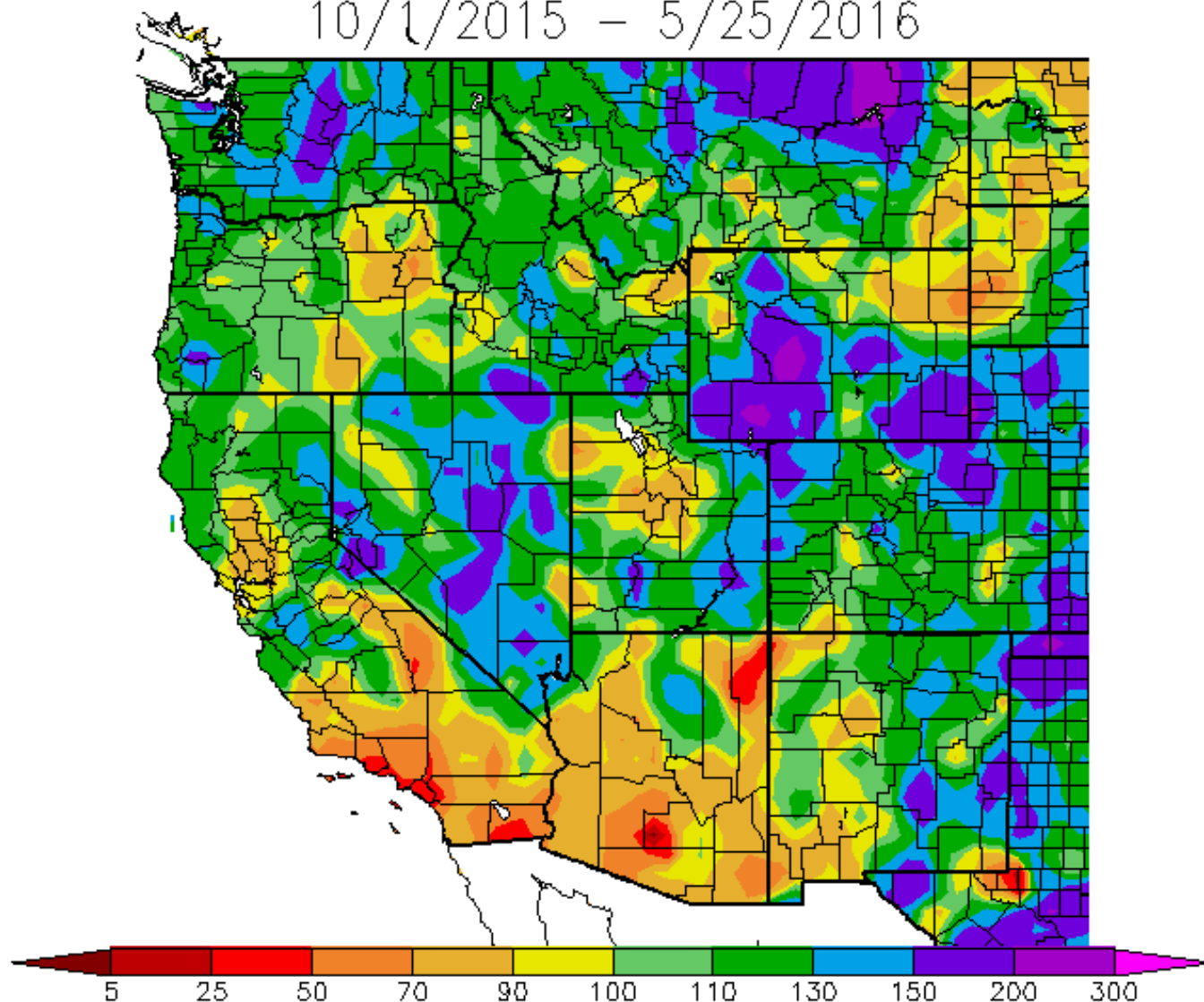




# **Hydrologic Conditions Overview and Drought Status**

**Jeanine Jones, California Department of Water Resources**

Percent of Average Precipitation (%)  
10/1/2015 - 5/25/2016



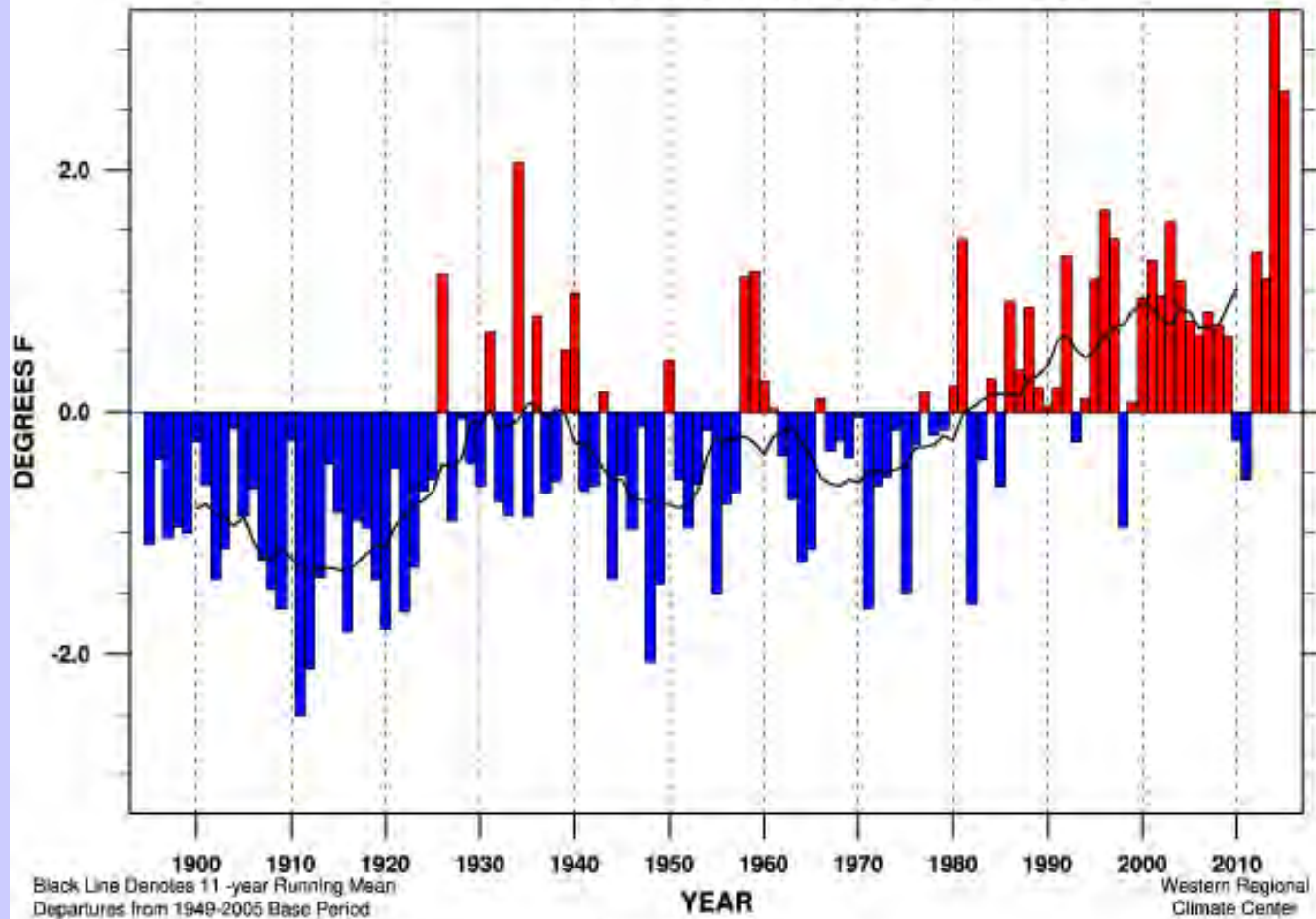
Generated 5/26/2016 at WRCC using provisional data.  
NOAA Regional Climate Centers

