



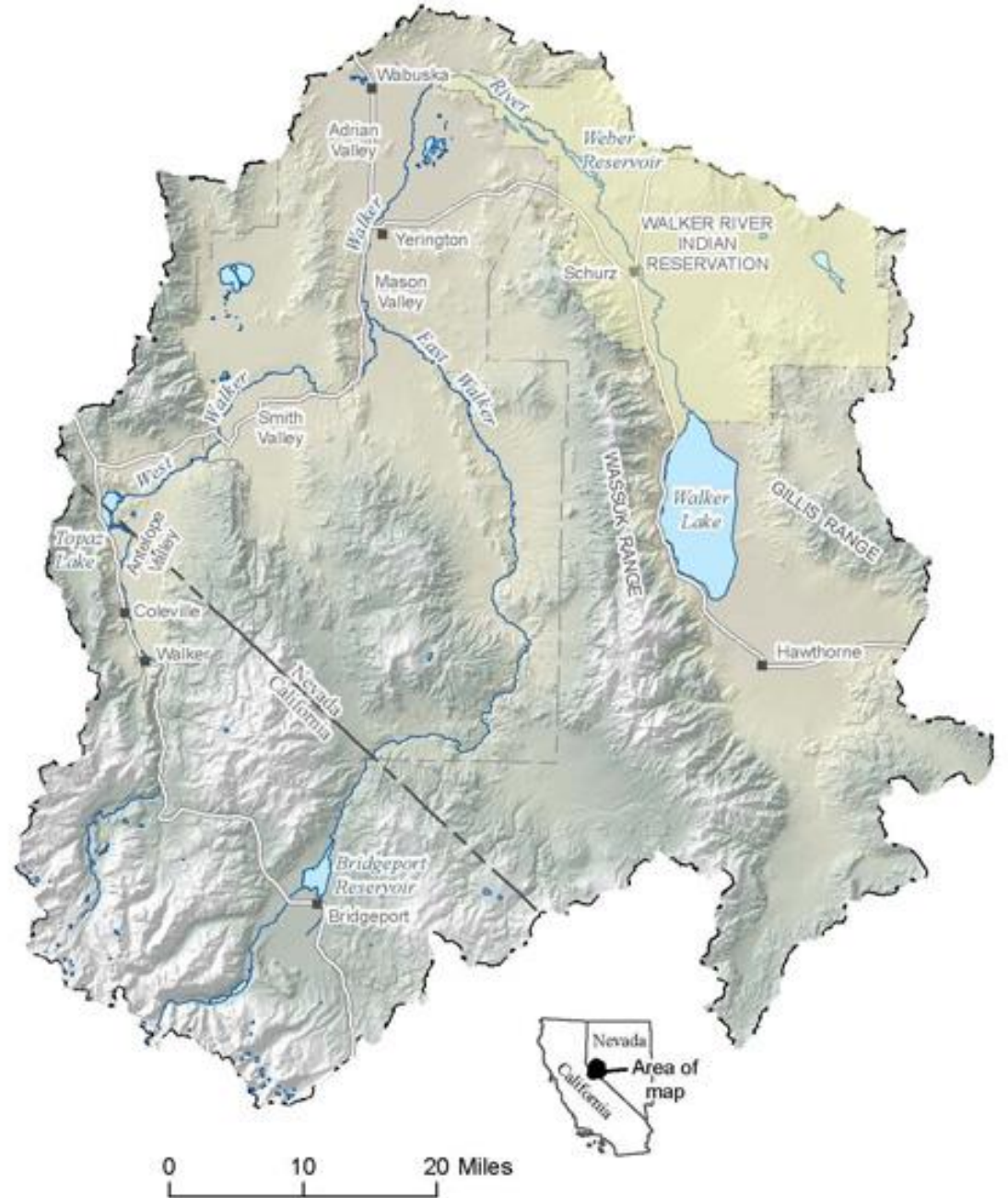
NEVADA DIVISION OF
WATER RESOURCES



Groundwater Management for Smith Valley: 2023 Review and 2024 Goals

April 17, 2024

Presented by:
Lauren Bartels and Kip Allander
Nevada Division of Water Resources



OVERVIEW

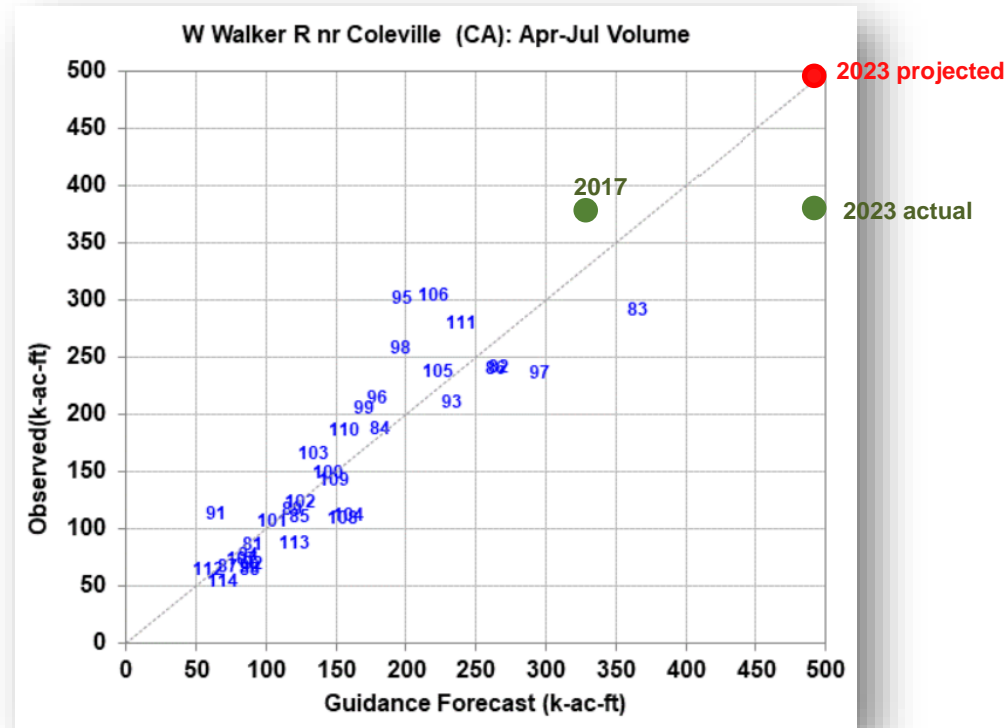
- Recap of 2023 runoff
- Pumping and water levels for 2023
- Current water supply conditions
- Sustainable pumping goals
- Pumping goals for 2024
- Summary and Outlook



