We Have a Water Supply Issue

And It’s Likely to Be Habitual

Brief Introduction – Jill Buck, M.S., Ed.

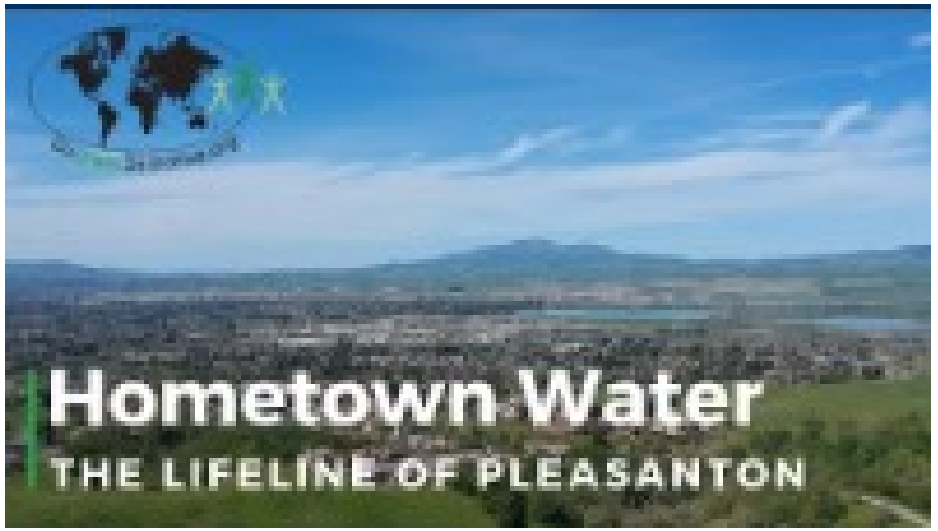
Go Green Initiative (GGI) - 2002

1. Conserve natural resources for future generations
2. Protect children's health from environmental pollutants

We work with school districts in all 50 U.S. states & 73 countries

- Water
- Energy
- Waste
- Air Quality
- Food/Nutrition

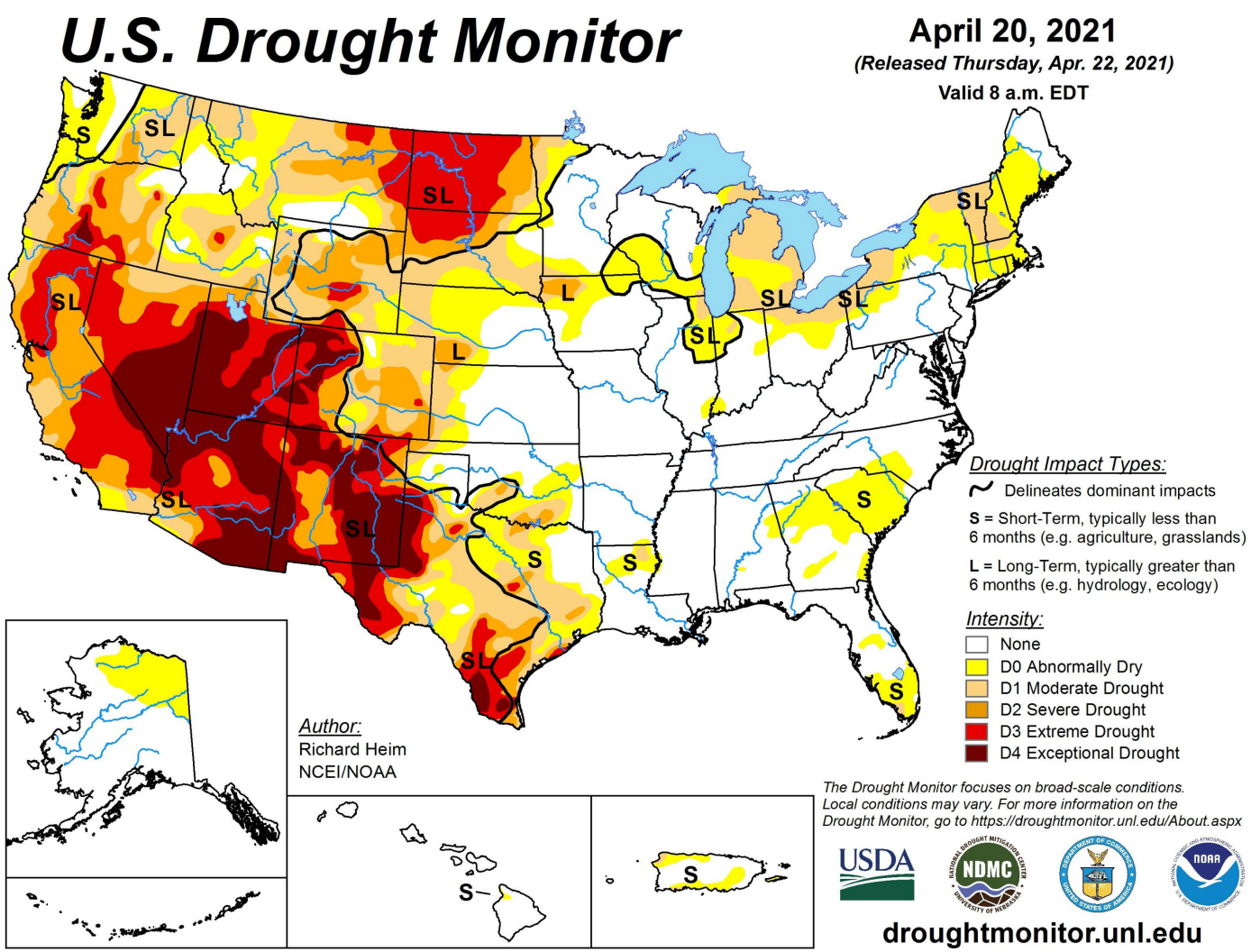
Go Green Radio - since 2008



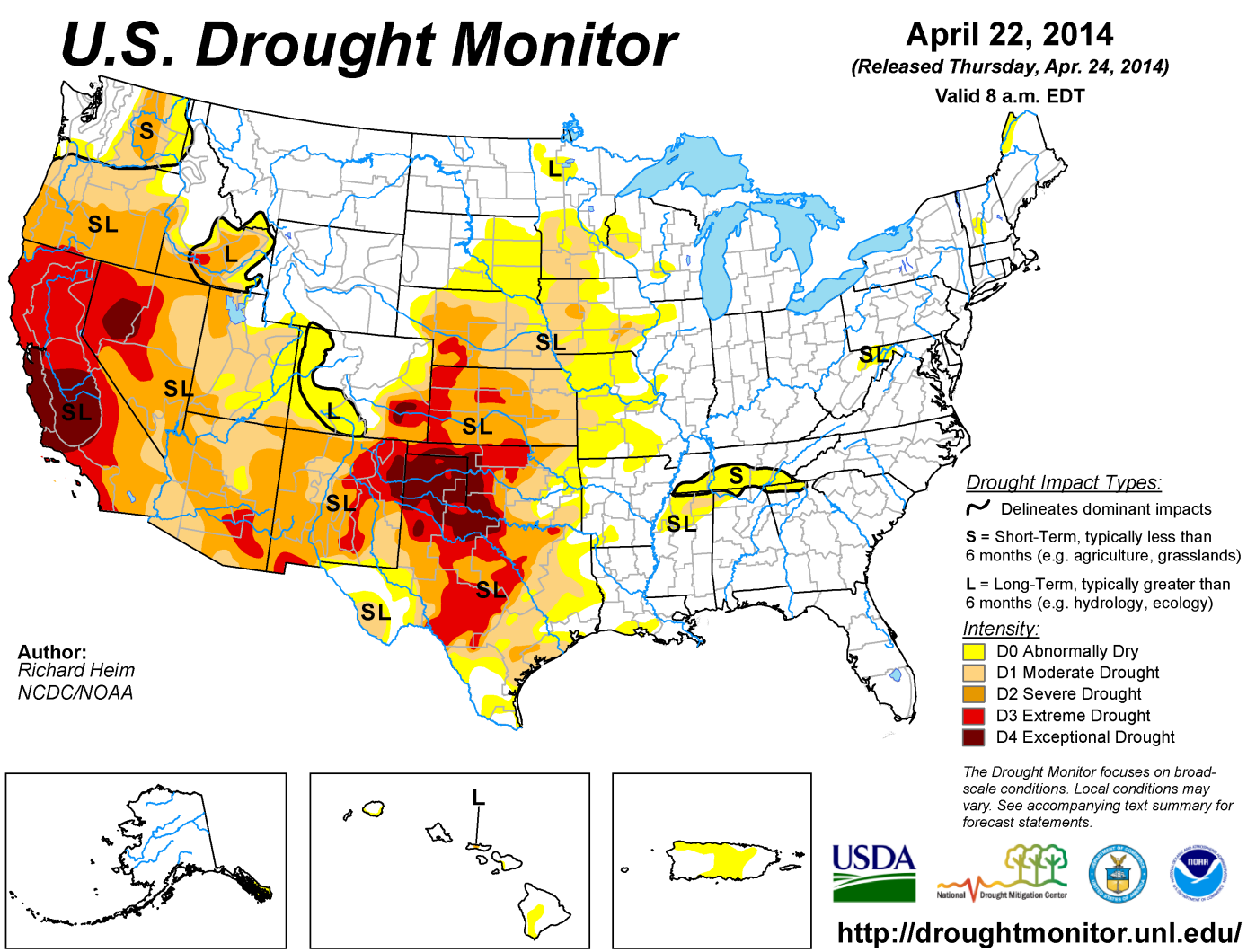
2020 GGI Summer Interns produced a documentary about Pleasanton's Water: "Hometown Water: The Lifeline of Pleasanton"

Overview of What We Will Cover Today

- We’re in a Drought, but We’re Not Alone
- Pleasanton’s Water Supply
- Zone 7’s Current Supply Situation
- Pleasanton’s water limitations
- The Upshot of our City Council’s vote on Feb. 2, 2021 re: supply study
- Impact on Residents, Businesses, and Vision 2025
- Water Conservation Programs from City and Zone 7
- What the CA Climate Assessment Says About Future Droughts



