

RECLAMATION

Managing Water in the West



Navajo Unit Operations

August 27, 2013

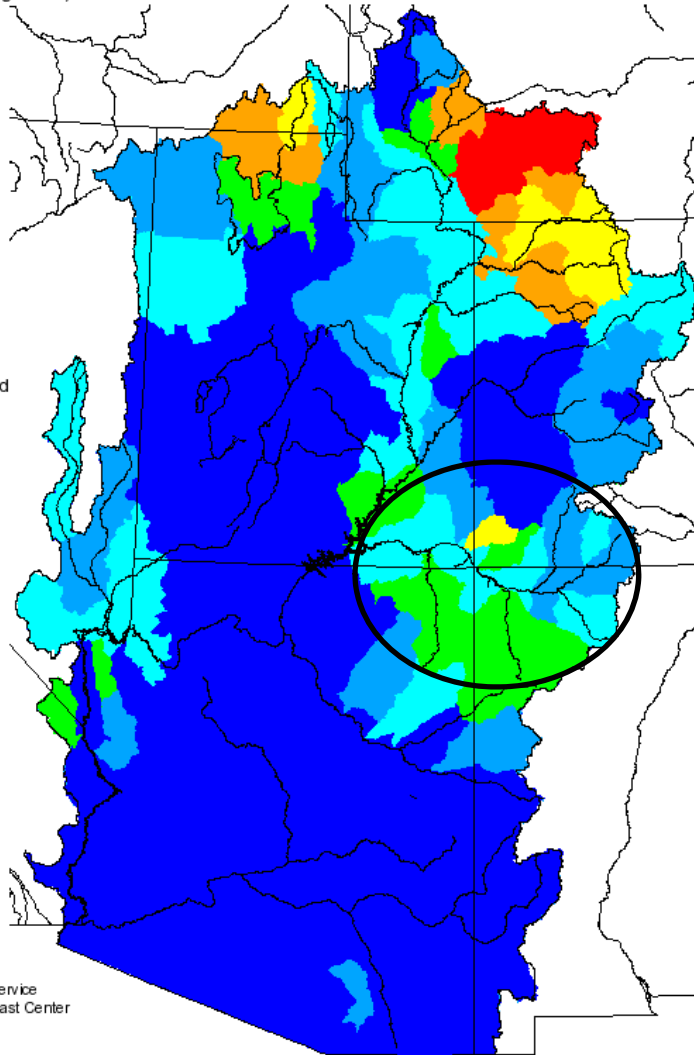
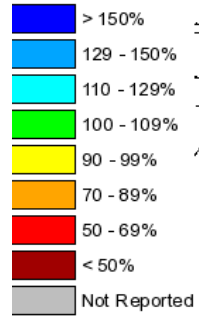
Coordination Meeting

U.S. Department of the Interior
Bureau of Reclamation

Monthly Precipitation for July 2013

(Averaged by Hydrologic Unit)

% Average

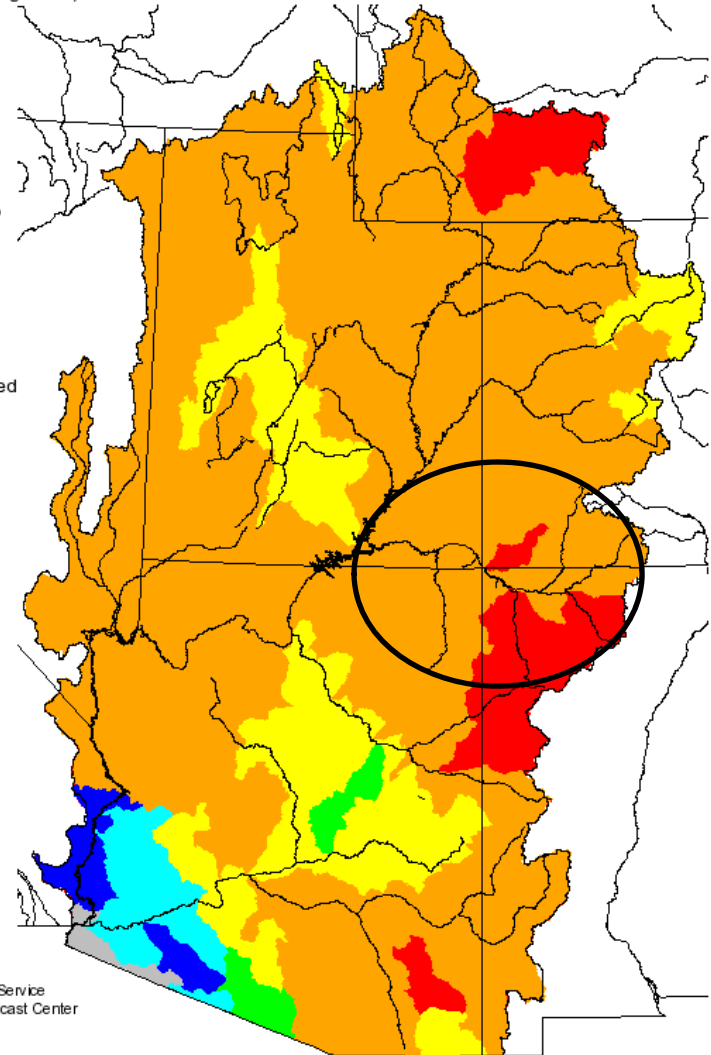
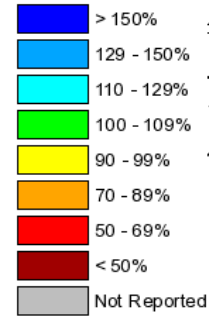


Prepared by
IOAA, National Weather Service
Colorado Basin River Forecast Center
Salt Lake City, Utah
www.cbafc.noaa.gov

Seasonal Precipitation, October 2012 - July 2013

(Averaged by Hydrologic Unit)

