

RECLAMATION

Managing Water in the West

November 10, 2009

Dear Customer:

Attached are the monthly water supply outlook and projected reservoir and river operating plans prepared in October. Storage in Bighorn Lake on November 1 was 106 percent of average and 0.50 feet below the top of the joint-use pool. It was also 0.24 feet higher than on October 1. Based on streamflow accretions accompanied by the planned releases out of Boysen and Buffalo Bill Reservoirs, the water supply forecast prepared in November indicates the November inflow to Bighorn Lake to be about 87 percent of average. 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
 November 1, 2009

Present Elevations & Storages:

<u>Reservoir</u>	<u>Elevation</u>	<u>Storage</u>	<u>Percent of Normal</u>
Boysen	4720.85	663,535	111
Buffalo Bill	5368.92	460,463	111
Bighorn Lake	3639.50	1,063,770	106

Actual Inflows (1,000 Acre-Feet):

<u>Month</u>	<u>Inflow</u>	<u>Percent of Normal</u>
April	142.6	87
May	268.3	109
June	771.6	187
July	474.1	163
<i>April-July, 2009</i>	<i>1,656.6</i>	<i>149</i>
<i>WY-2009 Total</i>	<i>2,729.7</i>	<i>116</i>
August	188.9	118
September	152.3	89
October	180.7	99

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

<u>Month</u>	<u>Gains</u>	<u>Percent of Normal</u>
April	55.5	120
May	47.7	57
June	177.4	117
July	62.4	* 1135
<i>April-July, 2009</i>	<i>343.0</i>	<i>119</i>
<i>WY-2009 Total</i>	<i>703.2</i>	<i>104</i>
August	34.6	* 34581
September	29.8	65
October	69.0	97

* Note: Average Gains for July & August = 5.5 kaf & 0.1 kaf

November 1 Runoff Forecast (November Flows - 1,000 Acre-Feet):

<u>Agency</u>	<u>Gains</u>	<u>Percent of Normal</u>
USBR	53.6	86
	<u>Inflows</u>	
USBR	133.8	87

