

RECLAMATION

Managing Water in the West

December 4, 2009

Dear Customer:

Attached are the monthly water supply outlook and projected reservoir and river operating plans prepared in December. Storage in Bighorn Lake on December 1 was 107 percent of average and 2.28 feet below the top of the joint-use pool. It was also 1.78 feet lower than on November 1. Based on streamflow accretions accompanied by the planned releases out of Boysen and Buffalo Bill Reservoirs, the water supply forecast prepared in December indicates the December inflow to Bighorn Lake to be about 84 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
 December 1, 2009

Present Elevations & Storages:

<u>Reservoir</u>	<u>Elevation</u>	<u>Storage</u>	<u>Percent of Normal</u>
Boysen	4720.59	658,859	112
Buffalo Bill	5368.41	456,827	109
Bighorn Lake	3637.72	1,042,138	107

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>
October	180.7	99
November	141.4	92

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>
October	69.0	97
November	61.1	98

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

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

<u>Agency</u>	<u>Gains</u>	<u>Percent of Normal</u>
USBR	38.6	89
USBR	<u>Inflows</u> 115.7	84

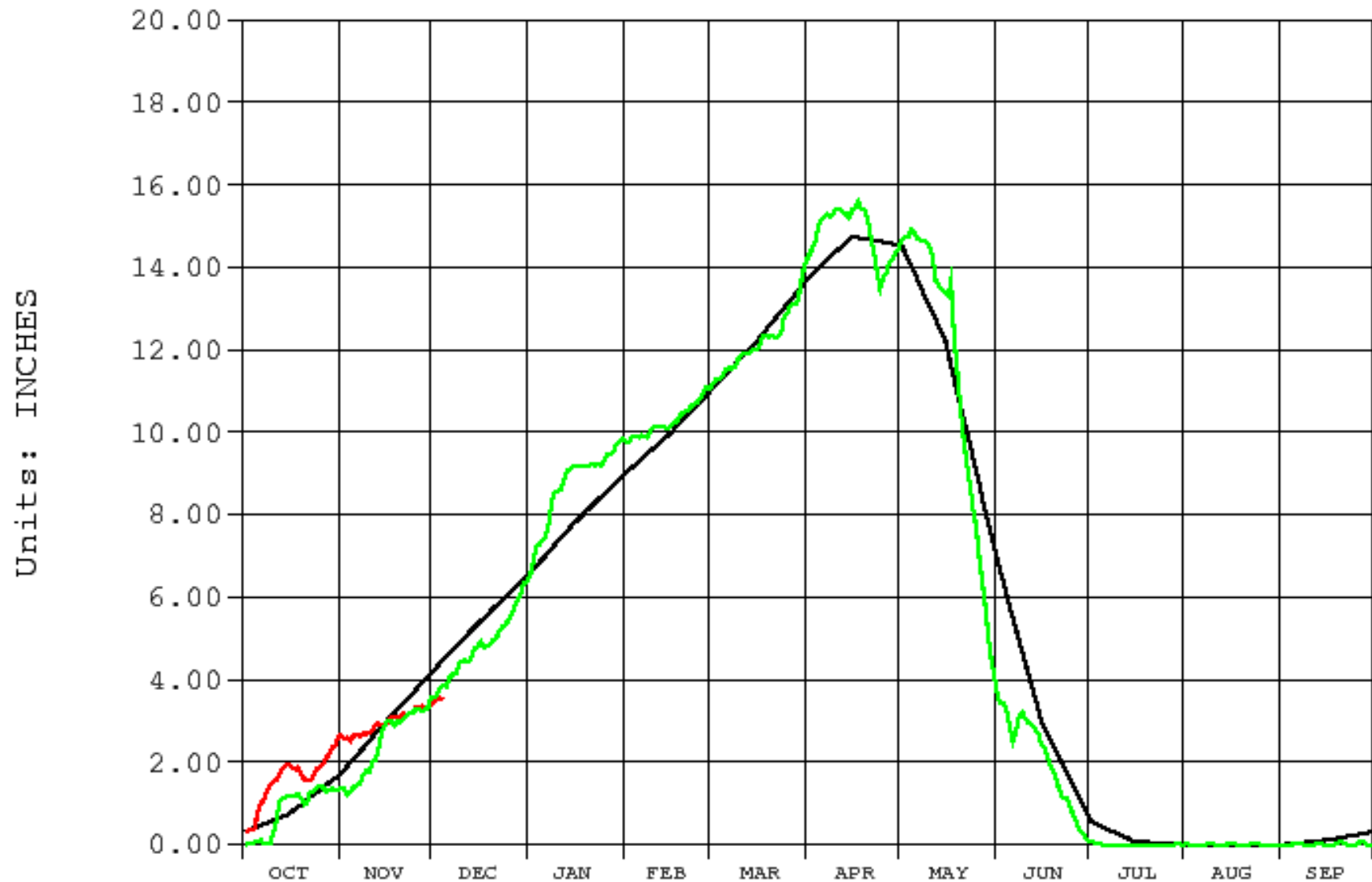
Snowpack Conditions:

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: DECEMBER 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	5.8	6.8	85	4.7	5.8	81
BOX CANYON	6670	1.8	2.1	86	4.8	3.7	130
BRACKETT CREEK	7320	5.4	4.8	113	9.1	7.2	126
BURNT MTN	5880	1.1	1.2	92	5.9	5.4	109
CANYON	7870	3.0	3.2	94	4.6	4.7	98
COLE CREEK	7850	6.4	5.3	121	5.5	5.8	95
EAST BOULDER MINE	6335	1.1	-M	*	5.2	-M	*
EVENING STAR	9200	6.8	8.2	83	8.1	8.0	101
FISHER CREEK	9100	8.5	8.9	96	8.7	9.6	91
MONUMENT PEAK	8850	6.2	5.8	107	5.9	6.2	95

NORTHEAST ENTRANCE	7350	1.1	2.4	46	3.8	3.9	97
PARKER PEAK	9400	6.8	6.5	105	5.1	5.4	94
PLACER BASIN	8830	6.2	5.5	113	7.6	6.4	119
PORCUPINE	6500	1.4	1.2	117	4.6	3.9	118
SACAJAWEA	6550	2.8	1.9	147	8.4	6.5	129
SHOWER FALLS	8100	7.7	6.2	124	7.5	7.6	99
S FORK SHIELDS	8100	5.6	4.4	127	8.7	6.2	140
SYLVAN LAKE	8420	3.6	6.2	58	5.5	6.9	80
SYLVAN ROAD	7120	2.1	3.5	60	4.8	6.4	75
THUMB DIVIDE	7980	2.9	3.9	74	6.2	5.3	117
TWO OCEAN PLATEAU	9240	7.6	8.1	94	6.0	8.0	75
WHITE MILL	8700	6.2	6.3	98	5.9	7.5	79
WOLVERINE	7650	1.5	2.8	54	3.0	4.4	68
YOUNTS PEAK	8350	3.7	4.6	80	3.0	5.1	59
Basin wide percent of average				95			98
WIND RIVER BASIN (WYOMING)							
BURROUGHS CREEK	8750	3.4	3.7	92	3.1	4.8	65
COLD SPRINGS	9630	2.5	3.1	81	3.4	4.1	83
DEER PARK	9700	5.2	4.5	116	6.5	7.0	93
HOBBS PARK	10100	5.6	5.2	108	5.4	4.5	120
KIRWIN	9550	3.5	4.1	85	3.0	4.0	75
LITTLE WARM	9370	2.1	3.3	64	2.9	4.5	64
OWL CREEK	8975	2.5	1.9	132	2.3	2.2	105
SOUTH PASS	9040	4.4	4.9	90	5.5	5.9	93
ST. LAWRENCE ALT	8620	2.0	2.7	74	3.9	3.5	111
TOGWOTEE PASS	9580	5.6	6.9	81	5.9	7.1	83
TOWNSEND CREEK	8700	3.3	2.9	114	5.2	4.4	118
YOUNTS PEAK	8350	3.7	4.6	80	3.0	5.1	59
Basin wide percent of average				92			88
SHOSHONE RIVER BASIN (WYOMING)							
BLACKWATER	9780	6.9	7.6	91	6.0	7.0	86
EVENING STAR	9200	6.8	8.2	83	8.1	8.0	101
MARQUETTE	8760	3.0	3.7	81	3.5	4.1	85
SYLVAN LAKE	8420	3.6	6.2	58	5.5	6.9	80
SYLVAN ROAD	7120	2.1	3.5	60	4.8	6.4	75
YOUNTS PEAK	8350	3.7	4.6	80	3.0	5.1	59
Basin wide percent of average				77			82
BIGHORN RIVER BASIN (WYOMING)							
BALD MTN.	9380	4.7	5.8	81	3.9	5.2	75
BEAR TRAP MEADOW	8200	1.4	1.6	87	2.4	3.4	71
BLACKWATER	9780	6.9	7.6	91	6.0	7.0	86
BONE SPRINGS DIV	9350	-M	5.2	*	-M	4.8	*
EVENING STAR	9200	6.8	8.2	83	8.1	8.0	101
GRAVE SPRINGS	8550	2.8	2.7	104	4.1	3.6	114
KIRWIN	9550	3.5	4.1	85	3.0	4.0	75
MARQUETTE	8760	3.0	3.7	81	3.5	4.1	85
MIDDLE POWDER	7760	3.2	3.5	91	3.8	4.8	79
OWL CREEK	8975	2.5	1.9	132	2.3	2.2	105
POWDER RIVER PASS	9480	2.4	3.3	73	2.8	4.0	70
SHELL CREEK	9580	4.4	5.0	88	4.0	4.4	91
SYLVAN LAKE	8420	3.6	6.2	58	5.5	6.9	80
SYLVAN ROAD	7120	2.1	3.5	60	4.8	6.4	75
TIMBER CREEK	7950	1.1	2.3	48	2.6	3.0	87
YOUNTS PEAK	8350	3.7	4.6	80	3.0	5.1	59
Basin wide percent of average				81			83

