

California Drought Update

June 10, 2015

Tanya Trujillo, Executive Director
Colorado River Board of California



U.S. Drought Monitor California

June 2, 2015

(Released Thursday, Jun. 4, 2015)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.14	99.86	98.71	93.91	69.61	46.73
Last Week <i>5/26/2015</i>	0.14	99.86	98.71	93.91	66.60	46.73
3 Months Ago <i>3/3/2015</i>	0.16	99.84	98.10	93.44	67.46	39.92
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>6/3/2014</i>	0.00	100.00	100.00	100.00	76.68	24.77

Intensity:

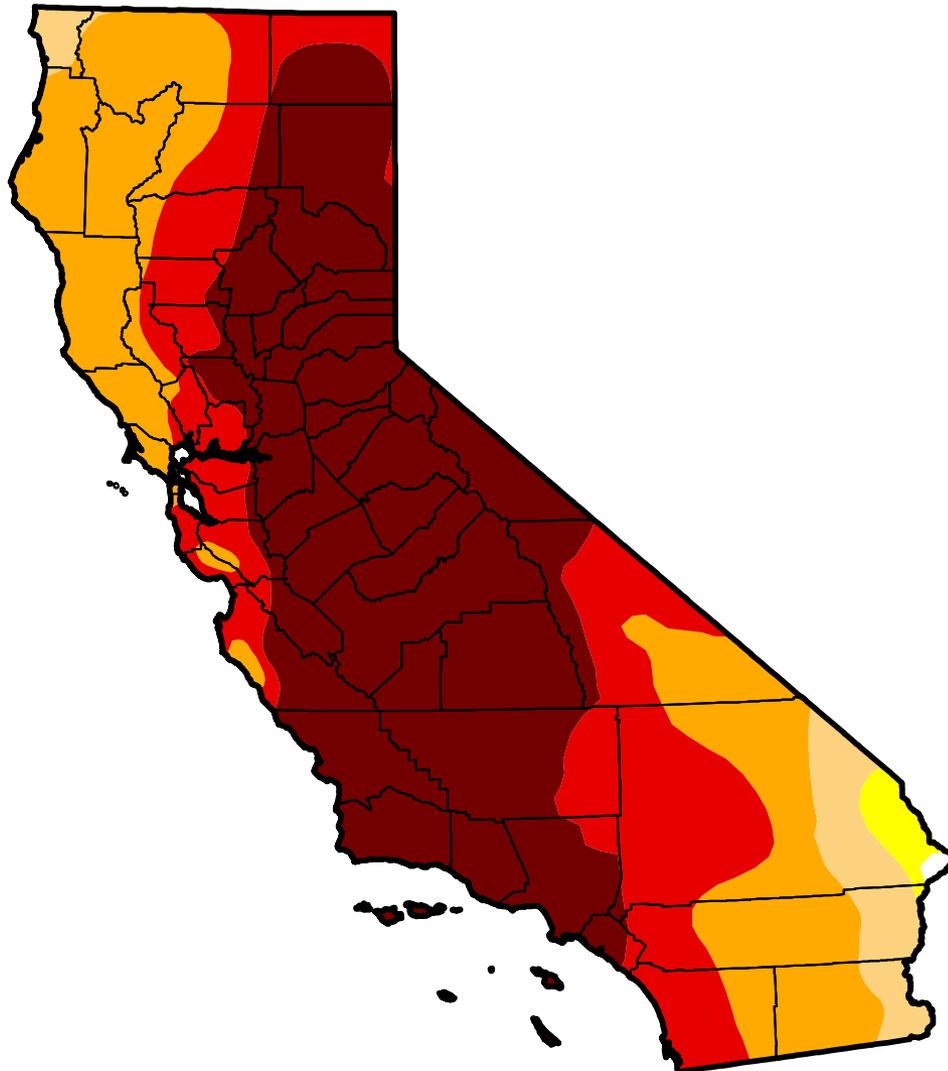
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

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

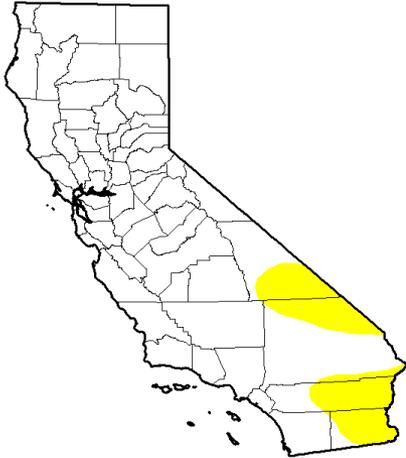
Author:

David Miskus

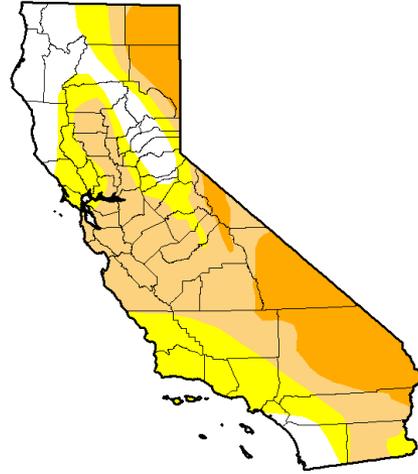
NOAA/NWS/NCEP/CPC



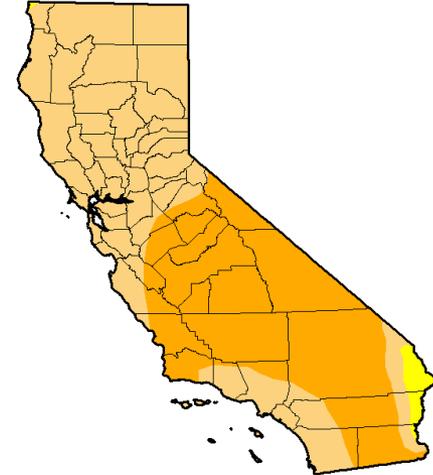
U.S. Drought Monitor California



June 28, 2011



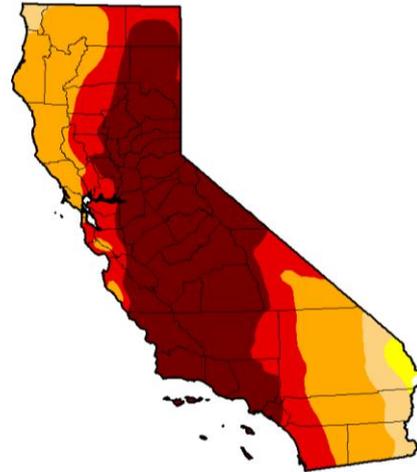
May 29, 2012



May 28, 2013



May 27, 2014



May 26, 2015

Intensity:



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

Snow Cover Sierra Nevada



March 27, 2010

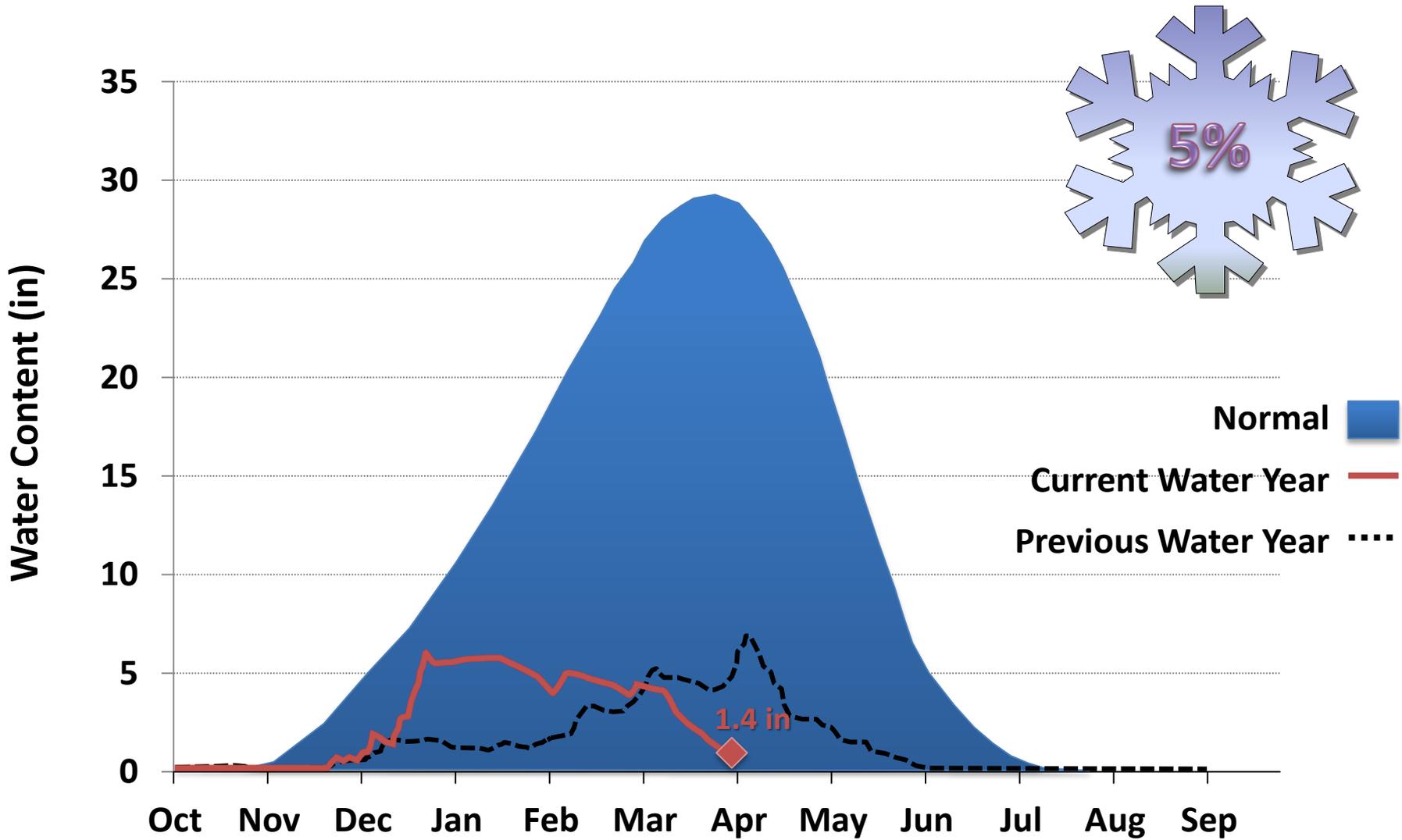


March 29, 2015

April 1, 2015 Snowpack measurement

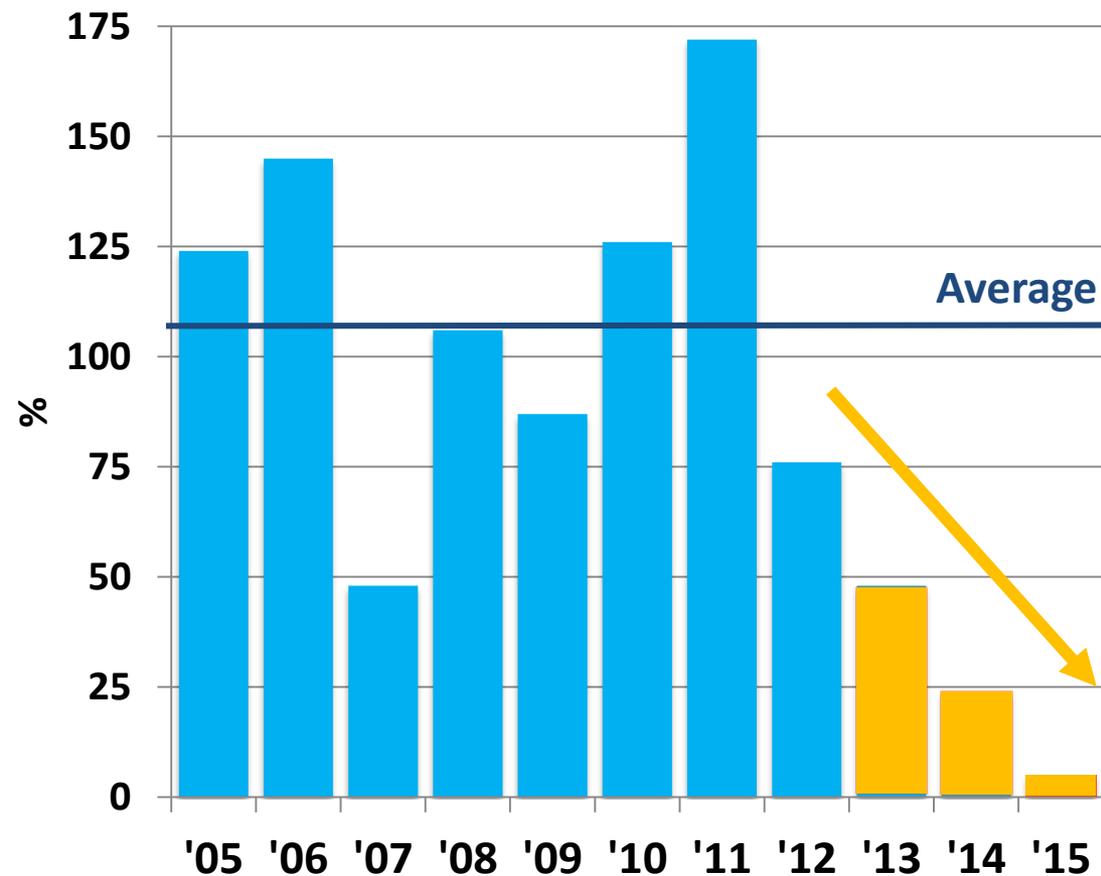


April 1, 2015 Snowpack

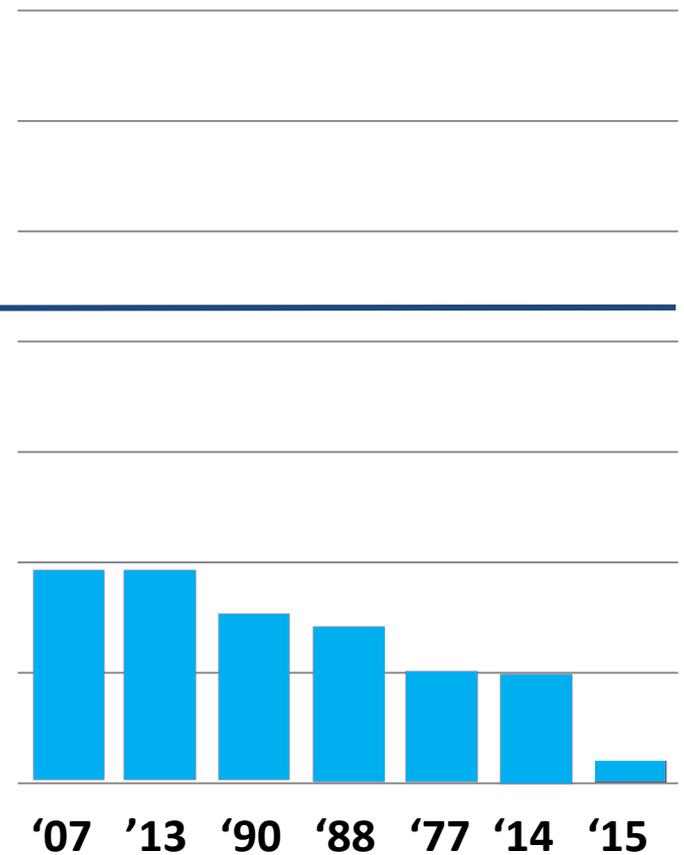


Comparison of April 1 snowpack measurements

