

# RECLAMATION

## *Managing Water in the West*

January 10, 2008

Dear Customer:

Attached are the monthly water supply outlook and projected reservoir and river operating plans as prepared on January 8, 2008. Inflow to Bighorn Lake continued to remain below normal during December and was the 6<sup>th</sup> lowest of record for December. The inflow during January through March is forecast to be about 53 percent of average or the 6<sup>th</sup> lowest of record. We hope you find the information useful. If you have any questions or concerns, please feel free to call me at (406) 247-7318.

Tim H. Felchle  
Reservoir and River Operations



U. S. Department of the Interior  
Bureau of Reclamation  
Montana Area Office  
River and Reservoir Operations

**YELLOWTAIL RESERVOIR OPERATIONS**  
 Water Supply Forecasts and Reservoir Operations  
 January 1, 2008

**Present Elevations & Storages:**

<u>Reservoir</u>	<u>Elevation</u>	<u>Storage</u>	<u>Percent of Normal</u>
Boysen	4704.37	419,523	---
Buffalo Bill	5366.56	443,390	---
Bighorn Lake	3627.20	933,457	101

**Actual Inflows (1,000 Acre-Feet):**

<u>Month</u>	<u>Inflow</u>	<u>Percent of Normal</u>
<b><i>April-July, 2007</i></b>	<b><i>614.1</i></b>	<b><i>51</i></b>
<b><i>WY-2007 Total</i></b>	<b><i>1,364.2</i></b>	<b><i>54</i></b>
August	91.3	54
September	106.7	60
October	138.7	73
November	95.8	59
December	66.3	45

**Actual Gains Between Boysen and Buffalo Bill to Yellowtail (1,000 Acre-Feet):**

<u>Month</u>	<u>Gains</u>	<u>Percent of Normal</u>
<b><i>April-July, 2007</i></b>	<b><i>188.2</i></b>	<b><i>60</i></b>
<b><i>WY-2007 Total</i></b>	<b><i>462.0</i></b>	<b><i>64</i></b>
August	-28.7	---
September	13.4	31
October	92.9	122
November	63.2	98
December	32.3	69

**January Forecast of April-July Runoff (1,000 Acre-Feet):**

<u>Agency</u>	<u>Gains</u>	<u>Percent of Normal</u>
<b>USBR</b>	<b>209.0</b>	<b>73</b>
	<u>Inflows</u>	
<b>USBR</b>	<b>743.9</b>	<b>67</b>

