Blackfoot Water Supply Report
June 7, 2015

Montana Water Supply Outlook Report as of June 1, 2015 (from NRCS):
http://www.nrcs.usda.gov/wps/portal/nrcs/detail/mt/snow/?cid=nrcs144p2_057799

Overview

Snowpack across the state peaked between mid-March and mid-April depending on elevation and location within the state. The persistent weather pattern we experienced during March and April with well above average temperatures and well below normal precipitation finally gave way during the second week of May, but only east of the Divide and in the southern and central basins. Cooler and wet weather patterns slowed the melt of the remaining snowpack east of the Divide, with a few basins along the southern Montana border and Wyoming receiving up to 20" of snowfall in a late spring storms at higher elevations. Snowpack west if the Divide continued to decline through the month of May leaving all basins in this region well below normal on June 1.

Data from SNOTEL and snowcourses shows that most basins have moved the bulk of their snow-water into the groundwater and surface water systems as of June 1. 70 to 95 percent of the snowpack at SNOTEL and snowcourse elevations has melted by this point depending on the basin, decreasing the volume of snow water available for runoff as we enter the more typical melt period. Higher elevations in some basins still have snowpack remaining to melt, but the major water yielding mid-elevations have made their big push for the year and will not drive future flows. 91 of the 131 of the SNOTEL sites have melted out at this time, and many of these melt out dates are the first or second earliest melt outs since automated records began. Snowmelt is ahead of schedule in all basins this water year, and all basins are well below average for June 1. Statewide snowpack is currently 42 percent of normal and 28 percent of last year at this time.

West of the Divide basins received well below average precipitation during May receiving only 32 to 66 percent. Overall, the basins west of the Divide received 53 percent of average precipitation for May. This region has seen below average precipitation for the last three months, and the below normal snowpack this winter combined with the below average spring precipitation resulted in below average streamflows during May. Statewide monthly precipitation was 89 percent of average for the month of May, and is currently 93 percent of the water year-to-date average for June 1st. Due to the below normal snowpack this winter and spring and early melt of the snowpack, continued precipitation will be critical this summer as snowmelt contribution to streamflow will be below average.

Snow Water Equivalent		
6/1/2015	% Normal	% Last Year
Columbia River Basin	**37%**	**22%**
Kootenai in Montana	14%	8%
Flathead in Montana	43%	27%
Upper Clark Fork	43%	27%
Bitterroot	7%	4%
Lower Clark Fork	53%	23%

