

RECLAMATION

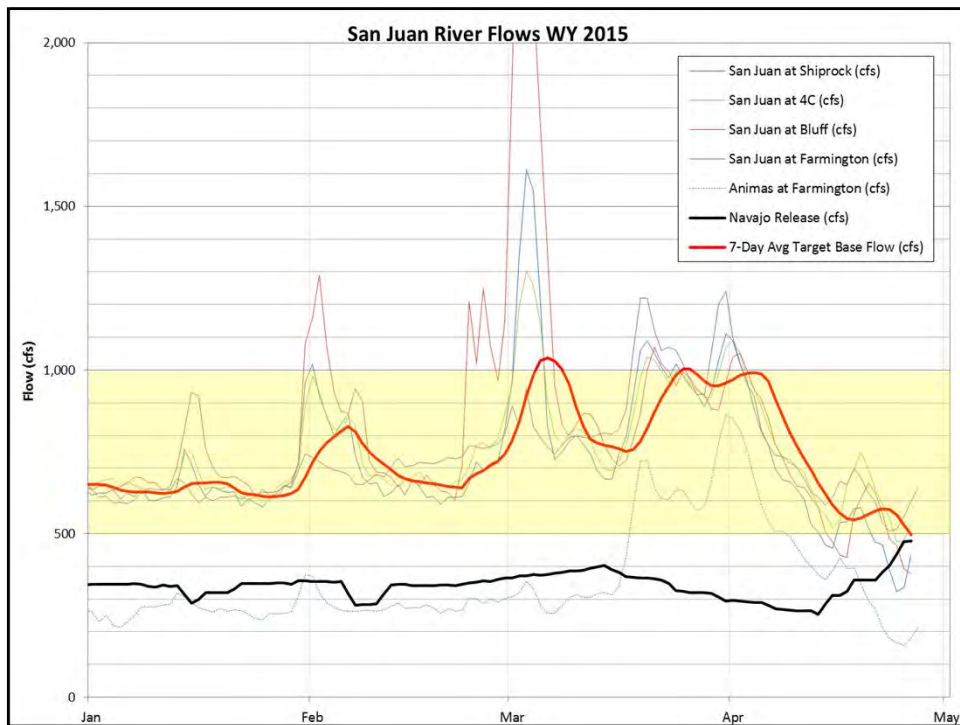
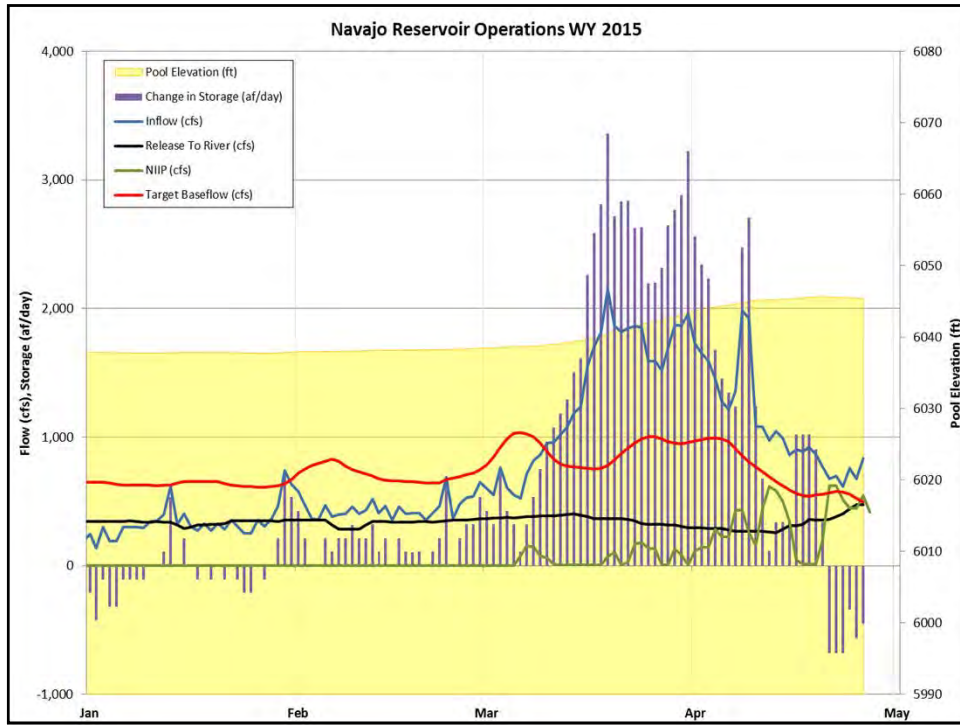
Managing Water in the West



U.S. Department of the Interior
Bureau of Reclamation

AGENDA

- REVIEW OF WATER YEAR 2015 OPERATIONS (TO DATE)
- WY 2015 SNOWPACK AND RUNOFF- GREG SMITH, CBRFC
- WY 2015 WEATHER OUTLOOK- ALDIS STRAUTINS, NWS (GJ)
- SUMMARY OF CHANGE IN NAVAJO OPERATIONS
- WY 2015 PROPOSED OPERATIONS
- NEARBY PROJECTS UPDATE
- NAVAJO DAM MAINTENANCE ACTIVITIES
- FISH & WILDLIFE SERVICE/SAN JUAN RIP UPDATE
- REPORTS FROM OTHER AGENCIES



Navajo Current Conditions

(as of 4/26/15)

Elevation = 6045.4 (69% Full, 49% of Active)

Storage = 1,172,392 af

Inflow = 835 cfs

Release = 450 cfs

NIIP = 515 cfs*

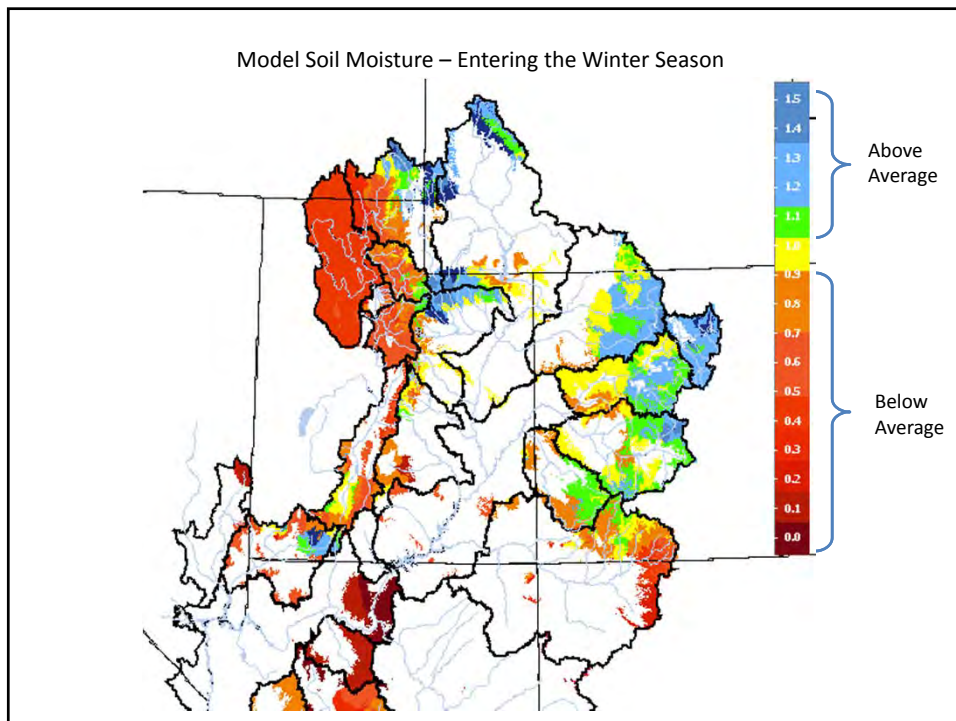
SJ-Chama Diversion = 88 cfs*

**average of the last 7 days*

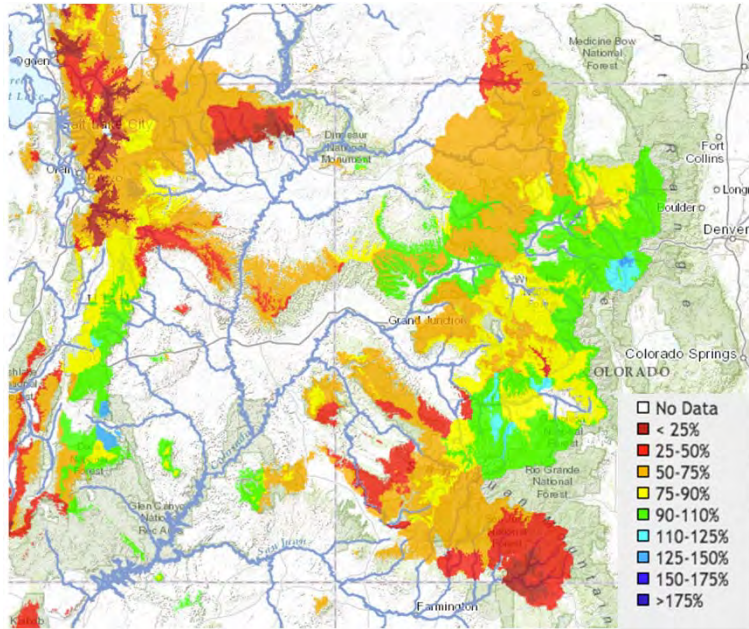
April 2015
Navajo Unit Operations Meeting

