

# RECLAMATION

*Managing Water in the West*

March 8, 2007

Dear Customer:

Attached is the monthly water supply outlook and projected reservoir and river operating plans as prepared on March 8, 2007. Streamflows into Bighorn Lake continue to remain below normal. Water users are advised to continue making plans to conserve the limited available water supply. 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  
 March 1, 2007

**Present Elevations & Storages:**

<u>Reservoir</u>	<u>Storage</u>	<u>Elevation</u>	<u>Percent of Normal</u>
Boysen	459,452	4707.53	---
Buffalo Bill	445,148	5366.85	---
Bighorn Lake	785,266	3607.09	93

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

<u>Month</u>	<u>Inflow</u>	<u>Percent of Normal</u>
<i>April-July, 2006</i>	<i>528.2</i>	<i>44</i>
<i>WY-2006 Total</i>	<i>1,432.9</i>	<i>57</i>
October	125.6	66
November	98.7	61
December	82.5	56
January	67.4	48
February	77.8	54

**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, 2006</i>	<i>-2.5</i>	<i>---</i>
<i>WY-2006 Total</i>	<i>280.6</i>	<i>39</i>
October	73.5	97
November	56.9	88
December	39.6	84
January	24.0	51
February	38.7	67

**March Forecast of April-July Inflow (1,000 Acre-Feet):**

<u>Agency</u>	<u>Inflows</u>	<u>Percent of Normal</u>
<b>USBR</b>	<b>746</b>	<b>63</b>

