AGENDA

IDAHO WATER RESOURCE BOARD

Water Supply Management Committee Meeting No. 1-22
Tuesday, February 15, 2022
1:00 p.m. (MT)

Water Center
Conference Rooms 602 C&D / Online Zoom Meeting
322 E. Front St.
BOISE

Board Members & the Public may participate via Zoom
Click here to join our Zoom Meeting
Dial in Option: 1(253) 215-8782
Meeting ID: 849 8989 8320 Passcode: 906332

1. Introductions and Attendance
2. ESPA-IWRB Recharge Impacts
3. Other Items
4. Adjourn

Committee Members: Chair Jeff Raybould, Roger Chase, Brian Olmstead, and Dean Stevenson.

* Action Item: A vote regarding this item may be made this meeting. Identifying an item as an action item on the agenda does not require a vote to be taken on the item.

Americans with Disabilities
The meeting will be held telephonically. If you require special accommodations to attend, participate in, or understand the meeting, please make advance arrangements by contacting Department staff by email jennifer.strange@idwr.idaho.gov or by phone at (208) 287-4800.

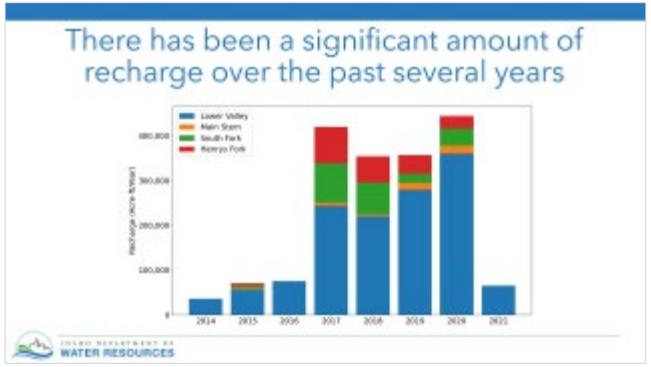
Current and Future Benefits of Aquifer Management

Noah Stewart-Maddox

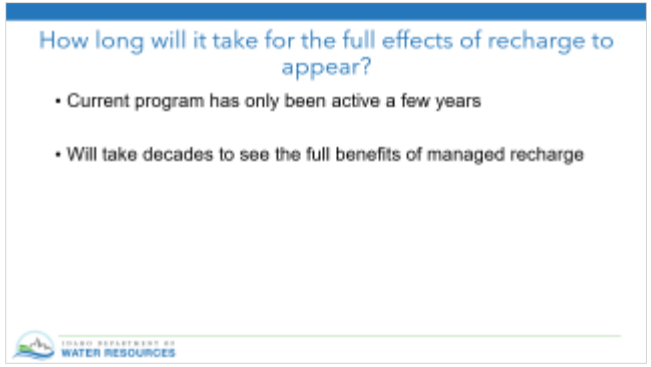
Overview

2021 Drought

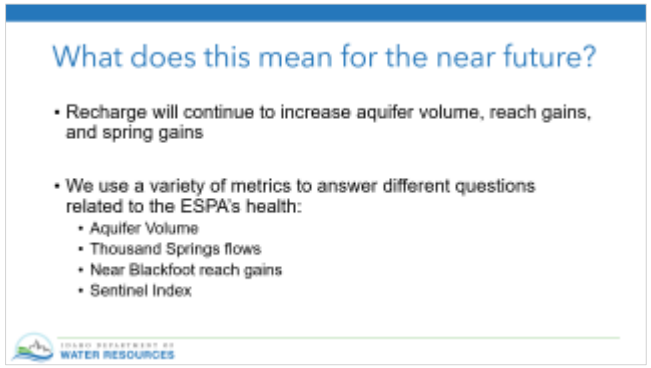
Current Recharge



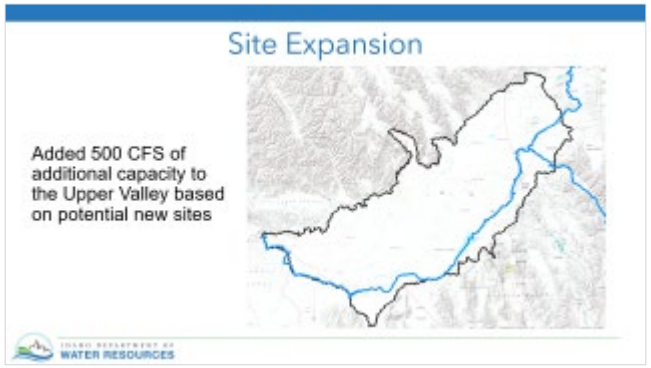
Future Recharge



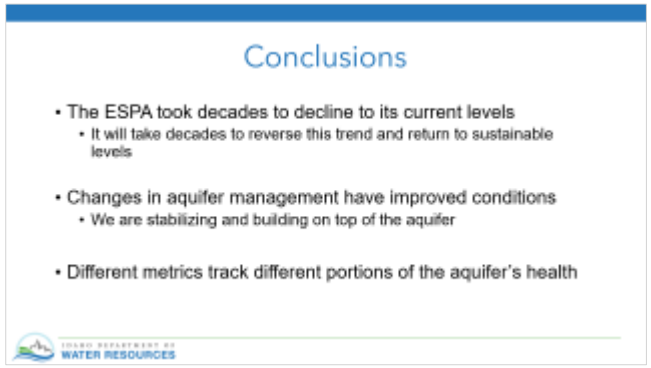
Aquifer Metrics



New Sites



Conclusions



2021 was an exceptionally dry year

THE SPOKESMAN-REVIEW

Spokane, Washington Est. May 19, 1883

Washington Idaho

NEWS › PACIFIC NW

Major drought in Idaho could last years, water manager says

UPDATED: Tue., Aug. 10, 2021

Twitter Facebook Email Reddit

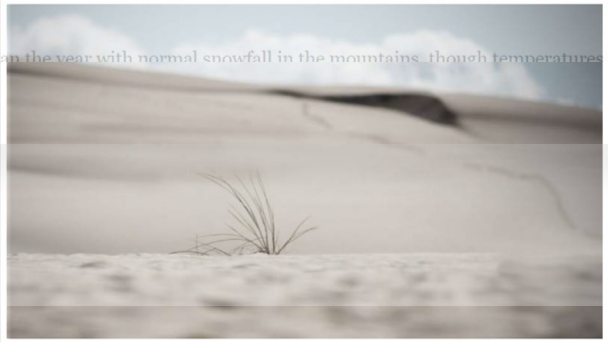
BOISE, Idaho (AP) — Idaho is faci… d water manage… the state could be entering a dry sp…

"Idaho is in the midst of a drought … spring followed by a summer heat wave," David Hoeker…ma, hydrologist for the Idaho Department of Water Resources, wrote in a new analysis, the Id… reported. "Without a snowpack tha… is significantly greater than normal next winter, Idaho could be seeing several years with limited water supply."

Few saw this coming, as Idaho beg… the year with normal snowfall in the mountains, though temperatures were above normal … month but February. Then came a … enced the hottes… July on record, Hoekema said.

Idaho drought surprises experts, results in watering cutbacks for farmers, residents

by Nicole Blanchard and Rachel Spacek



Credit: CC0 Public Domain

The 100-degree temperatures are taking a toll on Idaho farmers, and worries about water usage are becoming commonplace.

UTAH

The West-wide drought and the struggles of Idaho, Utah

All eyes look to storm-packed winter

By Amy Joi O'Donoghue | @Amyjoi16 | Nov 15, 2021, 2:26pm MST

The sunny skies and pleasant fall afternoons may bode well for your mental health, but … year's irrigation season.

Snow needs to be on the main menu for states like Utah, Idaho and others in the West to … shut down boat ramps across … yellowed lawns.

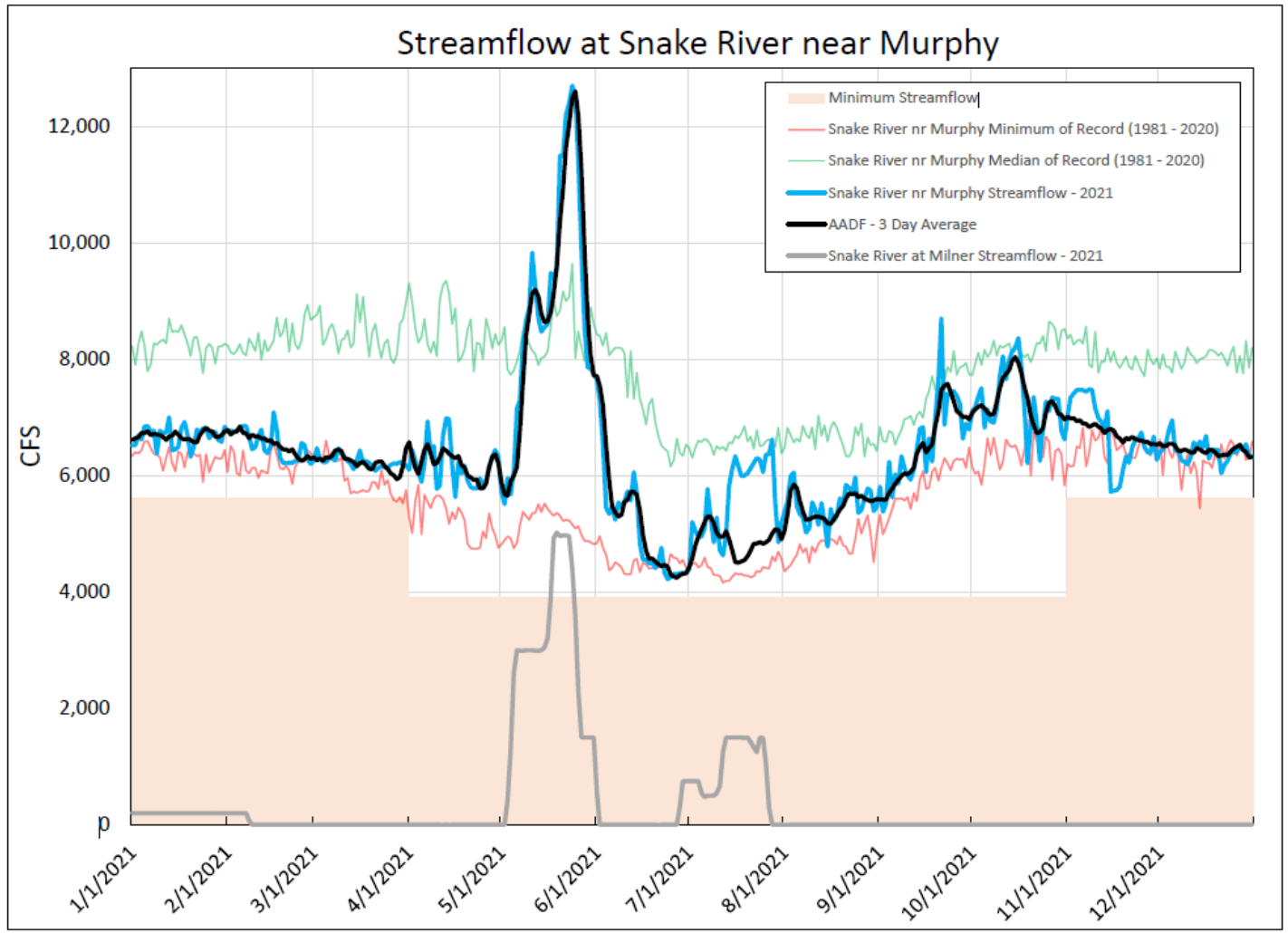
Idaho's drought remains a concern, as do conditions in Utah because it is so early in the precipitation accumulation season.

Fallout from Idaho's record-setting drought could last years

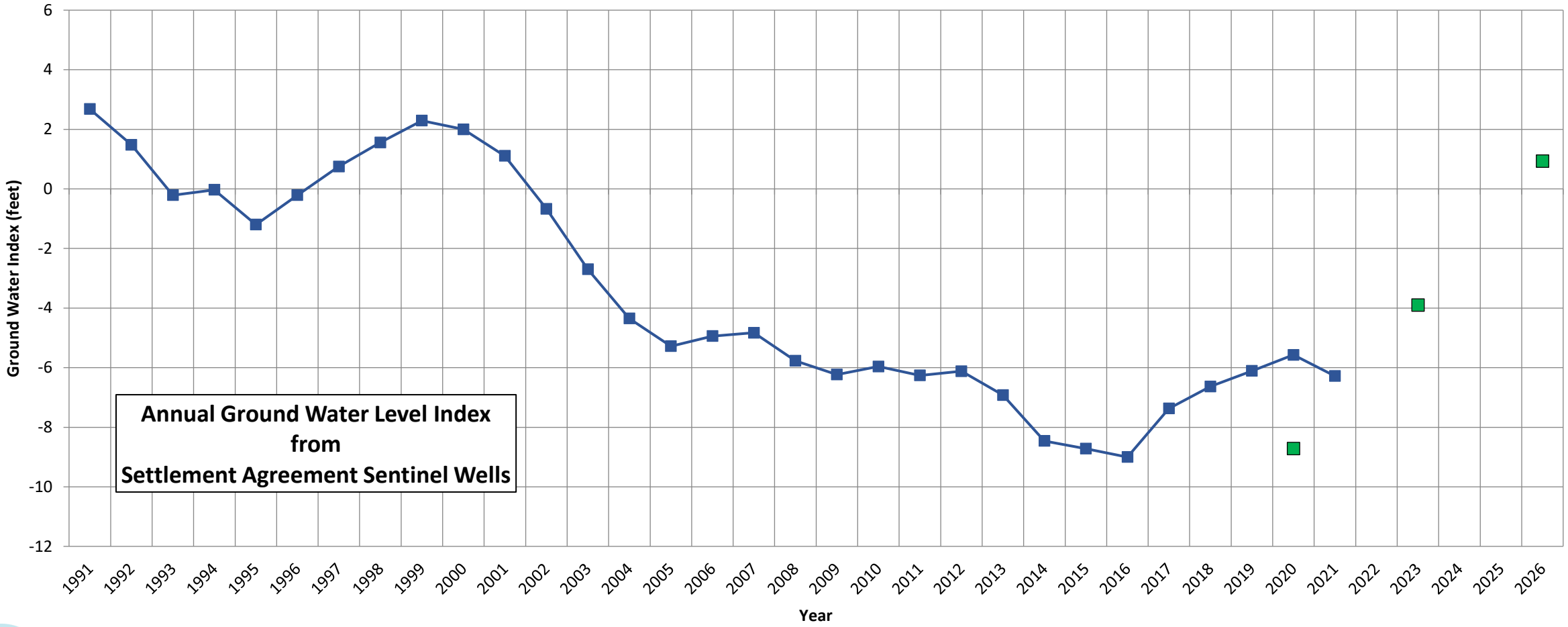
Despite near-normal snowpack, precipitation levels plunged this spring, leading to the driest March-July stretch in Idaho in 96 years.

IDAHO DEPARTMENT OF WATER RESOURCES

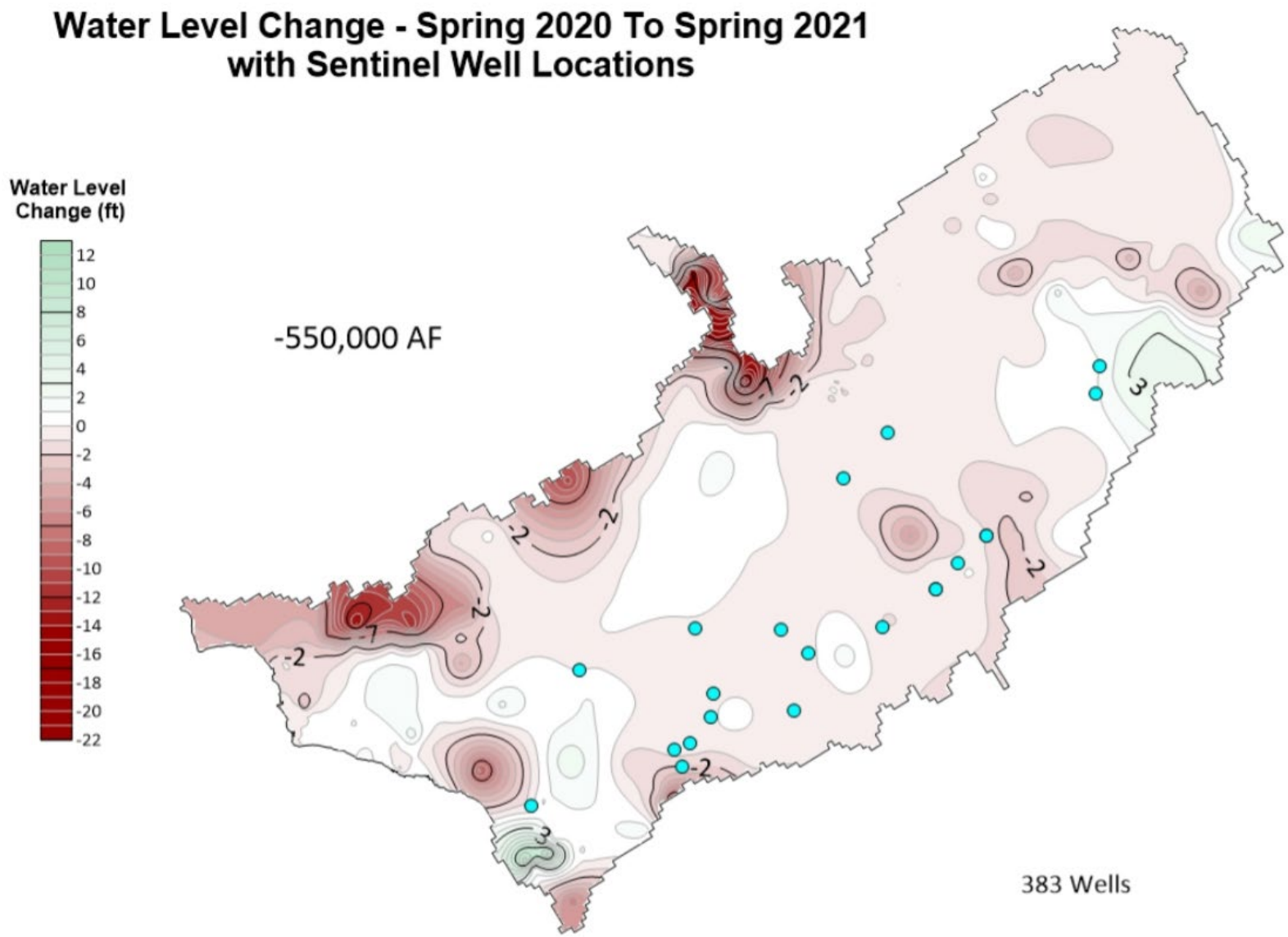
Swan Falls almost fell below the minimum streamflow



