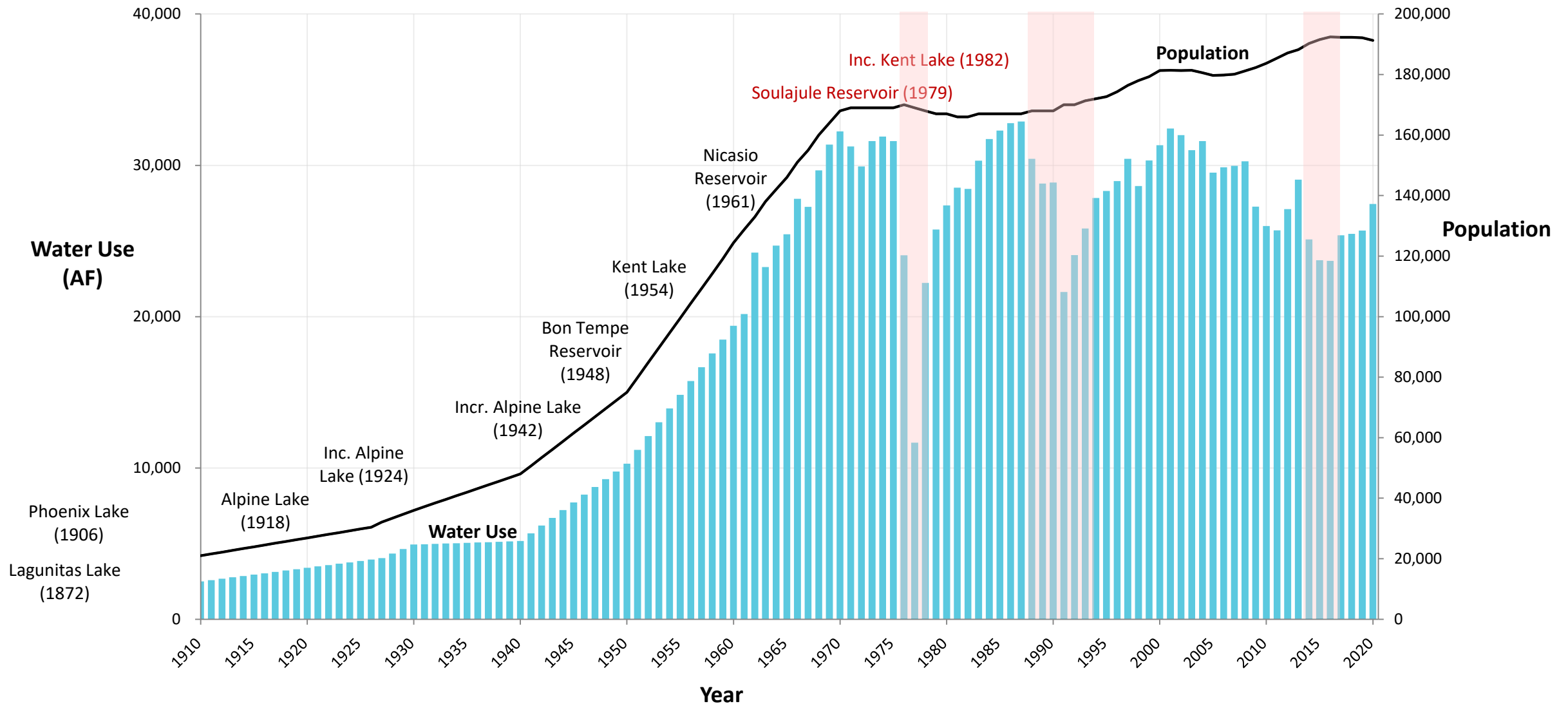# Water Supply Resiliency

Board Retreat

October 15, 2021

Overview

- Historical Context

- Current Water Supply Portfolio

- Supply and Demand

- Sonoma Water Reliability

- Climate Change

Historical Context

Water Supply Improvements since 1977 Drought

- Built **Soulajule Reservoir** (1979) – 10,500 AF

- Expanded **Kent Reservoir** (1983) – Doubled storage capacity to 32,900 AF

  → Resulting in stream releases of ~11-13,000 AFY for habitat

- Improved contracts for **Russian River water** (1976, 1988, 1996) – up to 14,300 AF

- **Conservation program** – reduced per capita consumption from 175 gpcd to 120 gpcd; annual budget $2M