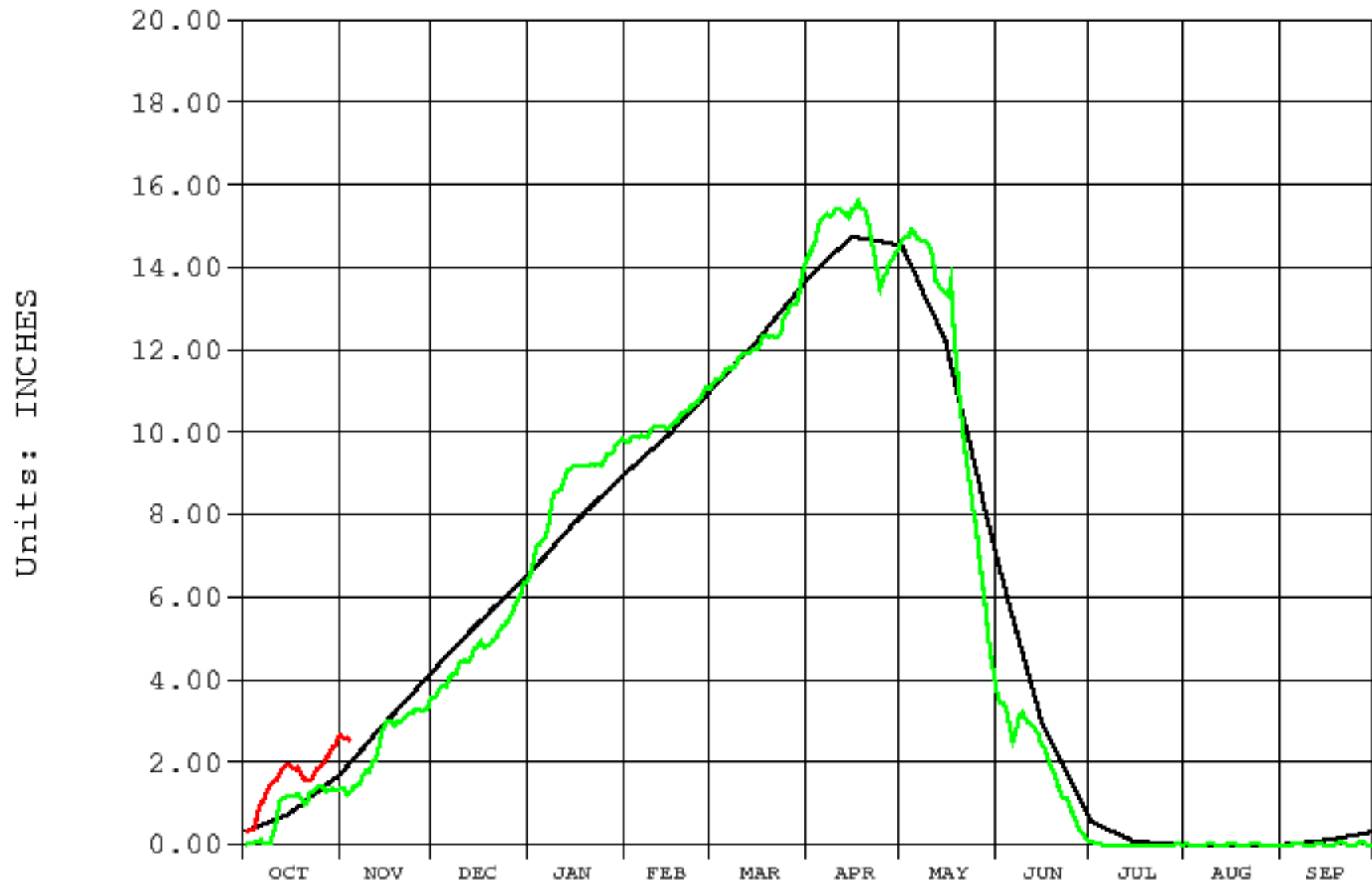
Snowpack Conditions:

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 SUNDAY: NOVEMBER 1 , 2009

BASIN Data Site Name	ELEV. (Ft)	SNOW WATER EQUIVALENT			TOTAL PRECIPITATION		
		Current	Average	Avg %	Current	Average	Avg %
UPPER YELLOWSTONE RIVER BASIN							
BEARTOOTH LAKE	9360	3.6	2.7	133	3.0	2.1	143
BOX CANYON	6670	.9	.4	225	3.2	1.6	200
BRACKETT CREEK	7320	3.1	1.1	282	6.2	2.9	214
BURNT MTN CANYON	5880	.0	.2	0	4.6	3.1	148
CANYON	7870	1.4	.6	233	3.0	1.8	167
COLE CREEK	7850	5.7	2.9	197	4.5	3.3	136
EAST BOULDER MINE	6335	.2	-M	*	3.7	-M	*
EVENING STAR	9200	4.8	2.7	178	5.7	2.8	204
FISHER CREEK	9100	5.0	2.7	185	5.5	3.3	167
MONUMENT PEAK	8850	4.1	2.2	186	4.0	2.5	160