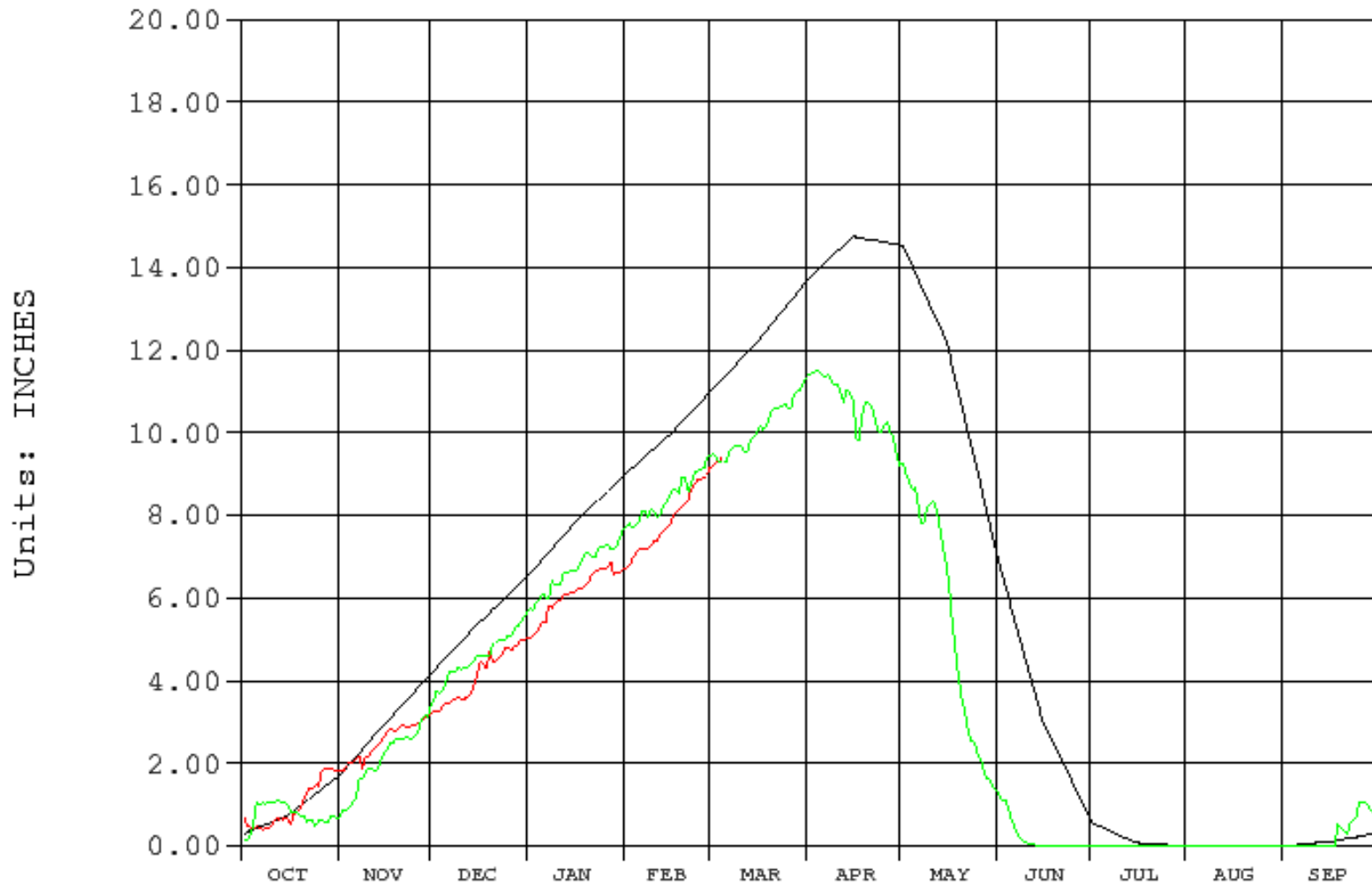
**Snowpack Conditions:**

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 THURSDAY: MARCH 1, 2007

BASIN Data Site Name	ELEV. (Ft)	SNOW WATER EQUIVALENT			TOTAL PRECIPITATION		
		Current	Average	% Avg	Current	Average	% Avg
UPPER YELLOWSTONE RIVER BASIN							
BEARTOOTH LAKE	9275	16.1	19.7	82	15.6	17.1	91
BOX CANYON	6700	7.6	8.5	89	12.3	10.2	121
BRACKETT CREEK	7320	10.8	17.0	64	16.6	20.6	81
BURNT MTN CANYON	5880	2.9	-M	*	9.9	-M	*
CANYON	8090	10.3	11.3	91	13.3	13.0	102
COLE CREEK	7850	8.5	12.0	71	9.4	12.4	76
EVENING STAR	9200	19.1	25.0	76	22.6	21.8	104
FISHER CREEK	9100	26.1	29.6	88	26.4	30.6	86
MONUMENT PEAK	8850	15.3	17.2	89	17.2	17.7	97
NORTHEAST ENTRANCE	7350	7.7	9.7	79	11.3	10.8	105

