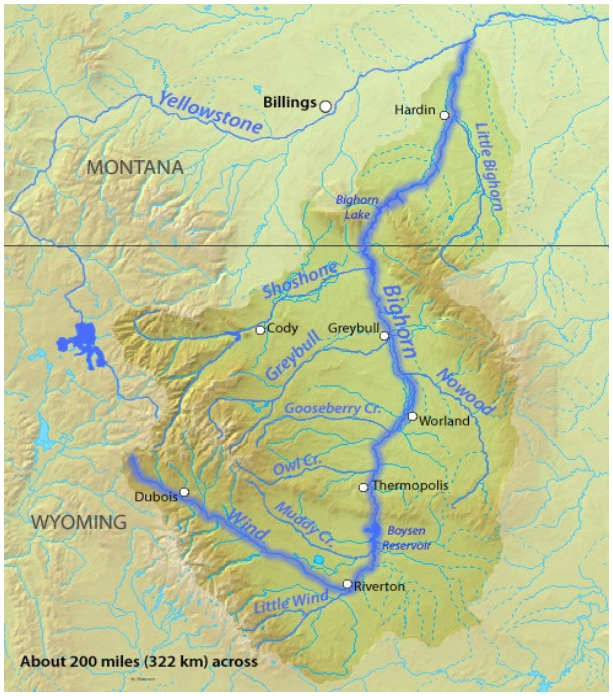
Yellowtail Dam Water Supply and Projected Operations

BUREAU OF RECLAMATION

May 2025



Bighorn River Basin Map Source: DEMIS Mapserver

May Operating Range			
Forecast	**Minimum**	**Median**	**Maximum**
Monthly Average Inflow (cfs)	2,440	3,295	6,555
Monthly Average River Release (cfs)	1,855	2,160	3,925
End of May Elevation (feet)	3623.4	3627.8	3637.2

May - July 2025 Inflow Forecast (kaf)		
May - July Volume		623
Percent of Average		57
Water Year	**Historical Inflow**	**Rank**
2024	871	36
2023	1,711	6
2022	877	35
2021	458	51
30 Year Average	1,095	

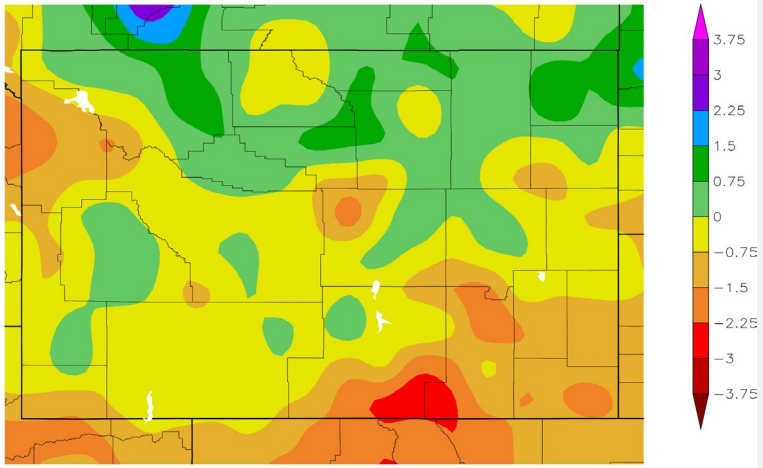
CLIMATE SUMMARY

Climate Departure from Normal

April 1 through April 30, 2025

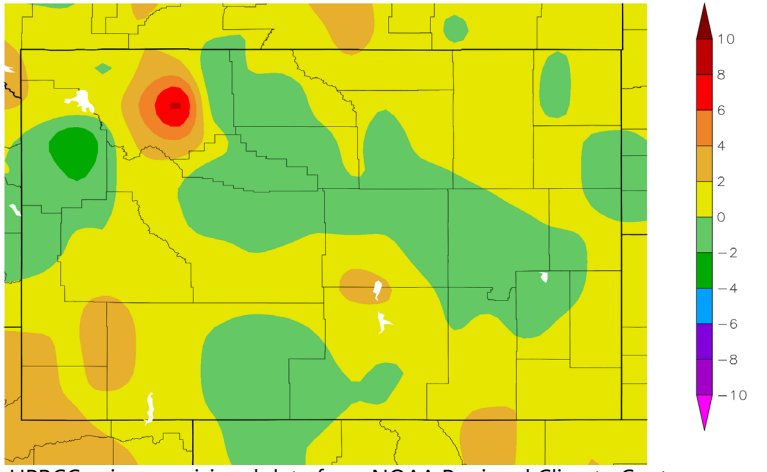
Precipitation

Departure from Normal (inches)



Departure from Normal (°F)