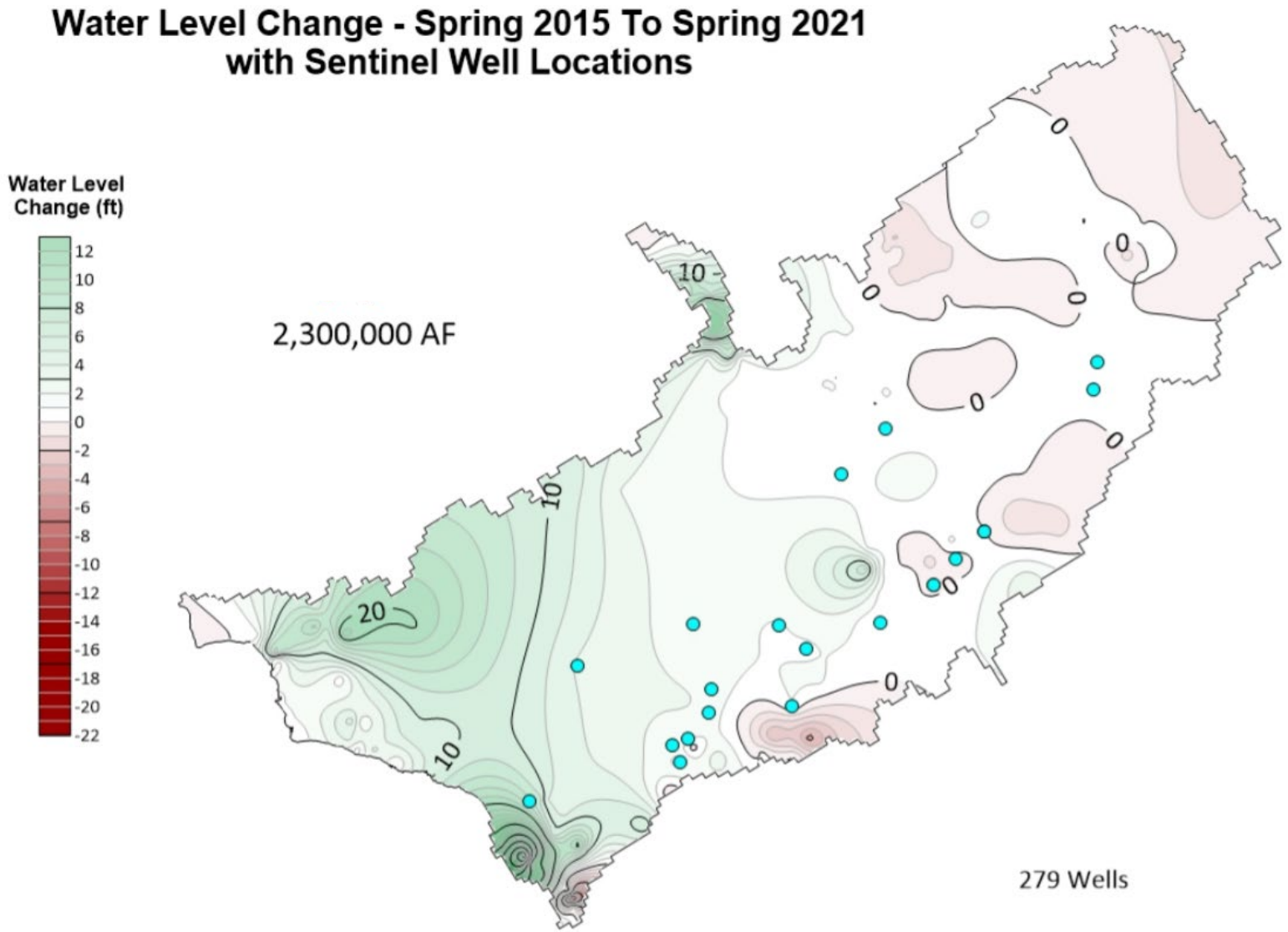
The sentinel index decreased last year



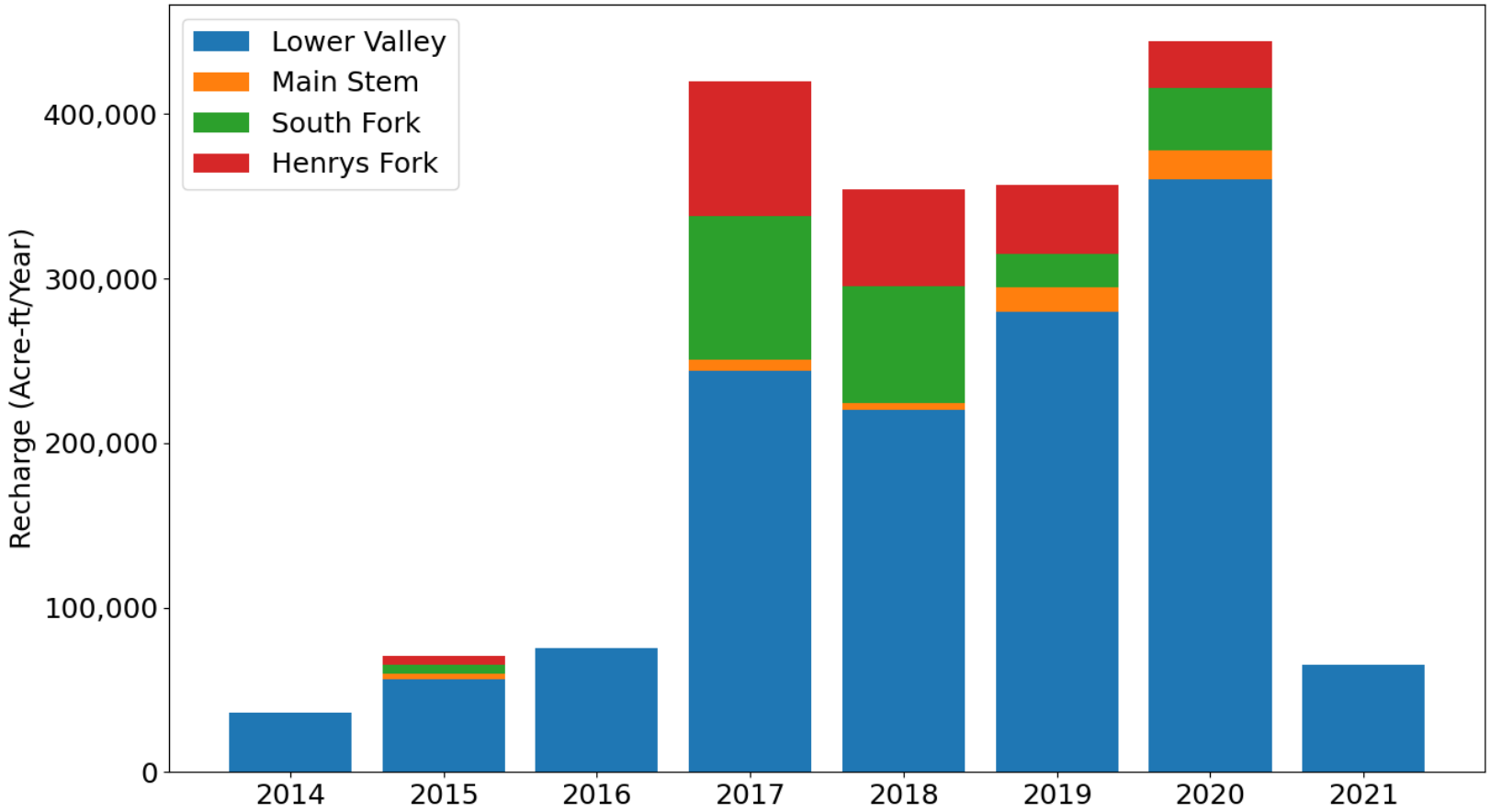
Aquifer storage declined as well



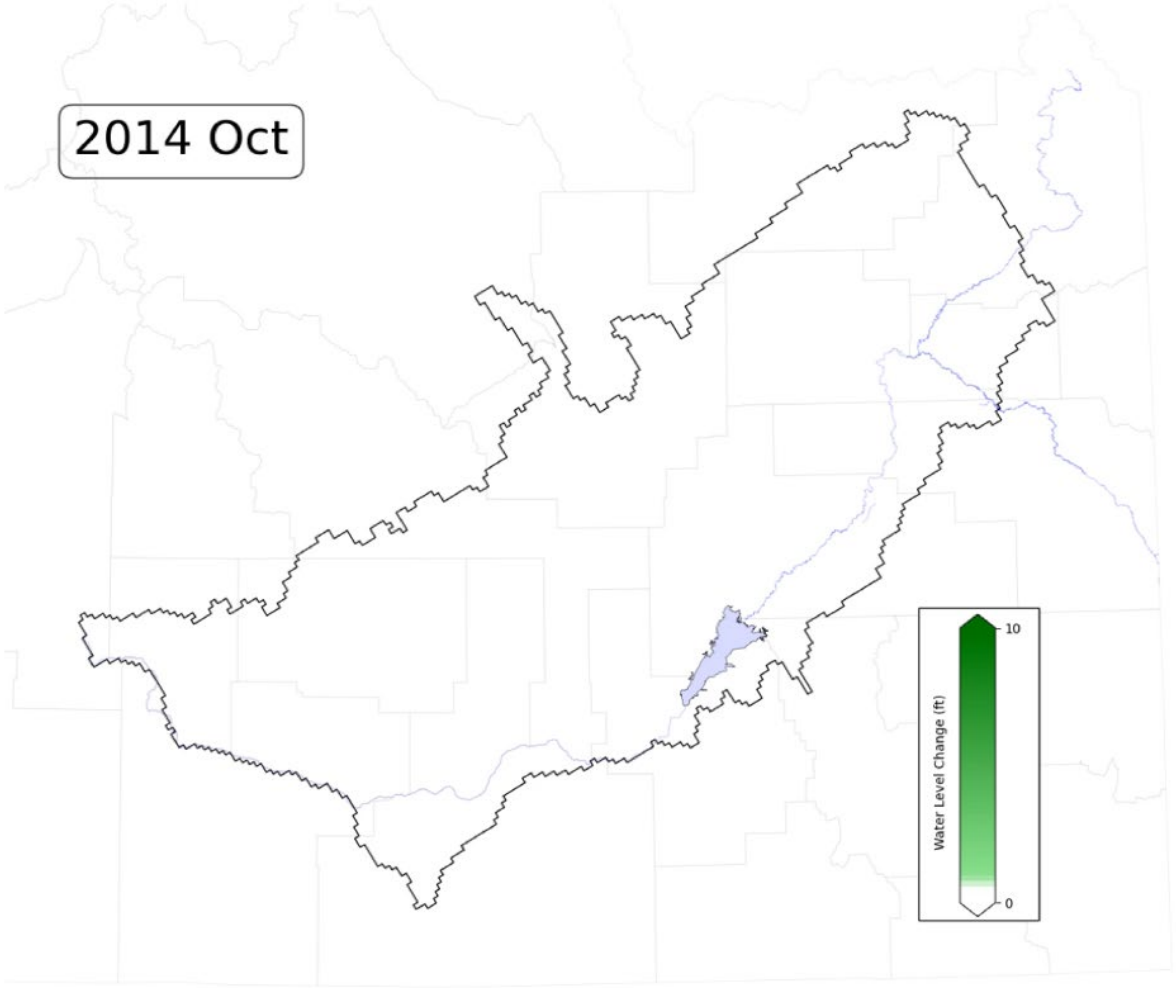
Since 2014, aquifer conditions have improved, but there are still significant issues



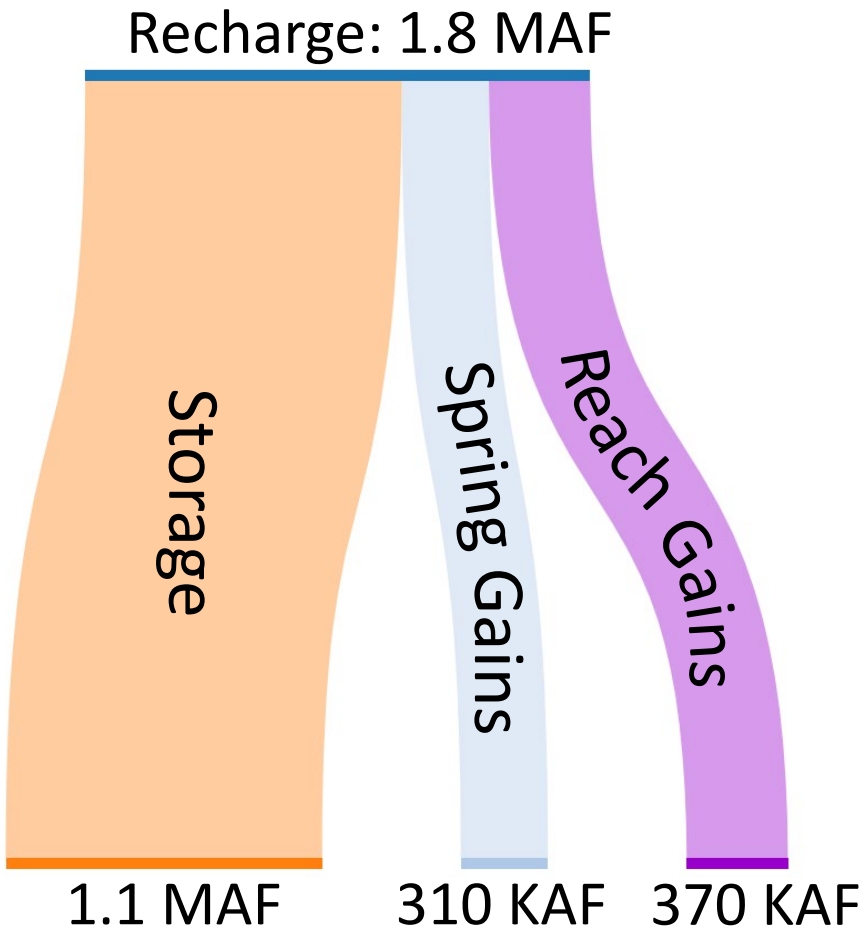
There has been a significant amount of recharge over the past several years

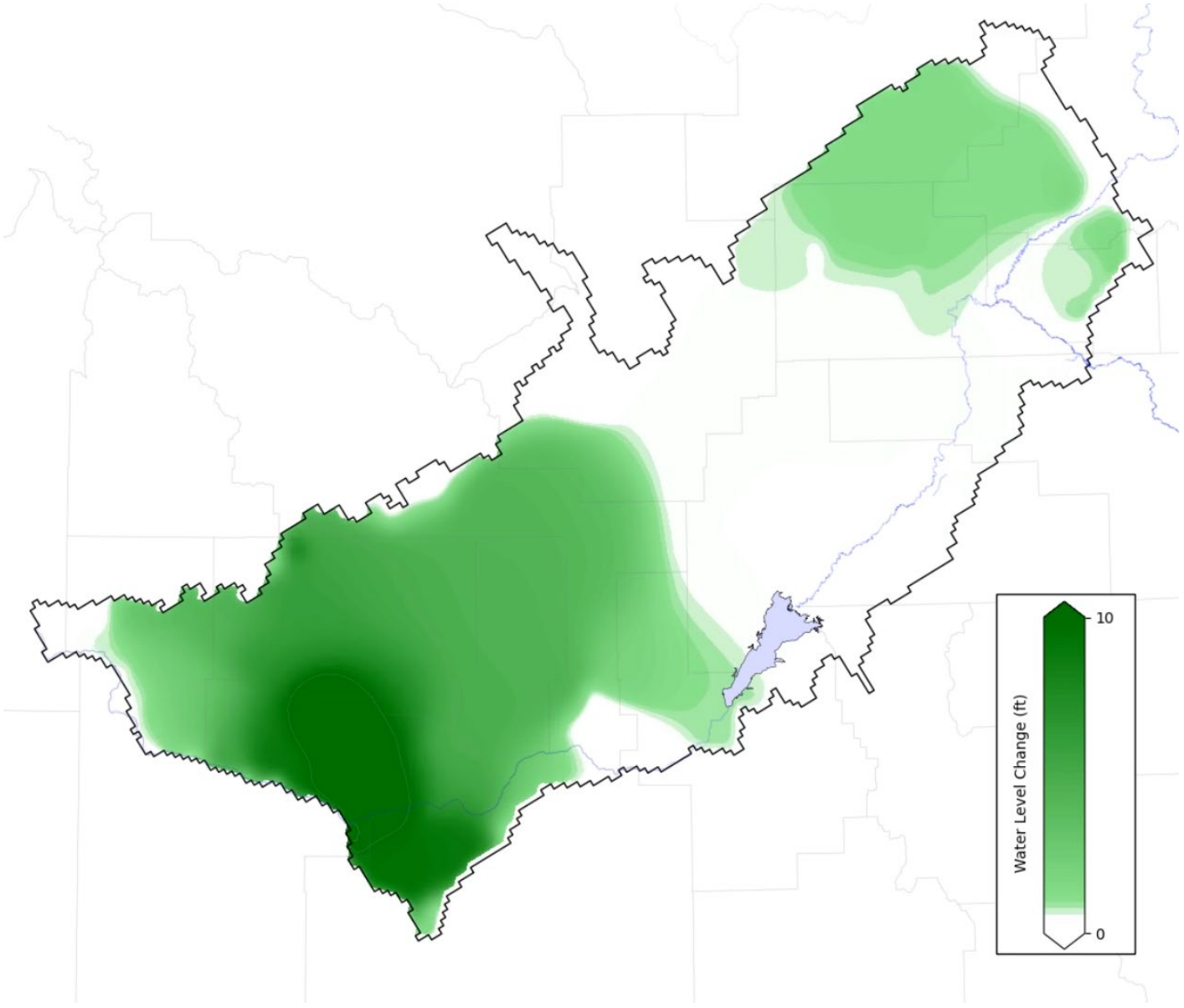


How has this recharge impacted the aquifer?



Where is the recharged water going?





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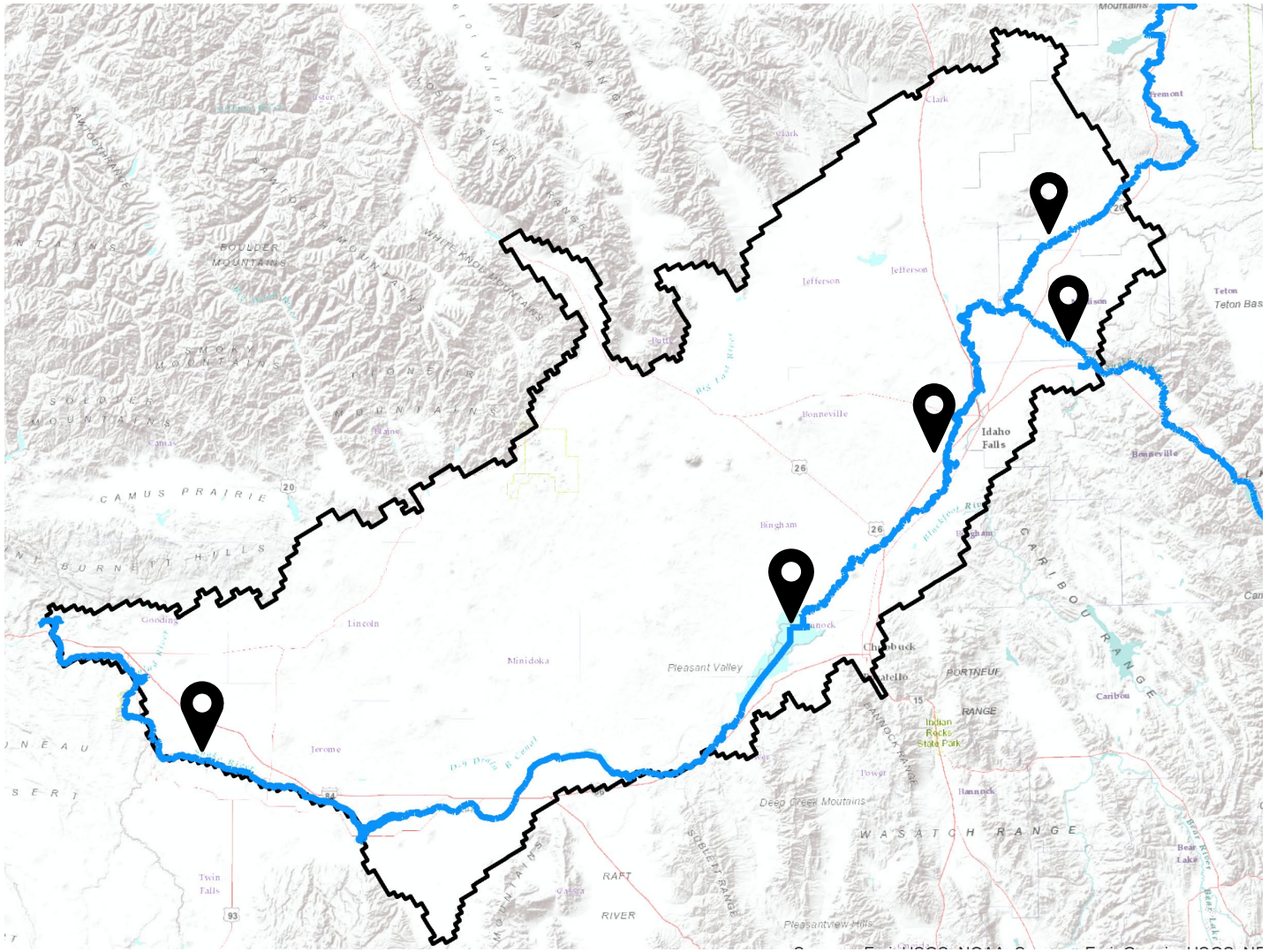
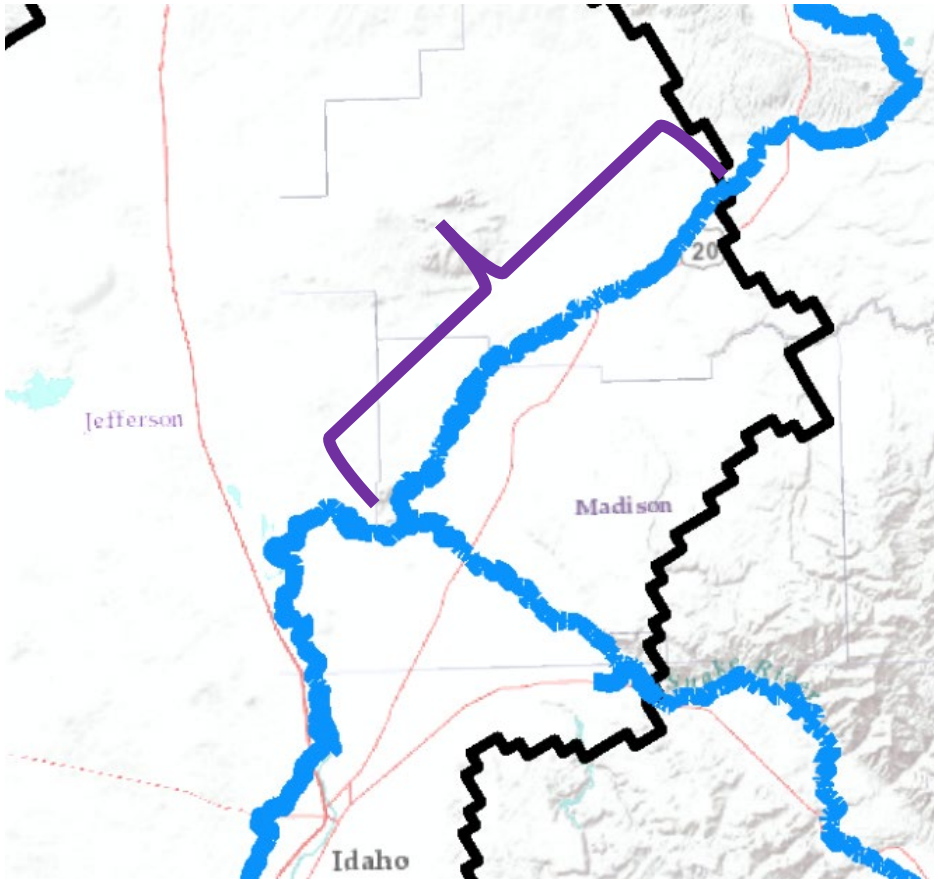
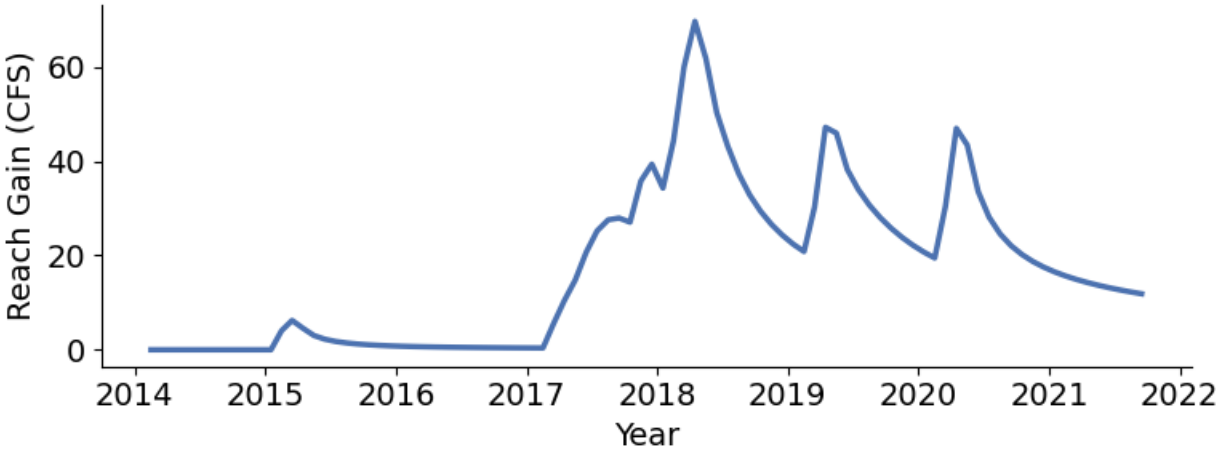
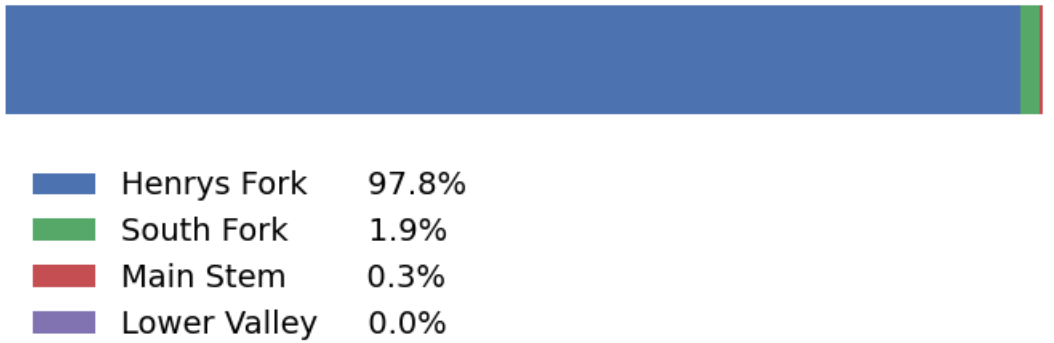


