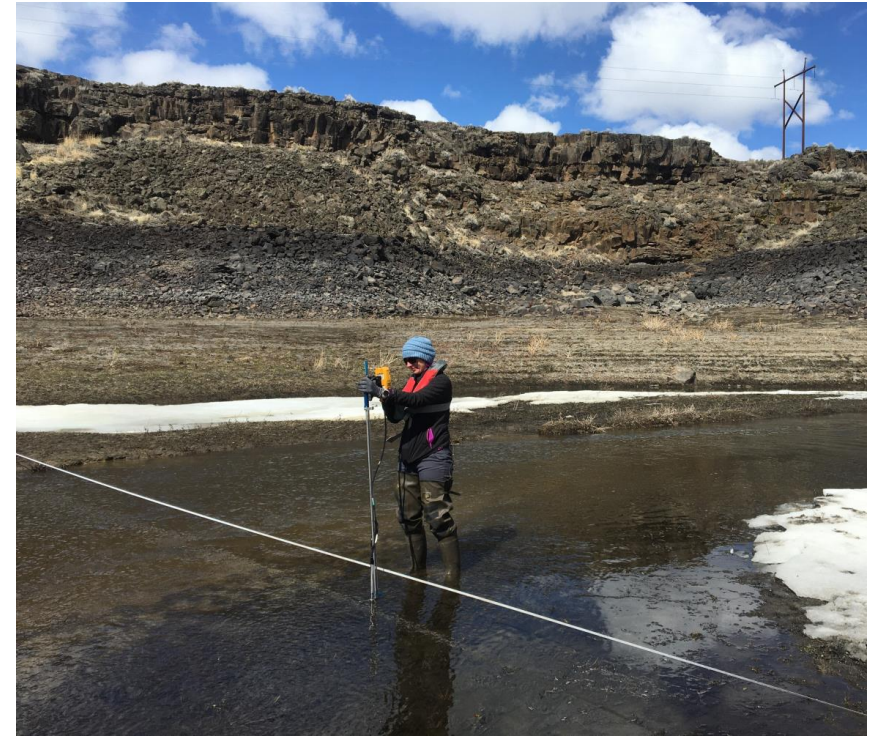
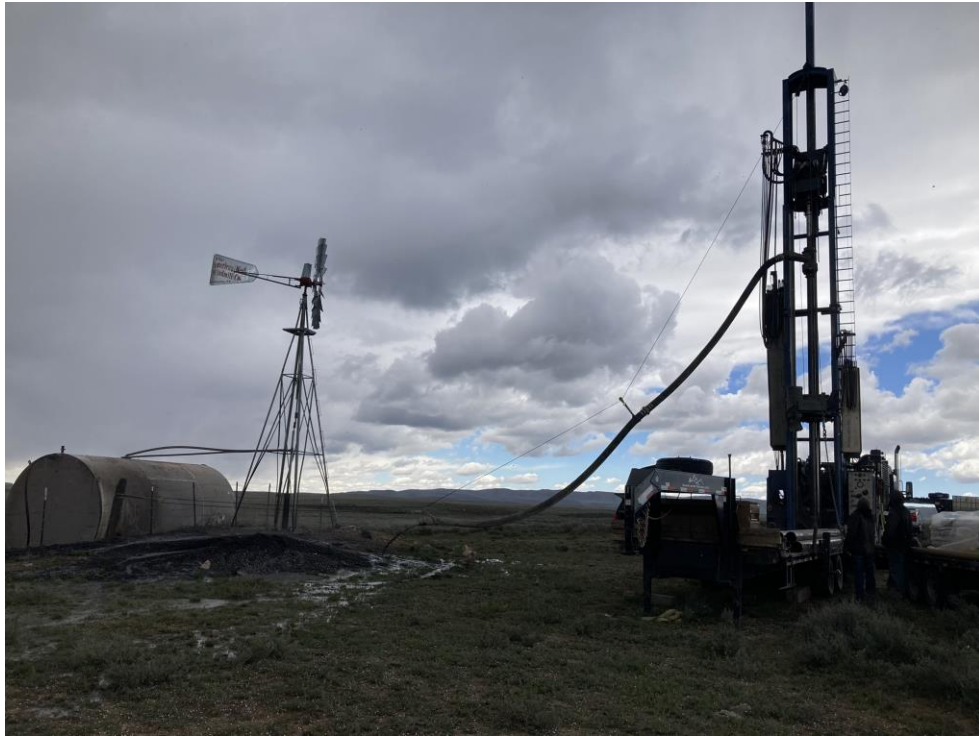


Camas Prairie Hydrologic Project



Camas Aquifer Workshop: June 16, 2026



IDAHO DEPARTMENT OF
WATER RESOURCES



Background

Jan
2022

BWRGWMA Advisory Committee Groundwater Management Plan Term Sheet finalized – included language that parties would petition IDWR/IWRB to conduct a Camas Prairie study

Mar
2022

Water users send petition letter to the IWRB for a Camas Prairie study

May
2022

IWRB approves a budget to conduct the Camas Prairie study

Summer
2022

IDWR and USGS meet to draft scope of work for study

Fall
2022

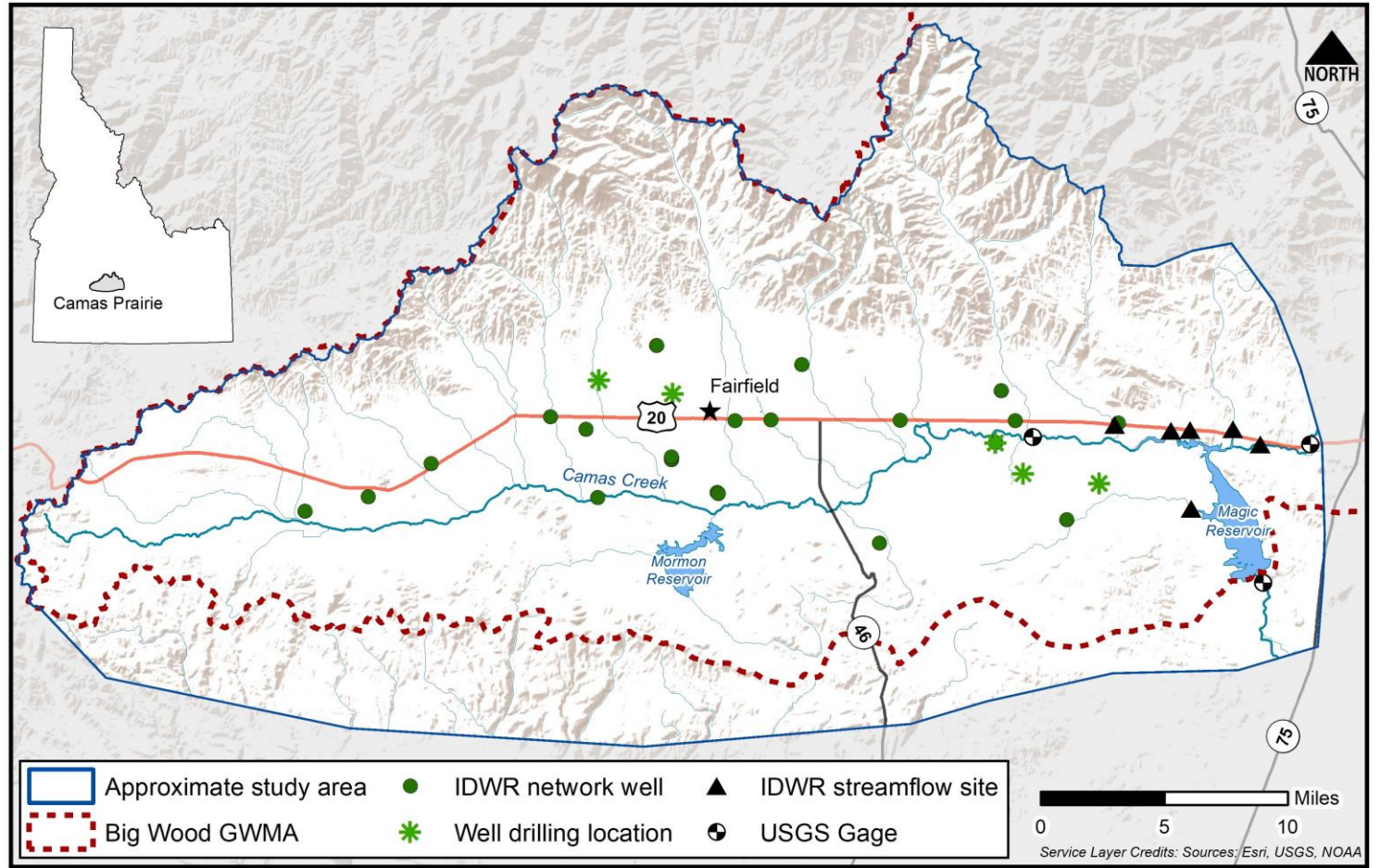
Draft scope of work is sent to TWG members; comments from TWG taken into consideration for final agreement

March
2023

Agreement is finalized with USGS

Purpose

- Characterize the groundwater and surface water resources in the Camas portion of the BWRGWMA
 - Collect data to assist with water issues
 - Findings inform development of the BWRGWMA Plan
 - Project information available at <https://idwr.idaho.gov/hydrologic-projects/camas-prairie-hydrologic-investigation/>



Scope of Work



Public open
house meeting
in fall 2024

5 monitoring
wells drilled in
2024

Borehole and
surface
geophysics in
2024

Groundwater
level synoptics
completed in
2025

Tributary
streamflow
measured
2023-2025

3-D
hydrogeologic
aquifer model
being
developed

Water budgets
being
developed for
wet, dry, and
average years



Public open
house meeting
in fall 2024

- Expanded monitoring network to 25 wells
 - 16 instrumented to record water levels every 12 hours
 - 9 hand measured in the spring and fall each year
 - Groundwater level data portal updated twice per year
- Data available at <https://idwr-groundwater-data.idaho.gov/applications/public.html?publicuser=public#waterdata/stationoverview>



Public open
house meeting
in fall 2024

5 monitoring
wells drilled in
2024

- Investigated subsurface geology by deploying specialized probes on the land surface and at 8 wells
 - Surface geophysics – lithology changes, porosity, hydraulic conductivity, depth to bedrock
 - Borehole Geophysics – well condition, lithology changes, porosity, perched groundwater, density changes, water chemistry, and groundwater flow
- Borehole geophysics data available at <https://www.sciencebase.gov/catalog/item/67a391f4d34e63325c2b6f7c>



Public open
house meeting
in fall 2024

5 monitoring
wells drilled in
2024

Surface and
borehole
geophysics in
2024

- Groundwater level synoptics completed in spring and fall of 2025
 - Measured water levels at 193 wells
 - Developed groundwater level maps

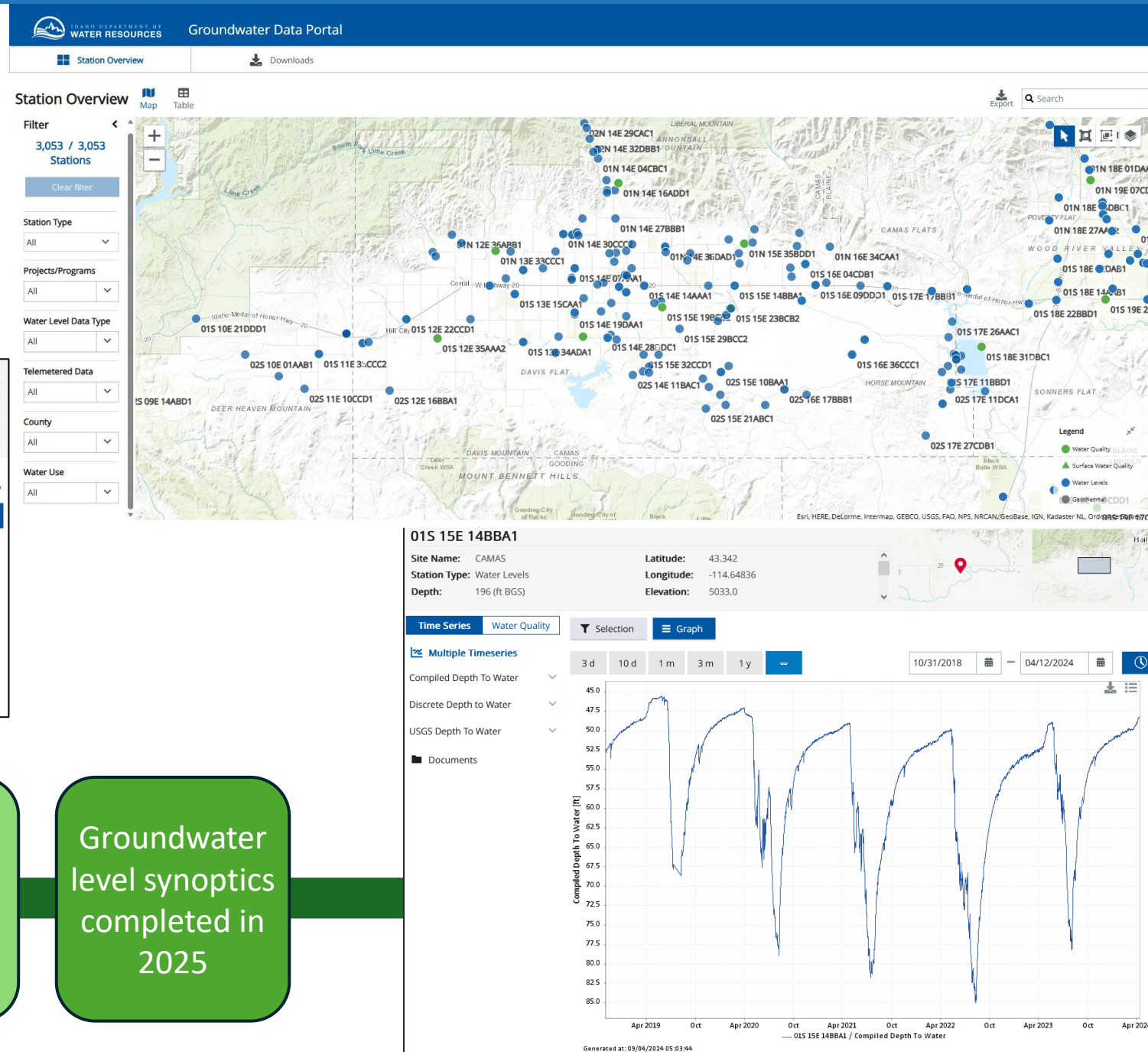


Public open
house meeting
in fall 2024

5 monitoring wells drilled in 2024

Borehole and surface geophysics in 2024

Groundwater
level synoptics
completed in
2025



- Streamflow measured at
 - Camp Creek
 - Poison Creek
 - Lava Creek
 - Rock Creek
 - Big Wood River at Sheep Bridge
- Streamflow data will be posted to the project website at <https://idwr.idaho.gov/hydrologic-projects/camas-prairie-hydrologic-investigation/>



Questions?