# Where We've Been in Past Water Years

- 2007 – dry
- 2008 – dry
- 2009 – dry
- 2010 – normal
- 2011 – wet
- 2012 – dry
- 2013 – dry
- 2014 – dry
- 2015 – dry
- 2016 – dry to normal, location-specific



# California Statewide Mean Temperature Departure Jan-Dec



Linear Trend 1895-present	+ 1.71 ± 0.42 °F/100yr	
Linear Trend 1949-present	+ 3.00 ± 1.02 °F/100yr	
Linear Trend 1975-present	+ 4.39 ± 2.20 °F/100yr	
Warmest Year	59.4 °F (+3.3 °F) in 2014	MEAN 56.1°F
Coldest Year	53.6 °F (-2.5 °F) in 1911	STDEV 0.87 °F
Jan-Dec	2015 58.7 °F (+2.7 °F)	RANK 120 of 121

# Driest 4 Consecutive Water Years Based on Statewide Precipitation

Year	4-Year Total, inches
<b>2012-2015</b>	62.2
<b>1917-1920</b>	63.1
<b>1923-1926</b>	63.3
<b>1928-1931</b>	64.5
<b>1931-1934</b>	65.1
<b>1921-1924</b>	65.7
<b>1922-1925</b>	65.9
<b>1918-1921</b>	66.8
<b>1929-1932</b>	67.3
<b>1987-1990</b>	67.3
<b>1930-1933</b>	68.0