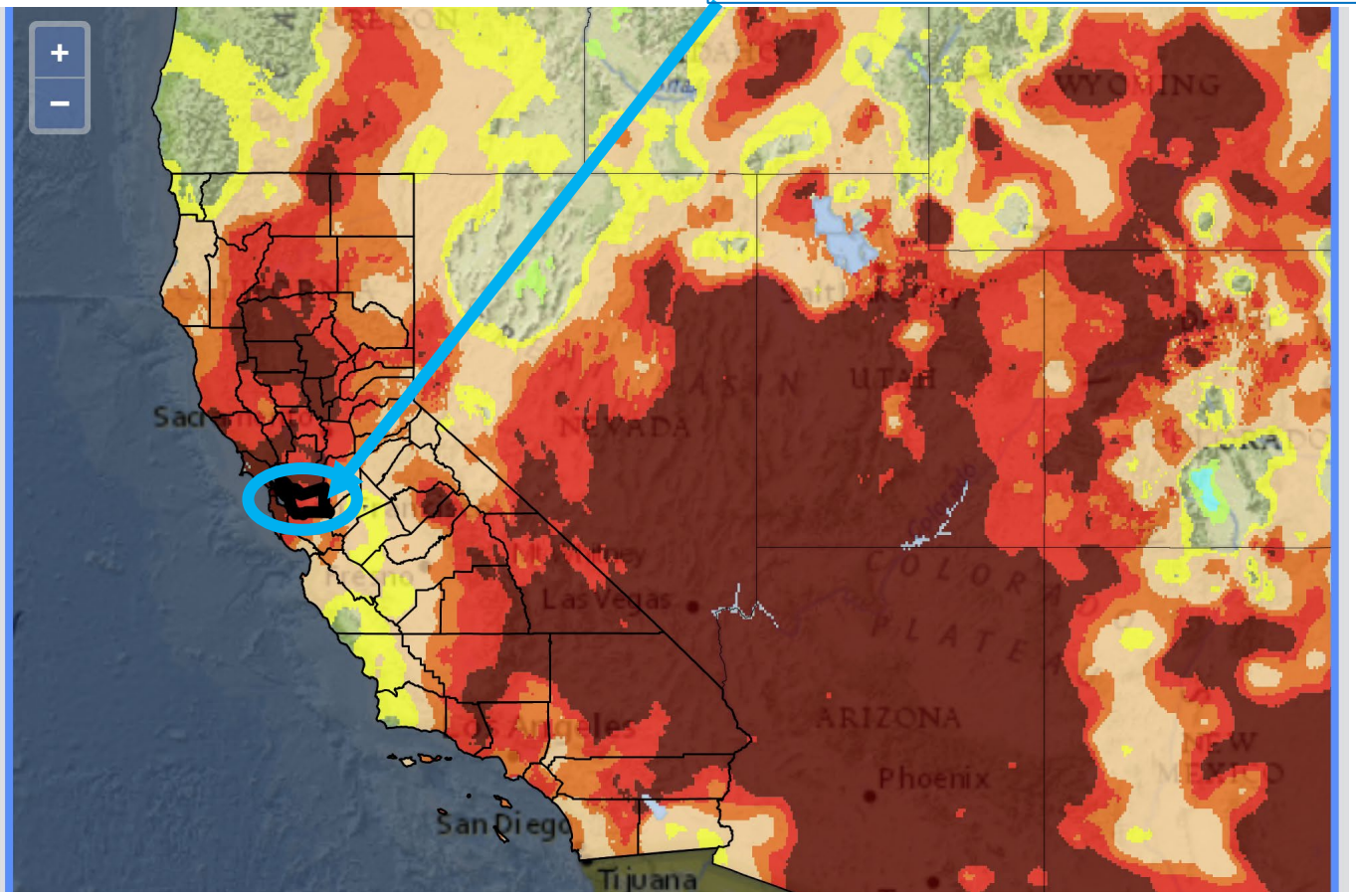
We're Not the Only Ones in a Drought



This is from April 2014

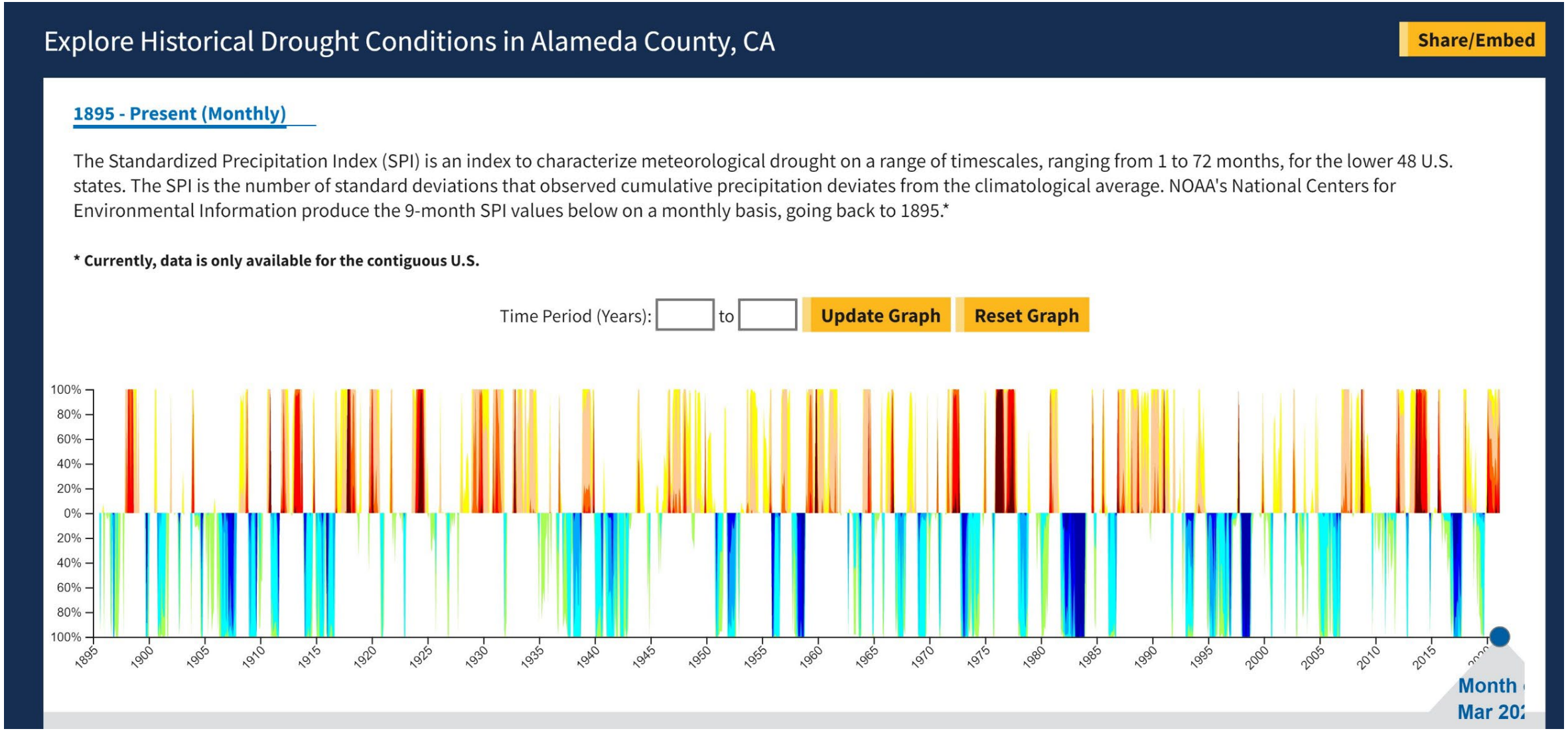
Alameda County Current Conditions

D0 - Abnormally Dry	**100%** of Alameda County (D0-D4)	**W0 - Abnormally Wet**	**0%** of Alameda County (W0-W4)
D1 - Moderate Drought	**100%** of Alameda County (D1-D4)	**W1 - Moderate Wet**	**0%** of Alameda County (W1-W4)