Temperature



HPRCC using provisional data from NOAA Regional Climate Centers

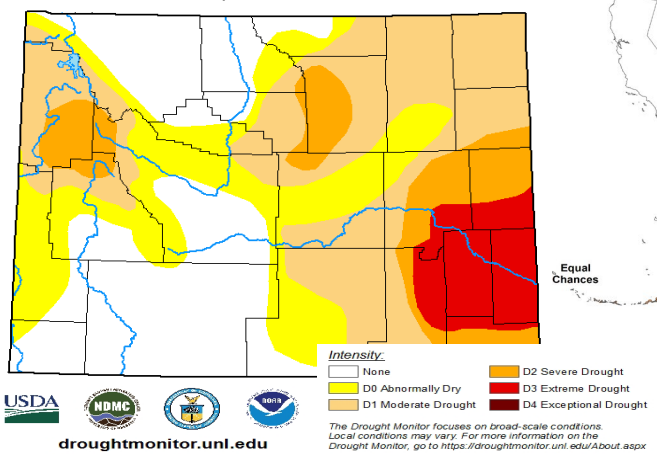
Precipitation in the Bighorn River basin above Yellowtail Dam was below average in the southern part of the basin and above average in the northern part of the basin for April. The temperature was near normal for the basin.

Based on the climate outlook for May, there is a 33 to 40 percent chance the precipitation will be above average and 40 to 50 percent chance the temperature will be above average during May.

Looking at the drought monitor map, drought conditions in the Bighorn River basin range from none to severe.

