

# CA Hydrology Update

SWRCB

## Public Workshop on Urban Water Conservation

December 7, 2015



Arthur Hinojosa, Chief  
Division of Integrated Regional Water Management  
Department of Water Resources

# Statewide Drought Conditions

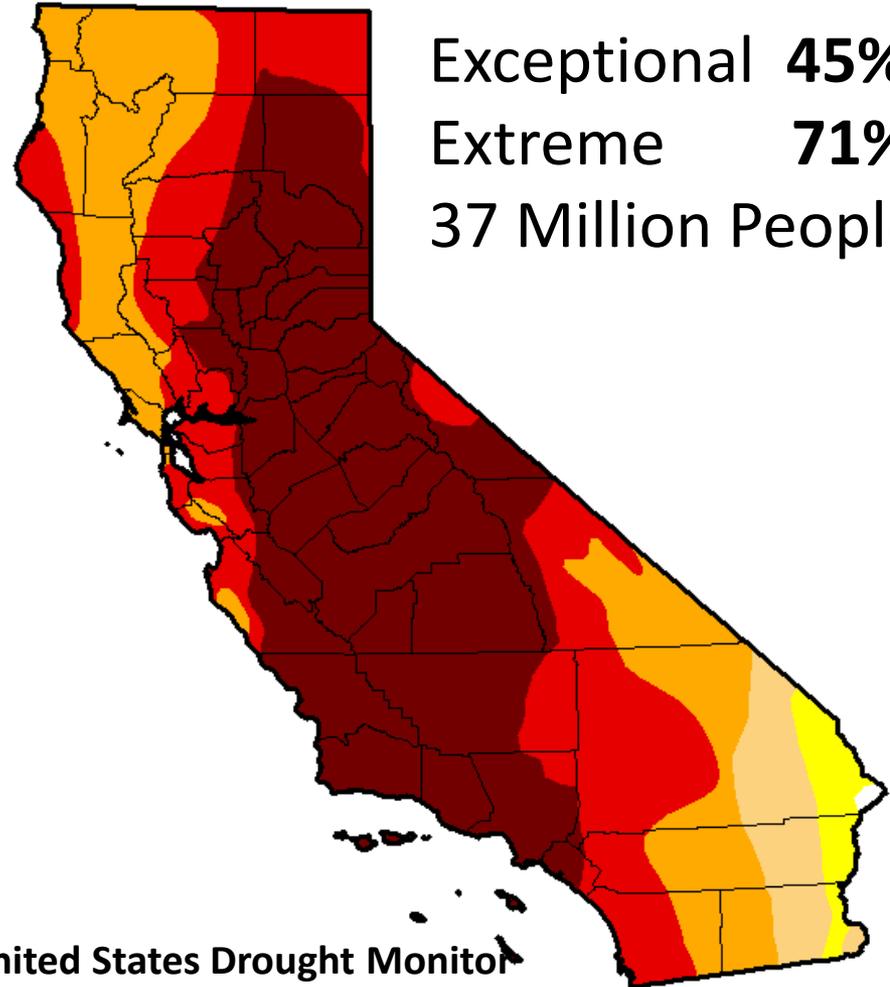
**Official State of Emergency  
Declared on  
January 17, 2014**

## **Local Emergencies Declared**

- 25 Counties
- 10 Cities
- 9 Tribal Reservations
- 12 Special Districts

## **County & Tribal Drought Task Force**

- 29 Counties
- 4 Tribes



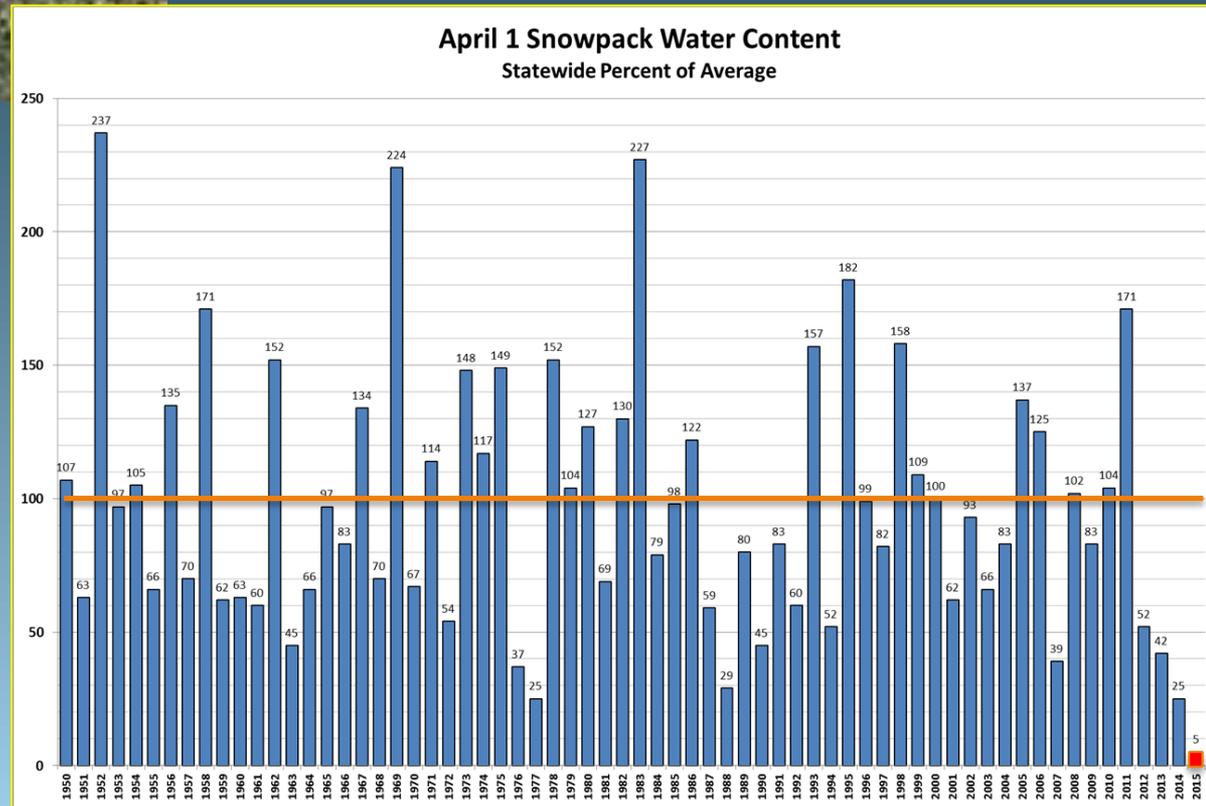
**United States Drought Monitor**  
December 1, 2015



# 2015 Statewide Snow Water Content

Normally - 1/3 of Water Storage

- April 1<sup>st</sup> - 25% of Historic Low
- No Snow Storage
- Record Low Runoff
- Loss of Cold Water

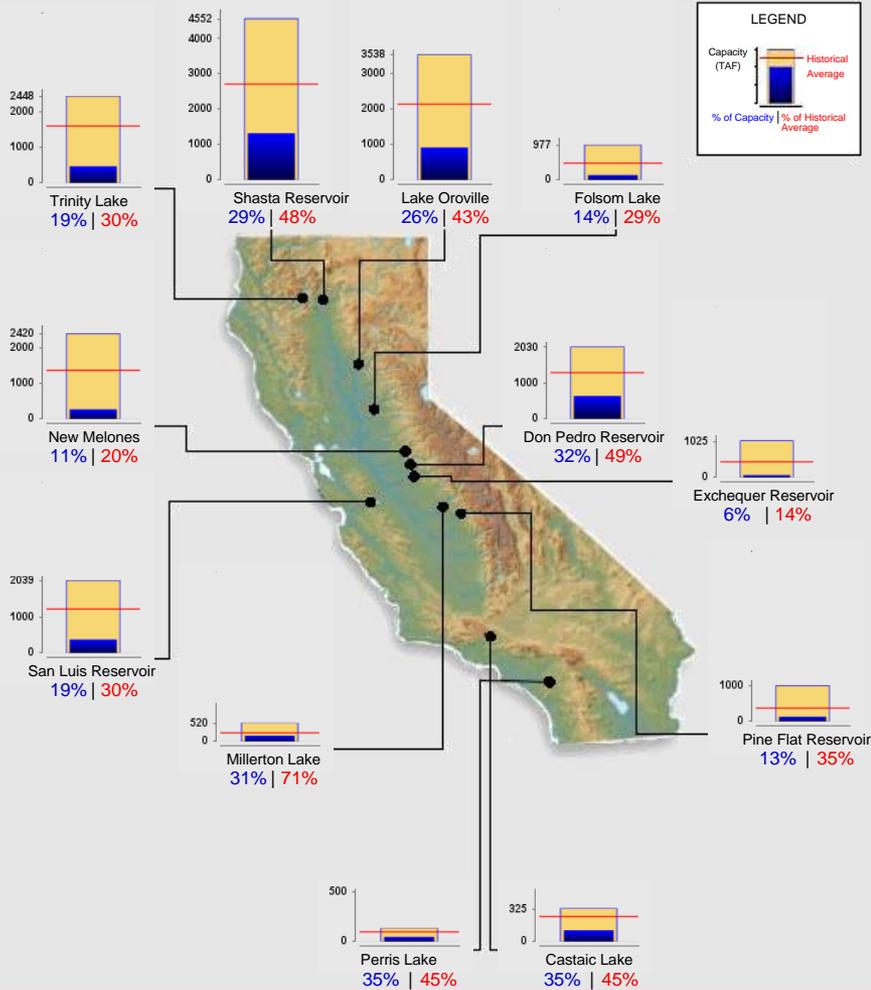




# Reservoir Conditions

Ending At Midnight - December 5, 2015

## CURRENT RESERVOIR CONDITIONS



Graph Updated 12/06/2015 09:45 AM



	<b>% Cap</b>	<b>% Avg</b>
<b>Trinity</b>	19	30
<b>Shasta</b>	29	48
<b>Oroville</b>	26	43
<b>Folsom</b>	14	29
<b>New Melones</b>	11	20
<b>San Luis</b>	19	30