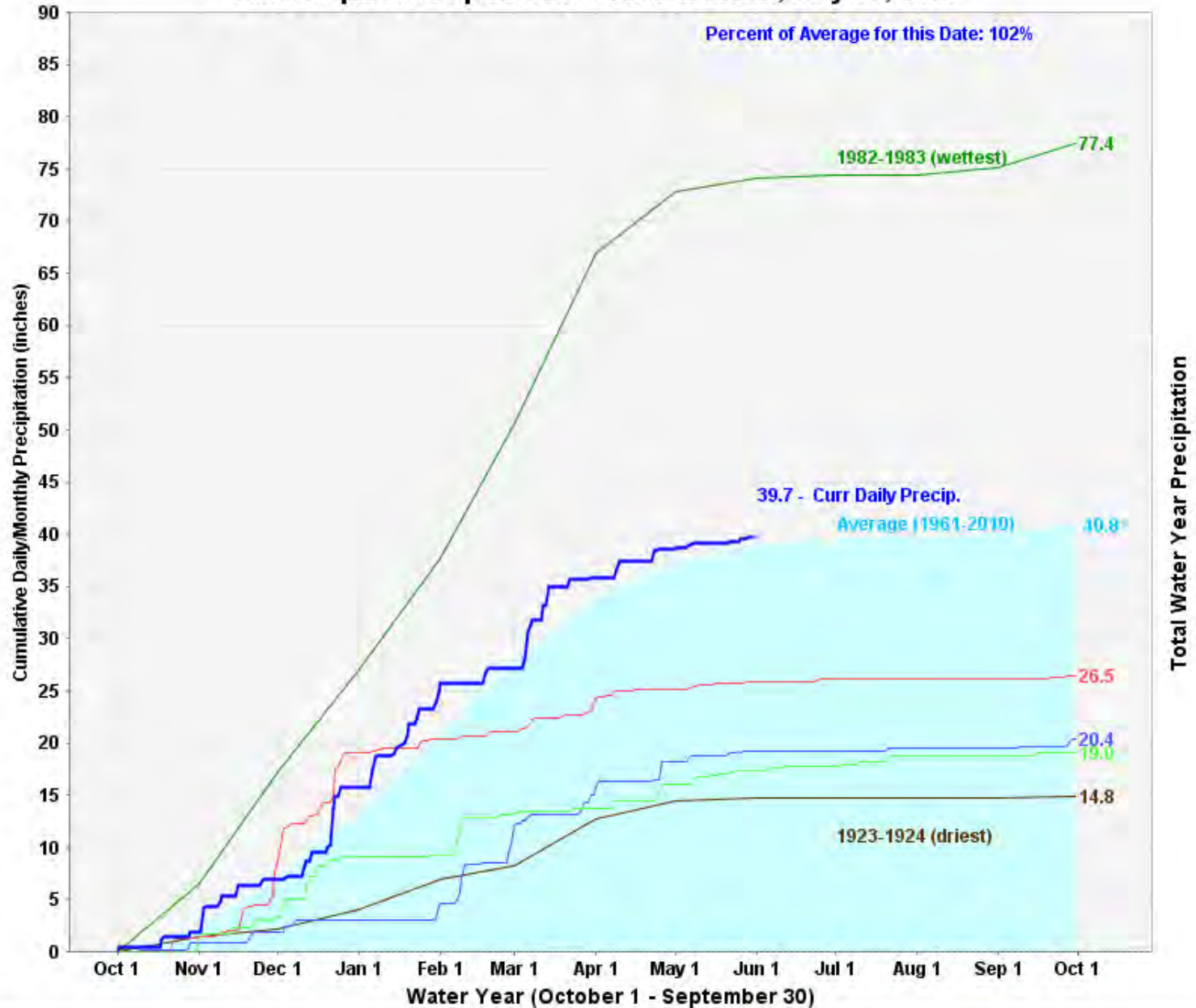
WRCC data

# USGS Computed CA WY Runoff

## Dozen Driest years -- (rank out of 115)

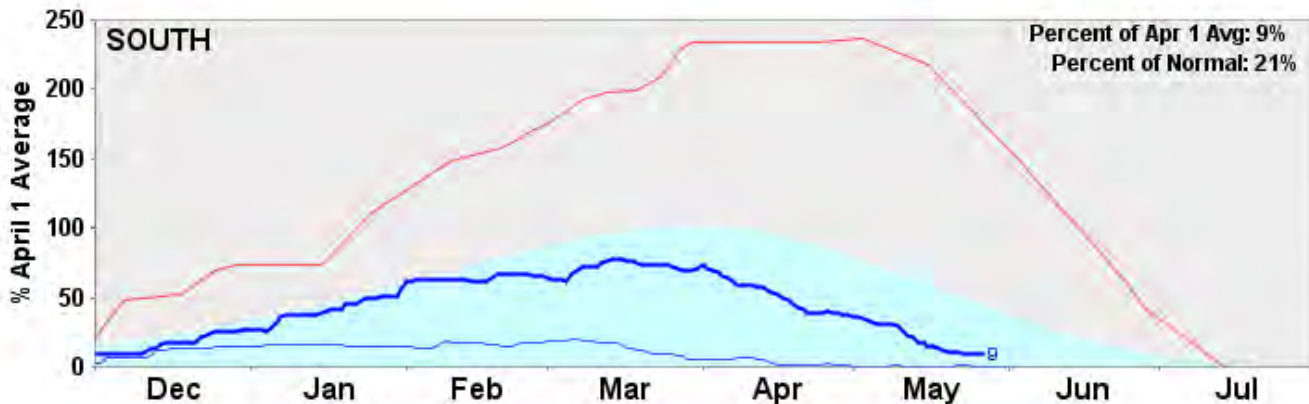
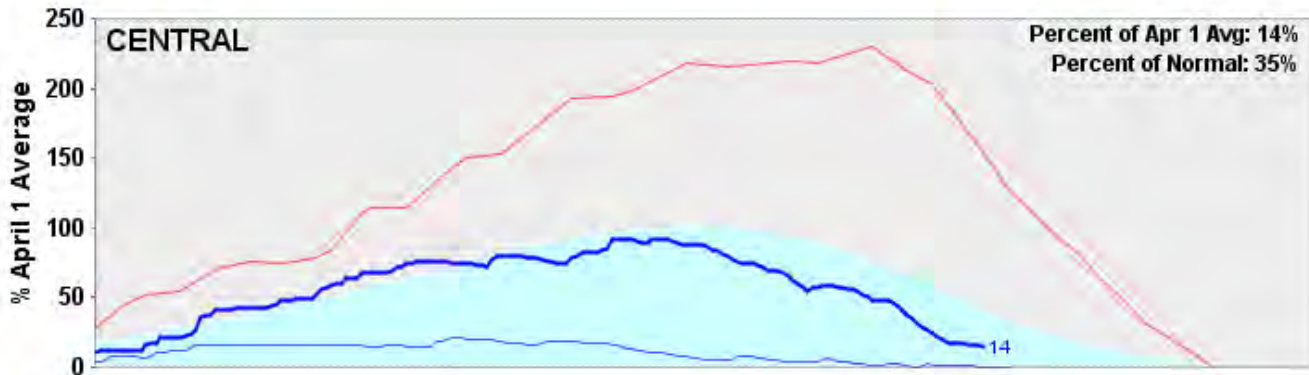
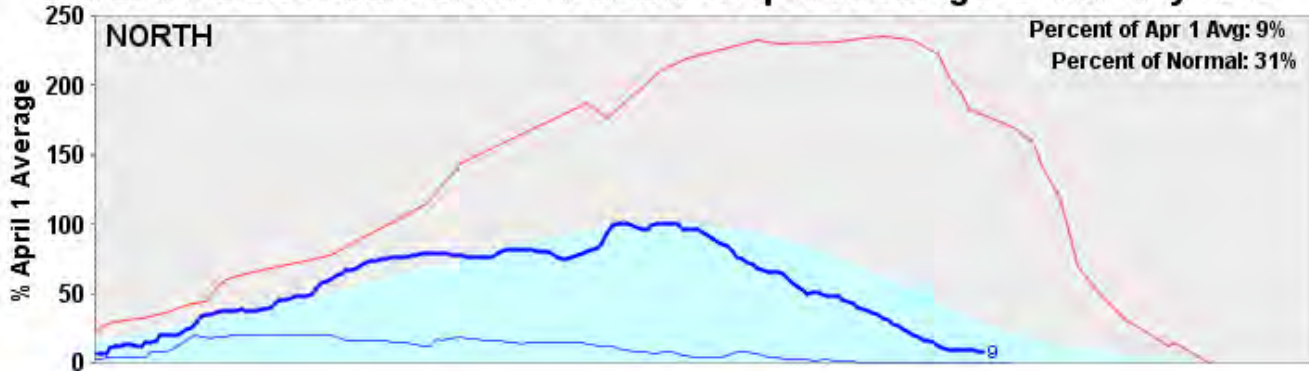
1. 1977	115 <sup>th</sup>	7. 1990	109 <sup>th</sup>
2. 1931	114 <sup>th</sup>	8. 2015	108 <sup>th</sup>
3. 1924	113 <sup>th</sup>	9. 2001	107 <sup>th</sup>
4. 2014	112 <sup>th</sup>	10. 1934	106 <sup>th</sup>
5. 1991	111 <sup>th</sup>	11. 1992	105 <sup>th</sup>
6. 1994	110 <sup>th</sup>	12. 1976	104 <sup>th</sup>

## San Joaquin Precipitation: 5-Station Index, May 31, 2016



Average (1956-2005) — 1923-1924 (driest) — 1982-1983 (wettest) — 2012-2013 — 2013-2014 — 2014-2015 — 2015-2016 (current)

# California Snow Water Content - Percent of April 1 Average For: 27-May-2016



Average — 1982-1983 (max) — 2014-2015 (min) — 2015-2016 (current)

