

WESTERN DIVISION SYSTEM
RESOURCES DIVISION
LOVELAND, COLORADO

MAY 1, 2012
WATER SUPPLY AND UTILIZATION REPORT
WESTERN DIVISION SYSTEM
PICK-SLOAN MISSOURI BASIN PROGRAM

PRECIPITATION BELOW AVERAGE
TEMPERATURES VARIED

Precipitation was below average over the Colorado-Big Thompson Project (Project) during April. The Poudre watershed was the lowest at 31 percent of average. The Green Mountain Reservoir watershed was the highest at 67 percent of average.

Temperatures over the Project were varied for April. Fort Collins had the warmest April on record.

PRECIPITATION

Watershed	April Precipitation			October-April Precipitation		
	2012 (Inches)	Avg <u>1</u> / (Inches)	% of Avg	WY2012 (Inches)	Avg <u>1</u> / (Inches)	% of Avg
Green Mtn.	1.14	1.71	67	7.47*	9.64	77
Willow Crk.	.90	1.63	55	5.68	9.06	63
L. Granby	.90	1.63	55	5.68	9.06	63
L. Estes	1.38	2.26	61	7.19*	8.23	87
St. Vrain	1.38	2.26	61	7.19*	8.23	87
Poudre	.58	1.90	31	5.13	6.12	84

1/ 30 year average, 1971-2000

*Correction from March's cumulative number

INFLOWS ABOVE AVERAGE

Inflows were above average over the Project during April. The inflow to Green Mountain Reservoir was the lowest at 138 percent of average. The inflow to Willow Creek Reservoir was the highest at 229 percent of average. Water year to date (October-April) inflows have been 139 percent of average.

RESERVOIR INFLOW

Reservoir	April Inflow			October-April Inflow		
	2012 (KAF)	Avg <u>1</u> / (KAF)	% of Avg	WY 2012 (KAF)	Avg <u>1</u> / (KAF)	% of Avg
Green Mtn.*	24.0	17.4	138	96.1	74.7	129
Willow Crk.	8.7	3.8	229	17.4	9.8	178
L. Granby	23.0	11.9	193	55.1	35.9	153
L. Estes <u>2</u> /	4.9	2.6	188	14.4	11.1	130

*Total runoff of the watershed above Green Mountain does not include depletions by Denver and Colorado Springs.

1/ 30 year average, 1971-2000

2/ Lake Estes Computed Inflow

TRANSMOUNTAIN DIVERSIONS ABOVE AVERAGE

Transmountain diversions through Adams Tunnel during April were 170 percent of average. During April, 24,200 acre-feet of water was brought through the tunnel. Water year to date (October-April) diversions have been 91 percent of average.

TRANSMOUNTAIN DIVERSION

Adams Tun.	April			October-April		
	2012 (KAF)	Avg <u>1</u> / (KAF)	% of Avg.	WY 2012 (KAF)	Avg <u>1</u> / (KAF)	% of Avg
	24.2	14.2	170	123.8	135.7	91

1/ 30 year average, 1971-2000

RESERVOIR STORAGE VARIED

The Lake Granby storage of 420,600 acre-feet on April 30 was 91,900 acre-feet above average and 53,800 acre-feet higher than 1 year ago on this date. Terminal reservoir storage in Carter Lake and Horsetooth Reservoir was 84 and 108 percent of average, respectively.

Colorado-Big Thompson Project storage water in Lake Granby, Carter Lake, and Horsetooth was 650,000 acre-feet on April 30 which was 85,500 acre-feet above average and 80 percent of the total available storage capacity.

