

WATER IN THE WEST

Managing Water in a Changing West:
Early Lessons from California
AWRA-WA State Conference
October 16, 2018



Stanford

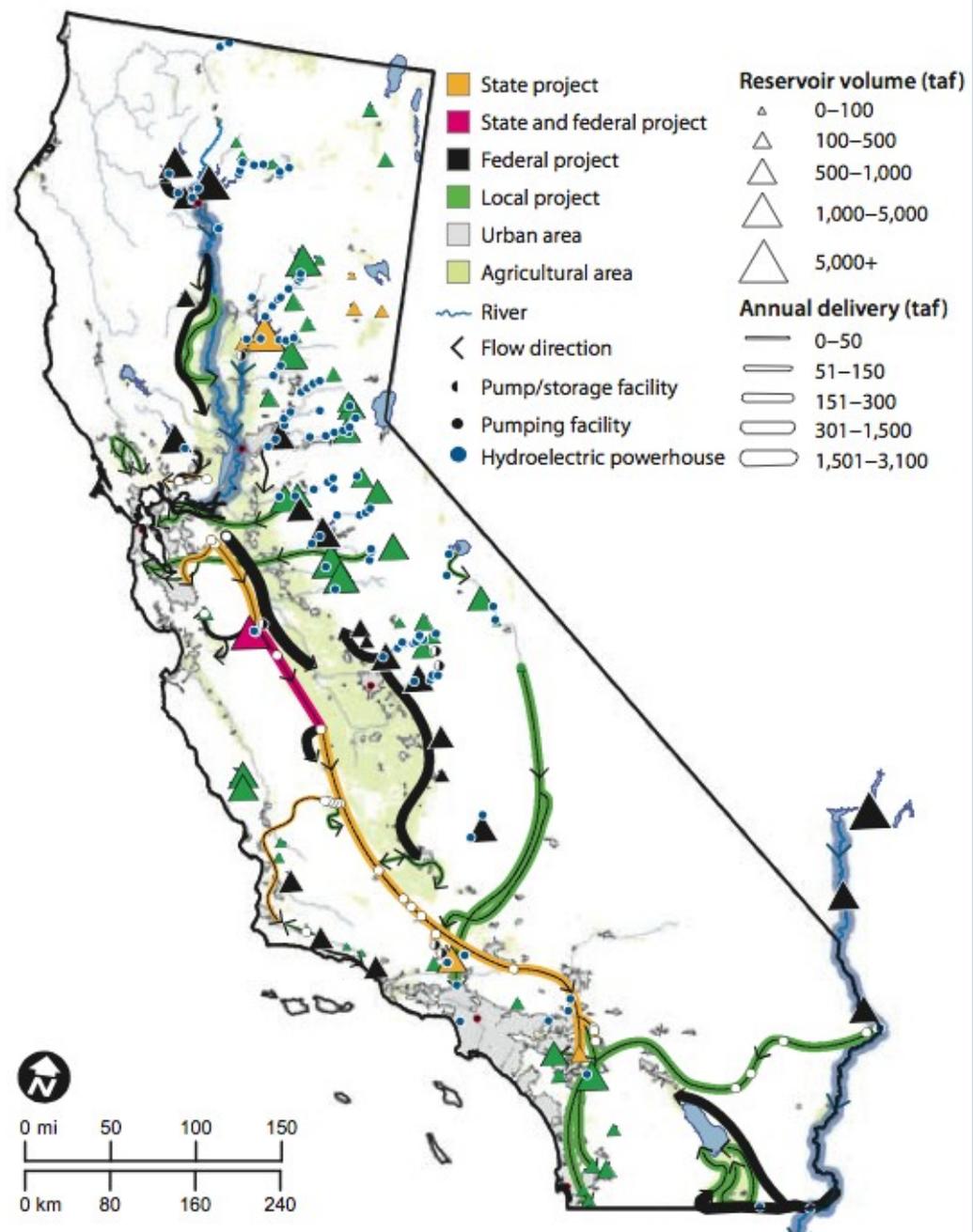


STANFORD UNIVERSITY
THE BILL LANE CENTER
FOR THE AMERICAN WEST



Stanford
WOODS
INSTITUTE *for the*
ENVIRONMENT

California has an elaborate network of conveyance and storage infrastructure, controlled by different agencies