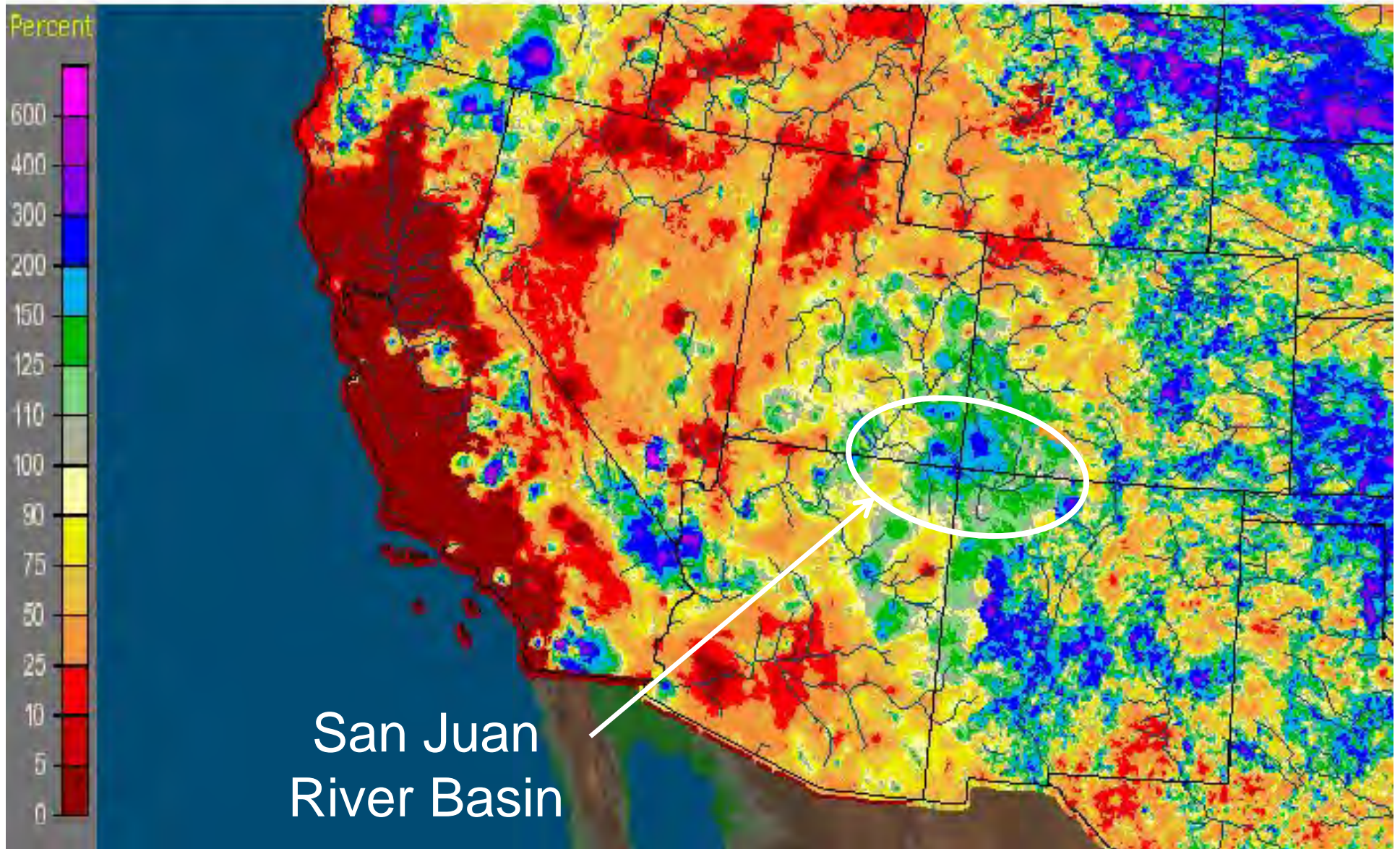
% Average



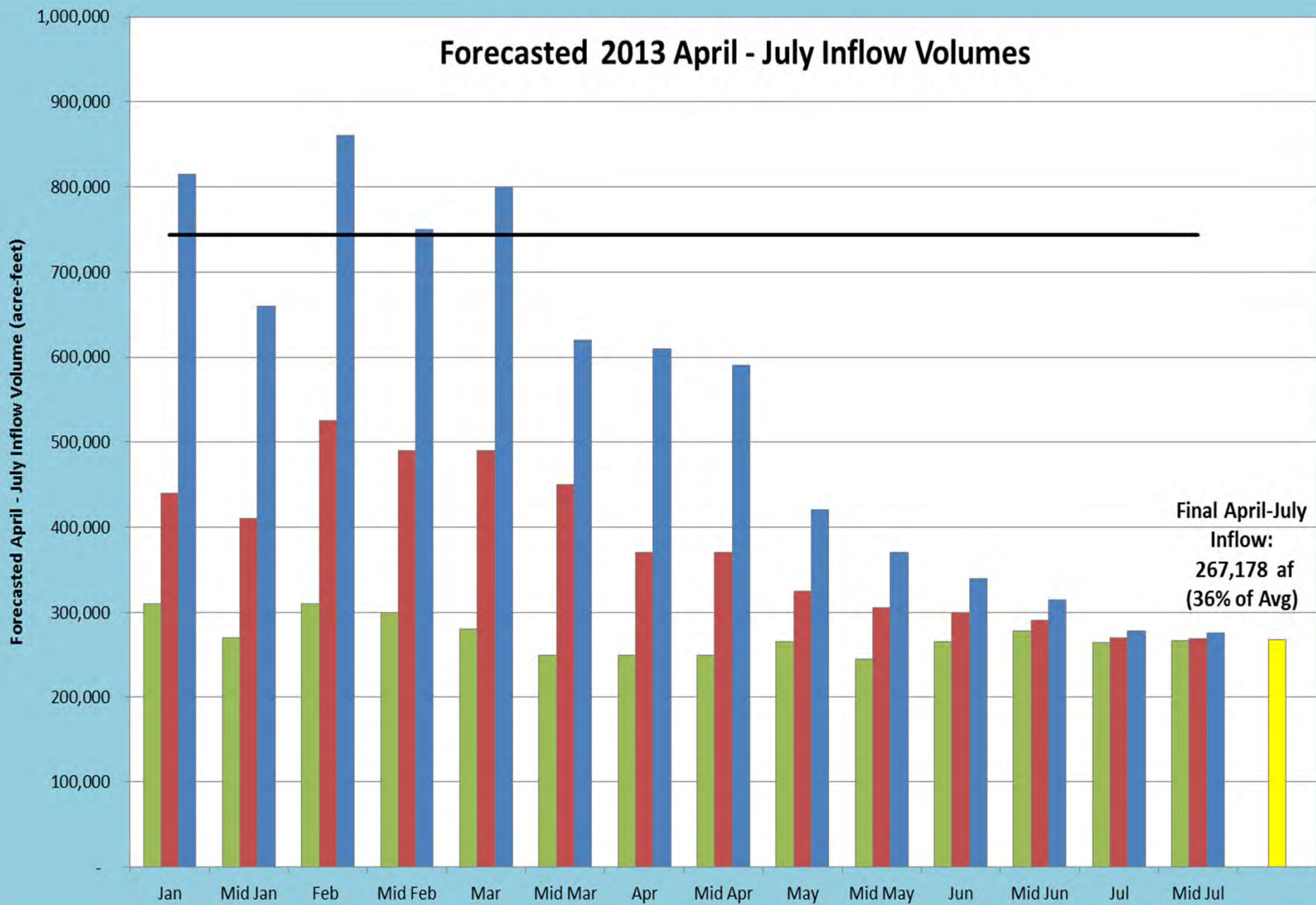
Prepared by
NOAA, National Weather Service
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Salt Lake City, Utah
www.cbafc.noaa.gov

% of Average Precipitation for August to Date

Colorado Basin RFC Salt Lake City, UT; Current Month to Date Percent of Normal
Valid at 8/26/2013 1200 UTC- Created 8/26/13 19:44 UTC



Forecasted 2013 April - July Inflow Volumes



**Final April-July
Inflow:
267,178 af
(36% of Avg)**

■ Minimum Probable
 ■ Most Probable
 ■ Maximum Probable
 — 30-yr Average

For reference:
Modified Unregulated
Inflow for April-July 2012
was 310,296 af

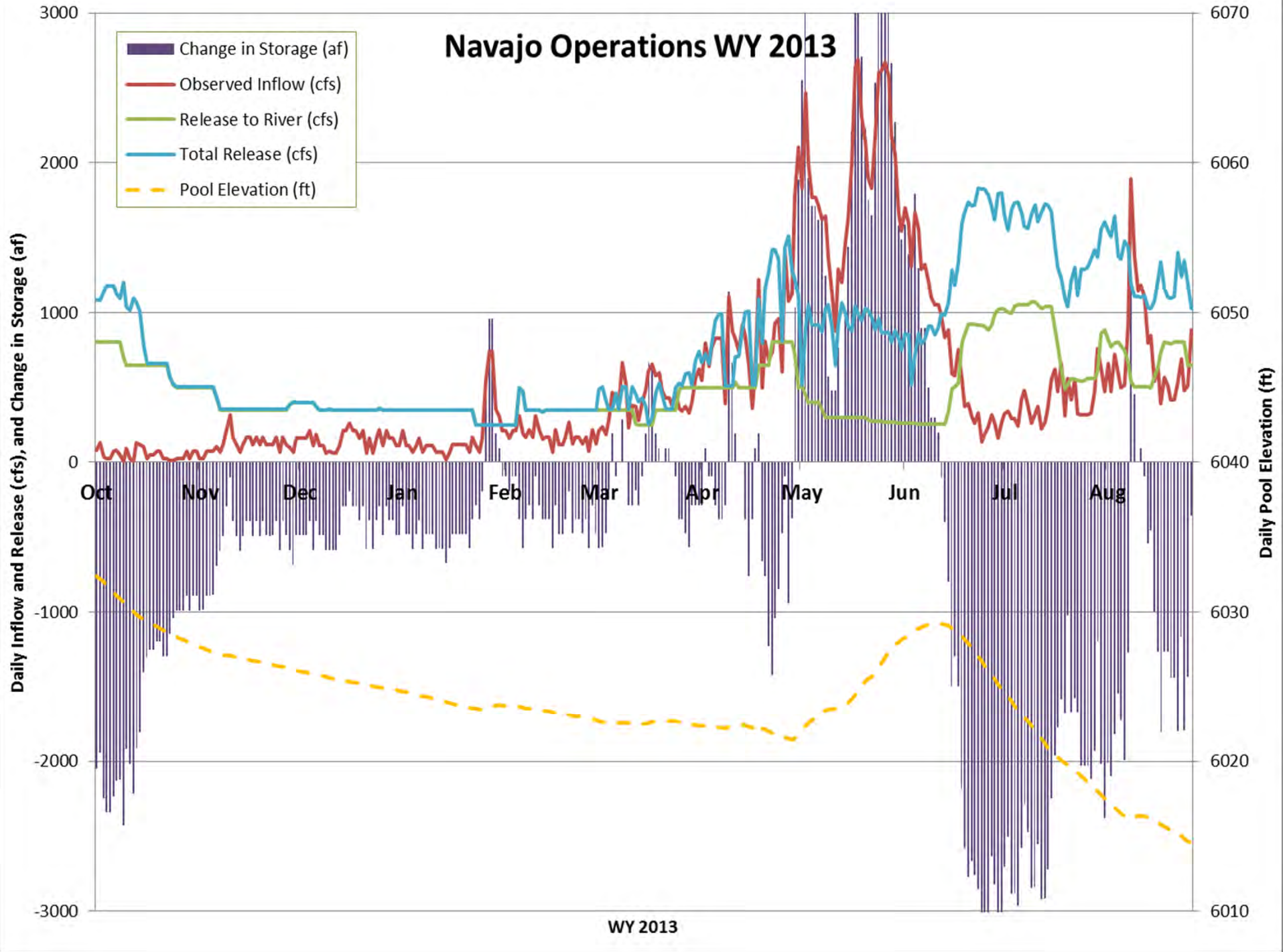
Total April-July Rank*

Modified Unregulated Inflow

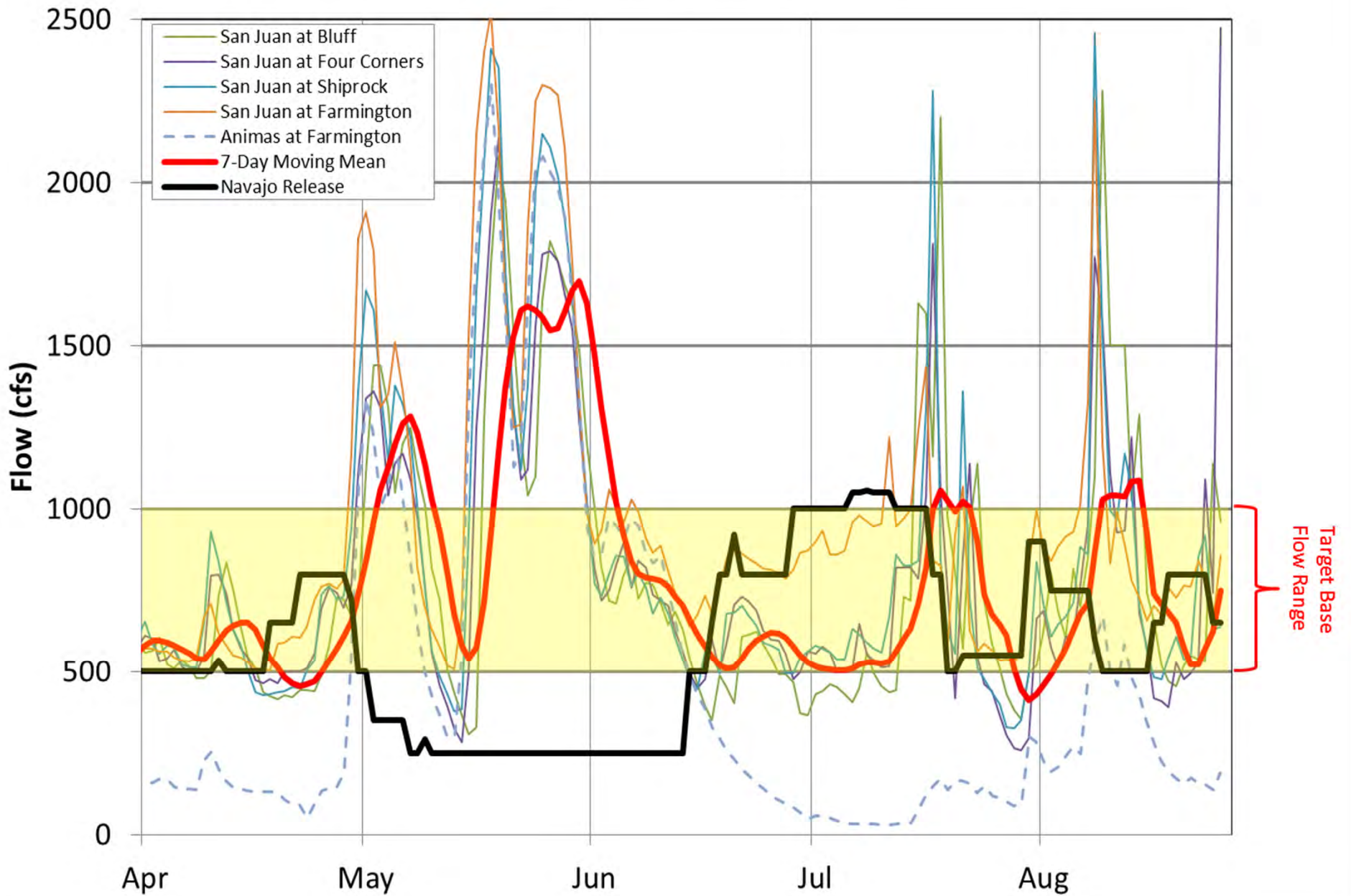
2002	2013	1996	2003	2012	2000	2006
36,741	267,178	275,589	306,809	310,296	326,843	378,589

