

# Yellowtail Dam Water Supply and Projected Operations



— BUREAU OF —  
RECLAMATION

December 2024



Bighorn River Basin Map Source: DEMIS Mapserver

December Operating Range			
Forecast	Minimum	Median	Maximum
<b>Monthly Average Inflow (cfs)</b>	1,400	1,490	1,590
<b>Monthly Average River Release (cfs)</b>	2,210	2,210	2,210
<b>End of December Elevation (feet)</b>	3625.5	3626.2	3626.9
December 2024 Inflow Forecast (kaf)			
December Volume			92
Percent of Average			86
Water Year	Historic Inflow	Rank	
2024	153	15	
2023	101	43	
2022	101	42	
2021	98	45	
<b>30 Year Average</b>	107		

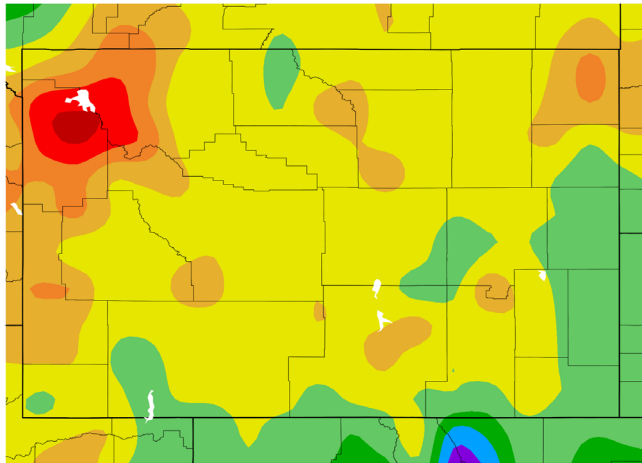


# Climate Departure from Normal

November 1 through November 30, 2024

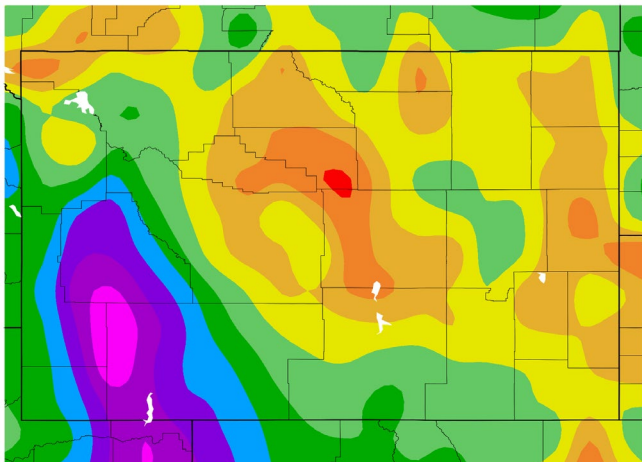
## Precipitation

Departure from Normal (inches)



Departure from Normal (°F)

## Temperature



HPKCC using provisional data from NOAA Regional Climate Centers

# CLIMATE SUMMARY

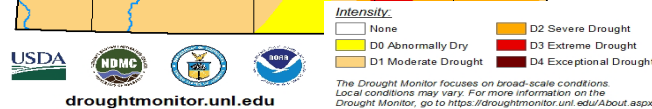
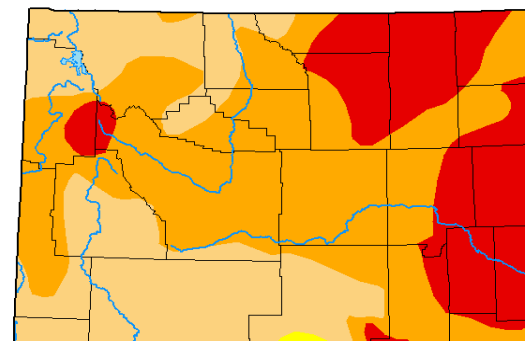
Precipitation in the Bighorn River basin above Yellowtail Dam was below average for November. The temperature was above average.

