

# Policy Priorities for Managing Drought

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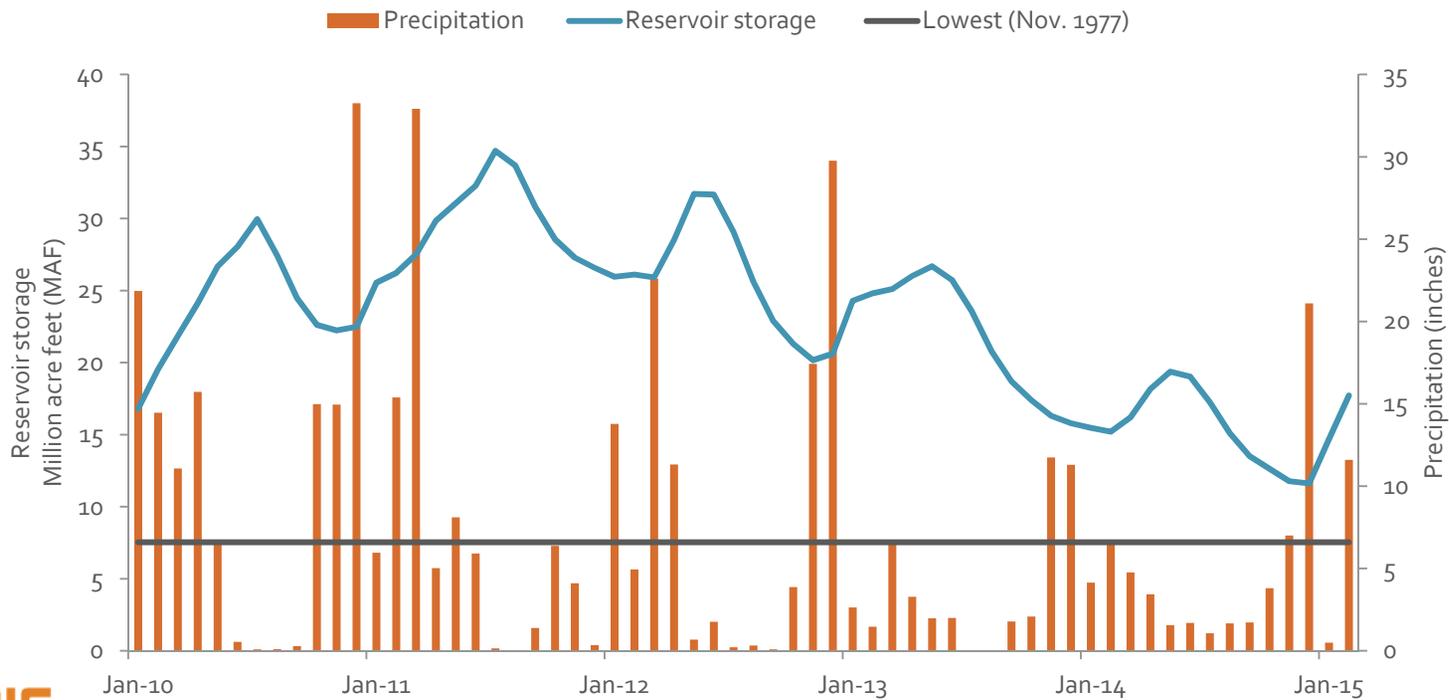
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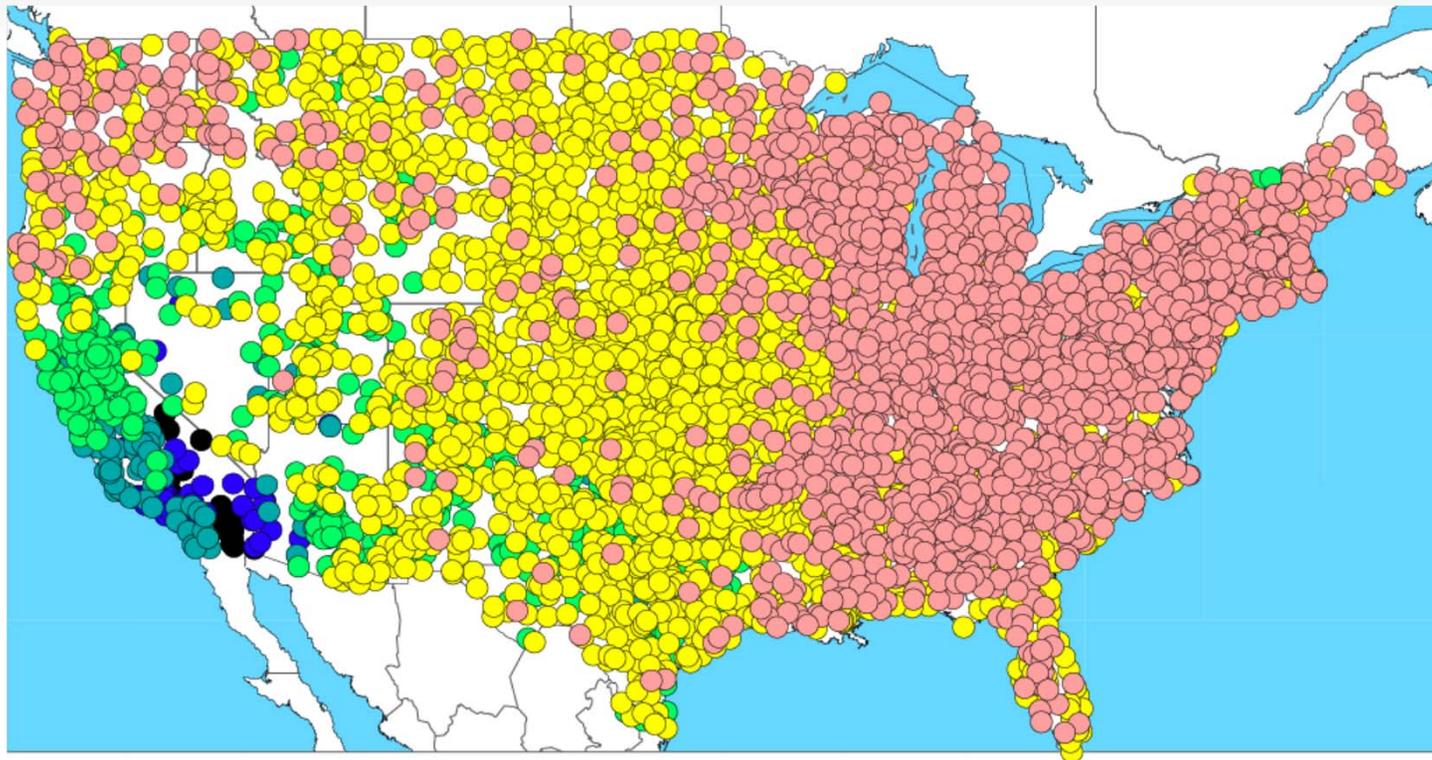
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# We are entering a fourth year of severe drought