Ryan McCutcheon, Project Manager, Idaho Department of Water Resources

ryan.mccutcheon@idwr.idaho.gov

208-287-4992

Camas Prairie Hydrogeologic Study



Goals

- Improve hydrologic and hydrogeologic understanding

Plan

- Create hydrogeologic framework
- Create water budgets for the Camas Prairie aquifer and Magic Reservoir



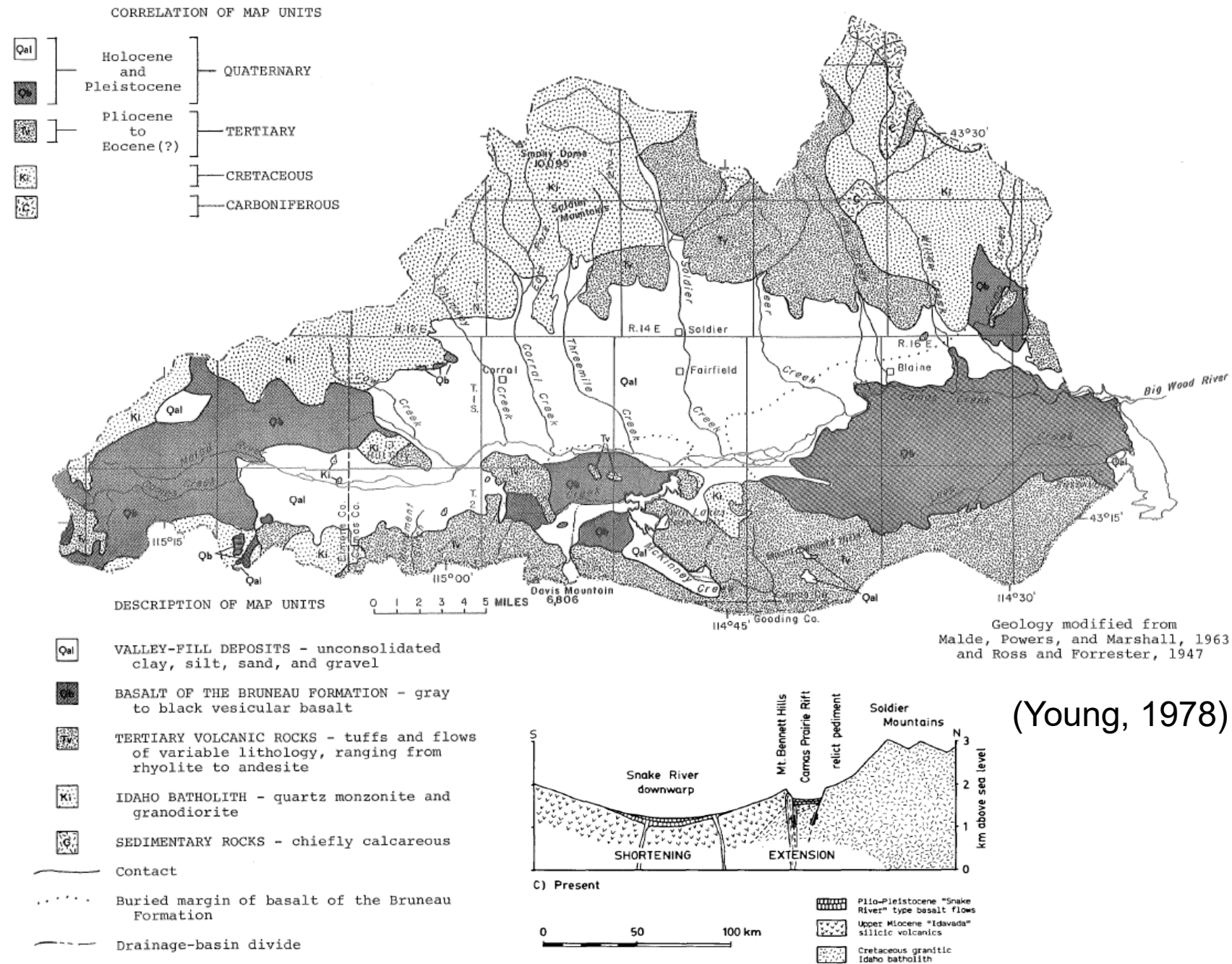
Outline

- Geologic history
- Previous hydrogeologic work
- Groundwater level synoptic 2025
- Groundwater level trends
- Hydrogeologic framework
- Water budget



Geologic history

- Cretaceous Idaho Batholith (**Granite**)
- Eocene to Miocene volcanics (**Rhyolite**)
- Basin formation
- **Basalt** damming of basin outlet
- Valley fill with layered **fine- and coarse-grained sediment**



(Cluer and Cluer, 1986)

Previous Hydrogeologic Work

Early work on developing groundwater for irrigation:

- Piper, 1925

Last comprehensive water resources study to determine groundwater use:

- Young, 1978

Investigation of the geothermal resources of Camas Prairie:

- Glen et al., 2018



Comprehensive description of groundwater resources and geology in Camas Prairie:

- Walton, 1962

Update to conceptual geologic model of the Camas Prairie and groundwater storage, underflow, and recharge:

- Cluer and Cluer, 1986
- Cluer, 1989

Seepage study of lower Camas Creek:

- Moody, 2022

Previous Hydrogeologic Work

Early work on developing groundwater for irrigation:

- Piper, 1925

1925

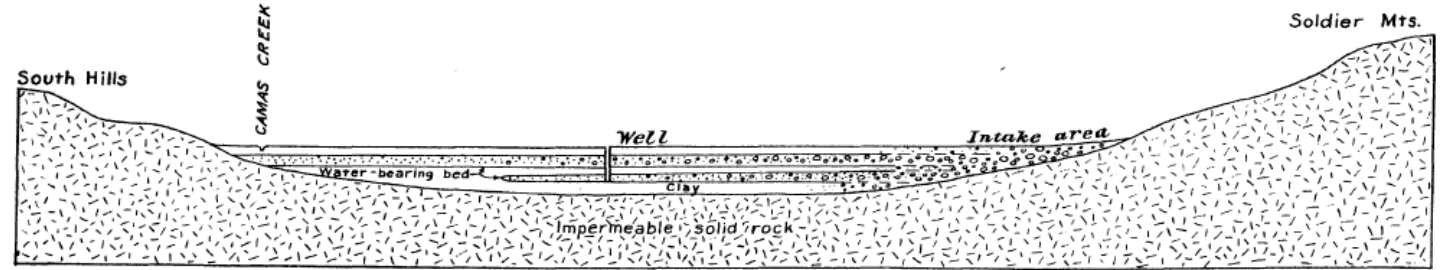


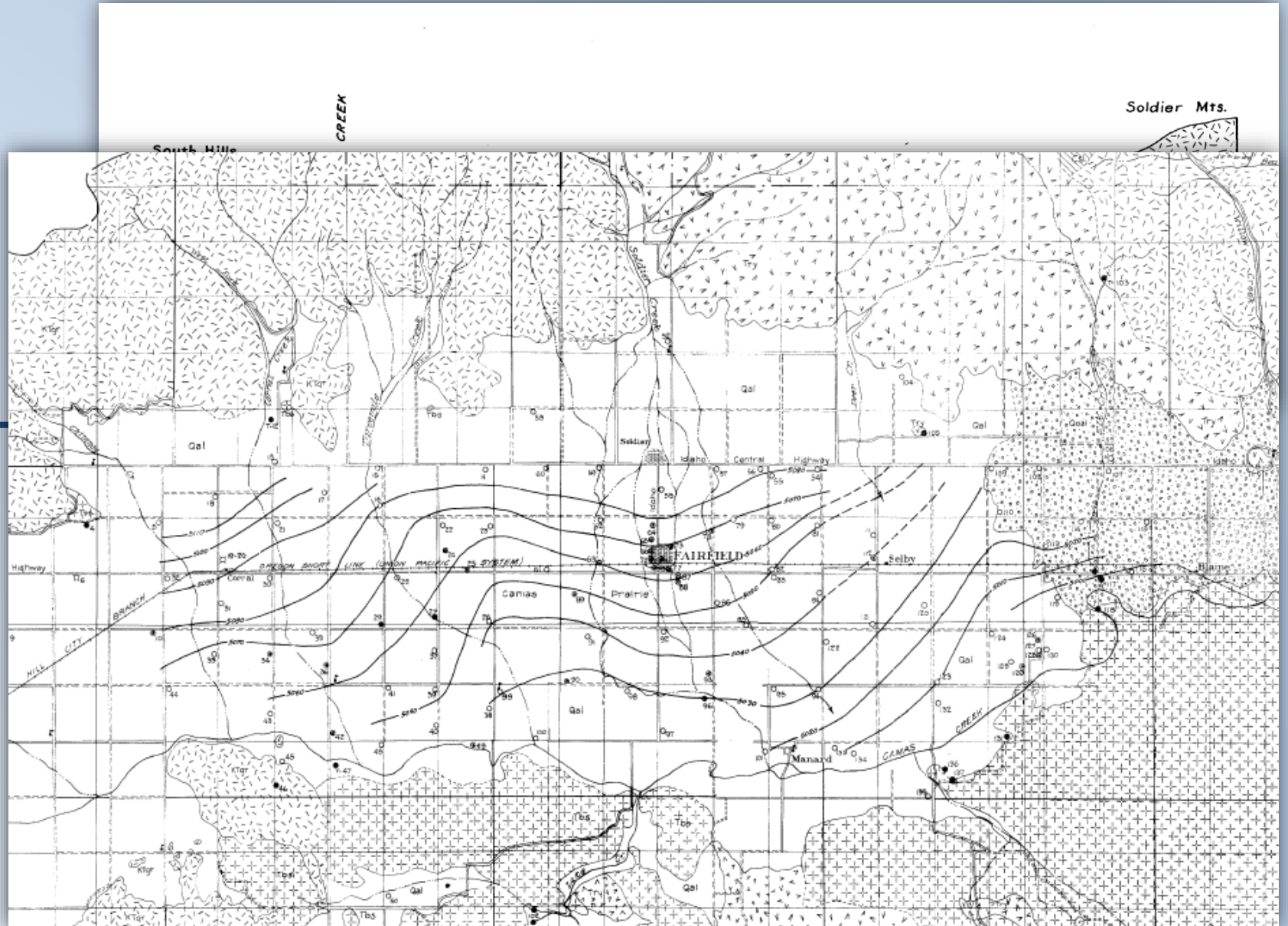
FIGURE 5.- Hypothetical cross section of Camas Creek valley showing artesian conditions.