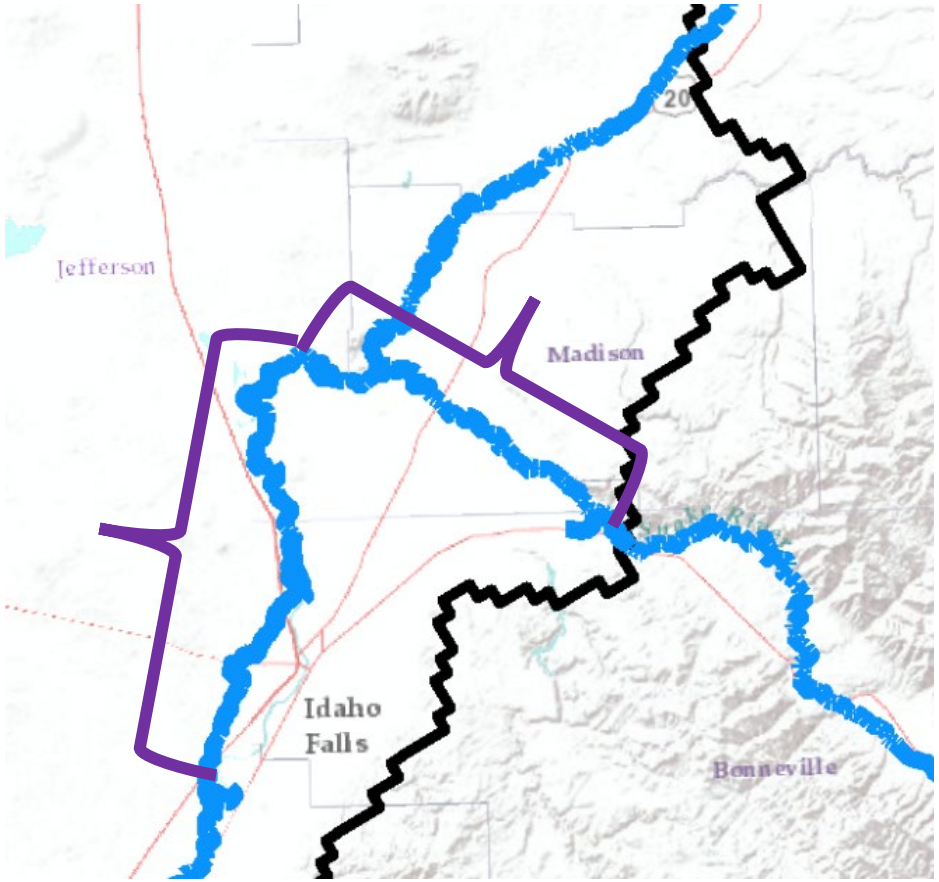
Ashton to Rexburg

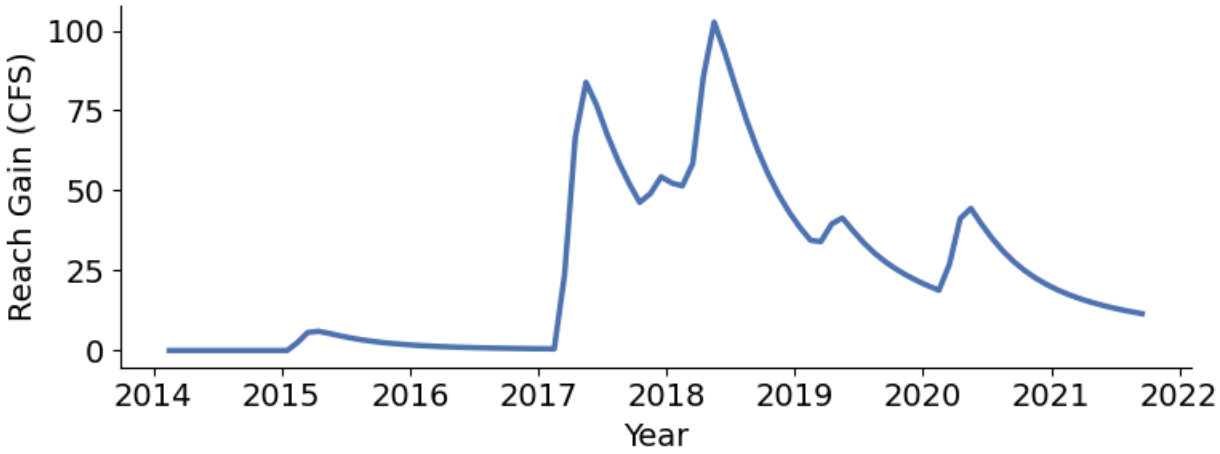






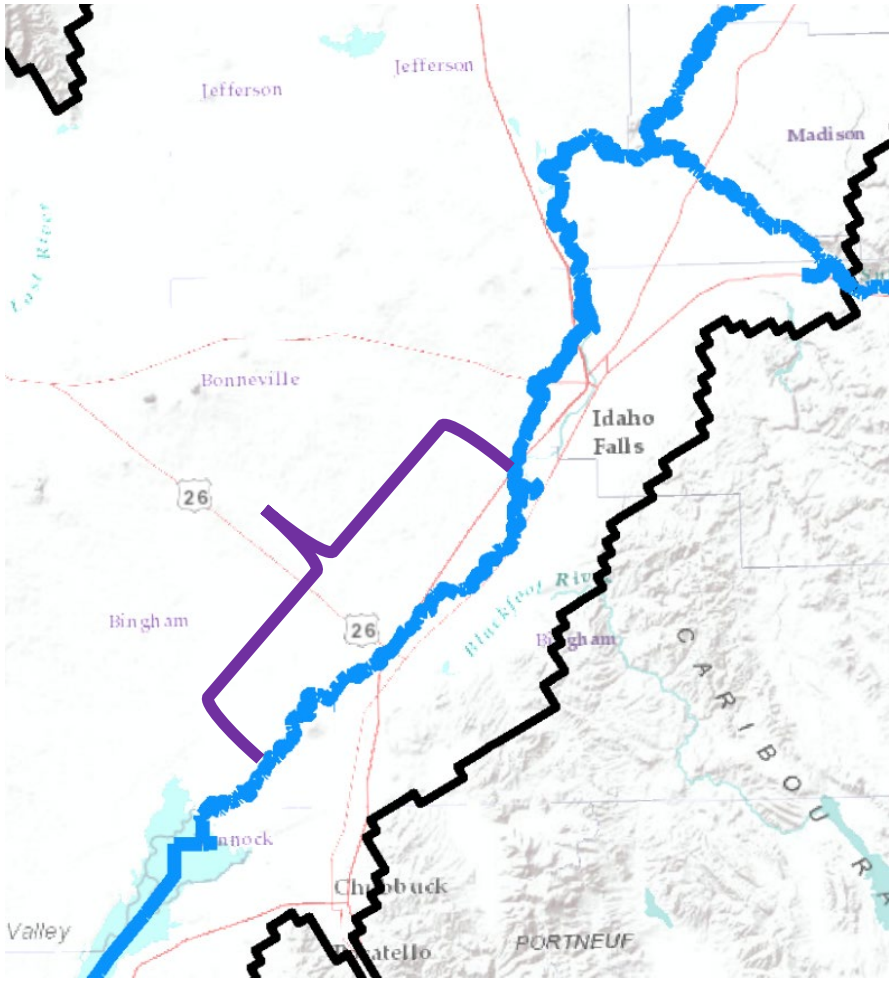
Heise to Shelley

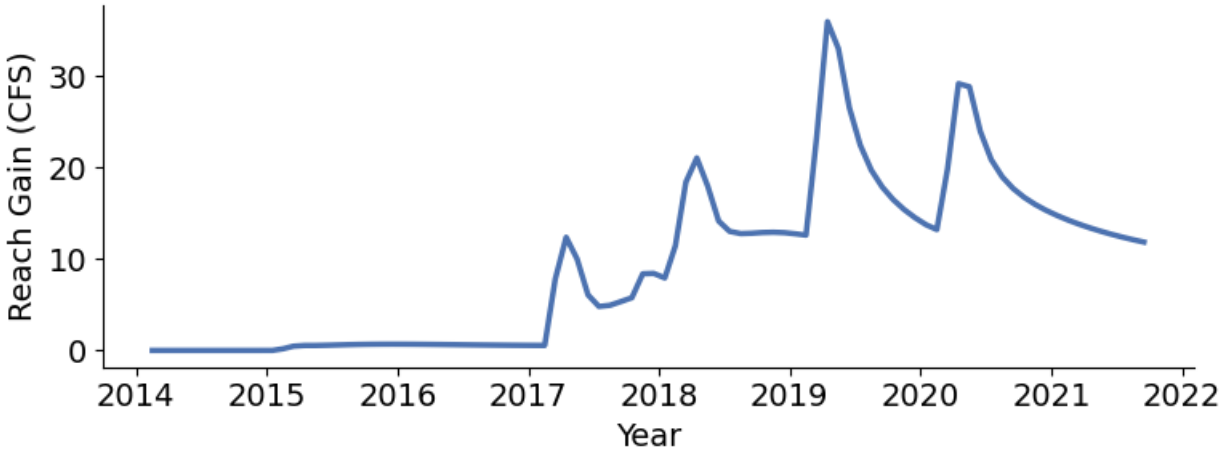


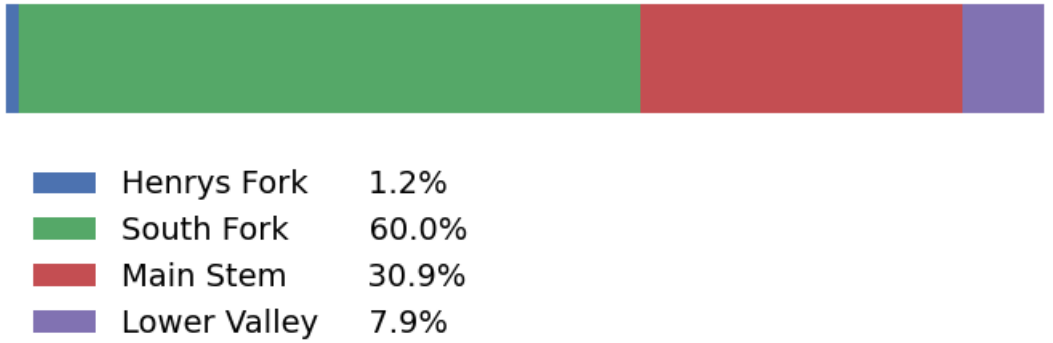


Henrys Fork	24.8%
South Fork	73.8%
Main Stem	1.3%
Lower Valley	0.1%

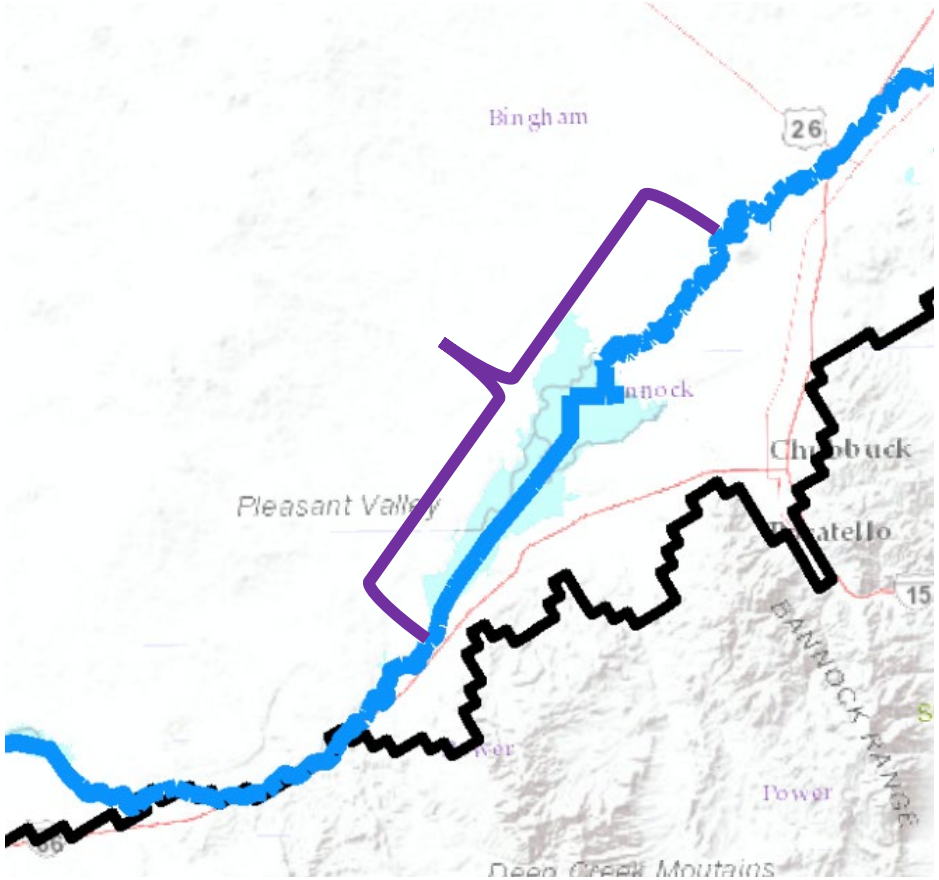
Shelley to near Blackfoot

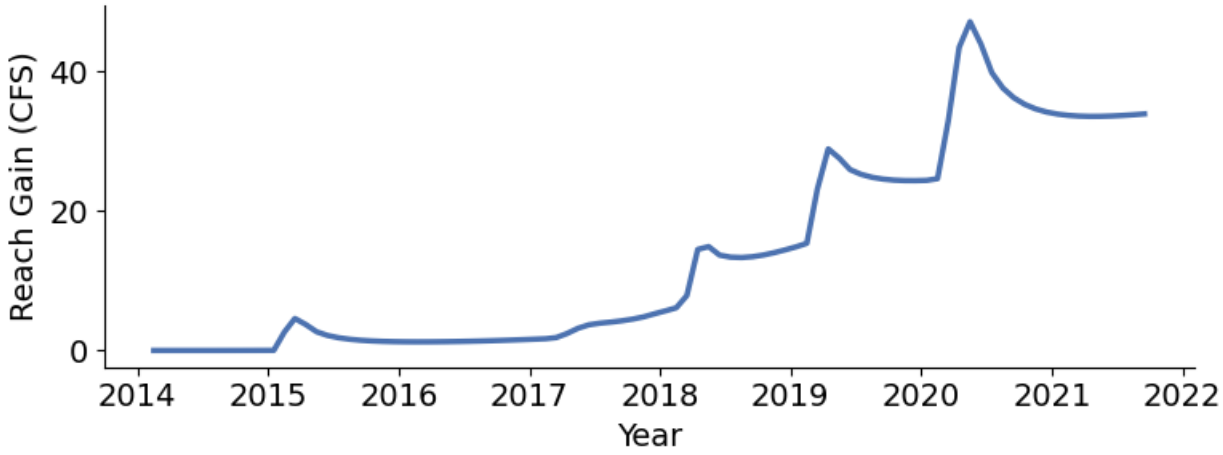


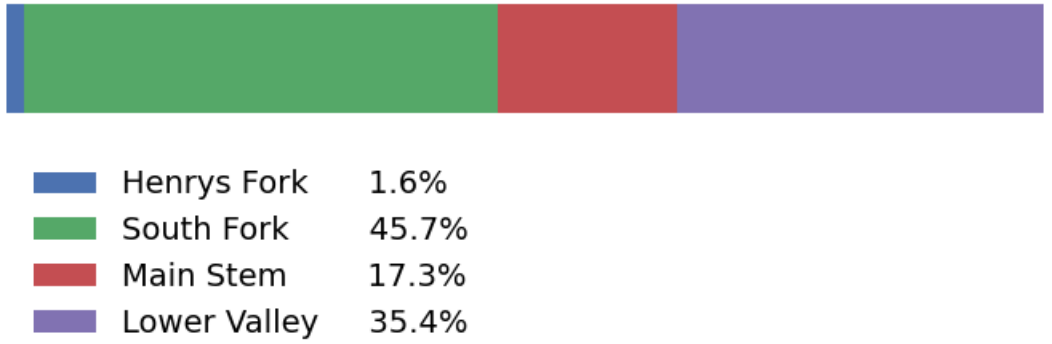




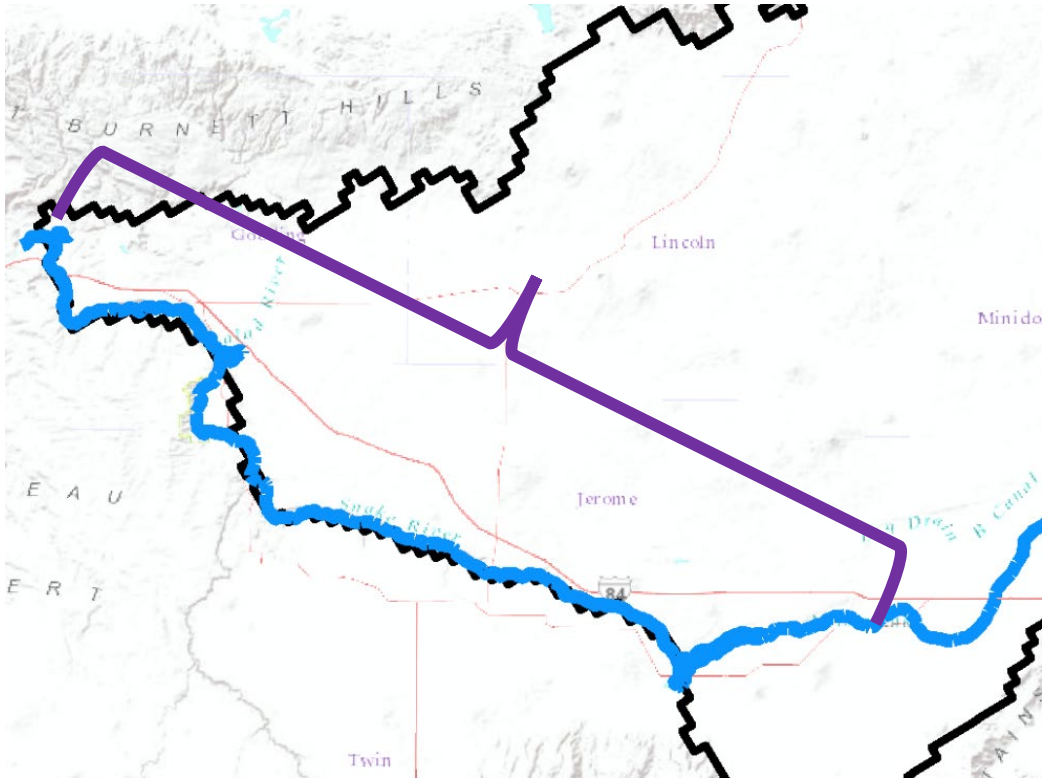
near Blackfoot to Neeley

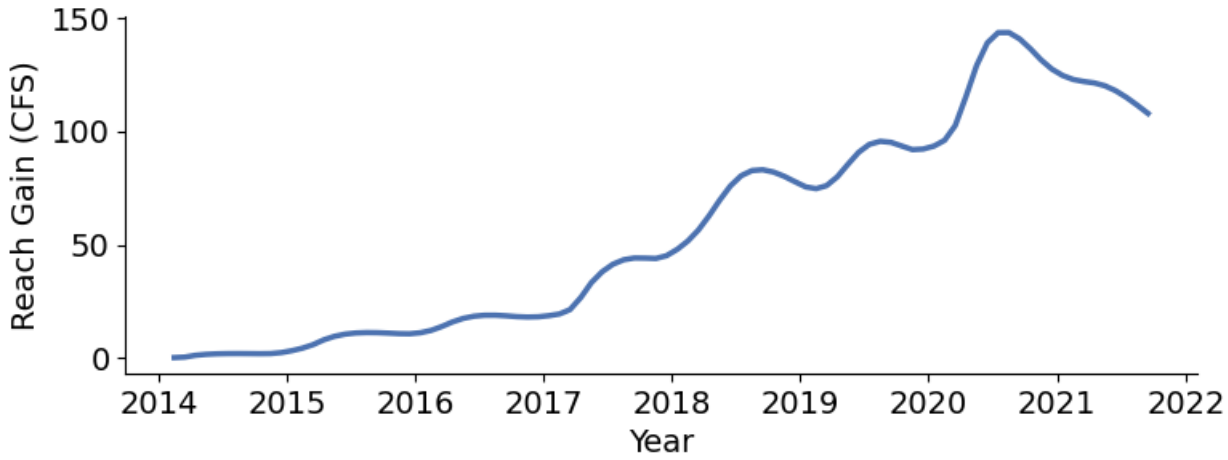


