

WESTERN DIVISION SYSTEM
RESOURCES DIVISION
LOVELAND, COLORADO

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

PRECIPITATION BELOW AVERAGE
TEMPERATURES ABOVE AVERAGE

Precipitation was below average over the Colorado-Big Thompson Project (Project) during May. The Green Mountain watershed was the lowest at 42 percent of average. The Lake Estes and St. Vrain watersheds were the highest at 78 percent of average.

Temperatures over the Project were above average for May.

PRECIPITATION

| Watershed | May Precipitation | | | October-May Precipitation | | |
|-------------|-------------------|----------------------------|----------|---------------------------|----------------------------|----------|
| | 2012 (Inches) | Avg <u>1</u> / (Inches) | % of Avg | WY2012 (Inches) | Avg <u>1</u> / (Inches) | % of Avg |
| Green Mtn. | .74 | 1.78 | 42 | 8.21 | 11.42 | 72 |
| Willow Crk. | 1.30 | 1.80 | 72 | 6.98 | 10.86 | 64 |
| L. Granby | 1.30 | 1.80 | 72 | 6.98 | 10.86 | 64 |
| L. Estes | 2.00 | 2.58 | 78 | 9.19 | 10.81 | 85 |
| St. Vrain | 2.00 | 2.58 | 78 | 9.19 | 10.81 | 85 |
| Poudre | 1.64 | 2.50 | 66 | 6.77 | 8.62 | 79 |

1/ 30 year average, 1971-2000

INFLOWS BELOW AVERAGE

Inflows were below average over the Project during May. The inflow to Willow Creek was the lowest at 33 percent of average. The inflow to Lake Granby was the highest at 69 percent of average. Water year to date (October-May) inflows have been 95 percent of average.

RESERVOIR INFLOW

| Reservoir | May Inflow | | | October-May Inflow | | |
|---------------------|---------------|-------------------------|----------|--------------------|-------------------------|----------|
| | 2012 (KAF) | Avg <u>1</u> / (KAF) | % of Avg | WY 2012 (KAF) | Avg <u>1</u> / (KAF) | % of Avg |
| Green Mtn.* | 38.4 | 67.2 | 57 | 134.5 | 141.9 | 95 |
| Willow Crk. | 7.3 | 22.4 | 33 | 24.7 | 32.2 | 77 |
| L. Granby | 38.7 | 55.8 | 69 | 93.8 | 91.7 | 102 |
| L. Estes <u>2</u> / | 8.9 | 15.2 | 59 | 23.3 | 26.3 | 89 |

*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 May were 179 percent of average. During May, 31,700 acre-feet of water was brought through the tunnel. Water year to date (October-May) diversions have been 101 percent of average.

TRANSMOUNTAIN DIVERSION

| Adams Tun. | May | | | October-May | | |
|------------|---------------|-------------------------|-----------|------------------|-------------------------|----------|
| | 2012 (KAF) | Avg <u>1</u> / (KAF) | % of Avg. | WY 2012 (KAF) | Avg <u>1</u> / (KAF) | % of Avg |
| | 31.7 | 17.7 | 179 | 155.5 | 153.4 | 101 |

1/ 30 year average, 1971-2000

RESERVOIR STORAGE VARIED

The Lake Granby storage of 426,100 acre-feet on May 31 was 54,000 acre-feet above average and 65,700 acre-feet higher than 1 year ago on this date. Terminal reservoir storage in Carter Lake and Horsetooth Reservoir was 84 and 102 percent of average, respectively.

Colorado-Big Thompson Project storage water in Lake Granby, Carter Lake, and Horsetooth was 645,700 acre-feet on May 31 which was 39,900 acre-feet above average and 80 percent of the total available storage capacity.

