CVP & SWP
Drought Contingency Plan and Temporary Urgent Change Petition

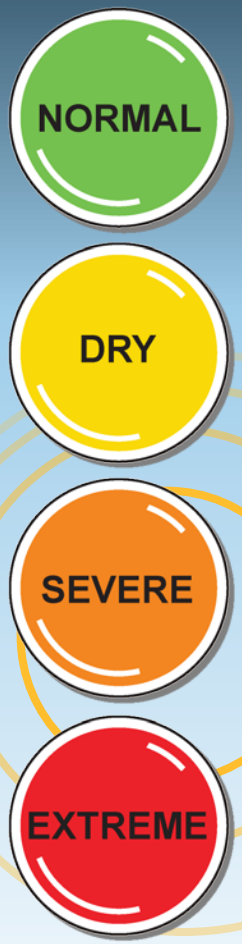
February 18, 2015

DROUGHT PREPAREDNESS & RESPONSE

PUBLIC SAFETY ENVIRONMENTAL STEWARDSHIP ECONOMIC STABILITY

Statewide Drought Update

California's Drought



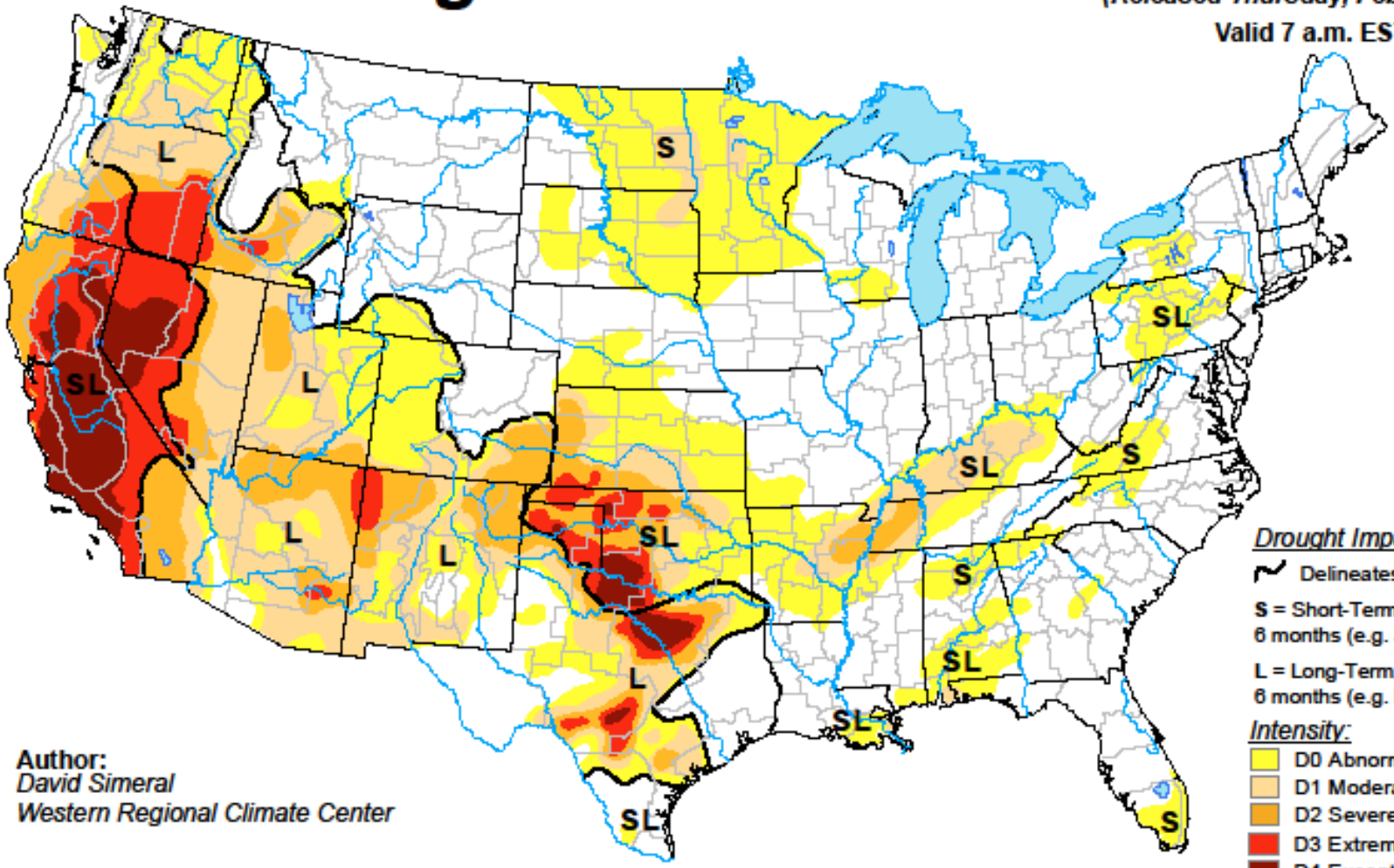
- Governor Declared Drought Emergency
- 2014 - Third dry water year statewide
- 2014 - Warmest year on record
- 2012-2014 - Driest 3 years on record
- January 2015 – Driest in most areas
- 2015 - Warmer and dry
- Statewide storage below average
- Groundwater basins continue to be depleted
- Local conditions are degrading
- High level of local, State and federal coordination

U.S. Drought Monitor

February 10, 2015

(Released Thursday, Feb. 12, 2015)

Valid 7 a.m. EST



Author:
David Simeral
Western Regional Climate Center

Drought Impact Types:

Delineates dominant impacts

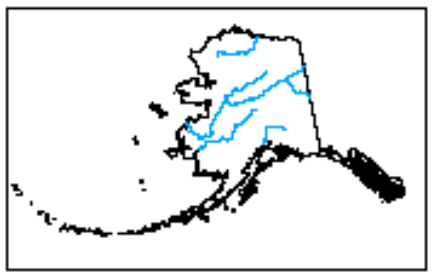
S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)

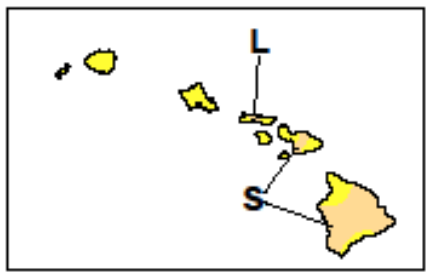
L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

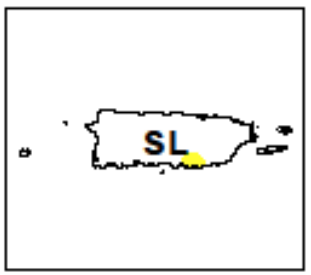
Intensity:

- 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.







USDA

National Drought Mitigation Center

http://droughtmonitor.unl.edu/

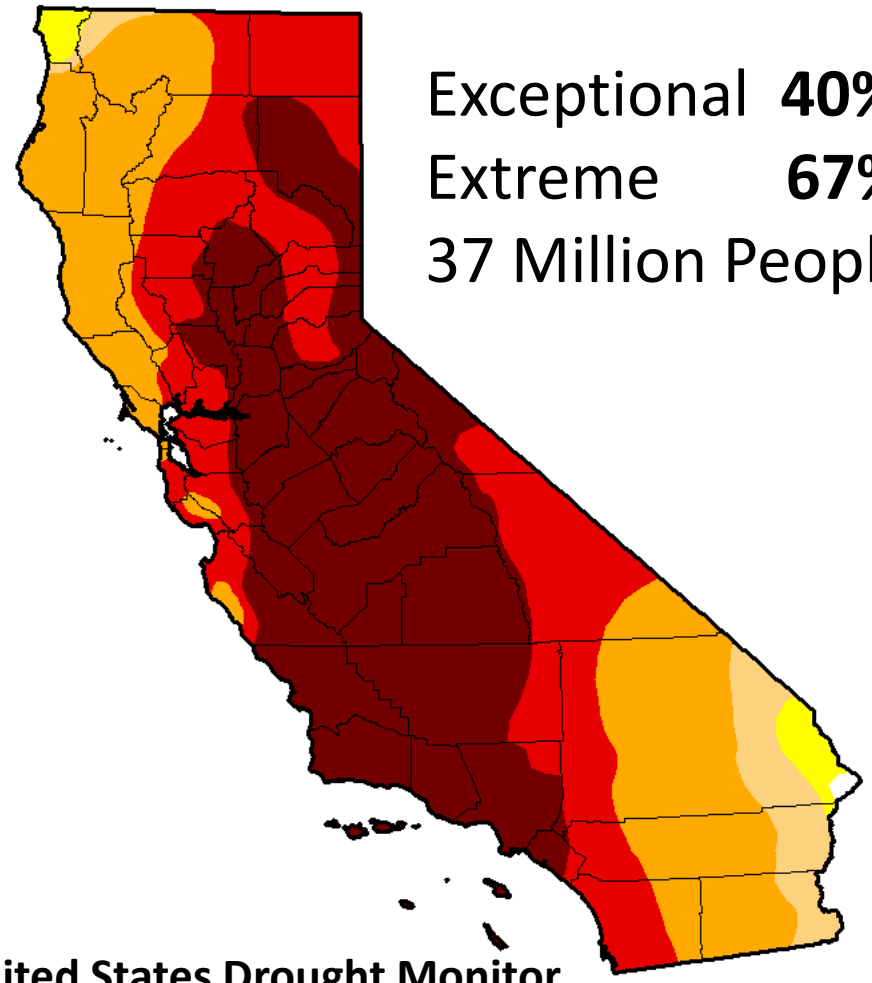
Statewide Drought Conditions

Official State of Emergency Declared on
January 17, 2014

Local Emergencies Declared
- 25 Counties
- 13 Cities
- 9 Tribal Reservations
- 13 Special Districts

County & Tribal Drought Task Force
- 30 Counties
- 3 Tribes

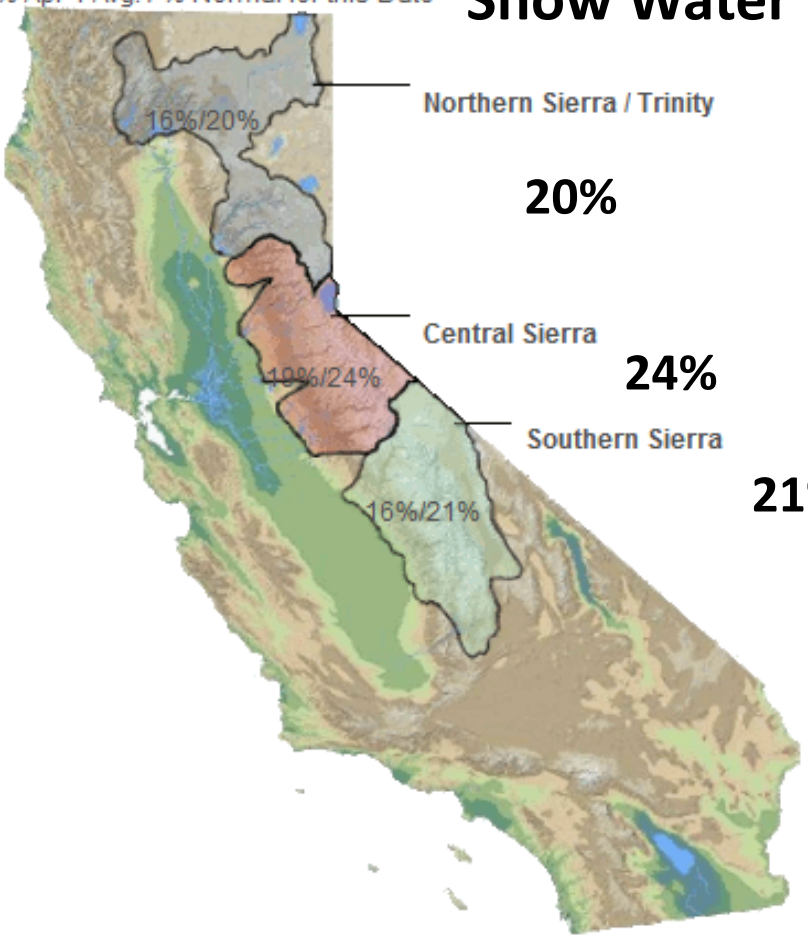
Intensity:
- D0 - Abnormally Dry
- D1 - Moderate Drought
- D2 - Severe Drought
- D3 - Extreme Drought
- D4 - Exceptional Drought



Exceptional **40%**
Extreme **67%**
37 Million People

United States Drought Monitor
February 10, 2015

Snow Water Equivalents



20%

24%

21%

Statewide

22%

Normal to Date

17%

April 1 Average

Change Date : 17-Feb-2015 Refresh Data

NORTH	
Data For: 17-Feb-2015	
Number of Stations Reporting	29
Average snow water equivalent	4.5"
Percent of April 1 Average	16%
Percent of normal for this date	20%

CENTRAL	
Data For: 17-Feb-2015	
Number of Stations Reporting	44
Average snow water equivalent	5.8"
Percent of April 1 Average	19%
Percent of normal for this date	24%

SOUTH	
Data For: 17-Feb-2015	
Number of Stations Reporting	29
Average snow water equivalent	4.4"
Percent of April 1 Average	16%
Percent of normal for this date	21%

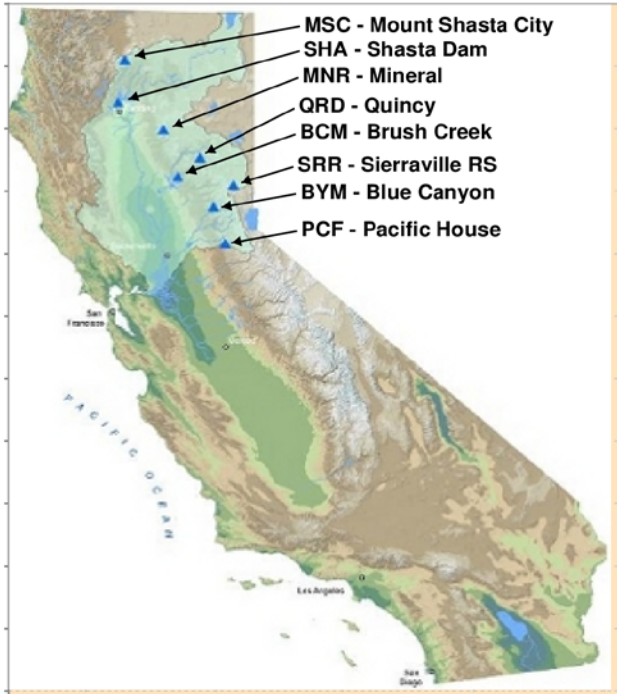
STATEWIDE SUMMARY	
Data For: 17-Feb-2015	
Number of Stations Reporting	102
Average snow water equivalent	5.0"
Percent of April 1 Average	17%
Percent of normal for this date	22%

