

RECLAMATION

Managing Water in the West



**Navajo Unit Operations
August 21, 2012
Coordination Meeting**

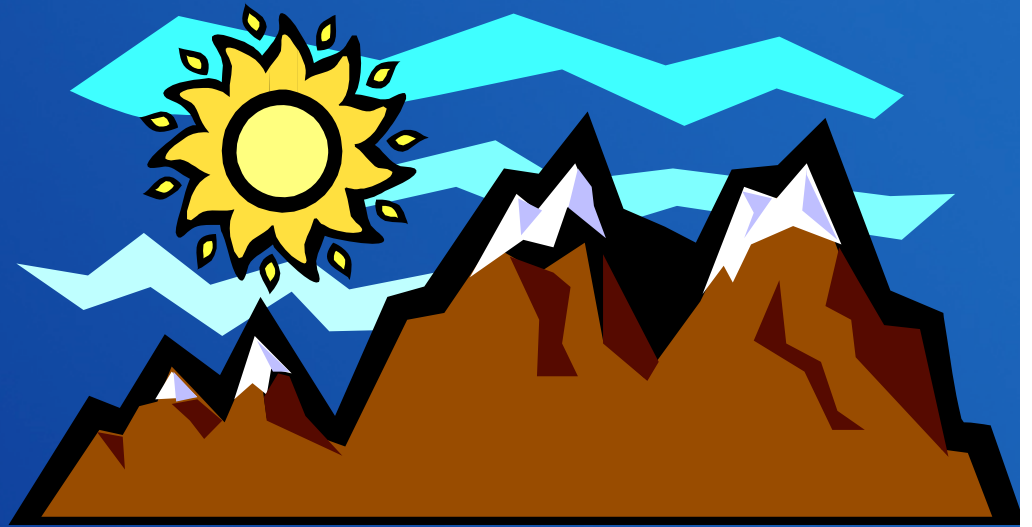


U.S. Department of the Interior
Bureau of Reclamation

Agenda

- Welcome
- Special Presentation – Colorado Basin River Forecasting Center – Greg Smith, Senior Hydrologist
- Water Year 2012 Hydrologic Conditions
- Review of Water Year 2012 Operations
- Current Conditions
- Water Year 2013 Forecasts and Proposed Operations
- Navajo Dam Maintenance Activities
- Nearby Projects Update
- Fish & Wildlife Service/San Juan RIP Update
- Reports from other Agencies
- Close

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Water Year 2012

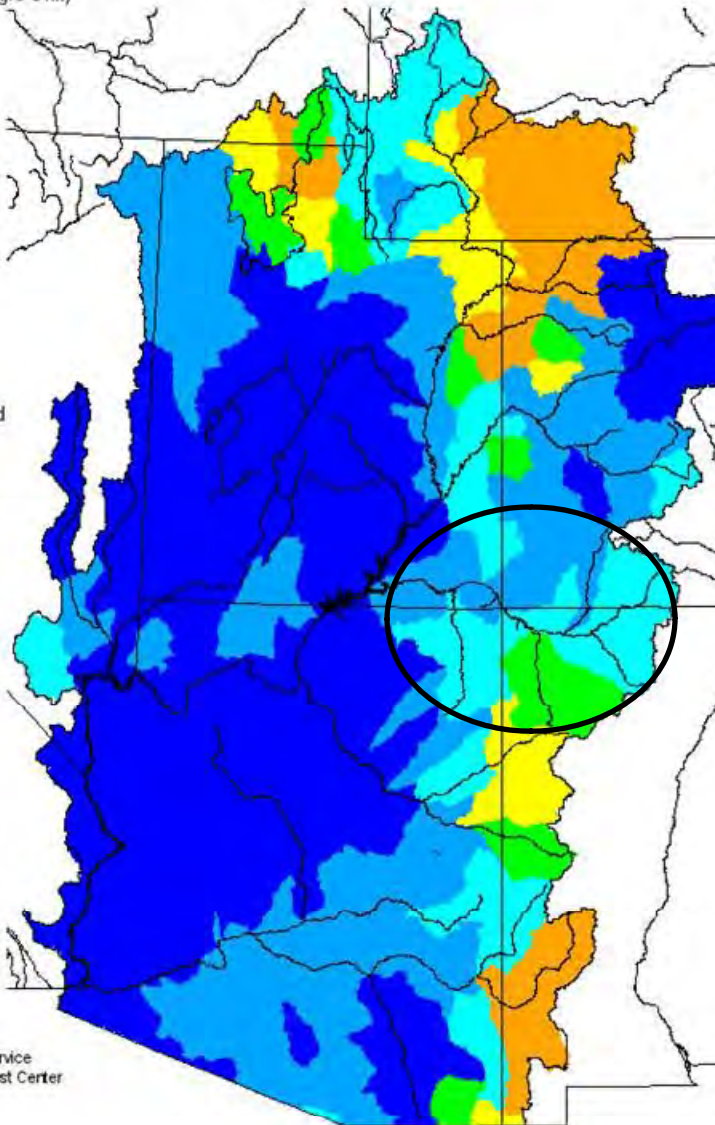
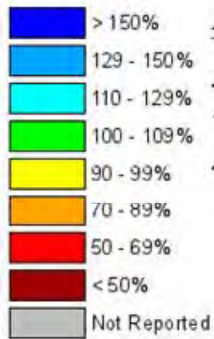
Hydrologic Conditions

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Monthly Precipitation for July 2012

(Averaged by Hydrologic Unit)

% Average

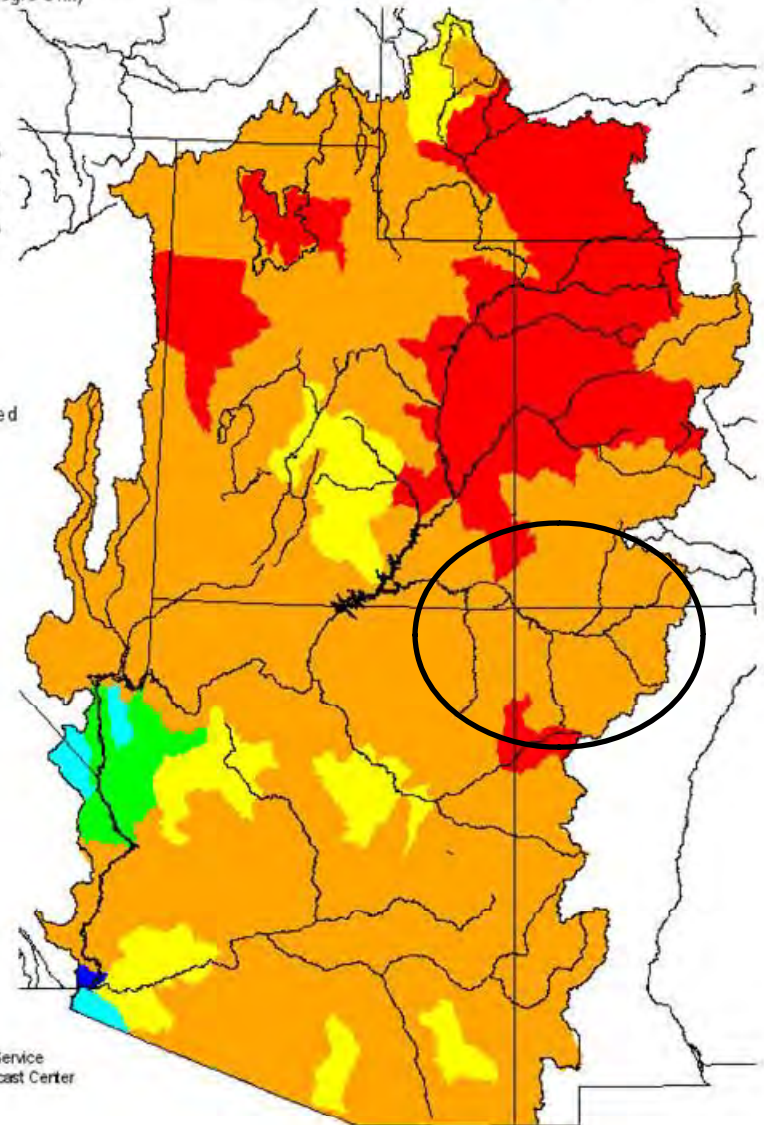
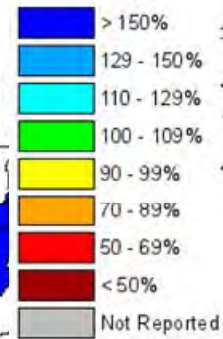


Prepared by
NOAA, National Weather Service
Colorado Basin River Forecast Center
Salt Lake City, Utah
www.cbrfc.noaa.gov

Seasonal Precipitation, October 2011 - July 2012

(Averaged by Hydrologic Unit)