U.S. Drought Monitor California

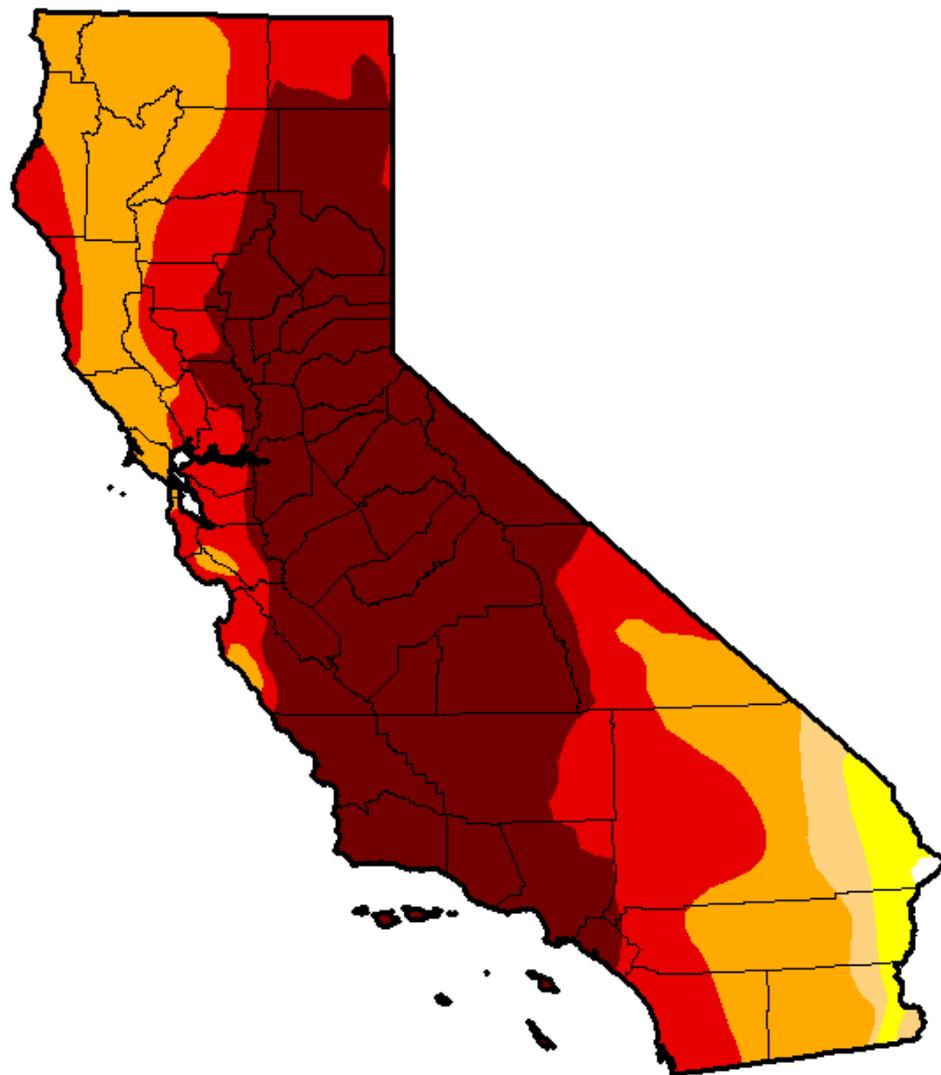
July 28, 2015

(Released Thursday, Jul. 30, 2015)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.14	99.86	97.35	94.59	71.08	46.00
Last Week <i>7/21/2015</i>	0.14	99.86	97.35	94.59	71.08	46.00
3 Months Ago <i>4/28/2015</i>	0.14	99.86	98.11	93.44	66.60	46.77
Start of Calendar Year <i>12/30/2014</i>	0.00	100.00	98.12	94.34	77.94	32.21
Start of Water Year <i>9/30/2014</i>	0.00	100.00	100.00	95.04	81.92	58.41
One Year Ago <i>7/29/2014</i>	0.00	100.00	100.00	100.00	81.89	58.41



