NEVADA DIVISION OF WATER RESOURCES

Nevada Department of CONSERVATION & NATURAL RESOURCES

Groundwater Management for Smith Valley: 2023 Review and 2024 Goals

April 17, 2024

Presented by:

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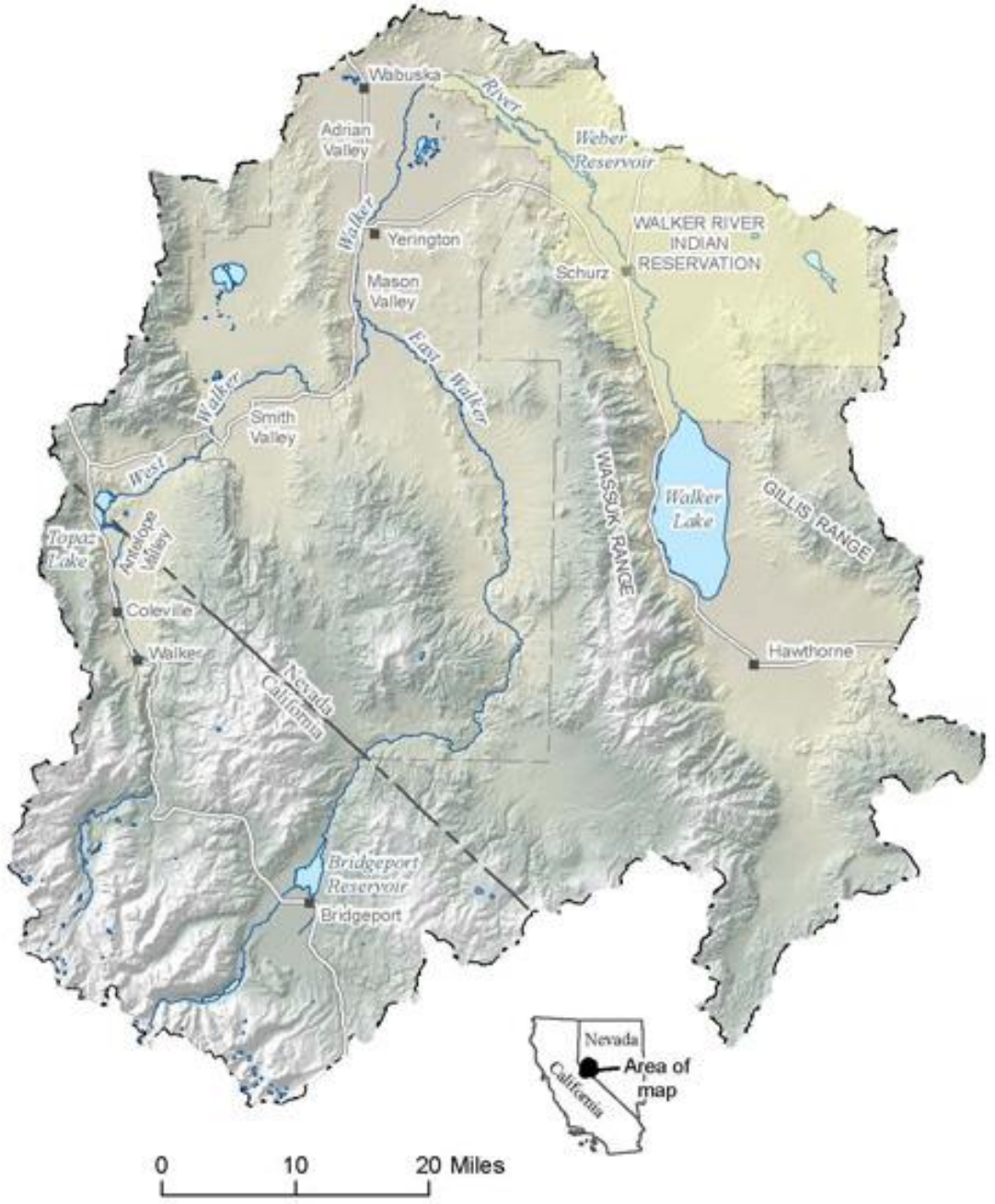
Nevada Division of Water Resources



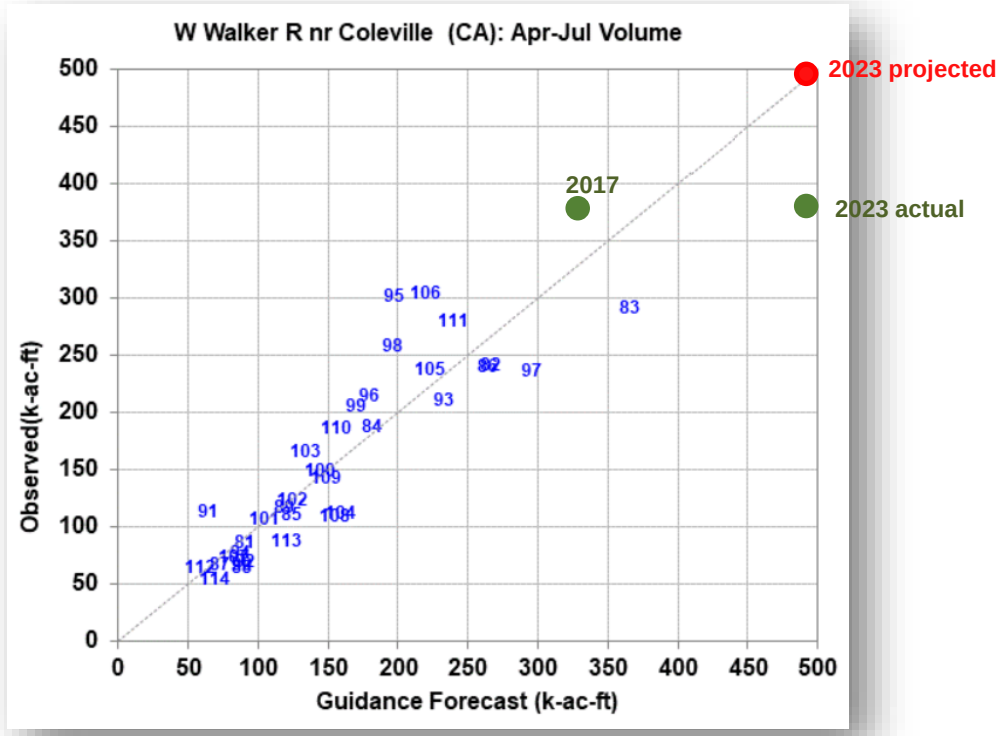
Overview

- Recap of 2023 runoff
- Pumping and water levels for 2023
- Current water supply conditions
- Sustainable pumping goals
- Pumping goals for 2024
- Summary and Outlook

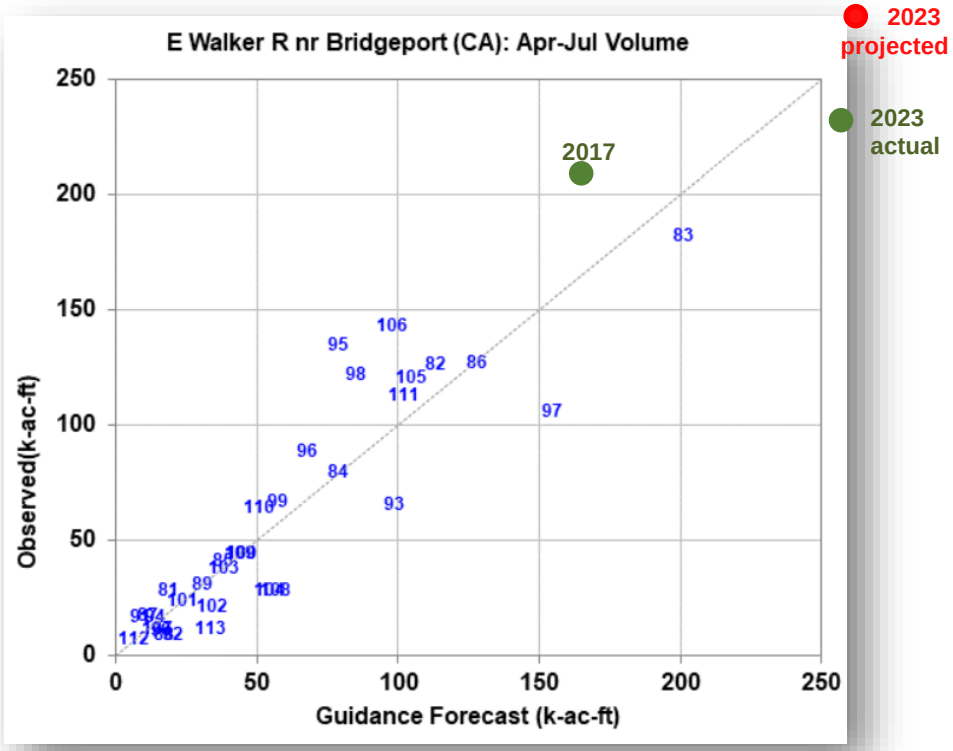
RECAP OF 2023 RUNOFF SEASON

NRCS Projected Runoff for April through July (as of Mar 23, 2023) compared with Actual

West Walker River



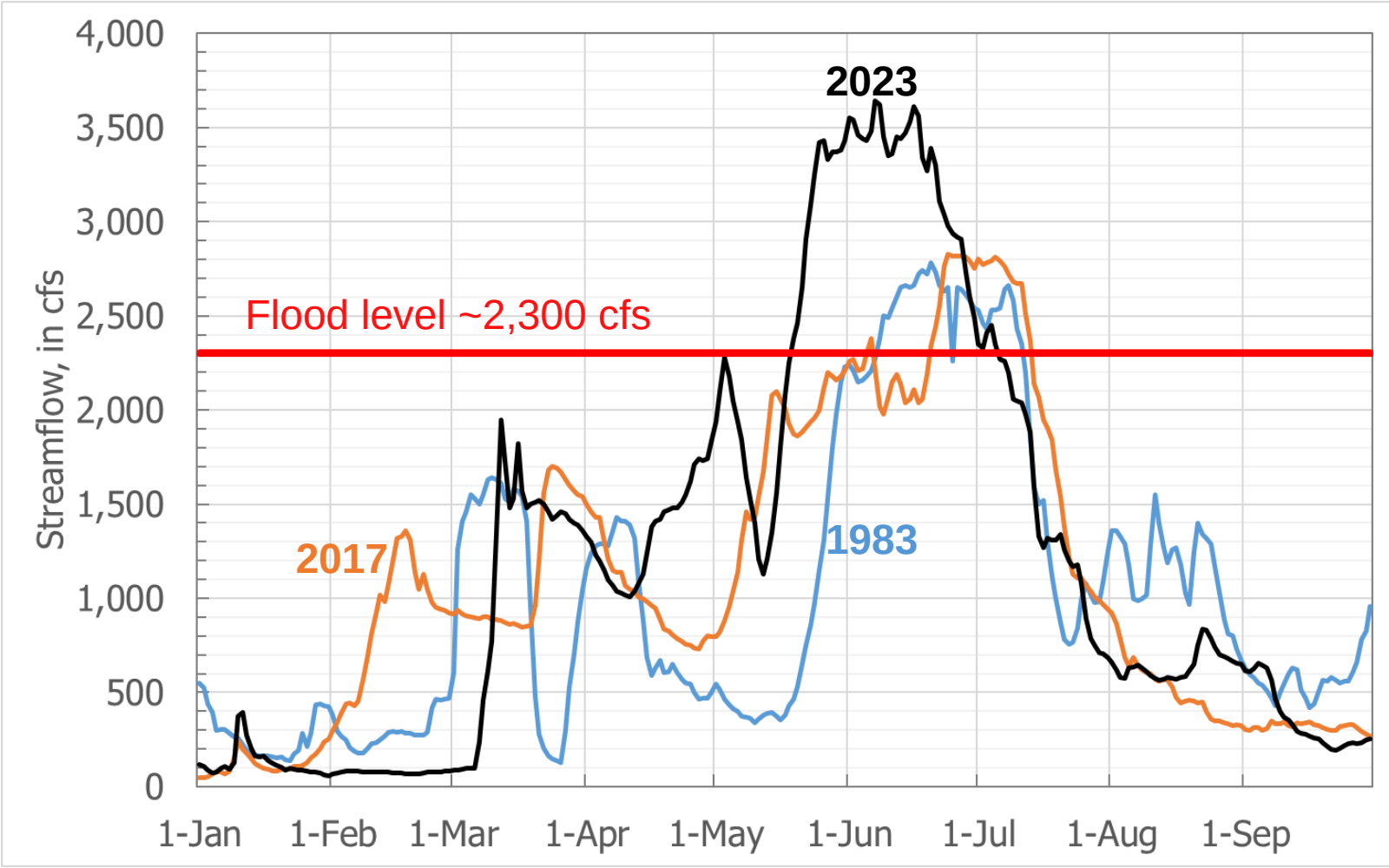
East Walker River



2023 runoff came off substantially less than projected - but was still one for the record books.