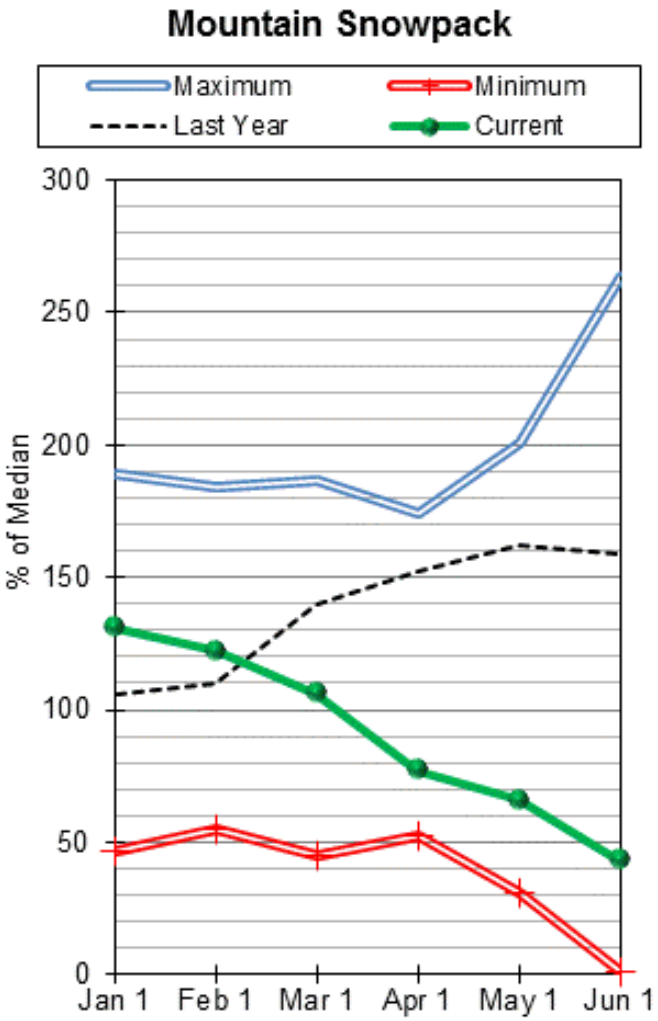
Upper Clark Fork River Basin

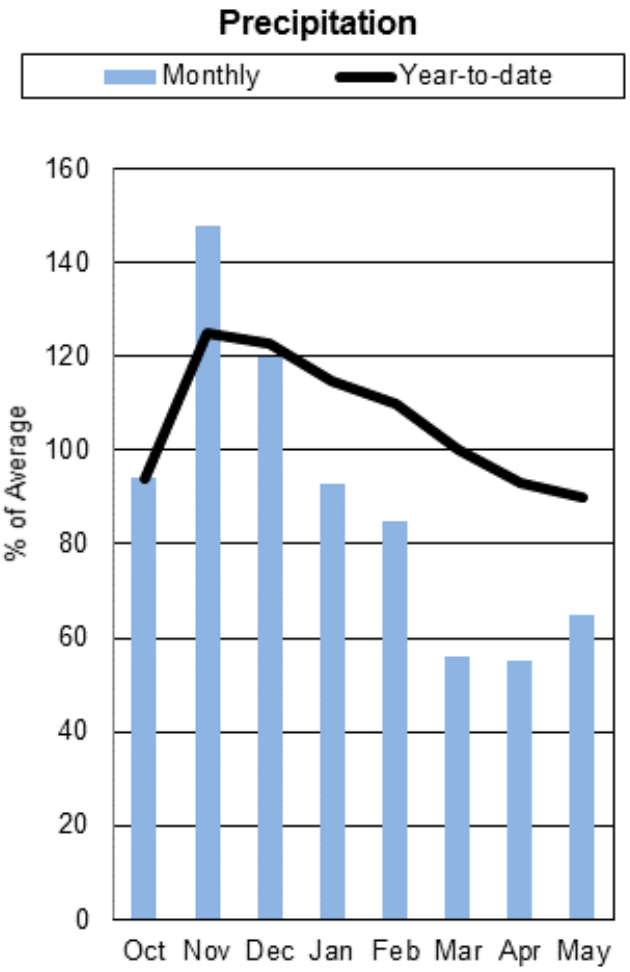
Snowmelt was early this year in the Upper Clark Fork River basin at mid to low elevations, low elevations in made the transition to melt during mid-March, and most other elevations made the transition during the latter half of April. Snowpack declined significantly during May and like the other basins west of the Divide, the only remaining snowpack on June 1 was found at the highest elevations. As a whole, the snowpack in the Upper Clark Fork River basin is currently 43 percent of normal for June 1st, and 27 percent of last year at this time.

A series of storms throughout May brought precipitation to some parts of the Upper Clark Fork River Basin but in general well below average increments were recorded. Higher increments were seen in the upper reaches of the basin. However a few mountain sites recorded near to a little above average precipitation for May. Valley stations were not so lucky either and some low valley areas within the basin are extremely dry for this time of year. Basin-wide May precipitation was 65 percent of average for the month. Water year-to-date basin wide precipitation is currently 100 percent of average for June 1st, and 97 percent of last year at this time.

Early snowmelt at the low and mid elevations in the basin have decreased the amount of water available during the next few months. Upper elevation snowpack and future precipitation events will drive the summer streamflows. The basin-wide average June-July streamflow forecast for the Upper Clark Fork River basin is currently 45 percent of average and 36 percent of last year.

