

California Water: Challenges and Opportunities



**Heather Cooley, Water-Related Collective Action
in California and the Colorado River Basin**

May 28, 2014



Overview

- Geography and uses of water
- Water Management Challenges in California
- Opportunities

California Water Systems

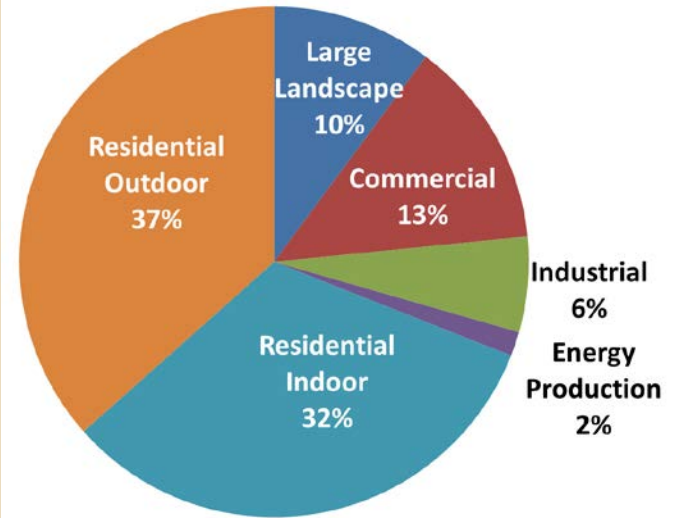
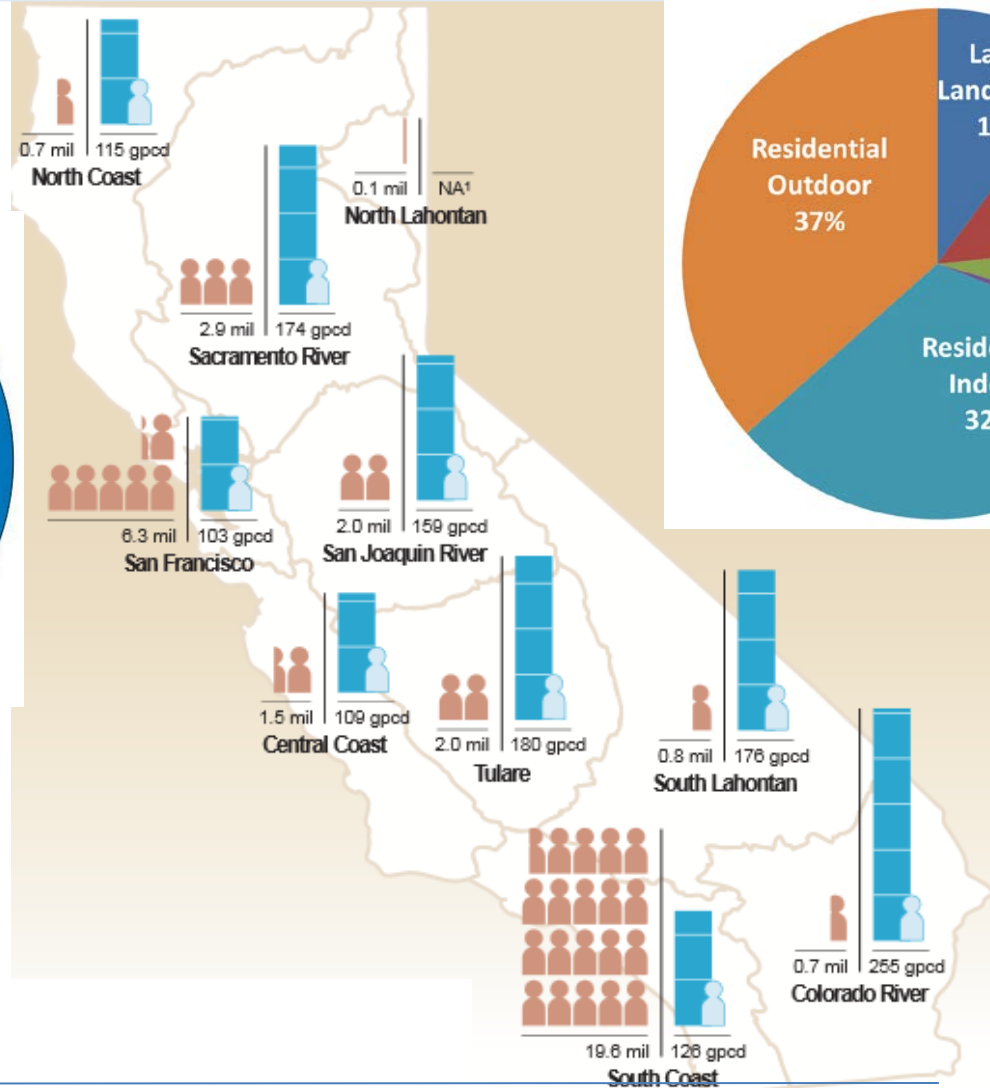
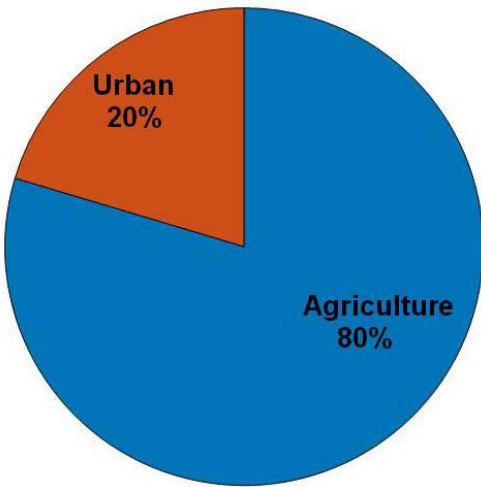


