

# State Water Resources Control Board

## Drought Update

*DROUGHT PREPAREDNESS & RESPONSE*



March 15, 2016

PUBLIC SAFETY

ENVIRONMENTAL STEWARDSHIP

ECONOMIC STABILITY

# Statewide Drought Conditions

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

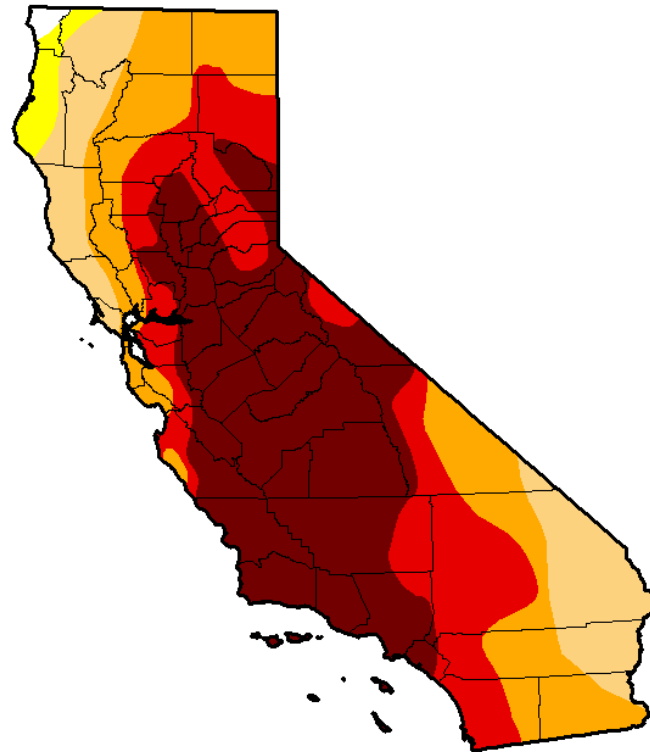
## Local Emergencies Declared

- 27 Counties
- 13 Cities
- 9 Tribal Reservations
- 12 Special Districts

## County & Tribal Drought Task Force

- 30 Counties
- 2 Tribes

## U.S. Drought Monitor California



**March 8, 2016**

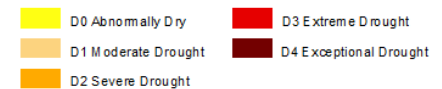
(Released Thursday, Mar. 10, 2016)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

|   | None | D0-D4  | D1-D4 | D2-D4 | D3-D4 | D4    |
|---|------|--------|-------|-------|-------|-------|
| <b>Current</b>                                  | 0.43 | 99.57  | 97.49 | 83.16 | 60.86 | 38.48 |
| <b>Last Week</b><br>3/1/2016                    | 0.43 | 99.57  | 95.13 | 82.66 | 60.86 | 38.48 |
| <b>3 Months Ago</b><br>12/8/2015                | 0.14 | 99.86  | 97.33 | 92.26 | 69.09 | 44.84 |
| <b>Start of<br/>Calendar Year</b><br>12/29/2015 | 0.00 | 100.00 | 97.33 | 87.55 | 69.07 | 44.84 |
| <b>Start of<br/>Water Year</b><br>9/29/2015     | 0.14 | 99.86  | 97.33 | 92.36 | 71.08 | 46.00 |
| <b>One Year Ago</b><br>3/10/2015                | 0.16 | 99.84  | 98.11 | 93.44 | 67.46 | 39.92 |