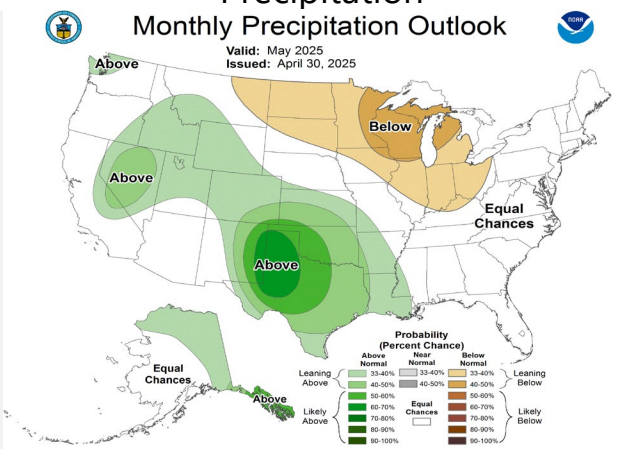
Wyoming Drought Monitor Map

April 29, 2025

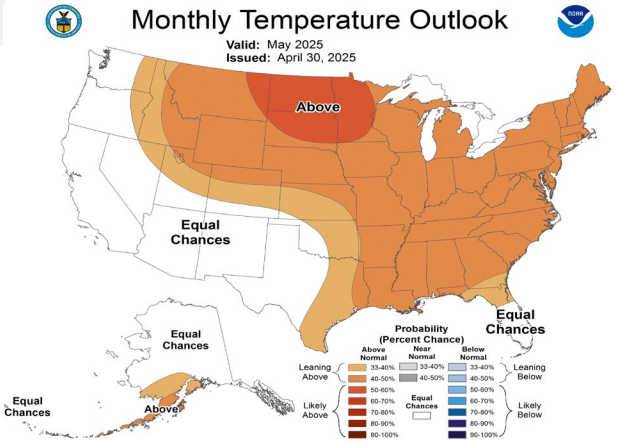


May Climate Outlook

Precipitation



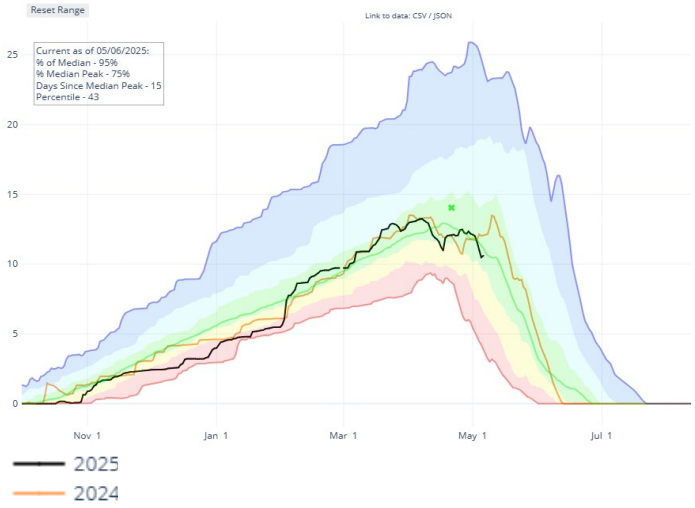
Temperature

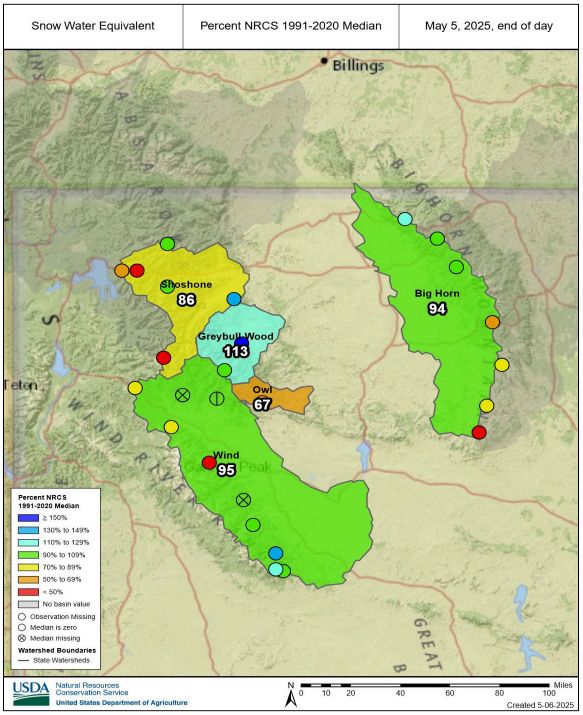


SNOWPACK SUMMARY

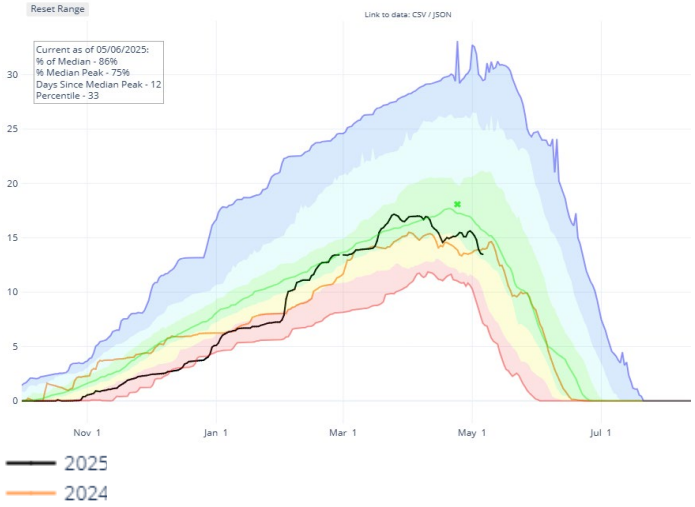
The snow water equivalent (SWE) graphs are a composite of SNOTEL sites within the Bighorn River Basin managed by the Natural Resources Conservation Service (NRCS).

Wind River

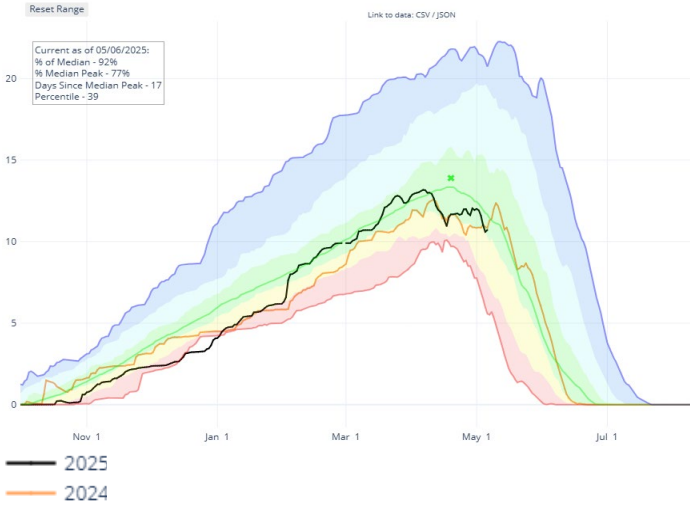




Shoshone River

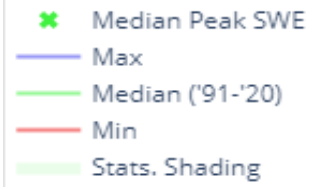


Bighorn River



NRCS Montana Snow Survey Website: https://www.nrcs.usda.gov/wps/portal/nrcs/mt/snow/

Statistical shading breaks at 10th, 30th,50th, 70th, and 90th Percentiles
Normal ('91-'20) – Official median calculated from 1991-2020 data
Normal (POR) – Unofficial mean calculated from Period of Record data

