

Are We Ready for Climate Change?

2024 Priorities for California's Water

November 14, 2024

Jeffrey Mount



PPIC

PUBLIC POLICY
INSTITUTE OF CALIFORNIA

30 YEARS

PPIC WATER POLICY CENTER

Outline

- Thinking differently about climate change
- Water for communities and farms
- Flood management
- Freshwater ecosystems
- Headwaters & wildfire
- Is California ready?

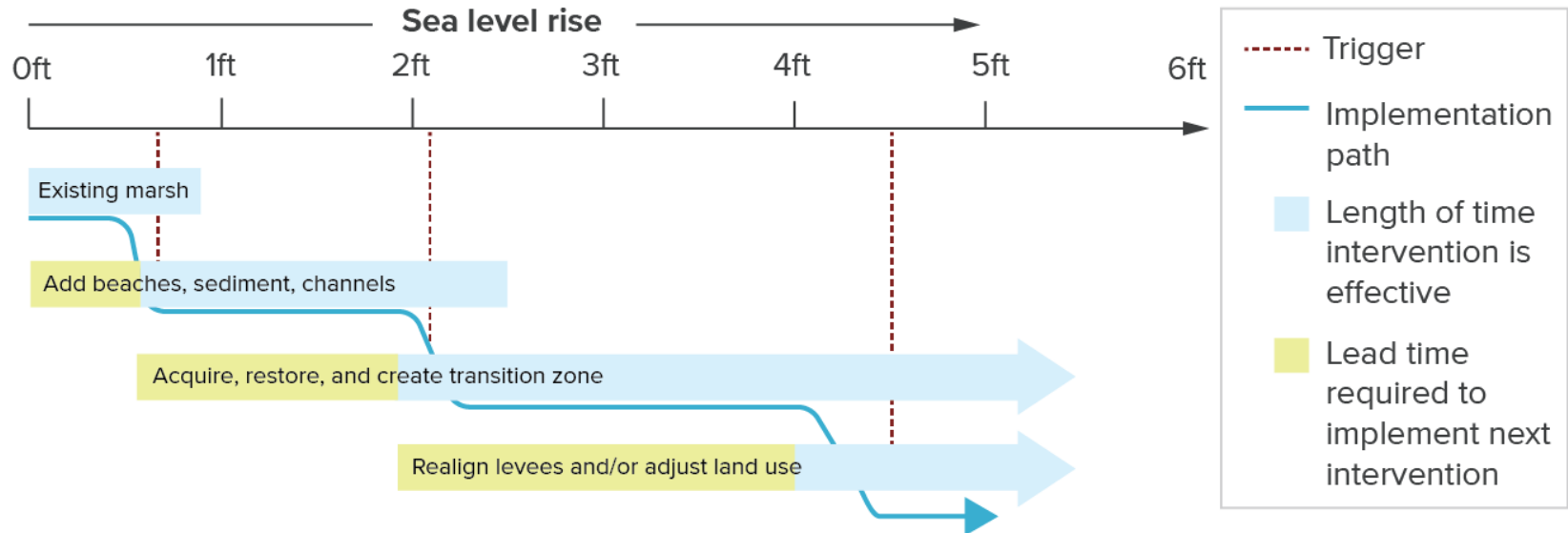


Thinking differently about climate change

- How we typically approach climate adaptation:
 - Identify adaptation measures
 - Set the target date and condition
 - Scope timing and cost of adaptation
 - Cope with sticker shock and political fallout
 - Give up, start over, keep at it