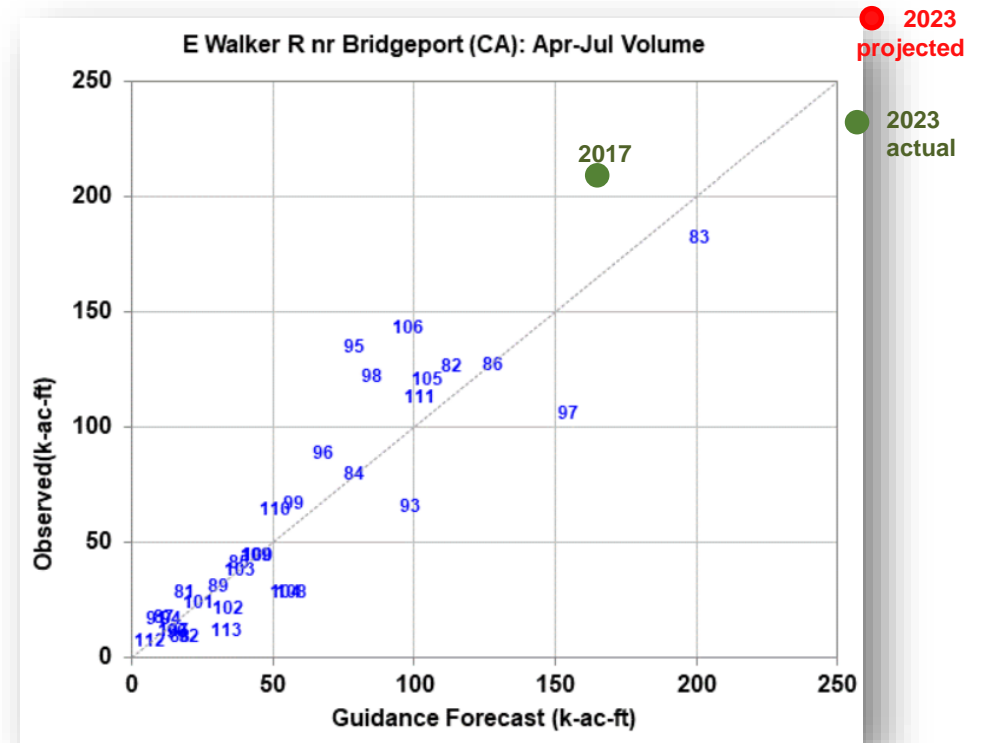
RECAP OF 2023 RUNOFF SEASON

NRCS **PROJECTED** RUNOFF FOR APRIL THROUGH JULY (AS OF MAR 23, 2023) COMPARED WITH **ACTUAL**

West Walker River



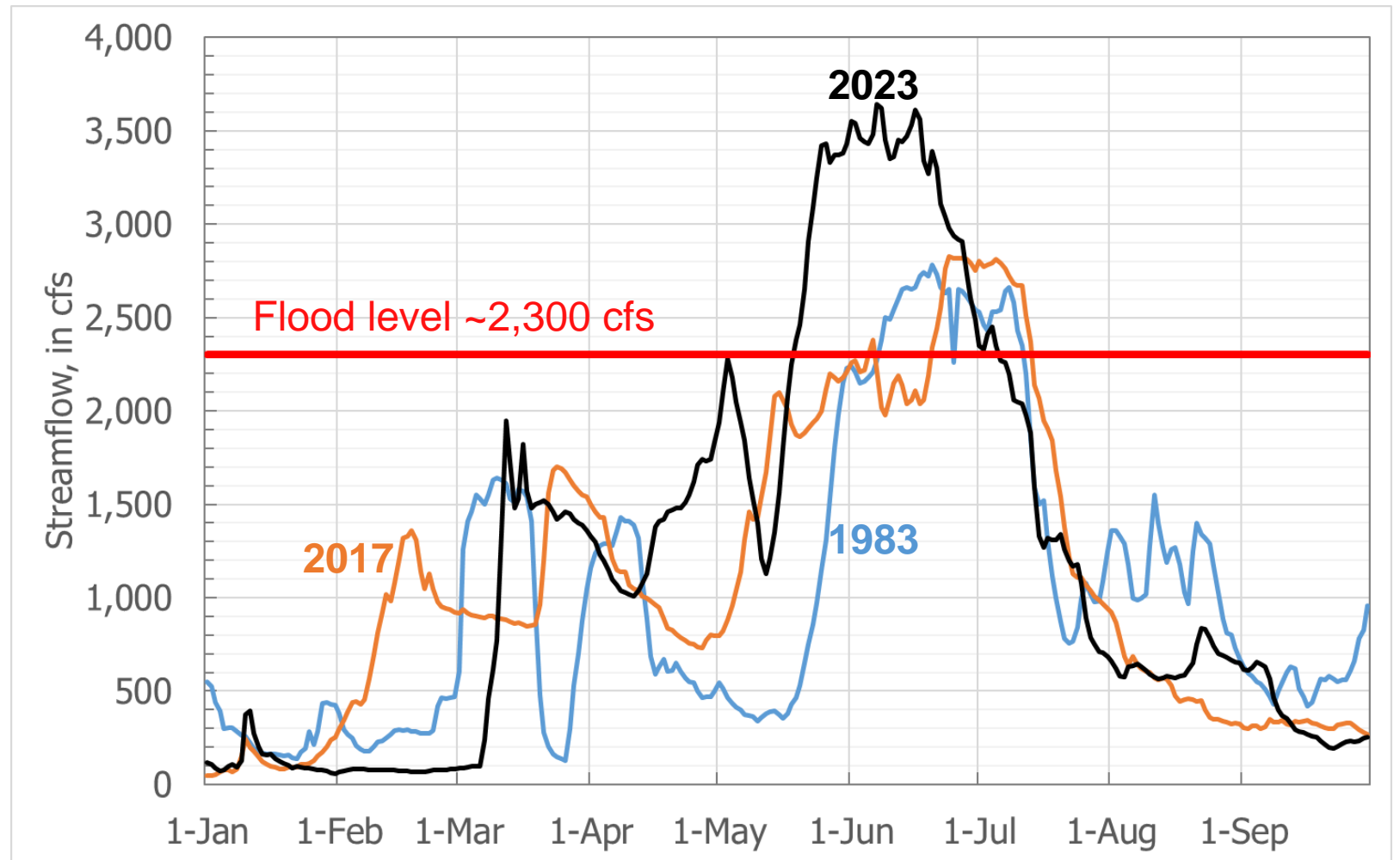
East Walker River



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

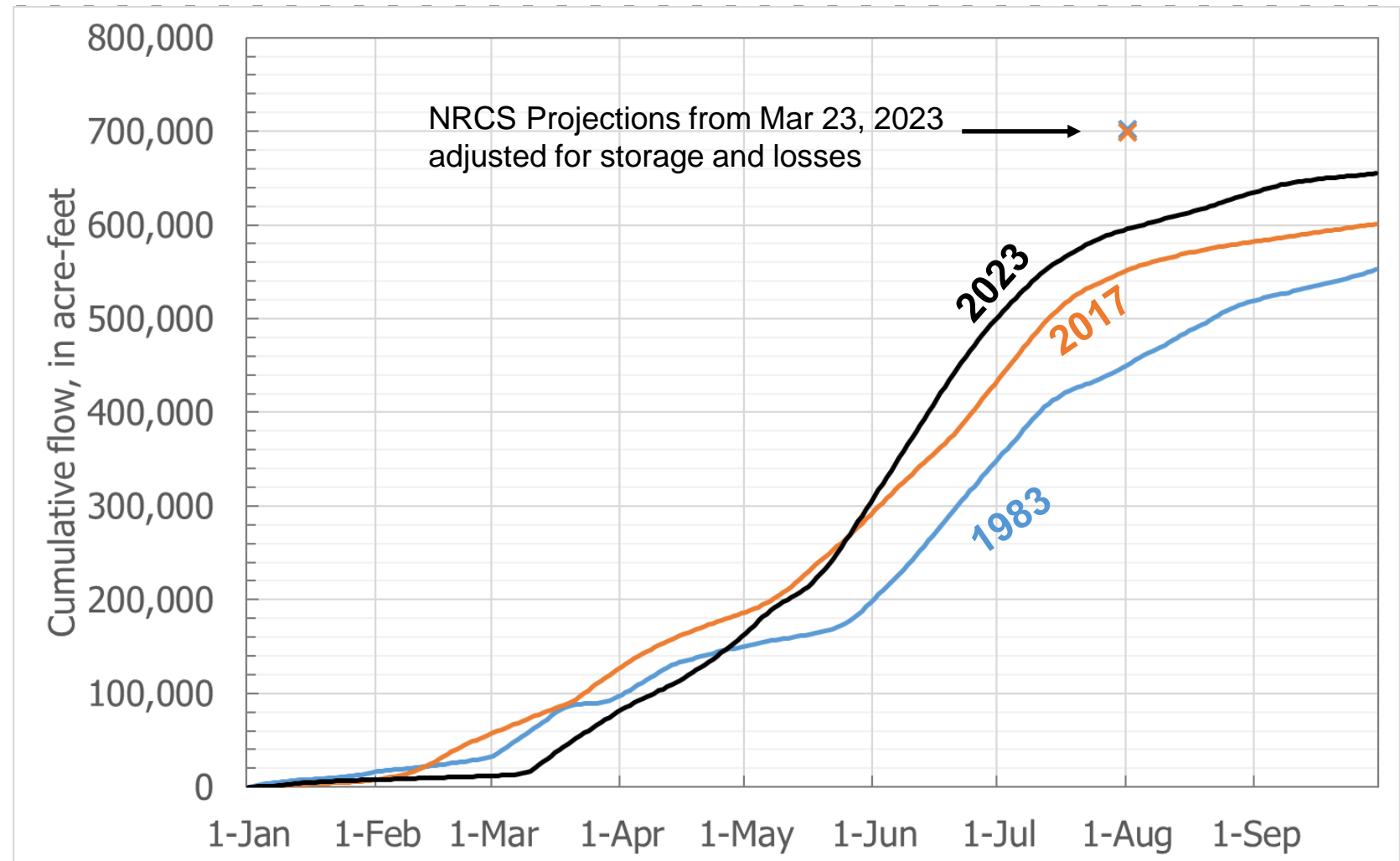
HYDROGRAPHS FOR WALKER RIVER AT SNYDER LANE NR MASON – WHAT ACTUALLY HAPPENED LAST YEAR

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.

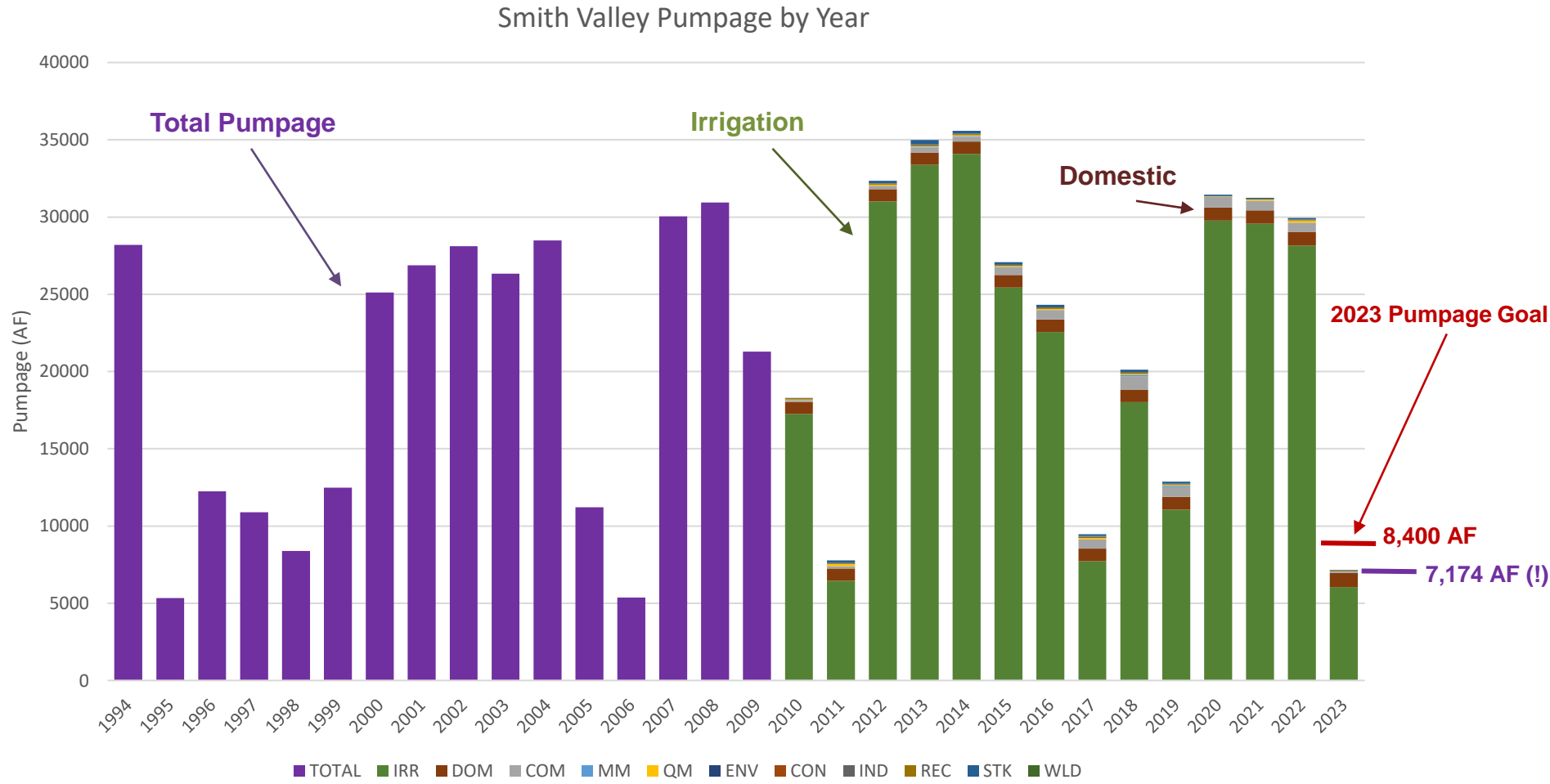


2023 PUMPING AND WATER LEVEL REVIEW

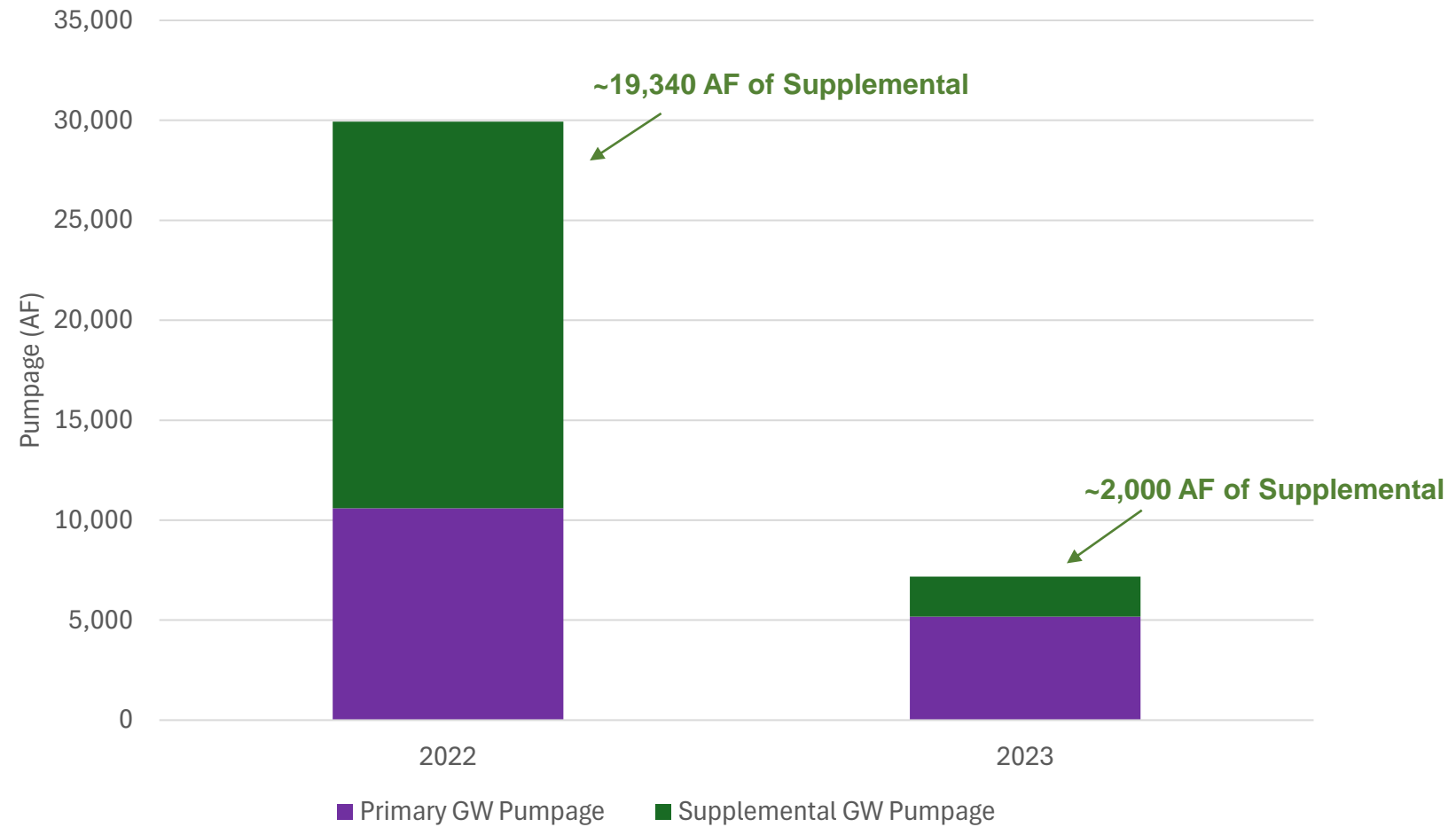
SMITH VALLEY TOTAL PUMPAGE (MINUS ARTESIA)

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.