### Intensity:



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

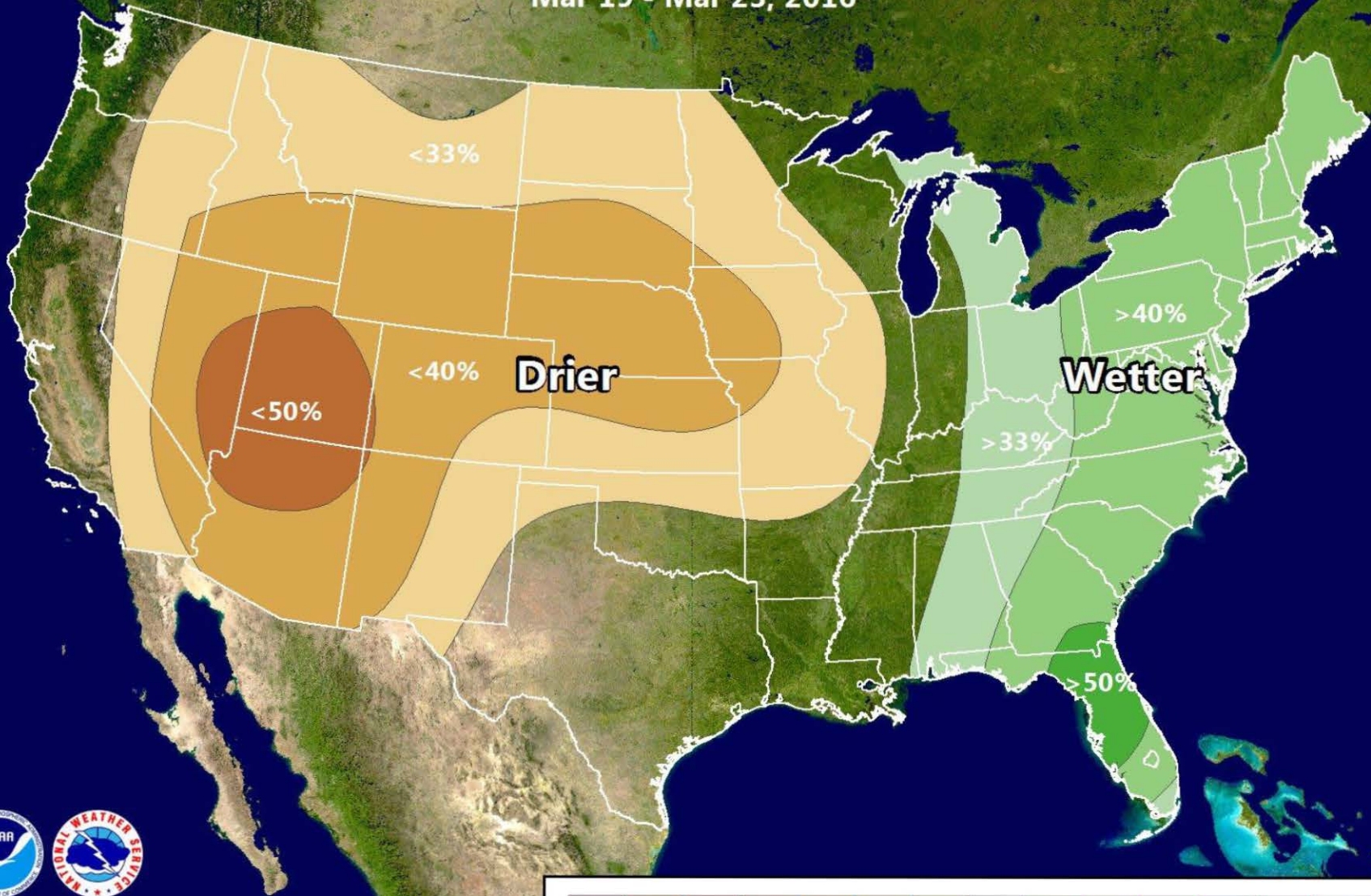


<http://droughtmonitor.unl.edu/>



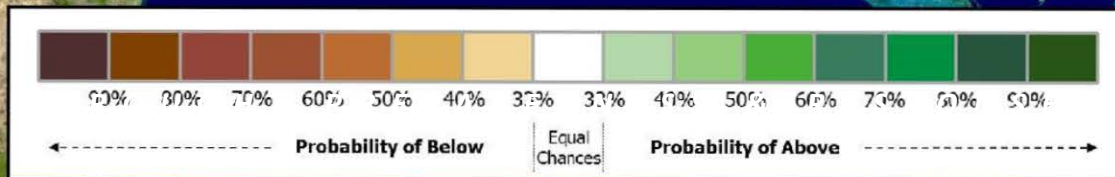
# 6-10 Day Precipitation Outlook

Mar 19 - Mar 23, 2016



Climate Prediction Center

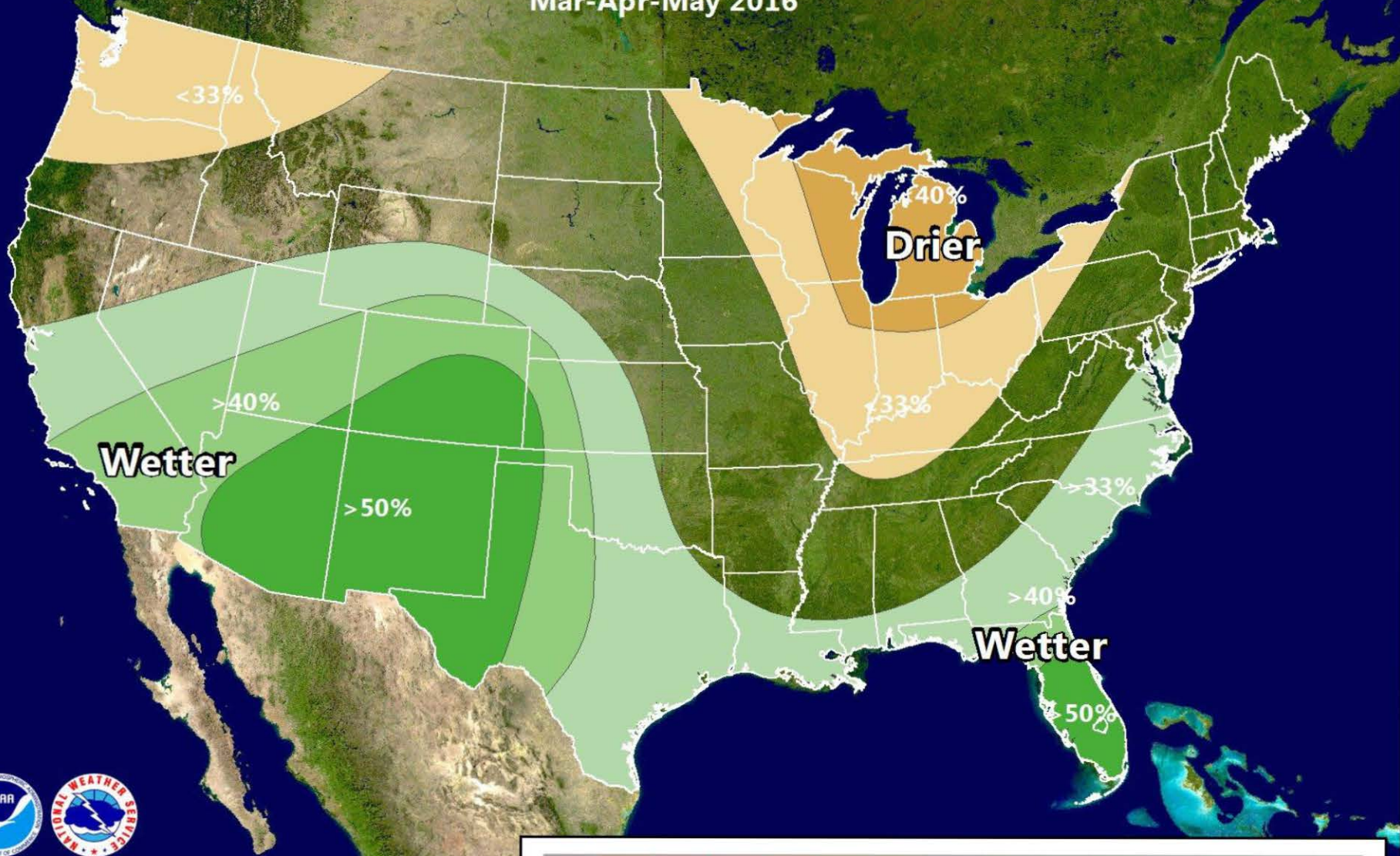
Issued: 03/13/2016





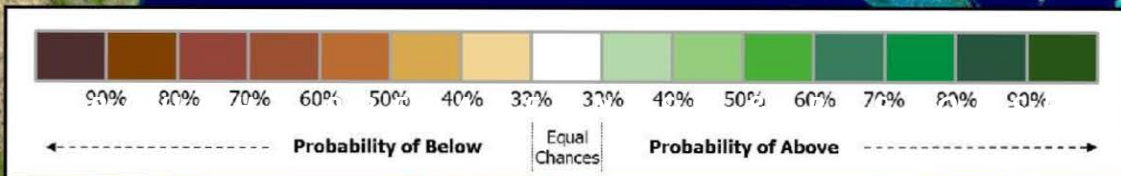
# Three-Month Precipitation Outlook

Mar-Apr-May 2016



Climate Prediction Center

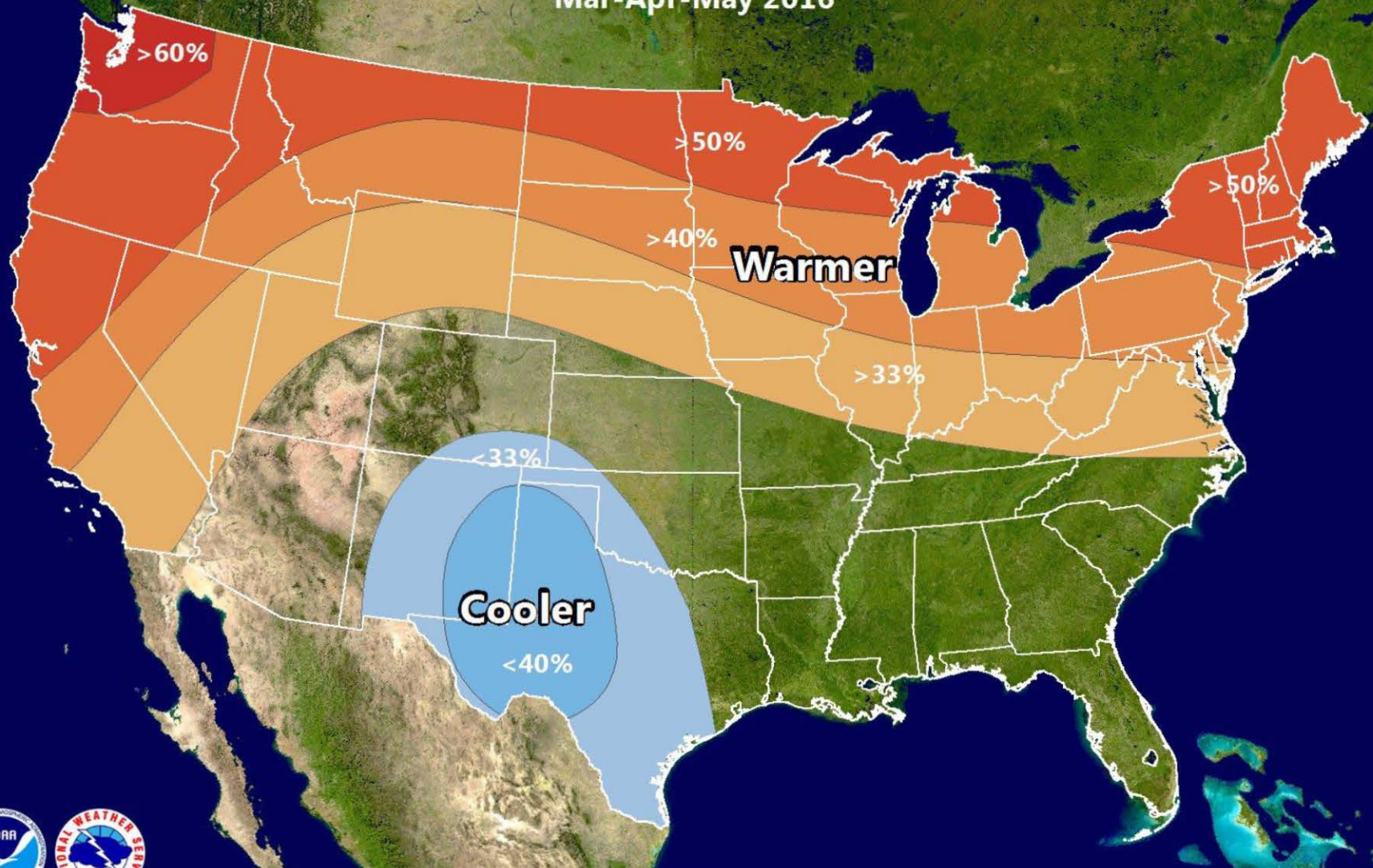
Issued: 02/18/16





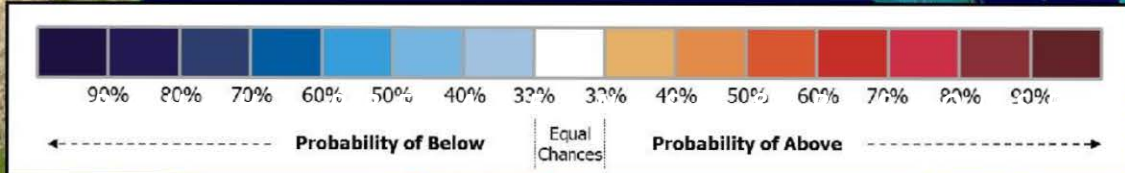
# Three-Month Temperature Outlook

Mar-Apr-May 2016



Climate Prediction Center

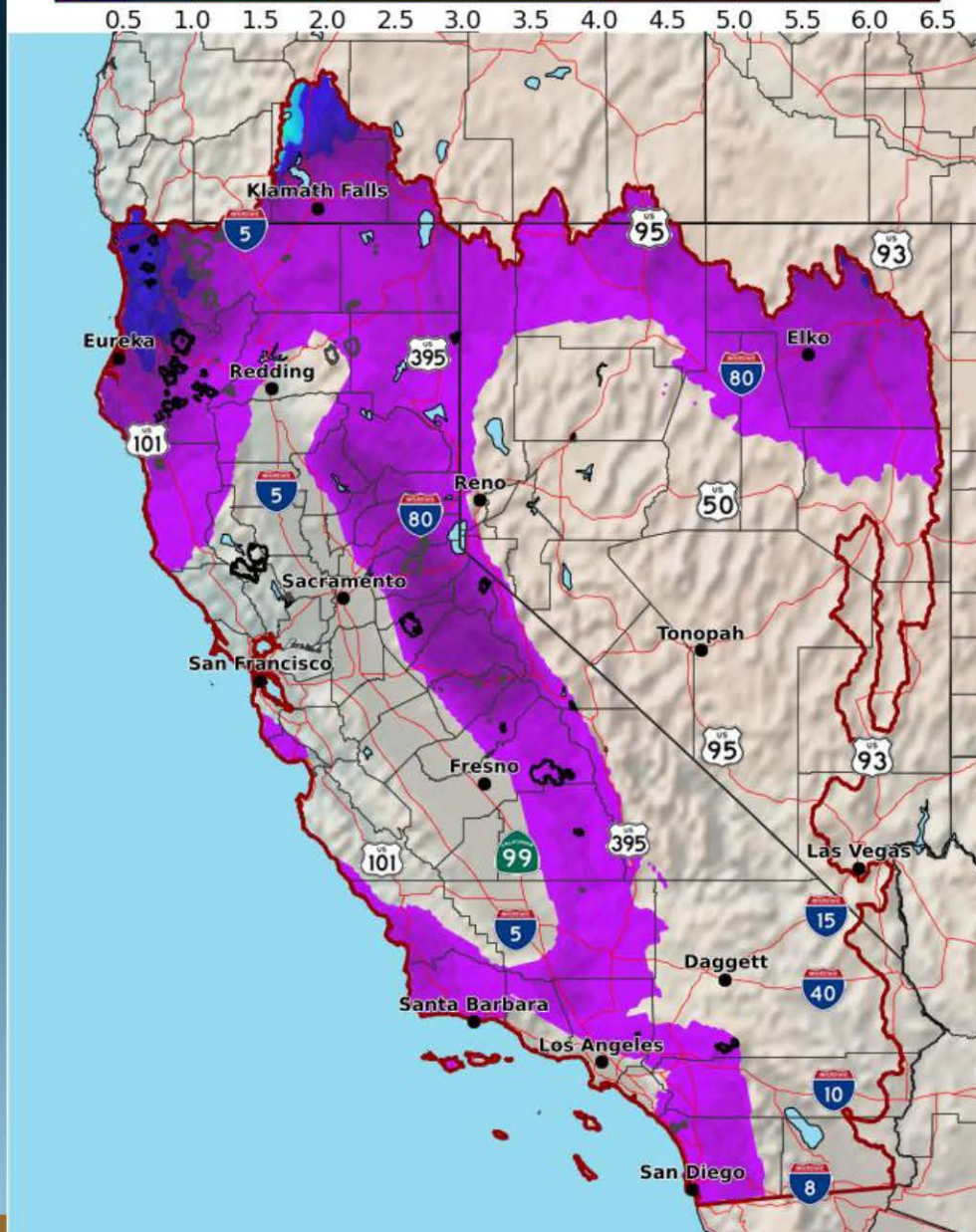
Issued: 02/18/16





# 6-Day Forecast Precipitation (Inches)

Valid: Mon Mar 14, 2016 at 05 AM PDT to Sun Mar 20, 2016 at 05 AM PDT



DROUGHT PREPAREDNESS & RESPONSE



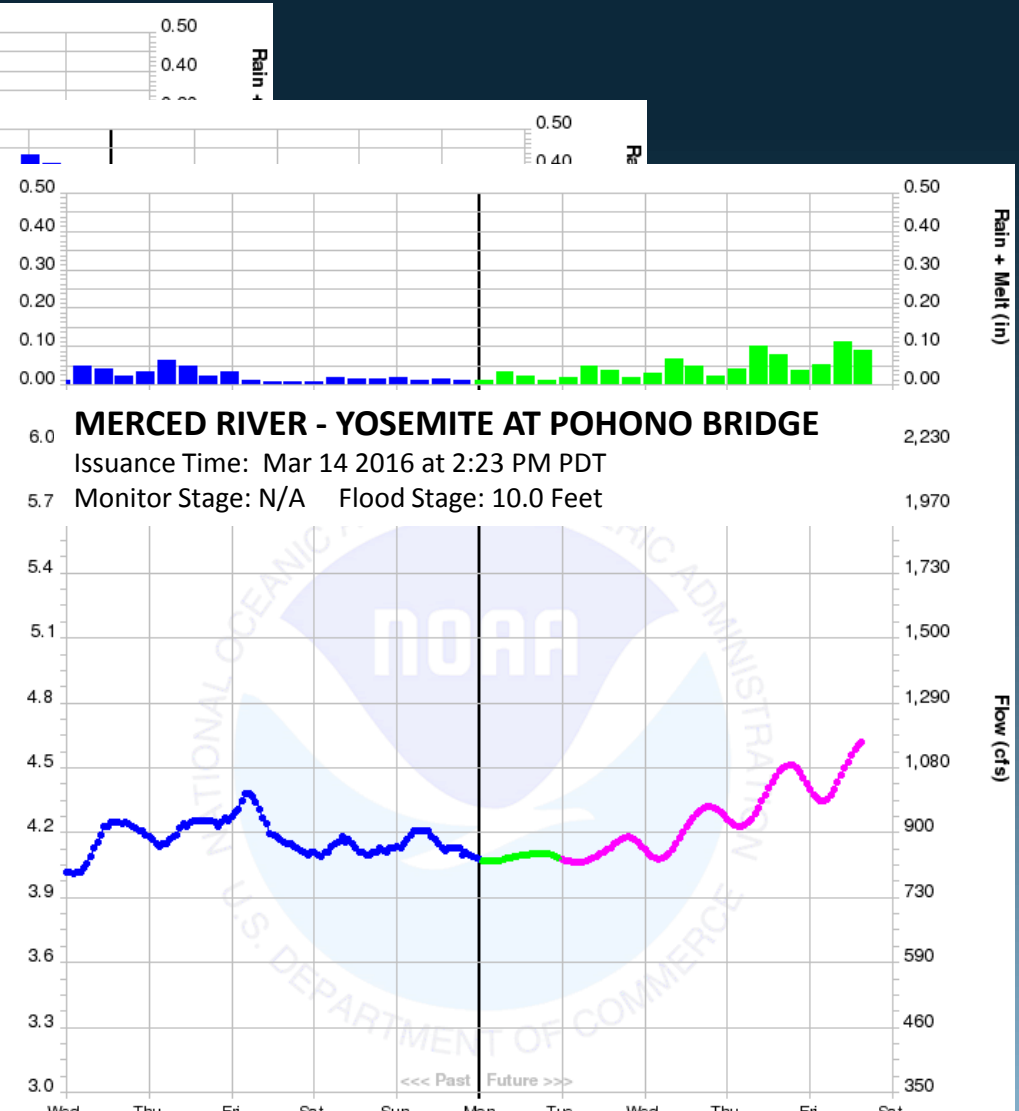
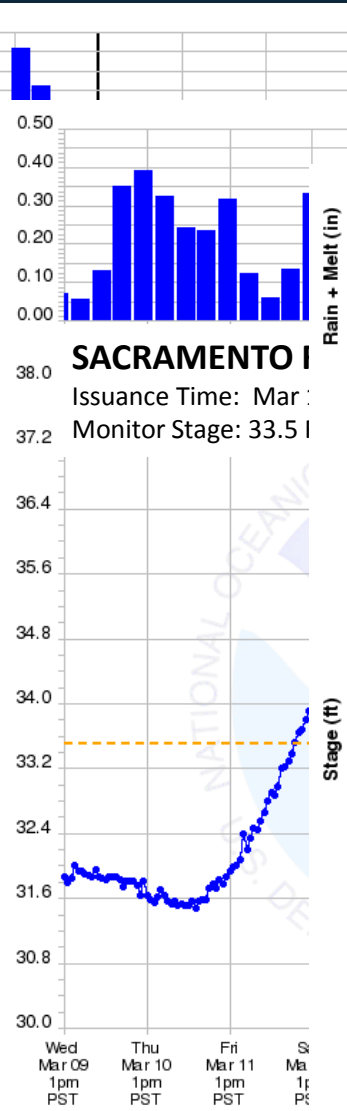
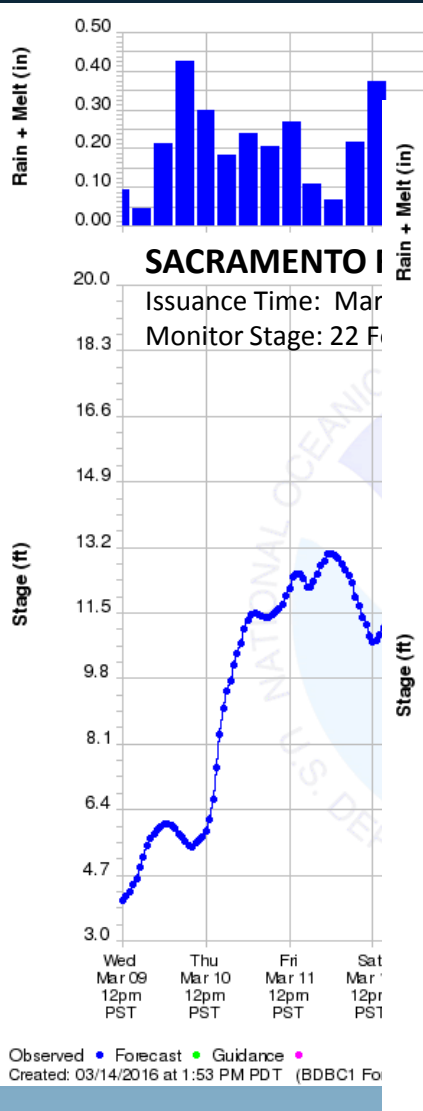
National Weather Service  
CNRFC - Sacramento, CA

Follow Us:



Created: 03/14/2016 06:58 AM PDT

[www.cnrfc.noaa.gov](http://www.cnrfc.noaa.gov)



Observed ● Forecast ● Guidance ●  
 Created: 03/14/2016 at 1:53 PM PDT (BDBC1 Fo

Observed ● Forecast ● Guidance ● Monitor ●  
 Created: 03/14/2016 at 2:18 PM PDT (FMWC1 I

Observed ● Forecast ● Guidance ● Monitor ●  
 Created: 03/14/2016 at 2:23 PM PDT (POHC1 Forecast Run Time = 2118Z)  
 Pacific Local Time  
 California Department of Water Resources  
 NOAA / NWS / California Nevada River Forecast Center



# Statewide Summary of Snow Water Content

## Current Regional Snowpack from Automated Snow Sensors

% of April 1 Average / % of Normal for This Date



Statewide Average: 89% / 92%

| NORTH                                  |      |
|--|------|
| Data as of March 14, 2016              |      |
| Number of Stations Reporting           | 23   |
| Average snow water equivalent (Inches) | 28.9 |
| Percent of April 1 Average (%)         | 100  |
| Percent of normal for this date (%)    | 102  |

| CENTRAL                                |      |
|--|------|
| Data as of March 14, 2016              |      |
| Number of Stations Reporting           | 40   |
| Average snow water equivalent (Inches) | 26.0 |
| Percent of April 1 Average (%)         | 90   |
| Percent of normal for this date (%)    | 94   |

| SOUTH                                  |      |
|--|------|
| Data as of March 14, 2016              |      |
| Number of Stations Reporting           | 28   |
| Average snow water equivalent (Inches) | 20.8 |
| Percent of April 1 Average (%)         | 77   |
| Percent of normal for this date (%)    | 81   |

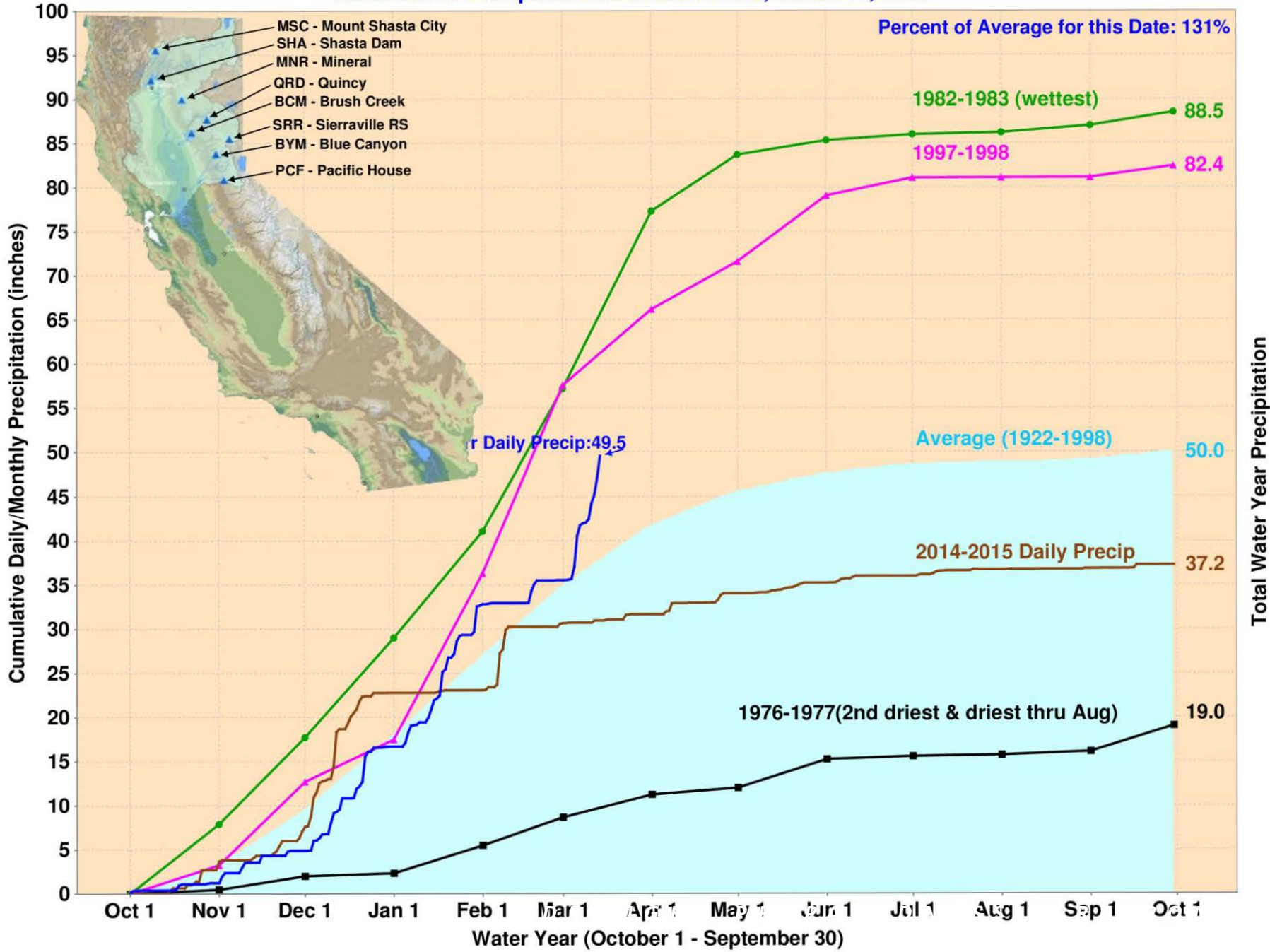
| STATE                                  |      |
|--|------|
| Data as of March 14, 2016              |      |
| Number of Stations Reporting           | 91   |
| Average snow water equivalent (Inches) | 25.2 |
| Percent of April 1 Average (%)         | 89   |
| Percent of normal for this date (%)    | 92   |

Data as of March 14, 2016

& R E S P O N S E



# North Sierra Precipitation: 8-Station Index, March 14, 2016



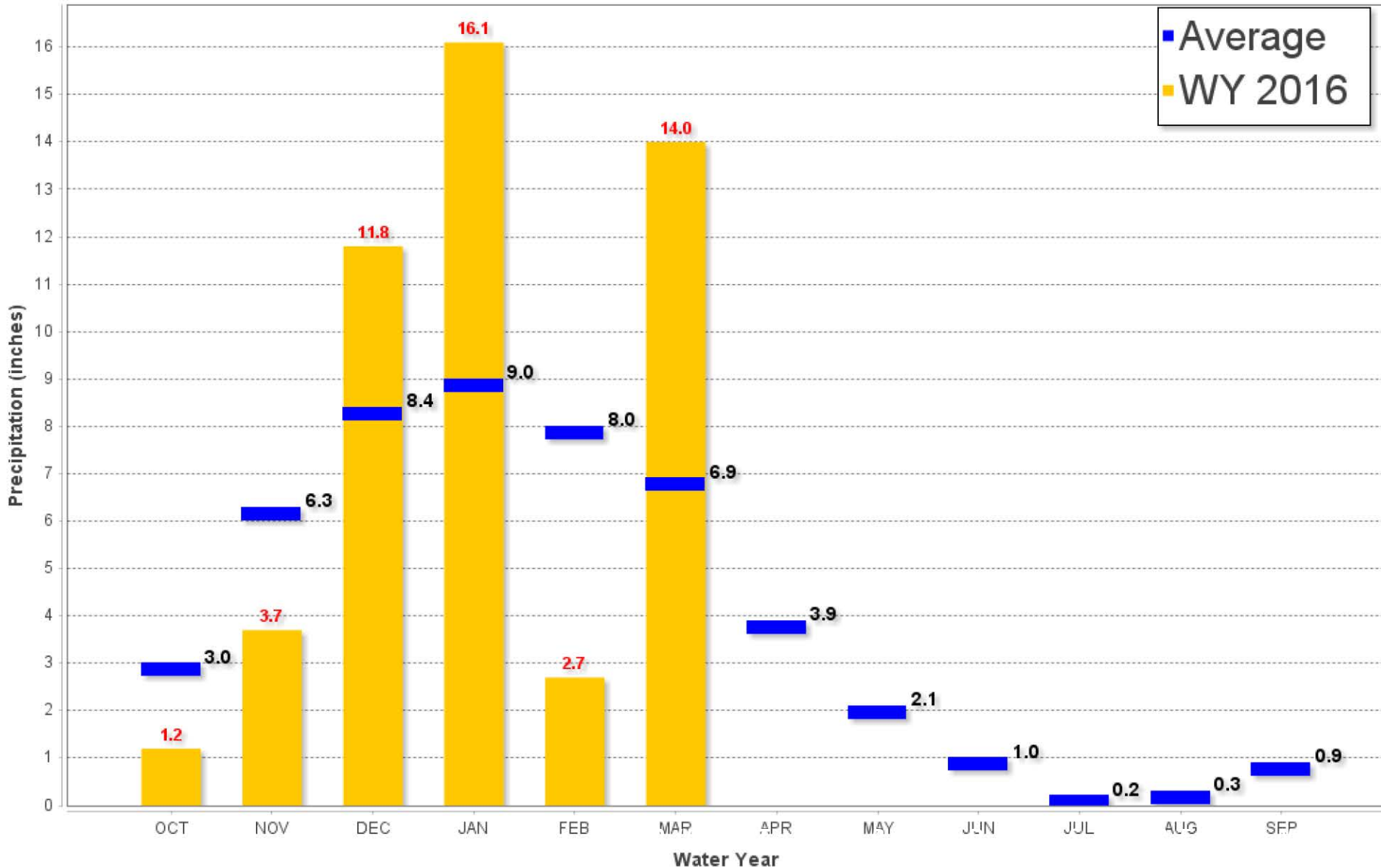


# Northern Sierra 8-Station

## Precipitation Index for Water Year 2016 - Updated on March 14, 2016 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

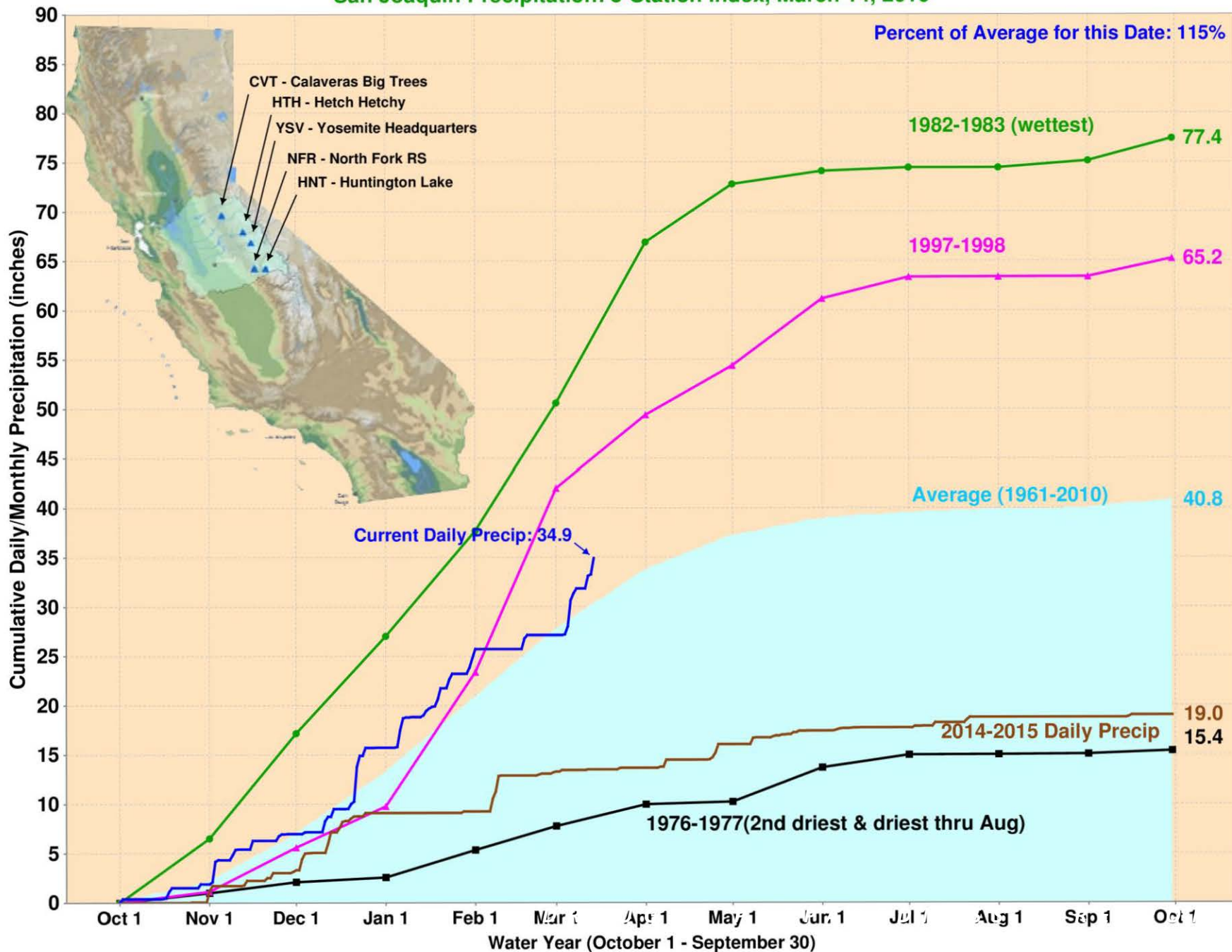




# San Joaquin Precipitation: 5-Station Index, March 14, 2016

Percent of Average for this Date: 115%

- CVT - Calaveras Big Trees
- HTH - Hetch Hetchy
- YSV - Yosemite Headquarters
- NFR - North Fork RS
- HNT - Huntington Lake