Upper Clark Fork River Basin





Snowpack Analysis

Watershed Snowpack Analysis June 1, 2015	# of Sites	% Median	Last Year % Median
CLARK FORK ab FUNT CREEK	5	56%	144%
FLINT CREEK	4	0%	593%
ROCK CREEK	2	0%	131%
CLARKFORK ab BLACKFOOT	10	44%	150%
BLACKFOOT	5	39%	171%
UPPER CLARK FORK RIVER BASIN	14	43%	158%

Reservoir Storage

In the Upper Clark Fork, basin-wide reservoir storage is at 97 percent of average and 121 percent of last year of last year at this time.

Reservoir Storage end of May 2015	Current (KAF)	Last Year (KAF)	Average (KAF)	Capacity (KAF)
East Fork Rock Creek Reservoir	10.8	12.0	10.6	15.6
Georgetown Lake	29.9	28.8	29.1	31.0
Lower Willow Creek Reservoir		5.0	4.7	4.9
Nevada Creek Reservoir	9.9	11.5	10.9	12.6
Basin-wide Total	50.6	52.3	50.6	59.2
# of reservoirs	3	3	3	3

Streamflow Forecast

The basin-wide average June-July streamflow forecast for the Upper Clark Fork River basin is currently 45 percent of average and 36 percent of last year.

UPPER CLARK FORK RIVER BASIN

	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg (KAF)	30% (KAF)	10% (KAF)	30 yr avg (KAF)
Little Blackfoot nr Garrison								
	JUN.JUL	3	11.5	17.2	59%	23	31	29
	JUN-SEP	6.1	15.9	23	64%	29	39	36
Flint CK nr Southern Cross								
	JUN.JUL	0.95	2	2.9	43%	4	5.8	6.8
	JUN-SEP	1.2	2.5	3.7	4 1%	5.2	7.7	9
Flint CK bl Boulder CK								
	JUN.JUL	2.8	10.9	16.5	53%	22	30	31
	JUN-SEP	12.3	23	30	68%	38	49	44
Lower Willow Creek Re								
	JUN.JUL	0.44	J.96	1.4	39%	2	3	3.6
MF Rock Ck nr Philipsburg	JUN-SEP	0.99	1.66	*22*	49%	2.8	3.9	4.5
	JUN.JUL	2.2	9.7	14.8	44%	19.9	27	34
	JUN-SEP	6	14.4	20	49%	26	34	41
Rock Ck nr Clinton								
	JUN.JUL	0.3	30	51	39%	71	102	131
	JUN-SEP	16.9	51	75	46%	98	133	164
Clark Fork ab Milltown								
	JUN.JUL	49	83	112	41%	145	200	270
	JUN-SEP	86	134	172	48%	215	290	355
Nevada Ck nr Helmville								
	JUN.JUL	0.73	1.57	2.3	40%	3.3	4.9	5.8
Blackfoot R nr Bonner	JUN-SEP	1.3	2.4	3.3	46%	4.4	6.3	*72*
	JUN.JUL	81	125	154	47%	184	225	325
	JUN-SEP	133	181	215	53%	245	295	405
Clark Fork R ab Missoula								
	JUN.JUL	96	198	265	45%	335	440	595
	JUN-SEP	186	305	390	51%	470	590	765

1) 90% and 10% exceedance probabilities are actually 95% and 5%.
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions.
3) Median value used in place of average.