- **Recycled water program** (1981) – recent investment in LGVSD expansion

- **Pilot Desalination Plant** (1990, 2001-2010)
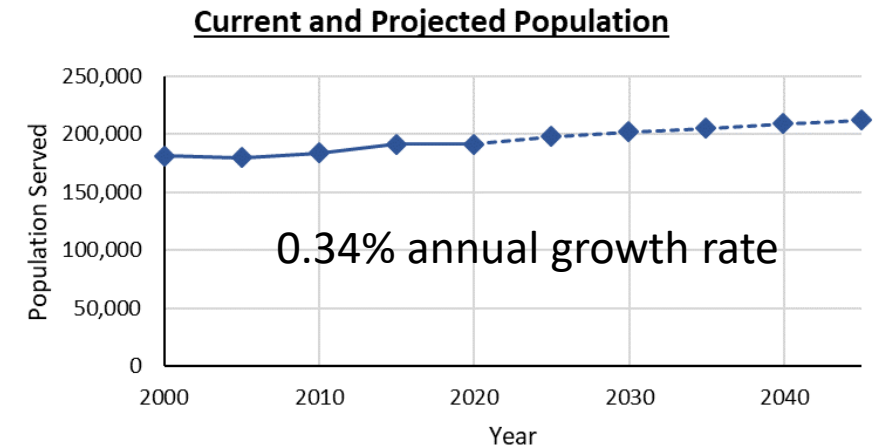
Current Water Supply Portfolio

- **Supply**
  - Local Reservoir Storage: 79,556 AF
  - SCWA Intertie: 4,300 - 14,300 AF
  - Recycled Water: 600 AFY
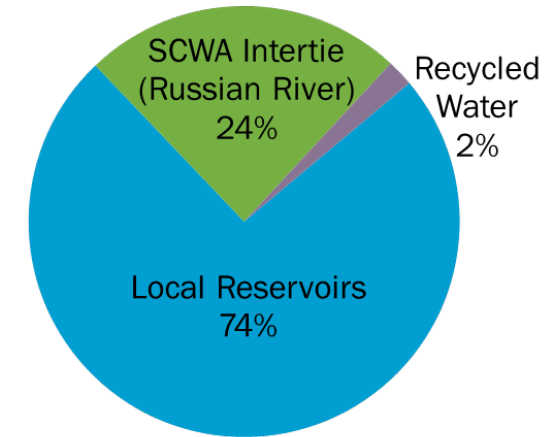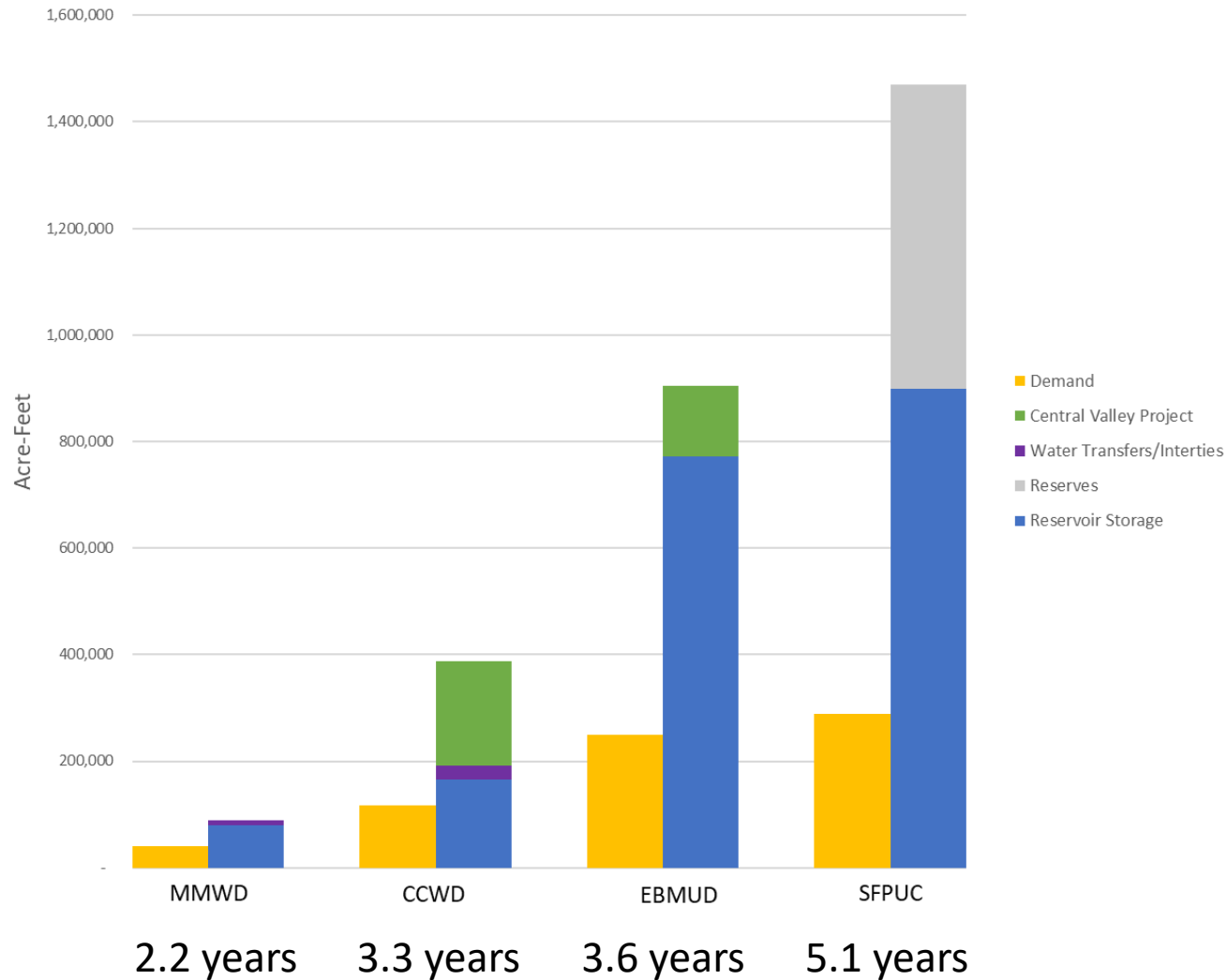

