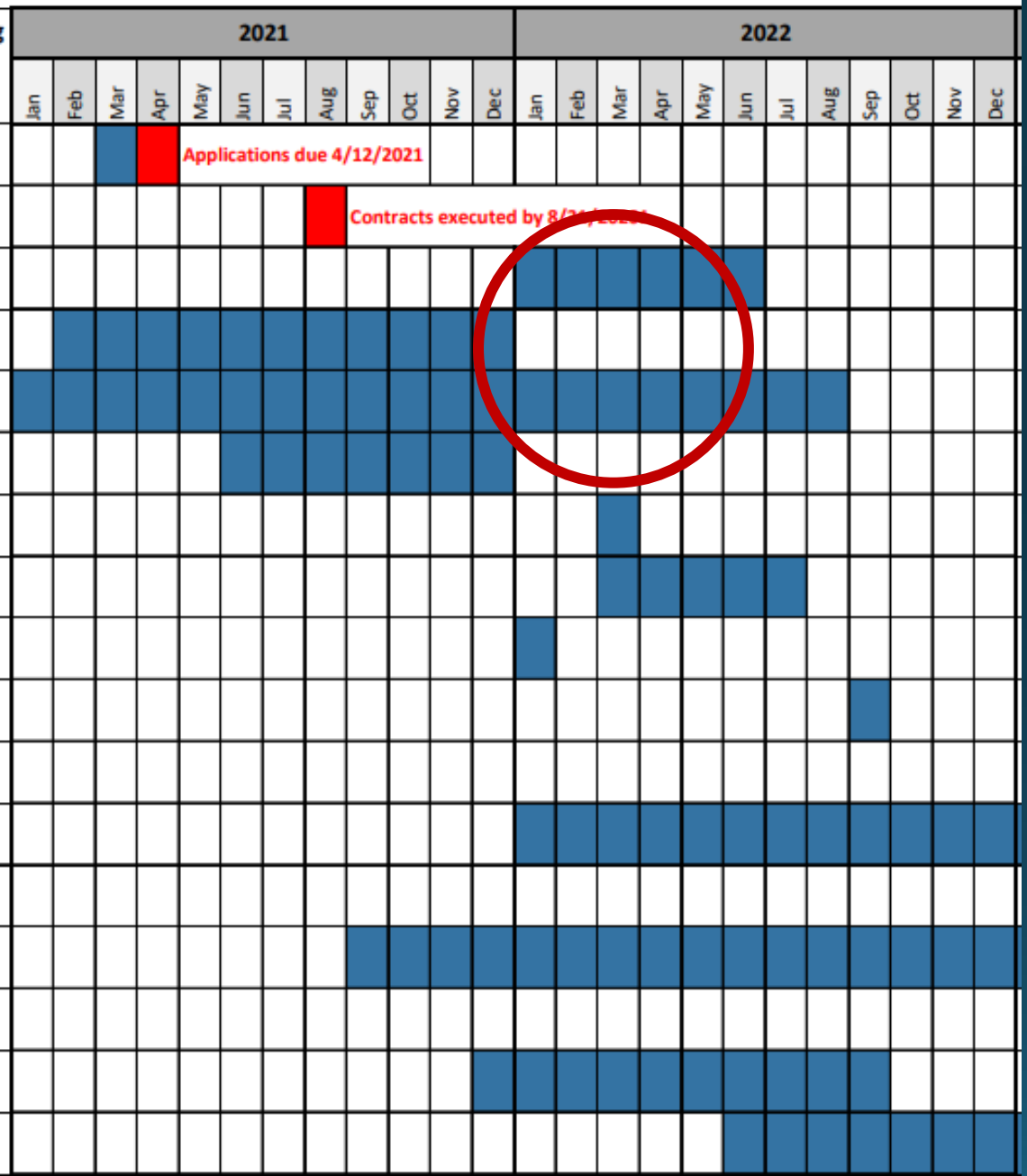
# Anticipated timeline of upcoming work in 2022

- Jan. – TWDB released the draft water demand projections for livestock, manufacturing & SEP water use categories
- March – TWDB to distribute WUG list, historical population & GPCD for municipal WUGs
- July – Deadline for RWPGs to request changes to WUG list & historical data for municipal WUGs
- Aug. – TWDB to distribute draft irrigation & mining water demand projections

# Sixth Cycle of Regional Water Planning (2026 Regional Water Plans)

## Working Schedule (as of October 2021)[A]

| Item | Entity | Activity | Planning SOW Task #[B] |
|---|---|---|---|
| 1 | TWDB | RFA for regional water planning grant posted and applications due | |
| 2 | TWDB/RWPG | Initial planning contract execution deadline | |
| 3 | TWDB/RWPG | Anticipated additional contracting activities | |
| 4 | TWDB | Regional Water Planning rules update | |
| 5 | TWDB | TWDB/BEG Mining study | 2A |
| 6 | RWPG | RWPGs hold pre-planning & coordination meeting (before technical work begins) | 10 |
| 7 | TWDB | Municipal WUG list, GPCD, historical population, and water use released | 2B |
| 8 | RWPG | Review municipal WUG list, GPCD, historical population, and water use; provide feedback to TWDB | 2B |
| 9 | TWDB | Draft Livestock, Manufacturing, and Steam Electric Power demand projections released | 2A |
| 10 | TWDB | Draft Irrigation and Mining projections released | 2A |
| 11 | TWDB | Draft Population and Municipal demand projections released | 2B |
| 12 | RWPG | Review draft projections and finalize adjustments with TWDB staff | 2A, 2B |
| 13 | TWDB | TWDB Board adopts projections | 2A, 2B |
| 14 | TWDB | DB27 prepared for data entry[C, D] | |
| 15 | TWDB/RWPG | DB27 individualized training for consultants | |
| 16 | TWDB | Updated MAGs released | |
| 17 | RWPG | Evaluate water availability and existing water supplies | |

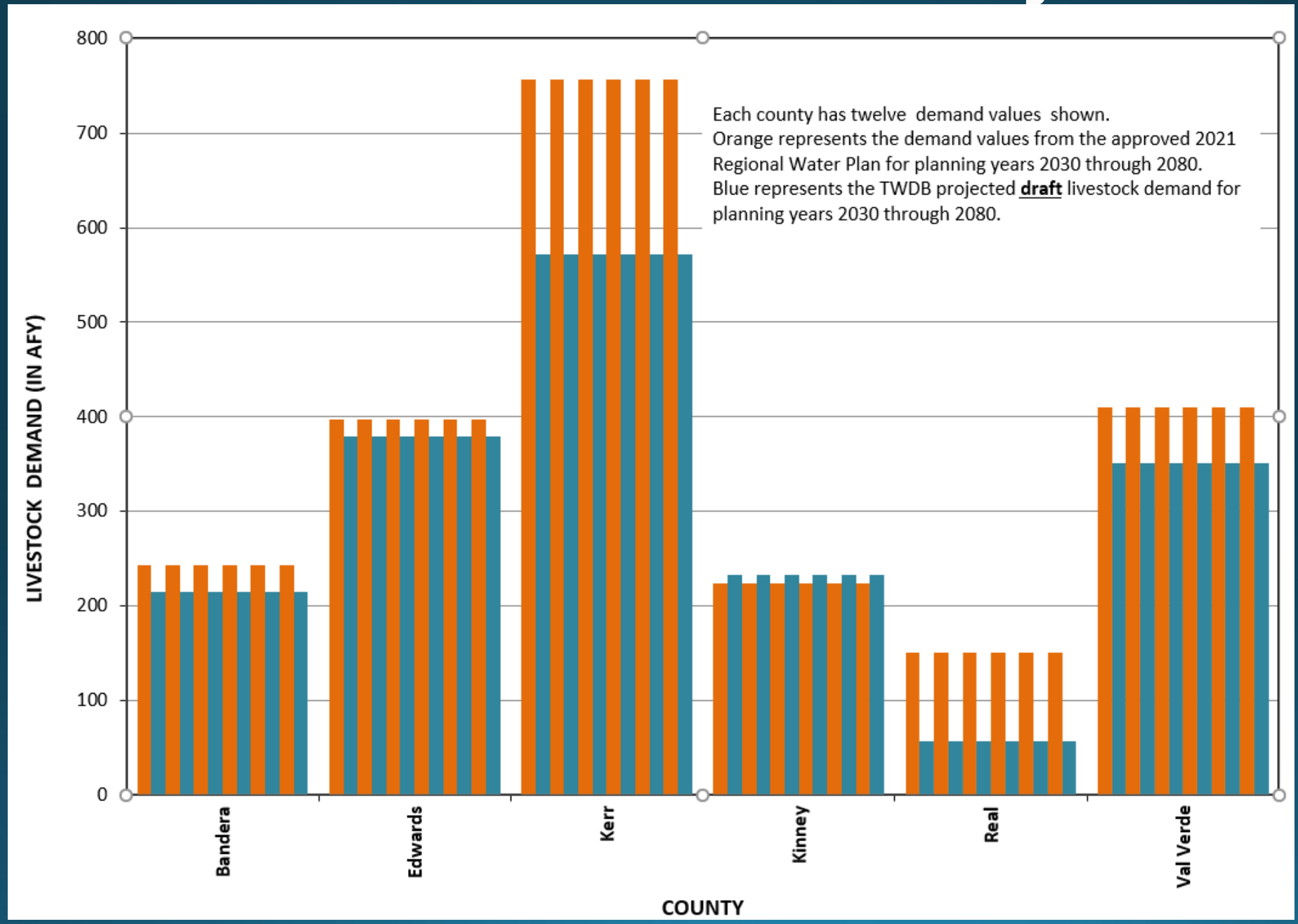


# Draft Non-Municipal Water Demand Projections

# Livestock Water Demand Projection Methodology

- No key changes from the previous planning cycle
- Baseline methodology is the five-year average annual water use estimates (2015-2019).
- Decade specific water use trends from the previous water planning cycle were applied to the five-year estimate average baseline.
- Year 2070 projections were held constant through the draft year 2080 projections.