NORTHEAST ENTRANCE	7350	.5	.3	167	2.7	1.5	180
PARKER PEAK	9400	4.7	2.6	181	3.8	2.3	165
PLACER BASIN	8830	5.1	2.5	204	5.9	3.0	197
PORCUPINE	6500	.3	.2	150	3.2	1.9	168
SACAJAWEA	6550	1.2	.3	400	5.9	2.6	227
SHOWER FALLS	8100	5.5	2.7	204	4.7	3.6	131
S FORK SHIELDS	8100	4.0	1.6	250	6.1	2.8	218
SYLVAN LAKE	8420	1.6	1.9	84	3.1	2.6	119
SYLVAN ROAD	7120	.5	.5	100	2.6	2.1	124
THUMB DIVIDE	7980	1.0	.8	125	4.1	2.1	195
TWO OCEAN PLATEAU	9240	4.8	3.0	160	3.8	3.1	123
WHITE MILL	8700	4.0	2.0	200	3.8	2.7	141
WOLVERINE	7650	.7	.5	140	2.3	1.8	128
YOUNTS PEAK	8350	2.2	1.4	157	2.2	1.8	122
Basin wide percent of average				181			164
WIND RIVER BASIN (WYOMING)							
BURROUGHS CREEK	8750	3.0	1.0	300	3.0	1.6	188
COLD SPRINGS	9630	2.8	1.0	280	3.0	1.9	158
DEER PARK	9700	4.8	2.3	209	5.9	2.5	236
HOBBS PARK	10100	5.1	2.3	222	4.9	2.1	233
KIRWIN	9550	3.0	1.9	158	2.6	1.8	144
LITTLE WARM	9370	2.1	1.0	210	2.5	1.7	147
OWL CREEK	8975	2.4	.9	267	2.0	1.2	167
SOUTH PASS	9040	4.1	1.5	273	5.0	2.1	238
ST. LAWRENCE ALT	8620	2.2	.9	244	3.8	1.7	224
TOGWOTEE PASS	9580	4.3	2.6	165	4.3	2.8	154
TOWNSEND CREEK	8700	3.5	1.1	318	4.9	2.1	233
YOUNTS PEAK	8350	2.2	1.4	157	2.2	1.8	122
Basin wide percent of average				221			189
SHOSHONE RIVER BASIN (WYOMING)							
BLACKWATER	9780	4.5	3.1	145	3.9	2.7	144
EVENING STAR	9200	4.8	2.7	178	5.7	2.8	204
MARQUETTE	8760	3.0	2.0	150	-M	2.3	*
SYLVAN LAKE	8420	1.6	1.9	84	3.1	2.6	119
SYLVAN ROAD	7120	.5	.5	100	2.6	2.1	124
YOUNTS PEAK	8350	2.2	1.4	157	2.2	1.8	122
Basin wide percent of average				143			146
BIGHORN RIVER BASIN (WYOMING)							
BALD MTN.	9380	3.9	2.8	139	3.4	2.4	142
BEAR TRAP MEADOW	8200	1.3	.6	217	2.1	1.7	124
BLACKWATER	9780	4.5	3.1	145	3.9	2.7	144
BONE SPRINGS DIV	9350	3.3	2.6	127	3.2	2.5	128
EVENING STAR	9200	4.8	2.7	178	5.7	2.8	204
GRAVE SPRINGS	8550	2.6	1.2	217	3.6	2.1	171
KIRWIN	9550	3.0	1.9	158	2.6	1.8	144
MARQUETTE	8760	3.0	2.0	150	-M	2.3	*
MIDDLE POWDER	7760	2.8	1.3	215	3.2	2.6	123
OWL CREEK	8975	2.4	.9	267	2.0	1.2	167
POWDER RIVER PASS	9480	2.1	1.3	162	2.5	1.9	132
SHELL CREEK	9580	3.5	2.7	130	2.9	2.0	145
SYLVAN LAKE	8420	1.6	1.9	84	3.1	2.6	119
SYLVAN ROAD	7120	.5	.5	100	2.6	2.1	124
TIMBER CREEK	7950	1.4	1.1	127	2.5	1.6	156
YOUNTS PEAK	8350	2.2	1.4	157	2.2	1.8	122
Basin wide percent of average				153			143

Archive Data From 1-OCT Through 30-SEP
Plotted 11/04/2009 09:51



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

SE_AVG Snow Water Equivalent Average (inches)

SE Snow Water Equivalent (inches)

