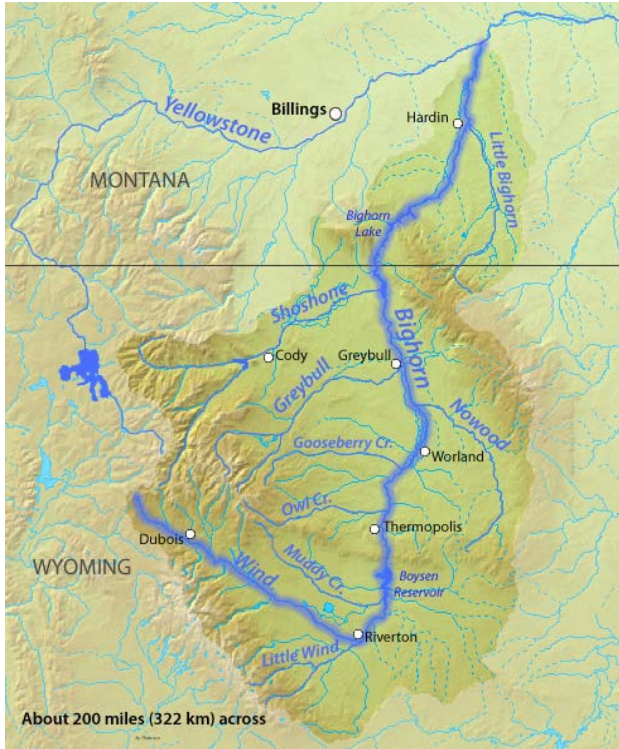


# Yellowtail Dam Water Supply and Projected Operations



BUREAU OF RECLAMATION

**August 2020**



Bighorn River Basin Map Source: DEMIS Mapsverver

<b>August Operating Range</b>			
<b>Forecast</b>	<b>Minimum</b>	<b>Median</b>	<b>Maximum</b>
<b>Monthly Average Inflow (cfs)</b>	1,660	1,945	2,650
<b>Monthly Average River Release (cfs)</b>	2,385	2,455	2,500
<b>End of August Elevation (feet)</b>	3630.4	3631.8	3635.8
<b>August 2020 Inflow Forecast</b>			
August Volume			120
Percent of Average			77
<b>Water Year</b>	<b>Historic Inflow (kaf)</b>	<b>Rank</b>	
2019	207	14	
2018	171	23	
2017	216	12	
2016	136	32	
<b>30 Year Average</b>	155		



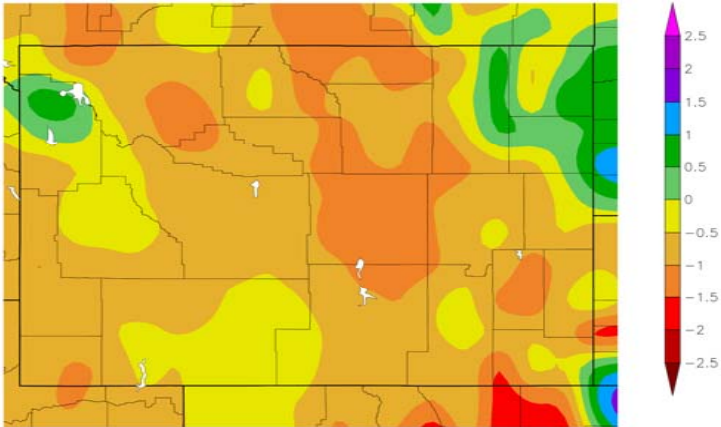


# Climate Departure from Normal

July 1 through July 31, 2020

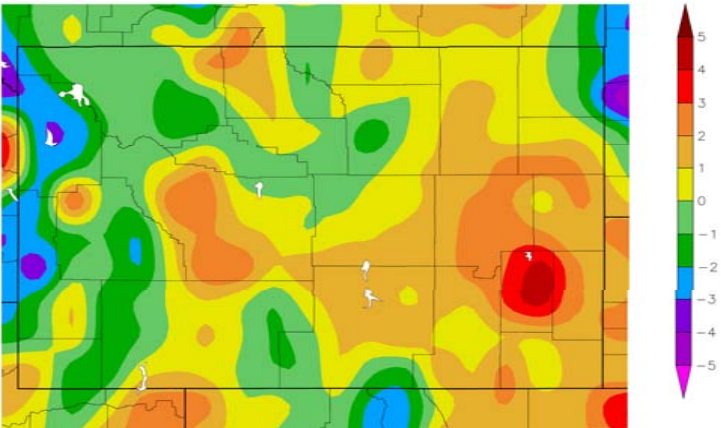
## Precipitation

Departure from Normal (inches)