Previous Hydrogeologic Work

Early work on developing groundwater for irrigation:

- Piper, 1925

1925



Previous Hydrogeologic Work

1925

1962

Comprehensive description of groundwater resources and geology in Camas Prairie:

- Walton, 1962

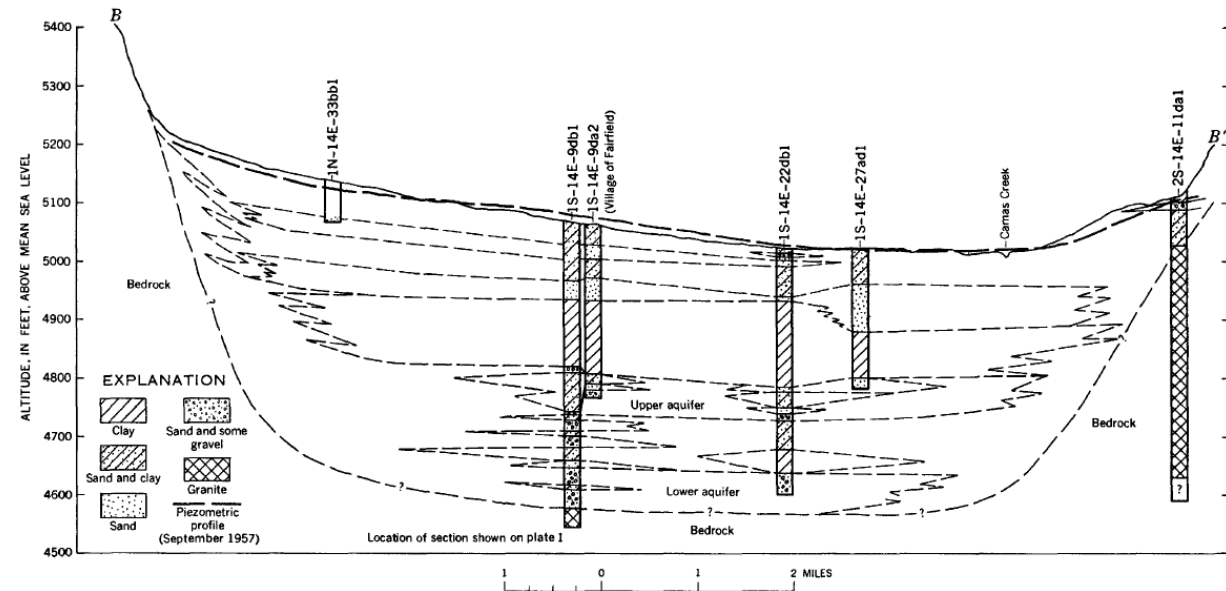
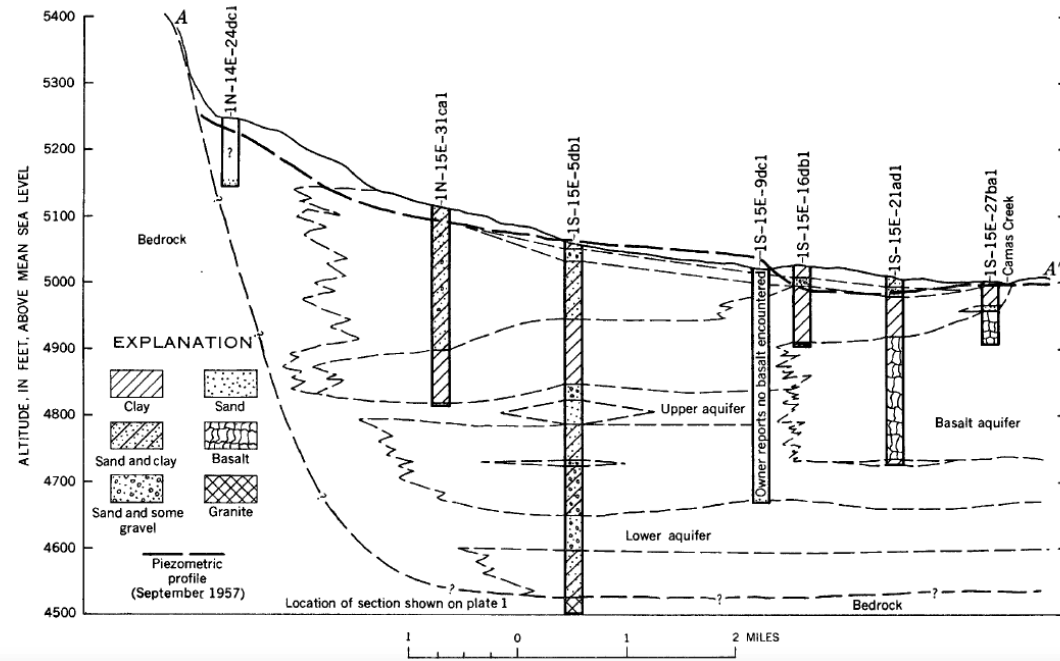


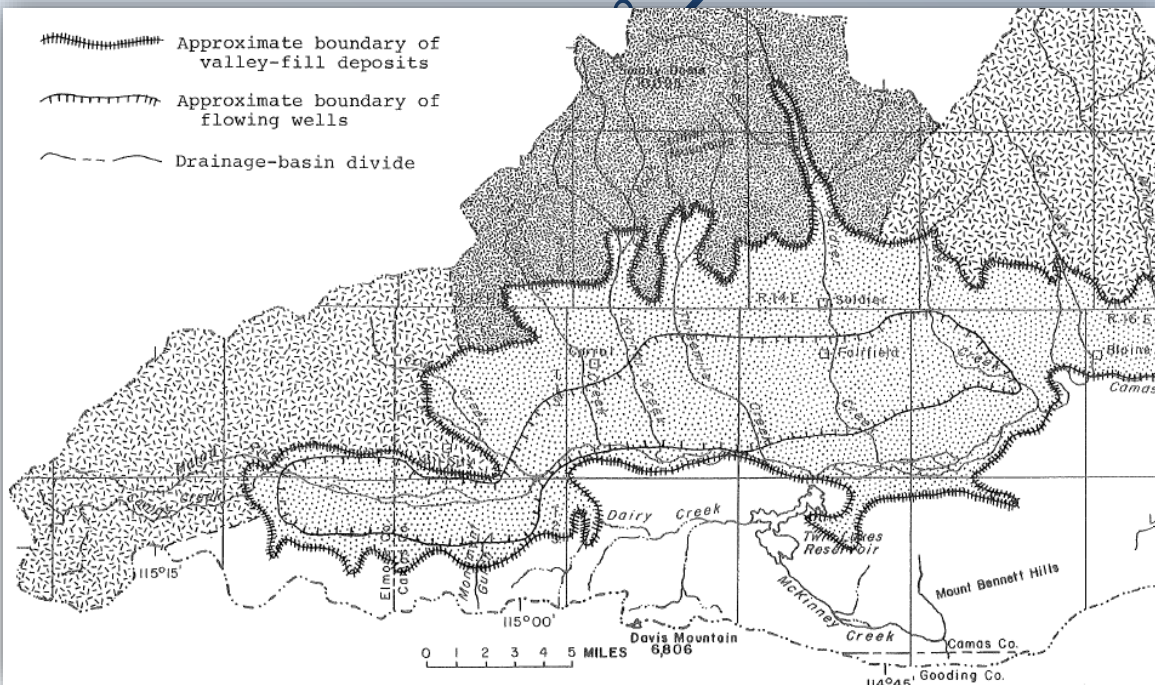
FIGURE 6.—Geologic cross section B-B' and profile of piezometric surface of valley-fill deposits.

Previous Hydrogeologic Work

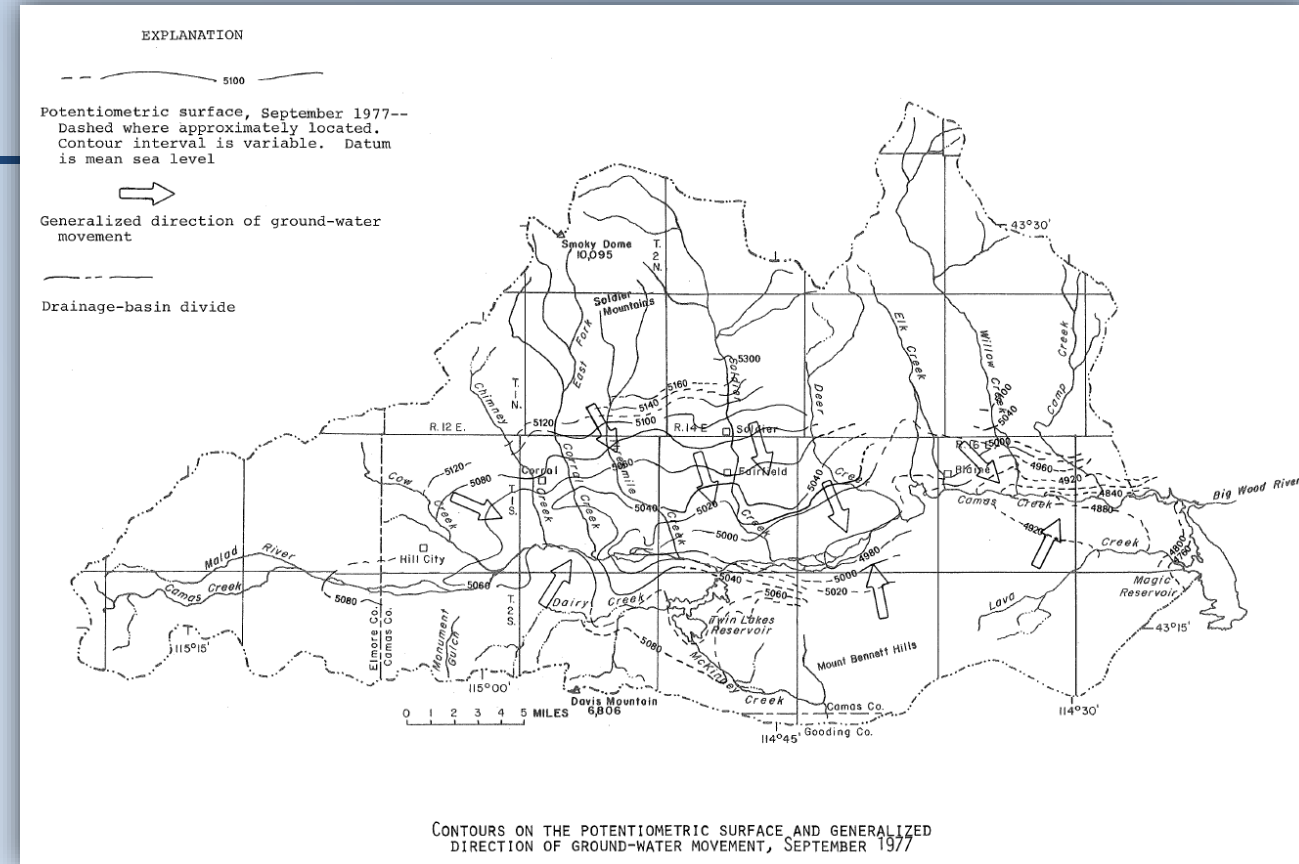
Last comprehensive water resources study to determine groundwater use:

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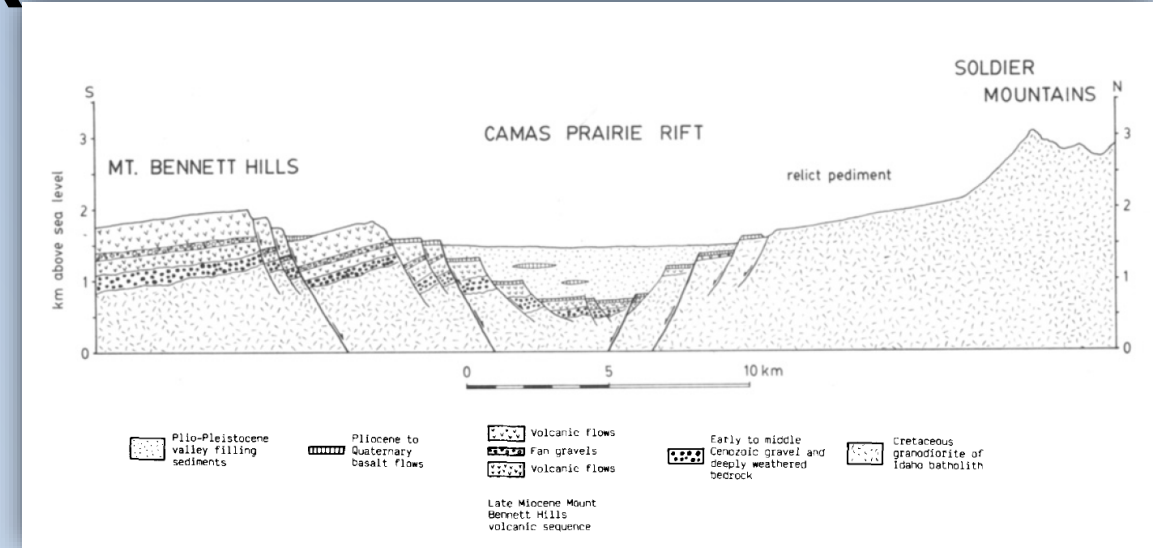
1925