PARKER PEAK	9400	16.1	18.2	88	14.9	13.7	109
PLACER BASIN	8830	12.1	14.2	85	15.7	15.1	104
PORCUPINE	6500	4.5	5.8	78	10.8	9.4	115
SACAJAWEA	6550	8.9	12.0	74	17.1	-M	*
SHOWER FALLS	8100	16.2	17.4	93	19.8	19.1	104
S FORK SHIELDS	8100	10.6	13.6	78	16.9	15.8	107
SYLVAN LAKE	8420	13.5	18.8	72	18.8	17.9	105
SYLVAN ROAD	7120	8.4	11.4	74	14.4	15.6	92
THUMB DIVIDE	7980	11.6	15.4	75	13.0	16.0	81
TWO OCEAN PLATEAU	9240	21.3	23.3	91	19.9	23.4	85
WHITE MILL	8700	16.4	20.3	81	17.4	22.7	77
WOLVERINE	7650	8.1	10.6	76	9.8	11.2	88
YOUNTS PEAK	8350	10.0	14.6	68	12.6	13.6	93
Basin wide percent of average				81			95
WIND RIVER BASIN (WYOMING)							
BURROUGHS CREEK	8750	10.8	12.6	86	12.4	13.7	91
COLD SPRINGS	9630	4.8	7.2	67	6.2	8.4	74
DEER PARK	9700	9.5	14.4	66	12.7	17.8	71
HOBBS PARK	10100	8.2	11.9	69	8.0	9.9	81
KIRWIN	9550	7.7	9.1	85	9.1	9.2	99
LITTLE WARM	9370	6.6	9.5	69	7.8	10.9	72
OWL CREEK	8975	4.7	4.1	115	5.2	4.4	118
SOUTH PASS	9040	10.1	14.0	72	11.3	15.0	75
ST. LAWRENCE ALT	8620	4.1	5.9	69	5.4	7.0	77
TOGWOTEE PASS	9580	15.8	20.7	76	17.8	20.7	86
TOWNSEND CREEK	8700	5.4	6.9	78	8.1	8.9	91
YOUNTS PEAK	8350	10.0	14.6	68	12.6	13.6	93
Basin wide percent of average				75			84
SHOSHONE RIVER BASIN (WYOMING)							
BLACKWATER	9780	17.2	20.4	84	16.4	17.2	95
EVENING STAR	9200	19.1	25.0	76	22.6	21.8	104
MARQUETTE	8760	2.1	6.9	30	6.2	7.5	83
SYLVAN LAKE	8420	13.5	18.8	72	18.8	17.9	105
SYLVAN ROAD	7120	8.4	11.4	74	14.4	15.6	92
YOUNTS PEAK	8350	10.0	14.6	68	12.6	13.6	93
Basin wide percent of average				72			97
BIGHORN RIVER BASIN (WYOMING)							
BALD MTN.	9380	15.1	16.0	94	11.6	14.1	82
BEAR TRAP MEADOW	8200	4.6	4.3	107	5.2	6.4	81
BLACKWATER	9780	17.2	20.4	84	16.4	17.2	95
BONE SPRINGS DIV	9350	13.6	13.2	103	12.0	11.6	103
EVENING STAR	9200	19.1	25.0	76	22.6	21.8	104
GRAVE SPRINGS	8550	5.4	7.3	74	5.6	7.8	72
KIRWIN	9550	7.7	9.1	85	9.1	9.2	99
MARQUETTE	8760	2.1	6.9	30	6.2	7.5	83
MIDDLE POWDER	7760	7.4	9.0	82	6.5	9.6	68
OWL CREEK	8975	4.7	4.1	115	5.2	4.4	118
POWDER RIVER PASS	9480	7.5	8.7	86	8.5	10.0	85
SHELL CREEK	9580	11.7	11.8	99	9.3	10.8	86
SYLVAN LAKE	8420	13.5	18.8	72	18.8	17.9	105
SYLVAN ROAD	7120	8.4	11.4	74	14.4	15.6	92
TIMBER CREEK	7950	2.2	4.2	52	5.6	5.4	104
YOUNTS PEAK	8350	10.0	14.6	68	12.6	13.6	93
Basin wide percent of average				81			93

Archive Data From 1-OCT Through 30-SEP  
Plotted 03/04/2007 17:49



BHR Bighorn Lake (Yellowtail), Bighorn River near Fort Smith, MT  
SE\_AVG Snow Water Equivalent Average (inches)  
SE Snow Water Equivalent (inches)