Last 10 Years

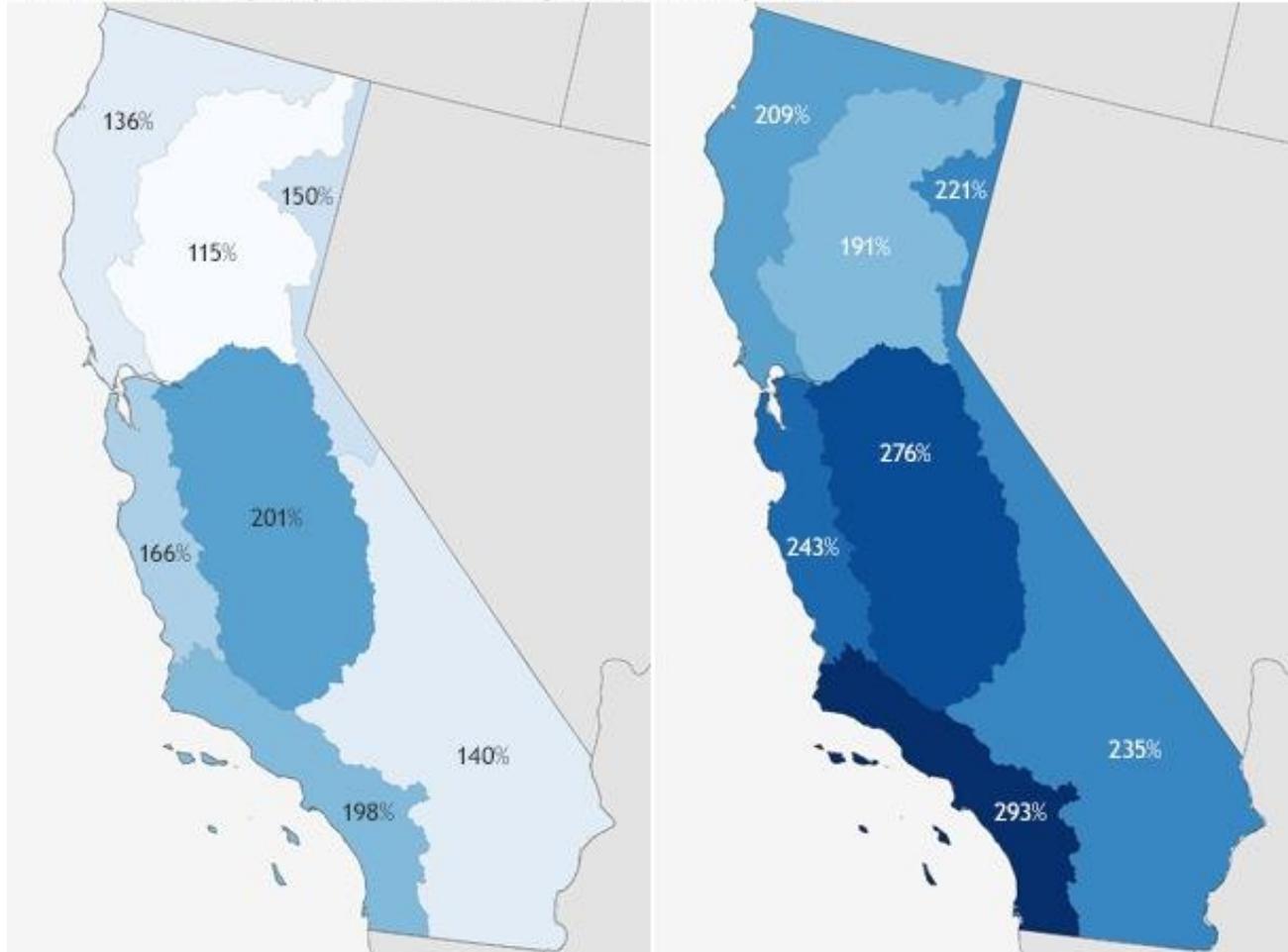


7 Lowest Years



Precipitation deficits

Percent of normal precipitation needed by the end of September



to move out of bottom 20th percentile
of 4-year accumulated precipitation

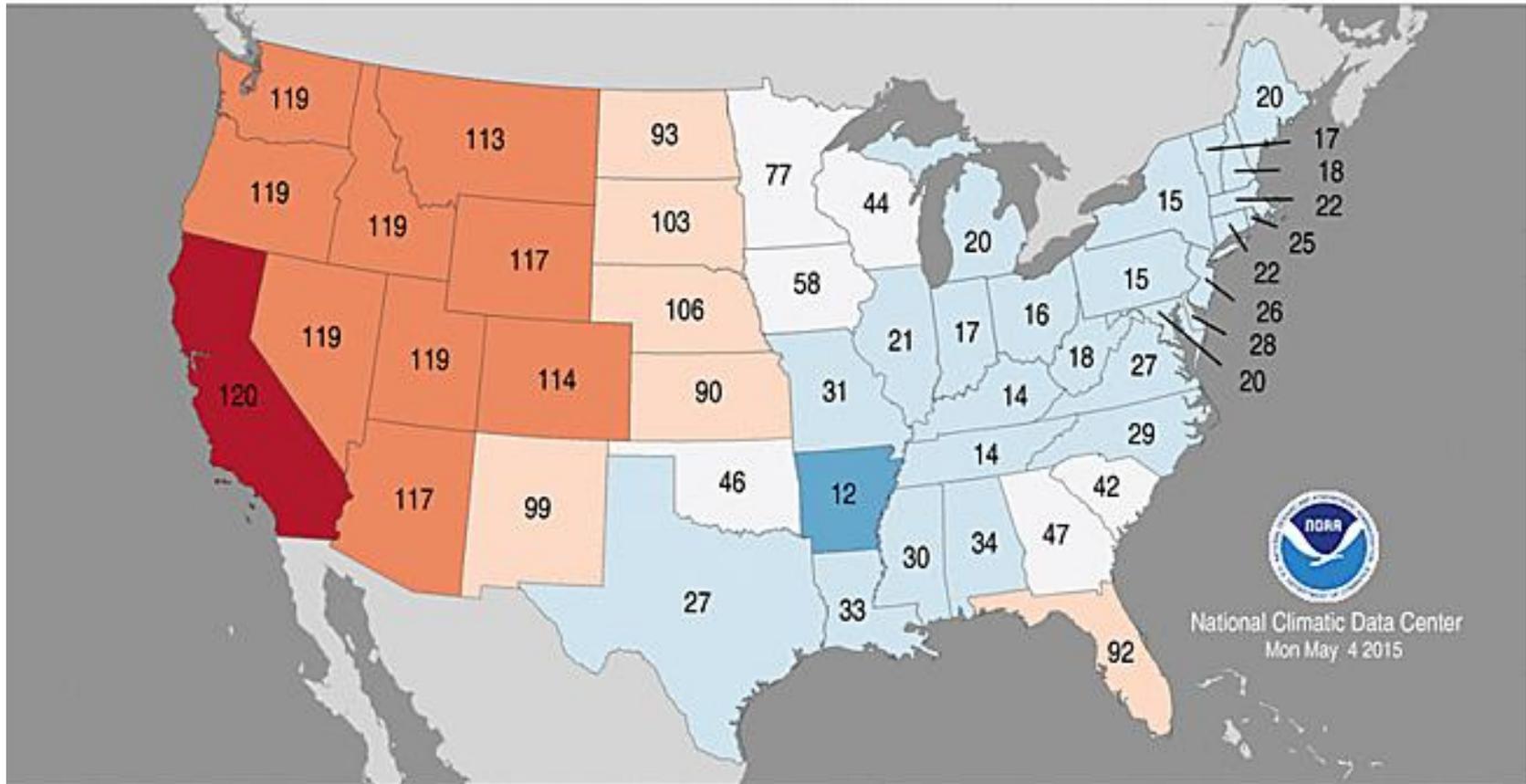
to move out of bottom 50th percentile
of 4-year accumulated precipitation