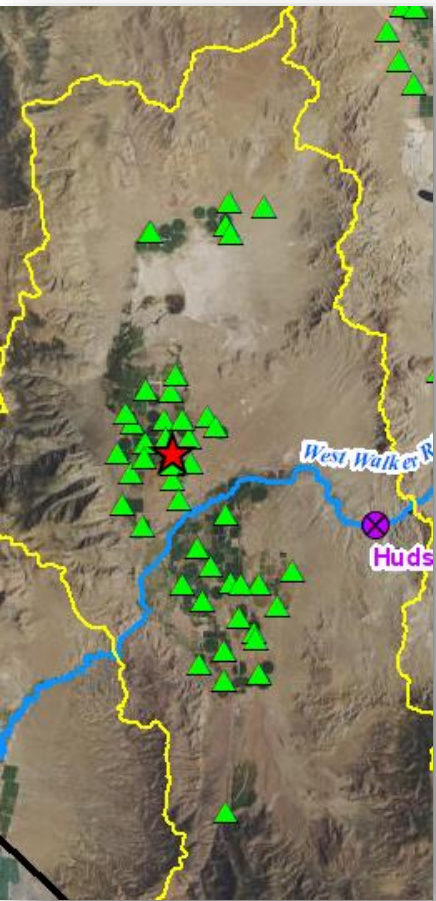


SMITH VALLEY SUPPLEMENTAL GROUNDWATER USE

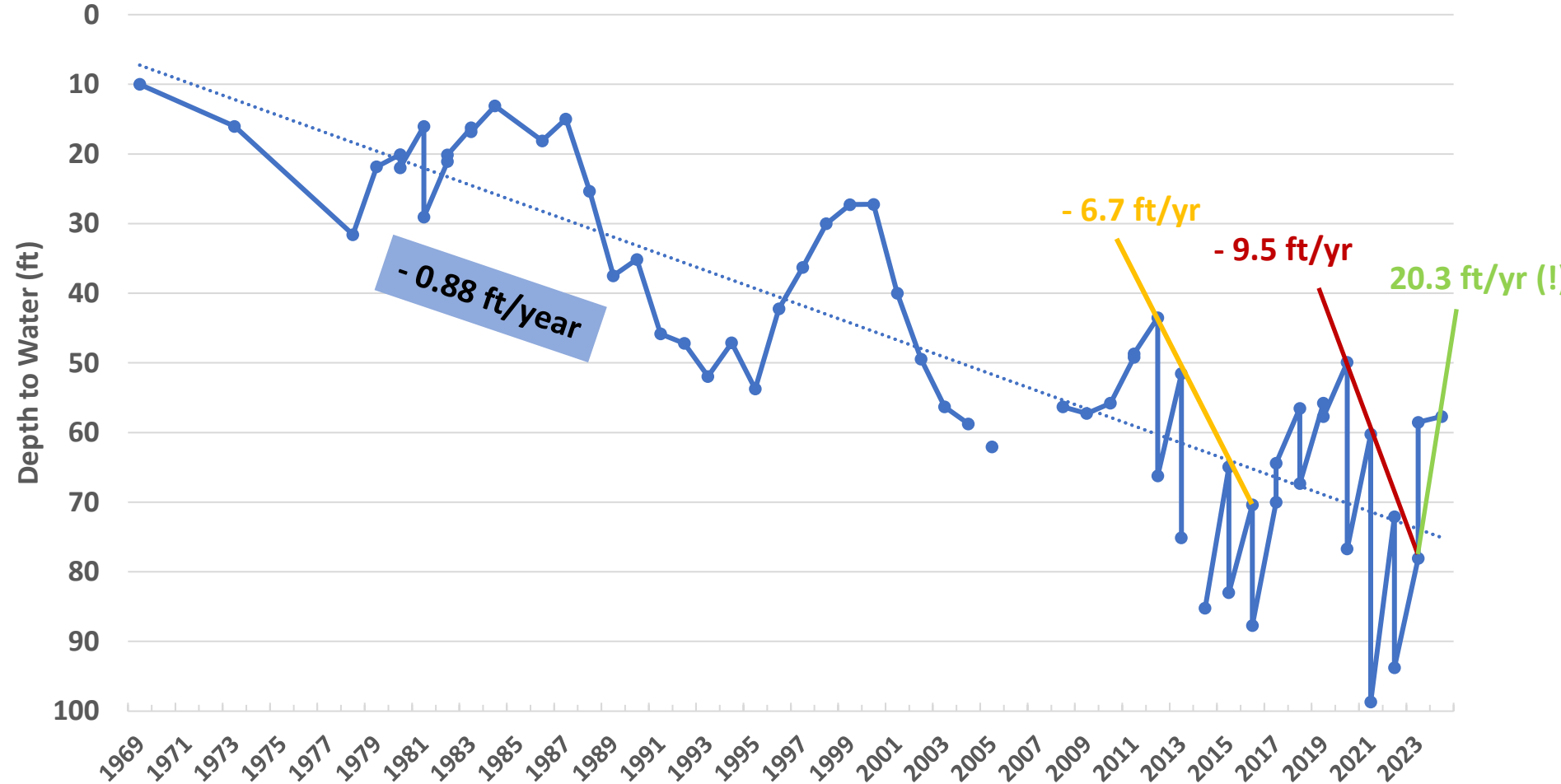


*Total pumpage includes pumpage by domestic wells and excludes pumpage in Artesia

