

**June 1, 2009**  
**WATER SUPPLY AND UTILIZATION REPORT**  
**BIGHORN RIVER BASIN**  
**WYOMING AREA OFFICE**

**This report concerns the operation of Reclamation facilities in the Shoshone and Wind/Bighorn River Basins.**

**Reclamation defines a water year as the time period of October 1 through September 30. Water year is abbreviated in this report as W. Yr.**

**Other organizations furnished information for the Water Supply and Utilization Report. Their cooperation is greatly appreciated.**

**This report is available on the Internet and can be accessed by following these steps:**

- 1. Log on to the Great Plains Home Page at <http://www.usbr.gov/gp>**
- 2. Select Water Operations.**
- 3. Select Water Management Information.**
- 4. Select Water Supply Report.**
- 5. Under Bighorn Basin, select Current Month or reports from the previous 12 months**

**BIGHORN RIVER BASIN INFLOW**

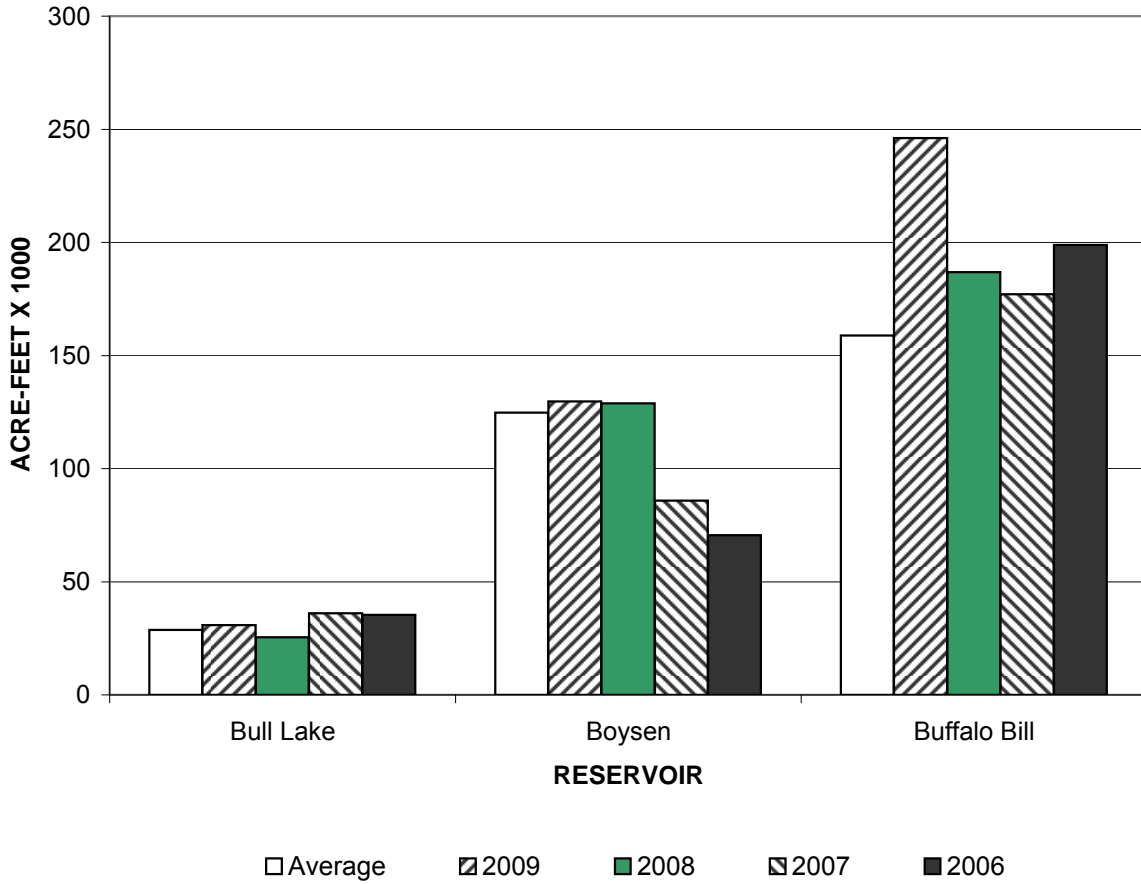
May inflow was above average at Bull Lake, Boysen, and Buffalo Bill Reservoirs.