- Dramatic reduction in water storage and deliveries
- Increased urban challenges and agricultural impacts
- Major consequences for the environment



# Variable precipitation, warming climate make droughts increasingly likely



Rainfall variability



SOURCE: Michael Dettinger, 2011. "Climate Change, Atmospheric Rivers, and Floods in California—A Multimodel Analysis of Storm Frequency and Magnitude Changes." *Journal of the American Water Resources Association* 47(3):514-523.

NOTES: Dots represent the variation of total annual precipitation at weather stations for 1951-2008, as measured by the coefficient of variation. The larger the value, the greater the year-to-year variability.

# Droughts reveal strengths and deficiencies in water management

## ■ Good News:

- Limited urban shortages (so far)
- Better performance thanks to planning, investments

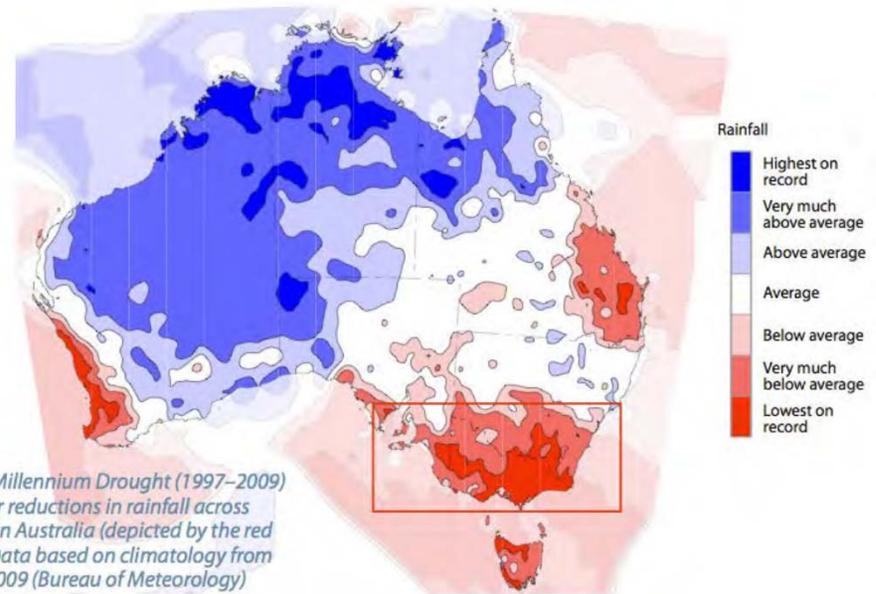
## ■ Bad News:

- Painful agricultural reductions
- Supply emergencies in small communities
- Environmental water crisis (fish, birds)



# Australia's decade-long Millennium Drought provides useful insights

- Similarities to California:
  - Climate
  - Economy
  - Infrastructure
  - “New world” ecosystems
- Reforms helped Australians get through that drought and prepare better for the next one



# Four priorities for policy reform in California

1. Manage water more tightly, with better information
2. Set clear priorities, objectives, and expectations
3. Promote reasonable use and robust supplies
4. Modernize environmental drought management

The Governor's new executive order addressed some, but not all of these.

# Manage water more tightly, with better information

- Enact reforms and provide funds to:
  - Measure and report diversions and discharges
  - Adopt new technologies to monitor and predict water flow and quality
- Engage federal government on modernizing technology



# Set clear priorities, objectives, and expectations

- Modify curtailment processes by clearly identifying priorities for:
  - Public health and safety
  - Environment
- Exercise “dry runs” for these procedures



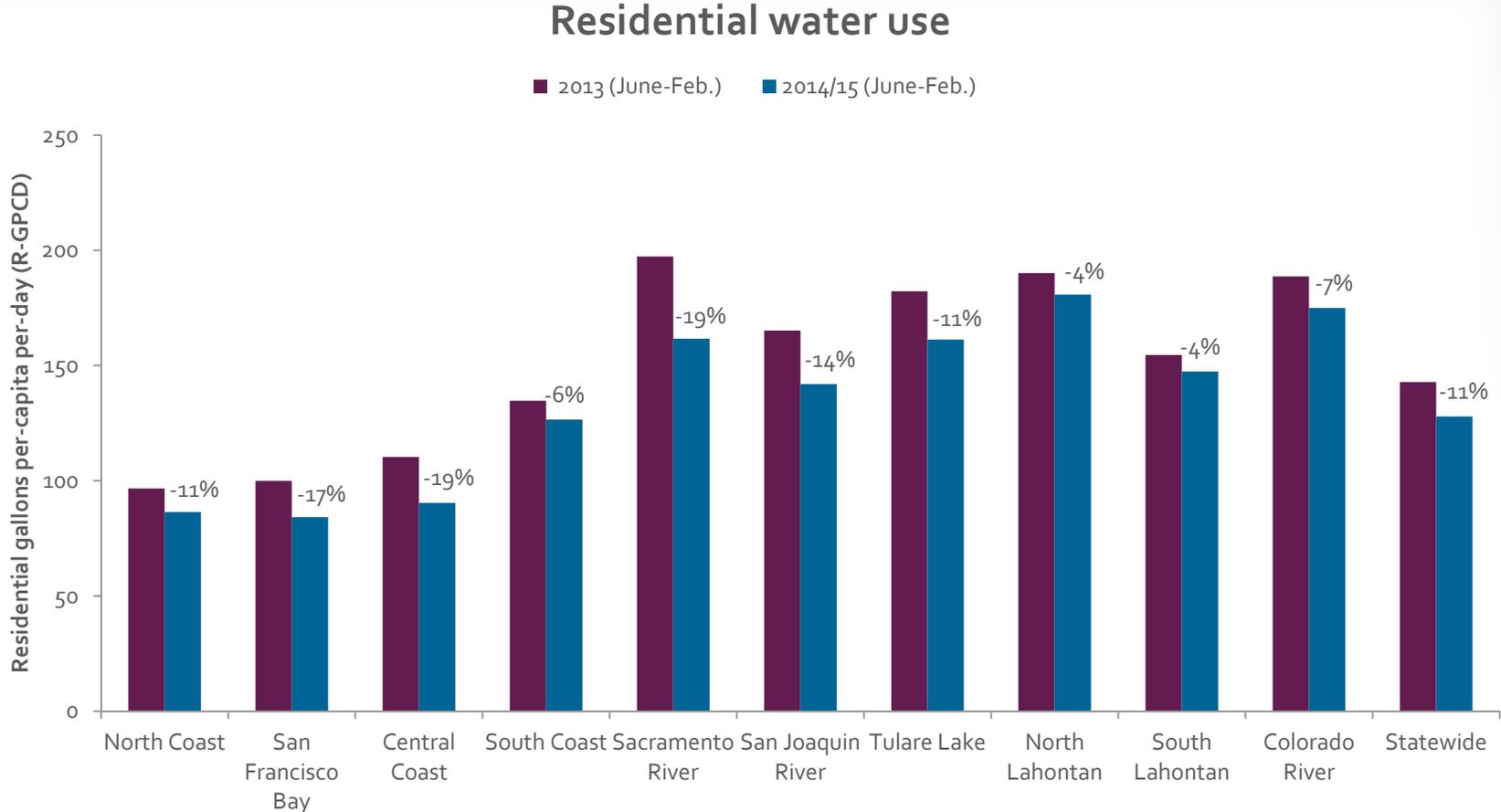
# Promote reasonable use and robust supplies