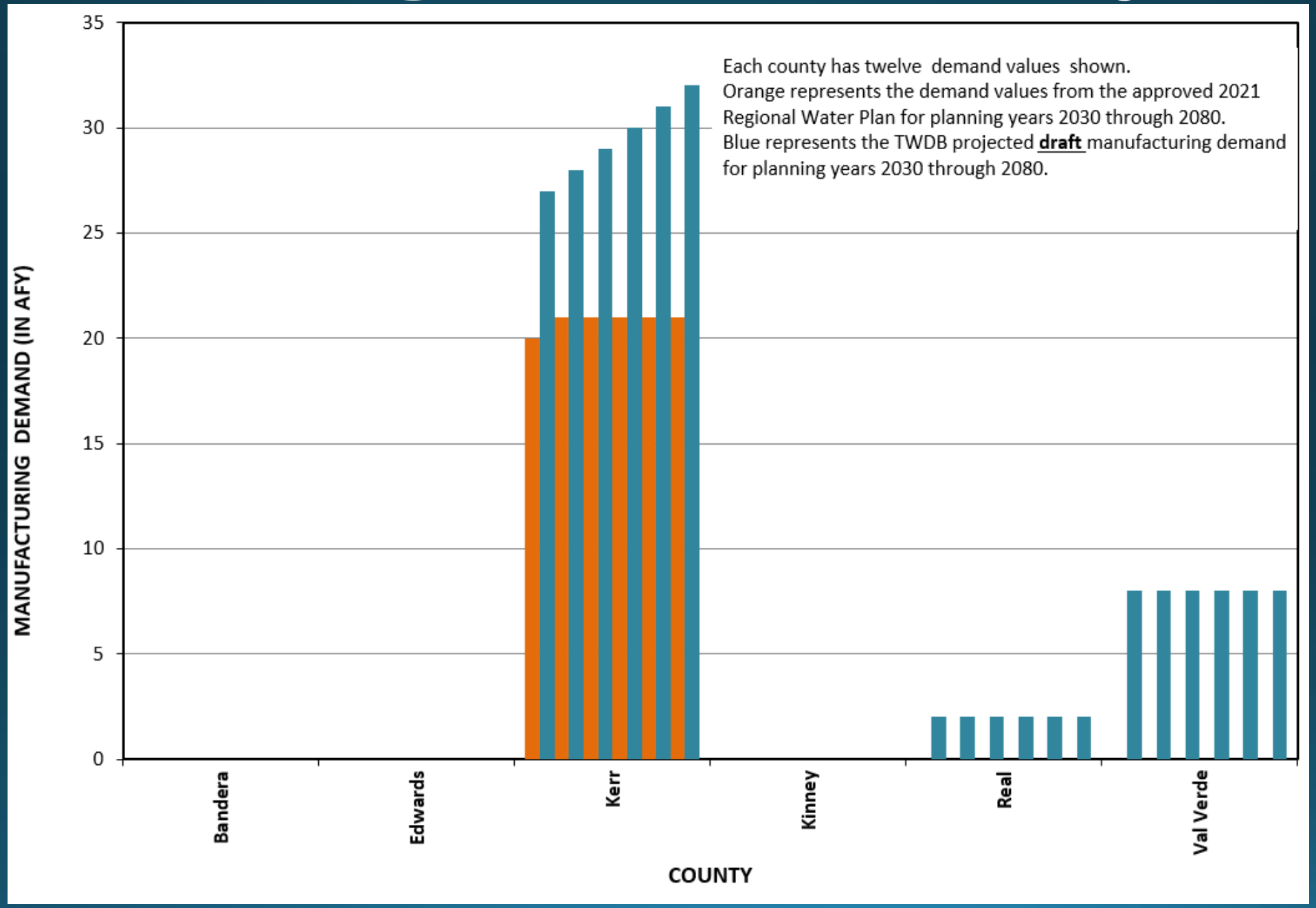
# Livestock Water Demand Projections



# Manufacturing Water Demand Projection Methodology

- Key changes from the previous planning cycle – demands were projected linearly using County Business Patterns historical number of manufacturing establishments, rather than holding projected demands constant
- Based upon the highest region-county manufacturing water use in the most recent five-years of aggregated data (2015-2019) from the annual water use survey (WUS)
- WUS used in the max year calculation consist of gross intake minus any sales to other entities
- Like the 2021 Plan, fresh surface water and groundwater were included. Additionally, volumes of reuse water, such as treated effluent and brackish groundwater were included in the historical water use estimates & demand projections
    - Saline surface water was not included in draft projections

# Manufacturing Water Demand Projections



# Steam-Electric Power Water Demand Projection Methodology

- **No SEP demands within the Plateau Region**
- No key changes from the previous planning cycle
- Based on the highest single-year county water use from within the most recent five-years (2015-2019) data from the WUS
- Near-term additions and retirements of generating facilities
- Holding the projected water demand volumes constant through 2080

# Next Meetings…

- May – review WUG list, historical pop. & GPCD for municipal WUGs
- June – action taken on WUG list & historical data for municipal WUGs

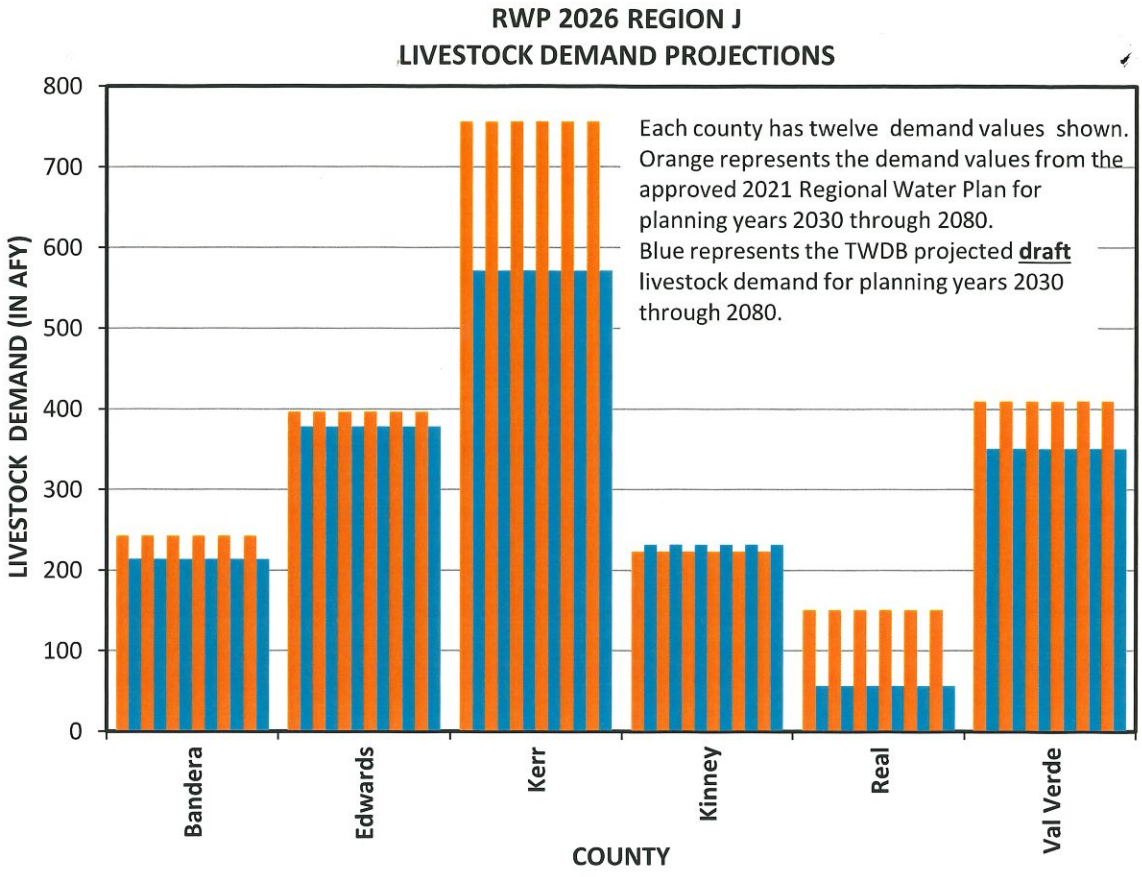

RWP 2026 REGION J
LIVESTOCK DEMAND PROJECTIONS
LIVESTOCK DEMAND (IN AFY)
800
700
600
500
400
300
200
100
0
Each county has twelve demand values shown.
Orange represents the demand values from the approved 2021 Regional Water Plan for planning years 2030 through 2080.
Blue represents the TWDB projected draft livestock demand for planning years 2030 through 2080.
Bandera
Edwards
Kerr
Kinney
Real
Val Verde
COUNTY

Table 1. Livestock Water Demand Projections (2021 & 2026 Plans) in Acre-Feet per Year

| | | 2030 | 2040 | 2050 | 2060 | 2070 | 2080 |
|---|---|---|---|---|---|---|---|
| 2021 | Bandera | 243 | 243 | 243 | 243 | 243 | 243 |
| 2026 | | 214 | 214 | 214 | 214 | 214 | 214 |
| Volume Difference | | -29 | -29 | -29 | -29 | -29 | -29 |
| 2021 | Edwards | 397 | 397 | 397 | 397 | 397 | 397 |
| 2026 | | 379 | 379 | 379 | 379 | 379 | 379 |
| Volume Difference | | -18 | -18 | -18 | -18 | -18 | -18 |
| 2021 | Kerr | 757 | 757 | 757 | 757 | 757 | 757 |
| 2026 | | 572 | 572 | 572 | 572 | 572 | 572 |
| Volume Difference | | -185 | -185 | -185 | -185 | -185 | -185 |
| 2021 | Kinney | 224 | 224 | 224 | 224 | 224 | 224 |
| 2026 | | 232 | 232 | 232 | 232 | 232 | 232 |
| Volume Difference | | 8 | 8 | 8 | 8 | 8 | 8 |
| 2021 | Real | 151 | 151 | 151 | 151 | 151 | 151 |
| 2026 | | 57 | 57 | 57 | 57 | 57 | 57 |
| Volume Difference | | -94 | -94 | -94 | -94 | -94 | -94 |
| 2021 | Val Verde | 410 | 410 | 410 | 410 | 410 | 410 |
| 2026 | | 351 | 351 | 351 | 351 | 351 | 351 |
| Volume Difference | | -59 | -59 | -59 | -59 | -59 | -59 |
| **2021** | **Total** | **2,182** | **2,182** | **2,182** | **2,182** | **2,182** | **2,182** |
| **2026** | **Total** | **1,805** | **1,805** | **1,805** | **1,805** | **1,805** | **1,805** |
| **Volume Difference** | **Total** | **-377** | **-377** | **-377** | **-377** | **-377** | **-377** |
| **Positive Value** | | | | | | | |
| **Negative Value** | | | | | | | |

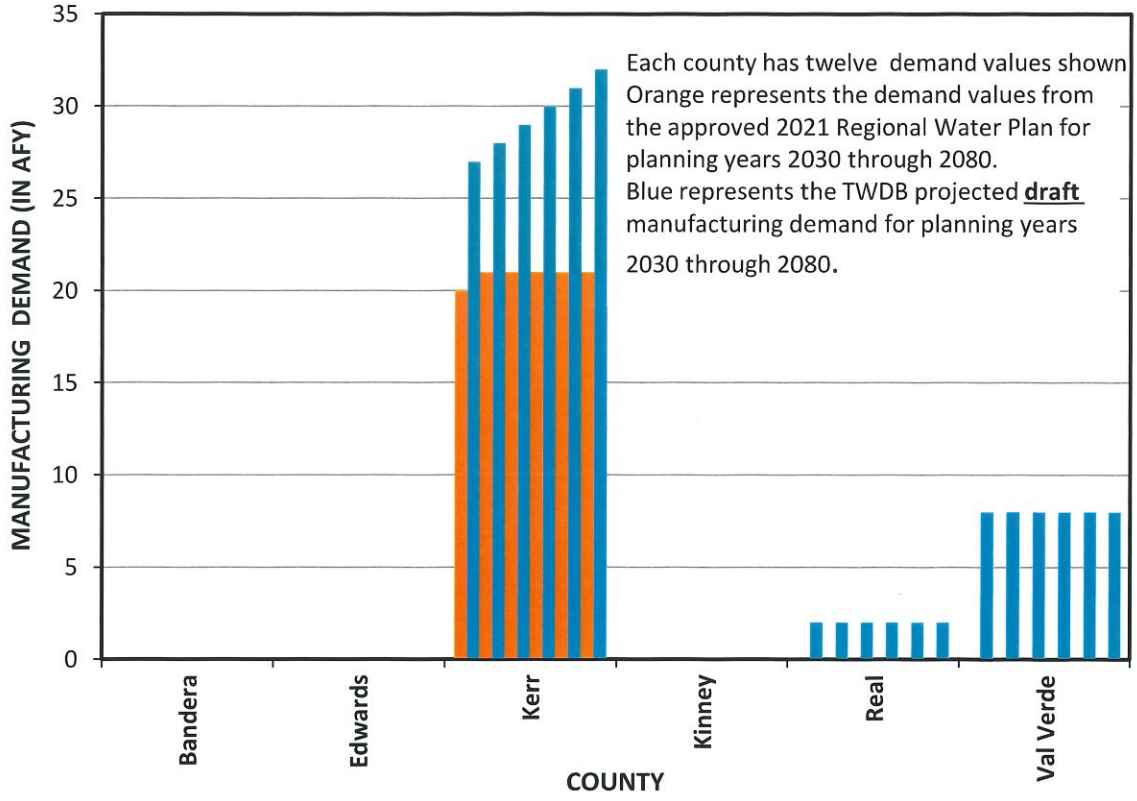
Table 2. Manufacturing Water Demand Projections (2021 & 2026 Plans) in Acre-Feet per Year

| | | 2030 | 2040 | 2050 | 2060 | 2070 | 2080 |
|---|---|---|---|---|---|---|---|
| 2021 | Kerr | 20 | 21 | 21 | 21 | 21 | 21 |
| 2026 | | 27 | 28 | 29 | 30 | 31 | 32 |
| Volume Difference | | 7 | 7 | 8 | 9 | 10 | 11 |
| 2021 | Real | 0 | 0 | 0 | 0 | 0 | 0 |
| 2026 | | 2 | 2 | 2 | 2 | 2 | 2 |
| Volume Difference | | 2 | 2 | 2 | 2 | 2 | 2 |
| 2021 | Val Verde | 0 | 0 | 0 | 0 | 0 | 0 |
| 2026 | | 8 | 8 | 8 | 8 | 8 | 8 |
| Volume Difference | | 8 | 8 | 8 | 8 | 8 | 8 |
| **2021** | **Total** | **20** | **21** | **21** | **21** | **21** | **21** |
| **2026** | **Total** | **37** | **38** | **39** | **40** | **41** | **42** |
| Volume Difference | **Total** | **17** | **17** | **18** | **19** | **20** | **21** |

* No water demand reported for the remaining counties

**Positive Value**

**Negative Value**



Item XVI.