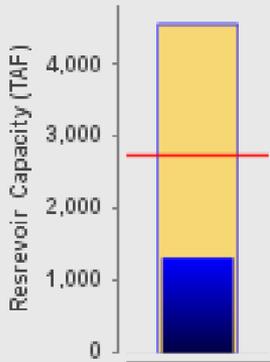


# Reservoir Conditions - Shasta Reservoir



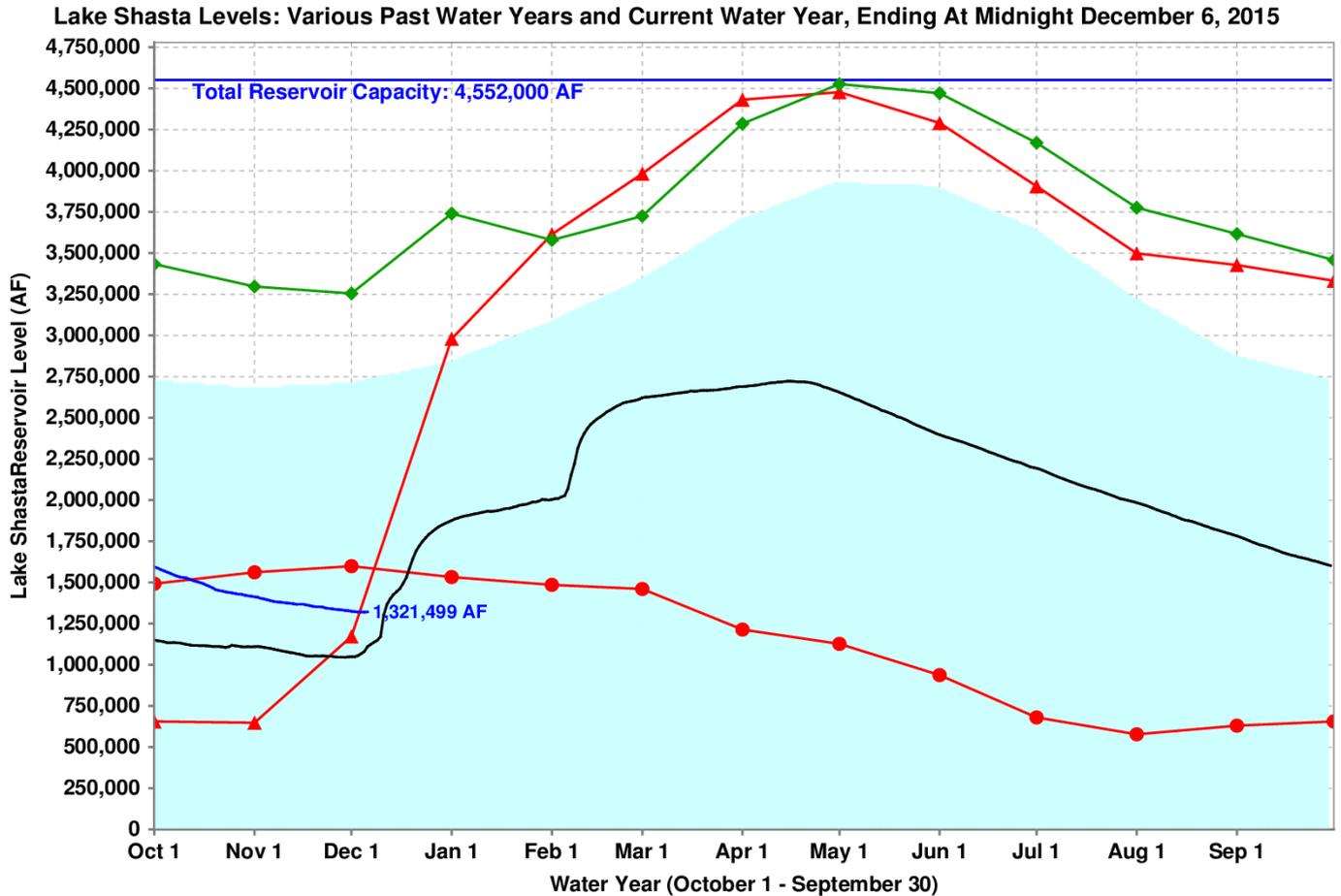
## Lake Shasta Conditions

(as of Midnight - December 6, 2015)



Current Level: 1,321,499 AF

29% (Total Capacity) | 48% (Historical Avg.)



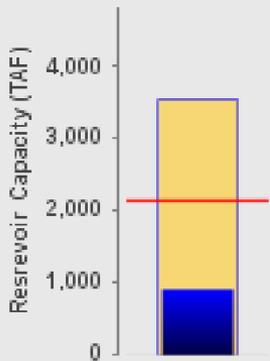


# Reservoir Conditions - Lake Oroville



## Lake Oroville Conditions

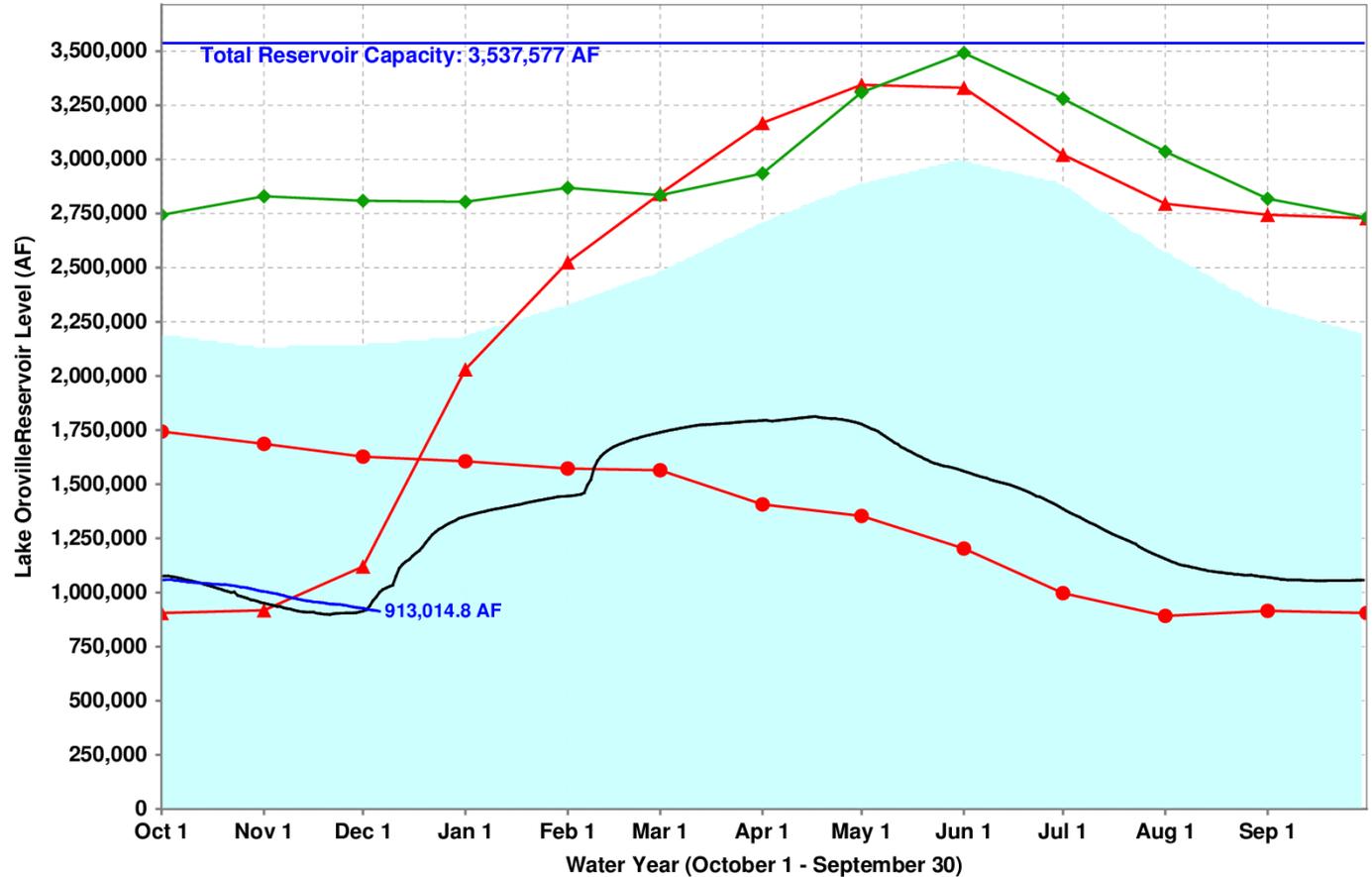
(as of Midnight - December 6, 2015)



Current Level: 913,014.8 AF

26% (Total Capacity) | 43% (Historical Avg.)