RESERVOIR STORAGE

| Reservoir | Total Storage on May 31 | | | | | | Total Storage Cap. (KAF) |
|---------------|---|-----------------|------------|------------|------------|-------------------|--------------------------|
| | 2012 (KAF) | 2012 (% of Avg) | 2011 (KAF) | 2010 (KAF) | 2009 (KAF) | 1971-00 Avg (KAF) | |
| Green Mtn | 102.4 | 124 | 69.4 | 116.1 | 115.7 | 82.8 | 153.6 |
| L. Granby | 426.1 | 115 | 360.4 | 409.0 | 384.1 | 372.1 | 539.8 |
| Horse-tooth | 133.0 | 102 | 118.1 | 148.4 | 130.7 | 130.3 | 156.7 |
| Carter L. | 86.6 | 84 | 109.1 | 107.8 | 104.9 | 103.4 | 112.2 |
| Dillon | 243.2 | 106 | 184.9 | 259.6 | 260.1 | 230.3 | 254.0 |
| Williams Fork | 91.9 | 162 | 79.6 | 94.3 | 96.4 | 56.9 <u>1</u> | 96.8 |
| Project | Total Storage Water in Lake Granby, Carter Lake, and Horsetooth Reservoir on May 31 | | | | | | |
| CBT | 645.7 | 107 | 587.6 | 665.2 | 619.7 | 605.8 | 808.7 |

1/ 20 year average, 1970-1989.

PROJECT WATER DELIVERIES ABOVE AVERAGE

Project water deliveries during May were 175 percent of average. Colorado-Big Thompson seasonal deliveries (November 2011-May 2012) were 176 percent of average to date.

Units = 1000 AF

| Project | Delivery Point | May Delivery | | | Seasonal Delivery Through May 31 | | |
|-----------|-----------------|--------------|---------------|----------|----------------------------------|---------------|----------|
| | | 2012 | Avg <u>1/</u> | % of Avg | 2012 | Avg <u>1/</u> | % of Avg |
| | Carter Lake* | 18.8 | 5.8 | 324 | 34.4 | 10.1 | 341 |
| | Hansen F.C.* | 4.2 | 4.6 | 91 | 4.6 | 10.0 | 46 |
| | Horsetooth Res* | 15.5 | 11.6 | 134 | 29.1 | 18.5 | 75 |
| CBT Total | | 38.5 | 22.0 | 175 | 68.1 | 38.6 | 176 |

1/ 30 year average, 1971-2000

* May include some Windy Gap and/or carriage contract water.

NO REMAINING SNOWPACK

Remaining snowpack water content on June 1, based on SNOTEL sites only, was zero percent of the 1971-2000 average.

SNOW-WATER ACCUMULATION

| Watershed | June 1 Snow-Water Content | | | Comparative June 1 Snow-Water Content | | | |
|---------------------|---------------------------|------------|-----------|---------------------------------------|------------|------------|------------|
| | 2012 (In.) | Avg. (In.) | % of Avg. | 2011 (In.) | 2010 (In.) | 2009 (In.) | 2008 (In.) |
| Green Mtn <u>1/</u> | 0.0 | 9.5 | 0 | 22.4 | 3.7 | 4.4 | 11.5 |
| Willow C <u>2/</u> | 0.0 | 3.2 | 0 | 22.6 | 3.8 | 0.0 | 12.0 |
| L. Granby <u>3/</u> | 0.0 | 6.2 | 0 | 18.9 | 4.1 | 2.3 | 4.9 |
| L. Estes <u>4/</u> | 0.0 | 5.4 | 0 | 16.9 | 4.1 | 3.4 | 4.7 |
| St. Vrain <u>5/</u> | 0.0 | 5.8 | 0 | 13.2 | 4.4 | 3.8 | 5.4 |
| Poudre <u>6/</u> | 0.0 | 13.5 | 0 | 35.7 | 16.5 | 7.0 | 14.8 |

1/ SNOTEL – Fremont Pass, Hoosier, Grizzly

2/ SNOTEL – Willow Creek Pass

3/ SNOTEL – L. Irene, Phantom, Arrow

4/ SNOTEL – Phantom, L. Irene, Copeland

5/ SNOTEL – Universe, Copeland

6/ SNOTEL – Deadman Hill, L. Irene

WESTERN DIVISION SYSTEM
GENERATION ABOVE AVERAGE

System generation of 262,300,000 kilowatt-hours of energy produced during May was 107 percent of average. Total system generation for the water year (October-May) was 1,373,500,000 kilowatt-hours which was 89 percent of average.