2007  
2007 2006

BHXAOP V1.12 Run: 08-Mar-2007 09:05  
 Based on Most Probable Inflow Forecast

BIGHORN LAKE MONTHLY OPERATIONS

Bighorn Reservoir		Initial Cont 785.3 kaf Elev 3607.09 ft				Maximum Cont 1328.4 kaf Elev 3657.00 ft				Minimum Cont 493.6 kaf Elev 3547.00 ft				Total
	2007	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	
Boysen Release	kaf	30.8	44.6	67.6	69.9	73.8	69.2	59.5	36.9	35.7	36.9	36.9	34.5	596.3
Boysen Release	cfs	501	750	1099	1175	1200	1125	1000	600	600	600	600	600	
Buffalo Bill Riv Flo	kaf	12.3	24.4	64.9	76.3	70.4	63.0	50.0	24.9	11.9	12.3	12.3	11.5	434.2
Buffalo Bill Riv Flo	cfs	200	410	1055	1282	1145	1025	840	405	200	200	200	200	
Station Gain	kaf	68.9	48.1	79.1	127.8	-1.1	7.1	44.7	76.6	62.9	45.1	48.4	59.2	666.8
Monthly Inflow	kaf	112.0	117.1	211.6	274.0	143.1	139.3	154.2	138.4	110.5	94.3	97.6	105.2	1697.3
Monthly Inflow	cfs	1822	1968	3441	4605	2327	2265	2591	2251	1857	1534	1587	1829	
Turbine Release	kaf	87.9	85.6	129.9	136.6	146.4	145.5	148.6	149.4	144.6	149.4	149.4	139.8	1613.1
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	87.9	85.6	129.9	136.6	146.4	145.5	148.6	149.4	144.6	149.4	149.4	139.8	1613.1
Total Release	cfs	1430	1439	2113	2296	2381	2366	2497	2430	2430	2430	2430	2430	
Spring Flow	kaf	4.3	4.2	4.3	4.2	4.3	4.3	4.2	4.3	4.2	4.3	4.3	4.0	50.9
Irrigation Reqmnt	kaf	0.0	0.5	11.2	21.8	27.7	26.8	18.8	0.0	0.0	0.0	0.0	0.0	106.8
Afterbay Rels	kaf	92.2	89.8	134.2	140.8	150.7	149.8	152.8	153.7	148.8	153.7	153.7	143.8	1664.0
Afterbay Rels	cfs	1499	1509	2183	2366	2451	2436	2568	2500	2501	2500	2500	2500	
River Release	kaf	92.2	89.3	123.0	119.0	123.0	123.0	134.0	153.7	148.8	153.7	153.7	143.8	1557.2
River Release	cfs	1499	1501	2000	2000	2000	2000	2252	2500	2501	2500	2500	2500	
Min Release	kaf	92.2	89.3	123.0	119.0	123.0	123.0	119.0	123.0	119.0	153.7	153.7	143.8	1481.7
End-Month Targets	kaf					1070.0								
End-Month Content	kaf	809.4	840.9	922.6	1060.0	1056.7	1050.5	1056.1	1045.1	1011.0	955.9	904.1	869.5	
End-Month Elevation	ft	3610.97	3615.59	3625.98	3639.19	3638.93	3638.41	3638.88	3637.97	3635.00	3629.62	3623.80	3619.46	
Net Change Content	kaf	24.1	31.5	81.7	137.4	-3.3	-6.2	5.6	-11.0	-34.1	-55.1	-51.8	-34.6	84.2
Yellowtail Power	2007	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Total
Turbine Release	kaf	87.9	85.6	129.9	136.6	146.4	145.5	148.6	149.4	144.6	149.4	149.4	139.8	1613.1
Generation	gwh	32.875	32.359	50.136	54.688	59.823	59.372	60.631	60.909	58.553	59.664	58.630	54.053	641.693
End-Month Power Cap	mw	259.9	264.1	273.8	286.7	286.4	285.9	286.4	285.5	282.5	277.3	271.8	267.7	
% Max Gen		15	16	23	26	28	28	29	28	28	28	27	27	
Ave kwh/af		374	378	386	400	409	408	408	408	405	399	392	387	398
Upstream Generation	gwh	5.517	11.256	25.188	28.184	28.082	25.841	21.214	10.995	5.926	6.162	6.173	5.772	180.310
Total Generation	gwh	38.392	43.615	75.324	82.872	87.905	85.213	81.845	71.904	64.479	65.826	64.803	59.825	822.003