June-July Streamflow		
6/1/2015	% Average	% Last Year
Columbia River Basin	**58%**	**46%**
Kootnenai in Montana	61%	68%
Flathead in Montana	59%	39%
Upper Clark Fork	45%	36%
Bitteroot	56%	38%
Lower Clark Fork	57%	41%
Missouri River Basin	**48%**	**42%**
Jefferson	54%	57%
Madison	45%	50%
Gallatin	54%	51%
Headwaters Mainstem	48%	41%
Smith-Judith-Musselshell	52%	44%
Sun-Teton-Marias	44%	29%
St. Mary	55%	36%
Yellowstone River Basin	**73%**	**52%**
Upper Yellowstone	68%	50%
Lower Yellowstone	77%	53%
East of Divide	60%	47%
West of Divide	58%	46%
Montana State-Wide	**59%**	**47%**

Low Flow Forecasts

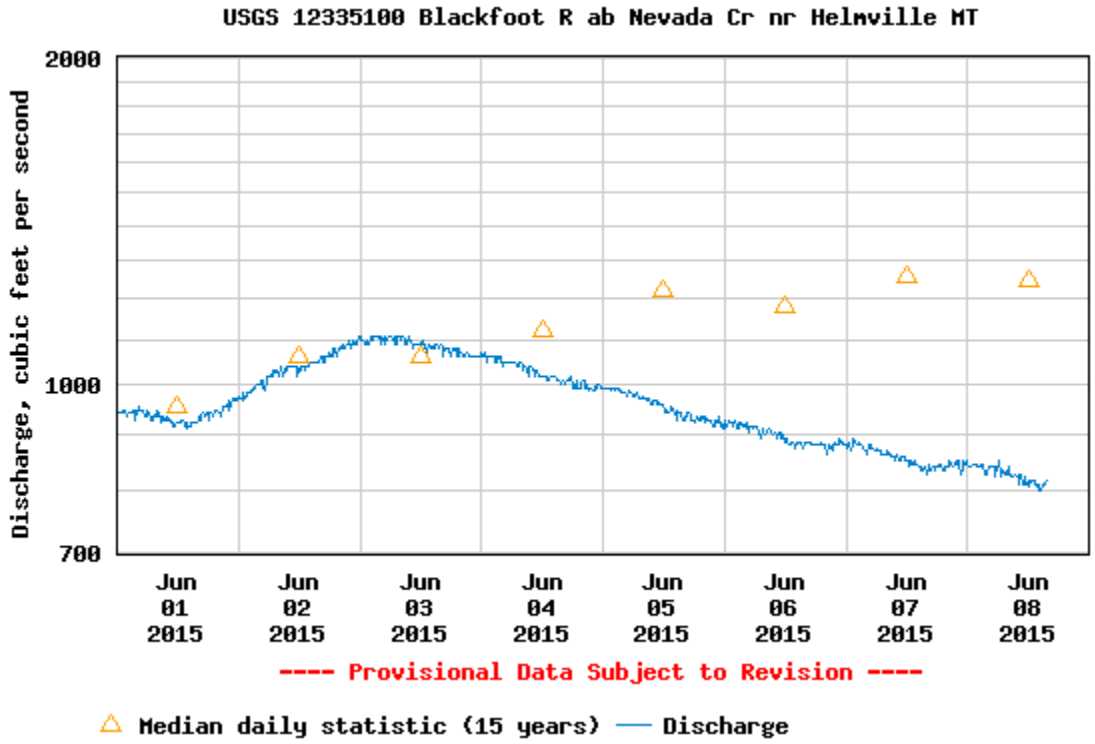
The low flow forecasts below are generated with NRCS May - July streamflow volume forecasts for May 1, 2015, and measured flows during spring/summer runoff.

Blackfoot River near Bonner		**Very Wet**	**Wet**	**Normal**	**Dry**	**Very Dry**
Given current forecast of:	KAF	510	430	375	315	235
Low Flow level will be near:	CFS	518	483	459	433	398
Date Flows will reach 700 CFS		**Very Early**	**Early**	**Normal**	**Late**	**Very Late**
		7/6/15	7/18/15	7/26/15	8/4/15	8/16/15

June 8, 2015 USGS Real Time Flow Conditions

BLACKFOOT RIVER ABOVE NEVADA CREEK NEAR HELMVILLE

Discharge, cubic feet per second
Most recent instantaneous value: 817 06-08-2015 15:45 MDT

