

RECLAMATION

Managing Water in the West

January 7, 2011

Dear Customer:

Attached are the monthly water supply outlook and projected reservoir and river operating plans as prepared in January. Mountain snowpack conditions in the Bighorn Basin on January 1 are 100 percent of average. Based on current hydrologic and climatic conditions and the planned releases out of Boysen and Buffalo Bill Reservoirs, the April-July runoff into Bighorn Lake is estimated to be about 1,127,600 acre-feet (101% 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
 January 1, 2011

Present Elevations & Storages:

<u>Reservoir</u>	<u>Elevation</u>	<u>Storage</u>	<u>Percent of Normal</u>
Boysen	4718.28	618,608	108
Buffalo Bill	5367.77	452,334	108
Bighorn Lake	3624.17	907,140	98

Actual Inflows (1,000 Acre-Feet):

<u>Month</u>	<u>Inflow</u>	<u>Percent of Normal</u>
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
September	119.6	70
April-July, 2010	1,504.4	135
WY-2010 Total	2,573.5	109
October	122.2	67
November	122.6	80
December	122.7	89

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

<u>Month</u>	<u>Gains</u>	<u>Percent of Normal</u>
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	---
September	-9.7	---
April-July, 2010	254.2	163
WY-2010 Total	513.9	107
October	28.7	40
November	54.2	89
December	52.1	121

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

<u>Agency</u>	<u>Inflows</u>	<u>Percent of Normal</u>
USBR	1,127.6	101

Snowpack Conditions:

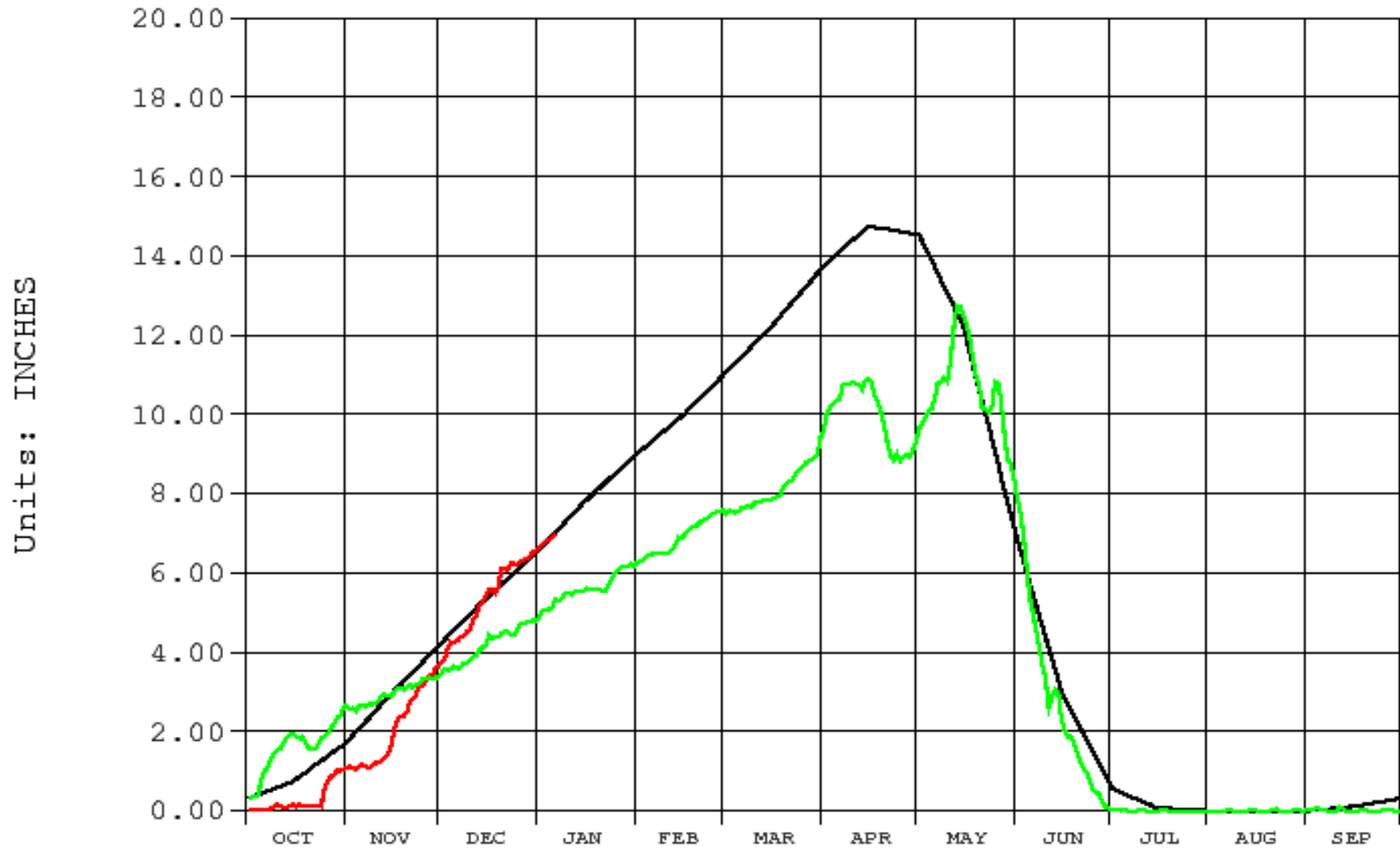
S N O W - P R E C I P I T A T I O N U P D A T E
 Based on Mountain Data from NRCS SNOTEL Sites
 As of SATURDAY: JANUARY 1 , 2011