- **Demand**

  Normal year demand projected to stay stable over next 20 years (2020 UWMP)
 - 25,000-27,000 AFY

MMWD 2020 UWMP, ABAG (2018)

Supply / Demand

- Approximate water supplies to annual demand
- Additional Considerations:
  - Water availability in dry years
    - Rainfall / runoff
    - Curtailments
  - Variable environmental releases
  - Inaccessible storage
  - Timing

Diversification of Water Supply Portfolio

Bay Area Regional Reliability (BARR) Drought Contingency Plan, 2017
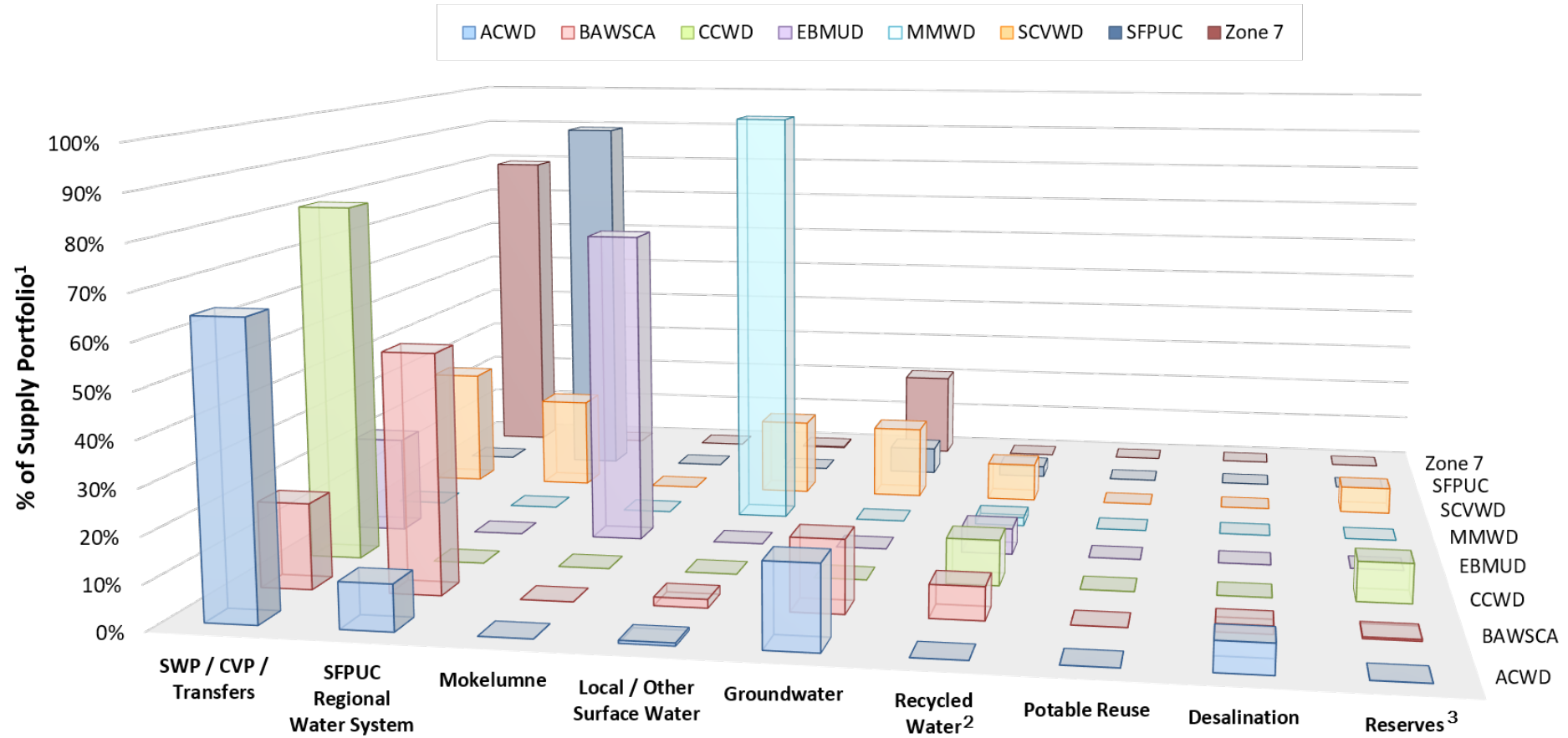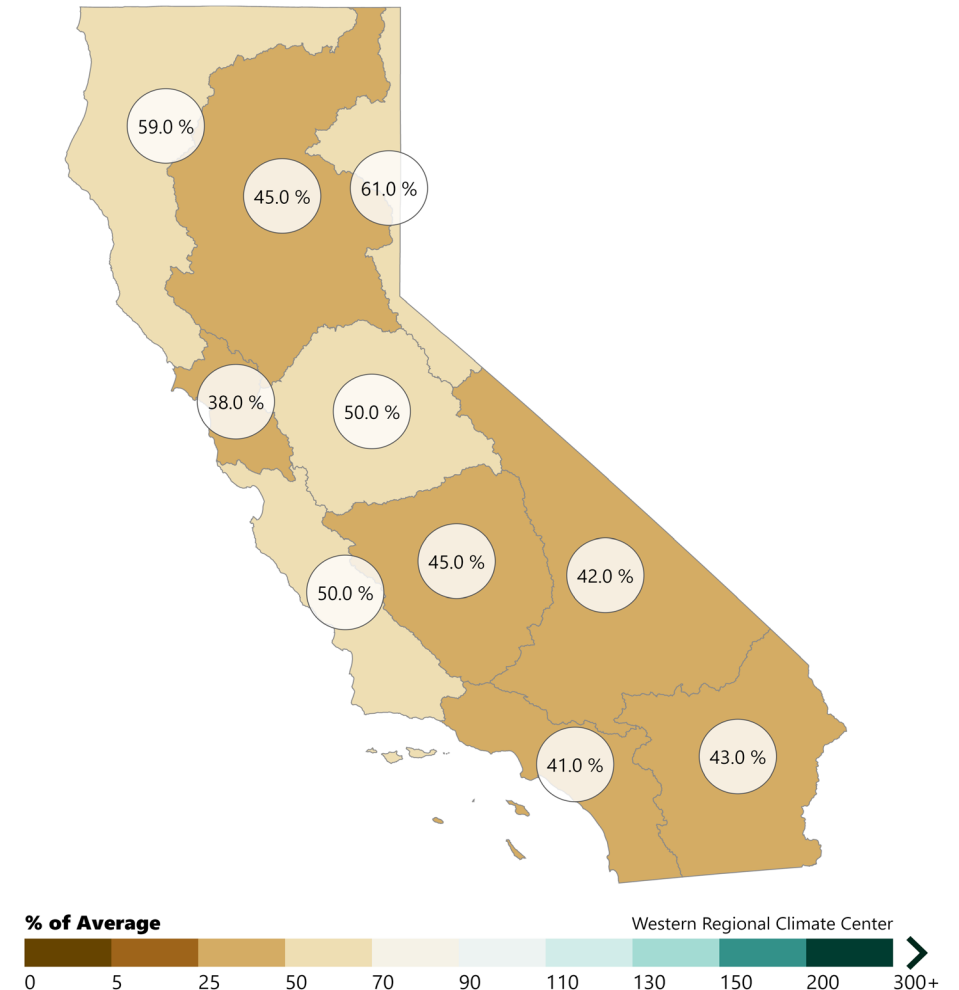
Sonoma Water