## Temperature

Departure from Normal (°F)



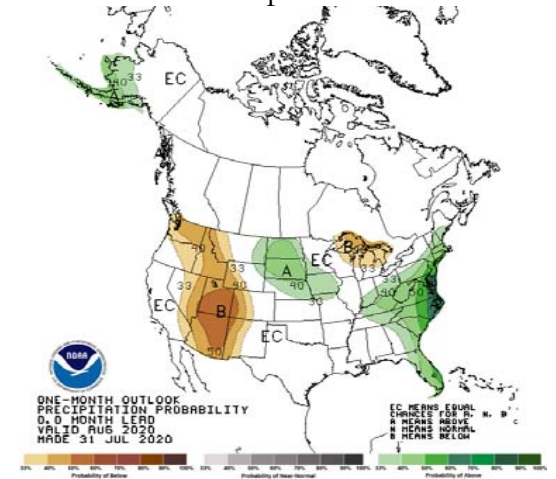
# CLIMATE SUMMARY

The climate in the Bighorn Basin above Yellowtail Dam was drier than average during July. Average monthly temperatures were a mix of above and below average throughout the Basin.

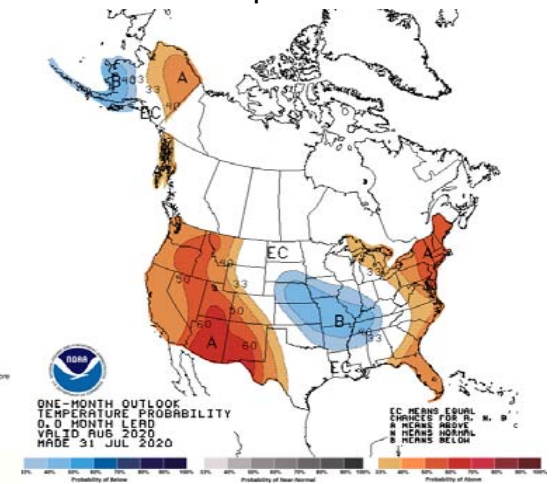
The climate outlook for August shows there is a 33 to 40 percent chance that precipitation will continue to be below average and temperatures will be above average in the western portion of the Basin and there is an equal chance above average, below average, or average precipitation and temperatures for the remaining portion of the basin.