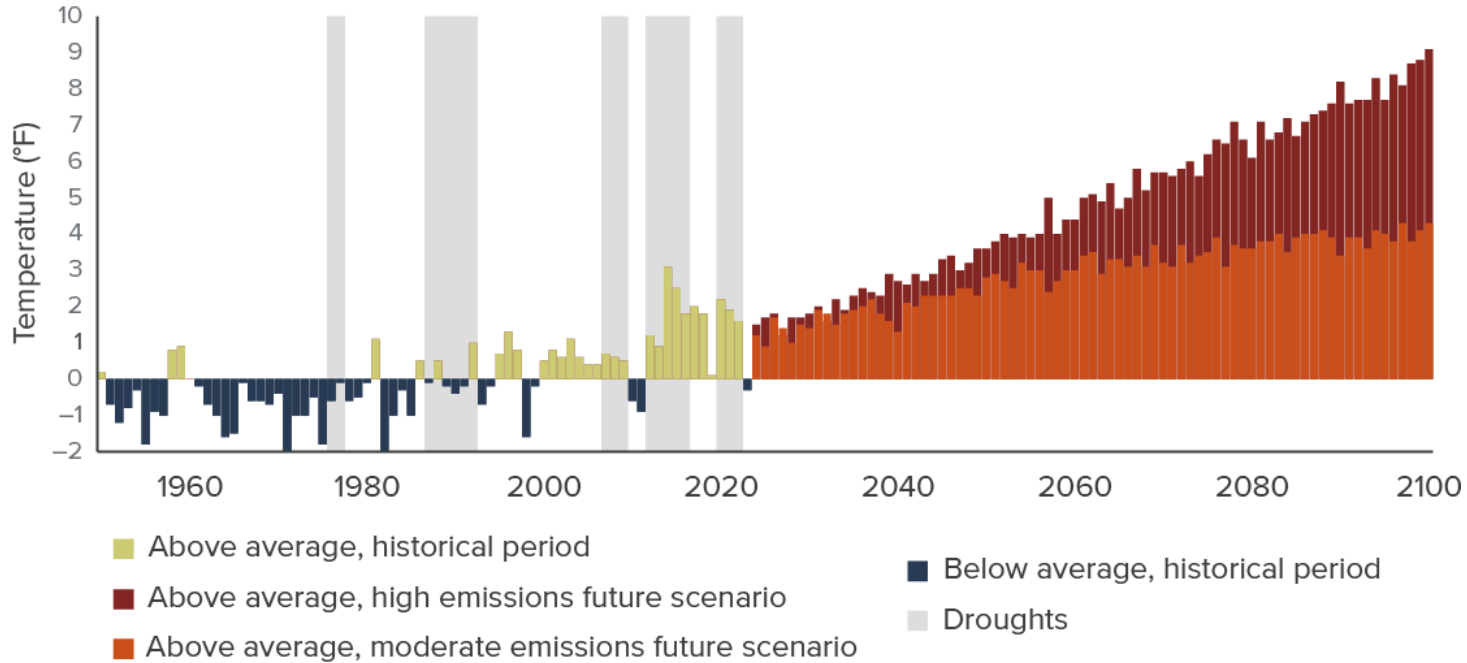


Thinking differently about climate change: Adaptation pathways



Adapted from *The Baylands and Climate Change: What We Can Do*

The heat is on...



Climate pressures are impacting water management



Meeting the challenges of today with adaptations for tomorrow: Is California ready?

- Water for communities
- Water for farms
- Headwaters & wildfire
- Flood management
- Ecosystem health



Adaptation: Water for communities and farms

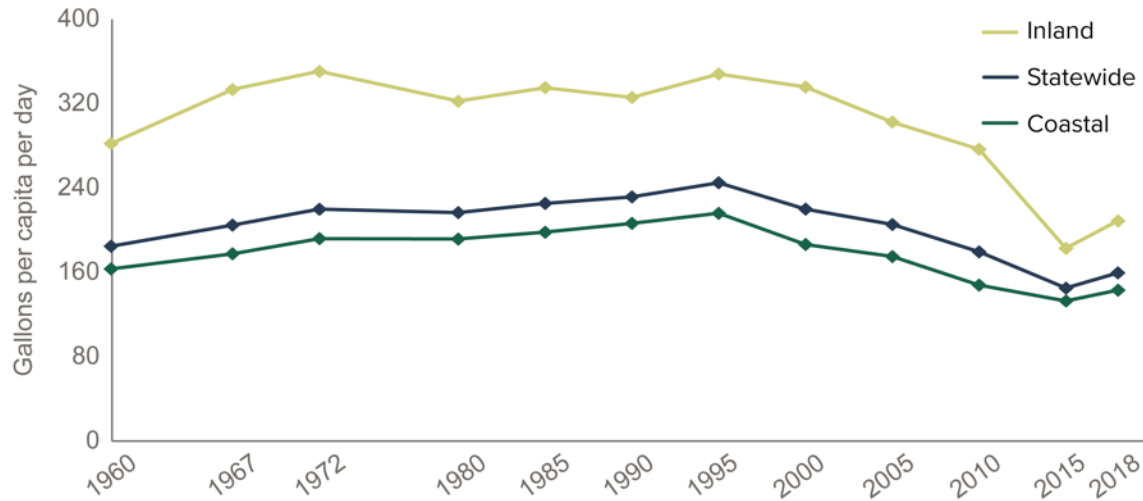


Adaptation: Water for communities and farms

Current Challenges	Climate Effects	Adaptation Measures
Declining Colorado reliability	Warming, volatility, drought intensity lead to decline in supply	Improve groundwater recharge, infrastructure, trading
Declining Delta export reliability	Warming and seasonality increase crop water demand	Adapt reservoir operations, including FIRO
Cutbacks to meet SGMA	Increased heat impacts on crops and farm labor force	Increase investment in community water systems
Drinking water quality, costs	Decline in drinking water quality due to warming, wildfire, HABs	Incentivize sustainable water and land use in farming regions
Water rights and governance		Promote cost-effective solutions to manage price increases