**Snowpack Conditions:**

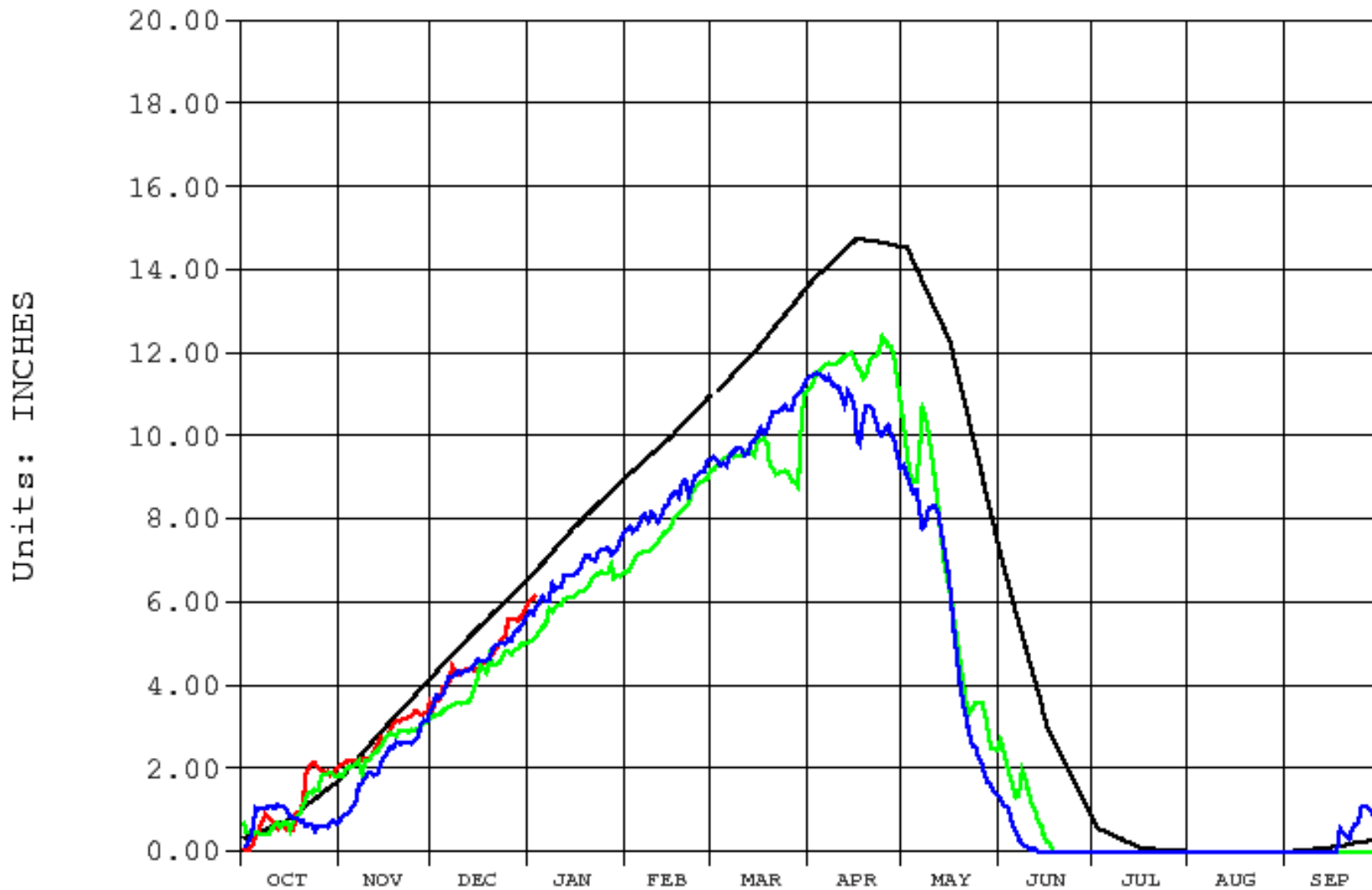
S N O W - P R E C I P I T A T I O N U P D A T E  
 Based on Mountain Data from NRCS SNOTEL Sites  
 As of TUESDAY: JANUARY 1 , 2008

<u>BASIN</u> Data Site Name	<u>ELEV.</u> (Ft)	<u>SNOW WATER EQUIVALENT</u>			<u>TOTAL PRECIPITATION</u>		
		Current	Average	% Avg	Current	Average	% Avg
UPPER YELLOWSTONE RIVER BASIN							
BEARTOOTH LAKE	9360	13.1	11.5	114	12.6	10.0	126
BOX CANYON	6670	3.7	4.5	82	7.5	6.2	121
BRACKETT CREEK	7320	7.8	8.9	88	14.2	11.5	123
BURNT MTN CANYON	5880 7870	1.7 7.2	2.7 6.1	63 118	5.8 10.4	7.4 7.8	78 133
COLE CREEK	7850	3.2	7.5	43	5.2	8.1	64
EVENING STAR	9200	14.1	13.7	103	-M	13.0	*
FISHER CREEK	9100	21.4	16.3	131	18.9	17.1	111
MONUMENT PEAK	8850	10.8	9.9	109	10.3	10.6	97
NORTHEAST ENTRANCE	7350	3.0	5.0	60	7.2	6.4	112
PARKER PEAK	9400	12.9	10.6	122	-M	8.2	*
PLACER BASIN	8830	7.9	8.7	91	8.8	9.6	92