- Set standards:
  - Landscaping water use
  - Conservation-oriented pricing
- Expedite implementation:
  - Water transfers
  - Recycled wastewater
  - Stormwater capture
  - Sustainable GW management
- Exercise state authority to prevent waste and unreasonable use



Anaheim Lake, one of Orange County's recharge basins

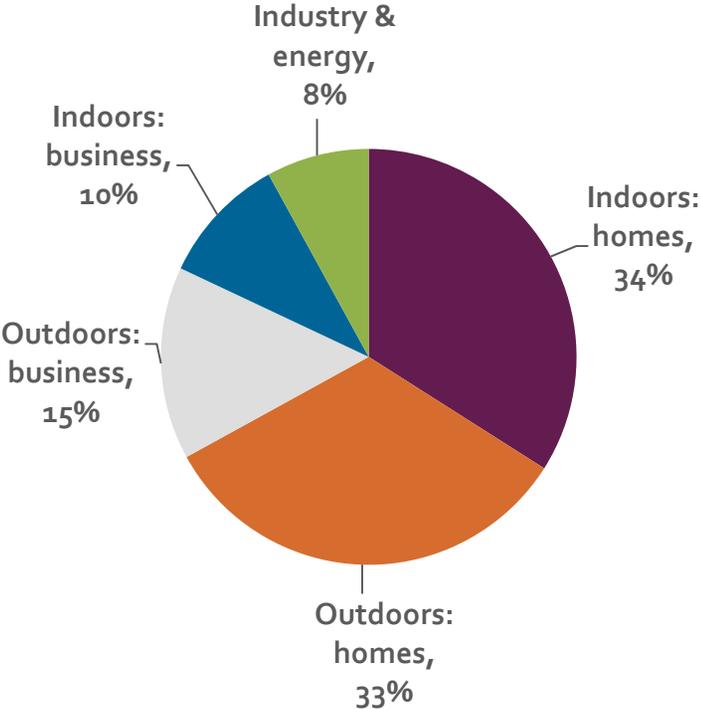
# Urban conservation – and use – have varied across the state



Source: SWRCB urban monthly reports

# Greatest savings opportunities are in landscape water use

Nearly half of urban use is for landscaping



Source: Water for Cities (PPIC, 2015), using DWR data (2006-2010 average)



# Modernize environmental drought management

Aquatic and wetland drought management plan should:

- Set clear objectives and priorities
- Evaluate trade-offs
- Identify emergency actions and flows
- Identify sources of water including carryover storage
- Identify sources of funding