Runoff Forecast Discussion

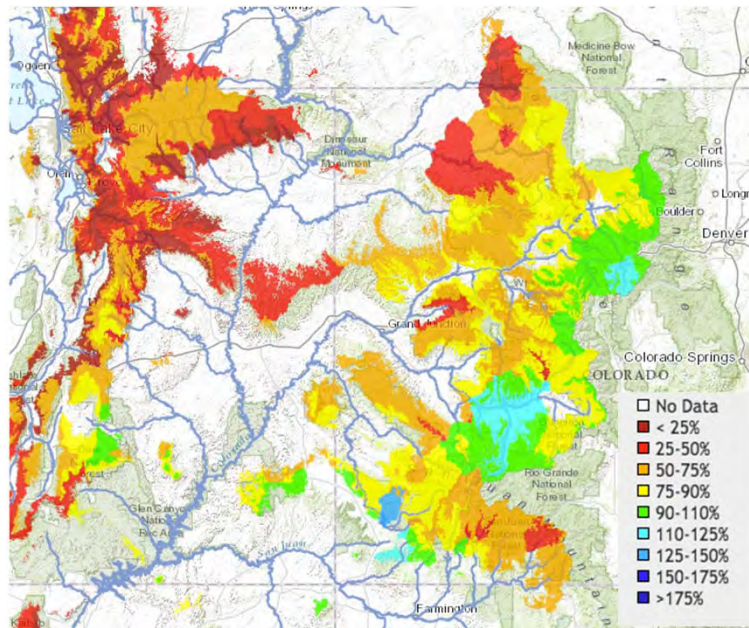
Greg Smith
Senior Hydrologist
Colorado Basin River Forecast Center



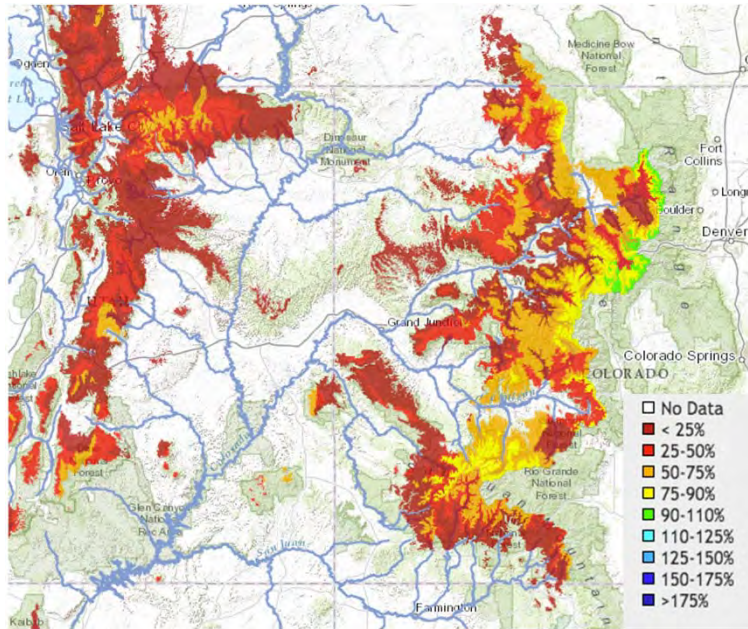
SNOW (as a % of average) – In the CBRFC Forecast Model on 2-1-2015



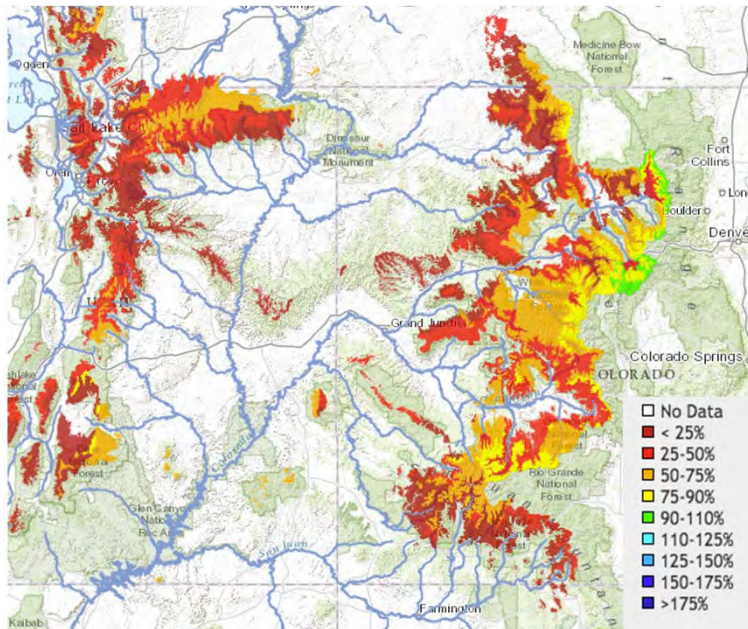
SNOW (as a % of average) – In the CBRFC Forecast Model on 3-1-2015



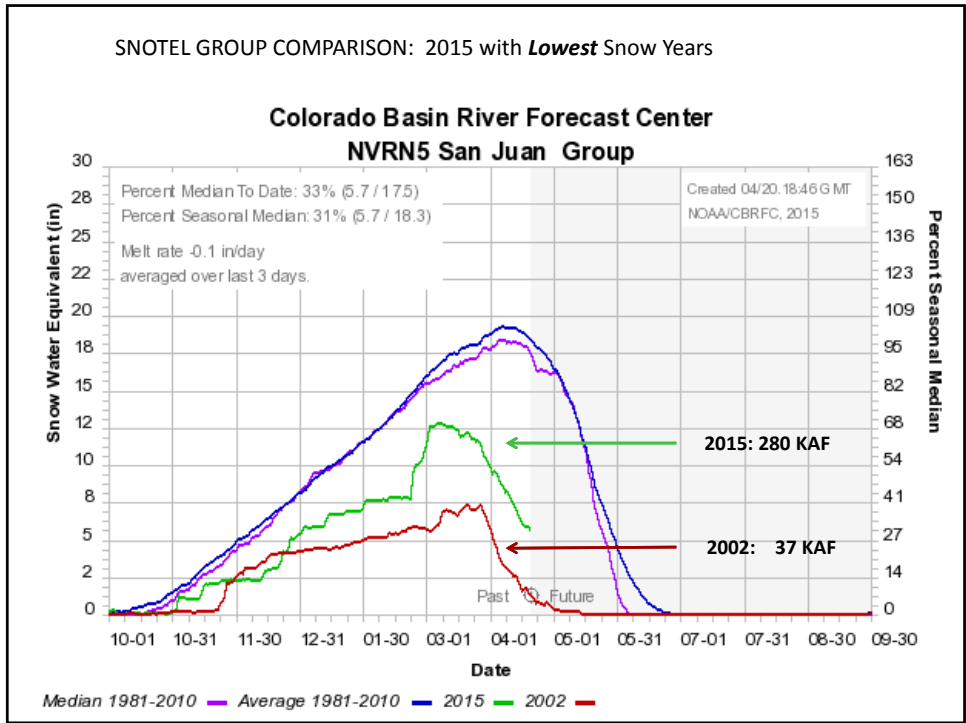
SNOW (as a % of average) – In the CBRFC Forecast Model on 4-1-2015



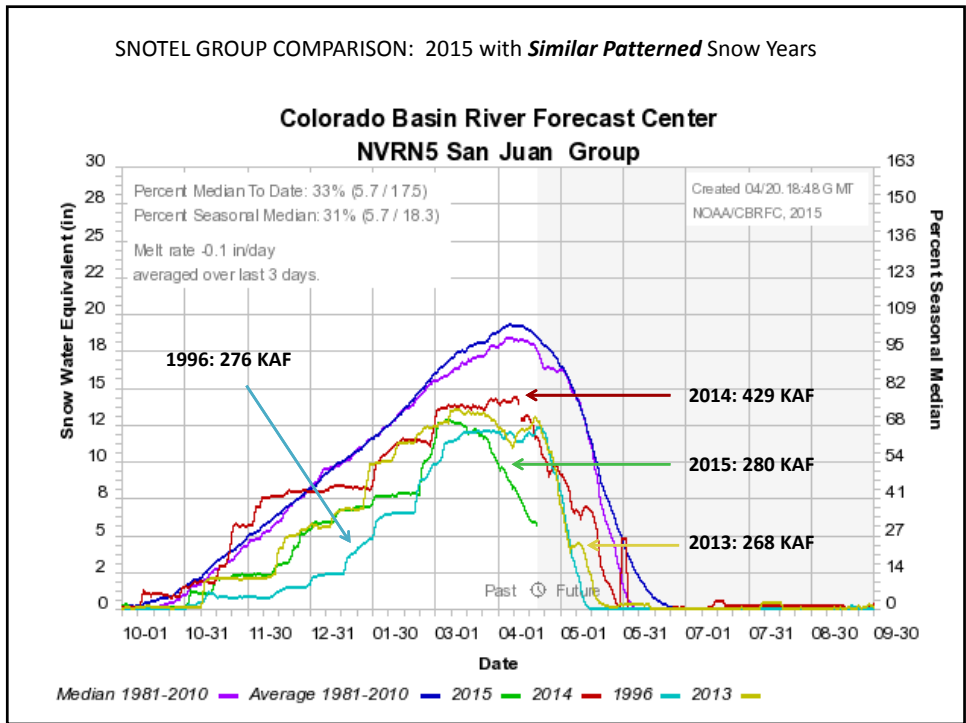
SNOW (as a % of average) – In the CBRFC Forecast Model on 4-19-2015