Archive Data From 1-OCT Through 30-SEP
Plotted 12/04/2009 18:01



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

SE_AVG Snow Water Equivalent Average (inches)

SE Snow Water Equivalent (inches)

2010

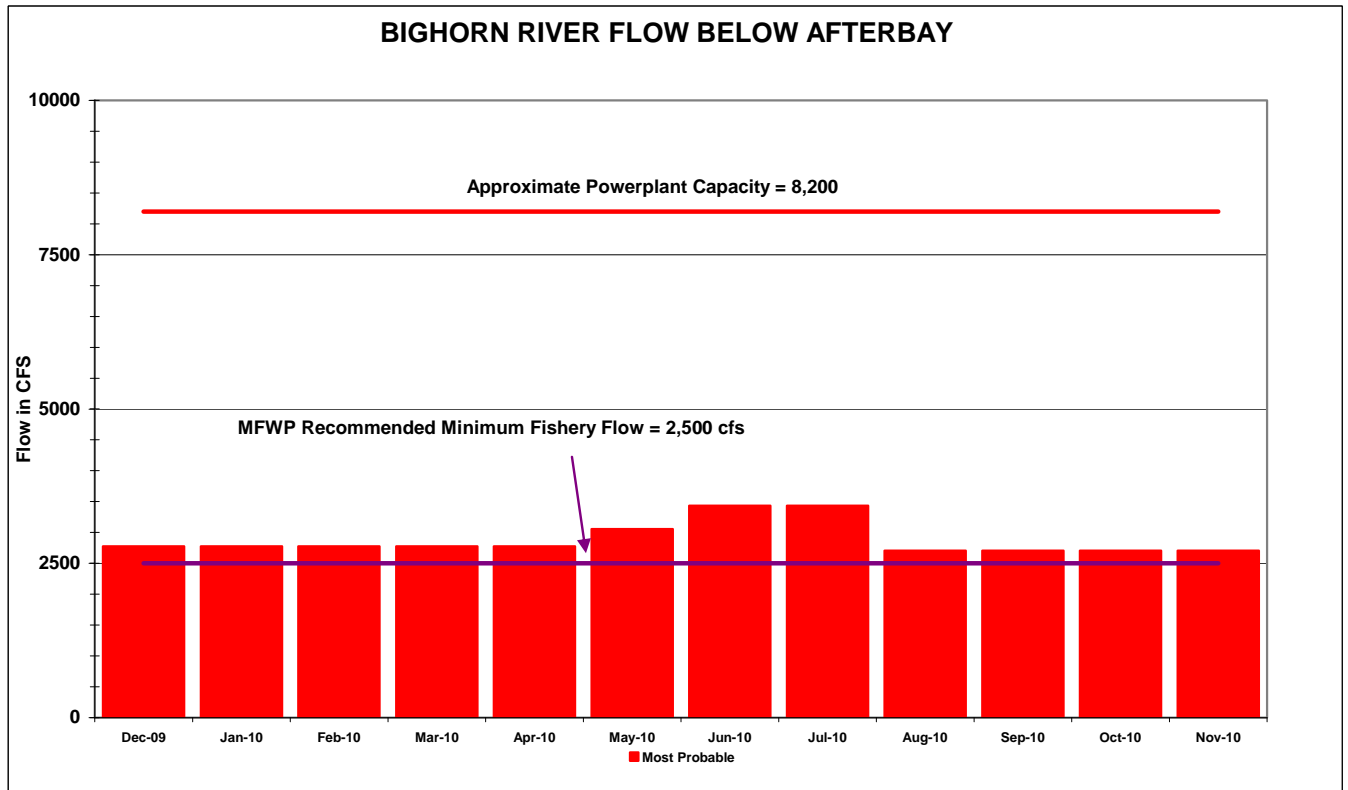
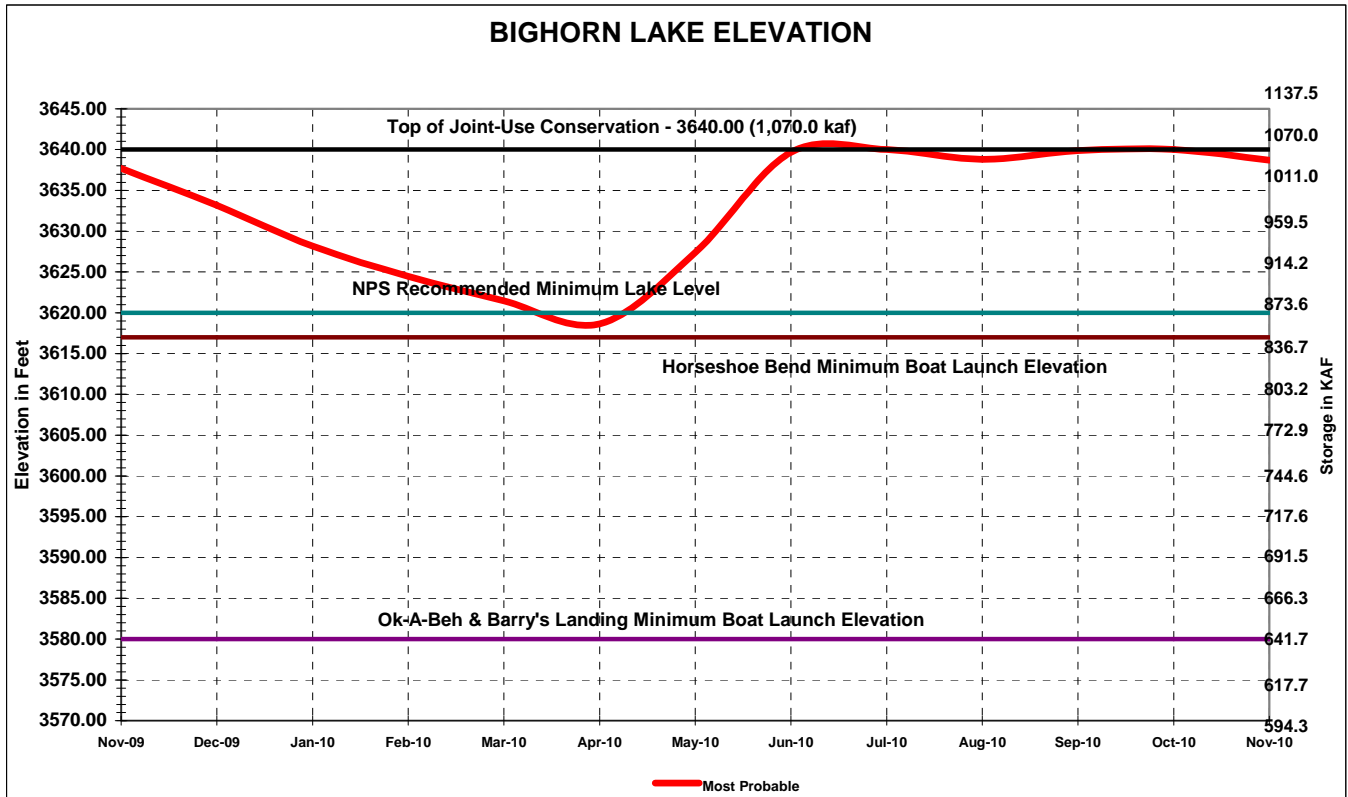
2010 2009