Based on the climate outlook for December, there is an equal chance precipitation will be either below, above, or near average in the southern part of the basin with a 33 to 40 percent chance it will be above average in the northern part of the basin. There is a 40 to 60 percent chance temperatures will be above average.

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

## Wyoming Drought Monitor Map

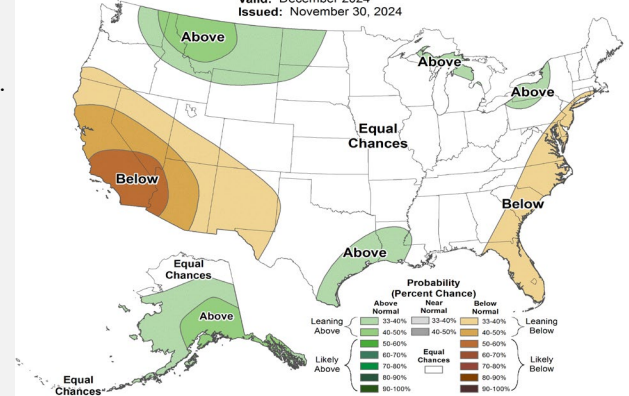
November 26, 2024



# December Climate Outlook

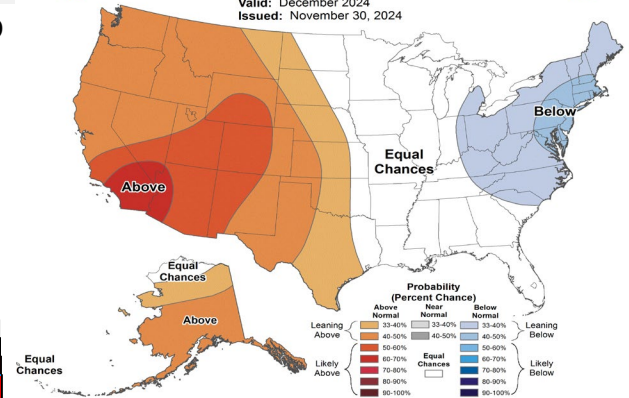
## Precipitation Monthly Precipitation Outlook

Valid: December 2024  
Issued: November 30, 2024



## Temperature Monthly Temperature Outlook

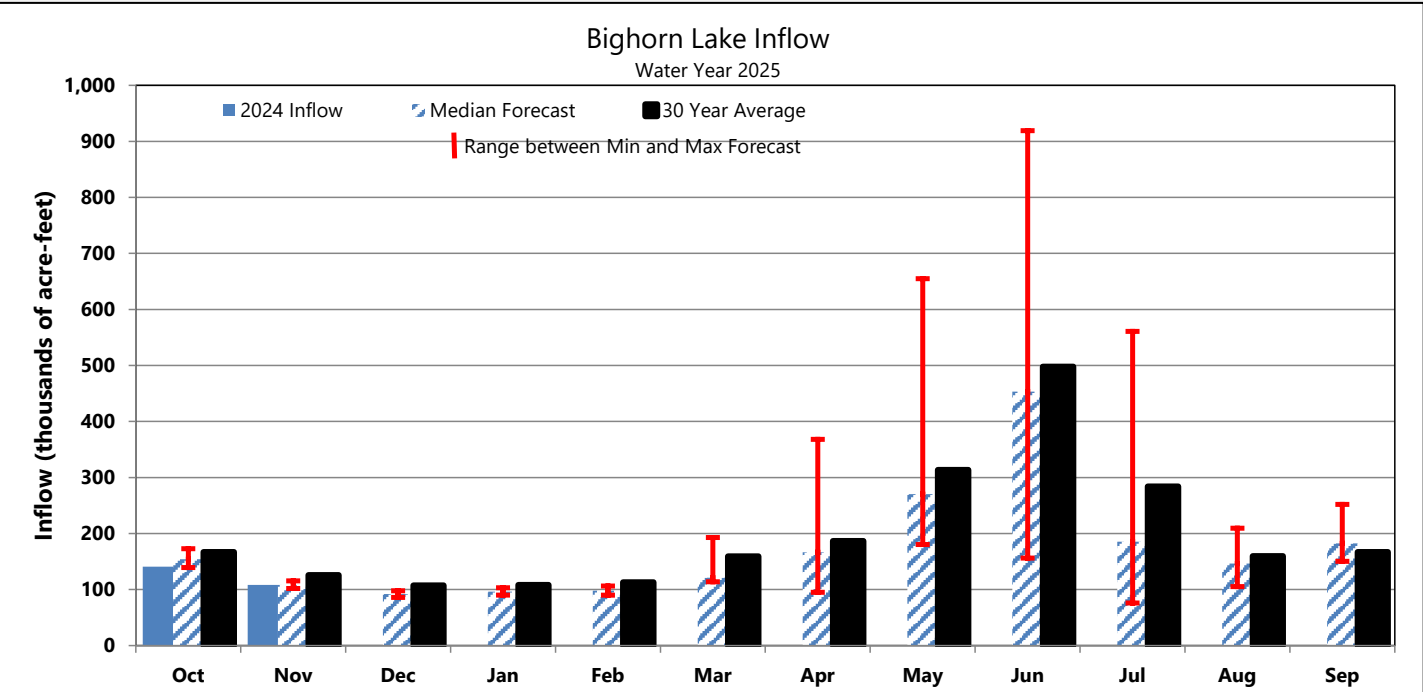
Valid: December 2024  
Issued: November 30, 2024