2010

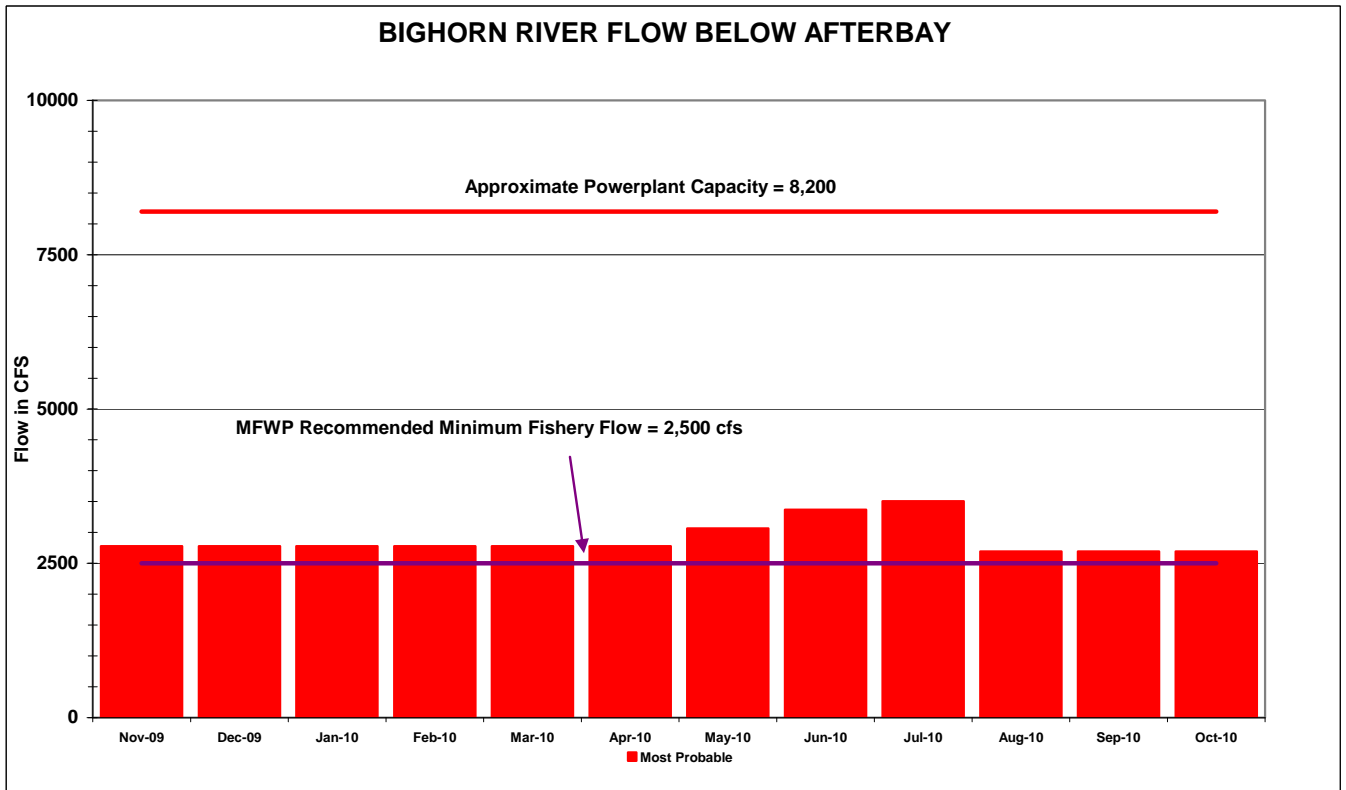