PORCUPINE	6500	1.7	2.8	61	4.9	5.9	83
SACAJAWEA	6550	5.2	5.1	102	14.1	10.4	136
SHOWER FALLS	8100	10.5	10.1	104	13.8	11.5	120
S FORK SHIELDS	8100	4.0	7.5	53	9.1	9.5	96
SYLVAN LAKE	8420	9.4	10.5	90	13.9	11.0	126
SYLVAN ROAD	7120	4.6	6.2	74	12.4	10.1	123
THUMB DIVIDE	7980	6.1	7.6	80	9.8	9.1	108
TWO OCEAN PLATEAU	9240	18.3	13.5	136	16.7	13.5	124
WHITE MILL	8700	13.2	11.1	119	-M	12.8	*
WOLVERINE	7650	4.2	5.8	72	7.6	7.0	109
YOUNTS PEAK	8350	8.0	7.9	101	10.4	8.2	127
Basin wide percent of average				99			112
WIND RIVER BASIN (WYOMING)							
BURROUGHS CREEK	8750	8.3	6.7	124	11.0	8.0	138
COLD SPRINGS	9630	2.1	4.6	46	5.1	5.7	89
DEER PARK	9700	5.4	6.7	81	8.7	10.9	80
HOBBS PARK	10100	4.8	7.6	63	6.3	6.4	98
KIRWIN	9550	6.8	5.9	115	8.0	5.9	136
LITTLE WARM	9370	4.3	5.3	81	6.9	6.7	103
OWL CREEK	8975	2.6	2.7	96	4.4	2.9	152
SOUTH PASS	9040	-M	8.2	*	7.8	9.2	85
ST. LAWRENCE ALT	8620	2.2	3.8	58	4.0	4.6	87
TOGWOTEE PASS	9580	13.2	11.7	113	15.0	12.0	125
TOWNSEND CREEK	8700	2.5	4.4	57	6.0	6.0	100
YOUNTS PEAK	8350	8.0	7.9	101	10.4	8.2	127
Basin wide percent of average				89			108
SHOSHONE RIVER BASIN (WYOMING)							
BLACKWATER	9780	12.5	12.0	104	11.9	10.8	110
EVENING STAR	9200	14.1	13.7	103	-M	13.0	*
MARQUETTE	8760	1.6	5.0	32	5.5	5.3	104
SYLVAN LAKE	8420	9.4	10.5	90	13.9	11.0	126
SYLVAN ROAD	7120	4.6	6.2	74	12.4	10.1	123
YOUNTS PEAK	8350	8.0	7.9	101	10.4	8.2	127
Basin wide percent of average				91			119
BIGHORN RIVER BASIN (WYOMING)							
BALD MTN.	9380	7.0	9.7	72	7.4	8.5	87
BEAR TRAP MEADOW	8200	4.3	2.6	165	5.5	4.5	122
BLACKWATER	9780	12.5	12.0	104	11.9	10.8	110
BONE SPRINGS DIV	9350	6.9	7.8	88	-M	7.3	*
EVENING STAR	9200	14.1	13.7	103	-M	13.0	*
GRAVE SPRINGS	8550	3.8	4.0	95	5.3	4.9	108
KIRWIN	9550	6.8	5.9	115	8.0	5.9	136
MARQUETTE	8760	1.6	5.0	32	5.5	5.3	104
MIDDLE POWDER	7760	4.4	5.5	80	5.0	6.8	74
OWL CREEK	8975	2.6	2.7	96	4.4	2.9	152
POWDER RIVER PASS	9480	5.3	5.3	100	7.2	6.0	120
SHELL CREEK	9580	7.7	7.3	105	8.2	6.7	122
SYLVAN LAKE	8420	9.4	10.5	90	13.9	11.0	126
SYLVAN ROAD	7120	4.6	6.2	74	12.4	10.1	123
TIMBER CREEK	7950	1.6	3.0	53	5.5	3.7	149
YOUNTS PEAK	8350	8.0	7.9	101	10.4	8.2	127
Basin wide percent of average				92			116

