

**May 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**

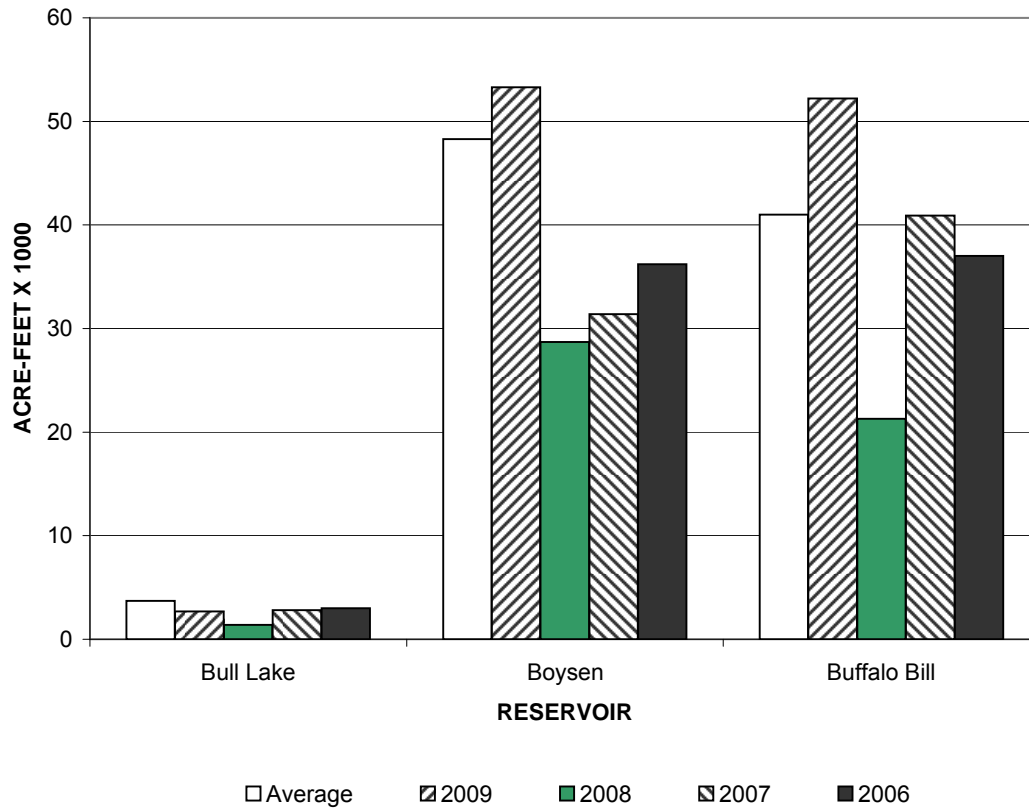
April inflow was above average at Boysen and Buffalo Bill Reservoirs.

(1000 acre-feet)

Reservoir	April Inflow			April Historical Inflow			Accumulated Inflow (October - April)		
	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	2.7	3.7	73	1.4	2.8	3.0	16.3	20.3	80
Boysen	53.3	48.3	110	28.7	31.4	36.2	276.2	321.8	86
Buffalo Bill	52.2	41.0	127	21.3	40.9	37.0	159.6	149.8	107