<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	12.2	11.5	106	11.8	10.0	118
BOX CANYON	6670	5.4	4.5	120	7.8	6.2	126
BRACKETT CREEK	7320	11.0	8.9	124	15.2	11.5	132

BURNT MTN	5880	2.9	2.7	107	5.5	7.4	74
CANYON	7870	8.6	6.1	141	9.7	7.8	124
COLE CREEK	7850	5.2	7.5	69	4.9	8.1	60
EAST BOULDER MINE	6335	3.4	-M	*	7.2	-M	*
EVENING STAR	9200	15.8	13.7	115	17.0	13.0	131
FISHER CREEK	9100	18.5	16.3	113	18.2	17.1	106
MONUMENT PEAK	8850	12.1	9.9	122	13.2	10.6	125
NORTHEAST ENTRANCE	7350	6.0	5.0	120	7.8	6.4	122
PARKER PEAK	9400	13.7	10.6	129	13.9	8.2	170
PLACER BASIN	8830	10.2	8.7	117	11.0	9.6	115
PORCUPINE	6500	3.4	2.9	117	8.0	5.9	136
SACAJAWEA	6550	7.0	5.1	137	14.4	10.4	138
SHOWER FALLS	8100	10.9	10.1	108	13.2	11.5	115
S FORK SHIELDS	8100	7.5	7.5	100	12.5	9.5	132
SYLVAN LAKE	8420	11.7	10.5	111	14.7	11.0	134
SYLVAN ROAD	7120	8.0	6.2	129	10.9	10.1	108
THUMB DIVIDE	7980	11.6	7.6	153	12.1	9.1	133
TWO OCEAN PLATEAU	9240	18.9	13.5	140	14.9	13.5	110
WHITE MILL	8700	13.1	11.1	118	13.8	12.8	108
WOLVERINE	7650	7.6	5.8	131	7.1	7.0	101
YOUNTS PEAK	8350	9.2	7.9	116	8.2	8.2	100
Basin wide percent of average				119			118
WIND RIVER BASIN (WYOMING)							
BURROUGHS CREEK	8750	7.7	6.7	115	8.0	8.0	100
CASTLE CREEK	8400	3.5	-M	*	3.9	-M	*
COLD SPRINGS	9630	4.7	4.6	102	4.8	5.7	84
DEER PARK	9700	12.6	6.7	188	13.4	10.9	123
HOBBS PARK	10100	8.4	7.6	111	7.3	6.4	114
KIRWIN	9550	6.7	5.9	114	7.0	5.9	119
LITTLE WARM	9370	6.5	5.3	123	6.4	6.7	96
OWL CREEK	8975	2.3	2.7	85	2.5	2.9	86
SOUTH PASS	9040	9.9	8.2	121	8.9	9.2	97
ST. LAWRENCE ALT	8620	2.9	3.8	76	4.1	4.6	89
TOGWOTEE PASS	9580	14.8	11.7	126	16.0	12.0	133
TOWNSEND CREEK	8700	4.4	4.4	100	6.5	6.0	108
YOUNTS PEAK	8350	9.2	7.9	116	8.2	8.2	100
Basin wide percent of average				119			108
SHOSHONE RIVER BASIN (WYOMING)							
BLACKWATER	9780	13.9	12.0	116	12.9	10.8	119
EVENING STAR	9200	15.8	13.7	115	17.0	13.0	131
MARQUETTE	8760	1.6	5.0	32	3.4	5.3	64
SYLVAN LAKE	8420	11.7	10.5	111	14.7	11.0	134
SYLVAN ROAD	7120	8.0	6.2	129	10.9	10.1	108
YOUNTS PEAK	8350	9.2	7.9	116	8.2	8.2	100
Basin wide percent of average				109			115
BIGHORN RIVER BASIN (WYOMING)							
BALD MTN.	9380	10.1	9.7	104	9.0	8.5	106
BEAR TRAP MEADOW	8200	3.3	2.6	127	4.1	4.5	91
BLACKWATER	9780	13.9	12.0	116	12.9	10.8	119
BONE SPRINGS DIV	9350	7.9	7.8	101	7.1	7.3	97
EVENING STAR	9200	15.8	13.7	115	17.0	13.0	131
GRAVE SPRINGS	8550	3.5	4.0	88	4.2	4.9	86
KIRWIN	9550	6.7	5.9	114	7.0	5.9	119
MARQUETTE	8760	1.6	5.0	32	3.4	5.3	64
MIDDLE POWDER	7760	5.0	5.5	91	3.2	6.8	47
OWL CREEK	8975	2.3	2.7	85	2.5	2.9	86
POWDER RIVER PASS	9480	6.4	5.3	121	7.0	6.0	117
SHELL CREEK	9580	7.2	7.3	99	6.3	6.7	94
SYLVAN LAKE	8420	11.7	10.5	111	14.7	11.0	134
SYLVAN ROAD	7120	8.0	6.2	129	10.9	10.1	108
TIMBER CREEK	7950	2.0	3.0	67	2.5	3.7	68
YOUNTS PEAK	8350	9.2	7.9	116	8.2	8.2	100
Basin wide percent of average				105			104