BIGHORN LAKE MONTHLY OPERATIONS

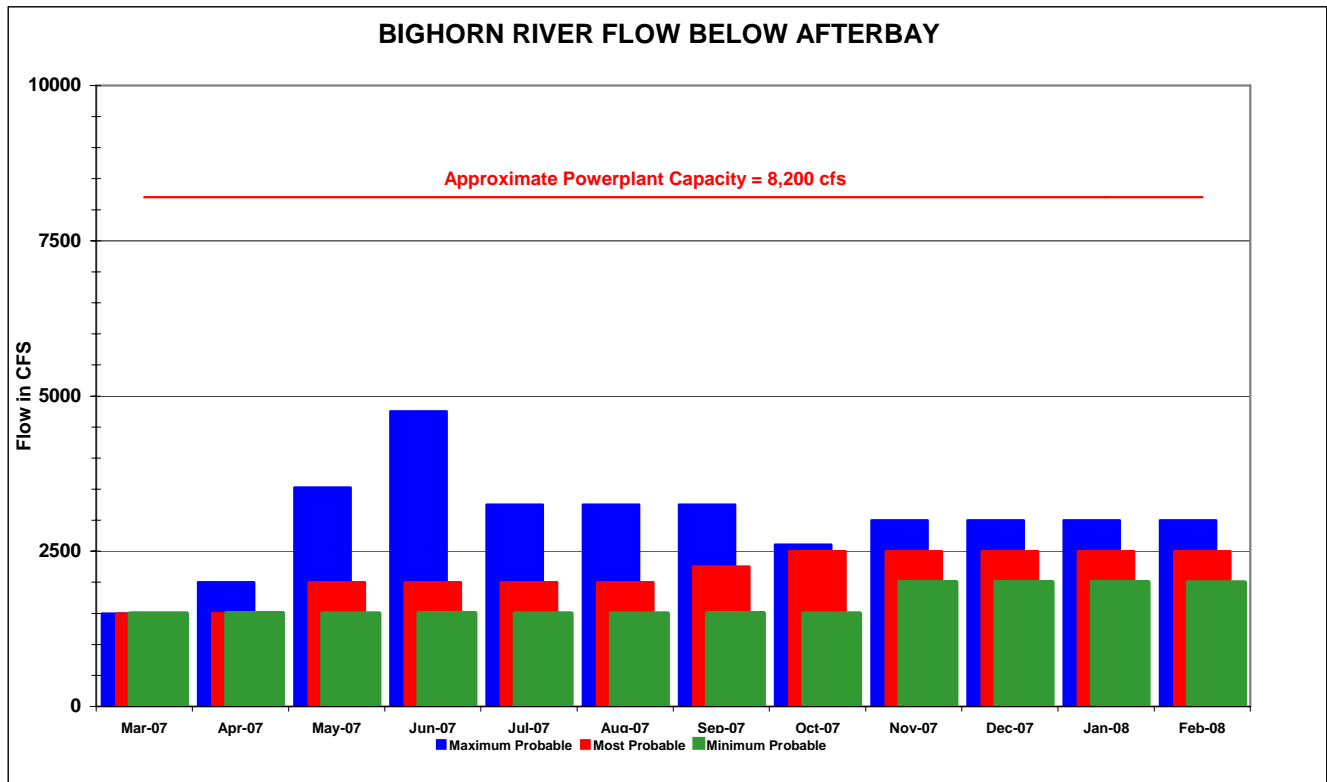
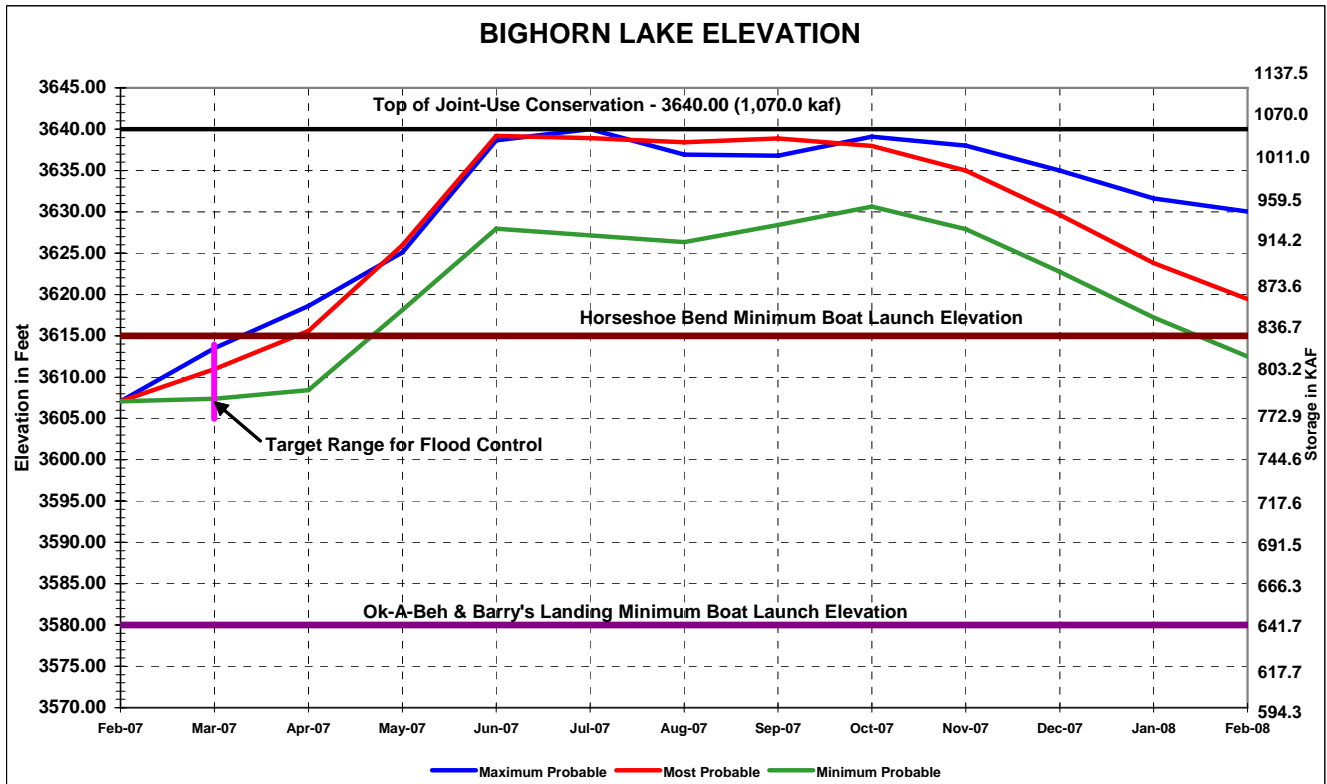
Bighorn Reservoir		Initial Cont 785.3 kaf Elev 3607.09 ft				Maximum Cont 1328.4 kaf Elev 3657.00 ft				Minimum Cont 493.6 kaf Elev 3547.00 ft				Total
	2007	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	
Boysen Release	kaf	30.8	38.7	60.0	68.4	68.9	60.3	44.6	30.7	29.8	30.8	30.8	28.8	522.6
Boysen Release	cfs	501	650	976	1150	1121	981	750	499	501	501	501	501	
Buffalo Bill Riv Flo	kaf	12.3	24.4	64.9	62.7	70.4	63.0	50.0	18.4	8.9	9.2	9.2	8.6	402.0
Buffalo Bill Riv Flo	cfs	200	410	1055	1054	1145	1025	840	299	150	150	150	150	
Station Gain	kaf	46.5	29.0	40.2	56.8	-31.0	-15.9	27.8	60.1	50.2	34.1	36.1	40.5	374.4
Monthly Inflow	kaf	89.6	92.1	165.1	187.9	108.3	107.4	122.4	109.2	88.9	74.1	76.1	77.9	1299.0
Monthly Inflow	cfs	1457	1548	2685	3158	1761	1747	2057	1776	1494	1205	1238	1354	