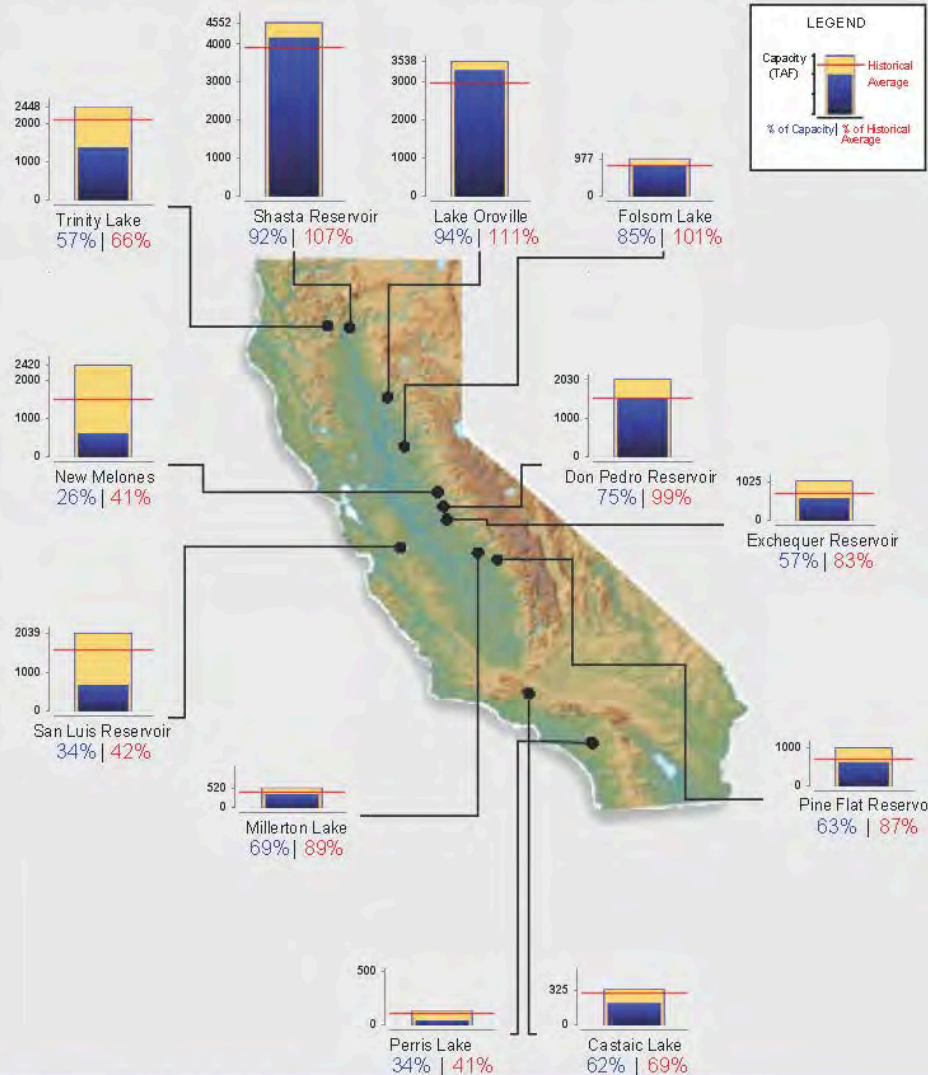




# Reservoir Conditions

Ending At Midnight - May 30, 2016

## CURRENT RESERVOIR CONDITIONS



# DWR Bulletin 120 Water Supply Forecast Update, May 24th

(April-July Unimpaired Runoff, 50% exceedance values)

Shasta Inflow	73%
Sac River above Bend Bridge	73%
Feather River @ Oroville	68%
Yuba near Smartsville	75%
American River below Folsom	81%
Pardee Inflow	85%
Stanislaus below New Melones	87%
Tuolumne below Don Pedro	82%
Merced below McClure	77%
San Joaquin below Millerton	68%
Kings below Pine Flat	69%
Kaweah below Terminus	67%
Tule below Success	39%
Isabella inflow	45%

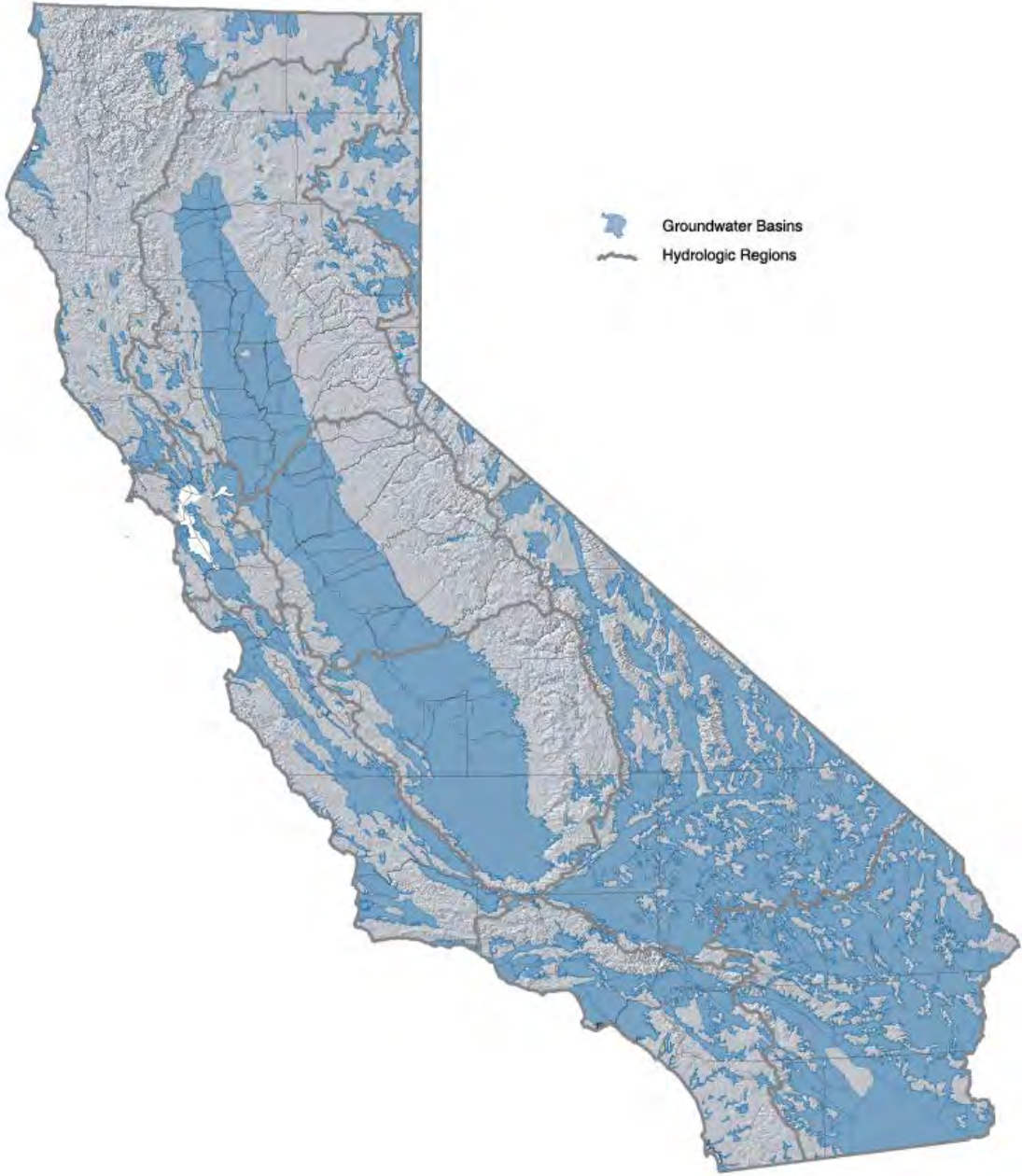
# Drought Impacts

- Reduced surface and groundwater supplies
- Water shortages for small water systems & private well owners
- Declining groundwater levels and land subsidence
- Agricultural land fallowing
- Increased urban water costs
- Tree mortality, wildfire risk
- Fishery impacts