Lake Oroville Levels: Various Past Water Years and Current Water Year, Ending At Midnight December 6, 2015



■ Historical Average 
 — Total Reservoir Capacity 
 ● 1976-1977 (Driest) 
 ▲ 1977-1978 
 ◆ 1982-1983 (Wettest) 
 — 2014-2015 
 — Current: 2015-2016

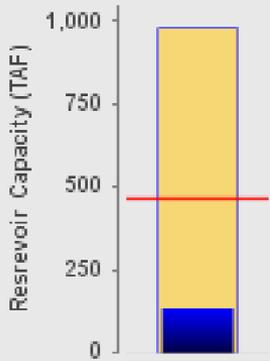


# Reservoir Conditions - Folsom Lake



## Folsom Lake Conditions

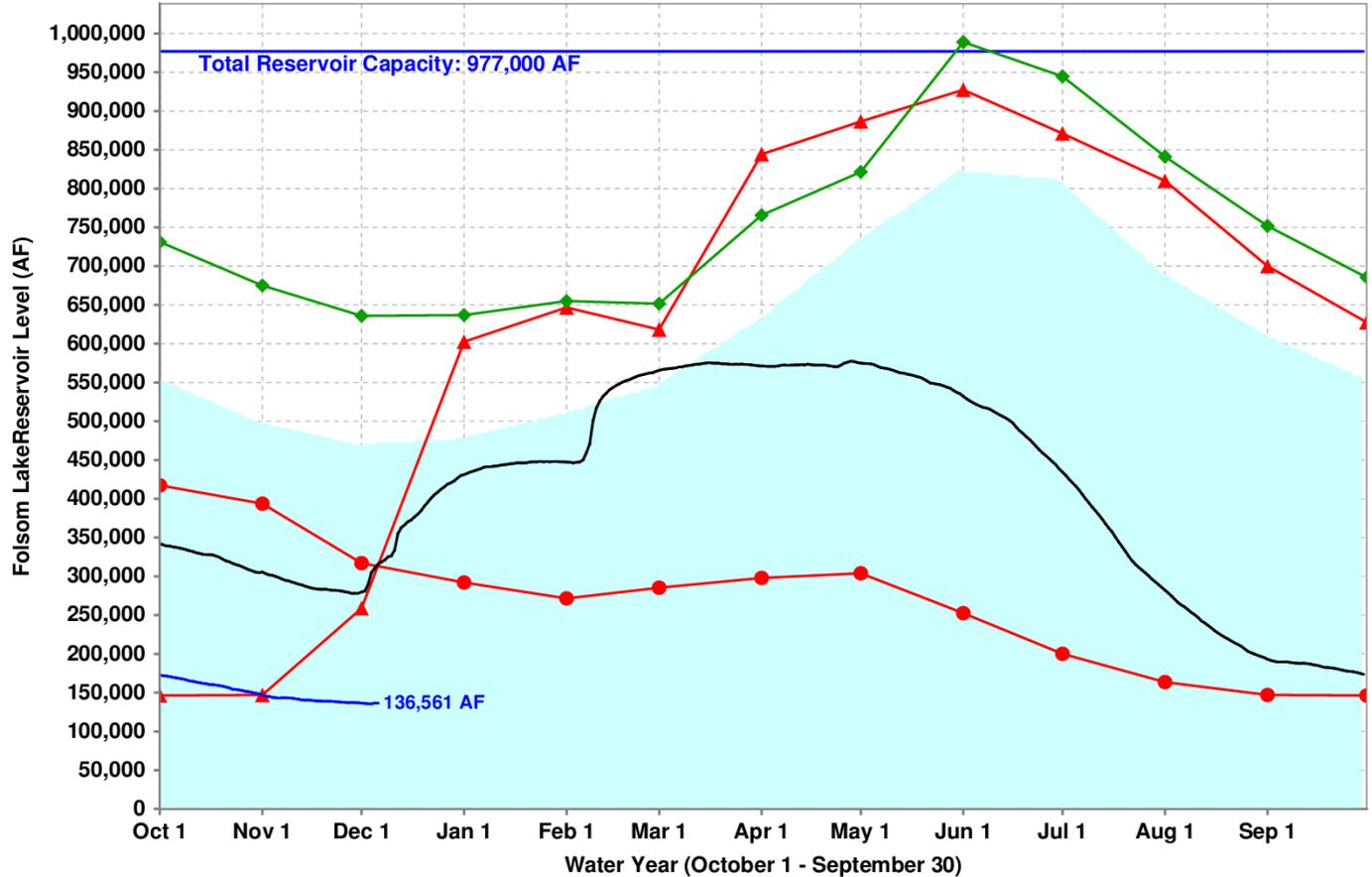
(as of Midnight - December 6, 2015)



Current Level: 136,561 AF

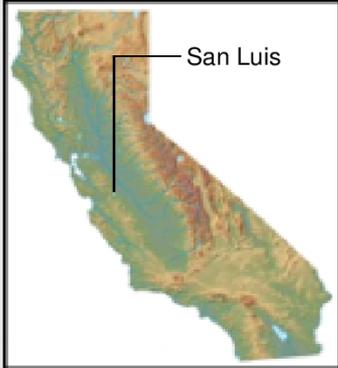
14% (Total Capacity) | 29% (Historical Avg.)

Folsom Lake Levels: Various Past Water Years and Current Water Year, Ending At Midnight December 6, 2015



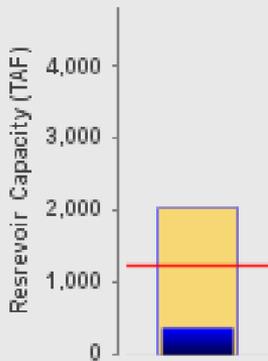


# Reservoir Conditions - San Luis



## San Luis Conditions

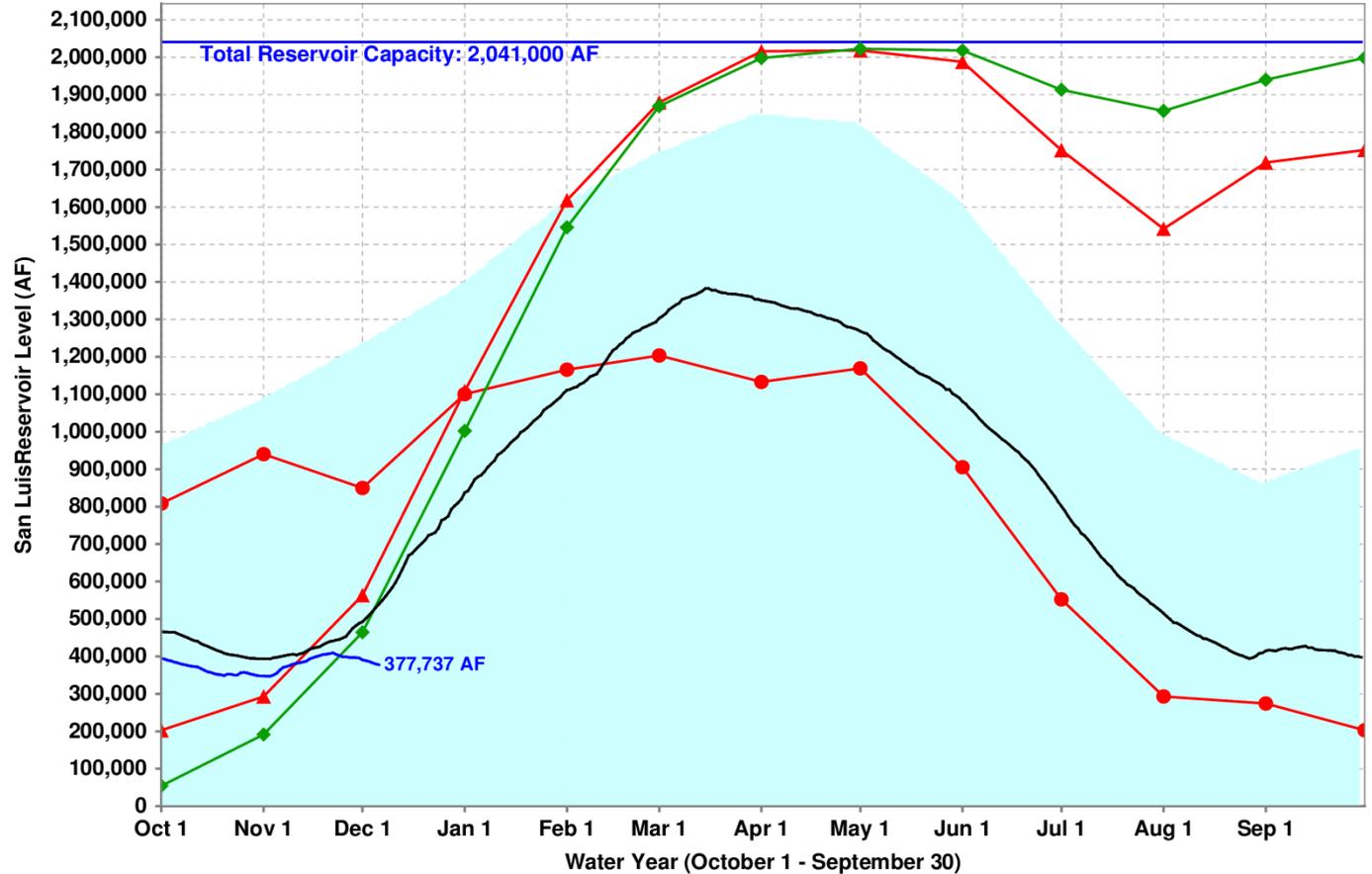
(as of Midnight - December 6, 2015)



Current Level: 377,737 AF

19% (Total Capacity) | 30% (Historical Avg.)