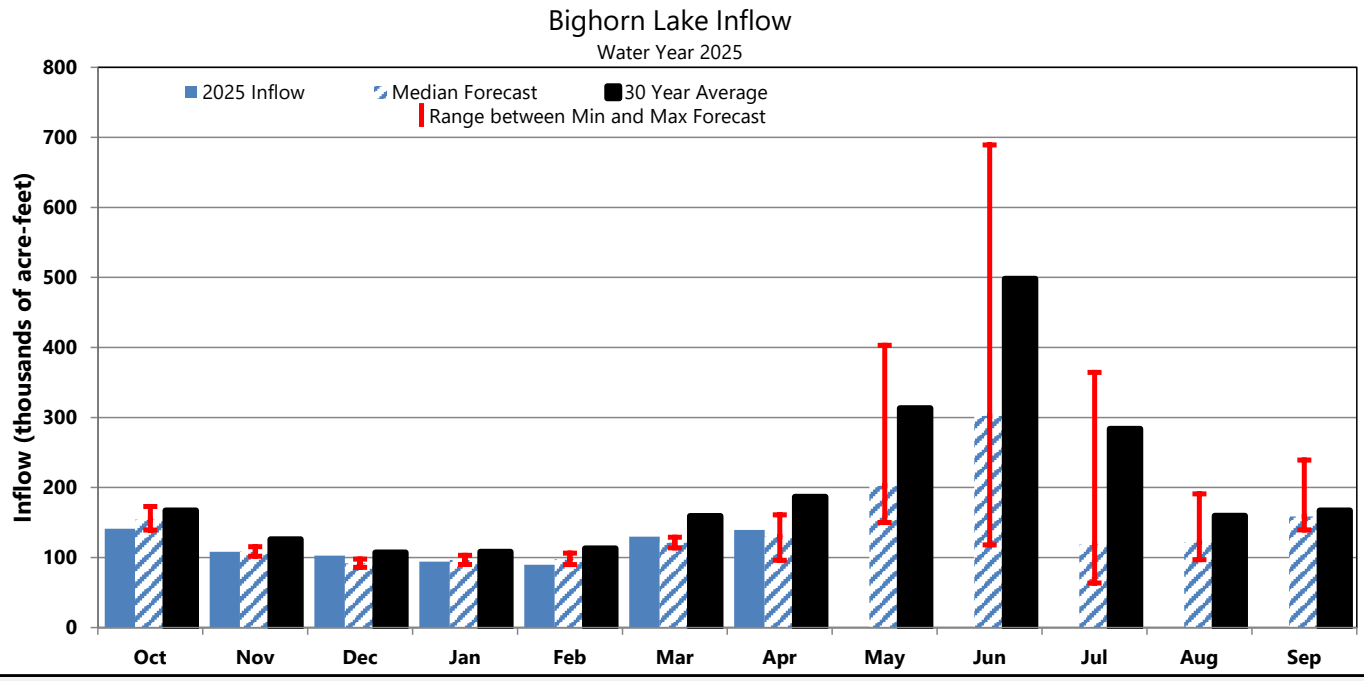


FORECAST SUMMARY

NRCS SNOTEL data, streamflow data, climate data, and planned releases from Boysen and Buffalo Bill Reservoirs are used to compute an inflow forecast for Bighorn Lake. The May through July inflow forecast decreased 42 kaf from April 1 to May 1.

April Forecast Review

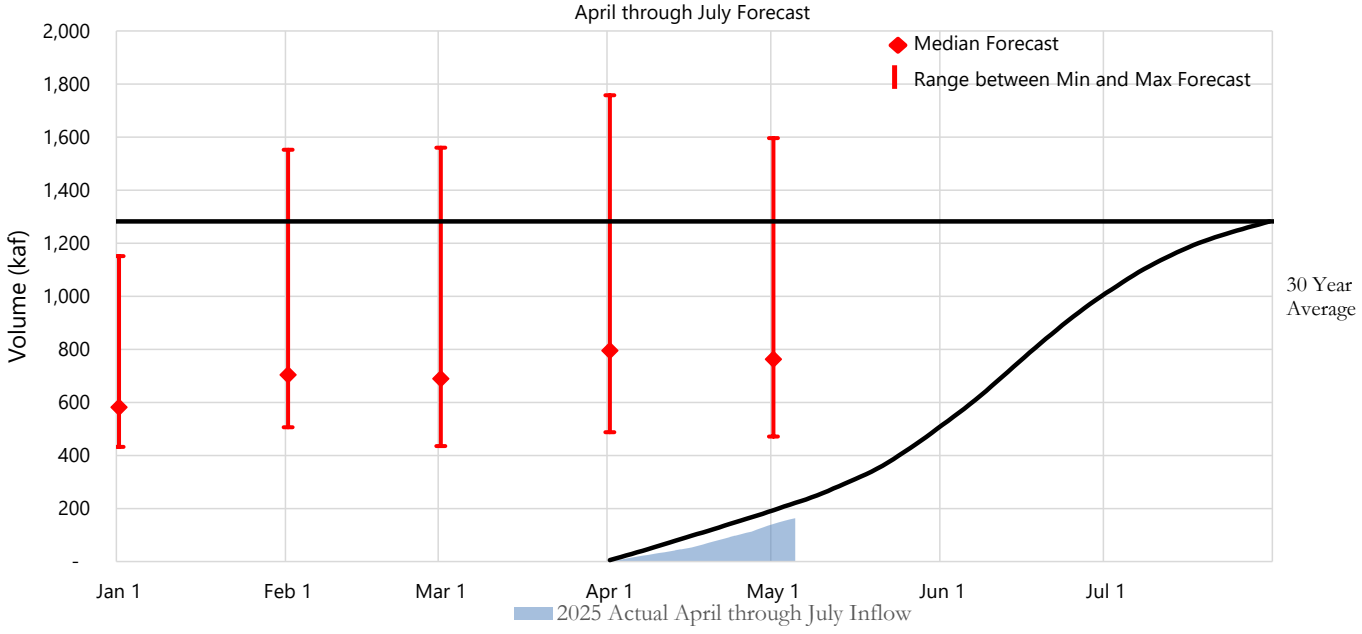
	Median Forecast (kaf)	Actual (kaf)	Difference (kaf)	Actual (% of Avg)
April Inflow	129.9	139.4	9.5	75



May through July Inflow Forecast for May 1

	Median Forecast (kaf)	% of Average	Minimum Forecast (kaf)	Maximum Forecast (kaf)
May through July Inflow	623	57	332	1,457