SNOTEL GROUP COMPARISON: 2015 with *Lowest* Snow Years

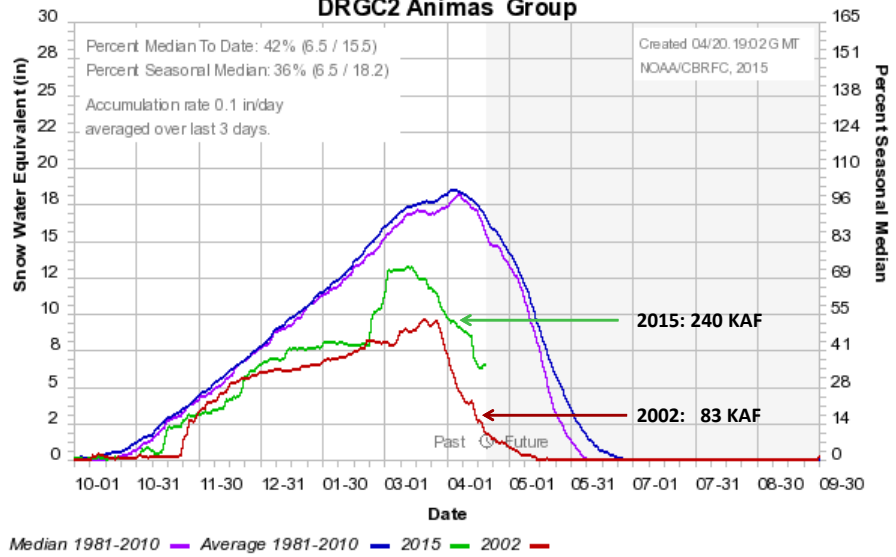


SNOTEL GROUP COMPARISON: 2015 with *Similar Patterned* Snow Years



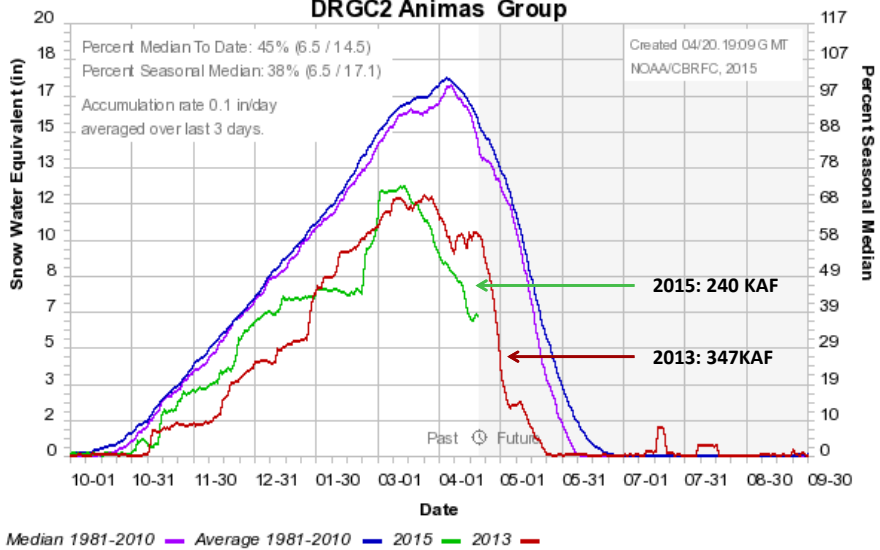
SNOTEL GROUP COMPARISON: 2015 with *Lowest* Snow Years

Colorado Basin River Forecast Center
DRGC2 Animas Group

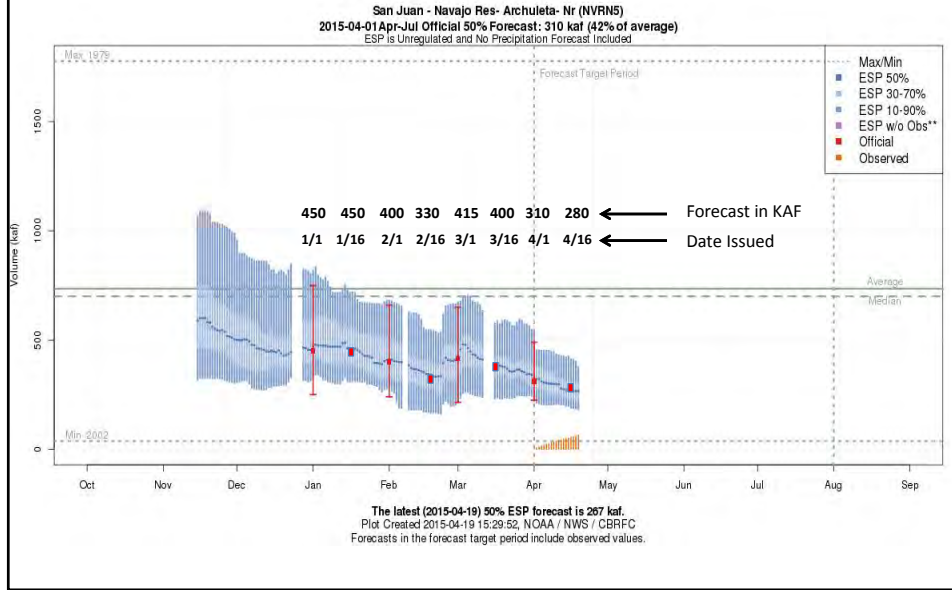


SNOTEL GROUP COMPARISON: 2015 with *Similar Patterned* Snow Years

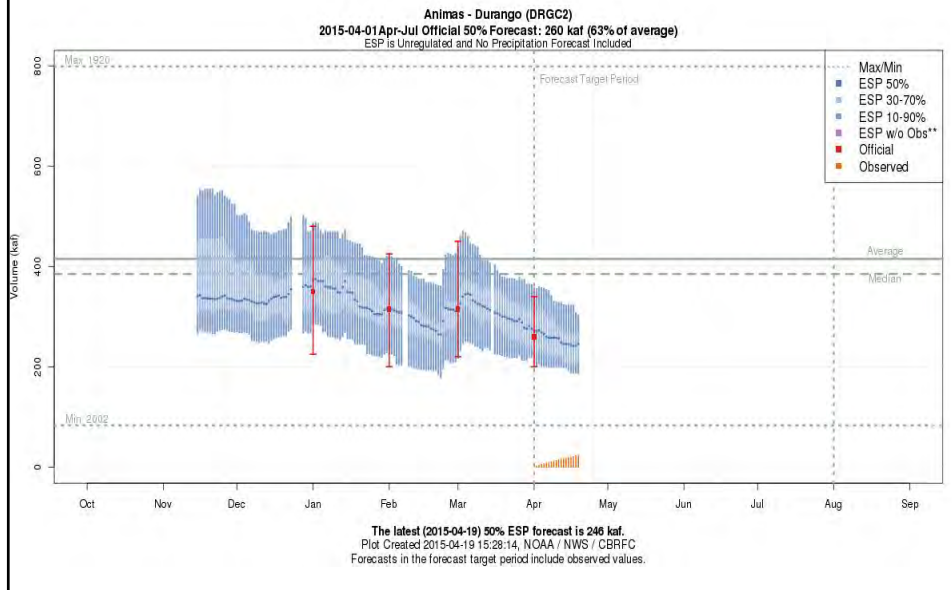
Colorado Basin River Forecast Center
DRGC2 Animas Group