Archive Data From 1-OCT Through 30-SEP
Plotted 01/06/2011 09:52



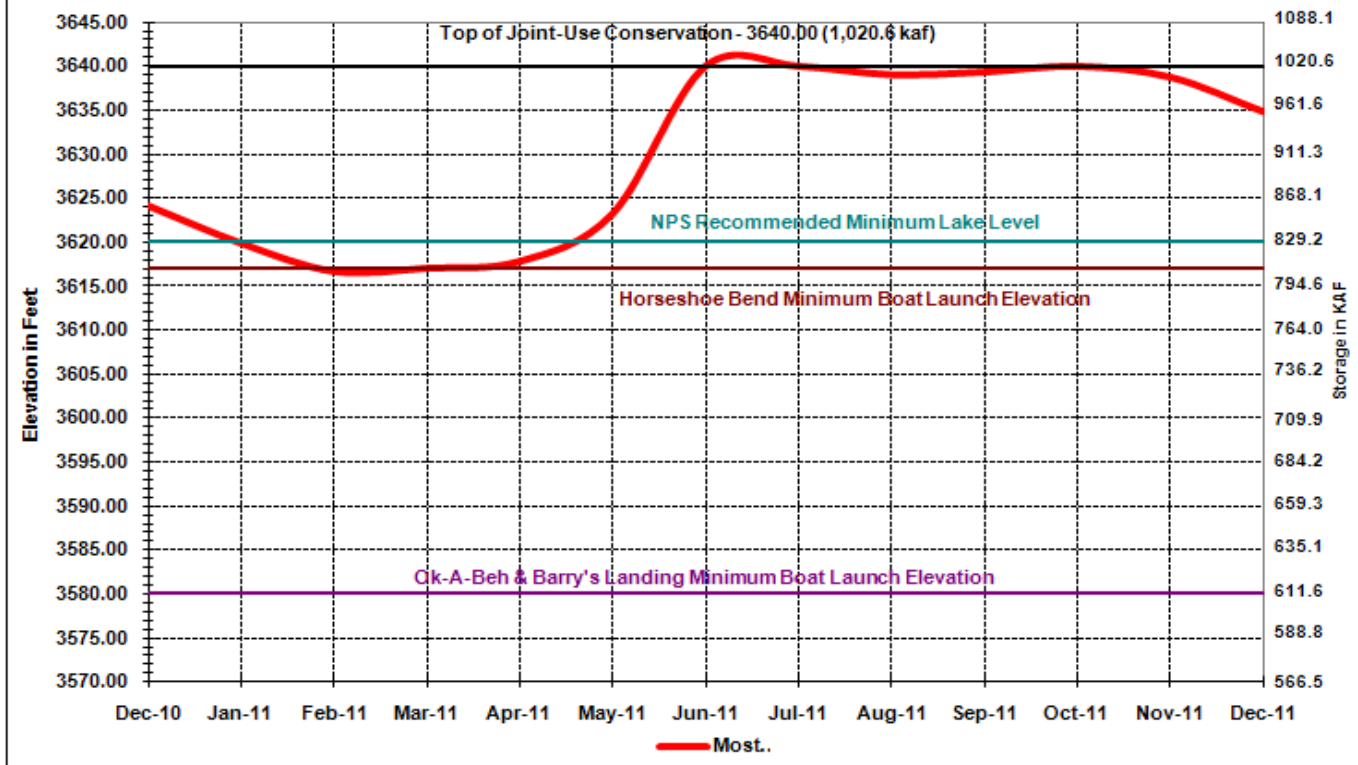
BHR Bighorn Lake (Yellowtail), Bighorn River near Fort Smith, MT
— SE_AVG Snow Water Equivalent Average (inches) 2011
— SE Snow Water Equivalent (inches) 2011 2010