# August Climate Outlook

## Precipitation

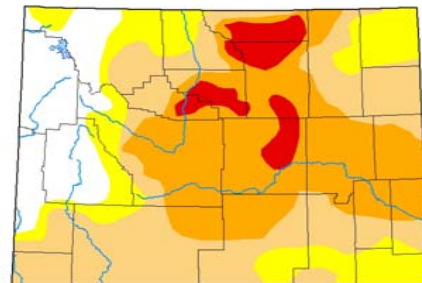


## Temperature



## U.S. Drought Monitor Wyoming

July 28, 2020  
(Released Thursday, Jul. 30, 2020)  
Valid 8 a.m. EDT



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

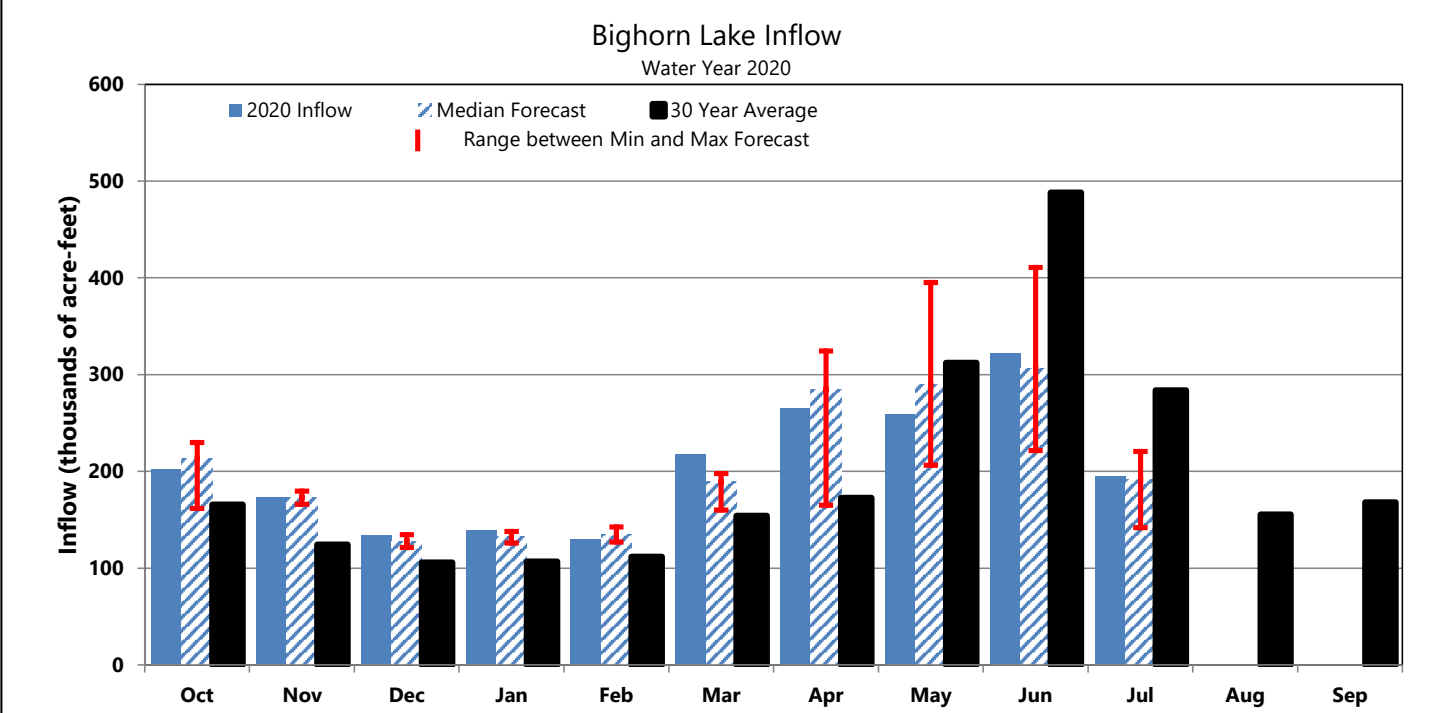
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <http://droughtmonitor.nsl.edu/About.aspx>

Author:  
Richard Heim  
NCEI/NOAA

# FORECAST SUMMARY

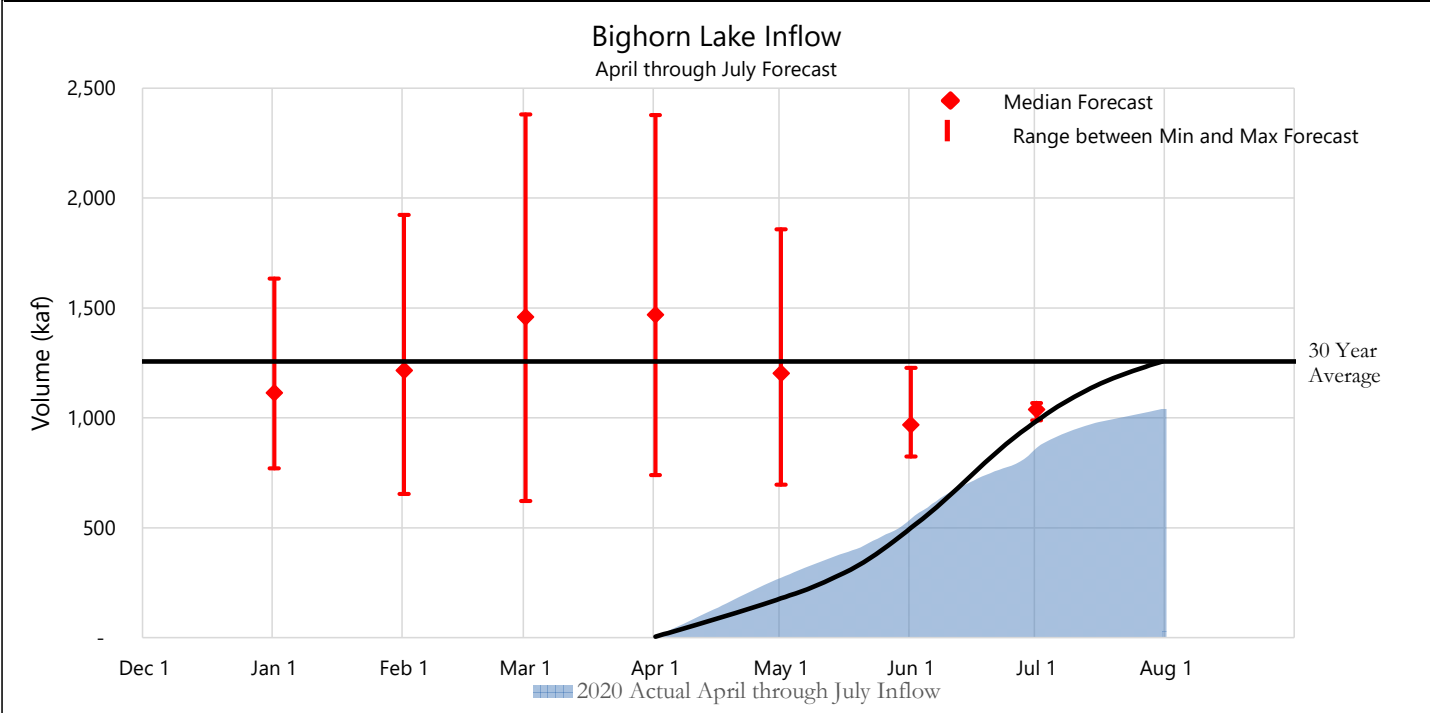
SNOTEL data, streamflow data and planned releases from Boysen and Buffalo Bill Reservoirs are used to compute an inflow forecast for Bighorn Lake.