1978

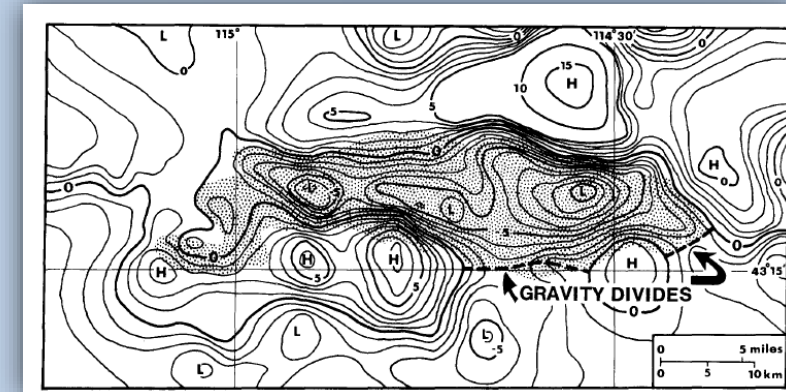


Previous Hydrogeologic Work

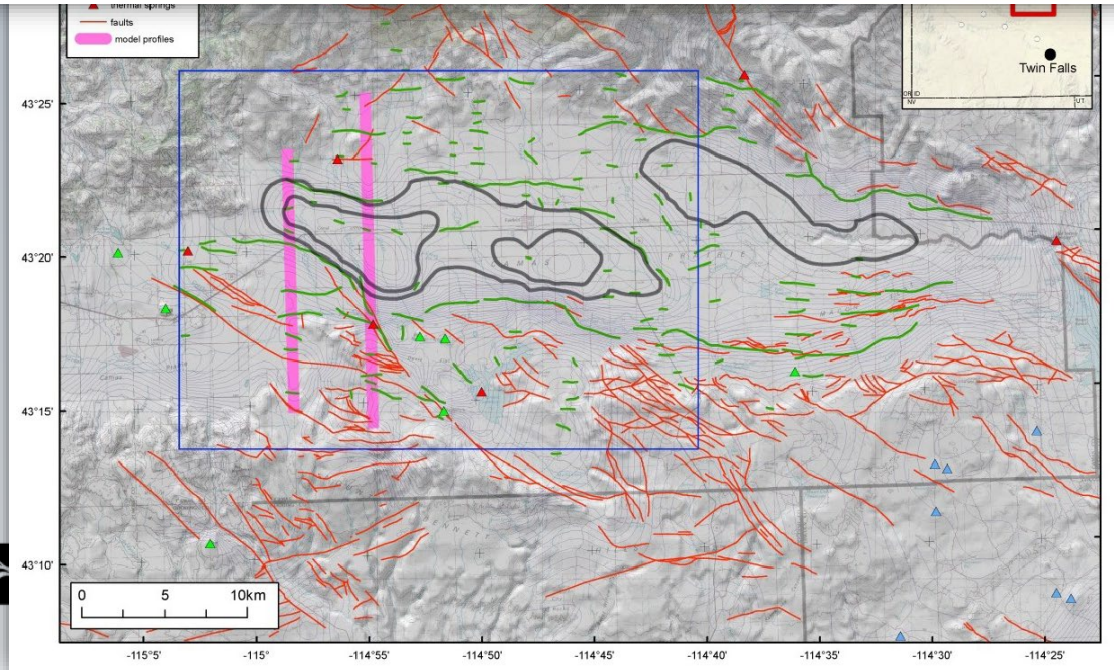
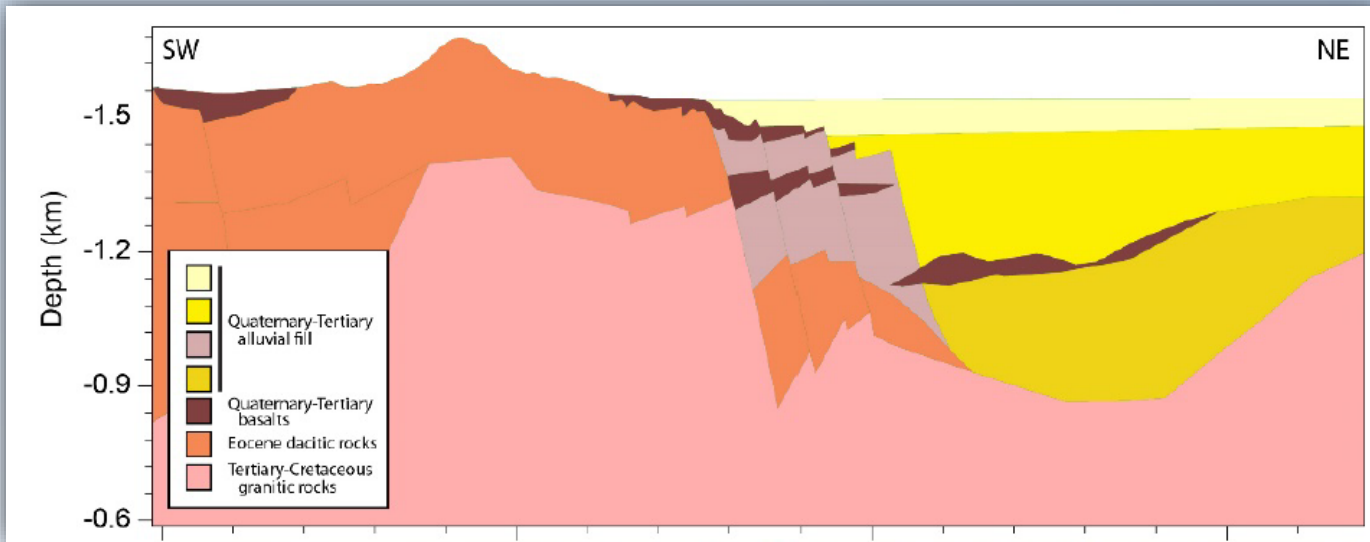


Update to conceptual geologic model of the Camas Prairie and groundwater storage, underflow, and recharge:

- Cluer and Cluer, 1986
- Cluer, 1989



Previous Hydrogeologic Work



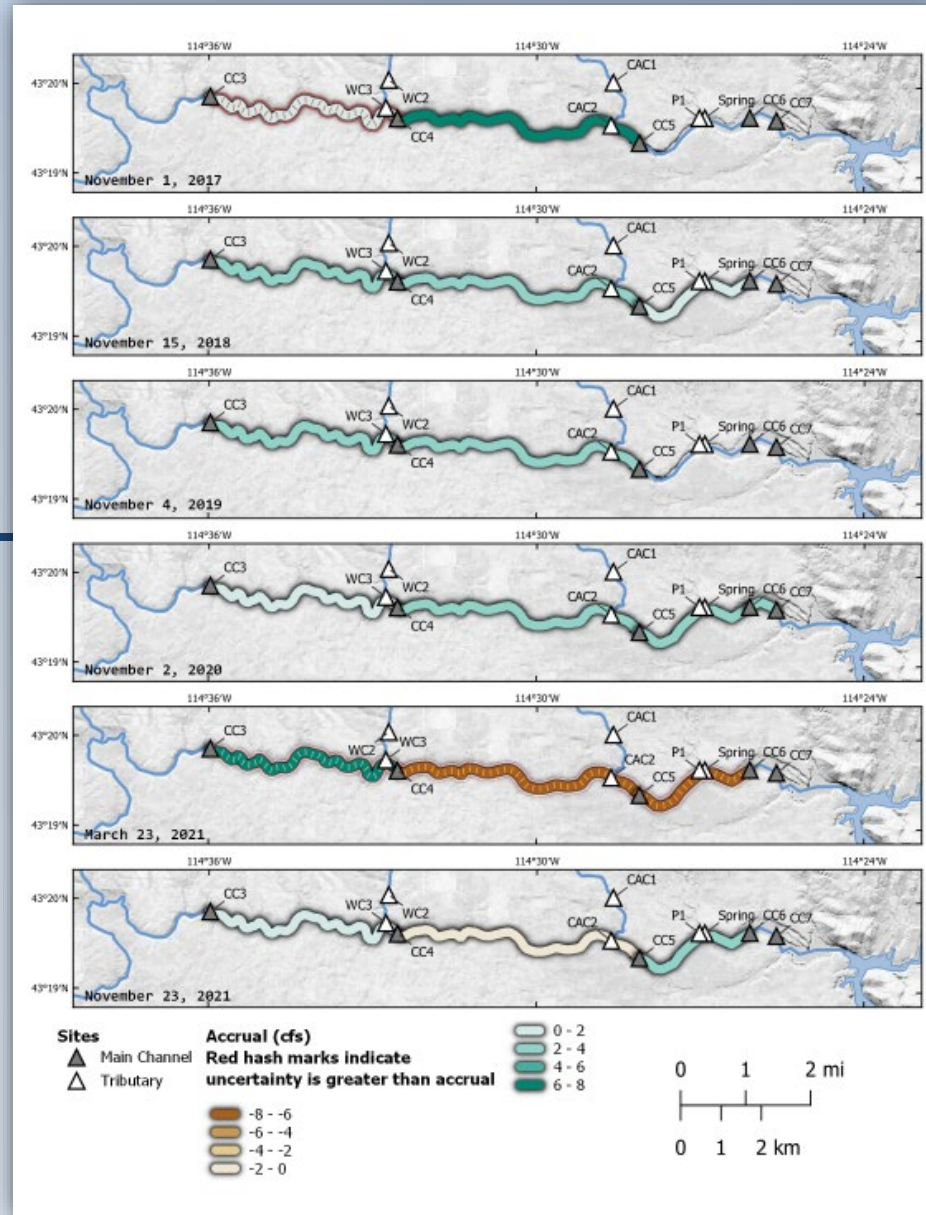
Investigation of the geothermal resources of Camas Prairie:

- Glen et al., 2018

1989

2018

Previous Hydrogeologic Work



Seepage study of lower Camas Creek:

- Moody, 2022

Groundwater-Level Synoptic

- What is it?

- Mass groundwater-level measurement
- Snapshot in time during Spring and Fall 2025

- Methods:

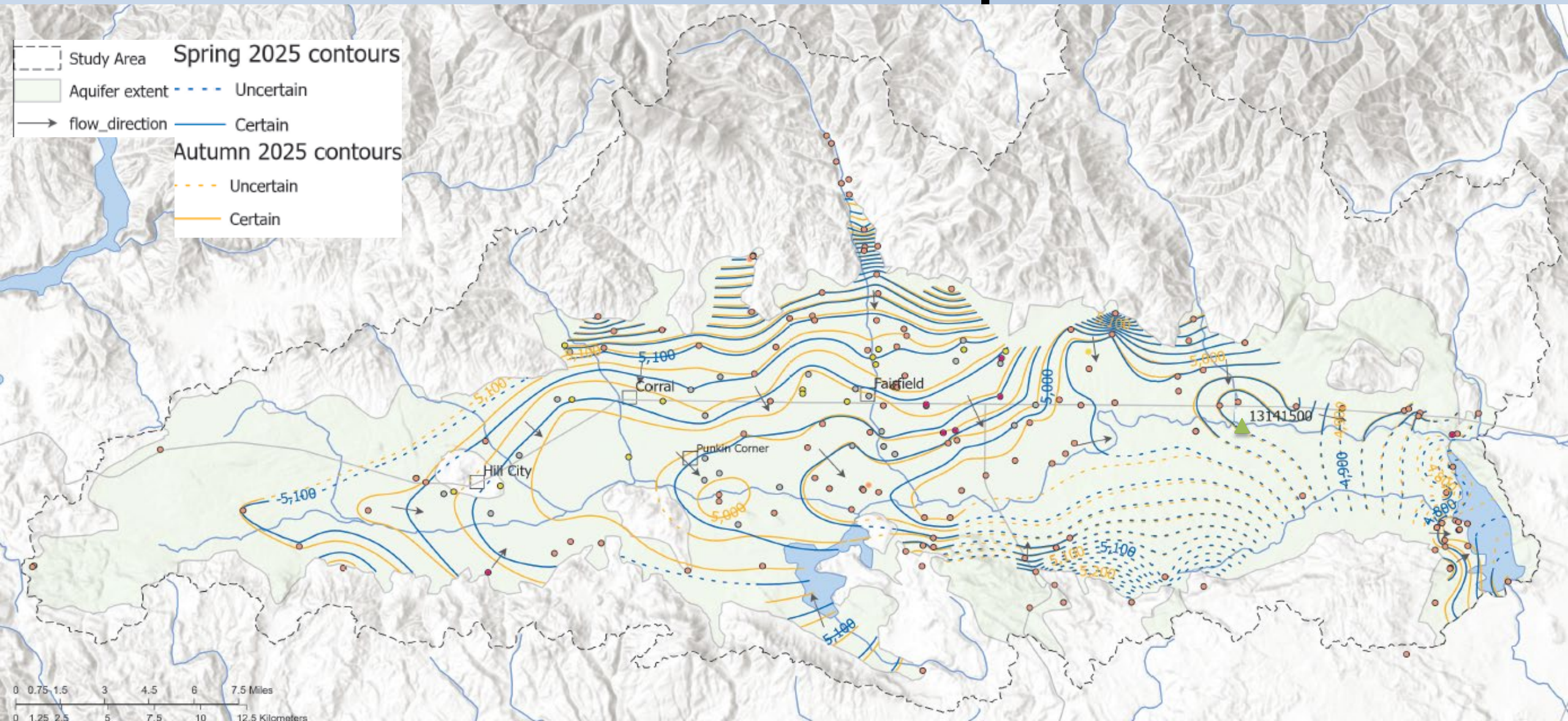
- Obtain groundwater-level measurements from existing wells (domestic or irrigation)
- Measured water levels in **193 wells.**
- Develop groundwater-level maps
- Data available on USGS and IDWR databases