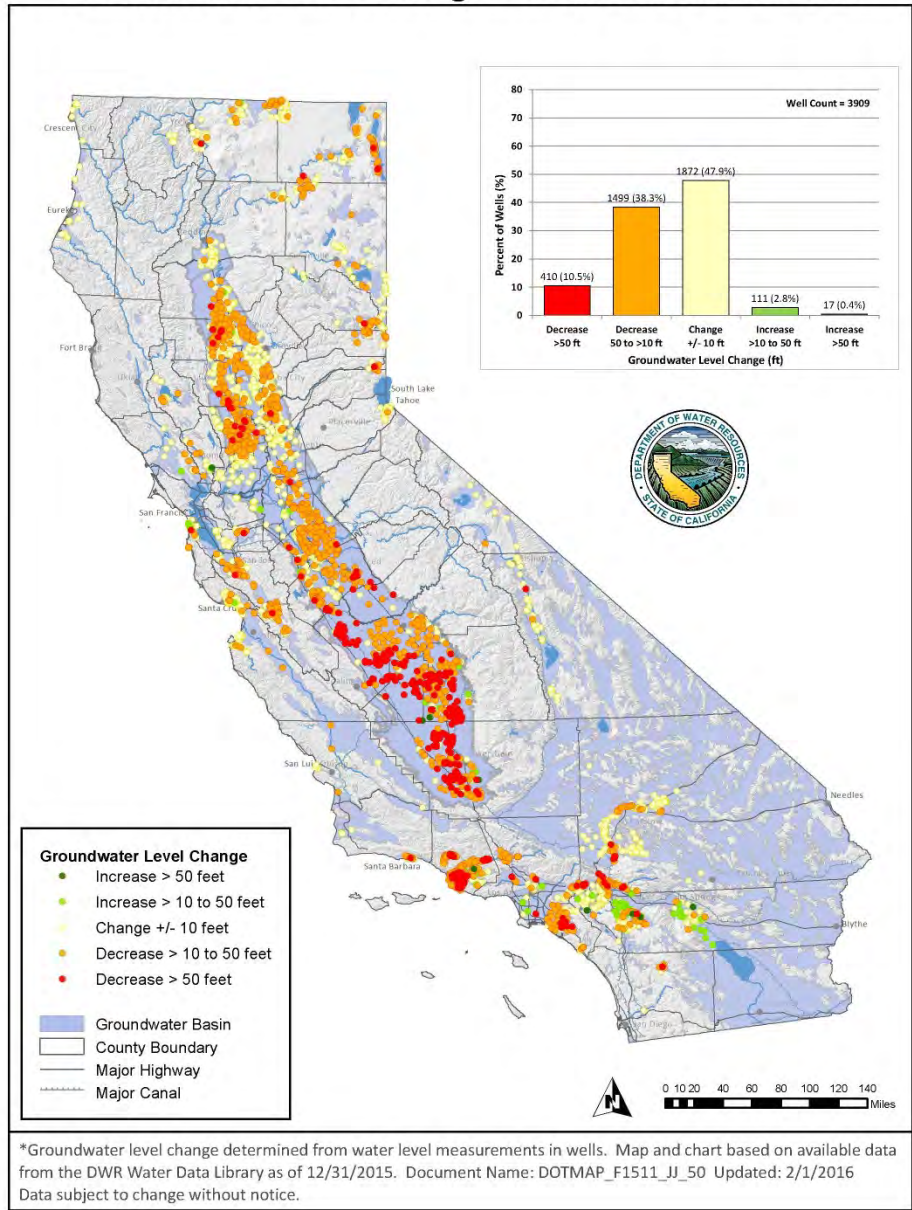


# Comparison of Historical Water Project Allocations in Dry Years

	1991	2009	2014	2015	2016
SWP	30% & 0%	40%	5%	20%	60%
CVP N of Delta Ag	25%	40%	0	0	100%
CVP S of Delta Ag	25%	10%	0	0	5%
Friant	100%	100%	0	0	65%
CVP Sac water rights	75%	100%	75%	75%	100%
CVP SJ water rights	75%	100%	65%	75%	100%