D2 - Severe Drought	**100%** of Alameda County (D2-D4)	**W2 - Severe Wet**	**0%** of Alameda County (W2-W4)
D3 - Extreme Drought	**96.8%** of Alameda County (D3-D4)	**W3 - Extreme Wet**	**0%** of Alameda County (W3-W4)
D4 - Exceptional Drought	**13.2%** of Alameda County (D4)	**W4 - Exceptional Wet**	**0%** of Alameda County (W4)



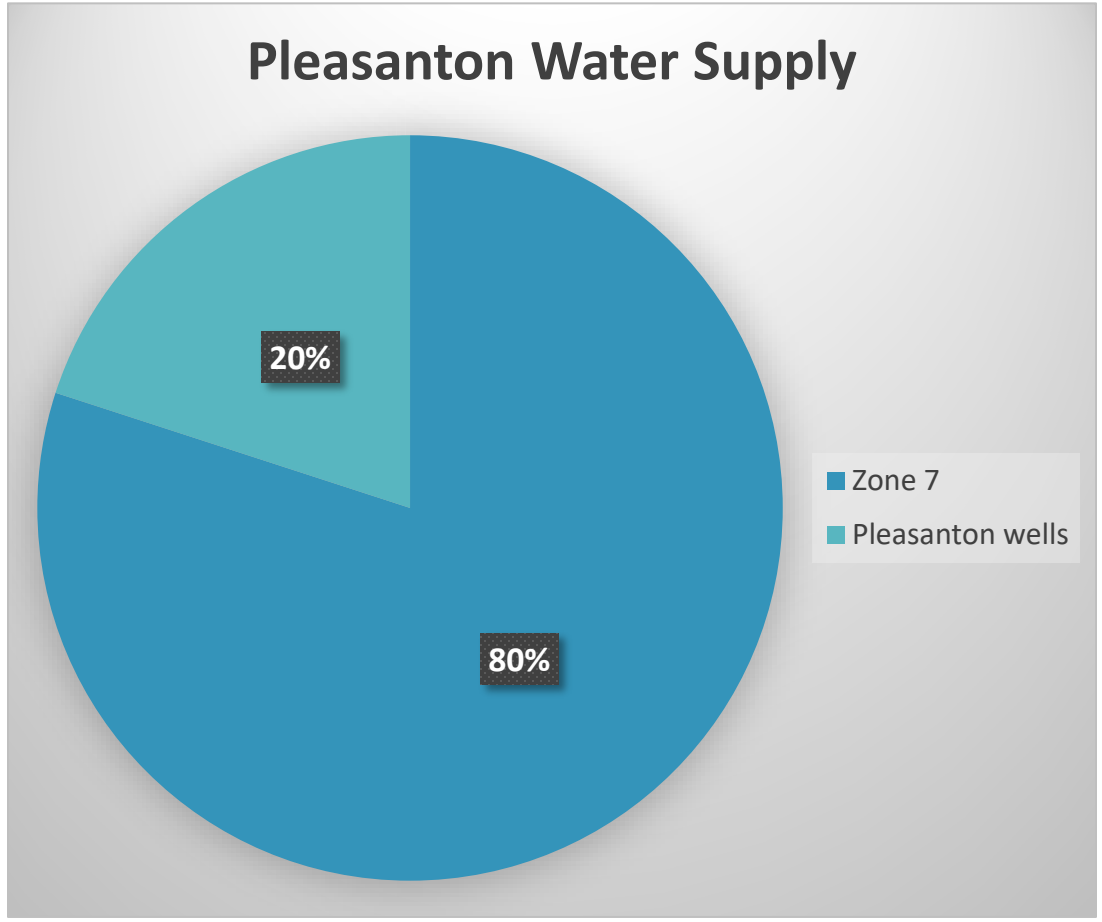
Reference: Drought.gov Information for Alameda County, March 2021