* 1987 - present

Navajo Operations WY 2013



Chasing the Target Baseflow



SJRIP Spring Peak Flow Goals

(March 1 – July 31)

Critical Habitat Gages	>10,000 cfs for 5-days Req. Frequency – 20%	>8000 cfs for 10-days Req. Frequency – 33%	>5000 cfs for 21-days Req. Frequency – 50%	>2500 cfs for 10-days Req. Frequency – 80%
San Juan River @ 4 Corners	0	0	0	0

Navajo Current Conditions

(as of 8/26/13)

Elevation = 6014.93 *(63% of Average)*

Storage = 865,484 af *(51% Full, 19% of Active)*

Observed Inflow = 2346 cfs

Release = 650 cfs

NIIP = 458 cfs

SJ-Chama Diversion = 233 cfs

Apr-Jul Modified Unreg Inflow = 267,178 af (42% avg)

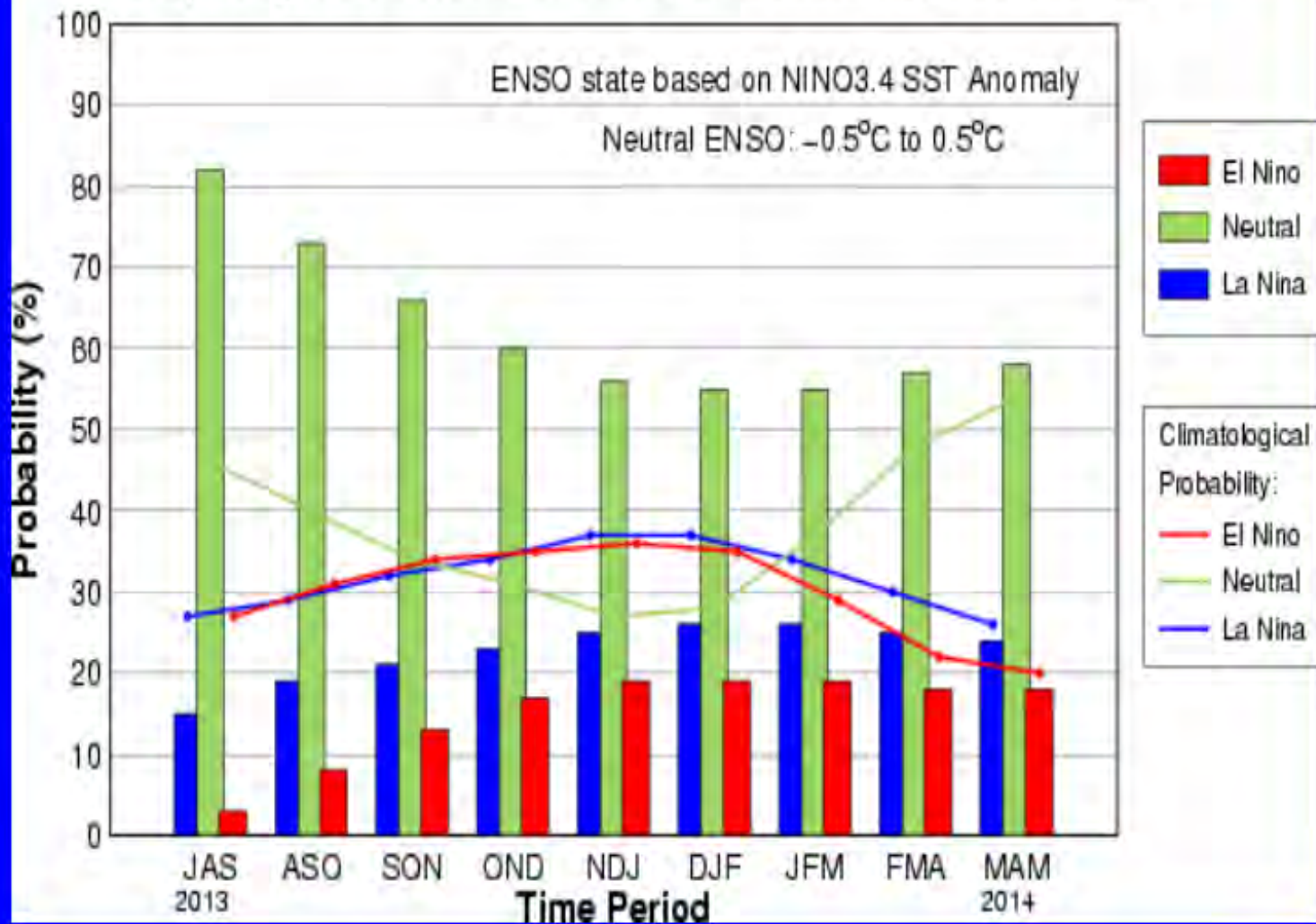


CPC/IRI Probabilistic ENSO Outlook

(updated 8 August 2013)

ENSO-neutral is favored through the Northern Hemisphere winter 2013-14.

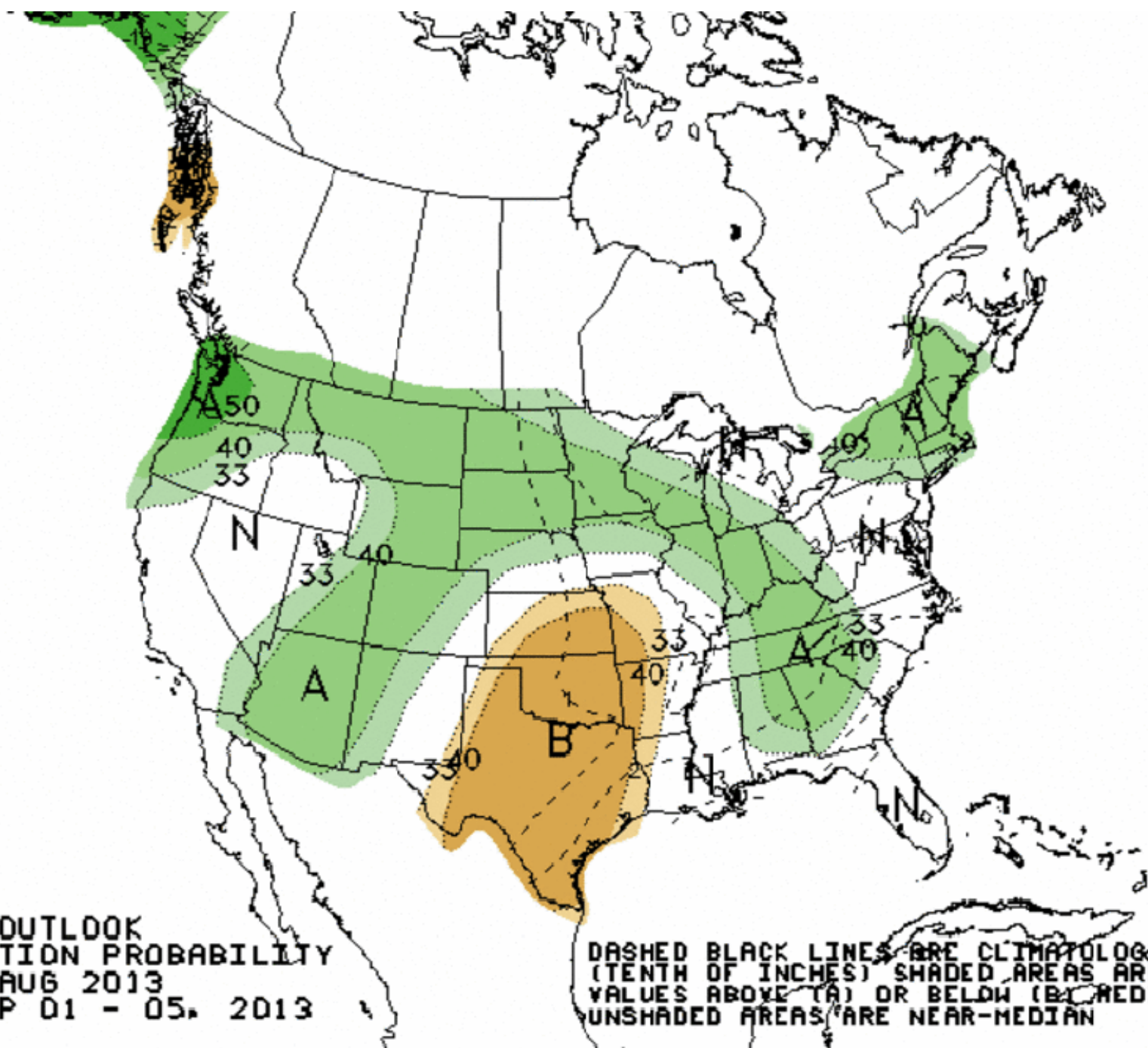
Early-Aug CPC/IRI Consensus Probabilistic ENSO Forecast