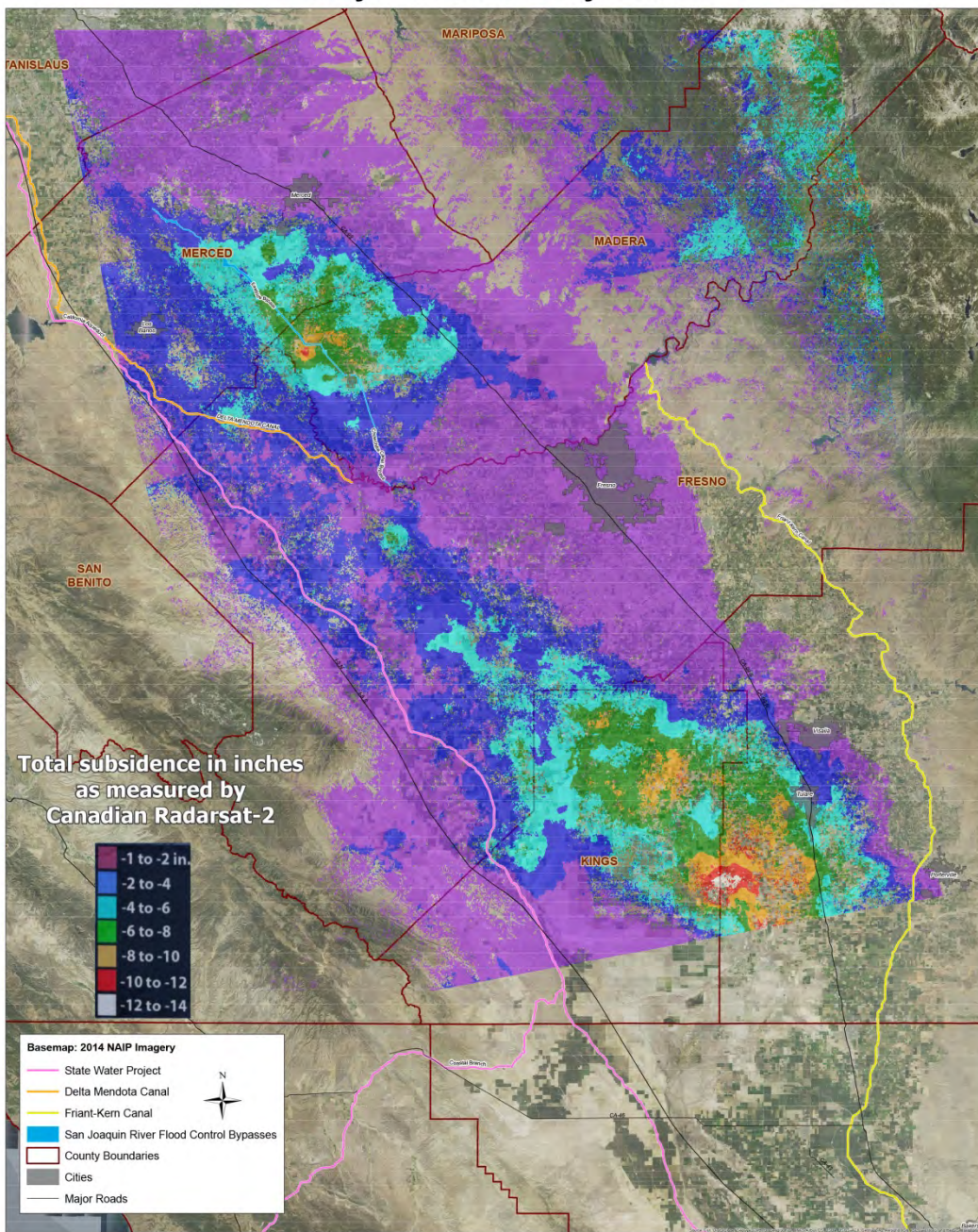


# Groundwater Level Change\* - Fall 2011 to Fall 2015



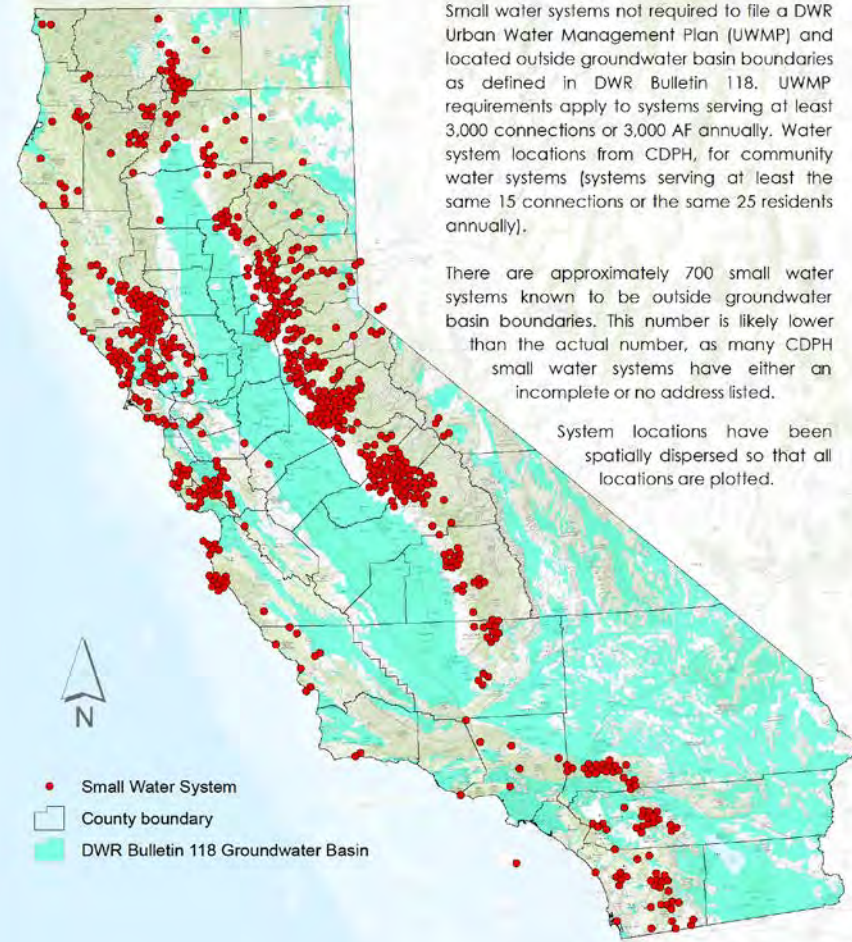
\*Groundwater level change determined from water level measurements in wells. Map and chart based on available data from the DWR Water Data Library as of 12/31/2015. Document Name: DOTMAP\_F1511\_UJ\_50 Updated: 2/1/2016 Data subject to change without notice.

# San Joaquin Valley Subsidence May 2014 to January 2015



# Small Water Systems Outside Groundwater Basins

As of February 21, 2014



1:1,542,907  
Coordinate System: NAD 1983 UTM Zone 10N  
Projection: Transverse Mercator



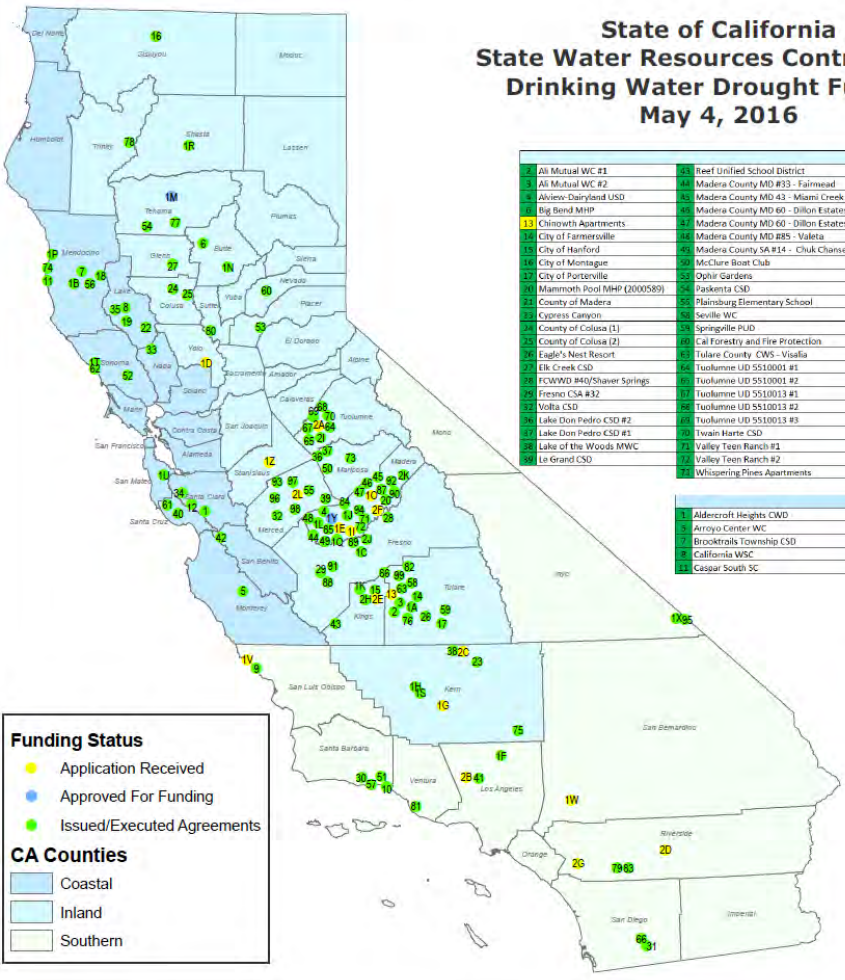


# State Drought Response Actions

- May 2013 Executive Order on water transfers
- Dec 2013 formation of Governor's Drought Task Force
- Jan 2014 Governor's emergency proclamation
- March 2014 drought relief legislation
- April 2014 proclamation of continued state of emergency
- Sep 2014 Executive Order for emergency drinking water assistance
- Dec 2014 Executive Order continuing CEQA waiver for specified actions
- March 2015 drought relief legislation
- April 2015 Executive Order
- October 2015 emergency proclamation on tree mortality
- November 2015 Executive Order, continuing conservation/small water systems
- May 2016 Executive Order, conservation requirements