(1000 acre-feet)

| Reservoir    | May Inflow  |                          |           | May Historical Inflow |             |             | Accumulated Inflow (October - May) |             |           |
|--------------|-------------|--------------------------|-----------|-----------------------|-------------|-------------|------------------------------------|-------------|-----------|
|              | W. Yr. 2009 | 30 Yr. Avg. <sup>1</sup> | % of Avg. | W. Yr. 2008           | W. Yr. 2007 | W. Yr. 2006 | W. Yr. 2009                        | 30 Yr. Avg. | % of Avg. |
| Bull Lake    | 30.9        | 28.7                     | 108       | 25.4                  | 36.1        | 35.3        | 47.2                               | 49.0        | 96        |
| Boysen       | 129.7       | 124.7                    | 104       | 128.8                 | 85.9        | 70.6        | 405.9                              | 446.5       | 91        |
| Buffalo Bill | 246.1       | 158.9                    | 155       | 186.8                 | 177.1       | 198.8       | 405.7                              | 308.7       | 131       |

<sup>1</sup> Average is based on the 1979-2008 period.

**BIGHORN RIVER BASIN  
RESERVOIR INFLOW  
May**



## BIGHORN RIVER BASIN OUTFLOW

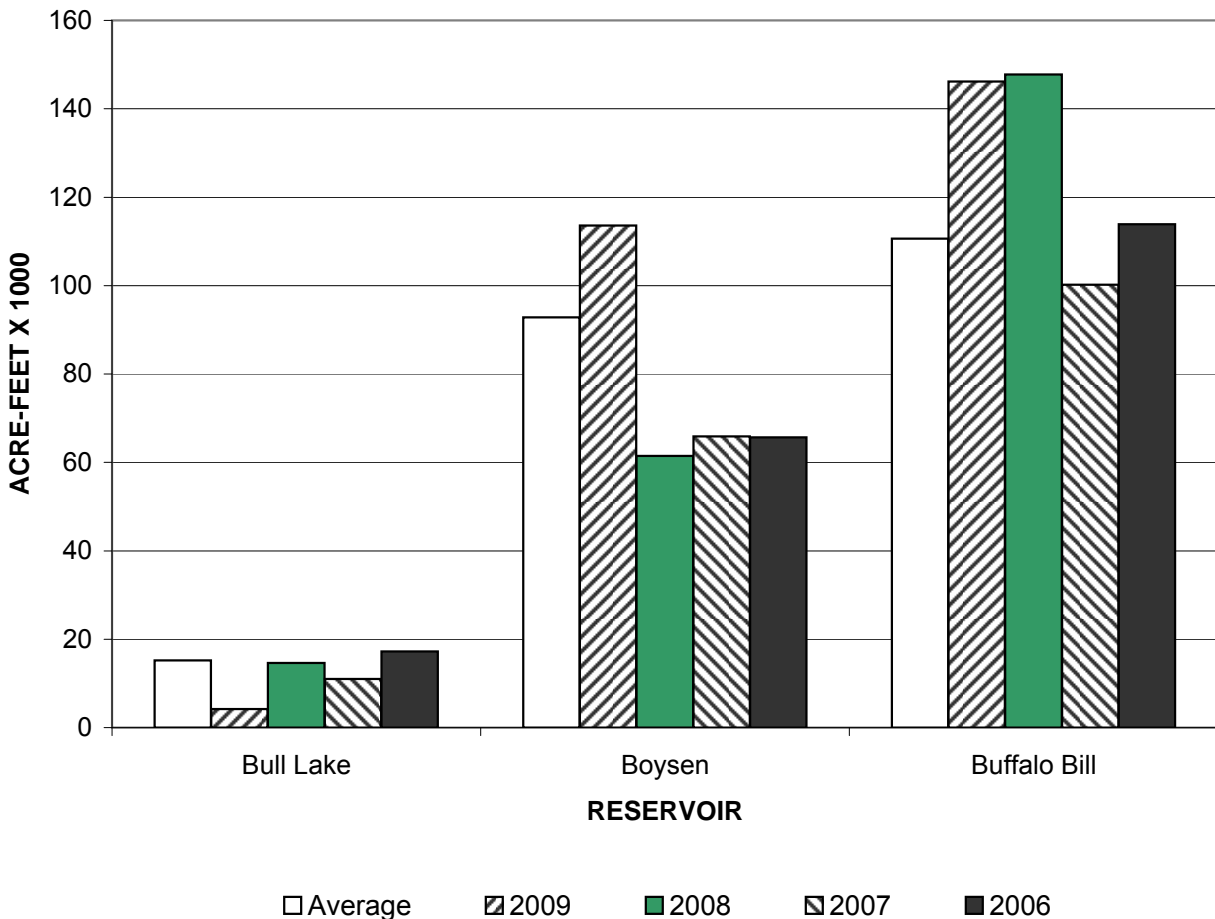
The release from Bull Lake was below average during May.