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

**BIGHORN RIVER BASIN  
RESERVOIR INFLOW  
April**



### BIGHORN RIVER BASIN OUTFLOW

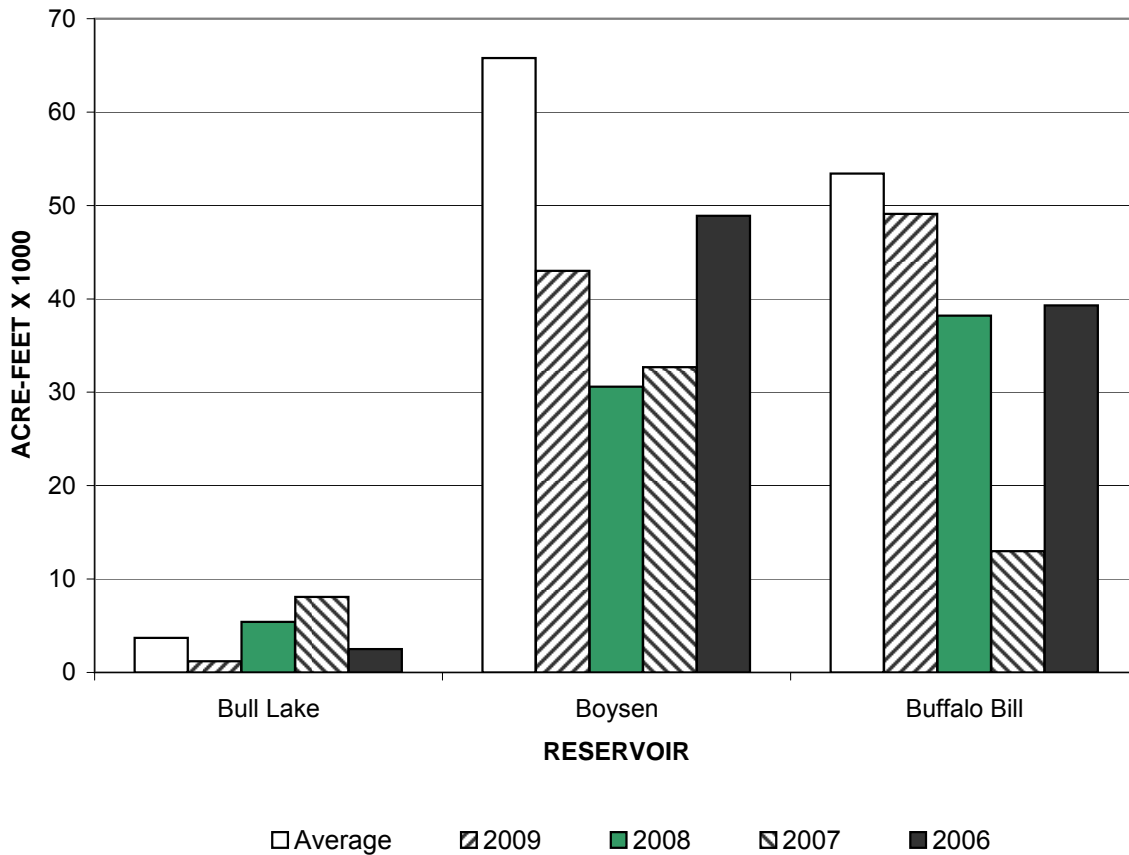
The release from all Basin Reservoirs was below average during April.

(1000 acre-feet)

Reservoir	April Outflow			April Historical Outflow			Accumulated Outflow (October - April)		
	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	1.2	3.7	32	5.4	8.1	2.5	8.4	20.0	42
Boysen	43.0	65.8	65	30.6	32.7	48.9	303.2	403.1	75
Buffalo Bill	49.1	53.4	92	38.2	13.0	39.3	207.9	178.2	117

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

### BIGHORN RIVER BASIN RESERVOIR OUTFLOW April



**BIGHORN RIVER BASIN STORAGE**

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

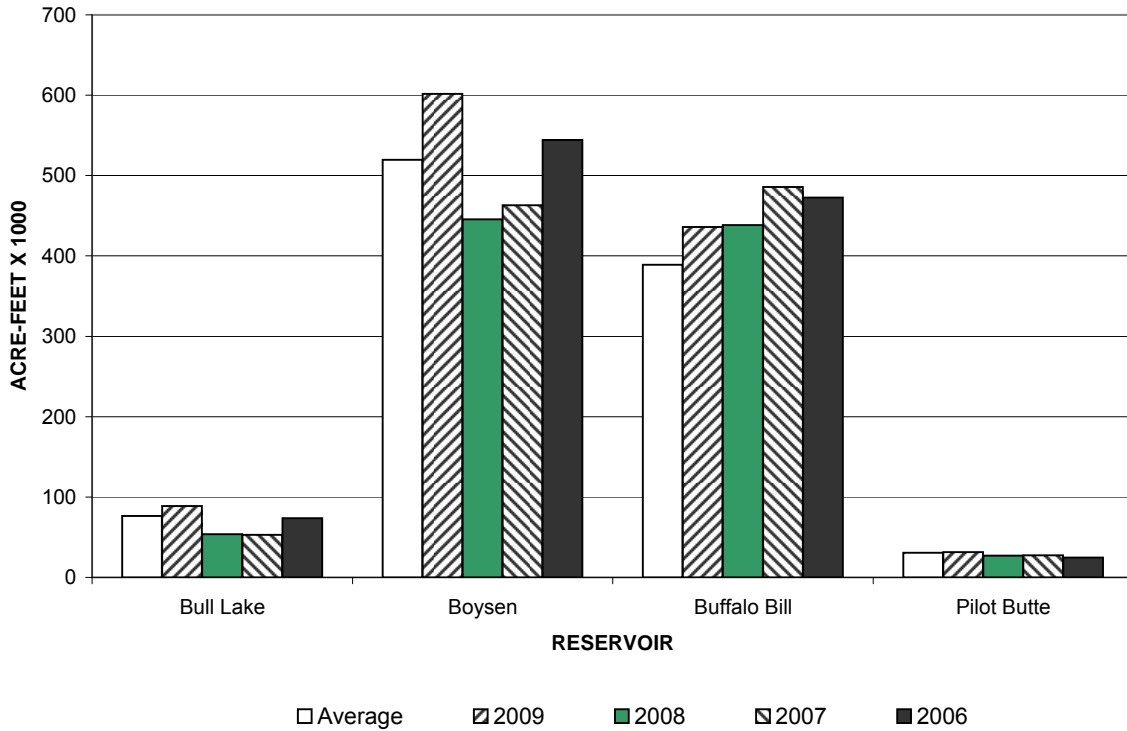
(1000 acre-feet)