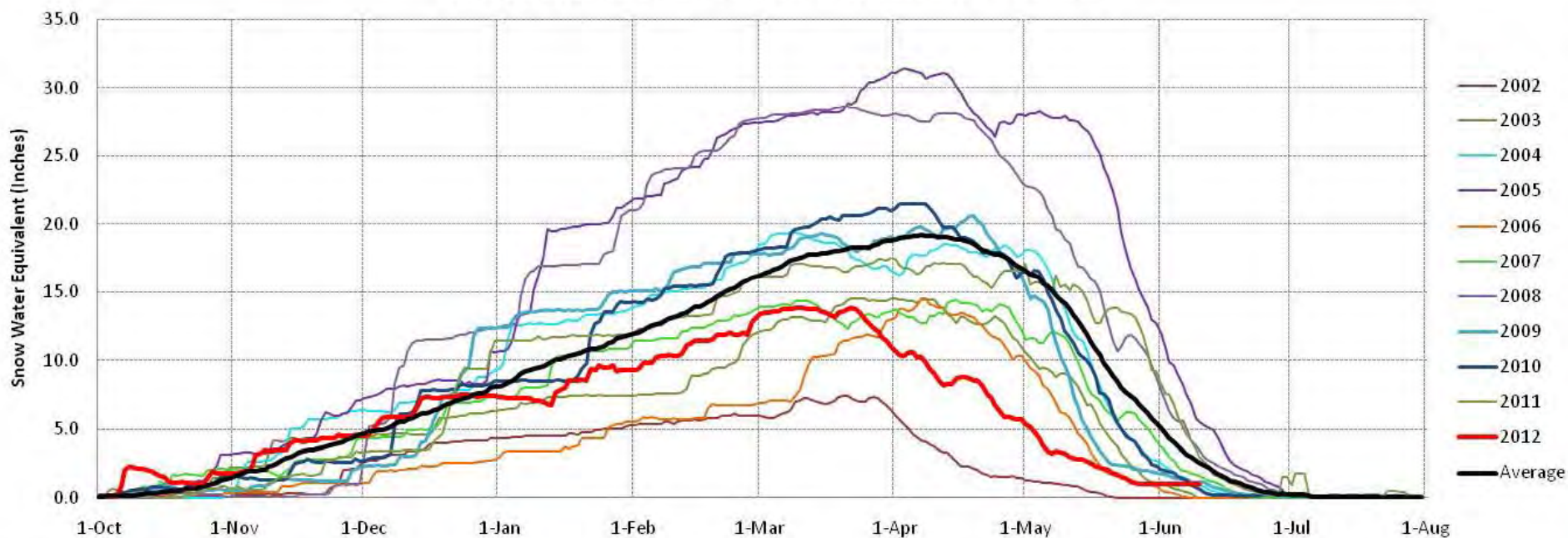
% Average



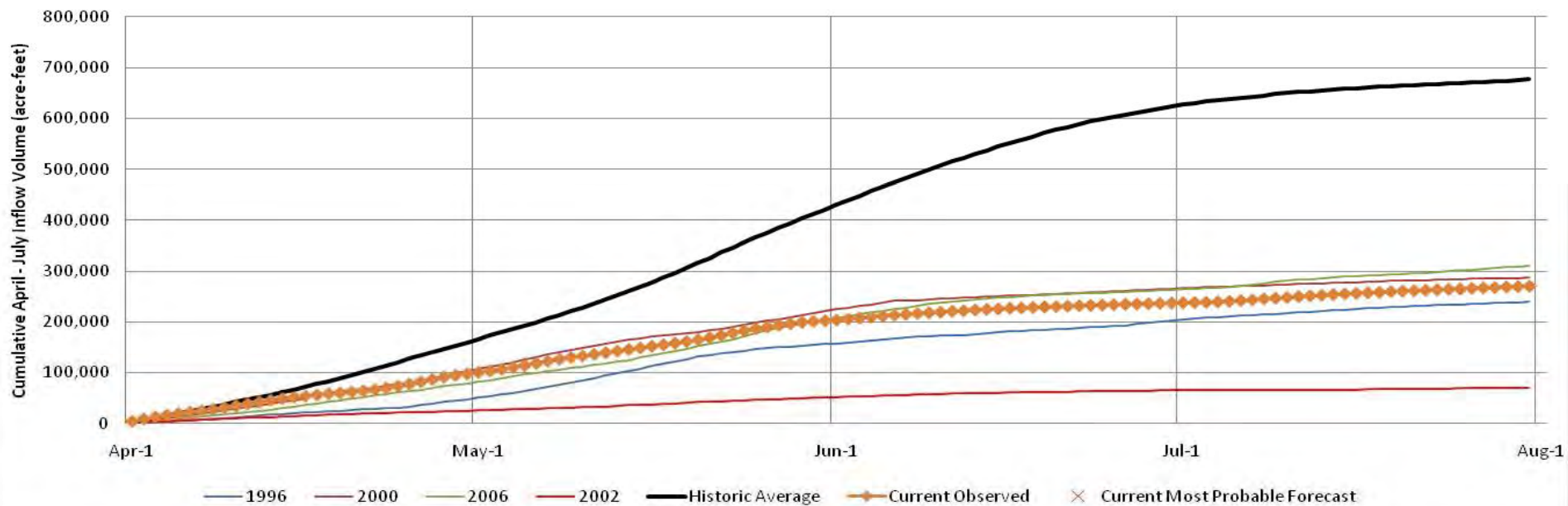
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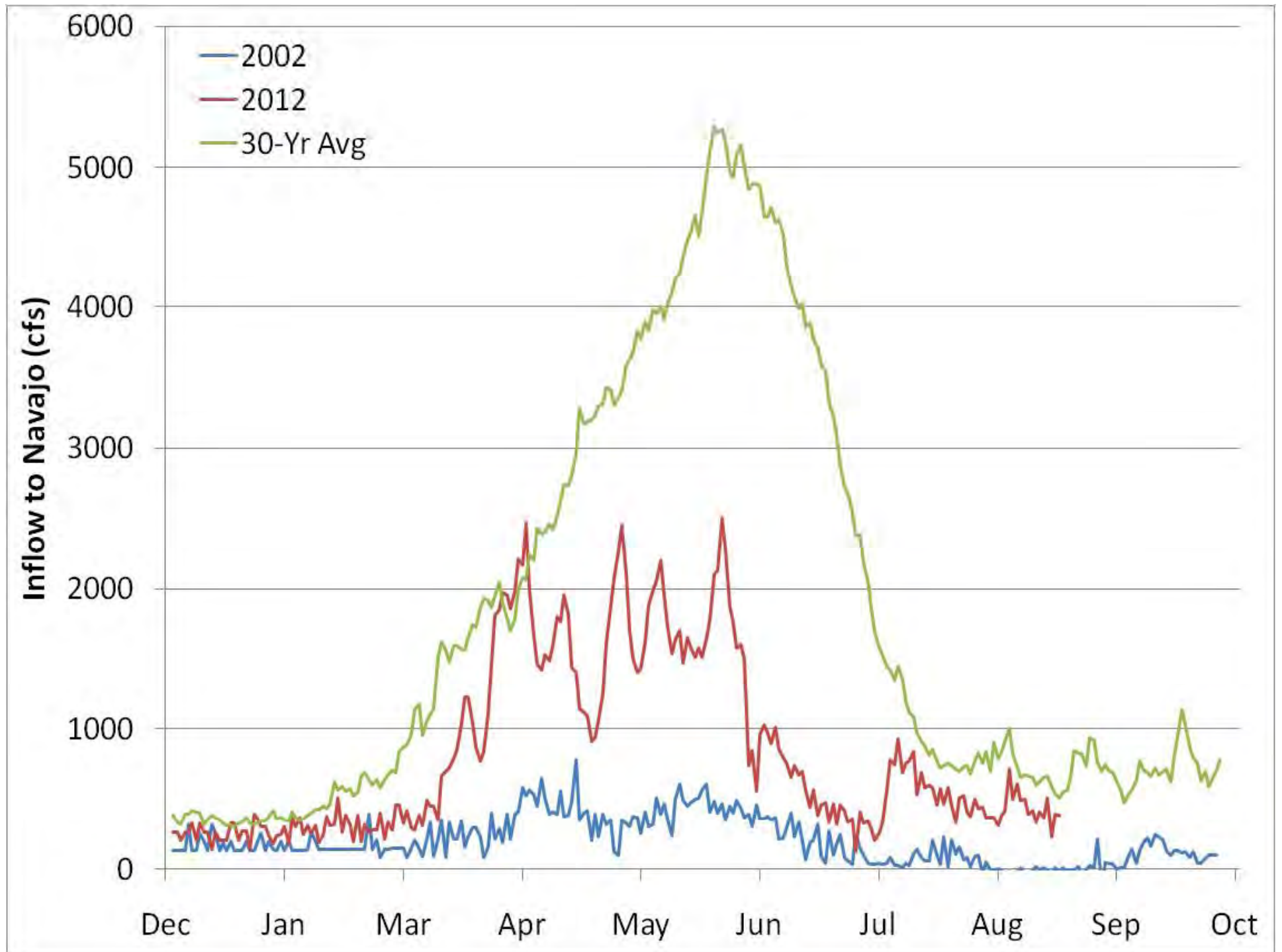
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Navajo Reservoir SNOTEL SWE from 2002-2012



Cumulative April - July Observed Inflow of Representative SWE Years





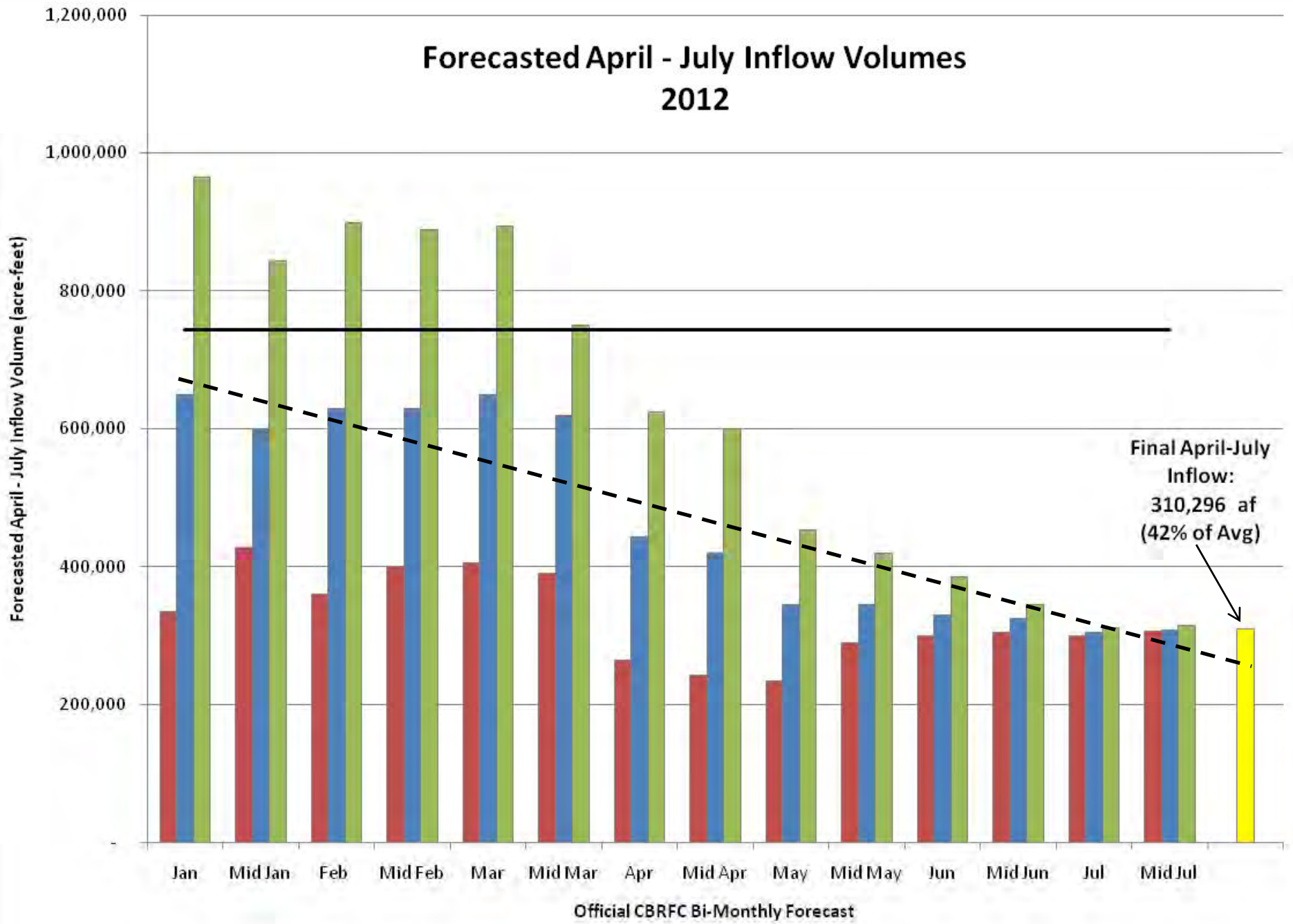
Total April-July Inflow Rank

(1987-present)

