



IN REPLY REFER TO:

## United States Department of the Interior

BUREAU OF RECLAMATION

Great Plains Region

Montana Area Office

P.O. Box 30137

Billings, Montana 59107-0137

April 8, 2008



Dear Interested Party:

Thank you to those who attended our March meeting in Lovell, Wyoming, and particularly those who provided comments regarding our proposed Yellowtail Dam and Bighorn Lake spring/summer 2008 operating plan. Your feedback is always welcome as it helps us do a better job of meeting the various demands on Yellowtail.

We have experienced relatively cool weather and the mountain snowpack within the Bighorn Basin has continued to increase since our meeting in March. Our mountain snowpack is now approximately 104% of average (as compared to approximately 74% at this time last year), and our April-July runoff forecast is 820,000 acre-feet (as compared to 727,000 acre-feet last year). However, due to the cool weather so far this spring, we have yet to see inflows to Yellowtail increase and the reservoir continues to draft. We anticipate this trend to continue into late April or early May, and we are not planning to change releases (currently 1900 cfs) until we see a significant increase in inflows to avoid over-drafting the reservoir (such as happened in 2006).

Under the most probable runoff conditions, we expect to have a relatively full reservoir pool through the summer while providing improved river releases compared to last year. However, due to the uncertainties involved in trying to predict the weather, we will continue to monitor conditions very closely and will make adjustments, as necessary, depending on the actual inflows to Yellowtail. Updates to the operations plan can be accessed through our Web site at [www.usbr.gov/gp/mtao](http://www.usbr.gov/gp/mtao).

We remain committed to continue exploring opportunities for enhancing benefits for all Yellowtail beneficiaries through collaborative efforts with interested parties and stakeholders from both Montana and Wyoming. Please feel free to provide us with additional information and comments as this operational season progresses.

Sincerely,

Dan Jewell  
Area Manager

# RECLAMATION

## *Managing Water in the West*

April 1, 2008

Dear Customer:

Attached are the monthly water supply outlook and projected reservoir and river operating plans as prepared in April 2008. Storage in Bighorn Lake at the beginning of April was 4.3 feet higher than on April 1, 2007. Inflow to Bighorn Lake during March was 51 percent of average, making it the 4<sup>th</sup> lowest of record for March. The April-July inflow to Bighorn Lake is forecast at 820,000 acre-feet or about 74 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  
 April 1, 2008

**Present Elevations & Storages:**

| <u>Reservoir</u> | <u>Elevation</u> | <u>Storage</u> | <u>Percent of Normal</u> |
|------------------|------------------|----------------|--------------------------|
| Boysen           | 4706.62          | 447,660        | ---                      |
| Buffalo Bill     | 5368.29          | 455,220        | ---                      |
| Bighorn Lake     | 3613.47          | 826,042        | 99                       |

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

| <u>Month</u>            | <u>Inflow</u>  | <u>Percent of Normal</u> |
|-------------------------|----------------|--------------------------|
| <i>April-July, 2007</i> | <i>614.1</i>   | <i>51</i>                |
| <i>WY-2007 Total</i>    | <i>1,364.2</i> | <i>54</i>                |
| October                 | 138.7          | 76                       |
| November                | 95.8           | 63                       |
| December                | 66.3           | 48                       |
| January                 | 66.3           | 50                       |
| February                | 68.0           | 50                       |
| March                   | 86.1           | 51                       |

**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, 2007</i> | <i>188.2</i> | <i>60</i>                |
| <i>WY-2007 Total</i>    | <i>462.0</i> | <i>64</i>                |
| October                 | 92.9         | 118                      |
| November                | 63.2         | 98                       |
| December                | 32.3         | 71                       |
| January                 | 32.2         | 69                       |
| February                | 36.0         | 63                       |
| March                   | 52.2         | 68                       |