BHXAOP V1.12 Run: 04-Dec-2009 17:33
 Based on Most Probable Inflow Forecast

BIGHORN LAKE MONTHLY OPERATIONS

Bighorn Reservoir		Initial Cont 1042.1 kaf Elev 3637.71 ft				Maximum Cont 1328.4 kaf Elev 3657.00 ft				Minimum Cont 493.6 kaf Elev 3547.00 ft				Total
2009		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Total
Boysen Release	kaf	55.3	55.4	50.0	55.3	81.8	128.1	131.4	120.8	96.9	71.4	61.4	59.5	967.3
Boysen Release	cfs	899	901	900	899	1375	2083	2208	1965	1576	1200	999	1000	
Buffalo Bill Riv Flo	kaf	21.8	21.8	19.7	21.8	31.7	116.3	160.7	170.6	118.6	107.2	43.2	26.8	860.2
Buffalo Bill Riv Flo	cfs	355	355	355	355	533	1891	2701	2775	1929	1802	703	450	
Station Gain	kaf	38.6	40.1	47.6	64.6	26.3	35.8	65.5	-53.0	-41.1	10.0	63.4	54.7	352.5
Monthly Inflow	kaf	115.7	117.3	117.3	141.7	139.8	280.2	357.6	238.4	174.4	188.6	168.0	141.0	2180.0
Monthly Inflow	cfs	1882	1908	2112	2305	2349	4557	6010	3877	2836	3170	2732	2370	
Turbine Release	kaf	166.3	166.3	150.2	166.3	161.5	208.3	226.8	234.4	189.0	175.7	166.3	156.9	2168.0
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	166.3	166.3	150.2	166.3	161.5	208.3	226.8	234.4	189.0	175.7	166.3	156.9	2168.0
Total Release	cfs	2705	2705	2704	2705	2714	3388	3812	3812	3074	2953	2705	2637	
Spring Flow	kaf	4.3	4.3	3.9	4.3	4.2	4.3	4.2	4.3	4.3	4.2	4.3	4.2	50.8
Irrigation Reqmnt	kaf	0.0	0.0	0.0	0.0	0.6	24.6	26.8	27.7	26.8	18.8	4.1	0.0	129.4
Afterbay Rels	kaf	170.6	170.6	154.1	170.6	165.7	212.6	231.0	238.7	193.3	179.9	170.6	161.1	2218.8
Afterbay Rels	cfs	2775	2775	2775	2775	2785	3458	3882	3882	3144	3023	2775	2707	
River Release	kaf	170.6	170.6	154.1	170.6	165.1	188.0	204.2	211.0	166.5	161.1	166.5	161.1	2089.4
River Release	cfs	2775	2775	2775	2775	2775	3058	3432	3432	2708	2707	2708	2707	
Min Release	kaf	170.6	170.6	154.1	170.6	165.1	153.7	148.8	153.7	166.3	161.0	166.3	161.1	1941.9
End-Month Targets	kaf				885.0				1070.0			1070.0		
End-Month Content	kaf	991.5	942.5	909.6	885.0	863.3	935.2	1066.0	1070.0	1055.4	1068.3	1070.0	1054.1	
End-Month Elevation	ft	3633.18	3628.19	3624.46	3621.46	3618.65	3627.39	3639.68	3640.00	3638.82	3639.86	3640.00	3638.71	
Net Change Content	kaf	-50.6	-49.0	-32.9	-24.6	-21.7	71.9	130.8	4.0	-14.6	12.9	1.7	-15.9	12.0
Yellowtail Power	2009	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Total
Turbine Release	kaf	166.3	166.3	150.2	166.3	161.5	208.3	226.8	234.4	189.0	175.7	166.3	156.9	2168.0
Generation	gwh	67.109	66.063	58.866	64.536	62.163	80.890	91.065	96.054	77.329	71.870	68.171	64.183	868.299
End-Month Power Cap	mw	280.7	275.9	272.4	269.6	267.0	275.1	287.2	287.5	286.3	287.4	287.5	286.2	
% Max Gen		31	31	30	30	30	38	44	45	36	35	32	31	
Ave kwh/af		404	397	392	388	385	388	402	410	409	409	410	409	401
Upstream Generation	gwh	10.602	10.554	8.882	10.457	14.328	33.358	33.772	34.245	32.118	28.727	16.162	12.486	245.691
Total Generation	gwh	77.711	76.617	67.748	74.993	76.491	114.248	124.837	130.299	109.447	100.597	84.333	76.669	1113.990

BIGHORN LAKE



WATER YEAR 2010