(1000 acre-feet)

| Reservoir    | May Outflow |                          |           | May Historical Outflow |             |             | Accumulated Outflow (October - May) |             |           |
|--------------|-------------|--------------------------|-----------|------------------------|-------------|-------------|-------------------------------------|-------------|-----------|
|              | W. Yr. 2009 | 30 Yr. Avg. <sup>1</sup> | % of Avg. | W. Yr. 2008            | W. Yr. 2007 | W. Yr. 2006 | W. Yr. 2009                         | 30 Yr. Avg. | % of Avg. |
| Bull Lake    | 4.2         | 15.2                     | 28        | 14.6                   | 11.0        | 17.2        | 12.6                                | 35.2        | 36        |
| Boysen       | 113.6       | 92.8                     | 122       | 61.5                   | 65.9        | 65.7        | 416.8                               | 495.9       | 84        |
| Buffalo Bill | 146.2       | 110.6                    | 132       | 147.8                  | 100.2       | 113.9       | 354.1                               | 288.8       | 123       |

<sup>1</sup> Average is based on the 1979-2008 period.

## BIGHORN RIVER BASIN RESERVOIR OUTFLOW May



**BIGHORN RIVER BASIN STORAGE**

Storage at the end of May was above average at all Basin Reservoirs.

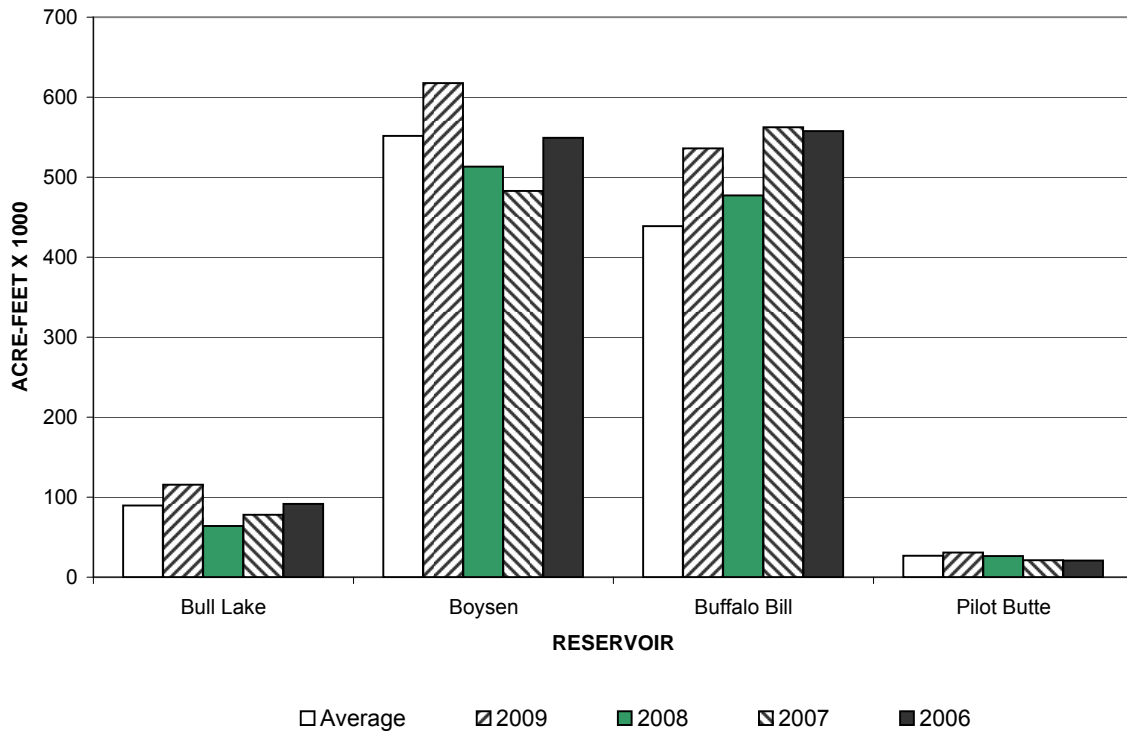
(1000 acre-feet)

| Reservoir           | Total Storage<br>End of May |                             |              | End of May<br>Historical Storage |                |                | Total<br>Conservation<br>Storage<br>Capacity | Percent<br>of<br>Capacity |