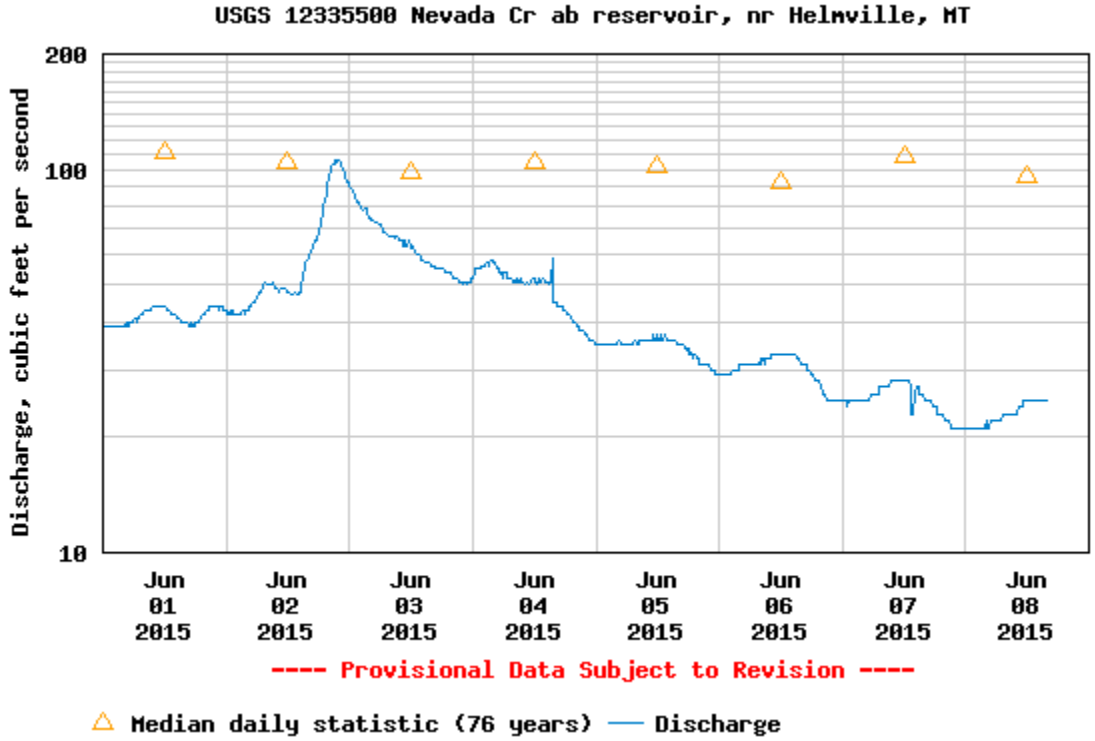


Daily discharge, cubic feet per second -- statistics for Jun 8 based on 15 years of record more

Min (2001)	Most Recent Instantaneous Value Jun 8	25th percen-tile	Median	Mean	75th percen-tile	Max (2011)
543	817	979	1250	1290	1490	3440

NEVADA CREEK (above reservoir)

Discharge, cubic feet per second
Most recent instantaneous value: 25 06-08-2015 15:45 MDT