SMITH VALLEY WATER LEVELS



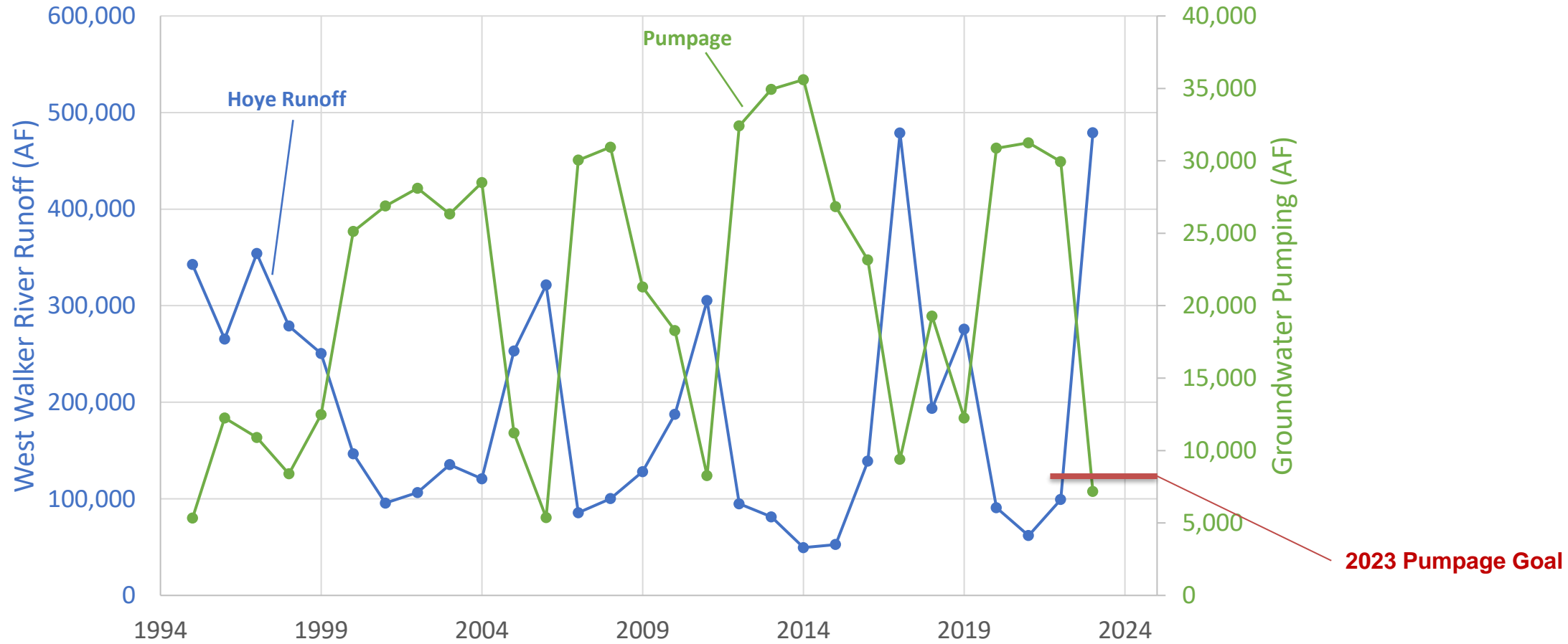
★ 107 N11 E23 02ADDD1



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

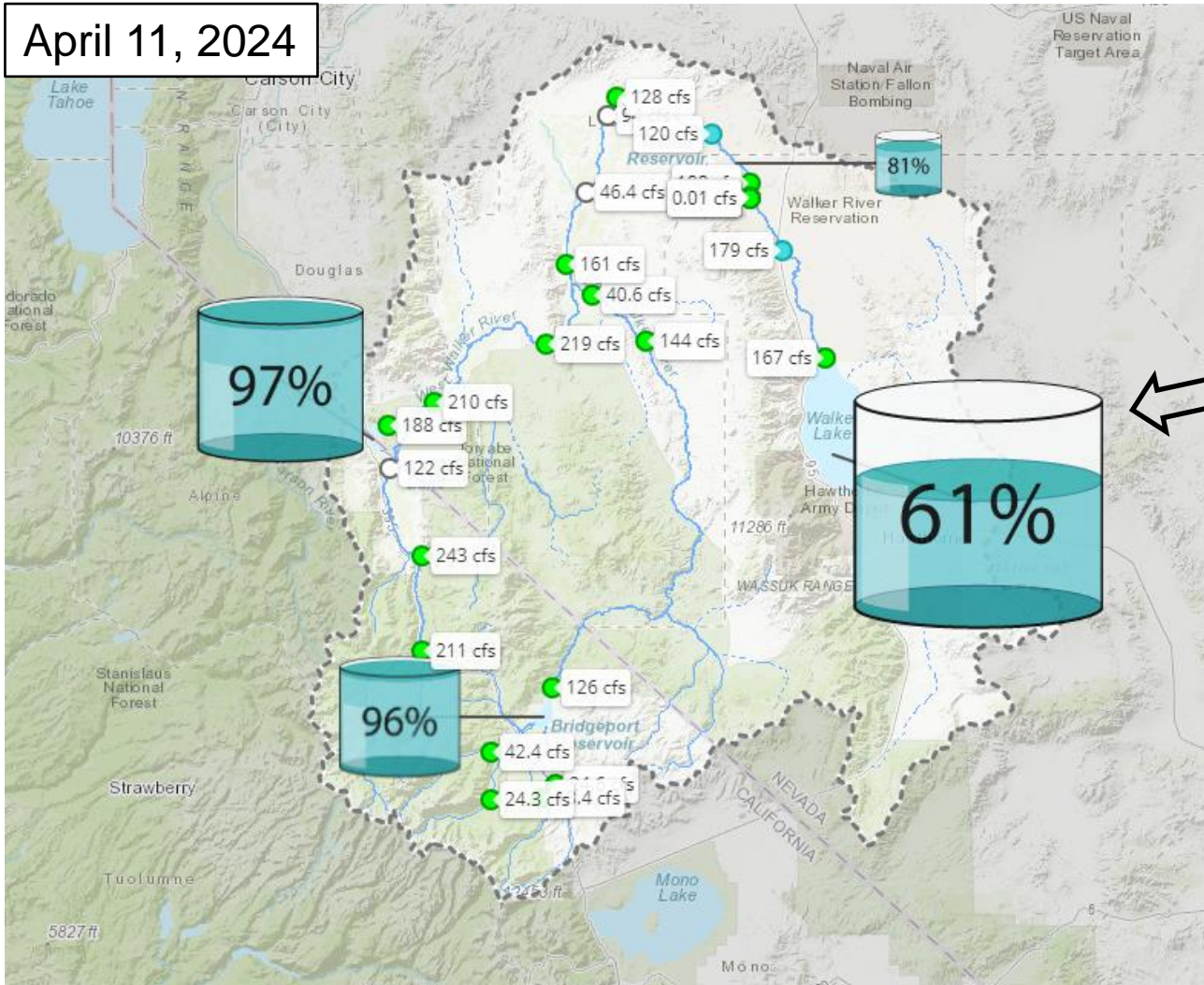
*Excludes Artesia

WALKER RIVER STREAMFLOW VS. SMITH VALLEY PUMPING



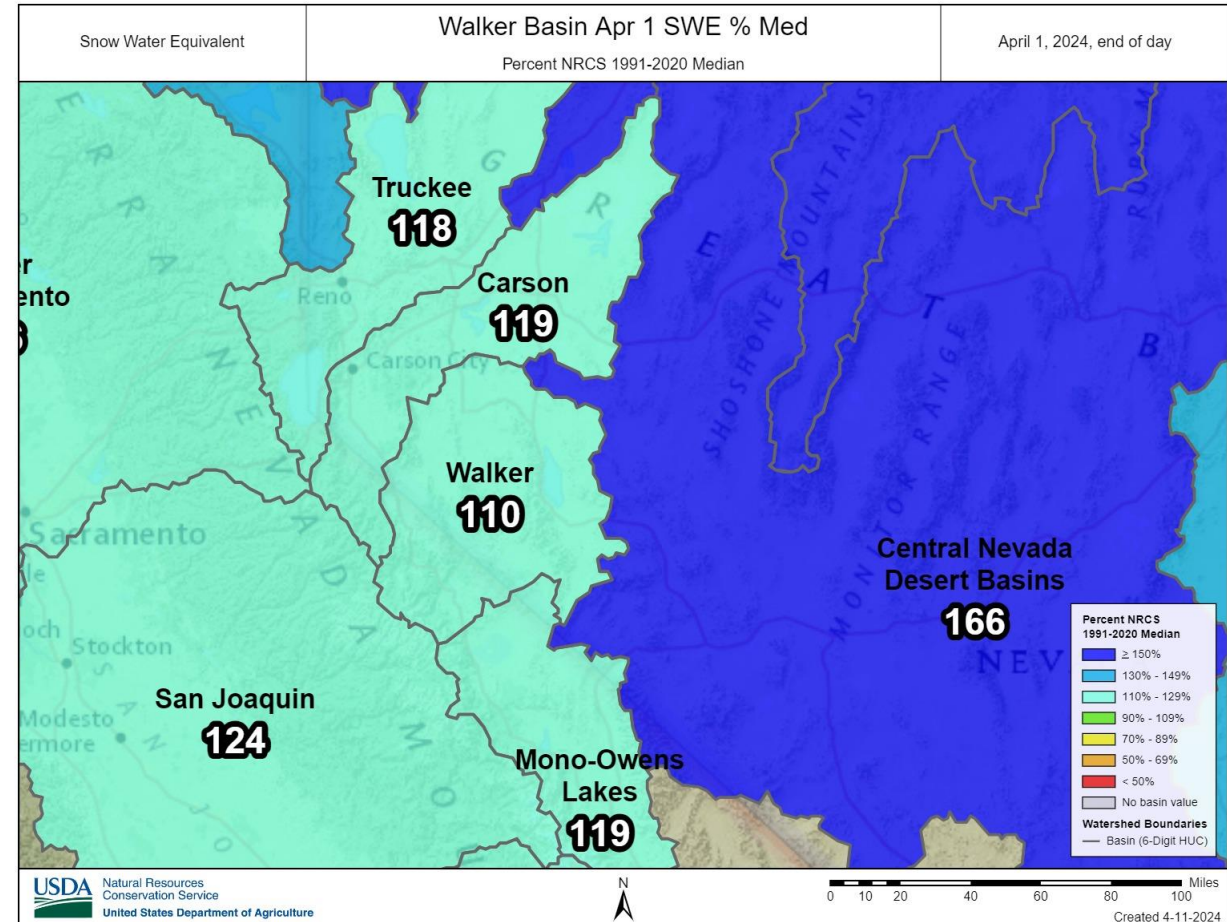
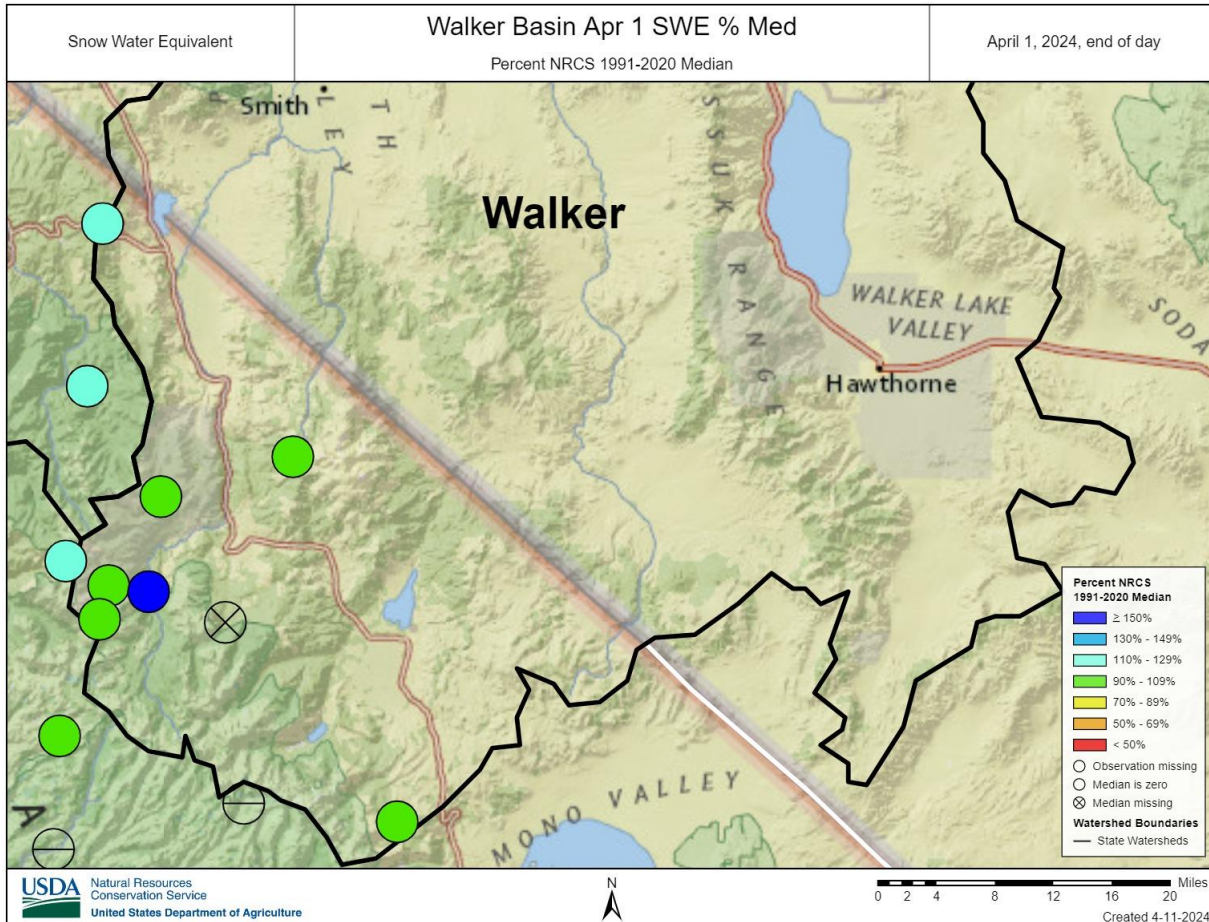
WATER SUPPLY OUTLOOK