- Current drought conditions

- Potter Valley Project

- Long-term reliability
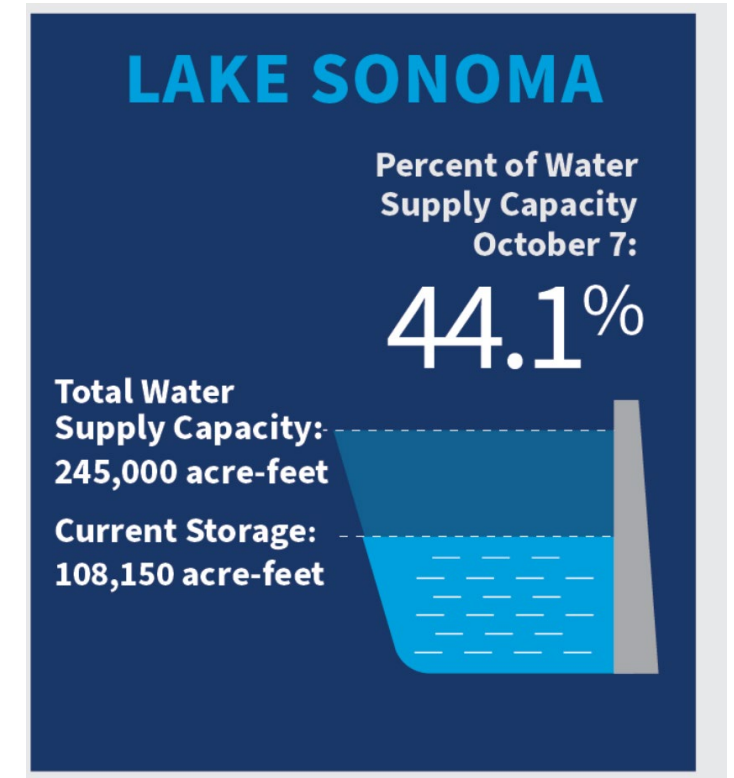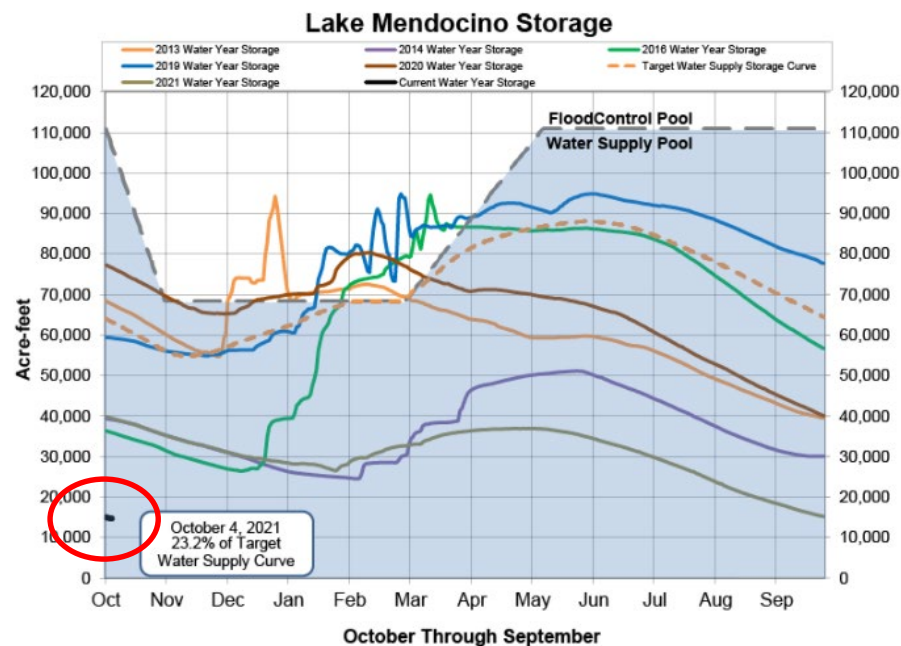
Hydrologic Regions in California