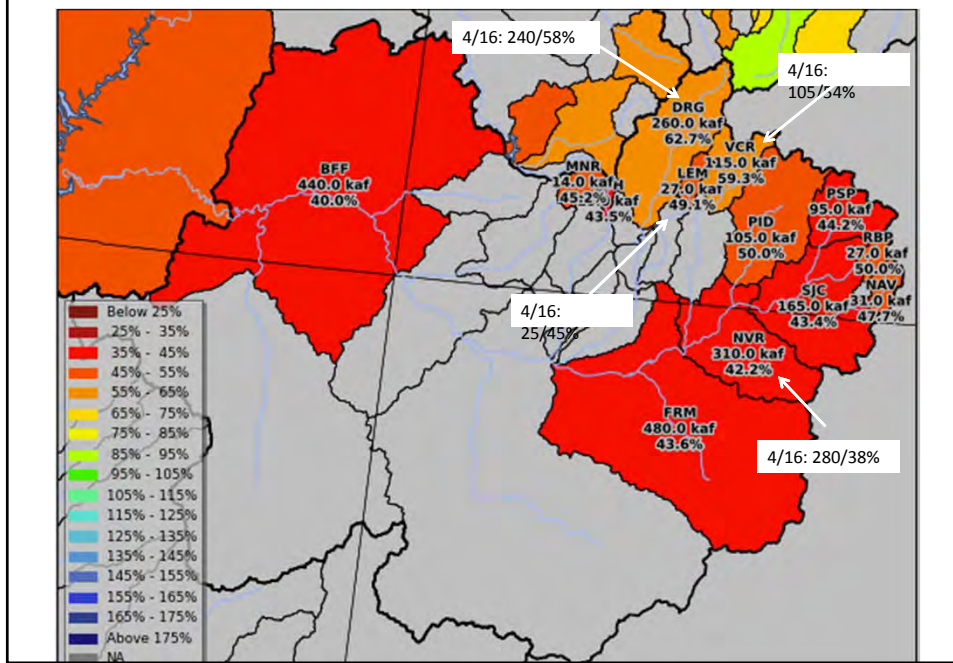
Navajo Reservoir Inflow – Forecast Evolution 2015



Animas River – Forecast Evolution 2015



Forecast Distribution: San Juan River Basin – April 1st & Mid-April Updates

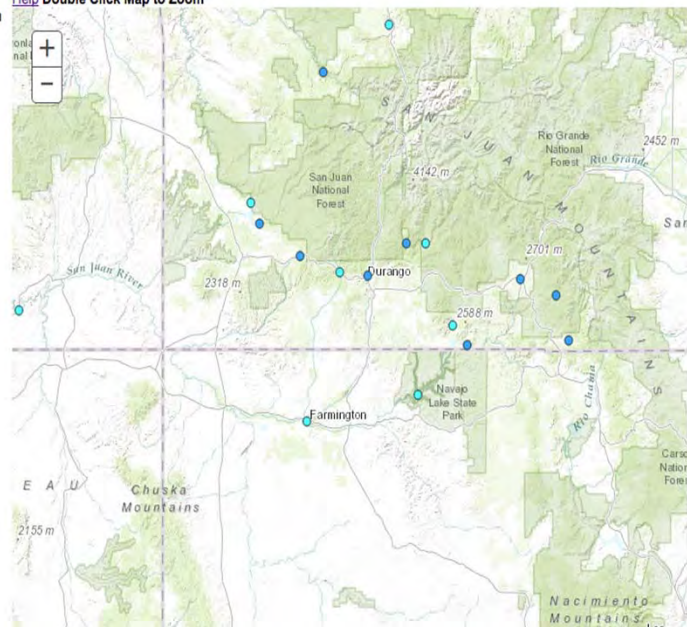


Historical Water Supply Verification - April

[Help](#) Double Click Map to Zoom

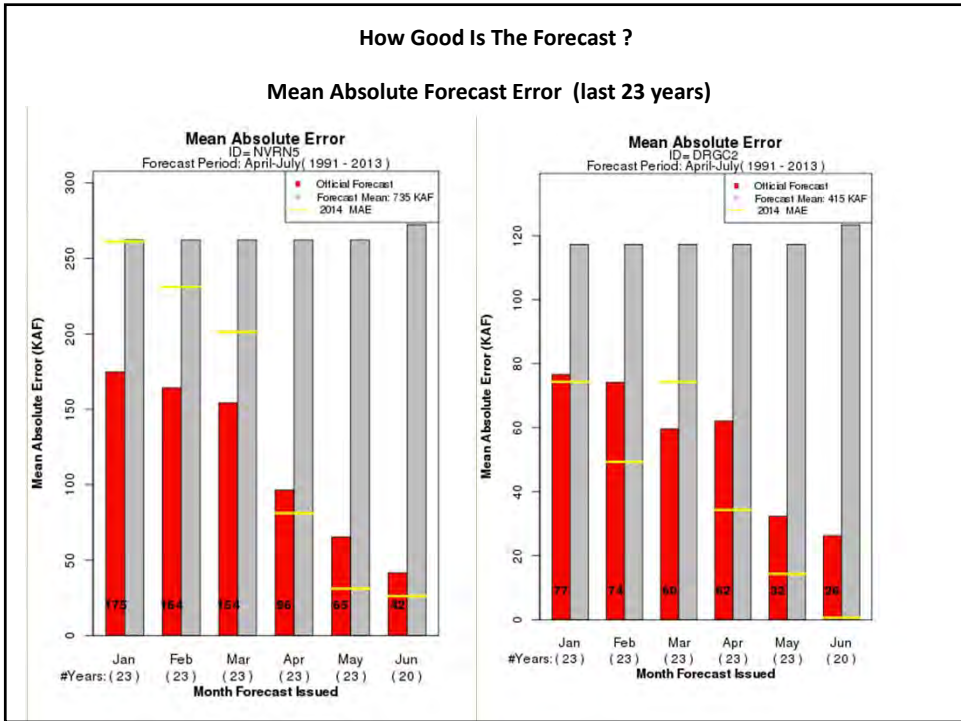
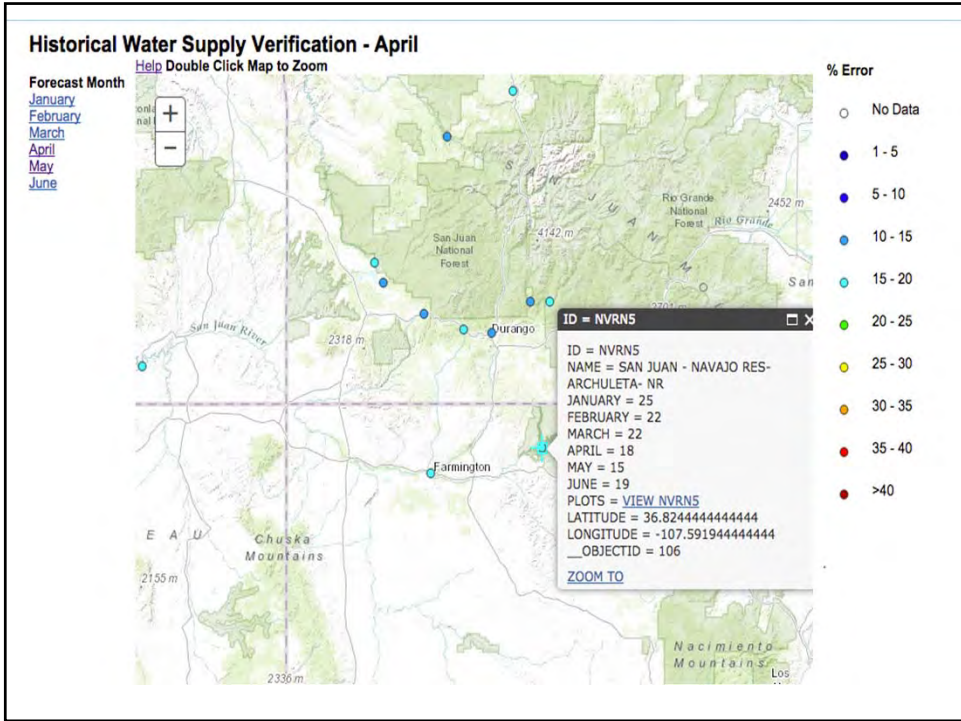
Forecast Month

- [January](#)
- [February](#)
- [March](#)
- [April](#)
- [May](#)
- [June](#)

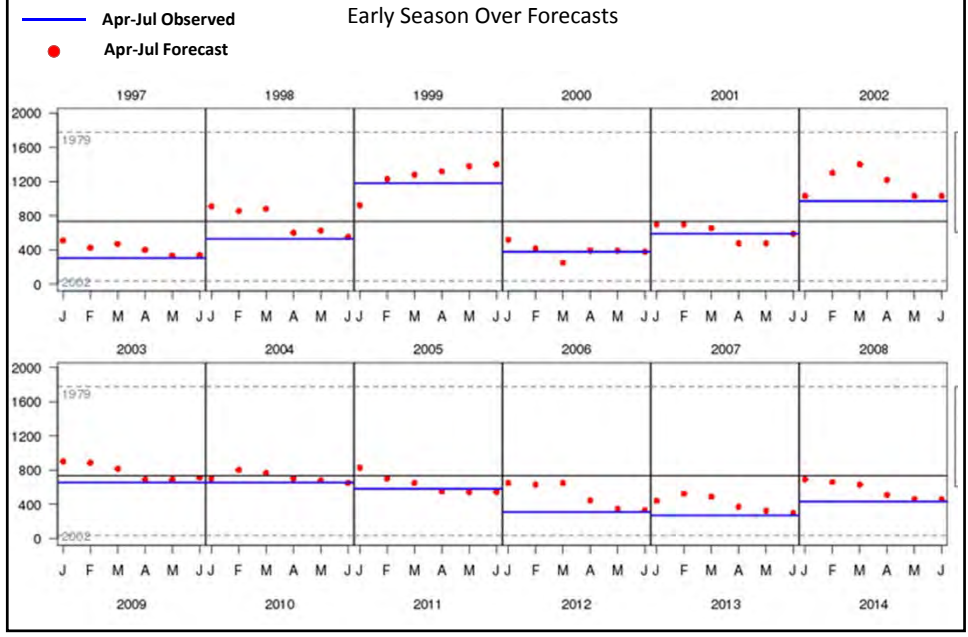


% Error

- No Data
- 1 - 5
- 5 - 10
- 10 - 15
- 15 - 20
- 20 - 25
- 25 - 30
- 30 - 35
- 35 - 40
- >40