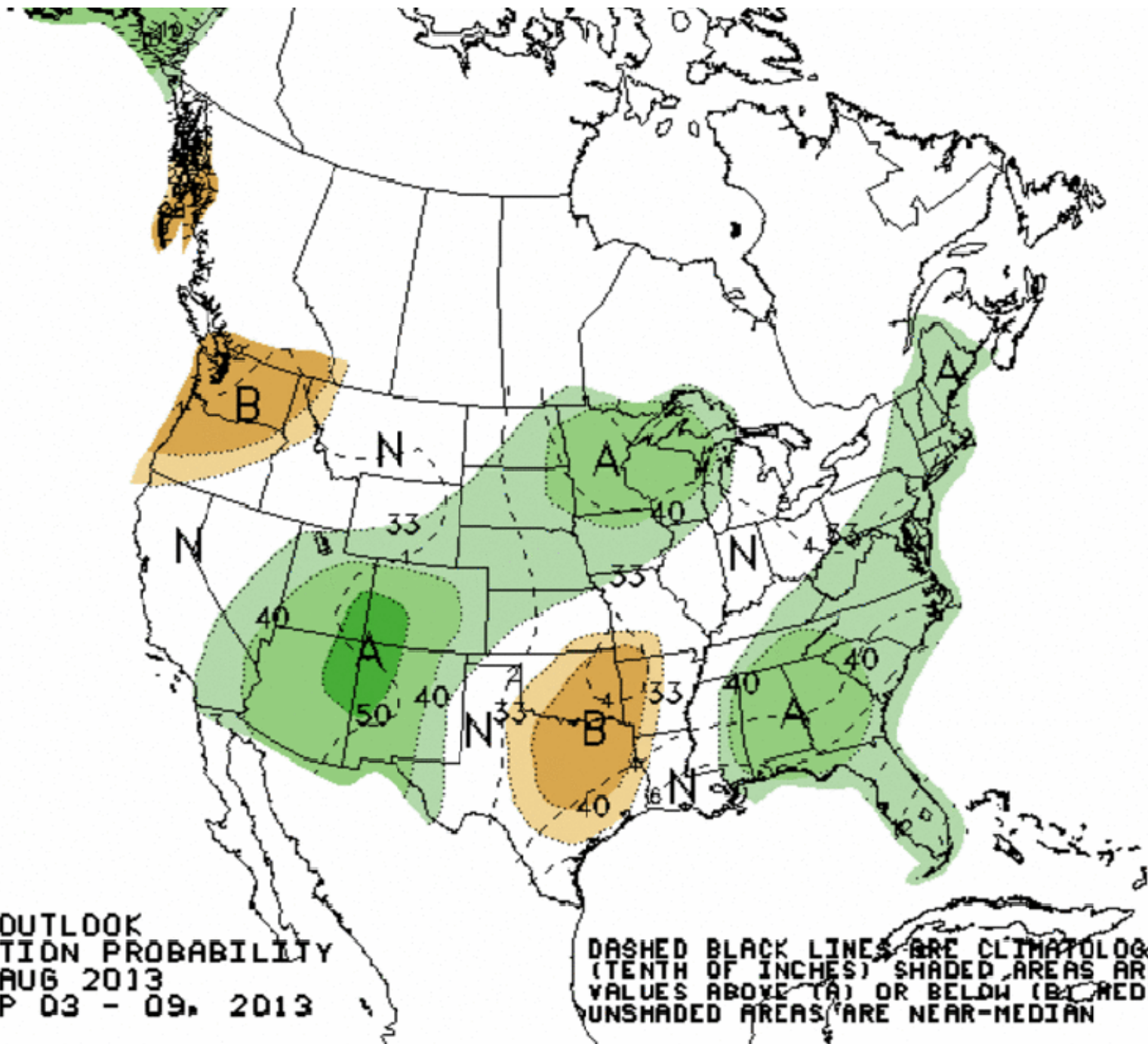
6-10 DAY OUTLOOK
PRECIPITATION PROBABILITY
MADE 26 AUG 2013
VALID SEP 01 - 05, 2013

DASHED BLACK LINES ARE CLIMATOLOGY
(TENTH OF INCHES) SHADED AREAS ARE FCS
VALUES ABOVE (A) OR BELOW (B) MEDIAN
UNSHADED AREAS ARE NEAR-MEDIAN



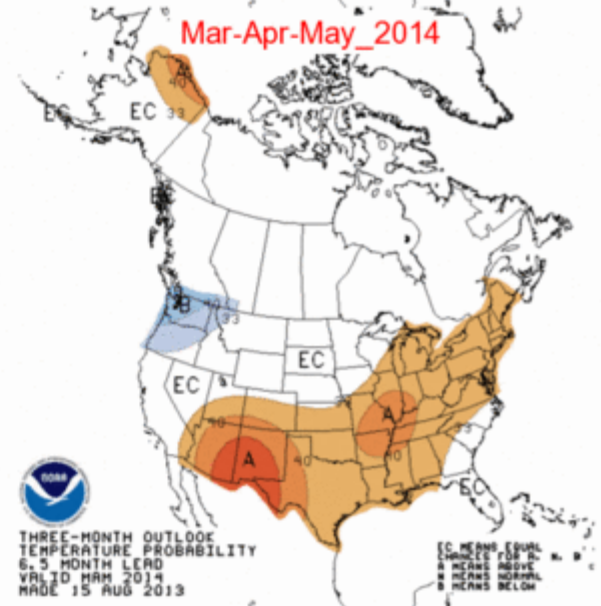
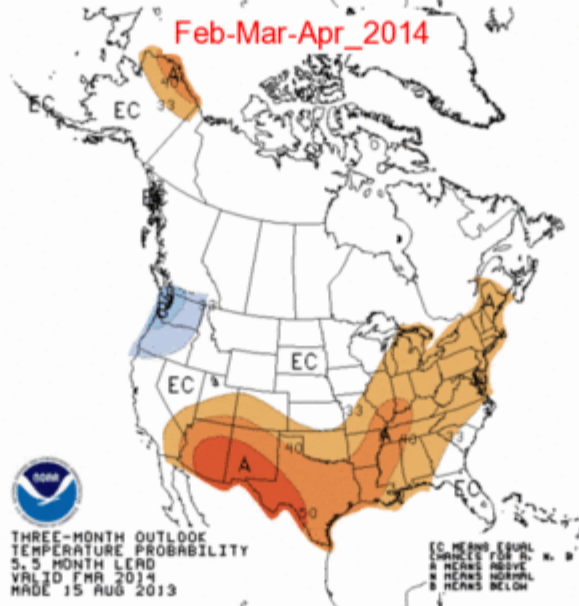
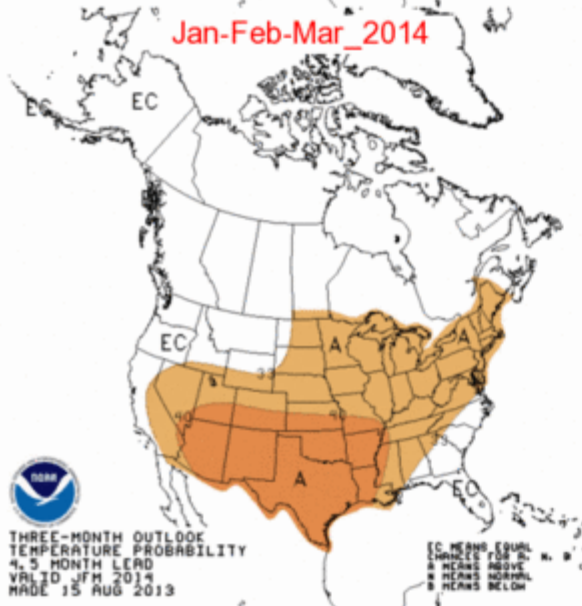
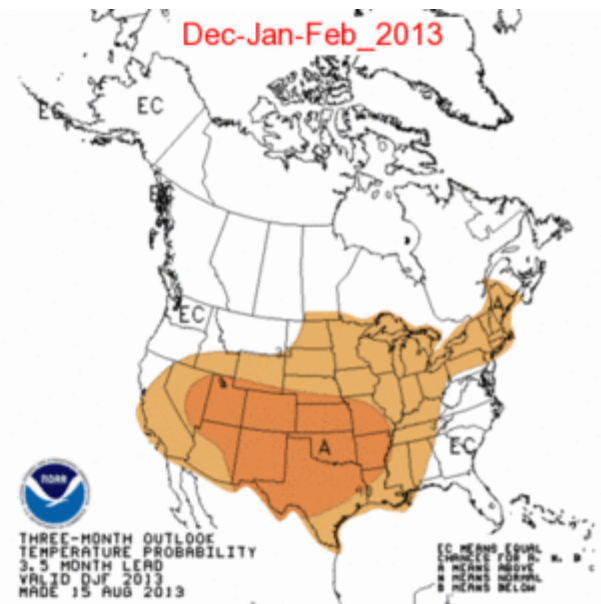
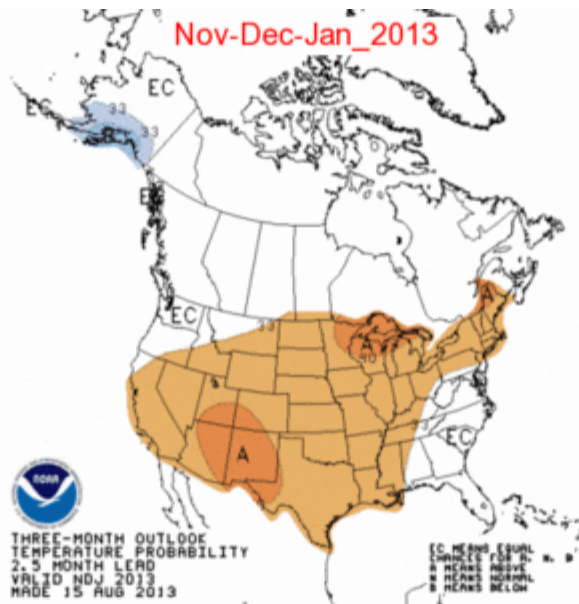
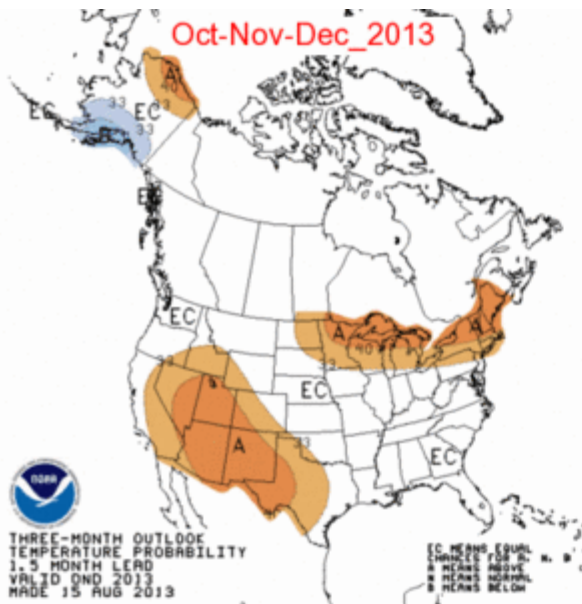