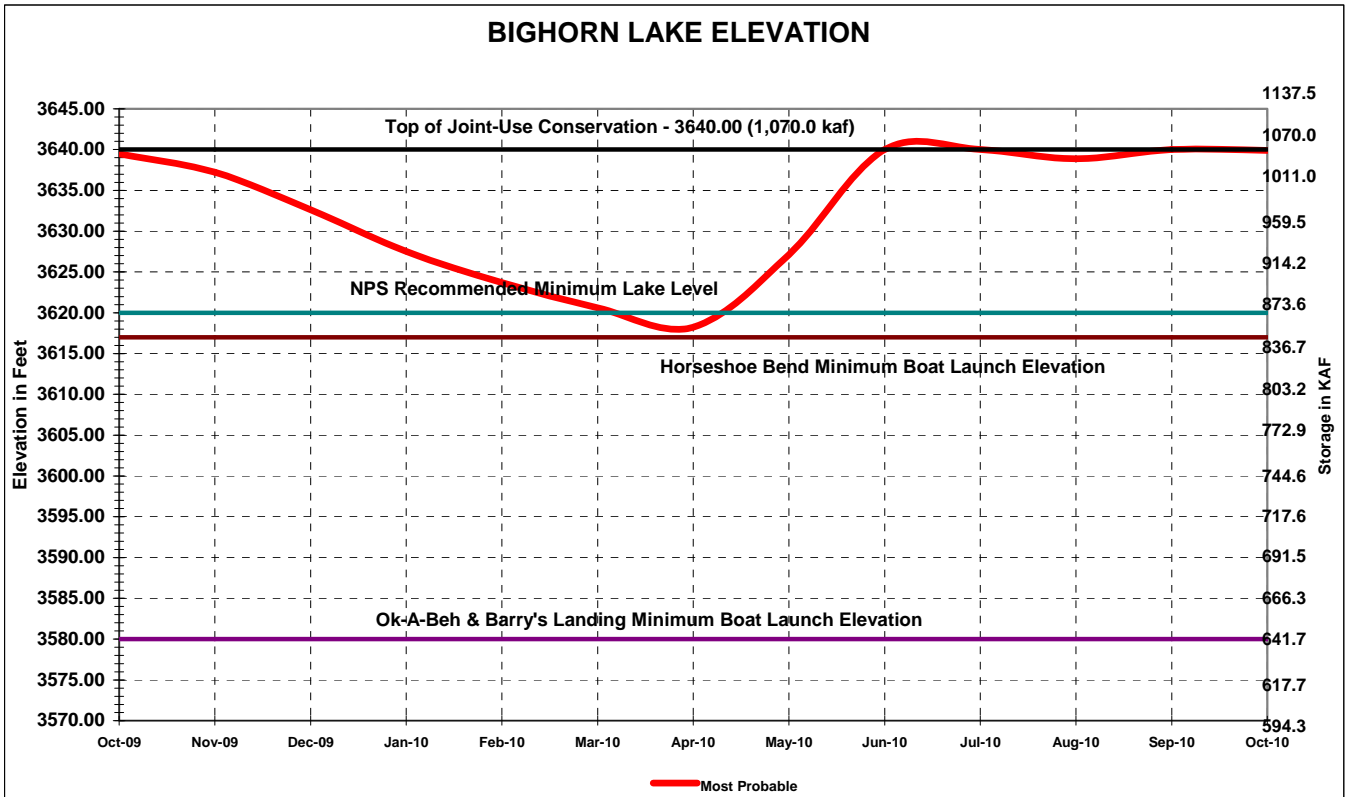
2010 2009