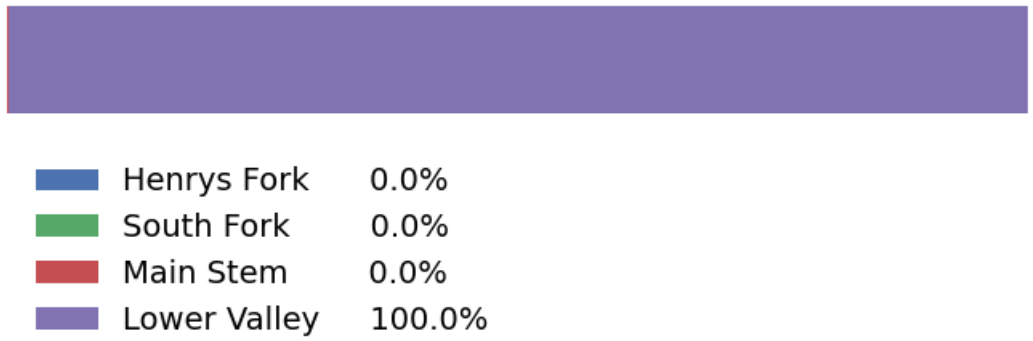




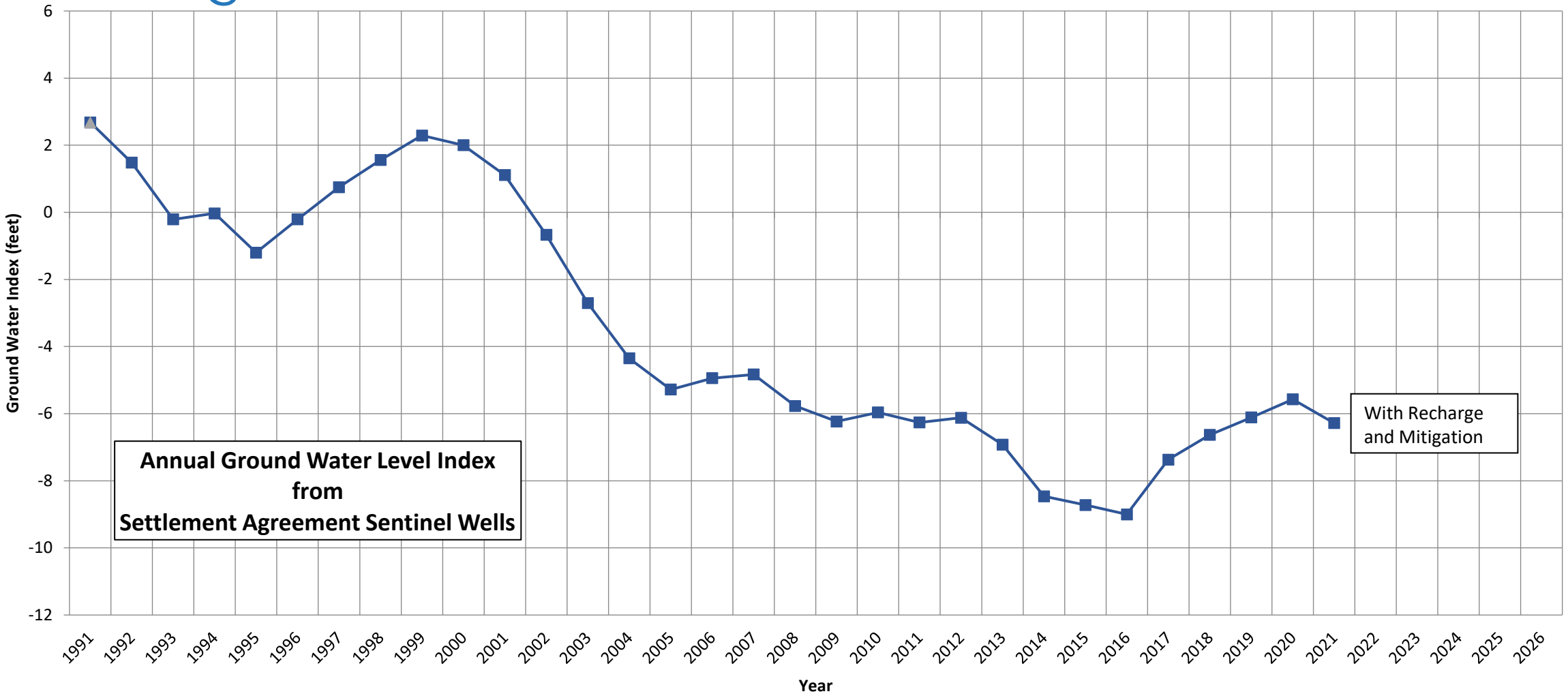
Thousand Springs







A combination of wet years and changes in aquifer management have resulted in an increased sentinel index



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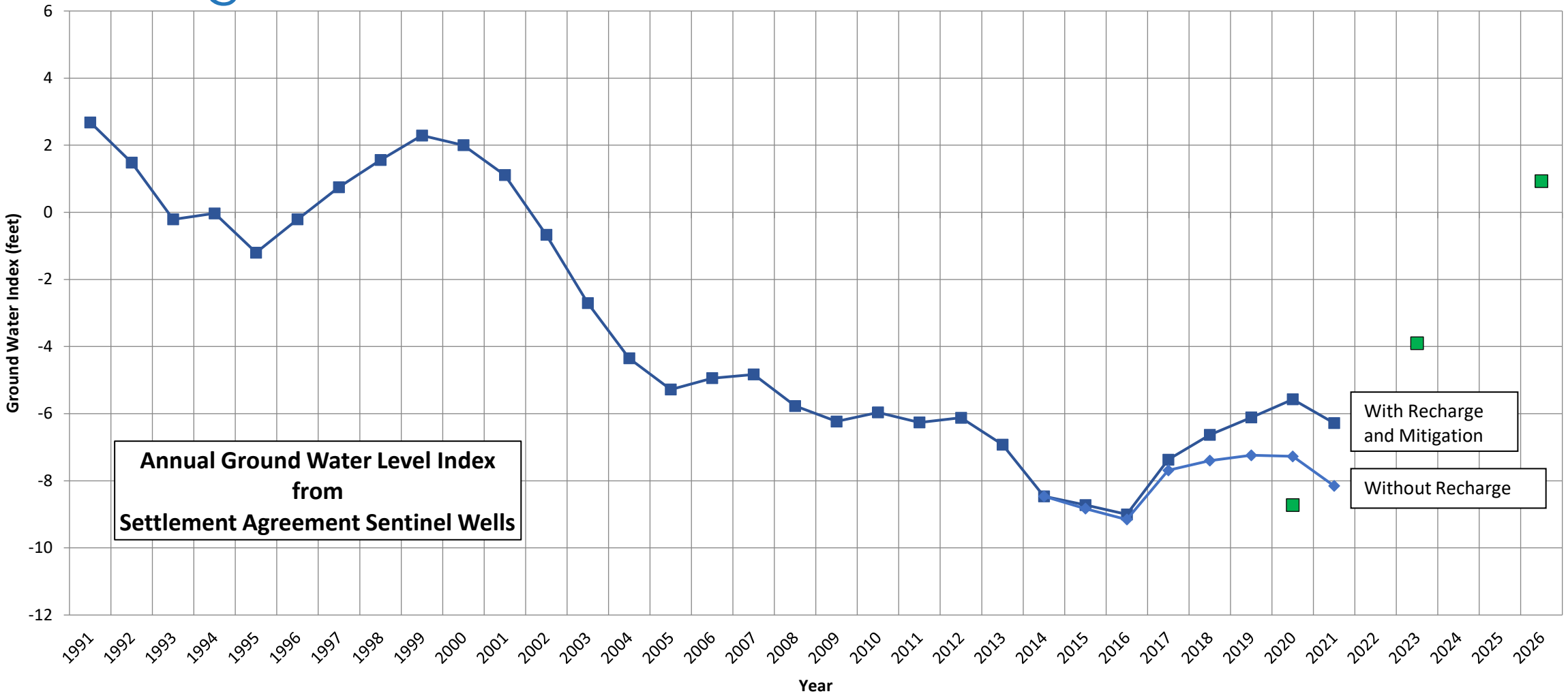

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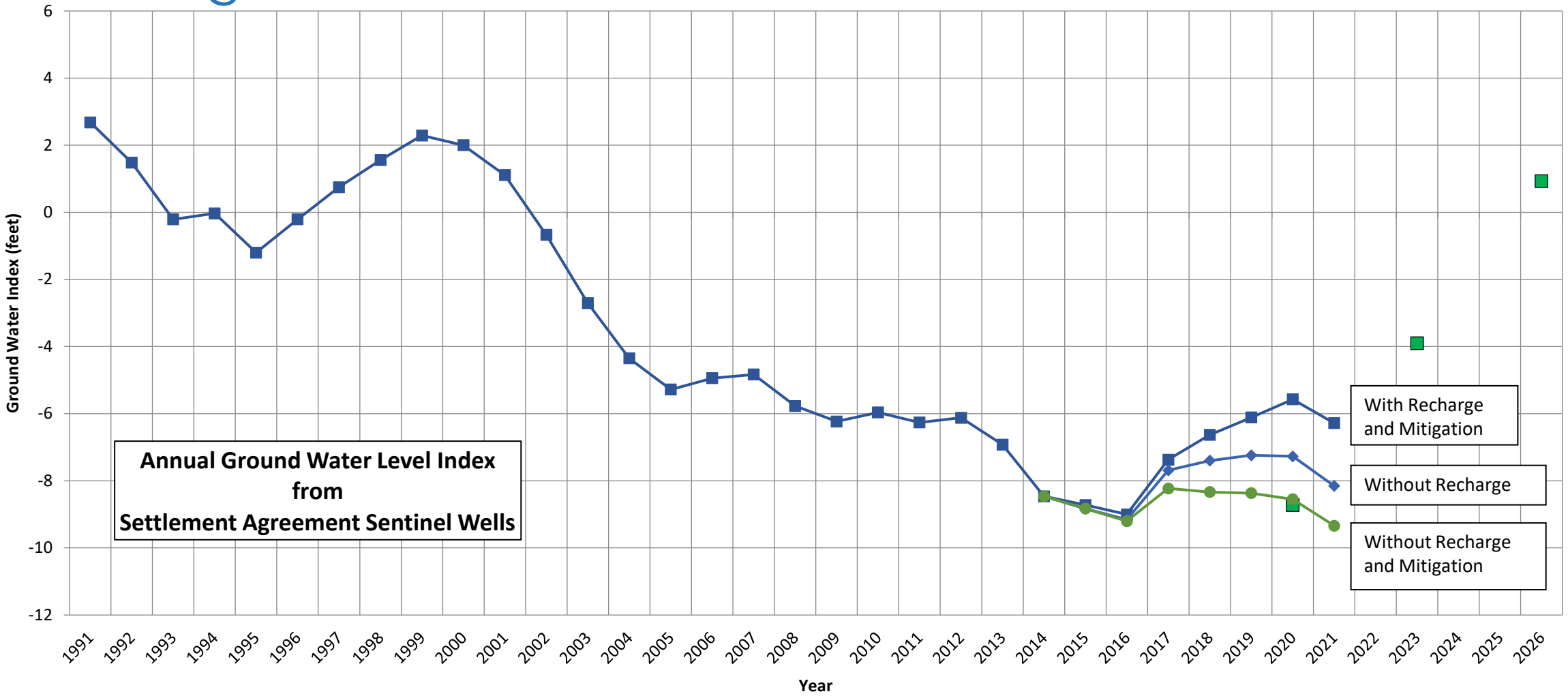

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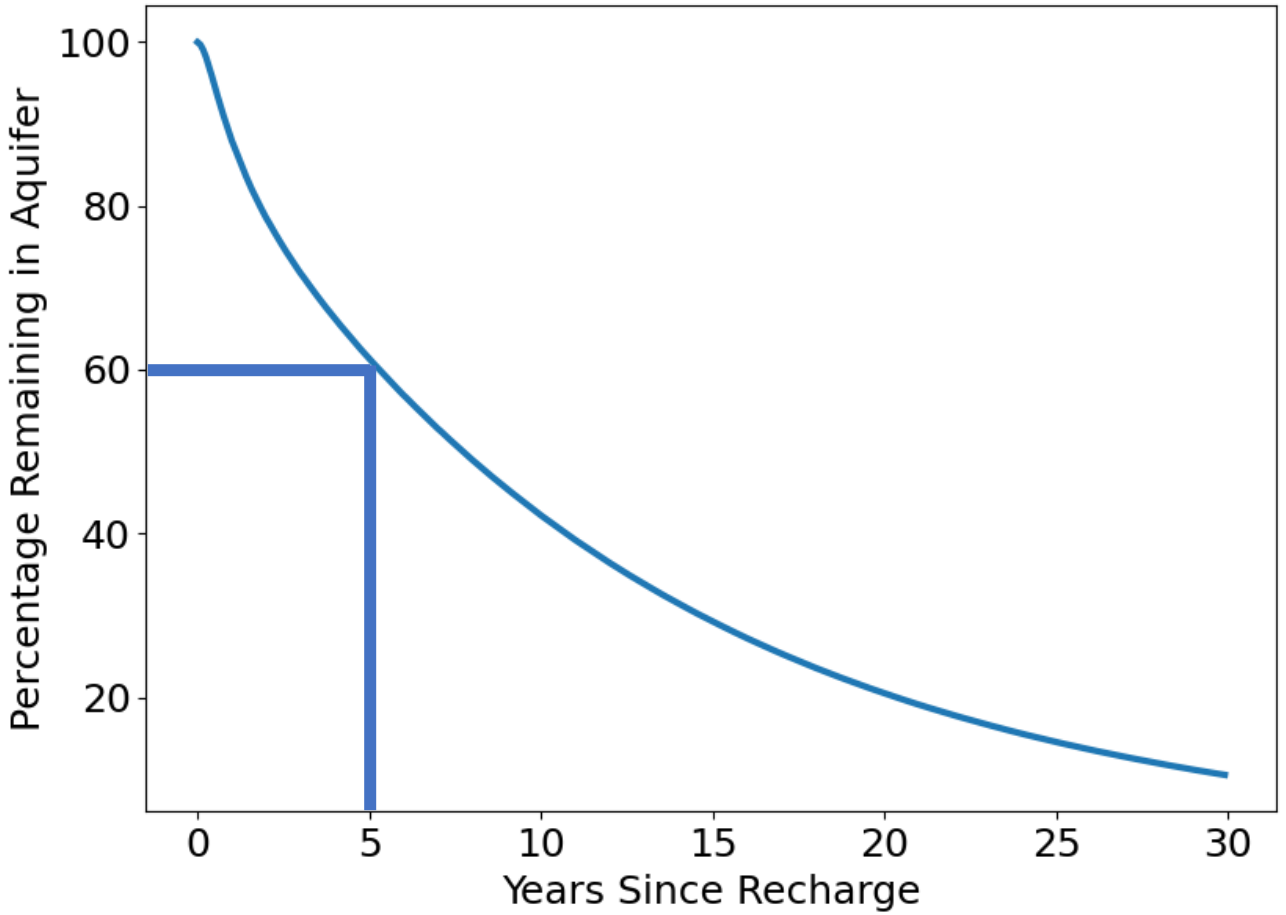
How long will it take for the full effects of recharge to appear?

