

# Yellowtail Dam Water Supply and Projected Operations



— BUREAU OF —  
RECLAMATION

January 2025



Bighorn River Basin Map Source: DEMIS Mapserver

January Operating Range			
Forecast	Minimum	Median	Maximum
<b>Monthly Average Inflow (cfs)</b>	1,465	1,570	1,680
<b>Monthly Average River Release (cfs)</b>	2,260	2,260	2,260
<b>End of January Elevation (feet)</b>	3622.1	3623.0	3623.9
April - July 2025 Inflow Forecast (kaf)			
April - July Volume			582
Percent of Average			45
Water Year	Historic Inflow	Rank	
2024	1,135	28	
2023	2,000	5	
2022	990	39	
2021	607	50	
<b>30 Year Average</b>	1,282		

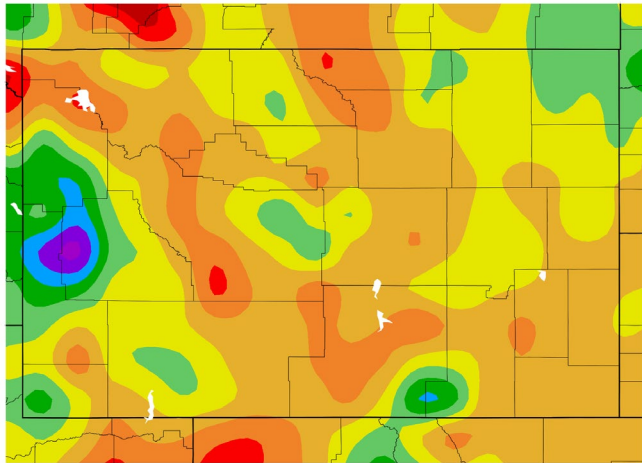


# Climate Departure from Normal

December 1 through December 31, 2024

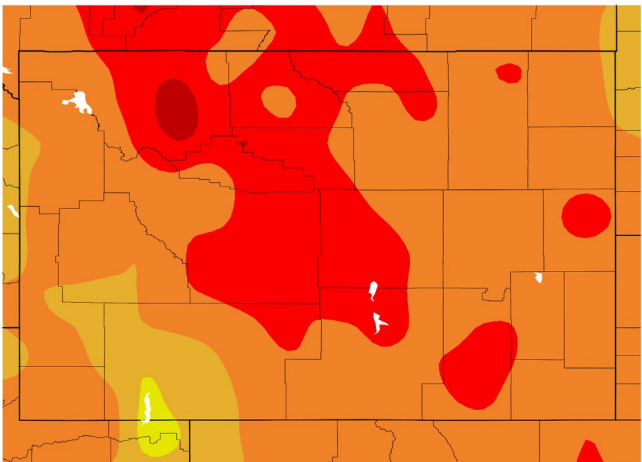
## Precipitation

Departure from Normal (inches)



Departure from Normal (°F)

## Temperature



HPKCC using provisional data from NOAA Regional Climate Centers

# CLIMATE SUMMARY

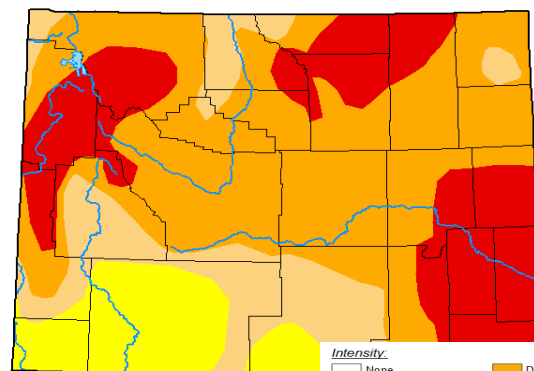
Precipitation in the Bighorn River basin above Yellowtail Dam was below average for December. The temperature was above average.

Based on the climate outlook for January, there is a 50 to 60 percent chance precipitation will be above average. There is an equal chance the temperature will be below, above, or near average during December.

Looking at the drought monitor map, drought conditions in the Bighorn River basin range from moderate to extreme.