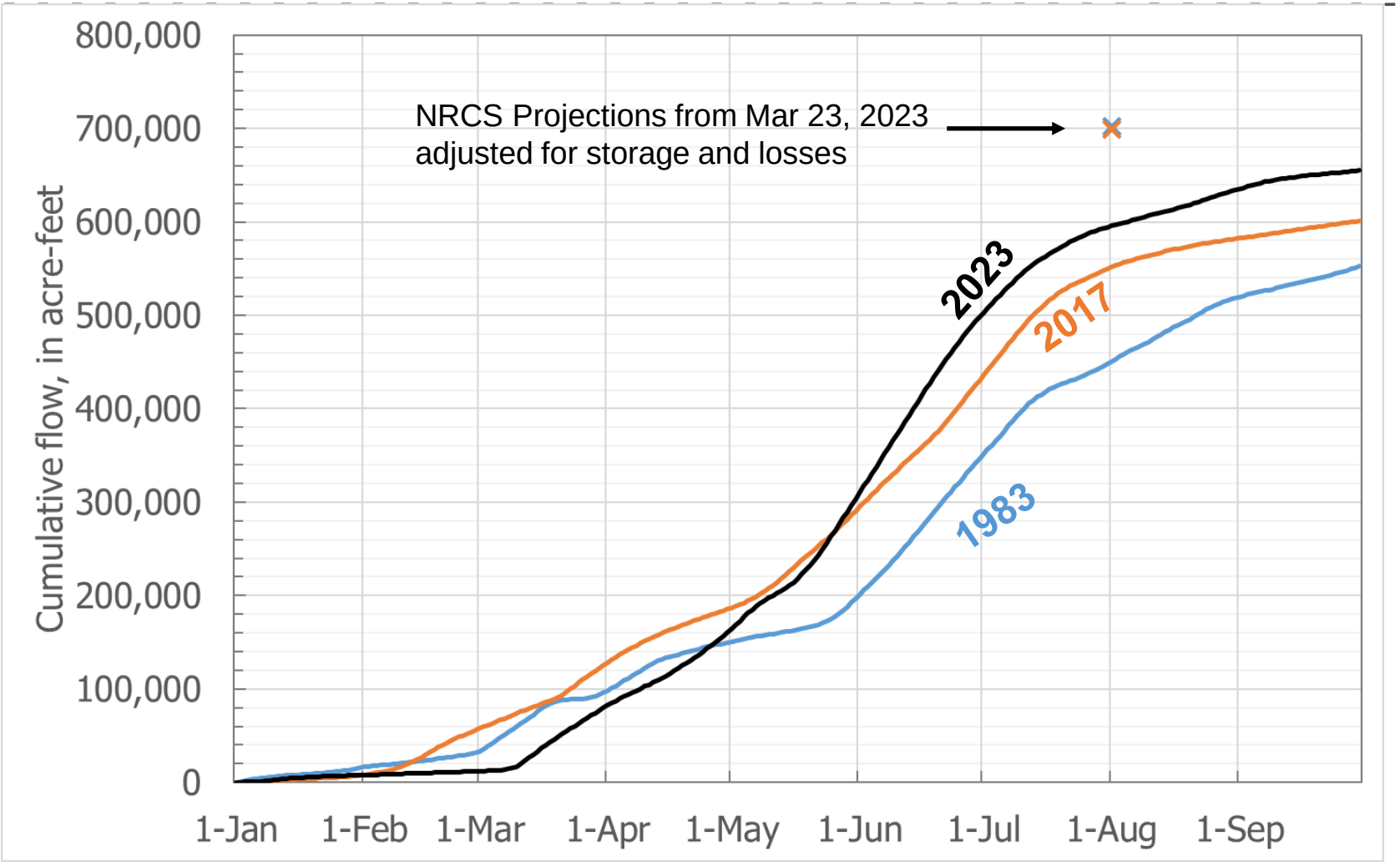
Hydrographs for Walker River at Snyder Lane nr Mason – What Actually Happened Last Year

There were 48 days of consecutive flooding of Walker River.
May 19 – July 5



Cumulative Flow for Walker River at Snyder Lane nr Mason – What Actually Happened Last Year

Even though 2023 runoff undershot projections, it was still largest runoff on record.

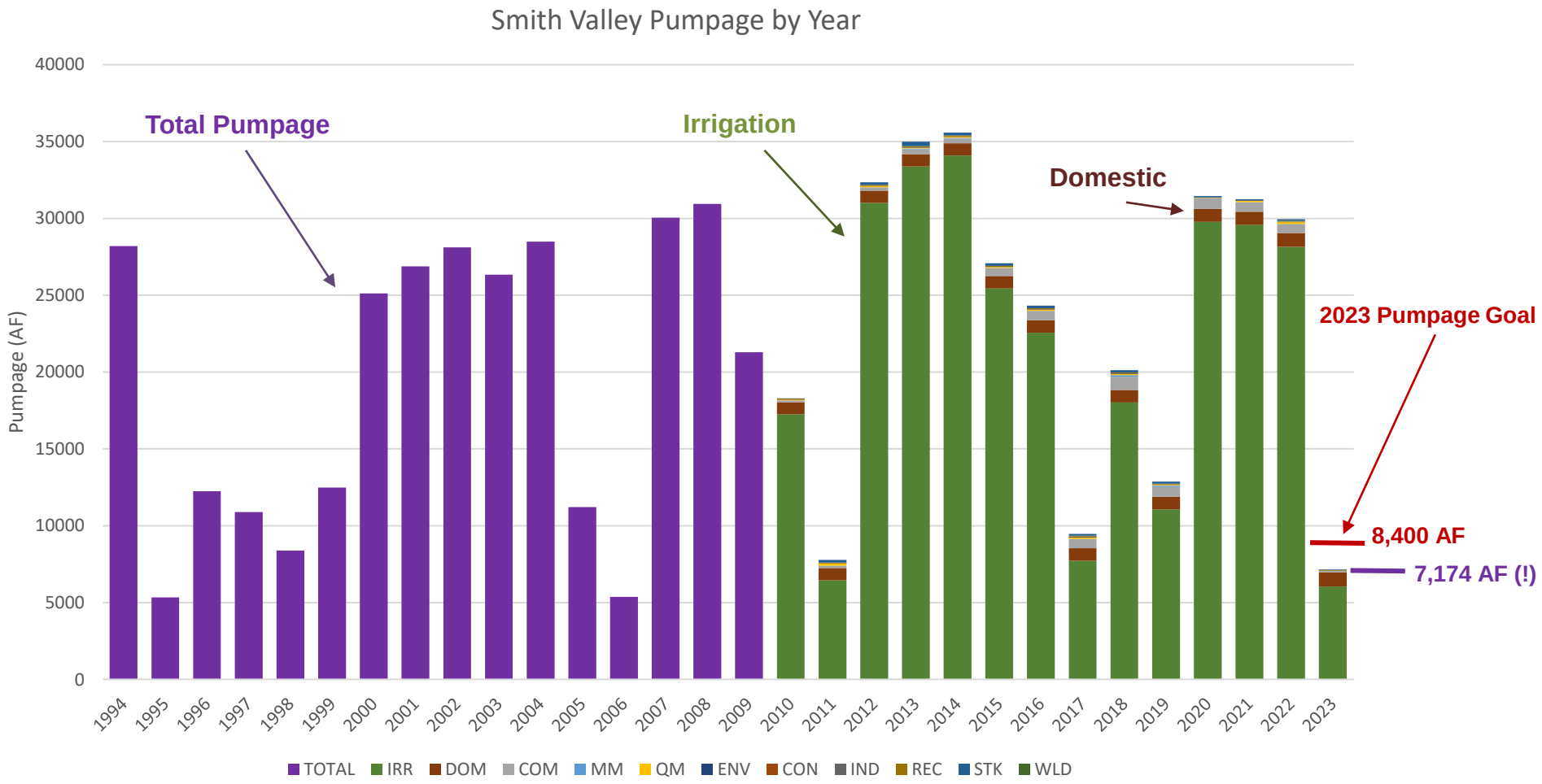


2023 PUMPING AND WATER LEVEL REVIEW

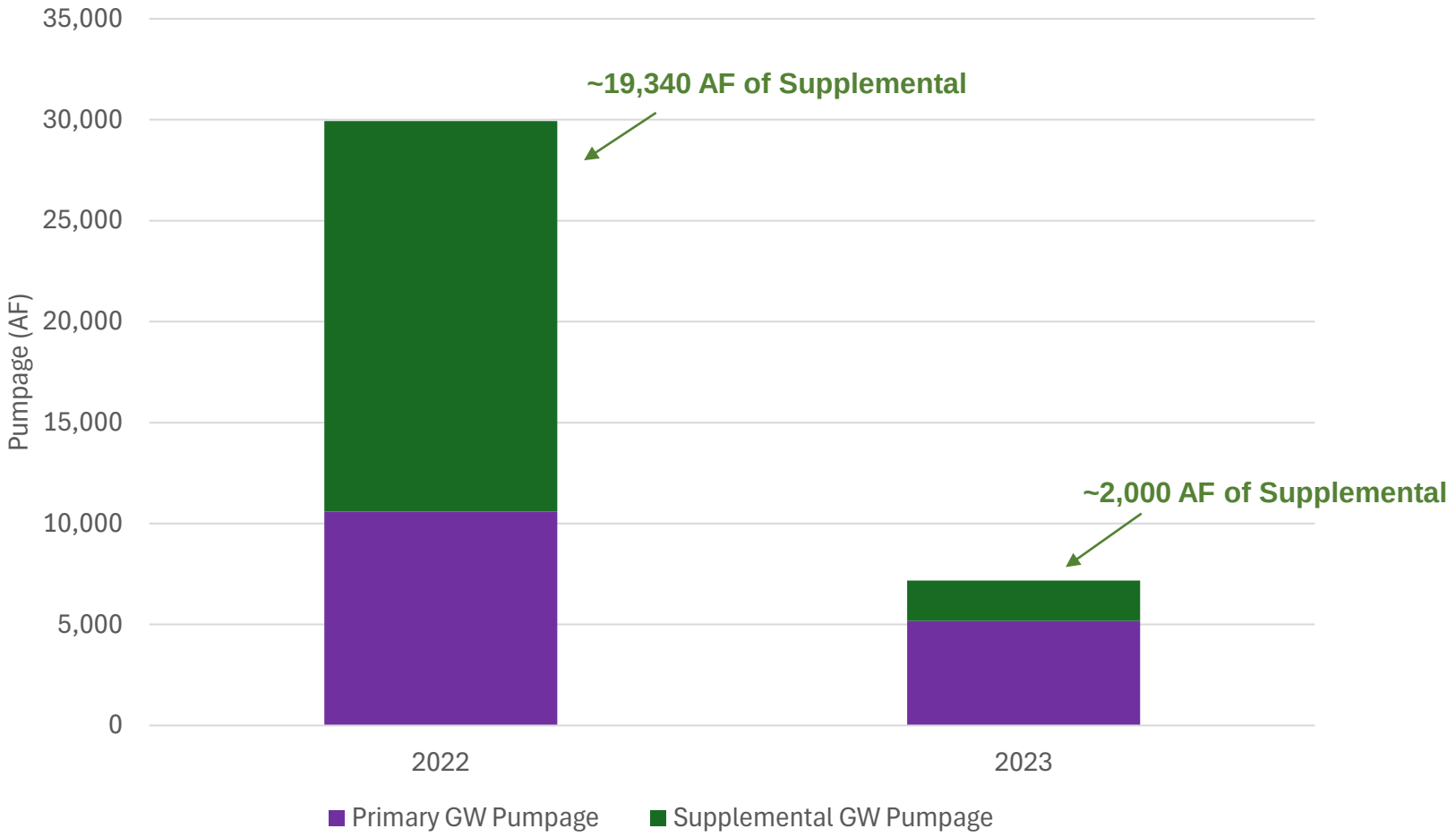
Smith Valley Total Pumpage (Minus Artesia)

Smith 2015 – 2021 Pumpage data had revisions. Goal is to always work towards the most accurate numbers.

2022 & 2023 pumpage data are provisional and subject to revision.