Total Water Year Precipitation

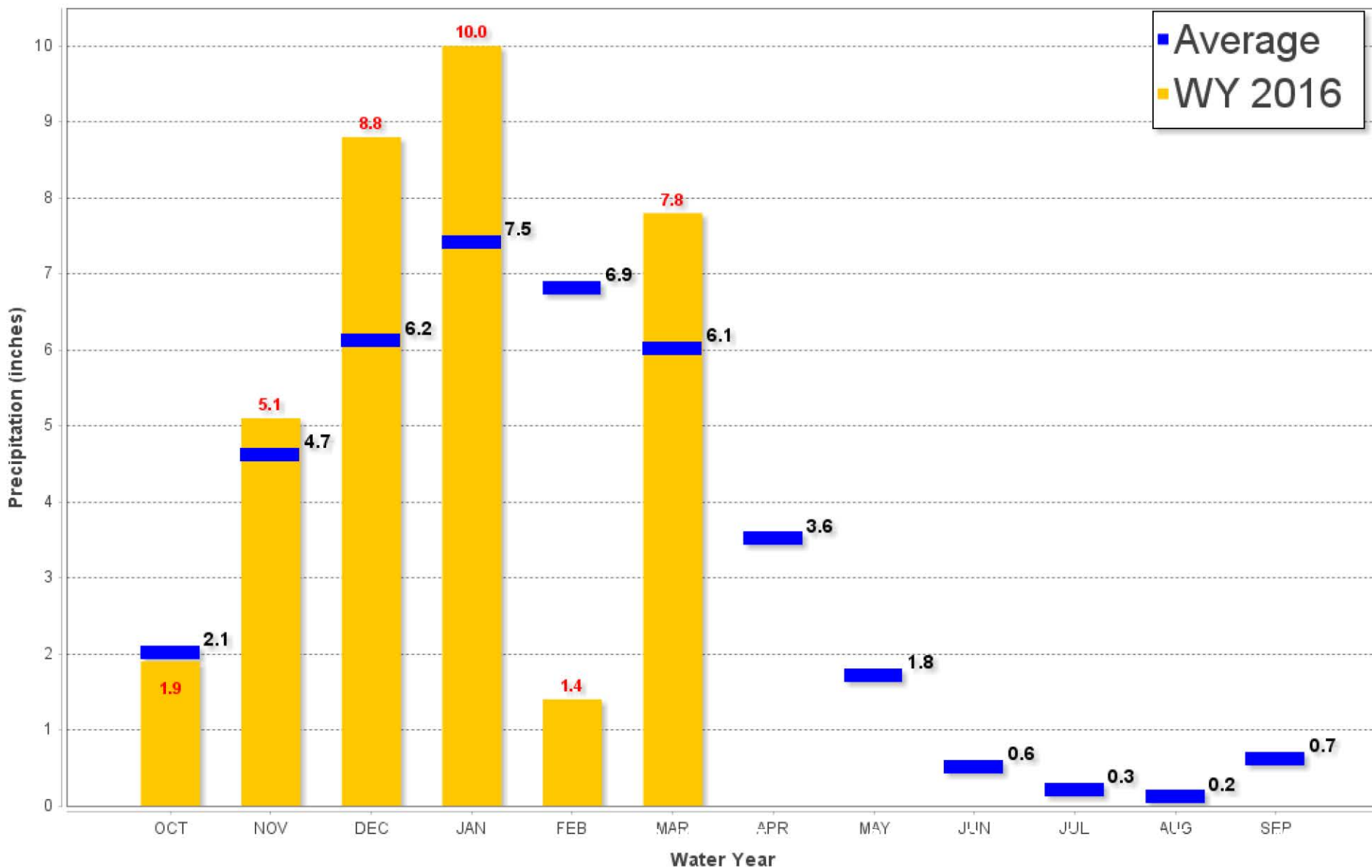


# San Joaquin 5-Station

## Precipitation Index for Water Year 2016 - Updated on March 14, 2016 08:45 AM

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

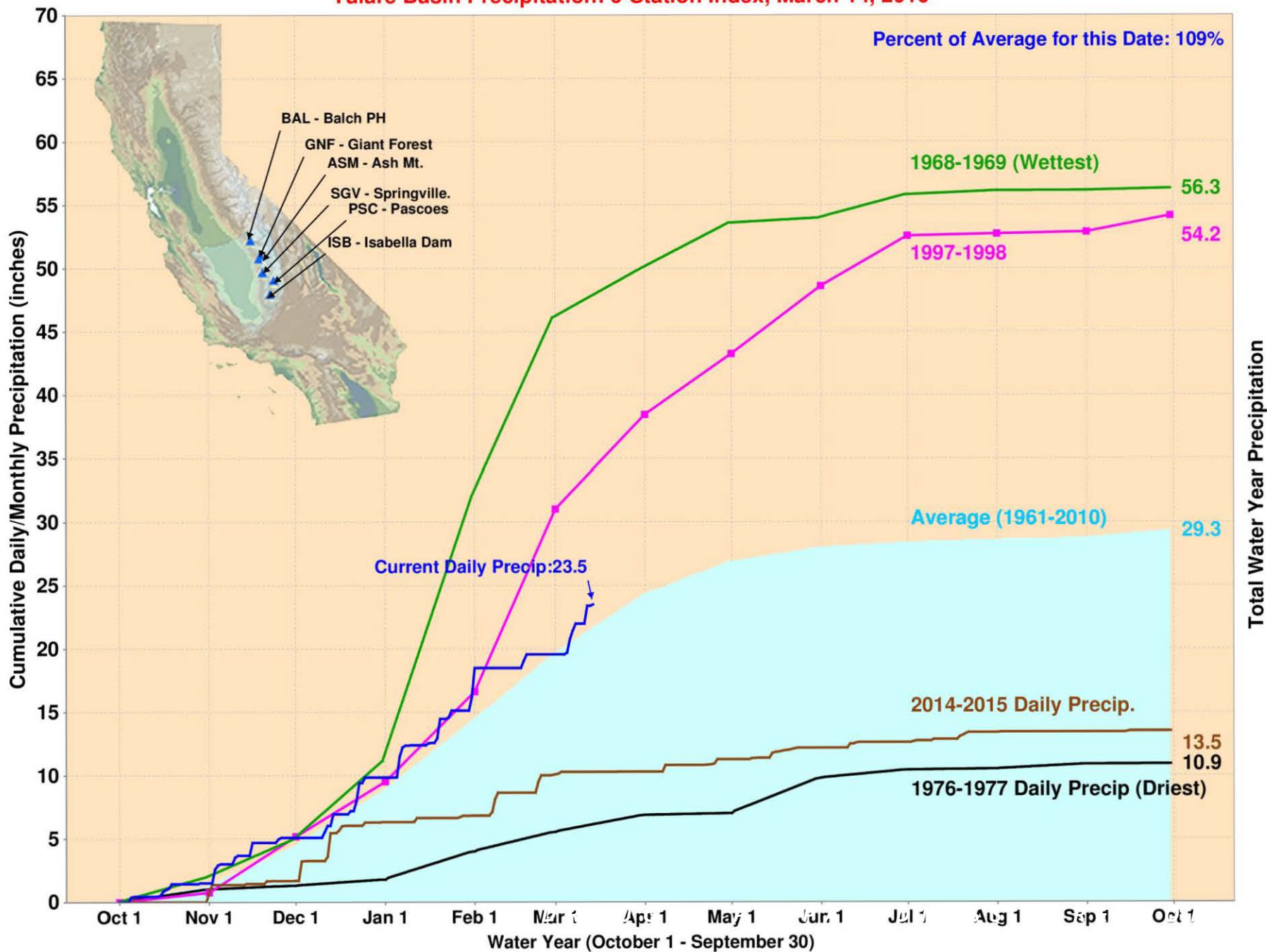
Water Year Monthly totals are calculated based on Daily precipitation data from 12am to 12am PST





# Tulare Basin Precipitation: 6-Station Index, March 14, 2016

Percent of Average for this Date: 109%



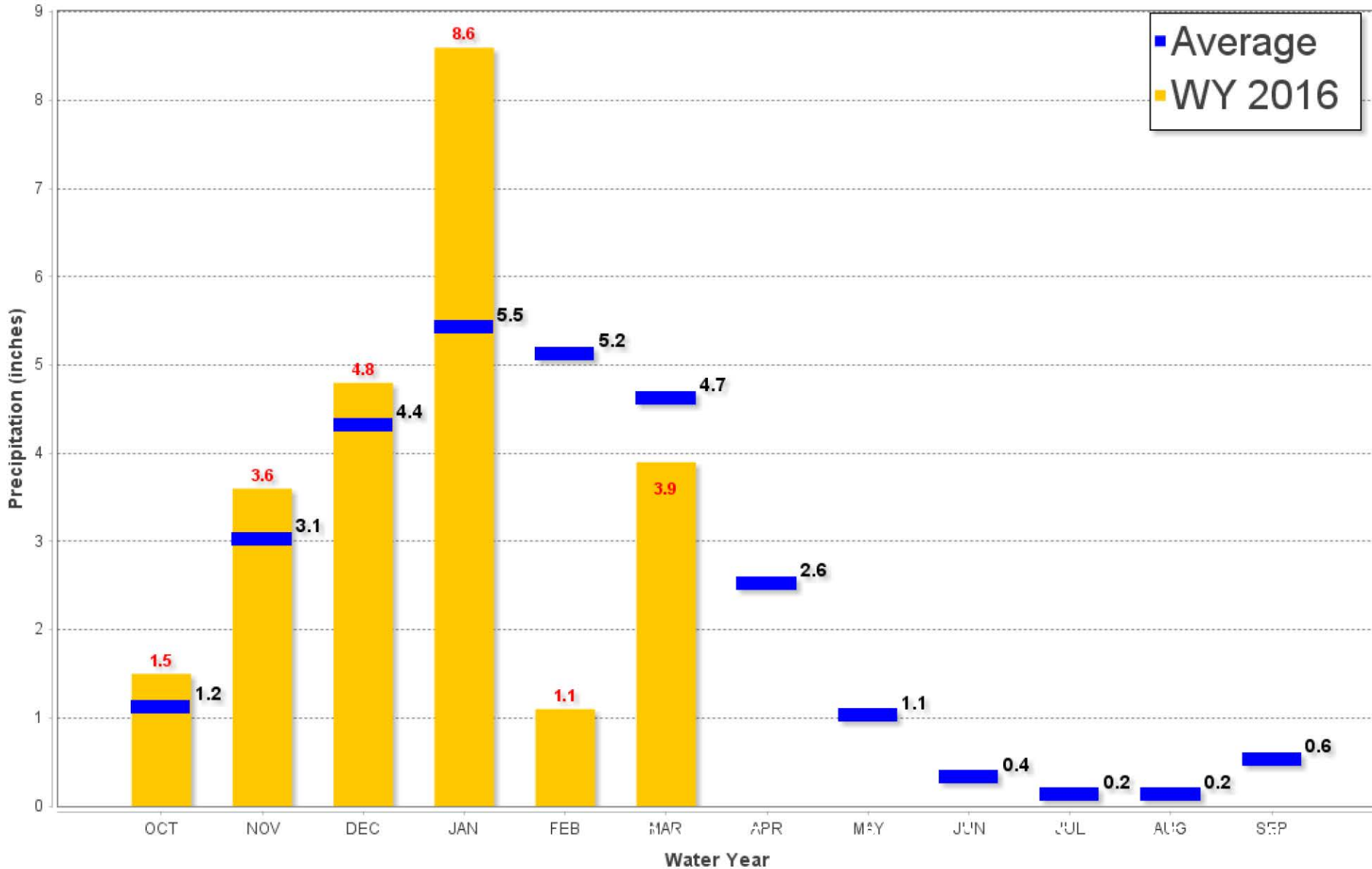


# Tulare Basin 6-Station

## Precipitation Index for Water Year 2016 - Updated on March 14, 2016 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



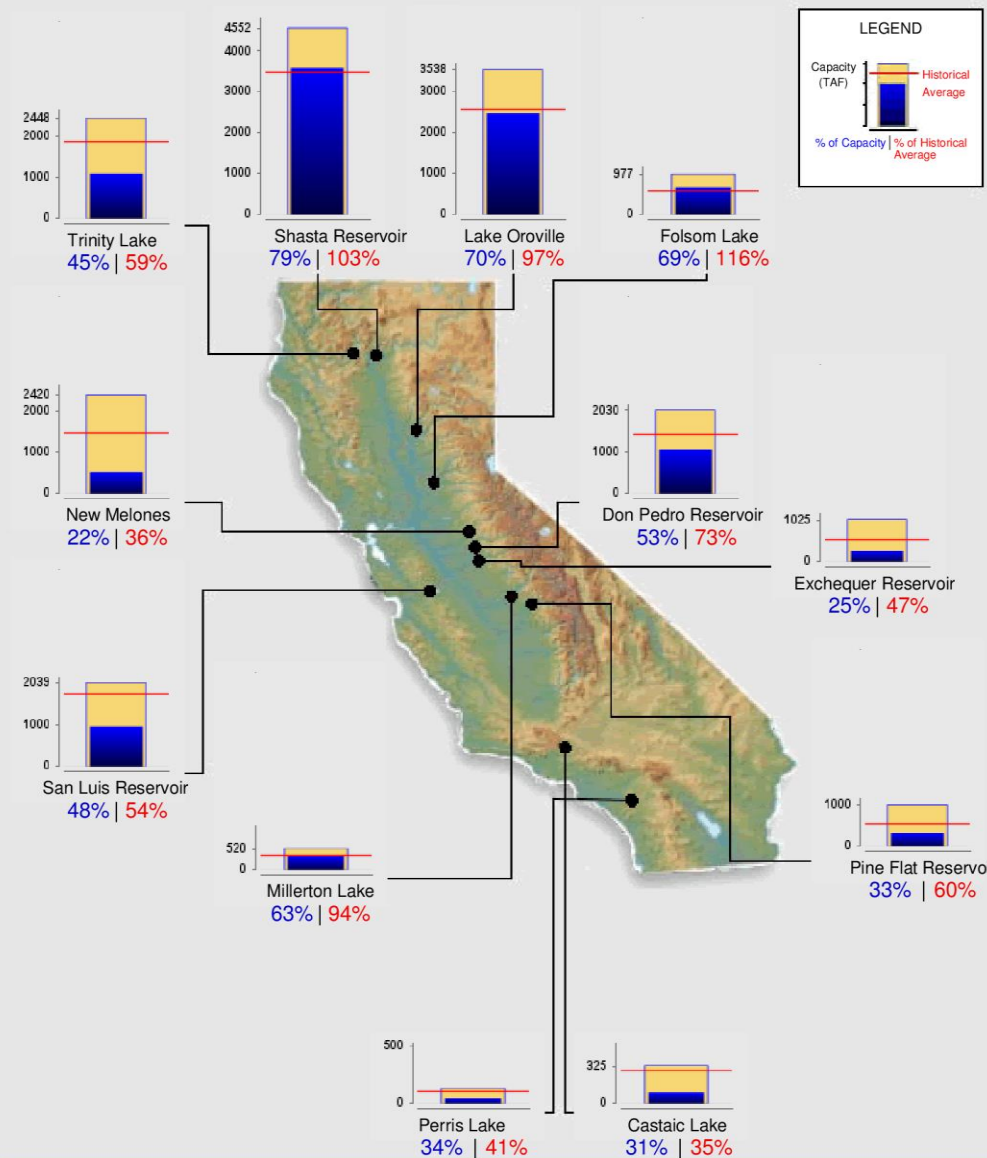




# Reservoir Conditions

Ending At Midnight - March 13, 2016

## CURRENT RESERVOIR CONDITIONS



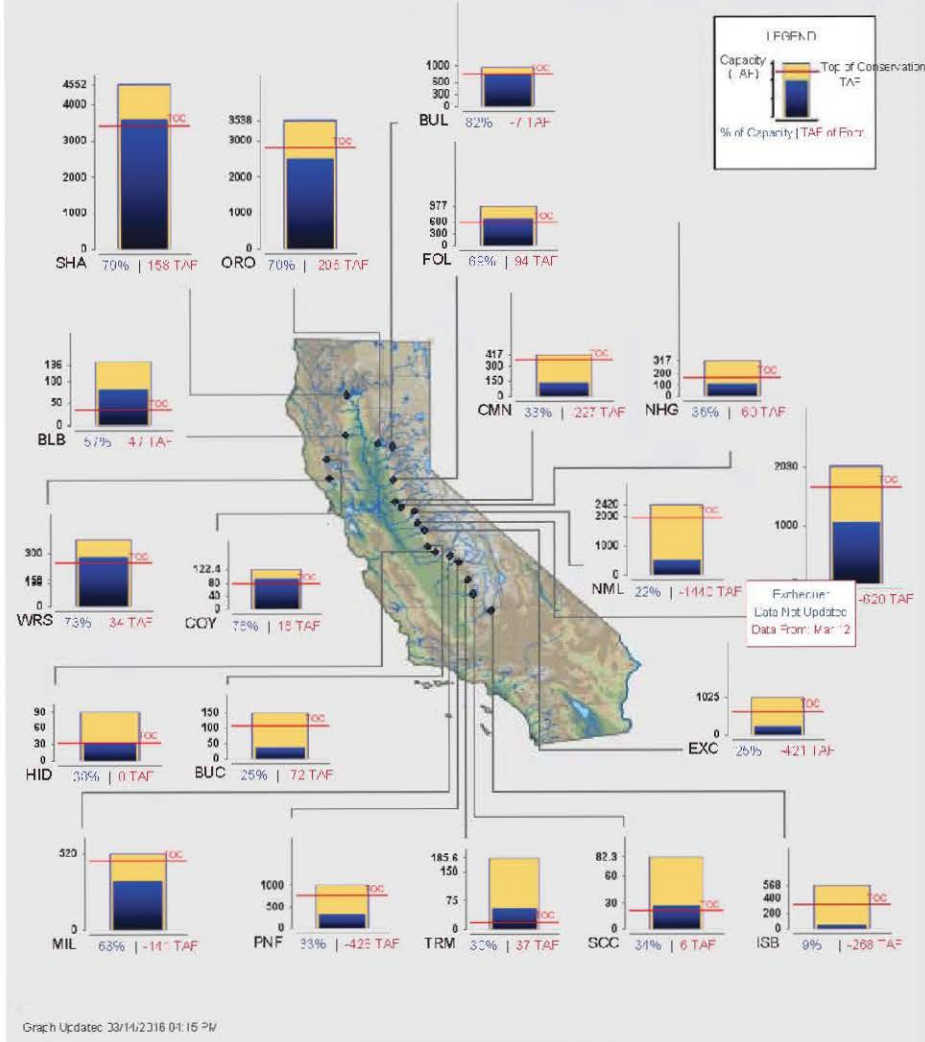
|                    | % Cap | % Avg |
|--------------------|-------|-------|
| <b>Trinity</b>     | 45    | 59    |
| <b>Shasta</b>      | 79    | 103   |
| <b>Oroville</b>    | 70    | 97    |
| <b>Folsom</b>      | 69    | 116   |
| <b>New Melones</b> | 22    | 36    |
| <b>San Luis</b>    | 48    | 54    |

PREPAREDNESS & RESPONSE



# Reservoir Conditions

TOP-OF-CONSERVATION CONDITIONS CENTRAL VALLEY RIVERS AND RIVER FLOOD CONTROL RESERVOIRS Ending At Midnight: March 15, 2016





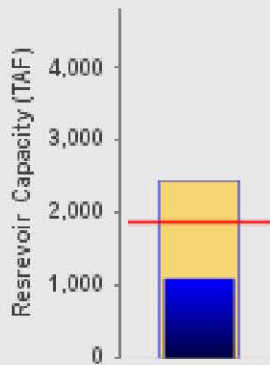


# Reservoir Conditions - Trinity Lake



## Trinity Lake Conditions

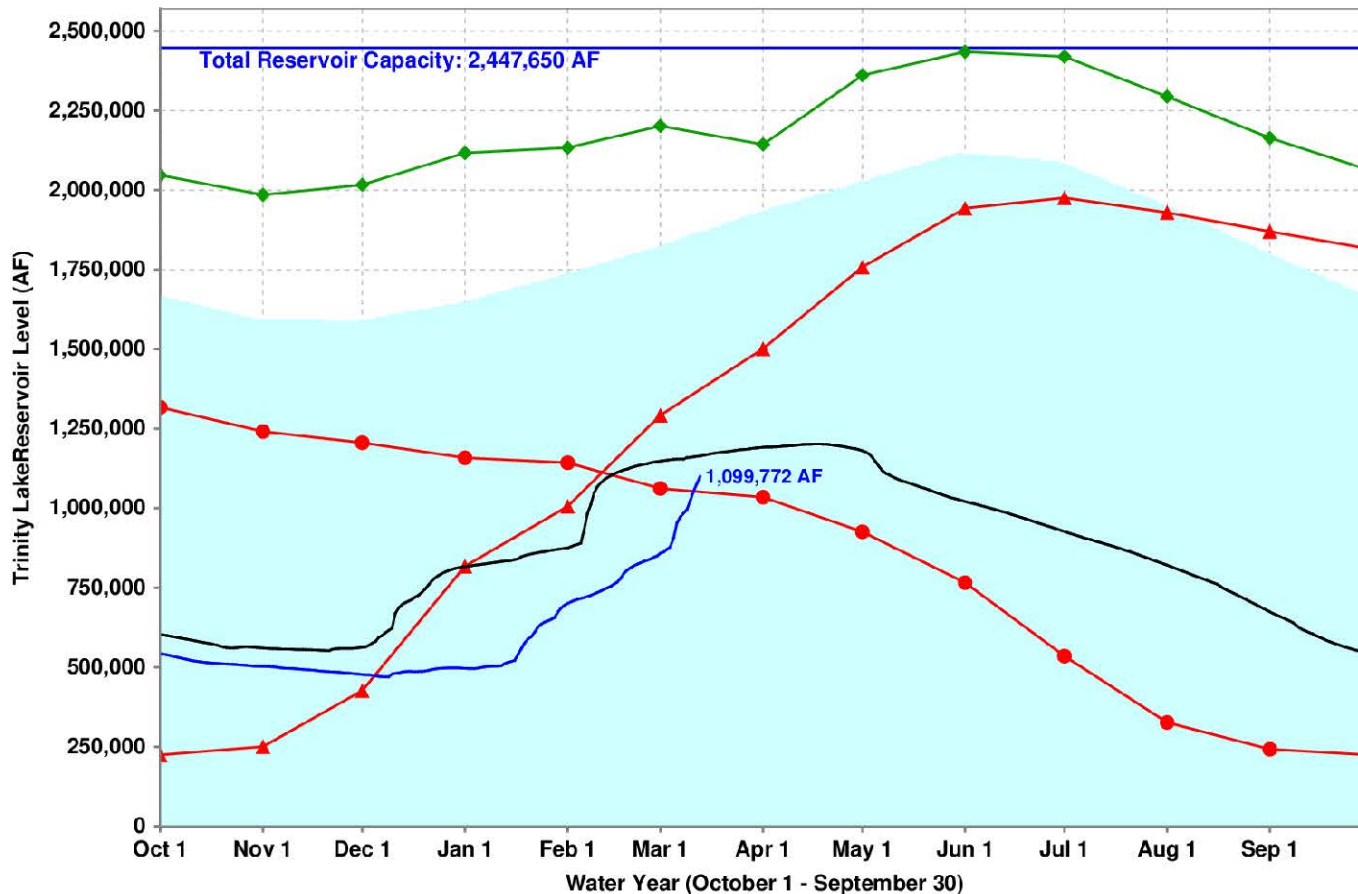
(as of Midnight - March 13, 2016)



Current Level: 1,099,772 AF

45% (Total Capacity) | 59% (Historical Avg.)