RESERVOIR STORAGE

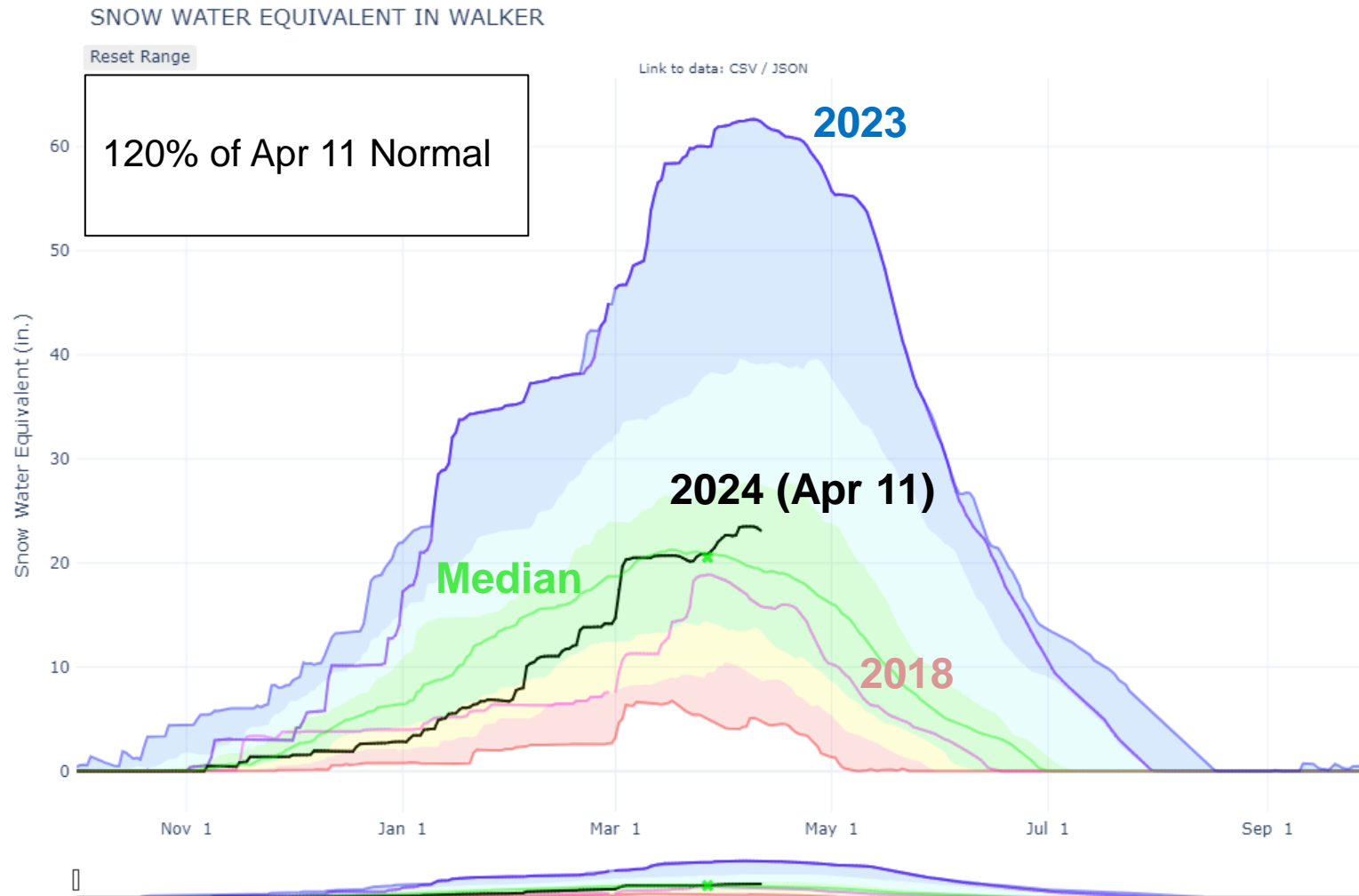


Up 17%

SNOW WATER EQUIVALENT (SWE), % OF APRIL 1 MEDIAN

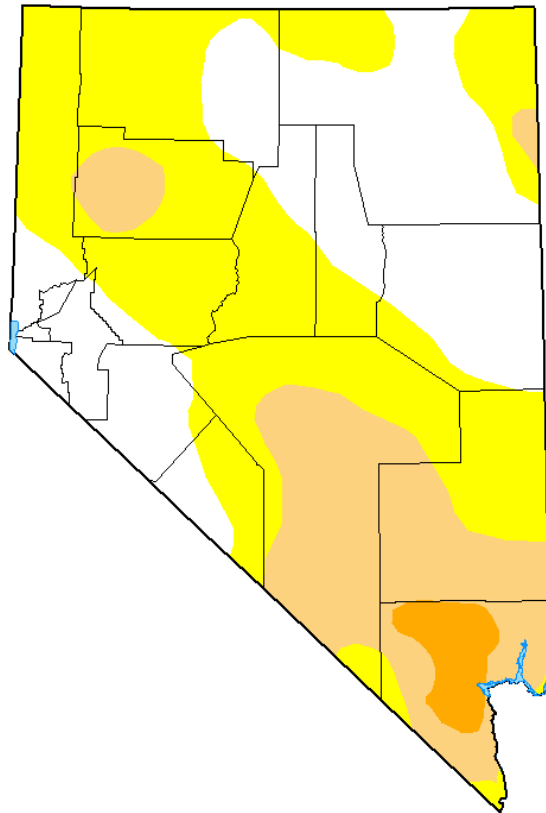


2024 WALKER SNOWPACK (SWE)









U.S. DROUGHT MONITOR

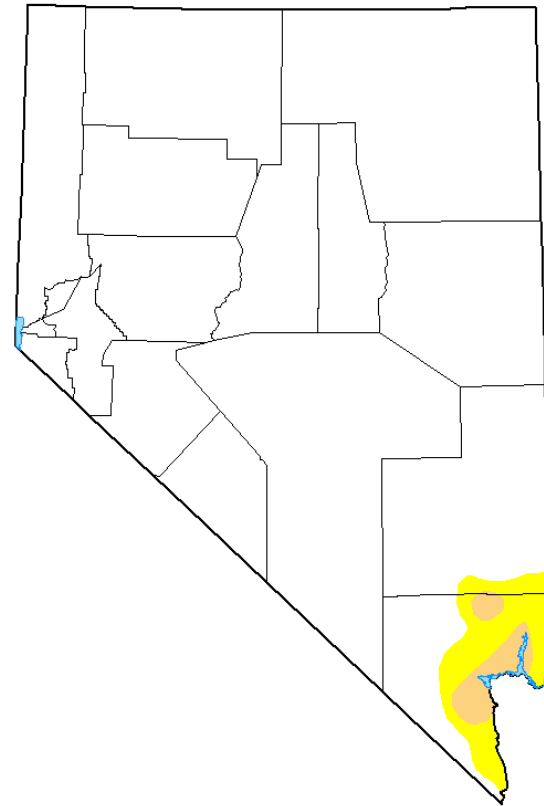
April 11, 2023



Intensity:

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

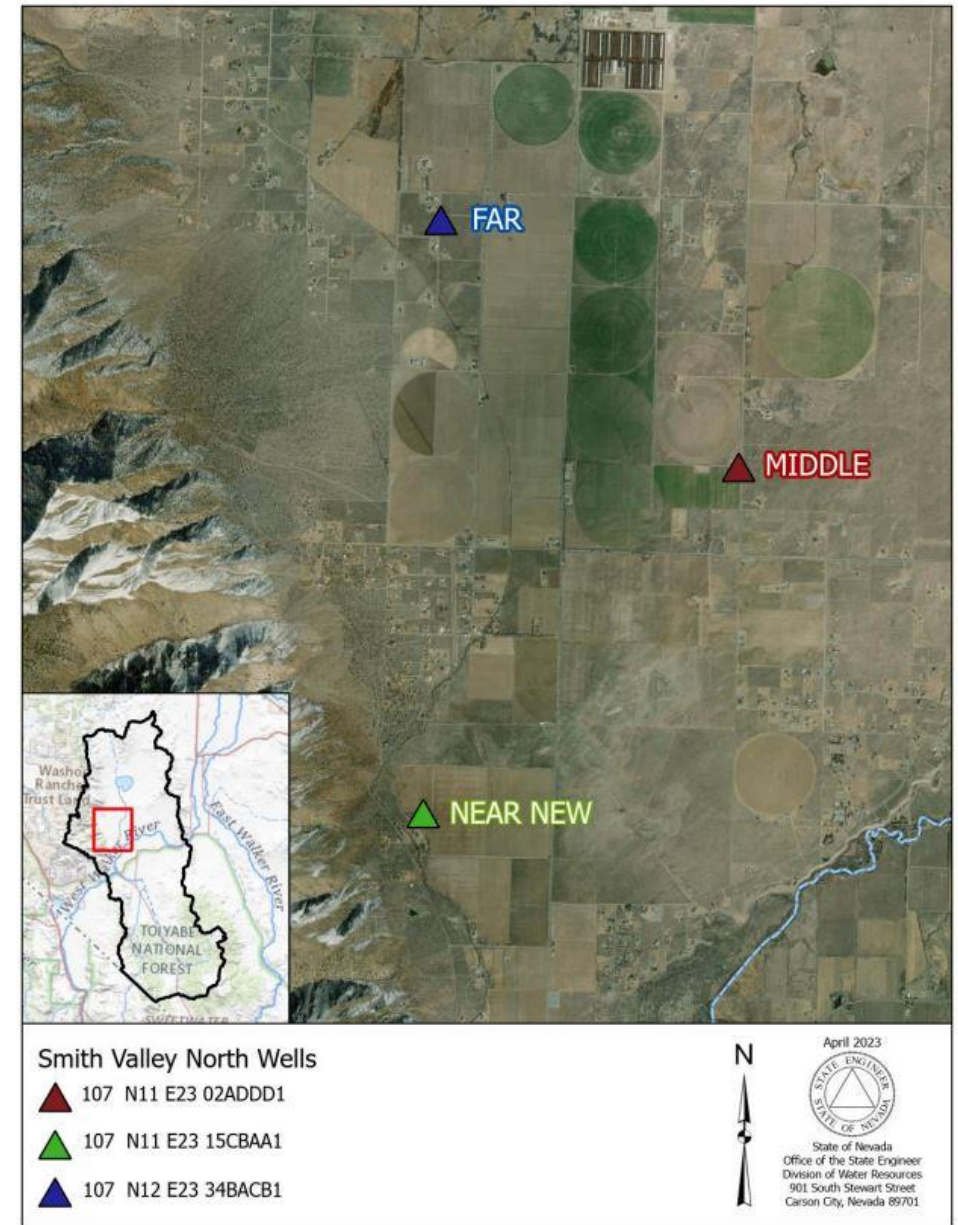
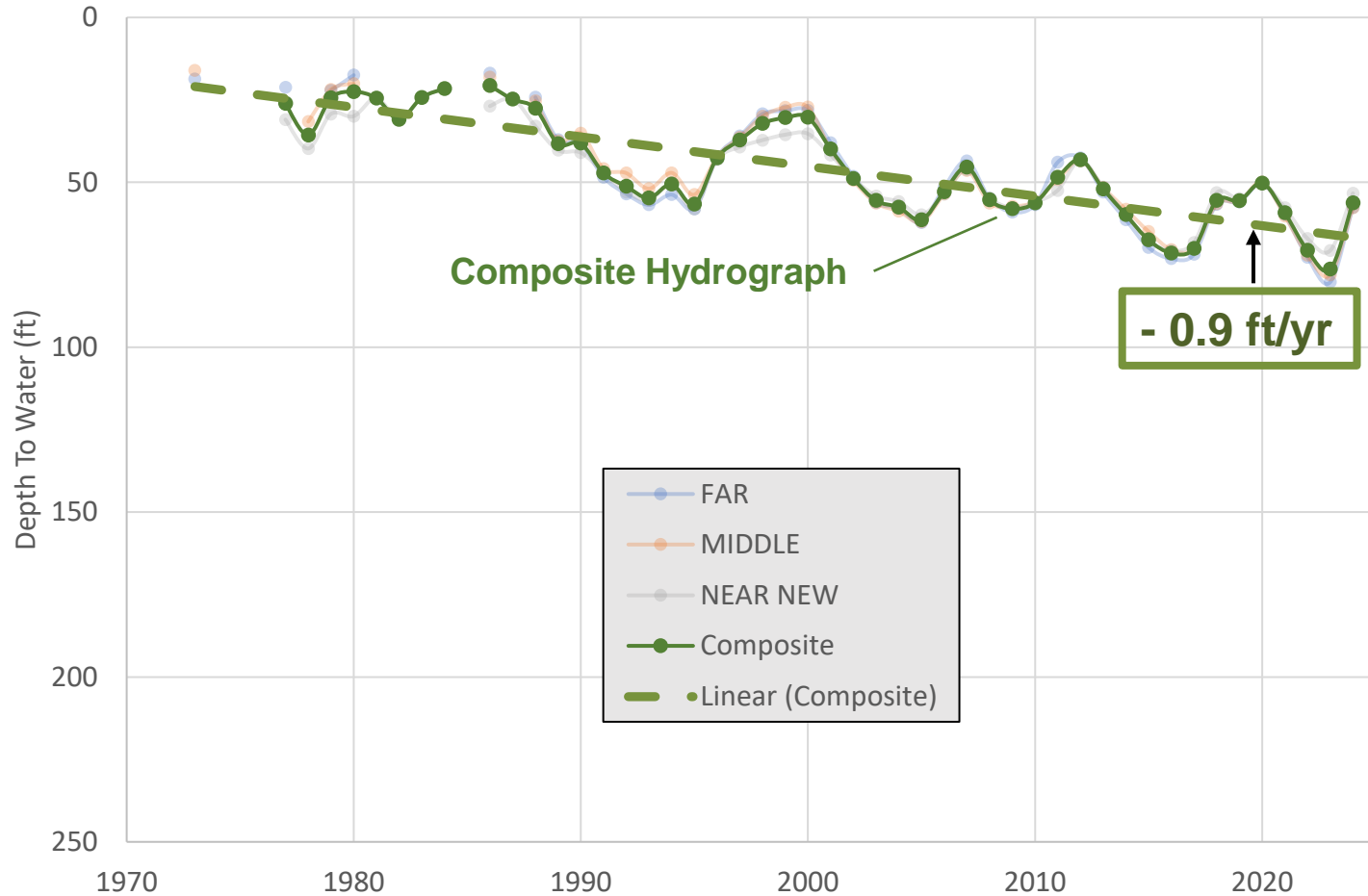
April 11, 2024