San Luis Levels: Various Past Water Years and Current Water Year, Ending At Midnight December 6, 2015



■ Historical Average 
 — Total Reservoir Capacity 
 ● 1976-1977 (Driest) 
 ▲ 1977-1978 
 ◆ 1982-1983 (Wettest) 
 — 2014-2015 
 — Current: 2015-2016

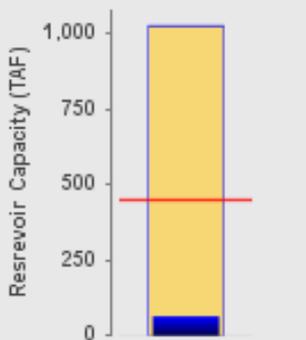


# Reservoir Conditions - Exchequer



## Exchequer Conditions

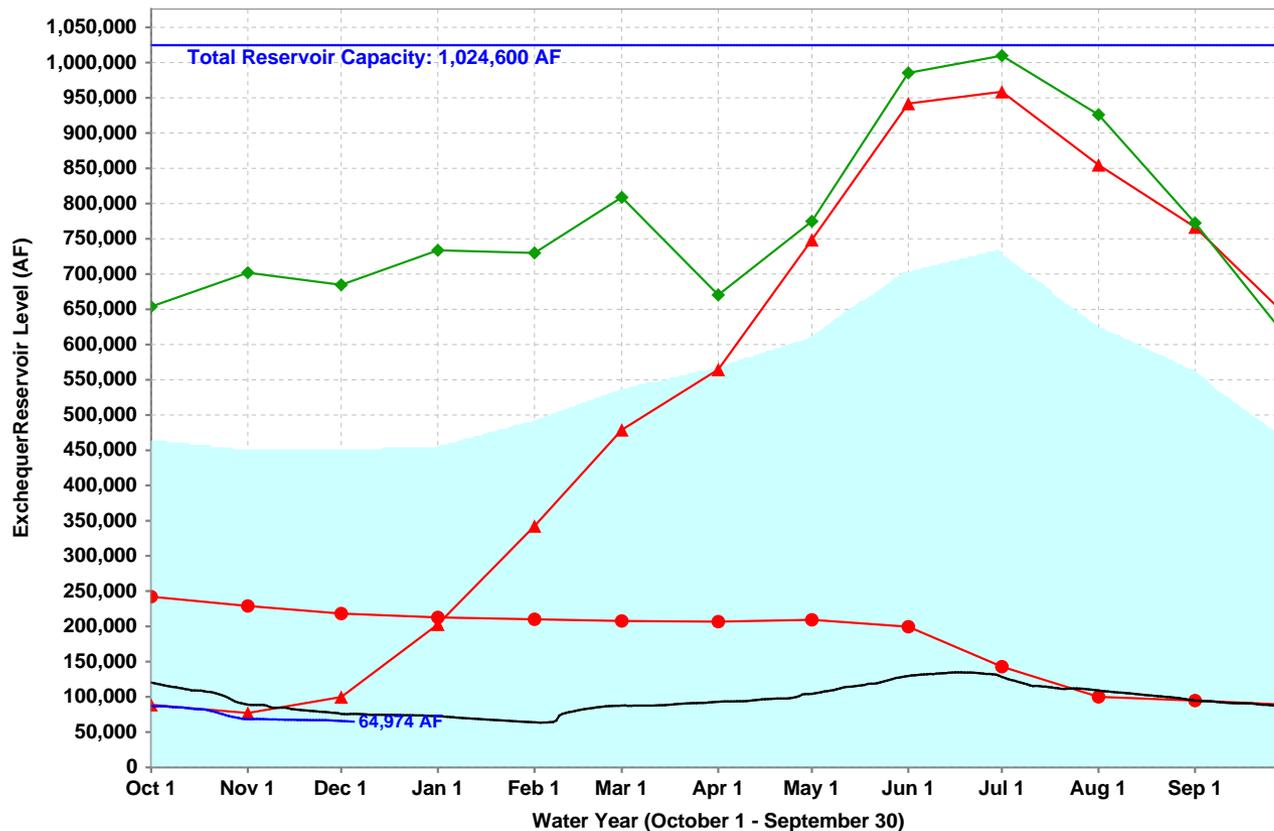
(as of Midnight - December 5, 2015)



Current Level: 64,974 AF

6% (Total Capacity) | 14% (Historical Avg.)

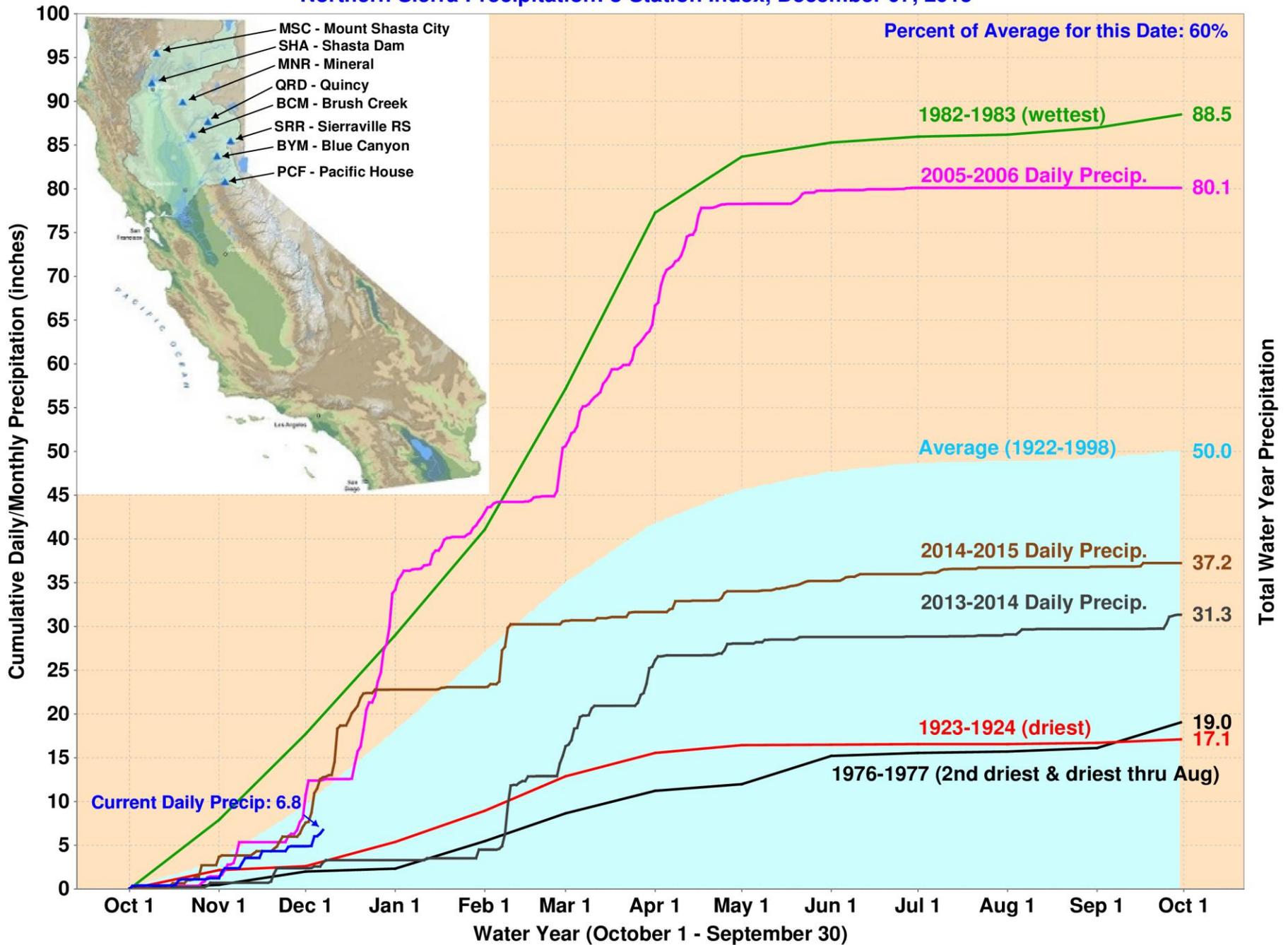
Exchequer Levels: Various Past Water Years and Current Water Year, Ending At Midnight December 5, 2015



■ Historical Average 
 — Total Reservoir Capacity 
 ● 1976-1977 (Driest) 
 ▲ 1977-1978 
 ◆ 1982-1983 (Wettest) 
 — 2014-2015 
 — Current: 2015-2016