Maximum Temperature Rankings

Statewide Maximum Temperature Ranks

November 2014–April 2015

Period: 1895–2015



National Climatic Data Center
Mon May 4 2015

Record Coldest
(1)

Much Below Average

Below Average

Near Average

Above Average

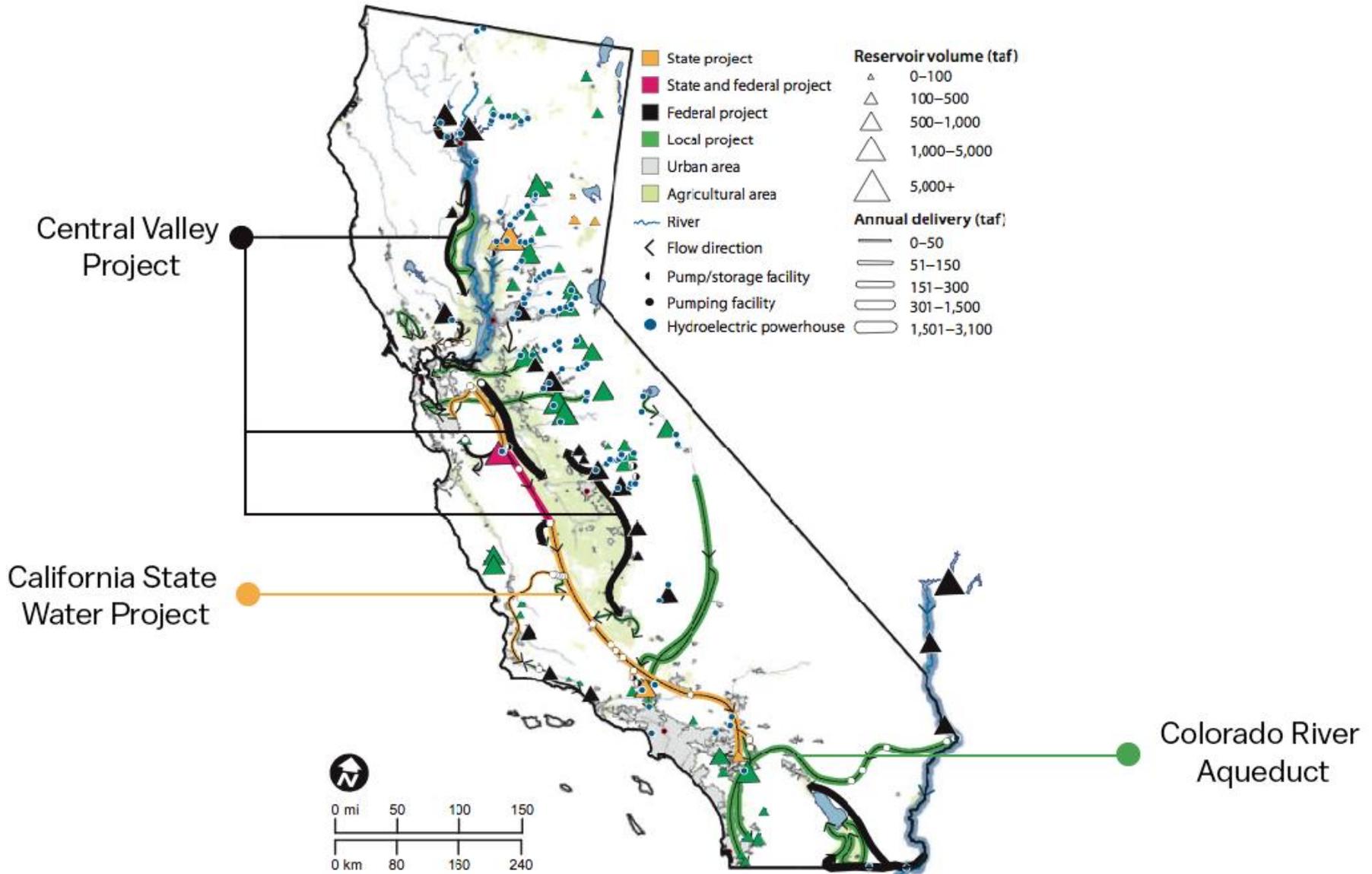
Much Above Average

Record Warmest
(120)