Presentation from TWDB Projections & Socioeconomic Analysis team regarding water demand projections methodologies

Katie Dahlberg

# 2026 Regional Water Plans
# Projections Methodology Overview

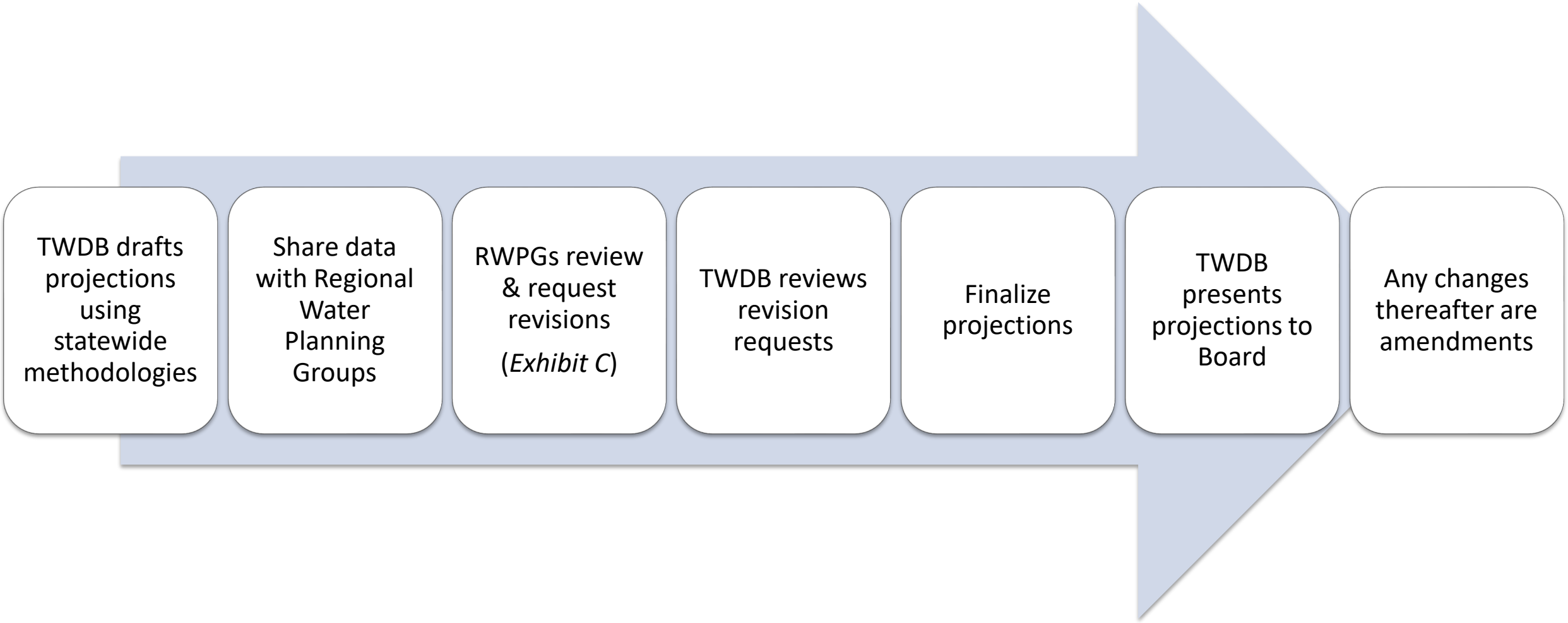
Katie Dahlberg
Manager, Projections & Socioeconomic Analysis
Water Supply Planning

March 17, 2022
Plateau Region J Planning Group Meeting

# Agenda

- Overview projections process
- Projections data release schedule
- Projections methodologies
  - Non-municipal water demands
  - Population
  - Municipal water demand

# Projections Process



# Projections Release Schedule

| Draft Water Demand Projections | Timeline |
|---|---|
| Livestock, Manufacturing, Steam-Electric Projections + Supporting Data | January 20, 2022 |
| Water User Group List + Historical Population, Connections, Net Use, GPCD | March 2022 |
| DUE: RWPGs review WUG list + historical WUG data | July 2022 |
| Irrigation Projections + Supporting Data | August 2022 |
| Mining Projections + Supporting Data | August 2022 |
| Population Projections + Plumbing Code Savings + Municipal Demand | February 2023 |
| DUE: RWPGs request revisions for non-municipal demand projections | July 2023 |
| DUE: RWPGs request revisions for population and municipal demand projections | August 2023 |

# Non-Municipal Water Demand Projections Methodologies

Historical: 2015 - 2019

Projections: 2030 - 2080

# Irrigation

Same methodology as 2021 RWPs

Baseline = 5-year average (2015-2019)

Water sources: groundwater, surface water, reuse

- Most-recent Modeled Available Groundwater

# Irrigation

2030 – 2080 held constant

- Except counties where groundwater availability (MAG) is less than the groundwater-portion of the demand projections
- Decline commensurate with groundwater availability

Draft projections will be released in August 2022

# Livestock

Same methodology as 2021 RWPs

Baseline = 5-year average (2015-2019)

- County water use estimates, based on USDA inventory * water use coefficients
- Water Use Survey facilities

Follows same projection trend as 2021 RWPs

- 2070 – 2080 held constant

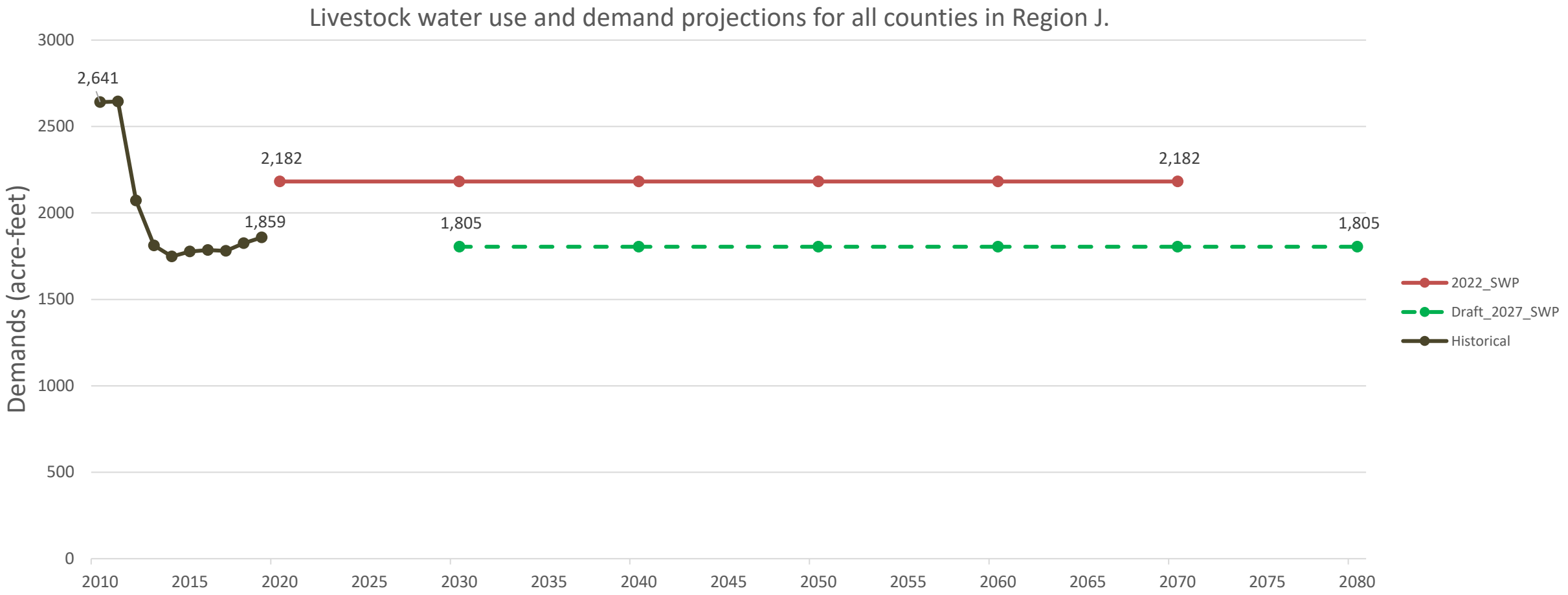
Draft projections released in January 2022

# Livestock Water Use Coefficients

| TWDB Category | USDA Data Type | 2026 RWP Water Use (gallons/head/day) | 2021 RWP Water Use (gallons/head/day) |
|---|---|---|---|
| Cattle | Milk | 55 | 75 |
| | Fed & Other Cattle | 15 | 15 |
| Chickens | Layers | 0.09 | 0.086 |
| | Pullets, Replacement | | |
| | Roosters | | |
| | Broilers | 0.09 | 0.077 |
| Equine | Horses & Ponies | 12 | 12 |
| | Mules, Burros, & Donkeys | | |
| Hogs | Hogs | 5 | 11 |
| Sheep | Sheep | 2 | 2 |
| Goats | Milk | 2 | 0.5 |
| | Meat & Other | | |
| | Angora | | |
| Turkeys | Turkeys | 0.2 | 0.2 |

# Livestock Projections:

## Compare 2021 RWP to Draft 2026 RWP



# Manufacturing

## Baseline = highest county water use (2015-2019) + unaccounted water use estimates

- Historical water use survey
- U.S. Census Bureau County Business Patterns (CBP) historical number of establishments

## Water Sources: fresh and brackish groundwater, fresh surface water, reuse

- Total intake

## Draft projections released in January 2022

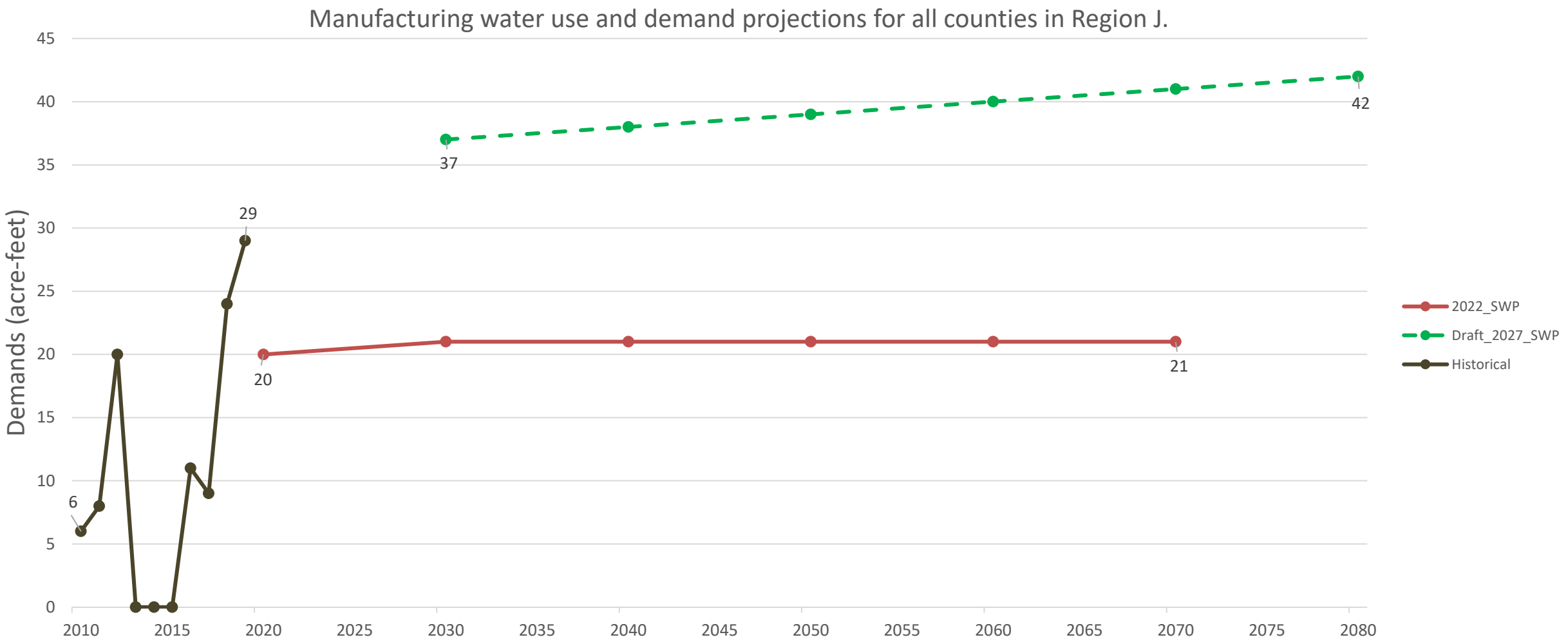
# Manufacturing

Baseline * 2010-2019 historical water use survey rate of change = 2030

CBP 2010-2019 historical number of establishments rate of change used to project each decade 2040-2080