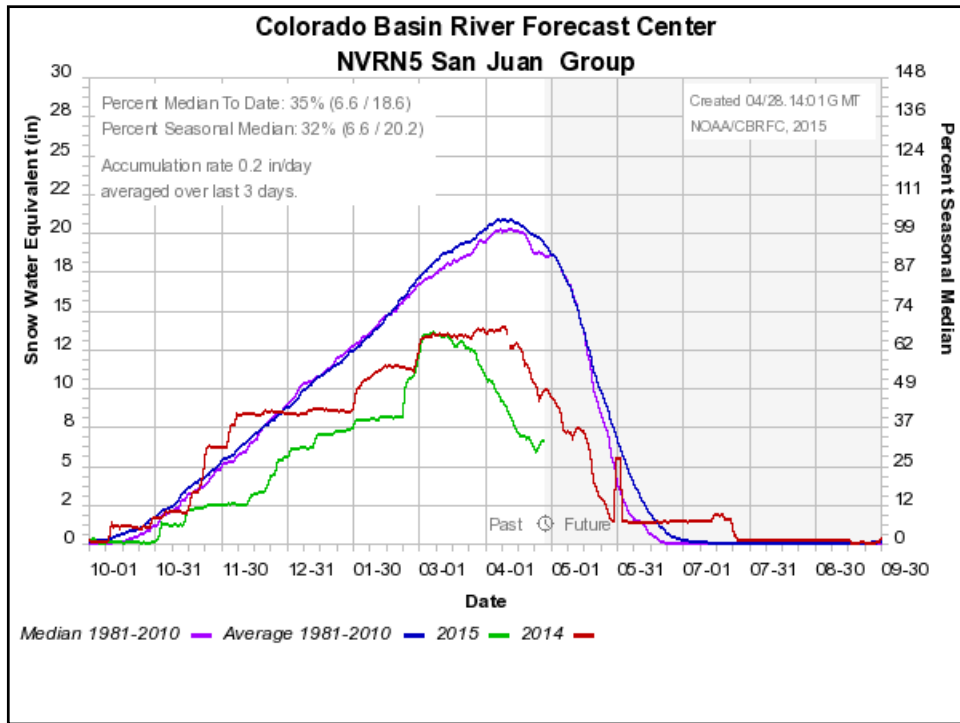
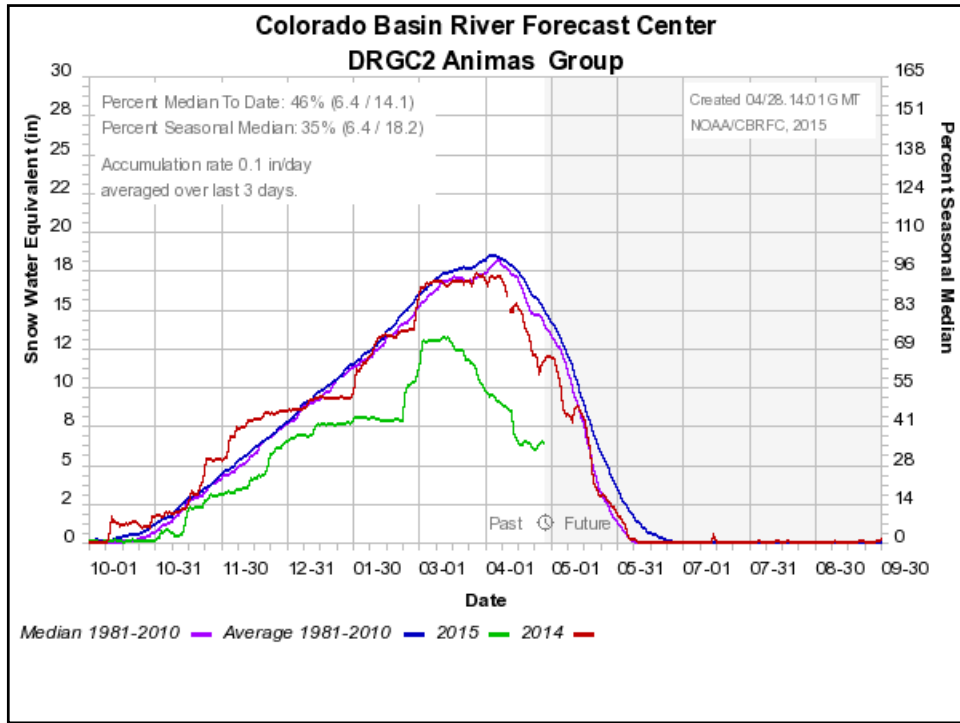
How Good Is The Forecast ?



Questions or Comments

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www.cbrfc.noaa.gov



Mid-April 2015 CBRFC Forecast
Navajo Reservoir Mod Unregulated
April-July Inflow Volume

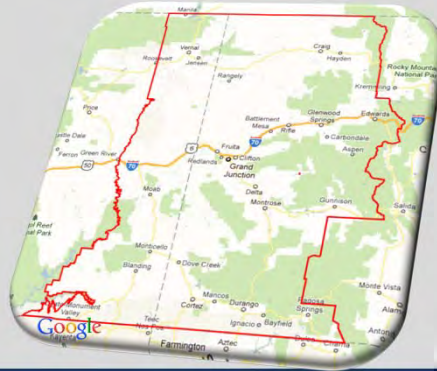
Probability	Inflow (af)	% of Average	2014 Forecast
MIN	173,000	23%	355,000 (48%)
MOST	280,000	38%	495,000 (67%)
MAX	395,000	54%	640,000 (87%)

2014 Actual = 428,000 acre-feet (58%)



Weather Outlook

April 23, 2015



Aldis Strautins

National Weather Service

Grand Junction, CO

<http://www.weather.gov/gjt> or <http://www.weather.gov/abq>



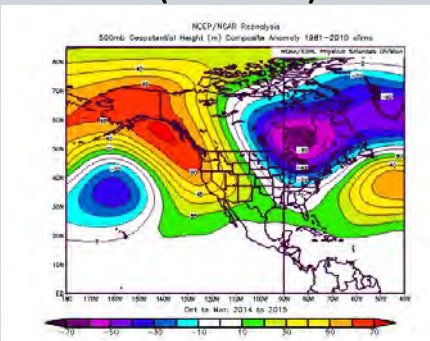
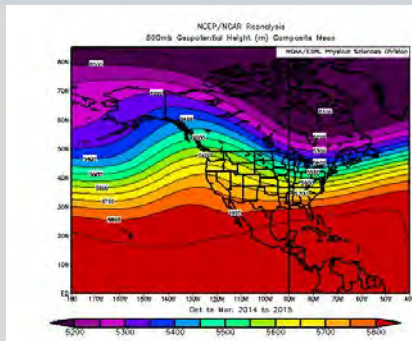
The Past

April 2015



500mb composite mean

**500mb composite Anomaly
(1981-2010)**



Water Year 2015 (Oct-Mar)

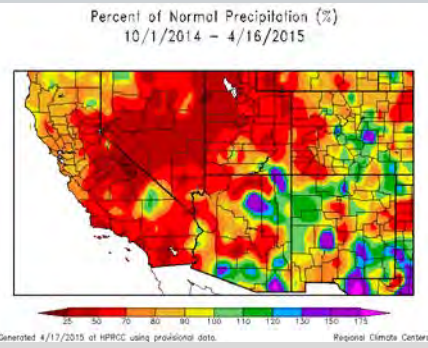
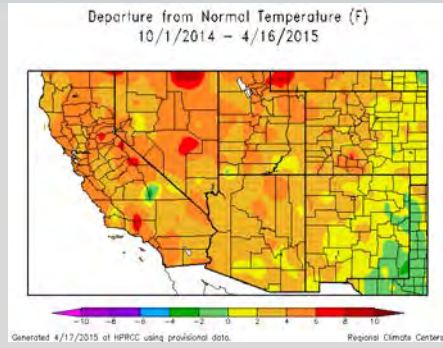