July Forecast Review				
	Median Forecast (kaf)	Actual (kaf)	Difference (kaf)	Actual (% of Avg)
July Inflow	191.8	195.2	3.4	69



## April through July Inflow Forecast Review

Actual April-July Inflow	1,041.7 kaf	83 percent of the 30-year average	30 Year Average 1,256.4 kaf
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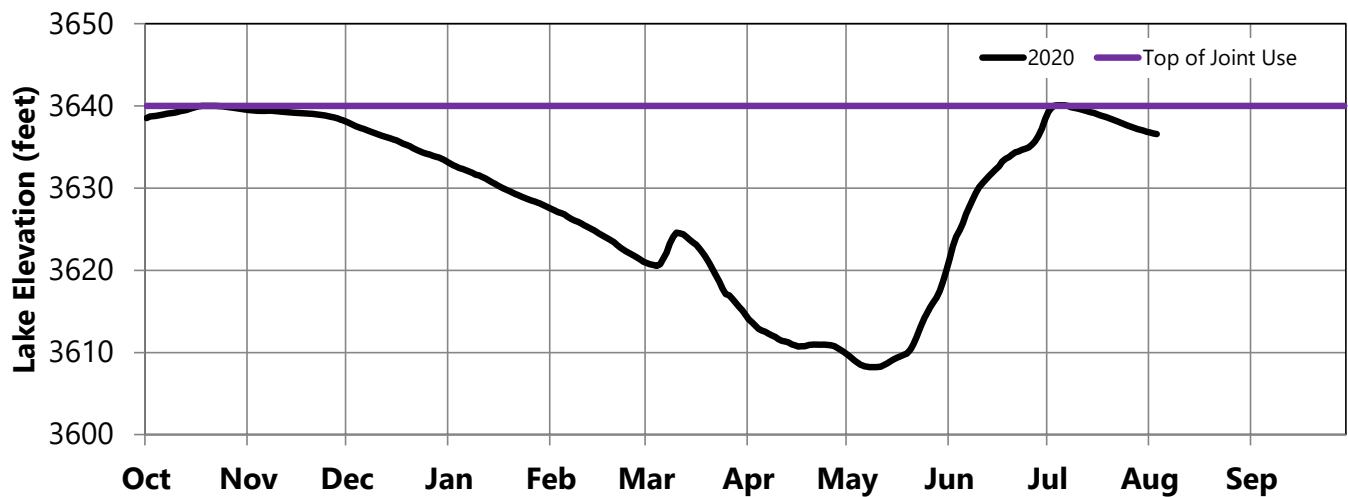
# OPERATIONS REVIEW (October 1 through August 1)

River releases were increased to 5,300 cfs during the first part of the July from the heavy precipitation that fell towards the end of June. Storage in Bighorn Lake entered the exclusive flood control pool with a maximum elevation of 3640.1 feet on July 5. As inflows receded during July, releases were decreased to 2,500 cfs. Storage in Bighorn Lake decreased by 1.5 feet or 17,500 AF during July.