Turbine Release	kaf	87.9	85.6	99.1	106.9	115.6	114.7	103.9	87.9	114.8	118.7	118.7	111.0	1264.8
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	87.9	85.6	99.1	106.9	115.6	114.7	103.9	87.9	114.8	118.7	118.7	111.0	1264.8
Total Release	cfs	1430	1439	1612	1797	1880	1865	1746	1430	1929	1930	1930	1930	
Spring Flow	kaf	4.3	4.2	4.3	4.2	4.3	4.3	4.2	4.3	4.2	4.3	4.3	4.0	50.9
Irrigation Reqmnt	kaf	0.0	0.5	11.2	21.8	27.7	26.8	18.8	0.0	0.0	0.0	0.0	0.0	106.8
Afterbay Rels	kaf	92.2	89.8	103.4	111.1	119.9	119.0	108.1	92.2	119.0	123.0	123.0	115.0	1315.7
Afterbay Rels	cfs	1499	1509	1682	1867	1950	1935	1817	1499	2000	2000	2000	1999	
River Release	kaf	92.2	89.3	92.2	89.3	92.2	92.2	89.3	92.2	119.0	123.0	123.0	115.0	1208.9
River Release	cfs	1499	1501	1499	1501	1499	1499	1501	1499	2000	2000	2000	1999	
Min Release	kaf	92.2	89.3	92.2	89.3	92.2	92.2	89.3	92.2	119.0	123.0	123.0	115.0	1208.9
End-Month Targets	kaf					1070.0								
End-Month Content	kaf	787.0	793.5	859.5	940.5	933.2	925.9	944.4	965.7	939.8	895.2	852.6	819.5	