|---------------------|-----------------------------|-----------------------------|--------------|----------------------------------|----------------|----------------|--|---------------------------|
|                     | W. Yr.<br>2009              | 30 Yr.<br>Avg. <sup>1</sup> | % of<br>Avg. | W. Yr.<br>2008                   | W. Yr.<br>2007 | W. Yr.<br>2006 |  |                           |
|                     | <b>Bull Lake</b>            | 115.5                       | 89.8         | 129                              | 64.1           | 78.2           |  |                           |
| <b>Boysen</b>       | 617.8                       | 551.6                       | 112          | 513.1                            | 483.0          | 549.1          | 741.6  | 83                        |
| <b>Buffalo Bill</b> | 536.0                       | 438.7 <sup>2</sup>          | 122          | 477.3                            | 562.5          | 557.5          | 646.6  | 83                        |
| <b>Pilot Butte</b>  | 31.0                        | 27.0                        | 115          | 26.5                             | 21.2           | 20.7           | 33.7   | 92                        |

<sup>1</sup> Average is based on the 1979-2008 period.

<sup>2</sup> This does not reflect a long term average because in 1992 the capacity of the reservoir was increased to approximately 646,565 acre-feet as a result of raising the dam. The average used here reflects data from 1993 through 2008

**BIGHORN RIVER BASIN  
RESERVOIR STORAGE  
End of May**



**BIGHORN SNOWPACK WATER CONTENT**

The tables shown below display the Snotel stations used in the development of the April - July snowmelt runoff forecasts displayed on page six of this report.