BIGHORN LAKE MONTHLY OPERATIONS

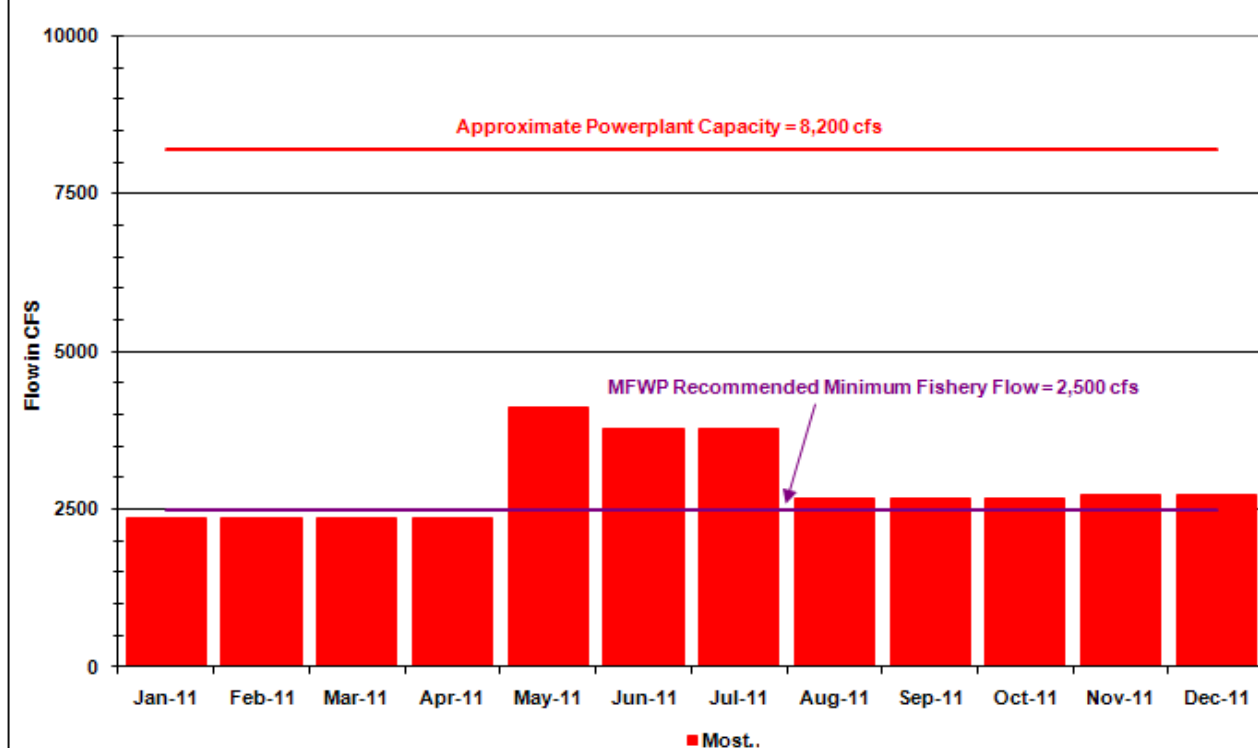
Bighorn Reservoir		Initial Cont Elev 861.4 kaf 3624.17 ft				Maximum Cont Elev 1278.9 kaf 3657.00 ft				Minimum Cont Elev 469.9 kaf 3547.00 ft				Total
	2011	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Boysen Release	kaf	49.2	44.5	56.2	75.7	142.1	133.0	123.0	96.9	59.5	58.4	56.5	58.4	953.4
Boysen Release	cfs	800	801	914	1272	2311	2235	2000	1576	1000	950	950	950	
Buffalo Bill Riv Flo	kaf	21.8	19.7	21.8	31.7	121.9	187.7	184.5	122.2	98.8	40.1	31.1	21.8	903.1
Buffalo Bill Riv Flo	cfs	355	355	355	533	1983	3154	3001	1987	1660	652	523	355	
Station Gain	kaf	37.6	40.9	65.8	35.4	50.6	93.5	-51.5	-44.8	18.3	68.8	54.7	37.3	406.6
Monthly Inflow	kaf	108.6	105.1	143.8	142.8	314.6	414.2	256.0	174.3	176.6	167.3	142.3	117.5	2263.1
Monthly Inflow	cfs	1766	1892	2339	2400	5116	6961	4163	2835	2968	2721	2391	1911	
Turbine Release	kaf	141.4	127.7	141.4	137.4	274.2	247.8	256.0	186.1	172.9	159.2	157.5	162.8	2164.4
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	141.4	127.7	141.4	137.4	274.2	247.8	256.0	186.1	172.9	159.2	157.5	162.8	2164.4
Total Release	cfs	2300	2299	2300	2309	4459	4164	4163	3027	2906	2589	2647	2648	
Spring Flow	kaf	4.3	3.9	4.3	4.2	4.3	4.2	4.3	4.3	4.2	4.3	4.2	4.3	50.8
Irrigation Reqmnt	kaf	0.0	0.0	0.0	0.6	24.6	26.8	27.7	26.8	18.8	0.0	0.0	0.0	125.3
Afterbay Rels	kaf	145.7	131.6	145.7	141.6	278.5	252.0	260.3	190.4	177.1	163.5	161.7	167.1	2215.2