# 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 November inflow was near the median inflow forecast.

November Forecast Review				
	Median Forecast (kaf)	Actual (kaf)	Difference (kaf)	Actual (% of Avg)
November Inflow	108.5	108.4	(0.1)	86

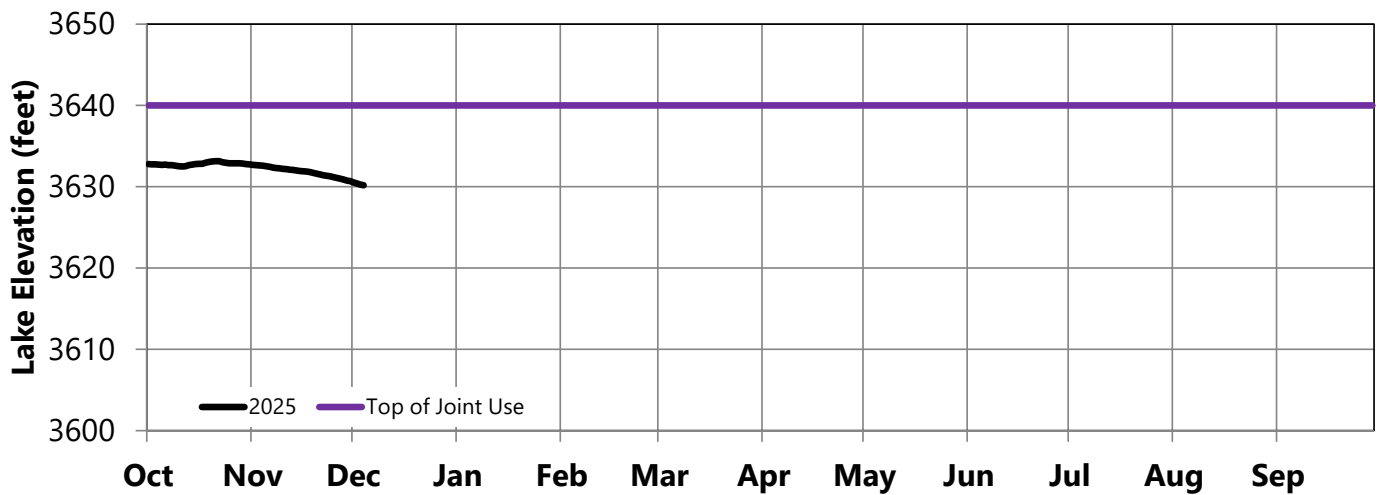


# OPERATIONS REVIEW (October 1, 2024 through November 30, 2024)

Releases to the Bighorn River decreased to 2,210 cfs during November based on winter release criteria. The elevation of Bighorn Lake decreased by 2.1 feet during November.