We Live in a Drought-Prone Area



Reference: Drought.gov Information for Alameda County, March 2021

Pleasanton's Current Potable Water Supply



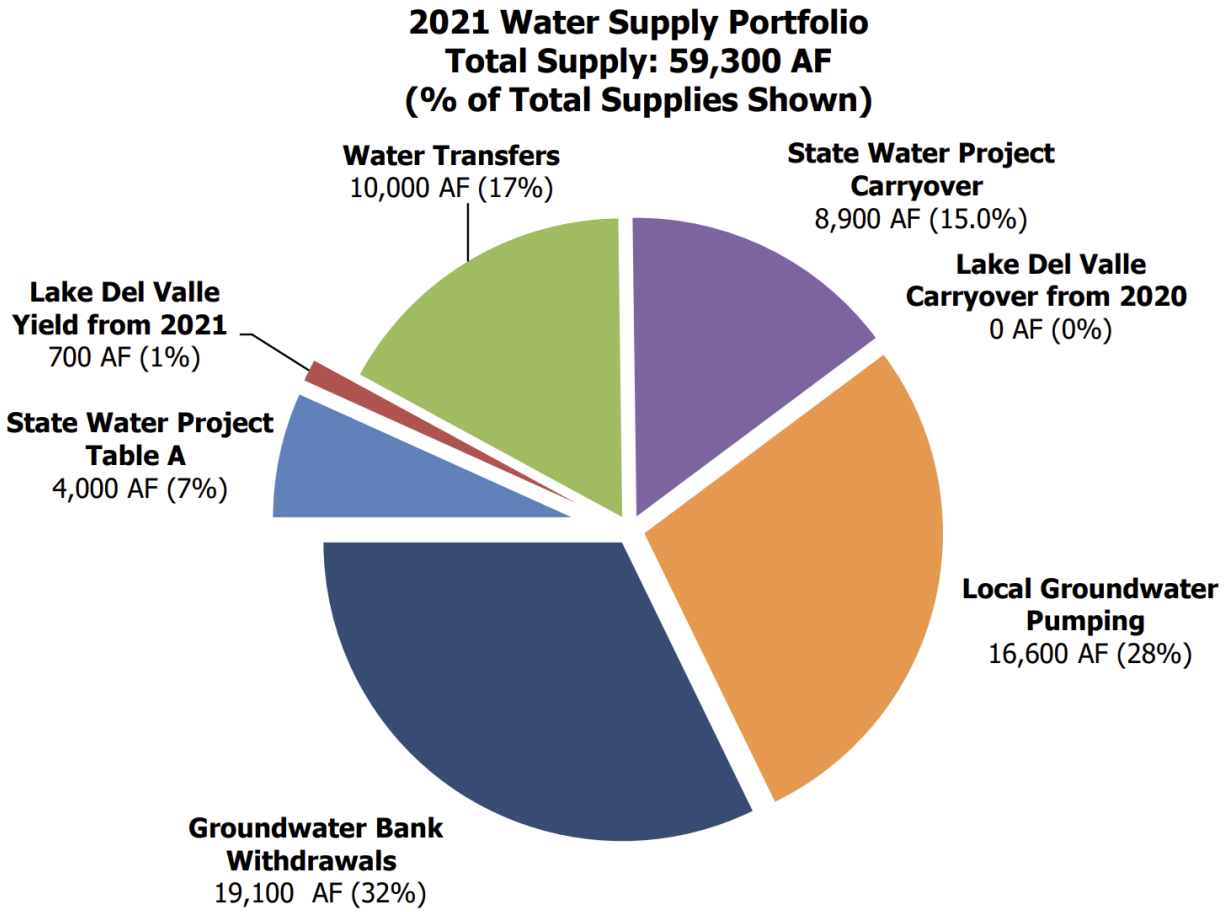
- Zone 7's Typical Water Supply
  - State Water Project
  - Local Surface Water
    - Rainfall/Lake Del Valle
  - Groundwater
  - Storage
  - *"Treated water sources in March were 55% surface water and 45% groundwater." [Monthly Water Inventory and Water Budget Update, 4/21/21]*
- Zone 7's Efforts to Protect Supply
  - Investing Sites & Los Vaqueros Reservoirs
  - Participation in Delta Conveyance Project