## Wyoming Drought Monitor Map

January 7, 2025



droughtmonitor.unl.edu

**Intensity**  
 None  
 D0 Abnormally Dry  
 D1 Moderate Drought  
 D2 Severe Drought  
 D3 Extreme Drought  
 D4 Exceptional Drought

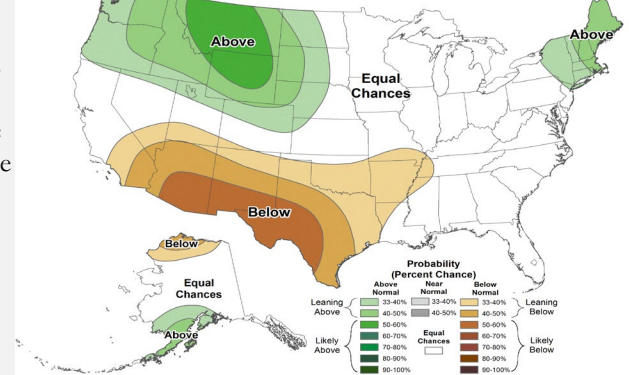
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

# January Climate Outlook

## Precipitation

### Monthly Precipitation Outlook

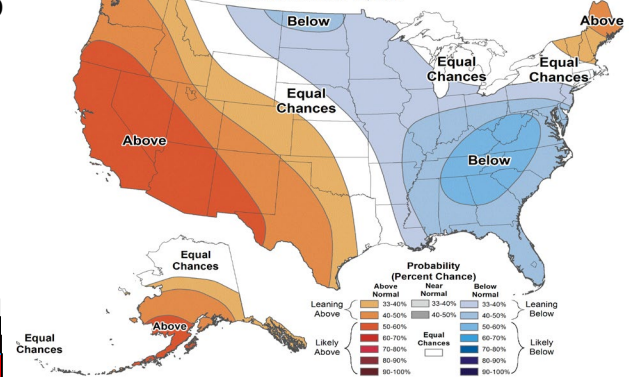
Valid: January 2025  
 Issued: December 31, 2024



## Temperature

### Monthly Temperature Outlook

Valid: January 2025  
 Issued: December 31, 2024

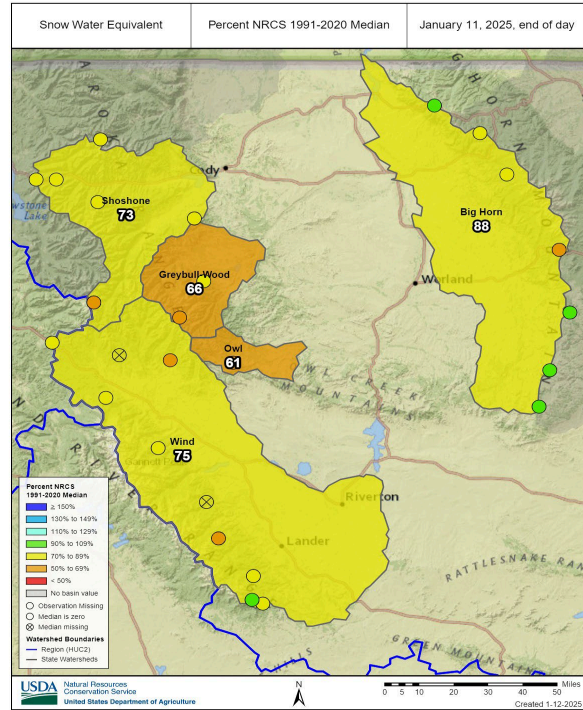
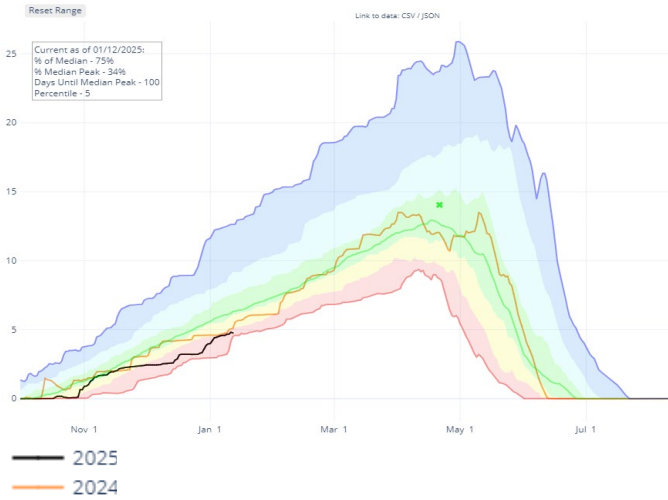