## August 1 Storage Conditions

	Elevation feet	Storage acre-feet	Percent of Average	Percent Full
Bighorn Lake	3636.9	982,612	106	96
Buffalo Bill	5388.0	602,230	103	93
Boysen	4719.4	638,351	105	86

## Bighorn Lake Operations Water Year 2020



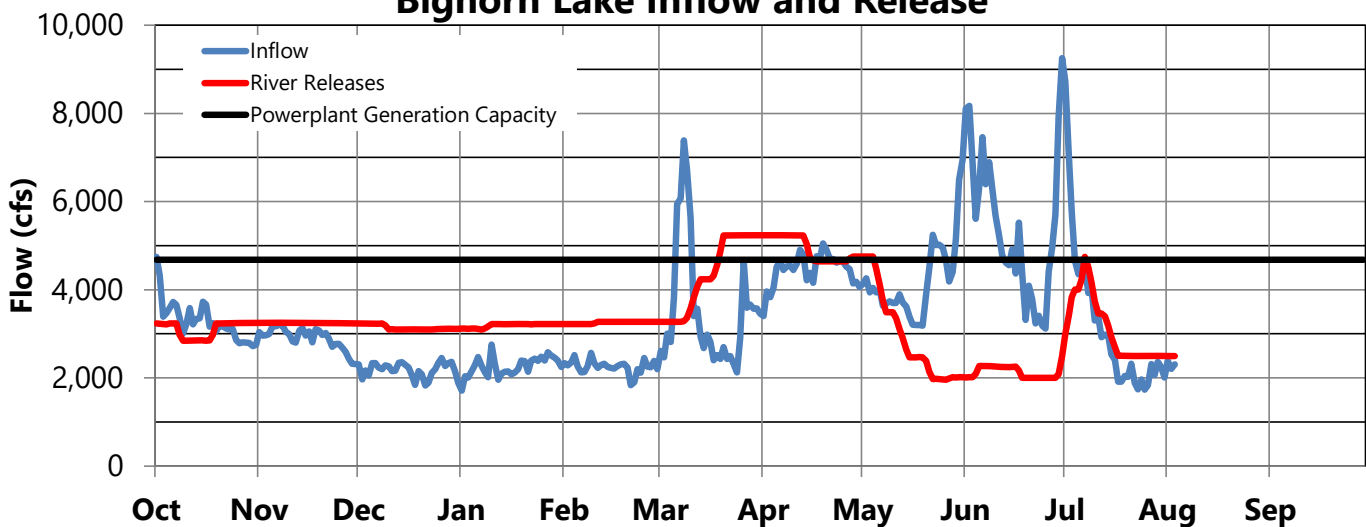
### Average July Release

	Monthly Avg cfs	Percent of Average
Bighorn River	3,105	69
Buffalo Bill Total Release	3,000	103
Boysen Release	1,395	55

### Average July Inflow

	Monthly Avg cfs	Percent of Average
Bighorn Lake	3,175	69
Buffalo Bill	2,440	85
Boysen	1,300	59

## Bighorn Lake Inflow and Release



## OPERATIONS OUTLOOK (August 1 through November 30)

River releases are expected to be 2,500 cfs for the first part of the month then reduced to 2,400 cfs under median inflow conditions. In accordance with current criteria, releases from Yellowtail Dam are adjusted as needed based on actual and revised forecasted inflows to stay on track with the October 31 elevation target as long as river releases can be maintained at 2,500 cfs or more. The end of October elevation target is a range between 3635 to 3640 feet. If river releases can not be maintained at 2,500 cfs or more while using the end of October elevation target, river releases are adjusted to the approximate expected winter release.

### Median Inflow Conditions

	Aug	Sep	Oct	Nov
Boysen Release (cfs)	1,251	1,101	1,000	600
Buffalo Bill Release (cfs)	1,761	1,600	696	355
Tributary Gain (cfs)	-1,065	114	990	866
Monthly Inflow (cfs)	1,947	2,815	2,686	1,821
Monthly Inflow (kaf)	119.7	167.5	165.2	108.3
Monthly Release (kaf)	177.9	159.7	147.5	139.6
Afterbay Release (cfs)	2,894	2,685	2,399	2,346
River Release (cfs)	2,455	2,400	2,350	2,346
End-of-Month Content (kaf)	928.7	940.6	962.6	935.5
End-of-Month Elevation (feet)	3631.8	3633.0	3635.1	3632.5