California's Water Sources

- 60% Surface Water
- 40% Groundwater

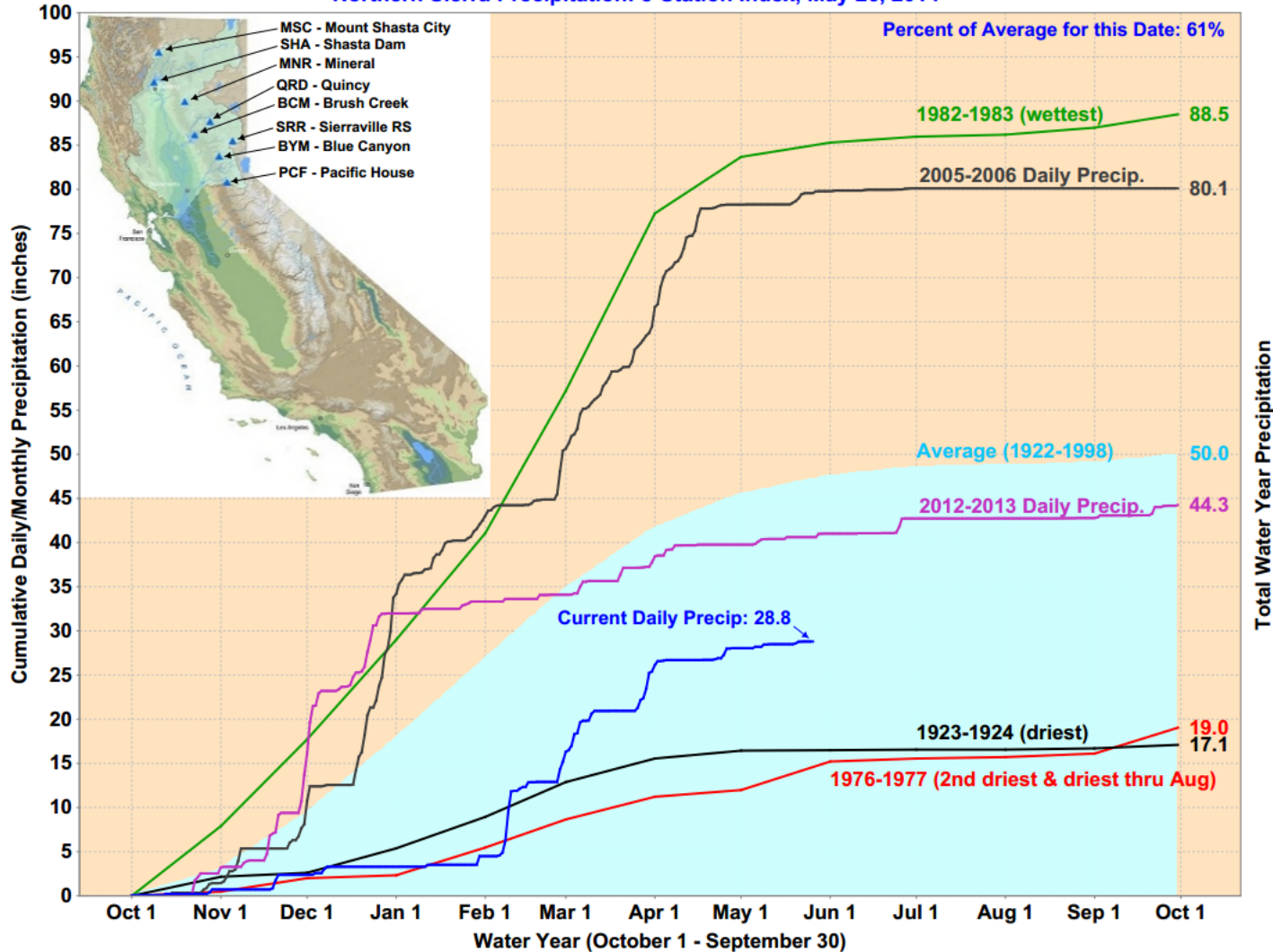
[map from CDWR 2002]