2002	1996	2003	Current	2000	2006	1989
36,741	275,589	306,809	310,296	326,843	378,589	470,125

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Forecasted April - July Inflow Volumes 2012

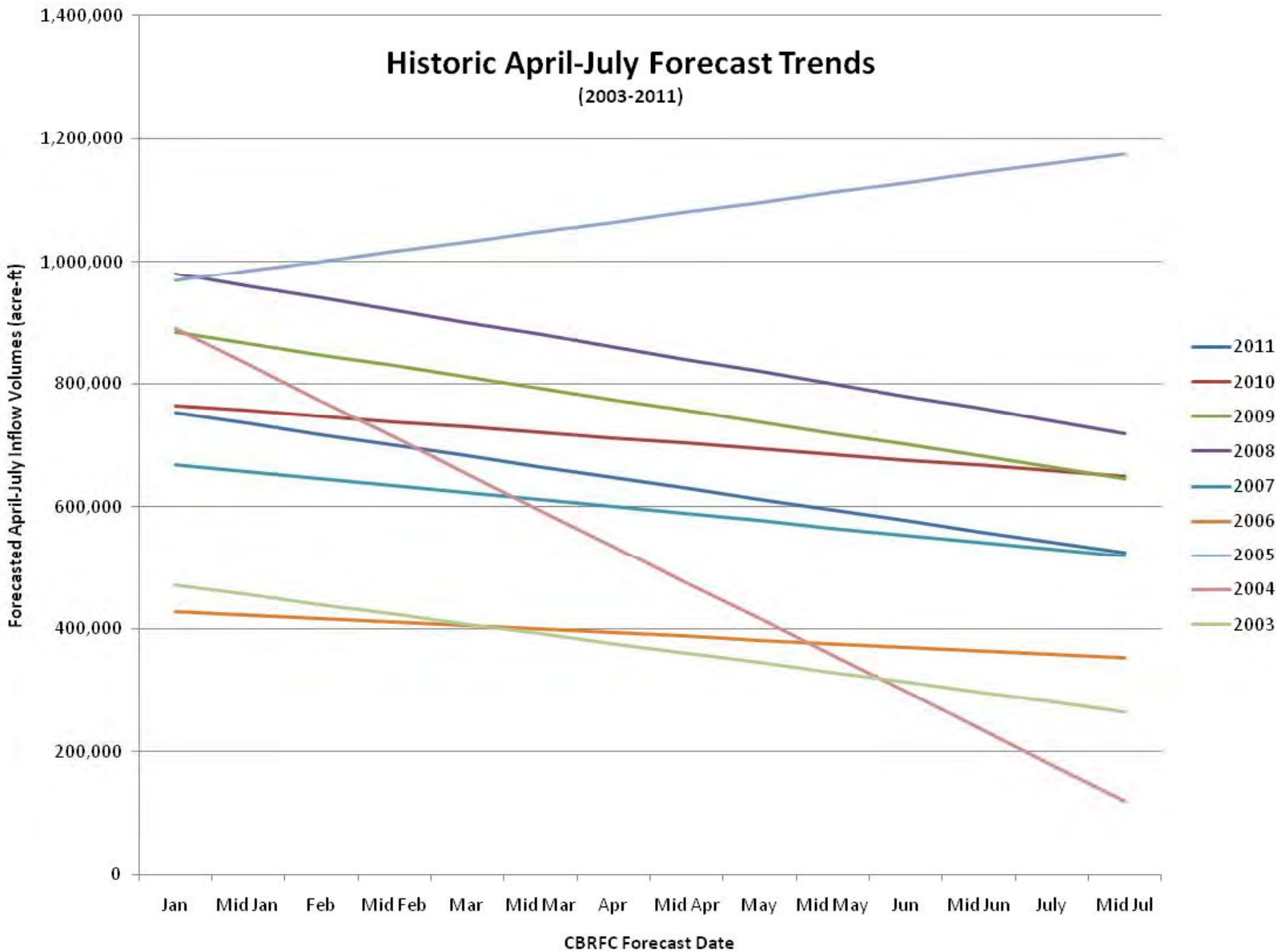


Final April-July
Inflow:
310,296 at
(42% of Avg)

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

Historic April-July Forecast Trends

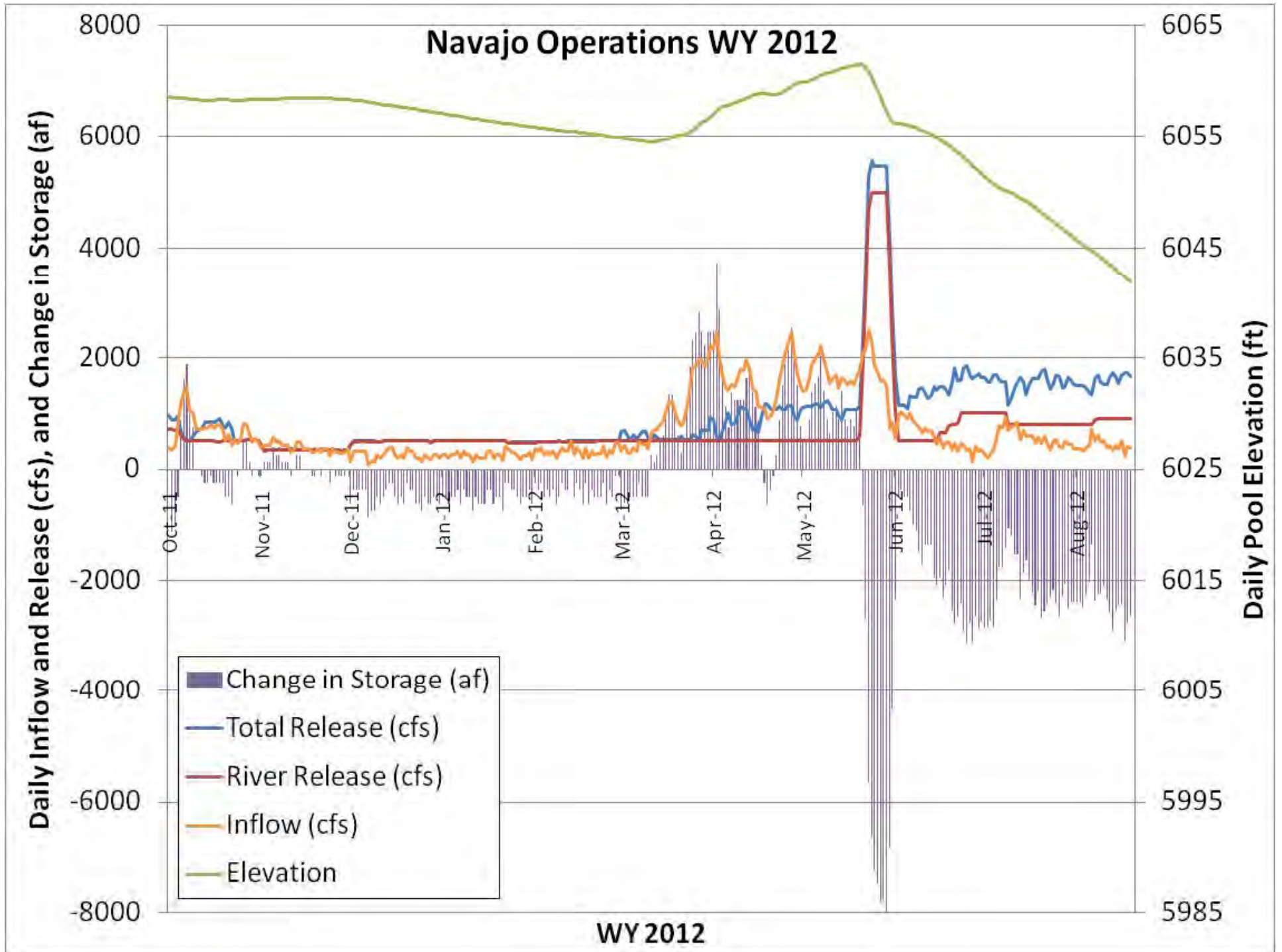
(2003-2011)



