

RECLAMATION

Managing Water in the West

September 7, 2010

Dear Customer:

Attached are the monthly water supply outlook and projected reservoir and river operating plans prepared in September. Based on current hydrologic and climatic conditions and the planned releases out of Boysen and Buffalo Bill Reservoirs, the September runoff into Bighorn Lake is estimated to be about 167.7 acre-feet (98% 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
 September 7, 2010

Present Elevations & Storages:

<u>Reservoir</u>	<u>Elevation</u>	<u>Storage</u>	<u>Percent of Normal</u>
Boysen	4720.56	658,326	102
Buffalo Bill	5379.50	537,616	95
Bighorn Lake	3634.02	1,000,398	99

Actual Inflows (1,000 Acre-Feet):

<u>Month</u>	<u>Inflow</u>	<u>Percent of Normal</u>
<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
December	111.8	81
January	134.4	101
February	120.8	89
March	137.7	81
April	121.4	74
May	340.9	138
June	761.3	184
July	280.8	97
August	122.7	77
<i>April-July, 2010</i>	<i>1,504.4</i>	<i>135</i>

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

<u>Month</u>	<u>Gains</u>	<u>Percent of Normal</u>
<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
December	34.2	79
January	56.9	123
February	53.8	101
March	66.0	89
April	28.3	81
May	47.5	79
June	228.3	215
July	-50.8	---
August	-71.7	---
<i>April-July, 2010</i>	<i>254.2</i>	<i>163</i>

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

<u>Agency</u>	<u>Inflows</u>	<u>Percent of Normal</u>
USBR	167.7	98

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

Not Available during August & September

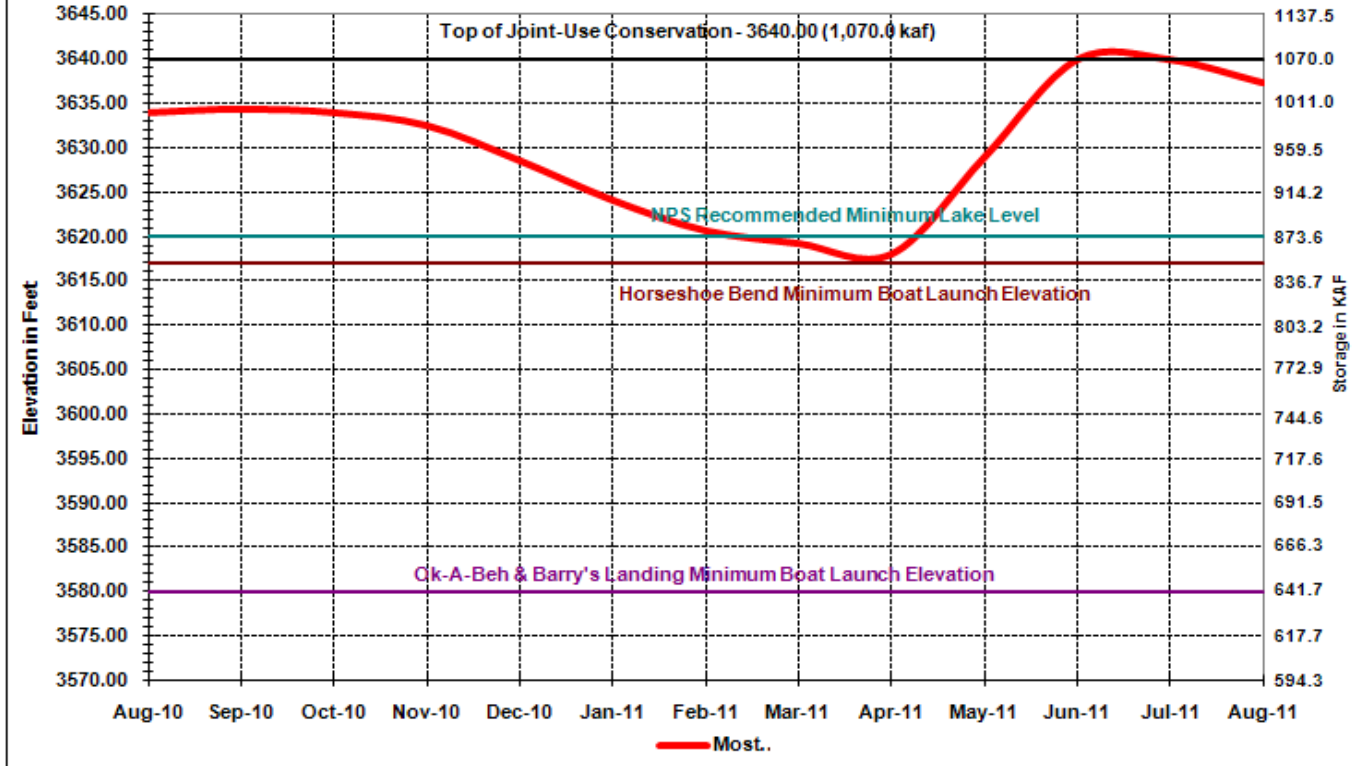
BHXAOP V1.12 Run: 03-Sep-2010 11:39
 Based on Most Probable Inflow Forecast