RESERVOIR STORAGE

Reservoir	Total Storage on April 30						Total Storage Cap.(KAF)
	2012 (KAF)	2012 (%of Avg)	2011 (KAF)	2010 (KAF)	2009 (KAF)	1971-00 Avg(KAF)	
Green Mtn	88.9	146	57.0	84.8	72.3	60.8	153.6
L. Granby	420.6	128	366.8	344.7	283.8	328.7	539.8
Horse-tooth	140.3	108	124.2	133.5	119.2	129.7	156.7
Carter L.	89.1	84	105.3	109.9	110.8	106.1	112.2
Dillon	239.6	112	212.8	242.7	225.8	214.3	254.0
Williams Fork	86.7	176	80.1	79.5	82.2	49.2 <u>1</u>	96.8
Project	Total Storage Water in Lake Granby, Carter Lake, and Horsetooth Reservoir on April 30						
CBT	650.0	115	596.3	588.1	513.8	564.5	808.7

1/ 20 year average, 1970-1989.

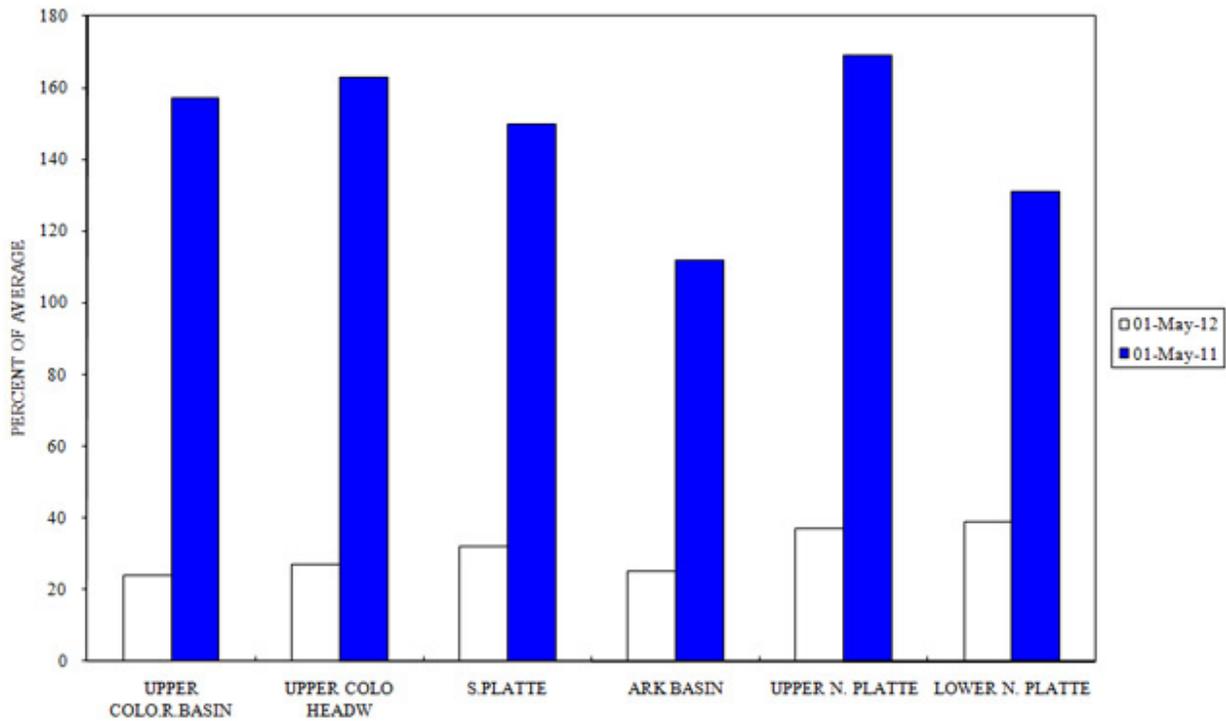
SNOWPACK WATER CONTENT WELL BELOW AVERAGE

Snowpack water content on May 1 was 18 percent of the 1971-2000 average throughout the Project watersheds. The Lake Granby watershed was the lowest at 12 percent of average. The highest snowpack water content on the Project was recorded for the Poudre watershed at 35 percent of average.

The snowpack update graph on the next page are readings from the Natural Resource Conservation Service automated SNOTEL sites (for snowpack telemetry). This system has replaced many of the manual measurements at the remote sites. The 1971-2000 average is being used.