Intensity:



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

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NCEI/NOAA



<http://droughtmonitor.unl.edu/>







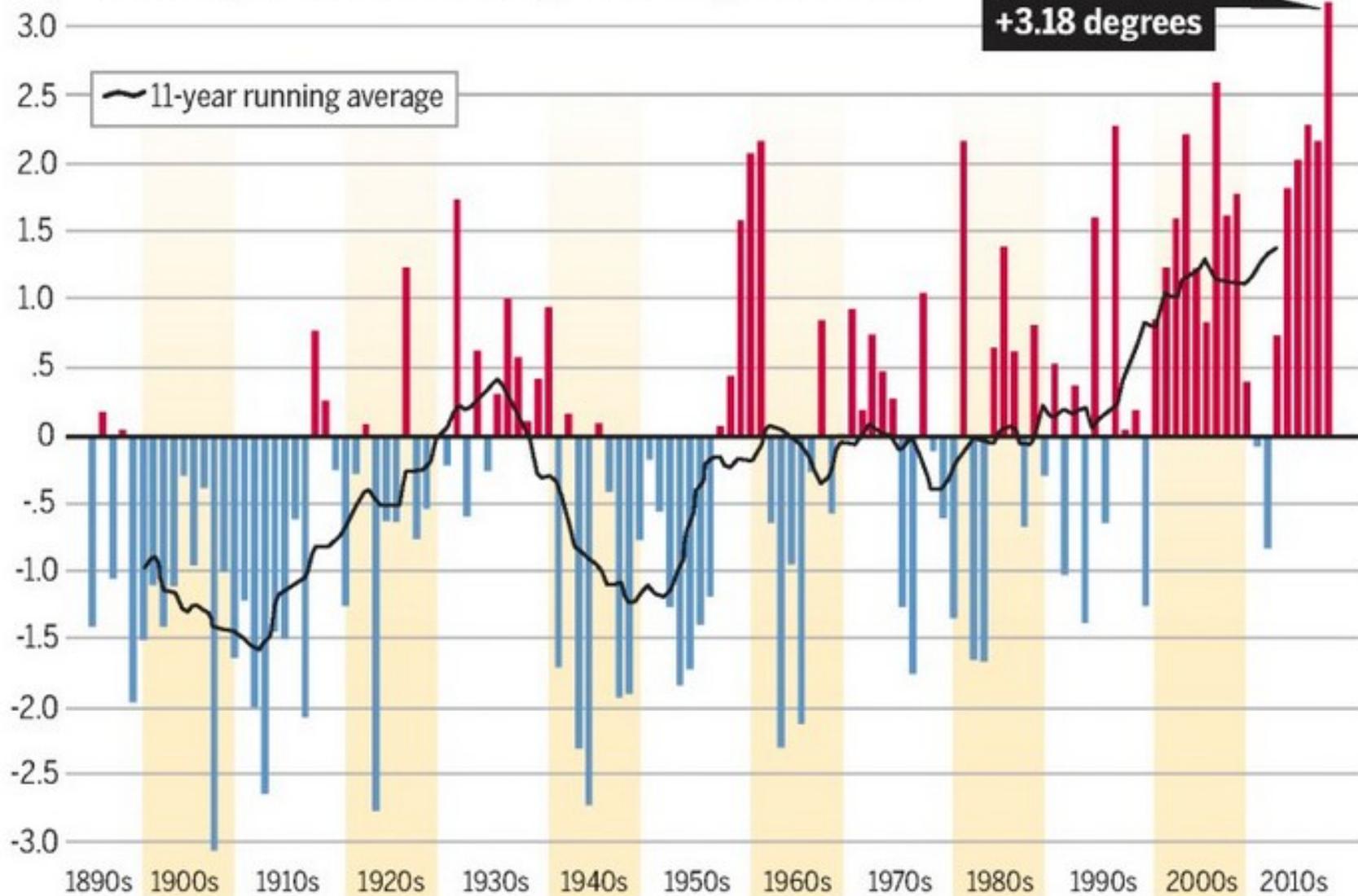




CALIFORNIA SUMMERS ARE GETTING WARMER

This summer's departure from the average temperature for the months of June, July and August was the highest recorded, extending an upward trend since the 1950s.

