Who Will Pay the Cost of Climate Change?

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State Water Resources Control Board

CALIFORNIA
Water Boards

January 22, 2025: Southern California Water Dialogue Meeting

Overview

- Origin of Title
- Water Resilience Portfolio & 2020-22 drought
- Water Supply Strategy

https://www.latimes.com/environment/story/2025-01-16/climate-change-california-fires?utm_medium=email&utm_source=govdelivery

CLIMATE & ENVIRONMENT

How climate change worsened the most destructive wildfires in L.A. history

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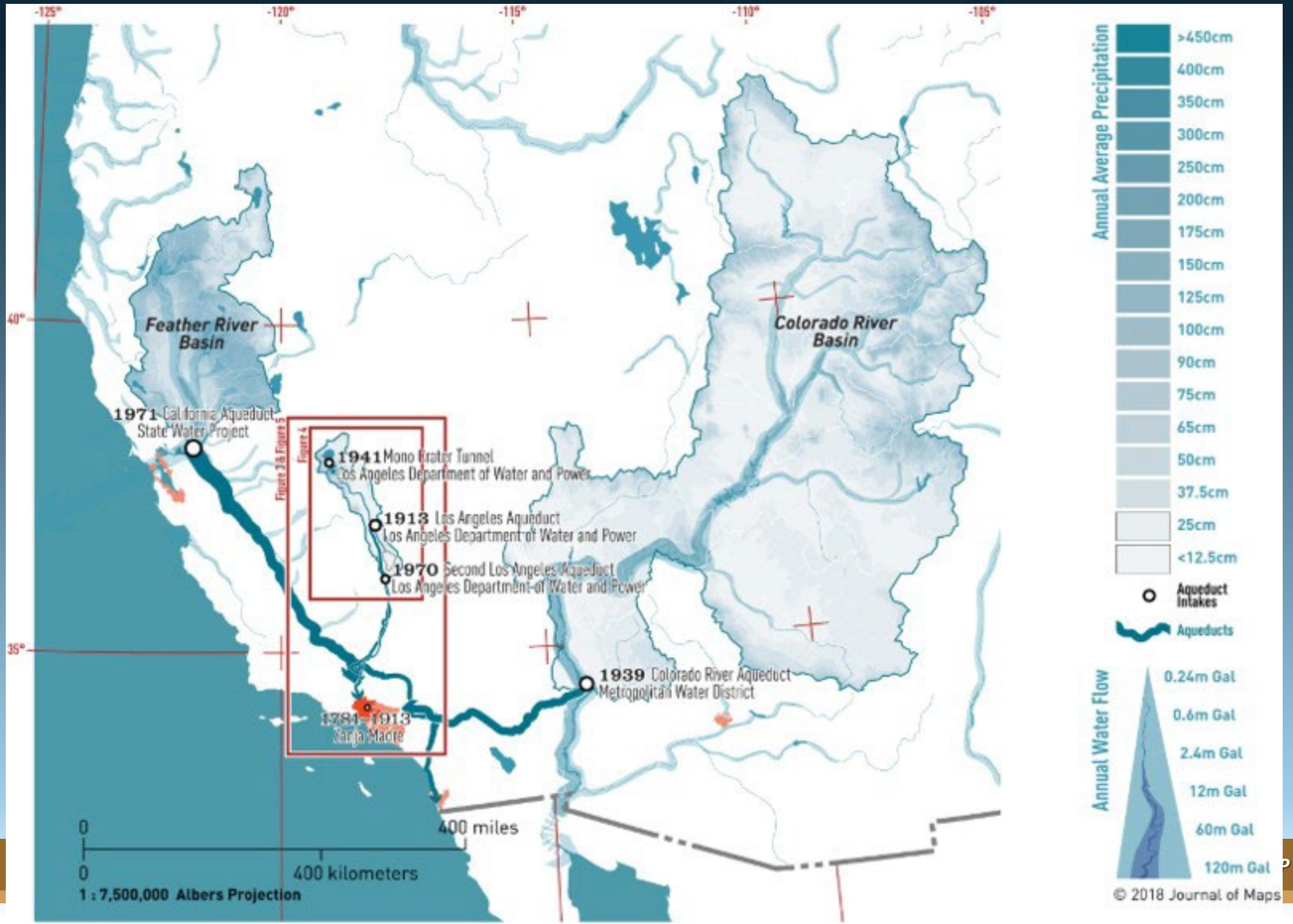
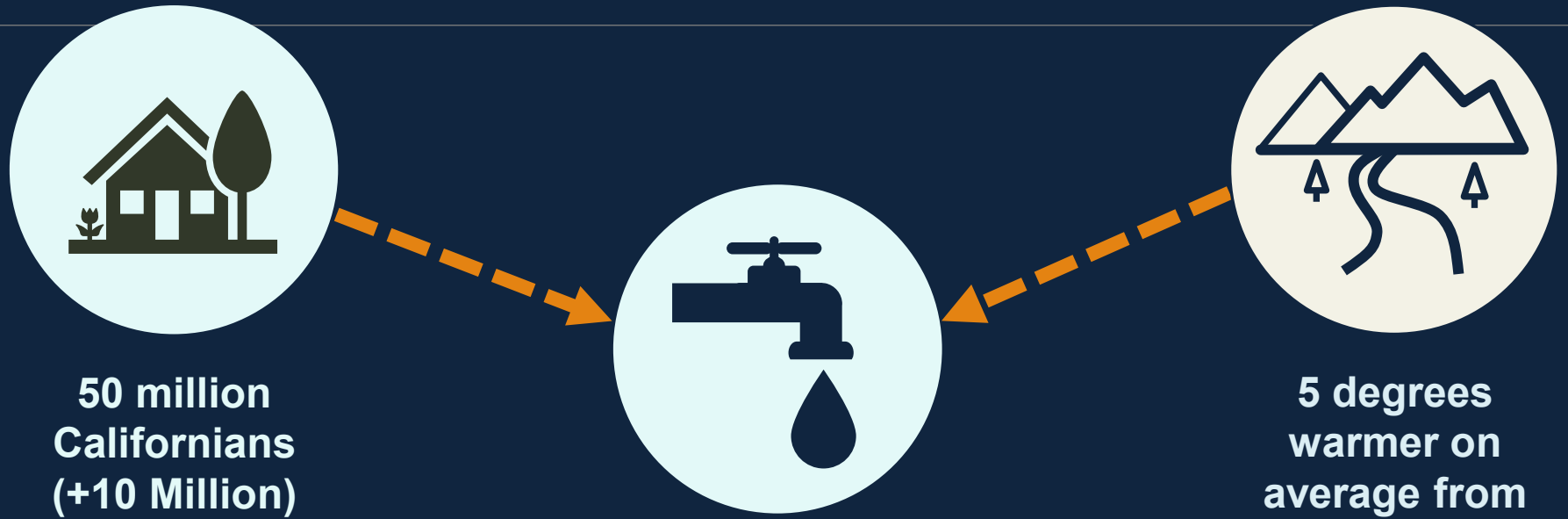
Climate Change A Factor In Unprecedented LA Fires