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

| <u>Agency</u> | <u>Gains</u>   | <u>Percent of Normal</u> |
|---------------|----------------|--------------------------|
| <b>USBR</b>   | <b>245</b>     | <b>85</b>                |
|               | <u>Inflows</u> |                          |
| <b>USBR</b>   | <b>820</b>     | <b>74</b>                |

**Snowpack Conditions:**

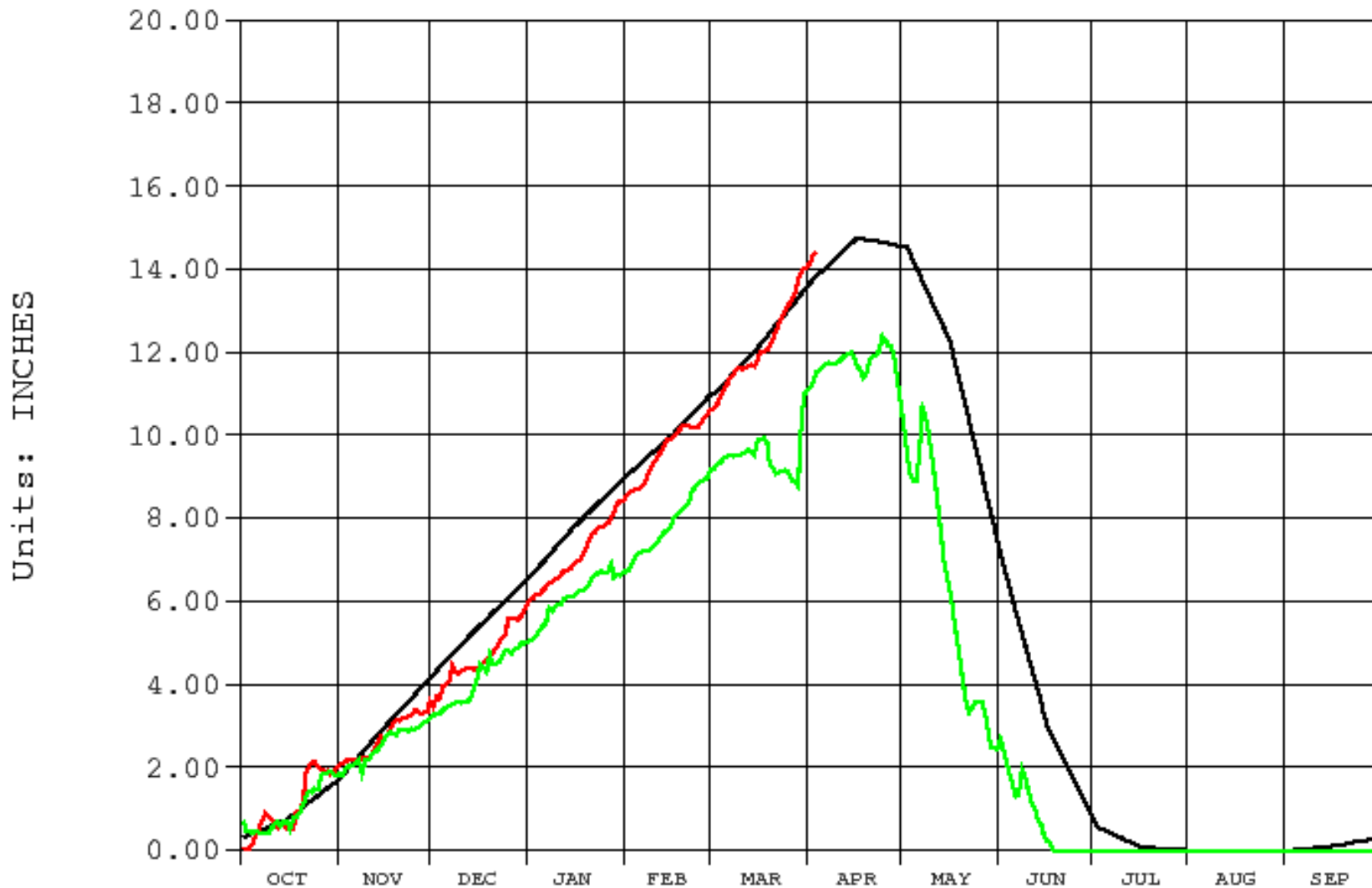
S N O W - P R E C I P I T A T I O N U P D A T E  
 Based on Mountain Data from NRCS SNOTEL Sites  
 As of TUESDAY: April 1, 2008