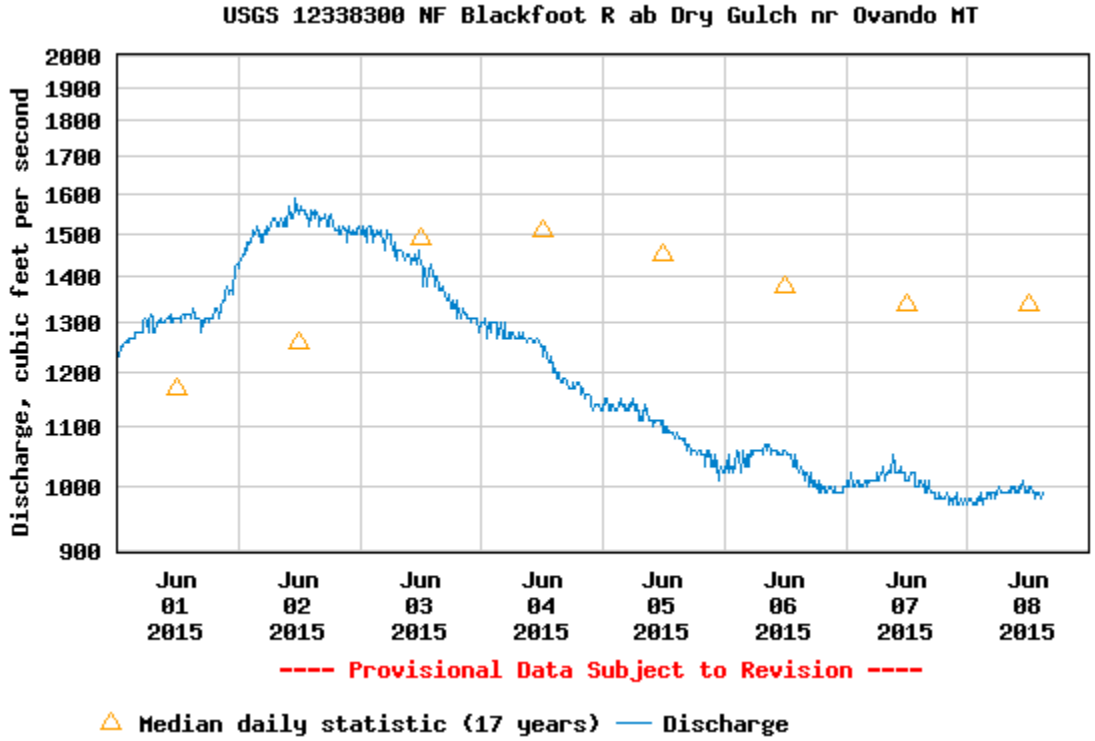


Daily discharge, cubic feet per second -- statistics for Jun 8 based on 76 years of record more

Min (1973)	Most Recent Instantaneous Value Jun 8	25th percen-tile	Median	Mean	75th percen-tile	Max (2011)
12	25	46	96	120	144	655

NORTH FORK BLACKFOOT (above Dry Gulch near Ovando)

Discharge, cubic feet per second
Most recent instantaneous value: 990 06-08-2015 15:00 MDT