Trinity Lake Levels: Various Past Water Years and Current Water Year, Ending At Midnight March 13, 2016



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

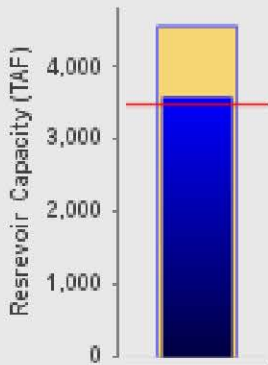


# Reservoir Conditions - Shasta Reservoir



## Lake Shasta Conditions

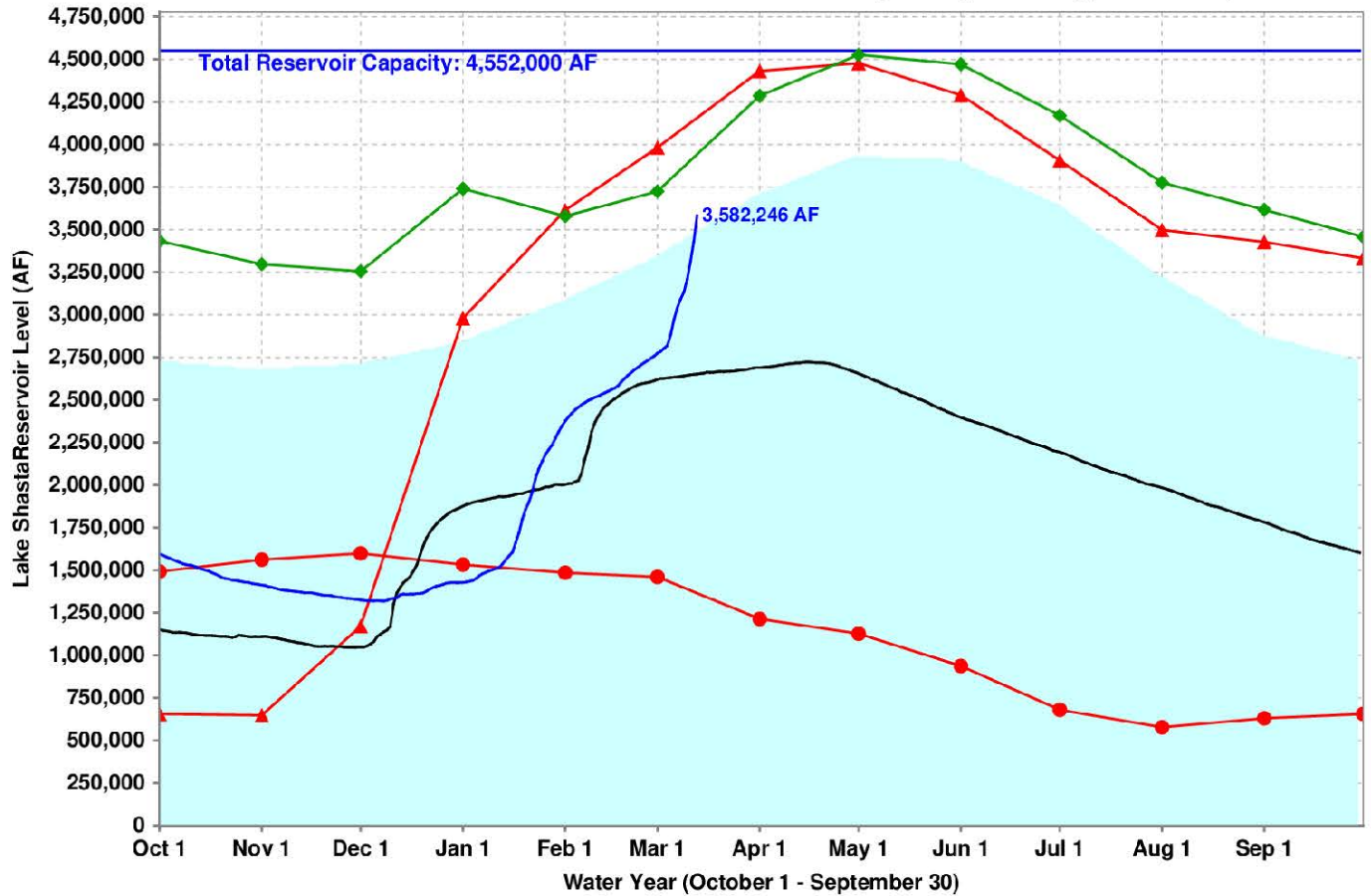
(as of Midnight - March 13, 2016)



Current Level: 3,582,246 AF

79% (Total Capacity) | 103% (Historical Avg.)

Lake Shasta Levels: Various Past Water Years and Current Water Year, Ending At Midnight March 13, 2016



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



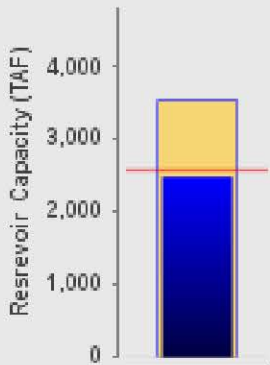


# Reservoir Conditions - Lake Oroville



## Lake Oroville Conditions

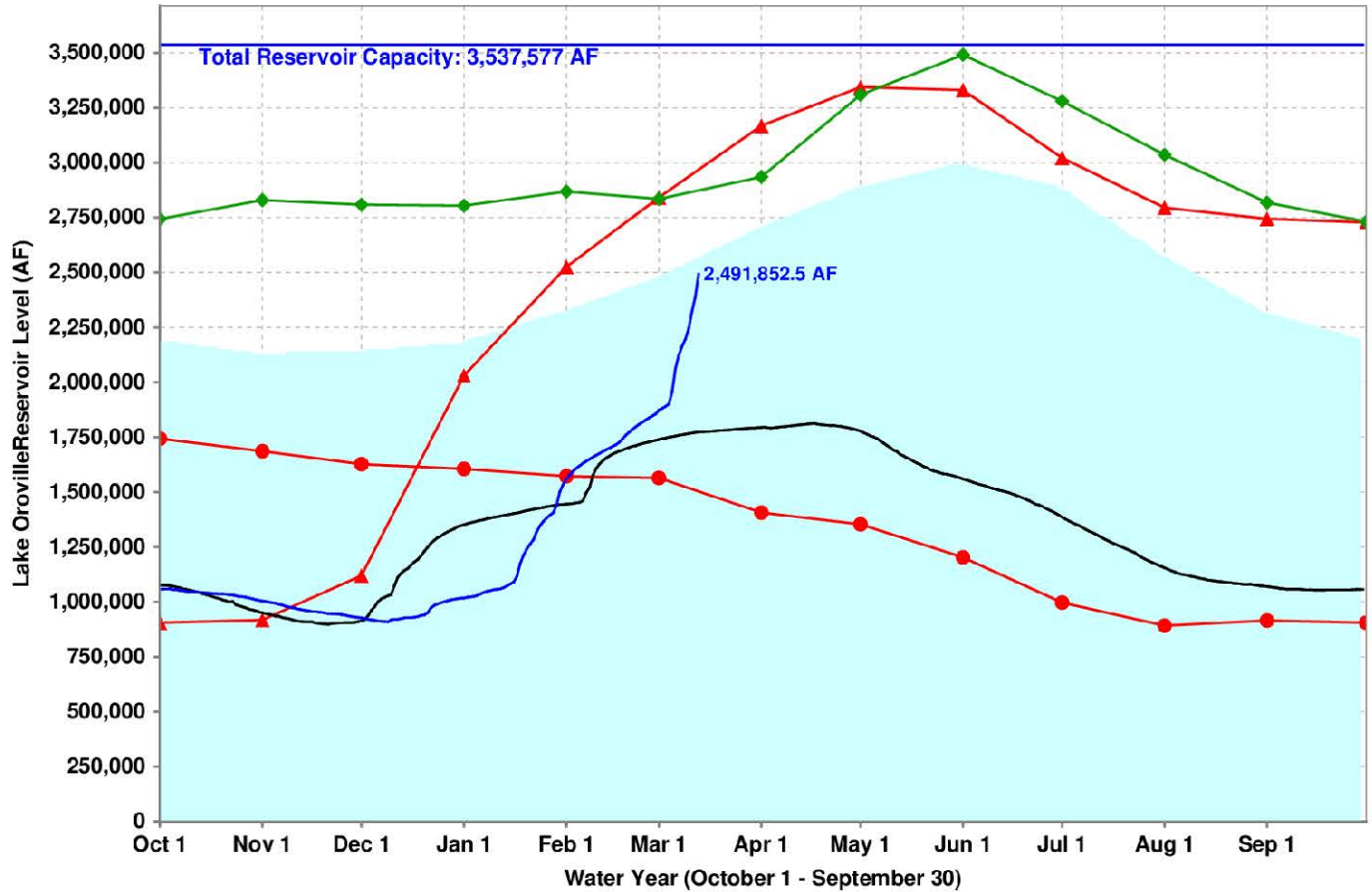
(as of Midnight - March 13, 2016)



Current Level: 2,491,852.5 AF

70% (Total Capacity) | 97% (Historical Avg.)

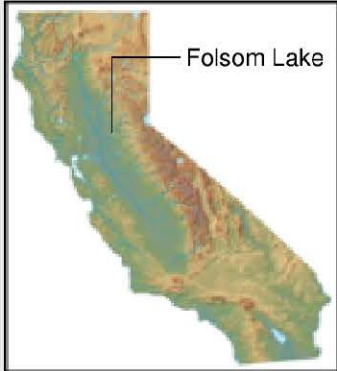
Lake Oroville Levels: Various Past Water Years and Current Water Year, Ending At Midnight March 13, 2016



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

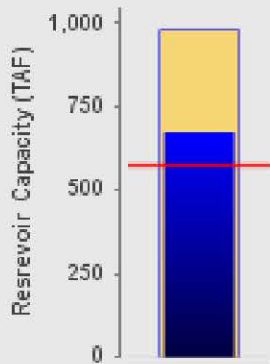


# Reservoir Conditions - Folsom Lake



## Folsom Lake Conditions

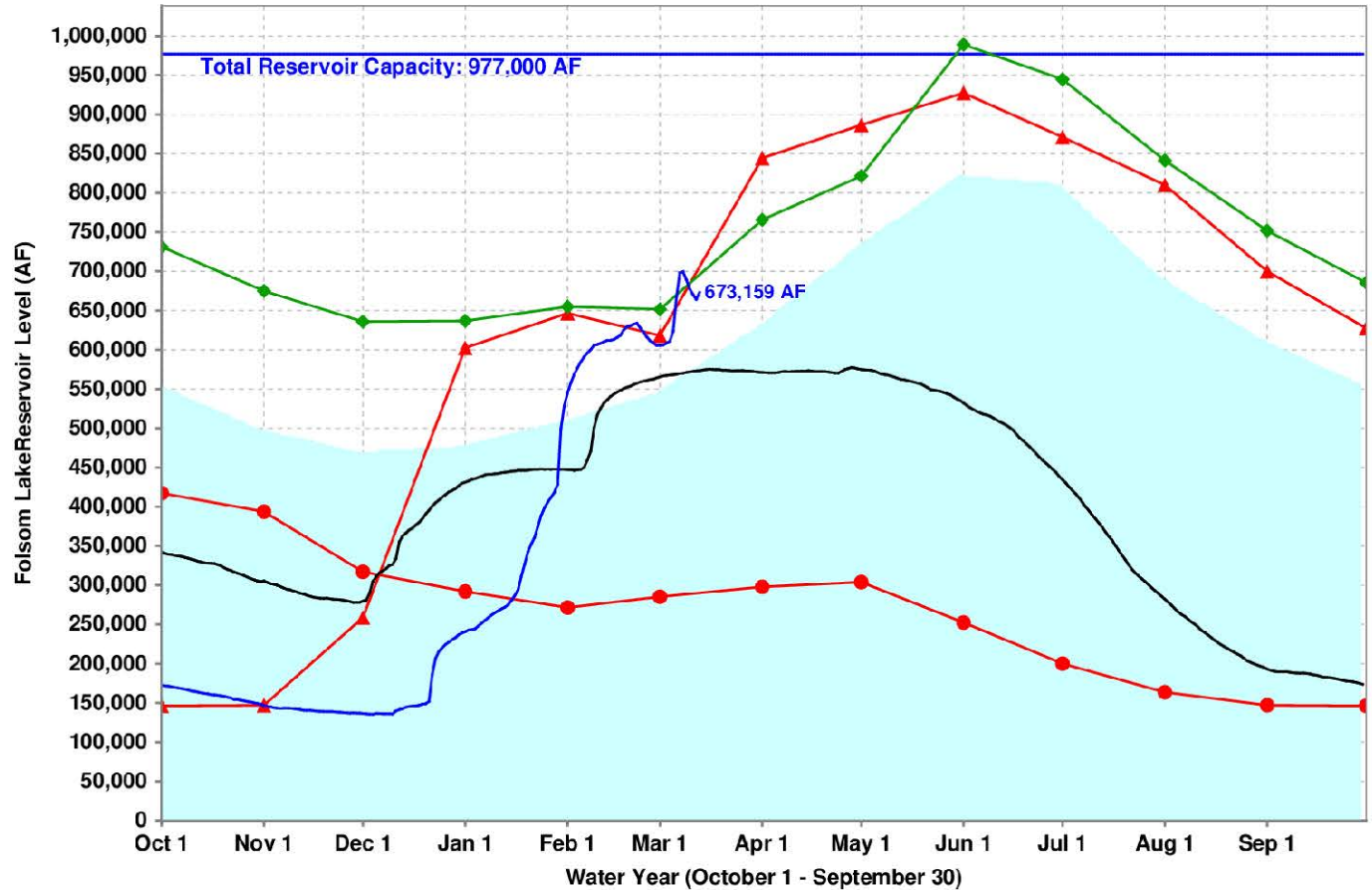
(as of Midnight - March 13, 2016)



Current Level: 673,159 AF

69% (Total Capacity) | 116% (Historical Avg.)

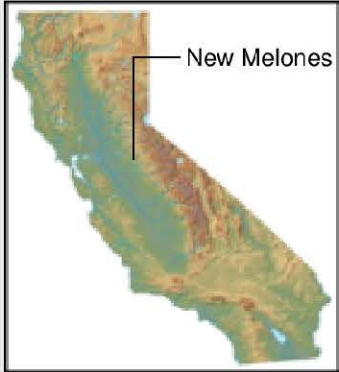
Folsom Lake Levels: Various Past Water Years and Current Water Year, Ending At Midnight March 13, 2016





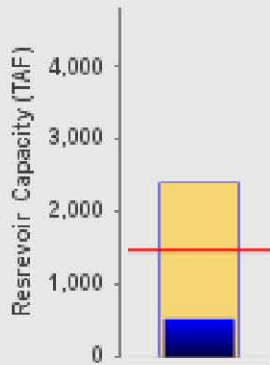


# Reservoir Conditions - New Melones



## New Melones Conditions

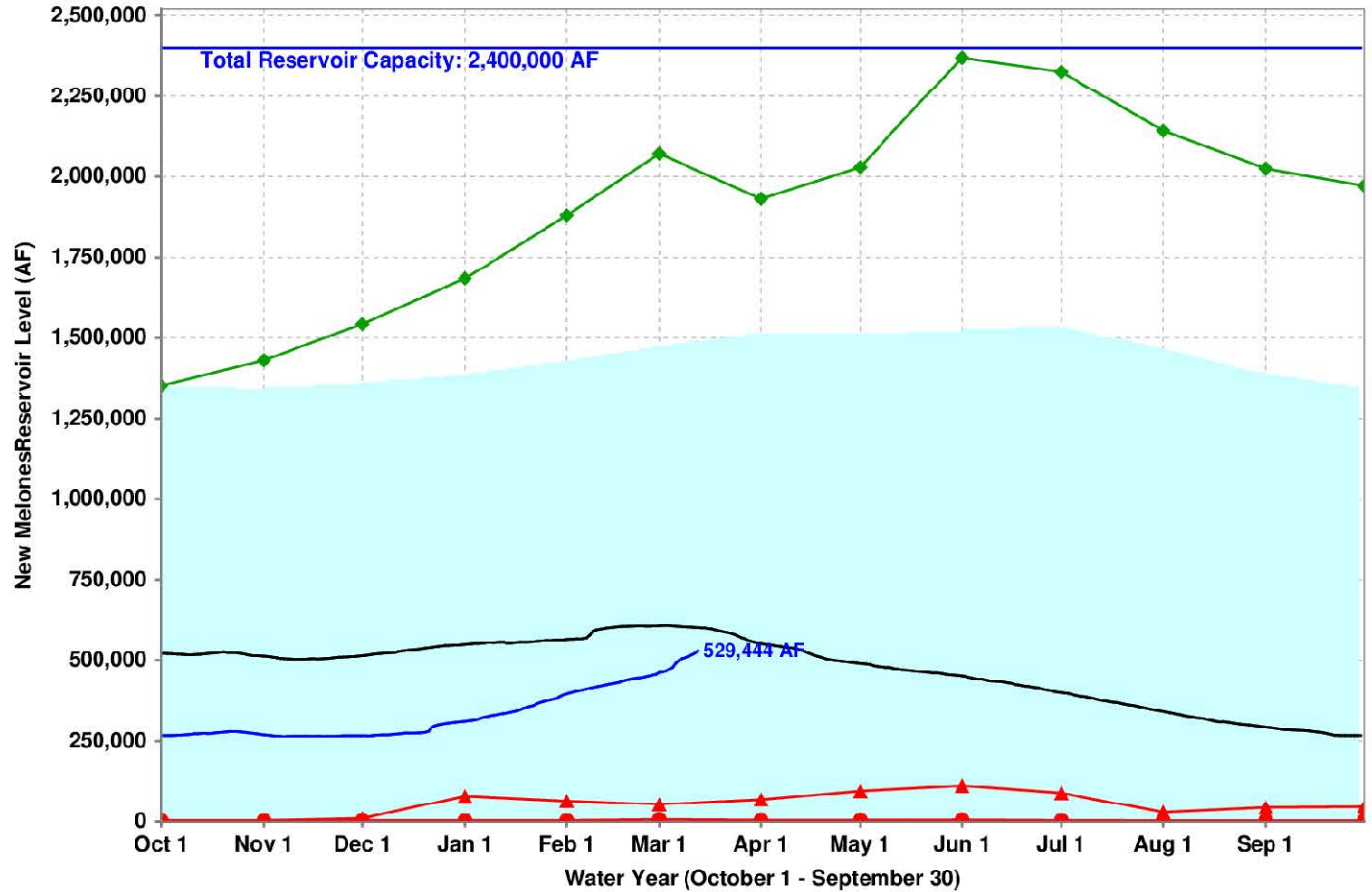
(as of Midnight - March 13, 2016)



Current Level: 529,444 AF

22% (Total Capacity) | 36% (Historical Avg.)