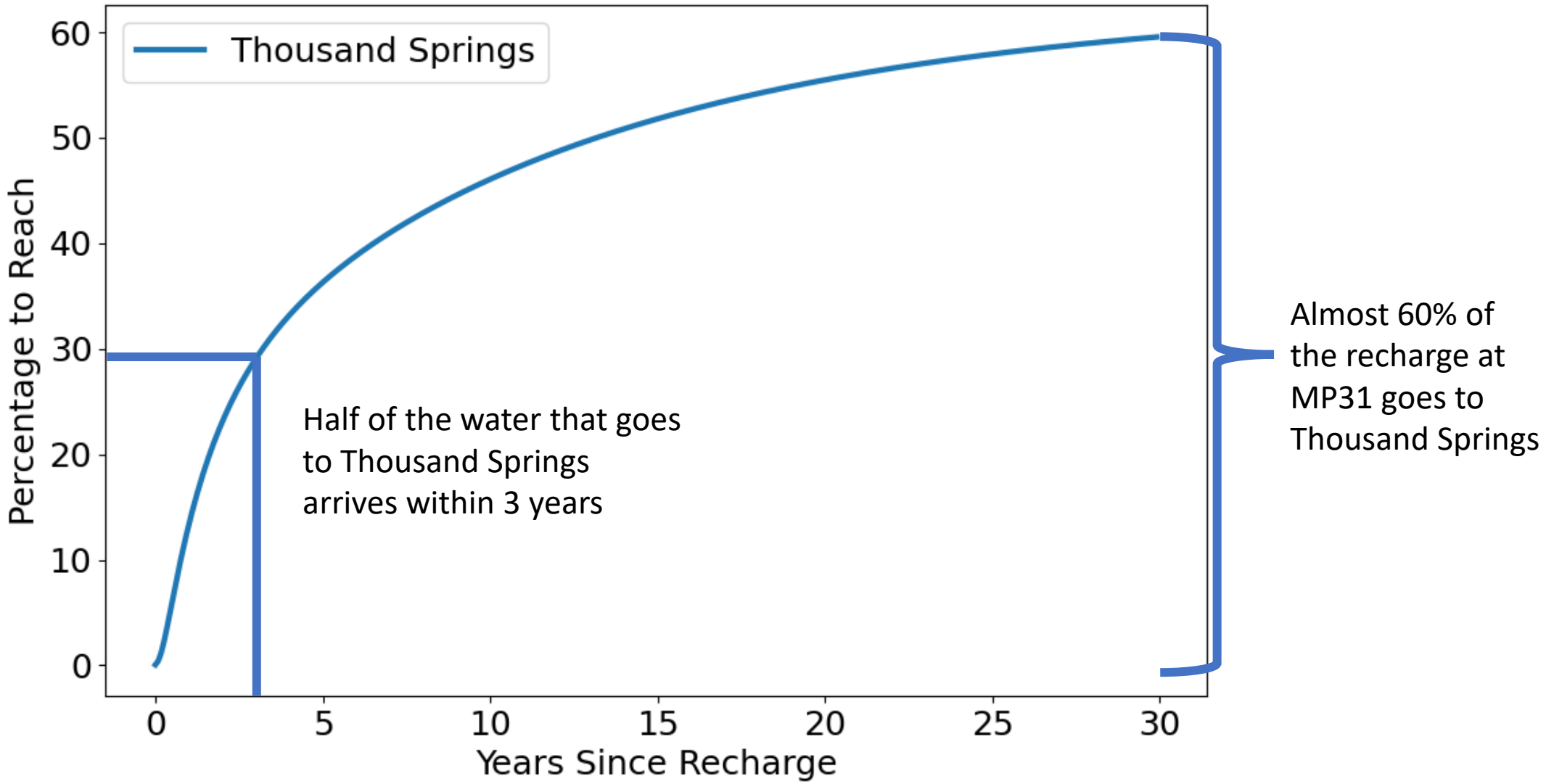
- Current program has only been active a few years

- Will take decades to see the full benefits of managed recharge

5-Year retention is a metric of the ability of recharge to build up over time



Average travel time can be calculated for each reach



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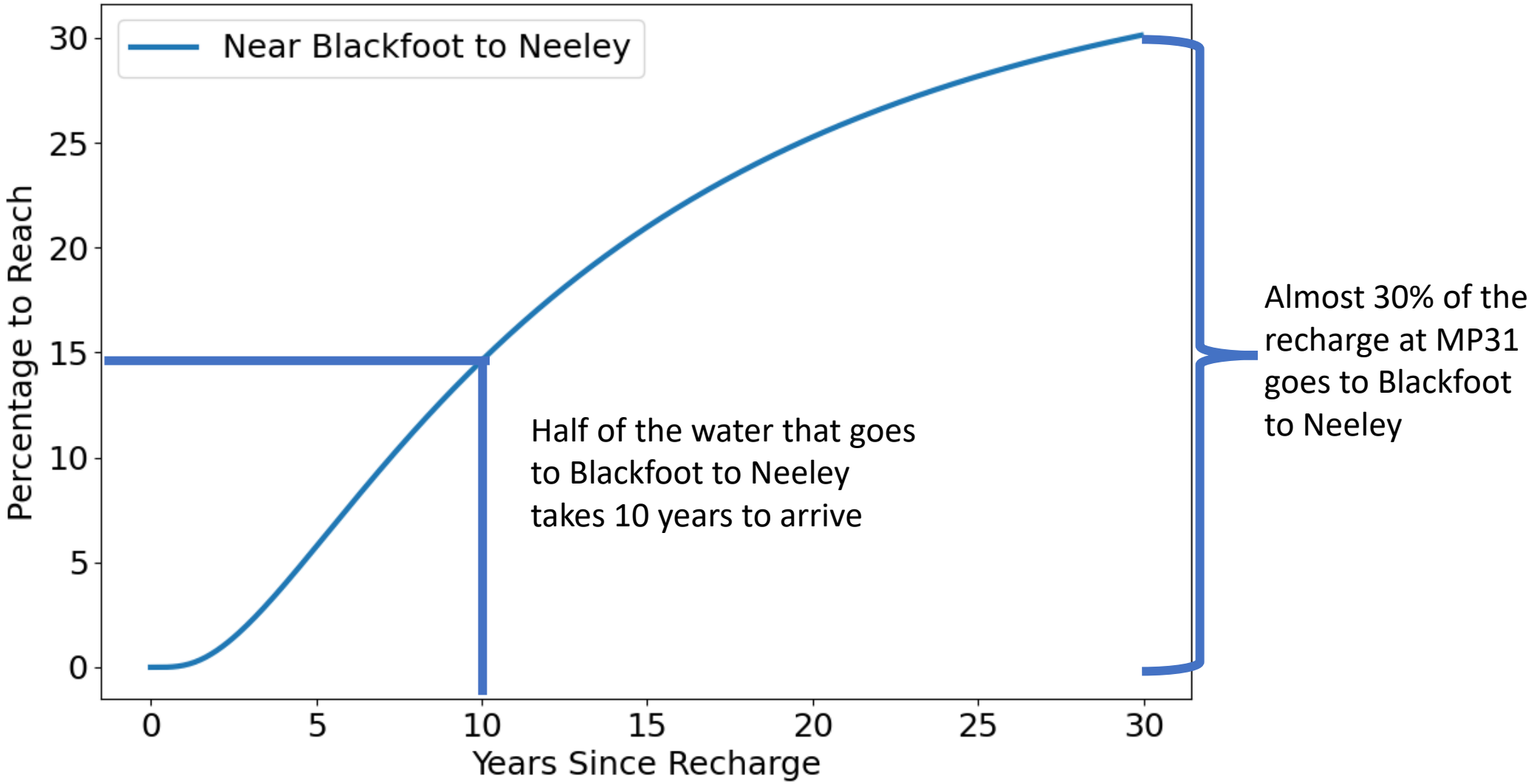
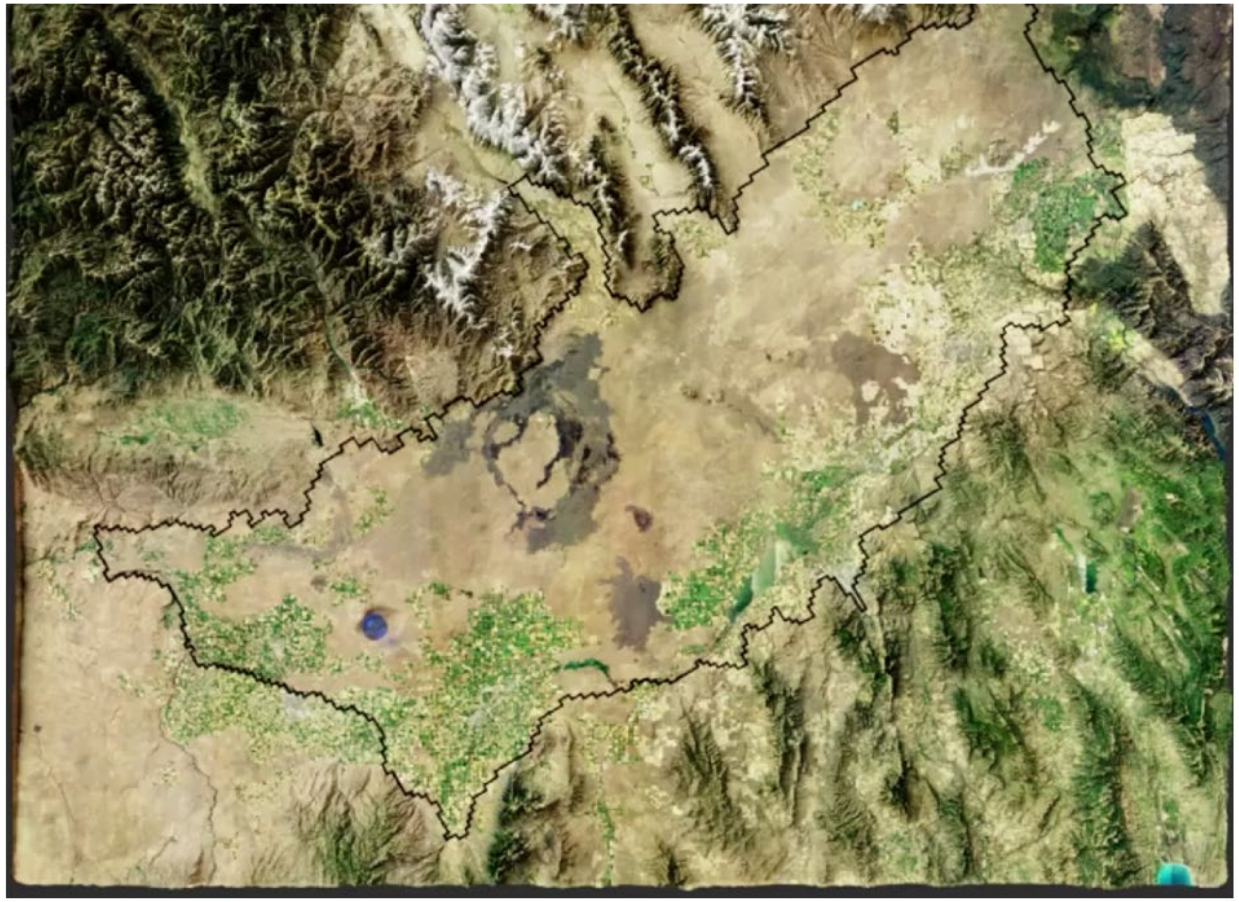
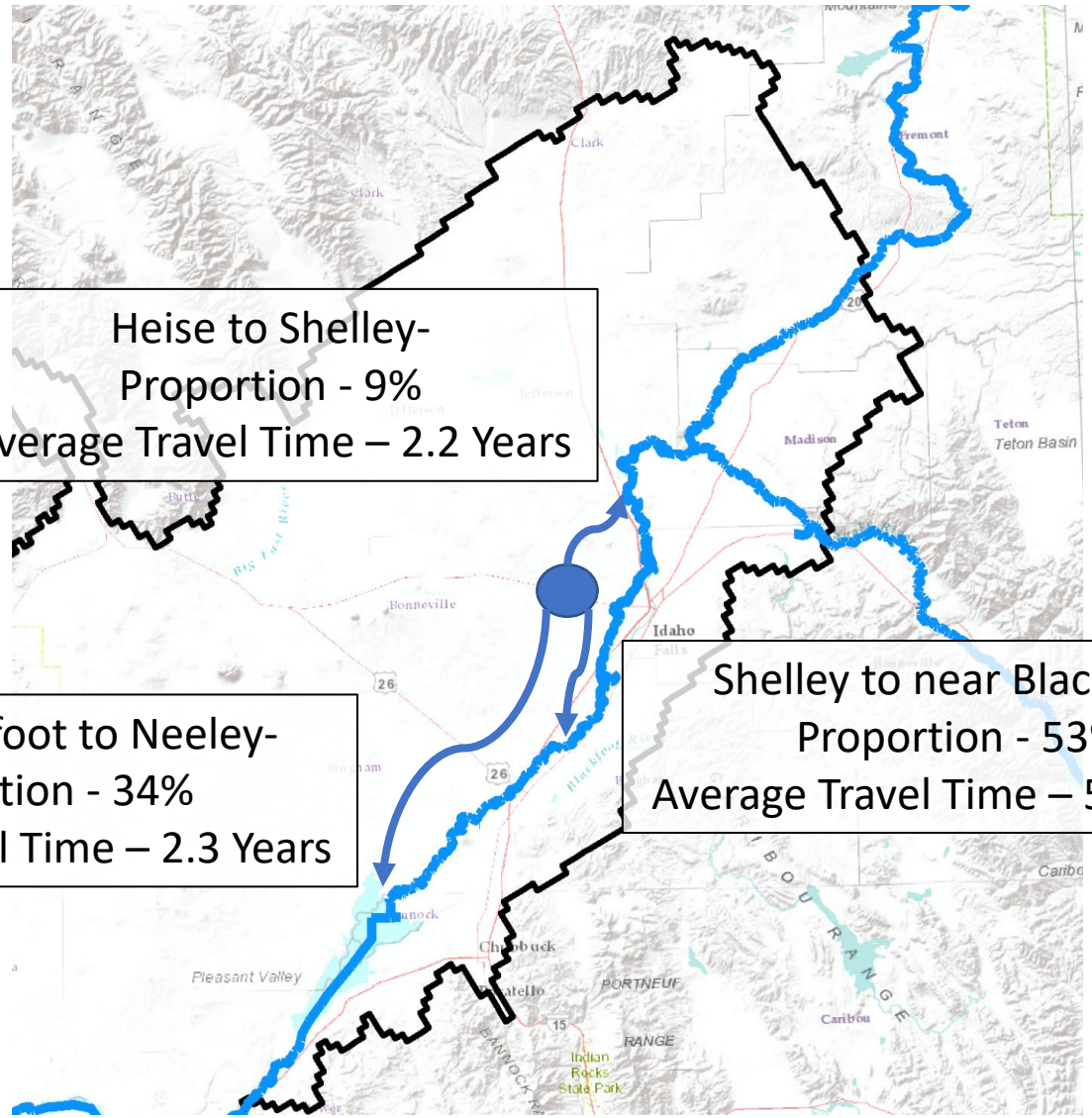


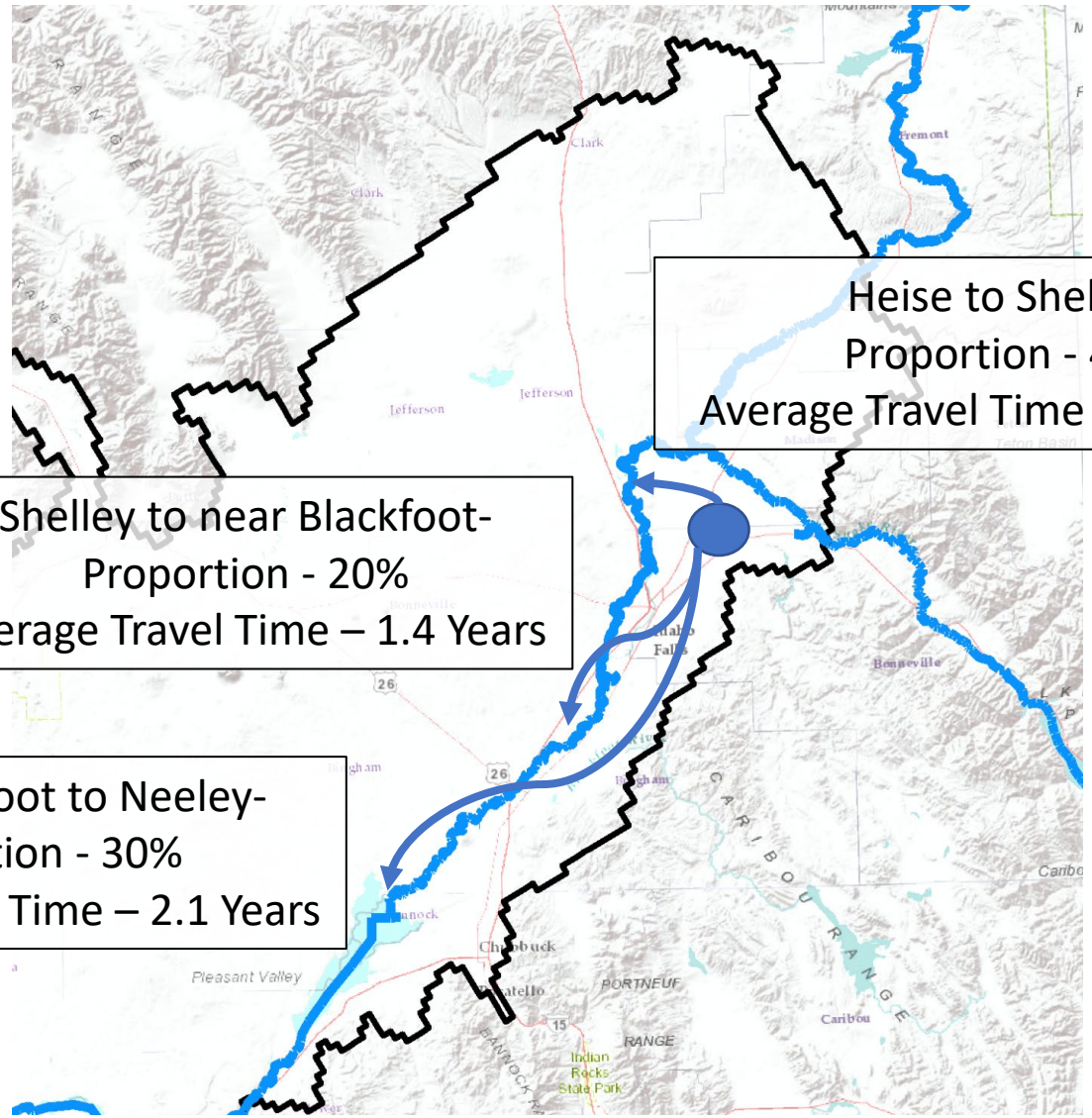
In the long term, Where does recharged water end up? (Lower Valley)



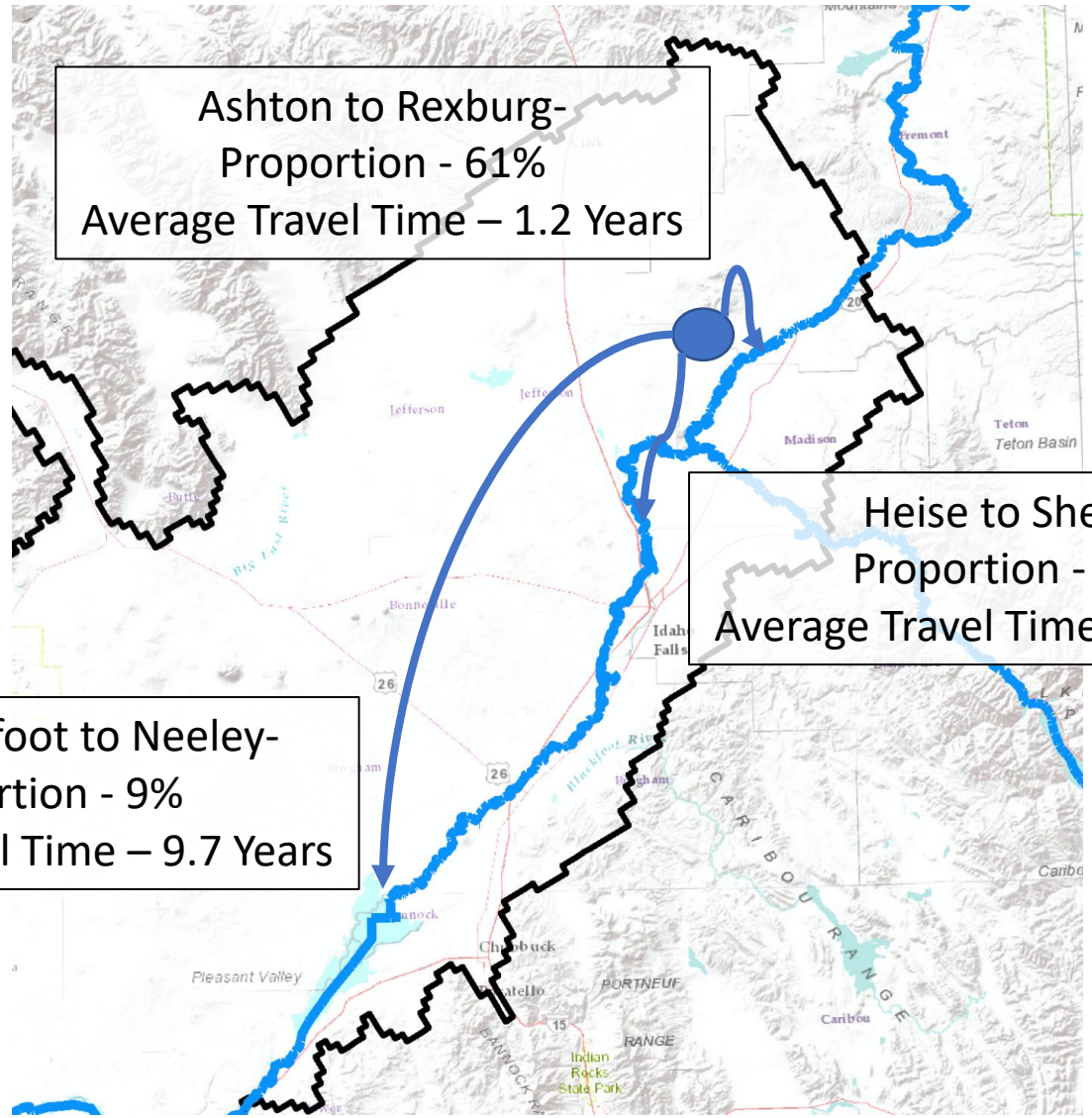
Where does Main Stem recharge end up?