## State of California State Water Resources Control Board Drinking Water Drought Funding May 4, 2016



**Funding Status**

- Application Received
- Approved For Funding
- Issued/Executed Agreements

**CA Counties**

- Coastal
- Inland
- Southern

Inland			
2	All Mutual WC #1	23	Reef Unified School District
3	AS Mutual WC #2	34	Madera County MD #33 - Fairmead
4	Abview Dairyland USD	44	Madera County MD 43 - Miami Creek Knolls
5	Big Bend MHP	85	Madera County MD 60 - Dillon Estates #1
13	Chinoweth Apartments	27	Madera County MD 60 - Dillon Estates #2
14	City of Farnersville	34	Madera County MD #85 - Valera
15	City of Hanford	65	Madera County SA #34 - Chuk Chasse
16	City of Montague	50	McClare Boat Club
17	City of Porterville	55	Ophir Gardens
21	Manmoth Pool MHP (2000589)	54	Paskenta CSD
24	County of Madera	55	Plainsburg Elementary School
25	Cypress Canyon	58	Seville WC
26	County of Colusa (1)	59	Springville PUD
27	County of Colusa (2)	60	Cal Forestry and Fire Protection
28	Eagle's Nest Resort	63	Tulare County CWS - Visalia
29	Elk Creek CSD	66	Tuolumne UD 5510001 #1
30	PCWWB #40/Shaver Springs	67	Tuolumne UD 5510001 #2
31	Fresno CSA #32	67	Tuolumne UD 5510013 #1
32	Volba CSD	68	Tuolumne UD 5510013 #2
36	Lake Don Pedro CSD #2	69	Tuolumne UD 5510013 #3
37	Lake Don Pedro CSD #1	70	Tuainarte CSD
43	Lake of the Woods MWC	71	Valley Teen Ranch #1
58	Le Grand CSD	72	Valley Teen Ranch #2
		71	Whispering Pines Apartments

Coastal			
1	Aldercroft Heights CWD	51	Mt Taylor MHP
2	Arroyo Center WC	51	Redwood Valley CWD
3	Brooktrails Township CSD	51	Summit MWC
4	California WSC	51	Timber Cove CWD
11	Cesar's South SC	51	Woodside RV Park
		51	Sherwood Valley Rancheria
		51	Fort Bragg
		51	Huckleberry MWC
		51	Sylverda MWC

Southern			
1	Cambria CSD	16	Cloverdale MWC
10	Carpinteria Valley WD	35	Western Water Cons. - Ramona Well 3
10	Goleta WD	35	Amargosa Conservancy - Tecopa
14	Guatay MBC	19	Village Mobile Home Park
15	Los Angeles Residential (F)	19	San Simeon CSD
15	Montecito WD	19	Cedarzines MWC
17	Santa Barbara WD	18	Inyo County (Tecopa)
26	Goatay MBC (2)	28	LA Residential Community Foundation
26	Western Water Conservation (Ramonal)	20	Santana Benitez MHP
		20	Self-Help Ent. - Pond Mutual Water Co.

Regional Totals			
Inland	Coastal	Southern	
2	0	0	2
12	0	5	17
81	23	14	118
95	23	19	Totals



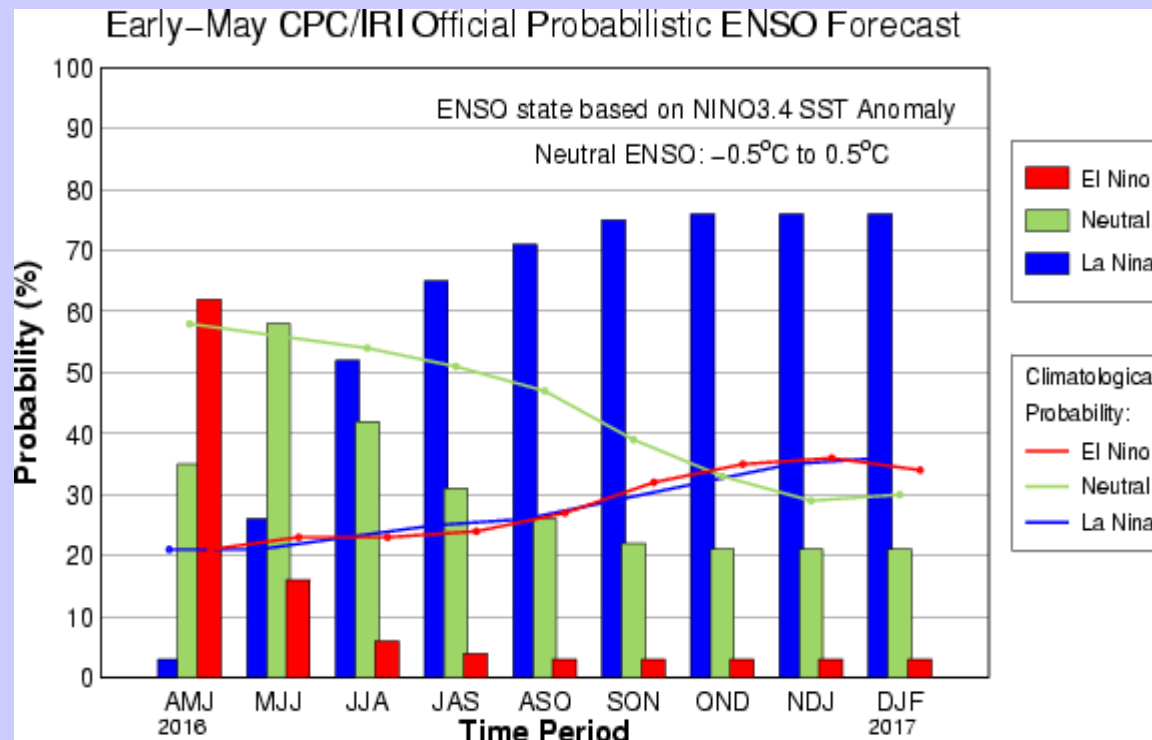
# And What If 2017 Is Dry?