[Climate Change AFactor In Unprecedented LAFires | Sustainable LAGrand Challenge]
Madakumbura et. al. 2025


-125°
-120°
-115°
-110°
-105°
40°
35°
Feather River Basin
Colorado River Basin
1971 California Aqueduct State Water Project
1941 Mono Krater Tunnel Los Angeles Department of Water and Power
1913 Los Angeles Aqueduct Los Angeles Department of Water and Power
1970 Second Los Angeles Aqueduct Los Angeles Department of Water and Power
1939 Colorado River Aqueduct Metropolitan Water District
1781–1913 Zanja Madre
Figure 3 & Figure 5
Figure 4
0
400 miles
0
400 kilometers
1 : 7,500,000 Albers Projection
Annual Average Precipitation
>450cm
400cm
350cm
300cm
250cm
200cm
175cm
150cm
125cm
100cm
90cm
75cm
65cm
50cm
37.5cm
25cm
<12.5cm
Aqueduct Intakes
Aqueducts
Annual Water Flow
0.24m Gal
0.6m Gal
2.4m Gal
12m Gal
60m Gal
120m Gal
© 2018 Journal of Maps

P O N S E

WATER RESILIENCE PORTFOLIO
PLANNING FOR 2050
Draft 2019, Final 2020



50 million Californians (+10 Million)

Water Supply Certainty

5 degrees warmer on average from 2050-2100

STATE OF CALIFORNIA
WATER RESILIENCE
PORTFOLIO INITIATIVE

Most Recent DROUGHT

2020

Conditions

- Jan. – Feb. 2020 largely dry
- Spring snowpack 37% of average
- Wet 2019 lessened impacts on large reservoirs
- Catastrophic wildfires