Comparison of Snow Water Equivalents (inches)
2014 vs 2015

Summary By Section			
Section		**2/17/2015**	**2/17/2014**
NORTH	Number of Stations Reporting	29	27
	Average snow water equivalent	4"	3.4”
	Percent of April 1 Average	**16%**	**12%**
	Percent of normal for this date	**20%**	**15%**
CENTRAL	Number of Stations Reporting	44	44
	Average snow water equivalent	6"	7.8”
	Percent of April 1 Average	**19%**	**26%**
	Percent of normal for this date	**24%**	**33%**
SOUTH	Number of Stations Reporting	29	33
	Average snow water equivalent	4"	4.8”
	Percent of April 1 Average	**16%**	**19%**
	Percent of normal for this date	**21%**	**25%**
STATEWIDE	Statewide Average SWEQ	5"	5.7”
	Statewide Percent of April 1	**17%**	**20%**
	Statewide Percent of Normal	**22%**	**26%**

Overview of Current Conditions

Northern Sierra Precipitation: 8-Station Index, February 17, 2015



Percent of Average for this Date: 96%

1982-1983 (wettest) 88.5

2005-2006 Daily Precip. 80.1

Average (1922-1998) 50.0

2012-2013 Daily Precip. 44.3

Current Daily Precip:30.3

2013-2014 Daily Precip. 31.3

1923-1924 (driest) 17.1

1976-1977 (2nd driest & driest thru Aug) 19.0

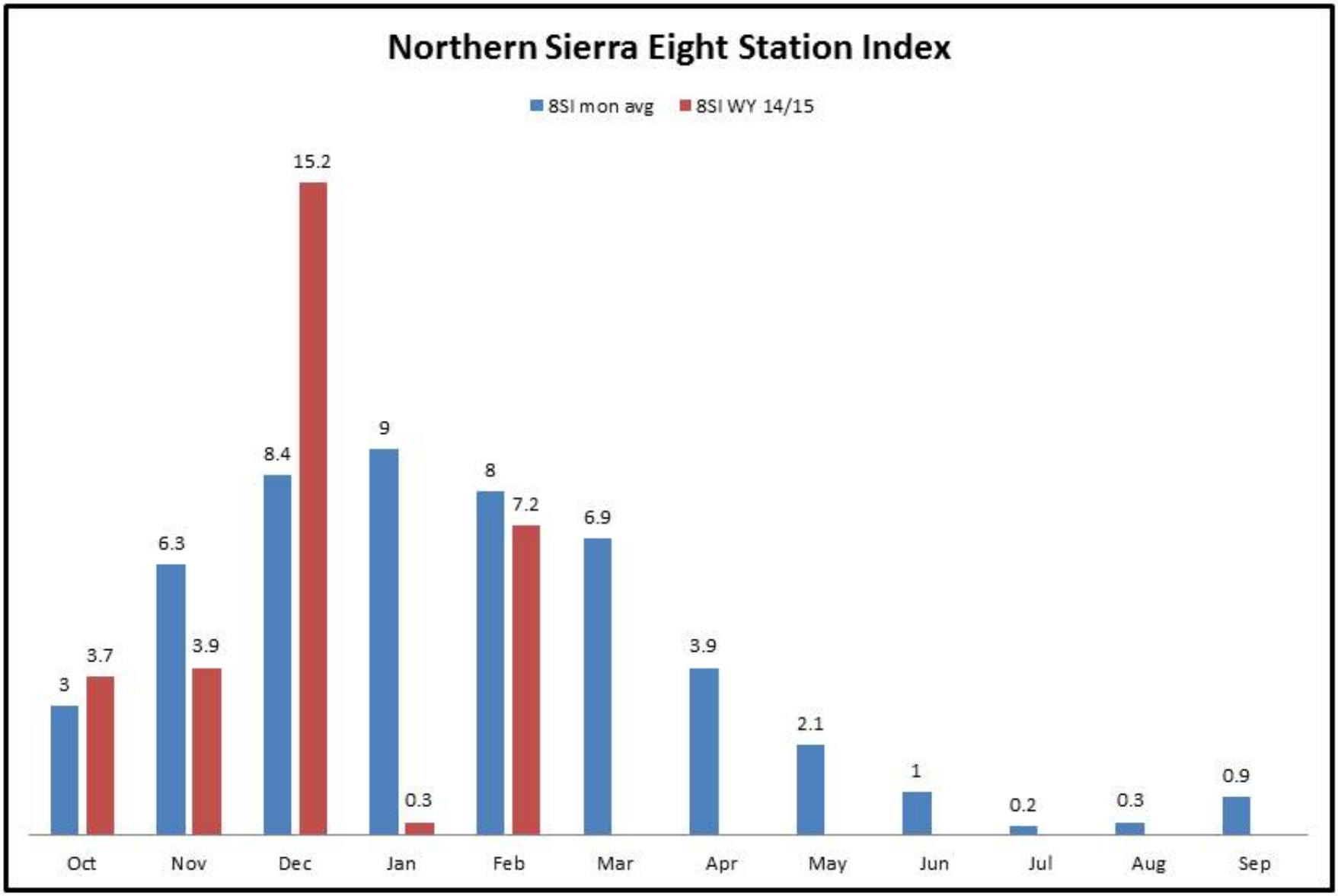
Cumulative Daily/Monthly Precipitation (inches)

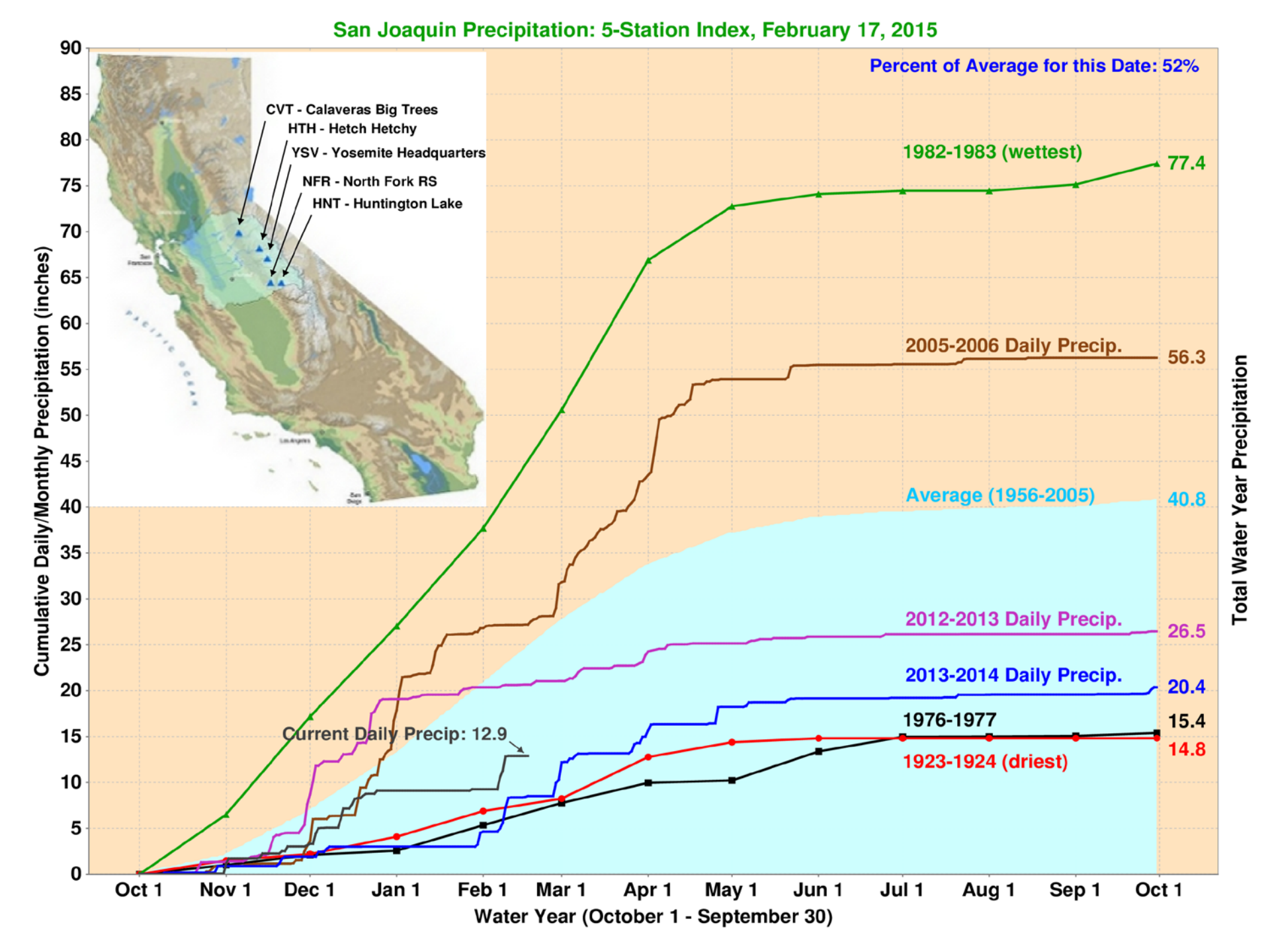
Total Water Year Precipitation

Water Year (October 1 - September 30)

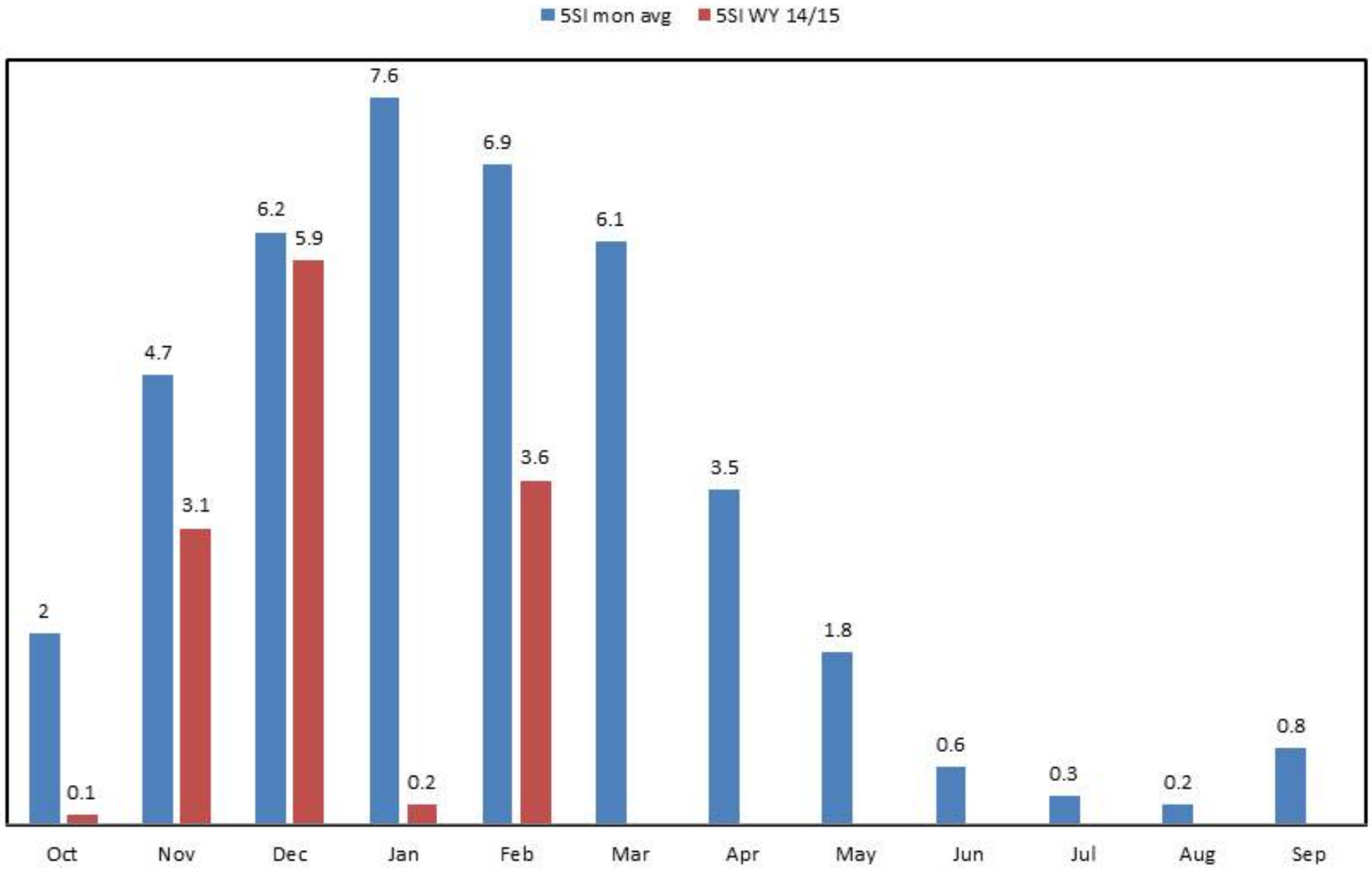
Oct 1 Nov 1 Dec 1 Jan 1 Feb 1 Mar 1 Apr 1 May 1 Jun 1 Jul 1 Aug 1 Sep 1 Oct 1