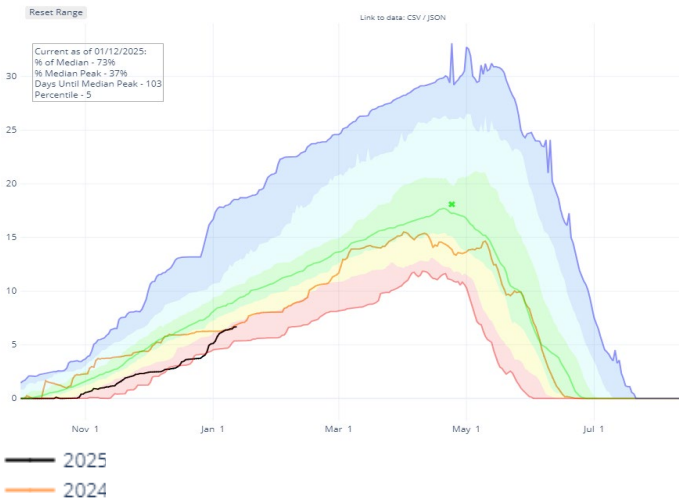
# SNOWPACK SUMMARY

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).

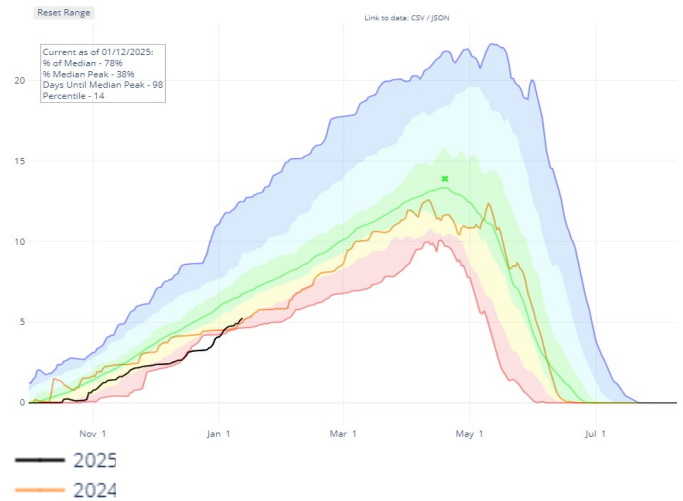
## Wind River



## Shoshone River



## Bighorn River



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

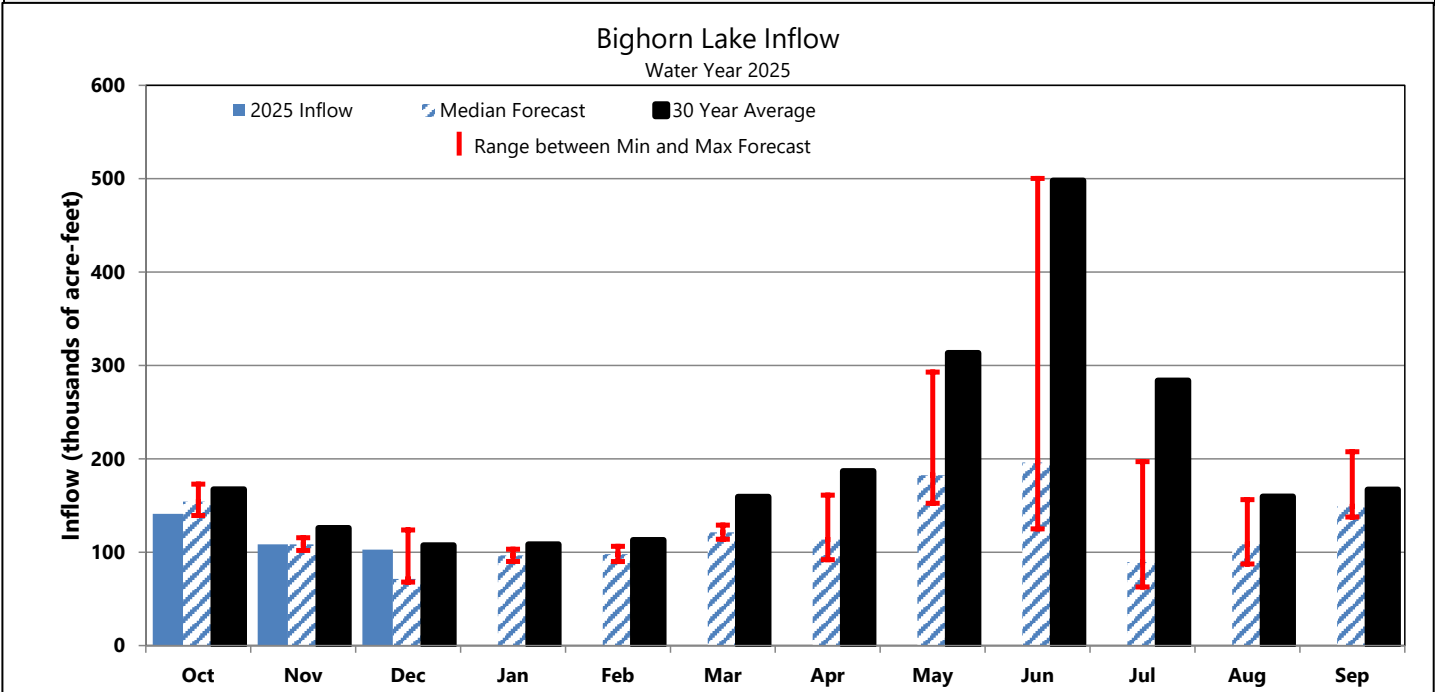
Statistical shading breaks at 10th, 30th, 50th, 70th, and 90th Percentiles  
 Normal ('91-'20) – Official median calculated from 1991-2020 data  
 Normal (POR) – Unofficial mean calculated from Period of Record data