2021

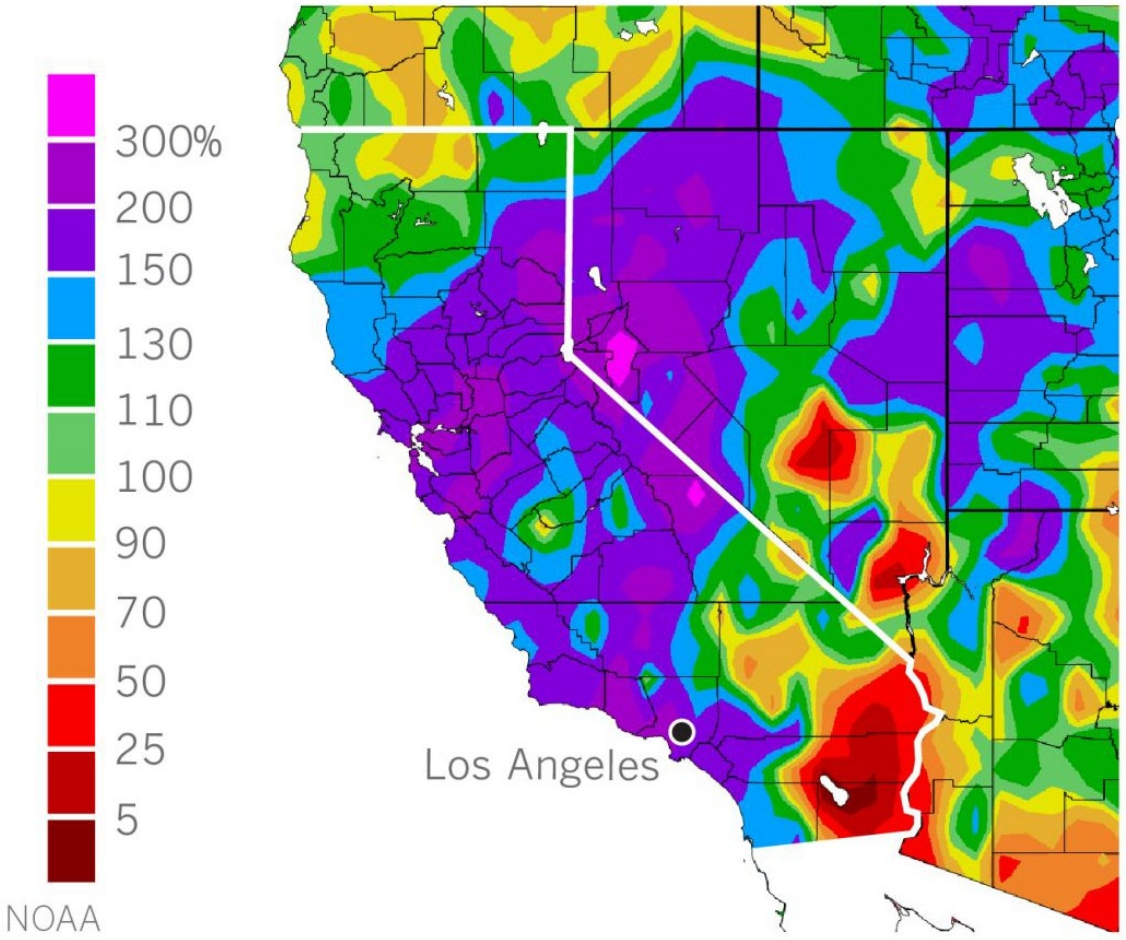
Conditions

- 2nd driest year & hottest summer on record
- Spring snowpack resembled 25%
- Lakes Mead & Powell record lows
- 2.5 million acres burned
- Drought state of emergency