Data Updated 12/06/2015 10:15 AM

# Northern Sierra Precipitation: 8-Station Index, December 07, 2015



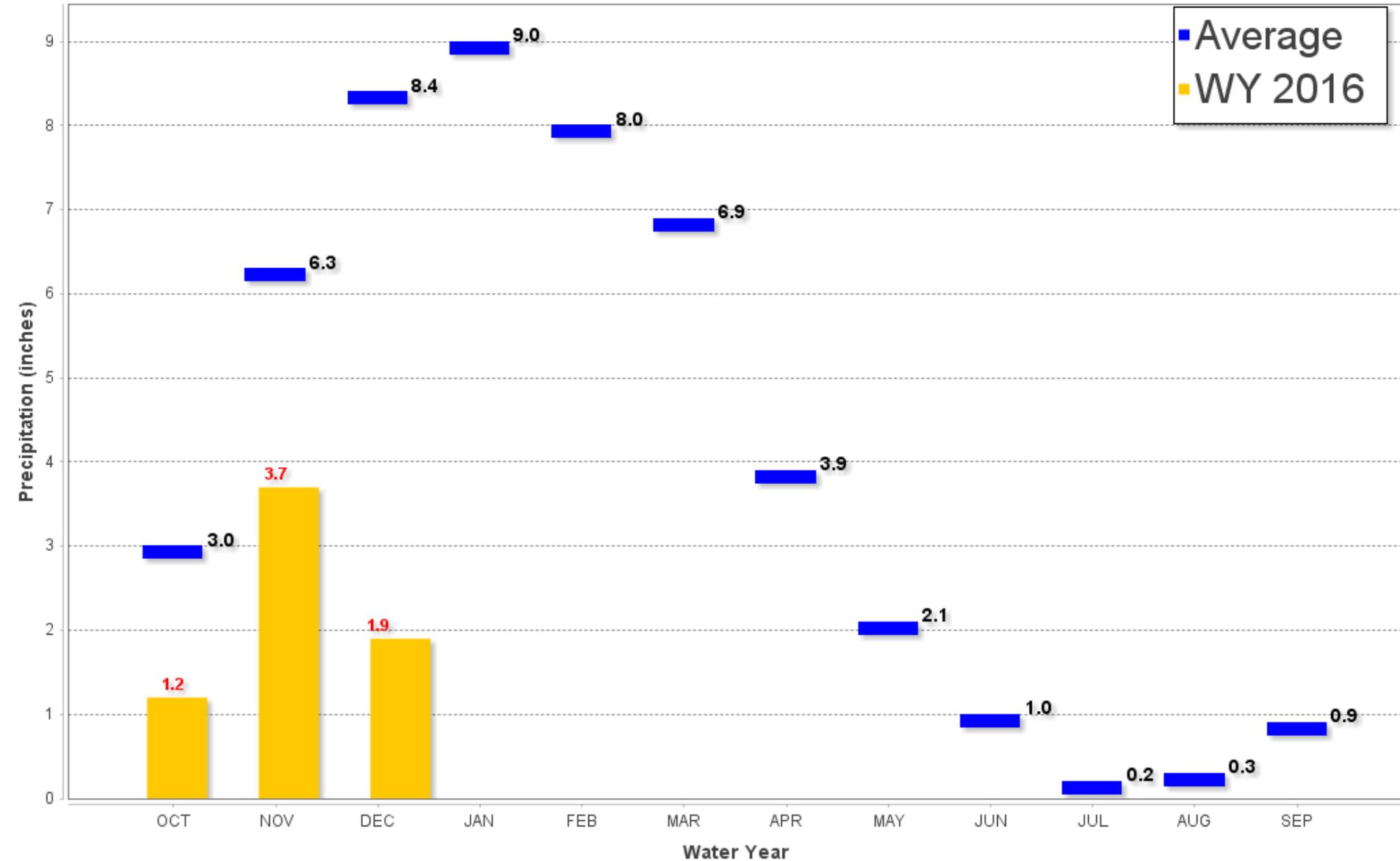


# Northern Sierra 8-Station

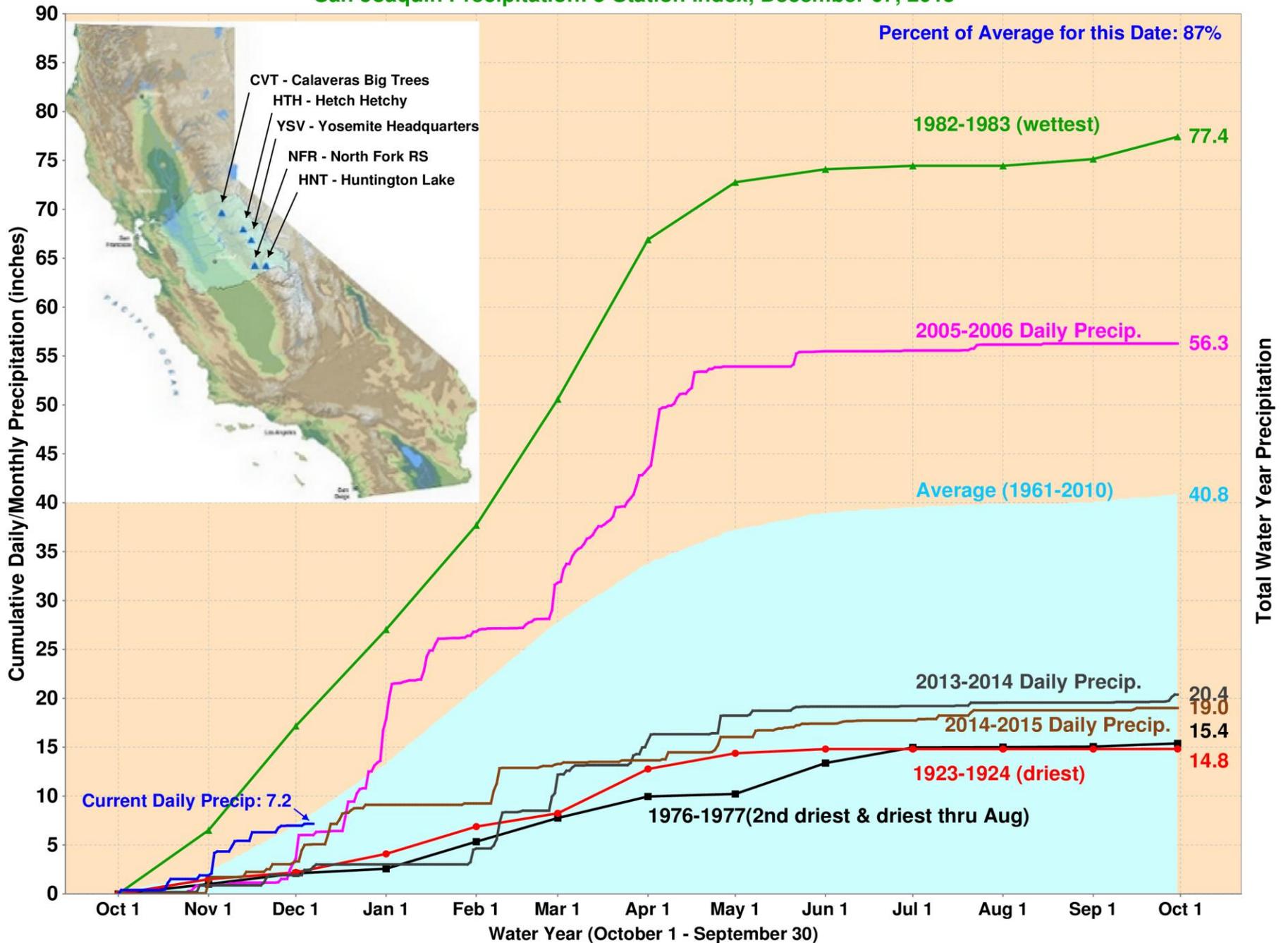
## Precipitation Index for Water Year 2016 - Updated on December 7, 2015 08:45 AM

Note: Monthly totals may not add up to seasonal total because of rounding

Water Year Monthly totals are calculated based on Daily precipitation data from 12am to 12am PST