| <u>BASIN</u><br>Data Site Name | <u>ELEV.</u><br>(Ft) | <u>SNOW WATER EQUIVALENT</u> |         |       | <u>TOTAL PRECIPITATION</u> |         |       |
|--------------------------------|----------------------|------------------------------|---------|-------|----------------------------|---------|-------|
|                                |                      | Current                      | Average | Avg % | Current                    | Average | Avg % |
| -----                          |                      |                              |         |       |                            |         |       |
| UPPER YELLOWSTONE RIVER BASIN  |                      |                              |         |       |                            |         |       |
| BEARTOOTH LAKE                 | 9360                 | 26.0                         | 23.6    | 110   | 24.7                       | 20.3    | 122   |
| BOX CANYON                     | 6670                 | 11.5                         | 10.4    | 111   | 14.6                       | 12.5    | 117   |
| BRACKETT CREEK                 | 7320                 | 21.1                         | 21.5    | 98    | 26.4                       | 25.2    | 105   |
| BURNT MTN CANYON               | 5880                 | 5.6                          | 6.2     | 90    | 10.1                       | 15.4    | 66    |
| CANYON                         | 7870                 | 18.3                         | 13.9    | 132   | 21.4                       | 15.6    | 137   |
| COLE CREEK                     | 7850                 | 10.8                         | 16.4    | 66    | 10.1                       | 16.7    | 60    |
| EVENING STAR                   | 9200                 | 31.1                         | 30.1    | 103   | 34.2                       | 25.5    | 134   |
| FISHER CREEK                   | 9100                 | 42.6                         | 35.4    | 120   | 38.6                       | 36.8    | 105   |
| MONUMENT PEAK                  | 8850                 | 24.2                         | 21.0    | 115   | 22.3                       | 21.3    | 105   |
| NORTHEAST ENTRANCE             | 7350                 | 11.0                         | 11.3    | 97    | 14.1                       | 12.8    | 110   |