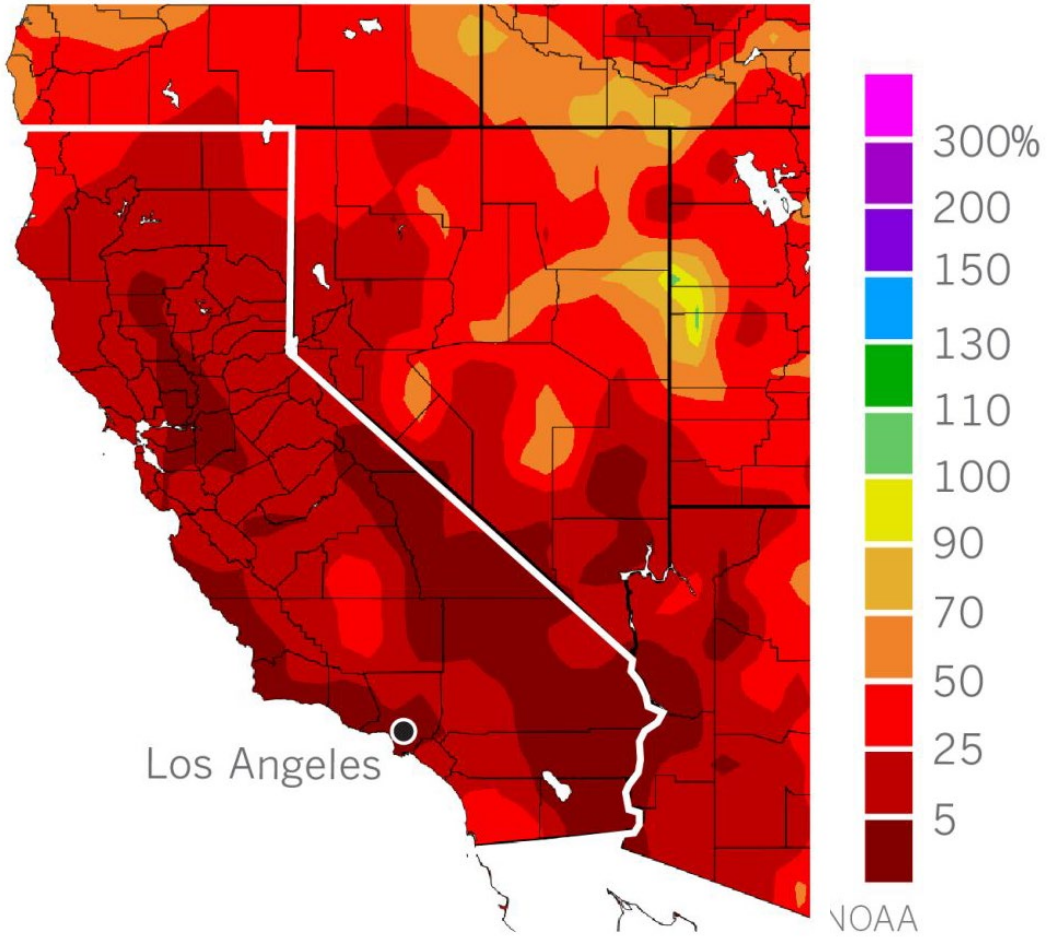
2022 CONDITIONS

Percentage of Normal Precipitation

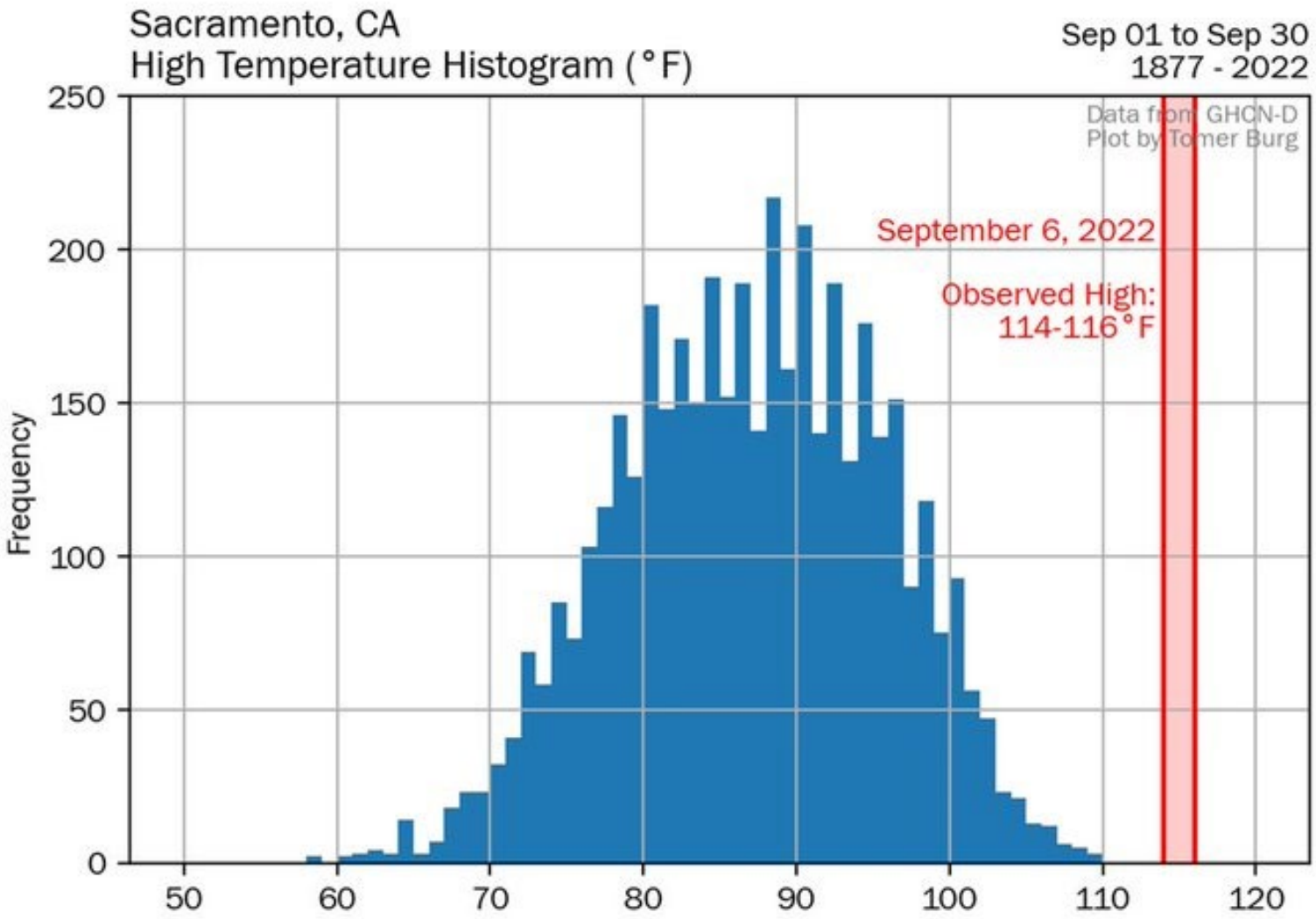
Oct. 1 to Dec. 31, 2021



Jan. 1 to Mar. 24, 2022



2022 CONDITIONS



Aridification

Loss of 10% of average water supply by 2040

Loss of an estimated six to nine million acre-feet per
year. Equivalent of about two full Shasta Reservoirs.