The Past April 2015



Temperature

Precipitation



Water Year 2015 thru April 7, 2015

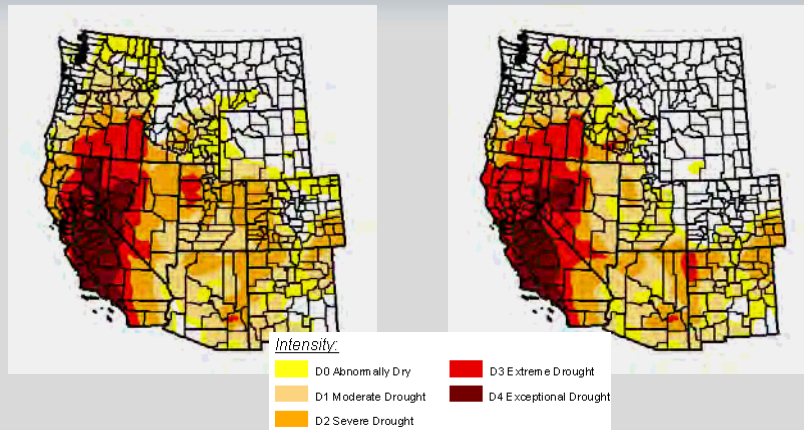


Drought April 2015



April 14, 2015

January 6, 2015



Drought – Monitor

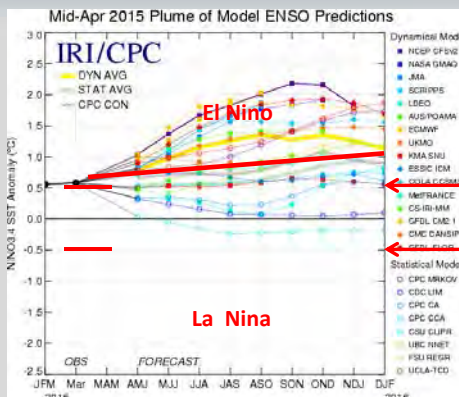
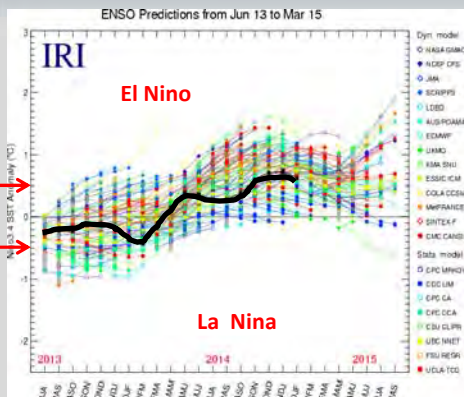


ENSO April 2015



Jul 2013 to Mar 2015

2015



ENSO – Outlook (Using NWS CPC classification system, Region 3.4)
ENSO- Weak El Niño conditions continue

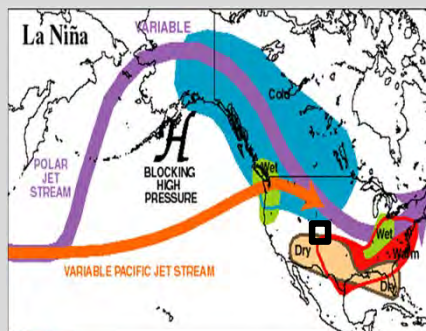
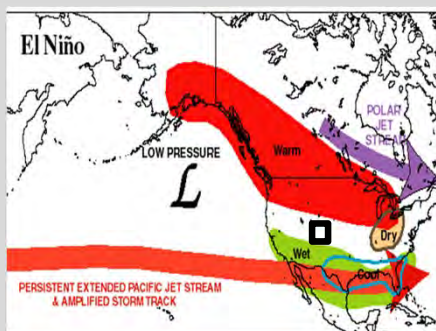


ENSO April 2015



El Niño

La Niña



North of Colorado - Dry and Warm
South of Colorado - Wet and Cool

North of Colorado - Wet and Cool
South of Colorado - Dry and Warm

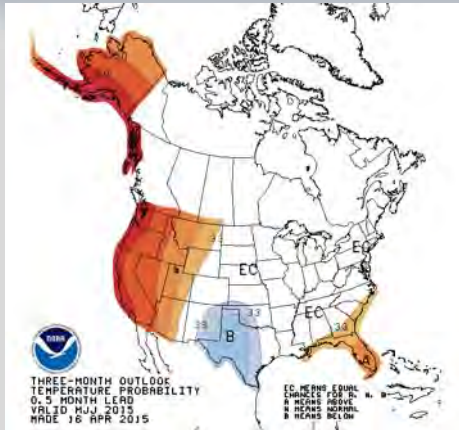


Weather Outlook

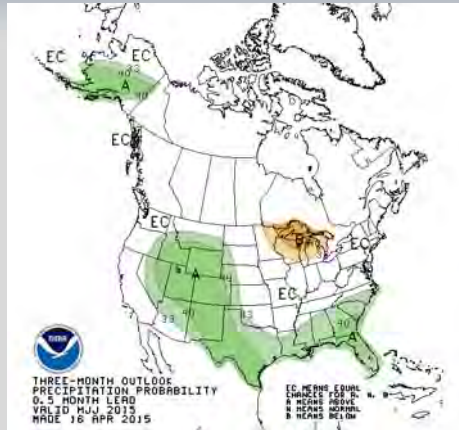
April 2015



Temperature



Precipitation



May/June/July – Outlook

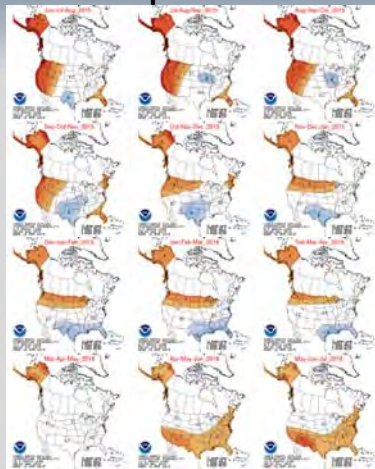


Weather Outlook

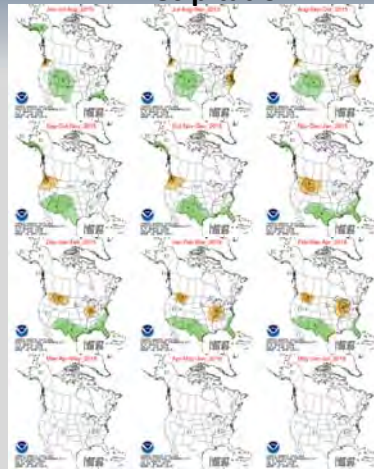
April 2015



Temperature



Precipitation

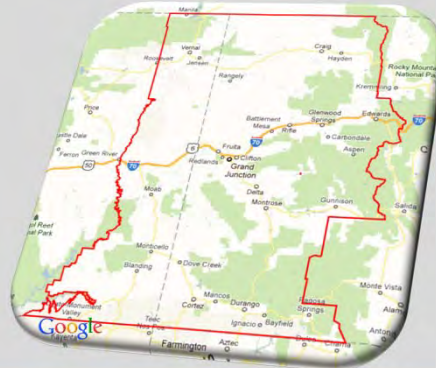


ALL – Outlooks



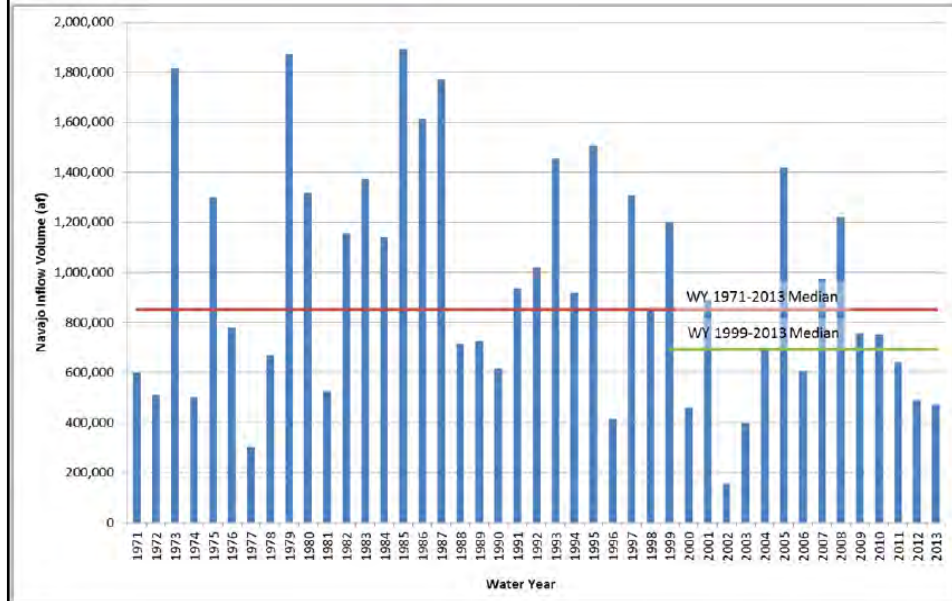
Weather Outlook

April 2015



Aldis Strautins
NWS Grand Junction, CO
<http://www.weather.gov/gjt>
<http://www.weather.gov/abq>