|                                |       |      |      |     |      |      |     |
|--------------------------------|-------|------|------|-----|------|------|-----|
| PARKER PEAK                    | 9400  | 27.4 | 21.9 | 125 | 25.0 | 16.4 | 152 |
| PLACER BASIN                   | 8830  | 18.7 | 17.8 | 105 | 19.5 | 19.1 | 102 |
| PORCUPINE                      | 6500  | 6.7  | 6.9  | 97  | 10.1 | 11.9 | 85  |
| SACAJAWEA                      | 6550  | 15.6 | 14.8 | 105 | 24.4 | 22.7 | 107 |
| SHOWER FALLS                   | 8100  | 25.5 | 22.7 | 112 | 28.4 | 24.6 | 115 |
| S FORK SHIELDS                 | 8100  | 14.6 | 17.7 | 82  | 19.0 | 20.3 | 94  |
| SYLVAN LAKE                    | 8420  | 22.2 | 22.8 | 97  | 26.7 | 21.1 | 127 |
| SYLVAN ROAD                    | 7120  | 13.6 | 12.9 | 105 | 22.1 | 17.8 | 124 |
| THUMB DIVIDE                   | 7980  | 19.4 | 19.2 | 101 | 21.3 | 19.1 | 112 |
| TWO OCEAN PLATEAU              | 9240  | 38.1 | 28.4 | 134 | 32.3 | 28.0 | 115 |
| WHITE MILL                     | 8700  | 28.8 | 24.6 | 117 | 27.8 | 27.3 | 102 |
| WOLVERINE                      | 7650  | 11.7 | 11.6 | 101 | 14.6 | 12.9 | 113 |
| YOUNTS PEAK                    | 8350  | 17.7 | 17.3 | 102 | 18.2 | 16.3 | 112 |
| Basin wide percent of average  |       |      |      | 108 |      |      | 110 |
| WIND RIVER BASIN (WYOMING)     |       |      |      |     |      |      |     |
| BURROUGHS CREEK                | 8750  | 16.5 | 14.8 | 111 | 19.3 | 16.4 | 118 |
| COLD SPRINGS                   | 9630  | 7.0  | 9.0  | 78  | 10.2 | 10.7 | 95  |
| DEER PARK                      | 9700  | 15.7 | 17.1 | 92  | 20.2 | 22.1 | 91  |
| HOBBS PARK                     | 10100 | 14.3 | 15.1 | 95  | 14.5 | 12.9 | 112 |
| KIRWIN                         | 9550  | 12.5 | 11.5 | 109 | 14.6 | 11.3 | 129 |
| LITTLE WARM                    | 9370  | 10.4 | 12.0 | 87  | 14.1 | 13.5 | 104 |
| OWL CREEK                      | 8975  | 5.9  | 5.6  | 105 | 7.1  | 5.9  | 120 |
| SOUTH PASS                     | 9040  | 14.9 | 16.7 | 89  | 17.7 | 18.6 | 95  |
| ST. LAWRENCE ALT               | 8620  | 7.0  | 7.4  | 95  | 8.6  | 8.9  | 97  |
| TOGWOTEE PASS                  | 9580  | 28.0 | 25.2 | 111 | 30.1 | 24.9 | 121 |
| TOWNSEND CREEK                 | 8700  | 8.9  | 8.8  | 101 | 12.4 | 11.7 | 106 |
| YOUNTS PEAK                    | 8350  | 17.7 | 17.3 | 102 | 18.2 | 16.3 | 112 |
| Basin wide percent of average  |       |      |      | 99  |      |      | 108 |
| SHOSHONE RIVER BASIN (WYOMING) |       |      |      |     |      |      |     |
| BLACKWATER                     | 9780  | 26.5 | 24.8 | 107 | 24.1 | 20.7 | 116 |
| EVENING STAR                   | 9200  | 31.1 | 30.1 | 103 | 34.2 | 25.5 | 134 |
| MARQUETTE                      | 8760  | 7.2  | 9.0  | 80  | 10.3 | 9.8  | 105 |
| SYLVAN LAKE                    | 8420  | 22.2 | 22.8 | 97  | 26.7 | 21.1 | 127 |
| SYLVAN ROAD                    | 7120  | 13.6 | 12.9 | 105 | 22.1 | 17.8 | 124 |
| YOUNTS PEAK                    | 8350  | 17.7 | 17.3 | 102 | 18.2 | 16.3 | 112 |
| Basin wide percent of average  |       |      |      | 101 |      |      | 122 |
| BIGHORN RIVER BASIN (WYOMING)  |       |      |      |     |      |      |     |
| BALD MTN.                      | 9380  | 17.1 | 19.9 | 86  | 15.5 | 17.5 | 89  |
| BEAR TRAP MEADOW               | 8200  | 9.5  | 5.2  | 183 | 9.6  | 8.3  | 116 |
| BLACKWATER                     | 9780  | 26.5 | 24.8 | 107 | 24.1 | 20.7 | 116 |
| BONE SPRINGS DIV               | 9350  | 17.8 | 16.4 | 109 | 17.8 | 14.7 | 121 |
| EVENING STAR                   | 9200  | 31.1 | 30.1 | 103 | 34.2 | 25.5 | 134 |
| GRAVE SPRINGS                  | 8550  | 10.2 | 9.4  | 109 | 10.8 | 9.7  | 111 |
| KIRWIN                         | 9550  | 12.5 | 11.5 | 109 | 14.6 | 11.3 | 129 |
| MARQUETTE                      | 8760  | 7.2  | 9.0  | 80  | 10.3 | 9.8  | 105 |
| MIDDLE POWDER                  | 7760  | 12.0 | 11.8 | 102 | 9.7  | 12.4 | 78  |
| OWL CREEK                      | 8975  | 5.9  | 5.6  | 105 | 7.1  | 5.9  | 120 |
| POWDER RIVER PASS              | 9480  | 12.7 | 10.9 | 117 | 14.8 | 12.4 | 119 |
| SHELL CREEK                    | 9580  | 16.0 | 14.9 | 107 | 15.4 | 13.4 | 115 |
| SYLVAN LAKE                    | 8420  | 22.2 | 22.8 | 97  | 26.7 | 21.1 | 127 |
| SYLVAN ROAD                    | 7120  | 13.6 | 12.9 | 105 | 22.1 | 17.8 | 124 |
| TIMBER CREEK                   | 7950  | 4.5  | 5.8  | 78  | 8.2  | 7.4  | 111 |
| YOUNTS PEAK                    | 8350  | 17.7 | 17.3 | 102 | 18.2 | 16.3 | 112 |
| Basin wide percent of average  |       |      |      | 104 |      |      | 116 |