Actual April Inflow	139 kaf	April through July Inflow	762 kaf	Average	1,282

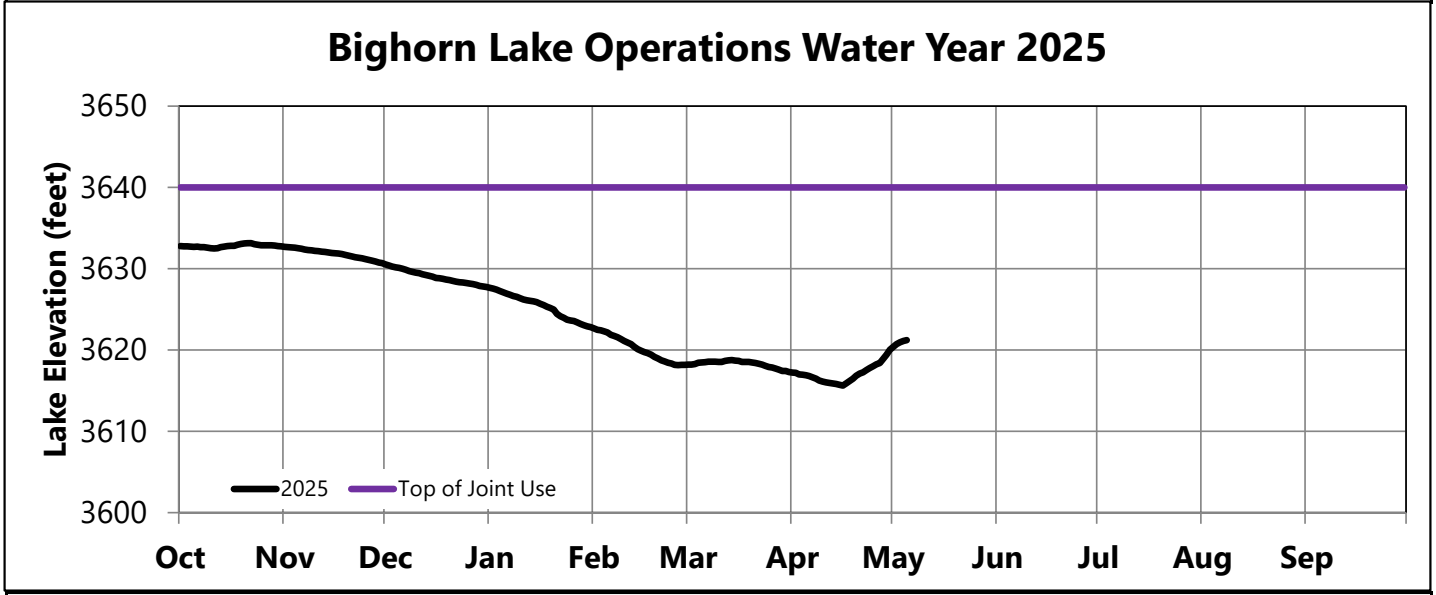


OPERATIONS REVIEW (October 1, 2024 through April 30, 2025)

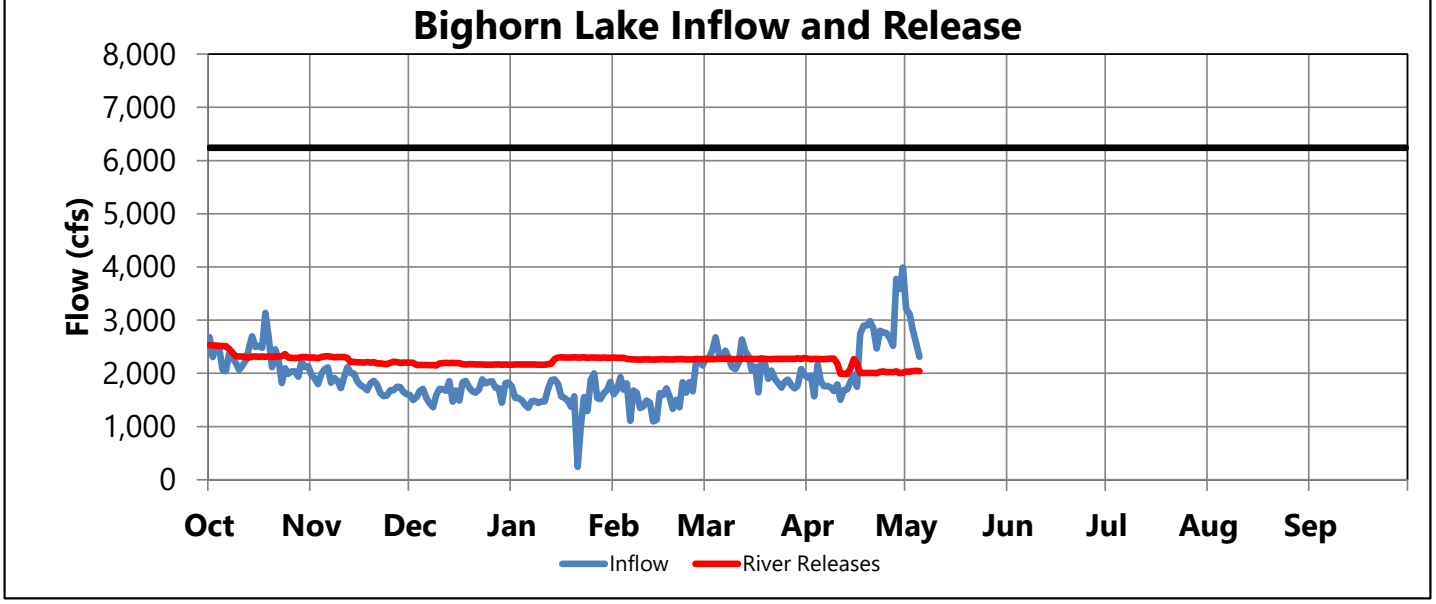
Releases to the Bighorn River decreased from 2,280 cfs to 2,000 cfs on April 10 based on rule curve criteria. Releases were increased to 2,230 cfs between April 14-16 to accommodate Montana Fish Wildlife and Parks fish sampling efforts. The elevation of Bighorn Lake increased by 2.7 feet during April.