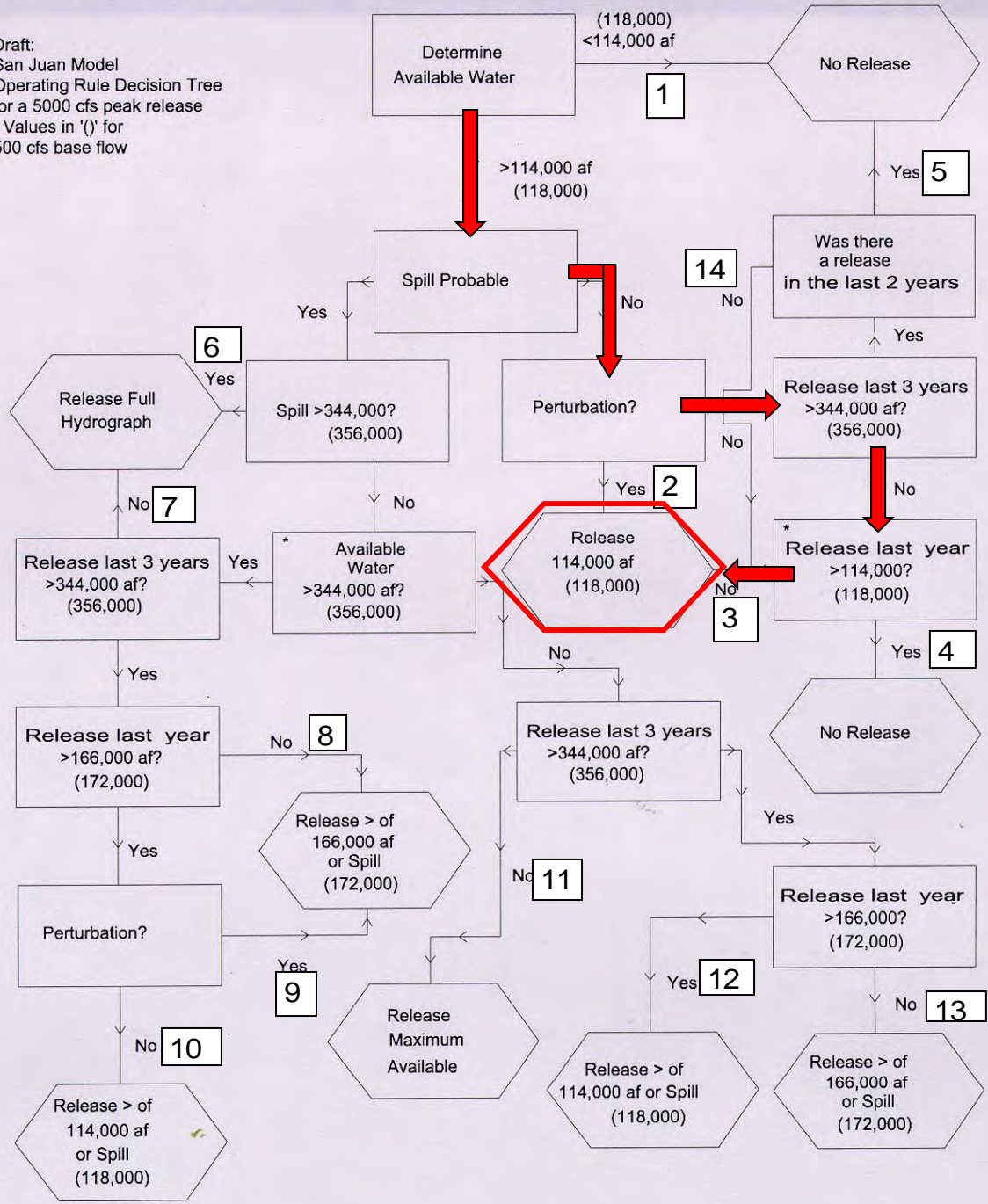
Review of Water Year 2012 Operations



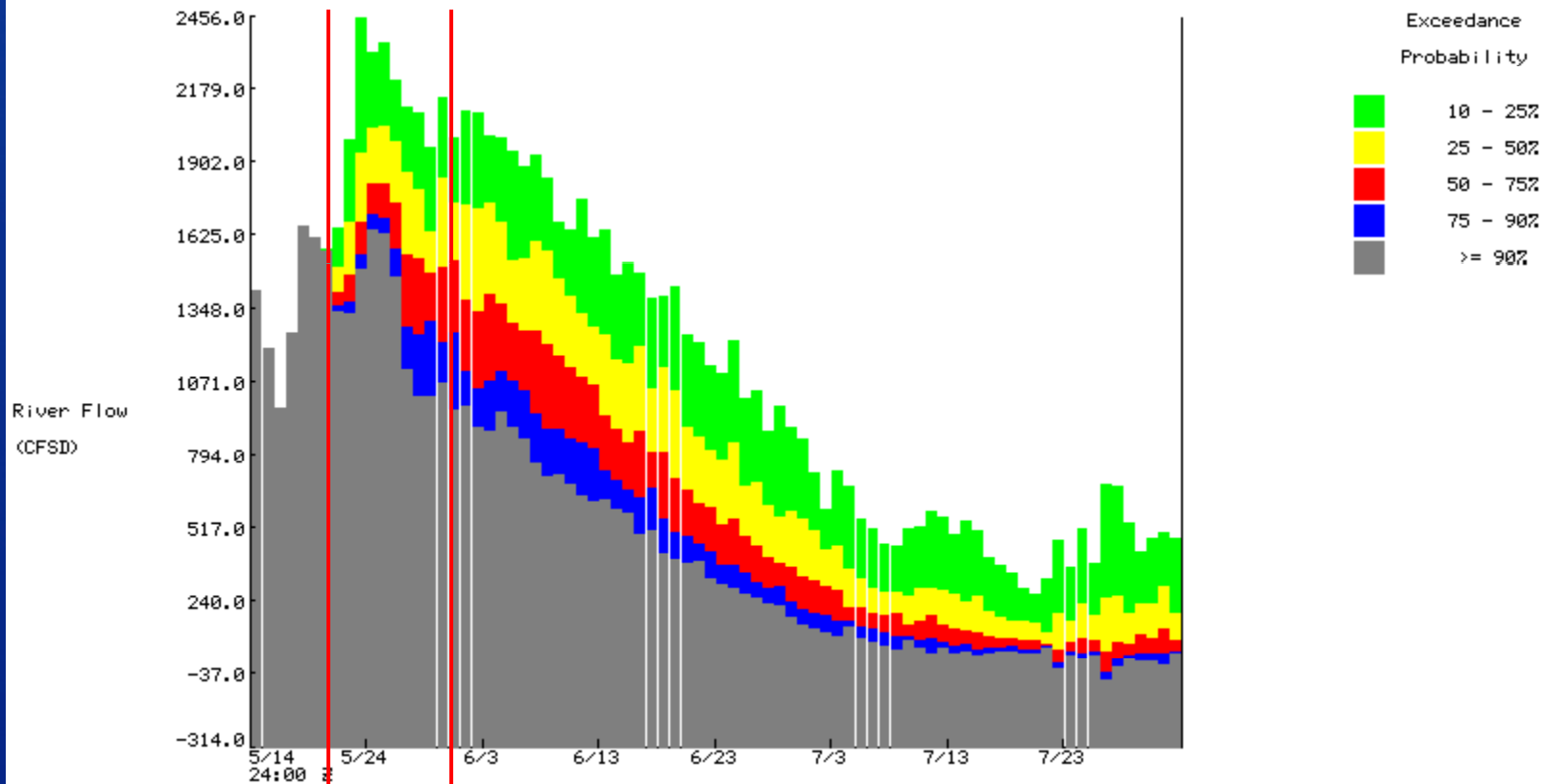
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Draft:
 San Juan Model
 Operating Rule Decision Tree
 for a 5000 cfs peak release
 - Values in '()' for
 500 cfs base flow



1 Day Chances of Exceeding River Levels on the ANIMAS - FARMINGTON
 Latitude: 36.7 Longitude: -108.2
 Forecast for the period 5/14/2012 24h - 8/1/2012 24h
 This is a conditional simulation based on the current conditions as of 5/14/2012