BHXAOP V1.12 Run: 04-Nov-2009 16:10
 Based on Most Probable Inflow Forecast

BIGHORN LAKE MONTHLY OPERATIONS

Bighorn Reservoir		Initial Cont 1063.8 kaf Elev 3639.50 ft				Maximum Cont 1328.4 kaf Elev 3657.00 ft				Minimum Cont 493.6 kaf Elev 3547.00 ft				Total
	2009	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	
Boysen Release	kaf	53.6	55.4	55.4	50.0	55.3	85.6	127.5	132.0	119.0	96.9	71.4	61.4	963.5
Boysen Release	cfs	901	901	901	900	899	1439	2074	2218	1935	1576	1200	999	
Buffalo Bill Riv Flo	kaf	26.6	21.8	21.8	19.7	21.8	31.7	117.8	162.9	173.0	118.6	107.2	39.4	862.3
Buffalo Bill Riv Flo	cfs	447	355	355	355	355	533	1916	2738	2814	1929	1802	641	
Station Gain	kaf	53.6	38.6	40.1	47.6	64.6	26.3	35.8	65.5	-53.0	-41.1	10.0	63.4	351.4
Monthly Inflow	kaf	133.8	115.8	117.3	117.3	141.7	143.6	281.1	360.4	239.0	174.4	188.6	164.2	2177.2
Monthly Inflow	cfs	2249	1883	1908	2112	2305	2413	4572	6057	3887	2836	3170	2670	
Turbine Release	kaf	161.2	166.6	166.5	150.4	166.6	161.7	208.7	223.1	239.0	188.1	174.8	165.4	2172.1
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	161.2	166.6	166.5	150.4	166.6	161.7	208.7	223.1	239.0	188.1	174.8	165.4	2172.1
Total Release	cfs	2709	2709	2708	2708	2709	2717	3394	3749	3887	3059	2938	2690	
Spring Flow	kaf	4.2	4.3	4.3	3.9	4.3	4.2	4.3	4.2	4.3	4.3	4.2	4.3	50.8
Irrigation Reqmnt	kaf	0.0	0.0	0.0	0.0	0.0	0.6	24.6	26.8	27.7	26.8	18.8	4.1	129.4
Afterbay Rels	kaf	165.4	170.9	170.8	154.3	170.9	165.9	213.0	227.3	243.3	192.4	179.0	169.7	2222.9
Afterbay Rels	cfs	2780	2779	2778	2778	2779	2788	3464	3820	3957	3129	3008	2760	
River Release	kaf	165.4	170.9	170.8	154.3	170.9	165.3	188.4	200.5	215.6	165.6	160.2	165.6	2093.5
River Release	cfs	2780	2779	2778	2778	2779	2778	3064	3370	3506	2693	2692	2693	
Min Release	kaf	148.8	153.7	153.7	138.8	153.7	165.3	153.7	148.8	153.7	153.7	148.8	153.7	1826.4
End-Month Targets	kaf					878.4				1070.0				
End-Month Content	kaf	1036.4	985.6	936.4	903.3	878.4	860.3	932.7	1070.0	1070.0	1056.3	1070.1	1068.9	
End-Month Elevation	ft	3637.23	3632.61	3627.52	3623.71	3620.62	3618.25	3627.11	3640.00	3640.00	3638.89	3640.01	3639.91	
Net Change Content	kaf	-27.4	-50.8	-49.2	-33.1	-24.9	-18.1	72.4	137.3	0.0	-13.7	13.8	-1.2	5.1
Yellowtail Power	2009	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
Turbine Release	kaf	161.2	166.6	166.5	150.4	166.6	161.7	208.7	223.1	239.0	188.1	174.8	165.4	2172.1
Generation	gwh	65.710	67.110	66.014	58.820	64.507	62.133	80.968	89.600	97.996	76.971	71.530	67.809	869.168
End-Month Power Cap	mw	284.7	280.2	275.3	271.7	268.8	266.6	274.9	287.5	287.5	286.4	287.5	287.4	
% Max Gen		32	31	31	30	30	30	38	43	46	36	34	32	
Ave kwh/af		408	403	396	391	387	384	388	402	410	409	409	410	400
Upstream Generation	gwh	11.868	10.633	10.577	8.900	10.479	14.668	33.475	33.830	34.093	32.118	28.727	15.110	244.478
Total Generation	gwh	77.578	77.743	76.591	67.720	74.986	76.801	114.443	123.430	132.089	109.089	100.257	82.919	1113.646

BIGHORN LAKE



WATER YEAR 2010