SUSTAINABLE PUMPING GOALS

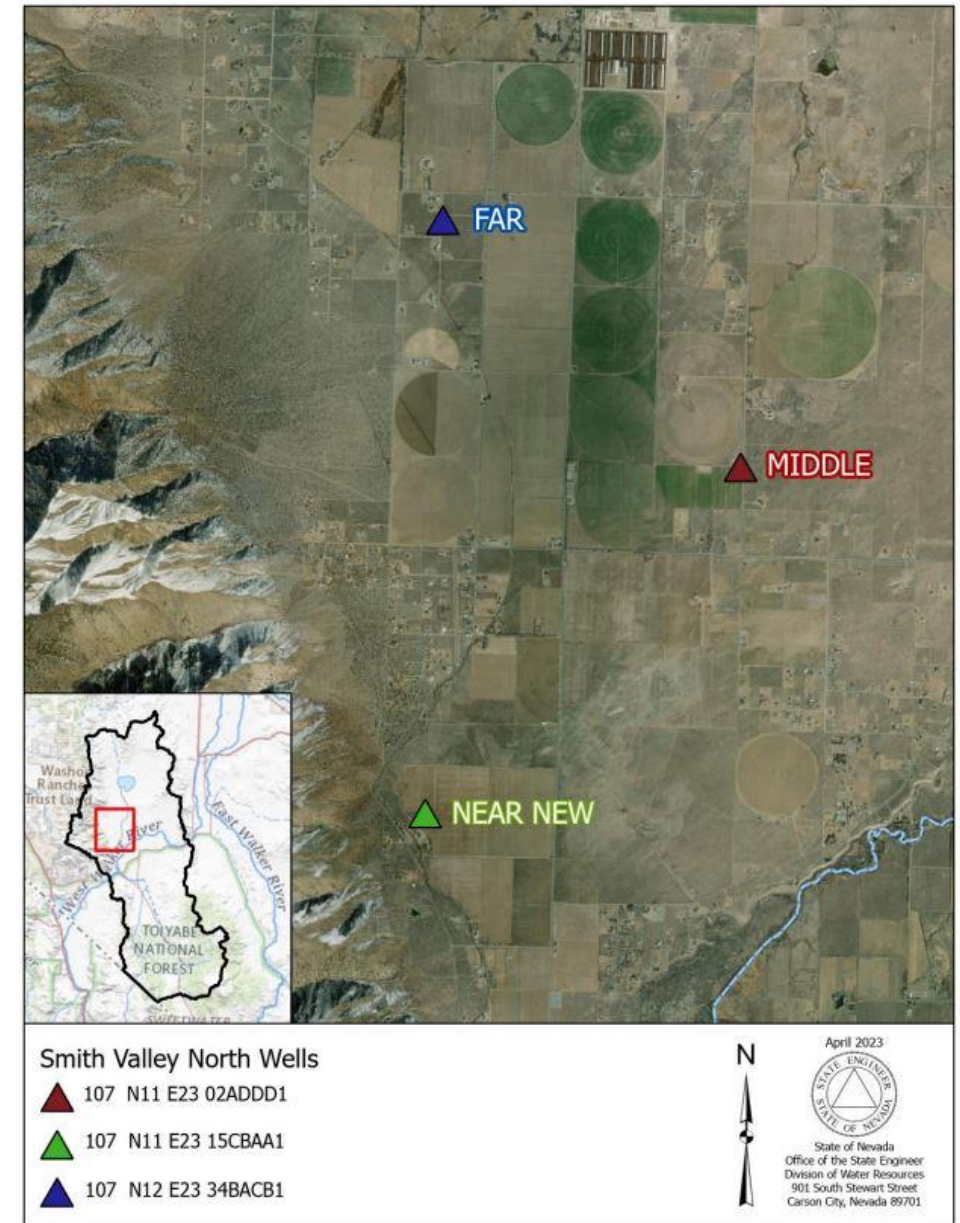
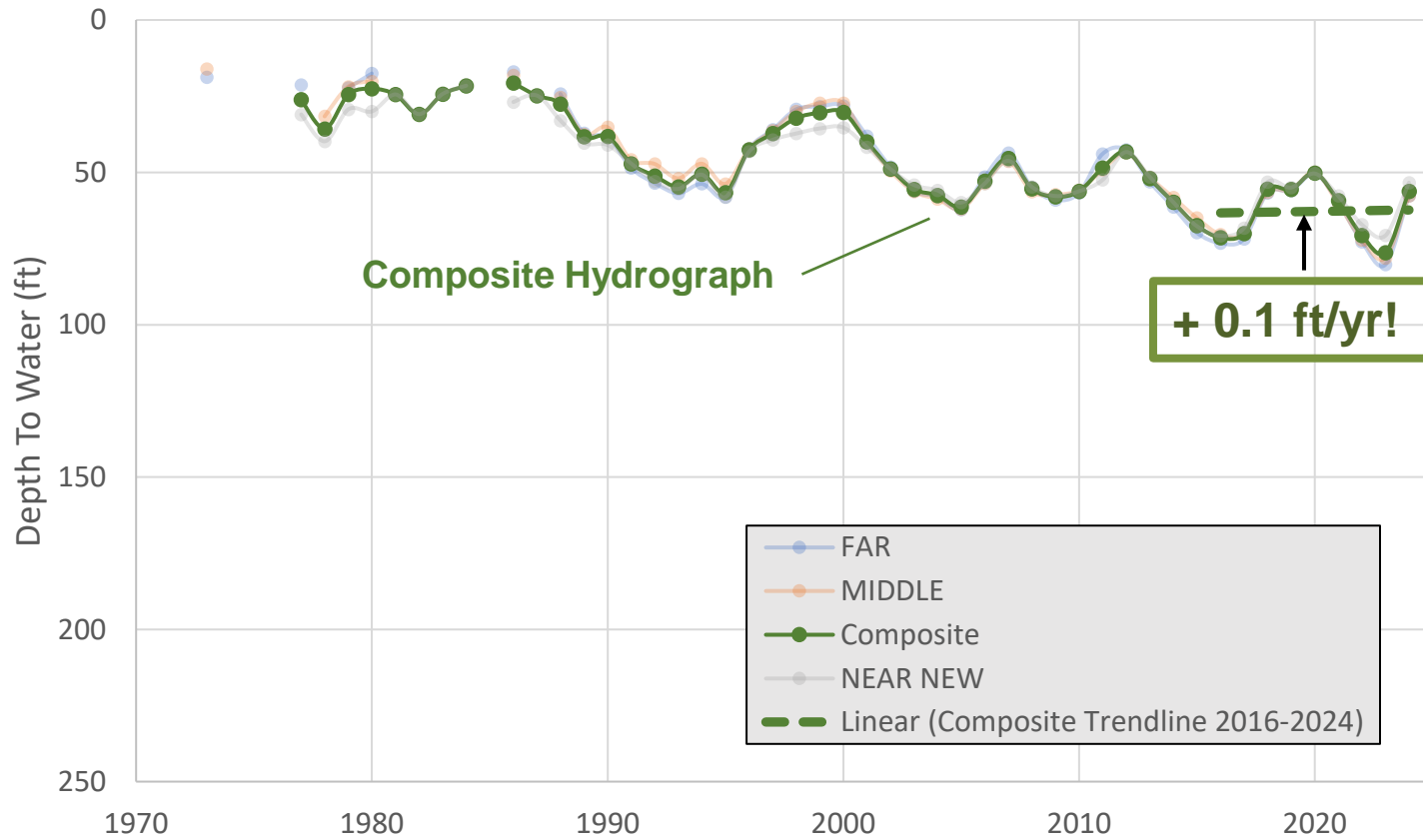
NORTHERN SMITH VALLEY

SPRING 1973-2024



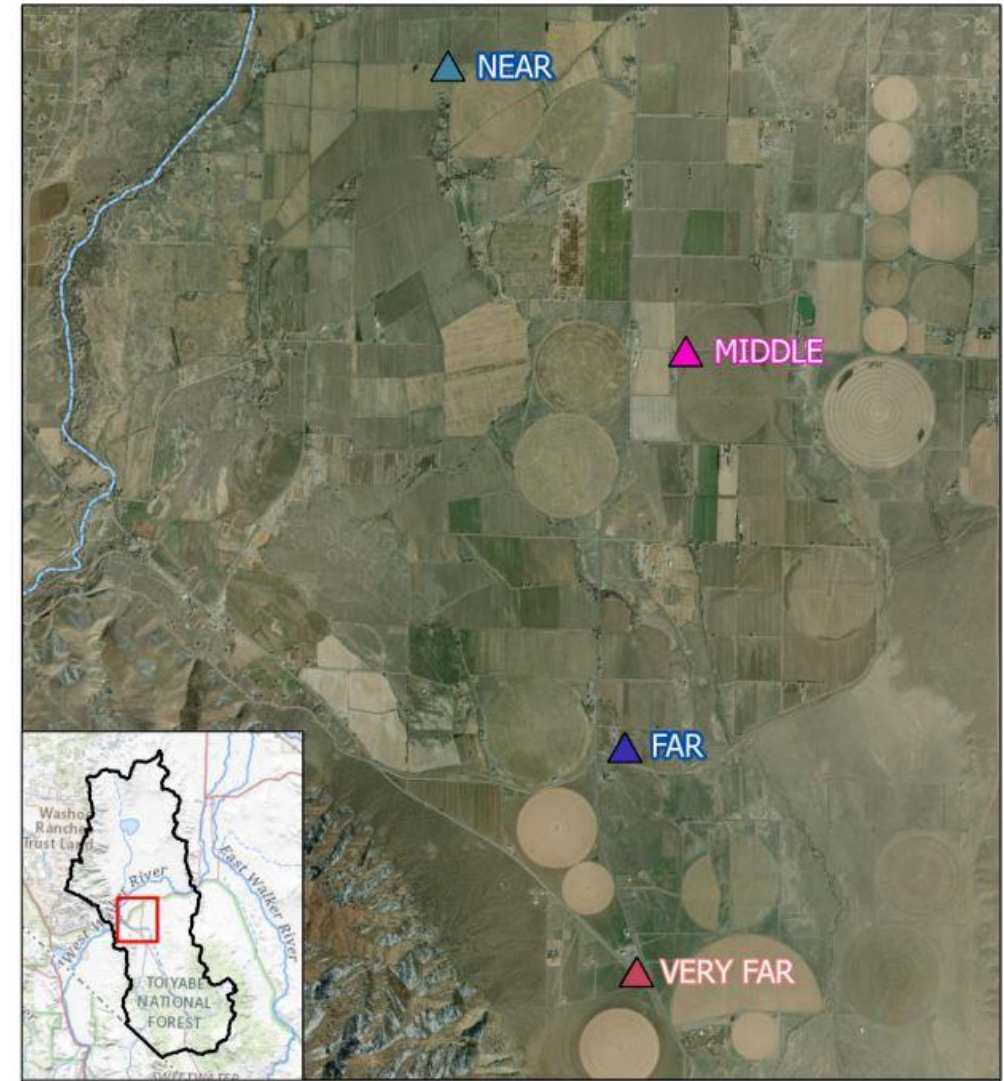
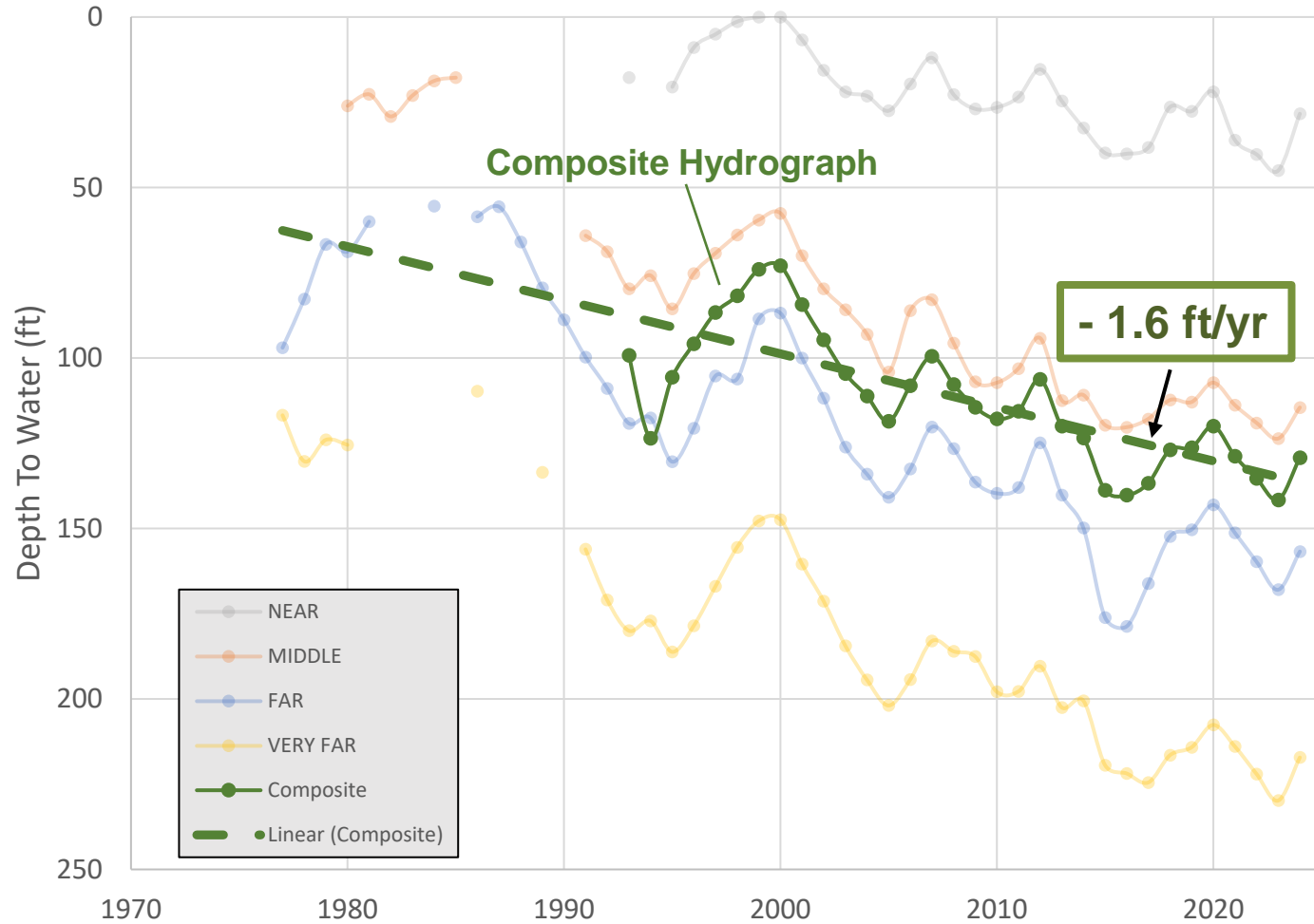
NORTHERN SMITH VALLEY