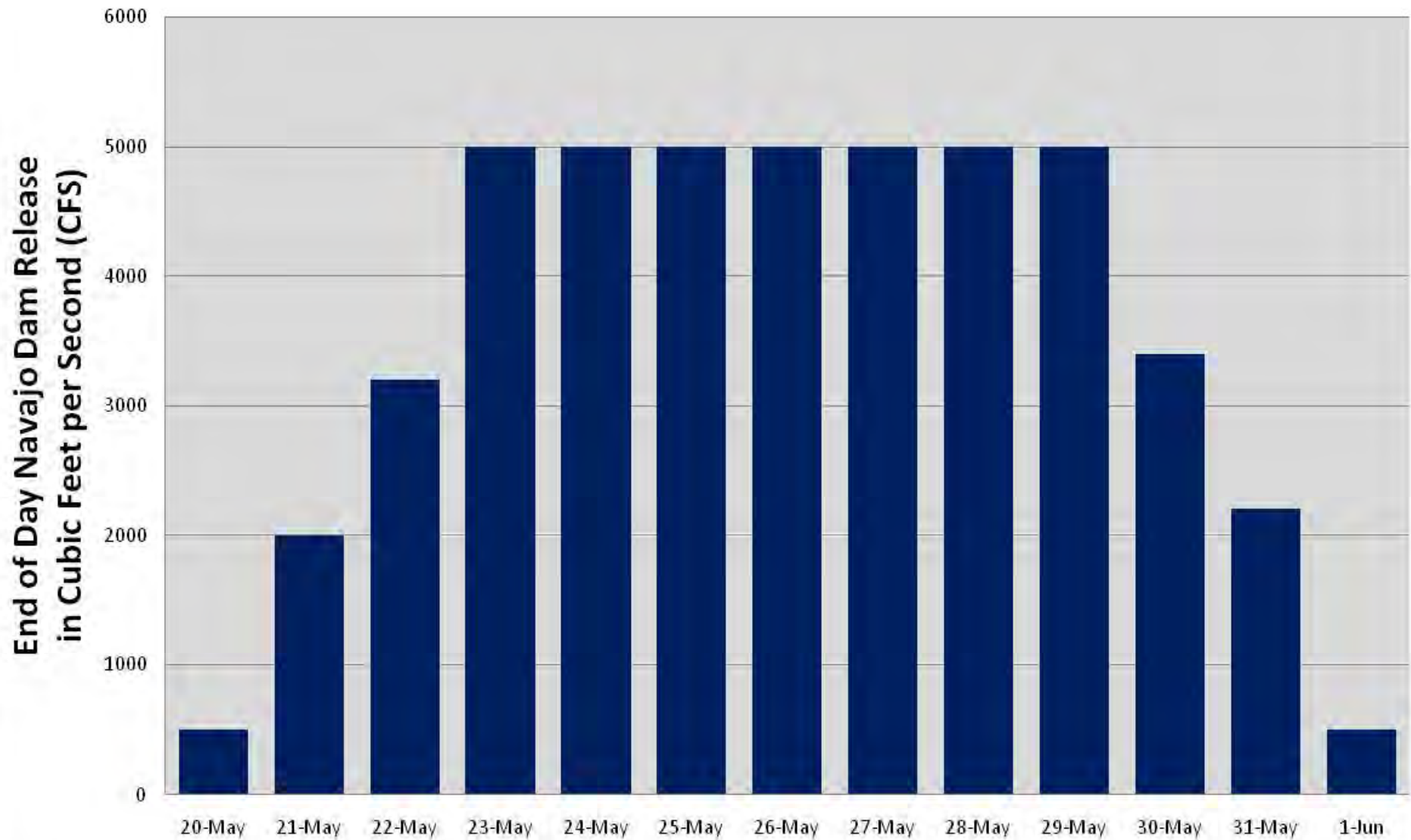


CBRFC May 14

SPR: May 21-June 1

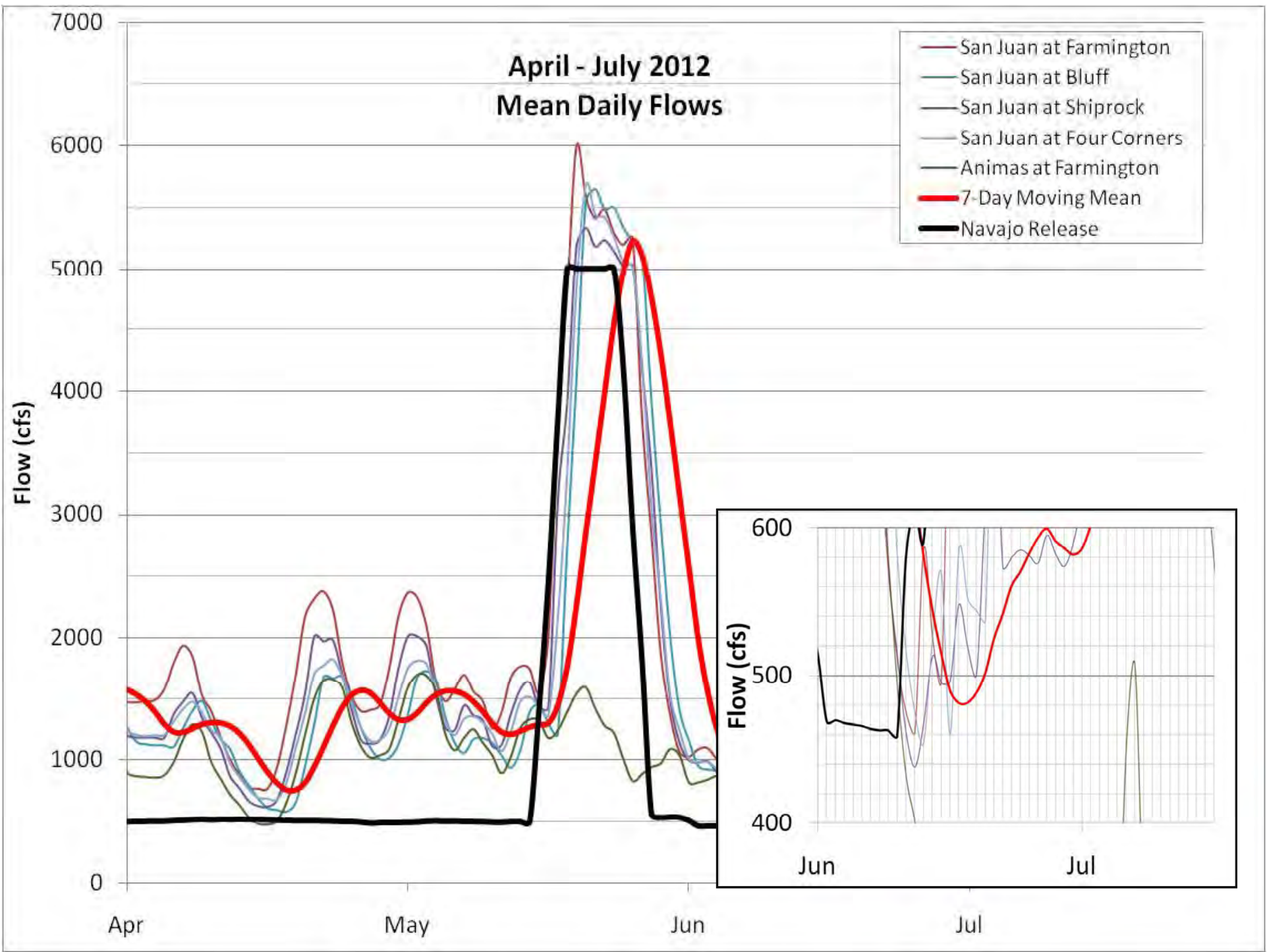
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Navajo Reservoir 2012 Spring Peak Release Schedule (FINAL)

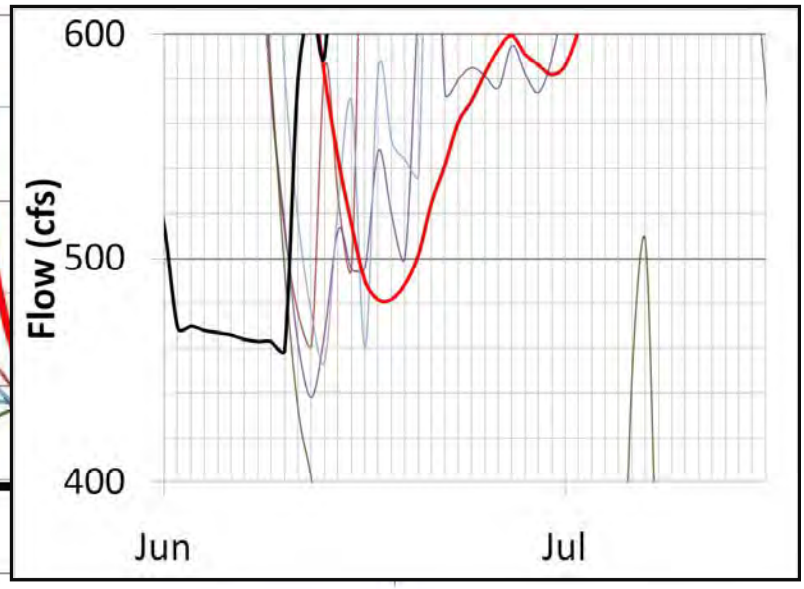


	20-May	21-May	22-May	23-May	24-May	25-May	26-May	27-May	28-May	29-May	30-May	31-May	1-Jun
■ Release (CFS)	500	2000	3200	5000	5000	5000	5000	5000	5000	5000	3400	2200	500

April - July 2012 Mean Daily Flows



- San Juan at Farmington
- San Juan at Bluff
- San Juan at Shiprock
- San Juan at Four Corners
- Animas at Farmington
- 7-Day Moving Mean
- Navajo Release

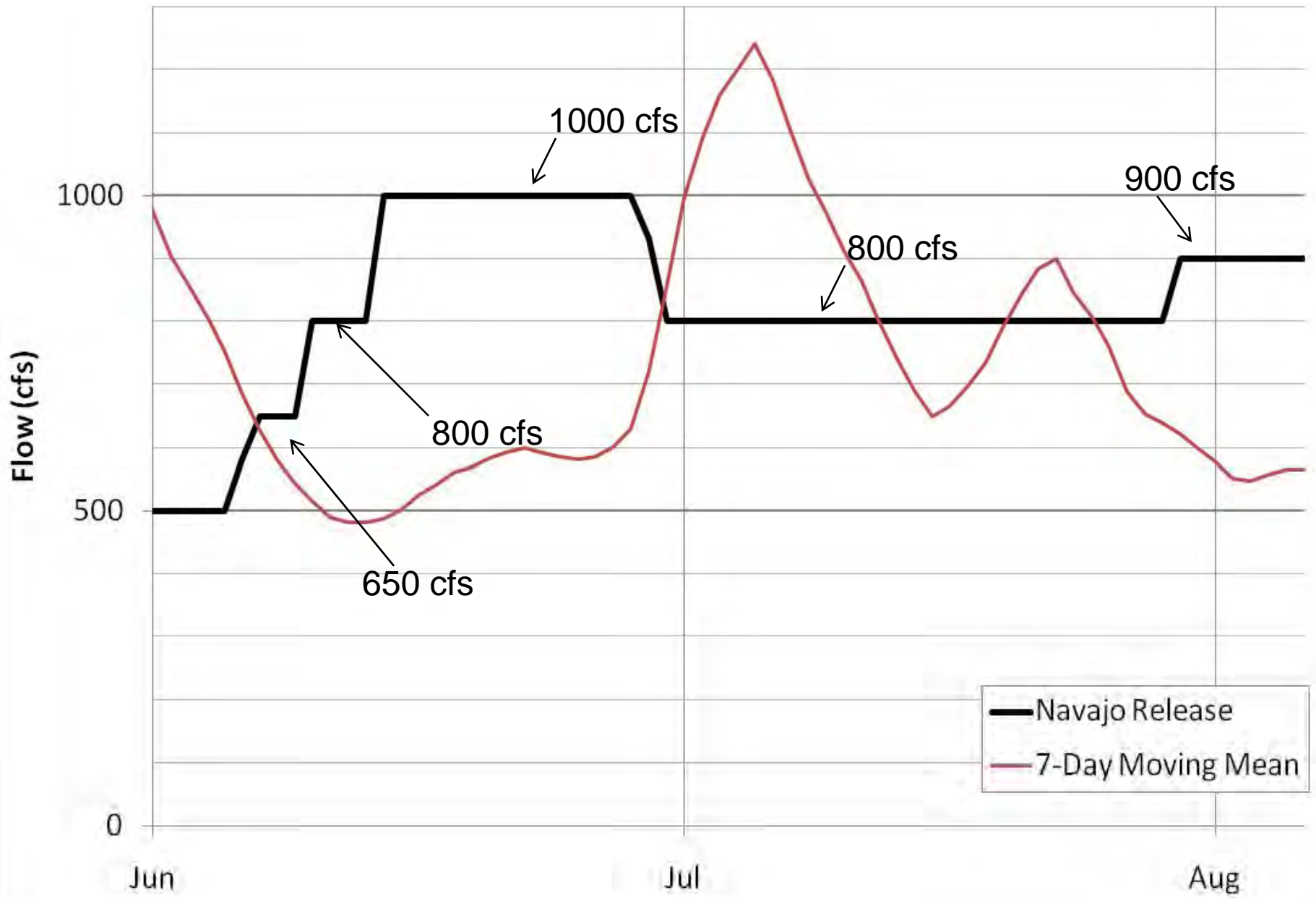


SJRIP Spring Peak Flow Goals

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	5	10

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Chasing the Target Baseflow



Temporary Flow Reduction

- SJRIP requested a temporary reduction in release from Navajo for instream work commencing August 22 at PNM fish ladder.
- Release from Navajo reduced to 650 cfs for a period of 9 hours on August 21.
- Target base flow requirement in the habitat reach is suspended temporarily during this project. During this period a 350 cfs base flow will be targeted in the critical habitat reach.
- Following this work, the release will be increased to 1,000 cfs due to drier forecasted conditions.