8-14 DAY OUTLOOK
PRECIPITATION PROBABILITY
MADE 26 AUG 2013
VALID SEP 03 - 09, 2013

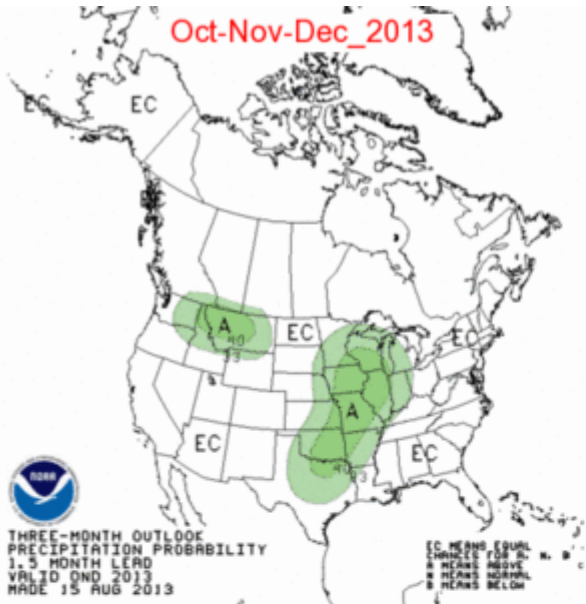


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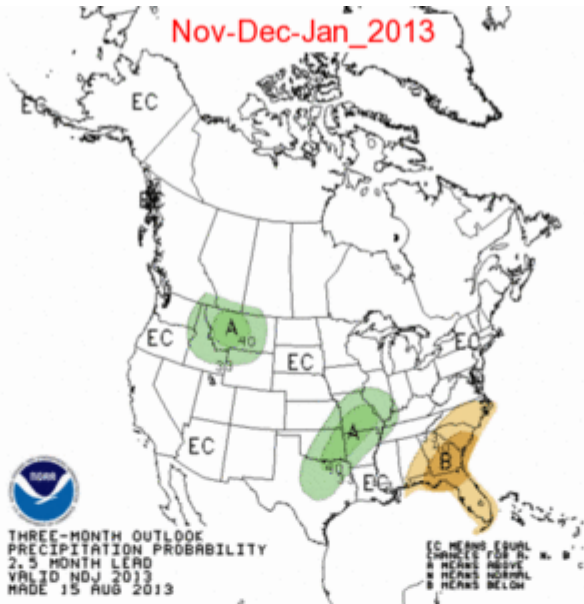




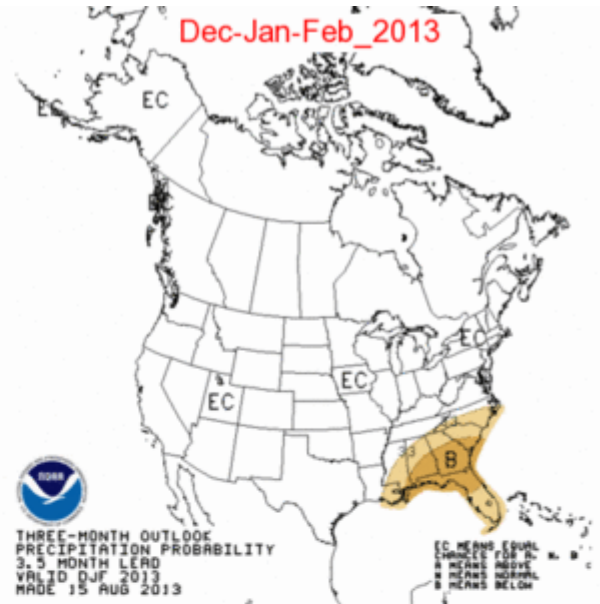
Oct-Nov-Dec_2013



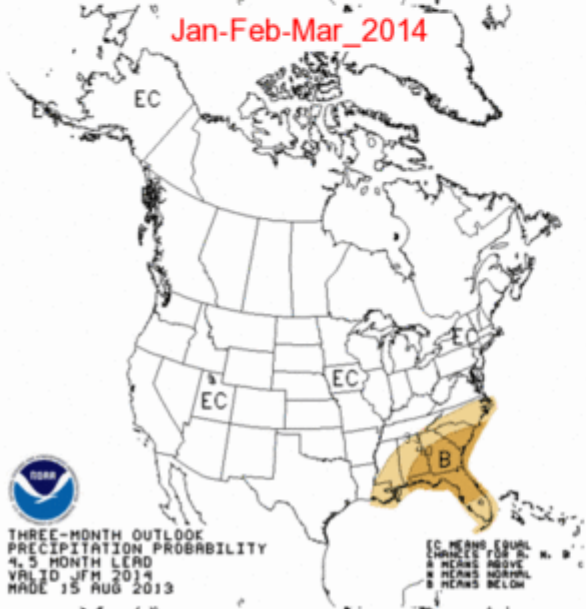
Nov-Dec-Jan_2013



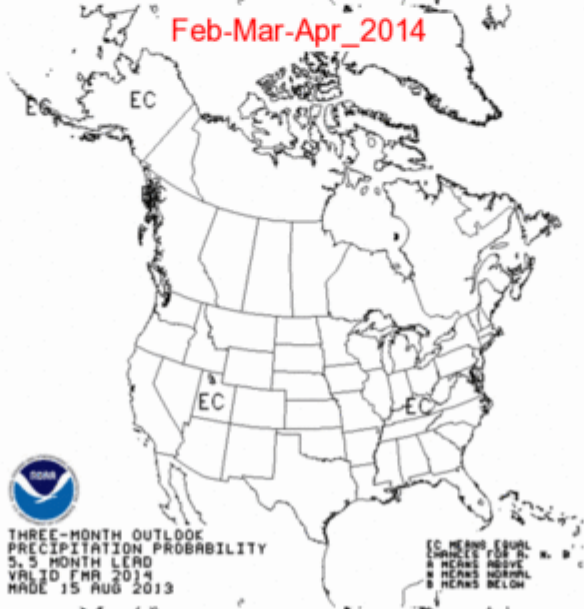
Dec-Jan-Feb_2013



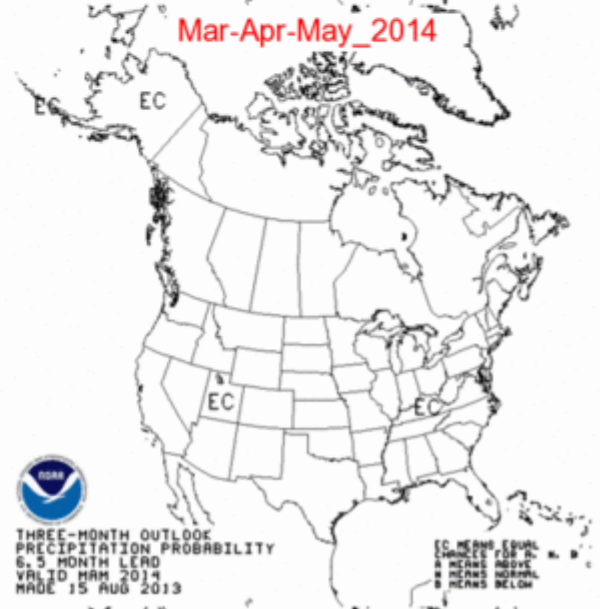
Jan-Feb-Mar_2014



Feb-Mar-Apr_2014



Mar-Apr-May_2014



Water Year 2014 Forecasts

(as of August 19th CBRFC Forecast)

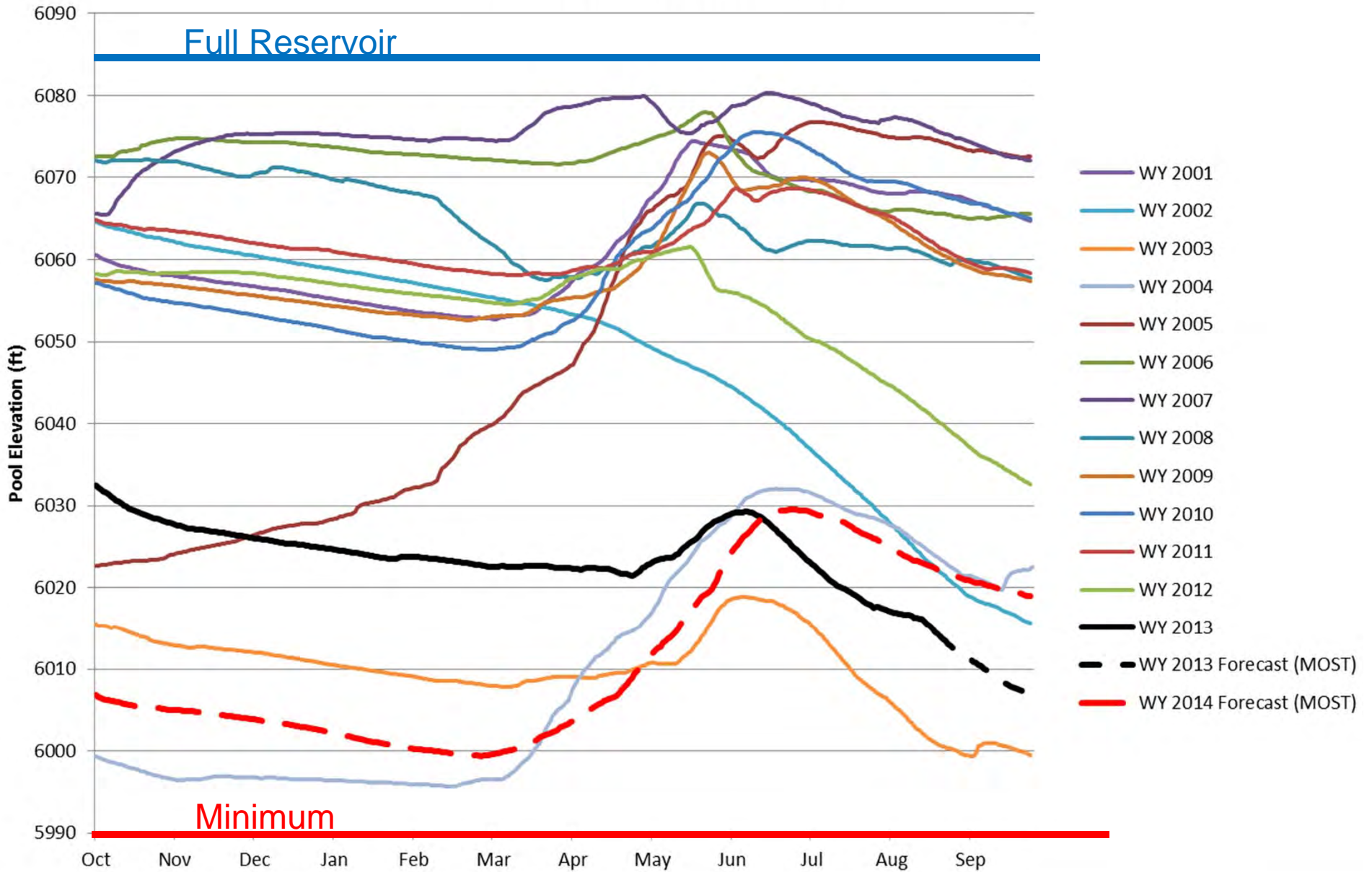
Forecast	Water Year		April - July	
	Volume (af)	% of avg	Volume (af)	% of avg
MIN	468,000	43%	291,000	39%
MOST	838,000	78%	600,000	81%
MAX	1,064,000	99%	737,000	100%