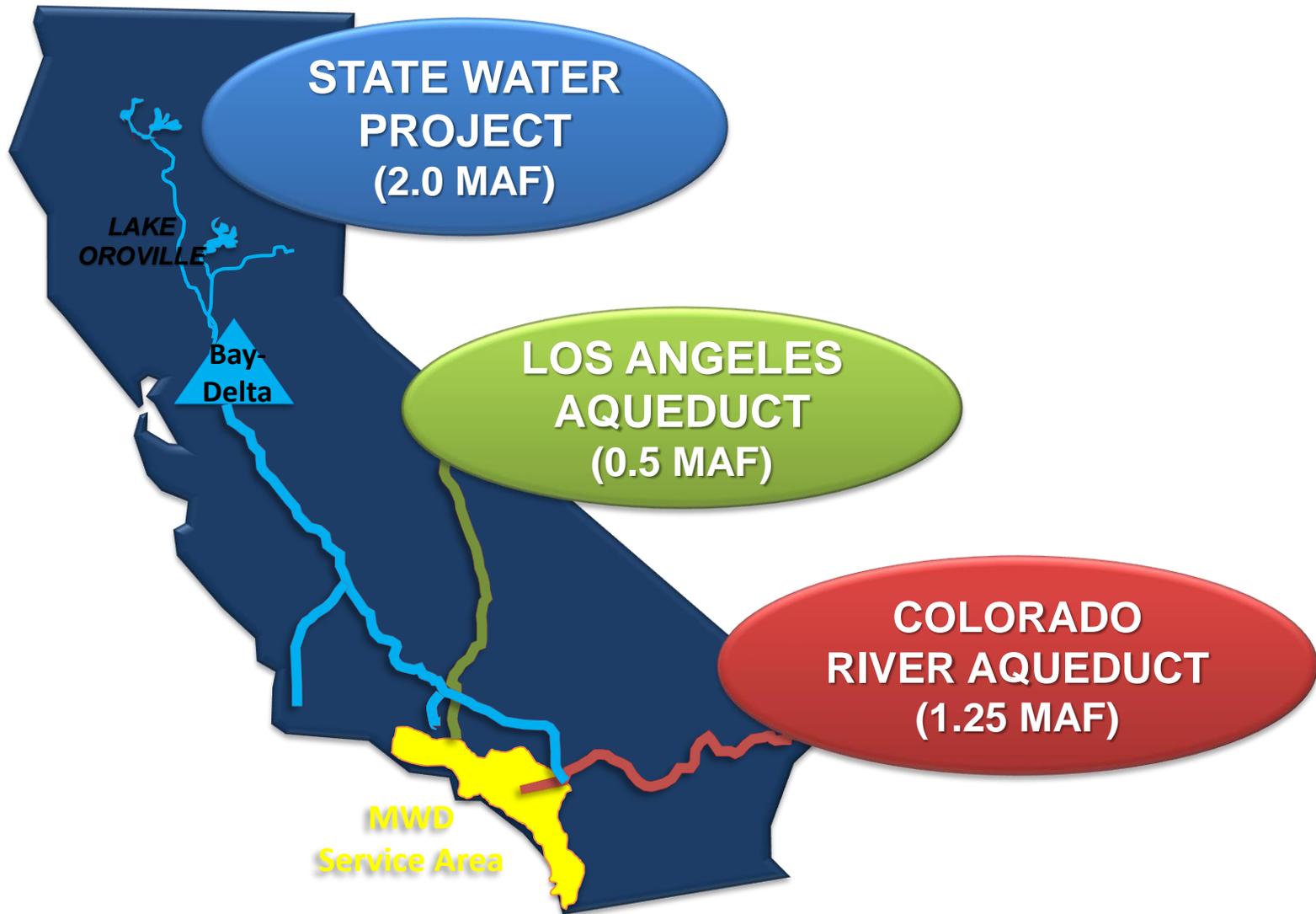
Drought Impacts



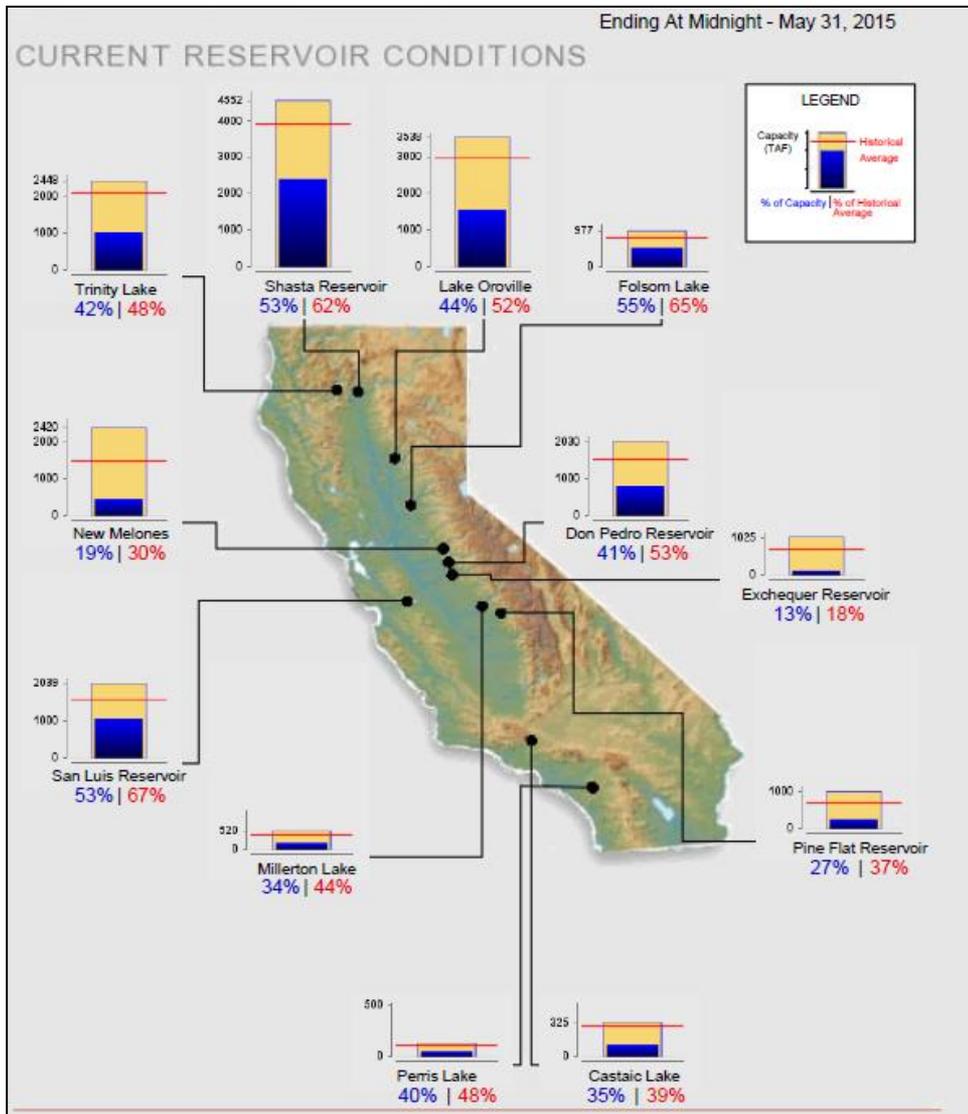
California's Water Supply Sources



Southern California's Imported Water Supply Sources



California's Water Supply Conditions



State Reservoirs are all below average capacity:

Results in reduced surface water allocations

Results in increased use of groundwater

Results in reduced hydropower generation

State Board Curtails Water Rights in Sacramento River & Delta April 30, 2015

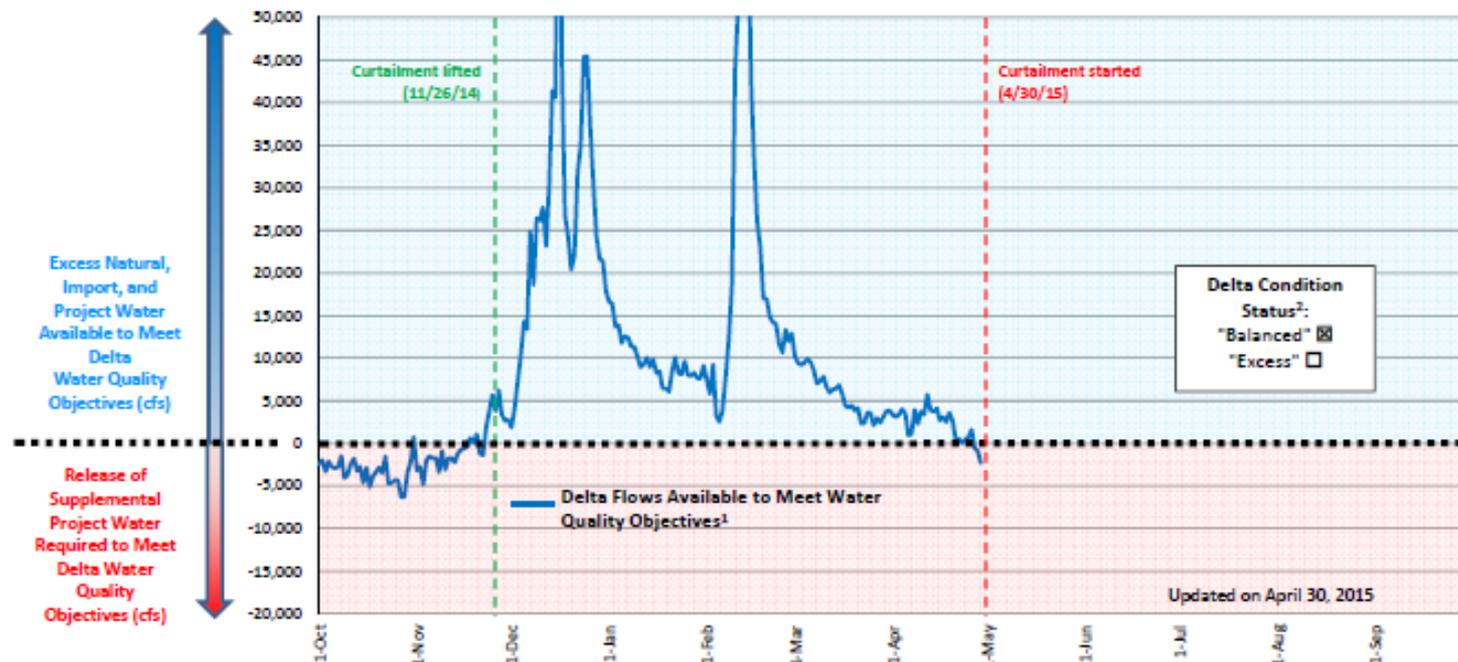


TERM 91 CURTAILMENT

WATER YEAR 2015 (October 1, 2014 through September 30, 2015)