Where does South Fork recharge end up?



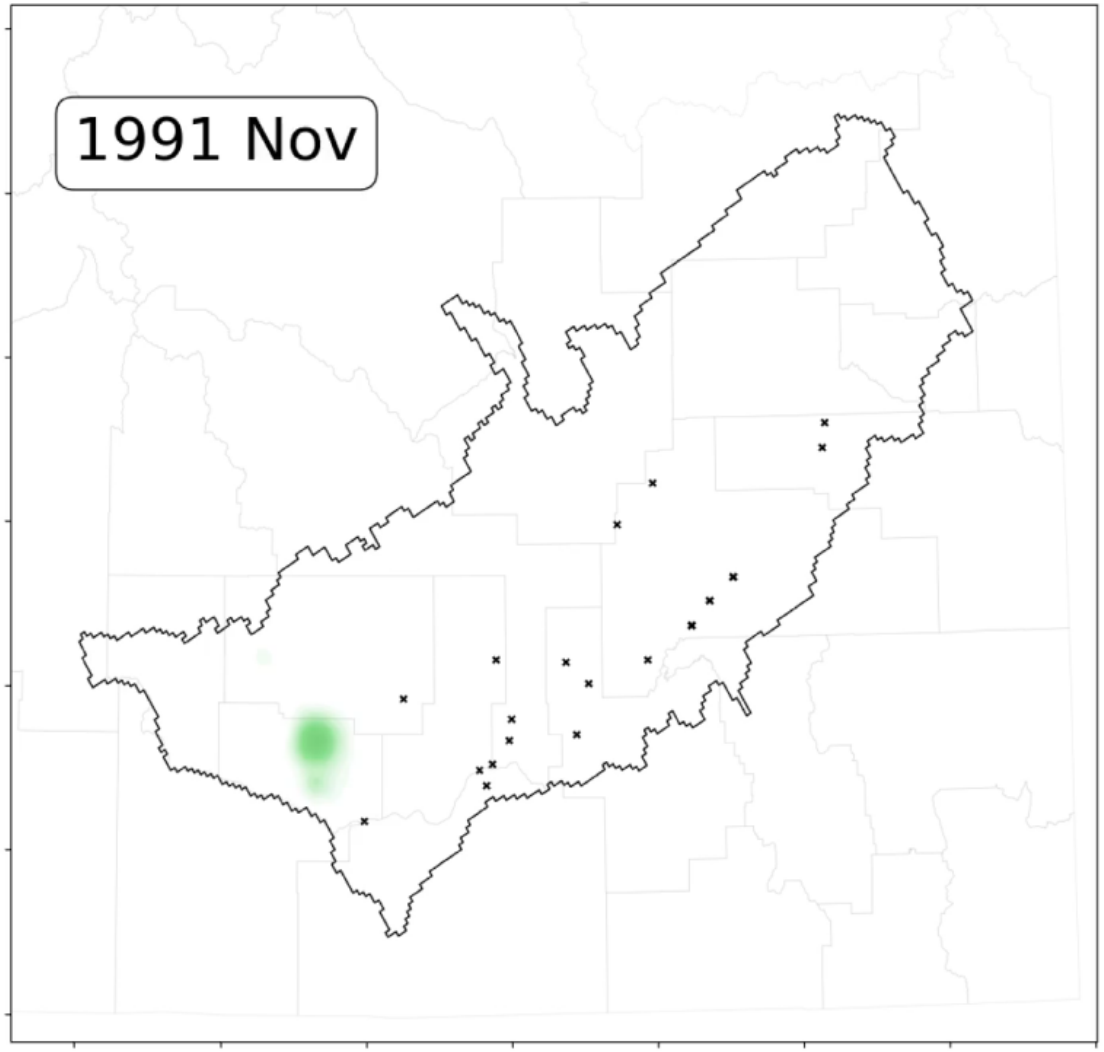
Where does Henry's Fork recharge end up?



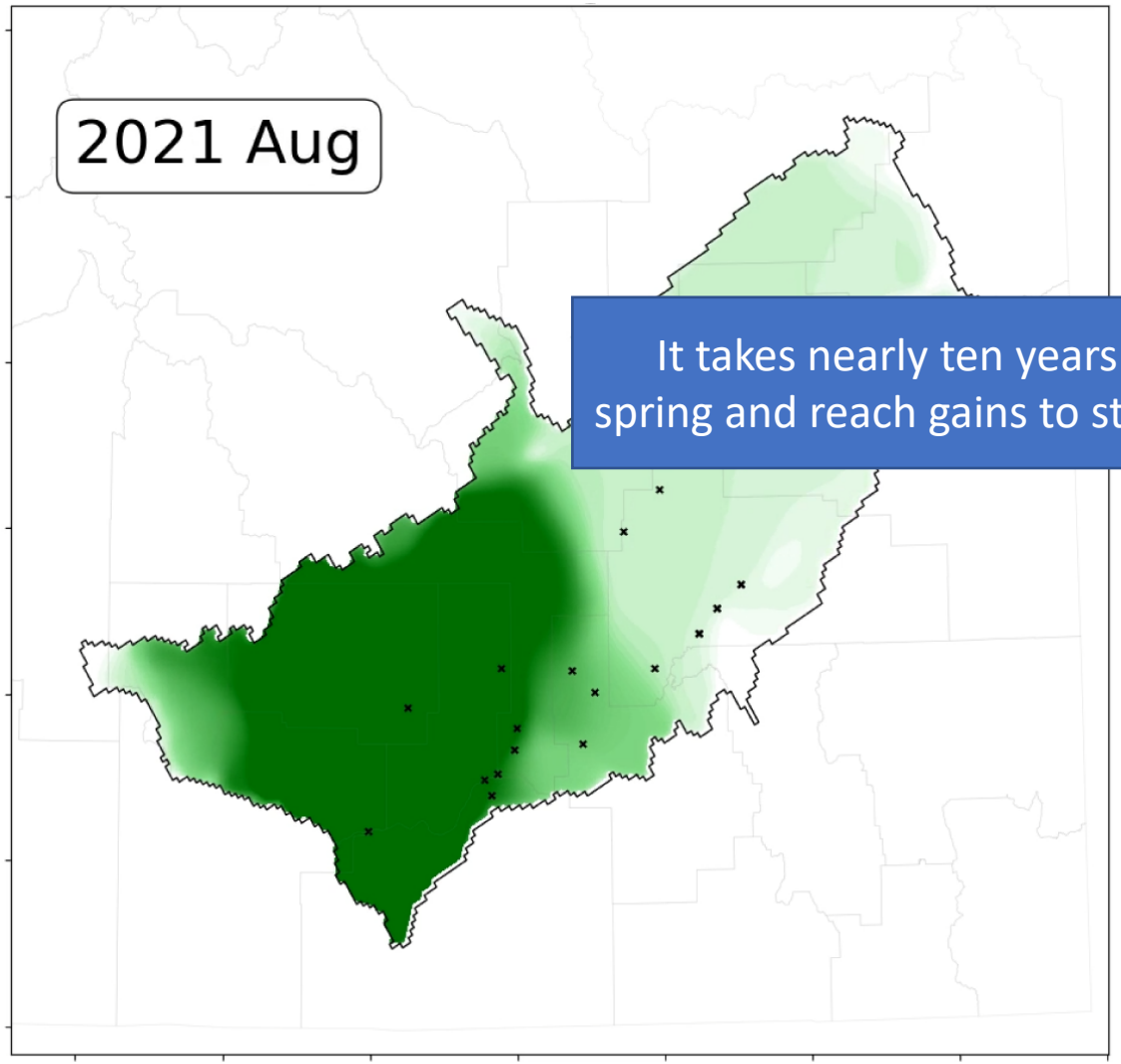
How would this look in practice?

- Modeled effects of managed recharge from 1991-2020
  - Used historical recharge availability from 1991-2020
  - Combined with current (2021) recharge capacity
  - Used an estimated downtime term

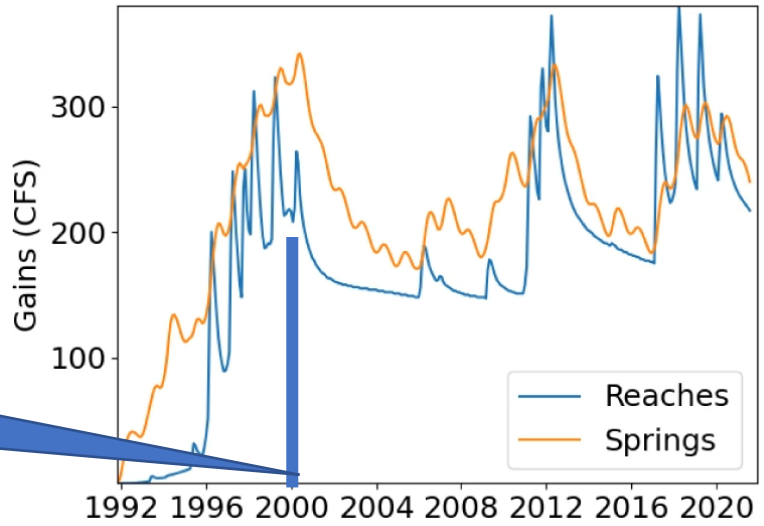
If recharge started in 1991, what would it look like today?

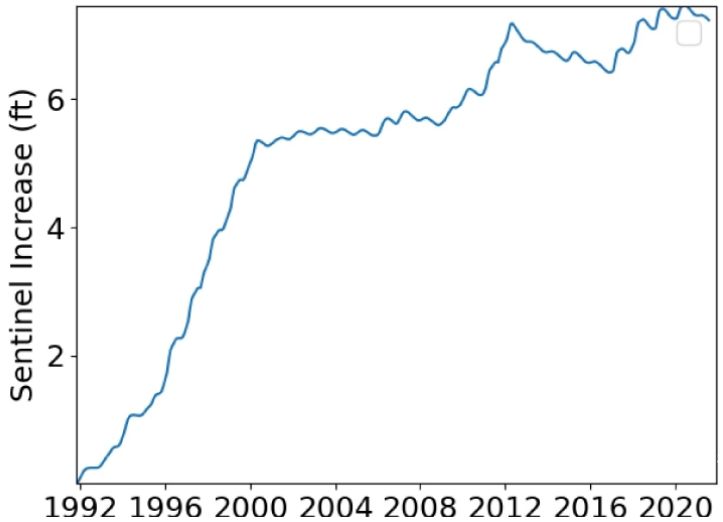


If recharge started in 1991, what would the effects be?

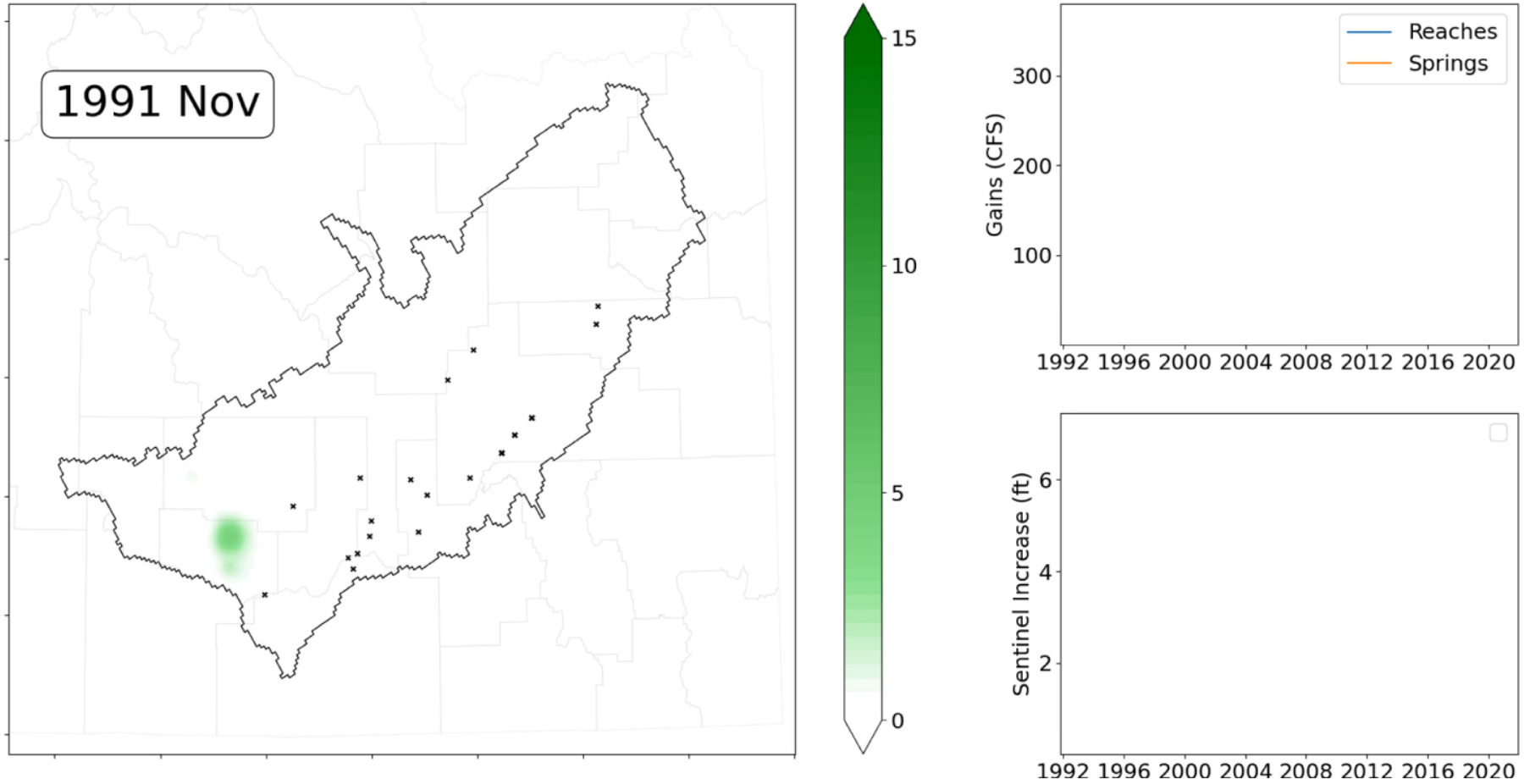


It takes nearly ten years for spring and reach gains to stabilize





If recharge and conservation started in 1991, what would it look like today?

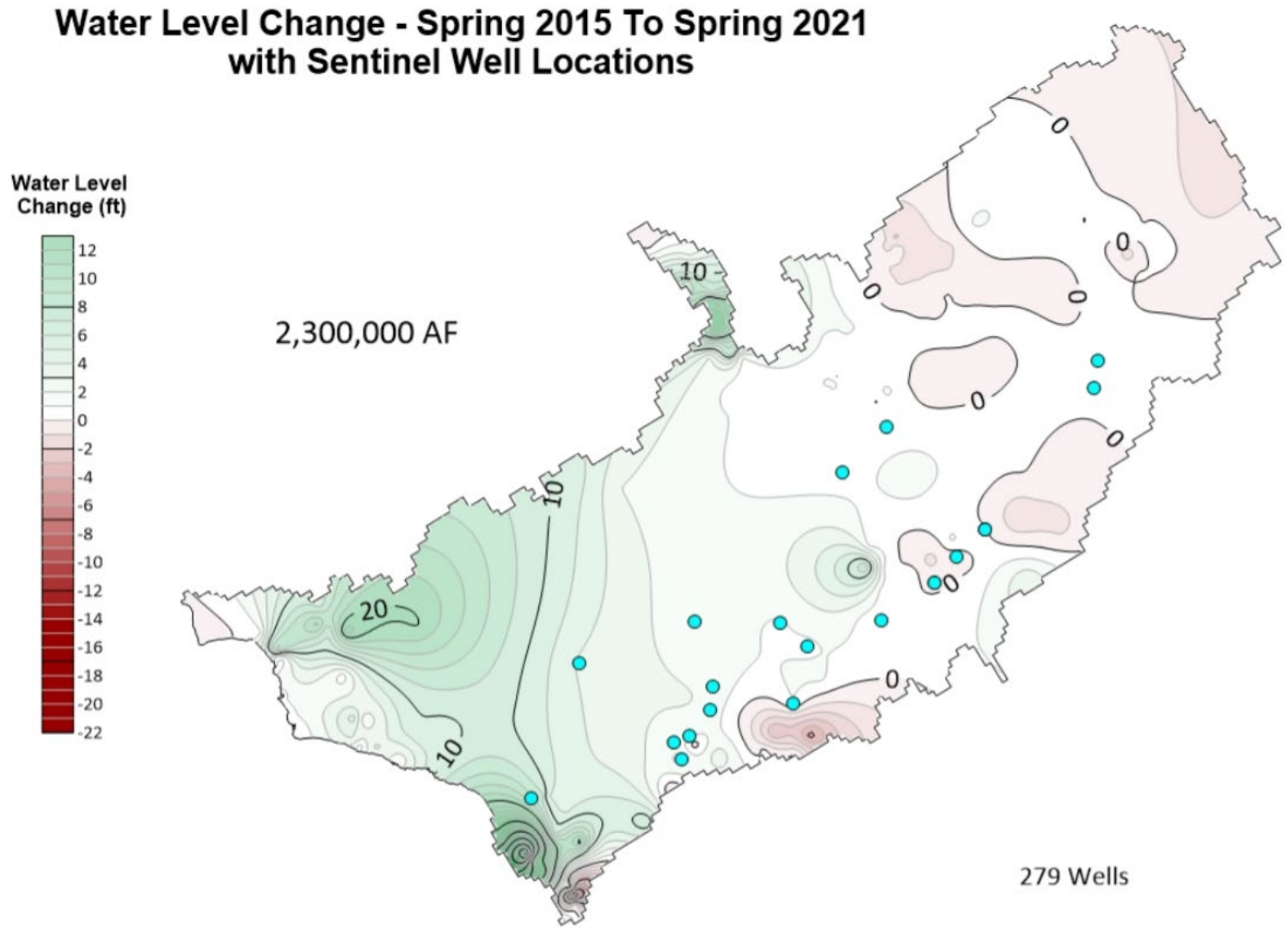


What does this mean for the near future?