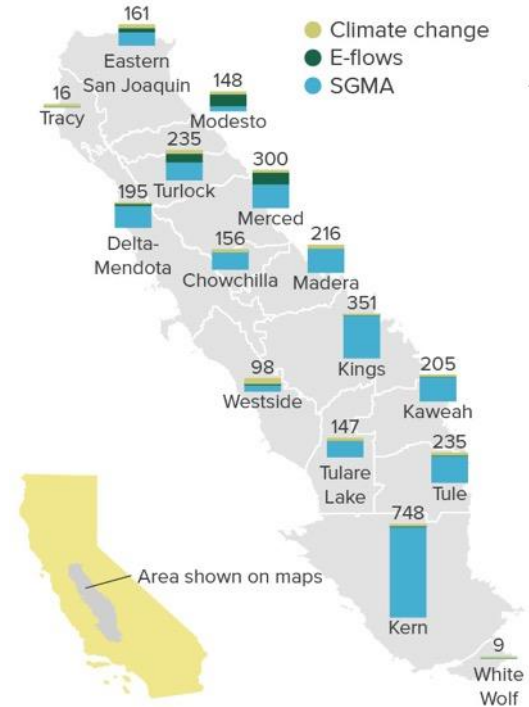
Making good progress: Water for communities

Per capita water use continues to decline



Source: *California Water Plan Update*

Difficult work underway: Water for farms



Reductions in applied water (taf)

Adaptation: Headwaters & wildfire



Adaptation: Headwaters & wildfire

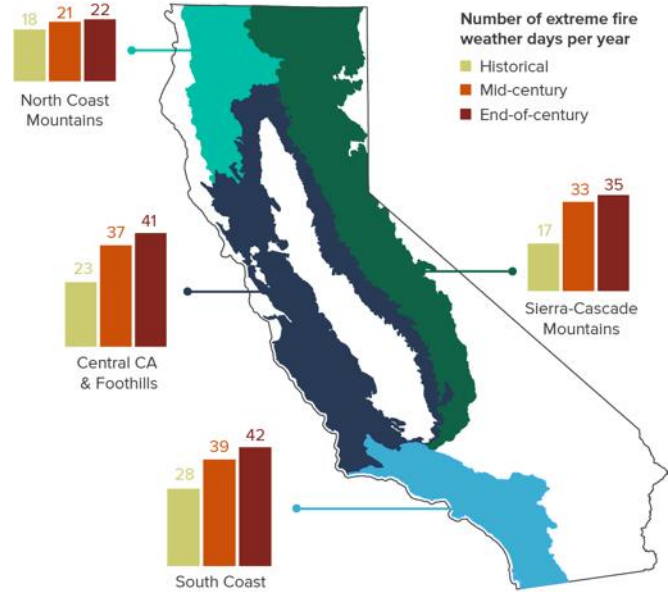
Current Challenges	Climate Effects	Adaptation Measures
Increasing # of high-severity fires	Warmer conditions lead to drier vegetation	Expand prescribed burns and thinning
People increasingly in harm's way	Diminished snowpack dries landscapes	Expand managed wildfire
Drought and tree disease	Shorter rainy season extends high fire risk	Restore forests and wetlands
Conversion of forest to shrubland	Climate whiplash expands fuels	Revive wood products industry

Post-fire erosion

Difficult work underway: Headwaters & wildfire



Increasing extreme fire weather



Adaptation: Flood management

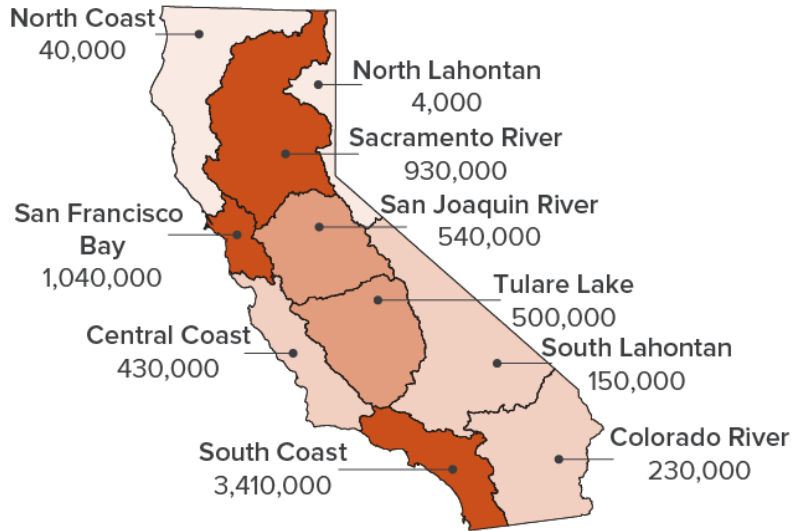


Adaptation: Flood management

Current Challenges	Climate Effects	Adaptation Measures
Aging, outdated infrastructure	Increasing storm intensity increases flood peaks	Modernize planning to accommodate risk
Dated, insufficient protection standards	Increasing volatility complicates reservoir ops	Use natural and updated built infrastructure
Low insurance uptake and lack of incentives	Rising sea level increases coastal flood risk	Create new funding opportunities
Constrained funding, "fiscal orphan"	Combined coastal flooding risk increasing	Incentivize insurance uptake in all communities
Inadequate, forward-looking planning		Expand emergency response and recovery
Equity		