BIGHORN LAKE MONTHLY OPERATIONS

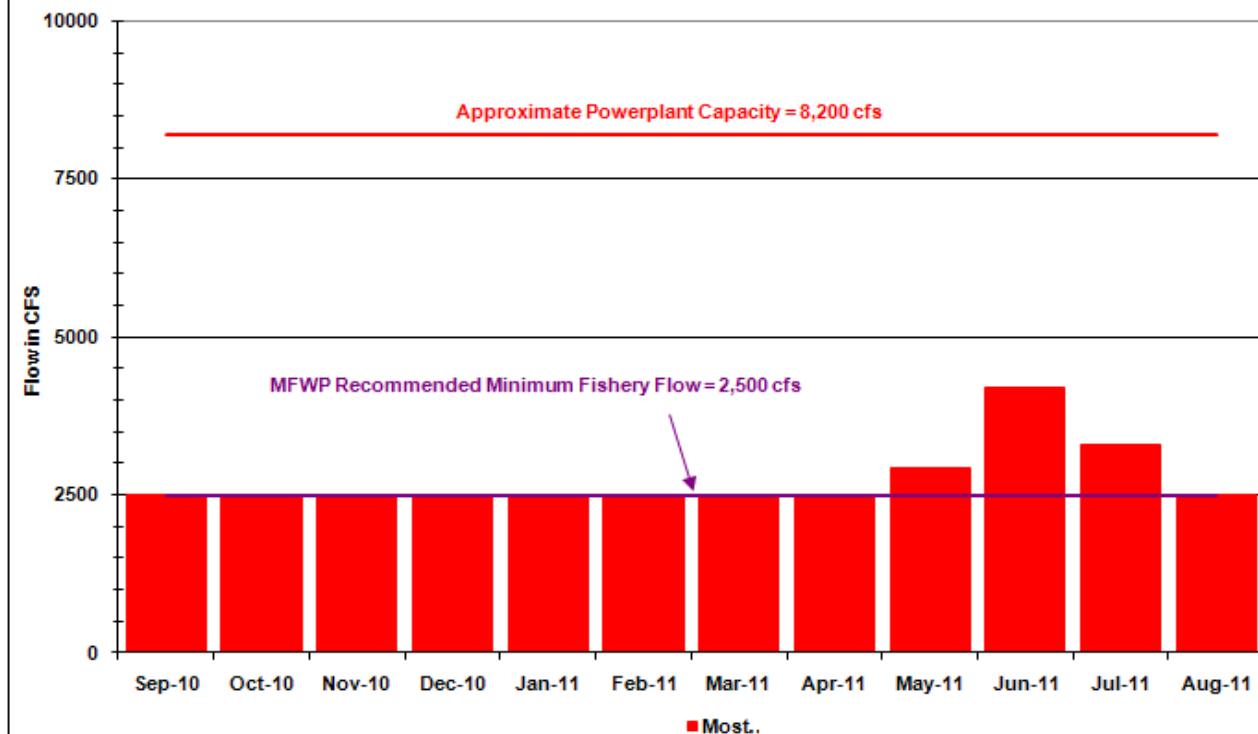
Bighorn Reservoir		Initial Cont 1000.4 kaf Elev 3634.02 ft				Maximum Cont 1328.4 kaf Elev 3657.00 ft				Minimum Cont 493.6 kaf Elev 3547.00 ft				Total
	2010	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	
Boysen Release	kaf	59.5	49.2	47.6	49.1	49.2	44.4	49.1	74.2	134.0	129.7	126.2	90.0	902.2
Boysen Release	cfs	1000	800	800	799	800	799	799	1247	2179	2180	2052	1464	
Buffalo Bill Riv Flo	kaf	82.3	33.4	24.5	21.8	21.8	19.7	21.8	31.7	111.6	188.4	160.5	104.3	821.8
Buffalo Bill Riv Flo	cfs	1383	543	412	355	355	355	355	533	1815	3166	2610	1696	
Station Gain	kaf	25.9	66.6	57.2	39.6	38.9	43.1	67.2	30.2	45.3	74.5	-60.8	-49.8	377.9
Monthly Inflow	kaf	167.7	149.2	129.3	110.5	109.9	107.2	138.1	136.1	290.9	392.6	225.9	144.5	2101.9
Monthly Inflow	cfs	2818	2427	2173	1797	1787	1930	2246	2287	4731	6598	3674	2350	
Turbine Release	kaf	163.4	153.5	144.6	149.4	149.4	135.0	149.4	145.2	199.8	272.2	225.9	176.2	2064.0
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	163.4	153.5	144.6	149.4	149.4	135.0	149.4	145.2	199.8	272.2	225.9	176.2	2064.0
Total Release	cfs	2746	2496	2430	2430	2430	2431	2430	2440	3249	4574	3674	2866	
Spring Flow	kaf	4.2	4.3	4.2	4.3	4.3	3.9	4.3	4.2	4.3	4.2	4.3	4.3	50.8
Irrigation Reqmnt	kaf	18.8	4.1	0.0	0.0	0.0	0.0	0.0	0.6	24.6	26.8	27.7	26.8	129.4
Afterbay Rels	kaf	167.6	157.8	148.8	153.7	153.7	138.9	153.7	149.4	204.1	276.4	230.2	180.5	2114.8