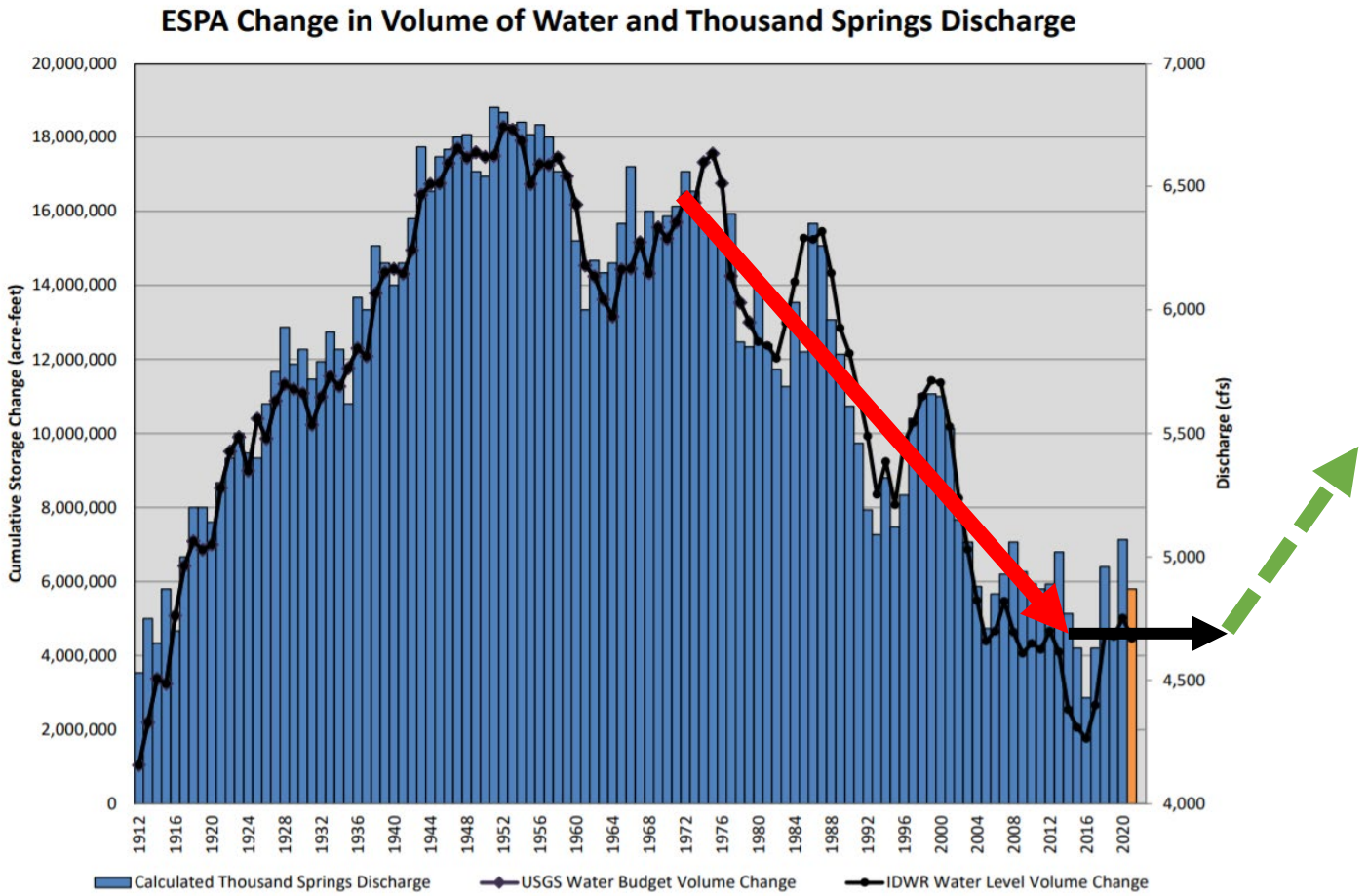
- Recharge will continue to increase aquifer volume, reach gains, and spring gains

- We use a variety of metrics to answer different questions related to the ESPA's health:
  - Aquifer Volume
  - Thousand Springs flows
  - Near Blackfoot reach gains
  - Sentinel Index

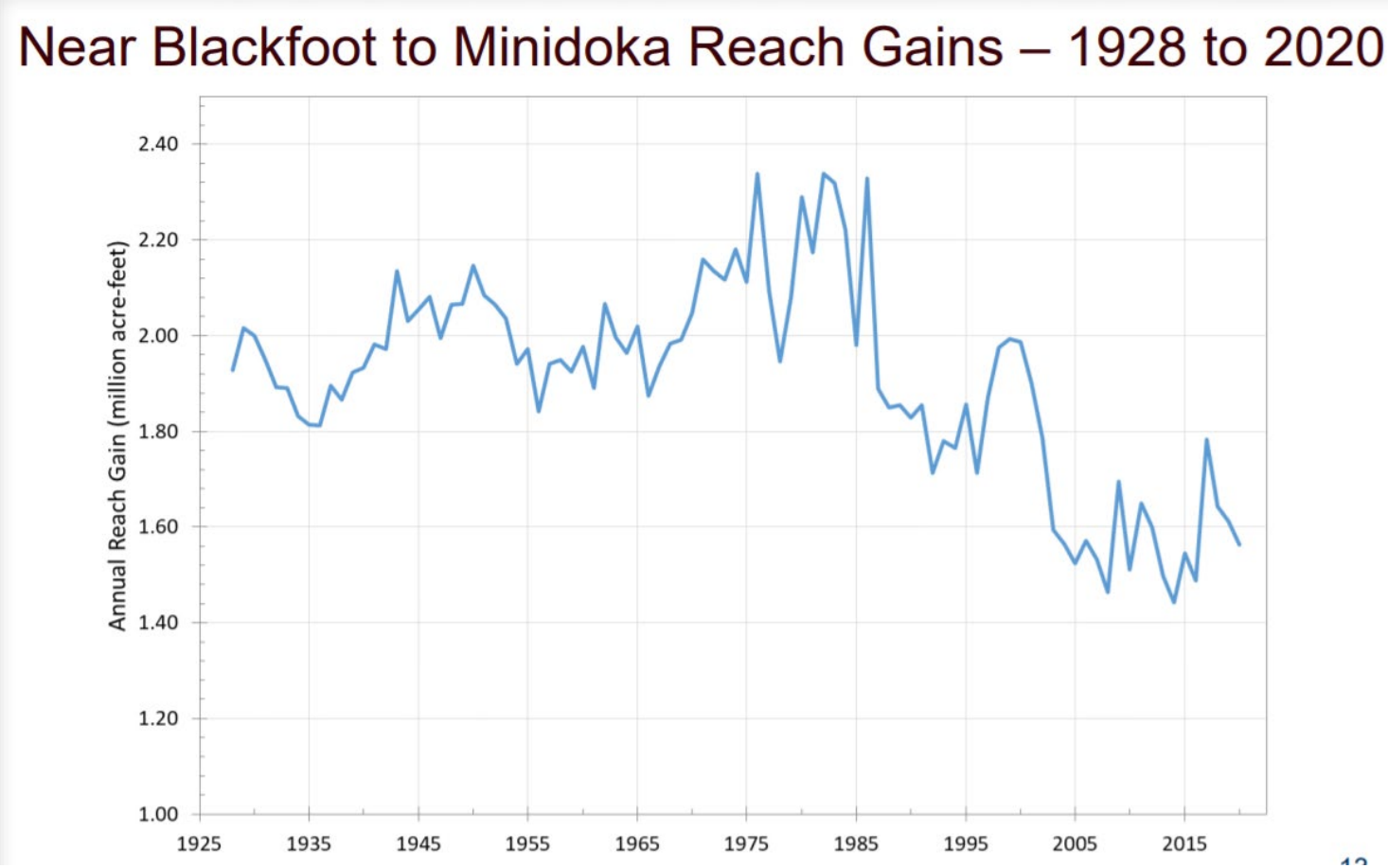
Aquifer volume is one of the most responsive metrics



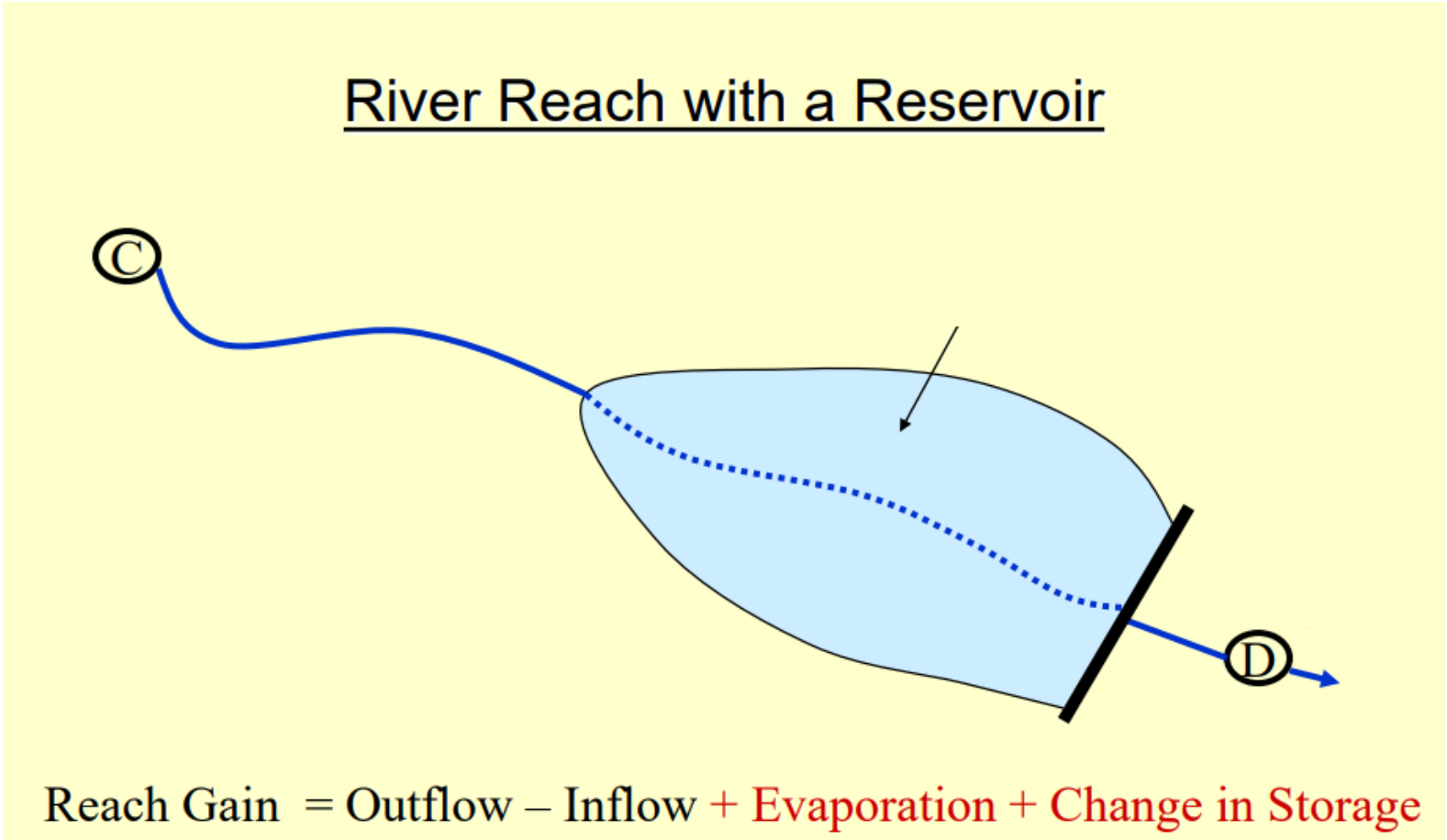
The aquifer volume is well correlated to flow at Thousand Springs



Near Blackfoot to Minidoka reach gains are very important to water users

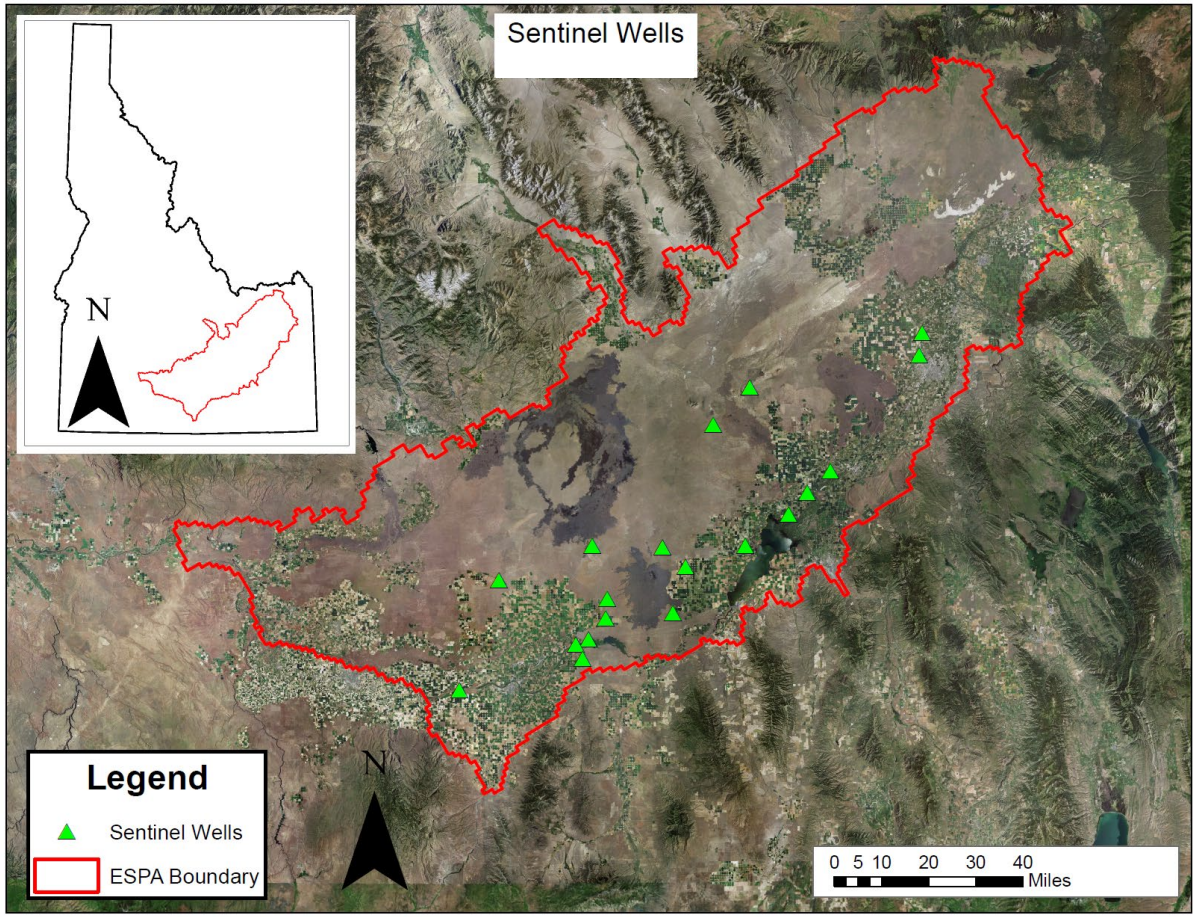


How are reach gains calculated?

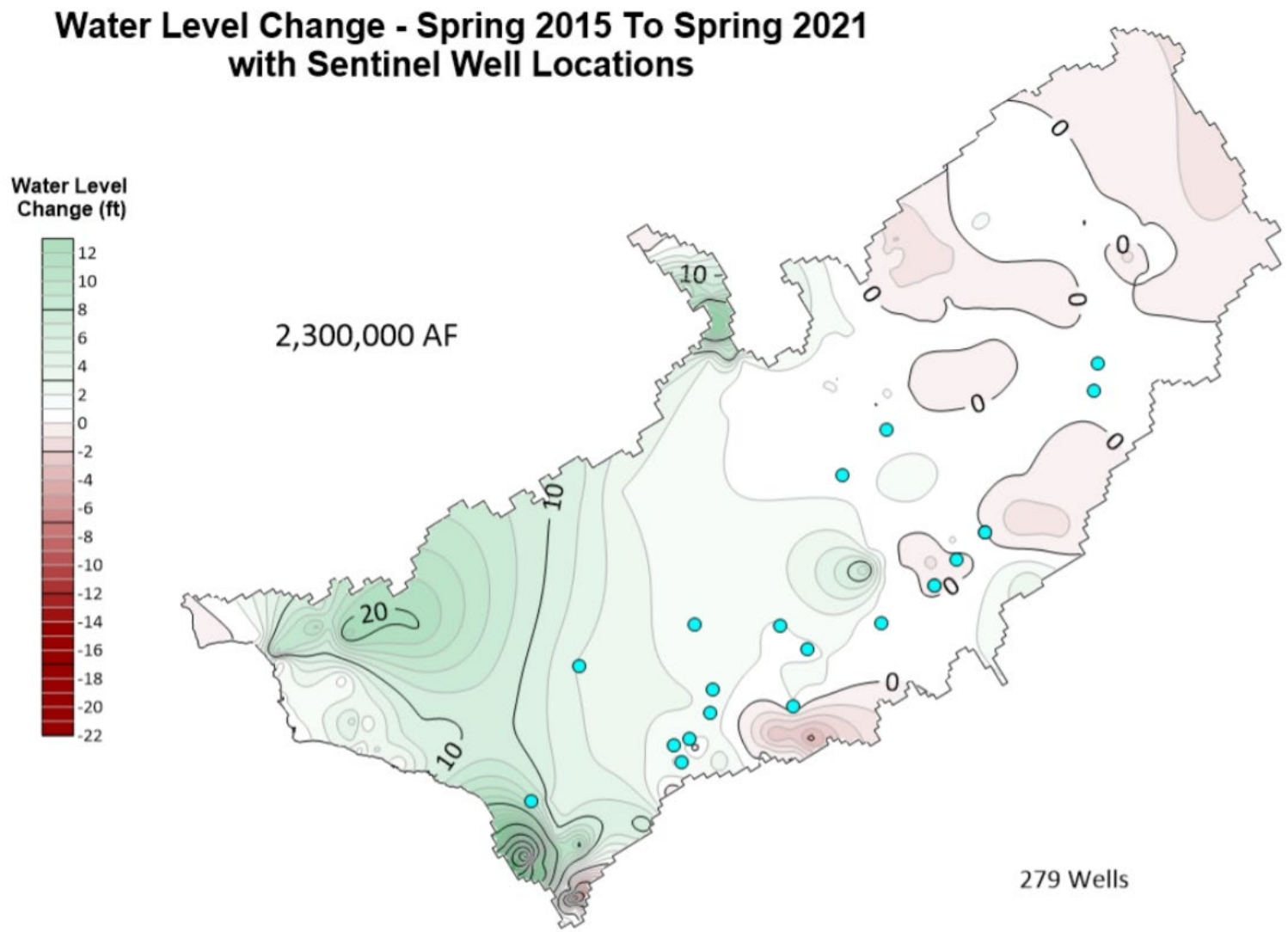


Measuring the reach gains near American Falls is difficult due to the reservoir

The sentinel index was chosen because by comparison it is easier to measure a well



It will take time for the reach gains and sentinel index to increase



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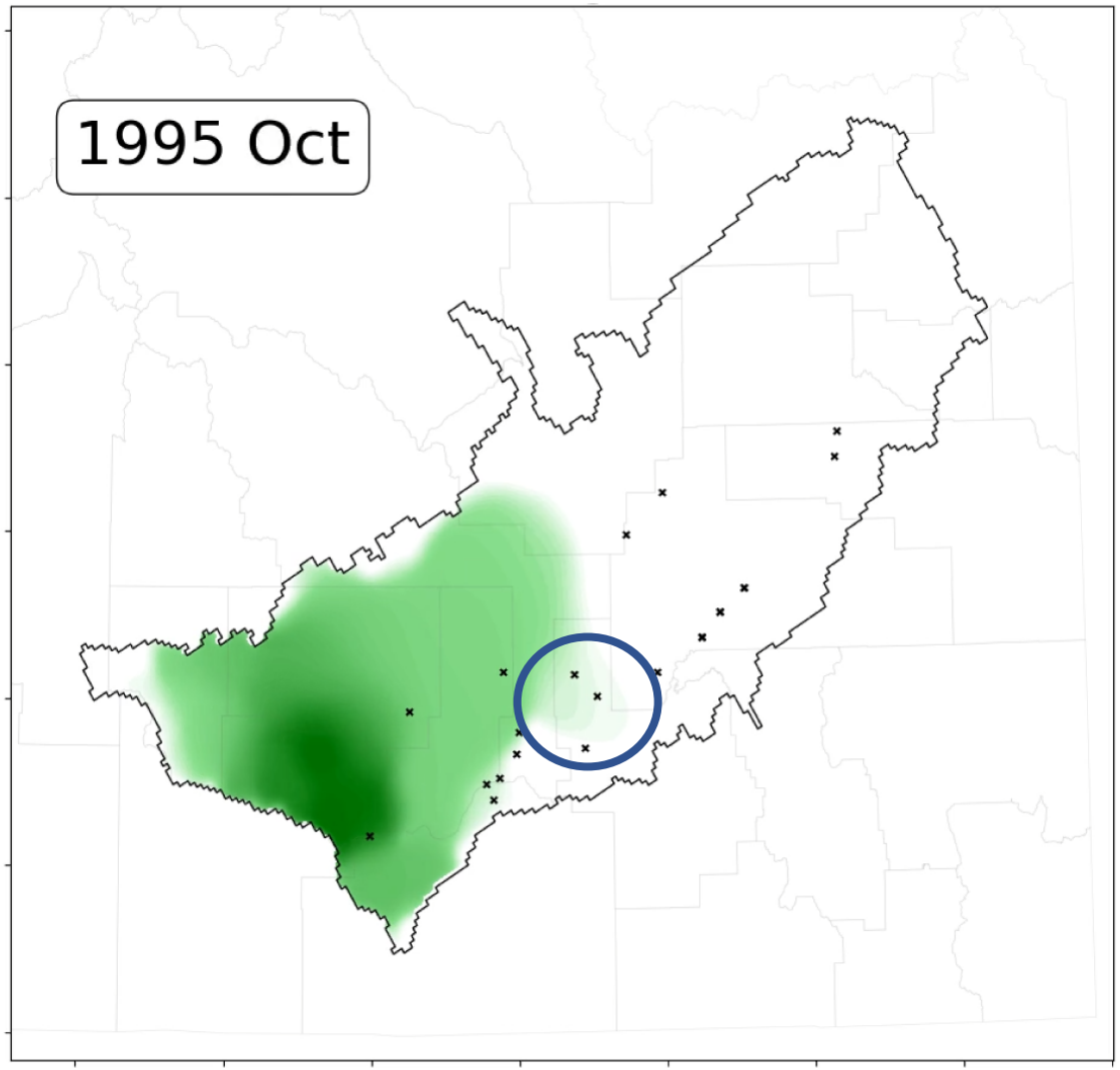