Watershed	May 1 Snow-Water Content			Comparative May 1 Snow-Water Content			
	2012 (In.)	Avg. (In.)	% of Avg.	2011 (In.)	2010 (In.)	2009 (In.)	2008 (In.)
Green Mtn	4.4	15.1	29	23.8	11.0	16.0	15.8
Willow C	1.1	8.0	14	16.9	6.0	6.8	11.2
L. Granby	1.3	10.6	12	20.6	7.6	9.5	11.7
L. Estes	2.3	10.3	22	17.8	8.1	10.2	10.2
St. Vrain	2.5	9.9	25	12.6	6.7	8.9	8.5
Poudre	4.6	13.2	35	21.6	12.2	13.3	13.5

**SNOWPACK UPDATE
BASIN WIDE % OF AVERAGE**



WATER SUPPLY OUTLOOK WELL BELOW AVERAGE

Current May 1 water supply forecasts are below average over the Project watersheds. Forecasted May-July volumes range from 31 percent of average for the Willow Creek Reservoir watershed to 54 percent of average for the Big Thompson River above Lake Estes watershed.

May 1, 2012 Forecast of May-Jul Volume (KAF)									
Fore- Cast Point	Chance of Exceeding					Comparative May-Jul Volume (KAF)			
	95% Reason- able Min <u>1/</u>	75%	50% Most Probable	25 %	5% Reason- able Max <u>1/</u>	2011	2010	Avg <u>2/</u>	Most Probable % avg
Green Mtn Res	46	76	97	118	147	458	229	258	38
Willow Crk Res	0	8	14	20	29	119	48	45	31
Lake Granby	68	86	99	111	129	399	197	187	53
Big Thompson River Above L.Estes	23	31	37	43	51	110	77	68	54
Big Thompson R. at Canyon Mouth	18	34	45	56	73	<u>3/</u>	101	91	49
St Vrain Crk at Lyons	19	32	42	51	65	<u>3/</u>	86	83	51
Poudre R. at Canyon Mouth	41	84	113	143	186	<u>3/</u>	267	219	52

1/ The probability is estimated to be 9 chances in 10 that the actual volume will fall between the reasonable minimum and reasonable maximum.

2/ Historical average:

Green Mtn: 1928-2011, Willow C: 1920-2011, Granby: 1928-2011, BT above Estes: 1936-2011, BTR @Canyon: 1947-2010, ST Vrain: 1954-2010, Poudre: 1954-2010

3/ Not available at this time.

WESTERN DIVISION SYSTEM
GENERATION NEAR AVERAGE

System generation of 191,800,000 kilowatt-hours of energy produced during April was 98 percent of average. Total system generation for the water year (October-April) was 1,111,200,000 kilowatt-hours which was 86 percent of average.

WESTERN DIVISION SYSTEM
GROSS GENERATION

(Energy in GWH)

Powerplant	April Gross Generation			Accum. Gross Generation <u>1/</u>		
	2012 (GWH)	Avg <u>2/</u> (GWH)	% of Avg.	WY 2012 (GWH)	Avg <u>2/</u> (GWH)	% of Avg
Green Mtn.	0.0	2.8	-	19.9	21.6	92
Marys Lake	4.2	2.3	183	21.4	23.1	93
Estes	10.5	5.9	178	58.2	60.3	97
Pole Hill	15.5	8.1	191	72.5	91.1	80
Flatiron 1&2	19.9	11.4	175	103.4	119.5	87
Big Thompson	0.0	0.3	-	1.2	1.0	120
Seminole	15.5	12.3	126	57.0	71.5	80
Kortes	17.5	13.5	130	60.9	78.2	78
Fremont C.	17.9	20.9	86	51.8	91.5	57
Alcova	4.6	8.1	57	19.8	43.0	46
Glendo	2.9	6.2	47	2.9	8.4	35
Guernsey	2.4	2.0	120	2.4	3.2	75
Boysen	5.0	5.0	100	5.7	33.9	17
Heart Mtn.	0.0	0.4 <u>3/</u>	-	1.7	1.2 <u>3/</u>	142
Buffalo Bill	7.5	6.7 <u>3/</u>	112	22.9	21.1 <u>3/</u>	109
Shoshone	1.7	1.7 <u>3/</u>	100	8.2	10.0 <u>3/</u>	82
Spirit Mtn.	0.9	0.2 <u>3/</u>	450	2.6	1.1 <u>3/</u>	236
Mt. Elbert	13.7	14.4 <u>4/</u>	95	139.1	80.5 <u>4/</u>	173
Yellowtail	52.1	73.6 <u>5/</u>	71	459.6	530.2 <u>5/</u>	87
Total	191.8	195.8	98	1111.2	1290.4	86