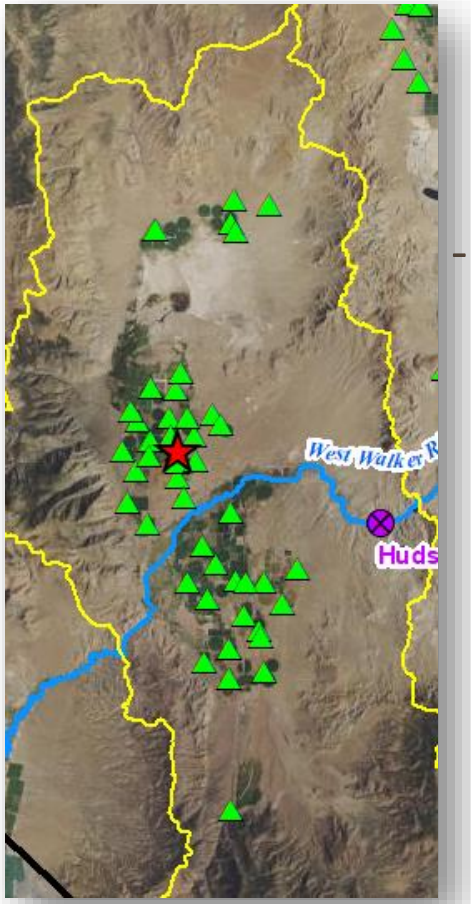


Smith Valley Supplemental Groundwater Use



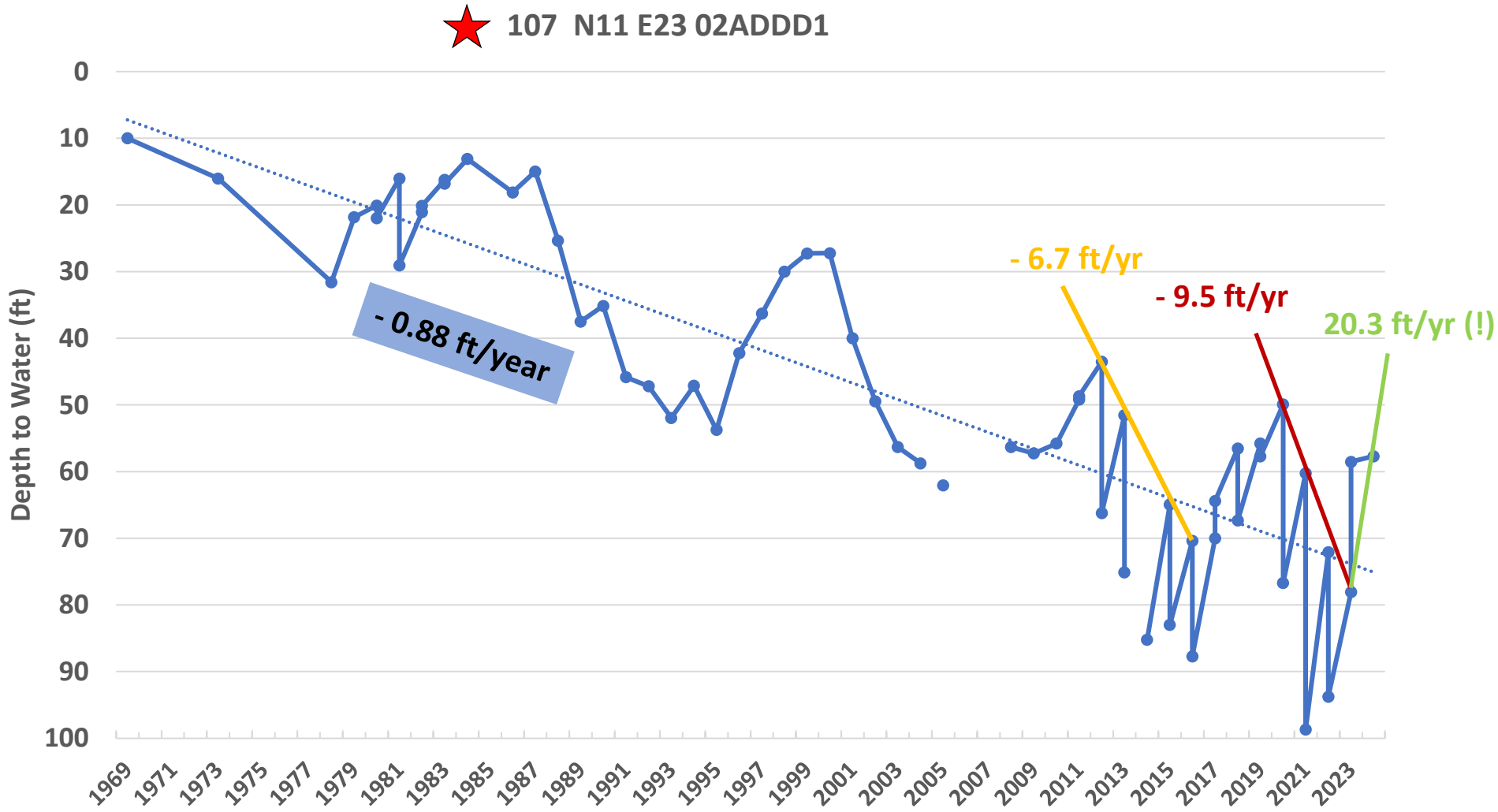
*Total pumpage includes pumpage by domestic wells and excludes pumpage in Artesia

SMITH VALLEY WATER LEVELS

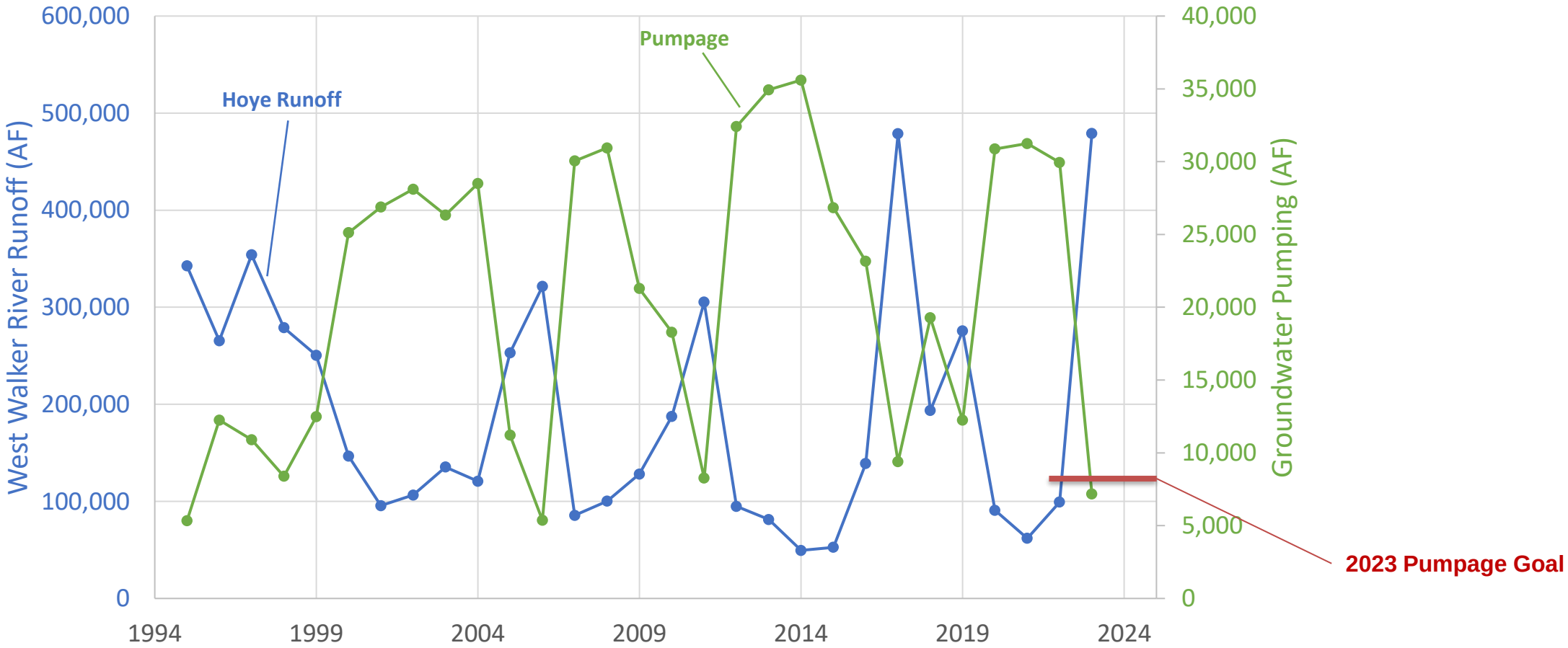


Average Smith Valley Water Level Changes (ft/yr)	
2012-16	-6.2 ☹
2020-23	-6.6 ☹
2023-24	14.3 😎