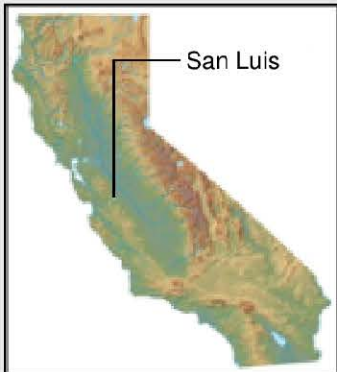
New Melones Levels: Various Past Water Years and Current Water Year, Ending At Midnight March 13, 2016



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

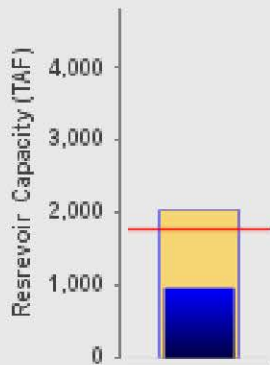


# Reservoir Conditions - San Luis



## San Luis Conditions

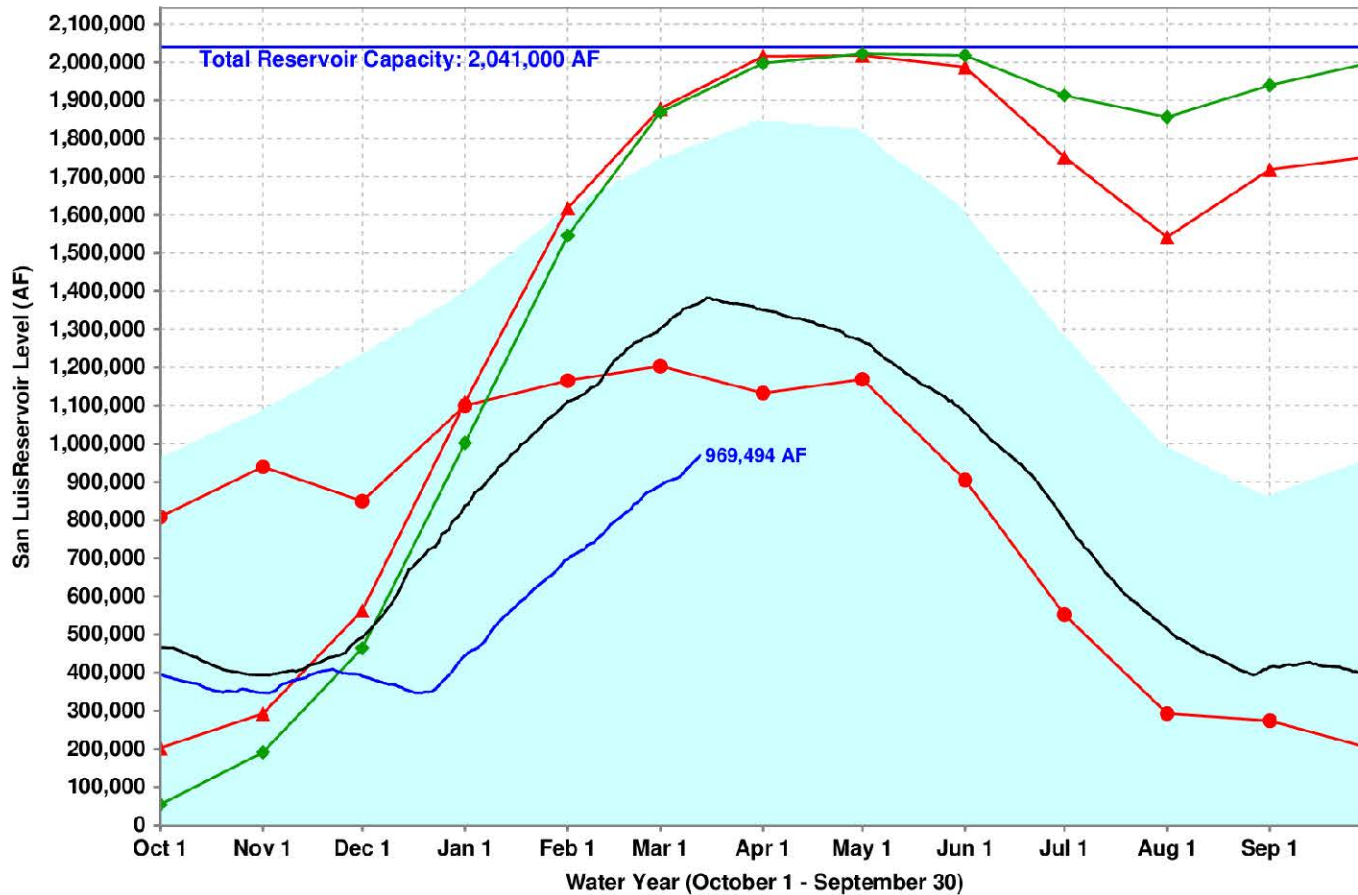
(as of Midnight - March 13, 2016)



Current Level: 969,494 AF

48% (Total Capacity) | 54% (Historical Avg.)

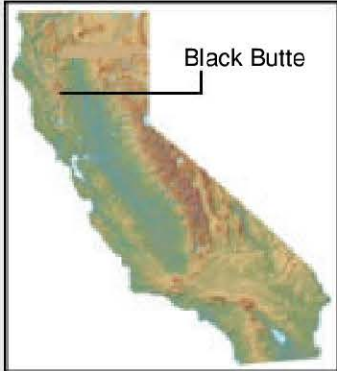
San Luis Levels: Various Past Water Years and Current Water Year, Ending At Midnight March 13, 2016





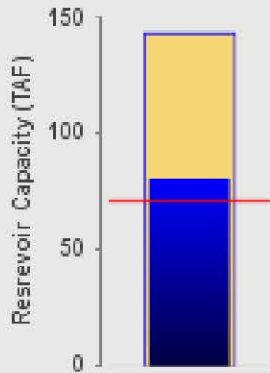


# Reservoir Conditions - Black Butte



## Black Butte Conditions

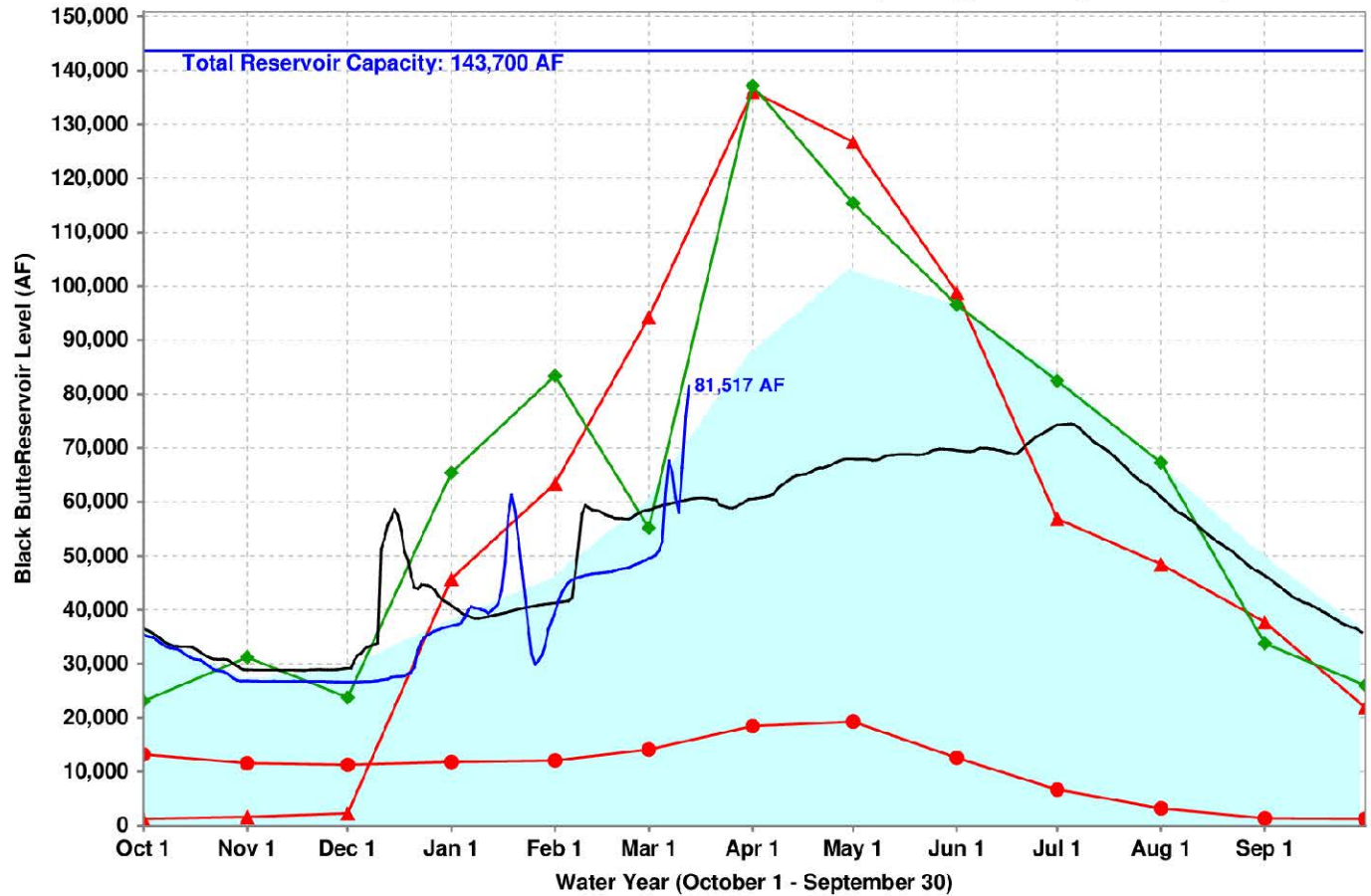
(as of Midnight - March 13, 2016)



Current Level: 81,517 AF

57% (Total Capacity) | 115% (Historical Avg.)

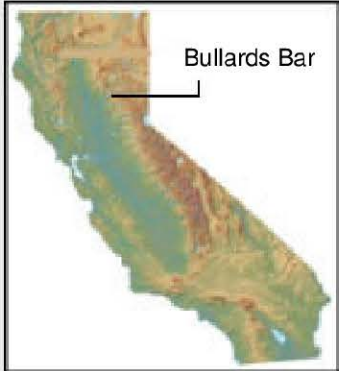
Black Butte Levels: Various Past Water Years and Current Water Year, Ending At Midnight March 13, 2016



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

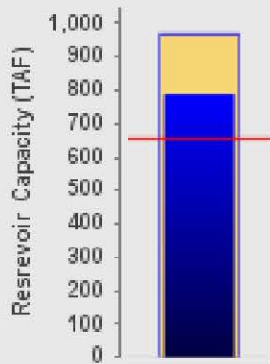


# Reservoir Conditions New Bullards Bar



## Bullards Bar Conditions

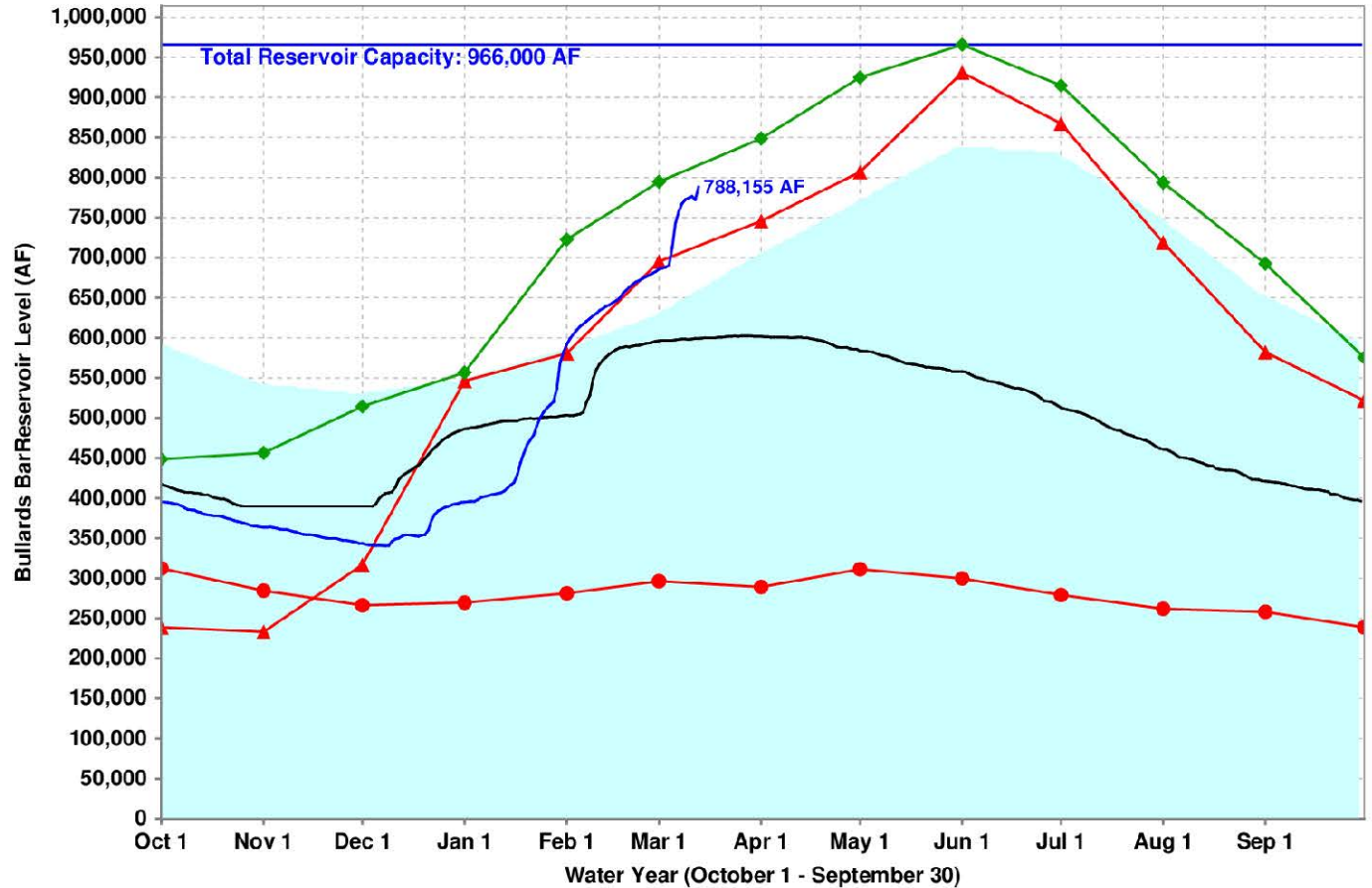
(as of Midnight - March 13, 2016)



Current Level: 788,155 AF

82% (Total Capacity) | 120% (Historical Avg.)

Bullards Bar Levels: Various Past Water Years and Current Water Year, Ending At Midnight March 13, 2016

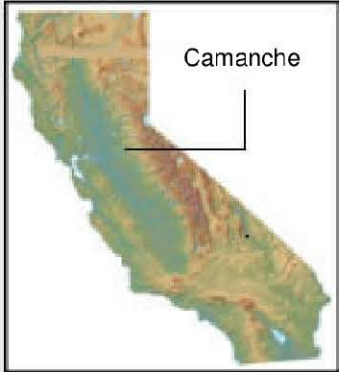


■ Historical Average 
 — Total Reservoir Capacity 
 ● 1976-1977 (Driest) 
 ▲ 1977-1978 
 ◆ 1982-1983 (Wettest) 
 — 2014-2015 
 — Current: 2015-2016



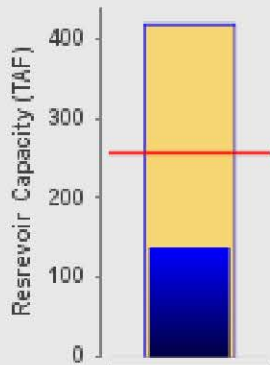


# Reservoir Conditions - Camanche Lake



## Camanche Conditions

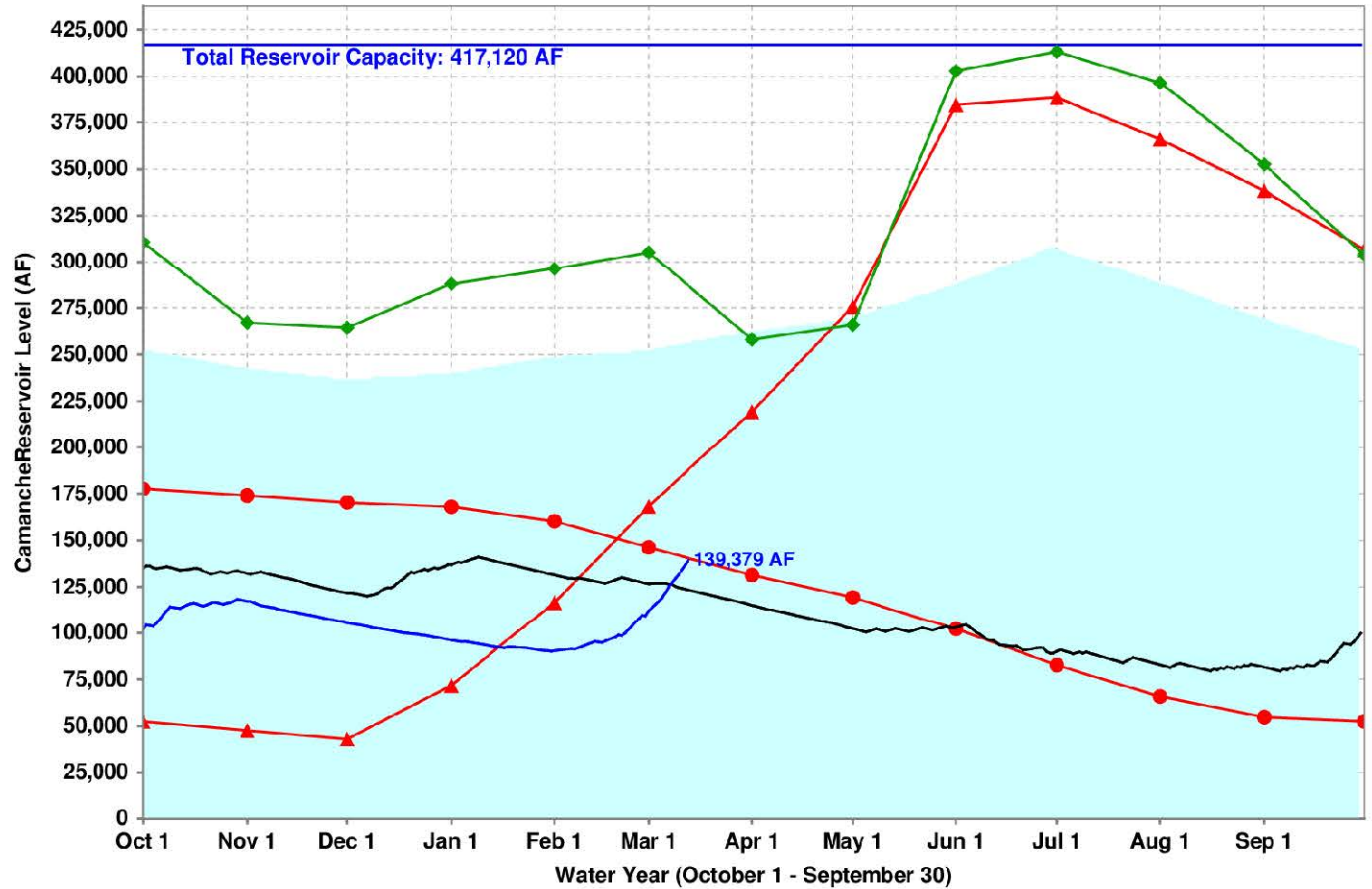
(as of Midnight - March 13, 2016)



Current Level: 139,379 AF

33% (Total Capacity) | 54% (Historical Avg.)