SPRING 2016-2024



SOUTHERN SMITH VALLEY

SPRING 1977-2024



Smith Valley South Wells

- ▲ 107 N11 E23 24DDDD1
- ▲ 107 N11 E24 32CBAD1
- ▲ 107 N10 E24 08CBCA1
- ▲ 107 N10 E24 17CCAA1

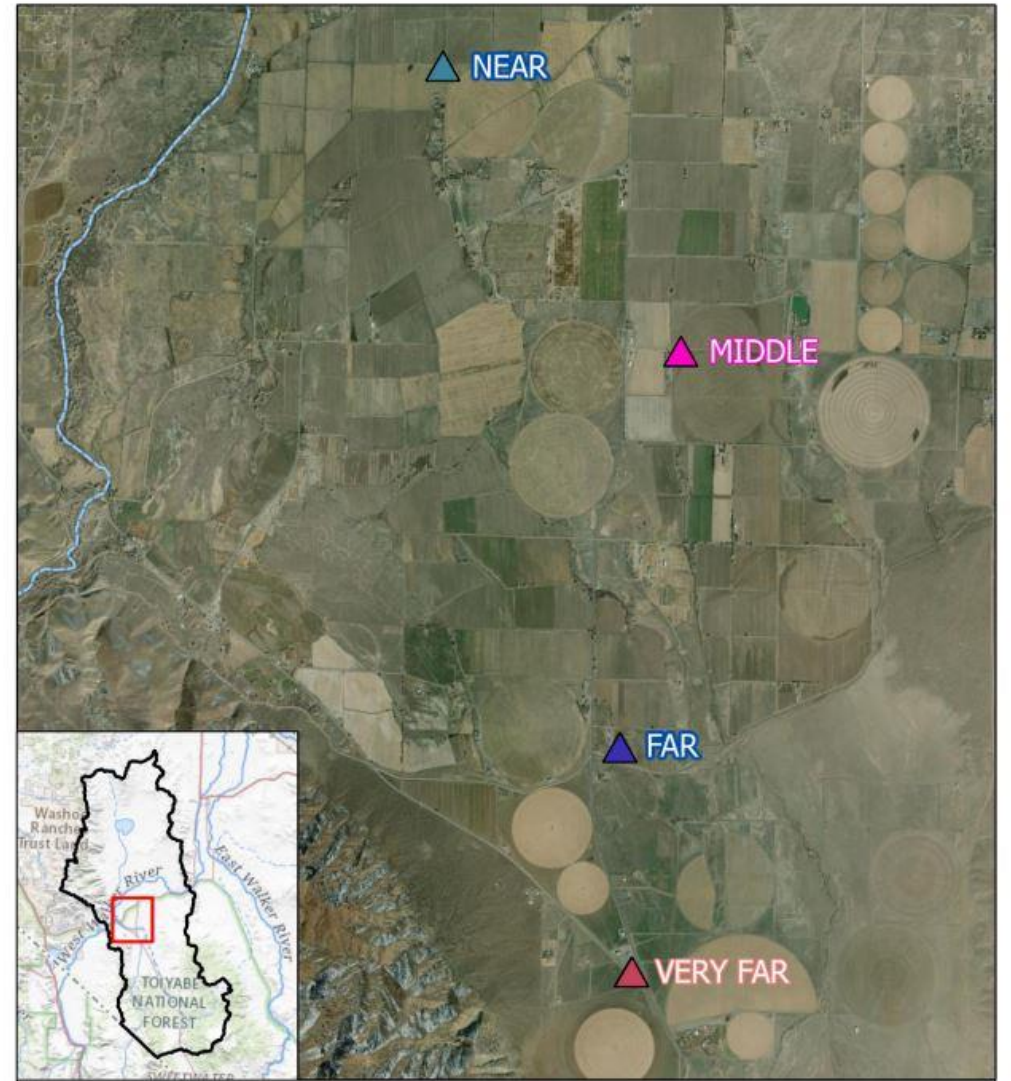
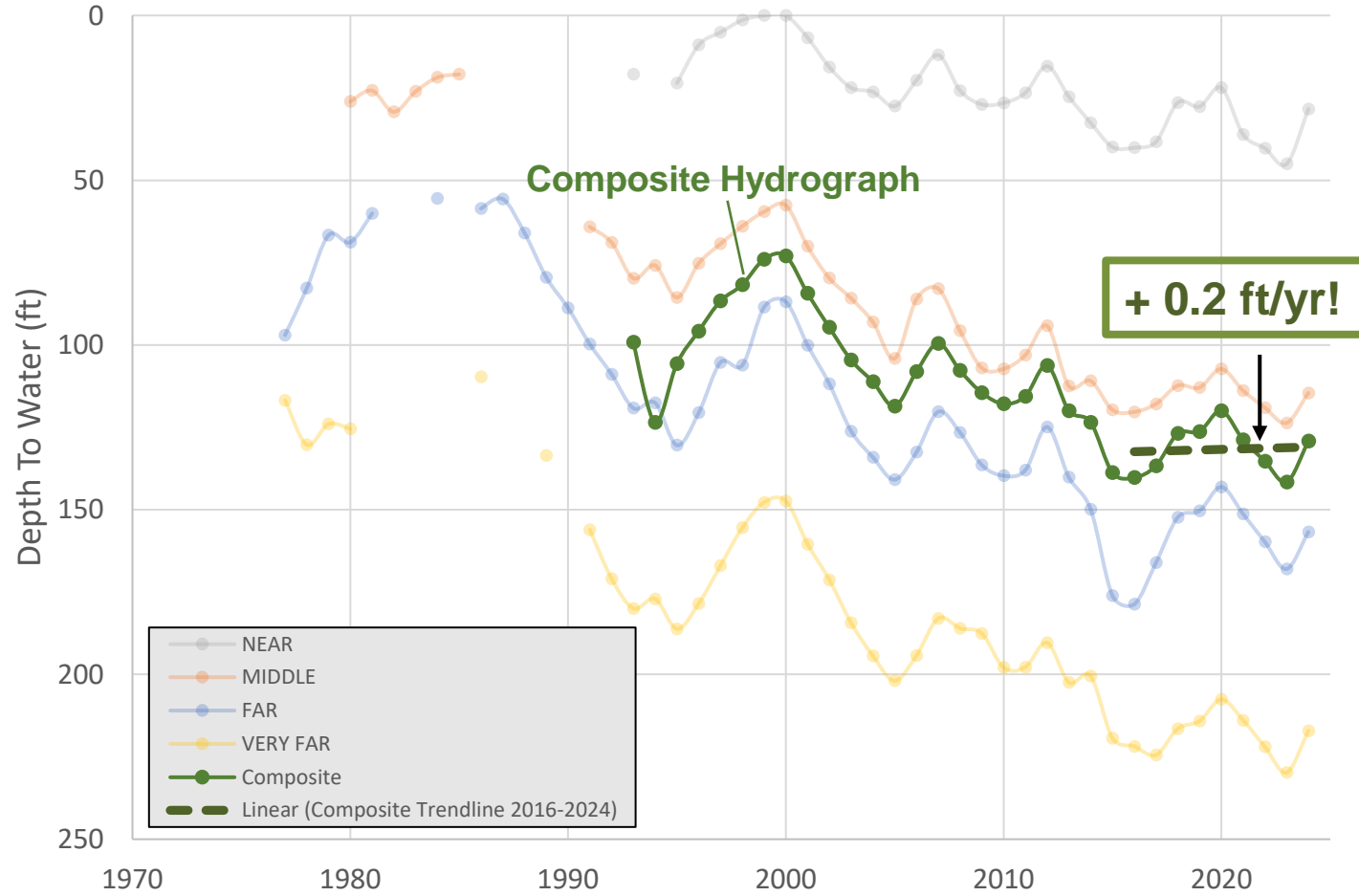


April 2023

State of Nevada
Office of the State Engineer
Division of Water Resources
901 South Stewart Street
Carson City, Nevada 89701

SOUTHERN SMITH VALLEY

2016-2024

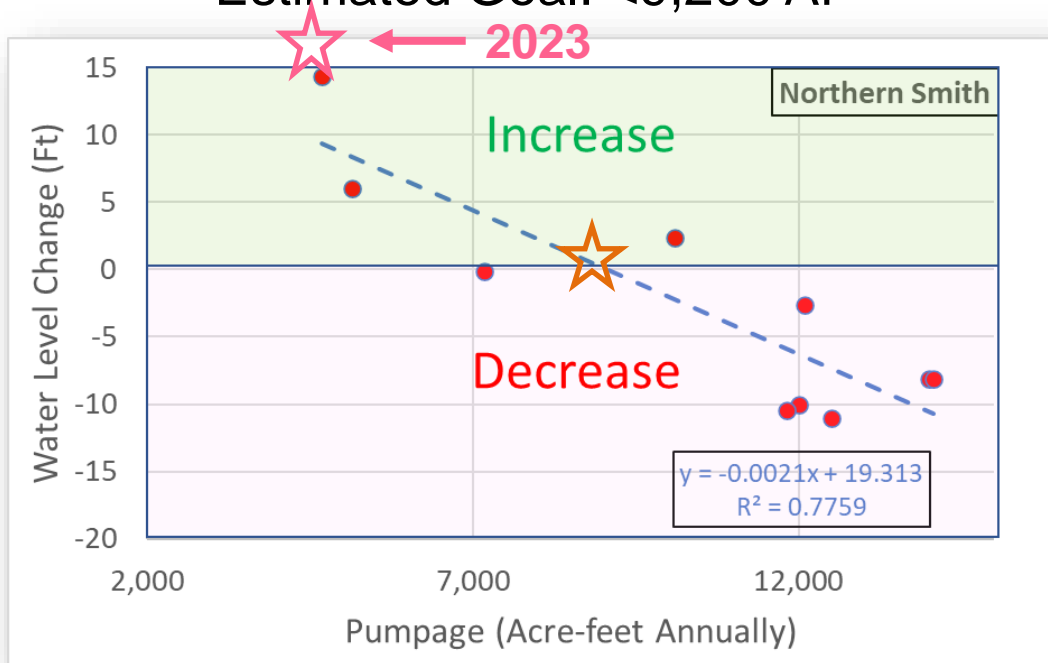


- Smith Valley South Wells**
- ▲ 107 N11 E23 24DDDD1
 - ▲ 107 N11 E24 32CBAD1
 - ▲ 107 N10 E24 08CBA1
 - ▲ 107 N10 E24 17CCAA1

SMITH VALLEY PUMPING VS. WATER LEVEL CHANGE

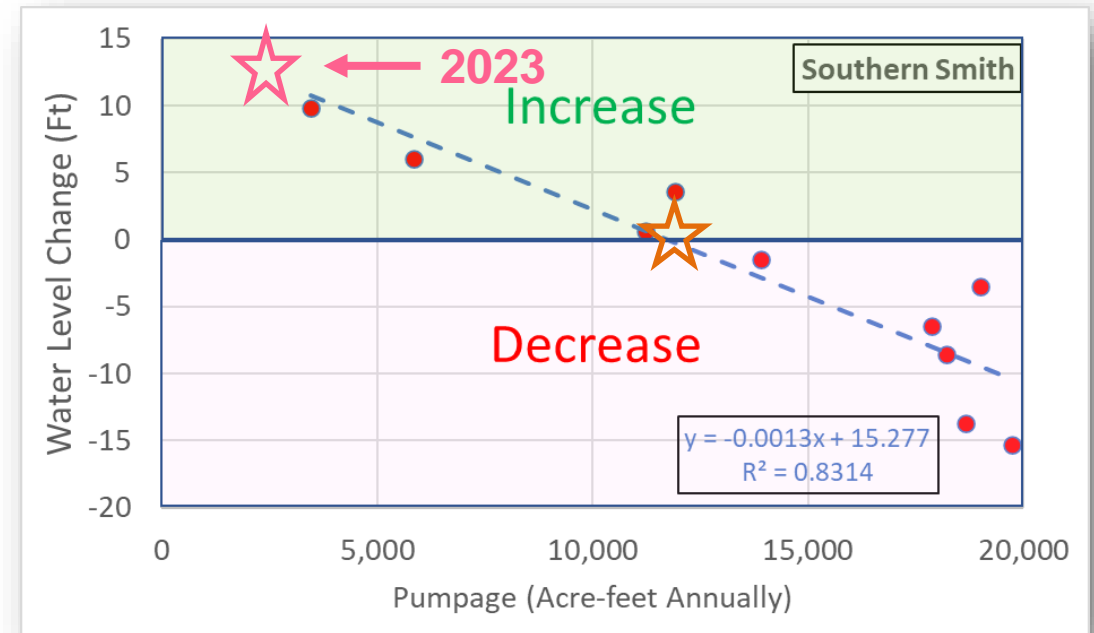
Northern Smith*

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 $\geq 3,400$ AF/yr (average of 21,000 AF)