*Excludes Artesia

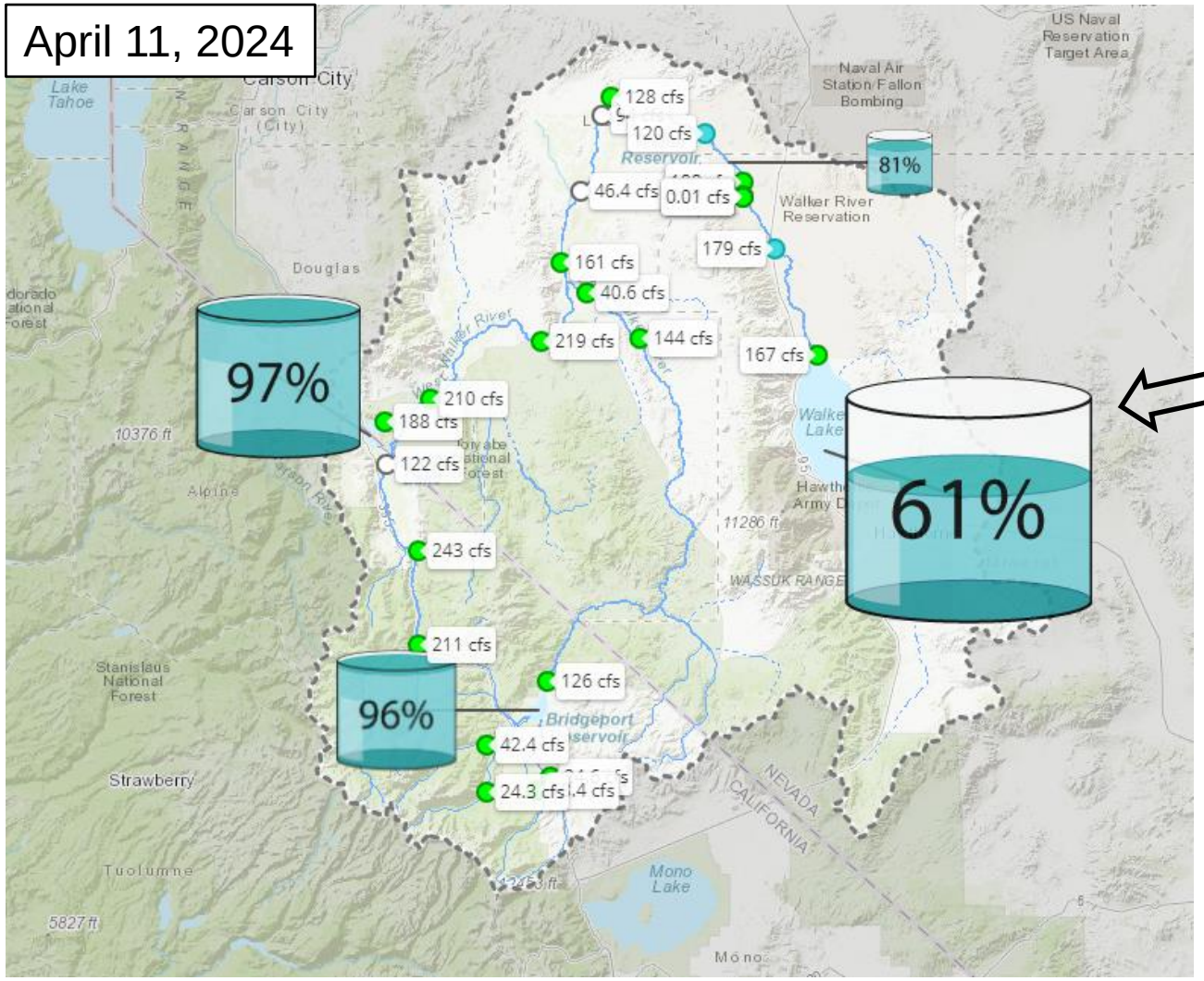


Walker River Streamflow vs. Smith Valley Pumping



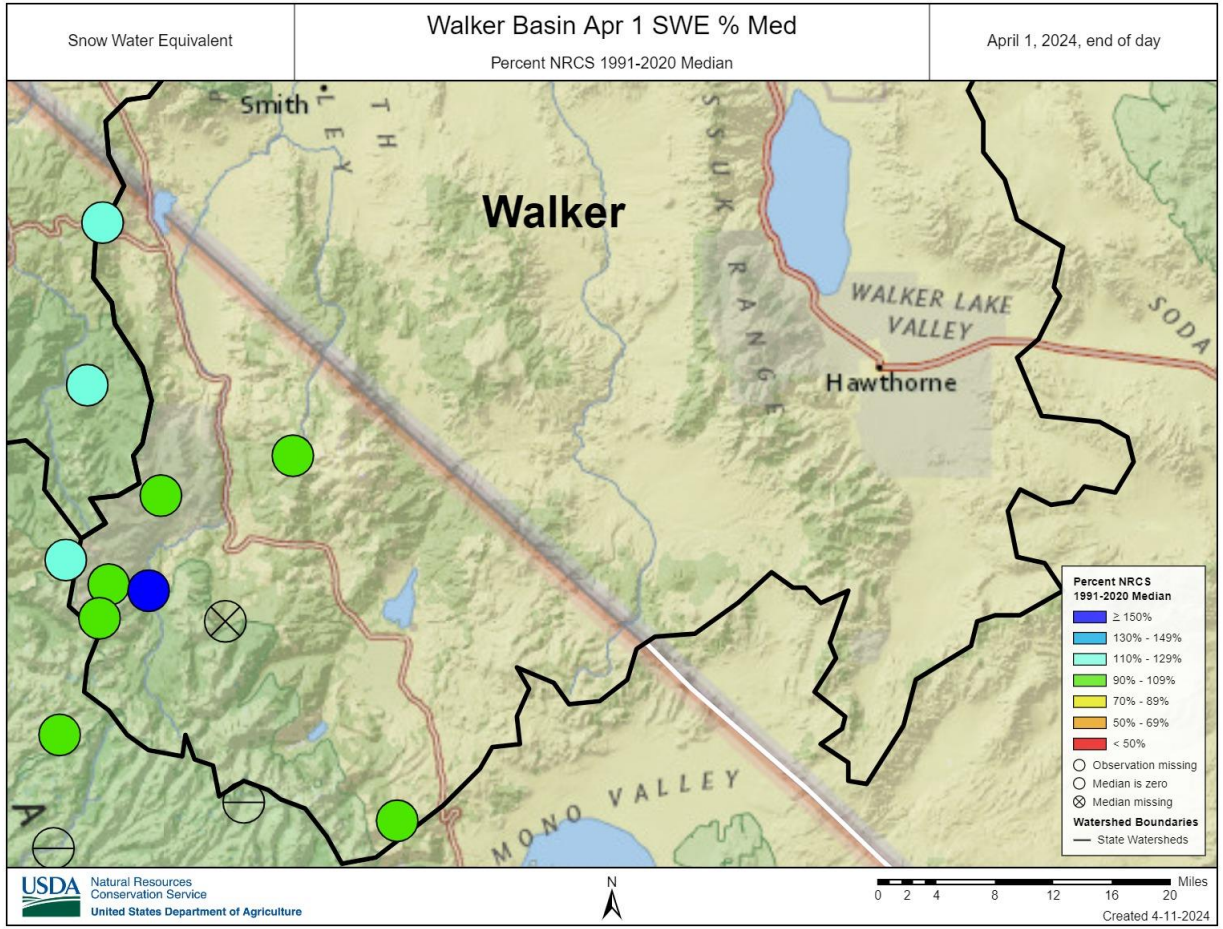
WATER SUPPLY OUTLOOK

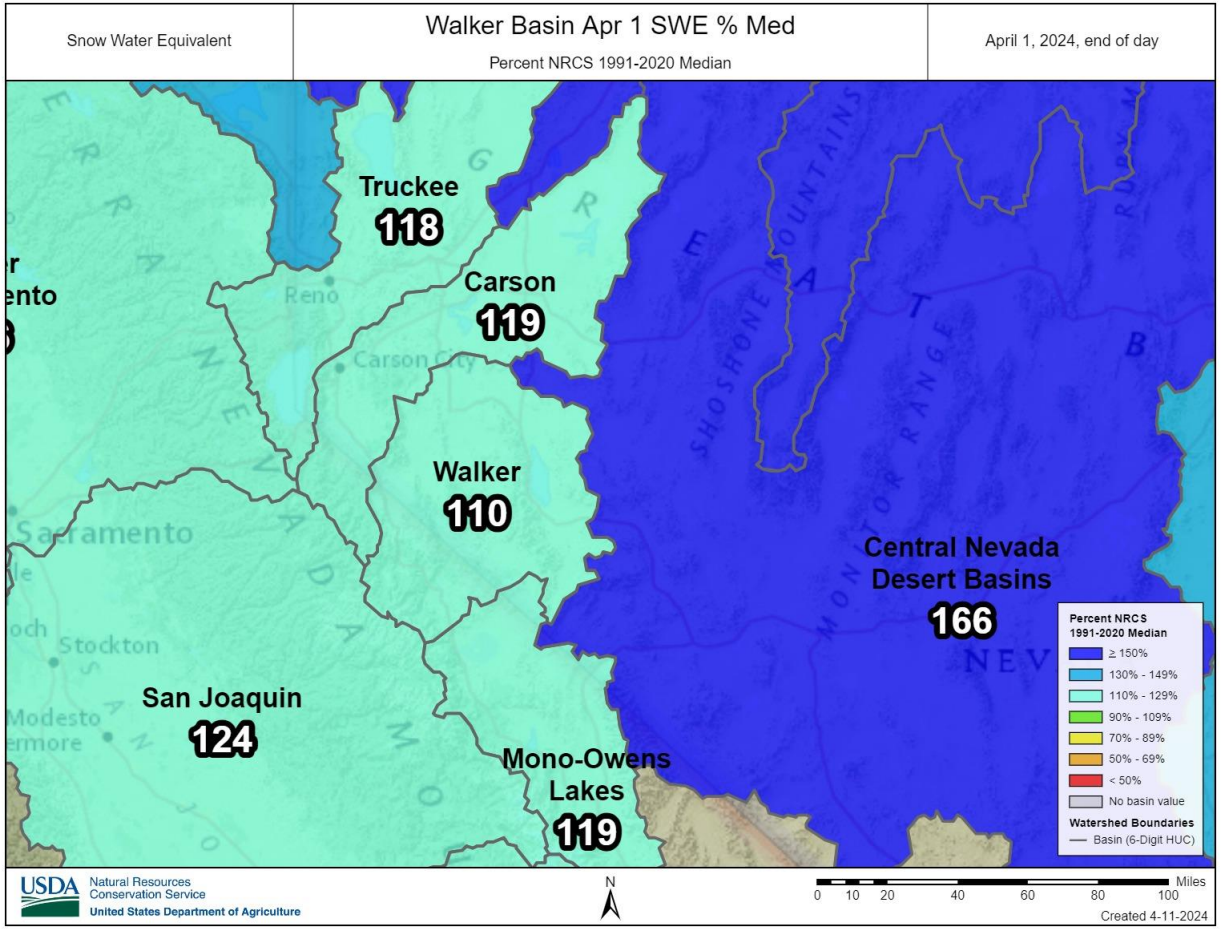
Reservoir Storage



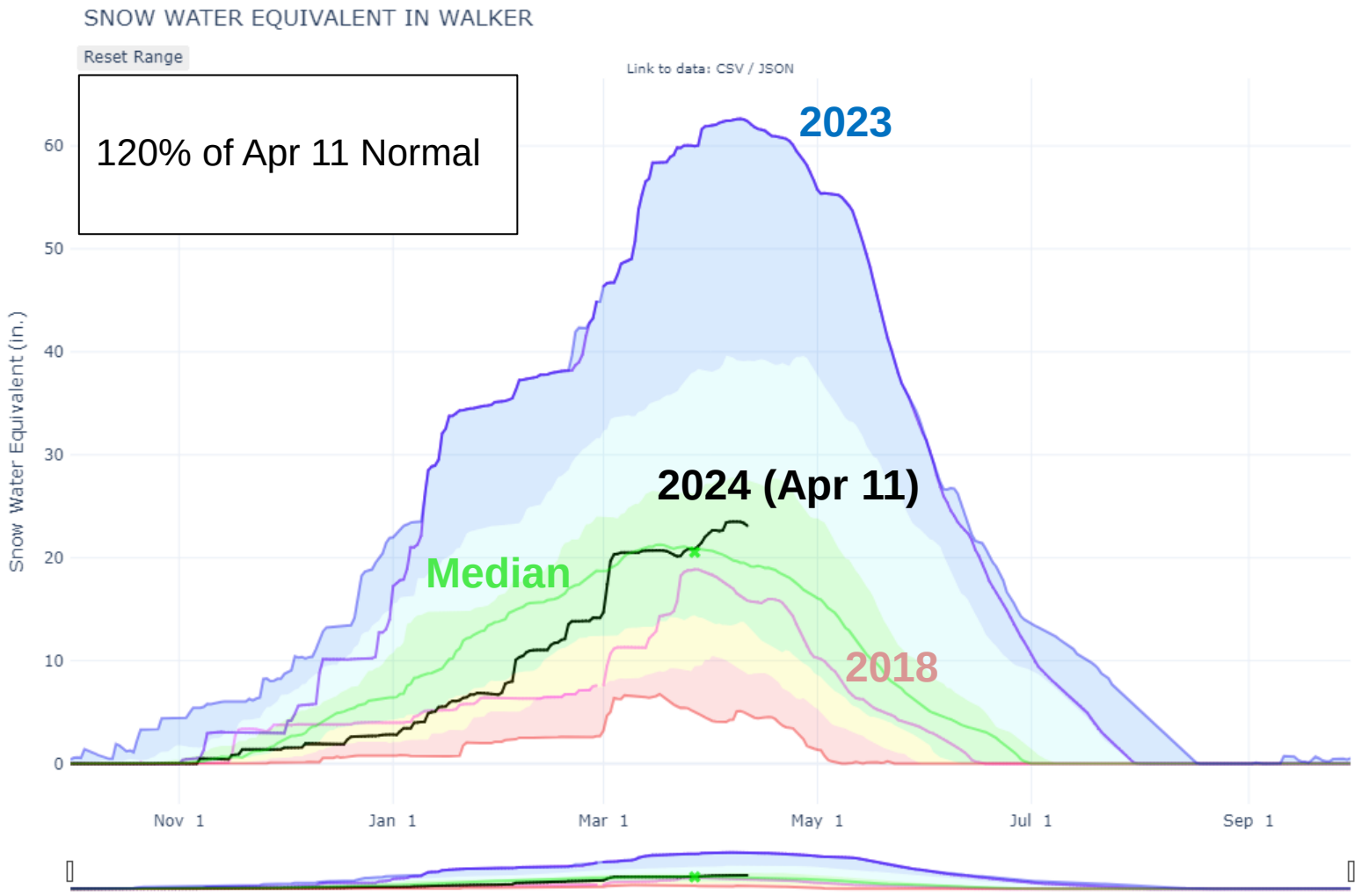
Up 17%

Snow Water Equivalent (SWE), % of April 1 median



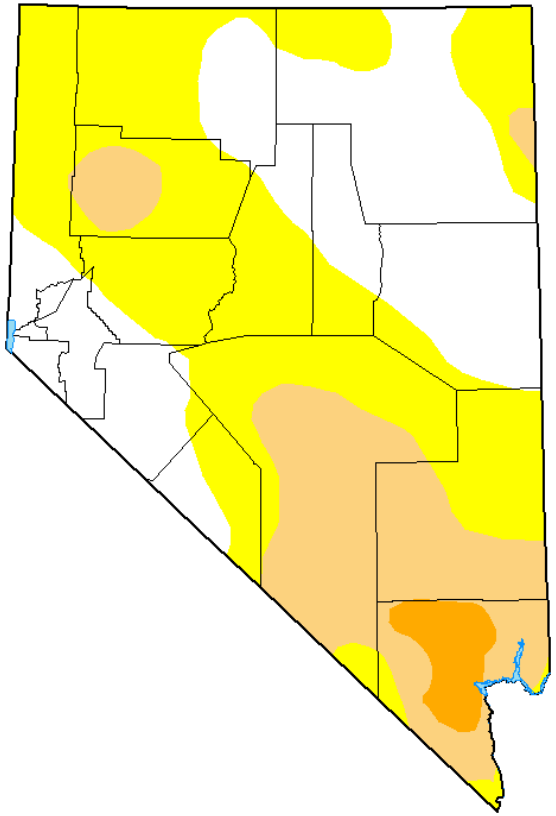


2024 Walker Snowpack (SWE)



U.S. Drought Monitor

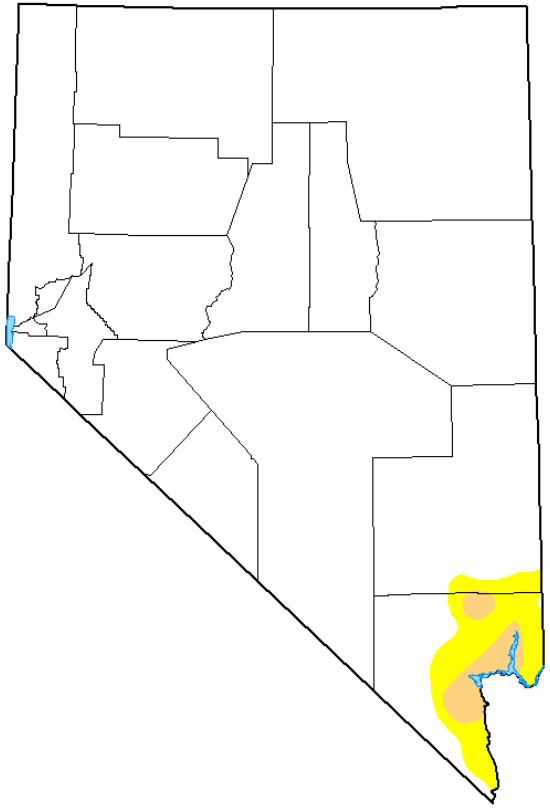
April 11, 2023



Intensity:

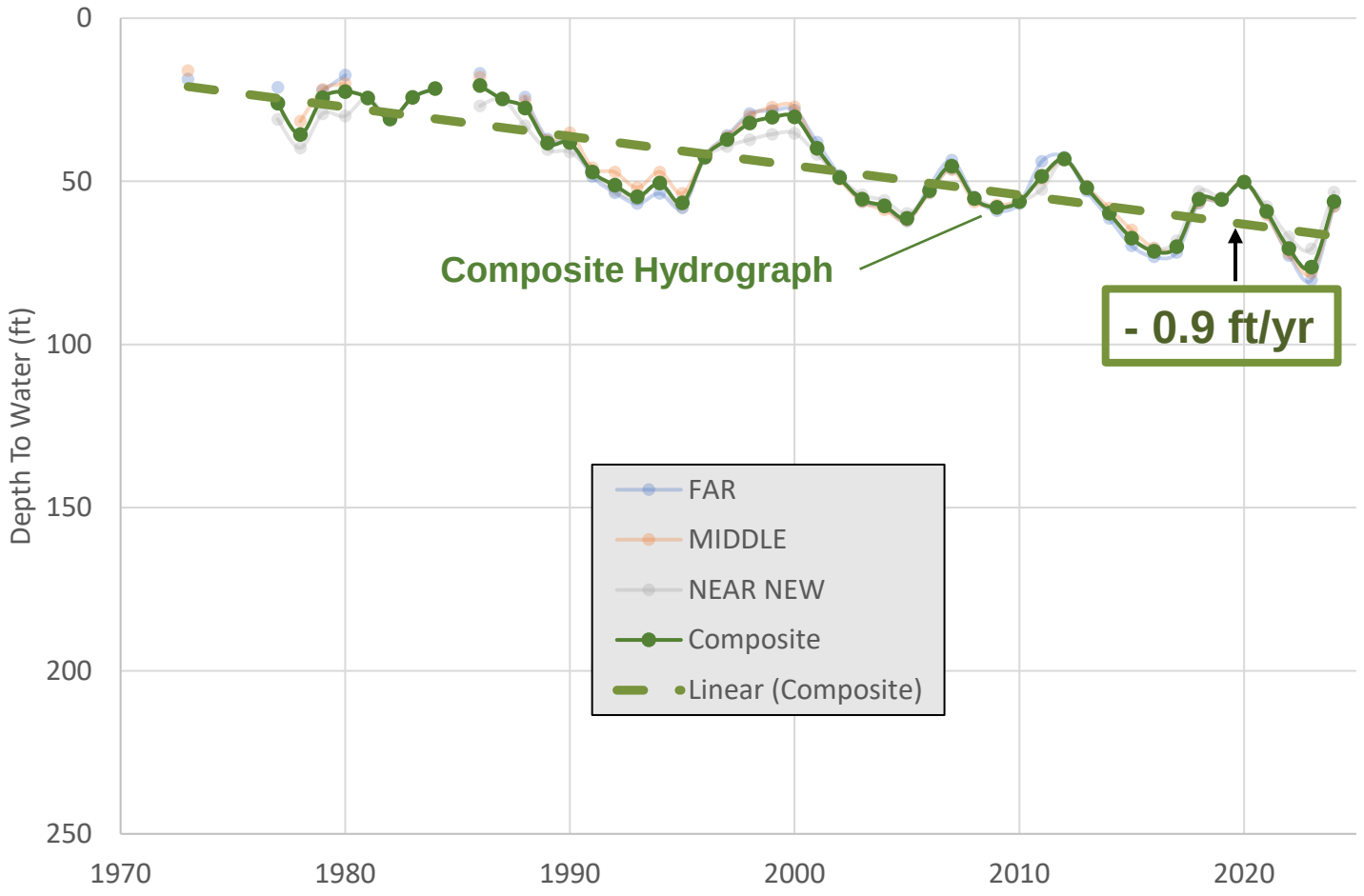
- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