0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

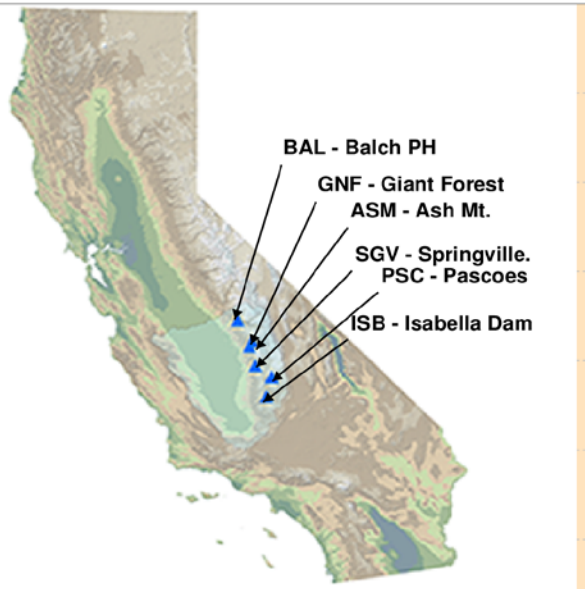

Northern Sierra Eight Station Index
8SI mon avg
8SI WY 14/15
3
3.7
6.3
3.9
8.4
15.2
9
0.3
8
7.2
6.9
3.9
2.1
1
0.2
0.3
0.9
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep


San Joaquin Precipitation: 5-Station Index, February 17, 2015
Percent of Average for this Date: 52%
CVT - Calaveras Big Trees
HTH - Hetch Hetchy
YSV - Yosemite Headquarters
NFR - North Fork RS
HNT - Huntington Lake
1982-1983 (wettest)
77.4
2005-2006 Daily Precip.
56.3
Average (1956-2005)
40.8
2012-2013 Daily Precip.
26.5
2013-2014 Daily Precip.
20.4
1976-1977
15.4
1923-1924 (driest)
14.8
Current Daily Precip: 12.9
Cumulative Daily/Monthly Precipitation (inches)
Total Water Year Precipitation
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
Oct 1
Nov 1
Dec 1
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1
Aug 1
Sep 1
Oct 1
Water Year (October 1 - September 30)

Central Sierra Five Station Index



Tulare Basin Precipitation: 6-Station Index, February 17, 2015



Percent of Average for this Date: 49%

1968-1969 Daily Precip (Wettest) 56.3

Average (1961-2010) 29.3

2012-2013 Daily Precip. 16.1

2013-2014 Daily Precip. 14.5

1976-1977 Daily Precip (Driest) 10.9

Current Daily Precip: 8.6

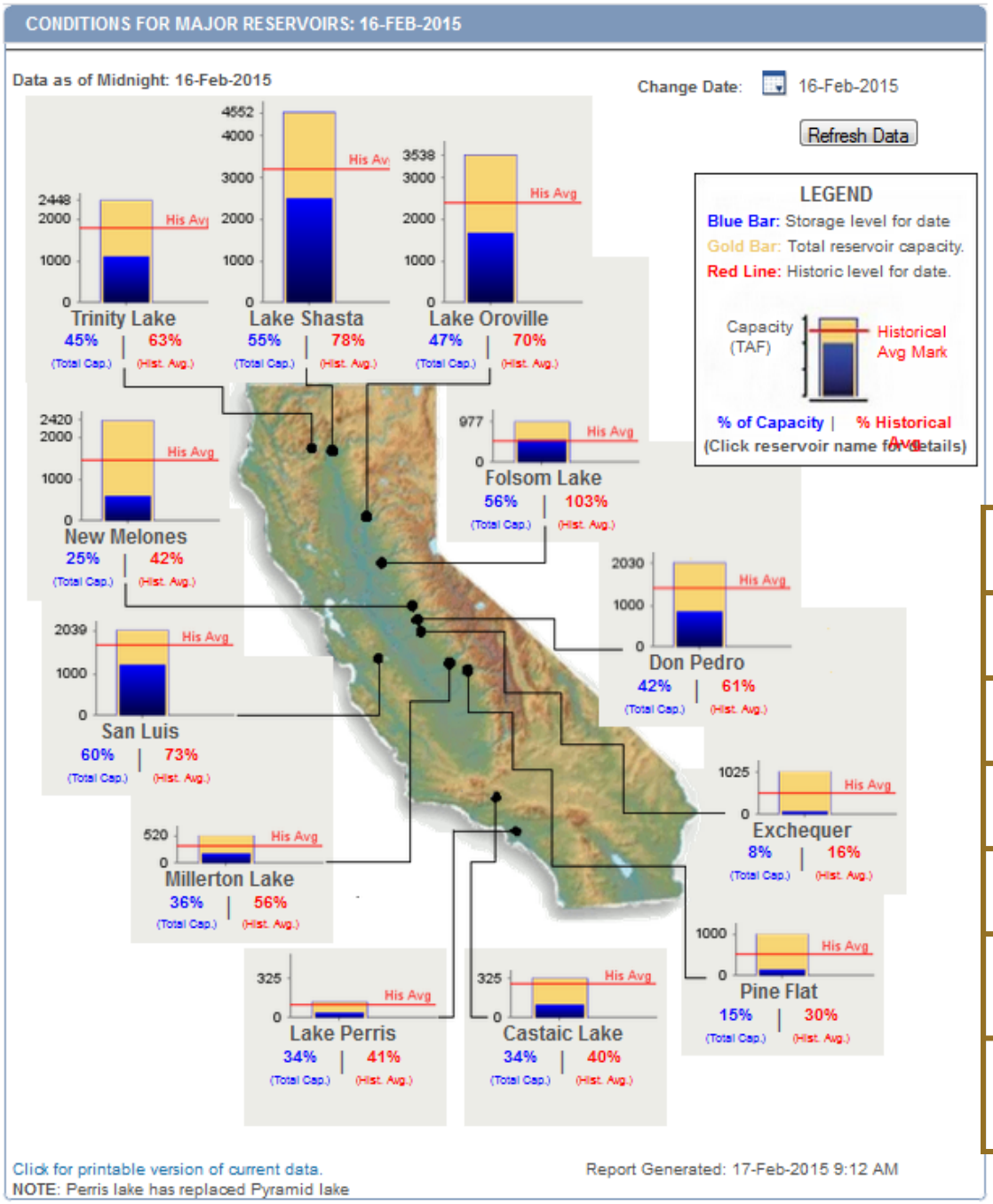
Cumulative Daily/Monthly Precipitation (inches)

Total Water Year Precipitation

0 5 10 15 20 25 30 35 40 45 50 55 60 65 70

Oct 1 Nov 1 Dec 1 Jan 1 Feb 1 Mar 1 Apr 1 May 1 Jun 1 Jul 1 Aug 1 Sep 1 Oct 1

Water Year (October 1 - September 30)

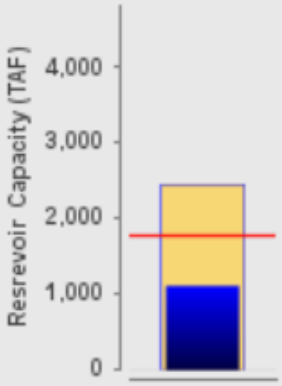


	% Cap	% Avg
Trinity	45	63
Shasta	55	78
Oroville	47	70
Folsom	56	103
New Melones	25	42
San Luis	60	73

Reservoir Conditions - Trinity Lake

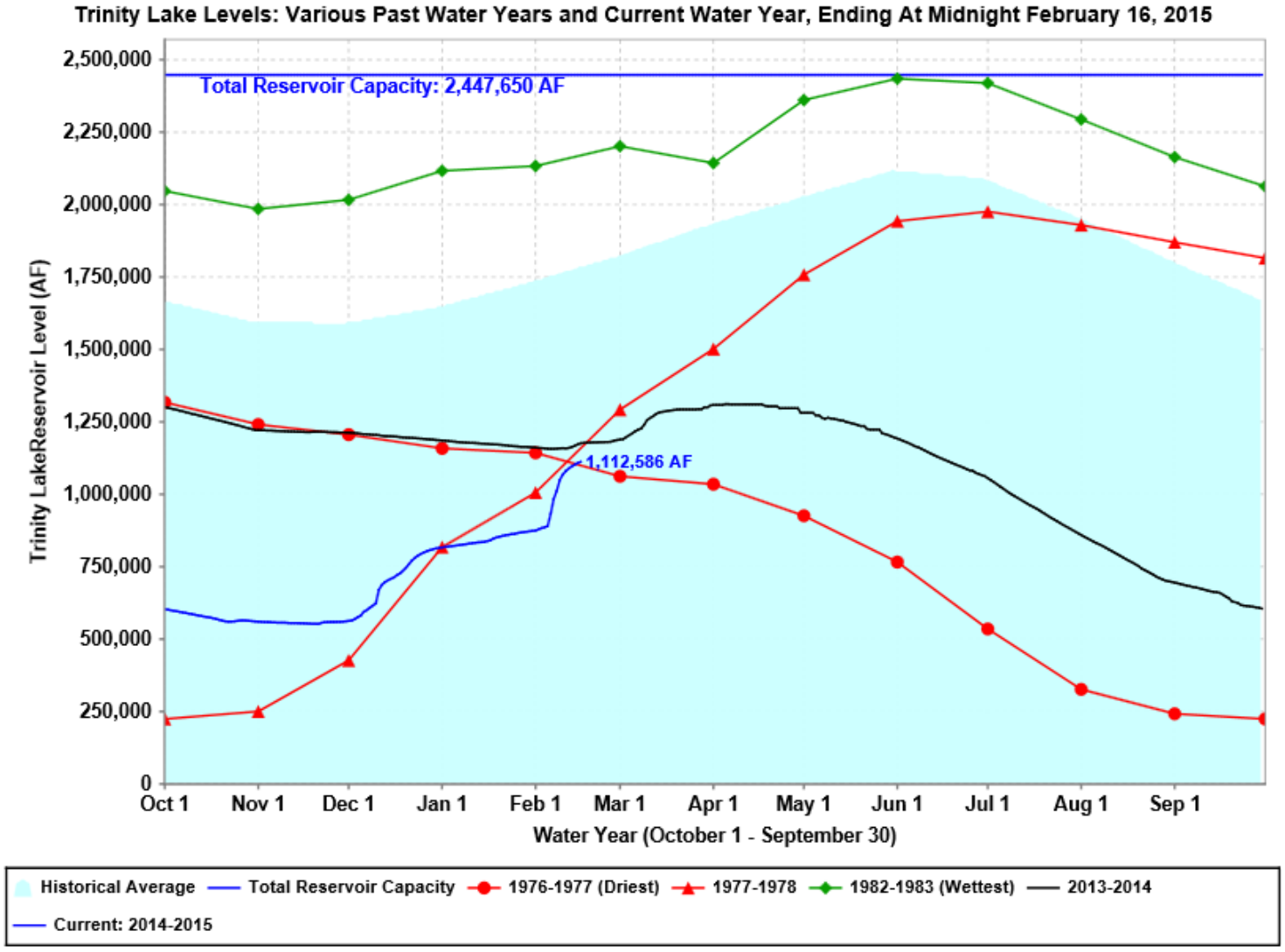
Trinity Lake Conditions

(as of Midnight - February 16, 2015)



Current Level: 1,112,586 AF

45% (Total Capacity) | 63% (Historical Avg.)

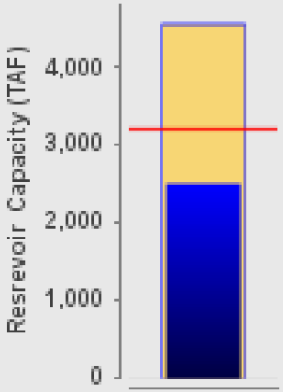


Data Updated 02/17/2015 04:45 PM

Reservoir Conditions - Shasta Reservoir

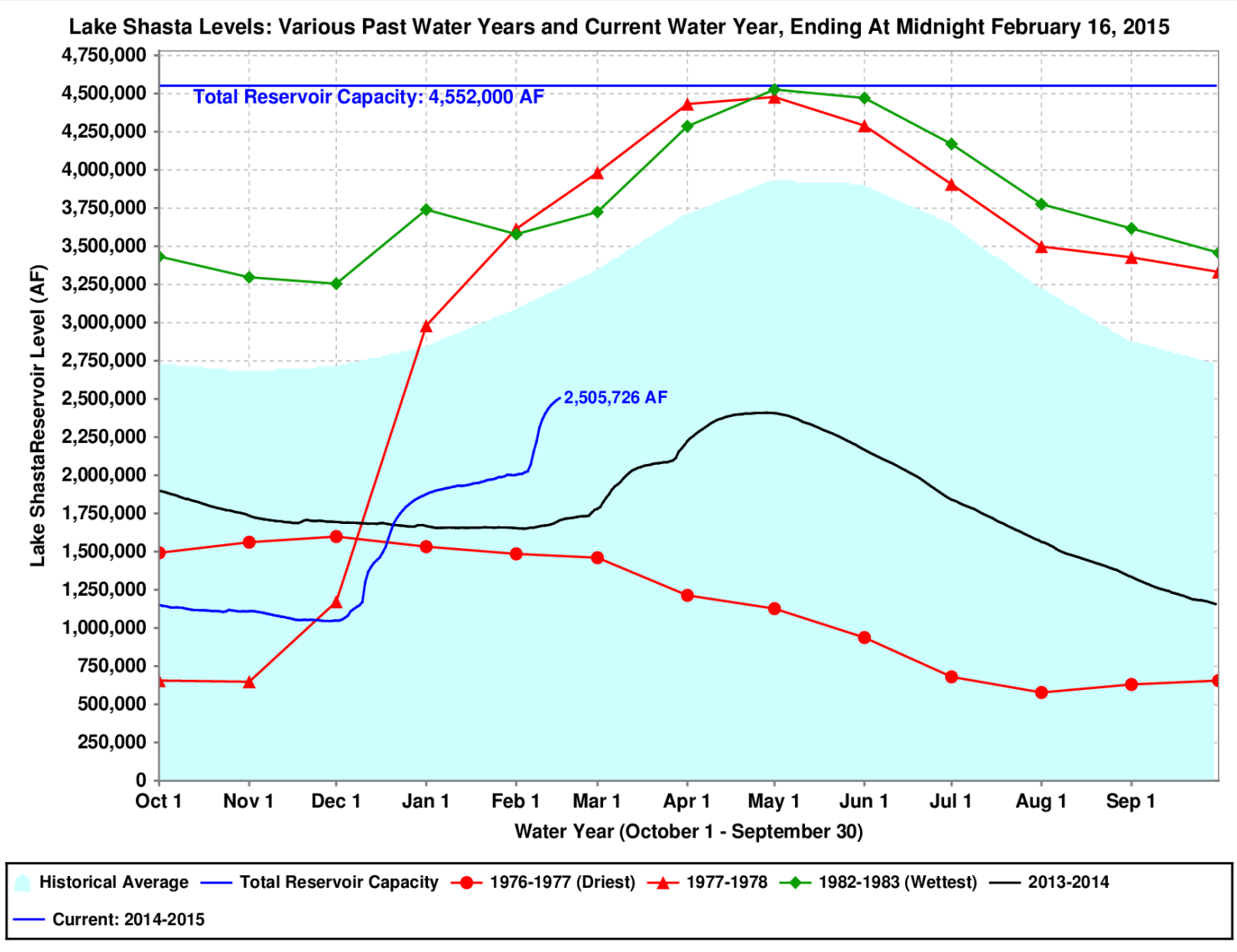
Lake Shasta Conditions

(as of Midnight - February 16, 2015)



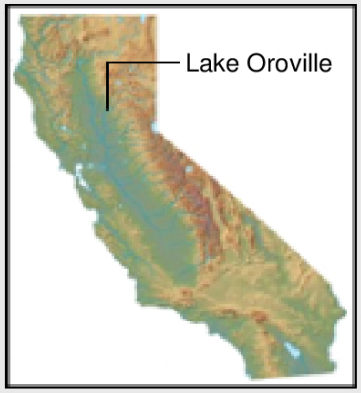
Current Level: 2,505,726 AF

55% (Total Capacity) | 78% (Historical Avg.)