1/ Oct-Apr

2/ 1976-2005 average

3/ 1995-2005 average

4/ 1990-1999 average

5/ 1971-1990 average; In general 1/2 of Yellowtail energy is dedicated to the Western Division System through marketing arrangement. The other 1/2 is marketed in Eastern Division System.

WESTERN DIVISION SYSTEM
PUMP ENERGY ABOVE AVERAGE

The pump energy required for the Western Division System was above average for April. Colorado-Big Thompson Project pumping was 241 percent of average for April. Mt. Elbert pumping was 175 percent of average. Water year to date (October-April) pumping for the Western Division System was 157 percent of average.

PUMP ENERGY

Pumping Plant	April Pump Energy			Oct-April Pump Energy		
	2012 (GWH)	Avg <u>1</u> / (GWH)	% of Avg	WY2012 (GWH)	Avg <u>1</u> / (GWH)	% of Avg
Willow Crk	1.6	0.5	320	2.1	1.0	210
Farr	2.0	1.8	111	17.3	22.3	78
Flatiron 3	6.3	1.8	350	18.4	20.8	88
Mt. Elbert	23.8	13.6 <u>2</u> / 	175	165.4	85.0 <u>2</u> / 	195
Total	33.7	17.7	190	203.2	129.1	157

1/ 1976-2005 average

2/ 1990-1999 average

MAY 1, 2012
WATER SUPPLY AND UTILIZATION REPORT
FRYINGPAN-ARKANSAS PROJECT

PRECIPITATION BELOW AVERAGE

Precipitation was below average over the Fryingpan-Arkansas Project (Project) during April. Precipitation at Twin Lakes Reservoir was the lowest at 38 percent of average. Precipitation at Ruedi Reservoir (Nast) was the highest at 72 percent of average.

PRECIPITATION

Stations	April Precipitation			October-April Precipitation		
	2012 (Inches)	Avg (Inches)	% of Avg	WY2012 (Inches)	Avg (Inches)	% of Avg
Ruedi *	1.70	2.36 <u>1/</u>	72	9.90	14.89 <u>1/</u>	66
Turquoise	.87	1.39 <u>2/</u>	63	7.31	8.92 <u>2/</u>	82
Twin Lakes	.30	.78 <u>3/</u>	38	2.88	4.10 <u>3/</u>	70
Pueblo	1.03	1.55 <u>4/</u>	66	4.32	4.66 <u>4/</u>	93

* Used Nast SNOTEL site
1/ 1971-2000 average for Nast
2/ 1973-1999 average
3/ 1966-1999 average
4/ 1976-1999 average

INFLOWS VARIED

Native inflows were varied over the Project during April. The inflow to Pueblo Reservoir was the lowest at 80 percent of average. The inflow to Twin Lakes Reservoir was the highest at 224 percent of average. Water year to date (October-April) inflows over the Fryingpan-Arkansas Project were 89 percent of average.