May 1 Storage Conditions

	Elevation feet	Storage acre-feet	Percent of Average	Percent Full
Bighorn Lake	3620.0	816,851	108	81
Buffalo Bill	5357.2	381,966	96	59
Boysen	4711.5	514,202	99	69



Average April Inflow	Monthly Avg cfs	Percent of Average	Average April Release	Monthly Avg cfs	Percent of Average
Bighorn Lake	2,345	75	**Bighorn River**	2,110	60
Buffalo Bill	735	94	**Buffalo Bill Total Release**	805	66
Boysen	715	81	**Boysen Release**	800	61



OPERATIONS OUTLOOK (May 1, 2025 through October 31, 2025)

The current release to the Bighorn River is 2,000 cfs. On May 12, releases to the Bighorn River will increase to 2,250 cfs based on the median inflow forecast of 623 kaf and an end of May target of 3627.9 feet. Bighorn Lake is expected to fill to normal full pool, elevation 3640.0 feet. Additional changes to releases this month will depend on hydrologic conditions and changes to inflow forecasts.

Median Inflow Conditions (May - July Inflow: 623 kaf)

	May	Jun	Jul	Aug	Sep	Oct
Boysen Release (cfs)	1,099	1,311	1,410	1,200	1,000	899
Buffalo Bill Release (cfs)	1,739	2,886	2,012	1,878	1,642	792
Tributary Gain (cfs)	457	884	-1,496	-1,099	24	921
Monthly Inflow (cfs)	3,295	5,081	1,926	1,979	2,666	2,612
Monthly Inflow (kaf)	202.6	302.3	118.4	121.7	158.6	160.6
Monthly Release (kaf)	146.8	172.6	167.9	167.9	153.5	140.2
Afterbay Release (cfs)	2,387	2,900	2,730	2,730	2,580	2,280
River Release (cfs)	2,161	2,500	2,280	2,280	2,280	2,280
End-of-Month Content (kaf)	877.0	1,010.9	965.8	923.9	933.1	957.8
End-of-Month Elevation (feet)	3627.8	3640.0	3636.5	3632.8	3633.6	3635.8

Minimum Inflow Conditions (May - July Inflow: 332 kaf)

	May	Jun	Jul	Aug	Sep	Oct
Boysen Release (cfs)	1,025	1,200	1,200	1,200	1,000	899
Buffalo Bill Release (cfs)	1,630	1,850	1,926	1,812	1,649	725
Tributary Gain (cfs)	-215	-1,065	-2,090	-1,434	-304	664
Monthly Inflow (cfs)	2,440	1,985	1,036	1,578	2,345	2,288
Monthly Inflow (kaf)	150.0	118.1	63.7	97.0	139.5	140.7
Monthly Release (kaf)	129.9	120.5	124.5	124.5	111.6	99.3
Afterbay Release (cfs)	2,113	2,025	2,025	2,025	1,875	1,615
River Release (cfs)	1,855	1,575	1,575	1,575	1,575	1,575
End-of-Month Content (kaf)	841.3	843.1	786.6	763.3	795.5	841.1
End-of-Month Elevation (feet)	3623.4	3623.7	3615.4	3611.4	3616.8	3623.4

Maximum Inflow Conditions (May - July Inflow: 1,457 kaf)

	May	Jun	Jul	Aug	Sep	Oct
Boysen Release (cfs)	2,200	4,332	2,752	1,529	1,528	1,529
Buffalo Bill Release (cfs)	2,480	4,043	3,402	2,062	1,899	1,174
Tributary Gain (cfs)	1,875	3,208	-228	-486	593	1,309
Monthly Inflow (cfs)	6,555	11,583	5,926	3,105	4,020	4,012
Monthly Inflow (kaf)	403.1	689.2	364.4	190.9	239.2	246.7
Monthly Release (kaf)	249.4	703.4	322.5	265.0	247.2	240.1
Afterbay Release (cfs)	4,056	11,821	5,244	4,309	4,155	3,905
River Release (cfs)	3,927	11,521	4,844	3,909	3,905	3,905
End-of-Month Content (kaf)	974.8	964.8	1,011.1	941.3	937.4	948.4
End-of-Month Elevation (feet)	3637.2	3636.4	3640.0	3634.4	3634.0	3635.0

OPERATIONS OUTLOOK (May 1, 2025 through October 31, 2025)

There is approximately 70 cfs of gain between Yellowtail Dam and Yellowtail Afterbay Dam from springs flowing into Yellowtail Afterbay. Total release from Yellowtail Dam is 70 cfs less than total release from Yellowtail Afterbay Dam.