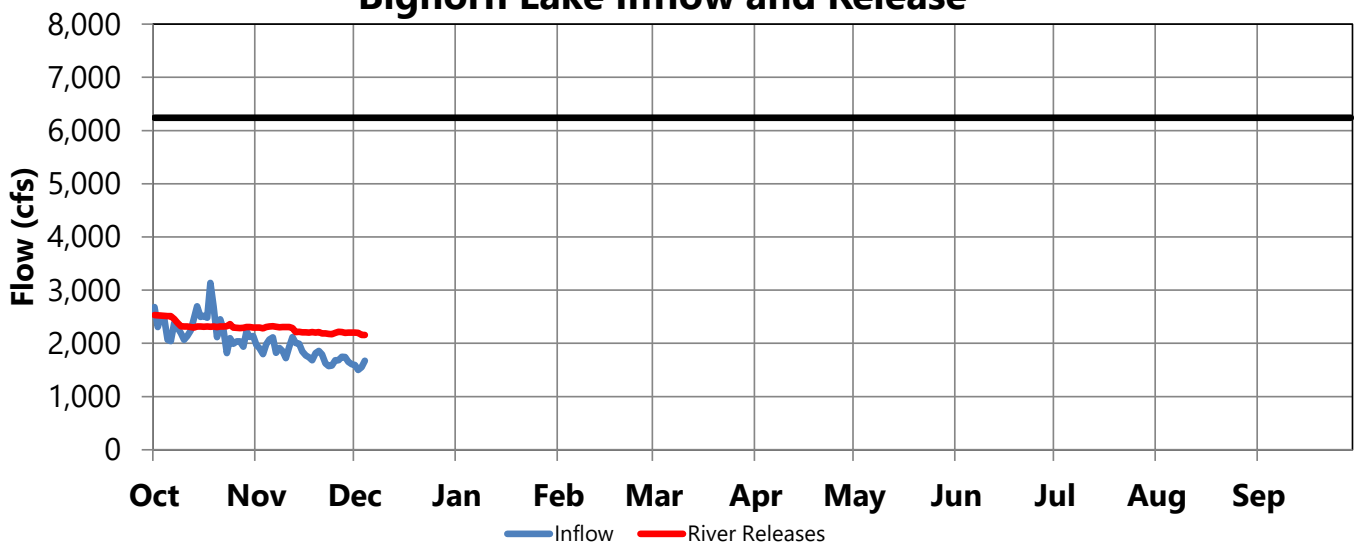
December 1 Storage Conditions				
	Elevation feet	Storage acre-feet	Percent of Average	Percent Full
Bighorn Lake	3630.7	902,959	103	89
Buffalo Bill	5371.3	372,039	85	58
Boysen	4713.6	544,014	96	73

## Bighorn Lake Operations Water Year 2025



Average November Inflow			Average November Release		
	Monthly Avg cfs	Percent of Average		Monthly Avg cfs	Percent of Average
Bighorn Lake	1,820	86	Bighorn River	2,245	92
Buffalo Bill	245	59	Buffalo Bill Total Release	195	58
Boysen	645	77	Boysen Release	700	87

## Bighorn Lake Inflow and Release



# OPERATIONS OUTLOOK (December 1, 2024 through March 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.

## Median Inflow Conditions

	Dec	Jan	Feb	Mar
Boysen Release (cfs)	699	699	700	699
Buffalo Bill Release (cfs)	203	203	203	203
Tributary Gain (cfs)	590	667	861	1,070
Monthly Inflow (cfs)	1,492	1,569	1,764	1,972
Monthly Inflow (kaf)	91.8	96.5	97.9	121.3
Monthly Release (kaf)	135.9	135.9	122.7	152.3
Afterbay Release (cfs)	2,210	2,210	2,210	2,476
River Release (cfs)	2,210	2,210	2,210	2,476
End-of-Month Content (kaf)	863.1	828.0	807.2	780.4
End-of-Month Elevation (feet)	3626.2	3621.6	3618.6	3614.4