RESERVOIR INFLOW*

Reservoir	April Inflow			October-April Inflow		
	2012 (KAF)	Avg (KAF)	% of Avg	WY2012 (KAF)	Avg (KAF)	% of Avg
Ruedi	8.9	7.0 <u>1/</u>	127	28.4	24.3 <u>1/</u>	117
Turquoise	2.0	0.9 <u>2/</u>	222	4.6	3.6 <u>2/</u>	128
Twin Lakes	3.8	1.7 <u>2/</u>	224	11.5	9.8 <u>2/</u>	117
Pueblo	14.8	18.5 <u>2/</u>	80	121.7	148.8 <u>2/</u>	82

* Computed Native Inflow
1/ 1970-1989 average
2/ 1966-1986 average

RESERVOIR STORAGE IS VARIED

Reservoir storage is varied on the Fryingpan-Arkansas Project. Twin Lakes is the lowest at 95 percent of average. Ruedi Reservoir is the highest at 126 percent of average. The total water in storage in the four reservoirs of 478,500 acre-feet at the end of April was 27,800 acre-feet higher than 1 year ago on this date.

RESERVOIR STORAGE

Reservoir	Total Storage on April 30						Total Storage Capacity (AF)
	2012 (KAF)	2012 (% of Avg)	2011 (KAF)	2010 (KAF)	2009 (KAF)	Avg (KAF)	
Ruedi	77.4	126	59.8	71.1	68.8	61.6 <u>1/</u>	102,373
Turquoise	70.2	100	52.6	60.1	58.2	70.3 <u>2/</u>	129,398
Twin Lakes	98.3	95	94.8	110.2	97.0	103.6 <u>3/</u>	141,000
Pueblo	232.6	120	243.5	254.7	231.3	193.7 <u>1/</u>	256,949 <u>4/</u>
Project	Total Storage Water in Turquoise, Twin Lakes, and Pueblo Reservoirs on April 30						
Fry-Ark	401.1	109	390.9	425.0	386.5	367.6	527,347

1/ 1982-2007 average

2/ 1989-2007 average

3/ 1987-2007 average

4/ Top of active conservation capacity

SNOWPACK WATER CONTENT BELOW AVERAGE

Snowpack water content on May 1 was below average on the Fryingpan-Arkansas Project watersheds. The Upper Arkansas River watershed was 23 percent of average. The Fryingpan River watershed was 24 percent of average.

SNOW-WATER ACCUMULATION

Watershed	May 1 Snow-Water Content			Comparative May 1 Snow-Water Content (Inches)			
	2012 (In.)	Avg <u>1/</u> (In.)	% of Avg	2011	2010	2009	2008
U.Arkans.	3.2	14.2	23	20.9	10.8	14.0	17.8
Fryingpan River	3.3	13.8	24	20.5	10.4	13.9	18.7

1/ 1971-2000 average

WATER SUPPLY OUTLOOK BELOW AVERAGE

The current May 1 water supply forecast for Ruedi is below average.

May 1, 2012 Forecast of May-Jul Volume (KAF)							
Chance of Exceeding							
Forecast Point	95% Reasonable Min <u>2/</u>	75%	50% Most Probable	25%	5% Reasonable Max <u>2/</u>	Avg <u>3/</u>	Most Probable % Avg
Ruedi <u>1/</u>	34	47	55	63	76	127.0	43

1/ Undepleted

2/ The probability is estimated to be 9 chances in 10 that the actual volume will fall between the reasonable minimum and reasonable maximum.

3/ 1969-2006 average

COOPERATORS

Many organizations and individuals furnish information for the Water Supply and Utilization Report. Their cooperation is gratefully appreciated, especially:

Natural Resource Conservation Service
<http://www.wcc.nrcs.usda.gov/>
Snow Survey Units
Denver, Colorado
<http://www.co.nrcs.usda.gov/snosurvfs.htm>
Casper, Wyoming
and
Portland, Oregon

Department of Commerce
NOAA, National Weather Service
Boulder, Colorado
<http://www.crh.noaa.gov/den/>
Cheyenne, Wyoming
Salt Lake City, Utah

Department of Energy
Western Area Power Administration
Rocky Mountain Region
Loveland, Colorado
<http://www.wapa.gov/RM/RM.HTM>

Colorado Climate Center
Colorado State University
Fort Collins, Colorado
<http://ccc.atmos.colostate.edu/Access.html>