- Widespread drought conditions across the state

- Severity of drought conditions focused on SF Bay Area

- Lowest historical % of average by region

- DWR: 140% avg rainfall to receive avg runoff upcoming season (USGS Basin Characterization Model)

California by Hydrological Regions
Precipitation Percents of 1991-2020 Averages for October 2020 - September 2021

59.0 %
45.0 %
61.0 %
38.0 %
50.0 %
50.0 %
45.0 %
42.0 %
41.0 %
43.0 %

% of Average   Western Regional Climate Center

0   5   25   50   70   90   110   130   150   200   300+

Planning for Uncertain Future

- Strengthen water supply resilience

- Meet future demand through supply opportunities including conservation
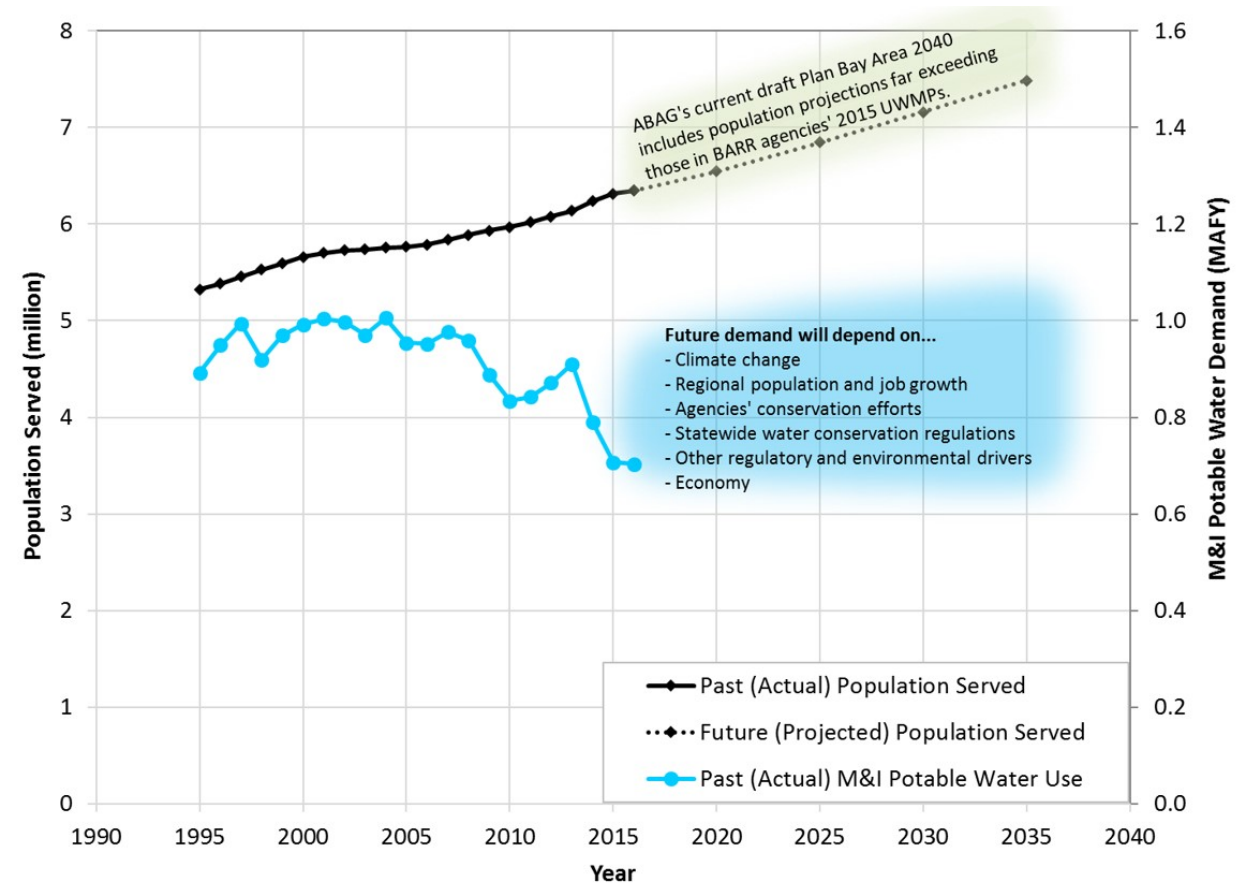
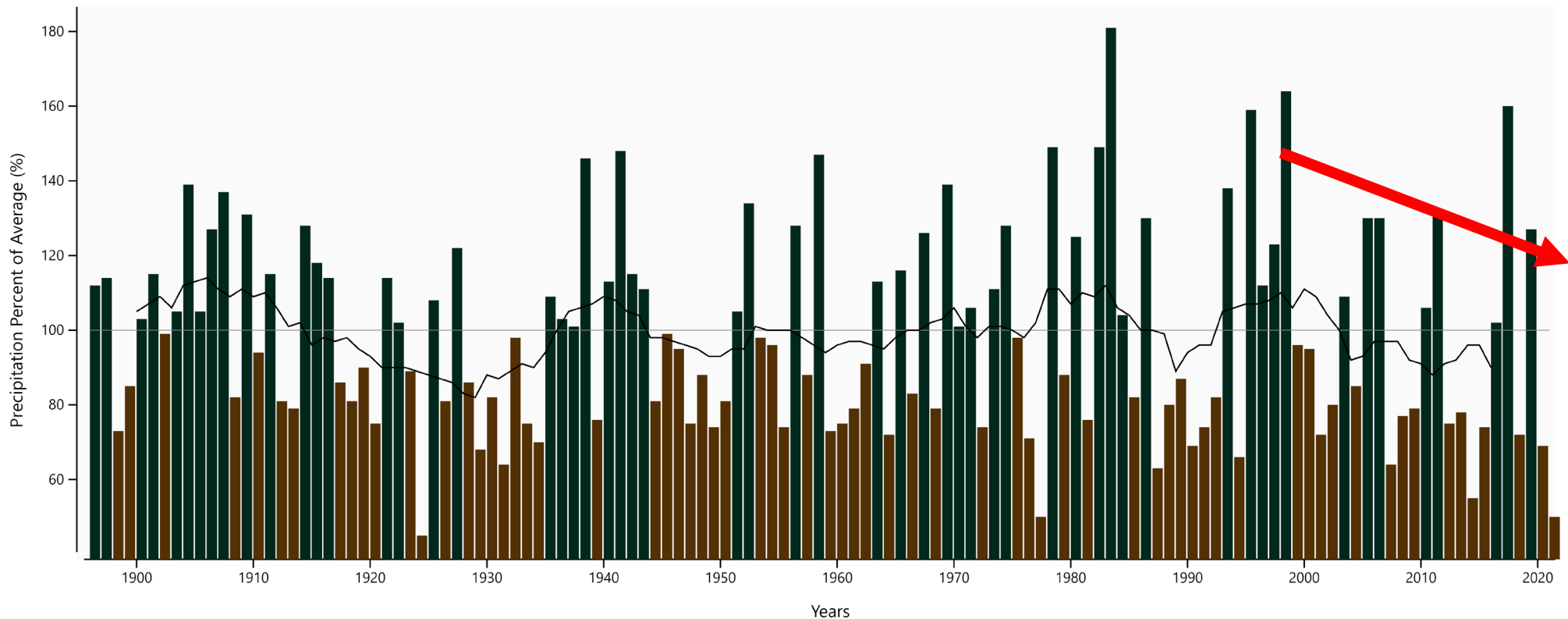*Bay Area Regional Reliability (BARR) Agencies*

Rainfall Trending Downwards

California (statewide)
Precipitation Percents of 1991-2020 Averages for 12-month periods ending in September

— 11-Year Running Mean

Western Regional Climate Center

Summary Statistics

1991-2020 Averages

Mean: 23.58in.

Median: 21.32in.