# San Joaquin Precipitation: 5-Station Index, December 07, 2015



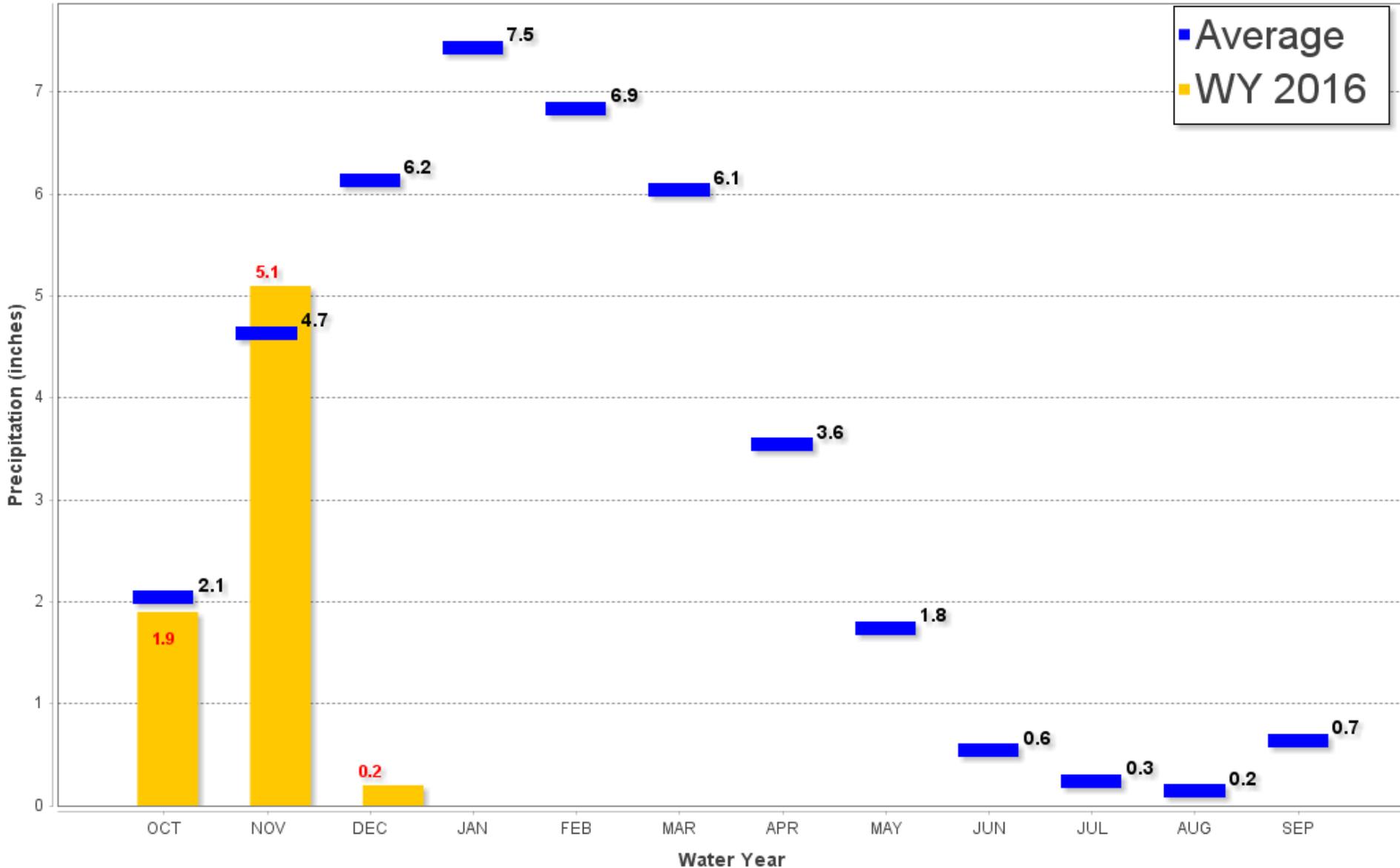


# San Joaquin 5-Station

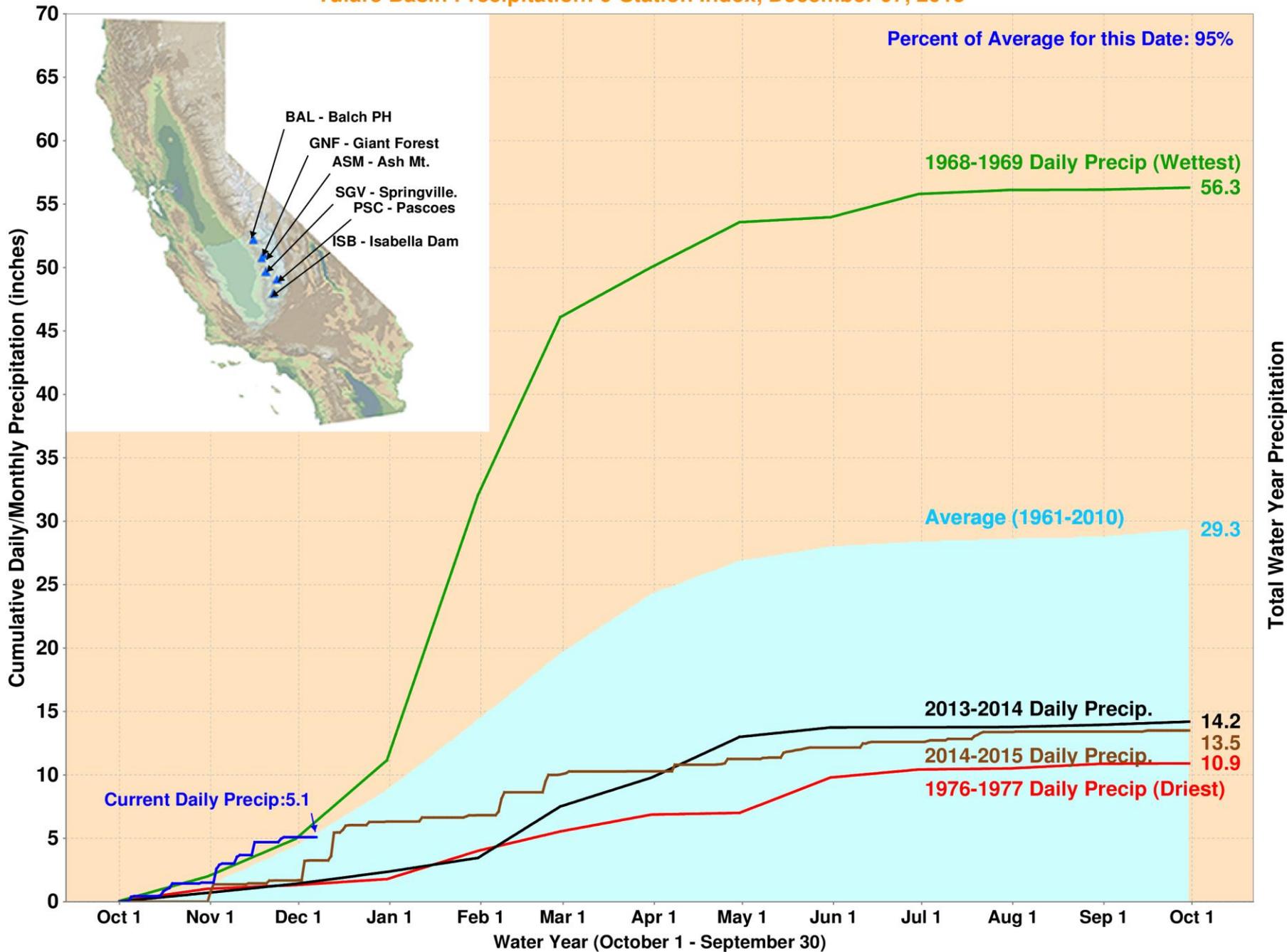
## Precipitation Index for Water Year 2016 - Updated on December 7, 2015 08:45 AM

Note: Monthly totals may not add up to seasonal total because of rounding

Water Year Monthly totals are calculated based on Daily precipitation data from 12am to 12am PST



# Tulare Basin Precipitation: 6-Station Index, December 07, 2015



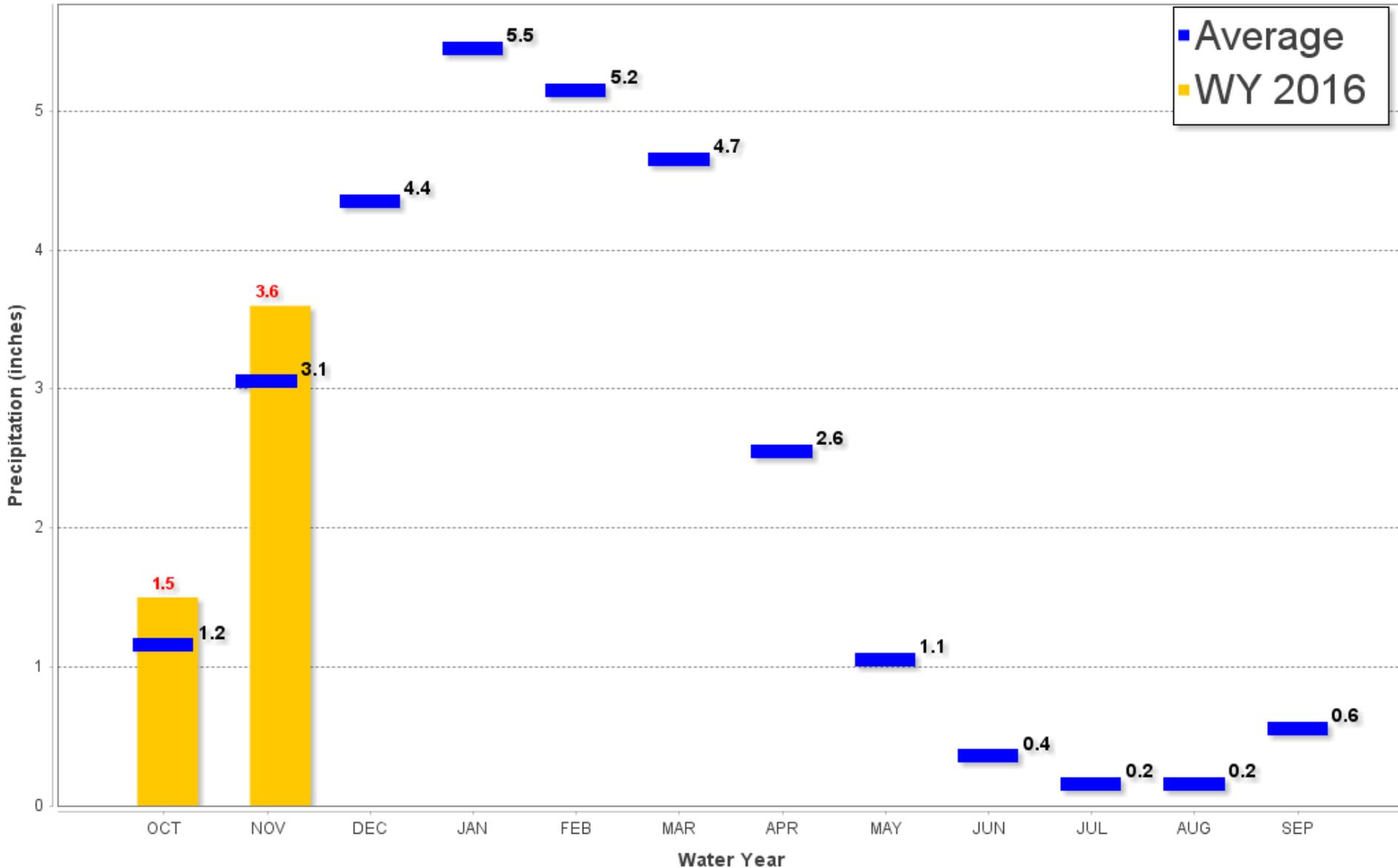


# Tulare Basin 6-Station

## Precipitation Index for Water Year 2016 - Updated on December 7, 2015 08:45 AM

Note: Monthly totals may not add up to seasonal total because of rounding

Water Year Monthly totals are calculated based on Daily precipitation data from 12am to 12am PST