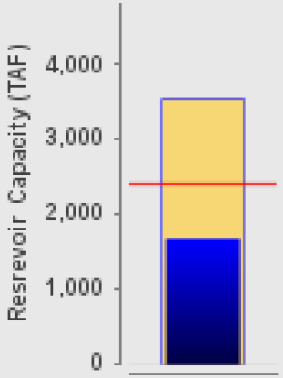
Data Updated 02/17/2015 08:45 AM

Reservoir Conditions - Lake Oroville



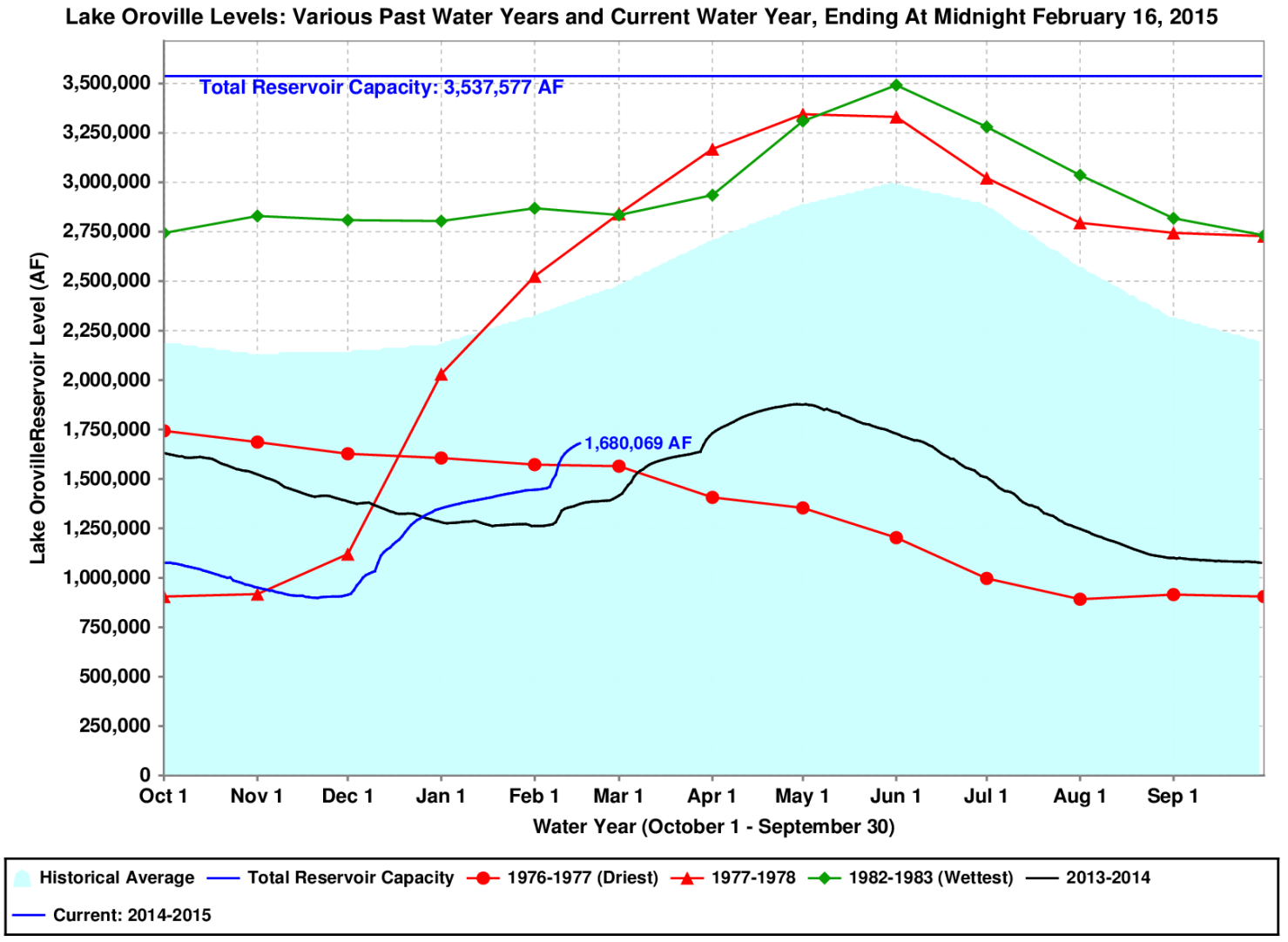
Lake Oroville Conditions

(as of Midnight - February 16, 2015)



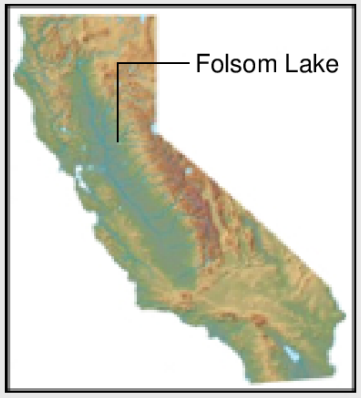
Current Level: 1,680,069 AF

47% (Total Capacity) | 70% (Historical Avg.)



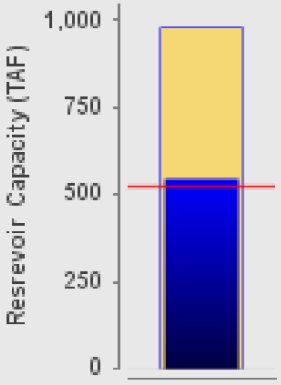
Data Updated 02/17/2015 08:45 AM

Reservoir Conditions - Folsom Lake



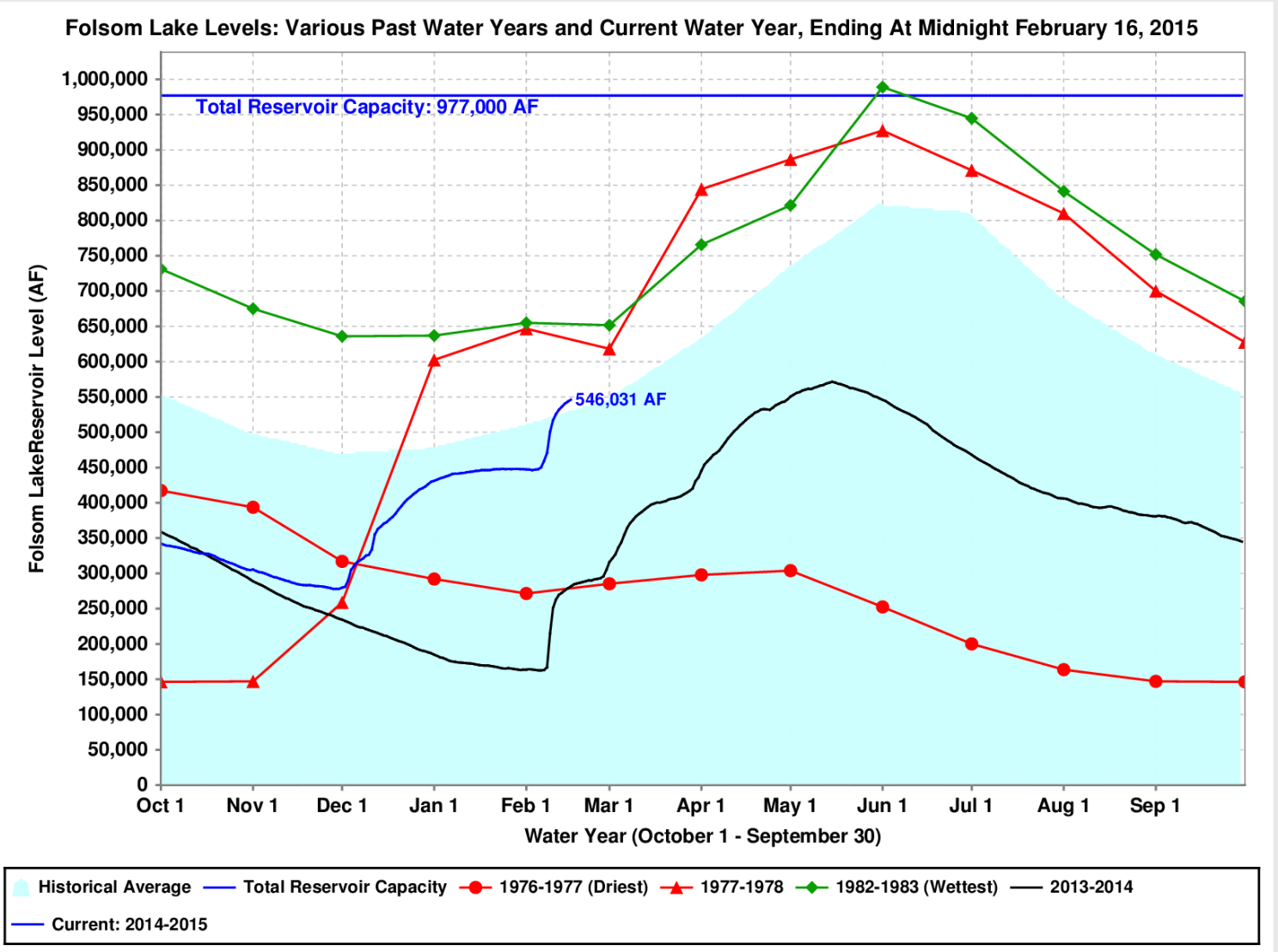
Folsom Lake Conditions

(as of Midnight - February 16, 2015)



Current Level: 546,031 AF

56% (Total Capacity) | 103% (Historical Avg.)

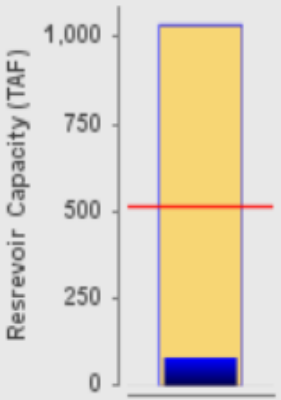


Data Updated 02/17/2015 08:45 AM

Reservoir Conditions - Exchequer

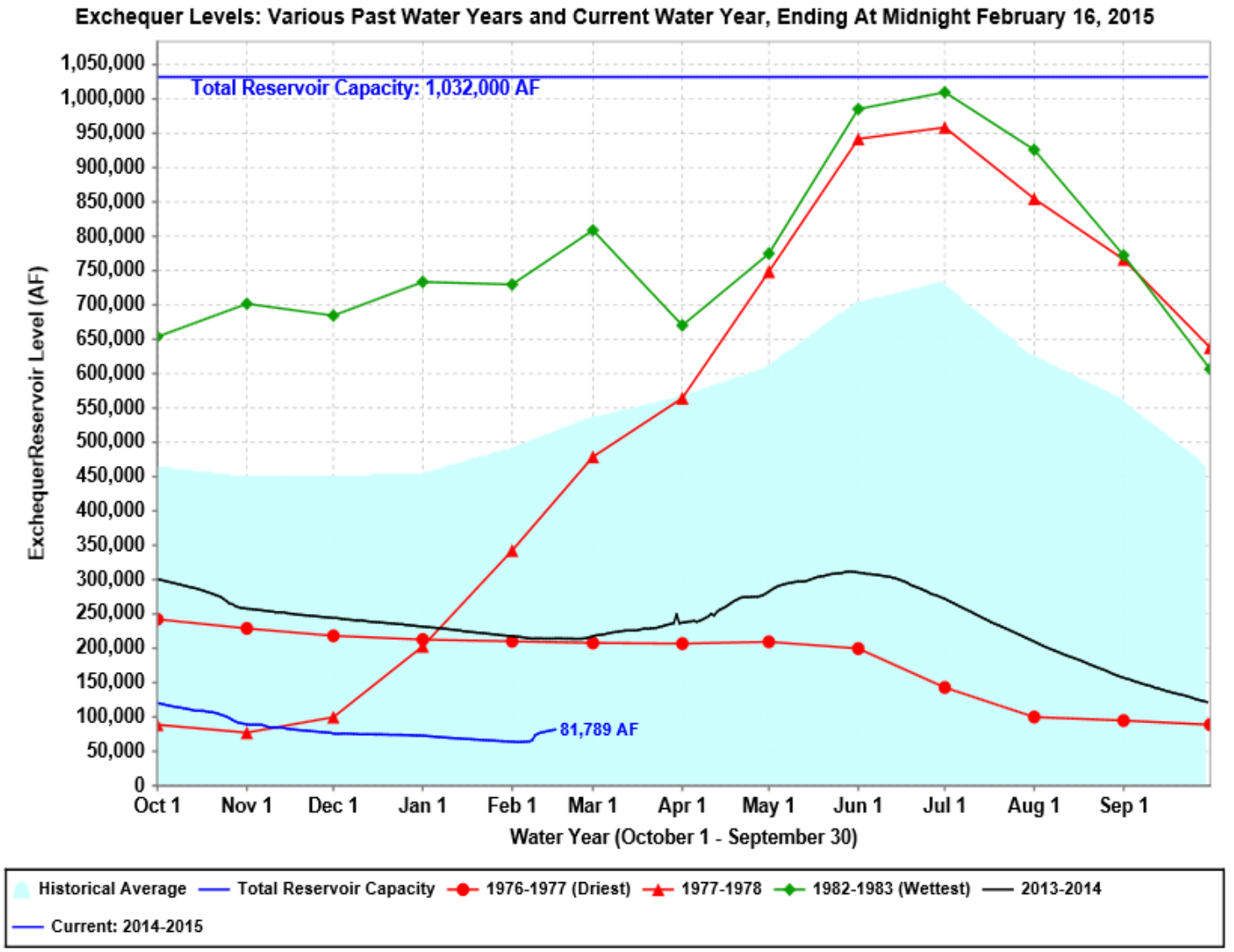
Exchequer Conditions

(as of Midnight - February 16, 2015)



Current Level: 81,789 AF

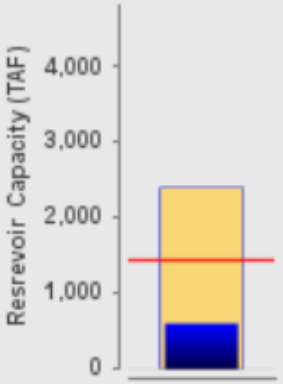
8% (Total Capacity) | 16% (Historical Avg.)