Archive Data From 1-OCT Through 30-SEP

Plotted 01/03/2008 11:41



BHR Bighorn Lake (Yellowtail), Bighorn River near Fort Smith, MT

SE\_AVG Snow Water Equivalent Average (inches)

2008

SE Snow Water Equivalent (inches)

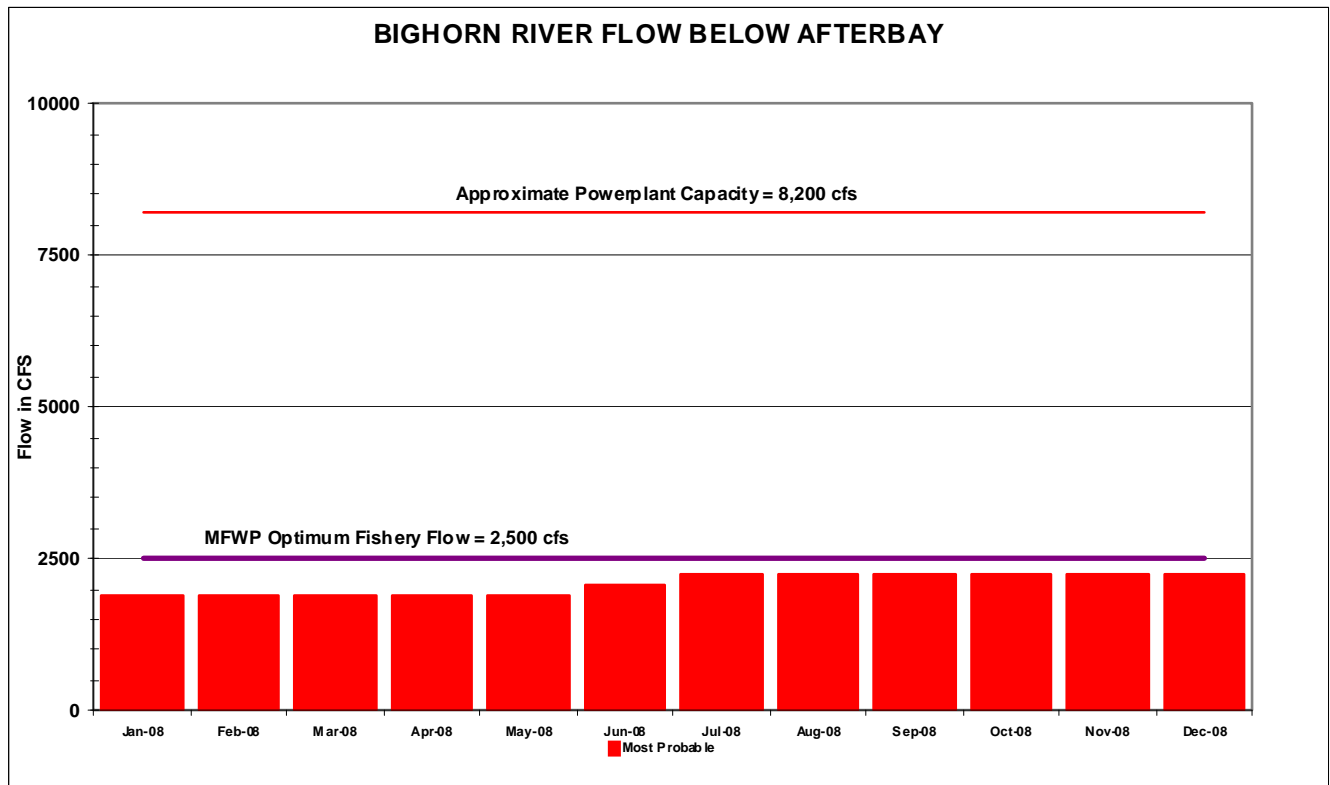
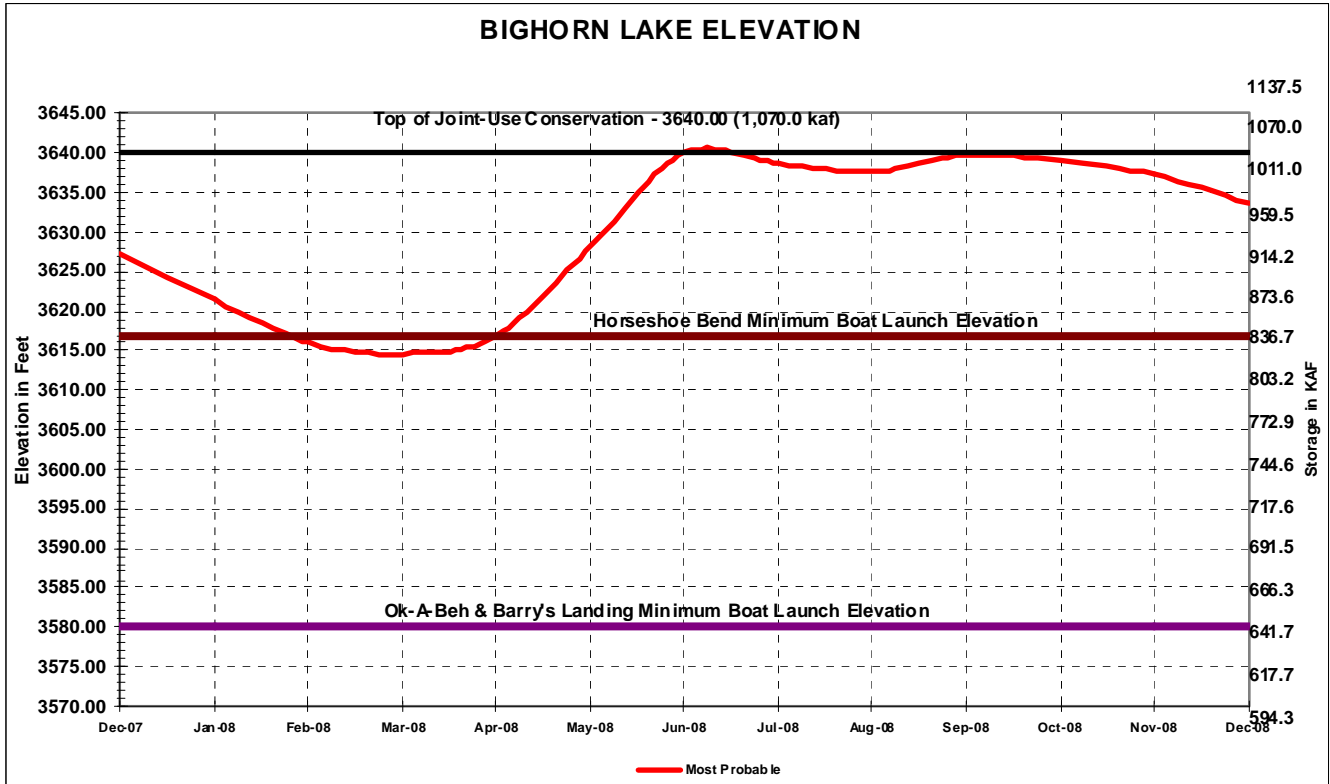
2008 2007 2006