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

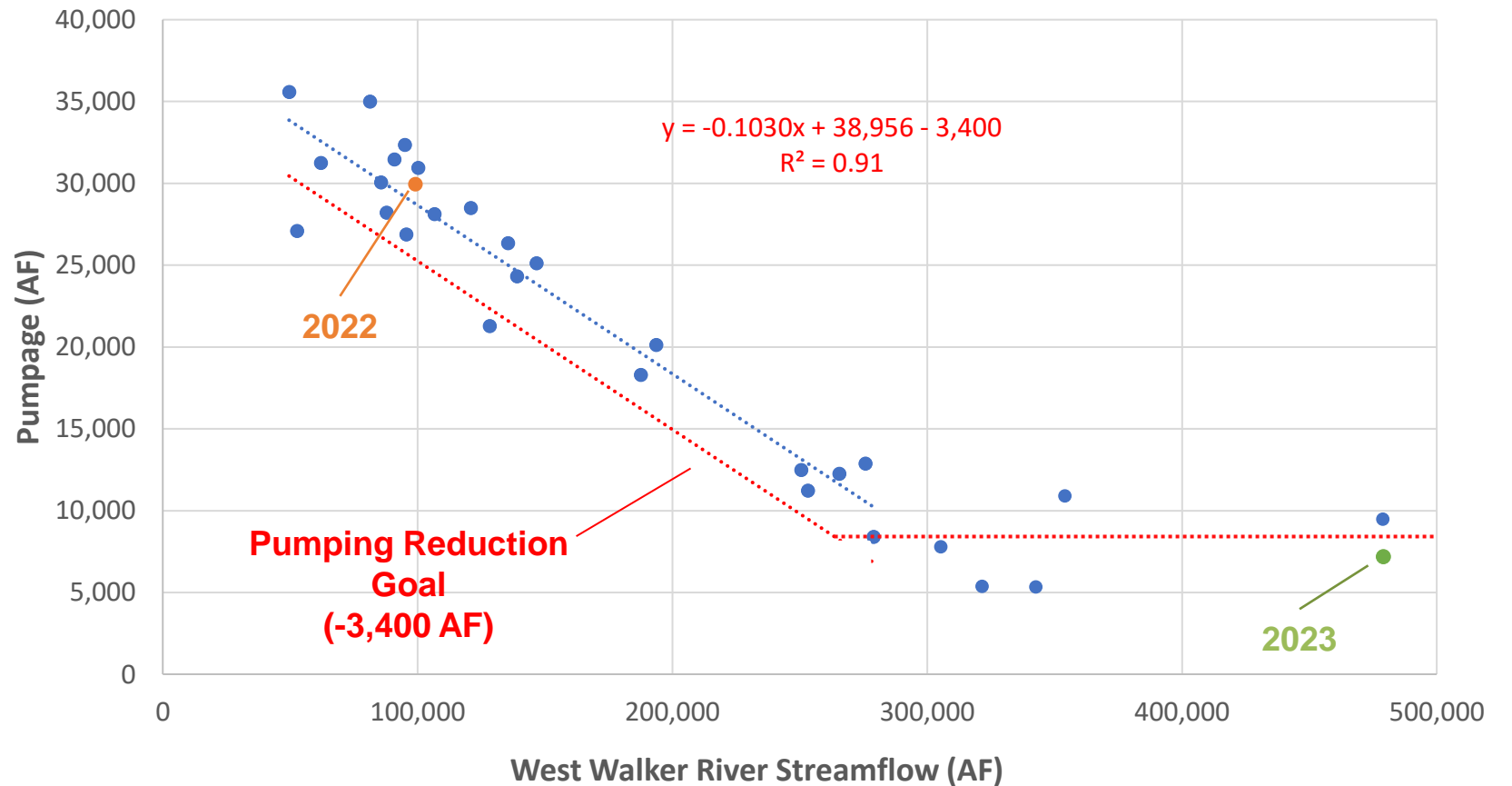
2024 PUMPING GOALS - EXPERIMENTAL

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

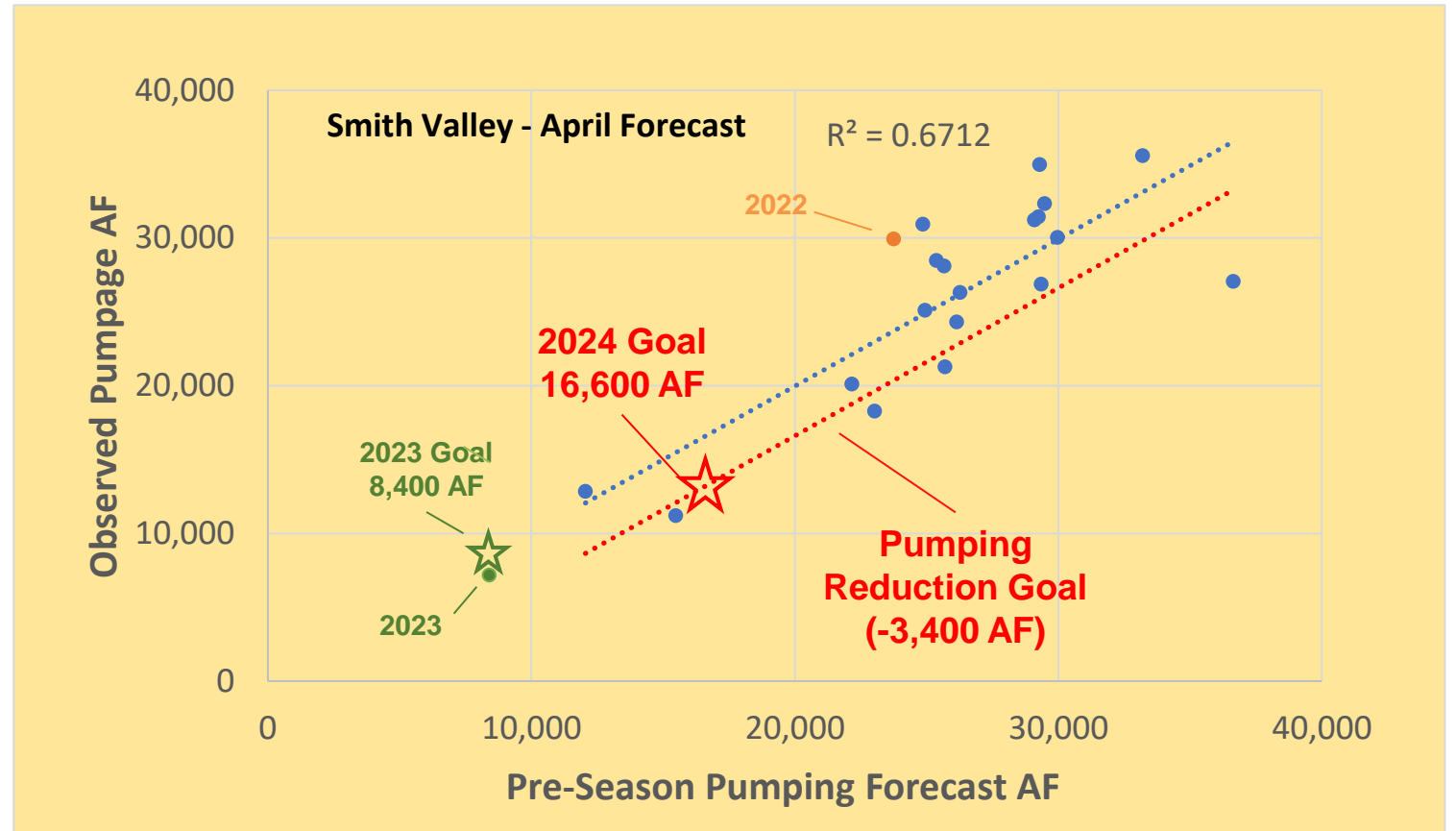
$$\text{April Pre-Season Pumping Forecast} = -0.117*(TP) - 11,826*(SWE) + 39,760 - 3,400$$

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.



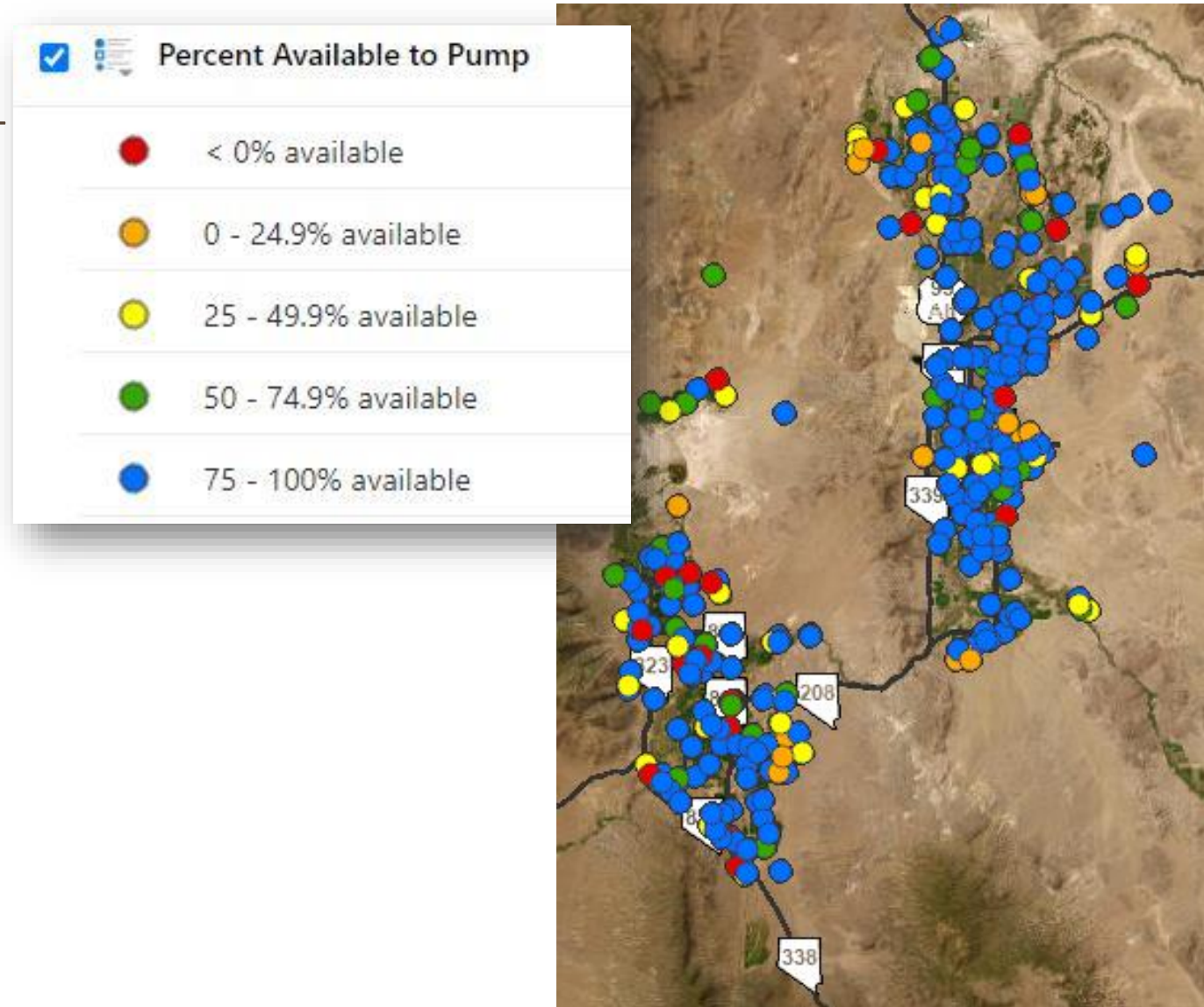
SUMMARY AND OUTLOOK

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) 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?



Contact

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