2014 Spring Peak Release

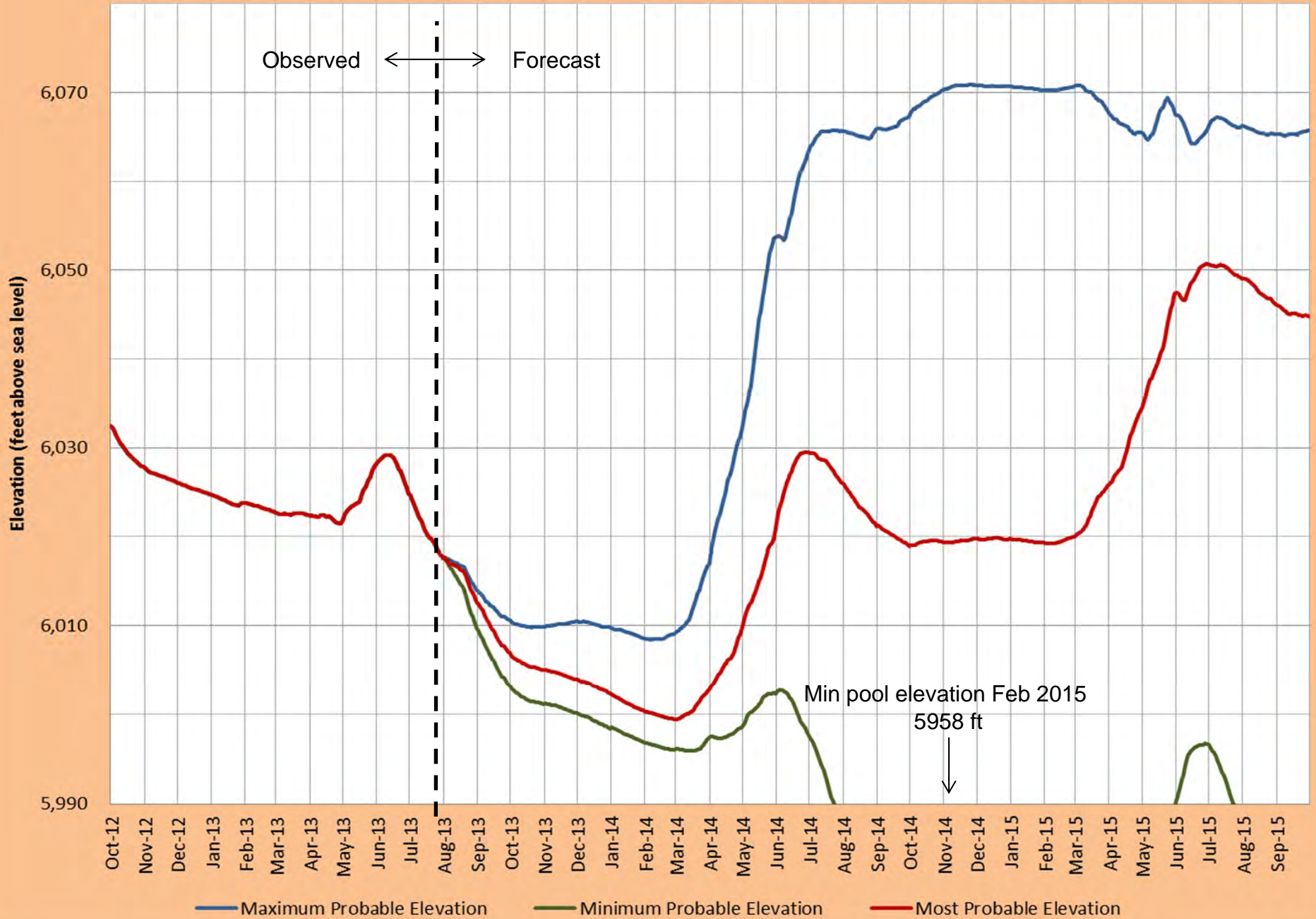
Probability	Available Water	Release
Min	(252,000) af	none
Most	(32,000) af	none
Max	500,000 af	1 week at 5,000 cfs

As of August 19th CBRFC Forecast

Historic and Forecast Pool Elevations based on current Most Probable Operation Plan (as of August 19th CBRFC Forecast)



Navajo Reservoir Elevation



WHAT IS A SHORTAGE?

To prevent a shortage, several preventative water saving measures may take place.

A “Shortage” is declared when under Minimum Probable Conditions, the pool elevation at Navajo is forecasted to drop below 5990 ft at any time during the year. This is the elevation required to maintain NIIP diversions.