Loss of snowpack, implications for how California's reservoirs are operated.

Water Supply Strategy

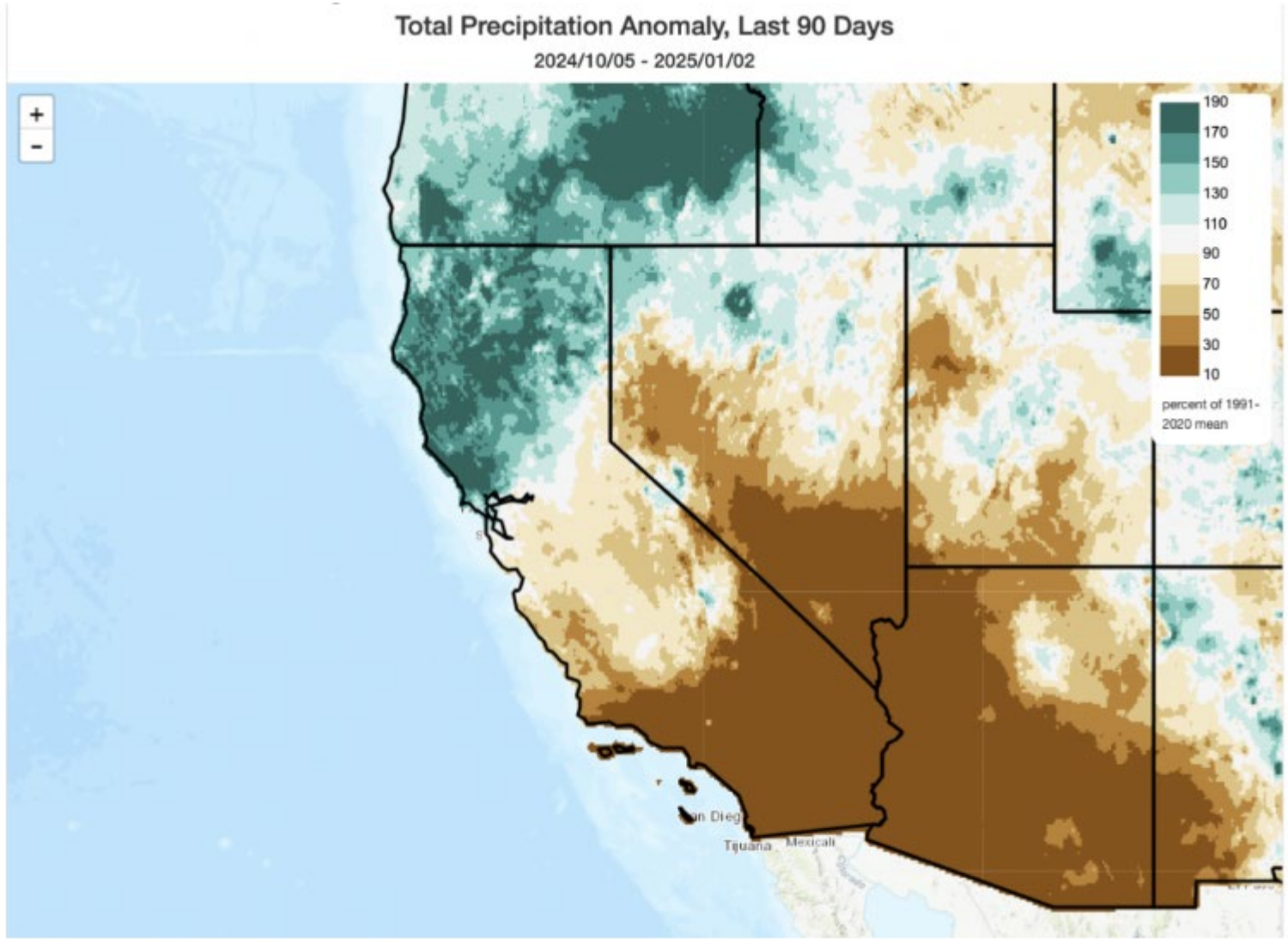
- Released August 11, 2022
- Details strategies for increasing supply and conserving supplies
- Develop new water supplies
- Recycling, stormwater capture, desalination
- Expand water storage above and below ground
- Reduce water demand
- Improve water forecasting, data, and management, including water rights modernization