# Manufacturing Projections:

## Compare 2021 RWP to Draft 2026 RWP



# Mining

- Study funded by USGS
- Contracted UT Bureau of Economic Geology
- Update to the 2011 study
- Comprehensive and quantitative assessment of mining water use in Texas
  - Oil and gas, aggregates, and coal and lignite
  - Historical estimates
  - Projections for the 2026 Regional Water Plans
- August 2022
- https://www.twdb.texas.gov/waterplanning/data/projections/MiningStudy/index.asp

# Steam-Electric Power

Baseline = highest county water use (2015-2019) + estimated water use for non-responses and proposed facilities

- Historical water use survey
- U.S. Energy Information Administration 860 form – NAICS: 22

If a facility retires before 2020, then the water use is removed from the projections

If RWPGs requested to remove a facility in the previous plan, then facility was removed in the draft projections

# Steam-Electric Power

Water sources: fresh and brackish groundwater, fresh surface water, reuse

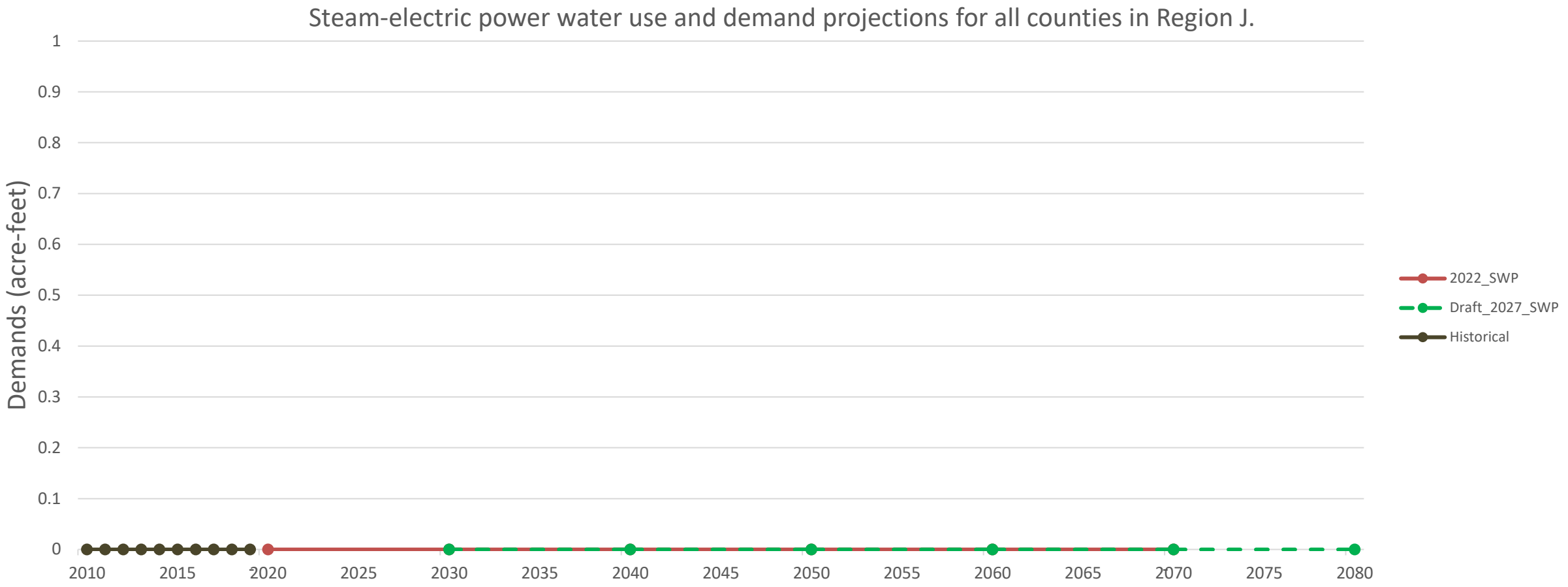
- Consumptive use

2030 – 2080 held constant

Same methodology as the 2021 RWPs

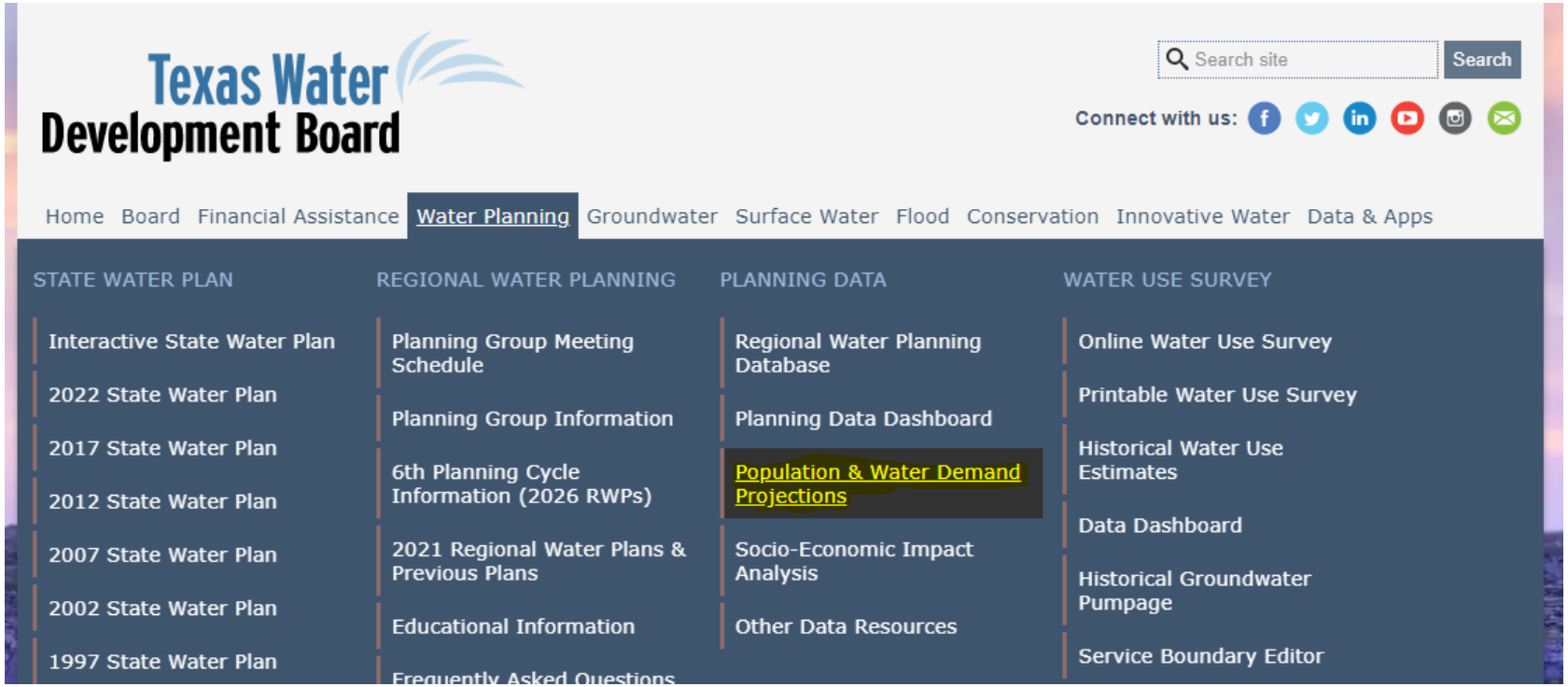
Draft projections released in January 2022

# **Steam-Electric Power Projections**:
# Compare 2021 RWP to Draft 2026 RWP



# 2026 RWP Draft Projections

https://www.twdb.texas.gov/waterplanning/data/projections/2027/projections.asp



# Municipal Projections Methodology

Historical: 2010 - 2020

Projections: 2030 - 2080

# Water User Groups

- Municipal WUGs: utility water use of 100 acre-feet or more
  - 31 TAC § 357.10(43)
- WUGs in the 2021 RWPs will be carried over, as long as they have active public water systems
- All new utilities will be evaluated based on water use from 2015-2019
- No sub-County-Other WUGs

# Region J – Municipal WUG Counts

- 2021 RWP: 17 WUGs
- 2026 RWP draft: 17 WUGs
- Including 6 County-Other WUGs

# Population Projections

- Based on Texas Demographic Center's projections for counties in Texas
  - 3 migration scenarios
- Distributed to WUGs
  - Historical 2010-2020 share of growth or share of population
- Difference this planning cycle: if a county's population is projected by TDC to decline, then the TWDB's county population projections will also decline
- 2030 – 2080

# Municipal Demand Projections: GPCD

- Gallons per Capita Daily
- Dry-year
- Baseline GPCD = historical
  - Draft: 2021 RWP WUG GPCD
  - New WUGs draft: 2018
- Baseline GPCD minus plumbing code savings already implemented
  - Account for passive savings between historical and projected (2030)
- Water sources: groundwater + surface water
  - Water Use Survey

# Municipal Demand Projections: PC Savings

- Plumbing Code Savings
- Update this planning cycle
- Residential:
  - Toilets
  - Showerheads
  - Dishwashers
  - Clothes washers
- Will include commercial toilet and urinal water efficiency savings
- 2030 – 2080

# Municipal Demand Projections

Projected Demand =

(Population * (GPCD – PC Savings) * 365) / 325,851

# Water Sources

| Source | Groundwater | | Surface Water | | | | Reuse |
|---|---|---|---|---|---|---|---|
| | Fresh | Brackish | Fresh | Saline | Consumptive Use Percentage | Seawater | Reuse |
| Irrigation | x | x | x | x | | | x |
| Livestock | x | x | x | x | | | |
| Manufacturing | x | x | x | | | | x |
| Mining | x | x | x | x | | | x |
| Steam-electric | x | x | x | | x | | x |
| Municipal | x | x | x | x | | | |

# Questions?

Contact:

Katie Dahlberg

katie.dahlberg@twdb.texas.gov

512-463-2449

Stay connected:

Item XVII.