Archive Data From 1-OCT Through 30-SEP

Plotted 04/02/2008 13:52



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

SE\_AVG Snow Water Equivalent Average (inches)

2008

SE Snow Water Equivalent (inches)

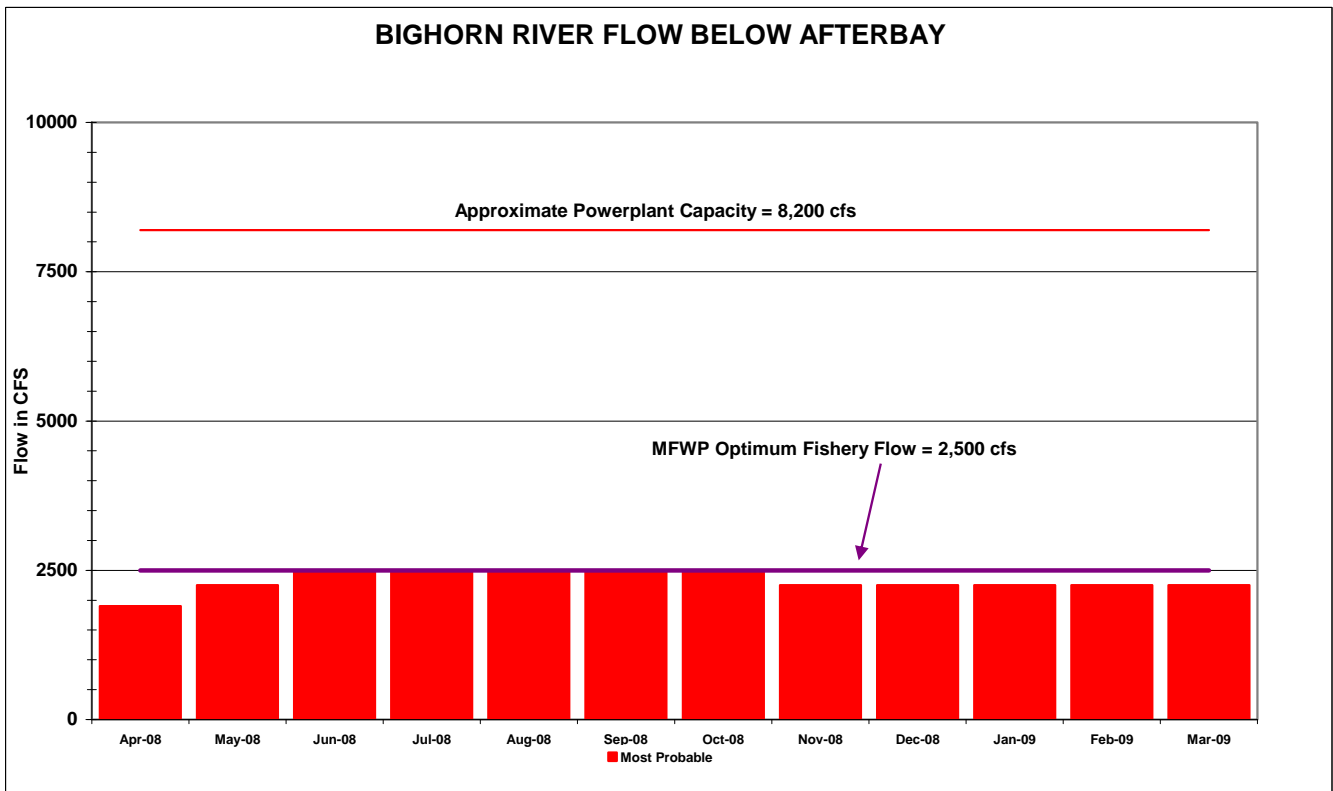
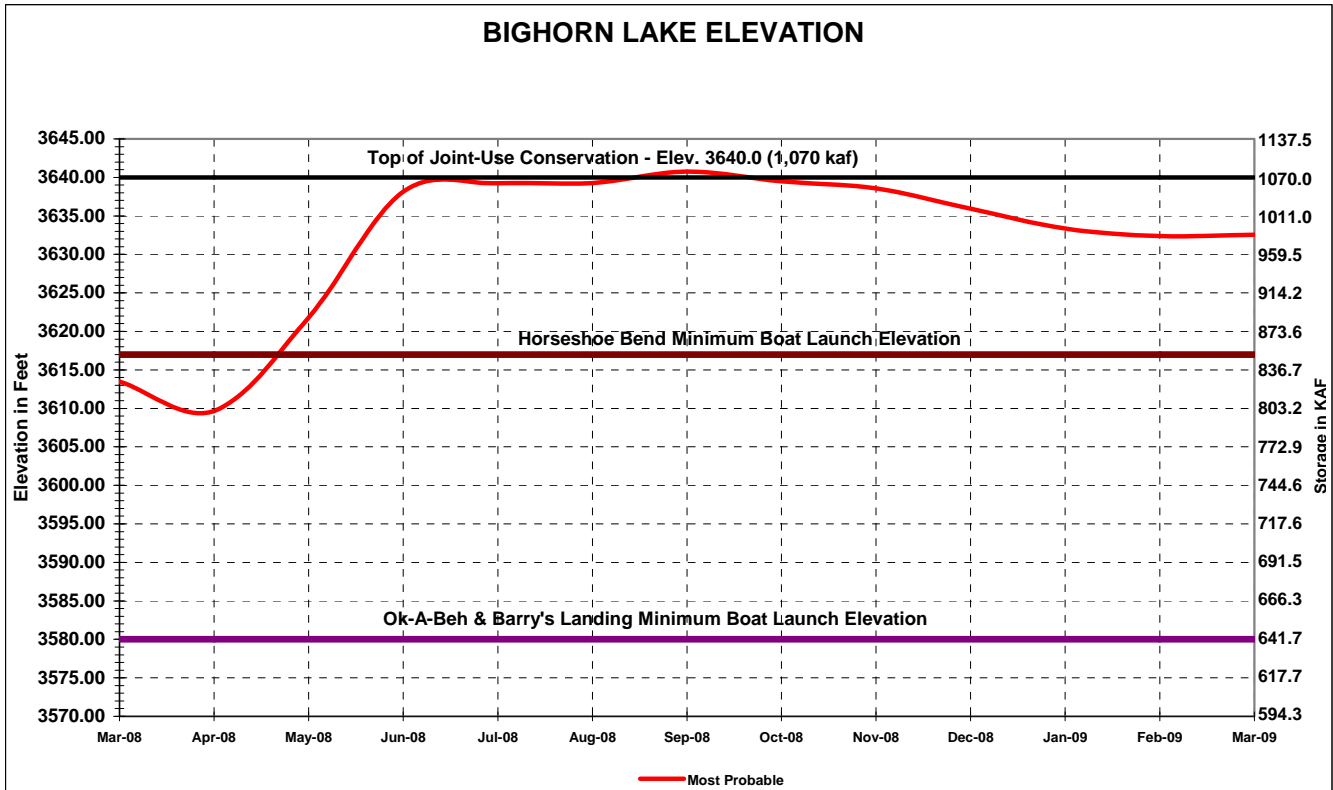
2008 2007