Historic Hydrology

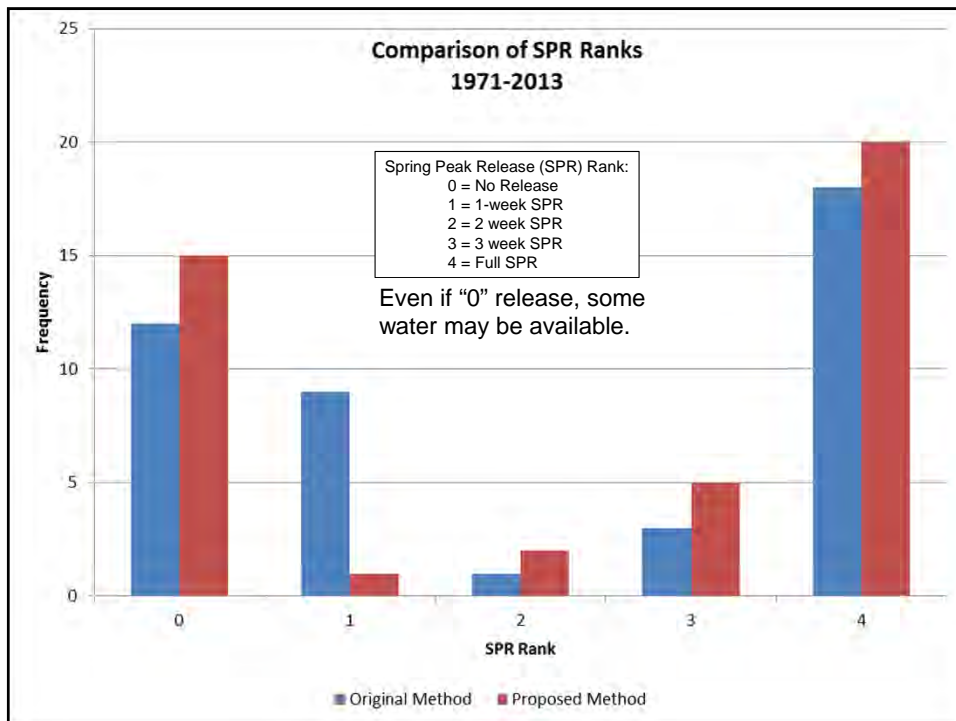


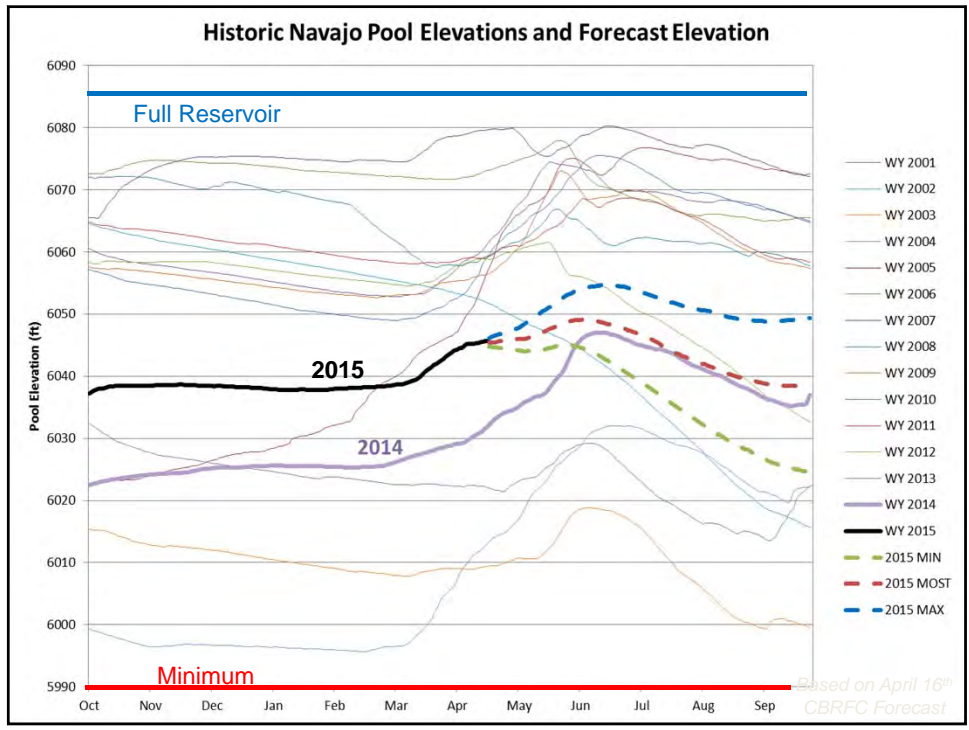
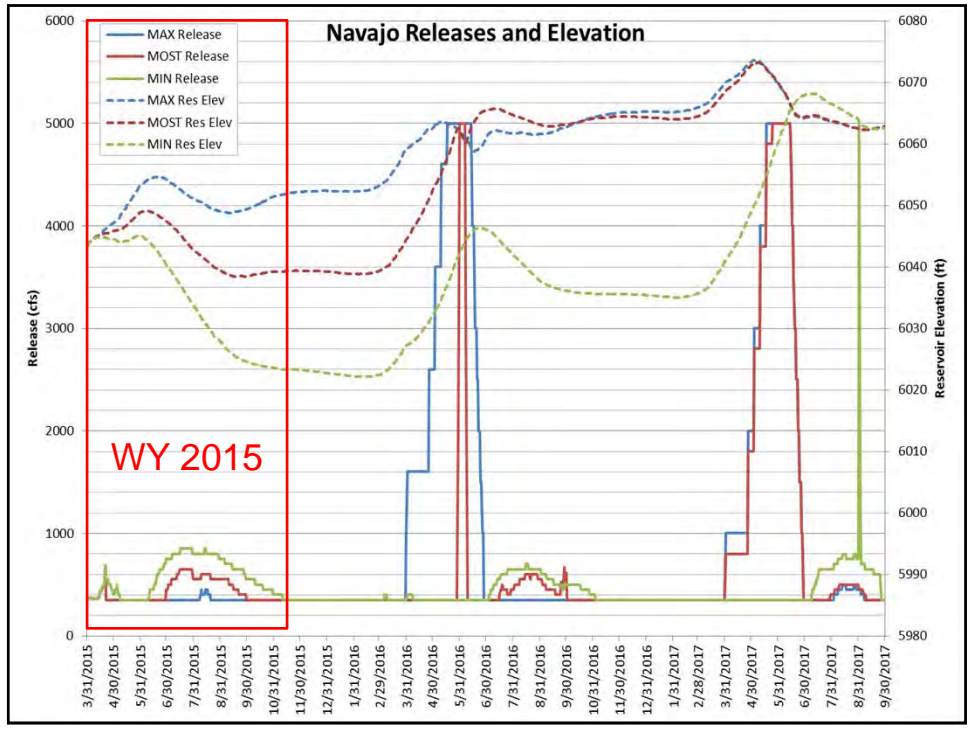
Original Operational Method

- 1999 SJRIP Flow Recommendations calculates Available Water based combination of inflow, storage, and enough carryover for one year.
- The Flow Recommendations Decision Tree considers this Available Water calculation, perturbation, and frequency-duration of recent Spring Peak Releases (SPRs).
- Hydrology used in development of this tree was much more favorable than we have seen in recent years.
- The tree tends to trigger small 1-week releases when there is sufficient recovery (get into a pattern during a drought).
- Have been close to shortage sharing.

Navajo New Operations 2015

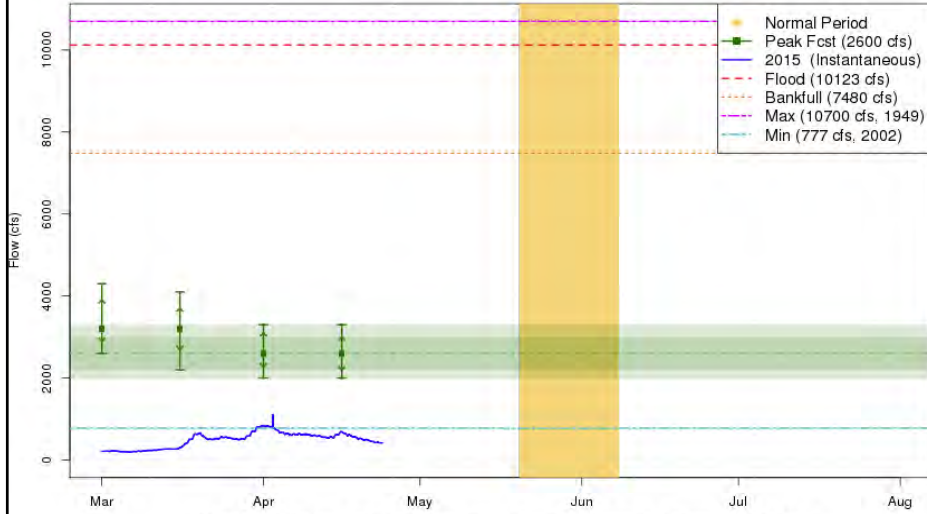
- Flow Recommendations still in place, but not using decision tree to determine Spring Peak Releases.
- Available Water for Spring Peak Release calculated using End of Water Year Storage Target (EWYST) of 6063 ft (with 6050 option).
- These elevations were calculated to minimize the risks of both shortage and spill in the reservoir.
- Navajo will be operated to meet EWYST by the end of each water year (with all contracts and TBF met). Any volume over the EWYST is available for SPRs or other adaptive management.
- In dry years, reservoir may come short of EWYST.
- Risk of shortage is minimized in modeling.
- Will need to build-up to these levels (difficult during drought, but could happen with one average year)