Presentation from TWDB Edwards-Trinity (Plateau) Brackish Groundwater Study project manager regarding an update on their study

Evan Strickland

# Edwards-Trinity (Plateau) Aquifer Brackish Groundwater Study

Evan Strickland, P.G.
Groundwater Division, BRACS team
Region J
March 17th, 2022

*Unless specifically noted, this presentation does not necessarily reflect official Board positions or decisions.*

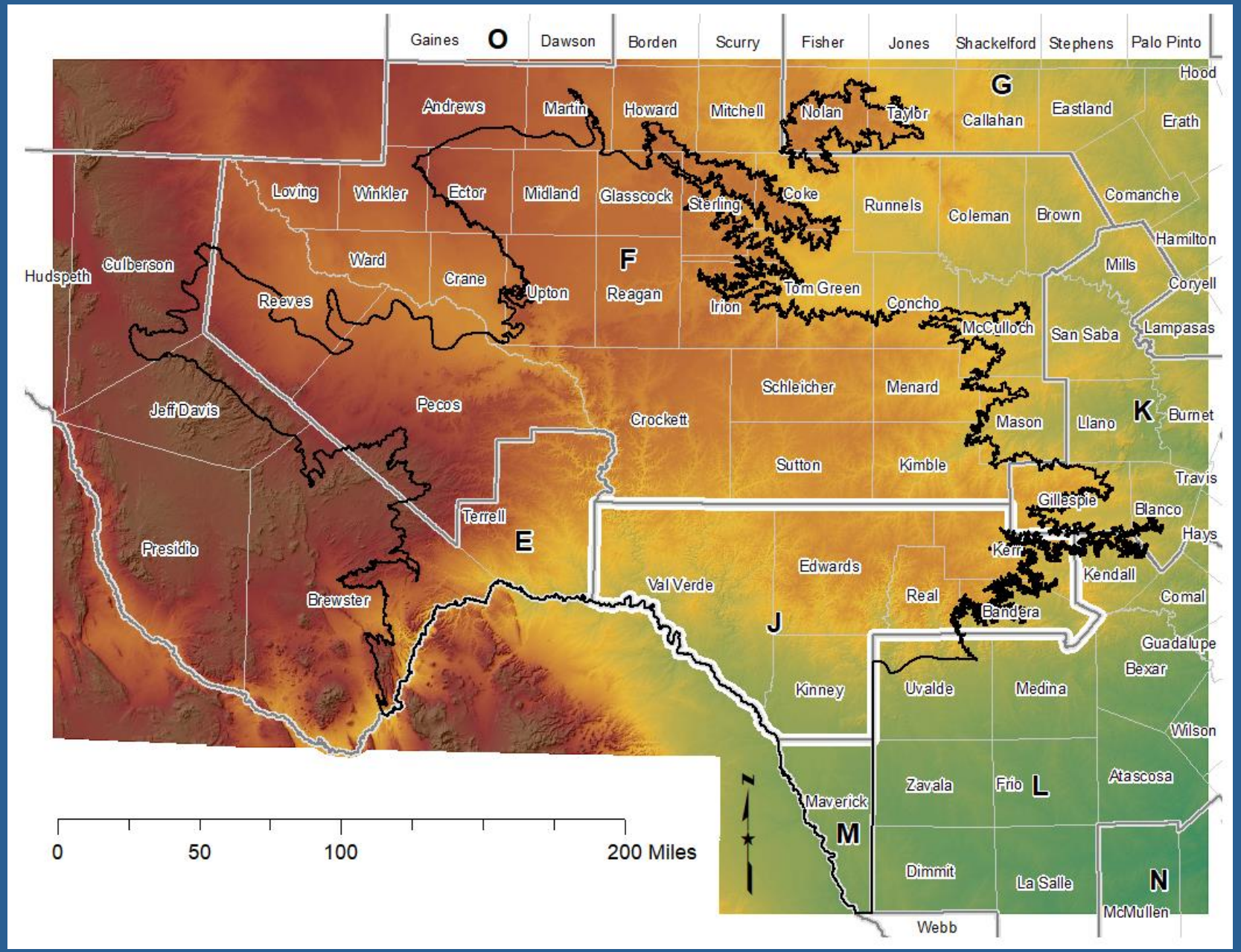
# BRACS Study Goals

- Detailed Aquifer Characterization
  - Stratigraphy
  - Lithology
  - Water quality
  - Volumes of brackish water
- Data and interpretations made publicly available
- Designate Brackish Groundwater Production Zones (separate evaluation and report)

# Edwards-Trinity Plateau Study Area

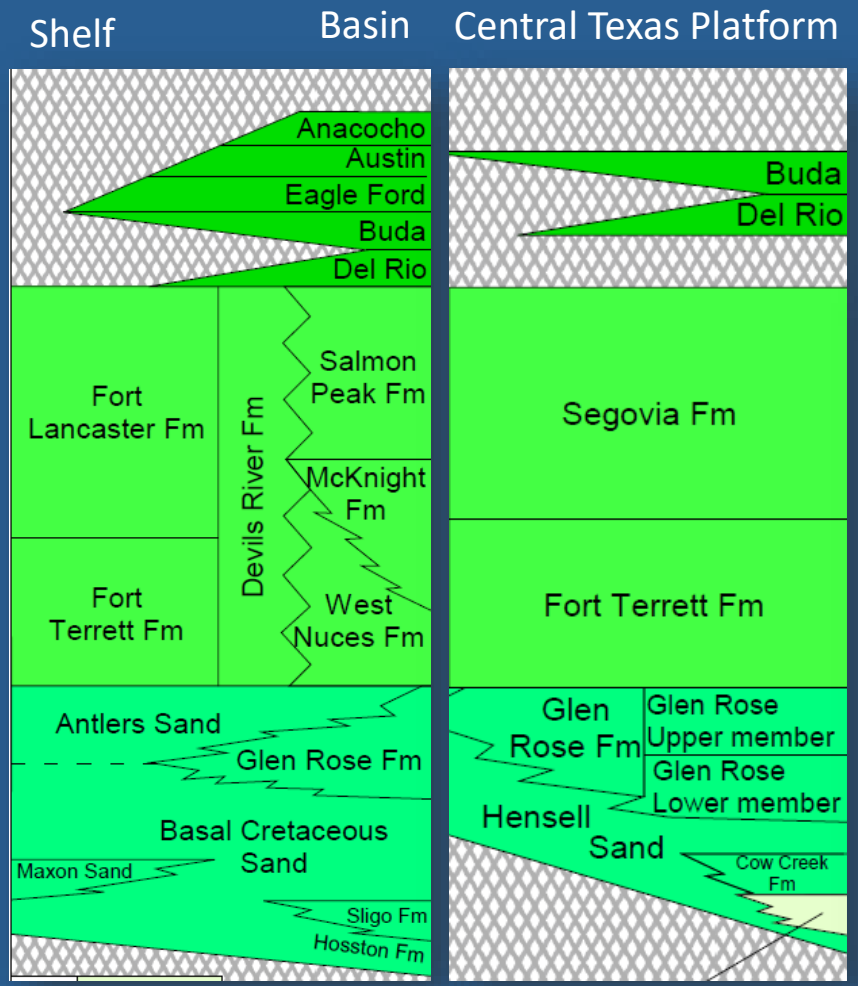
## Region J

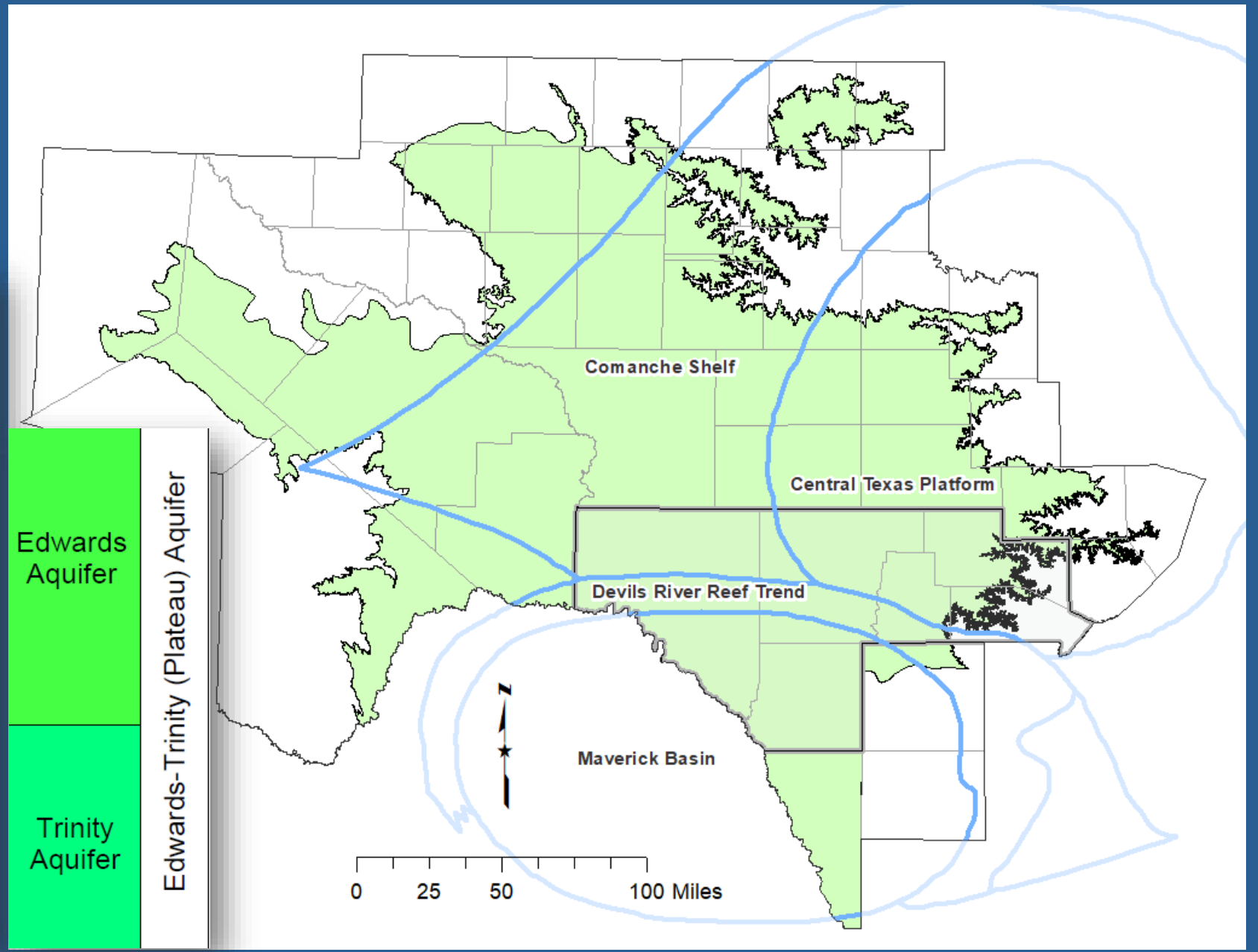
- Southeastern edge of plateau



# Stratigraphy

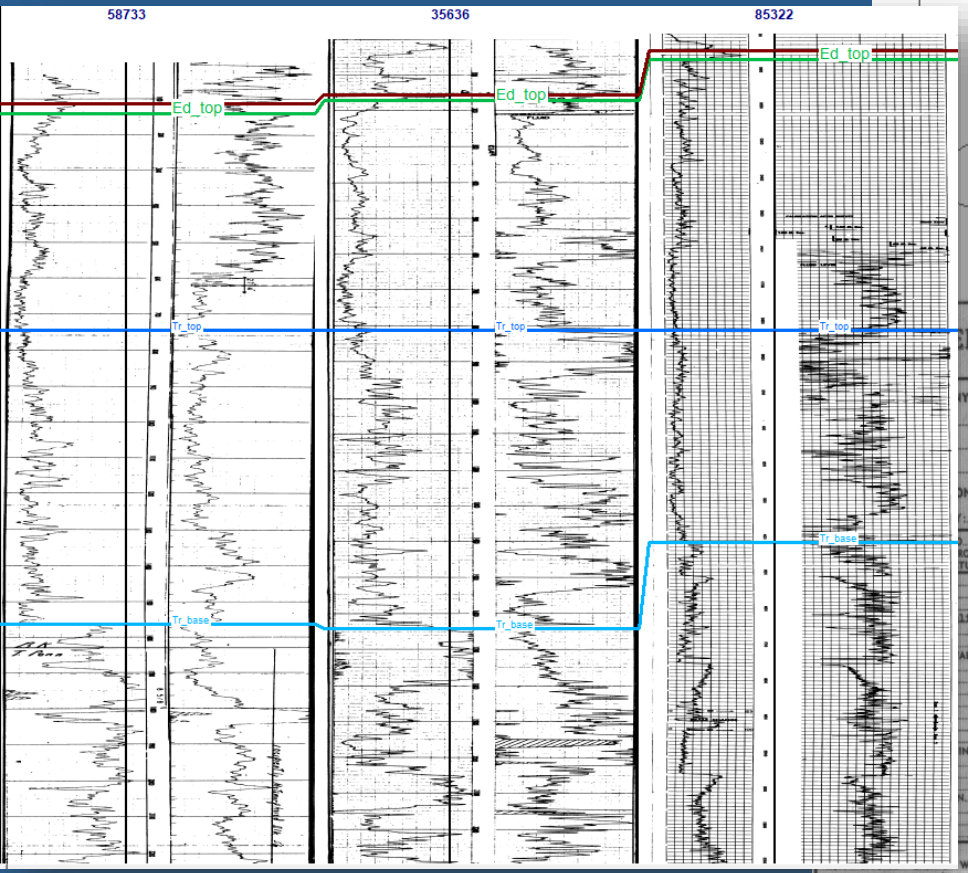
Anaya and Jones (2009)
TWDB Number Report 373