- ✱ Median Peak SWE
- Max
- Median ('91-'20)
- Min
- Stats. Shading

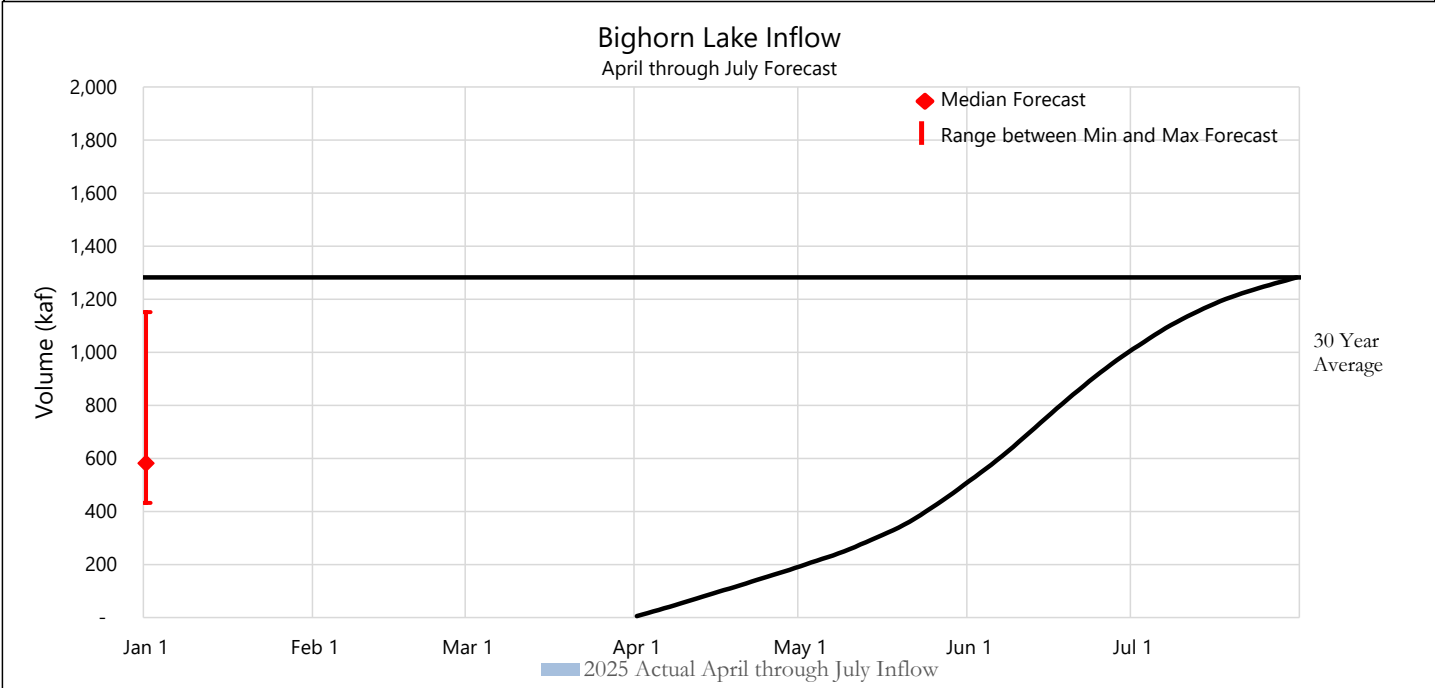
# FORECAST SUMMARY

Streamflow data, climate data, and planned releases from Boysen and Buffalo Bill Reservoirs are used to compute an inflow forecast for Bighorn Lake. Actual December inflow was above the median inflow forecast.