SWE in inches <sup>1</sup>

| WATERSHED              | June 1<br>snow-water content |                             |              | Comparative June 1<br>snow-water content |                |                |
|------------------------|------------------------------|-----------------------------|--------------|--|----------------|----------------|
|                        | W. Yr.<br>2009               | 30 Yr.<br>Avg. <sup>2</sup> | % of<br>Avg. | W. Yr.<br>2008                           | W. Yr.<br>2007 | W. Yr.<br>2006 |
| Bull Lake Reservoir    | 1.87                         | 5.10                        | 37           | 5.1                                      | 0.3            | 0.0            |
| Boysen Reservoir       | 4.51                         | 7.36                        | 61           | 10.6                                     | 0.9            | 2.3            |
| Buffalo Bill Reservoir | 9.86                         | 13.70                       | 72           | 18.1                                     | 2.6            | 5.7            |

**Boysen Reservoir Watershed**

SWE in inches <sup>1</sup>

| Snotel Stations<br>(Elevation) | Water<br>Content | 30 Yr.<br>Avg. <sup>2</sup> |
|--------------------------------|------------------|-----------------------------|
| Burroughs Creek (8,750)        | 1.9              | 3.4                         |
| Hobbs Park (10,100)            | 5.6              | 10.1                        |
| Kirwin (9,800)                 | 0.0              | 5.5                         |
| Little Warm (9,620)            | 0.0              | 1.9                         |
| Togwotee Pass (9,580)          | 20.1             | 21.9                        |
| Townsend Creek (8,700)         | 0.0              | 1.7                         |
| Younts Peak (8,350)            | 4.0              | 7.0                         |
| Watershed Average              | 4.51             | 7.36                        |

**Buffalo Bill Reservoir Watershed**

SWE in inches <sup>1</sup>

| Snotel Stations<br>(Elevation) | Water<br>Content | 30 Yr.<br>Avg. <sup>2</sup> |
|--------------------------------|------------------|-----------------------------|
| Blackwater (9,780)             | 20.3             | 24.7                        |
| Evening Star (9,200)           | 19.7             | 26.7                        |
| Marquette (8,760)              | 0.0              | 4.2                         |
| Sylvan Lake (8,420)            | 4.8              | 11.4                        |
| Sylvan Road (8,120)            | 0.1              | 0.0                         |
| Togwotee Pass (9,580)          | 20.1             | 21.9                        |
| Younts Peak (8,350)            | 4.0              | 7.0                         |
| Watershed Average              | 9.86             | 13.70                       |

**Bull Lake Reservoir Watershed**

SWE in inches <sup>1</sup>

| Snotel Stations<br>(Elevation) | Water<br>Content | 30 Yr.<br>Avg. <sup>2</sup> |
|--------------------------------|------------------|-----------------------------|
| Elkhart Park (8,400)           | 0.0              | 3.3                         |
| Hobbs Park (10,100)            | 5.6              | 10.1                        |
| Little Warm (9,620)            | 0.0              | 1.9                         |
| Watershed Average              | 1.87             | 5.10                        |

<sup>1</sup> SWE (Snow Water Content) is the amount of water in the snowpack expressed in inches)  
<sup>2</sup> Average is based on the 1971-2000 period

**BIGHORN WATER SUPPLY FORECAST**

The June 1, 2009, water supply forecast indicates below average April - July runoff can be expected at all forecast points except Buffalo Bill Reservoir.

(1000 acre-feet)

| Forecast Points                  | June 1, 2009 Forecast of April-July Runoff <sup>3</sup> |          |                                 | 30 Yr. April-July Runoff Avg. <sup>2</sup> | Expected % of Avg. | Comparative Actual April - July Runoff |             |             |             |
|----------------------------------|---|----------|---------------------------------|--|--------------------|--|-------------|-------------|-------------|
|                                  | Reasonable Minimum <sup>1</sup>                         | Expected | Reasonable Maximum <sup>1</sup> |  |                    | W. Yr. 2008                            | W. Yr. 2007 | W. Yr. 2006 | W. Yr. 2005 |
|                                  | Bull Lake Reservoir                                     | 110      | 130                             |  |                    | 150                                    | 138.5       | 94          | 135         |
| Wind River above Bull Lake Creek | 300   | 350      | 450                             | 397.2                                      | 88                 | 412                                    | 199         | 282         | 387         |
| Boysen Reservoir                 | 380   | 480      | 630                             | 541.6                                      | 89                 | 522                                    | 211         | 201         | 589         |
| Buffalo Bill Reservoir           | 650   | 720      | 820                             | 646.3                                      | 111                | 955                                    | 427         | 546         | 513         |

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

<sup>2</sup> Average is based on the 1979-2008 period.