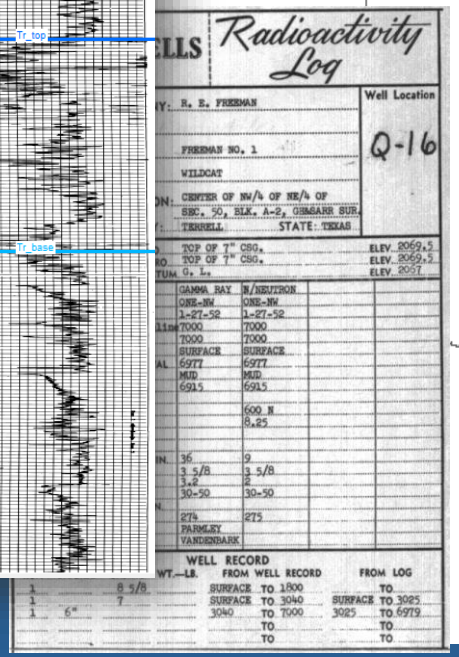



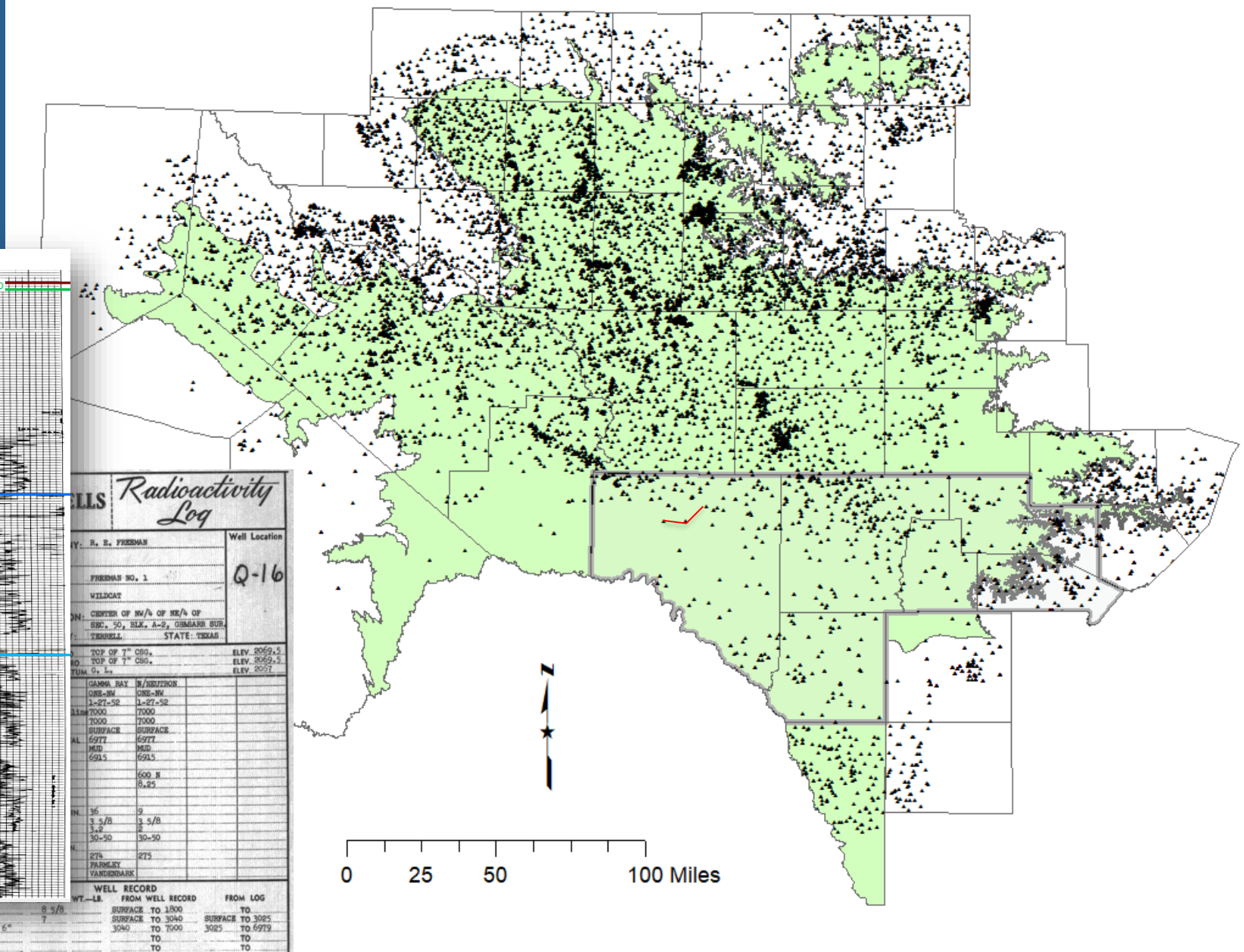
# Geophysical logs

- Available to the public



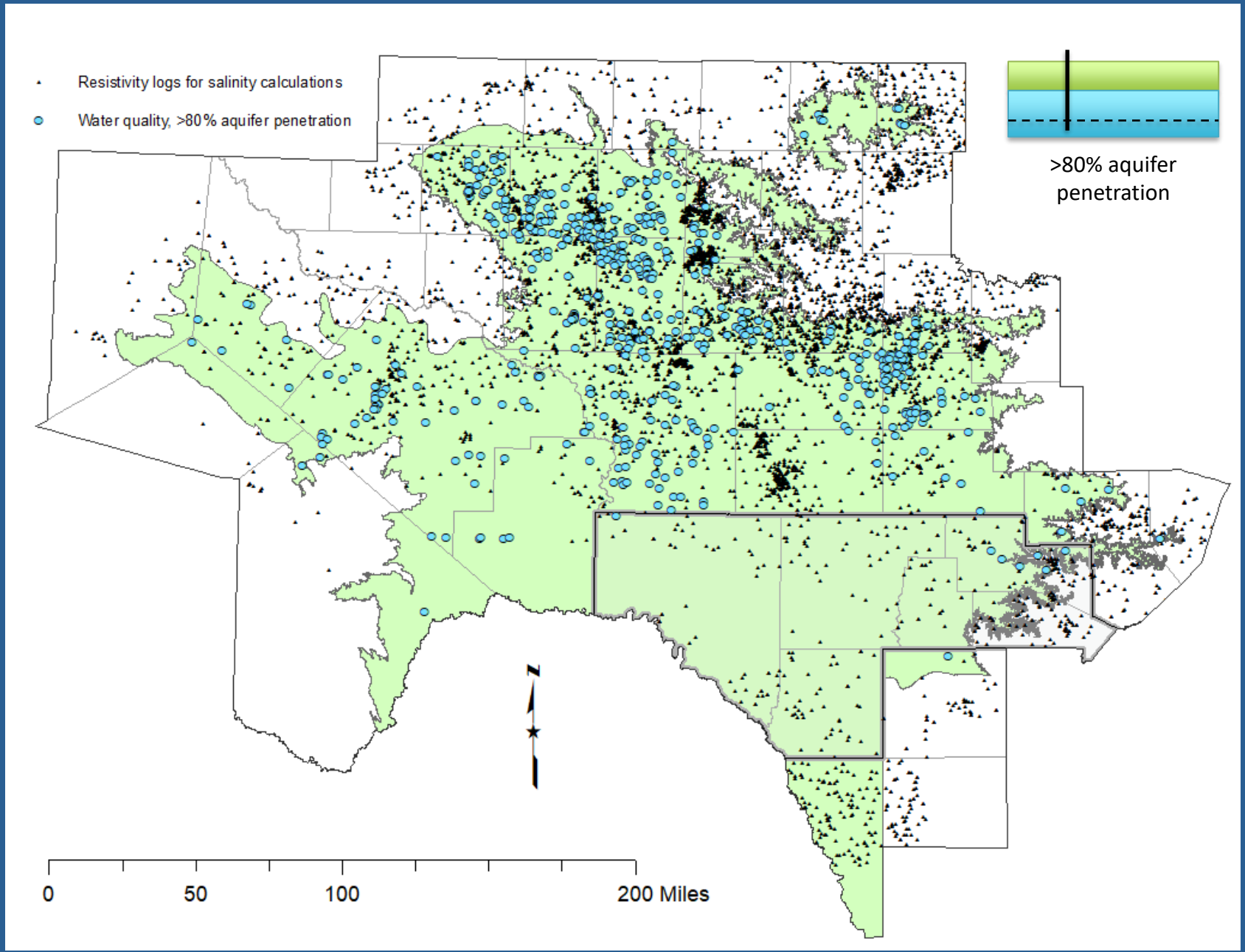

Val Verde cross section



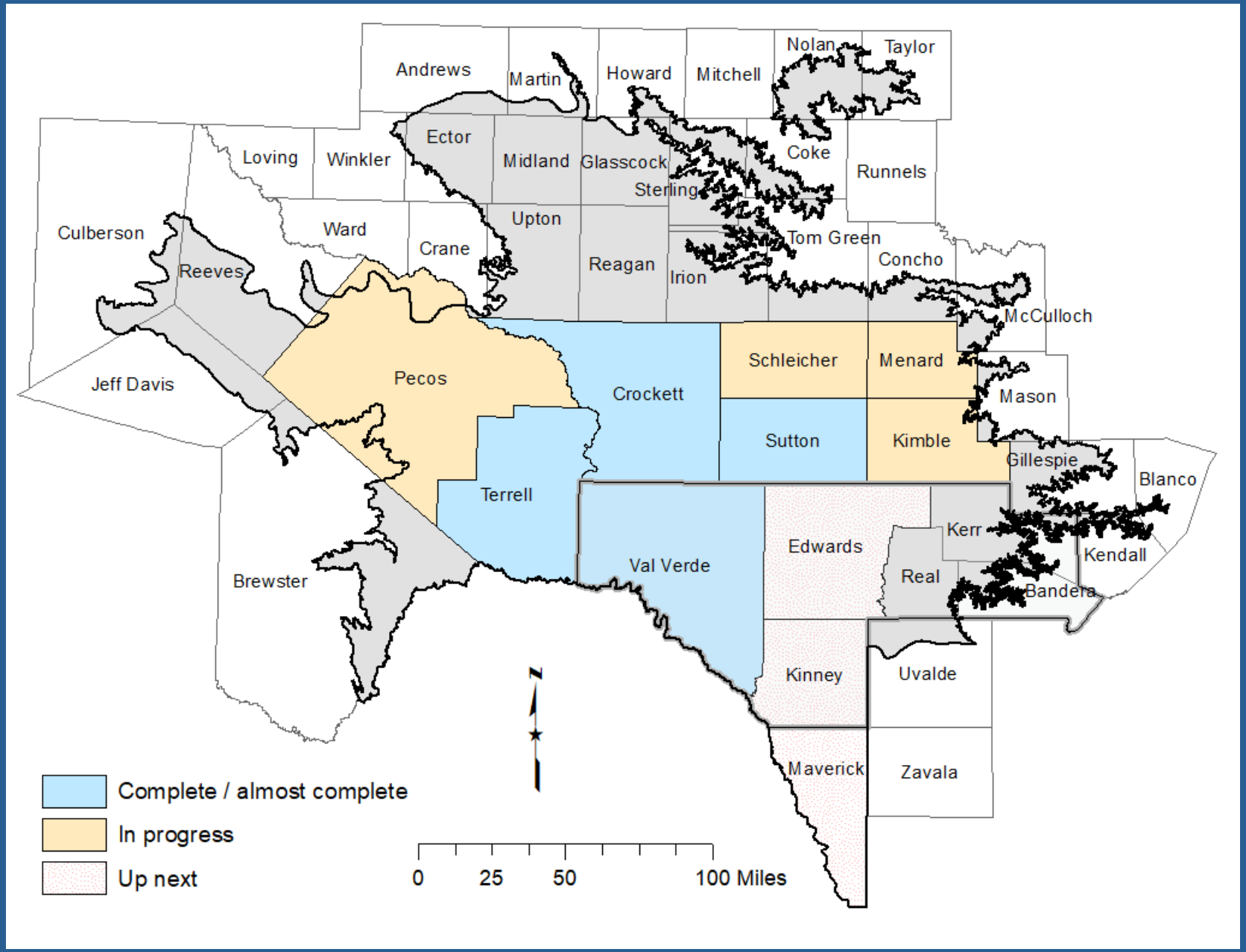
# Mapping water quality

- We use resistivity logs to calculate salinity between measured water quality