Reservoir Conditions - New Melones

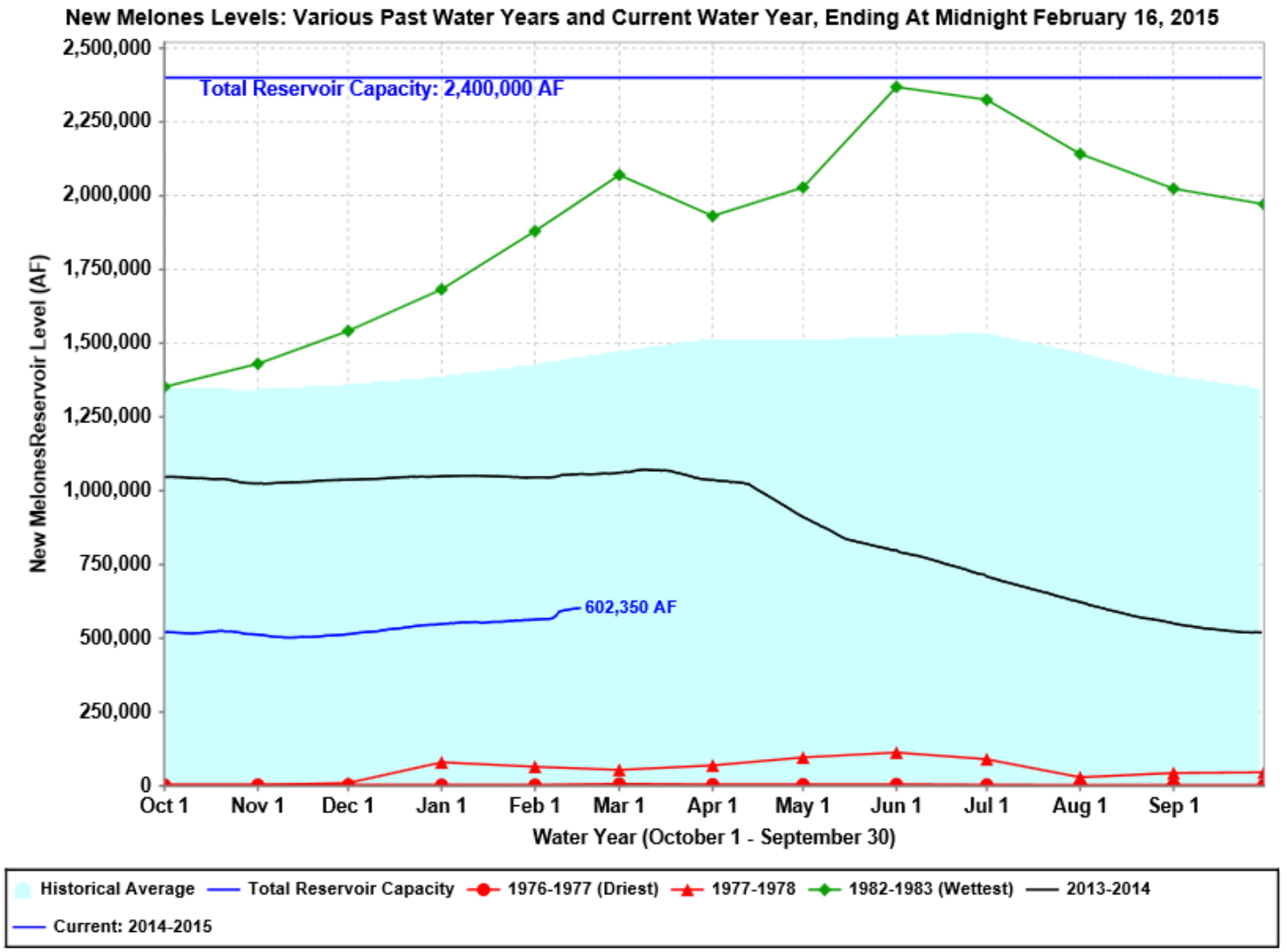
New Melones Conditions

(as of Midnight - February 16, 2015)



Current Level: 602,350 AF

25% (Total Capacity) | 42% (Historical Avg.)

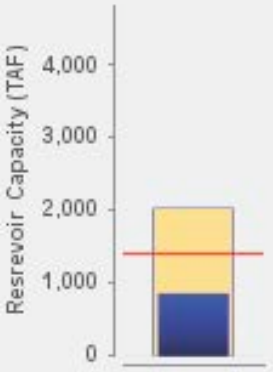


Data Updated 02/17/2015 04:45 PM

Reservoir Conditions - Don Pedro

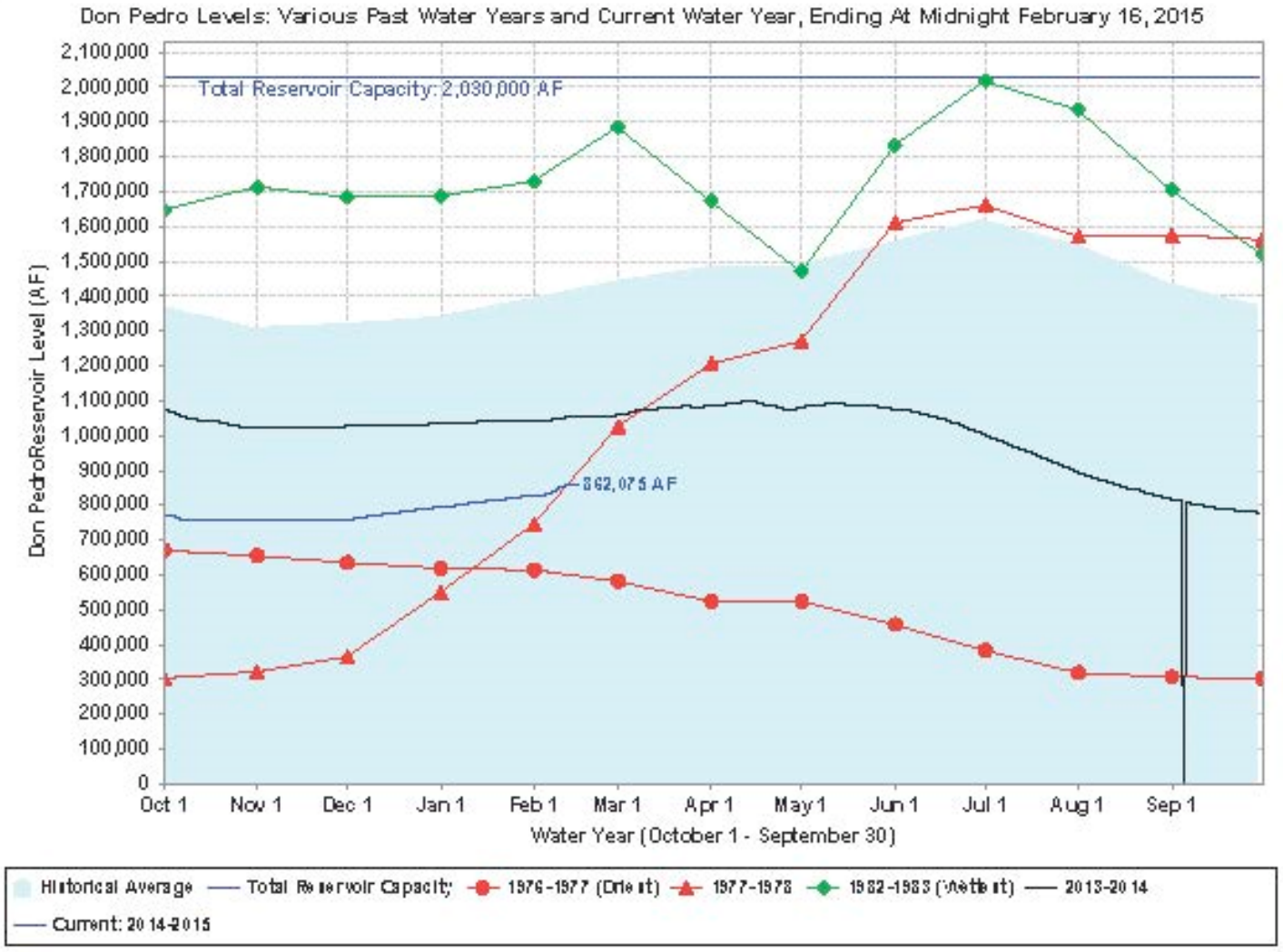
Don Pedro Conditions

(as of Midnight - February 16, 2015)



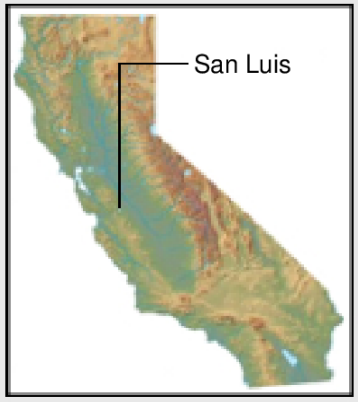
Current Level: 862,075 AF

42% (Total Capacity) | 61% (Historical Avg.)



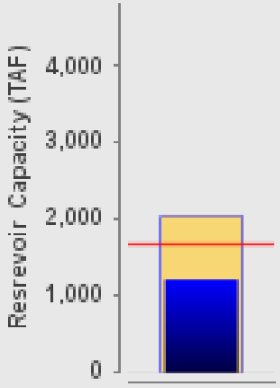
Data Updated 02/17/2015 04:45 PM

Reservoir Conditions - San Luis



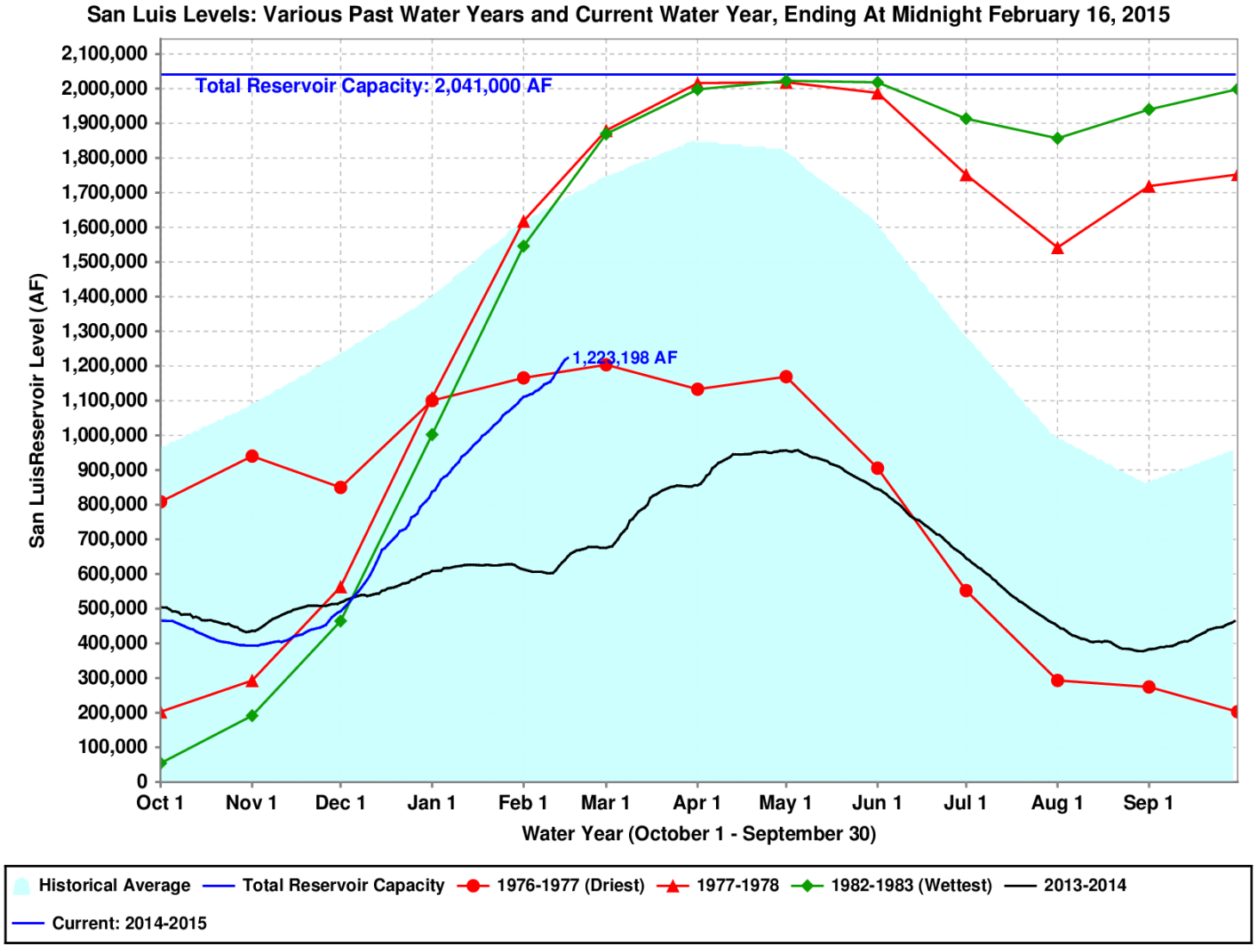
San Luis Conditions

(as of Midnight - February 16, 2015)



Current Level: 1,223,198 AF

60% (Total Capacity) | 73% (Historical Avg.)