Temperature departure from 70.4 degrees average, 1885-2017



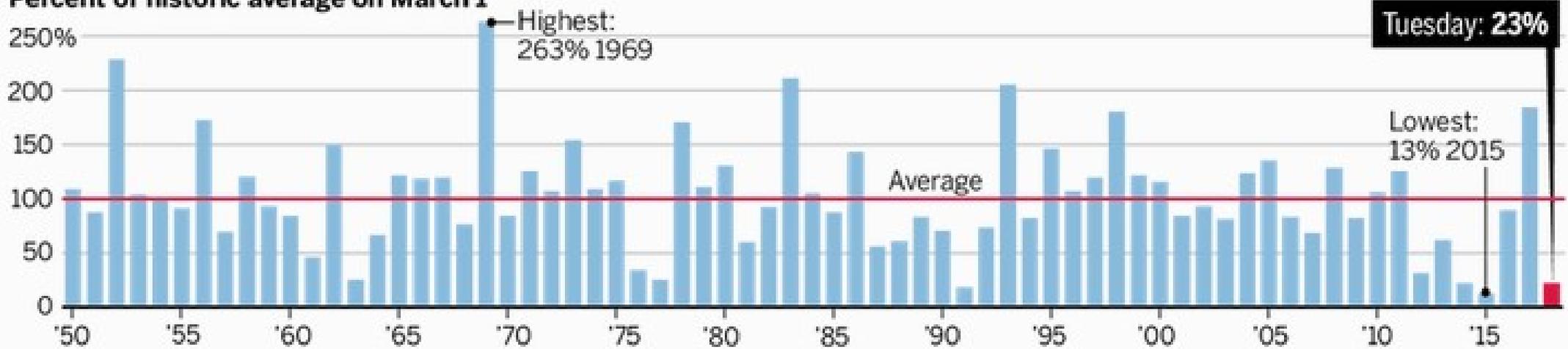
Source: Western Regional Climate Center

BAY AREA NEWS GROUP

LOW SNOWPACK STOKES DROUGHT FEARS

The Sierra Nevada snowpack on Tuesday was 23 percent of the historic average — among the lowest recorded since 1950.