Camanche Levels: Various Past Water Years and Current Water Year, Ending At Midnight March 13, 2016



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

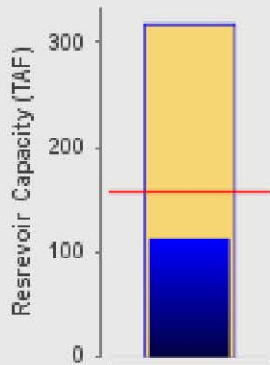


# Reservoir Conditions New Hogan Lake



## New Hogan Conditions

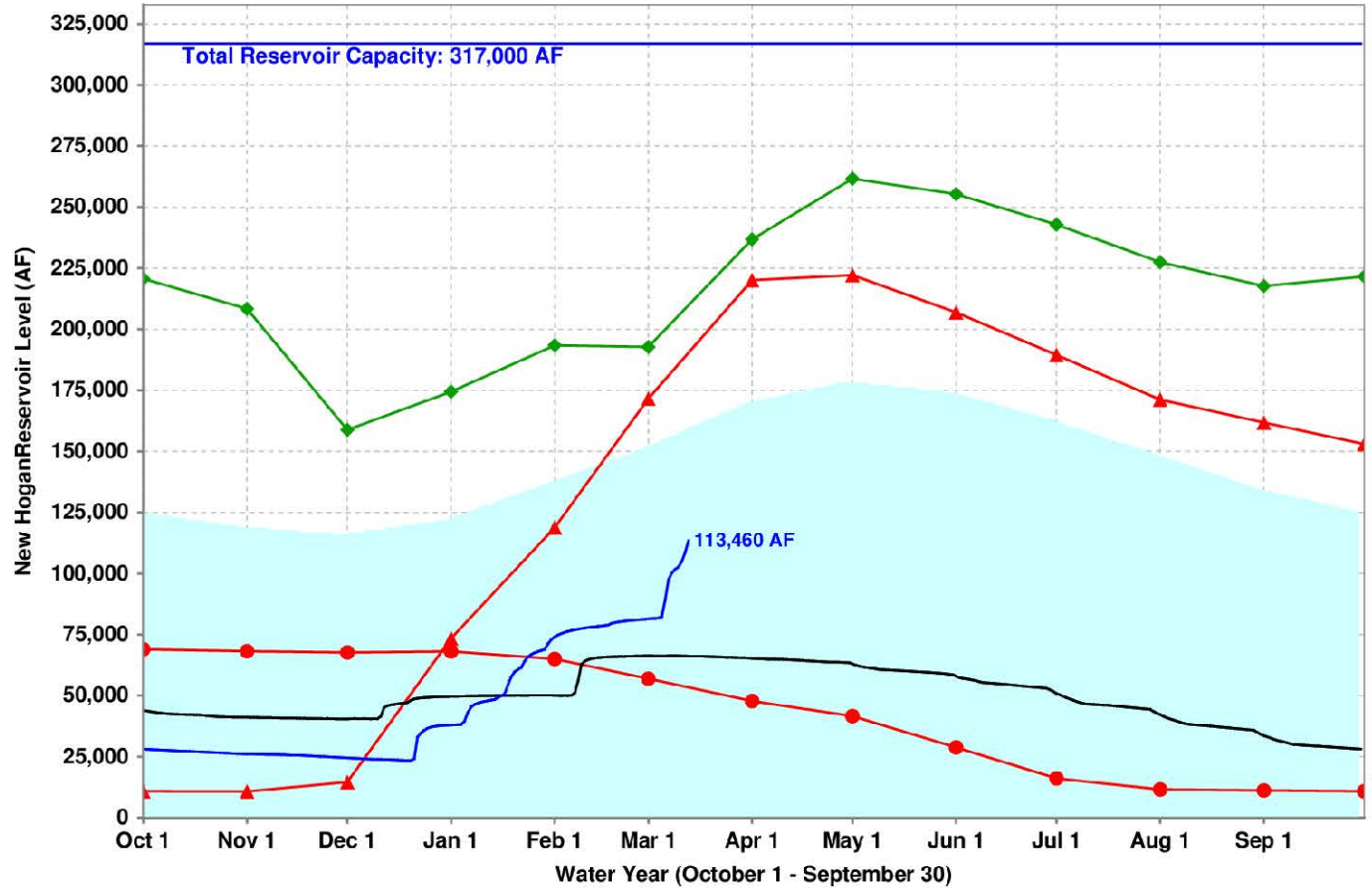
(as of Midnight - March 13, 2016)



Current Level: 113,460 AF

36% (Total Capacity) | 71% (Historical Avg.)

New Hogan Levels: Various Past Water Years and Current Water Year, Ending At Midnight March 13, 2016





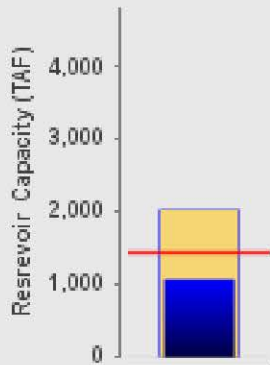


# Reservoir Conditions - Don Pedro



## Don Pedro Conditions

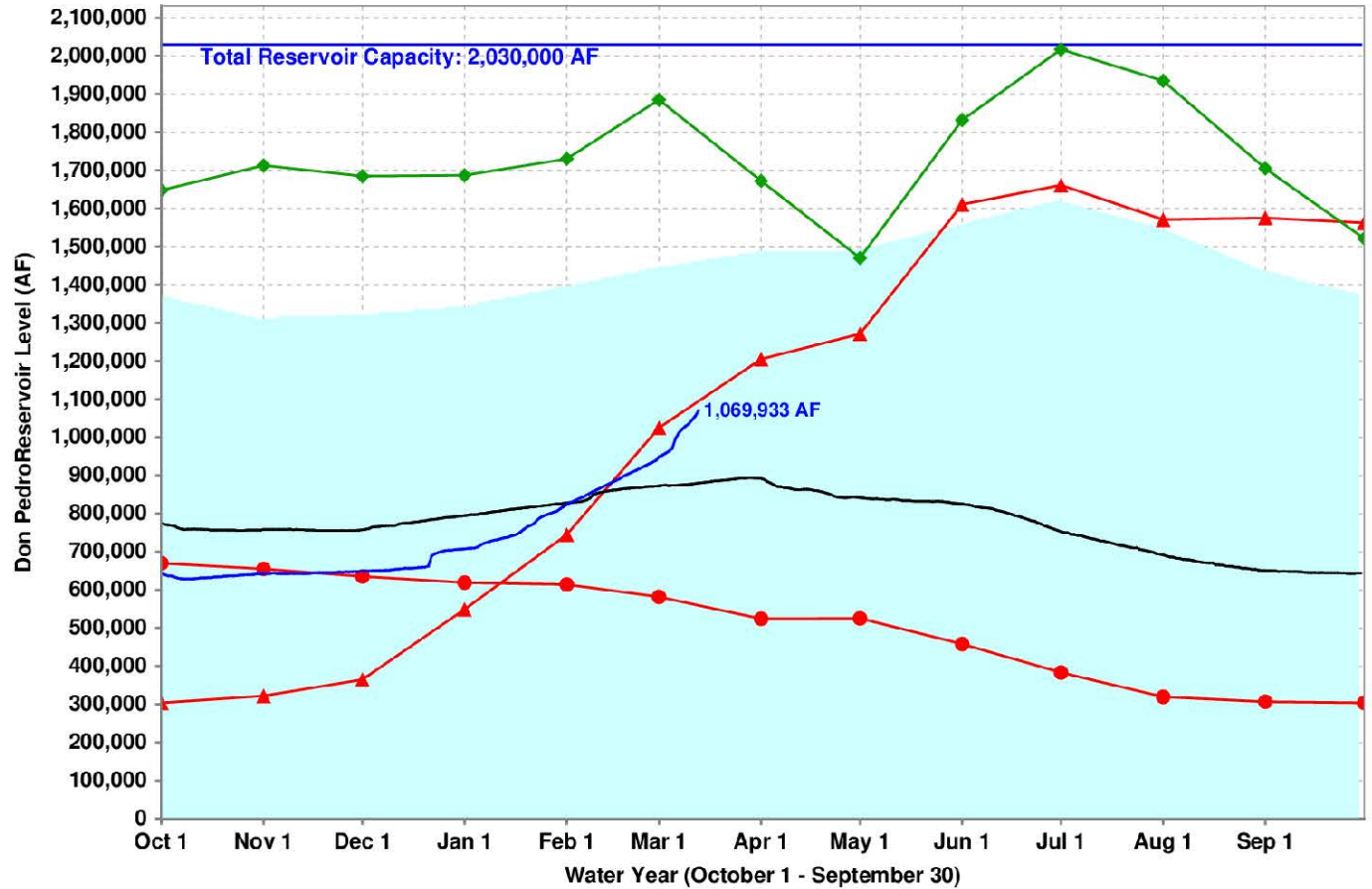
(as of Midnight - March 13, 2016)



Current Level: 1,069,933 AF

53% (Total Capacity) | 73% (Historical Avg.)

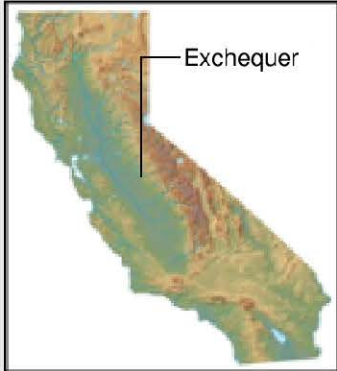
Don Pedro Levels: Various Past Water Years and Current Water Year, Ending At Midnight March 13, 2016



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

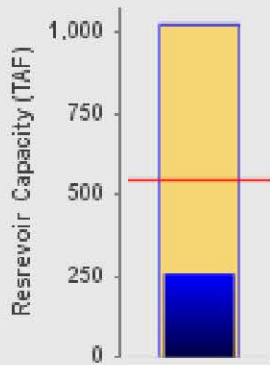


# Reservoir Conditions - Exchequer



## Exchequer Conditions

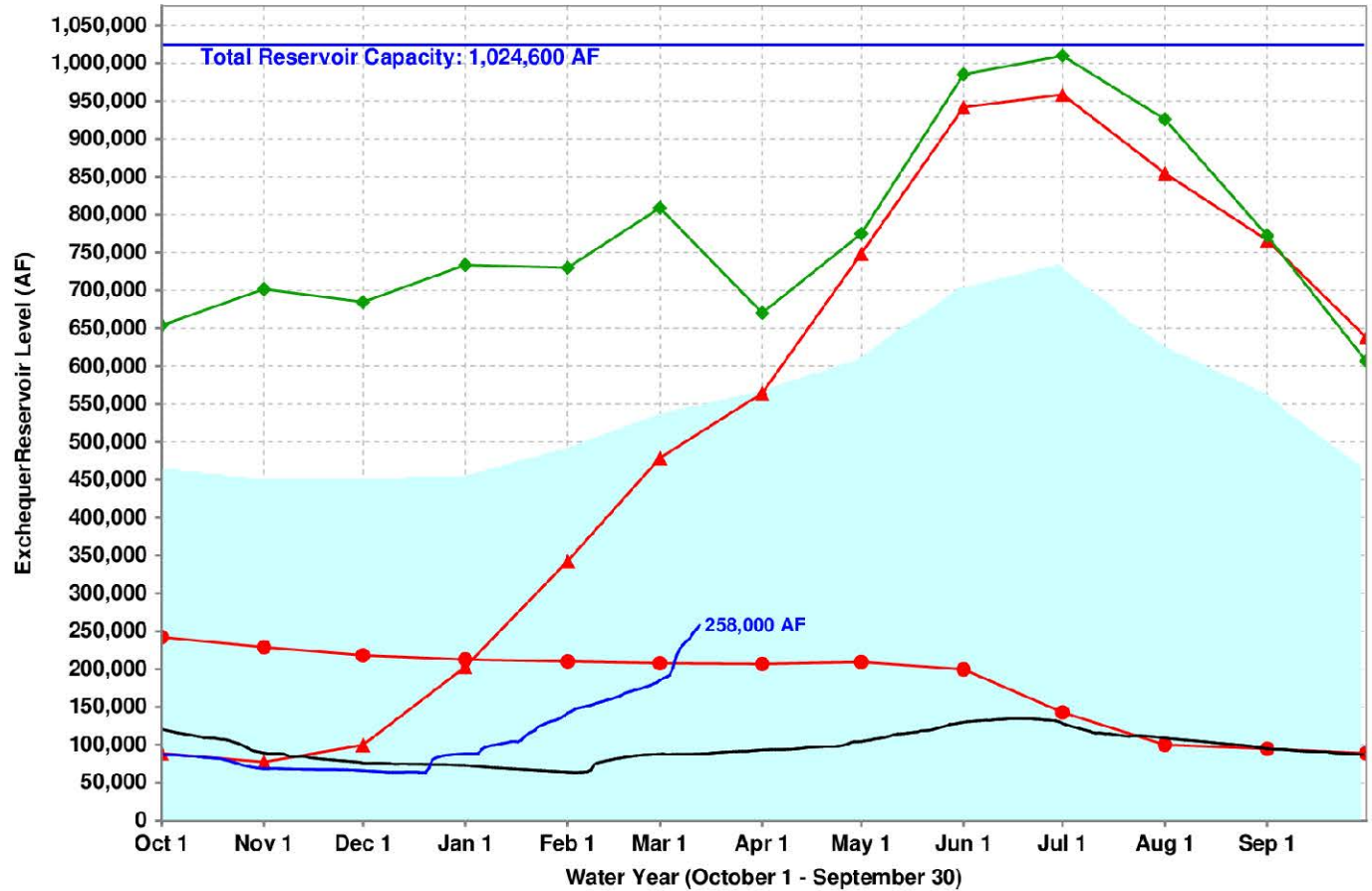
(as of Midnight - March 13, 2016)



Current Level: 258,000 AF

25% (Total Capacity) | 47% (Historical Avg.)

Exchequer Levels: Various Past Water Years and Current Water Year, Ending At Midnight March 13, 2016



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



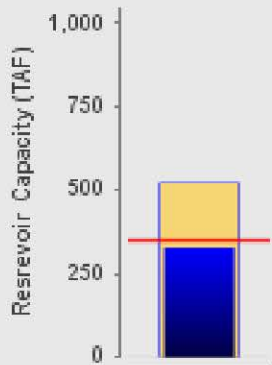


# Reservoir Conditions - Millerton Lake



## Millerton Lake Conditions

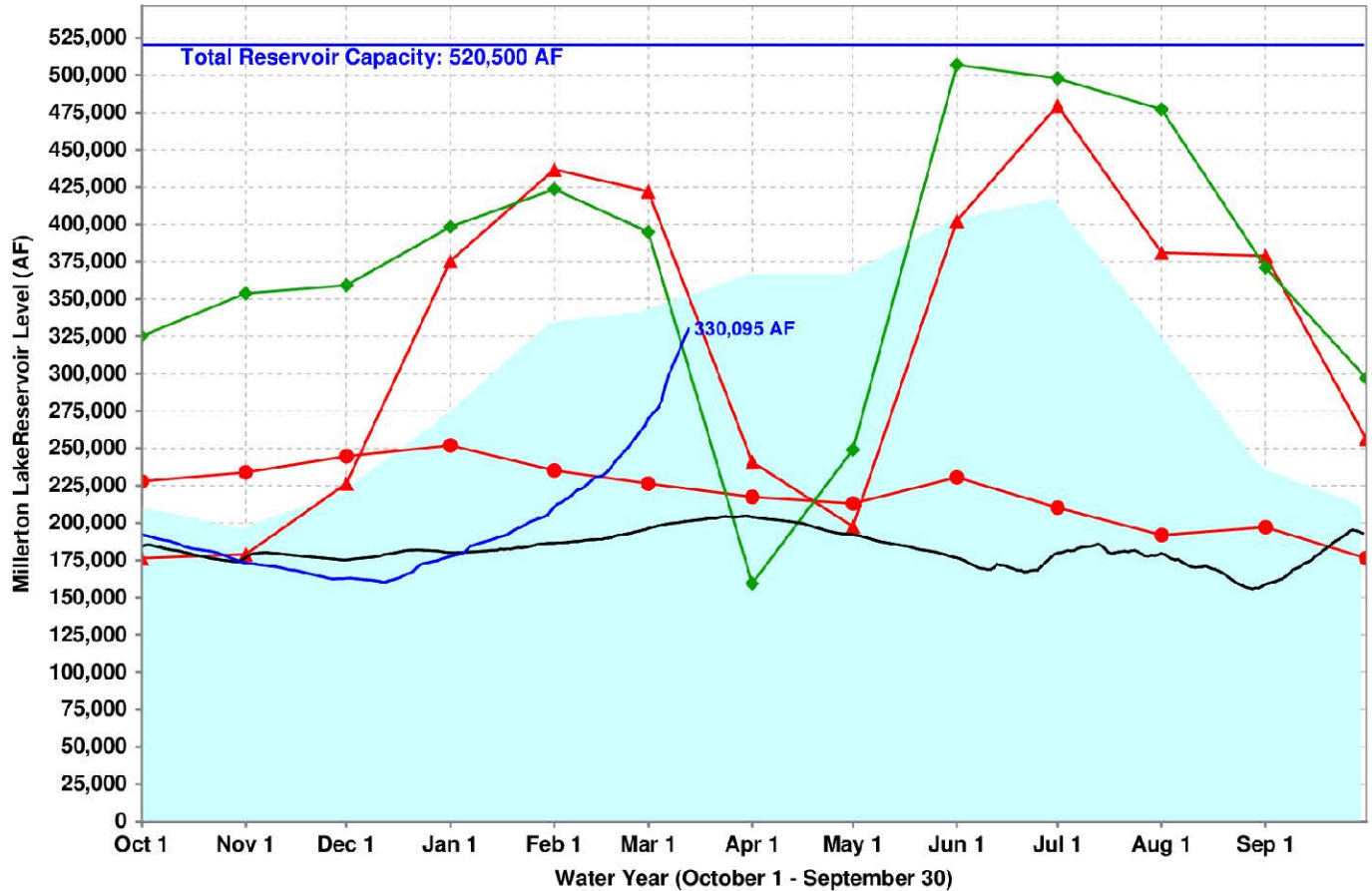
(as of Midnight - March 13, 2016)



Current Level: 330,095 AF

63% (Total Capacity) | 94% (Historical Avg.)

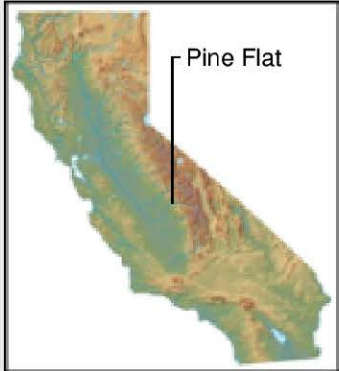
Millerton Lake Levels: Various Past Water Years and Current Water Year, Ending At Midnight March 13, 2016



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

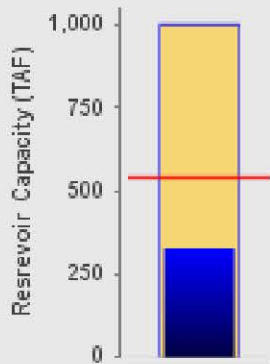


# Reservoir Conditions - Pine Flat



## Pine Flat Conditions

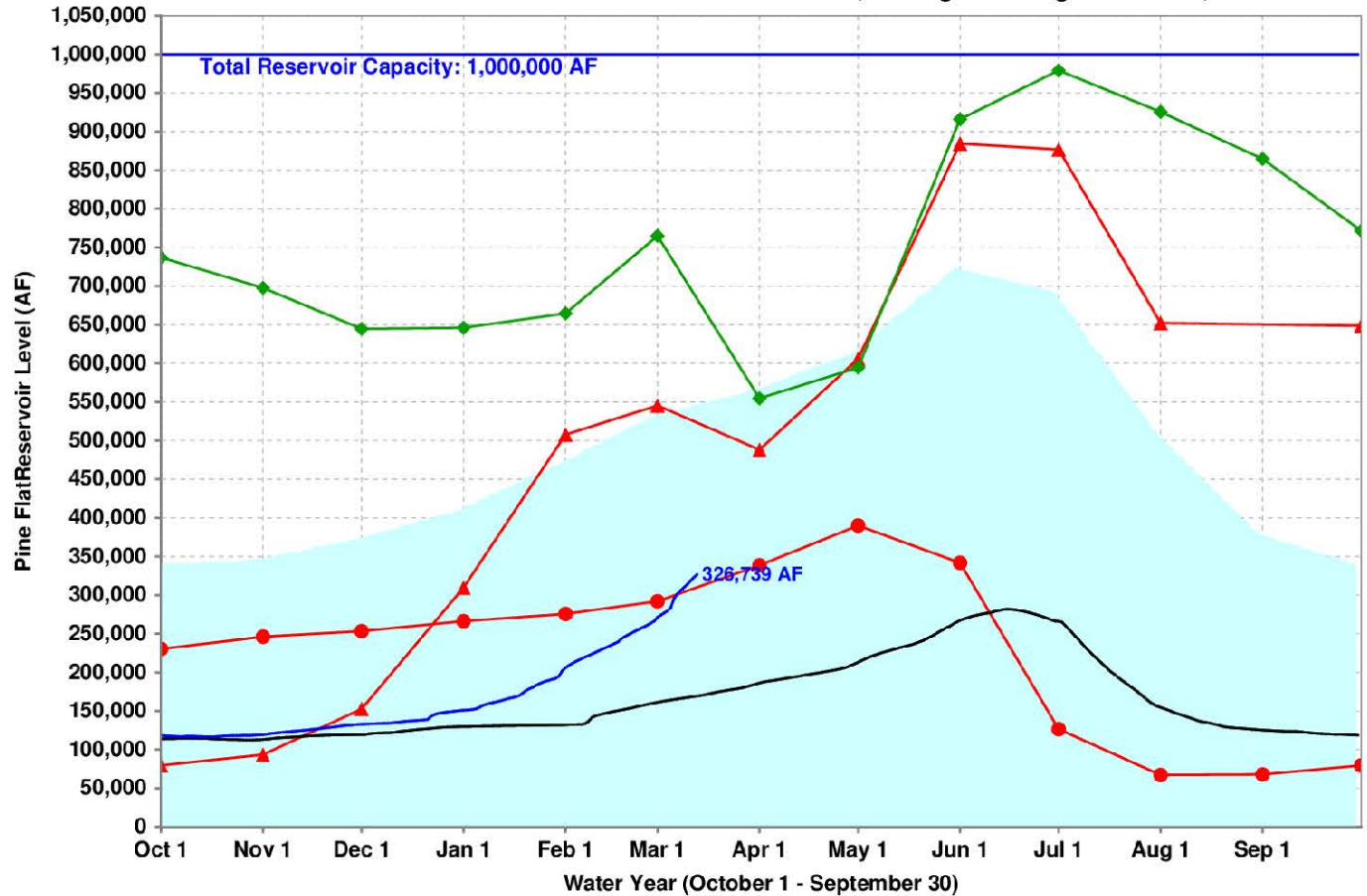
(as of Midnight - March 13, 2016)



Current Level: 326,739 AF

33% (Total Capacity) | 60% (Historical Avg.)