December Forecast Review				
	Median Forecast (kaf)	Actual (kaf)	Difference (kaf)	Actual (% of Avg)
December Inflow	71.4	102.9	31.5	96



April through July Inflow Forecast for January 1					
	Median Forecast (kaf)	% of Average	Minimum Forecast (kaf)	Maximum Forecast (kaf)	
April through July Inflow	582	45	1,151	1,282	
Historic Maximum (2017)	2,953 kaf	Historic Minimum (2004)	392 kaf	Average	1,282

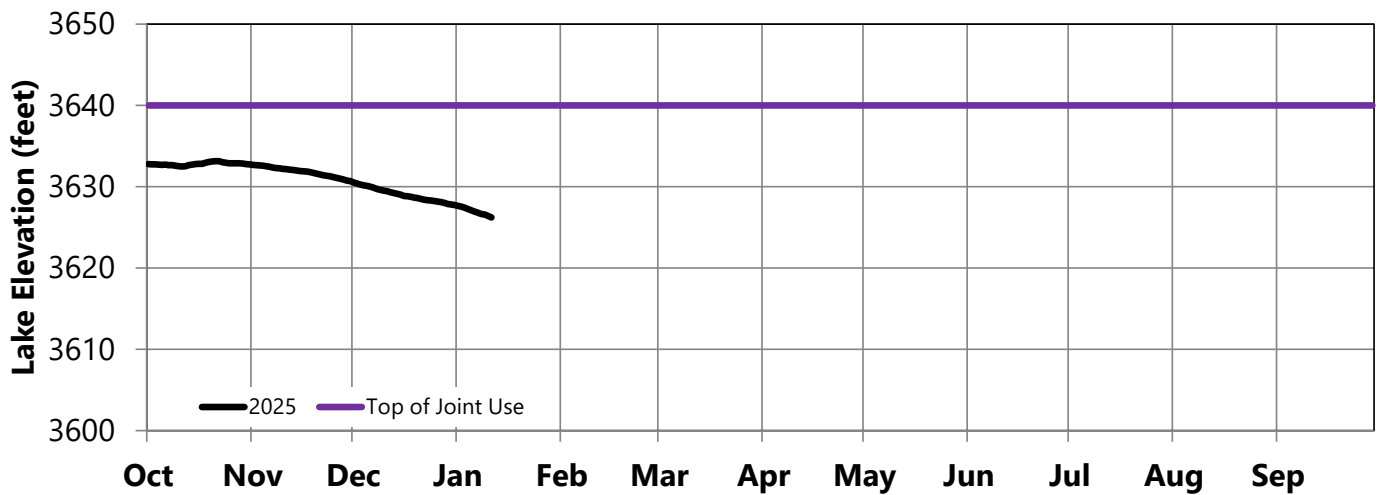


# OPERATIONS REVIEW (October 1, 2024 through December 31, 2024)

Releases to the Bighorn River decreased to 2,210 cfs during November based on winter release criteria. The elevation of Bighorn Lake decreased by 2.9 feet during December.