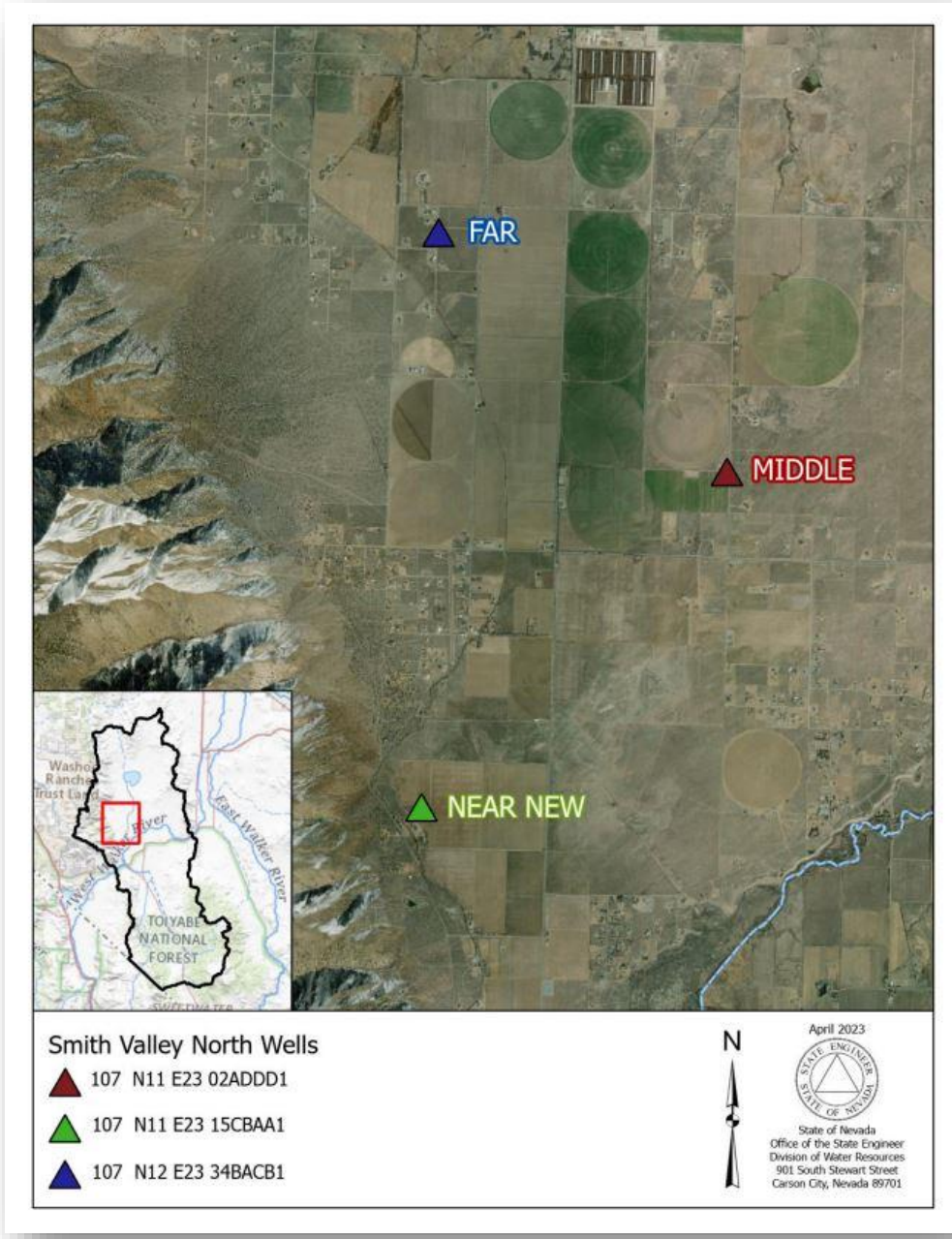
April 11, 2024



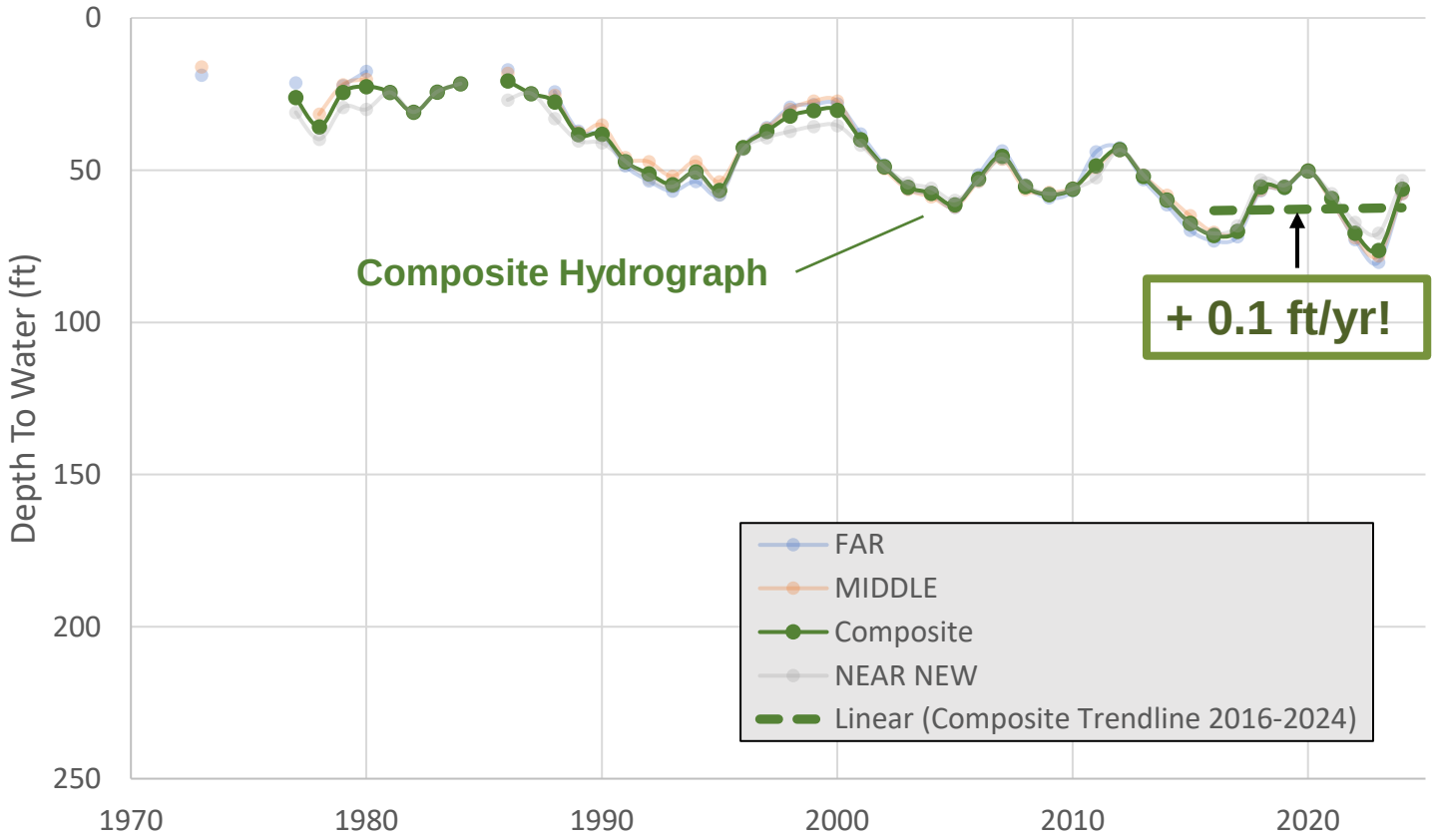
SUSTAINABLE PUMPING GOALS

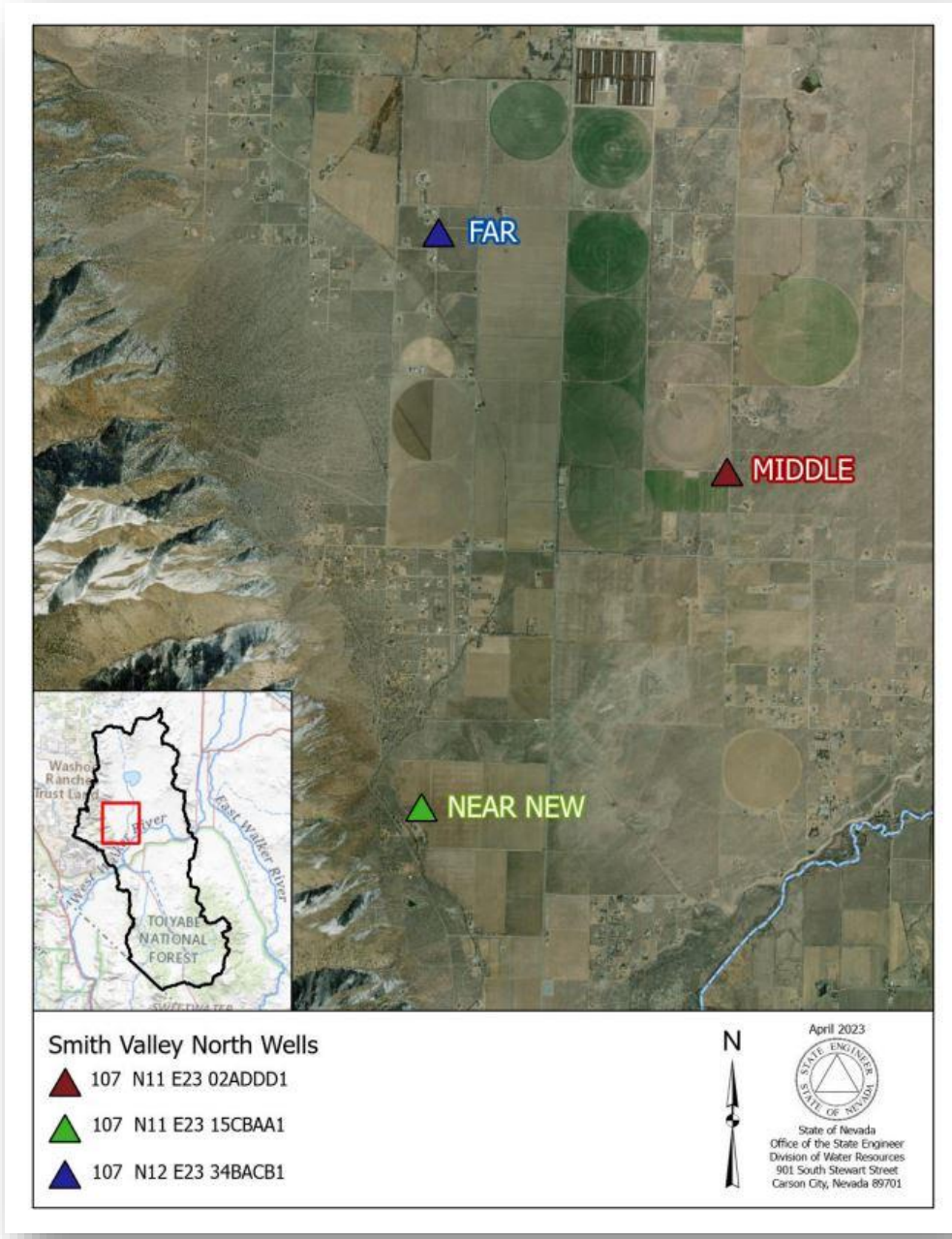
Northern Smith Valley
Spring 1973-2024



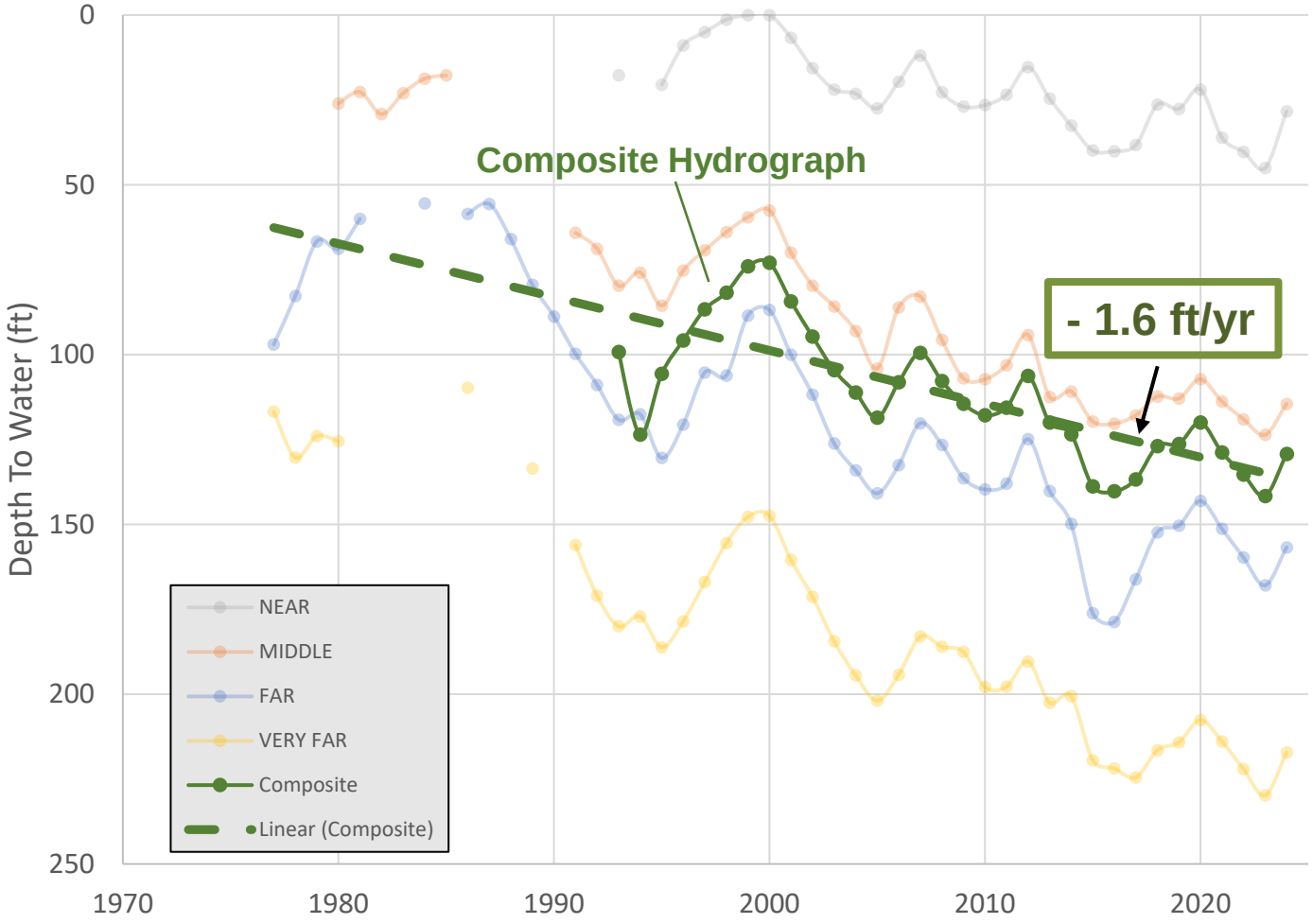


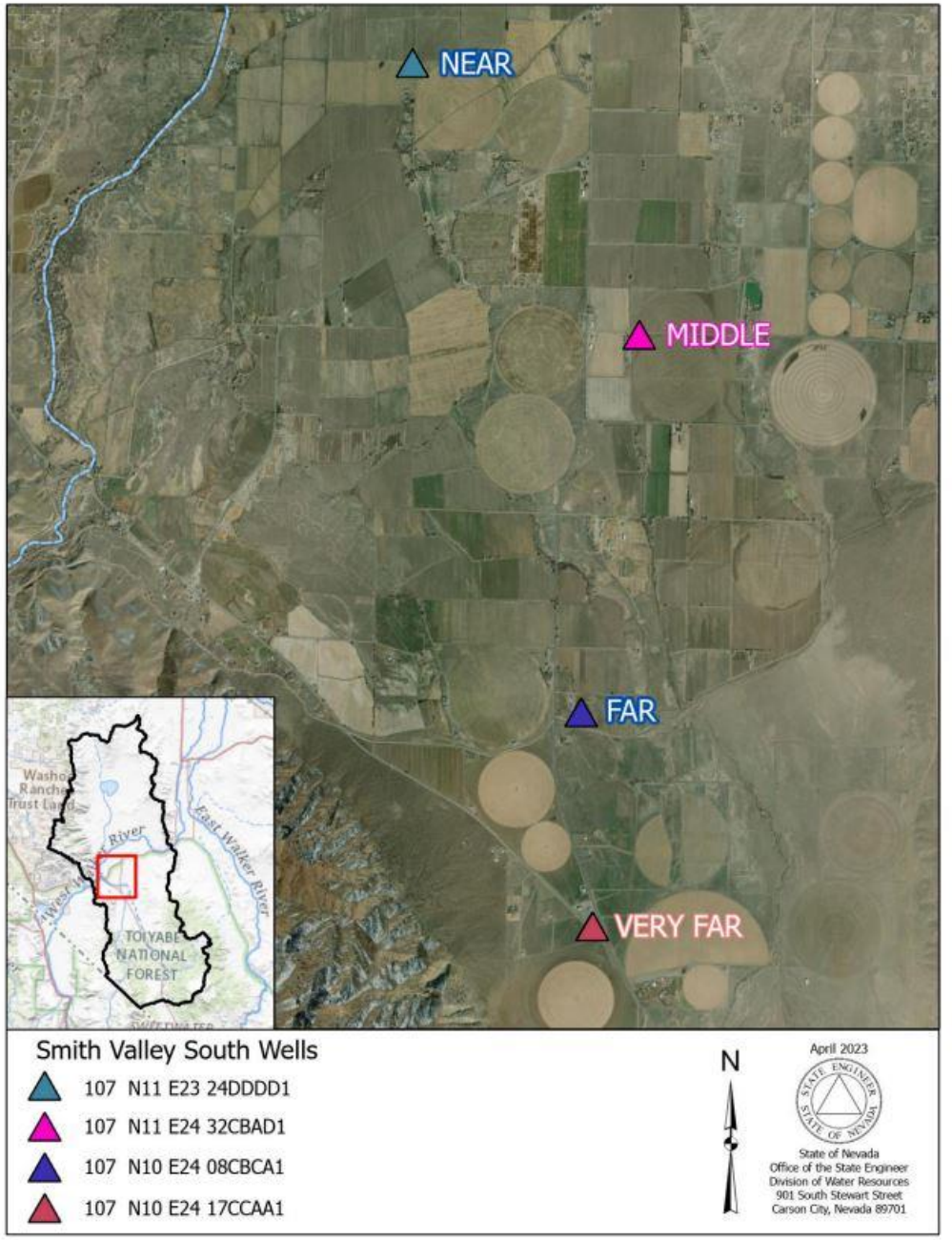
Northern Smith Valley
Spring 2016-2024



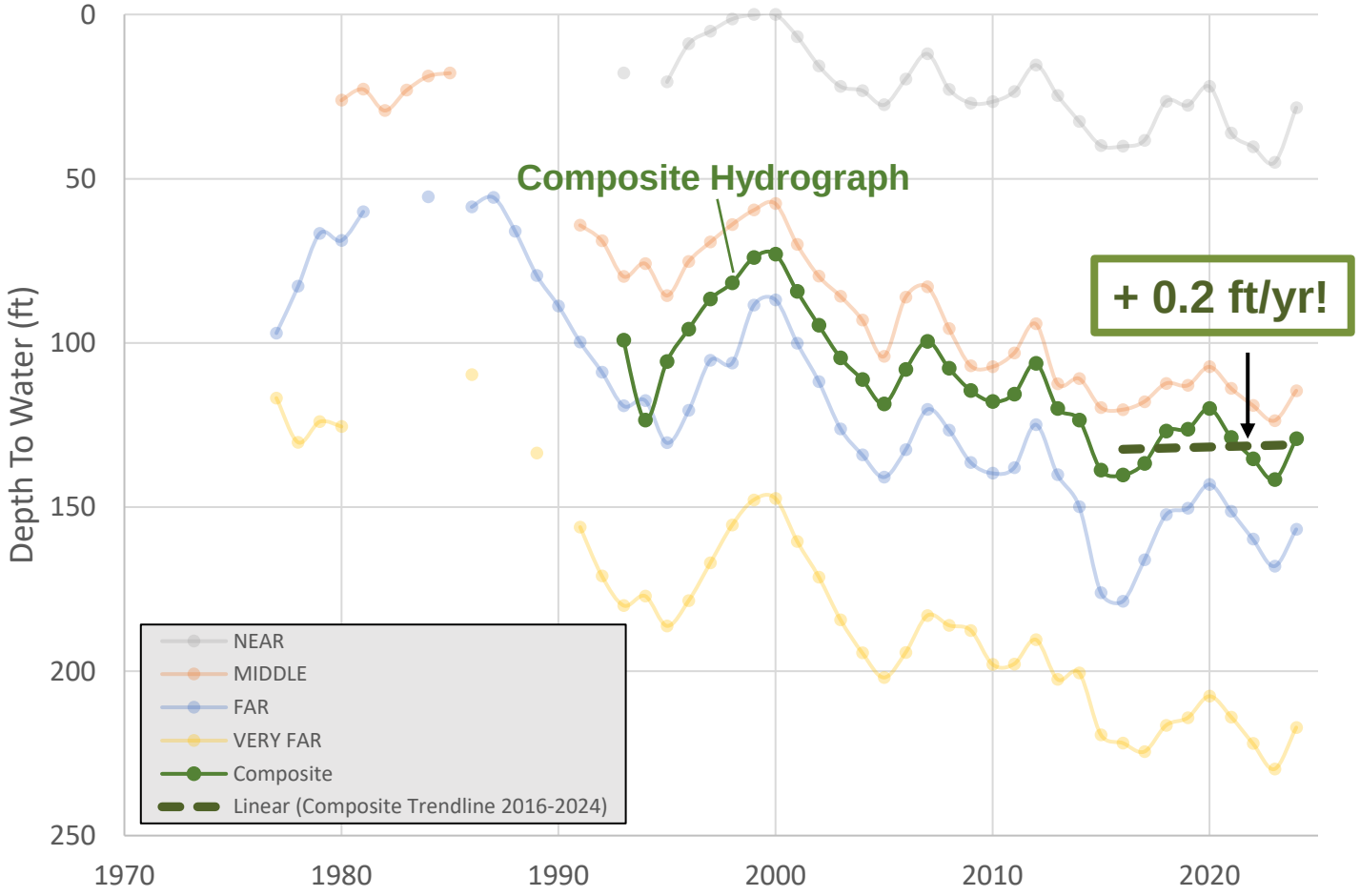


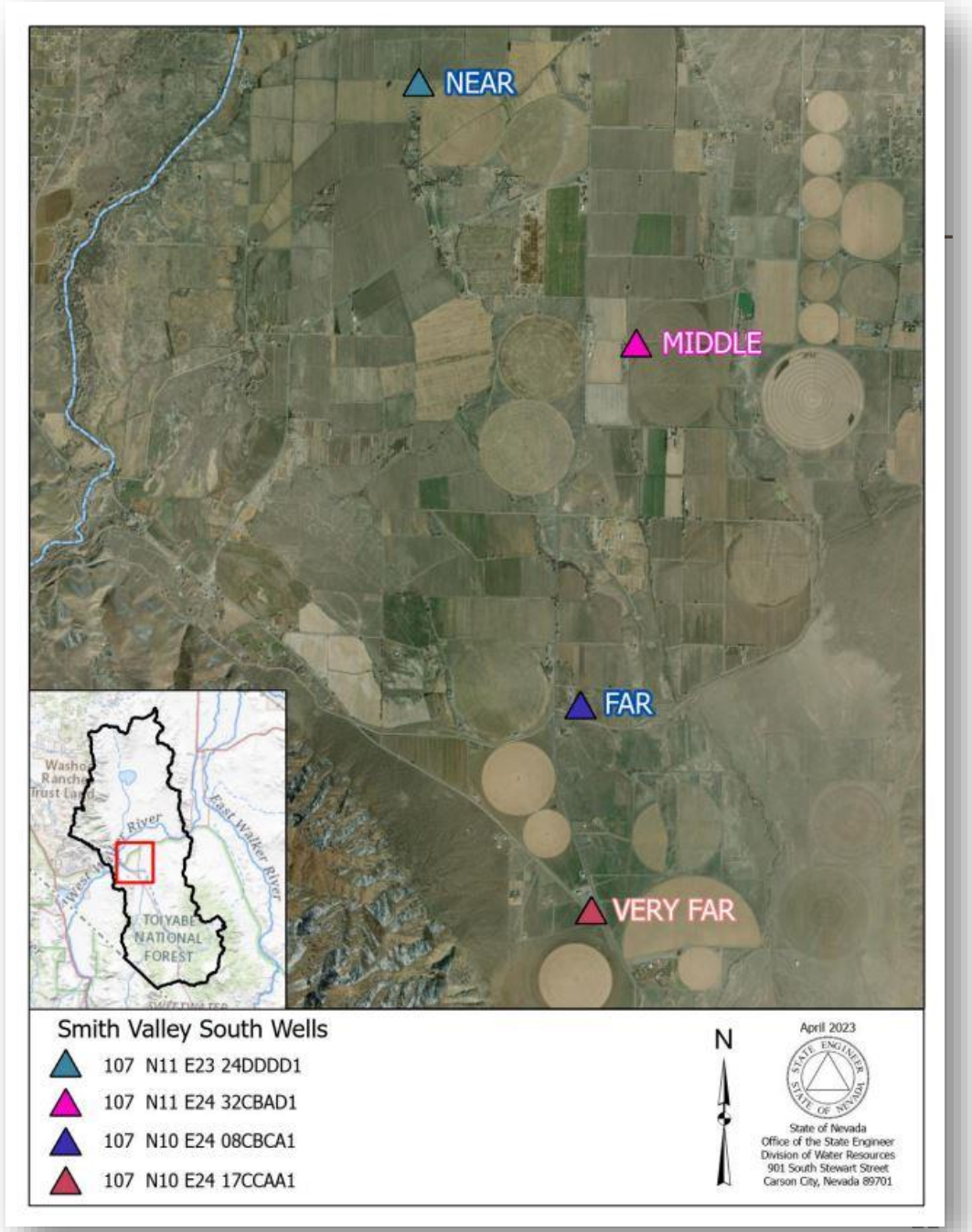
Southern Smith Valley Spring 1977-2024





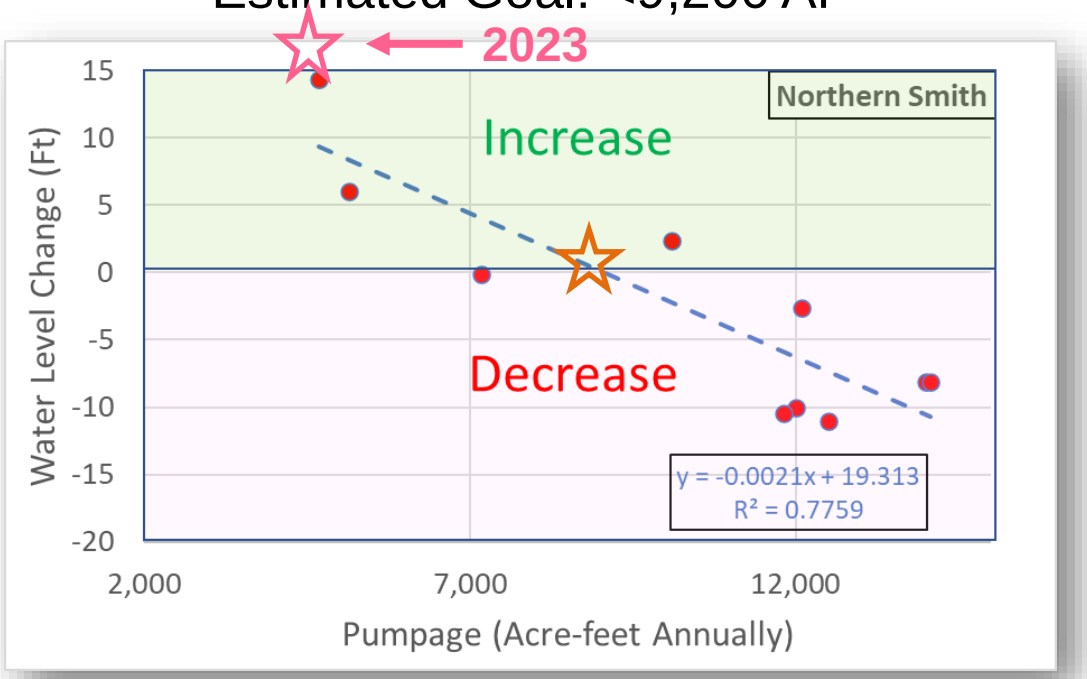
Southern Smith Valley 2016-2024



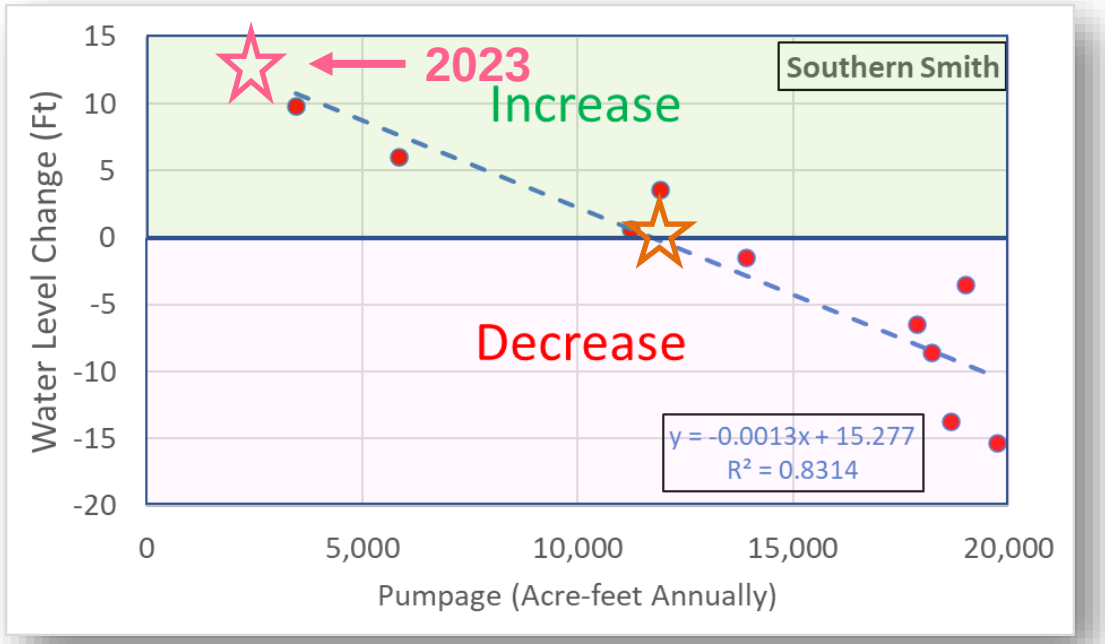