Term 91 Curtailment:
In Effect
Not in Effect

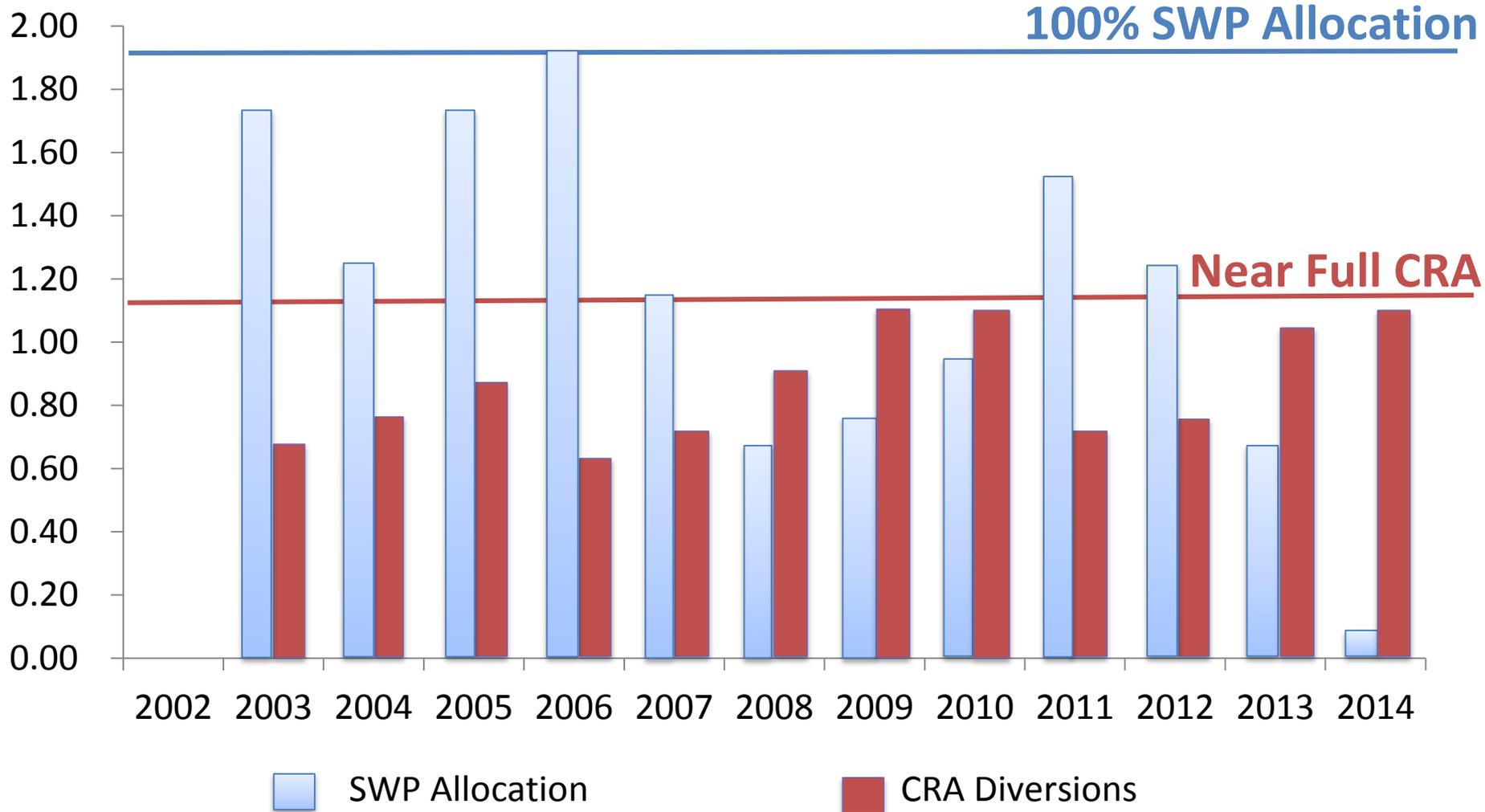
For permits and licenses with Term 91, water is generally available to divert when the plotted line is in the blue area.
No water is available - and diversion may be curtailed - when the plotted line is in the red area.



EXPLANATION: Permit and license holders having Term 91 as a condition of their water right, must cease diversions under the permit or license when notified by the State Water Board. A Term 91 Curtailment Notice is triggered when; (i) Supplemental Project Water is needed to meet water quality objectives, and (ii) the Delta is in "Balanced Condition." Supplemental Project Water describes the net storage releases from Shasta, Folsom and Oroville reservoirs, plus water imported from the Trinity River CVP facilities, when they collectively exceed total Delta exports plus Carriage Water calculated from the Delta Export Index. The Delta is referred to as in Balanced Condition when the Projects are required to release previously stored water to meet water quality objectives in the Delta. The graph plots a daily calculation of Supplemental Project Water and depicts Delta conditions. When the "Balanced" box is checked, and the graph indicates that regular flows through the Delta are insufficient so that Supplemental Project Water must be released, a notice of curtailment may be issued.

¹ Source: <http://www.usbr.gov/mp/cvo/vungwr/term91.pdf> ² Source: <http://www.usbr.gov/mp/cvo/vungwr/coenw.pdf>

Imported Supply Relationship for Southern California



Additional Drought Impacts

Farm Economy

- 2015 statewide economic cost = \$2.7 billion
- 563,800 fewer acres irrigated

Emergency Food Aid/Utility Assistance

- Over 650,000 boxes of food delivered to food banks
- \$600,000 for help with water bills

Jobs

- 18,600 estimated losses in 2015

Fires

- Greater number of fires with higher intensity burns and post-fire damages (mud)
- \$54 million more funding for CALFire and \$1 billion estimated for Forest Service this season



Additional Drought Impacts

2014 Impact Summary of Drought Impacts

Impact	Quantity
Water supply, 2014 drought	
Surface water reduction	6.6 million acre-feet
Groundwater pumping increase	5 million acre-feet
Net water shortage	1.6 million acre-feet
Statewide Economic Impacts	
Crop revenue loss	\$810 million
Additional pumping cost	\$454 million
Livestock and dairy revenue loss	\$203 million
Total direct costs	\$1.5 billion
Total economic costs	\$2.2 billion
Total job losses	17,100

Table 1. Statewide 2015 Drought Impacts Summary

Drought Impact	Loss Quantity
Water Supply	
Surface water reduction	8.7 million acre-feet
Groundwater pumping increase	6.2 million acre-feet
Net water shortage	2.5 million acre-feet
Statewide Costs	
Crop revenue loss	\$856 million
Additional groundwater pumping cost	\$595 million
Livestock revenue loss	\$100 million
Dairy revenue loss	\$250 million
Total direct agricultural costs	\$1.8 billion
Total statewide economic cost	\$2.7 billion
Total job losses	18,600

Drought Responses



State Drought Response Timeline of Major Actions

Dec.
2013

Drought Task Force
established after driest
conditions on record



Jan.
2014

Drought State of Emergency
- Zero allocations for State
and Federal Water Projects



Mar.
2014

\$829 million in drought
relief funding

July
2014

Mandatory water
conservation regulations -
targeting outdoor urban use



Nov.
2014

\$7.5 Billion Bond - Prop 1
Approved

A black sign with yellow LED lights that reads "SERIOUS DROUGHT HELP SAVE WATER". The sign is mounted on a post and is set against a clear blue sky.