Irrigation Demands Outlook

Bighorn Canal (cfs)

	May	Jun	Jul	Aug	Sep	Oct
Median Forecast	226	400	450	450	300	0
Minimum Forecast	258	450	450	450	300	40
Maximum Forecast	129	300	400	400	250	0

Power Generation Outlook

Current Number of Units Available: 4 of 4
Approximate Yellowtail Powerplant Turbine Capacity: 8,200 cfs
Approximate Yellowtail Powerplant Scheduled Generation Limit: 6,150 cfs

Yellowtail Powerplant Release (cfs)

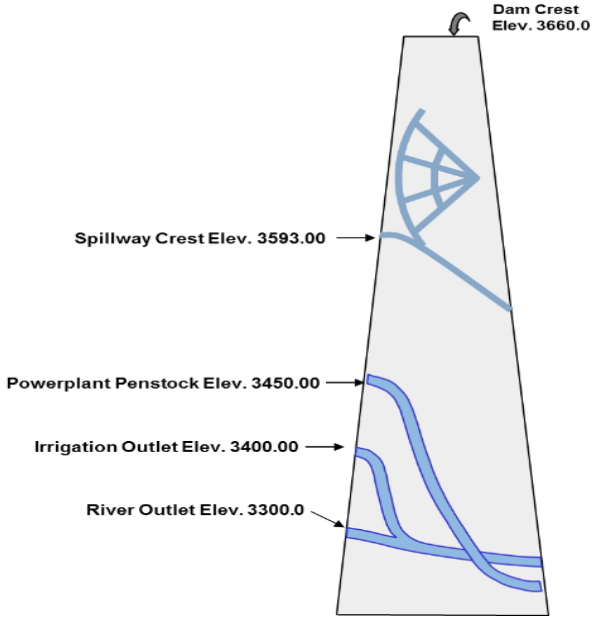
	May	Jun	Jul	Aug	Sep	Oct
Median Forecast	2,317	2,830	2,660	2,660	2,510	2,210
Minimum Forecast	2,043	1,955	1,955	1,955	1,805	1,545
Maximum Forecast	3,508	6,240	4,886	4,239	4,085	3,835

Yellowtail Powerplant Generation (gwh)

	May	Jun	Jul	Aug	Sep	Oct
Median Forecast	52	62	60	60	55	50
Minimum Forecast	46	43	44	44	39	35
Maximum Forecast	79	136	110	96	89	86

Yellowtail Spill (cfs)

	May	Jun	Jul	Aug	Sep	Oct
Median Forecast	0	0	0	0	0	0
Minimum Forecast	0	0	0	0	0	0
Maximum Forecast	479	5,511	289	0	0	0