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Current Conditions



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Navajo Current Conditions

(as of 8/20/12)

Elevation = 6041.83 ft

Storage = 1,132,723 af (67% Full, 81% of Avg)

Inflow = 379 cfs*

Release = 900 cfs

NIIP = 782 cfs*

San Juan-Chama Diversion = 0.5 cfs*

* Average of the last 7 days

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Nearby Reservoirs

(8/20/12)

Vallecito

- Elevation = 7639.86 ft
- Storage = 63,985 af (51% full, 83% of average)
- Release = 563 cfs
- Inflow = 124 cfs*

Lemon

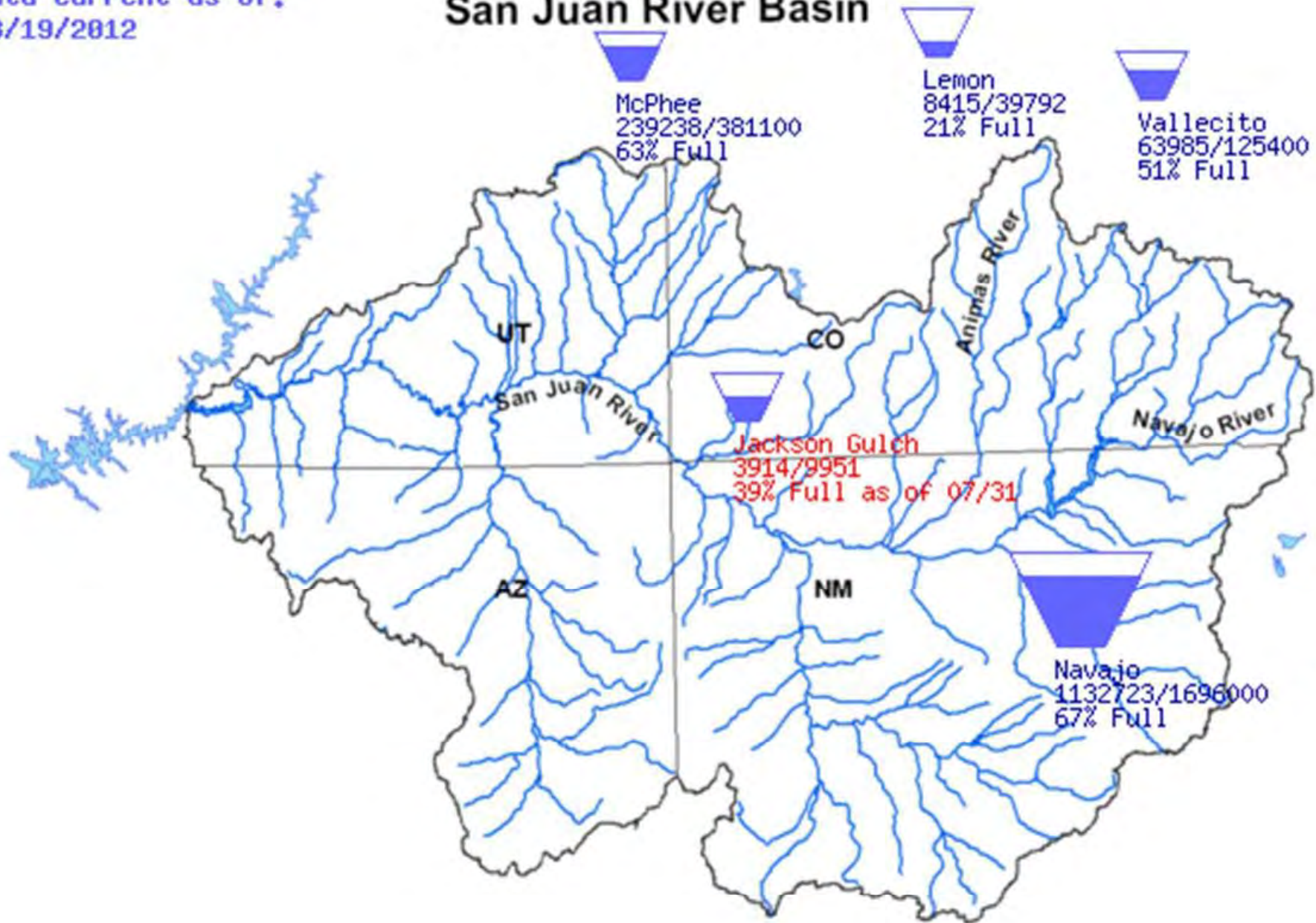
- Elevation = 8074.98 ft
- Storage = 8,415 af (21% full, 39% of average)
- Release = 139 cfs
- Inflow = 37 cfs*

* Average of the last 7 days

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Data Current as of:
08/19/2012

San Juan River Basin



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Animas-La Plata Project

- Lake Nighthorse Storage: 109,927 af
- Lake Nighthorse Pool Elevation: 6879 ft
- Release from Lake Nighthorse to Basin Creek for flow testing occurred for five days (July 30-Aug 3). Max release was 150 cfs (400 af).
- No further pumping anticipated until transfer to ALP OM&R Association
- Air Park fire in July 2012- Potential effects on Basin Creek and drop structures

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**Water Year 2013
Forecasts &
Proposed Operations**

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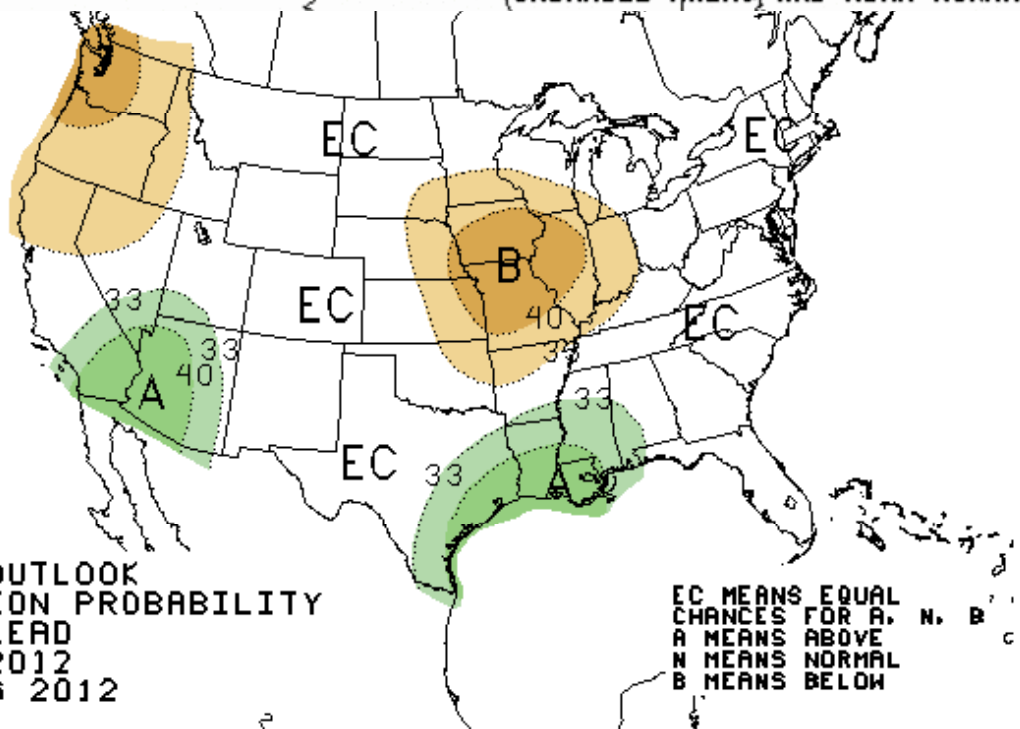
Climate Prediction Center Precip. Outlooks

8-14 Day →

August Monthly →

8-14 DAY OUTLOOK
PRECIPITATION PROBABILITY
MADE 19 AUG 2012
VALID AUG 27 - SEP 02, 2012

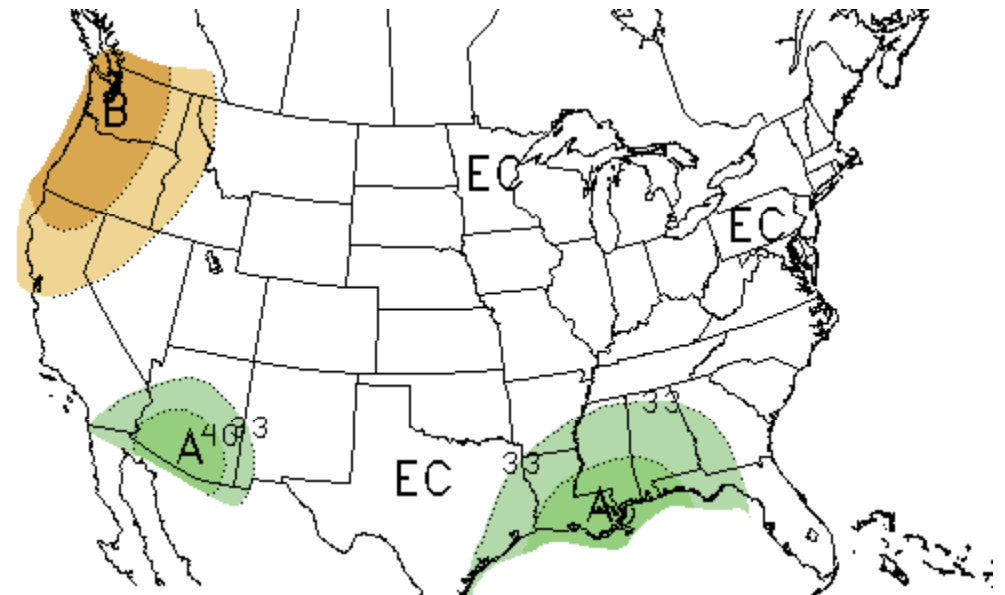
DASHED BLACK LINES ARE CLIMATOLOG (TENTH OF INCHES) SHADED AREAS ARE VALUES ABOVE (A) OR BELOW (B) OR UNSHADED AREAS ARE NEAR-NORMAL