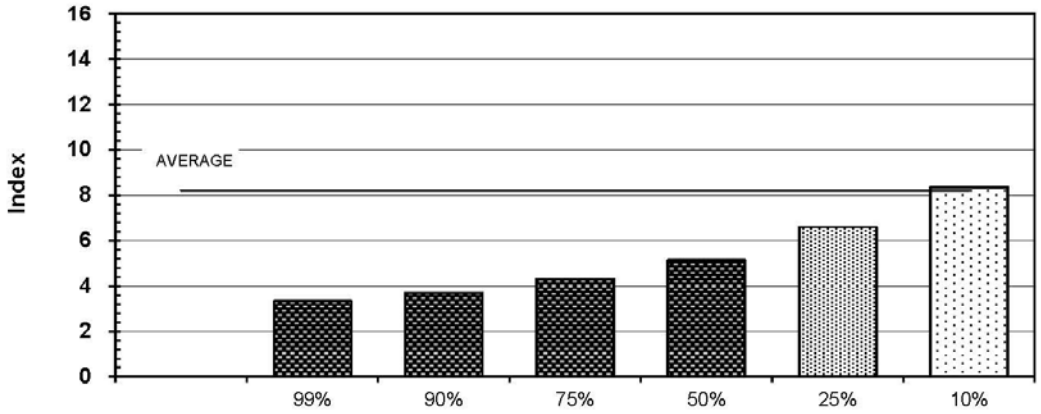


Data Updated 02/17/2015 08:45 AM

Temporary Urgency Change Petition

Department of Water Resources | California Cooperative Snow Surveys

SACRAMENTO VALLEY
WATER YEAR TYPE INDEX (40-30-30)
2015 Water Year Forecast as of February 1, 2015



	Probability of Exceedance					
Date of Forecast	**99%**	**90%**	**75%**	**50%**	**25%**	**10%**
December 1, 2014	2.7	3.5	4.3	5.6	7.2	8.8
January 1, 2015	4.0	4.9	5.8	6.7	8.2	9.6
February 1, 2015	**3.3**	**3.7**	**4.3**	**5.1**	**6.6**	**8.3**
March 1, 2015						
April 1, 2015						
May 1, 2015						

Water Year Index based on flow in million acre feet

Index = 0.4 * Current Apr-Jul Runoff [1]
+ 0.3 * Current Oct-Mar Runoff [1]
+ 0.3 * Previous Year's Index [2]

Notes:

(1) Runoff is the sum of unimpaired flow in million acre-feet at:
Sacramento River above Bend Bridge
Feather River at Oroville (aka inflow to Lake Oroville)
Yuba River near Smartville
American River below Folsom Lake

(2) Maximum 10.0 for previous year index term

Previous Water Year Indices:

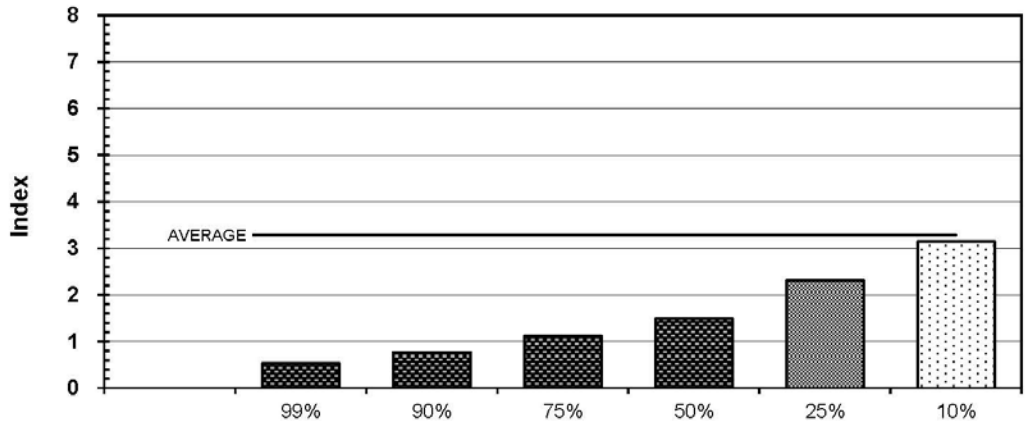
2014 =	4.1	50% of avg.
1977 (Min) =	3.1	38% of avg.
1983 (Max) =	15.3	186% of avg.
1961-2010 average =	8.2	

Year Classification

TYPE	INDEX
Wet	
Above Normal	9.2
Below Normal	7.8
Dry	6.5
Critical	5.4

Department of Water Resources | California Cooperative Snow Surveys

SAN JOAQUIN VALLEY
WATER YEAR TYPE INDEX (60-20-20)
2015 Water Year Forecast as of February 1, 2015



Date of Forecast	99%	90%	75%	50%	25%	10%
December 1, 2014	0.7	1.0	1.4	2.0	2.8	3.8
January 1, 2015	0.8	1.1	1.4	2.1	2.7	3.6
February 1, 2015	**0.5**	**0.8**	**1.1**	**1.5**	**2.3**	**3.1**

Water Year Index based on flow in million acre feet

Index = 0.6 * Current Apr-Jul Runoff [1]
+ 0.2 * Current Oct-Mar Runoff [1]
+ 0.2 * Previous Year's Index [2]

Notes:

(1) Runoff is the sum of unimpaired flow in million acre-feet at:
Stanislaus River below Goodwin Reservoir (aka inflow to New Melones Res)
Tuolumne River below La Grange (aka inflow to New Don Pedro Reservoir)
Merced River below Merced Falls (aka inflow to Lake McClure)
San Joaquin River inflow to Millerton Lake

(2) Maximum 4.5 for previous year index term

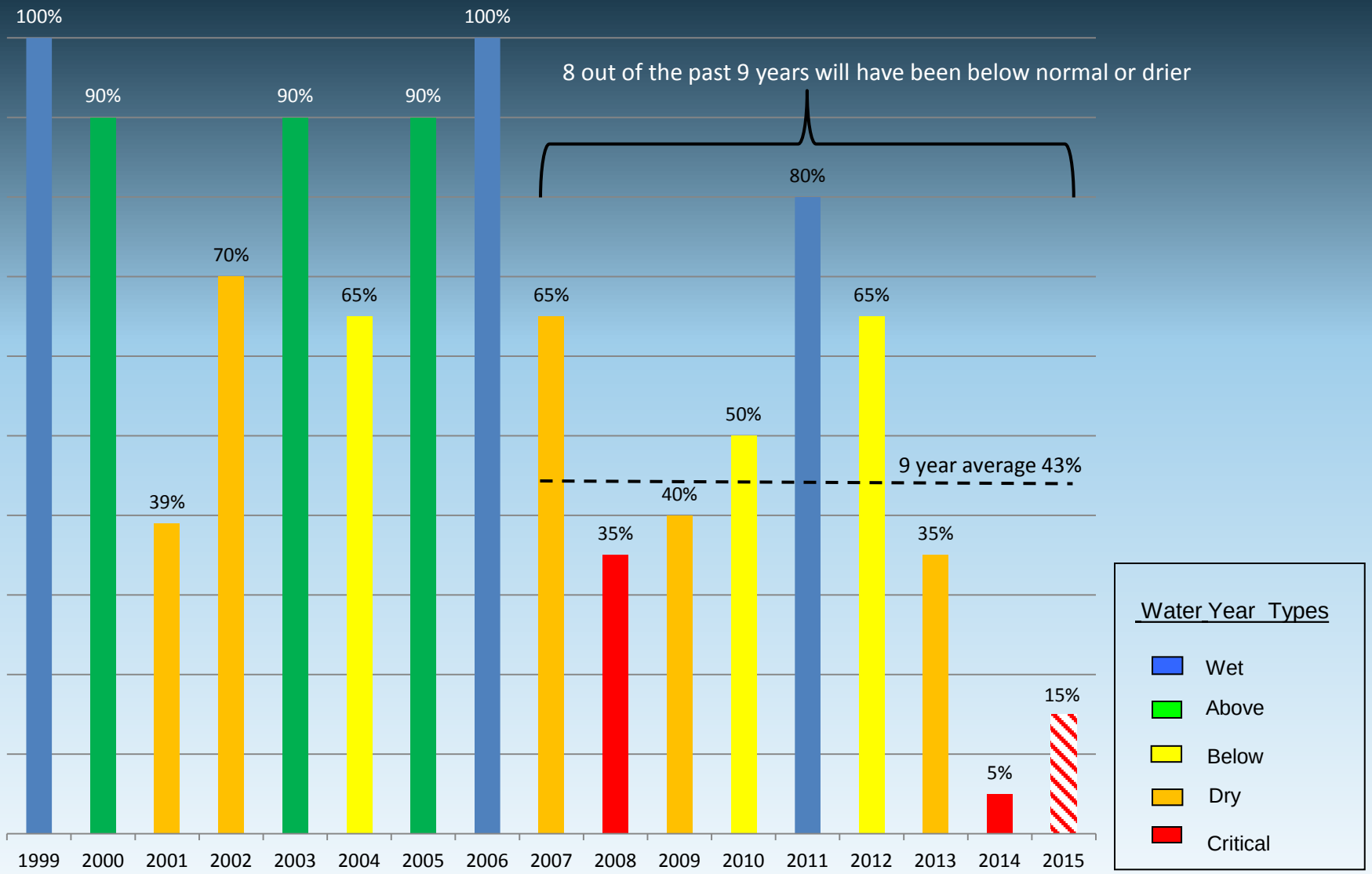
Year Classification

TYPE	INDEX
Wet	3.8
Above Normal	3.1
Below Normal	2.5
Dry	2.1
Critical	

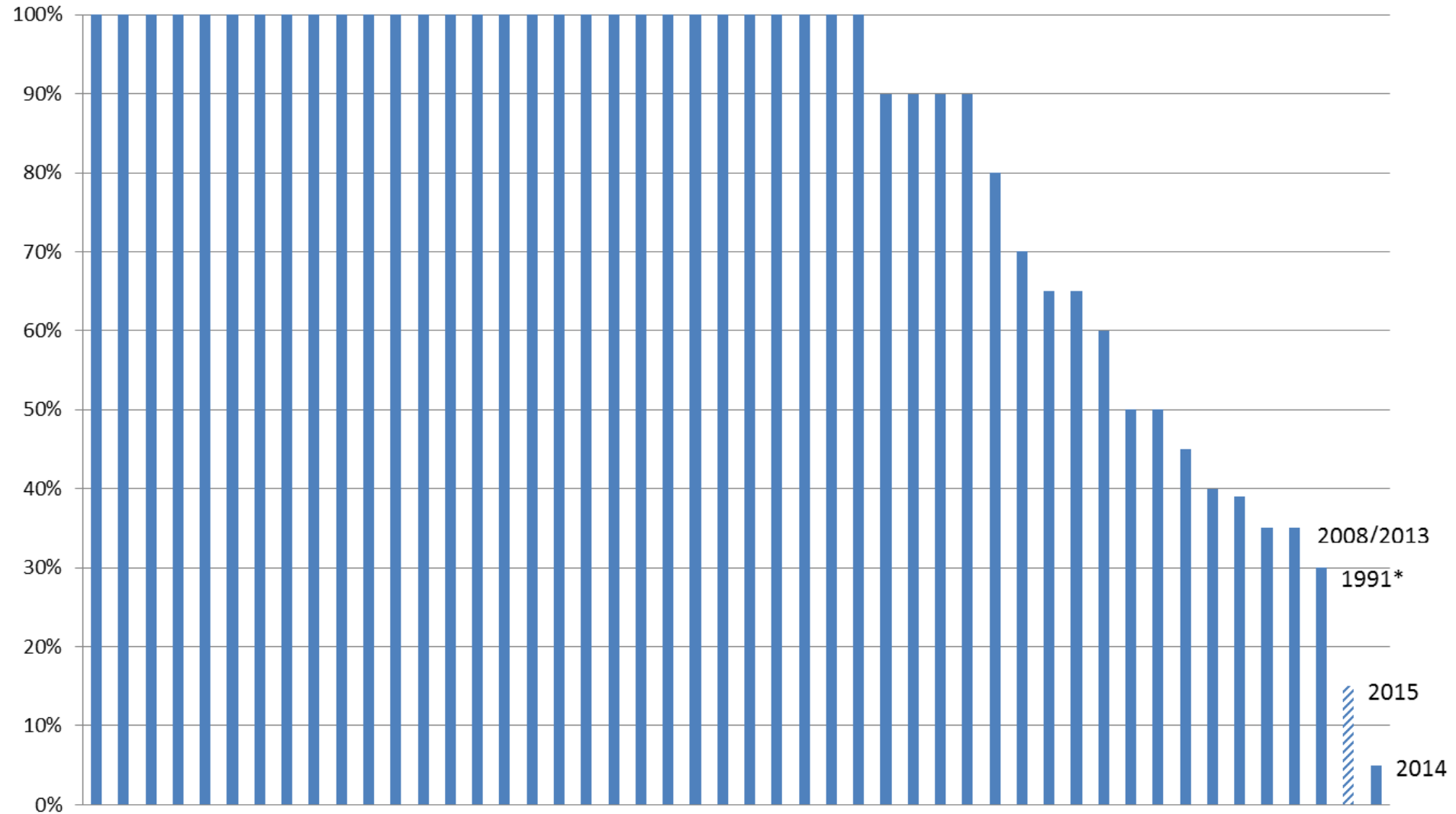
Previous Water Year Indices:

2014 =	1.2	35% of avg.
1977 (Min) =	0.8	26% of avg.
1983 (Max) =	7.2	219% of avg.
1961-2010 average =	3.3	

SWP Allocation by Year Type



SWP Allocation (sorted 1968 - 2015)