State Drought Response Timeline of Major Actions

Mar.
2015

\$1 Billion emergency drought relief funding

Apr.
2015

Executive Order requires statewide mandatory water reductions of 25%

State Board Regulations to implement the Executive Order



April 1 Executive Order Emphasized Four Actions:

- Save water (e.g., replace 50 million sq. ft. of turf)
- Increase enforcement
- Streamline government response
- Invest in new technologies

California Drought Response

STATEWIDE

- Governor's Executive Orders direct state agencies to take specific actions
- Mandatory reductions and curtailment of water rights and deliveries
- Impacts are site-specific, and vary depending on the ability of water users to invest in reliability
- Consumer response to conservation programs is higher than ever
- **57 local emergency proclamations** to date from city, county, tribal governments, and special districts
- **31 county drought task forces** to coordinate local drought response

SOUTHERN CALIFORNIA REGION

- Southern California region is experiencing an historic 8-year drought
- Investments have allowed the region to avoid shortage cutbacks in recent years
- Larger urban waters agencies can typically manage 3-4 years of drought with limited impacts to their customers—but those reserves have declined significantly

State Drought Response Interagency Drought Task Force

- Coordinates drought response and publishes drought updates
- Supports ongoing outreach efforts - “Save our Water” campaigns
- California Water Action Plan 2014-2018
 - California groundwater legislation
- Central Valley Plan/State Water Project Drought Contingency Plan 2015



Cal OES
GOVERNOR'S OFFICE
OF EMERGENCY SERVICES



CALIFORNIA DEPARTMENT OF
FOOD & AGRICULTURE



CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS



State Water Board's Actions to Implement April 1 Executive Order

Prohibitions for everyone

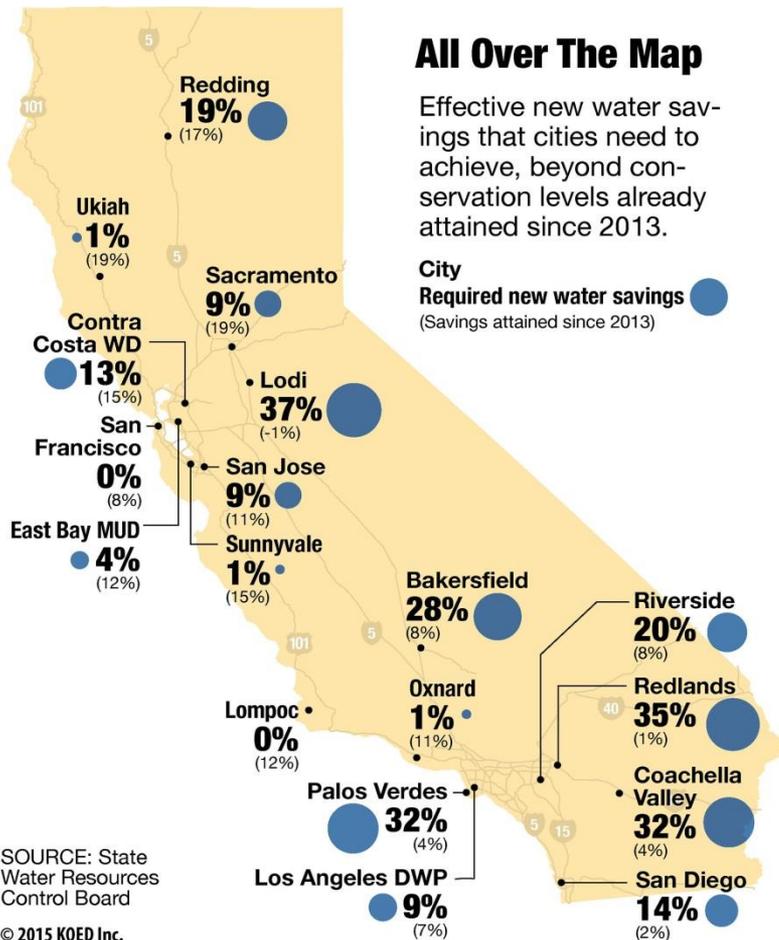
(Most in place since August 2014)

- No potable water to wash sidewalks or driveways
- No runoff allowed when irrigating with potable water
- Must use hoses with shutoff nozzles to wash cars
- No outdoor landscape irrigation during and for 48 hours following measurable precipitation
- No potable water to irrigate ornamental turf on public street medians
- No potable water to irrigate outside of newly constructed homes and buildings without drip or microspray systems
- **Restaurants can only serve water to customers on request**



State Water Board's Actions to Implement April 1 Executive Order

Water Supply Reductions - 25% statewide



Local Drought Response Metropolitan Water District

- Level 3 cutbacks starting in July, with a 15% reduction in wholesale water use
- \$450 Million budgeted for conservation programs over two years for turf-removal, conservation, recycling, groundwater recovery, infrastructure improvements
- Weekly evaluation of conservation response, local supplies, and reservoir storage levels and adaptively manage
- Outreach and funding initiatives to support drought response activities
- Accelerate recycling, groundwater cleanup, stormwater capture and desalination with member agencies

MWD per capita use has declined 24% since 1980s with population increase of 5 million