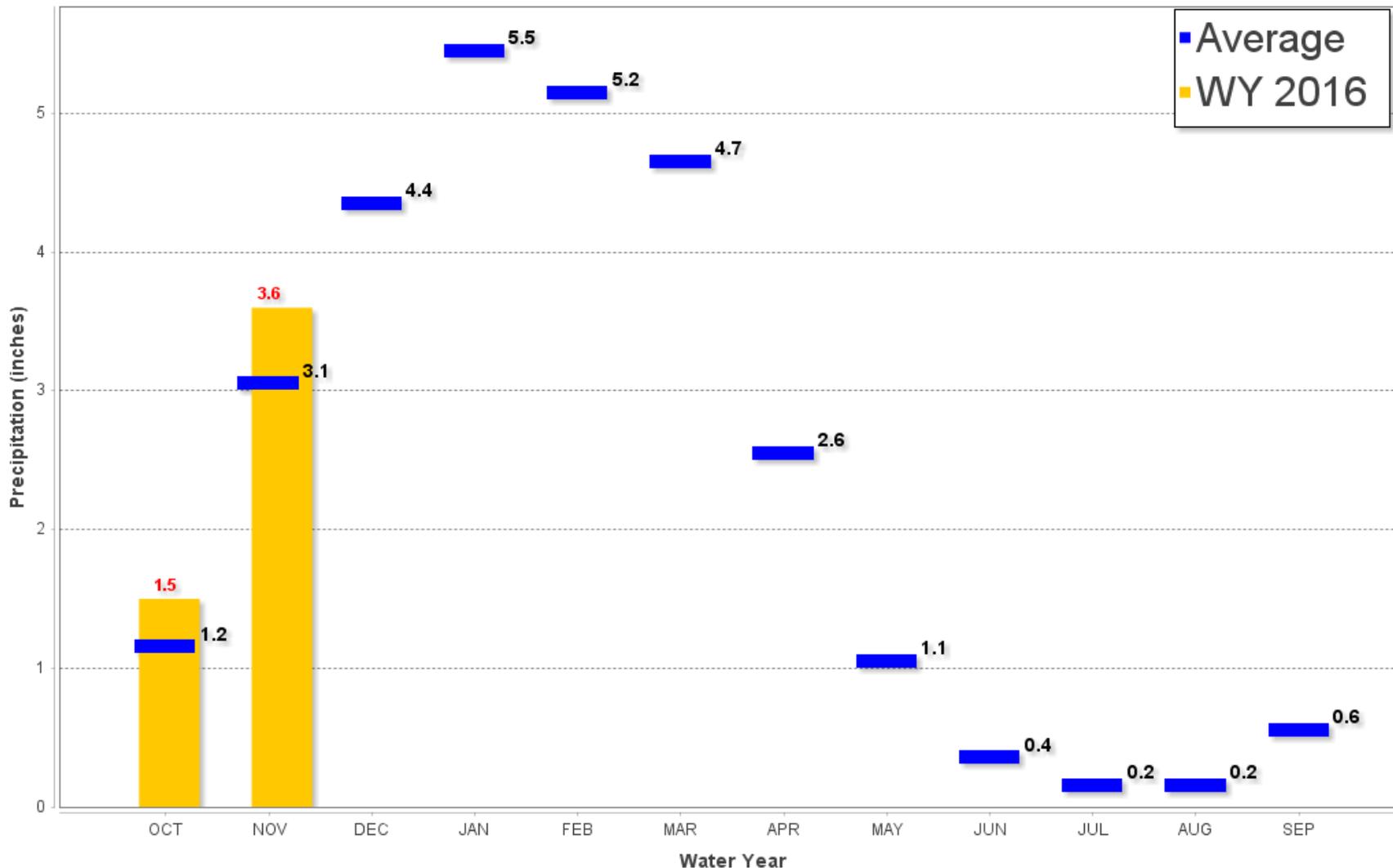


# Tulare Basin 6-Station

## Precipitation Index for Water Year 2016 - Updated on December 6, 2015 09:45 AM

Note: Monthly totals may not add up to seasonal total because of rounding

Water Year Monthly totals are calculated based on Daily precipitation data from 12am to 12am PST

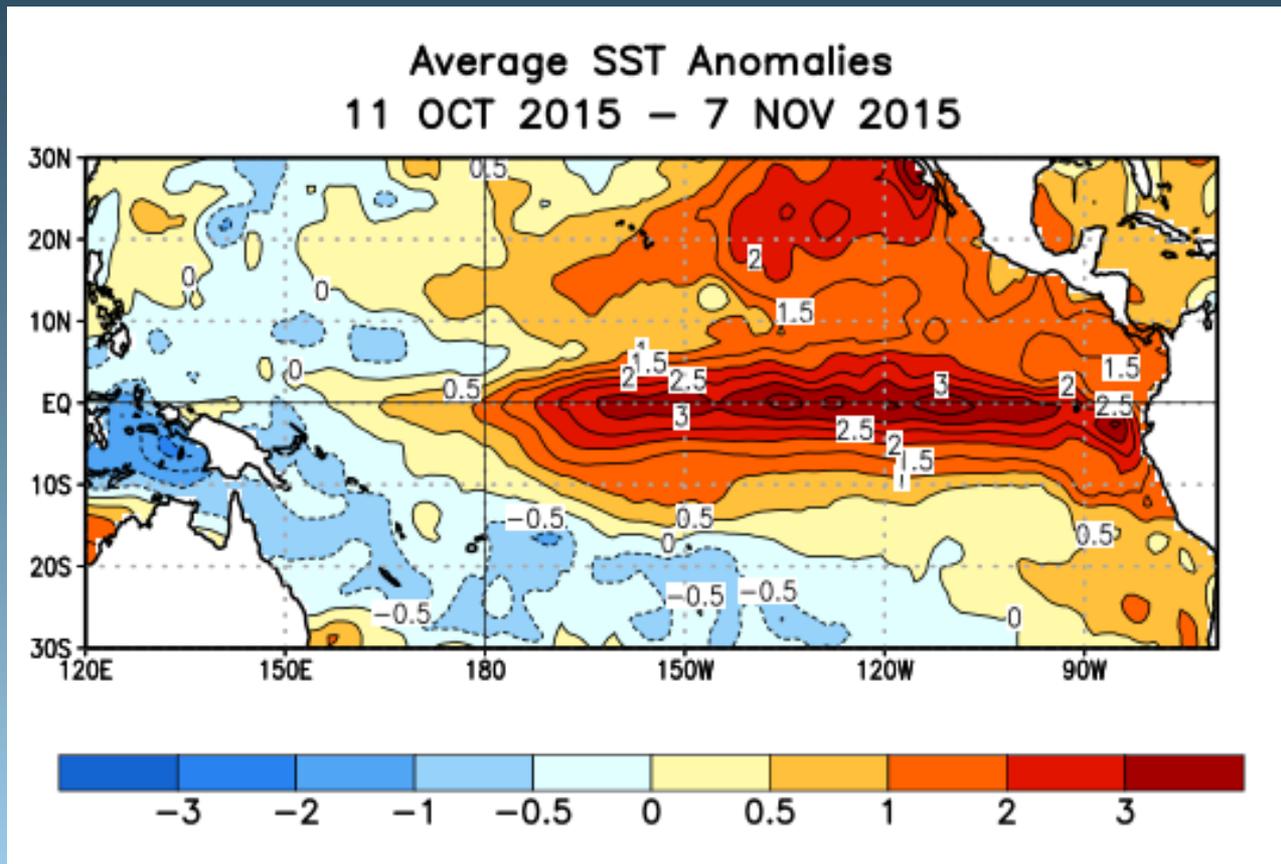


What about El Niño?



# What is El Niño?

During the last four weeks, equatorial SSTs were above average across the central and eastern Pacific, with the largest anomalies in the east-central and eastern Pacific.