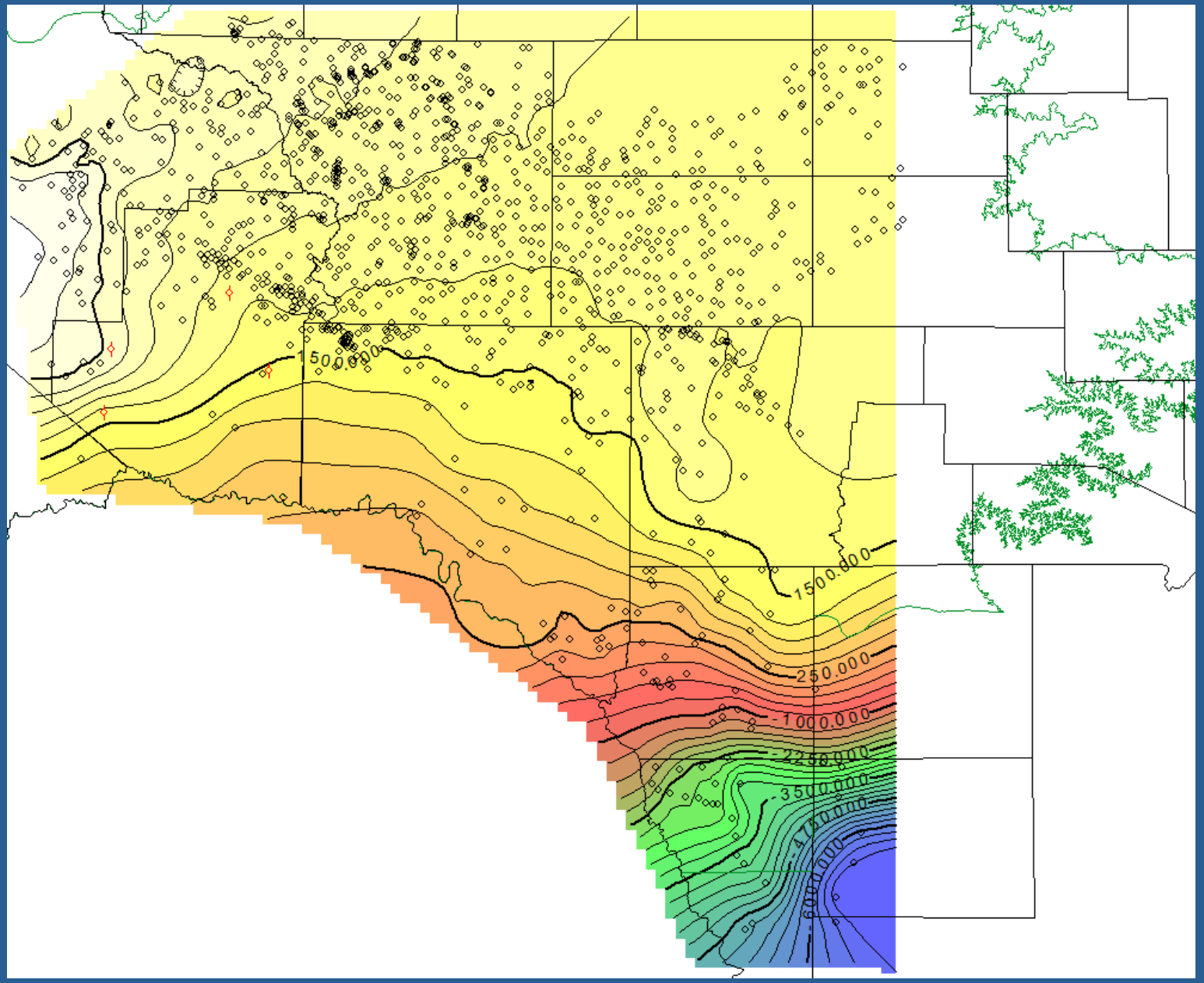
# Study progress: stratigraphic interpretation

- Top and base of Trinity complete in four counties
- Finish picking top of Edwards in Val Verde

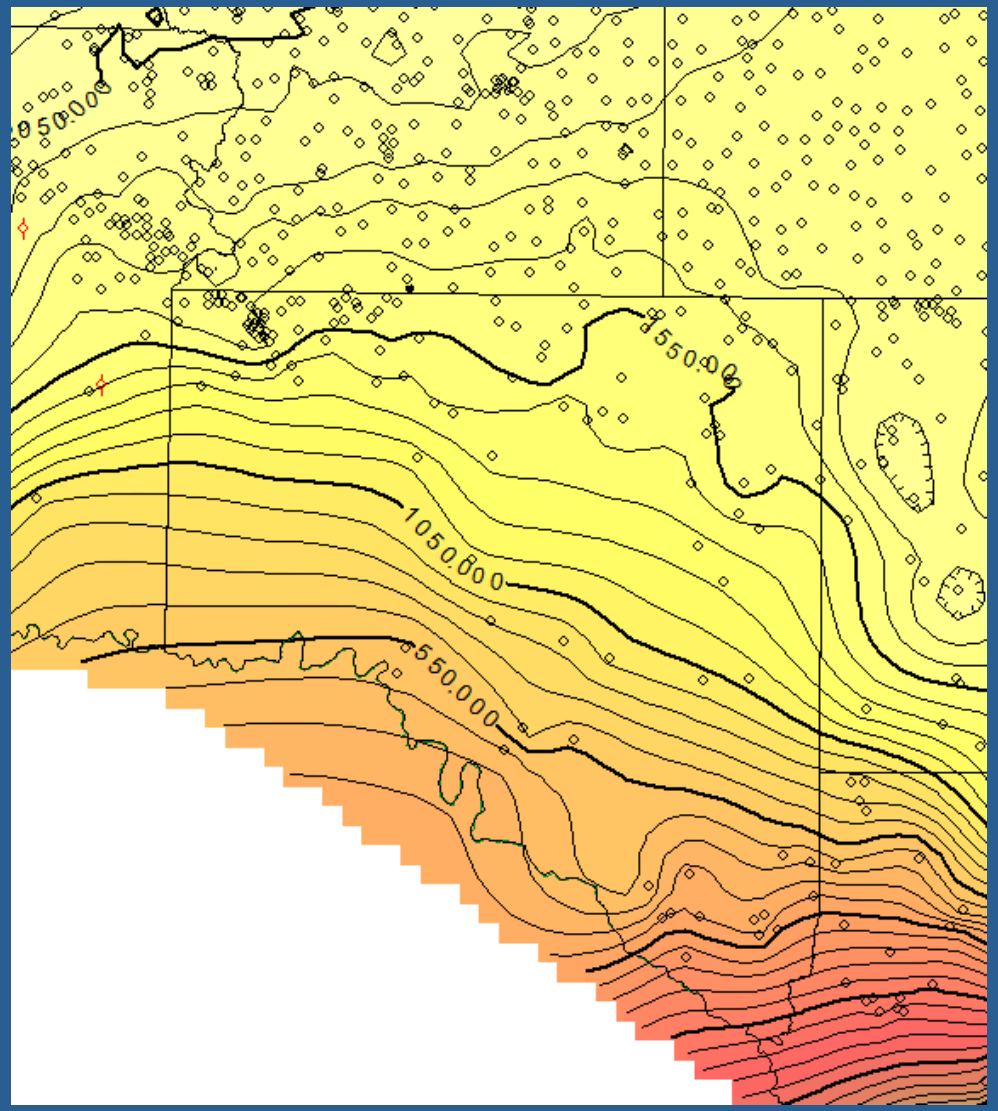


# Top of Trinity interpolation

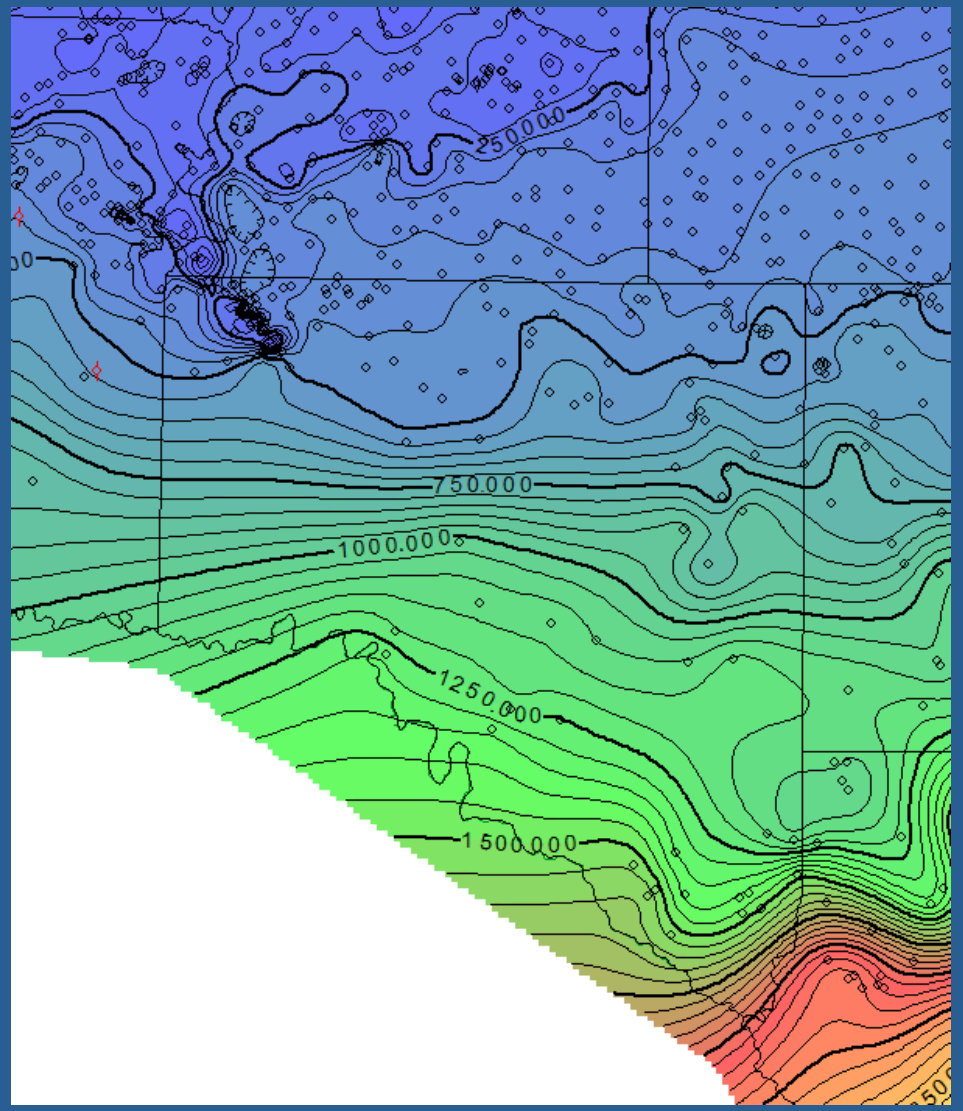
- Deepens towards the south into the Maverick Basin