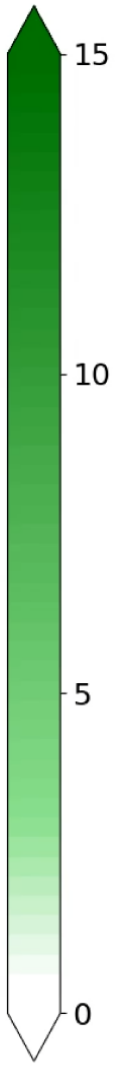

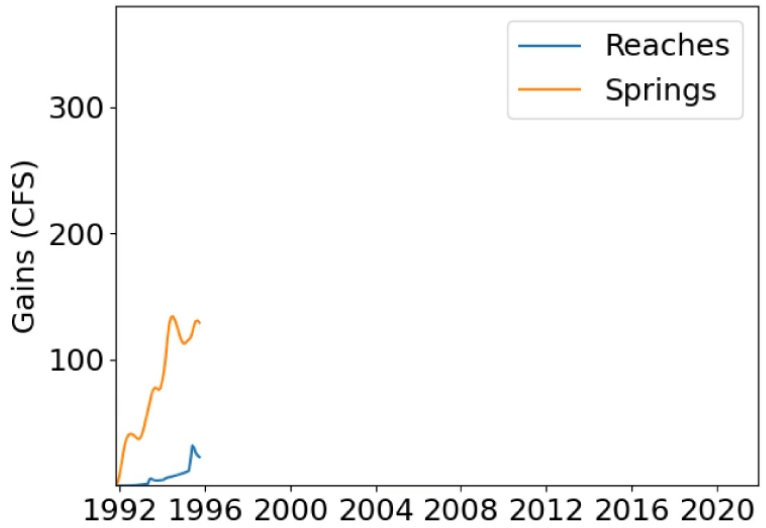

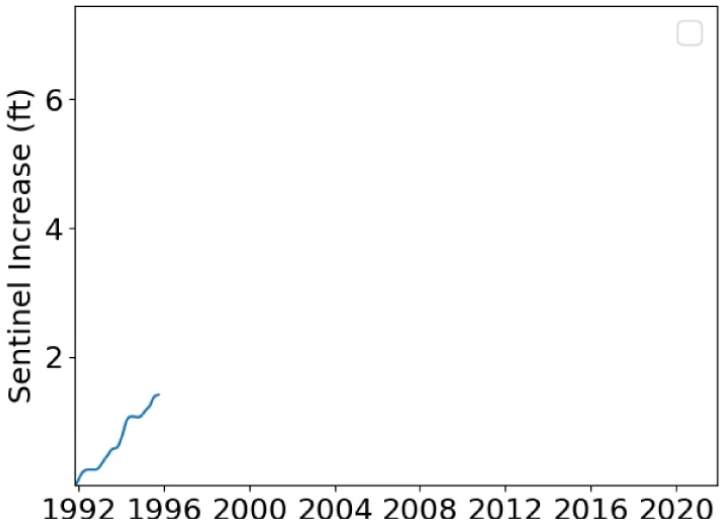

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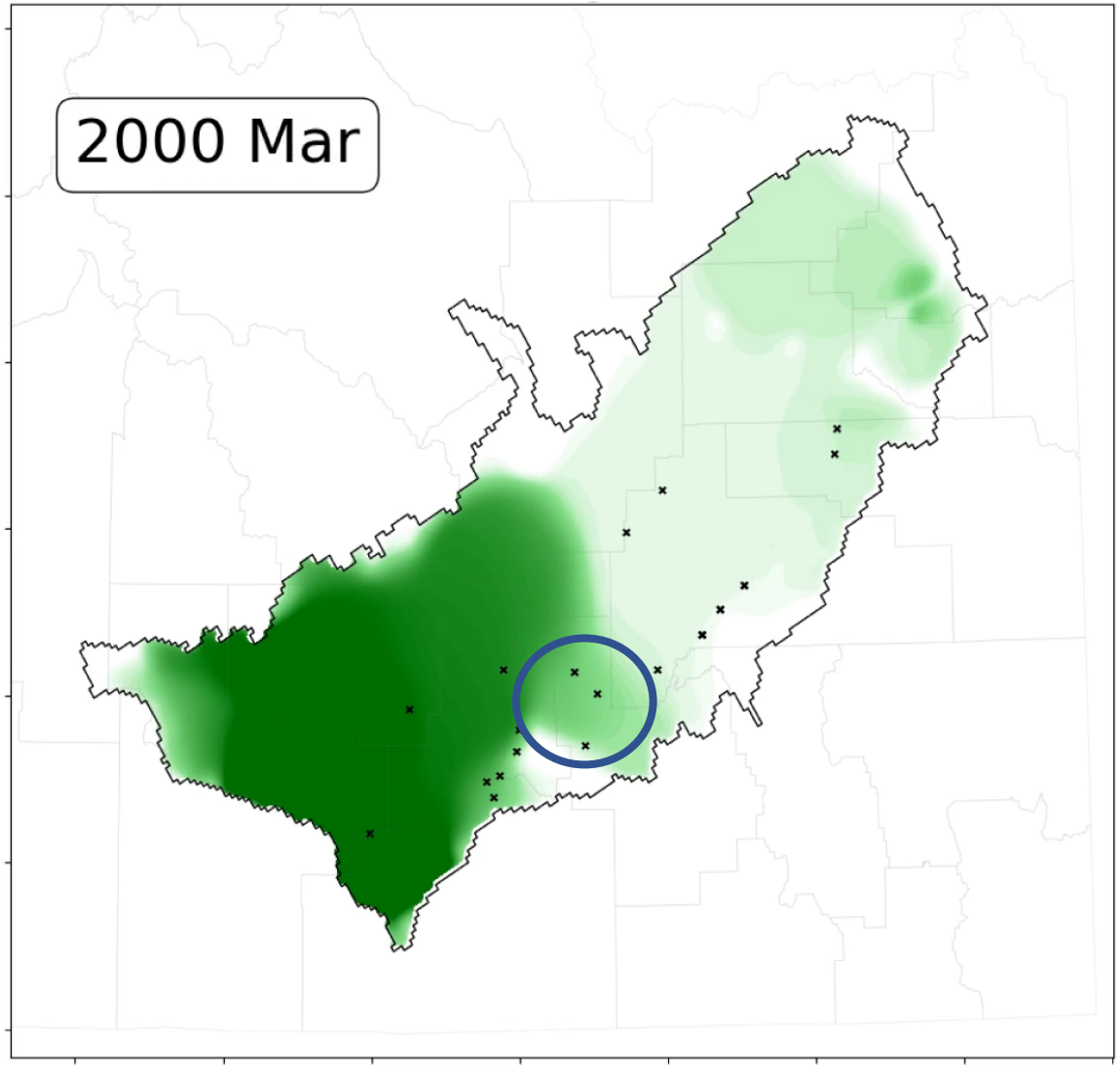
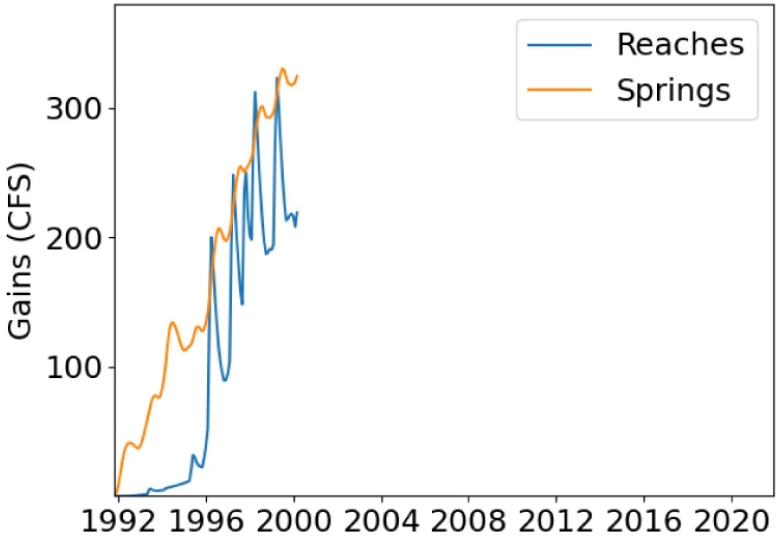
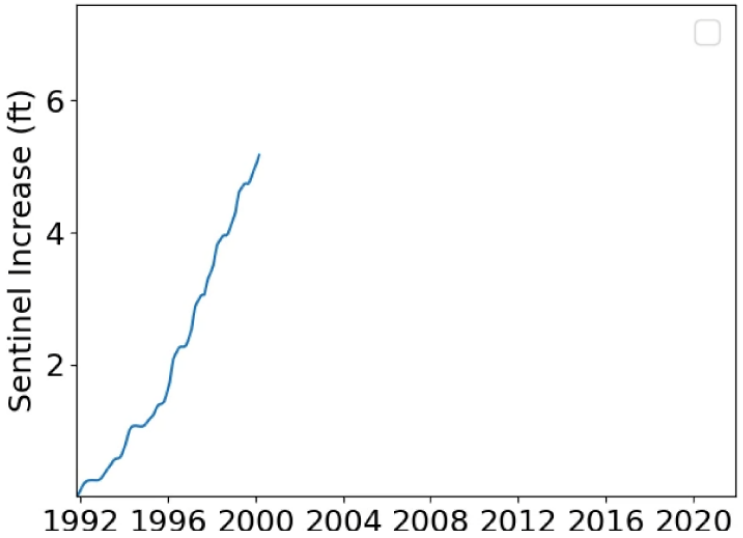
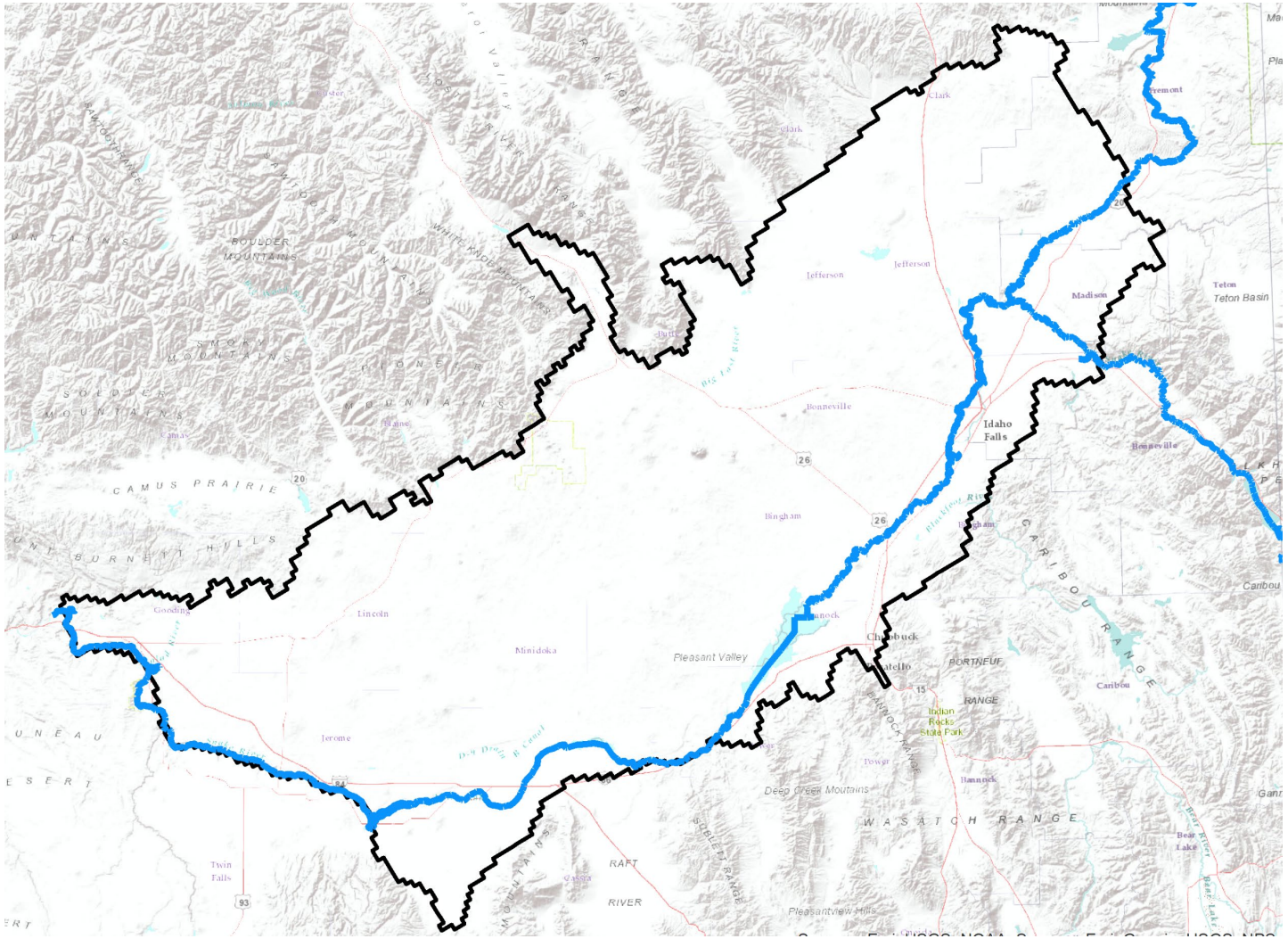




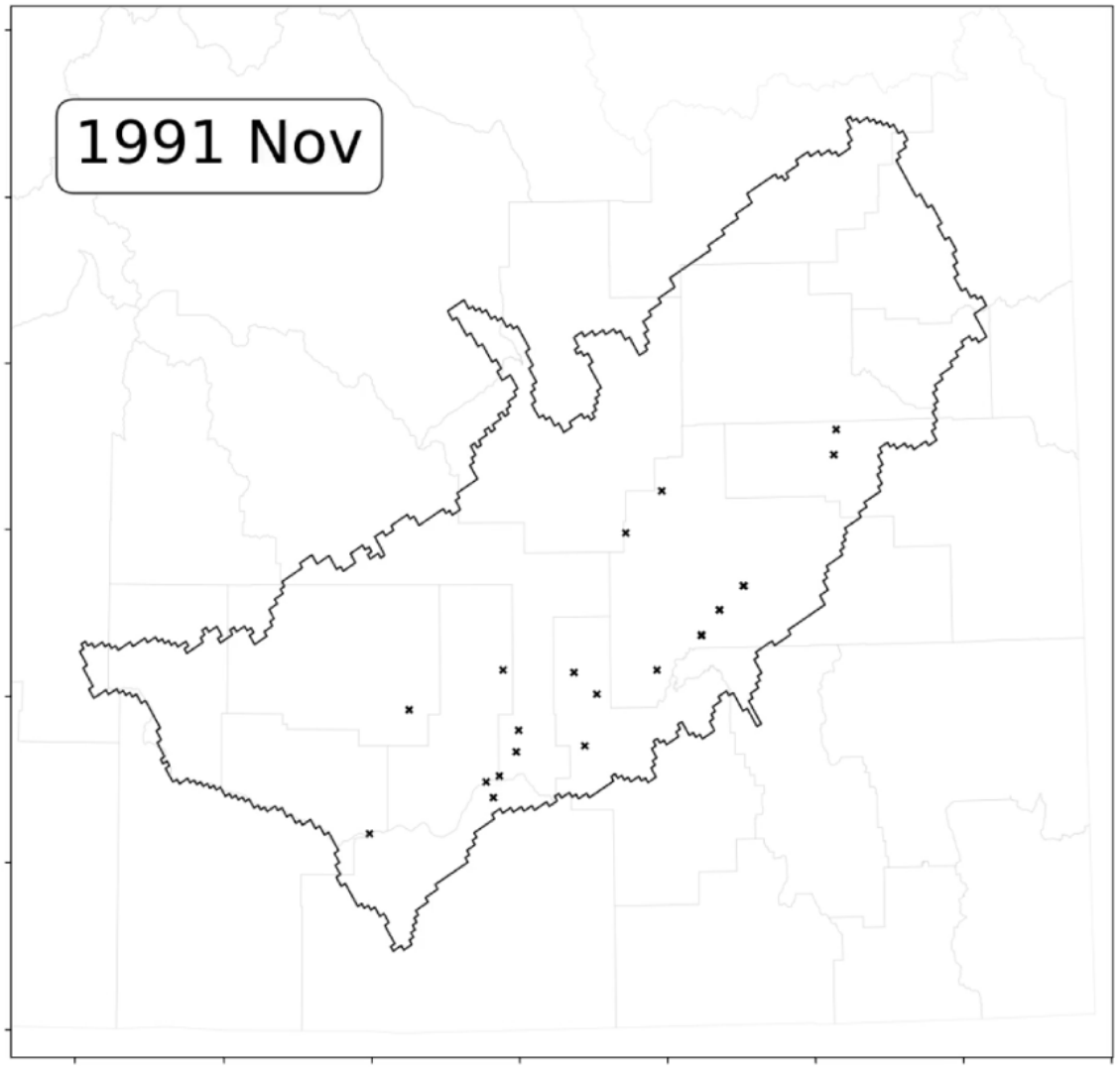


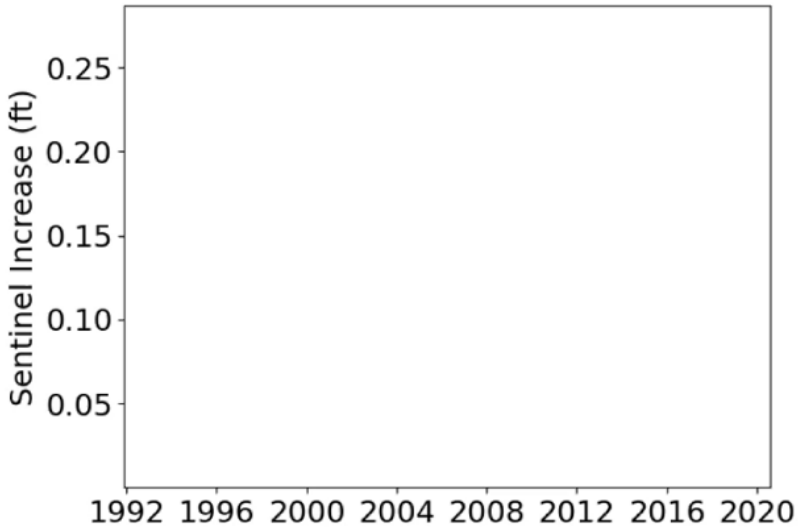
Site Expansion

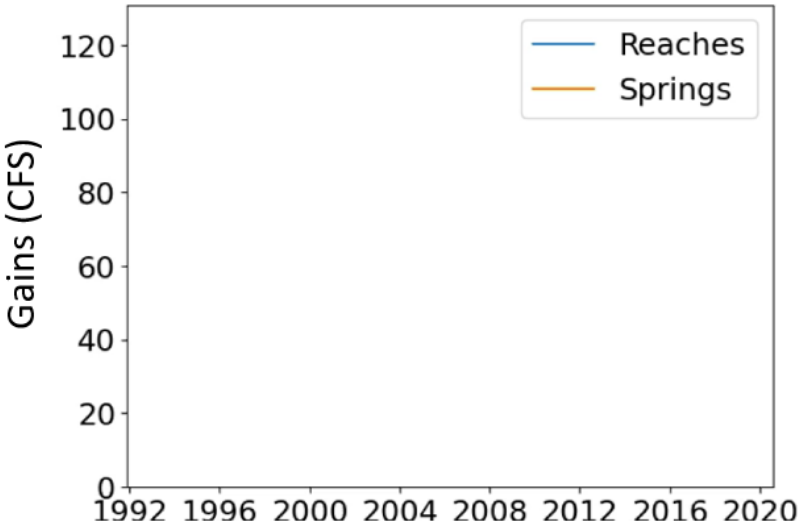
Added 500 CFS of additional capacity to the Upper Valley based on potential new sites



Increases Due to New Potential Sites







Conclusions

- The ESPA took decades to decline to its current levels
  - It will take decades to reverse this trend and return to sustainable levels
- Changes in aquifer management have improved conditions
  - We are stabilizing and building on top of the aquifer
- Different metrics track different portions of the aquifer's health

Questions?