1. Use minimum base flow of 350 cfs



2. Use minimum base flow of 250 cfs



3. SJRIP voluntary reduction in Target Base Flow



4. Shortage Sharing Begins

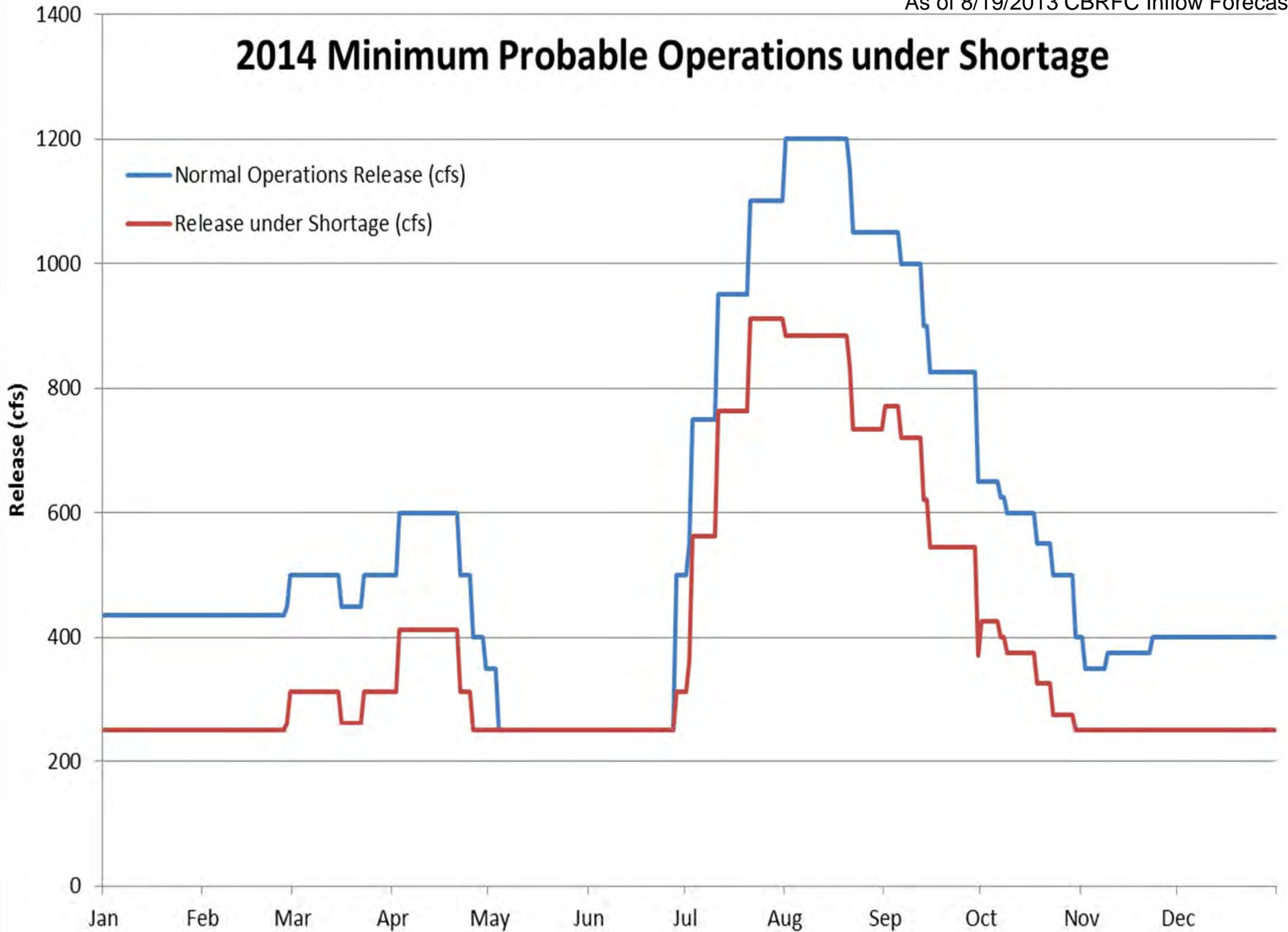
2014 Shortage Forecast

under MINIMUM Probable Conditions

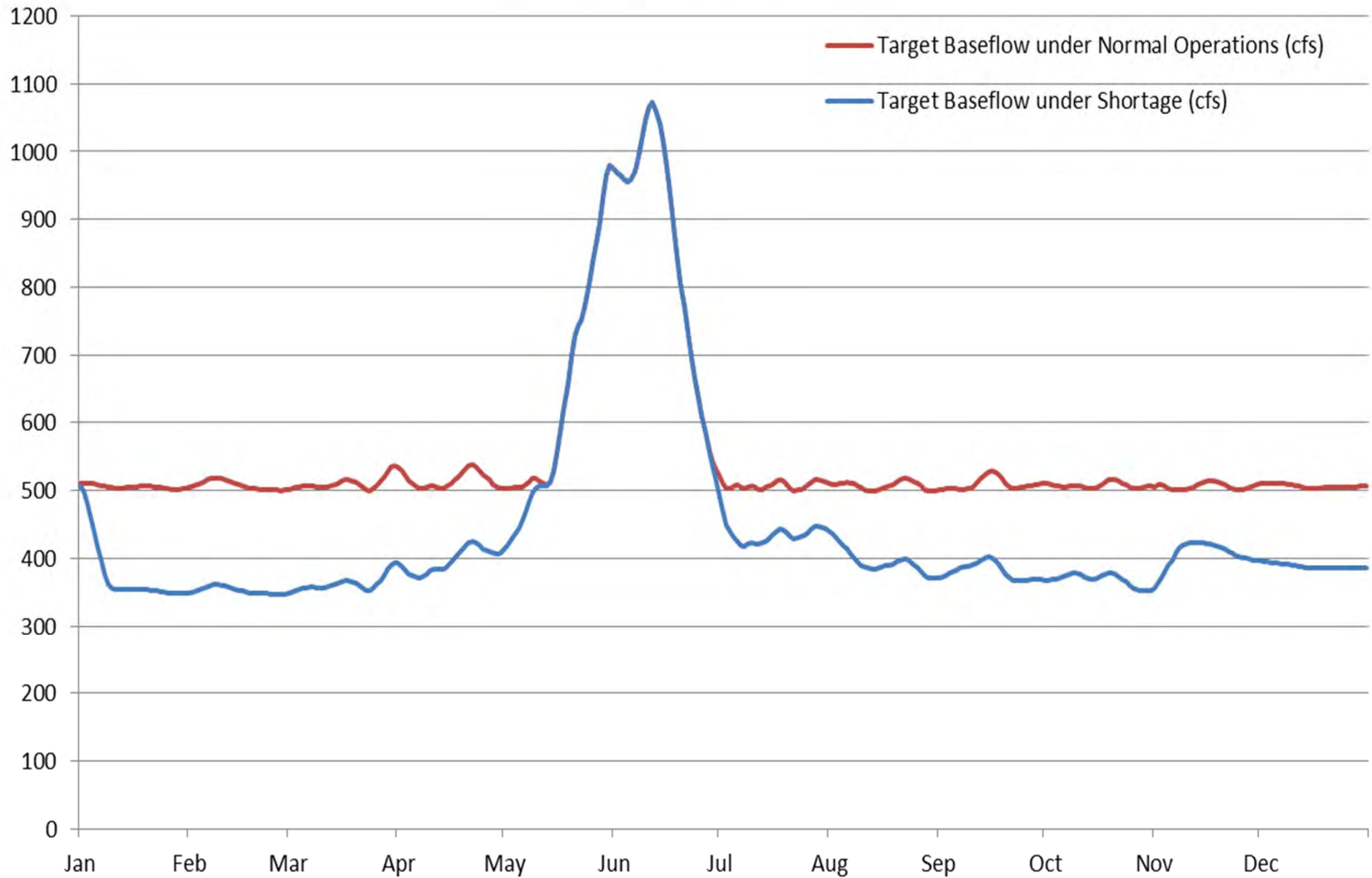
Minimum Target Elevation	5990 ft (661,800 af)
Minimum Forecast Elevation	5958 ft (457,210 af)
Date to reach 5990 af	August 3, 2014
Date to reach Min Forecast Elevation	February 14, 2015
Forecast Volume Deficit	204,590 af
Normal User Demand	597,515 af
FORECAST SHORTAGE* (deficit/demand)	34.4% (In Effect Jan 1 2014 – Dec 31 2014)

* Applied to endorsing parties of the shortage sharing agreement for 2013-2016

2014 Minimum Probable Operations under Shortage



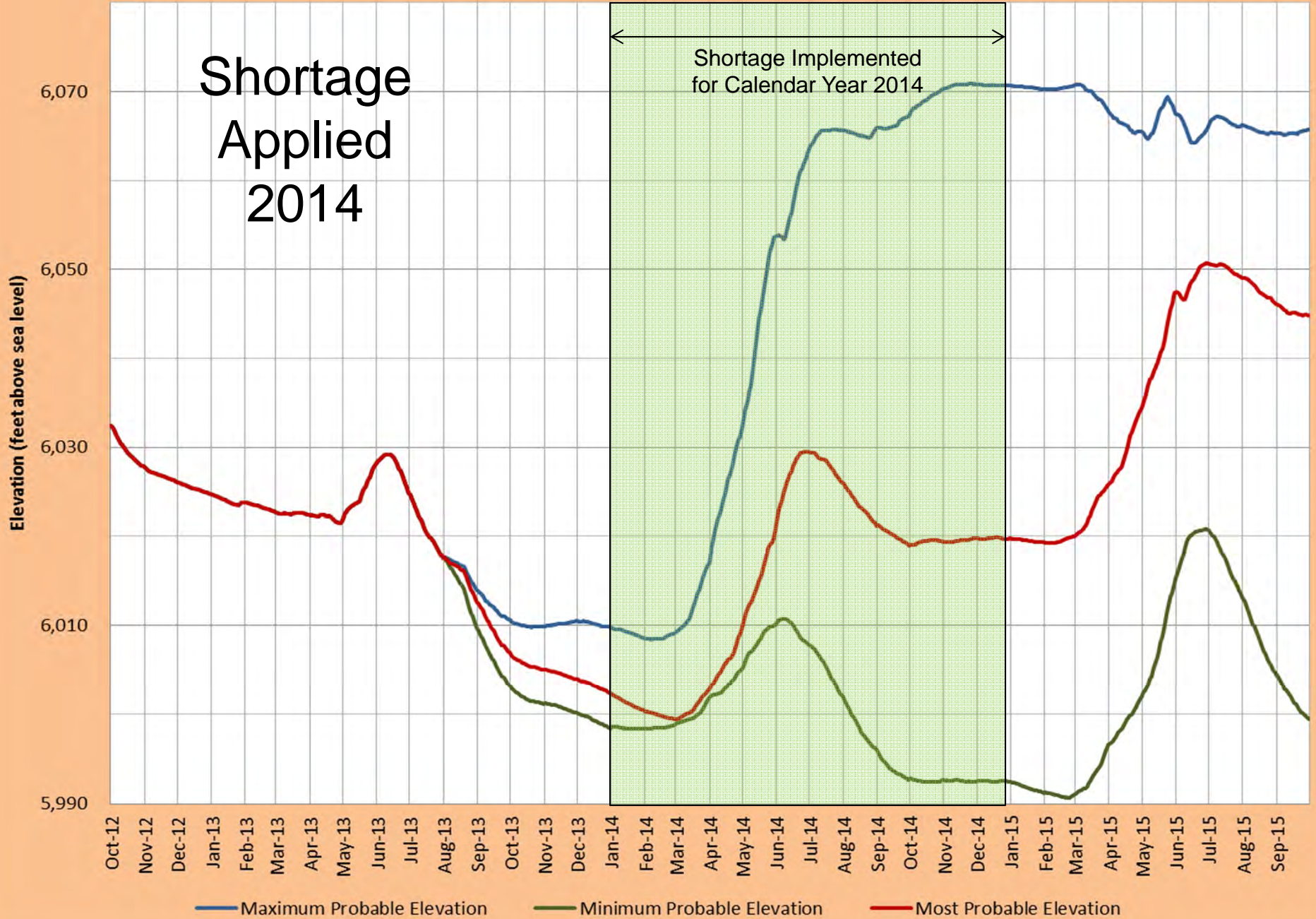
2014 Minimum Probable Target Baseflow (7-day moving mean)



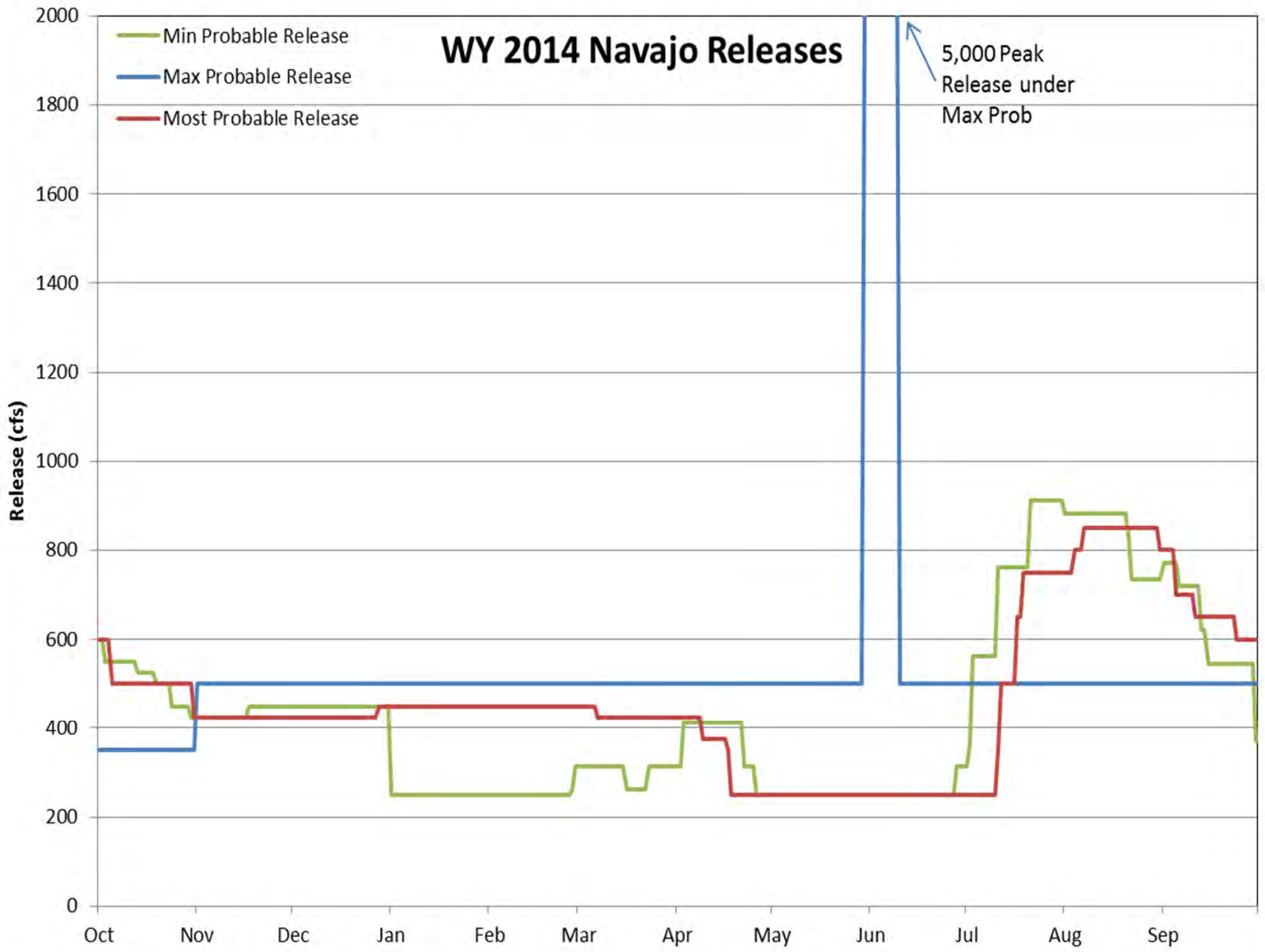
Implementation Constraints

- 250 cfs minimum release (ROD)
- Target Base Flow of 350 cfs for no more than 50 days, of which no more than 40 days may be under 300 cfs, with a minimum of 250 cfs (from shortage sharing agreement for 2013-2016)