Percent of historic average on March 1



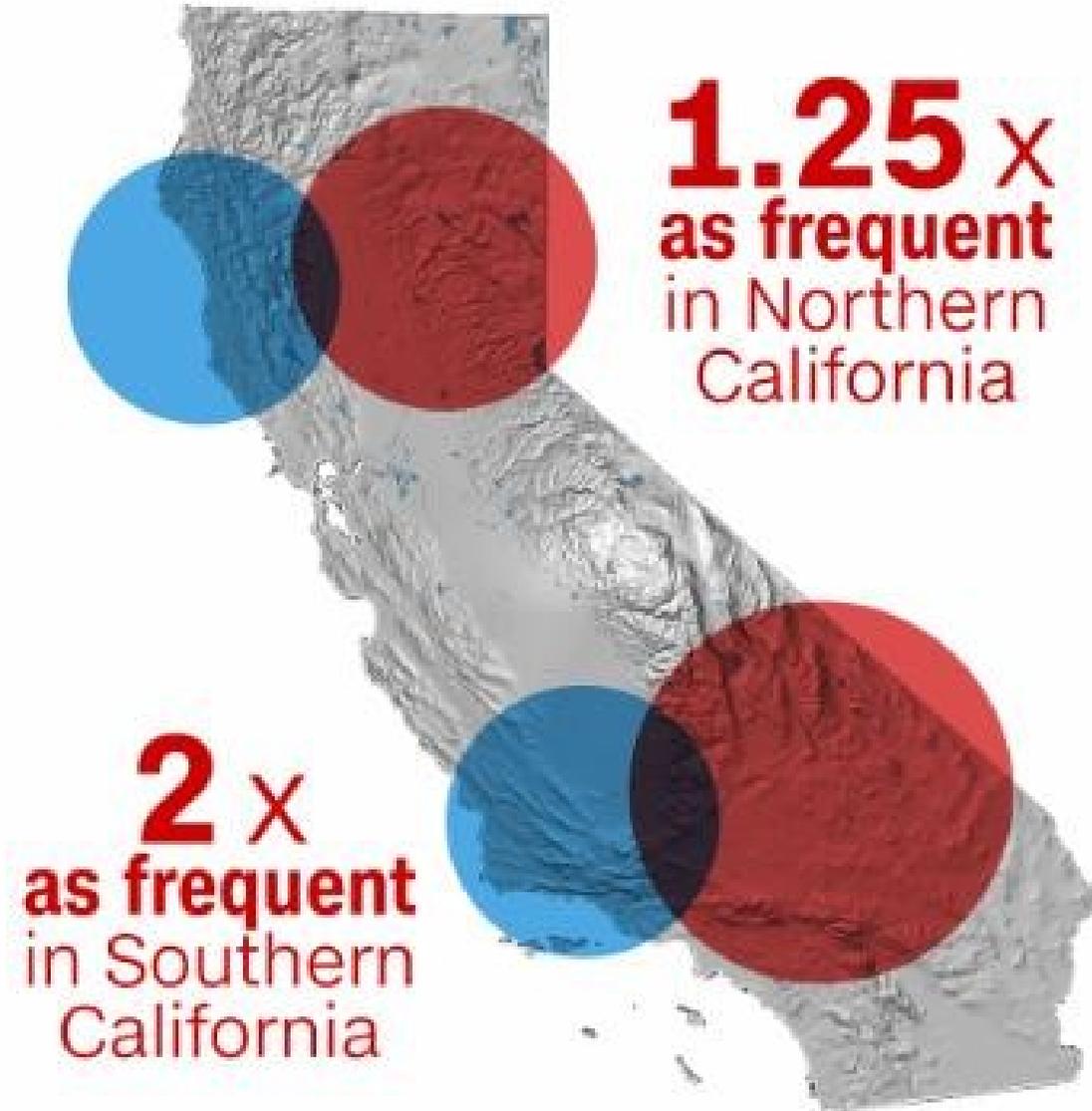
Source: California Department of Water Resources