Climate Prediction Center Seasonal Precipitation Outlooks

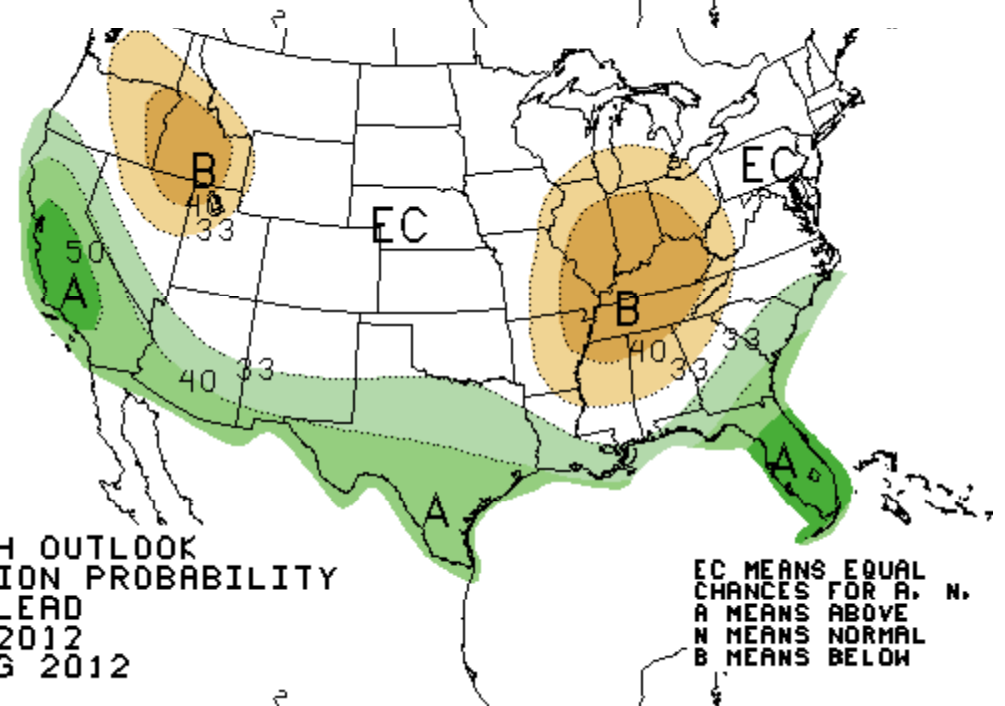
Sept-Oct-Nov →

Dec-Jan-Feb →



THREE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
0.5 MONTH LEAD
VALID SON 2012
MADE 16 AUG 2012

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



THREE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
3.5 MONTH LEAD
VALID DJF 2012
MADE 16 AUG 2012

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

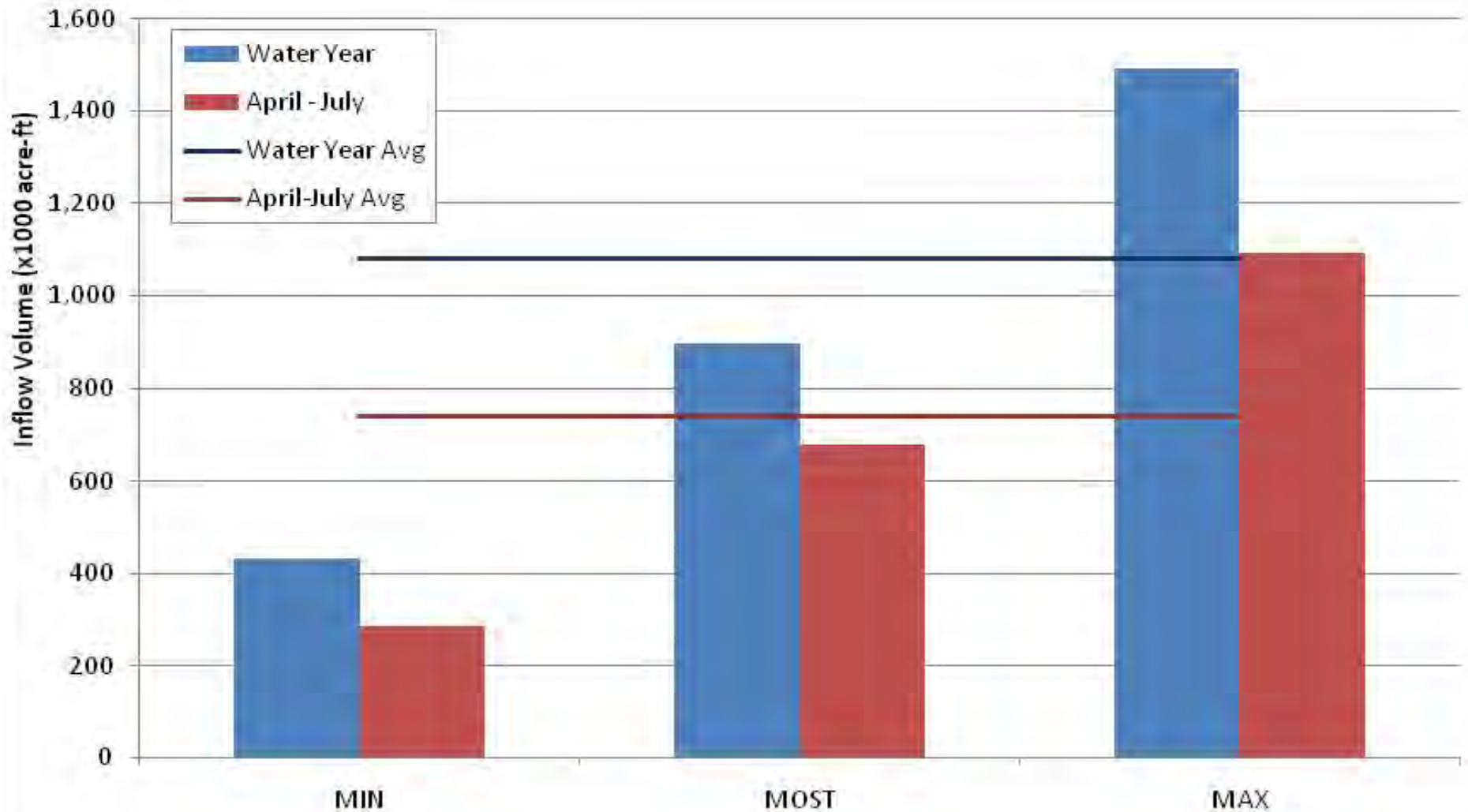
El Niño/La Niña current status and forecast models

ENSO August 2012

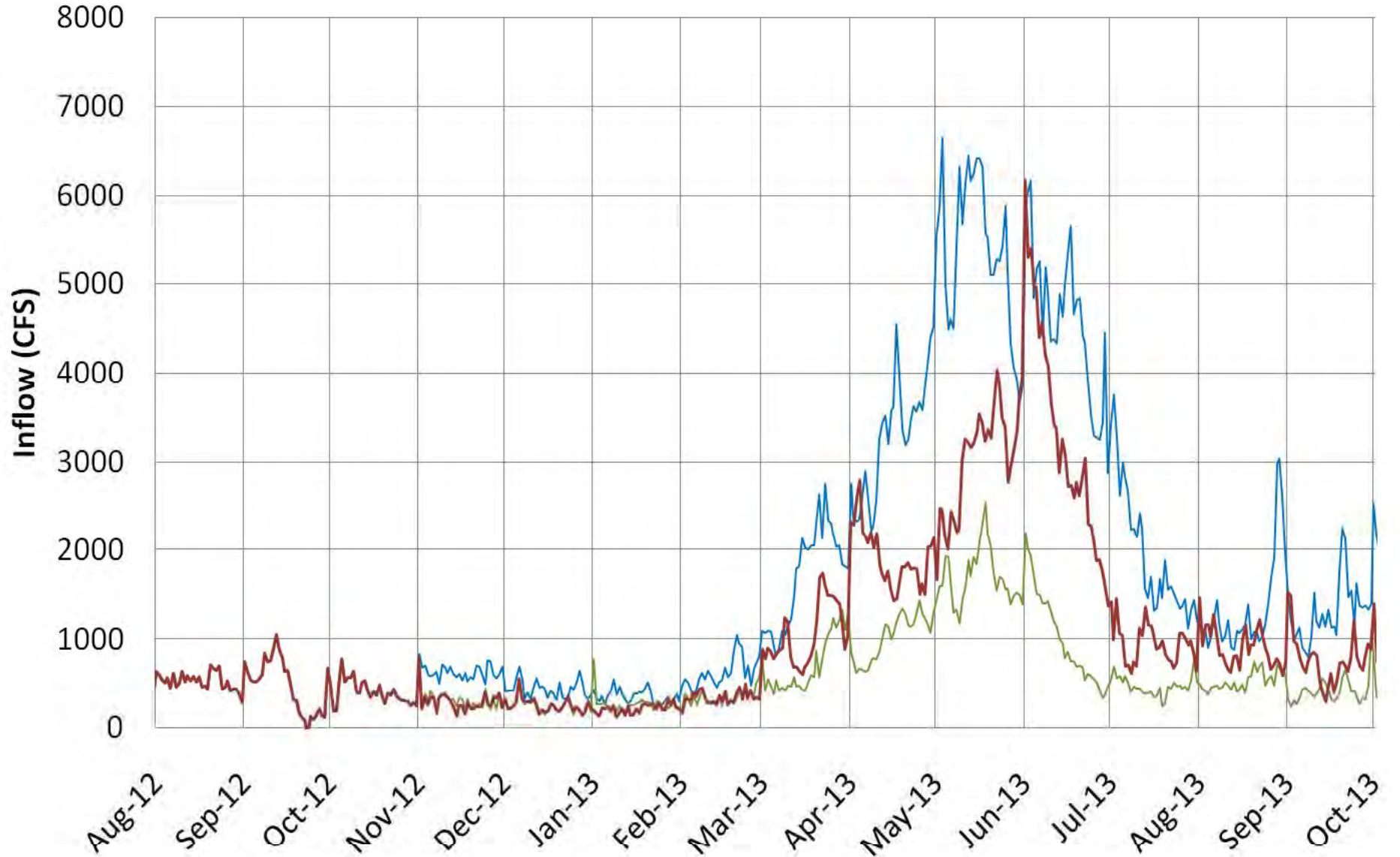
“Slightly more than 70% of the ENSO prediction models predict El Niño conditions developing around the August-October season, continuing through the rest of 2012. However, nearly 30% of the models still indicate persistence of ENSO-neutral conditions. No models indicate a re-emergence of La Niña conditions.” -NOAA

Water Year 2013 ESP Forecasts

(Note- Ensemble Streamflow Predictions (ESP) for the outlying water year are very preliminary. Actual inflows can and will likely change.)