Afterbay Rels	cfs	2817	2566	2501	2500	2500	2501	2500	2511	3319	4645	3744	2936	
River Release	kaf	148.8	153.7	148.8	153.7	153.7	138.9	153.7	148.8	179.5	249.6	202.5	153.7	1985.4
River Release	cfs	2501	2500	2501	2500	2500	2501	2500	2501	2919	4195	3293	2500	
Min Release	kaf	148.8	153.7	148.8	153.7	153.7	138.8	153.7	148.8	179.5	148.8	153.7	153.7	1835.7
End-Month Targets	kaf		1070.0						858.5		1070.0	1070.0		
End-Month Content	kaf	1004.7	1000.4	985.1	946.2	906.7	878.9	867.6	858.5	949.6	1070.0	1070.0	1038.3	
End-Month Elevation	ft	3634.42	3634.02	3632.56	3628.59	3624.12	3620.68	3619.22	3618.01	3628.95	3640.00	3640.00	3637.39	
Net Change Content	kaf	4.3	-4.3	-15.3	-38.9	-39.5	-27.8	-11.3	-9.1	91.1	120.4	0.0	-31.7	37.9
Yellowtail Power	2010	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
Turbine Release	kaf	163.4	153.5	144.6	149.4	149.4	135.0	149.4	145.2	199.8	272.2	225.9	176.2	2064.0
Generation	gwh	65.648	61.671	57.917	59.324	58.560	52.307	57.487	55.666	77.718	109.607	92.625	71.910	820.440
End-Month Power Cap	mw	281.9	281.5	280.1	276.3	272.1	268.9	267.5	266.4	276.6	287.5	287.5	284.9	
% Max Gen		32	29	28	28	27	27	27	27	36	53	43	34	
Ave kwh/af		402	402	401	397	392	387	385	383	389	403	410	408	398
Upstream Generation	gwh	21.876	11.945	10.713	10.053	10.021	9.000	9.951	13.753	32.989	33.642	34.681	28.497	227.121
Total Generation	gwh	87.524	73.616	68.630	69.377	68.581	61.307	67.438	69.419	110.707	143.249	127.306	100.407	1047.561