Climate Change Certainty

- More intense drought: hotter, drier future
- When it rains, it pours
- Weather whiplash – drought to flood and back again

Uncertainty

- What?
  - Flood? Drought? Fire? Extreme heat? Ocean flooding?
- Where?
  - California is a huge state – geographic variability from year to year
- When?
  - How long until the next drought?
  - Groundwater recharge – broad consensus on benefit, but how to invest when flood flows only occur once every 10 years?
- Who?
  - Disproportionate impacts based on location, beneficial uses, socio-economic status



California's already pronounced north-south precipitation dipole this season has become even more extreme in recent days, with NorCal continuing to see quite wet conditions and SoCal remaining nearly bone dry. (via climatetoolbox.org)

What do we do?

- Planning for the “known unknowns” of water
  - We *know* how to prepare and respond to floods
  - We *know* how to prepare and respond to droughts
  - We *know* how to use water efficiently
  - We *know* how to evaluate ecosystem needs
  - We *know* we improve each time, and that we can always do better!

- Allows for more certainty than we might expect:
  - Planning at state, regional, local, and hyper-local levels
    - Identify adaptations, triggers, and contingencies
  - Make connections, keep them
  - Investments in infrastructure, adaptations, and contingencies
  - Have the hard discussion now: how to balance ecosystems and supplies

- Implementation

Who Pays?

- Fiscal costs – all Californians
  - Risk assessment
  - Mitigation planning
  - Infrastructure
  - Governance
  - Relationships

- Water supply
  - People, the environment, or both?
  - Is it a shared responsibility? If so – how to split?
    - Local, regional, state values proposition.
    - Mono Lake, case study


Nevada
Mono Lake
California


To Lake Tahoe
To Nevada
167
Mill Creek
395
Mono Basin
Negit Island
Paoha Island
Mono Lake
Sierra Nevada
Lee Vining
To Yosemite
Lee Vining Creek
120
Rush Creek
120
N
0 0.5 1 2 3
Miles
To Los Angeles