WY 2013 Navajo Modified Unregulated Inflows



— Maximum Probable Inflow Rate — Minimum Probable Inflow Rate — Most Probable Inflow Rate

2013 Spring Peak Release

(Based on ESP Forecast)

Most Probable

Water Available = 384,000 af

Peak Release = 80,000 af (1 week @ 5,000 cfs)

Minimum Probable

Water Available = (38,000) af, No Spill

Peak Release = No Release (if no perturbation)

Maximum Probable

Water Available = 593,000 af

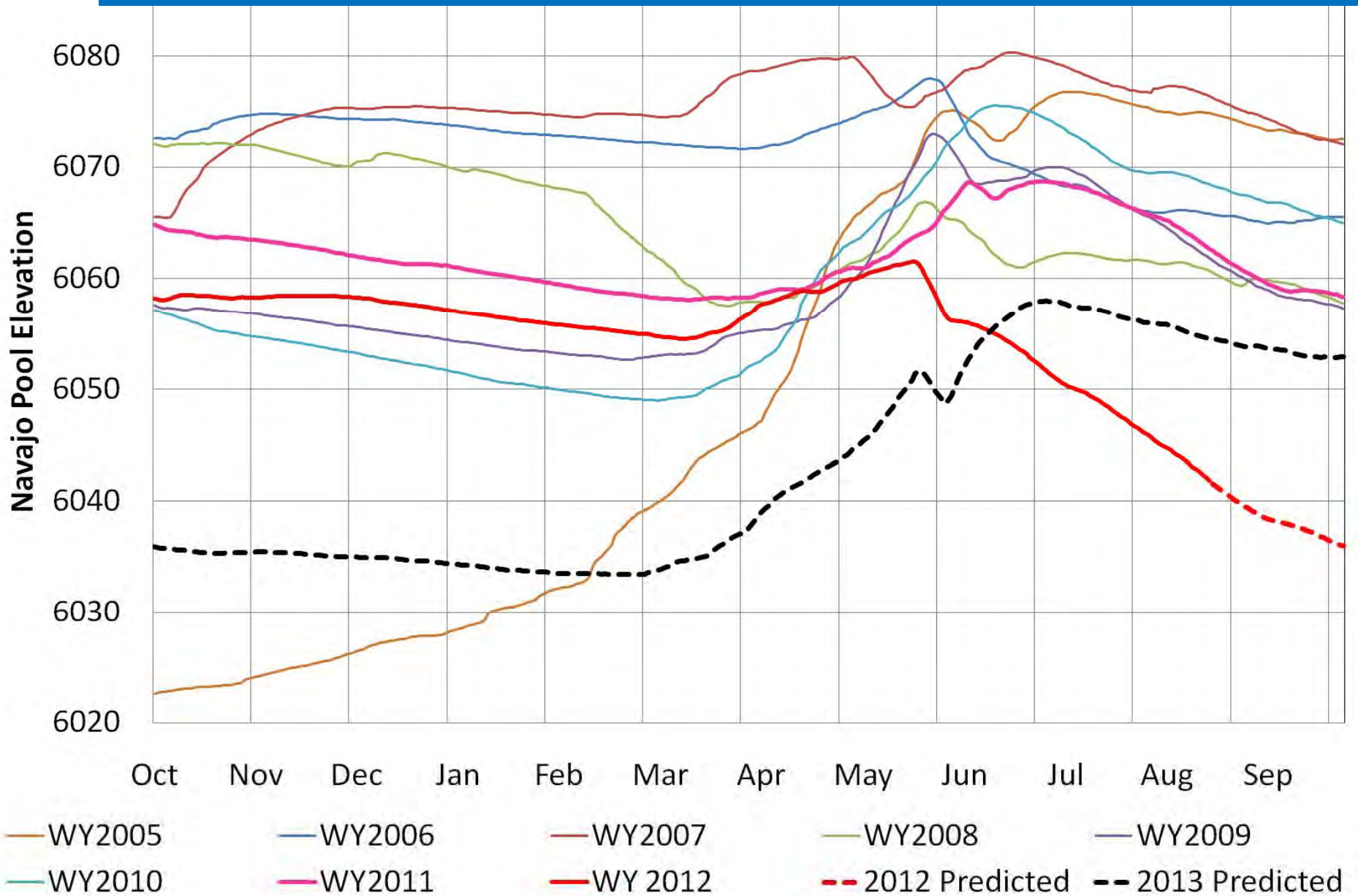
Peak Release = 172,000 af (Full Hydrograph – 3 weeks at 5,000 cfs with full ramps)

Base release of 350 - 500 cfs for remainder of water year

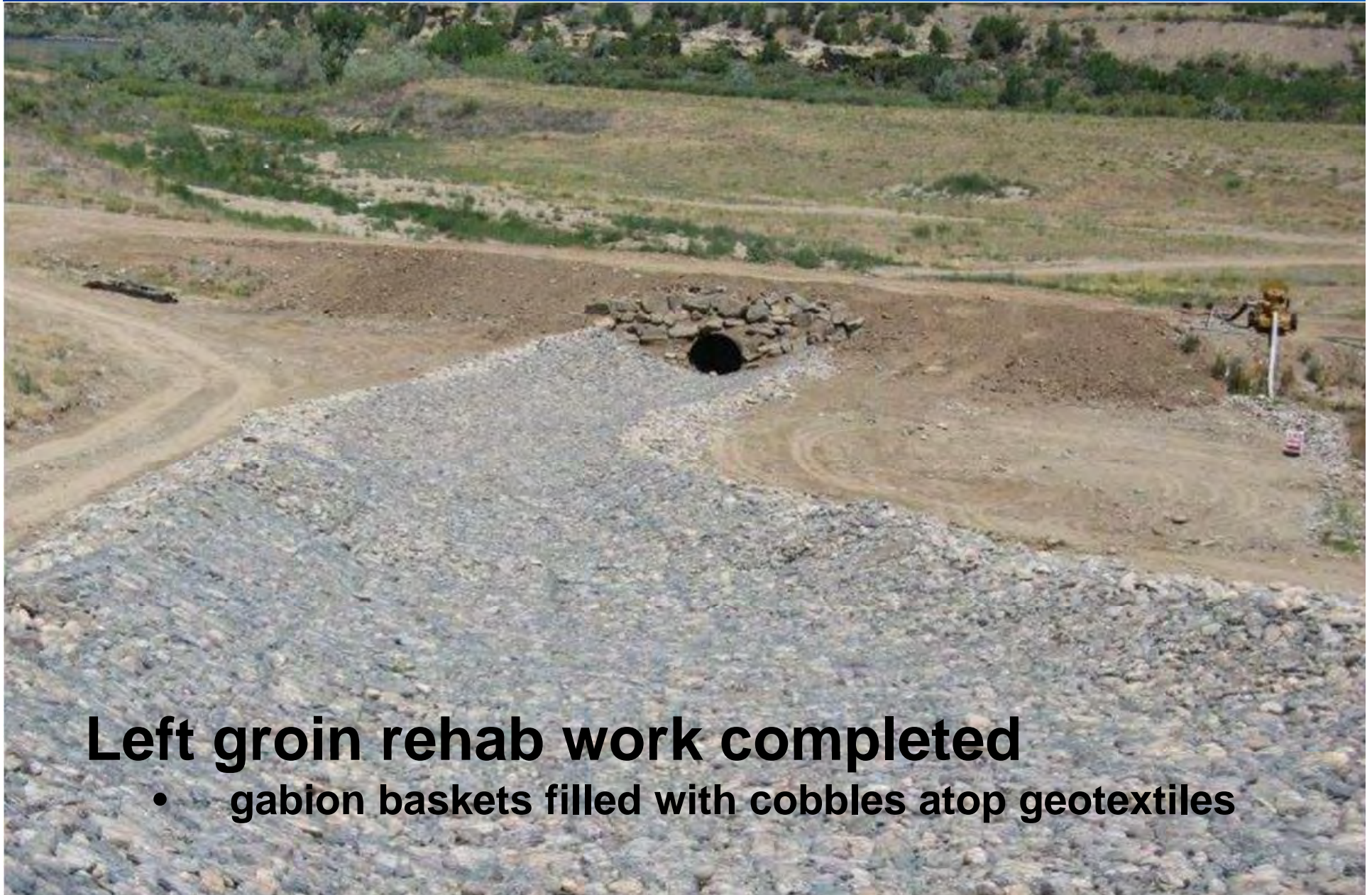
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Historical Navajo Pool Elevations and Predicted Elevation based on current Most Probable Operation Plan

Full Reservoir



Navajo Dam Maintenance Activities:



Left groin rehab work completed

- **gabion baskets filled with cobbles atop geotextiles**



**Fish & Wildlife Service
San Juan RIP Update**

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Questions

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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Summary

- WY2012 had below average snowpack for most of the year
- WY2012 April – July Inflow was 42% of average (310K af)
- 1-week Spring Peak Release at 5000 cfs
- Only minimum SJRIP goal was met (>2500 for 10 days)
- Minimum Release = 500 cfs, Current Release = 900 cfs
- Release greater than 500 cfs can be expected to meet target base flows
- Expected EOWY Reservoir Elevation = 6036 ft. (78% of avg storage)
- Base release of 350-500 cfs maintained throughout winter
- ESP Forecast for WY2013 shows a wide variance centered over average conditions – better idea of WY2013 conditions next meeting
- As of now, one-week hydrograph will be released next year if forecast holds

- Next Operations Meeting: Tuesday, January 15/22/29, 2013

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Thanks For Coming!



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