Afterbay Rels	cfs	2370	2370	2370	2380	4529	4235	4233	3097	2976	2659	2717	2718	
River Release	kaf	145.7	131.6	145.7	141.0	253.9	225.2	232.6	163.6	158.3	163.5	161.7	167.1	2089.9
River Release	cfs	2370	2370	2370	2370	4129	3785	3783	2661	2660	2659	2717	2718	
Min Release	kaf	145.7	131.6	145.7	141.0	153.7	148.8	153.7	153.7	148.8	153.7	148.8	153.7	1778.9
End-Month Targets	kaf			814.8			1020.6	1020.6			1020.6			
End-Month Content	kaf	828.6	806.0	808.4	813.8	854.2	1020.6	1020.6	1008.8	1012.5	1020.6	1005.4	960.1	
End-Month Elevation	ft	3619.91	3616.72	3617.07	3617.85	3623.27	3640.00	3640.00	3639.05	3639.35	3640.00	3638.77	3634.86	
Net Change Content	kaf	-32.8	-22.6	2.4	5.4	40.4	166.4	0.0	-11.8	3.7	8.1	-15.2	-45.3	98.7
Yellowtail Power	2011	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Turbine Release	kaf	141.4	127.7	141.4	137.4	274.2	247.8	256.0	186.1	172.9	159.2	157.5	162.8	2164.4
Generation	gwh	53.852	48.131	53.087	51.663	104.003	97.487	103.427	75.050	69.640	64.239	63.483	65.001	849.063
End-Month Power Cap	mw	262.5	259.4	259.7	260.5	265.8	283.4	283.4	282.3	282.6	283.4	282.0	277.7	
% Max Gen		25	25	25	25	49	47	48	35	34	30	31	30	
Ave kwh/af		381	377	375	376	379	393	404	403	403	404	403	399	392
Upstream Generation	gwh	9.969	8.417	10.487	13.781	34.577	33.859	34.394	32.064	25.839	15.284	13.489	10.963	243.123
Total Generation	gwh	63.821	56.548	63.574	65.444	138.580	131.346	137.821	107.114	95.479	79.523	76.972	75.964	1092.186