WESTERN DIVISION SYSTEM
GROSS GENERATION

| Powerplant | May 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 | 3.0 | 0 | 19.9 | 24.6 | 81 |
| Marys Lake | 5.4 | 2.9 | 186 | 26.8 | 26.0 | 103 |
| Estes | 13.3 | 7.7 | 173 | 71.5 | 68.0 | 105 |
| Pole Hill | 24.5 | 16.3 | 150 | 97.0 | 107.4 | 90 |
| Flatiron 1&2 | 29.9 | 21.8 | 137 | 133.3 | 141.3 | 94 |
| Big Thompson | 0.4 | 1.8 | 22 | 1.6 | 2.8 | 57 |
| Seminole | 15.9 | 12.4 | 128 | 72.9 | 83.9 | 87 |
| Kortes | 15.8 | 12.8 | 123 | 76.7 | 91.0 | 84 |
| Fremont C. | 23.4 | 25.6 | 91 | 75.2 | 117.1 | 64 |
| Alcova | 22.7 | 12.3 | 185 | 42.5 | 55.3 | 77 |
| Glendo | 24.9 | 12.3 | 202 | 27.8 | 20.7 | 134 |
| Guernsey | 4.3 | 3.2 | 134 | 6.7 | 6.4 | 105 |
| Boysen | 5.9 | 6.7 | 88 | 11.6 | 40.6 | 29 |
| Heart Mtn. | 0.9 | 2.4 <u>3/</u> | 38 | 2.6 | 3.6 <u>3/</u> | 72 |
| Buffalo Bill | 12.1 | 9.9 <u>3/</u> | 122 | 35.0 | 31.0 <u>3/</u> | 113 |
| Shoshone | 1.8 | 2.0 <u>3/</u> | 90 | 10.0 | 12.0 <u>3/</u> | 83 |
| Spirit Mtn. | 2.8 | 1.7 <u>3/</u> | 165 | 5.4 | 2.8 <u>3/</u> | 193 |
| Mt. Elbert | 18.4 | 13.4 <u>4/</u> | 137 | 157.5 | 93.9 <u>4/</u> | 168 |
| Yellowtail | 39.9 | 77.1 <u>5/</u> | 52 | 499.5 | 607.3 <u>5/</u> | 82 |
| Total | 262.3 | 245.3 | 107 | 1373.5 | 1535.7 | 89 |

1/ Oct-May

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 VARIED

The pump energy required for the Western Division System was varied for May. Colorado-Big Thompson Project pumping was 185 percent of average for May. Mt. Elbert pumping was 211 percent of average. Water year to date (October-May) pumping for the Western Division System was 163 percent of average.

PUMP ENERGY

| Pumping Plant | May Pump Energy | | | Oct-May Pump Energy | | |
|---------------|-----------------|-------------------------|----------|---------------------|-------------------------|----------|
| | 2012 (GWH) | Avg <u>1</u> / (GWH) | % of Avg | WY2012 (GWH) | Avg <u>1</u> / (GWH) | % of Avg |
| Willow Crk | 1.1 | 2.3 | 48 | 3.2 | 3.3 | 97 |
| Farr | 2.1 | 0.9 | 233 | 19.4 | 23.2 | 84 |
| Flatiron 3 | 5.7 | 1.6 | 356 | 24.1 | 22.4 | 108 |
| Mt. Elbert | 27.9 | 13.2 <u>2</u> | 211 | 193.3 | 98.2 <u>2</u> | 197 |
| Total | 36.8 | 18.0 | 204 | 240.0 | 147.1 | 163 |

1/ 1976-2005 average

2/ 1990-1999 average

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

PRECIPITATION BELOW AVERAGE

Precipitation was below average over the Fryingpan-Arkansas Project (Project) during May. Precipitation at Turquoise Lake was the lowest at 46 percent of average. Precipitation at Twin Lakes Reservoir was the highest at 59 percent of average.