## Minimum Inflow Conditions

	Dec	Jan	Feb	Mar
Boysen Release (cfs)	699	699	700	699
Buffalo Bill Release (cfs)	205	205	205	205
Tributary Gain (cfs)	494	561	715	948
Monthly Inflow (cfs)	1,398	1,465	1,620	1,852
Monthly Inflow (kaf)	86.0	90.1	90.0	113.9
Monthly Release (kaf)	135.9	133.4	118.3	123.0
Afterbay Release (cfs)	2,210	2,170	2,130	2,000
River Release (cfs)	2,210	2,170	2,130	2,000
End-of-Month Content (kaf)	857.4	818.3	793.9	789.1
End-of-Month Elevation (feet)	3625.5	3620.3	3616.5	3615.8

## Maximum Inflow Conditions

	Dec	Jan	Feb	Mar
Boysen Release (cfs)	699	699	700	1,299
Buffalo Bill Release (cfs)	205	205	205	644
Tributary Gain (cfs)	686	774	1,008	1,194
Monthly Inflow (cfs)	1,590	1,678	1,913	3,137
Monthly Inflow (kaf)	97.8	103.2	106.3	192.9
Monthly Release (kaf)	135.9	138.3	135.3	270.7
Afterbay Release (cfs)	2,210	2,250	2,436	4,403
River Release (cfs)	2,210	2,250	2,436	4,403
End-of-Month Content (kaf)	869.2	838.3	813.2	739.6
End-of-Month Elevation (feet)	3626.9	3623.0	3619.5	3607.1

# OPERATIONS OUTLOOK (December 1, 2024 through March 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)

	Dec	Jan	Feb	Mar
Median Forecast	0	0	0	0
Minimum Forecast	0	0	0	0
Maximum Forecast	0	0	0	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: 6,200 cfs

### Yellowtail Powerplant Release (cfs)

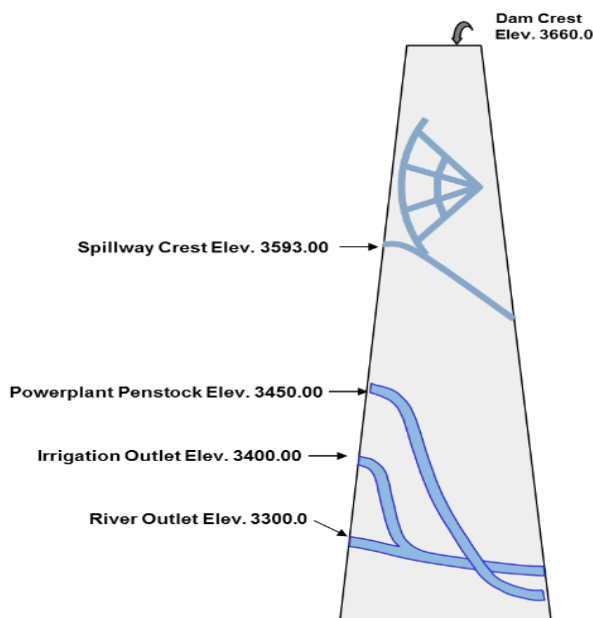
	Dec	Jan	Feb	Mar
Median Forecast	2,140	2,140	2,140	2,406
Minimum Forecast	2,140	2,100	2,060	1,930
Maximum Forecast	2,140	2,180	2,366	3,995

### Yellowtail Powerplant Generation (gwh)

	Dec	Jan	Feb	Mar
Median Forecast	48	48	44	54
Minimum Forecast	48	47	42	44
Maximum Forecast	48	49	48	90

### Yellowtail Spill (cfs)

	Dec	Jan	Feb	Mar
Median Forecast	0	0	0	0
Minimum Forecast	0	0	0	0
Maximum Forecast	0	0	0	339