Slide: California Dept. of Fish and Wildlife

Current Lake Level and Concern for Public Trust Resources

Mono Lake California Gull population

One of the three largest breeding colonies in the world

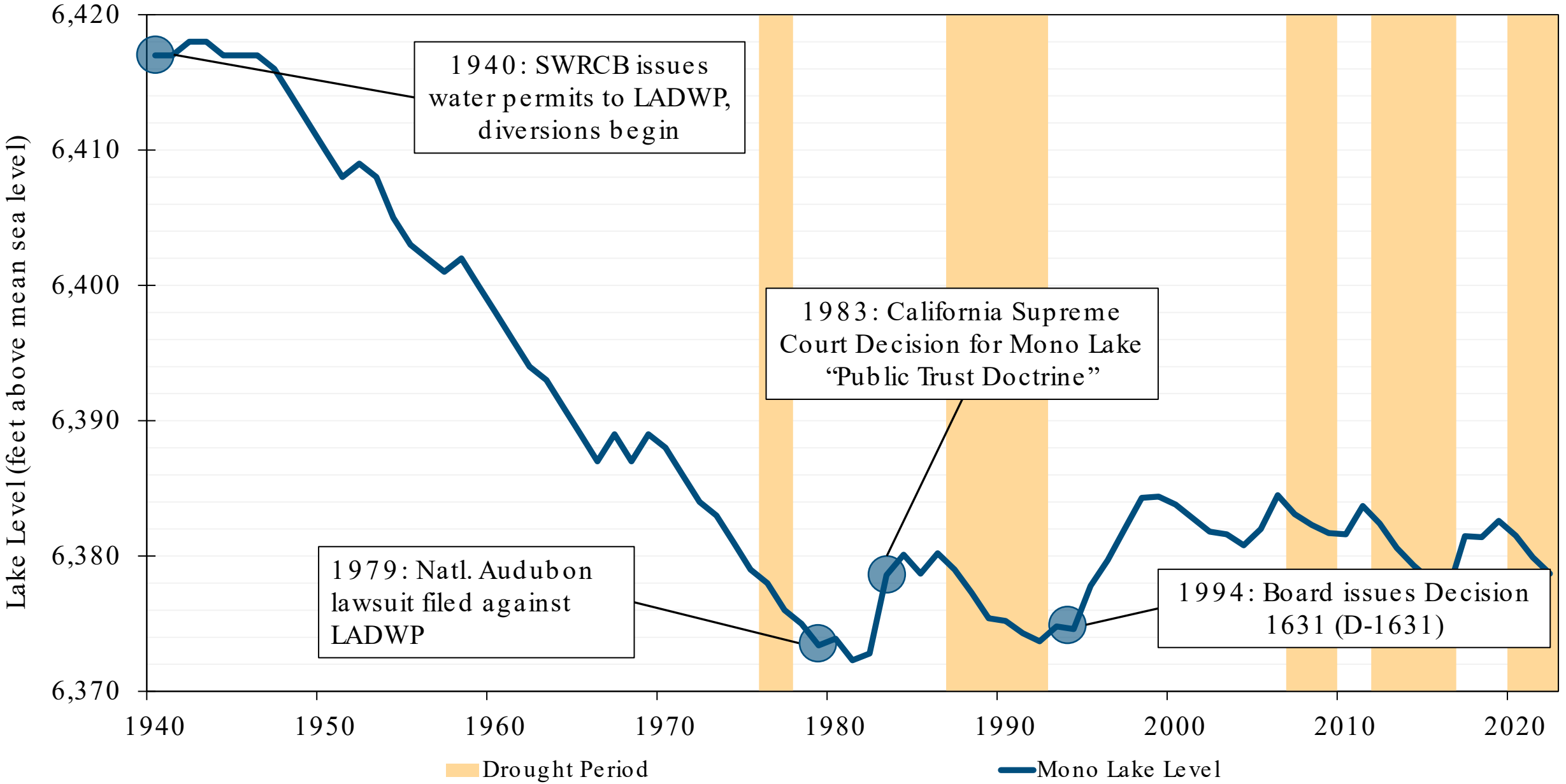
Largest natural breeding colony in California

Lower lake levels present a threat to the Mono Lake California Gull nesting colonies

Other migratory birds – phalaropes, grebes

Tribal beneficial uses

Mono Lake Level History



D-1631 & Required Hearing

- Modeling used in D-1631 suggested lake level target could be reached sometime between 2014 and 2038 (under transition diversion criteria).

- D-1631 directed future board to hold a hearing on progress if lake level target not met by 2014

- Board has not yet held hearing
  - Agreement to postpone while parties worked on updates to water rights licenses related to restoration (completed in 2021).

Wrap Up

- We haven’t seen full picture of climate change yet
- But we know what to expect at a 100,000-foot level
- It will be expensive
- Hard choices, will require trade-offs