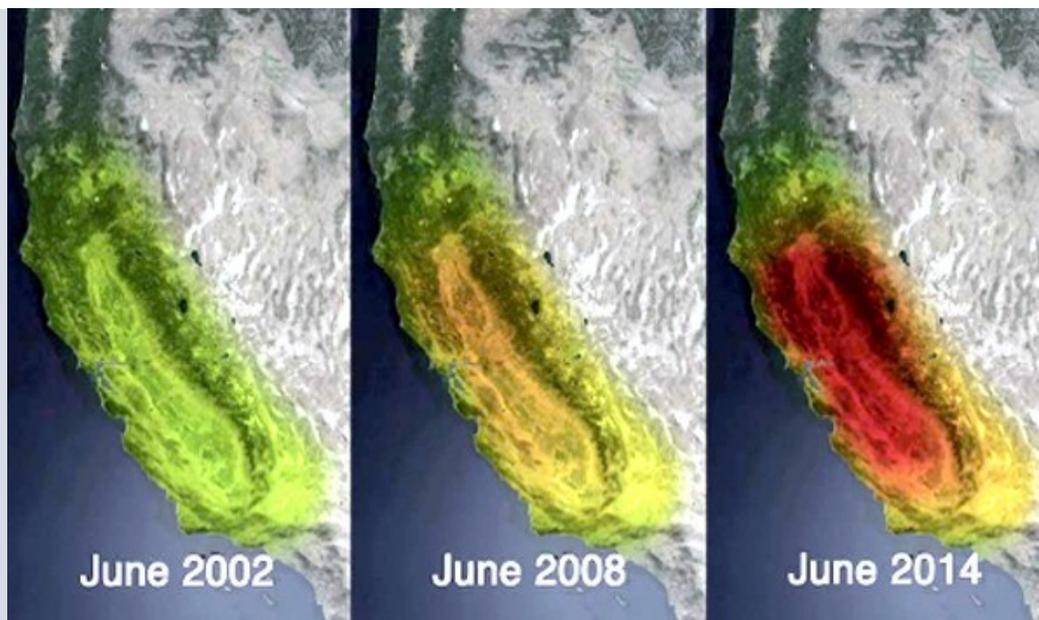
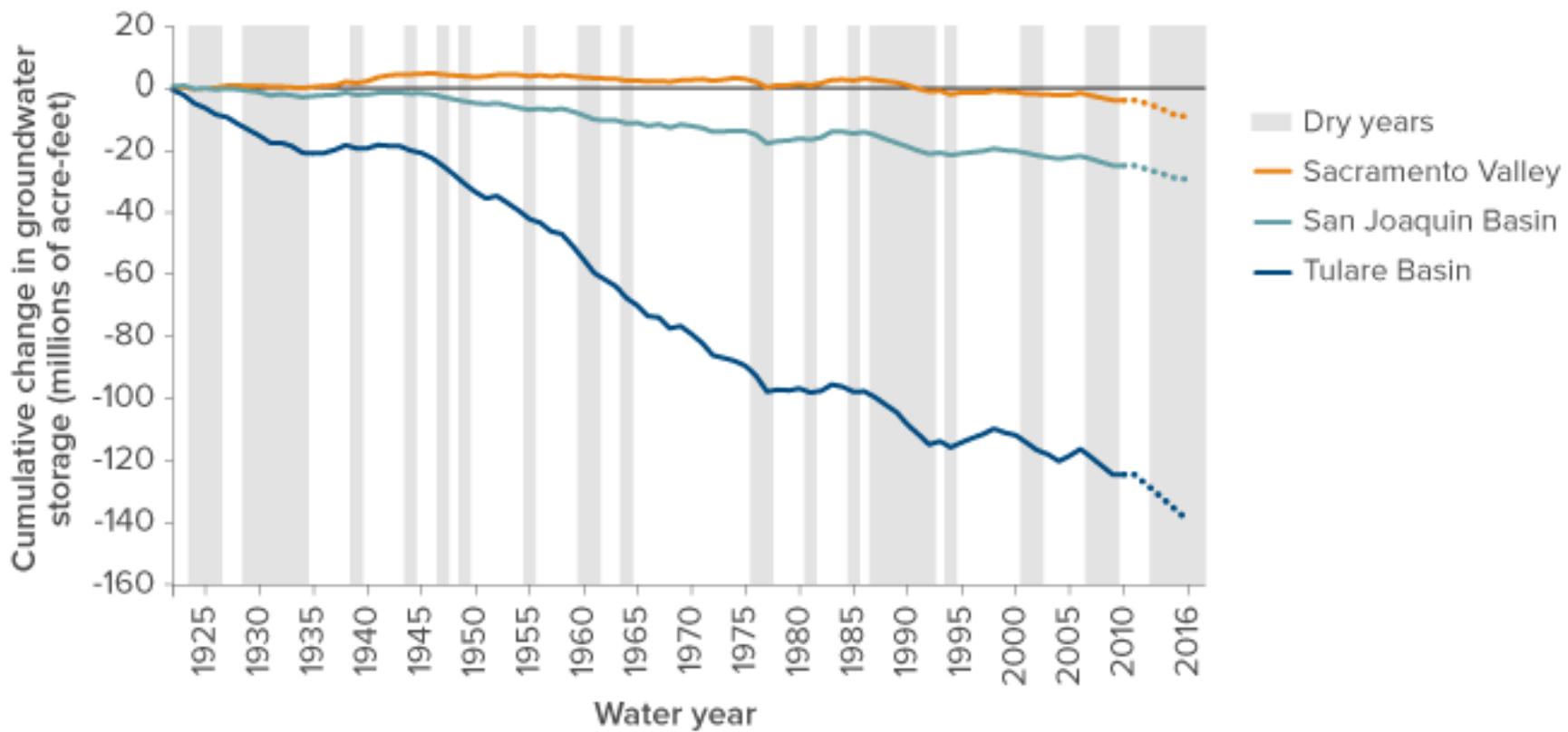
BAY AREA NEWS GROUP