California Water Use



Northern Sierra Precipitation Index

Northern Sierra Precipitation: 8-Station Index, May 26, 2014



U.S Drought Monitor

U.S. Drought Monitor California

May 20, 2014

(Released Thursday May 22, 2014)

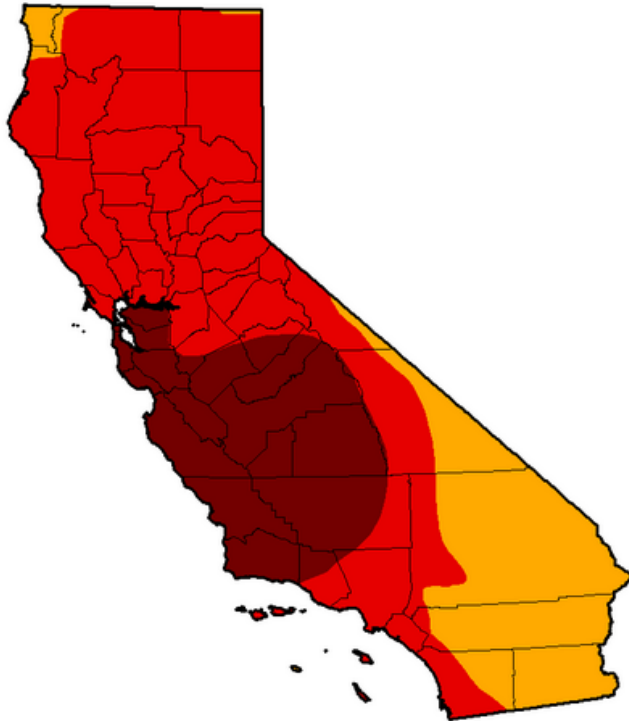
Valid 8 a.m. EDT

Statistics type: Traditional (D0-D4, D1-D4, etc.) Categorical (D0, D1, etc.)

Drought Condition (Percent Area):

Week	Date	Nothing	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	5/20/2014	0.00	100.00	100.00	100.00	76.68	24.77
Last Week	5/13/2014	0.00	100.00	100.00	100.00	76.68	24.77
3 Months Ago	2/18/2014	0.00	100.00	94.54	90.82	68.30	14.62
Start of Calendar Year	12/31/2013	2.61	97.39	94.25	87.53	27.59	0.00
Start of Water Year	10/1/2013	2.63	97.37	95.95	84.12	11.36	0.00
One Year Ago	5/21/2013	0.00	100.00	98.16	46.25	0.00	0.00

[View More Statistics](#)



Intensity:

■ D0 - Abnormally Dry
■ D1 - Moderate Drought
■ D2 - Severe Drought

■ D3 - Extreme Drought
■ D4 - Exceptional Drought

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

Author(s):