BHXAOP V1.12 Run: 08-Apr-2008 13:45  
 Based on Most Probable Inflow Forecast

BIGHORN LAKE MONTHLY OPERATIONS

| Bighorn Reservoir    |      | Initial Cont 826.0 kaf<br>Elev 3613.46 ft |         |         |         | Maximum Cont 1328.4 kaf<br>Elev 3657.00 ft |         |         |         | Minimum Cont 493.6 kaf<br>Elev 3547.00 ft |         |         |         | Total   |
|----------------------|------|---|---------|---------|---------|--|---------|---------|---------|---|---------|---------|---------|---------|
|                      | 2008 | Apr                                       | May     | Jun     | Jul     | Aug  | Sep     | Oct     | Nov     | Dec                                       | Jan     | Feb     | Mar     |         |
| Boysen Release       | kaf  | 32.7                                      | 67.6    | 69.9    | 76.9    | 69.2                                       | 59.5    | 36.9    | 35.7    | 36.9                                      | 37.0    | 33.4    | 36.9    | 592.6   |
| Boysen Release       | cfs  | 550                                       | 1099    | 1175    | 1251    | 1125                                       | 1000    | 600     | 600     | 600                                       | 602     | 601     | 600     |         |
| Buffalo Bill Riv Flo | kaf  | 12.8                                      | 84.1    | 115.5   | 116.2   | 101.9                                      | 78.6    | 24.9    | 20.8    | 21.5                                      | 21.5    | 19.4    | 21.5    | 638.7   |
| Buffalo Bill Riv Flo | cfs  | 215                                       | 1368    | 1941    | 1890    | 1657                                       | 1321    | 405     | 350     | 350                                       | 350     | 349     | 350     |         |
| Station Gain         | kaf  | 39.1                                      | 79.9    | 128.6   | -2.6    | 5.8  | 43.7    | 75.7    | 62.1    | 44.5                                      | 47.7    | 58.1    | 77.5    | 660.1   |
| Monthly Inflow       | kaf  | 84.6                                      | 231.6   | 314.0   | 190.5   | 176.9                                      | 181.8   | 137.5   | 118.6   | 102.9                                     | 106.2   | 110.9   | 135.9   | 1891.4  |
| Monthly Inflow       | cfs  | 1422                                      | 3767    | 5277    | 3098    | 2877                                       | 3055    | 2236    | 1993    | 1674                                      | 1727    | 1997    | 2210    |         |
| Turbine Release      | kaf  | 109.5                                     | 145.1   | 154.6   | 177.1   | 176.2                                      | 163.4   | 153.5   | 129.7   | 134.0                                     | 134.0   | 121.1   | 134.0   | 1732.2  |
| 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  | 109.5                                     | 145.1   | 154.6   | 177.1   | 176.2                                      | 163.4   | 153.5   | 129.7   | 134.0                                     | 134.0   | 121.1   | 134.0   | 1732.2  |
| Total Release        | cfs  | 1840                                      | 2360    | 2598    | 2880    | 2866                                       | 2746    | 2496    | 2180    | 2179                                      | 2179    | 2181    | 2179    |         |
| Spring Flow          | kaf  | 4.2                                       | 4.3     | 4.2     | 4.3     | 4.3  | 4.2     | 4.3     | 4.2     | 4.3                                       | 4.3     | 3.9     | 4.3     | 50.8    |
| Irrigation Reqmnt    | kaf  | 0.6                                       | 11.1    | 10.0    | 27.7    | 26.8                                       | 18.8    | 4.1     | 0.0     | 0.0                                       | 0.0     | 0.0     | 0.0     | 99.1    |
| Afterbay Rels        | kaf  | 113.7                                     | 149.4   | 158.8   | 181.4   | 180.5                                      | 167.6   | 157.8   | 133.9   | 138.3                                     | 138.3   | 125.0   | 138.3   | 1783.0  |