BIGHORN LAKE

BIGHORN LAKE ELEVATION



BIGHORN RIVER FLOW BELOW AFTERBAY



WATER YEAR 2010

Supplemental Information

BHXAOP V1.12 Run: 03-Sep-2010 13:29
 Based on Minimum Probable Inflow Forecast

BIGHORN LAKE MONTHLY OPERATIONS

Bighorn Reservoir		Initial Cont 1000.4 kaf Elev 3634.02 ft				Maximum Cont 1328.4 kaf Elev 3657.00 ft				Minimum Cont 300.0 kaf Elev 3547.00 ft				Total
		2010	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	
Boysen Release	kaf	59.5	49.2	47.6	49.2	49.2	44.5	49.2	47.7	67.6	69.9	76.9	69.2	679.7
Boysen Release	cfs	1000	800	800	800	800	801	800	802	1099	1175	1251	1125	
Buffalo Bill Riv Flo	kaf	82.3	29.9	21.2	12.6	12.6	11.4	12.6	31.7	101.2	105.0	118.7	104.3	643.5
Buffalo Bill Riv Flo	cfs	1383	486	356	205	205	205	205	533	1646	1765	1930	1696	
Station Gain	kaf	7.2	55.7	56.7	38.9	38.0	41.6	66.2	25.6	27.0	9.6	-92.9	-66.6	207.0
Monthly Inflow	kaf	149.0	134.8	125.5	100.7	99.8	97.5	128.0	105.0	195.8	184.5	102.7	106.9	1530.2
Monthly Inflow	cfs	2504	2192	2109	1638	1623	1756	2082	1765	3184	3101	1670	1739	
Turbine Release	kaf	163.4	149.4	127.4	131.7	131.7	118.9	131.7	128.0	127.9	126.7	131.0	130.1	1597.9
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	163.4	149.4	127.4	131.7	131.7	118.9	131.7	128.0	127.9	126.7	131.0	130.1	1597.9
Total Release	cfs	2746	2430	2141	2142	2142	2141	2142	2151	2080	2129	2131	2116	
Spring Flow	kaf	4.2	4.3	4.2	4.3	4.3	3.9	4.3	4.2	4.3	4.2	4.3	4.3	50.8
Irrigation Reqmnt	kaf	18.8	0.0	0.0	0.0	0.0	0.0	0.0	0.6	24.6	26.8	27.7	26.8	125.3
Afterbay Rels	kaf	167.6	153.7	131.6	136.0	136.0	122.8	136.0	132.2	132.2	130.9	135.3	134.4	1648.7
Afterbay Rels	cfs	2817	2500	2212	2212	2212	2211	2212	2222	2150	2200	2200	2186	
River Release	kaf	148.8	153.7	131.6	136.0	136.0	122.8	136.0	131.6	107.6	104.1	107.6	107.6	1523.4
River Release	cfs	2501	2500	2212	2212	2212	2211	2212	2212	1750	1749	1750	1750	
Min Release	kaf	148.8	153.7	119.0	123.0	123.0	111.1	123.0	119.0	107.6	104.1	107.6	107.6	1447.5
End-Month Targets	kaf		1070.0						858.5			1070.0		
End-Month Content	kaf	986.0	971.4	969.5	938.5	906.6	885.2	881.5	858.5	926.4	984.2	955.9	932.7	
End-Month Elevation	ft	3632.65	3631.21	3631.02	3627.75	3624.10	3621.48	3621.02	3618.01	3626.41	3632.48	3629.62	3627.11	
Net Change Content	kaf	-14.4	-14.6	-1.9	-31.0	-31.9	-21.4	-3.7	-23.0	67.9	57.8	-28.3	-23.2	-67.7
Yellowtail Power	2010	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
Turbine Release	kaf	163.4	149.4	127.4	131.7	131.7	118.9	131.7	128.0	127.9	126.7	131.0	130.1	1597.9
Generation	gwh	65.456	59.573	50.667	52.097	51.554	46.119	50.859	49.195	49.550	50.141	52.092	51.300	628.603
End-Month Power Cap	mw	280.2	278.8	278.6	275.5	272.0	269.6	269.2	266.4	274.2	280.0	277.3	274.9	
% Max Gen		32	28	24	24	24	24	24	24	23	24	24	24	
Ave kwh/af		401	399	398	396	391	388	386	384	387	396	398	394	393
Upstream Generation	gwh	21.848	10.912	9.728	7.369	7.332	6.585	7.277	11.838	25.669	25.637	27.996	25.353	187.544
Total Generation	gwh	87.304	70.485	60.395	59.466	58.886	52.704	58.136	61.033	75.219	75.778	80.088	76.653	816.147