Data is provisional do not cite



Groundwater Level Map - 2025



Data is provisional do not cite

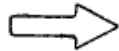
(Ducar, 2027) - Draft

Groundwater Level Map - 1977

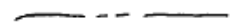
EXPLANATION

--- 5100 ---

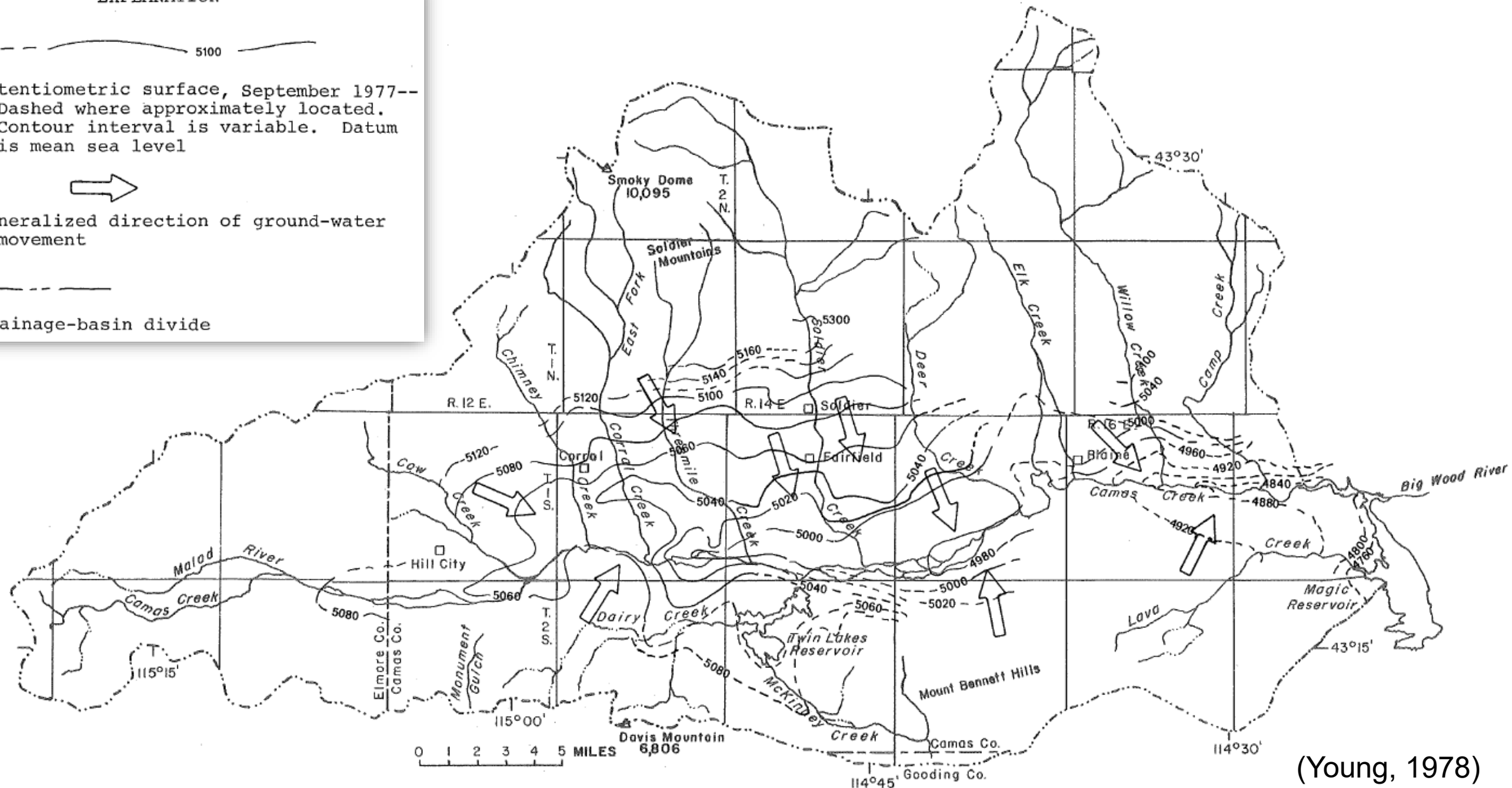
Potentiometric surface, September 1977--
Dashed where approximately located.
Contour interval is variable. Datum
is mean sea level



Generalized direction of ground-water
movement

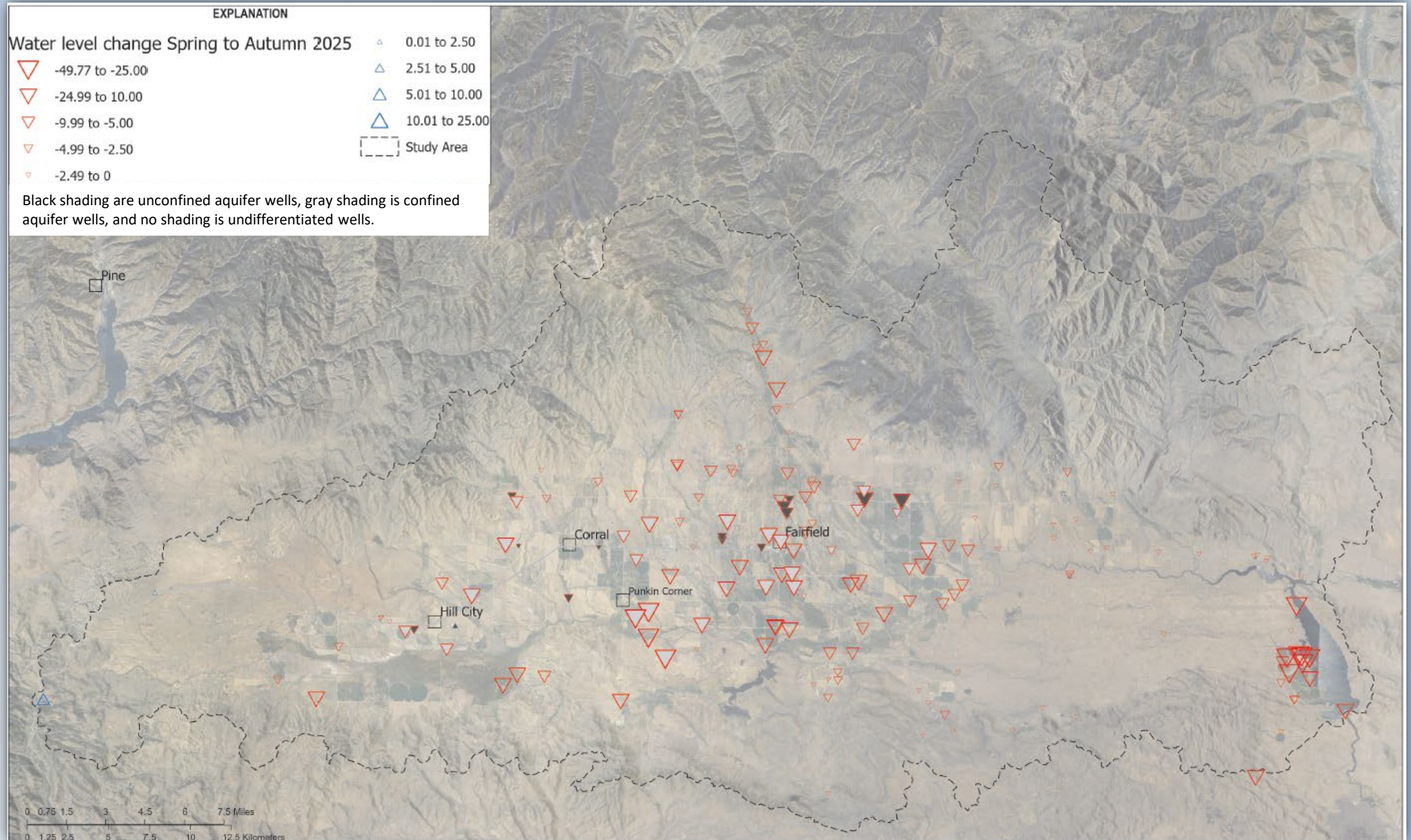


Drainage-basin divide



(Young, 1978)