Dry-to-wet whiplash

Future risk by 2100

Frequency 1895-2017 $\frac{4}{100}$ years





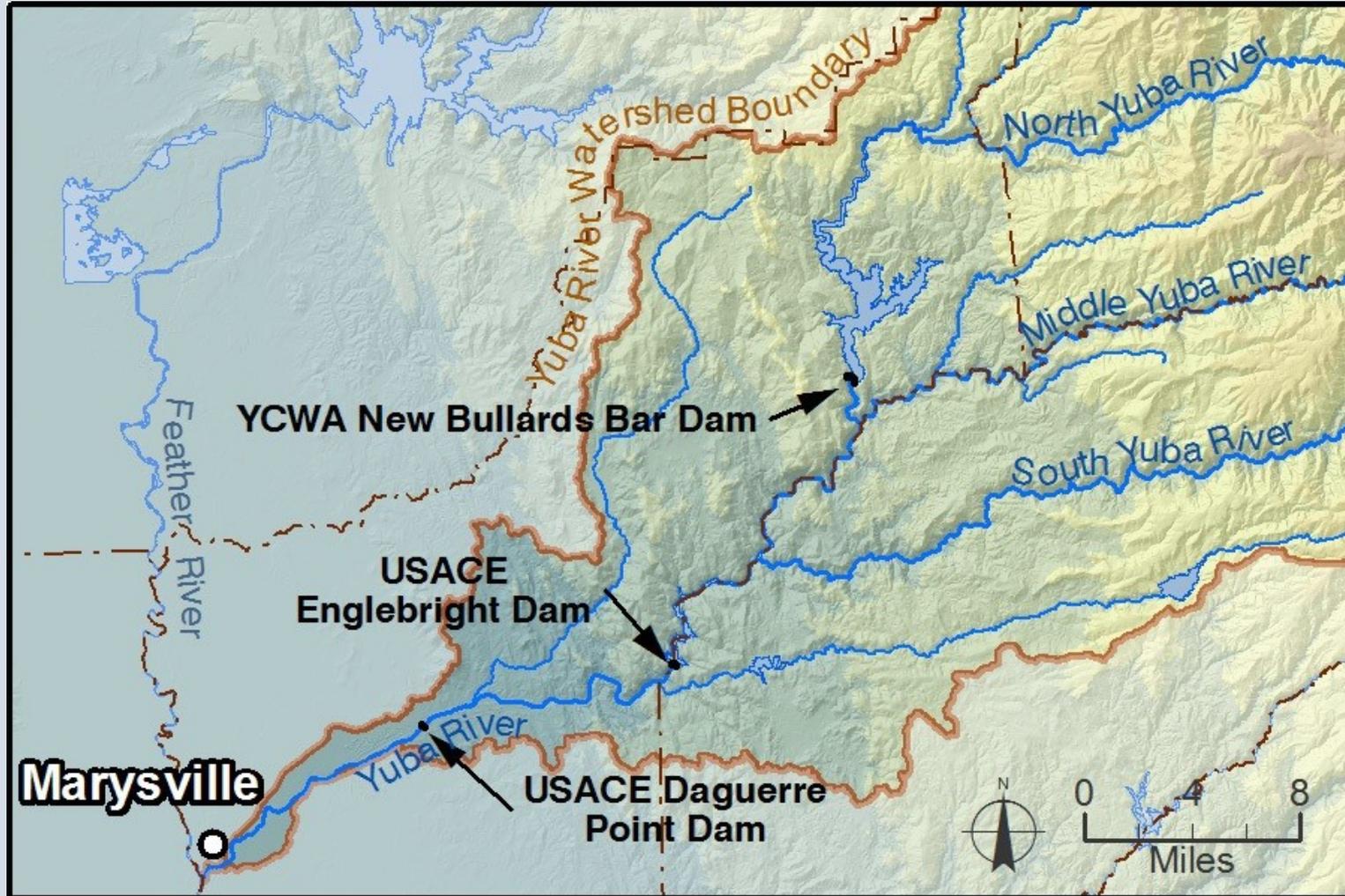
Russian River



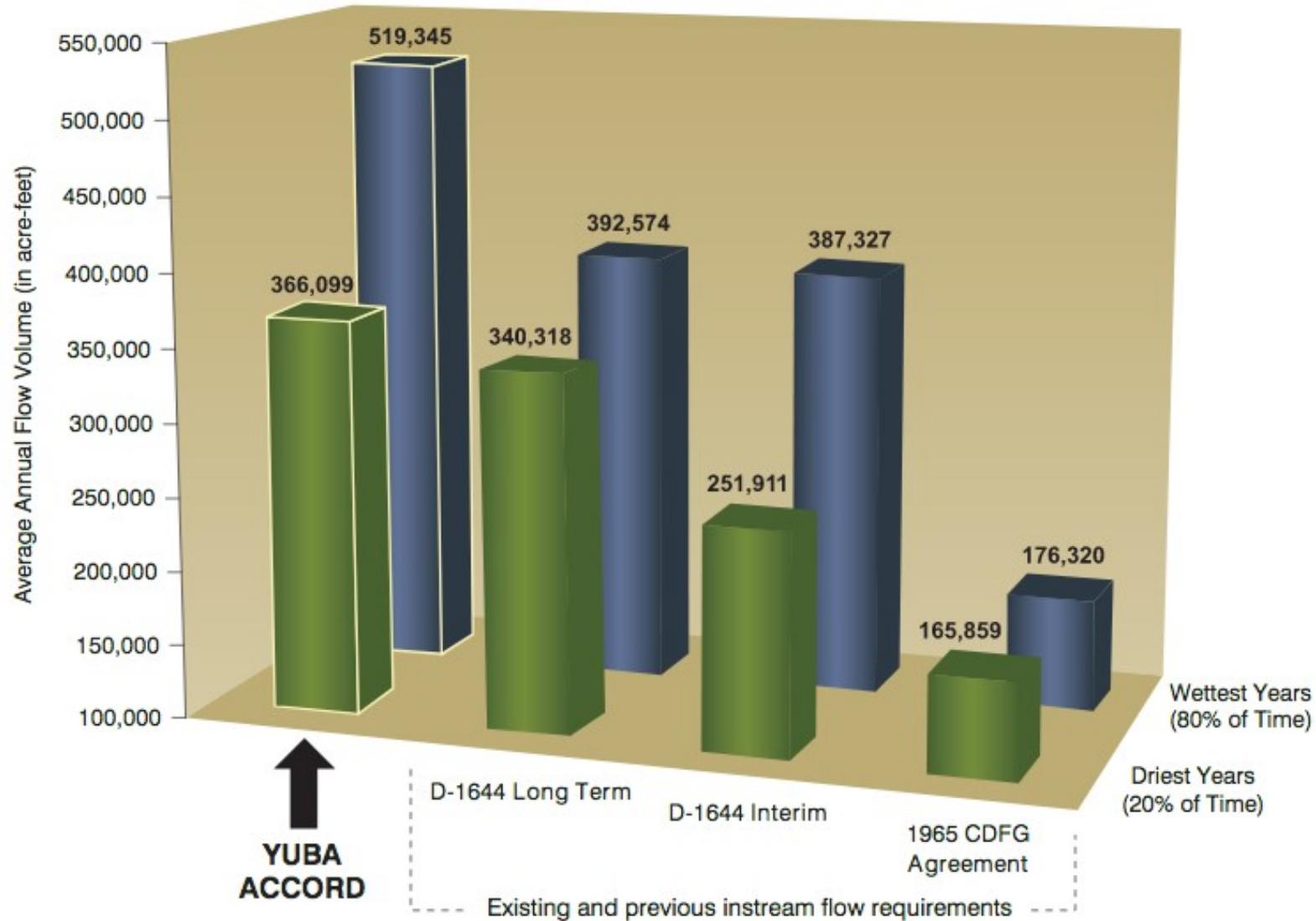


California Department of Fish and Wildlife

Yuba River



The Yuba Accord includes higher instream flow requirements for salmon and steelhead.



Notes: Average annual flow requirement volumes are shown. The Yuba Accord instream flow requirements for the lower Yuba River will range from 260,000 acre-feet in a dry year to more than 574,000 acre-feet in a wet year.

Key Lessons Learned

- Importance of data.
- Plan for drought: identify objectives and actions needed to achieve them.
- Conjunctive use and local storage (especially groundwater) add flexibility.
- Water transfers can play a key role.





*You better not drink that,
it might be recycled water.*

INKCINCT