Pine Flat Levels: Various Past Water Years and Current Water Year, Ending At Midnight March 13, 2016





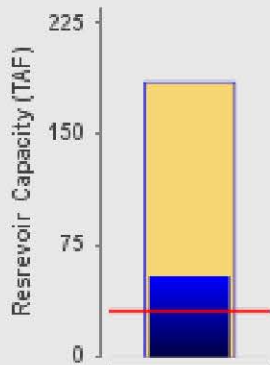


# Reservoir Conditions - Terminus Dam



## Terminus Dam Conditions

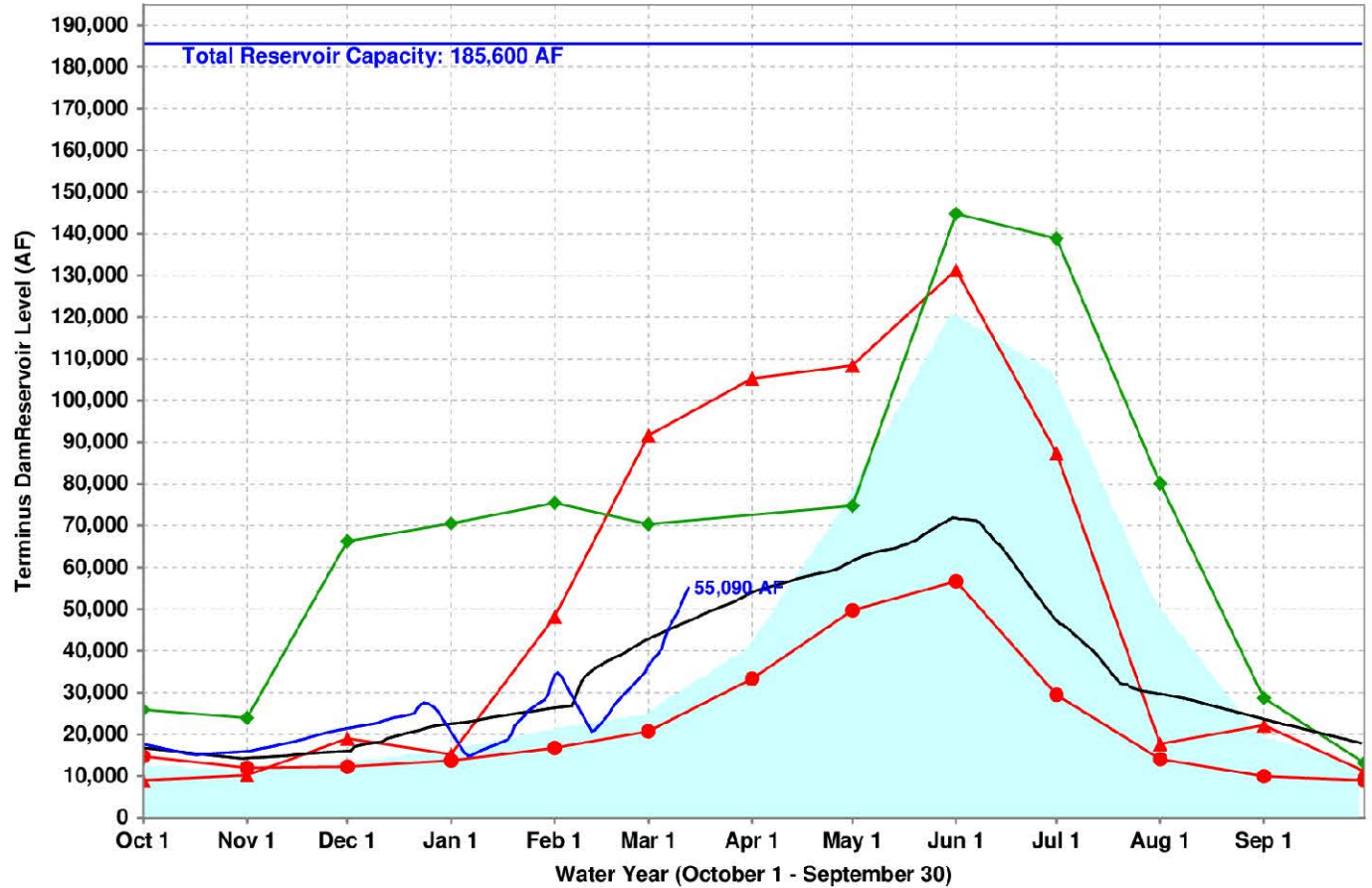
(as of Midnight - March 13, 2016)



Current Level: 55,090 AF

30% (Total Capacity) | 177% (Historical Avg.)

Terminus Dam Levels: Various Past Water Years and Current Water Year, Ending At Midnight March 13, 2016



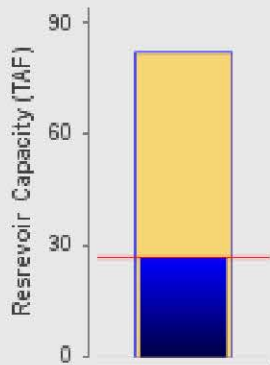


# Reservoir Conditions - Success Lake



## Success Lake Conditions

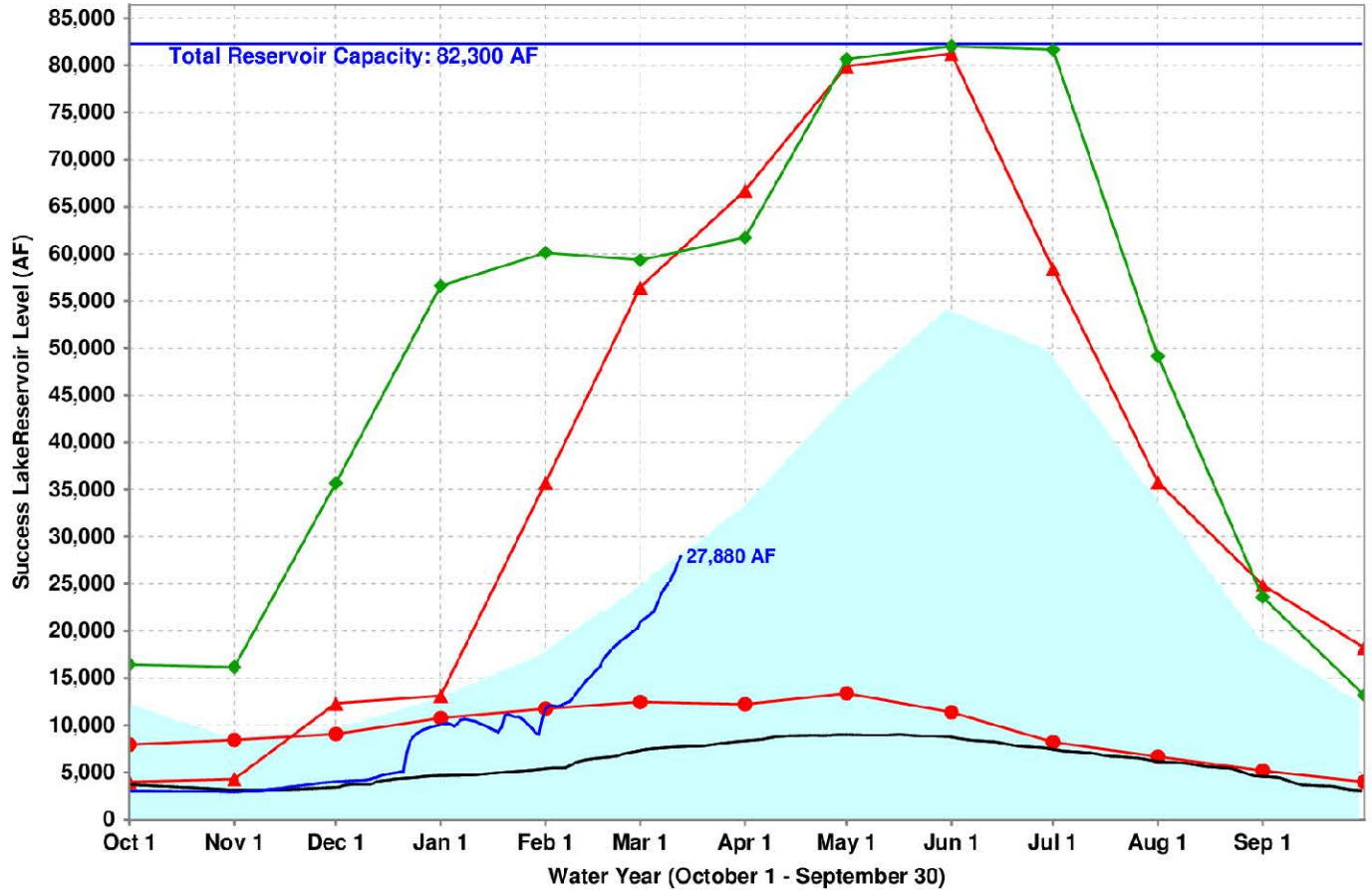
(as of Midnight - March 13, 2016)



Current Level: 27,880 AF

34% (Total Capacity) | 100% (Historical Avg.)

Success Lake Levels: Various Past Water Years and Current Water Year, Ending At Midnight March 13, 2016



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



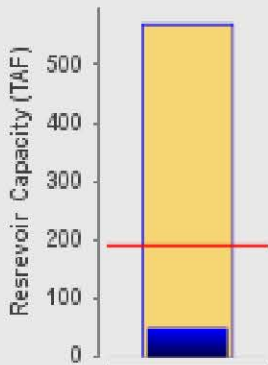


# Reservoir Conditions - Isabella Lake



## Isabella Lake Conditions

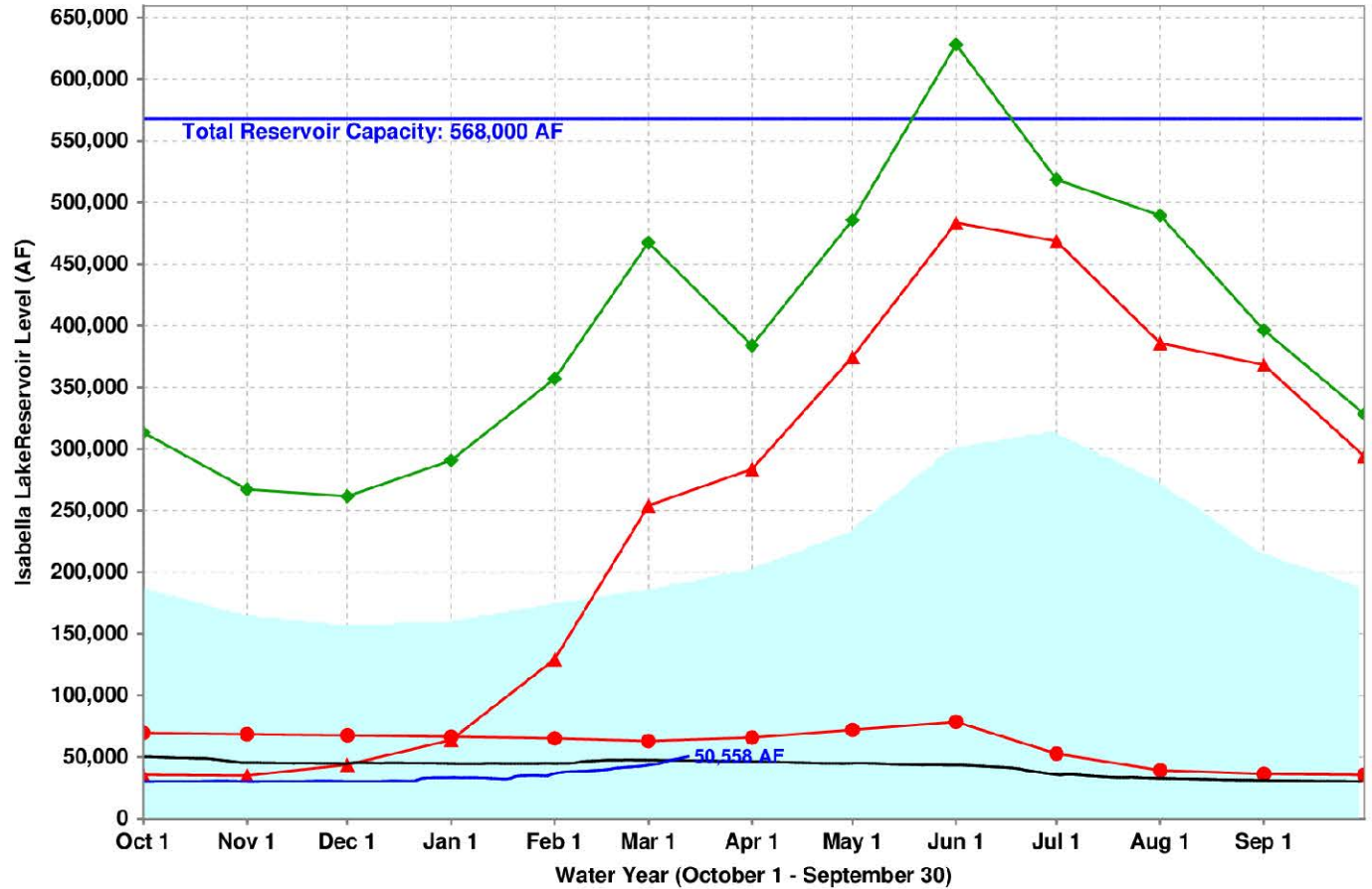
(as of Midnight - March 13, 2016)



Current Level: 50,558 AF

9% (Total Capacity) | 26% (Historical Avg.)

Isabella Lake Levels: Various Past Water Years and Current Water Year, Ending At Midnight March 13, 2016



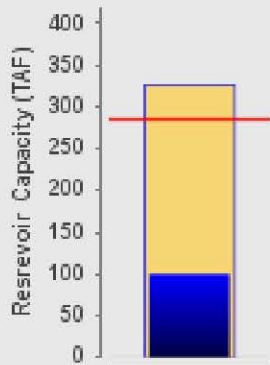


# Reservoir Conditions - Castaic Lake



## Castaic Lake Conditions

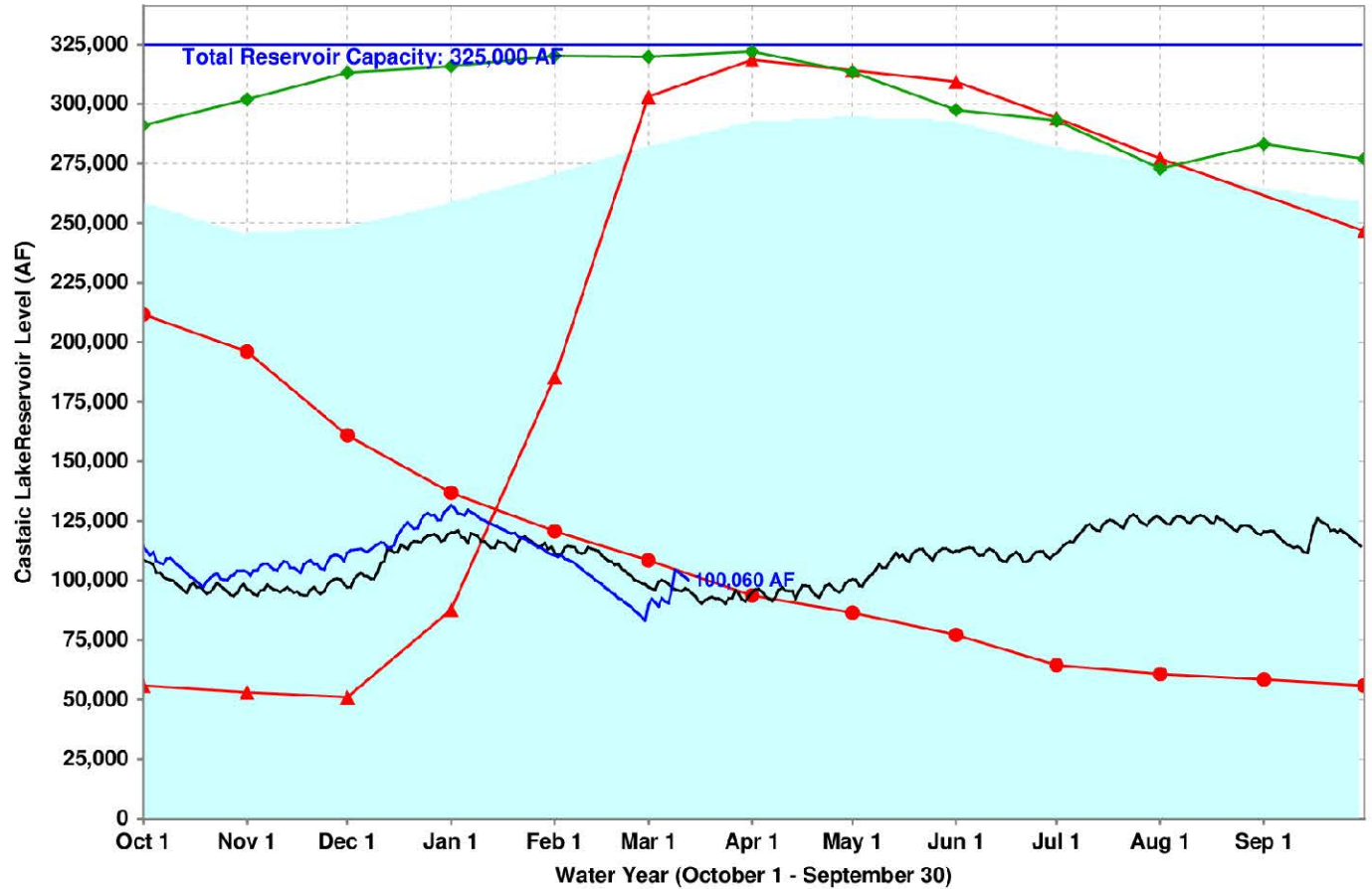
(as of Midnight - March 13, 2016)



Current Level: 100,060 AF

31% (Total Capacity) | 35% (Historical Avg.)