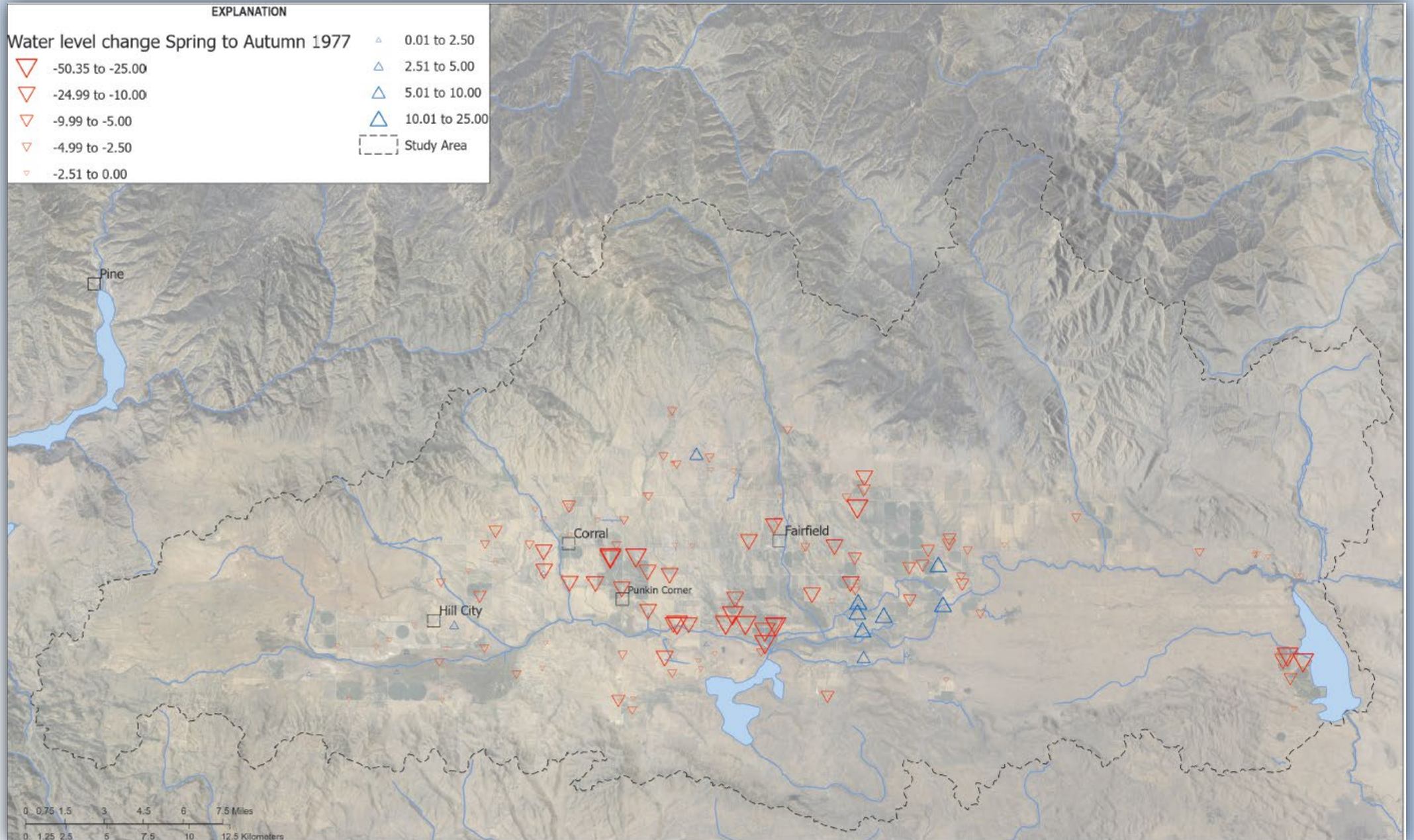
Groundwater Level Change Map - 2025



Data is provisional do not cite

(Ducar, 2027) - Draft

Groundwater Level Change Map - 1977

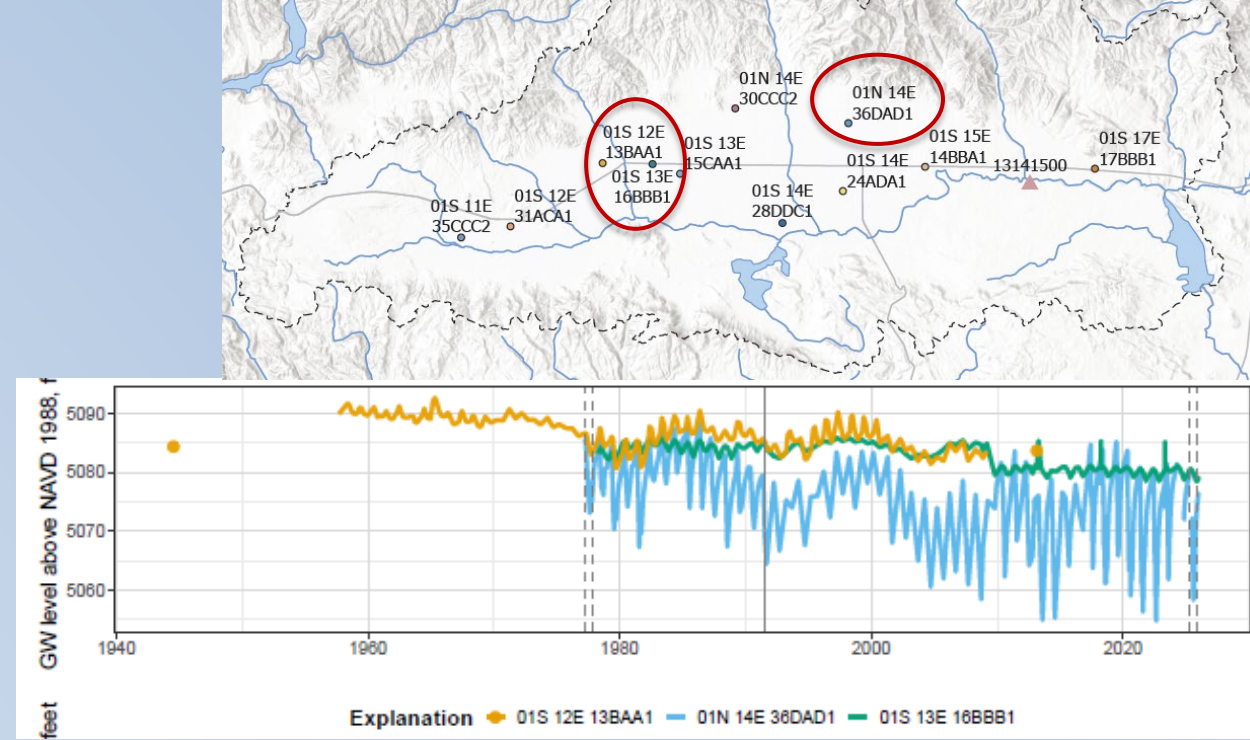


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(Ducar, 2027) - Draft

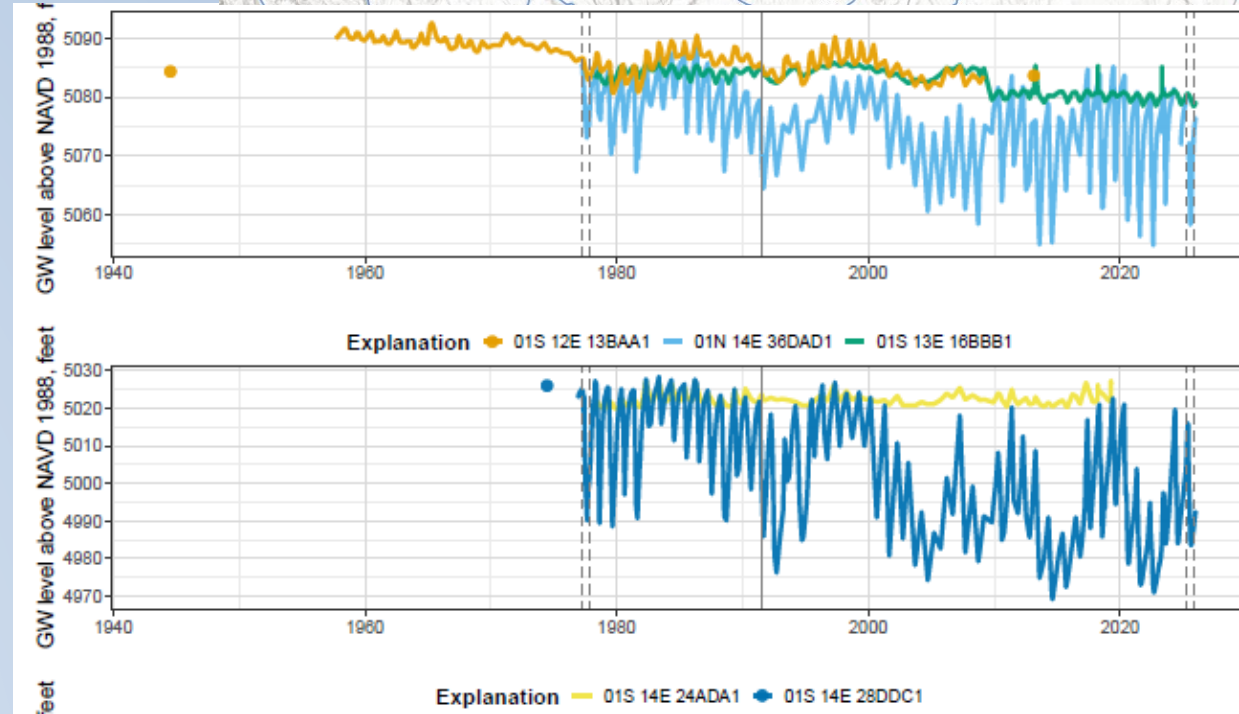
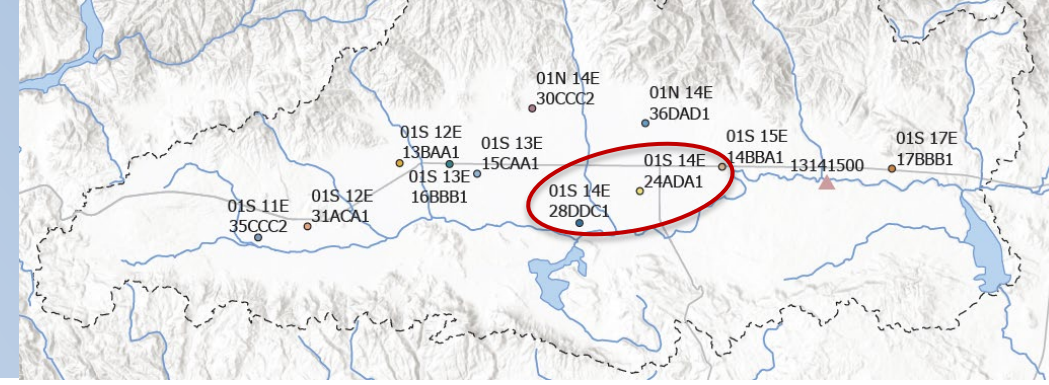
Groundwater- Level monitoring

- Groundwater level declines since 1950s.
- Groundwater level declines have attenuated since establishment of Big Wood River Ground Water Management Area in 1991
- Shallow wells water levels have been stable
- Yearly groundwater fluctuations have increased in some wells
- Groundwater-levels respond to changes in precipitation.
- Camas Creek flows are impacted by precipitation and groundwater levels



Groundwater- Level monitoring

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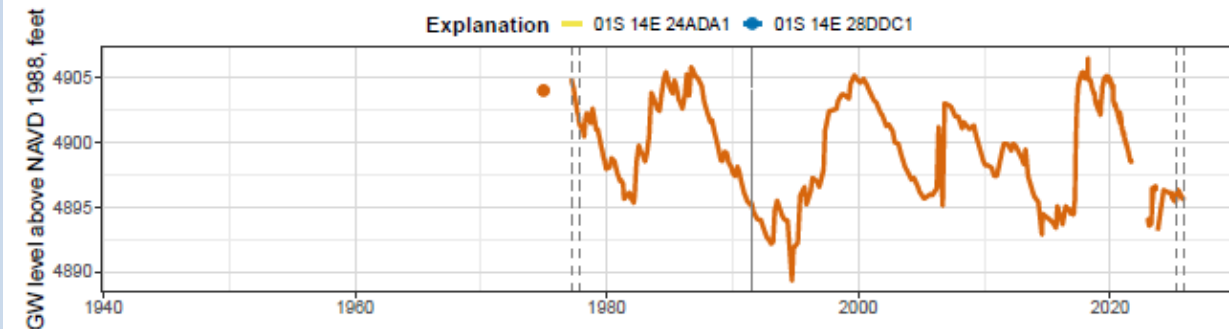
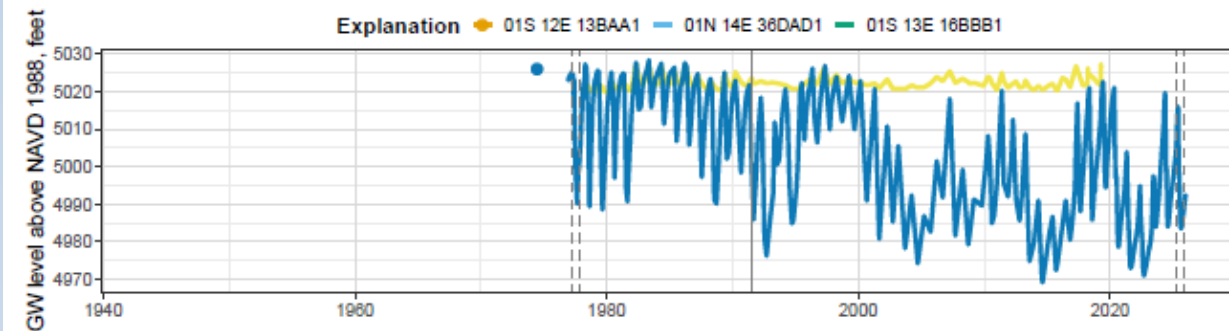
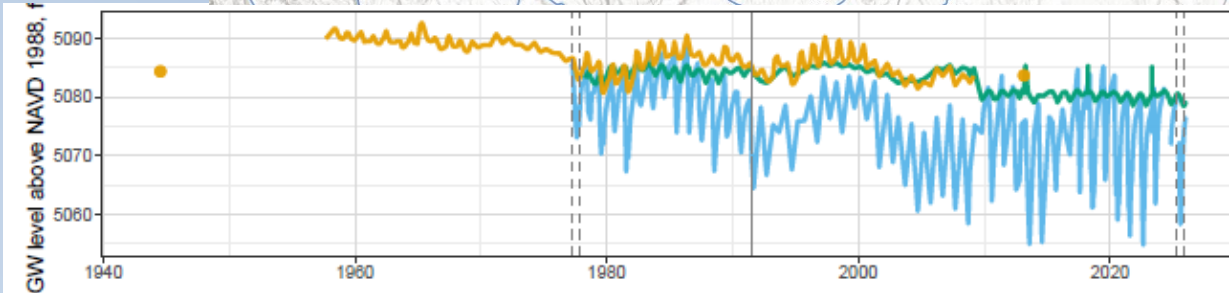
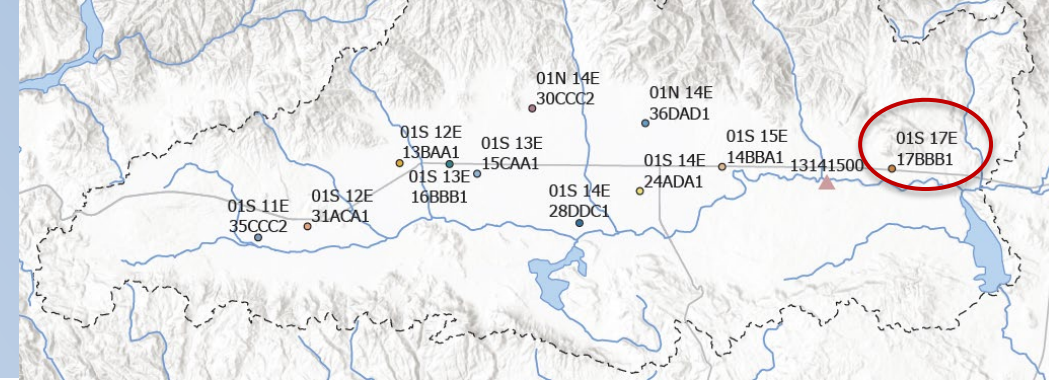


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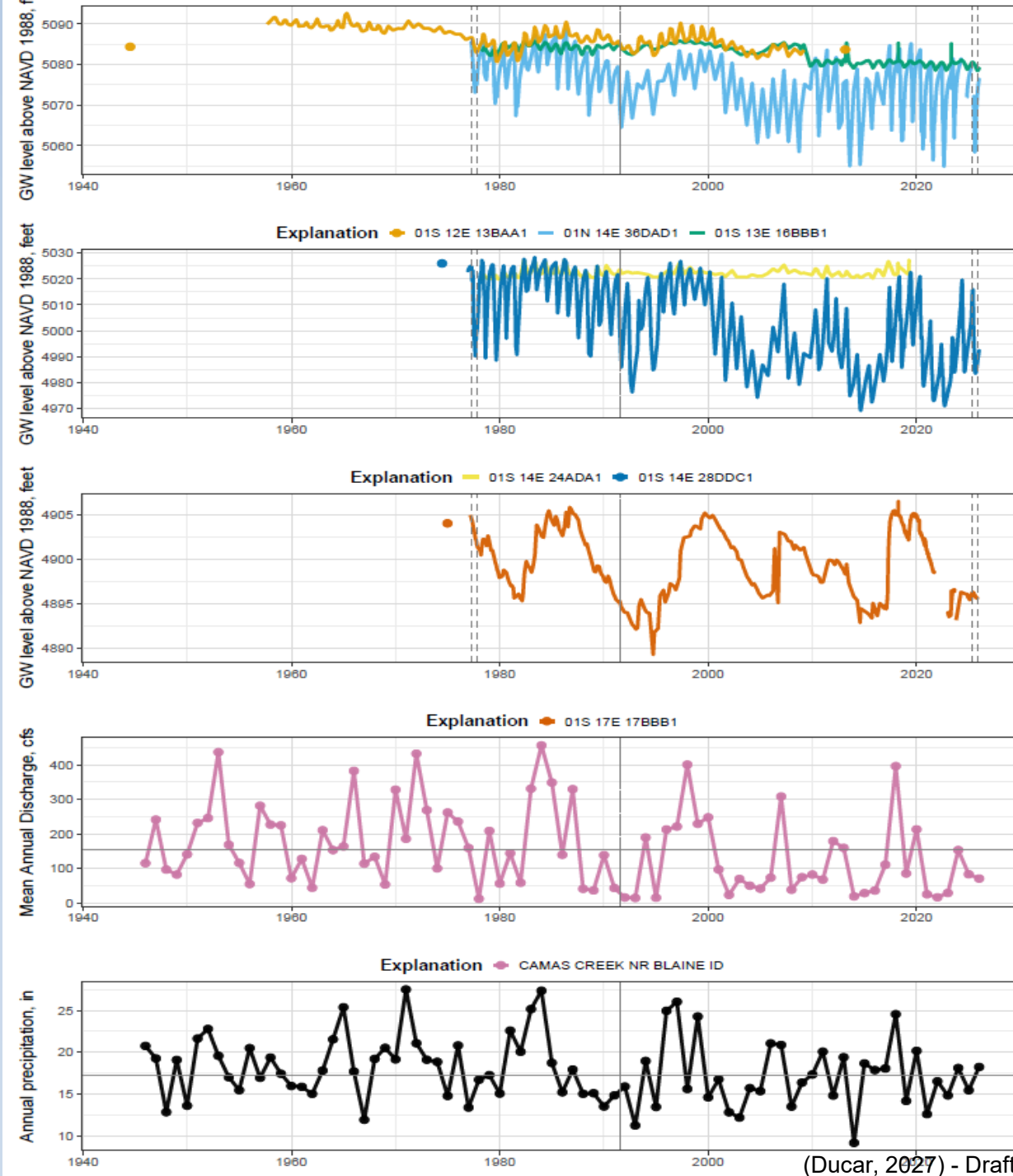
(Ducar, 2027) - Draft