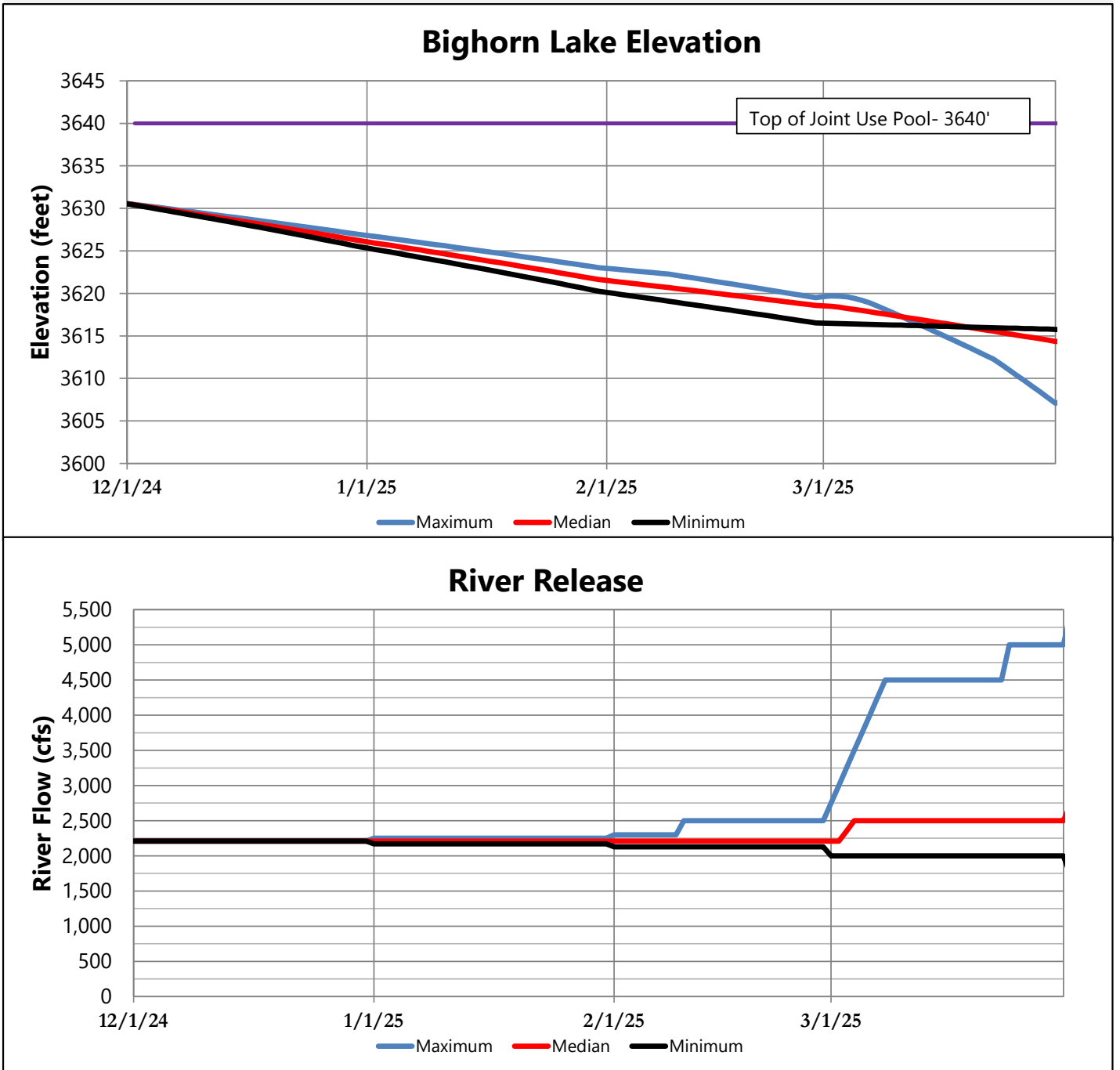


## Release Outlook by Outlet

Yellowtail Powerplant bypass releases are not anticipated between now and end of March under median and minimum inflow conditions. A bypass release may occur in March under maximum inflow conditions.

# OPERATIONS OUTLOOK (December 1, 2024 through March 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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[https://www.usbr.gov/gp/lakes\\_reservoirs/wareperts/main\\_menu.html](https://www.usbr.gov/gp/lakes_reservoirs/wareperts/main_menu.html)