Navajo Reservoir Elevation



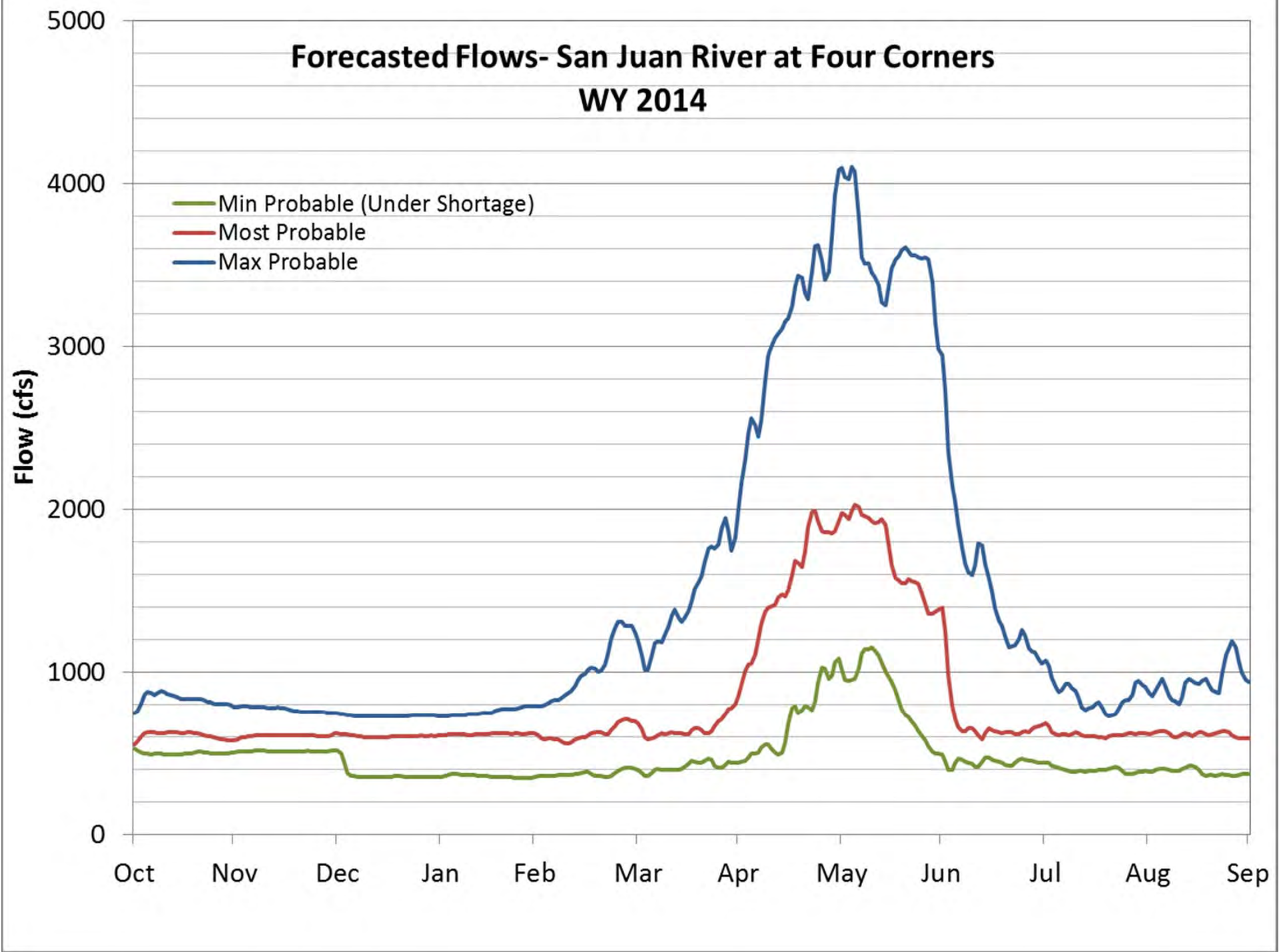
WY 2014 Navajo Releases



- Min Probable Release
- Max Probable Release
- Most Probable Release

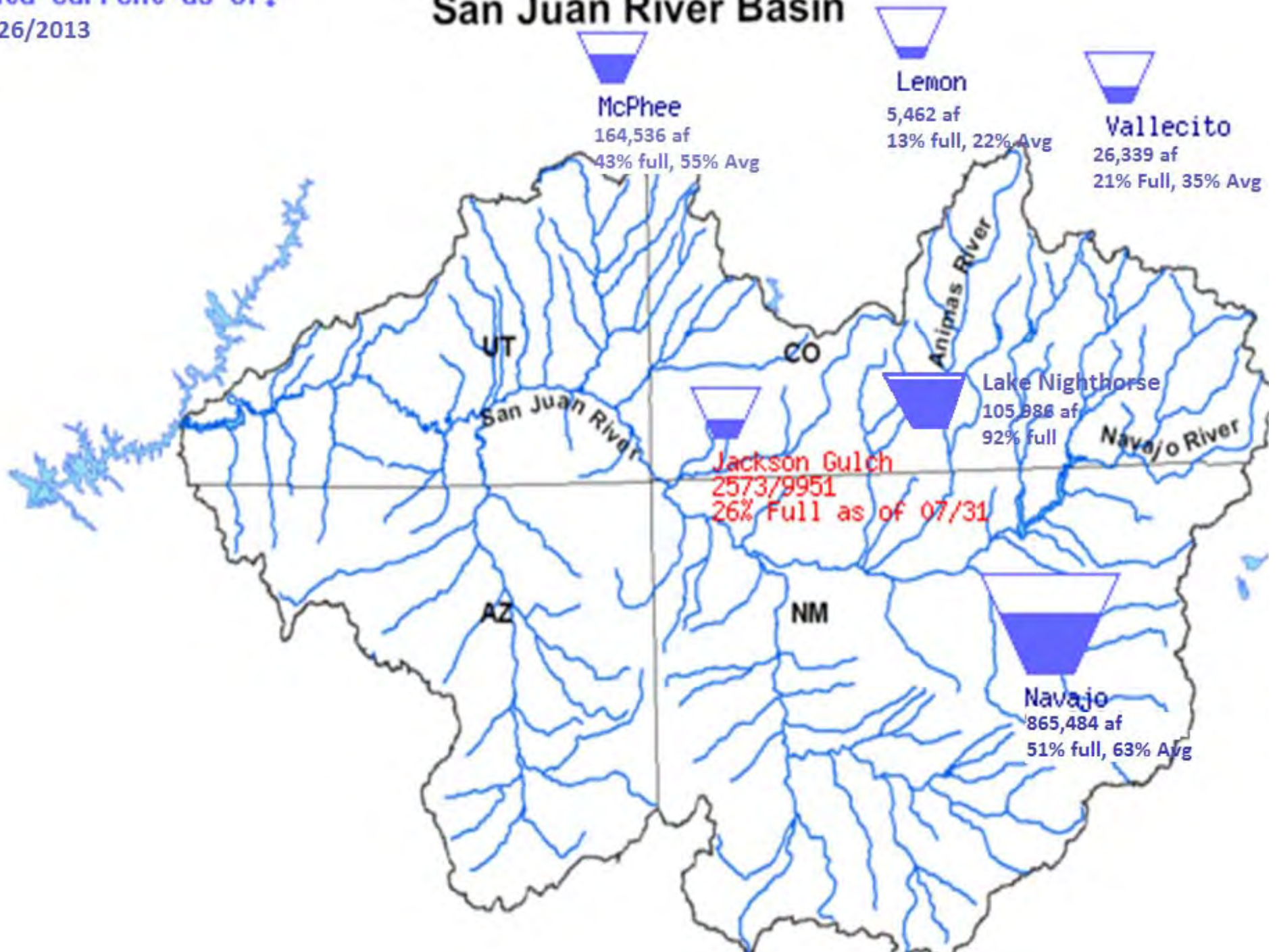
5,000 Peak Release under Max Prob

Forecasted Flows- San Juan River at Four Corners WY 2014



Data Current as of:
8/26/2013

San Juan River Basin



Major San Juan River Basin Reservoirs

(8/26/2013)

Nighthorse

- Elevation = 6875.8
- Storage = 105,986 af (92% Full)
- Release = 0 cfs
- Pumping = 0 cfs

Vallecito

- Elevation = 7617.9
- Storage = 26,339 af (21% Full, 35% of average)
- Release = 195 cfs
- Inflow = 553 cfs
- April-July Inflow = 91,000 AF (47% avg)

Lemon

- Elevation = 8060.4
- Storage = 5,462 af (13% Full, 22% of average)
- Release = 26 cfs
- Inflow = 109 cfs
- April-July Inflow = 23,000 AF (42% avg)

Navajo Maintenance Activities

- Right groin rehabilitation including toe drain system (spring)
- 30” Hollow-Jet and Ring Follower Rebuild
- Ditch maintenance (State)
- Weed spraying in fall
- Replacing roof of shop building
- Instrumentation update for early warning system within dam

- Biology Committee Meeting Nov 19-20 at Durango Public Lands Center
- Remote PIT tag reader installation
 - Mexican Hat: Week of November 11
 - PNM site: Week of December 2
- Annual river-wide fish community monitoring and stocking of razorback sucker from NAPI ponds and Colorado pikeminnow and razorback sucker from FWS hatcheries occurring this fall

How You Can Access Information

Bureau of Reclamation
www.usbr.gov/uc

USGS
<http://water.usgs.gov/nwis>

Colorado Basin River Forecast Center
www.cbrfc.noaa.gov



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Ruth Swickard

970-385-6523 rswickard@usbr.gov

Summary

- WY2013 had below average snowpack for most of the year
- WY2013 April – July Inflow was 36% of average (267K af)
- No Spring Peak Release was conducted
- None of the SJRIP flow goals were met
- Minimum Release = 250 cfs, Current Release = 500 cfs
- Release greater than 500 cfs can be expected to meet target base flows, but target base flows may be reduced beginning this fall or winter in coordination with SJRIP.
- Most Probable Oct 1 2014 reservoir elevation is 6019 ft
- A 34% shortage is forecast for 2014 under most recent Minimum Probable Forecast
- Most Probable hydrologic forecast for 2014 is below-average.
- A spring peak release is unlikely for 2014.
- ESP Forecast for WY2013 shows a wide variance- better idea of WY2013 conditions next meeting

Next Operations Meeting: Tuesday, January 21, 2014