BIGHORN LAKE

BIGHORN LAKE ELEVATION



BIGHORN RIVER FLOW BELOW AFTERBAY



WATER YEAR 2011

Supplemental Information

BHXAOP V1.12 Run: 07-Jan-2011 10:41
 Based on Minimum Probable Inflow Forecast

BIGHORN LAKE MONTHLY OPERATIONS

Bighorn Reservoir		Initial Cont 861.4 kaf Elev 3624.17 ft				Maximum Cont 1278.9 kaf Elev 3657.00 ft				Minimum Cont 469.9 kaf Elev 3547.00 ft				Total
2011		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Boysen Release	kaf	49.2	44.4	56.2	47.6	67.6	69.9	76.9	69.2	59.5	46.1	44.6	46.1	677.3
Boysen Release	cfs	800	799	914	800	1099	1175	1251	1125	1000	750	750	750	
Buffalo Bill Riv Flo	kaf	21.8	19.7	21.8	31.7	121.0	137.0	118.7	104.3	82.3	29.1	12.2	12.6	712.2
Buffalo Bill Riv Flo	cfs	355	355	355	533	1968	2302	1930	1696	1383	473	205	205	
Station Gain	kaf	32.2	35.5	60.2	21.4	21.6	16.5	-60.2	-41.9	6.5	50.9	50.6	34.6	227.9
Monthly Inflow	kaf	103.2	99.6	138.2	100.7	210.2	223.4	135.4	131.6	148.3	126.1	107.4	93.3	1617.4
Monthly Inflow	cfs	1678	1793	2248	1692	3419	3754	2202	2140	2492	2051	1805	1517	
Turbine Release	kaf	141.4	127.7	118.7	100.5	143.3	141.6	146.4	145.5	133.6	118.7	135.9	140.4	1593.7
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	141.4	127.7	118.7	100.5	143.3	141.6	146.4	145.5	133.6	118.7	135.9	140.4	1593.7
Total Release	cfs	2300	2299	1930	1689	2331	2380	2381	2366	2245	1930	2284	2283	
Spring Flow	kaf	4.3	3.9	4.3	4.2	4.3	4.2	4.3	4.3	4.2	4.3	4.2	4.3	50.8
Irrigation Reqmnt	kaf	0.0	0.0	0.0	0.6	24.6	26.8	27.7	26.8	18.8	0.0	0.0	0.0	125.3
Afterbay Rels	kaf	145.7	131.6	123.0	104.7	147.6	145.8	150.7	149.8	137.8	123.0	140.1	144.7	1644.5
Afterbay Rels	cfs	2370	2370	2000	1760	2400	2450	2451	2436	2316	2000	2354	2353	
River Release	kaf	145.7	131.6	123.0	104.1	123.0	119.0	123.0	123.0	119.0	123.0	140.1	144.7	1519.2
River Release	cfs	2370	2370	2000	1749	2000	2000	2000	2000	2000	2000	2354	2353	
Min Release	kaf	145.7	131.6	123.0	104.1	123.0	119.0	123.0	123.0	119.0	123.0	119.0	123.0	1476.4
End-Month Targets	kaf			835.1				1020.6			1020.6			
End-Month Content	kaf	823.2	795.1	814.6	814.8	881.7	963.5	952.5	938.6	953.3	960.7	932.2	885.1	
End-Month Elevation	ft	3619.17	3615.07	3617.96	3617.99	3626.63	3635.17	3634.16	3632.82	3634.23	3634.91	3632.19	3627.03	
Net Change Content	kaf	-38.2	-28.1	19.5	0.2	66.9	81.8	-11.0	-13.9	14.7	7.4	-28.5	-47.1	23.7
Yellowtail Power	2011	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Turbine Release	kaf	141.4	127.7	118.7	100.5	143.3	141.6	146.4	145.5	133.6	118.7	135.9	140.4	1593.7
Generation	gwh	53.799	47.980	44.524	37.841	54.642	55.431	57.988	57.397	52.709	47.001	53.625	54.700	617.637
End-Month Power Cap	mw	261.8	257.8	260.6	260.6	269.2	278.0	276.9	275.5	277.0	277.7	274.8	269.6	
% Max Gen		25	25	21	18	26	27	27	27	25	22	26	26	
Ave kwh/af		380	376	375	377	381	391	396	394	395	396	395	390	388
Upstream Generation	gwh	9.960	8.406	10.435	11.428	28.651	28.611	28.832	25.640	21.518	10.759	6.943	7.178	198.361
Total Generation	gwh	63.759	56.386	54.959	49.269	83.293	84.042	86.820	83.037	74.227	57.760	60.568	61.878	815.998