CBRFC PEAK FLOW FORECASTS

2015 Mean Daily Peak Flow Forecast
Animas - Durango (DRGC2)



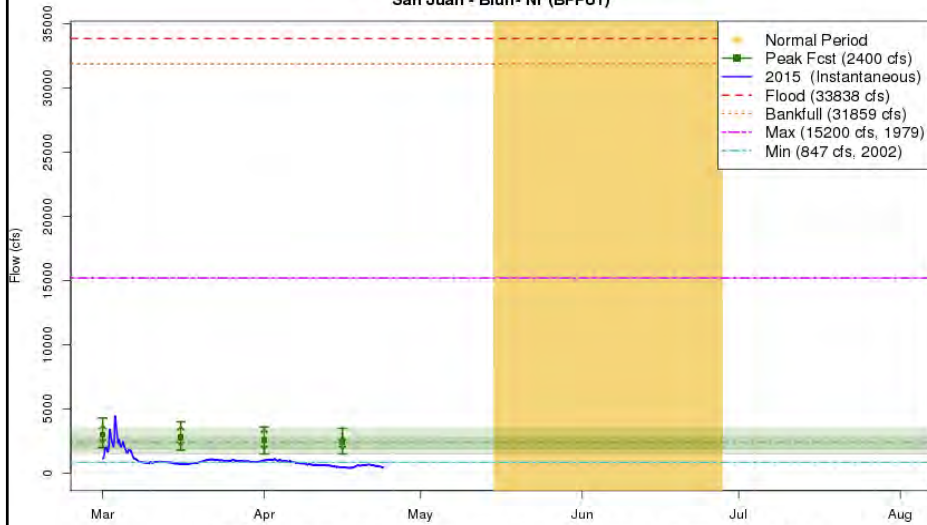
These graphics are updated approximately every two weeks between 3/1 and 5/1

Plot Created 2015-04-23 15:23:36
CBRFC / NWS / NOAA

<http://www.cbrfc.noaa.gov/rmap/peak/peaklist.php>

CBRFC PEAK FLOW FORECASTS

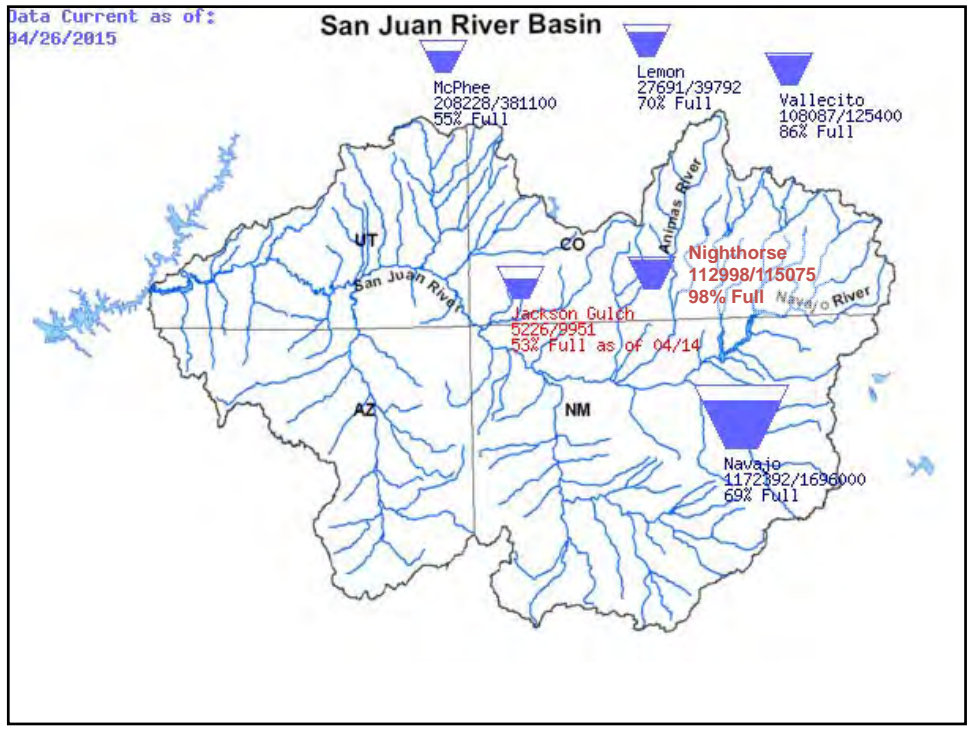
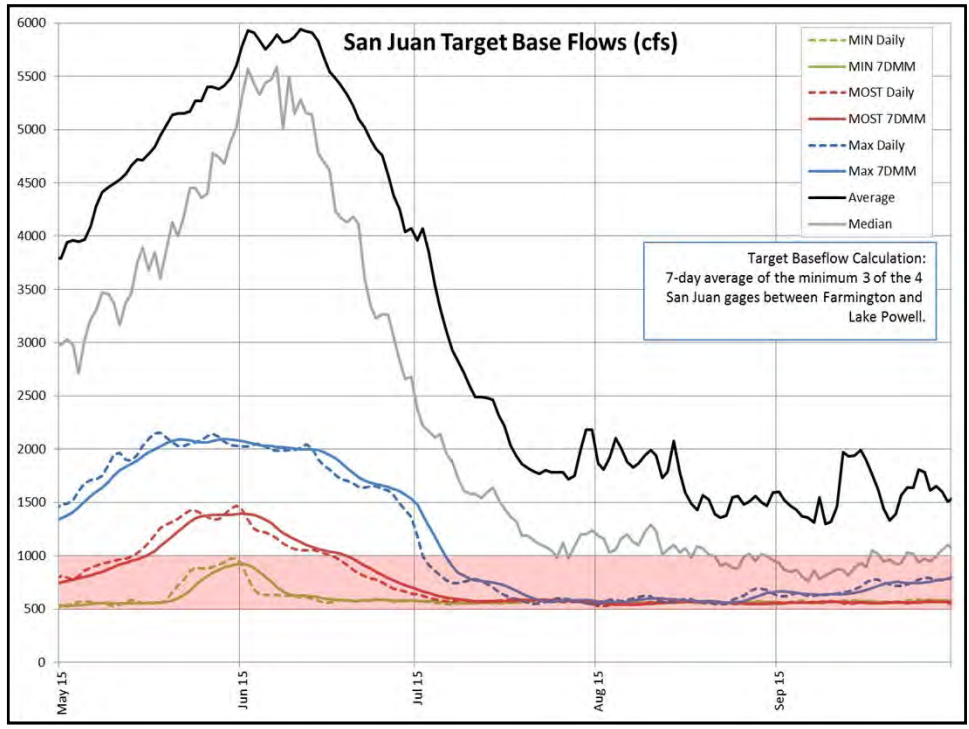
2015 Mean Daily Peak Flow Forecast
San Juan - Bluff- Nr (BFFU1)



These graphics are updated approximately every two weeks between 3/1 and 5/1

Plot Created 2015-04-23 15:23:54
CBRFC / NWS / NOAA

<http://www.cbrfc.noaa.gov/rmap/peak/peaklist.php>



Major San Juan River Basin Reservoirs
(4/26/2015)

Nighthorse

- Elevation = 6880.6
- Storage = 112,998 af (98% full*)
- Release = 0 cfs
- Pumping = 0 cfs

*Lake Nighthorse is scheduled to be topped off May-June of this year (33 cfs for 38 days)

Vallecito

- Elevation = 7658.46 ft
- Storage = 108,087 af (86% full, 178% avg**)
- Release = 238 cfs
- Inflow = 309 cfs

**Vallecito's new ice-preventing bubbler system is allowing higher storage levels than in previous winters.

Lemon

- Elevation = 8126.87 ft
- Storage = 27,691 af (70% full, 126% avg)
- Release = 11 cfs
- Inflow = 68 cfs

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

- Precipitation has been below average for most of the winter and into spring in the San Juan River Basin.
- Most Probable April–July Inflow Forecast is 38% of average.
- New methodology for determining spring peak releases is being implemented this water year with the goal of reducing shortage risk.
- There will be no spring peak release for 2015.
- Reclamation will continue to follow the ROD, and release the minimum necessary to maintain the target base flows downstream in the critical habitat reach.
- Shortage is not currently forecasted but preventative measures are being taken to reduce the risk of a shortage developing.
- Downstream flows in the San Juan River will likely be below average for the spring and summer 2015.
- Under Most Probable operational forecast from mid-April, Navajo will reach a minimum reservoir elevation of 6039 ft over the winter of 2016.

Next Operations Meeting Tuesday, August 11th 2015