Strategic environmental watering in Northern Victoria, AU 2007/08

# The new water bond can help build drought resilience

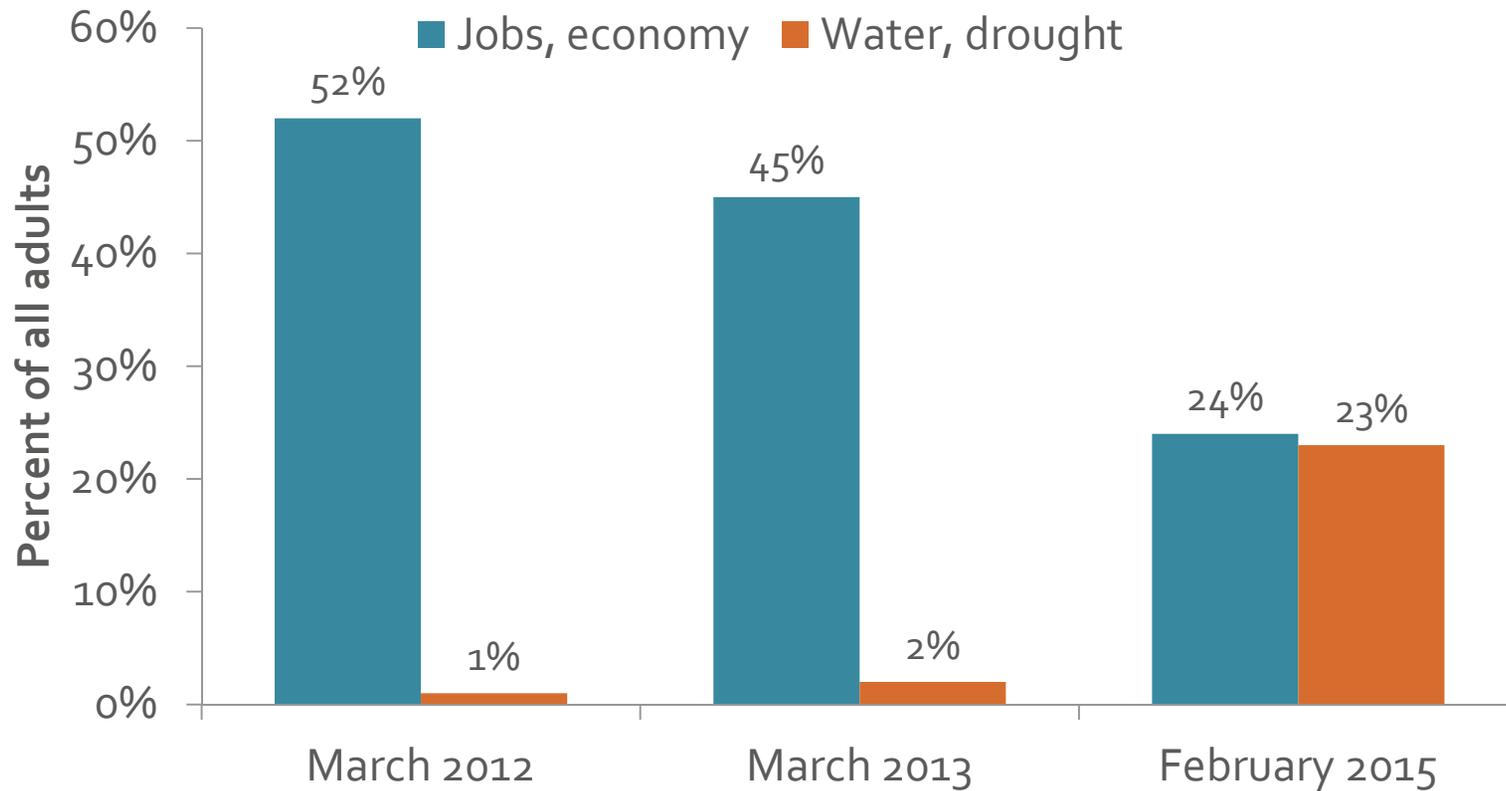
- Prop 1 funds can be used toward many priorities outlined here:
  - Improving water monitoring networks
  - Diversifying urban supplies
  - Managing groundwater
  - Planning and investing in enhanced environmental drought management
- California also needs a reliable long-term funding mechanism that outlives the current bond

# Constitutional constraints make local water finance challenging

	Overall grade	Annual gap (\$ millions)
Water supply	Passing (mostly)	—
Wastewater	Passing (mostly)	—
Safe drinking water (small rural systems)	<b>Failing</b>	\$30–\$160
Flood protection	<b>Failing</b>	\$800–\$1,000
Stormwater management	<b>Failing</b>	\$500–\$800
Aquatic ecosystem management	<b>Failing</b>	\$400–\$700
Integrated management	<b>On the brink</b>	\$200–\$300
<p>Total Annual Spending: ~\$30 Billion. Total Annual Gap: \$2–\$3 Billion (\$12 - \$20/month/household)</p>		

# Crises are opportunities for reform

What Californians see as the state's top issue:



Source: PPIC Statewide Survey: Californians and their Government

Thank you! More information at  
[www.ppic.org/water](http://www.ppic.org/water)



Conservation-minded business in  
San Francisco's Mission District

## Notes on the use of these slides

These slides were created to accompany a presentation. They do not include full documentation of sources, data samples, methods, and interpretations. To avoid misinterpretations, please contact:

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Thank you for your interest in this work.