BHXAOP V1.12 Run: 07-Jan-2011 10:42
 Based on Maximum Probable Inflow Forecast

BIGHORN LAKE MONTHLY OPERATIONS

Bighorn Reservoir		Initial Cont Elev 3624.17 ft				Maximum Cont Elev 3657.00 ft				Minimum Cont Elev 3547.00 ft				Total
2011		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Boysen Release	kaf	49.2	44.5	56.2	74.2	191.0	214.9	210.1	114.5	73.9	64.1	59.5	61.5	1213.6
Boysen Release	cfs	800	801	914	1247	3106	3612	3417	1862	1242	1042	1000	1000	
Buffalo Bill Riv Flo	kaf	21.8	19.7	21.8	31.7	140.2	264.2	236.6	147.4	100.2	41.7	32.7	21.8	1079.8
Buffalo Bill Riv Flo	cfs	355	355	355	533	2280	4440	3848	2397	1684	678	550	355	
Station Gain	kaf	42.0	45.8	73.1	41.5	92.3	185.9	-14.7	-34.6	31.7	75.8	58.8	41.9	639.5
Monthly Inflow	kaf	113.0	110.0	151.1	147.4	423.5	665.0	432.0	227.3	205.8	181.6	151.0	125.2	2932.9
Monthly Inflow	cfs	1838	1981	2457	2477	6888	11176	7026	3697	3459	2953	2538	2036	
Turbine Release	kaf	141.4	127.7	141.4	195.6	423.7	421.0	432.0	236.8	207.0	170.9	165.2	170.7	2833.4
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	141.4	127.7	141.4	195.6	423.7	421.0	432.0	236.8	207.0	170.9	165.2	170.7	2833.4
Total Release	cfs	2300	2299	2300	3287	6891	7075	7026	3851	3479	2779	2776	2776	
Spring Flow	kaf	4.3	3.9	4.3	4.2	4.3	4.2	4.3	4.3	4.2	4.3	4.2	4.3	50.8
Irrigation Reqmnt	kaf	0.0	0.0	0.0	0.5	11.2	21.8	27.7	26.8	11.9	0.0	0.0	0.0	99.9
Afterbay Rels	kaf	145.7	131.6	145.7	199.8	428.0	425.2	436.3	241.1	211.2	175.2	169.4	175.0	2884.2
Afterbay Rels	cfs	2370	2370	2370	3358	6961	7146	7096	3921	3549	2849	2847	2846	
River Release	kaf	145.7	131.6	145.7	199.3	416.8	403.4	408.6	214.3	199.3	175.2	169.4	175.0	2784.3
River Release	cfs	2370	2370	2370	3349	6779	6779	6645	3485	3349	2849	2847	2846	
Min Release	kaf	145.7	131.6	145.7	148.8	153.7	148.8	153.7	153.7	148.8	153.7	148.8	153.7	1786.7
End-Month Targets	kaf			850.0			1020.6	1020.6			1020.6			
End-Month Content	kaf	833.0	815.3	825.0	776.8	776.6	1020.6	1020.6	1011.1	1009.9	1020.6	1006.4	960.9	
End-Month Elevation	ft	3620.51	3618.06	3619.42	3612.16	3612.13	3640.00	3640.00	3639.24	3639.14	3640.00	3638.86	3634.93	
Net Change Content	kaf	-28.4	-17.7	9.7	-48.2	-0.2	244.0	0.0	-9.5	-1.2	10.7	-14.2	-45.5	99.5
Yellowtail Power	2011	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Turbine Release	kaf	141.4	127.7	141.4	195.6	423.7	421.0	432.0	236.8	207.0	170.9	165.2	170.7	2833.4
Generation	gwh	53.896	48.256	53.352	73.256	157.170	163.452	174.533	95.531	83.371	68.932	66.597	68.174	1106.520
End-Month Power Cap	mw	263.1	260.7	262.0	255.1	255.1	283.4	283.4	282.5	282.4	283.4	282.1	277.8	
% Max Gen		25	25	25	35	73	79	81	45	40	32	32	32	
Ave kwh/af		381	378	377	375	371	388	404	403	403	403	403	399	391
Upstream Generation	gwh	9.976	8.459	10.538	13.761	34.384	33.903	35.245	33.633	27.378	16.244	14.231	11.257	249.009
Total Generation	gwh	63.872	56.715	63.890	87.017	191.554	197.355	209.778	129.164	110.749	85.176	80.828	79.431	1355.529