| Afterbay Rels        | cfs  | 1911                                      | 2430    | 2669    | 2950    | 2936                                       | 2817    | 2566    | 2250    | 2249                                      | 2249    | 2251    | 2249    |         |
| River Release        | kaf  | 113.1                                     | 138.3   | 148.8   | 153.7   | 153.7                                      | 148.8   | 153.7   | 133.9   | 138.3                                     | 138.3   | 125.0   | 138.3   | 1683.9  |
| River Release        | cfs  | 1901                                      | 2249    | 2501    | 2500    | 2500                                       | 2501    | 2500    | 2250    | 2249                                      | 2249    | 2251    | 2249    |         |
| Min Release          | kaf  | 113.1                                     | 138.3   | 148.8   | 153.7   | 153.7                                      | 148.8   | 153.7   | 133.9   | 138.3                                     | 138.3   | 125.0   | 138.3   | 1683.9  |
| End-Month Targets    | kaf  |   |         | 1070.0  | 1070.0  |  |         |         |         |   |         |         |         |         |
| End-Month Content    | kaf  | 801.1                                     | 887.6   | 1047.0  | 1060.4  | 1061.1                                     | 1079.5  | 1063.5  | 1052.4  | 1021.3                                    | 993.5   | 983.3   | 985.2   |         |
| End-Month Elevation  | ft   | 3609.66                                   | 3621.78 | 3638.13 | 3639.23 | 3639.28                                    | 3640.74 | 3639.48 | 3638.57 | 3635.92                                   | 3633.37 | 3632.39 | 3632.57 |         |
| Net Change Content   | kaf  | -24.9                                     | 86.5    | 159.4   | 13.4    | 0.7  | 18.4    | -16.0   | -11.1   | -31.1                                     | -27.8   | -10.2   | 1.9     | 159.2   |
| Yellowtail Power     | 2008 | Apr                                       | May     | Jun     | Jul     | Aug  | Sep     | Oct     | Nov     | Dec                                       | Jan     | Feb     | Mar     | Total   |
| Turbine Release      | kaf  | 109.5                                     | 145.1   | 154.6   | 177.1   | 176.2                                      | 163.4   | 153.5   | 129.7   | 134.0                                     | 134.0   | 121.1   | 134.0   | 1732.2  |
| Generation           | gwh  | 41.212                                    | 55.248  | 61.421  | 72.268  | 72.051                                     | 67.004  | 62.967  | 52.993  | 54.406                                    | 53.918  | 48.438  | 53.527  | 695.453 |
| End-Month Power Cap  | mw   | 258.7                                     | 269.9   | 285.6   | 286.7   | 286.8                                      | 288.0   | 287.0   | 286.1   | 283.4                                     | 280.9   | 279.9   | 280.1   |         |
| % Max Gen            |      | 20  | 26      | 30      | 34      | 34   | 32      | 29      | 26      | 25  | 25      | 25      | 25      |         |
| Ave kwh/af           |      | 376                                       | 381     | 397     | 408     | 409  | 410     | 410     | 409     | 406                                       | 402     | 400     | 399     | 401     |
| Upstream Generation  | gwh  | 14.942                                    | 28.062  | 28.206  | 30.196  | 29.493                                     | 27.641  | 11.003  | 8.719   | 9.025                                     | 9.022   | 8.130   | 9.005   | 213.444 |
| Total Generation     | gwh  | 56.154                                    | 83.310  | 89.627  | 102.464 | 101.544                                    | 94.645  | 73.970  | 61.712  | 63.431                                    | 62.940  | 56.568  | 62.532  | 908.897 |

# BIGHORN LAKE



WATER YEAR 2008