Reference: Pleasanton Annual Water Quality Report 2019

Current Zone 7 Supply Situation

- 5% of SWP
- Groundwater
- Storage
  - Kern Co. Water Bank: "DWR reduced the SWP allocation to 5%, reducing Zone 7's supplies by 4,000 AF. This raises operational challenges for recovery of banked water in Kern County." [GM Report, 4/21/21]
- Water Transfers
  - Mojave Water District – $850/AF

Figure 2: Expected 2021 Water Supply Portfolio to Meet Delivery Requests

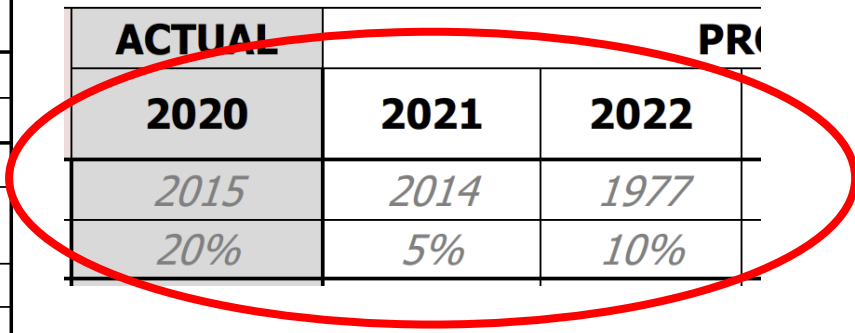


Reference: Zone 7 2021 Annual Sustainability Report

Zone 7: Looking ahead to 2022

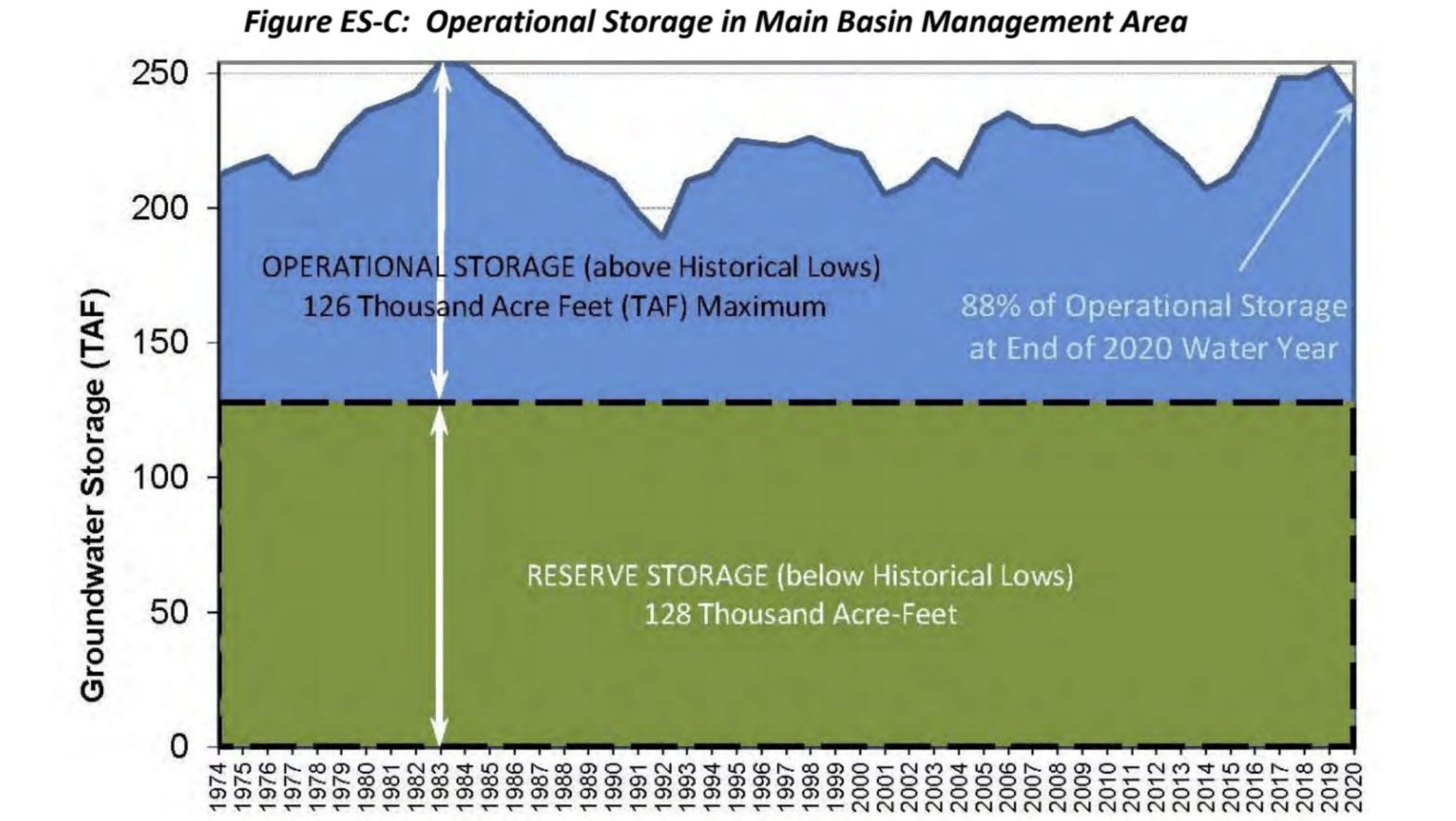
Table 1: Actual and Projected Five-Year Demands (Direct Use), Water Planned for Storage, and Losses