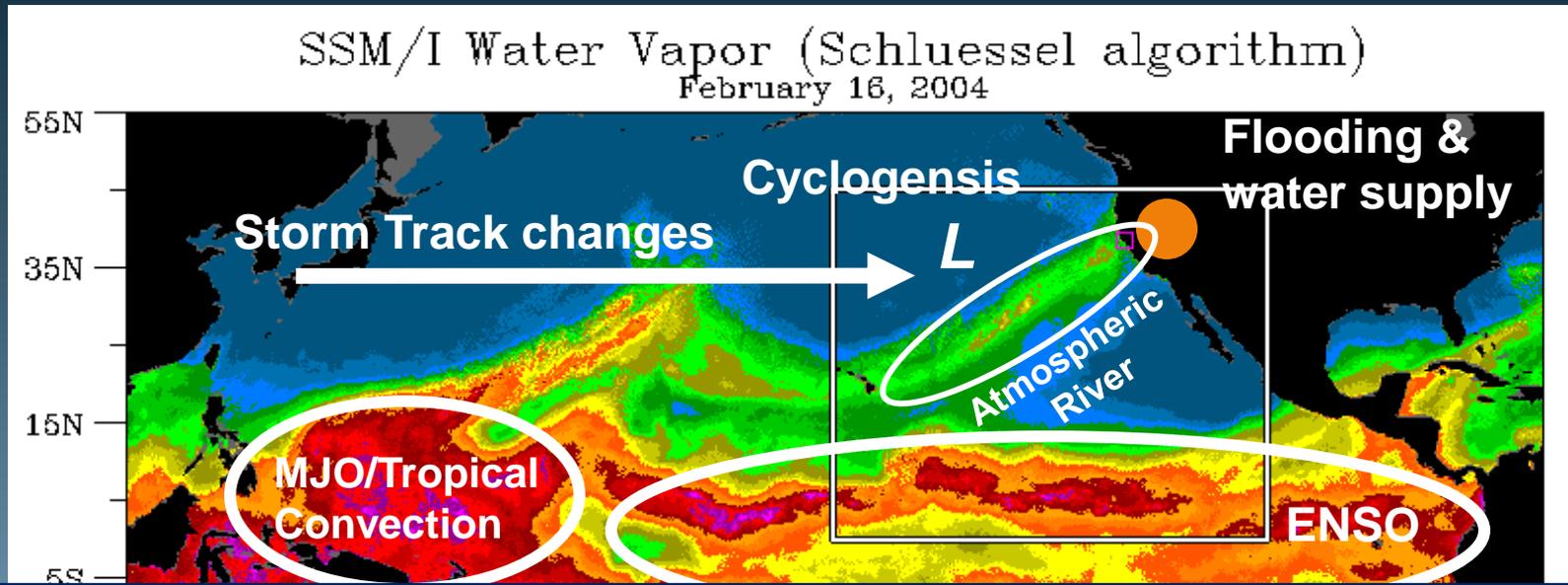


# Past Strong El Nino Outcomes 8-Station Index

- WY1958            70.4 inches (140% of average)
- WY1966            36.2 inches (72% of average)
- WY1973            51.7 inches (103% of average)
- WY1983            88.5 inches (177% of average)\*
- WY1992            36.0 inches (72% of average)
- WY1998            82.4 inches (165% of average)

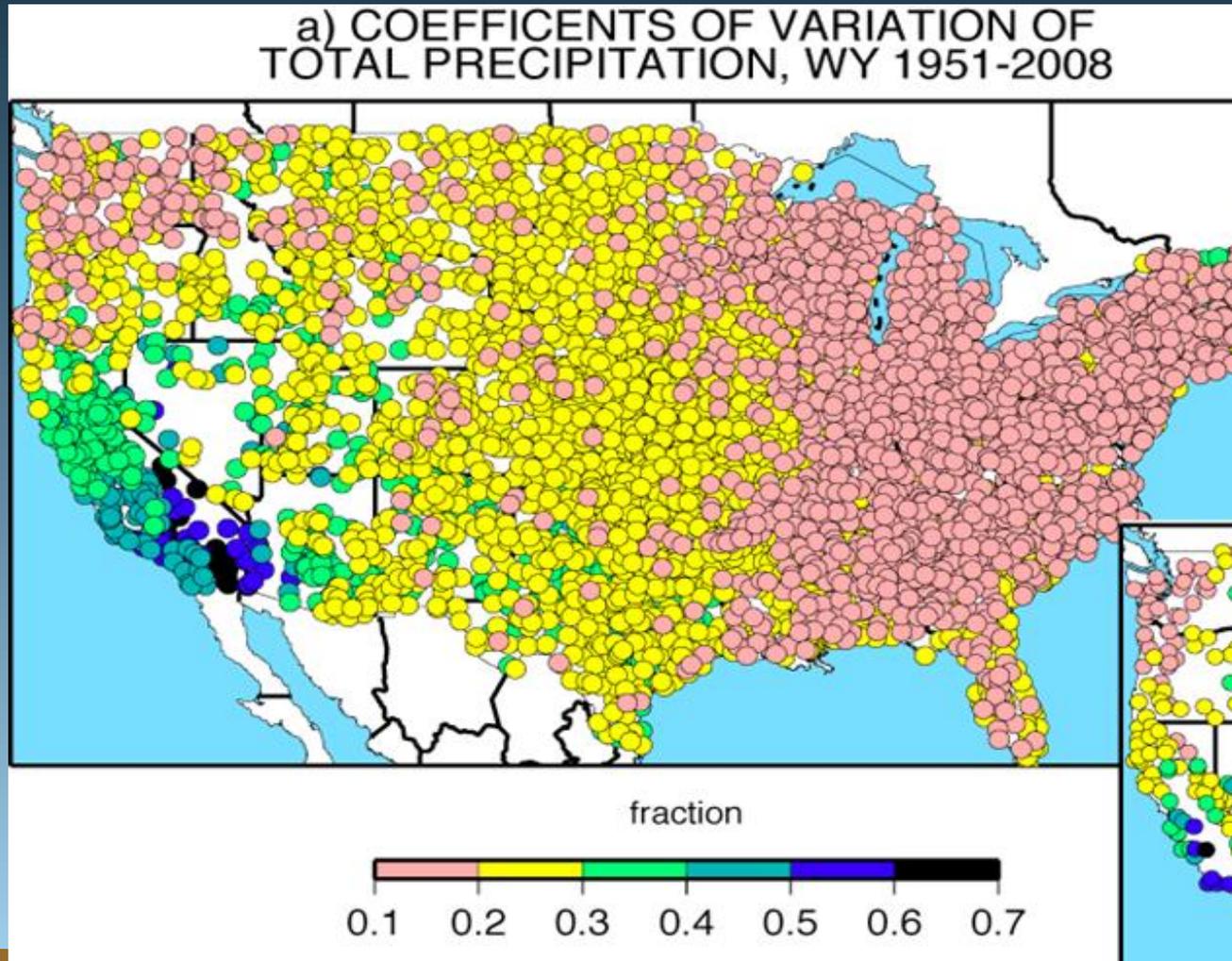
\*Wettest Year on Record

# Key Phenomena Affecting California Water Supply/Flooding:



The size and number of the AR events  
result from the alignment of key  
processes

**More of CA's precip falls in fewer storms than anywhere else in the nation.**



# What if it stays dry?

- **Advance Planning for Dry 2016 and 2017**
- **Increased Monitoring and Modeling**
- **Assess Contingency Plans**
- **Continue to Support Collaborative Efforts**
- **Conserve What You Have!**

# What if it gets wet?

- **Advance Planning for Winter Storms**
- **Maintain flood system facilities**
- **Monitor Forecasts and Conditions**
- **Assess Contingency Plans**
- **Know your risk and be ready!**

# Questions?

*DROUGHT & FLOOD PREPAREDNESS & RESPONSE*



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<b>PRELIMINARY DATA</b>		
<b>SUBJECT TO REVISION WITHOUT NOTICE</b>		
<b>EXECUTIVE OPERATIONS SUMMARY ON 12/7/2015</b>		
This summary can also be found at:		
<a href="http://www.water.ca.gov/swp/operationscontrol/docs/delta/deltaops.pdf">http://www.water.ca.gov/swp/operationscontrol/docs/delta/deltaops.pdf</a>		
<b>SCHEDULED EXPORTS FOR TODAY</b>		
Clifton Court Inflow	=	200 cfs
Jones Pumping Plant	=	400 cfs
State Water Project Informational Data can be found at:		
<a href="http://www.water.ca.gov/swp/operationscontrol/projectwide.cfm">http://www.water.ca.gov/swp/operationscontrol/projectwide.cfm</a>		
<b>ESTIMATED DELTA HYDROLOGY</b>		
Total Delta Inflow	~	8,611 cfs
Sacramento River	=	7,621 cfs
San Joaquin River	=	606 cfs
Data for previous 30-days is available at:		
<a href="http://www.water.ca.gov/swp/operationscontrol/docs/delta/DeltaWQ.pdf">http://www.water.ca.gov/swp/operationscontrol/docs/delta/DeltaWQ.pdf</a>		
<b>DELTA OPERATIONS</b>		
Delta Conditions	=	Balanced
Delta x-channel Gates (% of day is open)	=	100%
Outflow Index	~	6,500 cfs
% Inflow Diverted	=	6.8% (3-day avg)
X2 Position	>	81 km
Controlling Factor(s)	=	Salinity Management
<b>RESERVOIR STORAGES (AS OF MIDNIGHT)</b>		
Shasta Reservoir	=	1,321 TAF
Folsom Reservoir	=	137 TAF
Oroville Reservoir	=	913 TAF
San Luis Res. Total	=	378 TAF
SWP Share	=	297 TAF
Reservoir data and reports are available at:		
<a href="http://cdec.water.ca.gov/reservoir.html">http://cdec.water.ca.gov/reservoir.html</a>		
<b>Reservoir Releases</b>		
Keswick	=	4,250 cfs
Nimbus	=	500 cfs
Oroville	=	2,000 cfs