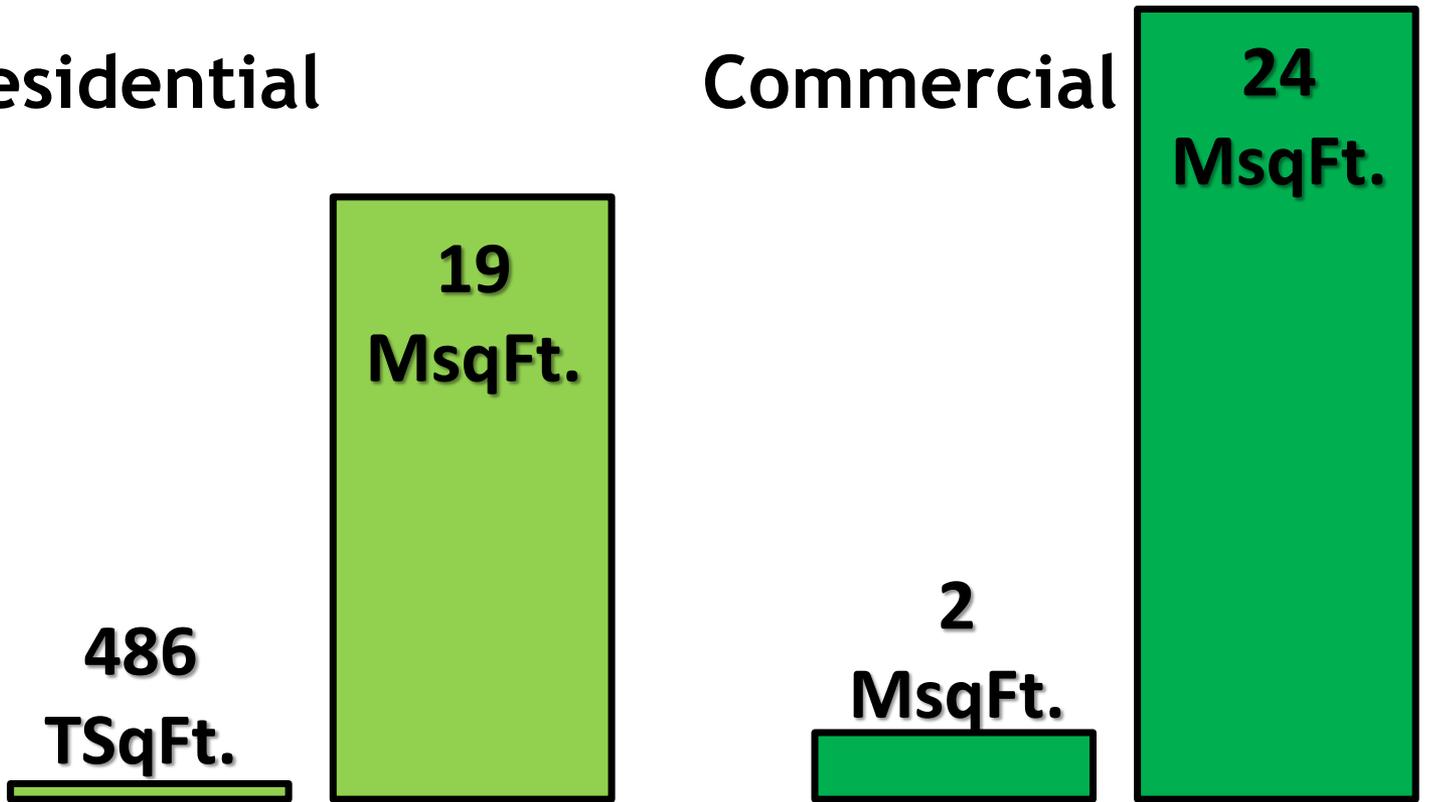


Local Drought Response Metropolitan Water District

Turf Removal Signups Surge

Residential

Commercial



Jan-Apr
2014

Jan-Apr
2015

Jan-Apr
2014

Jan-Apr
2015

Local Drought Response Los Angeles DWP

- Water Conservation Response Unit
 - 8-minute watering cycle 3 times a week
 - No irrigation between 9 a.m. and 4 p.m.
 - Odd/even water schedule based on street address
 - Community patrols and conservation education
- Rebates for water conservation devices
 - HE washers and toilets
 - faucet aerators, showerheads
- California Friendly Landscape Incentive Program
 - Turf replacement rebate program and landscape improvements within the right-of-way

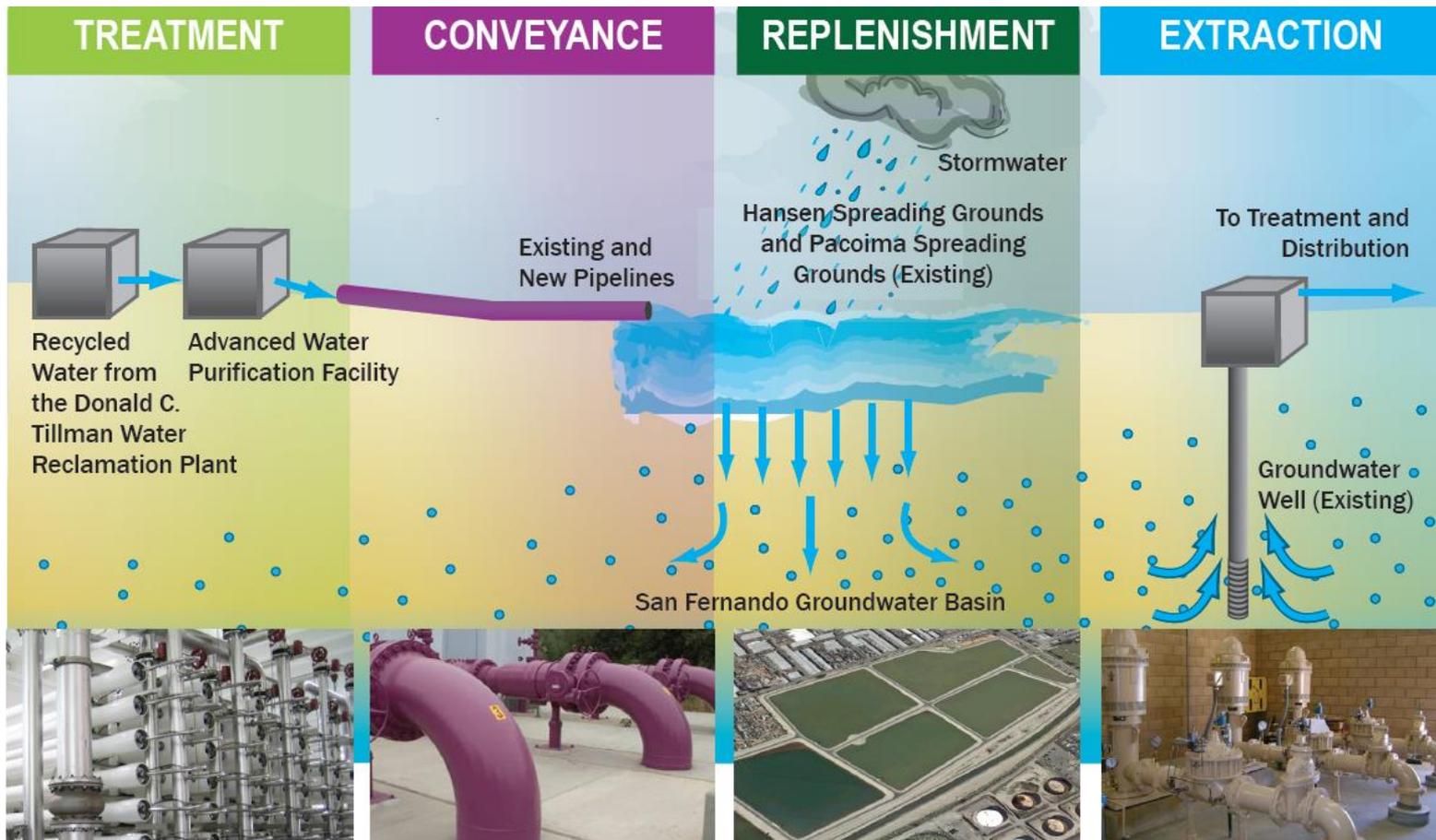


Los Angeles  Department of Water & Power



Local Drought Response Los Angeles DWP

Recycled Water Advanced Treatment Project



California Drought Response - Colorado River

- Since 2003, CA has reduced its average use of Colorado River water
- CA Colorado River Agencies have invested over \$1 billion towards conservation efforts
- State of California invested \$254 million for canal lining
- Colorado River transfers and conservation have totaled more than 3.0 maf through 2014



California Drought Response - Colorado River

LOWER BASIN DROUGHT CONTINGENCY PLANNING

- Lower Basin Memorandum of Understanding
- Goal to conserve water in Lake Mead
 - Encourage additional conservation and storage (ICS)
 - System Conservation Pilot Program
- Expand operational efficiencies/reducing system losses
- Coordinate with the Upper Basin
 - Increased funding for weather modification
 - Coordinated reservoir operations
 - Demand management
- Continued cooperation with Mexico - Minute 319



www.drought.ca.gov