DEMANDS/PLANNED FOR STORAGE[a] Acre-Feet	ACTUAL	PROJECTIONS				
	2020	2021	2022	2023	2024	2025
Hydrologic Year Equivalent	*2015*	*2014*	*1977*	*Average*	*Average*	*Average*
Table A Allocation	*20%*	*5%*	*10%*	*59%*	*59%*	*59%*
Treated Water Delivery Requests[b,c]	39,000	42,300	41,100	42,000	42,900	43,800
Agricultural/Untreated Water Projection[d]	5,800	5,200	5,500	5,500	5,500	5,500
Groundwater Recharge	1,400	200	200	8,000	7,400	6,500
Groundwater Production (Disposal to brine)	400	100	200	400	400	400
Cawelo Storage	0	0	0	0	3,000	3,000
Semitropic Storage	0	0	0	0	0	0
Local Water Carryover (Current to Following Year)	0	0	0	5,500	5,500	5,500
State Water Project Carryover (Current to Following Year)	8,900	10,150	10,000	10,000	10,000	10,000
Transfer Water Carriage Water Loss	900	300	300	0	0	0
Unaccounted For Water (System Losses)	400	1,000	1,000	1,000	1,000	1,000
Lake Del Valle Evaporation Losses	300	50	50	300	500	500
Total	**57,100**	**59,300**	**58,350**	**72,700**	**76,200**	**76,200**



Reference: Zone 7 2021 Annual Sustainability Report

Current Groundwater Storage



- Reference: Zone 7 Annual Report for the Sustainable Groundwater Management Program2020 Water Year

Groundwater Quality

Total Dissolved Solids	• 2 main areas of concern in upper aquifer
Nitrates	• 10 areas of concern
Boron	• 2 main areas in upper aquifer where Boron exists above min threshold
Chromium	• Detected above min threshold in 2 upper aquifer monitoring wells, but not in any municipal supply wells
PFAS	• Present in Mocho 1-4, Chain of Lakes 1, 2 &5, and Pleasanton 5, 6, & 8

Reference: Zone 7 Annual Report for the Sustainable Groundwater Management Program2020 Water Year

PFAS in Zone 7 Wells

*Note: EPA and CA have not set MCL's yet, but

- New York: PFOA & PFAS=10;
- New Jersey: PFOA =14, PFOS=13;
- New Hampshire: PFOA=12 ,PFOS=15;
- Michigan: PFOA=8, PFOS=15

Reference: Assoc. of State Drinking Water Administrators

PFAS Current Quarterly Sampling Results and Running Annual Values (From Last 4 Quarters)

Water System Name: Zone 7 Water Agency Year: 2021 Quarter: 1

Water Supply Sources	PFAS*** (ng/L)														
	PFOS (NL = 6.5 ng/L, RL = 40 ng/L)			PFOA (NL= 5.1 ng/L, RL = 10 ng/L)			PFBS (NL = 500 ng/L, RL = 5,000 ng/L)			PFHxS (no NL/RL)			PFHxA (no NL/RL)		
	Current Quarter	Running Annual Average	Running Annual Range	Current Quarter	Running Annual Average	Running Annual Range	Current Quarter	Running Annual Average	Running Annual Range	Current Quarter	Running Annual Average	Running Annual Range	Current Quarter	Running Annual Average	Running Annual Range
Mocho Wellfield															
Mocho Well 2 (before treatment)*	31	37	31 - 41	4	5	4 - 5	6	7	6 - 7	29	32	29 - 34	5	5	5 - 6
Mocho Well 3	OOS	35	34 - 35	OOS	5	5 - 5	OOS	7	7 - 7	OOS	28	27 - 28	OOS	5	5 - 6
Mocho Well 4	16	15	14 - 16	ND	ND	ND	5	5	5 - 5	16	16	15 - 17	ND	ND	ND
Blended/Treated Mocho Water	OOS	21	18 - 23	OOS	ND	ND - 4	OOS	ND	ND - 6	OOS	19	16 - 21	OOS	ND	ND - 5
Chain of Lakes (COL) Wellfield															
COL Well 1	30	33	30 - 38	ND	ND	ND - 5	5	5	5 - 6	21	24	21 - 29	ND	ND	ND - 5
COL Well 2	18	16	14 - 18	ND	ND	ND	ND	ND	ND	14	14	14 - 15	ND	ND	ND
COL Well 5 (before treatment)**	27	37	27 - 46	ND	ND	ND	ND	ND	ND	13	19	13 - 24	ND	ND	ND
Blended COL Water	22	23	22 - 25	ND	ND	ND	ND	ND	ND - 4	15	18	15 - 20	ND	ND	ND
Stoneridge Well	15	13	8 - 16	ND	ND	ND	6	4	ND - 6	18	15	10 - 18	ND	ND	ND
Hopyard Wellfield (Well 6 and 9)	NS	ND	ND	NS	ND	ND	NS	ND	ND	NS	ND	ND	NS	ND	ND
Treated Surface Water	NS	ND	ND	NS	ND	ND	NS	ND	ND	NS	ND	ND	NS	ND	ND