<sup>3</sup> Actual inflows are as follows:

|                                  | April (kaf) | May (kaf) |
|----------------------------------|-------------|-----------|
| Bull Lake                        | 2.7         | 30.9      |
| Wind River above Bull Lake Creek | 20.3        | 107.7     |
| Boysen                           | 53.3        | 129.7     |
| Buffalo Bill                     | 52.2        | 246.1     |

(1000 acre-feet)

| Forecast Points                  | June 1, 2009 Forecast of April-July Runoff |     |     |          |     |     | 30 Yr. April-July Runoff Avg. <sup>1</sup> |
|----------------------------------|--|-----|-----|----------|-----|-----|--|
|                                  | Chance of Exceeding                        |     |     |          |     |     |  |
|                                  | 95%  | 75% | 50% | % of Avg | 25% | 5%  |  |
| Bull Lake Reservoir              | 110  | 122 | 130 | 94       | 138 | 150 | 138.5                                      |
| Wind River above Bull Lake Creek | 300  | 330 | 350 | 88       | 391 | 450 | 397.2                                      |
| Boysen Reservoir                 | 380  | 439 | 480 | 89       | 541 | 630 | 541.6                                      |
| Buffalo Bill Reservoir           | 650  | 691 | 720 | 111      | 761 | 820 | 646.3                                      |

<sup>1</sup> Average is based on the 1979-2008 period.

### BIGHORN RIVER BASIN GENERATION

Generation during May was average or greater at all powerplants except Pilot Butte Powerplant, which did not generate electricity during May.

(Energy in giga-watt hours)

| Powerplant                | May Gross Generation |      |           | May Historical Generation |             |             | Accumulated Gross Gen. (October - May) |      |           |
|---------------------------|----------------------|------|-----------|---------------------------|-------------|-------------|--|------|-----------|
|                           | W. Yr. 2009          | Avg. | % of Avg. | W. Yr. 2008               | W. Yr. 2007 | W. Yr. 2006 | W. Yr. 2009                            | Avg. | % of Avg. |
| Boysen <sup>1</sup>       | 9.4                  | 6.6  | 142       | 4.6                       | 5.0         | 5.4         | 34.6                                   | 38.7 | 89        |
| Pilot Butte <sup>2</sup>  | 0.0                  | 0.2  | 0         | 0.0                       | 0.2         | 0.9         | 0.0                                    | 0.4  | 0         |
| Heart Mtn. <sup>3</sup>   | 3.5                  | 2.3  | 152       | 3.4                       | 2.5         | 3.2         | 5.4                                    | 3.5  | 154       |
| Buffalo Bill <sup>3</sup> | 13.2                 | 10.2 | 129       | 13.1                      | 7.8         | 9.5         | 39.6                                   | 27.5 | 144       |
| Shoshone <sup>3</sup>     | 2.0                  | 2.0  | 100       | 2.0                       | 2.7         | 2.2         | 13.7                                   | 12.2 | 112       |
| Spirit Mtn. <sup>4</sup>  | 2.5                  | 2.0  | 125       | 1.8                       | 2.2         | 2.8         | 3.8                                    | 3.1  | 123       |

<sup>1</sup> Average is based on the 1979-2008 period.

<sup>2</sup> Average is based on the 1990-2008 period.

<sup>3</sup> Average is based on the 1993-2008 period.

<sup>4</sup> Average is based on the 1996-2008 period.

### BIGHORN RIVER BASIN GROSS GENERATION May