*0% allocation for ag in 1991

Purposes of January 23 TUCP

1) Conserve Upstream Storage

2) Manage Delta Salinity

3) Lessen Economic Losses

Attachment 2

D-1641 Bay-Delta Standards

With Likely 2015 TUCP Requests

CRITERIA	Feb 2015	Mar 2015	Apr 2015	May 2015	Jun 2015	Jul 2015	Aug 2015	Sep 2015
Jan 1 - 50% Hydrology								
• Outflow								
Spring X2	Near-Term TUCP							
Minimum Outflow - mon.								
• River Flows								
@ Rio Vista - min. mon. avg.								
@ Vernalis: Base -min. mon. avg.	Near-Term TUCP		710 cfs		710 cfs	710 cfs	710 cfs	
Pulse objective			T.B.D.					
• Delta Cross Channel Gates	N-T TUCP							
• Salinity EC - Emmaton								
Jan 1 - 90% Hydrology								
• Outflow								
Spring X2	Near-Term TUCP		7100 cfs	7100 cfs	7100 cfs			
Minimum Outflow - mon.								
• River Flows								
@ Rio Vista - min. mon. avg.								2500 cfs
@ Vernalis: Base -min. mon. avg.	Near-Term TUCP		500 cfs		500 cfs			
Pulse objective			T.B.D.					
• Delta Cross Channel Gates	N-T TUCP							
• Salinity EC - Emmaton			Requirement Moved to Three Mile Slough					
Jan 1 - 99% Hydrology								
• Outflow								
Spring X2	Near-Term TUCP		4000 cfs	4000 cfs	Suspended			
Minimum Outflow - mon.						Suspended		
• River Flows								
@ Rio Vista - min. mon. avg.								Suspended
@ Vernalis: Base -min. mon. avg.	Near-Term TUCP		T.B.D.		T.B.D.			
Pulse objective			T.B.D.					
• Delta Cross Channel Gates	N-T TUCP		Conditional DCC Opening					
• Emergency Drought Barriers				Construction	Operational			
• Salinity EC - Emmaton			Suspended					

Specifics of January 23rd TUCP

- **Item 1: NDOI – 4000 cfs**
- **Item 2: SJR Flow – 500 cfs**
- **Item 3: DCC Gate – Conditional Openning**
- **Item 4: Export of Natural or Abandoned Flow**

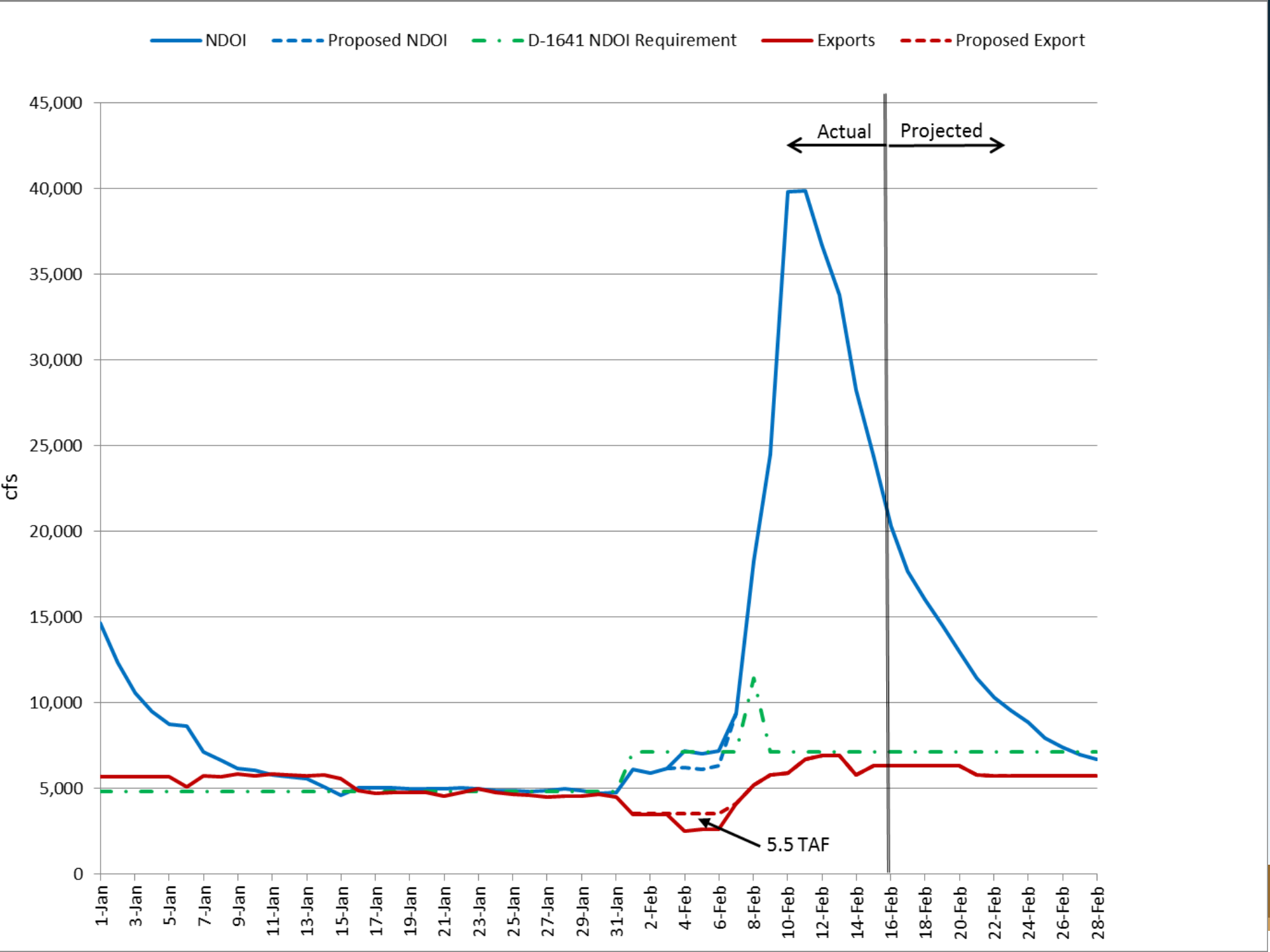
Export of Natural and Abandoned Flows

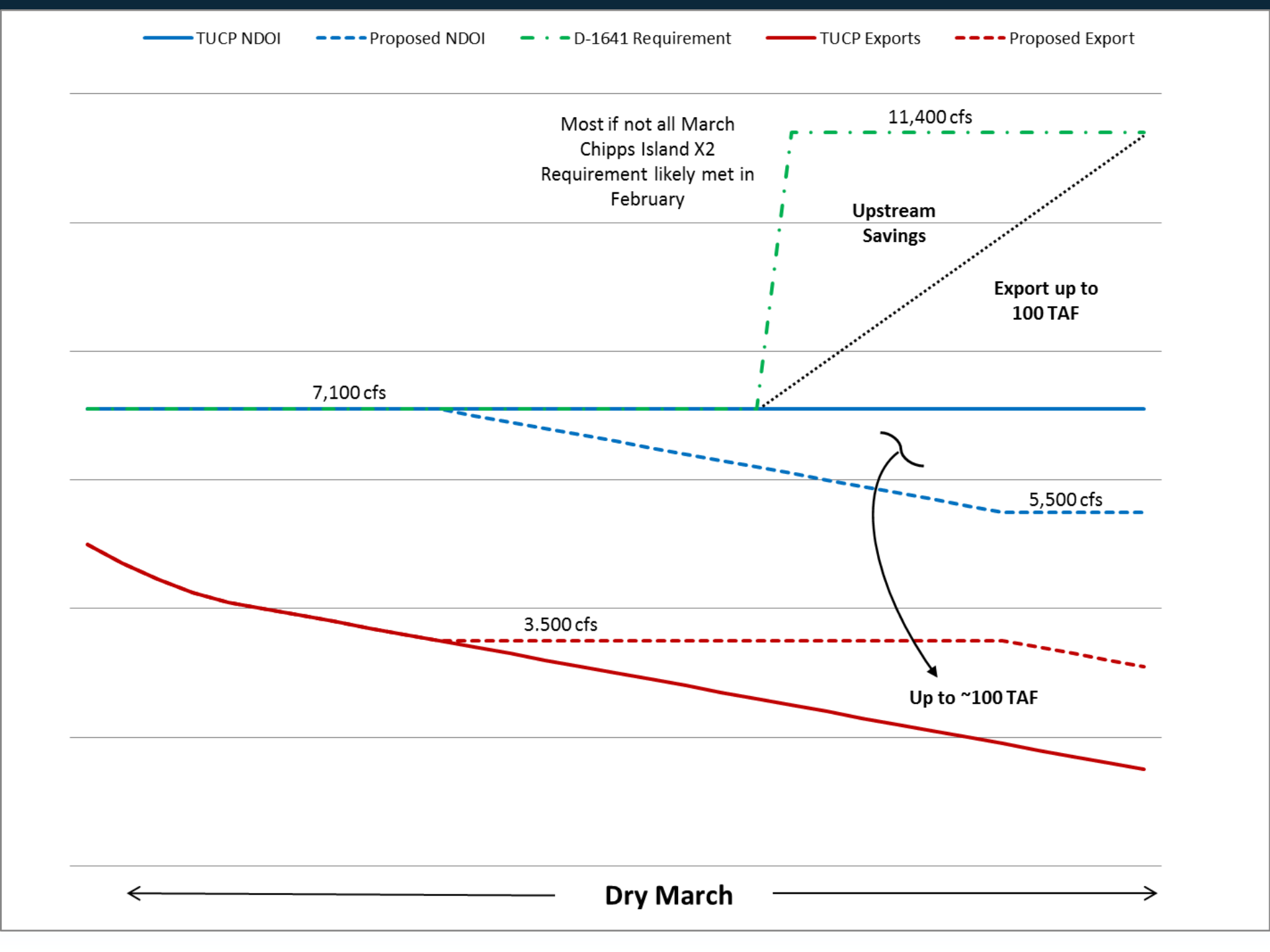
- **> NDOI 7100 cfs (Approved TUCP 2014 and 2015)**
- **5500 cfs > NDOI > 7100 cfs (Proposed TUCP 2015)**

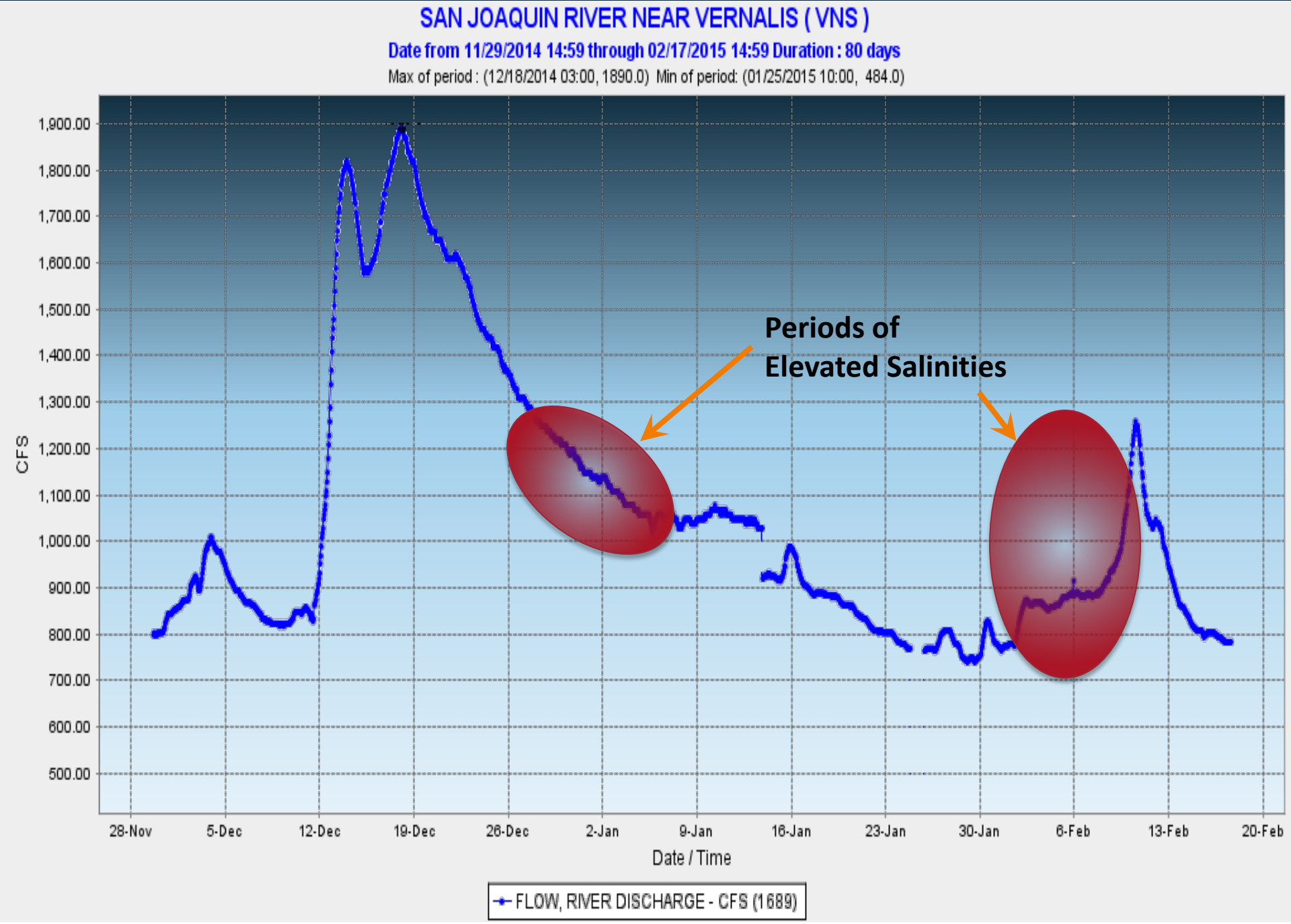
Fishery Protections

	February		March	
	E/I	OMR*	E/I	OMR*
>7100 cfs	45%	-5000 cfs	35%	-5000 cfs
Intermediate Step	20% - 35%	-3200 cfs	20% - 35%	-3200 cfs