End-Month Elevation	ft	3607.38	3608.44	3618.14	3627.97	3627.17	3626.35	3628.40	3630.63	3627.90	3622.72	3617.21	3612.50	
Net Change Content	kaf	1.7	6.5	66.0	81.0	-7.3	-7.3	18.5	21.3	-25.9	-44.6	-42.6	-33.1	34.2
Yellowtail Power	2007	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Total
Turbine Release	kaf	87.9	85.6	99.1	106.9	115.6	114.7	103.9	87.9	114.8	118.7	118.7	111.0	1264.8
Generation	gwh	32.730	31.925	37.482	41.524	45.470	45.006	40.845	34.783	45.394	46.386	45.685	42.134	489.364
End-Month Power Cap	mw	256.7	257.6	266.5	275.7	274.9	274.2	276.1	278.2	275.6	270.8	265.6	261.3	
% Max Gen		15	15	17	20	21	21	20	16	22	22	21	21	
Ave kwh/af		372	373	378	388	393	392	393	396	395	391	385	380	387
Upstream Generation	gwh	5.514	10.806	24.326	24.628	26.341	23.620	18.876	8.134	4.031	4.203	4.220	3.957	158.656
Total Generation	gwh	38.244	42.731	61.808	66.152	71.811	68.626	59.721	42.917	49.425	50.589	49.905	46.091	648.020