Smith Valley Pumping Vs. Water Level Change

Northern Smith*
2012-21 Average Pumping: 10,360 AF
Estimated Goal: <9,200 AF



Southern Smith
2012-21 Average Pumping: 13,980 AF
Estimated Goal: <11,800 AF



*Excludes Artesia

Total pumping reduction goal ≥ 3,400 AF/yr (average of 21,000 AF)

No water level change @ streamflow of ~ 169,000 AF (07-21 median = 100,000 AF)

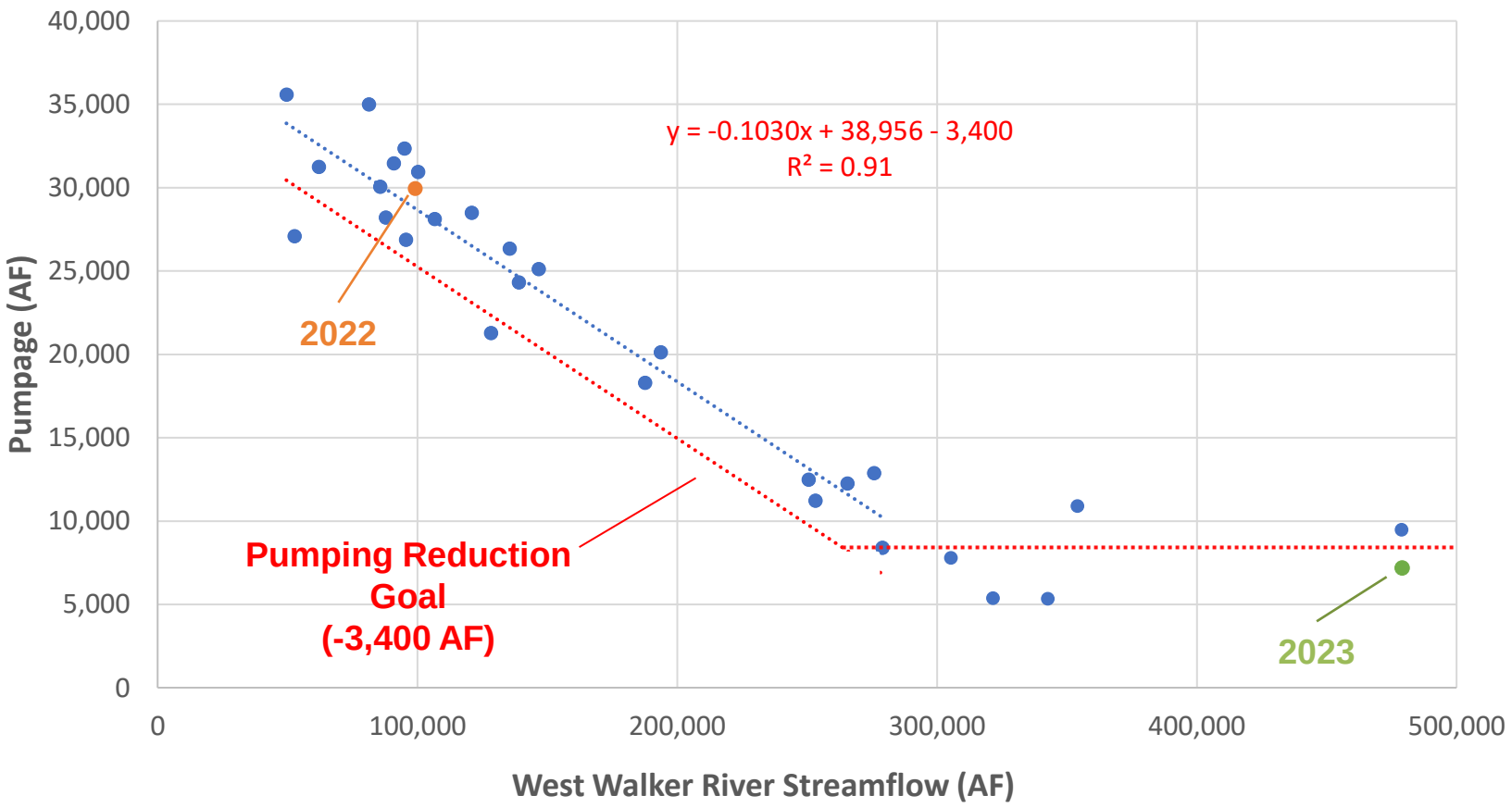
2024 PUMPING GOALS - EXPERIMENTAL

West Walker Streamflow* vs. Smith Valley Pumping

Regression updated.

Looking at big water years, pumping is nearly constant.