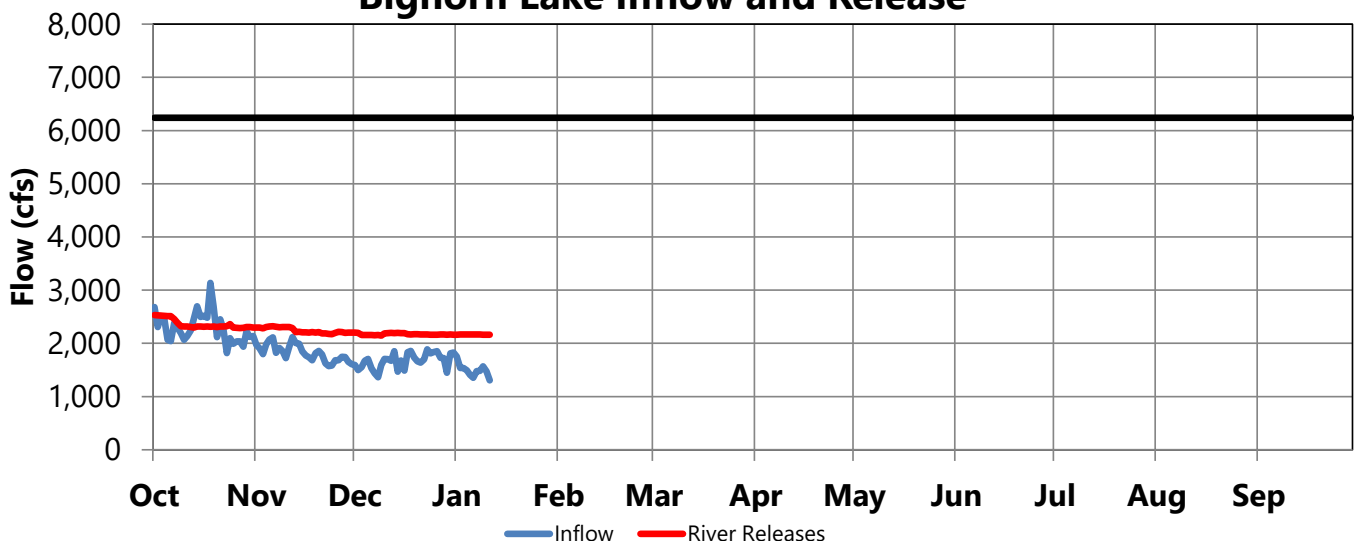
January 1 Storage Conditions				
	Elevation feet	Storage acre-feet	Percent of Average	Percent Full
Bighorn Lake	3627.8	876,161	104	87
Buffalo Bill	5371.3	374,344	86	58
Boysen	4713.1	536,443	96	72

## Bighorn Lake Operations Water Year 2025



	Average December Inflow		Average December Release		
	Monthly Avg cfs	Percent of Average	Monthly Avg cfs	Percent of Average	
Bighorn Lake	1,675	96	Bighorn River	2,170	90
Buffalo Bill	235	84	Buffalo Bill Total Release	200	68
Boysen	580	90	Boysen Release	705	90

## Bighorn Lake Inflow and Release



# OPERATIONS OUTLOOK (January 1, 2025 through July 31, 2025)

Winter releases to the Bighorn River were set in early November at 2,210 cfs. The winter release is based on storage in the Bighorn Lake, end of March 2025 storage target of 3617 feet, planned releases from Boysen and Buffalo Bill, and forecasted gains. As needed, releases to the Bighorn River will be adjusted up and down through the winter based on actual inflows into Bighorn Lake. Releases will be increased to 2,295 cfs during January based on December inflows being greater than forecasted.

## Median Inflow Conditions

	Jan	Feb	Mar	Apr	May	Jun	Jul
Boysen Release (cfs)	699	700	699	901	1,099	1,200	1,200
Buffalo Bill Release (cfs)	203	203	203	682	1,638	1,865	1,950
Tributary Gain (cfs)	667	861	1,070	328	231	229	-1,696
Monthly Inflow (cfs)	1,569	1,764	1,972	1,911	2,968	3,294	1,454
Monthly Inflow (kaf)	96.5	97.9	121.3	113.7	182.5	196.0	89.4
Monthly Release (kaf)	139.0	127.4	123.0	125.0	144.5	142.8	150.6
Afterbay Release (cfs)	2,261	2,294	2,000	2,100	2,350	2,400	2,450
River Release (cfs)	2,261	2,294	2,000	2,000	2,000	2,000	2,000
End-of-Month Content (kaf)	837.9	812.3	814.9	807.8	850.1	907.4	850.5
End-of-Month Elevation (feet)	3623.0	3619.4	3619.7	3618.7	3624.6	3631.2	3624.6