Major overhaul needed: Flood management

Population living in 500-year floodplain



Value of structures in 500-year floodplain



Adaptation: Freshwater ecosystems



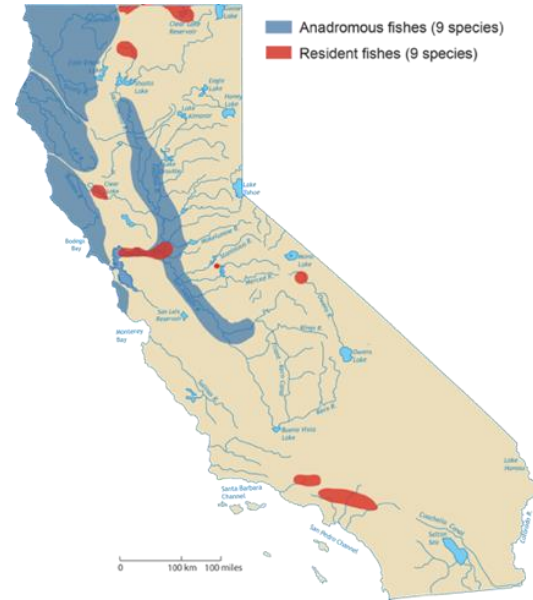
Adaptation: Freshwater ecosystems

Current Challenges	Climate Effects	Adaptation Measures
Decline in native biodiversity	Increasing temperature degrades habitat	Ecosystem health a priority not constraint
Degraded ecosystem health	Loss of habitat to drought intensity	Ecosystem-based management
Funding constraints, “fiscal orphan”	Climate volatility inhibits population recovery	Climate-smart conservation framework
	Sea level rise harms estuary habitat	Contingencies and priorities

Major overhaul needed: Ecosystem health



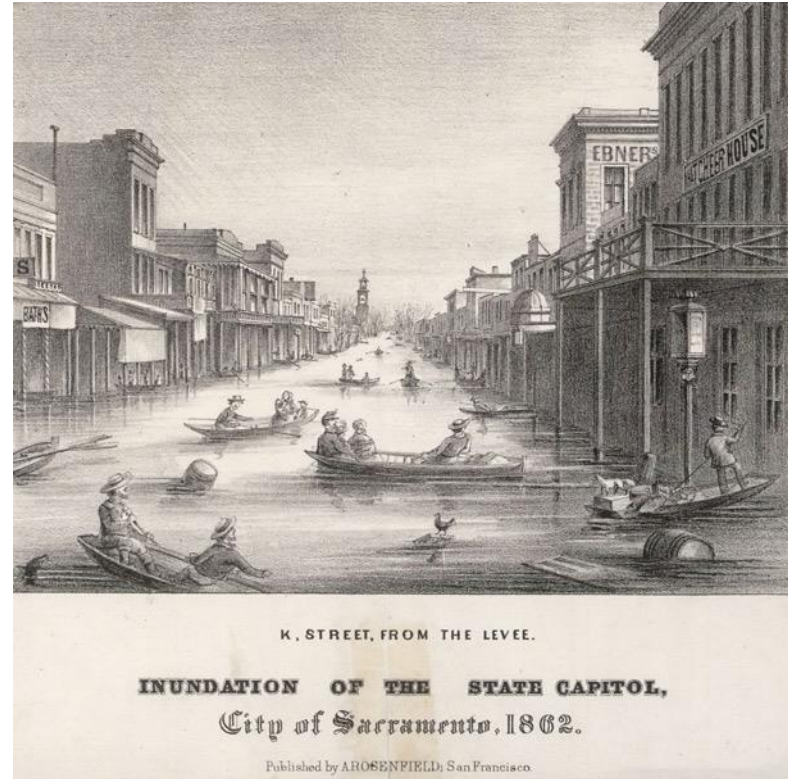
Half the fish at high risk of extinction in recent droughts are *not* listed under ESAs



Source: Hanak et al. (2015)

Summary

- The heat is on and the climate is changing rapidly
- Need a new approach that includes adaptation pathways rather than date-certain projects
- Making progress in community supplies
- Doing hard work on farm supplies and headwater forests and wildfire
- Need to reboot flood and ecosystem management



Ellen