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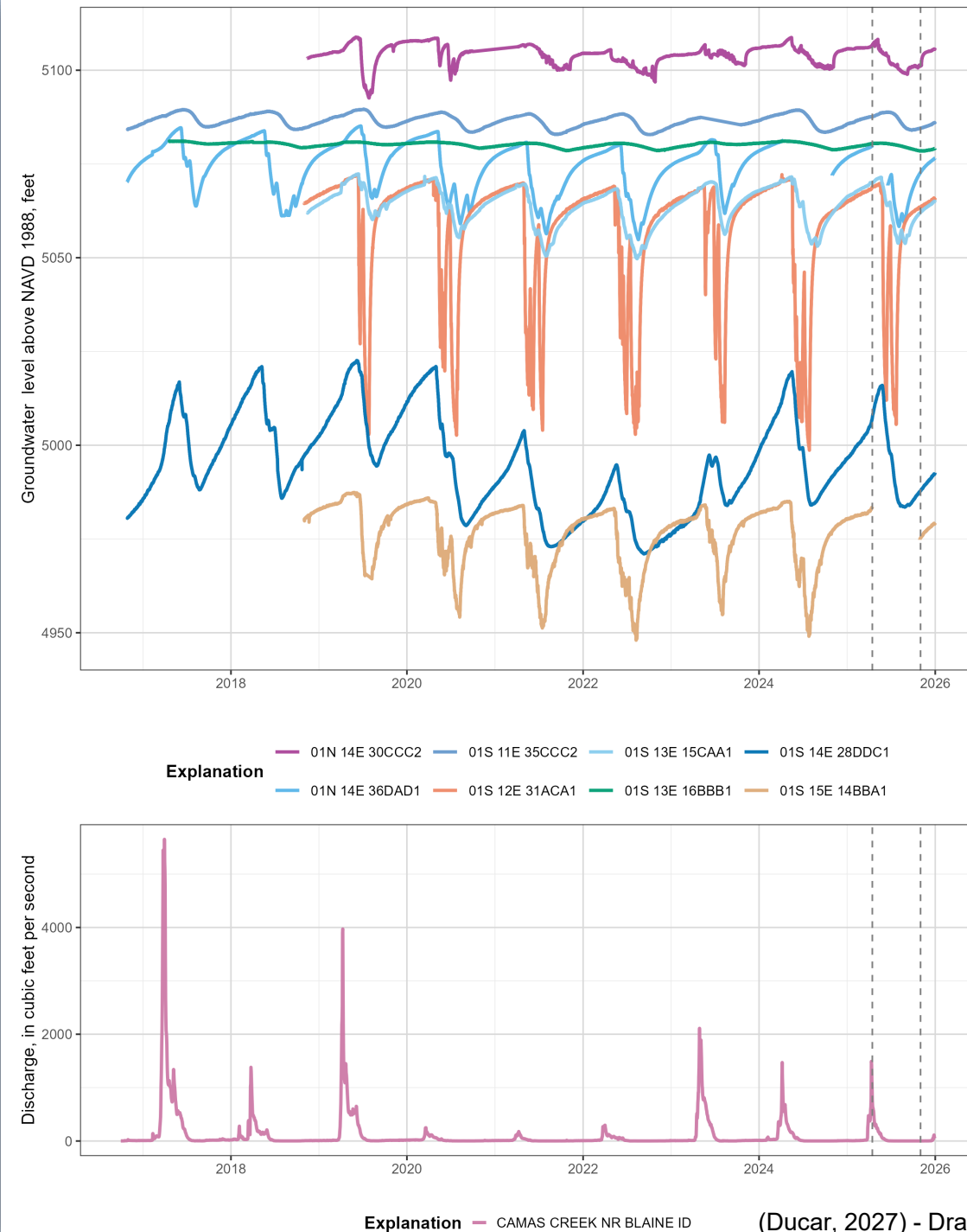


Groundwater-Level monitoring

- Groundwater levels have been stable over the last 10 years
- Groundwater levels decline during drought conditions
- Groundwater levels rebound with increased precipitation
- However, groundwater levels stay depressed until enough recharge occurs.



Data is provisional do not cite

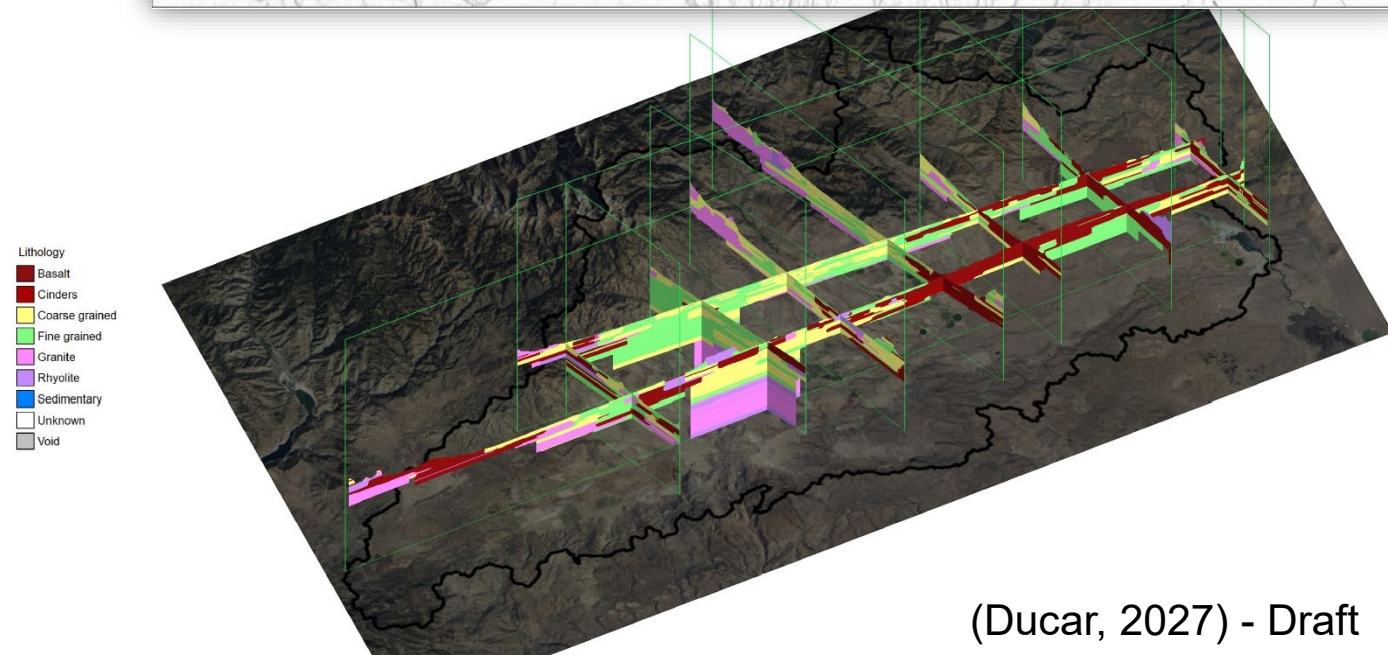
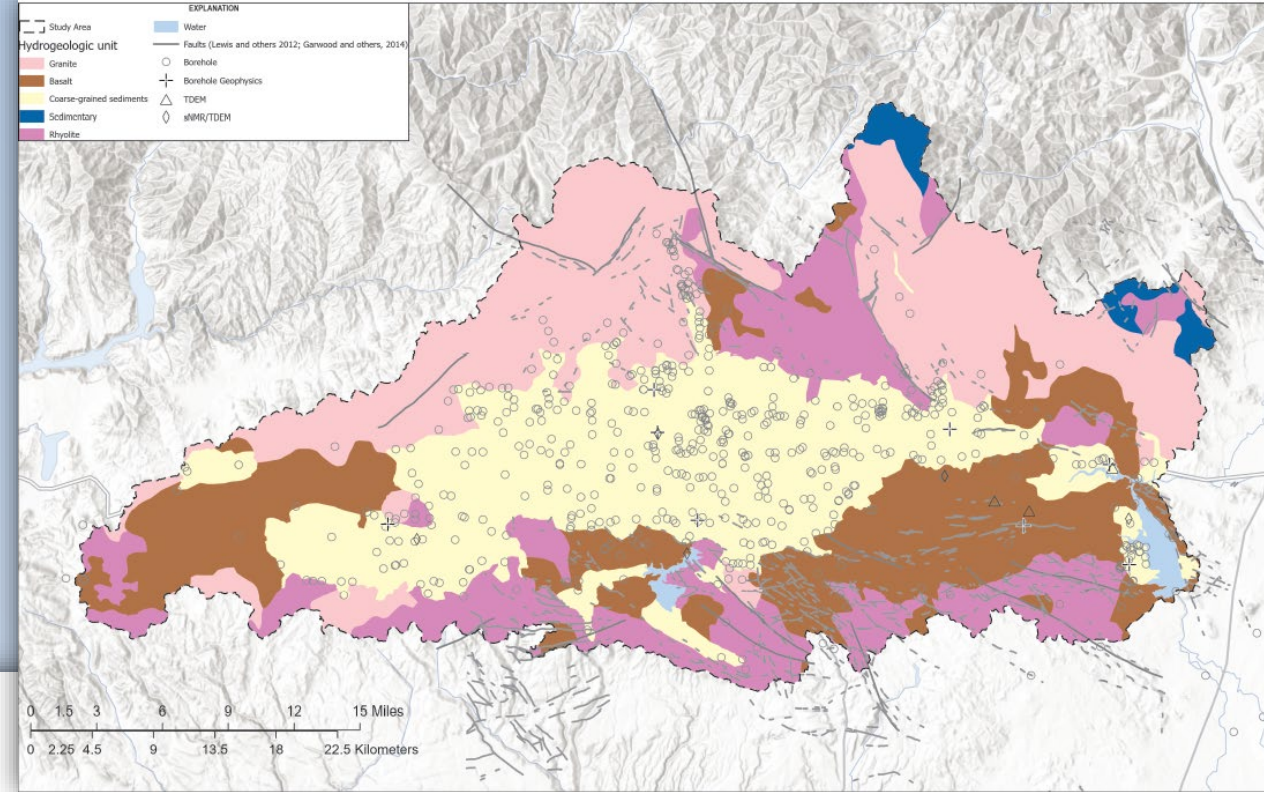


Hydrogeologic Framework

- **What is it?**
 - Describe how geology affects where groundwater is and how it moves
- **Methods:**
 - Digitize well-driller reports
 - Geophysics
 - Interpret hydrogeologic units
 - Develop 3D hydrogeologic framework model



Data is provisional do not cite



(Ducar, 2027) - Draft

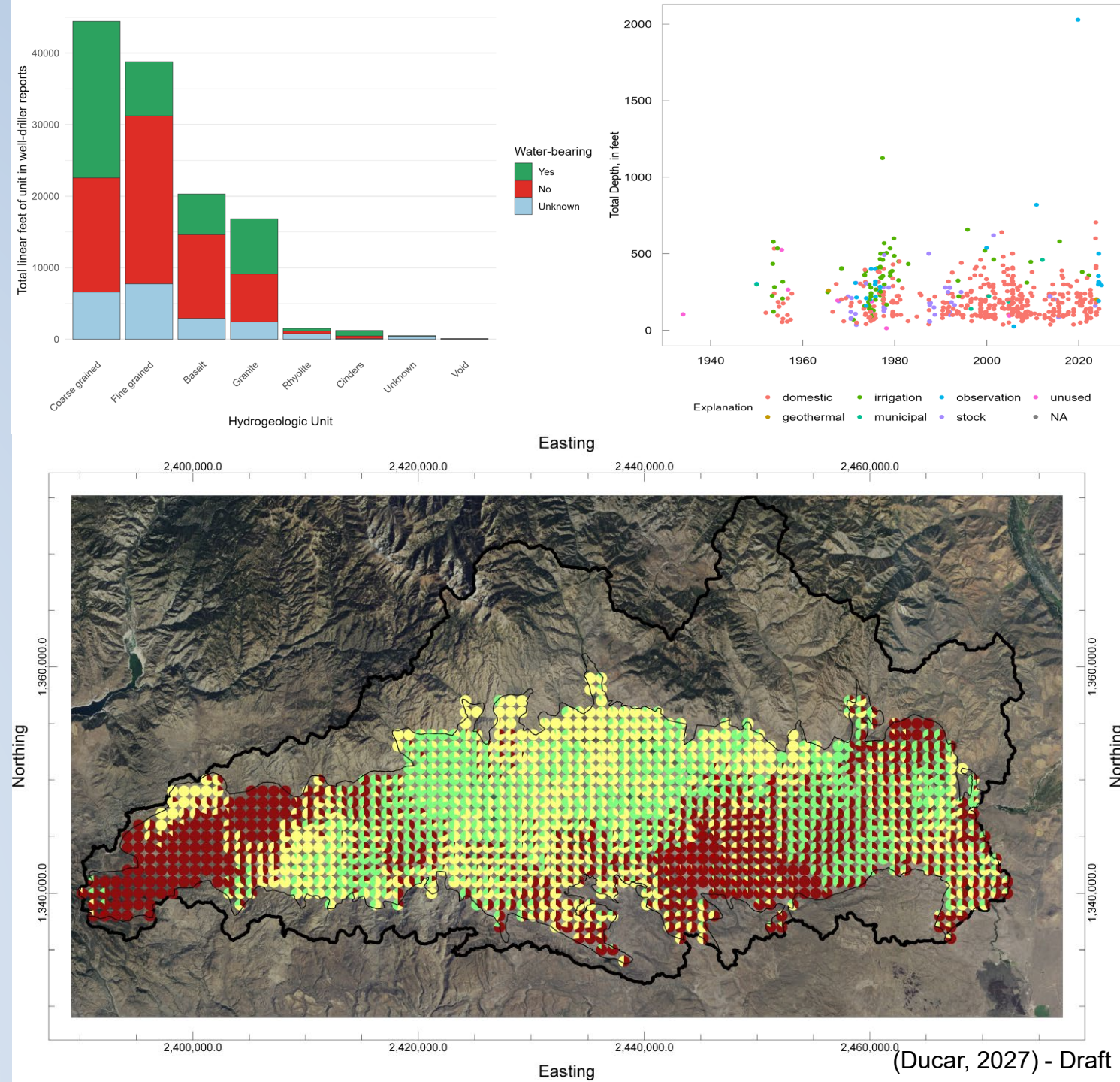
Hydrogeologic Framework

Use hydrogeologic framework model to understand:

- Occurrence,
- Connectivity, and
- Properties of water-yielding units
- Extents of confining units
- Groundwater connection with Magic Reservoir and the geothermal system



Data is provisional do not cite

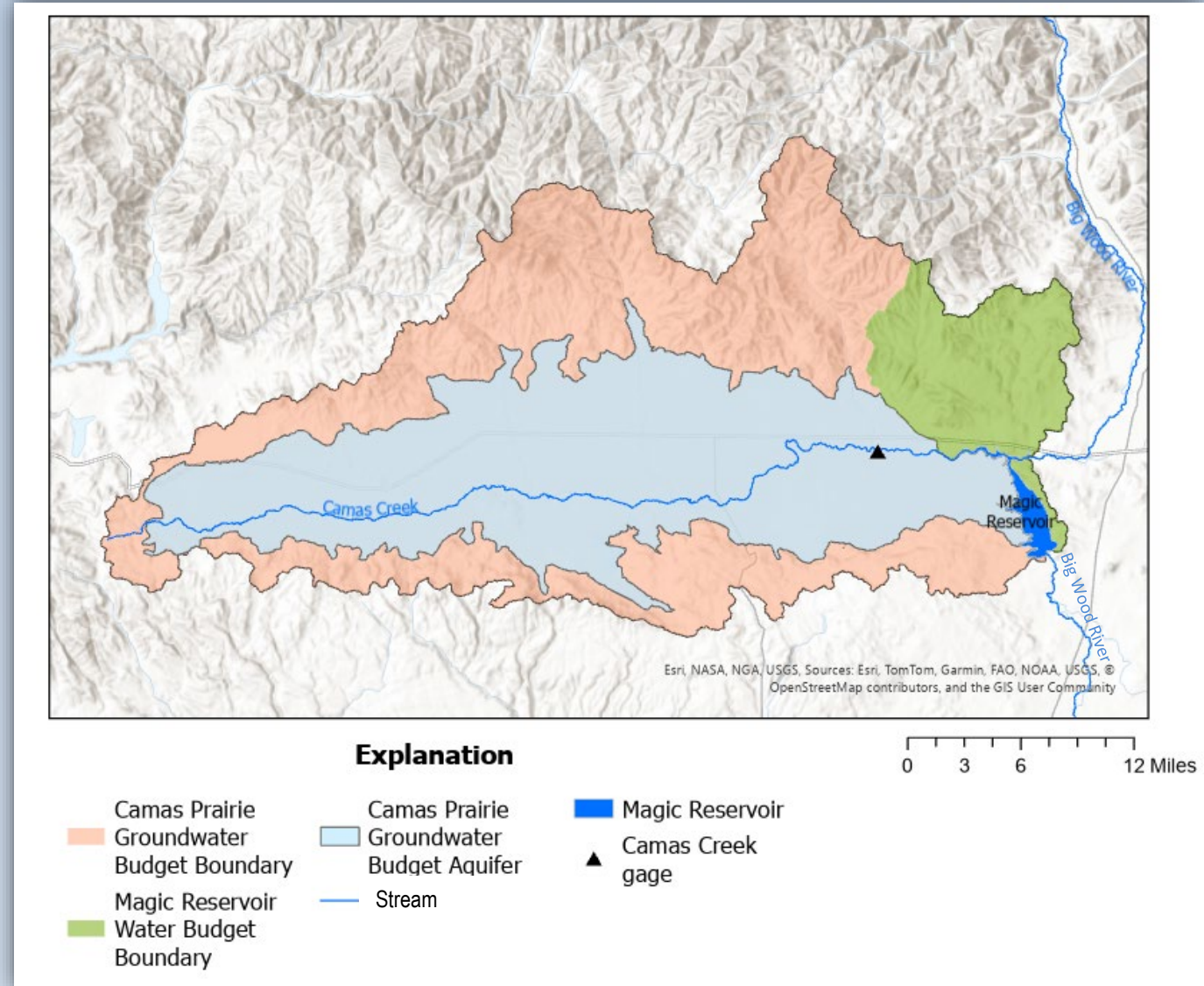


Groundwater and Magic Reservoir Budgets

- Characterize inputs and outputs for the Camas Prairie aquifer and Magic Reservoir
- Will include water budgets from three recent years:
 - 2016 (average precipitation)
 - 2019 (wet)
 - 2021 (dry)



Data is provisional do not cite



(Richardson, 2027) - Draft

Camas Groundwater Budget Components

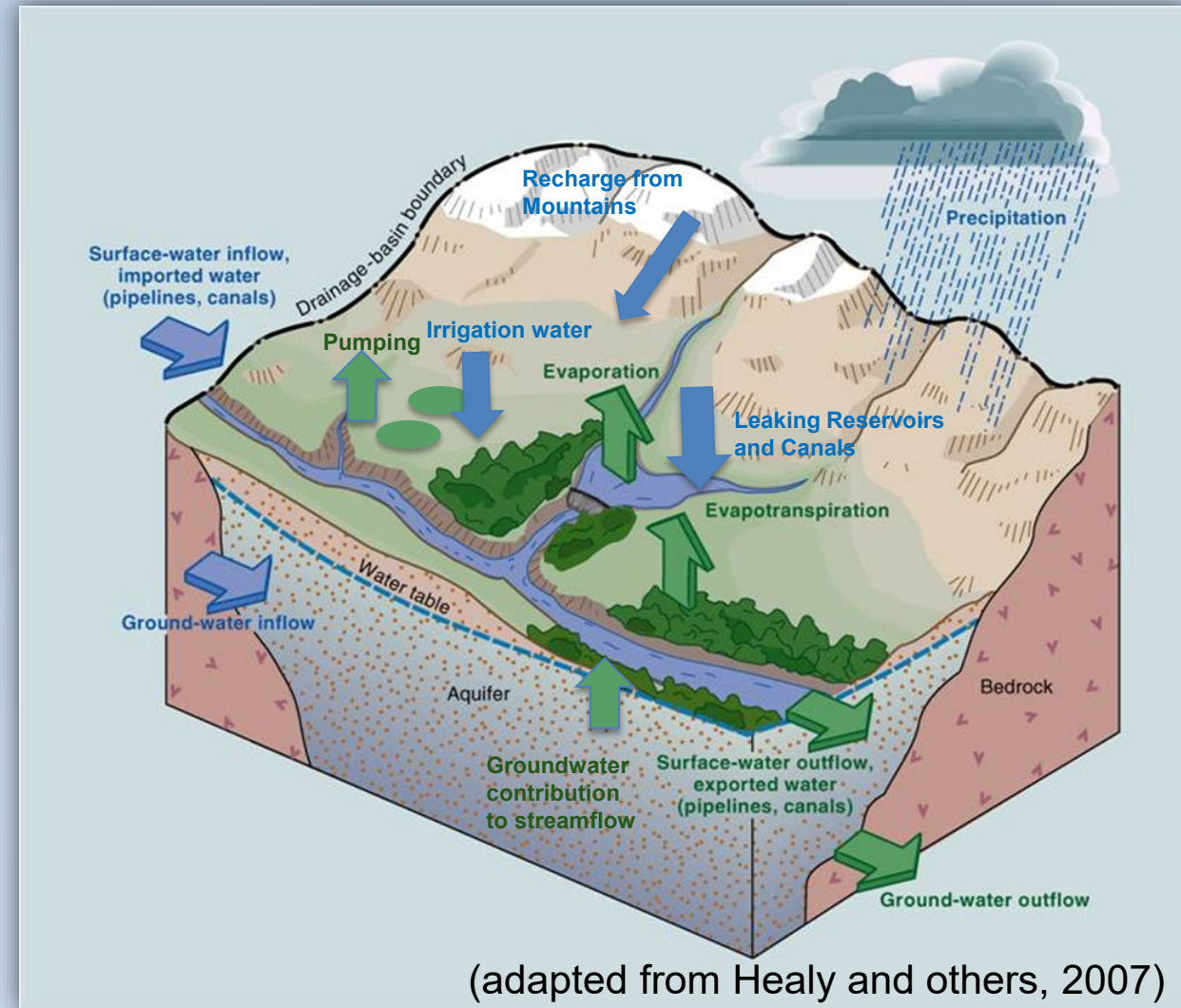
- **Inputs**

- Precipitation
- Irrigation water
- Recharge from mountains
- Leaking reservoirs and canals

- **Outputs**

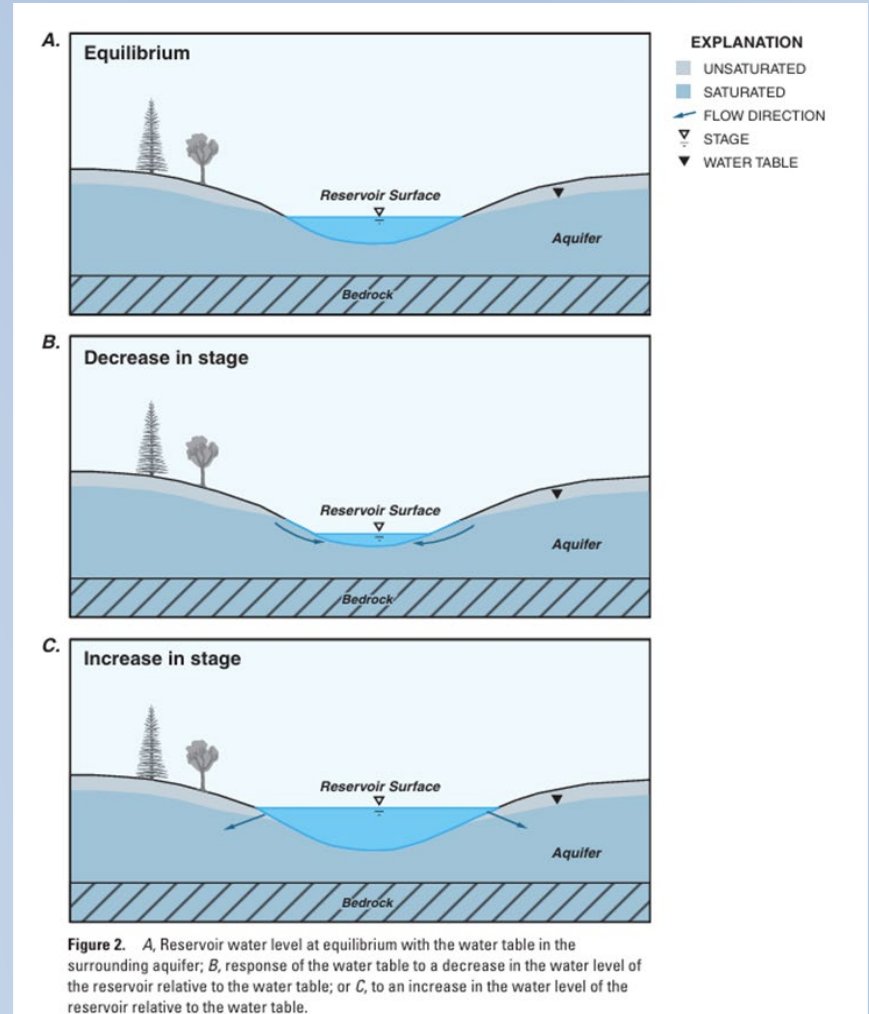
- Evapotranspiration
- Pumping
- Groundwater contribution to Camas Creek flow

- **Storage Change?**



Magic Reservoir Water Budget

- **Inputs**
 - Inflows from Camas Creek, Big Wood River, and tributaries (Rock, Camp, Poison, Lava)
- **Outputs**
 - Dam releases
 - Evapotranspiration from reservoir
- **Change in Storage**
 - Daily height of reservoir is reported, compare to table of heights and reservoir volumes
- **Groundwater inflows or outflows?**



(Archfield and Carlson, 2006)



Groundwater = Inputs – Outputs – Change in Reservoir Storage

Data is provisional do not cite



Thank you!

Questions / Discussion

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