

Central Valley Landscape Conservation Project

Projected Changes for the Central Valley

Parameter	Projected Range of Change	Reference
Average mean annual air temperature	Increase 5-6°F (2.8-3.2°C) during this century in the Sacramento-San Joaquin Basin	Bay Delta Conservation Plan
	Increase of 1-2.3°F (0.5-1.3°C) in the next few decades in the Sacramento-San Joaquin Basin	- Bay Delta Conservation Plan
Extreme heat	Increase in frequency, magnitude, and duration of events, and length of season for heat waves.	Cayan et al. 2009
	By last quarter of the century, every year projected to have one or more 5-day periods with temperatures exceeding today's threshold	- CalAdapt
Precipitation	Models vary from approximately twice to less than half of average annual rainfall	Climate Commons, 2015
	High variability likely to persist during next century.	- Cayan et al., 2009
	Preponderance of models point to drier conditions in California mid- and late century that exceed largest historical deficits.	- Cayan et al., 2009
	Potentially larger and more intense storm events	- Dettinger, 2011
Aridity	15-35% drier by 2100 (California overall)	Cayan et al. 2009
	Beyond the year 2030 Climatic Water Deficit 10-year average consistently exceeds the historical extreme	- Climate Commons, 2015
Drought	Projected to become more frequent and severe	Mann and Gleick 2015
Snowpack	30-40% reduction in snow water equivalent across the Sierras by mid-century; 65% less snowpack by end of century	Pierce and Cayan 2013

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Streamflow	<p>“Critically dry” water years 8% more often than in 1951–2000 in the Sacramento Valley and 32% more often in the San Joaquin Valley</p>	<p>Null et al. 2013</p>
	<p>Timing of peak runoff is a month earlier than it was in the first half of the 20th century, and projected to continue to shift earlier</p>	<p>-</p> <p>California Water Plan 2013 Update</p>
Stream Temperatures	<p>Projected to increase by an average of 1.6°C for each 2°C rise in air temperature in west-slope Sierra Nevada; most increases during spring and at middle elevations</p>	<p>Null et al. 2013</p>
Wildfire	<p>Since 1950, annual acreage burned in wildfires statewide has been increasing in California</p>	<p>Indicators of Climate Change in California</p>
	<p>Increases in wildfire-burned area statewide ranging from 36% to 74% by 2085 in higher emissions scenario</p>	<p>-</p> <p>Westerling et al. 2008</p>
Floods	<p>More frequent and more severe floods over a longer season.</p>	<p>Dettinger, 2011</p>
	<p>By end of century, 50-year discharges increase by 30–90% for the Northern Sierra Nevada and 50–100% for Southern Sierra, regardless of changes in precipitation.</p>	<p>-</p> <p>Das et al., 2013</p>
Land Use	<p>Decrease in irrigated agricultural crop acreage of 0.1-0.9 million acres by 2050 (=1-10% less than in 2006)</p>	<p>California Water Plan, 2013 Update</p>
	<p>Increase in urban acreage of 0.3-3.1 million acres by 2050 (=5-61% more than in 2006)</p>	<p>-</p> <p>California Water Plan, 2013 Update</p>
Water Supply and Demand	<p>Changes in combined agricultural and urban water demand by approx. -5 to +1 million acre feet or 17% decrease to 3% increase by 2050</p>	<p>California Water Plan, 2013 Update</p>
	<p>Reservoir carryover storage is expected to be reduced by 15%-19% by mid-century and by 33%-38% by the end of the century</p>	<p>Chung et al. 2009</p>

References: <http://climate.calcommons.org/collection/central-valley-landscape-conservation>