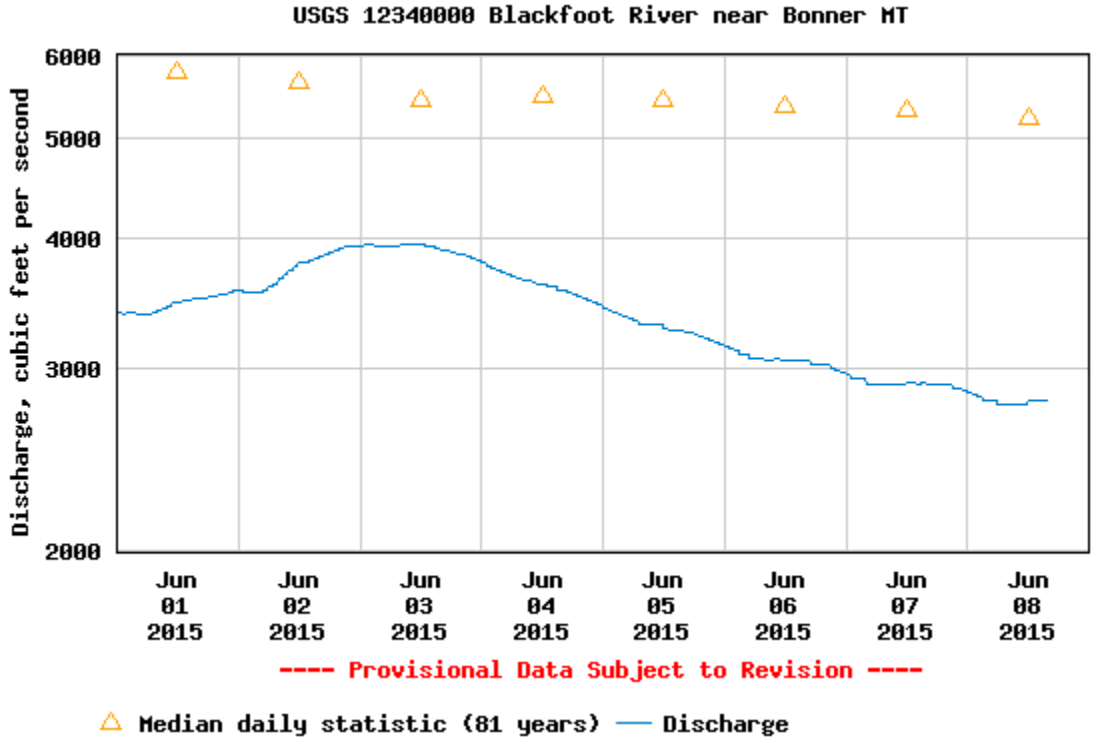


Daily discharge, cubic feet per second -- statistics for Jun 8 based on 17 years of record more

Min (1998)	Most Recent Instantaneous Value Jun 8	25th percen-tile	Median	Mean	75th percen-tile	Max (2011)
679	990	1060	1340	1500	1770	4360

BLACKFOOT RIVER AT BONNER

Discharge, cubic feet per second
Most recent instantaneous value: 2,790 06-08-2015 15:45 MDT



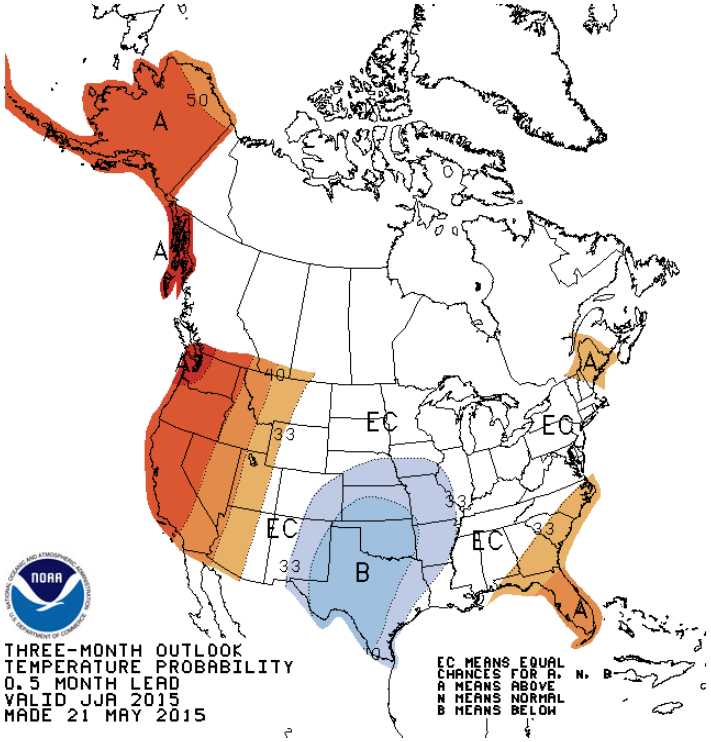
Daily discharge, cubic feet per second -- statistics for Jun 8 based on 81 years of record more

Min (1987)	Most Recent Instantaneous Value Jun 8	25th percen-tile	Median	Mean	75th percen-tile	Max (2011)
1290	2790	4160	5230	5790	6680	16600

Three-Month Outlook
June 8, 2015

From
National Weather Service Climate Prediction Center
http://www.cpc.ncep.noaa.gov/products/forecasts/

Higher than normal chance for above normal temps over the next 3 months



Normal to slightly above normal chance for above average precip over 3 months