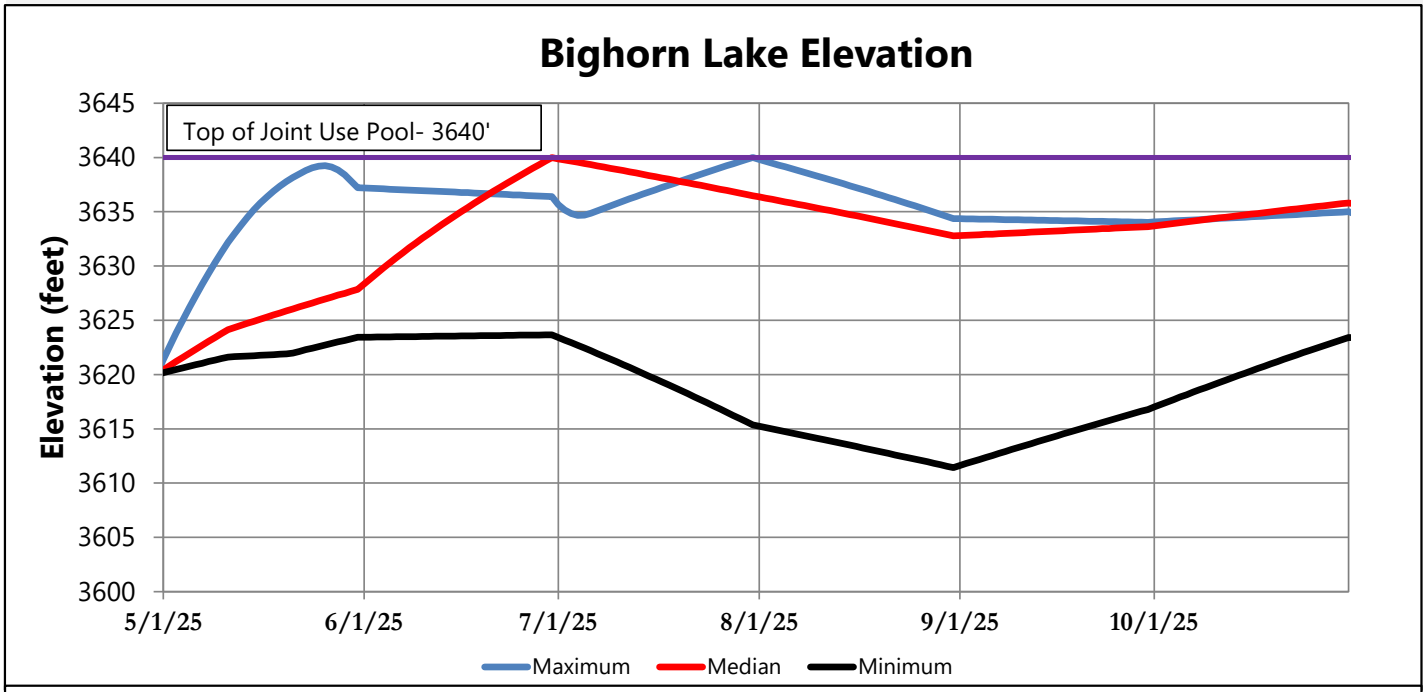


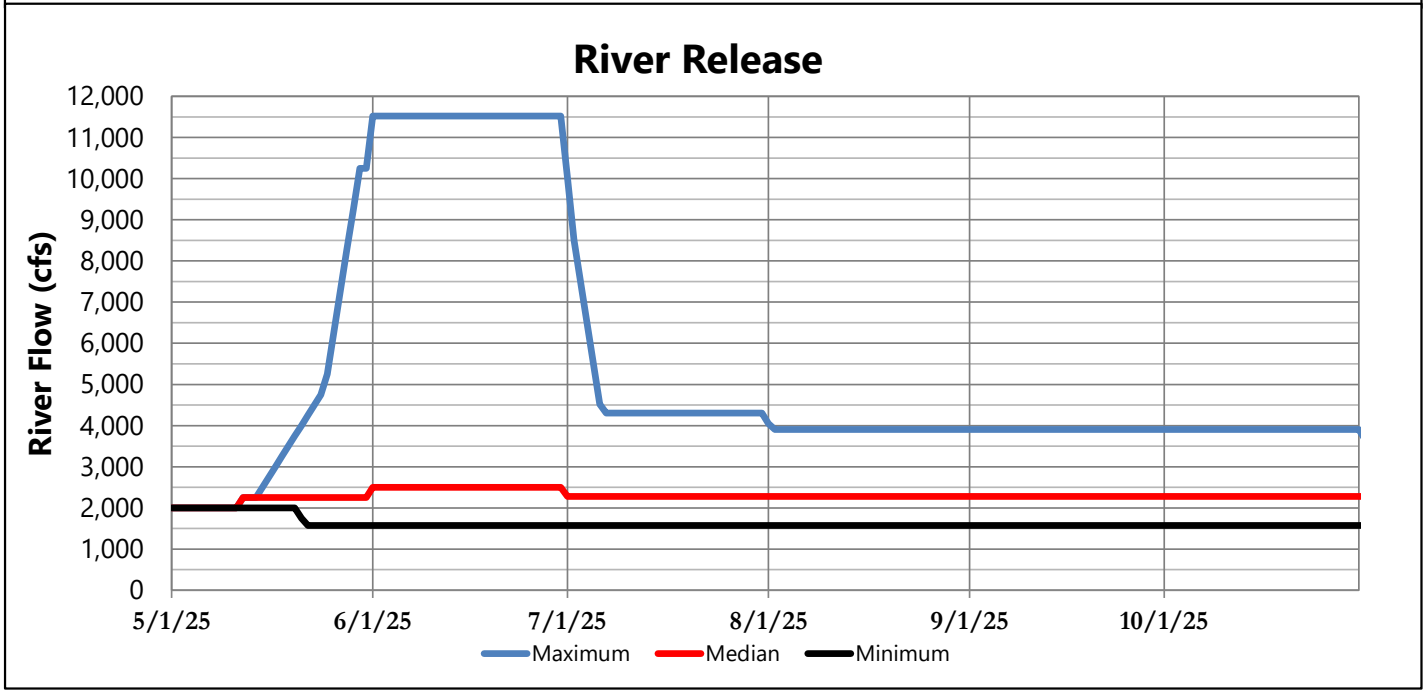
Release Outlook by Outlet

Yellowtail Powerplant bypass releases are not anticipated between now and end of July for the minimum and median plan. Under maximum forecast a bypass release is forecasted for May through July.

OPERATIONS OUTLOOK (May 1, 2025 through October 31, 2025)

Projected elevations and the range of river releases are based on the median, minimum, and maximum inflow forecasts. End-of-month elevations and river releases vary based on the difference between forecasted inflow scenarios.





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Monthly Operating Plans, Current Conditions, Snowpack and Other Water Management Information
https://www.usbr.gov/gp/lakes_reservoirs/wareprts/main_menu.html