# CPC/IRI Probabilistic ENSO Outlook

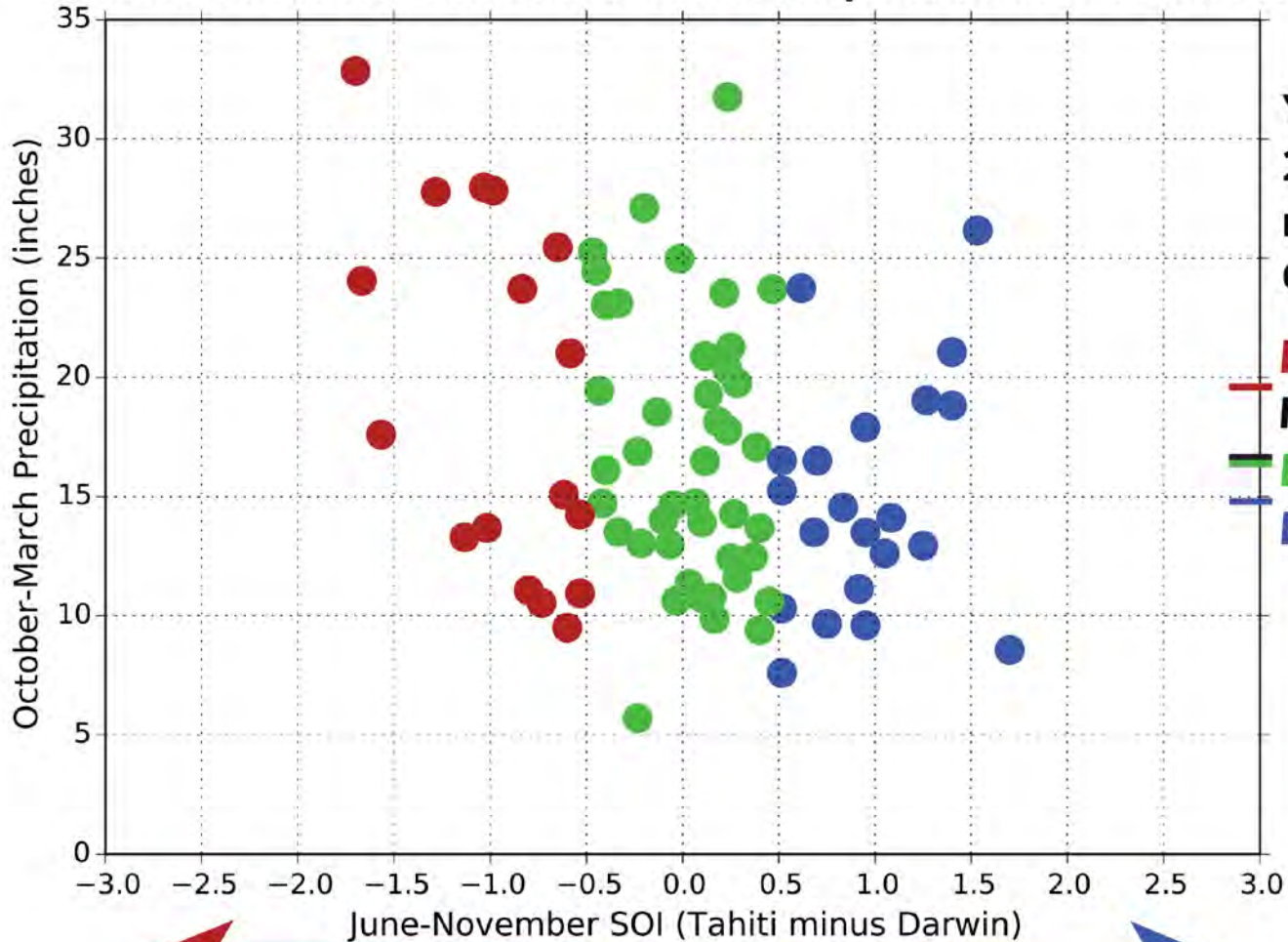
Updated: 12 May 2016

The chance of La Niña increases during the summer and is favored by June-July-August (JJA) 2016. The chance of La Niña is roughly 75% during the Northern Hemisphere fall and winter 2016-17.



# CA Division 5 October-March Precipitation

(versus Southern Oscillation Index for prior June-November)



Years 1933/1934-  
2013/2014

$r^2 = 0.09$

Correlation = -0.3

Mean = 19.21 in

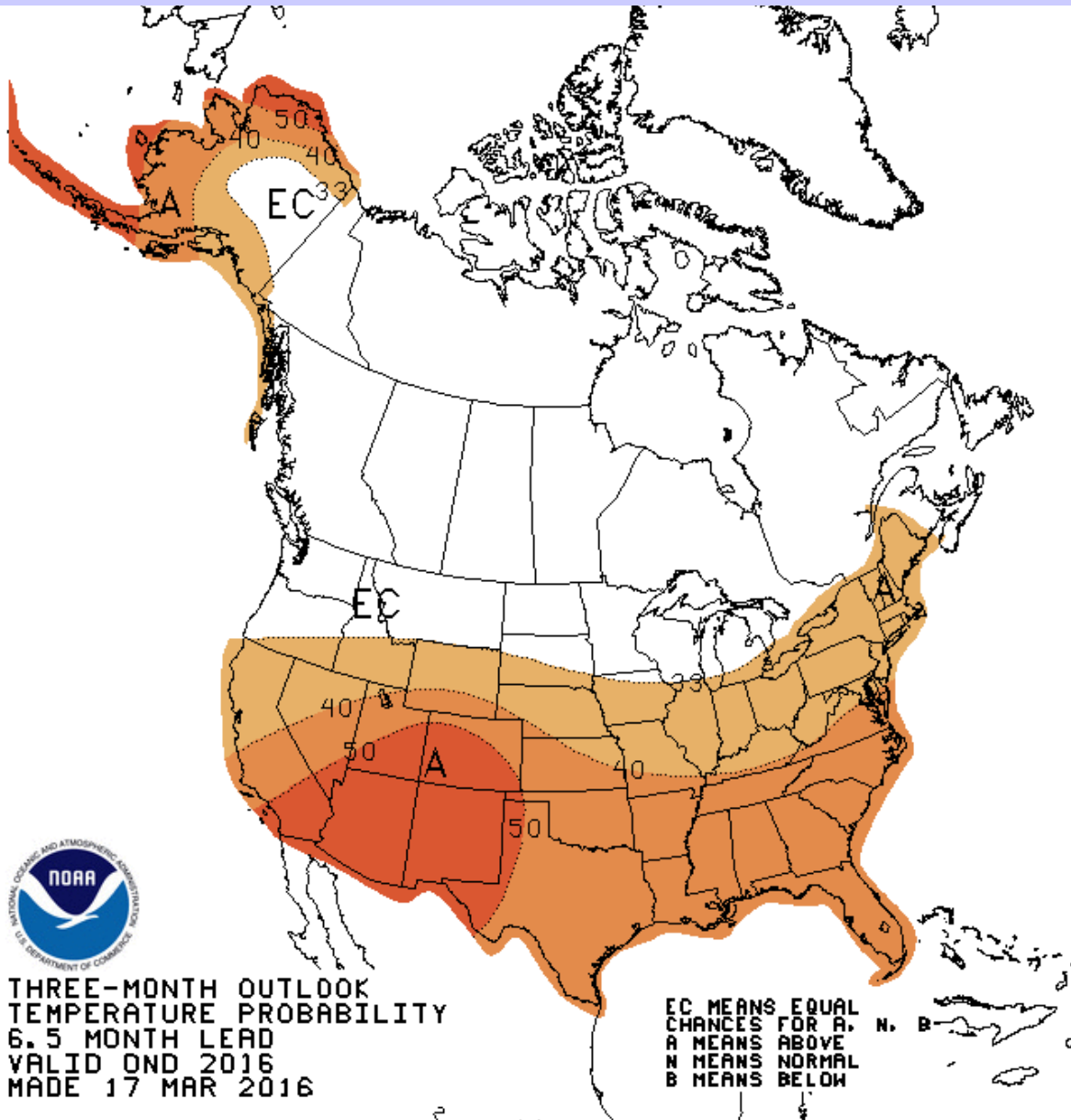
Mean all = 16.83 in

Mean = 16.83 in

Mean = 14.91 in



Western Regional  
Climate Center



NOAA  
 NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
 U.S. DEPARTMENT OF COMMERCE

**THREE-MONTH OUTLOOK  
 TEMPERATURE PROBABILITY  
 6.5 MONTH LEAD  
 VALID OND 2016  
 MADE 17 MAR 2016**

**EC MEANS EQUAL  
 CHANCES FOR A,  
 N, B  
 A MEANS ABOVE  
 N MEANS NORMAL  
 B MEANS BELOW**