BHXAOP V1.12 Run: 08-Mar-2007 09:15  
 Based on Maximum Probable Inflow Forecast

BIGHORN LAKE MONTHLY OPERATIONS

Bighorn Reservoir		Initial Cont 785.3 kaf Elev 3607.09 ft				Maximum Cont 1328.4 kaf Elev 3657.00 ft				Minimum Cont 493.6 kaf Elev 3547.00 ft				Total
	2007	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	
Boysen Release	kaf	30.8	50.6	70.7	88.2	91.1	91.1	71.9	70.8	68.5	70.7	70.8	66.2	841.4
Boysen Release	cfs	501	850	1150	1482	1482	1482	1208	1151	1151	1150	1151	1151	
Buffalo Bill Riv Flo	kaf	12.3	42.8	84.3	116.0	105.3	78.0	75.5	24.9	20.8	21.5	21.5	20.1	623.0
Buffalo Bill Riv Flo	cfs	200	719	1371	1949	1713	1269	1269	405	350	350	350	349	
Station Gain	kaf	85.7	58.7	120.8	234.9	43.5	16.1	59.4	87.8	71.8	53.5	52.4	66.7	951.3
Monthly Inflow	kaf	128.8	152.1	275.8	439.1	239.9	185.2	206.8	183.5	161.1	145.7	144.7	153.0	2415.7
Monthly Inflow	cfs	2095	2556	4485	7379	3902	3012	3475	2984	2707	2370	2353	2660	
Turbine Release	kaf	87.9	115.3	223.9	300.5	223.4	222.4	208.2	156.2	174.3	180.2	180.2	168.6	2241.1
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	87.9	115.3	223.9	300.5	223.4	222.4	208.2	156.2	174.3	180.2	180.2	168.6	2241.1
Total Release	cfs	1430	1938	3641	5050	3633	3617	3499	2540	2929	2931	2931	2931	
Spring Flow	kaf	4.3	4.2	4.3	4.2	4.3	4.3	4.2	4.3	4.2	4.3	4.3	4.0	50.9
Irrigation Reqmnt	kaf	0.0	0.5	11.2	21.8	27.7	26.8	18.8	0.0	0.0	0.0	0.0	0.0	106.8
Afterbay Rels	kaf	92.2	119.5	228.2	304.7	227.7	226.7	212.4	160.5	178.5	184.5	184.5	172.6	2292.0
Afterbay Rels	cfs	1499	2008	3711	5121	3703	3687	3570	2610	3000	3001	3001	3001	
River Release	kaf	92.2	119.0	217.0	282.9	200.0	199.9	193.6	160.5	178.5	184.5	184.5	172.6	2185.2
River Release	cfs	1499	2000	3529	4754	3253	3251	3254	2610	3000	3001	3001	3001	
Min Release	kaf	92.2	119.0	153.7	148.8	153.7	153.7	148.8	160.5	148.8	153.7	184.5	172.6	1790.0
End-Month Targets	kaf					1070.0								
End-Month Content	kaf	826.2	863.0	914.9	1053.5	1070.0	1032.8	1031.4	1058.7	1045.5	1011.0	975.5	959.9	
End-Month Elevation	ft	3613.49	3618.61	3625.09	3638.66	3640.00	3636.92	3636.80	3639.09	3638.00	3635.00	3631.62	3630.04	
Net Change Content	kaf	40.9	36.8	51.9	138.6	16.5	-37.2	-1.4	27.3	-13.2	-34.5	-35.5	-15.6	174.6
Yellowtail Power	2007	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Total
Turbine Release	kaf	87.9	115.3	223.9	300.5	223.4	222.4	208.2	156.2	174.3	180.2	180.2	168.6	2241.1
Generation	gwh	32.983	43.906	86.635	120.035	91.379	90.691	84.410	63.575	71.092	72.973	72.187	66.992	896.858
End-Month Power Cap	mw	262.2	266.9	273.0	286.2	287.5	284.4	284.3	286.6	285.5	282.5	279.2	277.7	
% Max Gen		15	21	40	58	43	42	41	30	34	34	34	33	
Ave kwh/af		375	381	387	399	409	408	405	407	408	405	401	397	400
Upstream Generation	gwh	5.531	16.794	28.463	29.903	31.587	31.656	29.047	14.226	11.749	12.061	11.958	11.087	234.062
Total Generation	gwh	38.514	60.700	115.098	149.938	122.966	122.347	113.457	77.801	82.841	85.034	84.145	78.079	1130.920

# BIGHORN LAKE



WATER YEAR 2007