BHXAOP V1.12 Run: 03-Sep-2010 13:45
 Based on Maximum Probable Inflow Forecast

BIGHORN LAKE MONTHLY OPERATIONS

Bighorn Reservoir		Initial Cont Elev 3634.02 ft				Maximum Cont Elev 3657.00 ft				Minimum Cont Elev 3547.00 ft				Total
2010		Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
Boysen Release	kaf	59.5	49.2	47.6	49.1	49.2	44.4	49.1	131.4	269.1	286.1	268.0	108.5	1411.2
Boysen Release	cfs	1000	800	800	799	800	799	799	2208	4376	4808	4359	1765	
Buffalo Bill Riv Flo	kaf	83.6	44.5	28.9	21.8	21.8	19.7	21.8	31.7	190.2	312.0	277.2	116.9	1170.1
Buffalo Bill Riv Flo	cfs	1405	724	486	355	355	355	355	533	3093	5243	4508	1901	
Station Gain	kaf	37.4	74.6	57.5	40.0	39.6	44.2	67.8	36.2	80.4	174.5	-13.3	-29.7	609.2
Monthly Inflow	kaf	180.5	168.3	134.0	110.9	110.6	108.3	138.7	199.3	539.7	772.6	531.9	195.7	3190.5
Monthly Inflow	cfs	3033	2737	2252	1804	1799	1950	2256	3349	8777	12984	8651	3183	
Turbine Release	kaf	156.5	149.4	156.4	161.6	161.7	146.0	161.6	218.1	516.4	504.5	521.7	195.9	3049.8
Bypass/Spill/Waste	kaf	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	61.1	10.2	0.0	71.3
Total Release	kaf	156.5	149.4	156.4	161.6	161.7	146.0	161.6	218.1	516.4	565.6	531.9	195.9	3121.1
Total Release	cfs	2630	2430	2628	2628	2630	2629	2628	3665	8398	9505	8651	3186	
Spring Flow	kaf	4.2	4.3	4.2	4.3	4.3	3.9	4.3	4.2	4.3	4.2	4.3	4.3	50.8
Irrigation Reqmnt	kaf	11.9	0.0	0.0	0.0	0.0	0.0	0.0	0.5	11.2	21.8	27.7	26.8	99.9
Afterbay Rels	kaf	160.7	153.7	160.6	165.9	166.0	149.9	165.9	222.3	520.7	569.8	536.2	200.2	3171.9
Afterbay Rels	cfs	2701	2500	2699	2698	2700	2699	2698	3736	8468	9576	8720	3256	
River Release	kaf	148.8	153.7	160.6	165.9	166.0	149.9	165.9	221.8	509.5	548.0	508.5	173.4	3072.0
River Release	cfs	2501	2500	2699	2698	2700	2699	2698	3727	8286	9209	8270	2820	
Min Release	kaf	148.8	153.7	148.8	153.7	153.7	138.8	123.0	148.8	153.7	148.8	153.7	153.7	1779.2
End-Month Targets	kaf		1070.0					858.5			1070.0	1070.0		
End-Month Content	kaf	1024.4	1043.3	1020.9	970.2	919.1	881.4	858.5	839.7	863.0	1070.0	1070.0	1069.8	
End-Month Elevation	ft	3636.19	3637.82	3635.88	3631.09	3625.57	3621.00	3618.01	3615.42	3618.61	3640.00	3640.00	3639.98	
Net Change Content	kaf	24.0	18.9	-22.4	-50.7	-51.1	-37.7	-22.9	-18.8	23.3	207.0	0.0	-0.2	69.4
Yellowtail Power	2010	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Total
Turbine Release	kaf	156.5	149.4	156.4	161.6	161.7	146.0	161.6	218.1	516.4	504.5	521.7	195.9	3049.8
Generation	gwh	63.069	60.603	63.409	64.783	63.768	56.716	62.108	83.190	197.133	200.392	213.908	80.322	1209.401
End-Month Power Cap	mw	283.7	285.3	283.4	278.7	273.4	269.2	266.4	264.0	266.9	287.5	287.5	287.5	
% Max Gen		30	28	31	30	30	29	29	40	92	97	100	37	
Ave kwh/af		403	406	405	401	394	388	384	381	382	397	410	410	397
Upstream Generation	gwh	22.300	15.615	12.046	10.139	10.124	8.495	10.096	18.765	34.117	33.840	35.267	32.991	243.795
Total Generation	gwh	85.369	76.218	75.455	74.922	73.892	65.211	72.204	101.955	231.250	234.232	249.175	113.313	1453.196