Extremes

Wettest: 42.82in. (181.60 % of Average), 1983

Driest: 10.75in. (45.58 % of Average), 1924
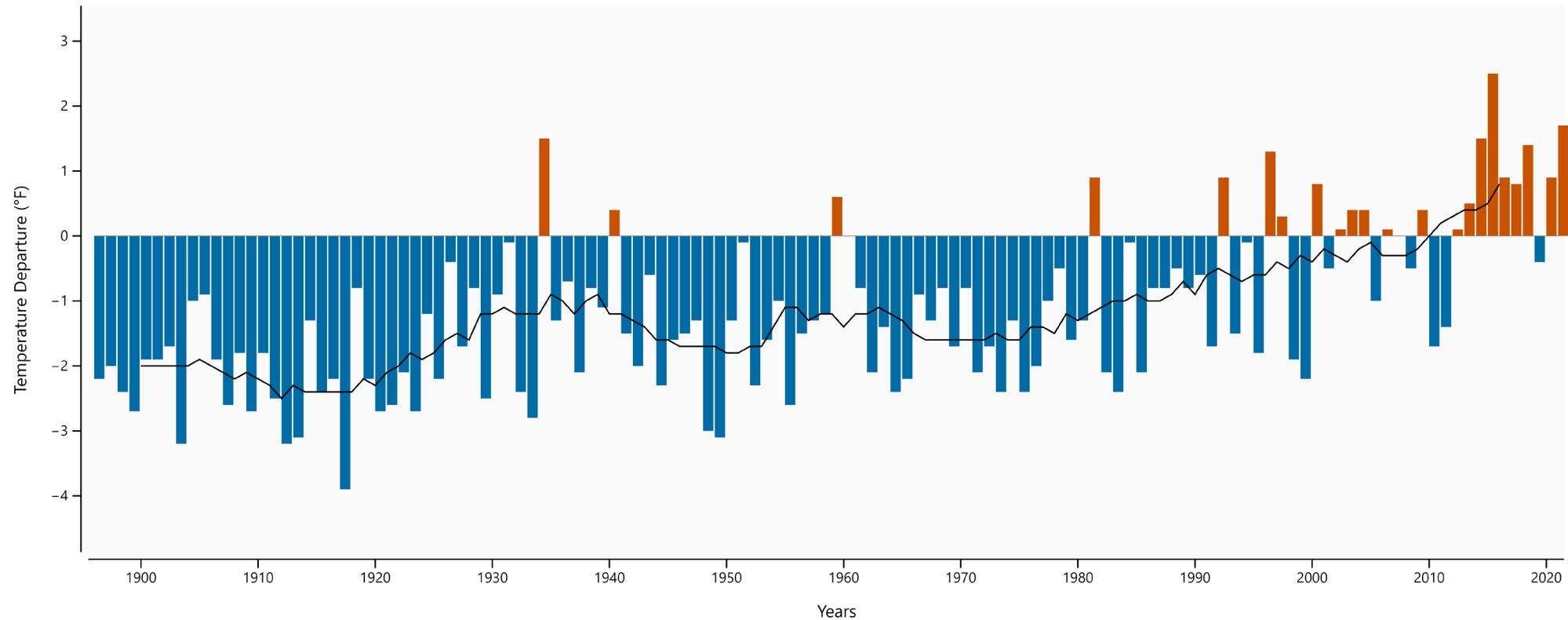
Most Recent Year

Oct 2020 - Sep 2021 | 11.87in. (50.34 %) | Rank: 2 of 126

(1 = Record Driest, 126 = Record Wettest)

Temperatures Trending Hotter

California (statewide)

Temperature Departures from 1991-2020 Averages for 12-month periods ending in September

— 11-Year Running Mean

Western Regional Climate Center

Summary Statistics

1991-2020 Averages

Mean: 58.3°F

Median: 58.4°F

Extremes

Warmest: 60.9°F (+ 2.5 °F from Average), 2015

Coldest: 54.5°F (- 3.9 °F from Average), 1917

Most Recent Year

Oct 2020 - Sep 2021 | 60.1°F (+ 1.7 °F) | Rank: 125 of 126

(1 = Record Coldest, 126 = Record Warmest)

Droughts & Climate Change

- Droughts are a recurring feature of California climate throughout history

- Climate change is making droughts more intense
  - Increasing temperatures in last two decades
  - Increased evaporation – "thirsty" atmosphere

Droughts in California, PPIC Water Policy Center, April 2021

Planning for 2022 and Beyond

Anticipated conditions

- Warm
- Dry watershed
- Low storage
- SCWA
- A wet winter?

DWR Priorities

- Health and Safety
- Interties/conveyance
- Endangered species
- Storage Conservation
- Forecasting

Summary

- Increasing temperatures and periods of variable precipitation are occurring state-wide and locally

- Long-term considerations of water supply reliability in the context of climate change

- Diversification of water supplies strengthens ability to reliably deliver water through uncertain conditions