Reservoir	Total Storage End of April			End of April Historical Storage			Total Conservation Storage Capacity	Percent of Capacity
	W. Yr. 2009	30 Yr. Avg. <sup>1</sup>	% of Avg.	W. Yr. 2008	W. Yr. 2007	W. Yr. 2006		
Bull Lake	88.7	76.3	116	53.6	53.1	73.5	152.5	58
Boysen	601.6	519.8	116	445.7	463.0	544.2	741.6	81
Buffalo Bill	436.1	388.9 <sup>2</sup>	112	438.3	485.6	472.6	646.6	67
Pilot Butte	31.3	30.5	103	27.1	27.4	24.8	33.7	93

<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 April**



**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	May 1 snow-water content			Comparative May 1 snow-water content		
	W. Yr. 2009	30 Yr. Avg. <sup>2</sup>	% of Avg.	W. Yr. 2008	W. Yr. 2007	W. Yr. 2006
Bull Lake Reservoir	15.50	13.97	111	12.2	8.7	9.1
Boysen Reservoir	18.40	15.83	116	16.0	10.0	11.2
Buffalo Bill Reservoir	21.63	21.61	100	21.8	12.5	15.6

**Boysen Reservoir Watershed**

SWE in inches <sup>1</sup>

Snotel Stations (Elevation)	Water Content	30 Yr. Avg. <sup>2</sup>
Burroughs Creek (8,750)	18.3	13.6
Hobbs Park (10,100)	18.6	18.0
Kirwin (9,800)	15.5	13.0
Little Warm (9,620)	13.5	11.1
Togwotee Pass (9,580)	31.3	27.9
Townsend Creek (8,700)	11.5	9.1
Younts Peak (8,350)	20.1	18.1
Watershed Average	18.40	15.83

**Buffalo Bill Reservoir Watershed**

SWE in inches <sup>1</sup>

Snotel Stations (Elevation)	Water Content	30 Yr. Avg. <sup>2</sup>
Blackwater (9,780)	29.9	28.8
Evening Star (9,200)	32.0	33.3
Marquette (8,760)	8.9	11.3
Sylvan Lake (8,420)	21.9	23.8
Sylvan Road (8,120)	7.3	8.1
Togwotee Pass (9,580)	31.3	27.9
Younts Peak (8,350)	20.1	18.1
Watershed Average	21.63	21.61

**Bull Lake Reservoir Watershed**

SWE in inches <sup>1</sup>

Snotel Stations (Elevation)	Water Content	30 Yr. Avg. <sup>2</sup>
Elkhart Park (8,400)	14.4	12.8
Hobbs Park (10,100)	18.6	18.0
Little Warm (9,620)	13.5	11.1
Watershed Average	15.50	13.97

<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 May 1, 2009, water supply forecast indicates above average April - July runoff can be expected at all forecast points.

(1000 acre-feet)

Forecast Points	May 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	125	150			175	138.5	108	135
Wind River above Bull Lake Creek	375	500	625	397.2	126	412	199	282	387
Boysen Reservoir	500	700	900	541.6	129	522	211	201	589
Buffalo Bill Reservoir	650	750	950	646.3	116	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)
Bull Lake	2.7
Wind River above Bull Lake Creek	20.3
Boysen	53.3
Buffalo Bill	52.2

(1000 acre-feet)

Forecast Points	May 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	125	140	150	108	160	175	138.5
Wind River above Bull Lake Creek	375	449	500	126	551	625	397.2
Boysen Reservoir	500	618	700	129	782	900	541.6
Buffalo Bill Reservoir	650	709	750	116	832	950	646.3

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

### BIGHORN RIVER BASIN GENERATION

Generation during April was below average at Boysen Powerplant. Pilot Butte Powerplant did not generate electricity during April.

(Energy in giga-watt hours)

Powerplant	April Gross Generation			April Historical Generation			Accumulated Gross Gen. (October - April)		
	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>	3.1	4.9	63	2.2	2.3	4.3	25.2	32.1	79
Pilot Butte <sup>2</sup>	0.0	0.0	0	0.0	0.0	0.0	0.0	0.2	0
Heart Mtn. <sup>3</sup>	1.1	0.4	275	0.3	0.0	0.4	1.9	1.2	158
Buffalo Bill <sup>3</sup>	7.1	5.7	125	4.9	1.2	4.9	26.4	17.3	153
Shoshone <sup>3</sup>	2.0	1.7	118	1.8	1.4	1.6	11.7	10.2	115
Spirit Mtn. <sup>4</sup>	0.6	0.2	300	0.0	0.0	0.3	1.3	1.1	118

<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 April