For annual inflows >262,000 acre-feet, establish pumping goal of 8,400 acre-feet



*Top 5 wettest years have been removed from regression; pumping doesn't include Artesia

Pumping Prediction (Apr 1) – Smith Valley

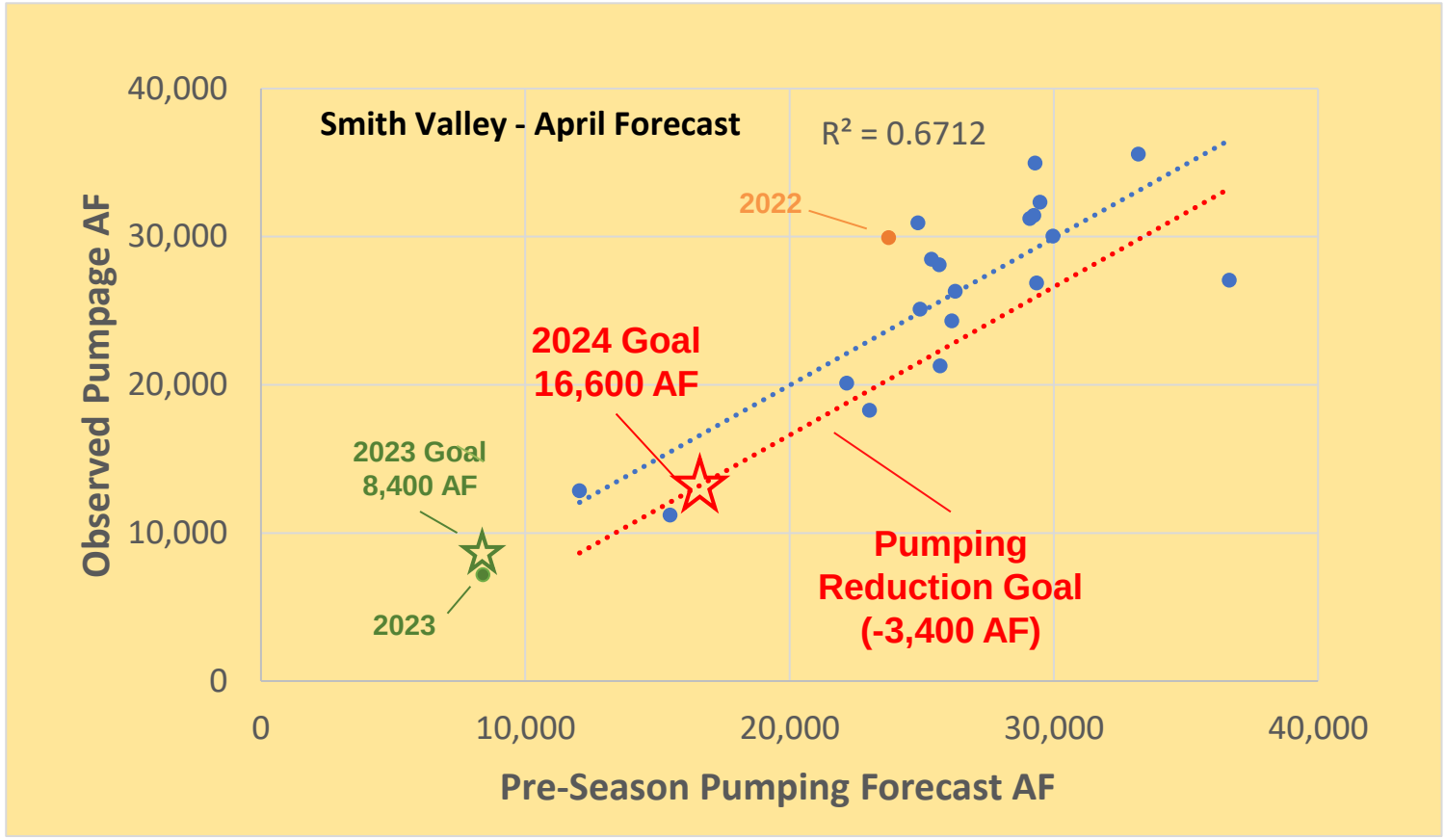
April Pre-Season Pumping Forecast = -0.117*(TP) -11,826*(SWE) + 39,760 - 3,400

March 1 Observations of:

TP = Topaz Storage

SWE = West Walker Basin
Snow Water Equivalent

Relation does not work for years with stream inflow >262,000 acre-feet.



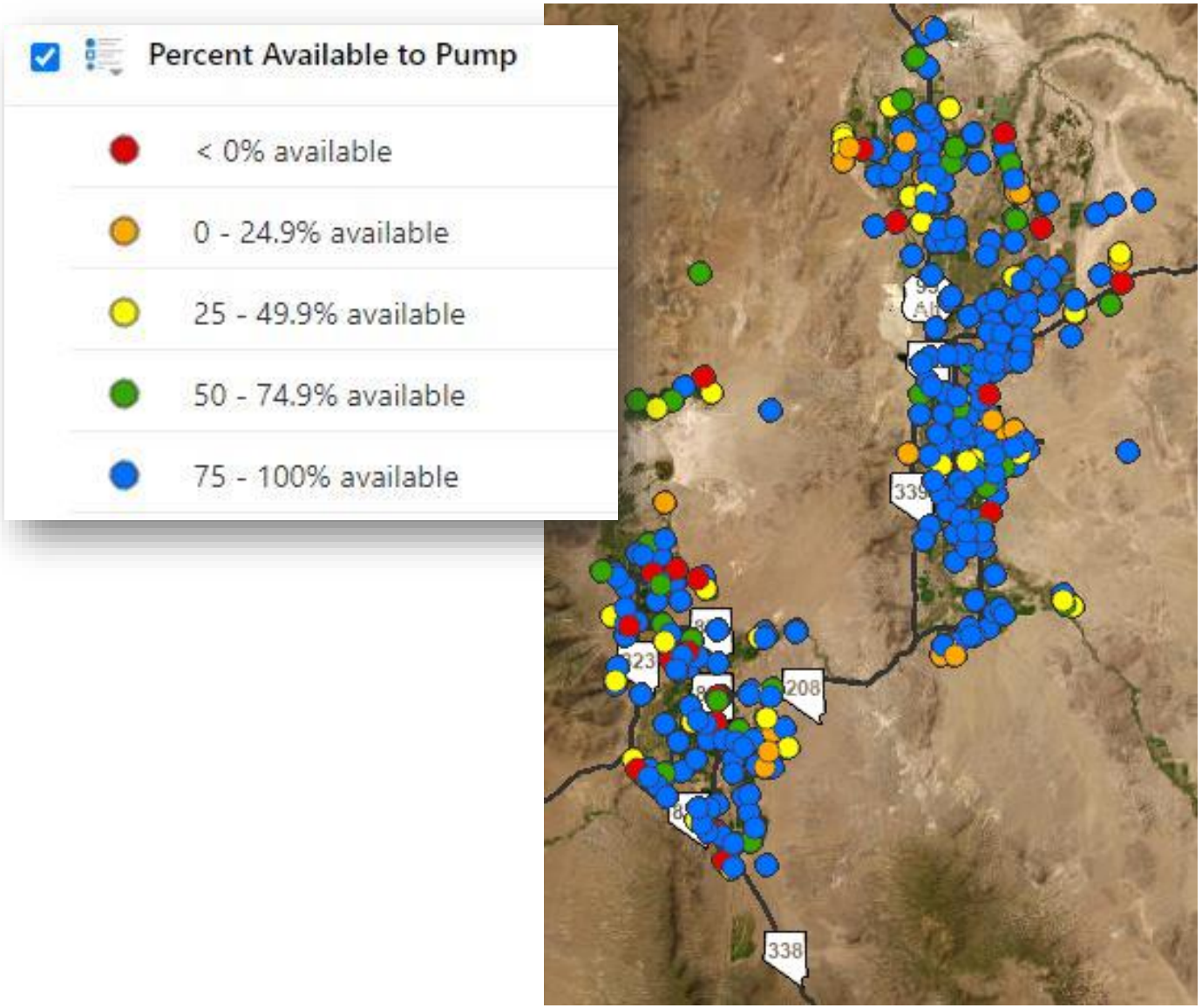
SUMMARY AND OUTLOOK

Mason / Smith Pumpage Map

- Wells color-coded by % of duty remaining to pump for the year
- Linked to the online Meters Database*

water.nv.gov -> Mapping & Data -> Mapping Application Links -> *Mason and Smith Valley Groundwater Pumping Availability*

*All Smith/Mason water users > 5AF must report monthly meter readings at: *meters.water.nv.gov*



Future Consideration: WBC Water Right Retirements

- Walker Basin Conservancy (WBC) administering Ground Water Retirement program for Walker River Basin.
- The goal of the program is to fund the purchasing and permanent retirement of groundwater rights from willing sellers in over-appropriated groundwater basins.
- WBC is looking at purchasing around 1,400 – 2,500 AF of groundwater rights (primary and supplemental) – mostly from Smith Valley before the end of 2024.
- Depending on success of the program and ‘wetness’ of water rights being purchased, may help Smith Valley toward achieving reduction in annual pumpage goal.

Summary for 2023 season

- 2023 pumping much less than 2022.
- Pumpage goals met in both Smith and Mason Valleys.
- Reduced pumping and a record-setting water year* facilitated significant basin-wide increases in groundwater levels.
- Long-term hydrographs still show declining trends, but recent period (2016 – 2023) has increasing trends.

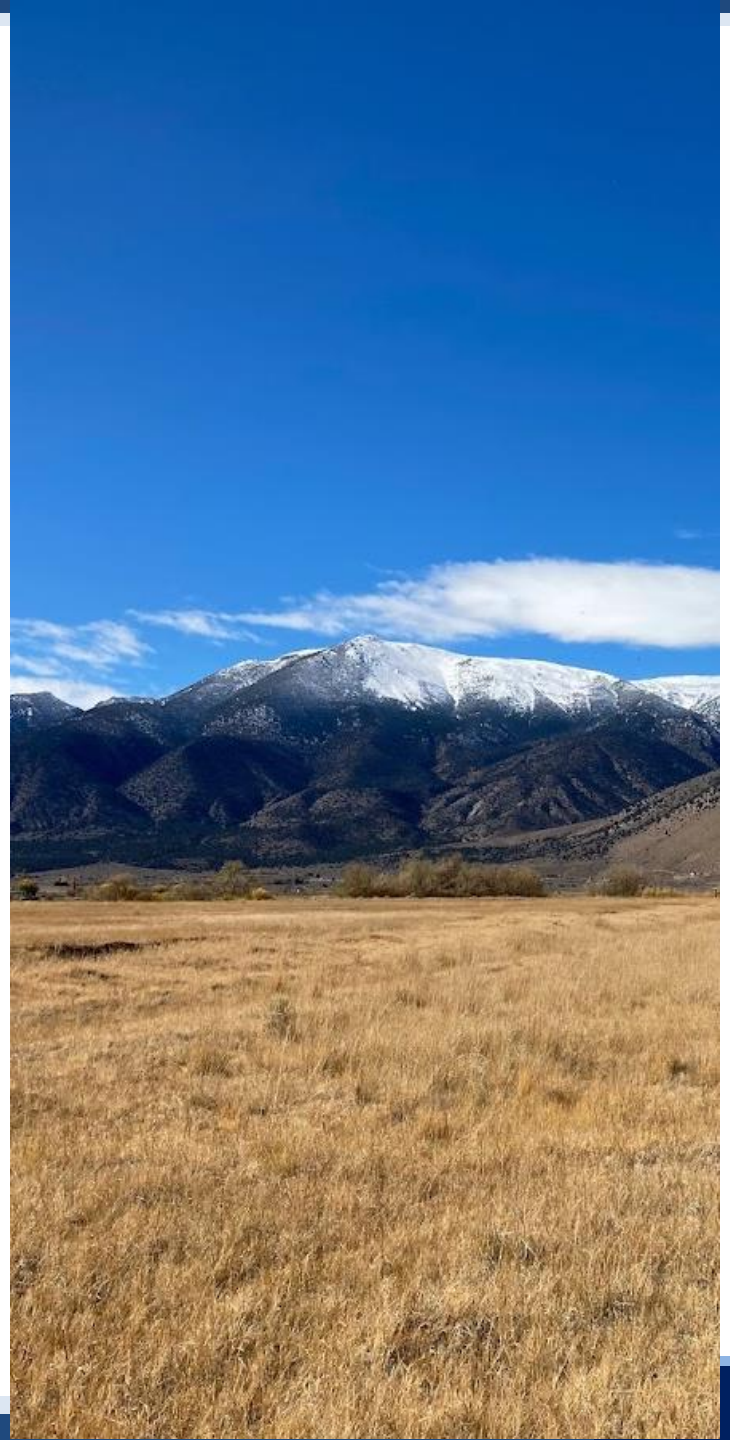
* 2023 and 2017 were very substantial runoff years. The likelihood of recurrence for these are very low.

Outlook for 2024 season

- The 2024 water year is slightly above normal and may be similar to 2018 with respect to water deliveries.
- More supplemental pumping will be needed than last year, but should still be toward the lower end of historical data.
- Use surface water whenever it is available to you first – then can use supplemental.
- Voluntary pumping reductions are still needed to help reduce long-term average.

- **2024 pumpage goal for Smith Valley is < 17,000 AF.**

Questions?



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