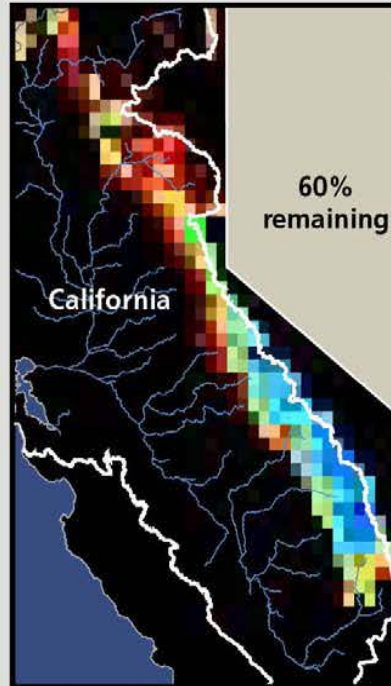
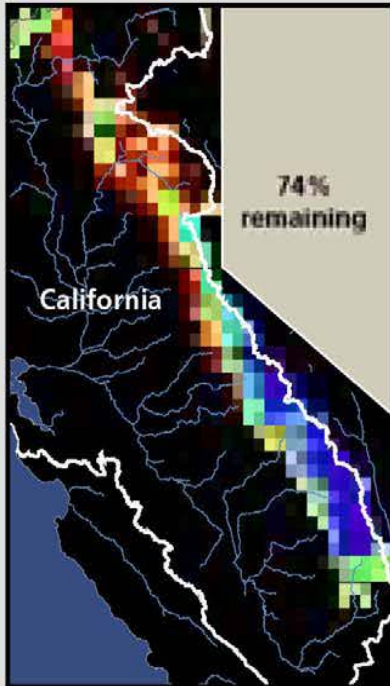
Michael Brewer, NOAA/NCDC

All Climate Models Show California Losing Snowpack

2020–2049

Lower Emissions

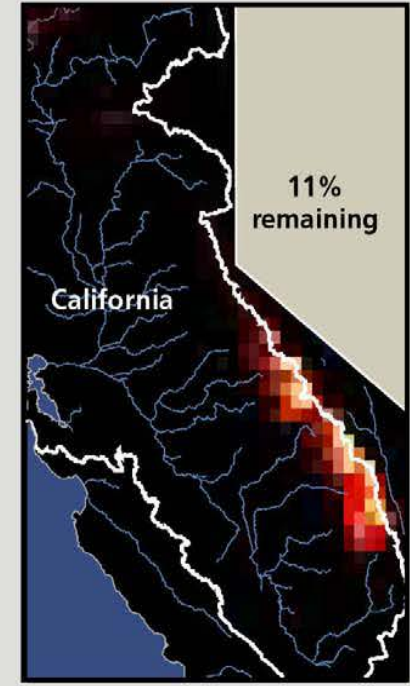
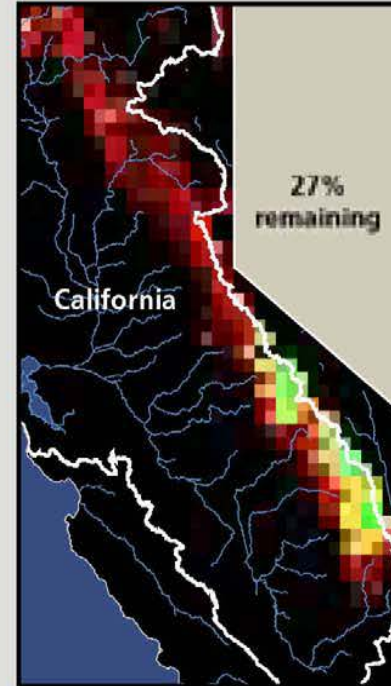
Higher Emissions



2070–2099

Lower Emissions

Higher Emissions



Remaining Snowpack (%)