# Trinity top




# Trinity thickness

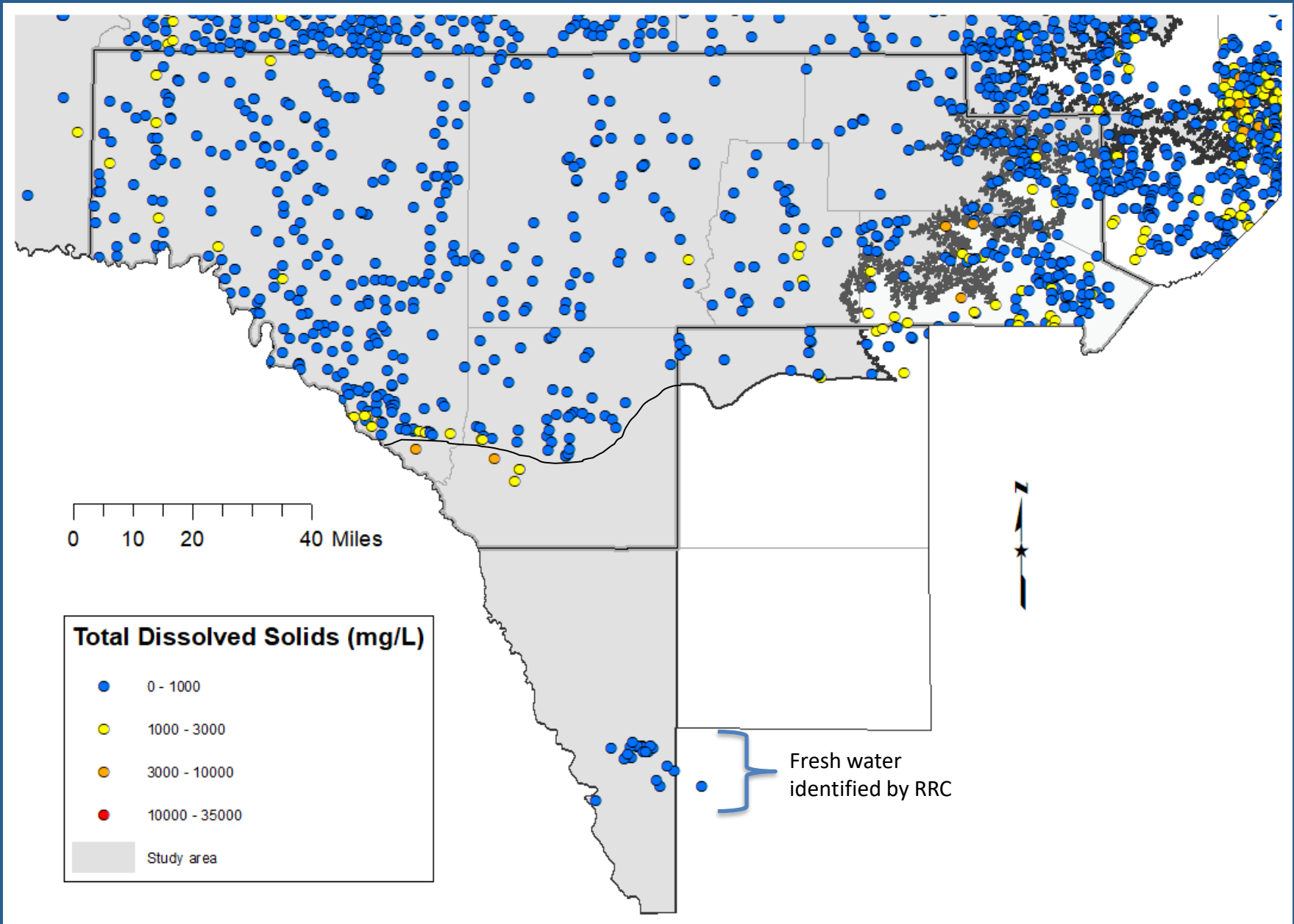


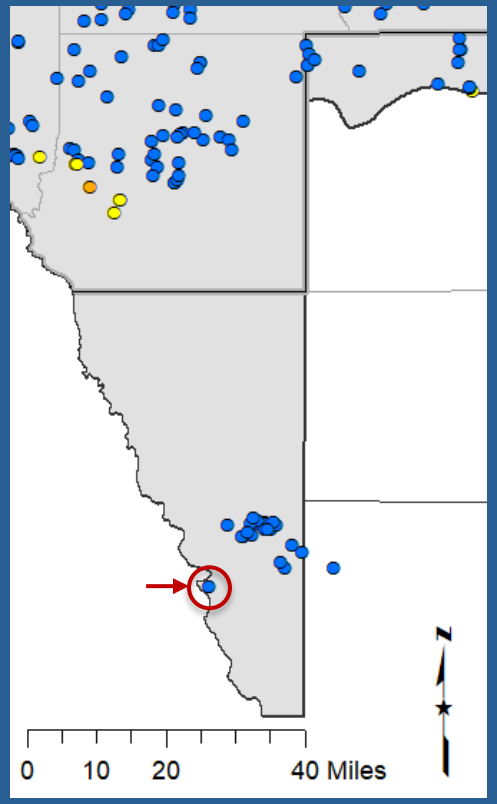
# Identification of fresh water in the deep Glen Rose Formation, Maverick County

Texas RRC
Groundwater Advisory Unit

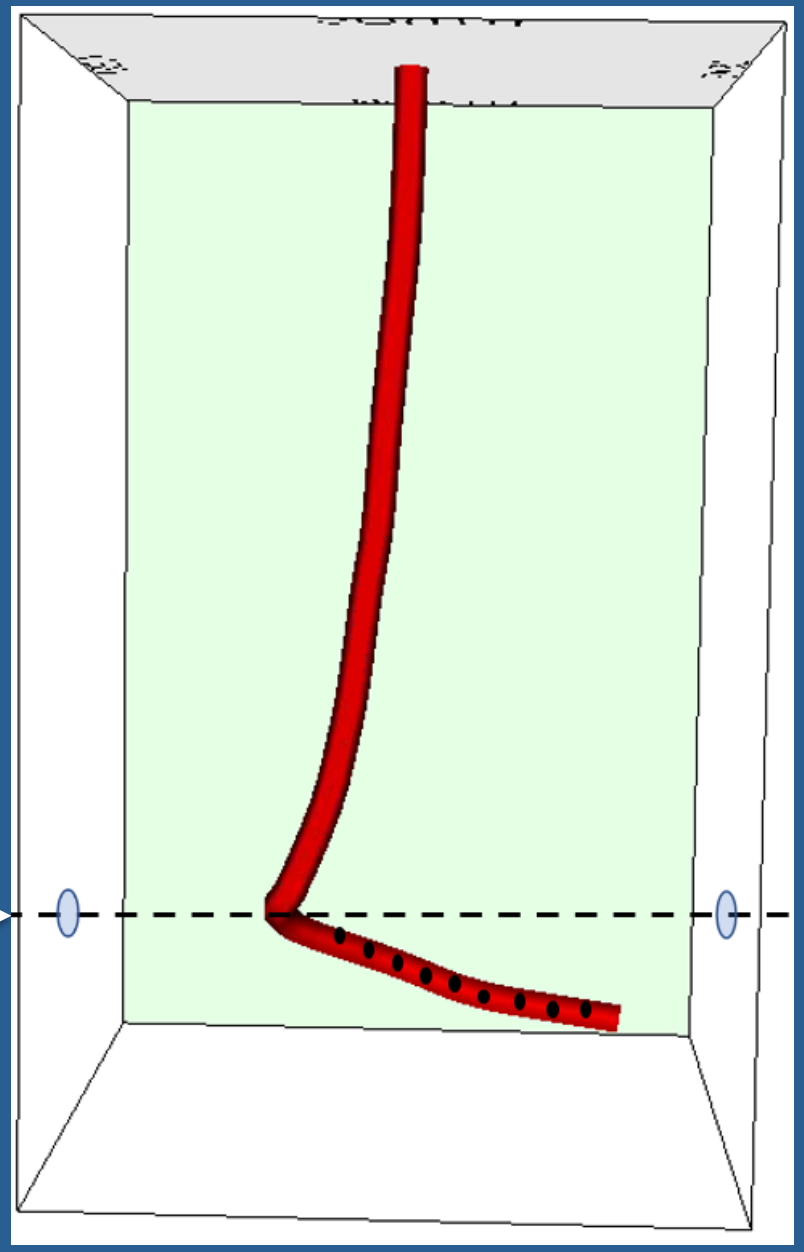
# Water quality Edwards-Trinity formations

- Edwards-Trinity (Plateau) Aquifer boundary through Kinney County
- Recently identified deep fresh water in Maverick County

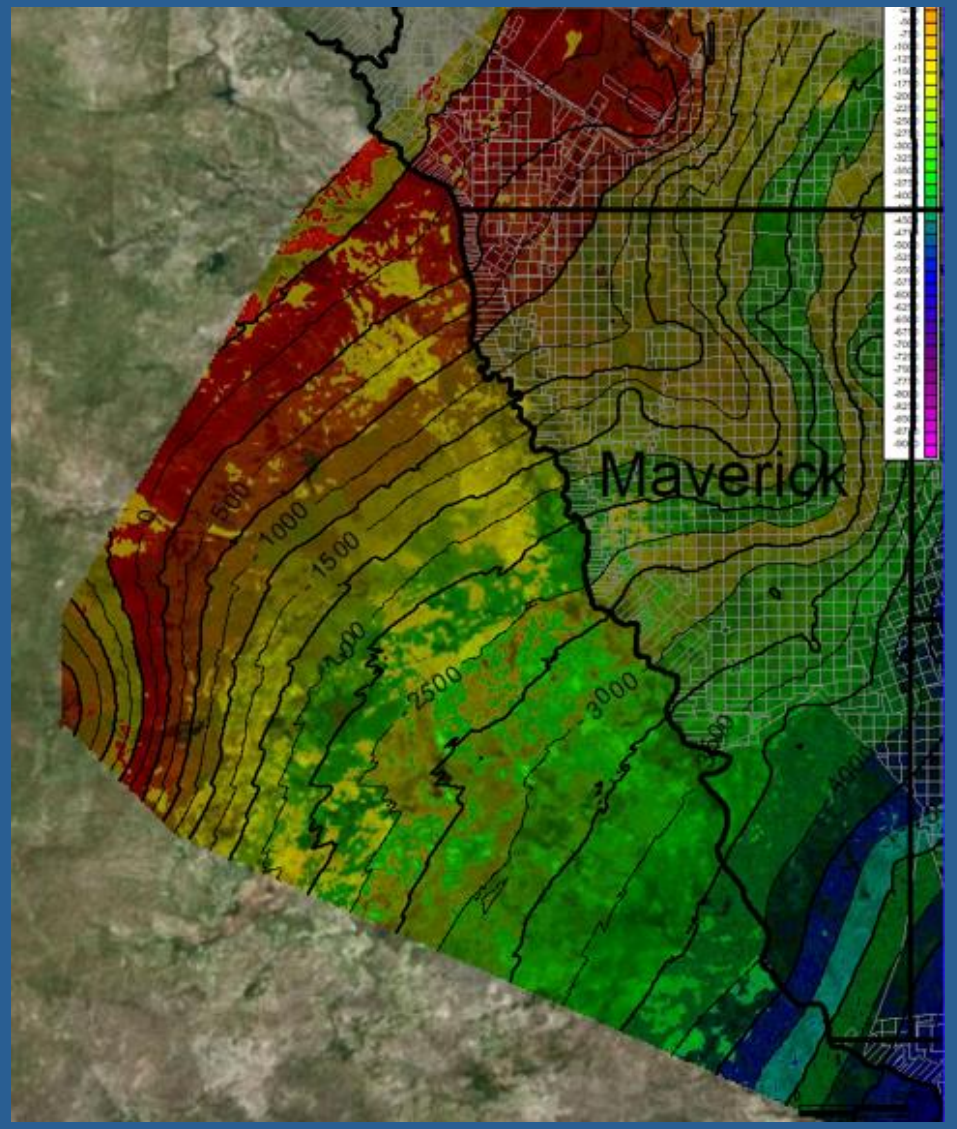





Top Glen Rose Formation
6400 feet depth



Suspected source: Outcrop of Glen Rose in Serrania del Burro Mountains in Mexico



# BRACS request:

Does anyone have access to Hickory Sandstone core?

We would like to contract out core analysis, descriptions, and photographs for use in future studies

# Contact Information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Item XVIII

Update from TWDB on Edwards Aquifer in Val Verde County and Edwards County

William Alfaro

# Region J Update on Edwards Aquifer in Val Verde County and Edwards County 3/17/22

1. The TWDB conducted a 2018 study providing an overview of groundwater conditions in Val Verde County.
    - This report is online:

https://www.twdb.texas.gov/groundwater/special_projects/valverde/docs/Groundwater-Resources-of-Val-Verde-County-86th-legislature.pdf

    - compiling and analyzing scientific and technical data (groundwater and related natural resources)
    - feasibility of potential hydrologic triggers as a groundwater management tool
    - data on pumping, water levels, and streamflow

2. Following the 2018 study the Legislature directed the TWDB to identify and summarize best practices for groundwater management in Val Verde County.

http://www.twdb.texas.gov/groundwater/special_projects/valverde/index.asp

3. TWDB's Groundwater Division is not planning to develop a separate groundwater model for Val Verde County. Val Verde County is included in the new regional Edwards-Trinity GAM that is currently being developed for the groundwater joint planning process. A draft report of the conceptual model is available online

4. TWDB is accepting public comments on this report through March 21, 2022. Information online at:

https://www.twdb.texas.gov/groundwater/models/gam/eddt_p/eddt_r.asp

   - A final report and model will be released in early 2023

5. TWDB's Regional Water planning program does not have funds available for special studies.