PRECIPITATION

| Stations | May Precipitation | | | October-May Precipitation | | |
|------------|-------------------|----------------|----------|---------------------------|-----------------|----------|
| | 2012 (Inches) | Avg (Inches) | % of Avg | WY2012 (Inches) | Avg (Inches) | % of Avg |
| Ruedi * | .90 | 1.84 <u>1/</u> | 49 | 10.80 | 16.73 <u>1/</u> | 65 |
| Turquoise | .64 | 1.40 <u>2/</u> | 46 | 7.95 | 10.32 <u>2/</u> | 77 |
| Twin Lakes | .57 | .96 <u>3/</u> | 59 | 3.45 | 5.06 <u>3/</u> | 68 |
| Pueblo | .93 | 1.94 <u>4/</u> | 48 | 5.25 | 6.60 <u>4/</u> | 80 |

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

INFLOWS BELOW AVERAGE

Native inflows were below average over the Project during May. The inflow to Pueblo Reservoir was the lowest at 29 percent of average. The inflow to Twin Lakes Reservoir was the highest at 80 percent of average. Water year to date (October-May) inflows over the Fryingpan-Arkansas Project were 72 percent of average.

RESERVOIR INFLOW*

| Reservoir | May Inflow | | | October-May Inflow | | |
|------------|------------|----------------|----------|--------------------|-----------------|----------|
| | 2012 (KAF) | Avg (KAF) | % of Avg | WY2012 (KAF) | Avg (KAF) | % of Avg |
| Ruedi | 14.4 | 29.9 <u>1/</u> | 48 | 42.8 | 54.2 <u>1/</u> | 79 |
| Turquoise | 5.0 | 6.3 <u>2/</u> | 79 | 9.6 | 9.9 <u>2/</u> | 97 |
| Twin Lakes | 10.5 | 13.1 <u>2/</u> | 80 | 22.0 | 22.9 <u>2/</u> | 96 |
| Pueblo | 18.3 | 63.2 <u>2/</u> | 29 | 140.0 | 212.0 <u>2/</u> | 66 |

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

RESERVOIR STORAGE VARIED

Reservoir storage is varied on the Fryingpan-Arkansas Project. Twin Lakes is the lowest at 97 percent of average. Pueblo Reservoir is the highest at 113 percent of average. The total water in storage in the four reservoirs of 491,200 acre-feet at the end of May was 67,100 acre-feet higher than 1 year ago on this date.

RESERVOIR STORAGE

| Reservoir | Total Storage on May 31 | | | | | | Total Storage Capacity (AF) |
|------------|---|-----------------|------------|------------|------------|-----------------|-----------------------------|
| | 2012 (KAF) | 2012 (% of Avg) | 2011 (KAF) | 2010 (KAF) | 2009 (KAF) | Avg (KAF) | |
| Ruedi | 85.2 | 110 | 62.5 | 86.1 | 88.9 | 77.4 <u>1/</u> | 102,373 |
| Turquoise | 84.1 | 100 | 53.5 | 74.8 | 90.2 | 84.2 <u>2/</u> | 129,398 |
| Twin Lakes | 107.7 | 97 | 79.8 | 115.8 | 116.8 | 110.7 <u>3/</u> | 141,000 |
| Pueblo | 214.2 | 113 | 228.3 | 239.5 | 212.9 | 189.1 <u>1/</u> | 256,949 <u>4/</u> |
| Project | Total Storage Water in Turquoise, Twin Lakes, and Pueblo Reservoirs on May 31 | | | | | | |
| Fry-Ark | 406.0 | 106 | 361.6 | 430.1 | 419.9 | 384.0 | 527,347 |

1/ 1982-2007 average

2/ 1989-2007 average

3/ 1987-2007 average

4/ Top of active conservation capacity

NO REMAINING SNOWPACK

Snowpack water content on June 1 was zero on the Fryingpan-Arkansas Project watersheds.

SNOW-WATER ACCUMULATION

| Watershed | June 1 Snow-Water Content | | | Comparative June 1 Snow-Water Content (Inches) | | | |
|-----------------|---------------------------|---------------------|----------|--|------|------|------|
| | 2012 (In.) | Avg <u>1/</u> (In.) | % of Avg | 2011 | 2010 | 2009 | 2008 |
| U.Arkans. | 0.0 | 9.4 | 0 | 16.2 | 4.2 | 6.0 | 10.5 |
| Fryingpan River | 0.0 | 4.7 | 0 | 10.9 | 4.2 | 2.5 | 7.1 |

1/ 1971-2000 National Resource Conservation Service 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>