Notes: ng/L = nanograms per liter. NS = Not Sampled. OOS = Out-of-Service. NL = Notification Level. RL = Response Level based on average of last 4 quarters. ND = Not Detected at or above the Consumer Confidence Report Detection Level (CCRDL) which is 4 ng/L for the above analytes; ND or value in range column indicates that more one sample was collected.

* Mocho Well 2 was blended/treated at the Mocho Groundwater Demineralization Plant (MGDP) whenever the well was online; All Mocho wells can also be treated at the MGDP.

**COL Well 5 was blended with other COL well water whenever it was online.

***Starting in 1st quarter 2021, monitoring has been expanded from 18 to 29 analytes using both EPA Method 537.1 and Method 533.; Only detected analytes above the CCRDL are shown on the table; PFOS = perfluro-octane sulfonic acid, PFOA = perfluoro-octanoic acid, PFBS = perfluorobutane sulfonic acid, PFHxA = perfluorohexanoic acid, PFHxS = perfluorohexane sulfonic acid.

Pleasanton Wells -Limitations

Well 8 is out of service due to PFAS

Other wells have PFAS, too

Zone 7 is the Livermore Valley Groundwater Basin Authority

City Council's Vote re: Water Supply Study

Pleasanton has participated in Tri-Valley Water Liaison Committee meetings since 2014 (Zone 7, DSRSD, Cal Water, Dublin, Livermore, San Ramon, Pleasanton)

In 2016, the Committee supported a more detailed study of potable reuse & hired Carollo to prepare a feasibility study

In 2018, the study demonstrated it was technically feasible for a joint Tri-Valley Potable Reuse project to meet 7%-15% of the build-out water demands based on approved General Plans.

The 2019 Water Supply Evaluation Update reaffirmed the need to pursue water supply options

On 7/24/19, the Tri-Valley Water Liaison committee supported further study of a regional potable reuse project

On 2/2/21, Pleasanton City Council voted not to participate/help fund the study

Reference: Pleasanton City Council Agenda Packet

Zone 7 Response to Pleasanton's Decision

"DSRSD and Livermore have suggested that Zone 7 take the lead on these necessary studies and build these costs into the treated water rates" (Zone 7 Meeting Packet – 4/21/21)

Since Pleasanton is the largest customer of Zone 7, we would pay the most if the study is funded by water rates.

Pleasanton City Manager's Letter to Zone 7

Study will go forward

Zone 7 has yet to determine if the study will be funded by Water Rates and/or Connection fees

Short-Term Impact on Residents & Businesses

Conserve Water

Rebates

- City of Pleasanton Rebate Programs
- Zone 7 Rebate Programs

Conservation Programs

- City of Pleasanton guidance/resources
- Zone 7 guidance/resources

Long-Term Impact
CA Climate Change Assessment

Precipitation, Drought and Snowpack

Future increases in temperature, regardless of whether total precipitation goes up or down, will likely cause longer and deeper California droughts, **posing major problems for water supplies**, natural ecosystems, and agriculture.

The 2012-2016 California drought led to **the most severe moisture deficits in the last 1,200 years** and a 1-in-500-year low in Sierra snowpack. Importantly, paleoclimatic records show that mega-droughts spanning multiple decades have occurred in California's past.

Consecutive years of low or no snowpack are especially worrisome.

- The 2012-2016 record low snowpack resulted in **$2.1 billion in economic losses, 21,000 jobs lost** in the agricultural and recreational sectors statewide and exacerbated an ongoing trend of groundwater overdraft.

Under a high emissions scenario, average Sierra Nevada snowpack is projected **to decline by nearly 20% in the next 2-3 decades, 30% to 60% in mid-century, and by over 80% in late century.**

Urban Water

The Bay Area's water agencies rely on a diverse portfolio of local and imported sources. The **reliability of these sources will vary dramatically** in both the short and long term as the climate changes.

Climate impacts — such as earlier melting of snowpack, increasing seawater intrusion into groundwater, increased rates of evapotranspiration, and levee failures or subsidence that contaminate Delta supplies — will affect both the **quantity** of water available and the **quality** of supplies.

Reference: San Francisco Bay Area Regional Report

Long-Term Impact/Vision 2025

- What impact will our water supply & quality issues have on:
  - East Side Plan
  - Johnson Drive Economic Development Zone
  - Home values
  - New housing development
  - Recreational facilities & Parks
  - Fire Safety
  - Local businesses that rely on water in their supply chain, e.g. restaurants, grocery stores