## Minimum Inflow Conditions

	Jan	Feb	Mar	Apr	May	Jun	Jul
Boysen Release (cfs)	699	700	699	701	1,025	1,200	1,150
Buffalo Bill Release (cfs)	205	205	205	684	1,630	1,850	1,926
Tributary Gain (cfs)	561	715	948	161	-176	-950	-2,054
Monthly Inflow (cfs)	1,465	1,620	1,852	1,546	2,479	2,100	1,022
Monthly Inflow (kaf)	90.1	90.0	113.9	92.0	152.4	125.0	62.8
Monthly Release (kaf)	139.0	111.1	107.6	98.2	116.8	116.0	119.9
Afterbay Release (cfs)	2,261	2,000	1,750	1,650	1,900	1,950	1,950
River Release (cfs)	2,261	2,000	1,750	1,500	1,500	1,500	1,500
End-of-Month Content (kaf)	831.5	814.3	824.9	822.9	862.8	875.9	823.1
End-of-Month Elevation (feet)	3622.1	3619.7	3621.2	3620.9	3626.2	3627.7	3620.9

## Maximum Inflow Conditions

	Jan	Feb	Mar	Apr	May	Jun	Jul
Boysen Release (cfs)	699	700	699	1,331	1,846	2,860	1,968
Buffalo Bill Release (cfs)	205	205	205	684	1,781	3,166	2,127
Tributary Gain (cfs)	774	1,008	1,194	692	1,137	2,381	-891
Monthly Inflow (cfs)	1,678	1,913	2,098	2,707	4,764	8,407	3,204
Monthly Inflow (kaf)	103.2	106.3	129.0	161.1	292.9	500.3	197.0
Monthly Release (kaf)	139.0	127.5	160.3	190.1	257.8	313.8	219.5
Afterbay Release (cfs)	2,261	2,295	2,608	3,195	4,192	5,273	3,569
River Release (cfs)	2,261	2,295	2,608	3,195	3,992	4,973	3,169
End-of-Month Content (kaf)	844.6	827.3	800.2	775.4	814.8	1,005.5	987.3
End-of-Month Elevation (feet)	3623.9	3621.5	3617.5	3613.5	3619.7	3639.6	3638.2

# OPERATIONS OUTLOOK (January 1, 2025 through July 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)

	Jan	Feb	Mar	Apr	May	Jun	Jul
Median Forecast	0	0	0	100	350	400	450
Minimum Forecast	0	0	0	150	400	450	450
Maximum Forecast	0	0	0	0	200	300	400

## Power Generation Outlook

Current Number of Units Available: 3 of 4

Approximate Yellowtail Powerplant Turbine Capacity: 8,200 cfs

Approximate Yellowtail Powerplant Scheduled Generation Limit: 4,160 cfs

### Yellowtail Powerplant Release (cfs)

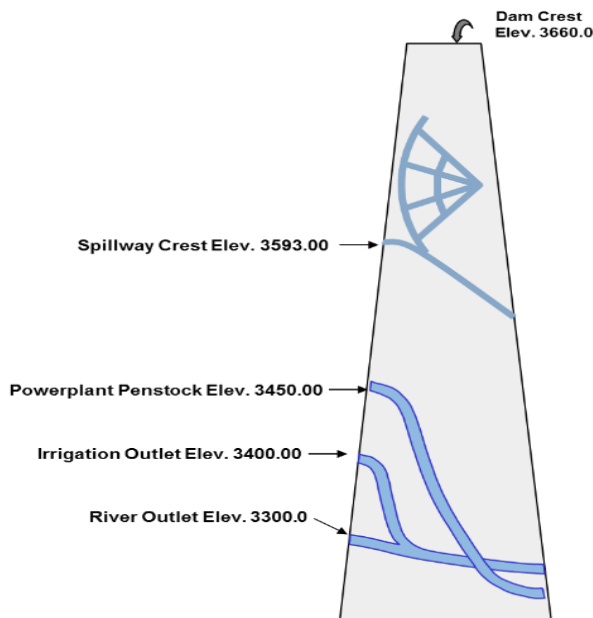
	Jan	Feb	Mar	Apr	May	Jun	Jul
Median Forecast	2,191	2,224	1,930	2,030	2,280	2,330	2,380
Minimum Forecast	2,191	1,930	1,680	1,580	1,830	1,880	1,880
Maximum Forecast	2,191	2,225	2,538	3,125	4,122	5,203	3,499

### Yellowtail Powerplant Generation (gwh)

	Jan	Feb	Mar	Apr	May	Jun	Jul
Median Forecast	49	45	44	44	51	51	54
Minimum Forecast	49	39	38	34	41	41	42
Maximum Forecast	49	45	57	68	93	114	79