BHXAOP V1.12 Run: 08-Jan-2008 14:21  
 Based on Most Probable Inflow Forecast

BIGHORN LAKE MONTHLY OPERATIONS

Bighorn Reservoir		Initial Cont 933.5 kaf Elev 3627.20 ft				Maximum Cont 1328.4 kaf Elev 3657.00 ft				Minimum Cont 493.6 kaf Elev 3547.00 ft				Total
2008	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
Boysen Release	kaf	24.6	23.0	24.6	44.6	67.6	69.9	76.9	69.2	59.5	30.8	29.8	30.7	551.2
Boysen Release	cfs	400	400	400	750	1099	1175	1251	1125	1000	501	501	499	
Buffalo Bill Riv Flo	kaf	9.2	8.6	9.2	38.7	79.9	79.1	78.2	78.0	75.5	24.9	20.8	21.5	523.6
Buffalo Bill Riv Flo	cfs	150	150	150	650	1299	1329	1272	1269	1269	405	350	350	
Station Gain	kaf	29.8	32.9	68.9	42.7	68.1	107.7	-9.5	0.6	39.9	71.9	59.3	42.0	554.3
Monthly Inflow	kaf	63.6	64.5	102.7	126.0	215.6	256.7	145.6	147.8	174.9	127.6	109.9	94.2	1629.1
Monthly Inflow	cfs	1034	1121	1670	2118	3506	4314	2368	2404	2939	2075	1847	1532	
Turbine Release	kaf	112.5	105.3	112.5	109.5	123.6	129.2	161.7	160.8	148.5	138.1	129.7	134.0	1565.4
Bypass/Spill/Waste	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Release	kaf	112.5	105.3	112.5	109.5	123.6	129.2	161.7	160.8	148.5	138.1	129.7	134.0	1565.4
Total Release	cfs	1830	1831	1830	1840	2010	2171	2630	2615	2496	2246	2180	2179	
Spring Flow	kaf	4.3	4.0	4.3	4.2	4.3	4.2	4.3	4.3	4.2	4.3	4.2	4.3	50.9
Irrigation Reqmnt	kaf	0.0	0.0	0.0	0.6	11.1	10.0	27.7	26.8	18.8	4.1	0.0	0.0	99.1
Afterbay Rels	kaf	116.8	109.3	116.8	113.7	127.9	133.4	166.0	165.1	152.7	142.4	133.9	138.3	1616.3
Afterbay Rels	cfs	1900	1900	1900	1911	2080	2242	2700	2685	2566	2316	2250	2249	
River Release	kaf	116.8	109.3	116.8	113.1	116.8	123.4	138.3	138.3	133.9	138.3	133.9	138.3	1517.2
River Release	cfs	1900	1900	1900	1901	1900	2074	2249	2249	2250	2249	2250	2249	
Min Release	kaf	116.8	109.3	116.8	113.1	116.8	113.1	138.3	138.3	133.9	138.3	133.9	138.3	1506.9
End-Month Targets	kaf						1070.0	1070.0						
End-Month Content	kaf	884.6	843.8	834.0	850.5	942.5	1070.0	1053.9	1040.9	1067.3	1056.8	1037.0	997.2	
End-Month Elevation	ft	3621.41	3616.00	3614.62	3616.92	3628.19	3640.00	3638.70	3637.61	3639.78	3638.93	3637.28	3633.72	
Net Change Content	kaf	-48.9	-40.8	-9.8	16.5	92.0	127.5	-16.1	-13.0	26.4	-10.5	-19.8	-39.8	63.7
Yellowtail Power	2008	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Turbine Release	kaf	112.5	105.3	112.5	109.5	123.6	129.2	161.7	160.8	148.5	138.1	129.7	134.0	1565.4
Generation	gwh	43.836	40.386	42.749	41.661	47.952	51.968	66.145	65.494	60.605	56.493	52.819	54.079	624.187
End-Month Power Cap	mw	269.5	264.5	263.2	265.4	275.9	287.5	286.2	285.1	287.3	286.4	284.8	281.2	
% Max Gen		20	20	20	20	22	25	31	31	29	26	25	25	
Ave kwh/af		390	384	380	380	388	402	409	407	408	409	407	404	399
Upstream Generation	gwh	3.099	3.609	3.901	14.941	27.648	27.864	29.673	29.051	27.299	10.355	8.068	8.355	193.863
Total Generation	gwh	46.935	43.995	46.650	56.602	75.600	79.832	95.818	94.545	87.904	66.848	60.887	62.434	818.050

# BIGHORN LAKE



WATER YEAR 2008