Castaic Lake Levels: Various Past Water Years and Current Water Year, Ending At Midnight March 13, 2016



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



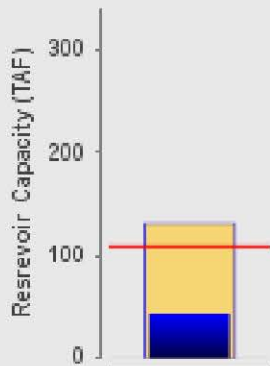


# Reservoir Conditions - Perris Lake



## Perris Lake Conditions

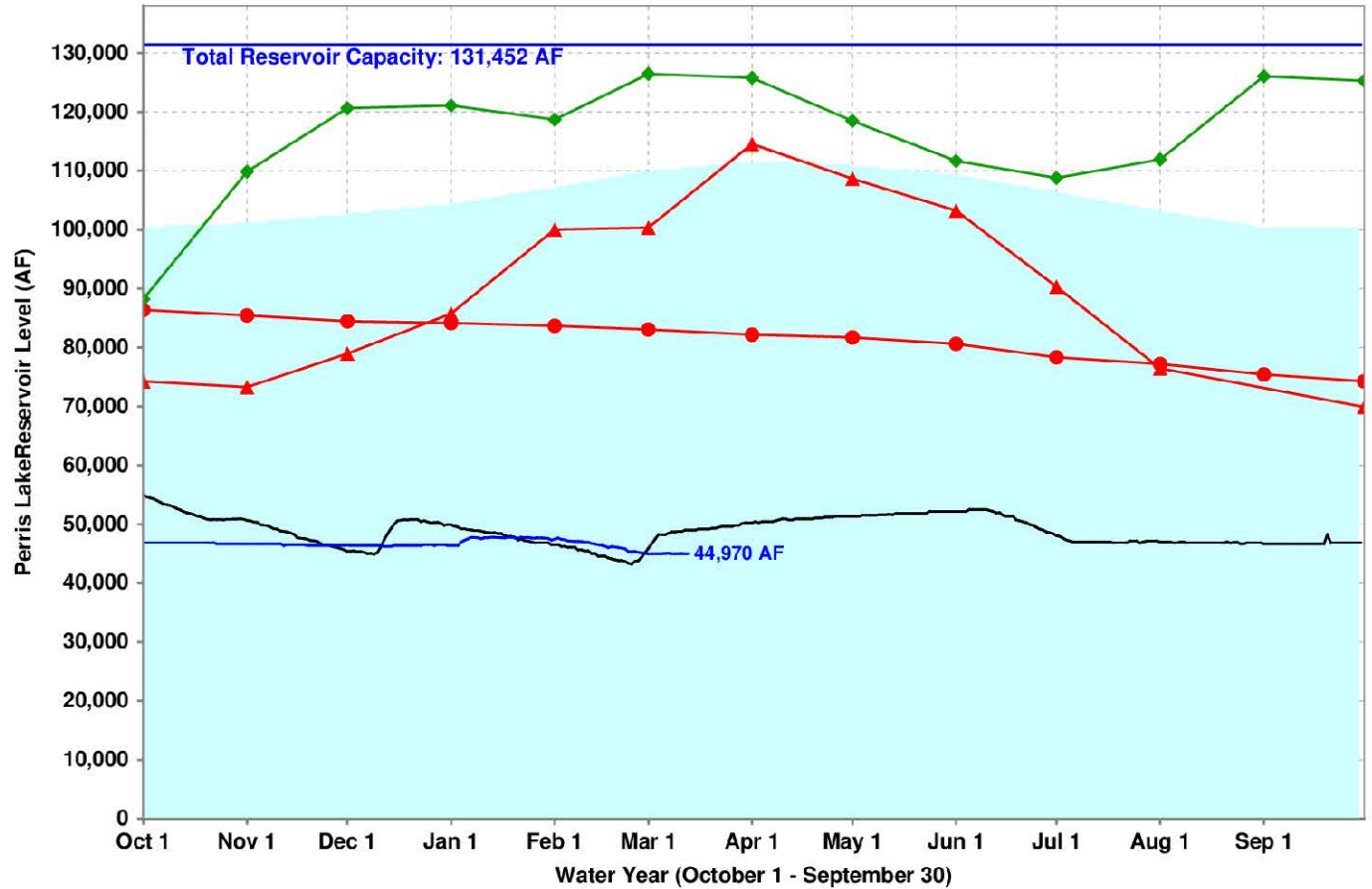
(as of Midnight - March 13, 2016)



Current Level: 44,970 AF

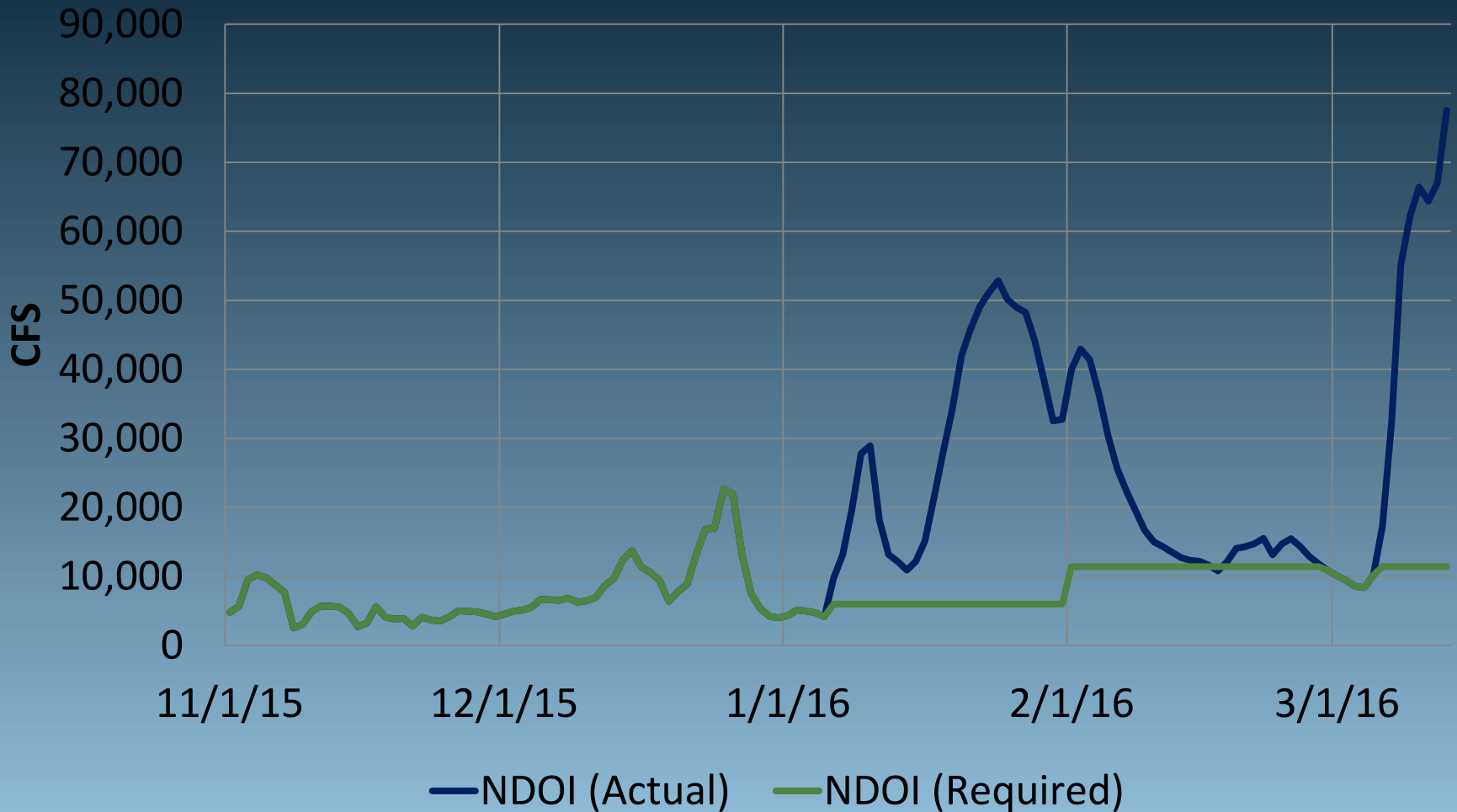
34% (Total Capacity) | 41% (Historical Avg.)

Perris Lake Levels: Various Past Water Years and Current Water Year, Ending At Midnight March 13, 2016



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

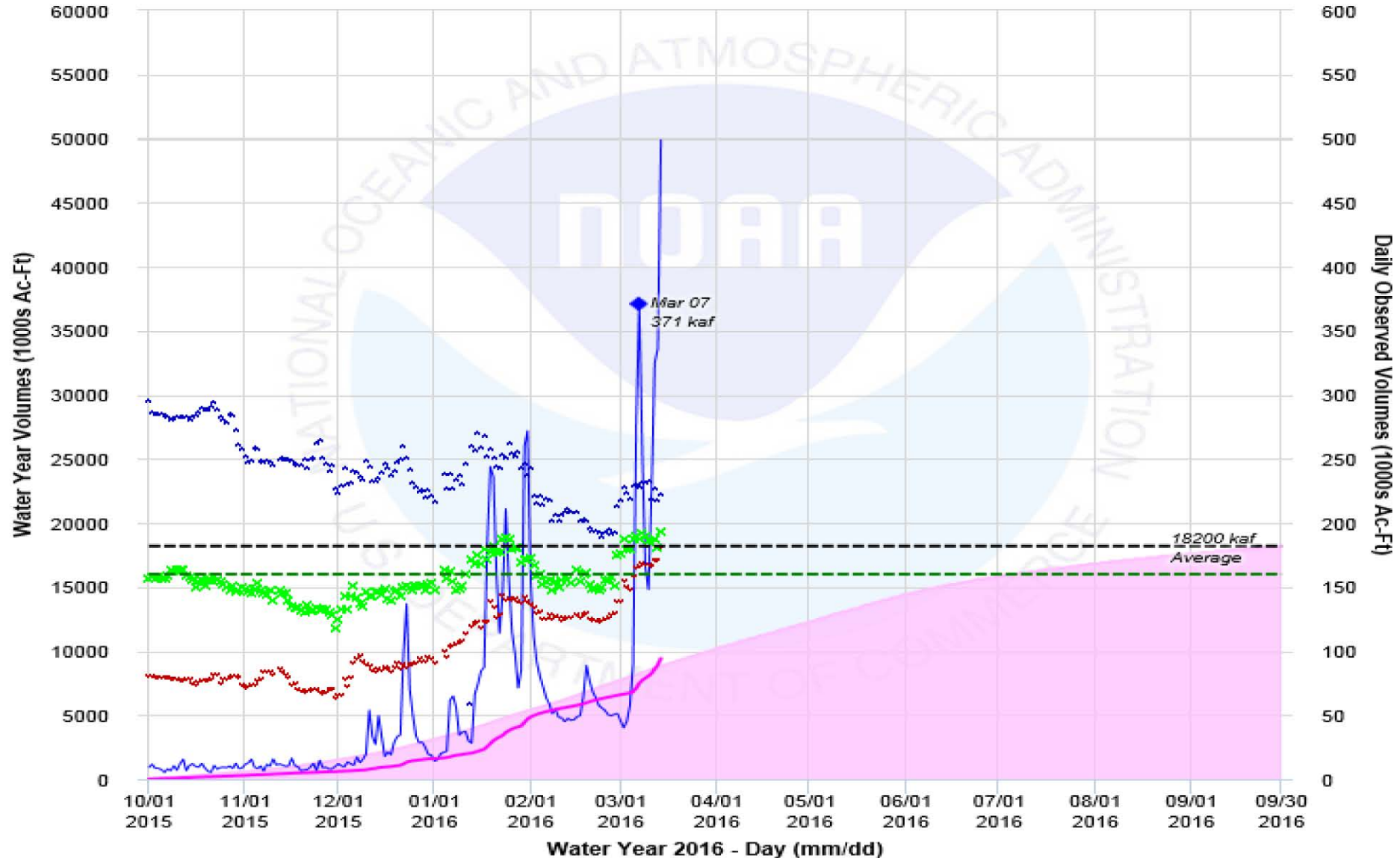
# Net Delta Outflow Index





**SACRAMENTO VALLEY WSI (SACC0) 03/14/2016**  
**Most Probable: 19300 kaf | 106% of Average | 120% of Median**

Created: 03/14/2016 at 09:11 AM PDT

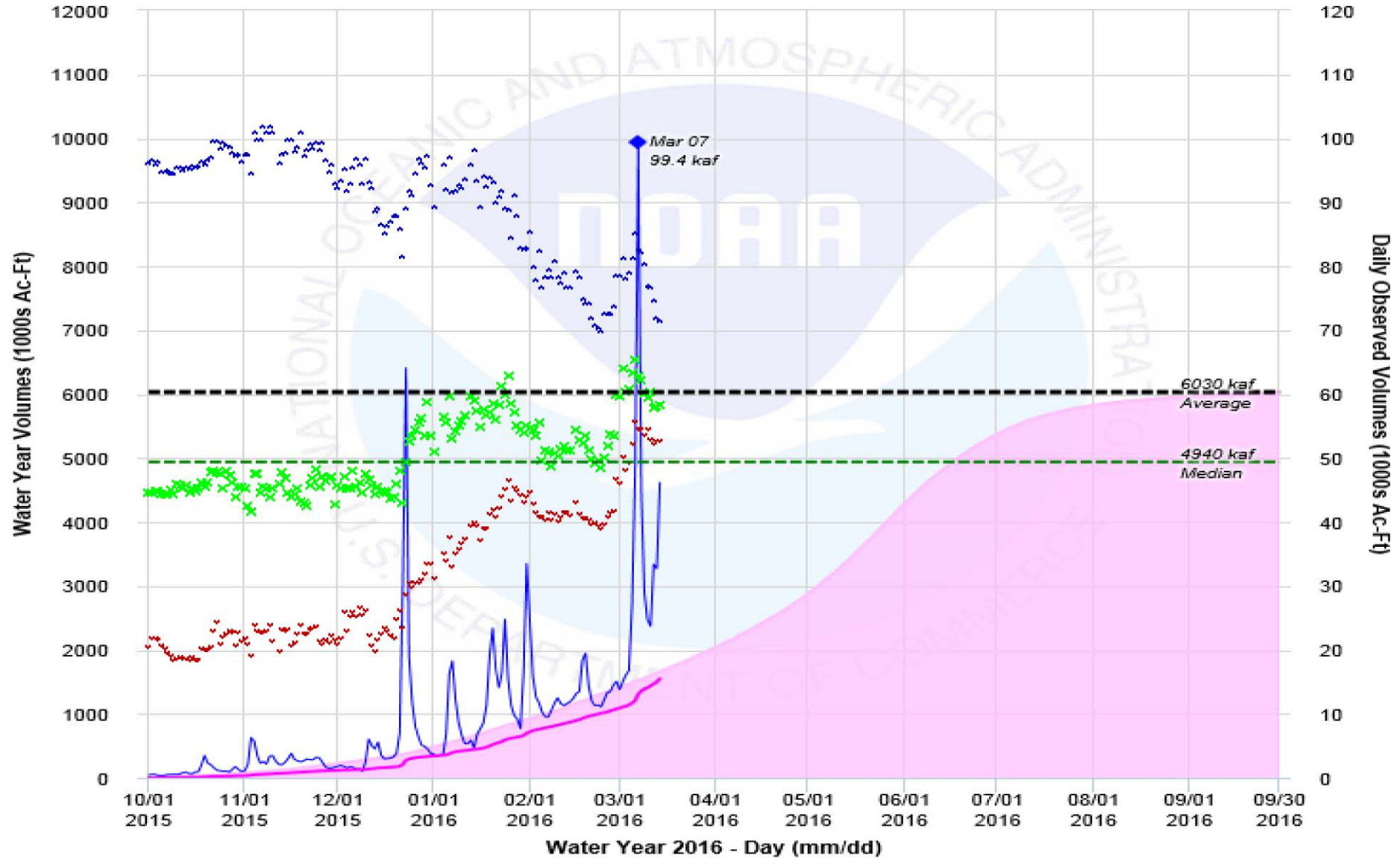


**Observed to Date Percent of Average: 107% (9430 kaf)    Water Year to Date Average: 8810 kaf**

- WY Volume Average    - - - WY Volume Median    - - - WY to Date Obs    WY to Date Avg    - - - Daily Obs    ◆ Obs Peak
- ESP WY Vol Fcst 10%    • ESP WY Vol Fcst 25%    • ESP WY Vol Fcst 50%    • ESP WY Vol Fcst 75%    • ESP WY Vol Fcst 90%

**SAN JOAQUIN VALLEY WSI (VNSC0) 03/14/2016**  
**Most Probable: 5830 kaf | 97% of Average | 118% of Median**

Created: 03/14/2016 at 09:11 AM PDT



**Observed to Date Percent of Average: 93% (1550 kaf)    Water Year to Date Average: 1660 kaf**

- WY Volume Average    - - - WY Volume Median    - - - WY to Date Obs    - - - WY to Date Avg    - - - Daily Obs    ◆ Obs Peak
- ▲ ESP WY Vol Fcst 10%    ▲ ESP WY Vol Fcst 25%    × ESP WY Vol Fcst 50%    ▼ ESP WY Vol Fcst 75%    ▼ ESP WY Vol Fcst 90%



# State Water Resources Control Board

## Drought Update

### Status of Reporting Requirements

March 15, 2016



# Elements of December 2015 Order on Reconsideration

## General Order Requirements

- **Drought Contingency Plan & Updates**
- **Plan to Conduct Temperature Evaluations**
- **Sacramento River Temperature Plan**
- **American River / Folsom Lake Operations**
- **Stanislaus River / New Melones Operations**

# Drought Contingency Plan and Monthly Updates

## Recurring Challenges with Monthly Updates

- **Rapidly Changing Hydrology**
- **Multiple Analytical Steps**
- **Multi-agency Coordination**
- **Stakeholder Input**
- **Need for more “Decision Space”**



# Shasta Lake / Sacramento River

## Added Dimension of Fill Management

- **Current Storage – 3.7 maf**
- **Encroached into Flood Space**
- **End of March Storage easily over 4 maf**
- **Forecasted April – July Runoff**
  - 25% - 2.4 maf
  - 50% - 1.7 maf
  - 90% - 1.5 maf

# Folsom Lake / American River

## Added Dimension of Fill Management

- **Current Storage – 700 taf**
- **Encroached into Flood Space**
- **Forecasted April – July Runoff**
  - **25% - 1.7maf**
  - **50% - 1.1 maf**
  - **90% - 0.9 maf**

# Folsom Lake / American River

## Order Requirements

- **Seasonal Operations identified in DCP**
- **Temperature Plan set for June 1st**

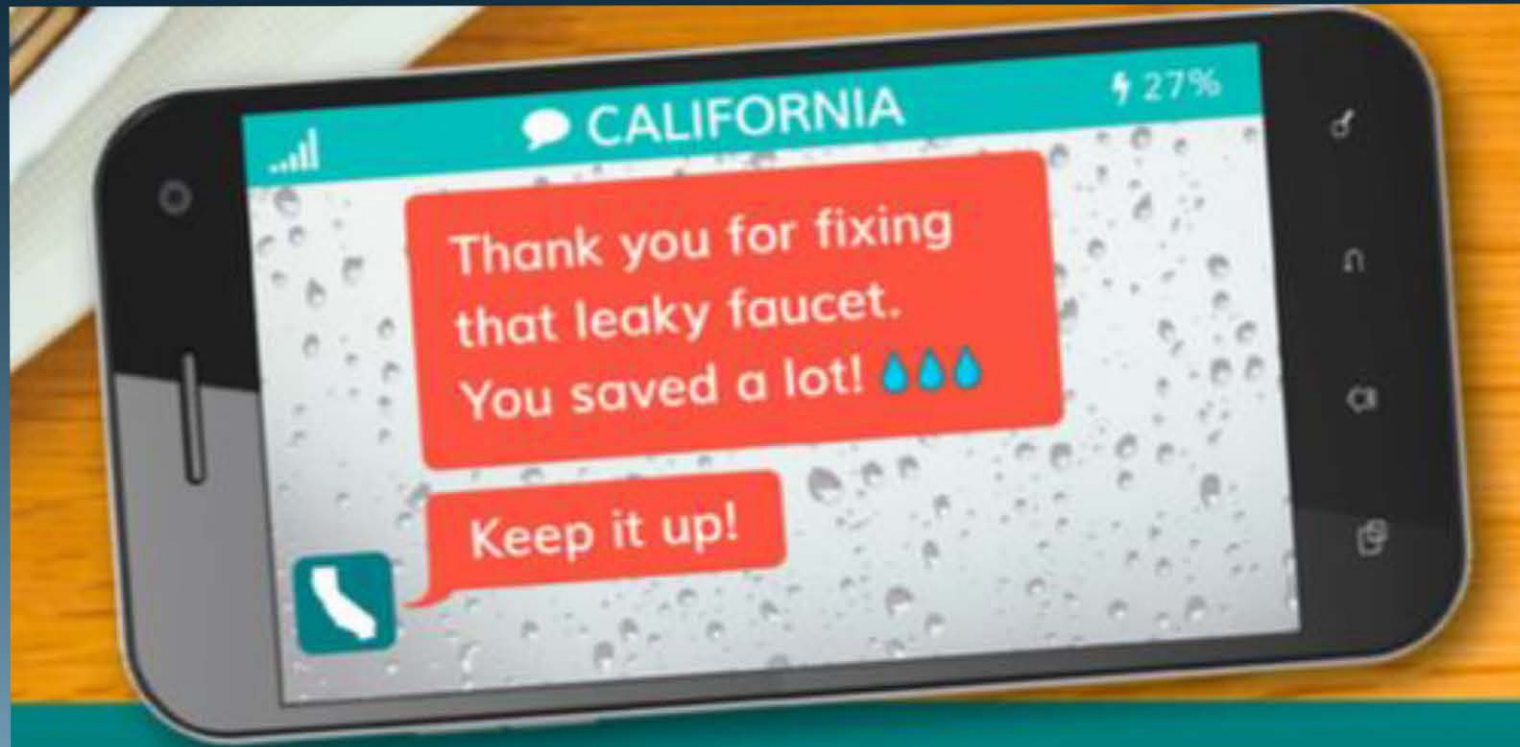


# **New Melones Lake / Stanislaus River**

## **General Plan Elements of Draft Proposal**

- **Current Storage – 540 taf**
- **Biological Opinion flows for Stanislaus River**
- **End-of-September Storage at least 300 taf**
- **Augmented Volume for SJR Pulse Flow**
- **Modified D-1641 Vernalis flows April – June**
- **Final Draft Plan / Assessment next week**

# KEEP SAVING CA



KEEP SAVING  CA  
saveourwater.com

Save Our  
WATER



DROUGHT PREPAREDNESS & RESPONSE