Source: PNAS 204

Challenges for California water

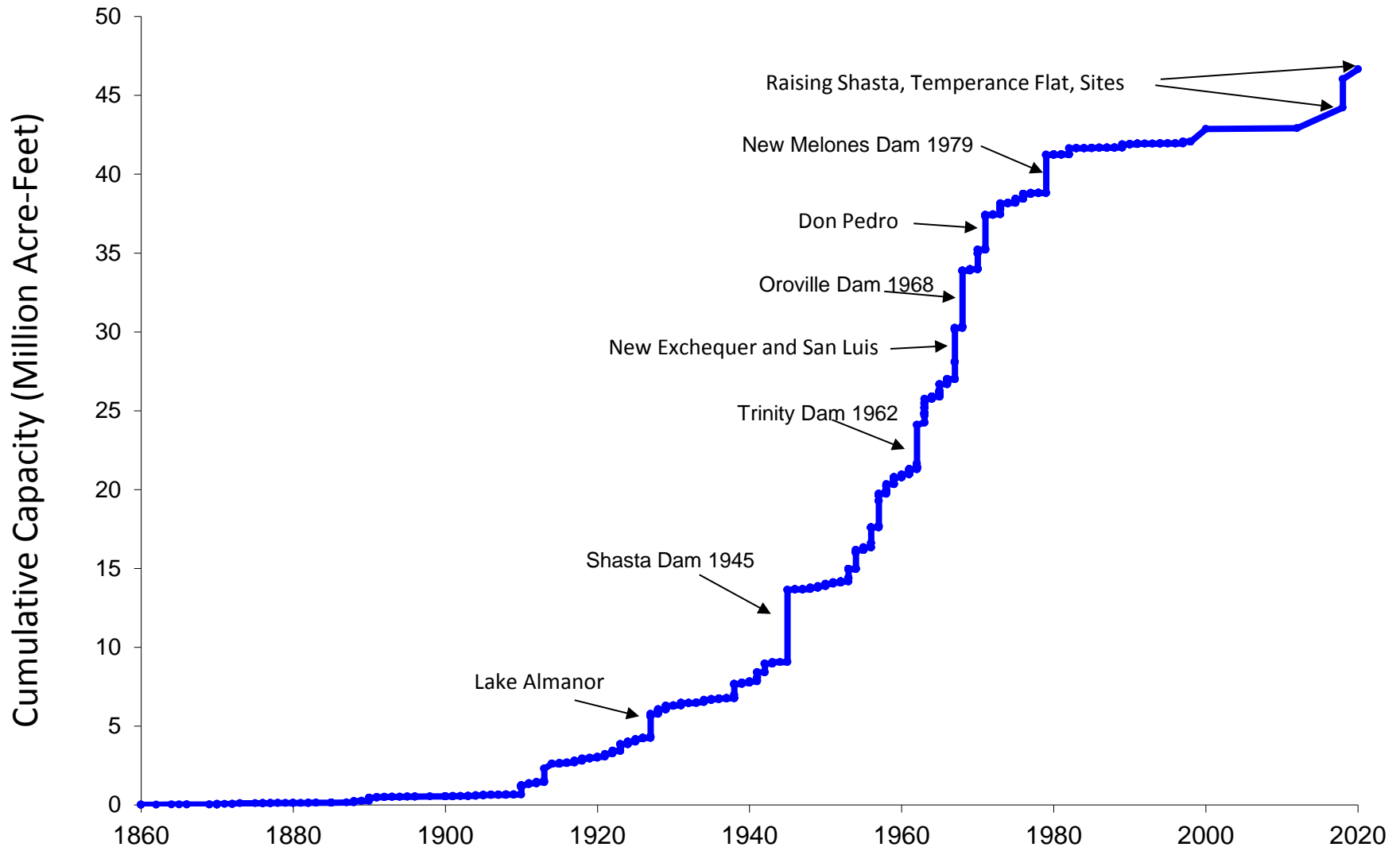
- Natural climate variability
- Long-term climate change

- Collapsing Delta ecosystems and fisheries
- Decaying infrastructure
- Declining water quality
- Population and economic growth