### Yellowtail Spill (cfs)

	Jan	Feb	Mar	Apr	May	Jun	Jul
Median Forecast	0	0	0	0	0	0	0
Minimum Forecast	0	0	0	0	0	0	0
Maximum Forecast	0	0	0	0	0	0	0

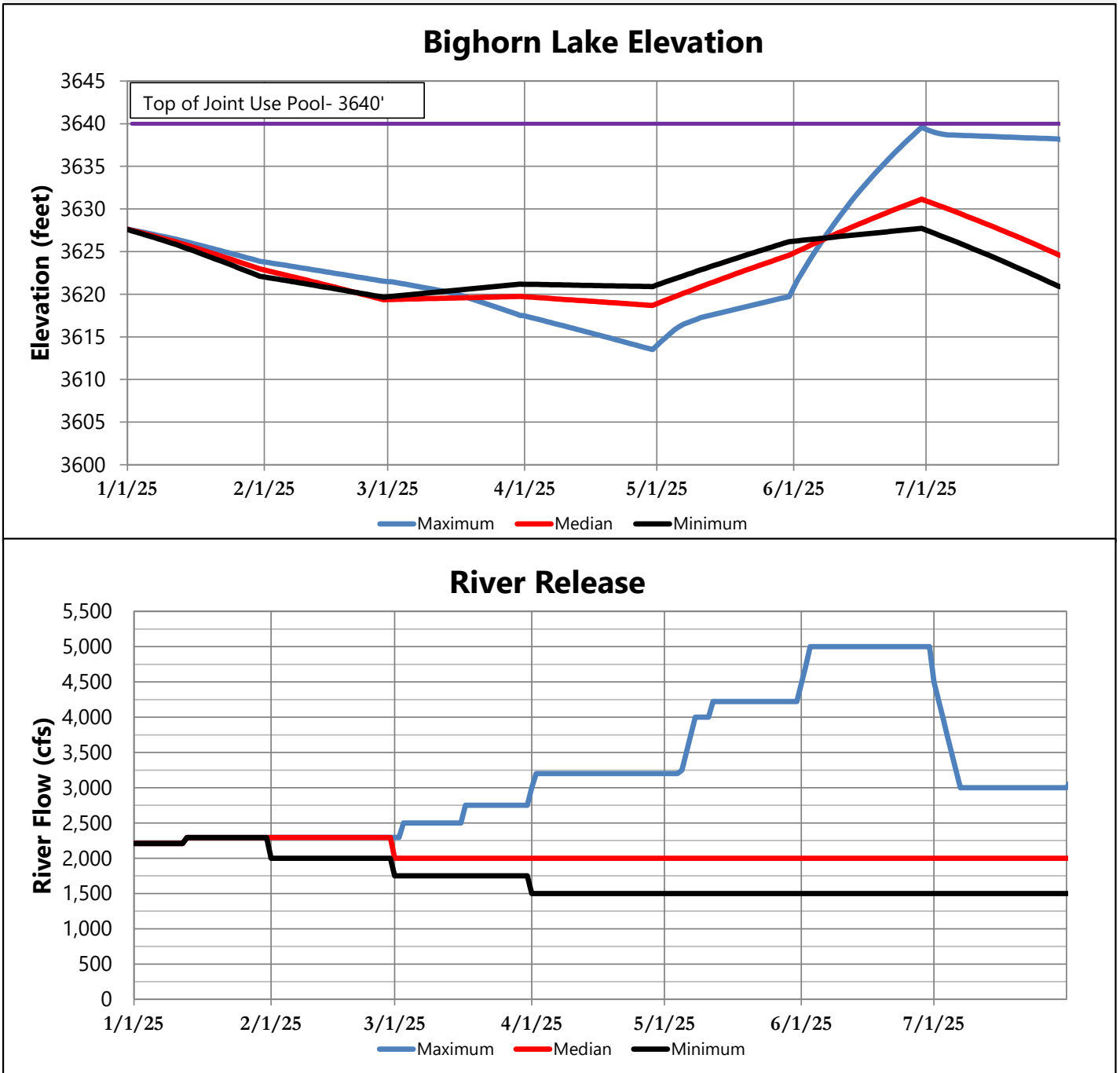


## Release Outlook by Outlet

Yellowtail Powerplant bypass releases are not anticipated between now and end of July under all three inflow forecasts.

# OPERATIONS OUTLOOK (January 1, 2025 through July 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](https://www.usbr.gov/gp/lakes_reservoirs/wareprts/main_menu.html)