* Exports Subject to More Protective OMR under BiOps

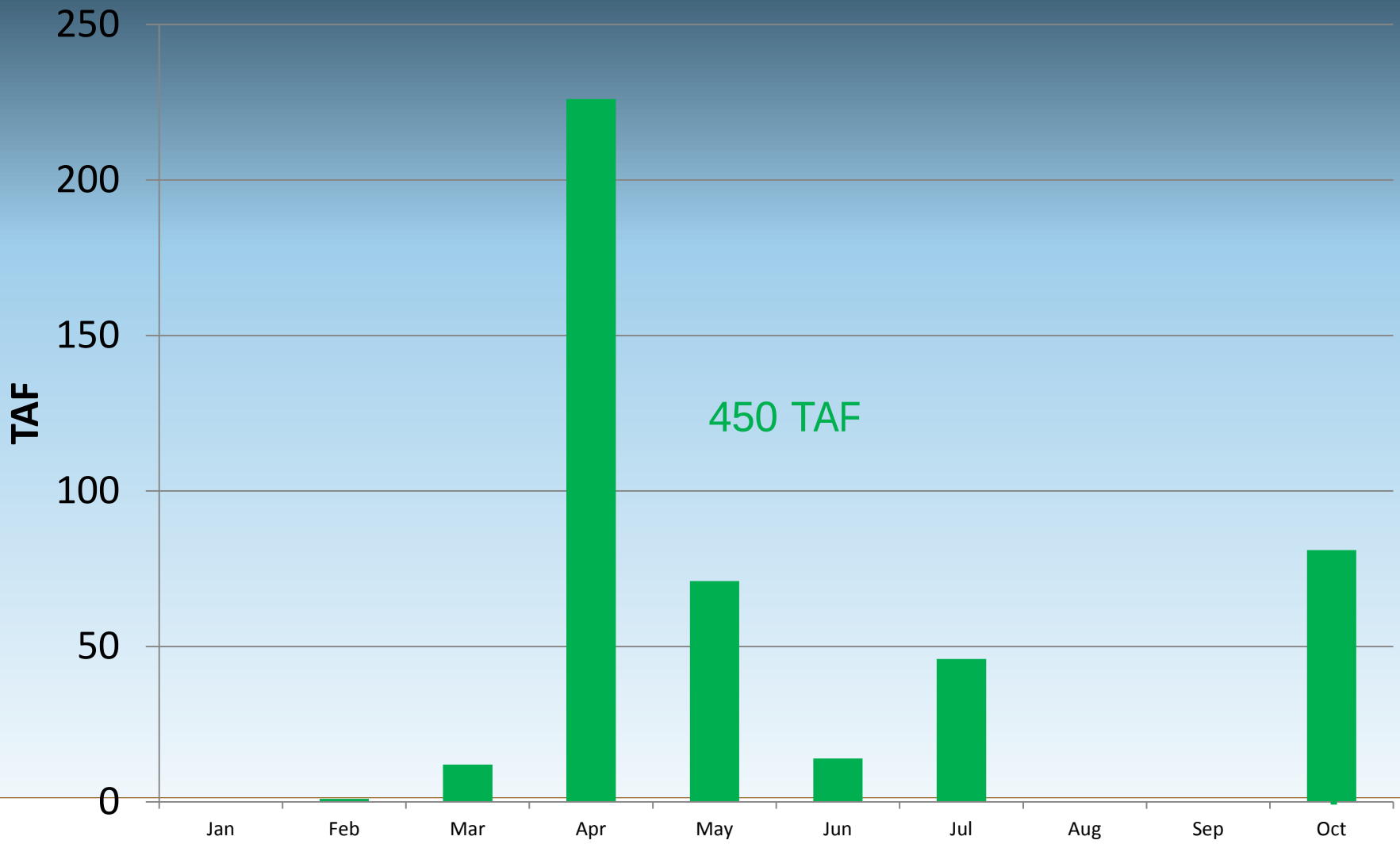

NDOI
Proposed NDOI
D-1641 NDOI Requirement
Exports
Proposed Export
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
cfs
Actual
Projected
5.5 TAF
1-Jan
3-Jan
5-Jan
7-Jan
9-Jan
11-Jan
13-Jan
15-Jan
17-Jan
19-Jan
21-Jan
23-Jan
25-Jan
27-Jan
29-Jan
31-Jan
2-Feb
4-Feb
6-Feb
8-Feb
10-Feb
12-Feb
14-Feb
16-Feb
18-Feb
20-Feb
22-Feb
24-Feb
26-Feb
28-Feb


TUCP NDOI
Proposed NDOI
D-1641 Requirement
TUCP Exports
Proposed Export
Most if not all March Chipps Island X2 Requirement likely met in February
11,400 cfs
Upstream Savings
Export up to 100 TAF
7,100 cfs
5,500 cfs
3.500 cfs
Up to ~100 TAF
Dry March


SAN JOAQUIN RIVER NEAR VERNALIS (VNS)
Date from 11/29/2014 14:59 through 02/17/2015 14:59 Duration : 80 days
Max of period : (12/18/2014 03:00, 1890.0) Min of period: (01/25/2015 10:00, 484.0)
Periods of
Elevated Salinities
CFS
1,900.00
1,800.00
1,700.00
1,600.00
1,500.00
1,400.00
1,300.00
1,200.00
1,100.00
1,000.00
900.00
800.00
700.00
600.00
500.00
28-Nov
5-Dec
12-Dec
19-Dec
26-Dec
2-Jan
9-Jan
16-Jan
23-Jan
30-Jan
6-Feb
13-Feb
20-Feb
Date / Time
FLOW, RIVER DISCHARGE - CFS (1689)

2014 Review

Conserved Water Under 2014 TUCP Order
(SWP & CVP)

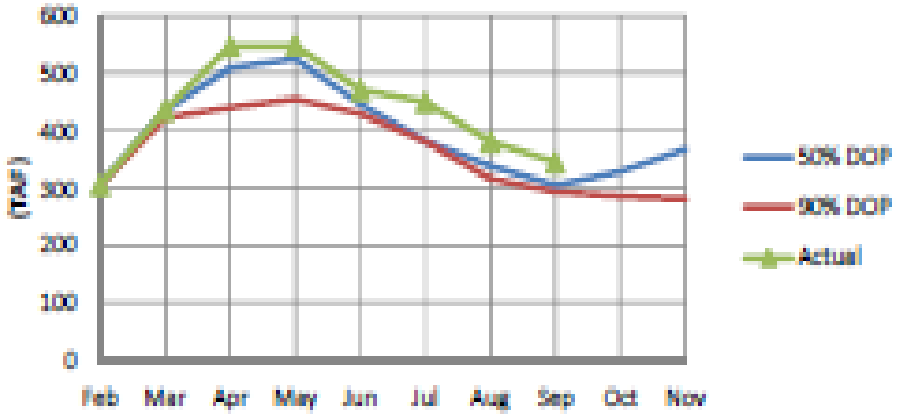


April 2014 Drought Operations Plan

Storage Tracking

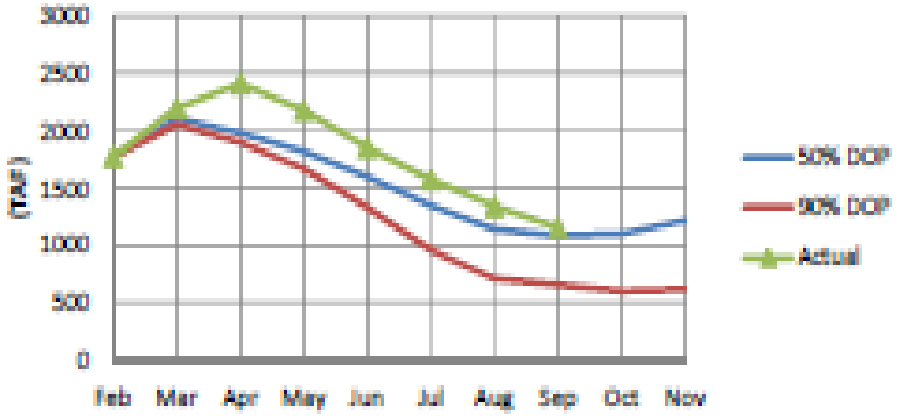
Folsom Lake

(end-of-month storage)



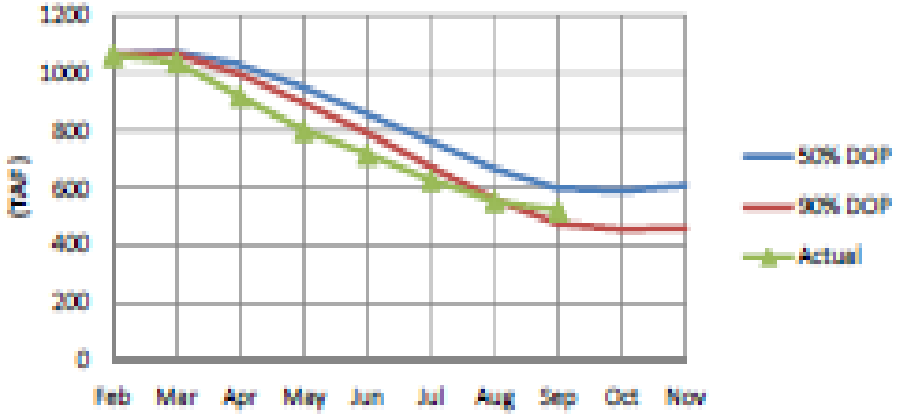
Lake Shasta

(end-of-month storage)



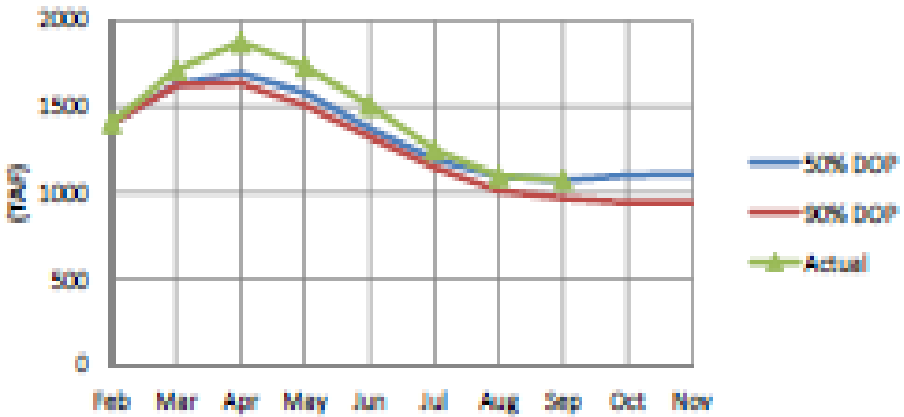
New Melones

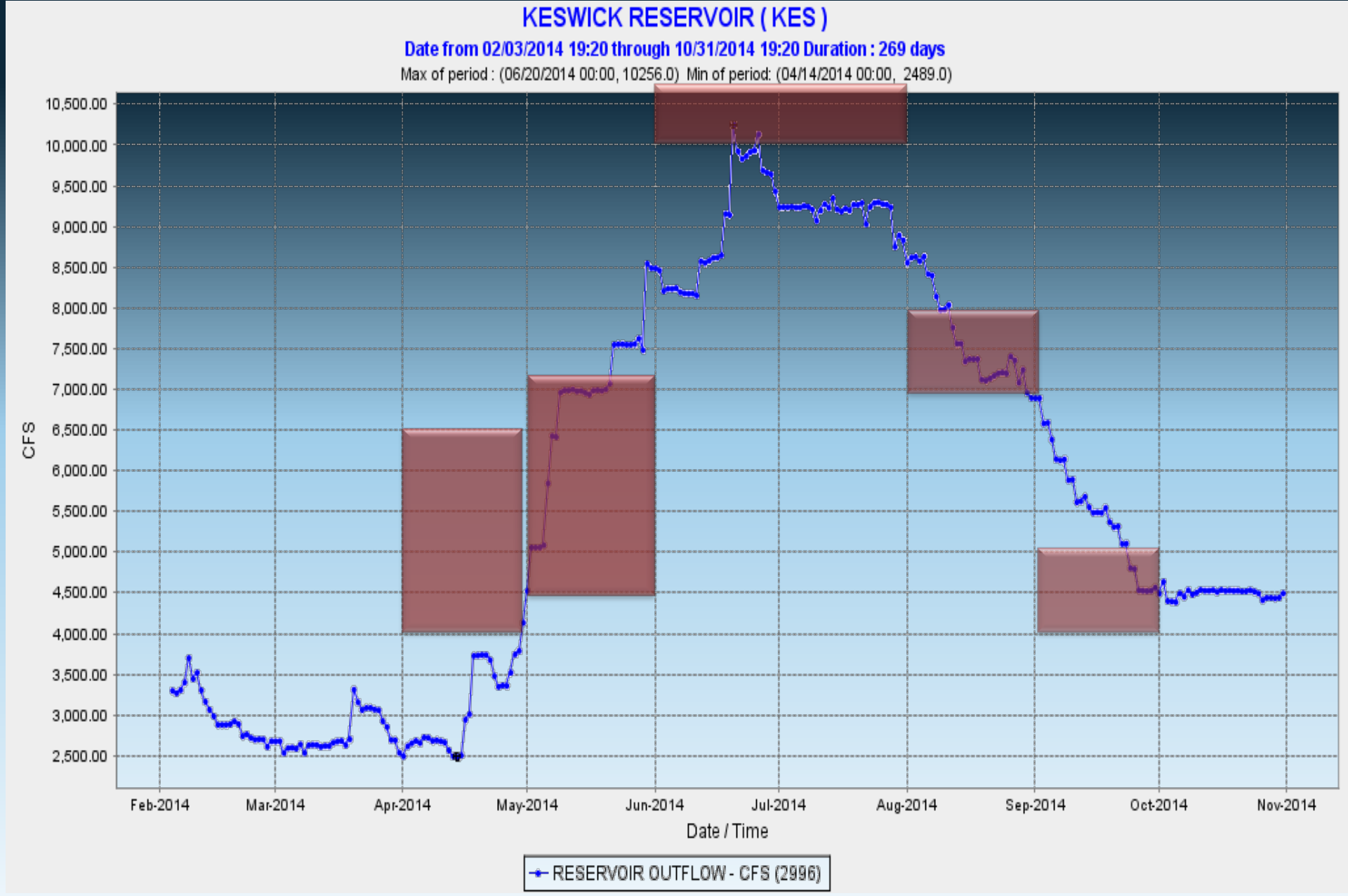
(end-of-month storage)



Lake Oroville

(end-of-month storage)





Release Ranges from April 2014 DOP

Thank You

The Governor asked all Californians to reduce water consumption by **20 percent** and referred residents and water agencies to the Save Our Water campaign -- **www.saveourh20.org**