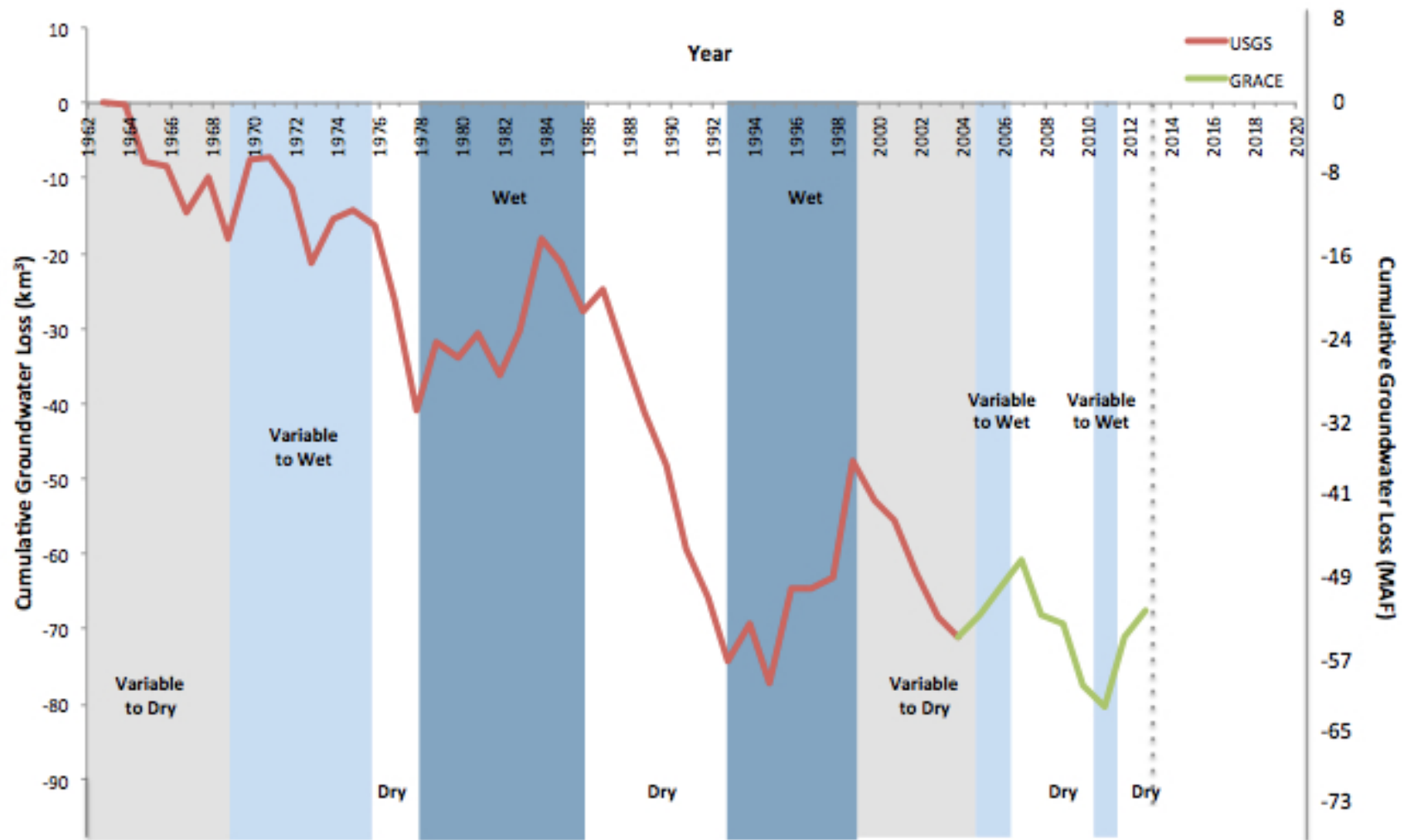


How Do We
Respond?

California Reservoir Capacity, 1850 to 2020



Central Valley Groundwater Loss, 1962-2013



New Thinking Is Needed

- Rethink “demand”
 - Reduce waste and increase efficiency, rethink economic priorities and choices
 - Rethink “supply”
 - Treated wastewater, stormwater, rainwater harvesting/stormwater capture, desalination
 - Rethink “management”
 - New and improve existing institutions, better data collection and monitoring, manage groundwater, more integration
-

Conclusions

- The drought is focusing new attention on a broad set of challenges facing the water sector.
- Some of these are old challenges (climate variability, growth) but others are new (climate change).
- Solutions are available but we must start implementing them now.



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