### Minimum Inflow Conditions

	Aug	Sep	Oct	Nov
Boysen Release (cfs)	1,251	1,101	1,000	600
Buffalo Bill Release (cfs)	1,761	1,499	696	205
Tributary Gain (cfs)	-1,350	-222	729	842
Monthly Inflow (cfs)	1,662	2,378	2,425	1,647
Monthly Inflow (kaf)	102.2	141.5	149.1	98.0
Monthly Release (kaf)	174.4	139.8	129.0	123.3
Afterbay Release (cfs)	2,837	2,350	2,099	2,072
River Release (cfs)	2,387	2,050	2,050	2,072
End-of-Month Content (kaf)	914.7	920.5	944.8	923.7
End-of-Month Elevation (feet)	3630.4	3631.0	3633.4	3631.3

### Maximum Inflow Conditions

	Aug	Sep	Oct	Nov
Boysen Release (cfs)	1,299	1,200	1,099	1,000
Buffalo Bill Release (cfs)	1,761	1,649	1,221	405
Tributary Gain (cfs)	-411	660	1,352	906
Monthly Inflow (cfs)	2,649	3,509	3,672	2,311
Monthly Inflow (kaf)	162.9	208.8	225.8	137.5
Monthly Release (kaf)	179.9	198.2	193.7	175.6
Afterbay Release (cfs)	2,925	3,332	3,150	2,951
River Release (cfs)	2,500	3,132	3,150	2,951
End-of-Month Content (kaf)	969.9	984.7	1,021.0	987.1
End-of-Month Elevation (feet)	3635.8	3637.0	3640.0	3637.2

# OPERATIONS OUTLOOK (August 1 through November 30)

There is approximately 70 cfs of gain between Yellowtail Dam and Yellowtail Afterbay Dam from spring flowing into Yellowtail Afterbay. Total release from Yellowtail Dam is 70 cfs less than total release from Yellowtail Afterbay Dam. Yellowtail Powerplant is limited to 3 units due to on-going refurbishment project.

## Irrigation Demands Outlook

Bighorn Canal (cfs)

	Aug	Sep	Oct	Nov
Median Forecast	439	285	49	0
Minimum Forecast	450	300	49	0
Maximum Forecast	425	200	0	0

## Power Generation Outlook

Current Number of Units Available: 3 of 4

Approximate Yellowtail Powerplant Turbine Capacity: 6,150 cfs

Approximate Yellowtail Powerplant Generation Limit: 4,615 cfs

Yellowtail Powerplant Release (cfs)

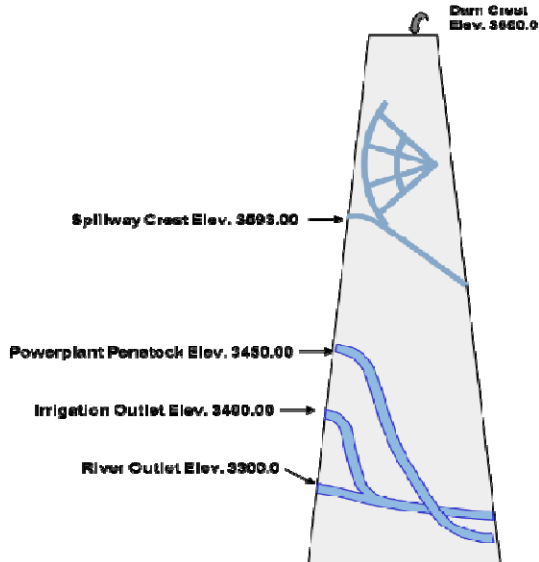
	Aug	Sep	Oct	Nov
Median Forecast	2,824	2,615	2,329	2,276
Minimum Forecast	2,767	2,280	2,029	2,002
Maximum Forecast	2,855	3,262	3,080	2,881

Yellowtail Powerplant Generation (gwh)

	Aug	Sep	Oct	Nov
Median Forecast	96.0	87.8	77.2	75.2
Minimum Forecast	93.6	75.0	66.7	65.9
Maximum Forecast	97.4	110.0	104.8	98.7

Yellowtail Spill (cfs)

	Aug	Sep	Oct	Nov
Median Forecast	0	0	0	0
Minimum Forecast	0	0	0	0
Maximum Forecast	0	0	0	0

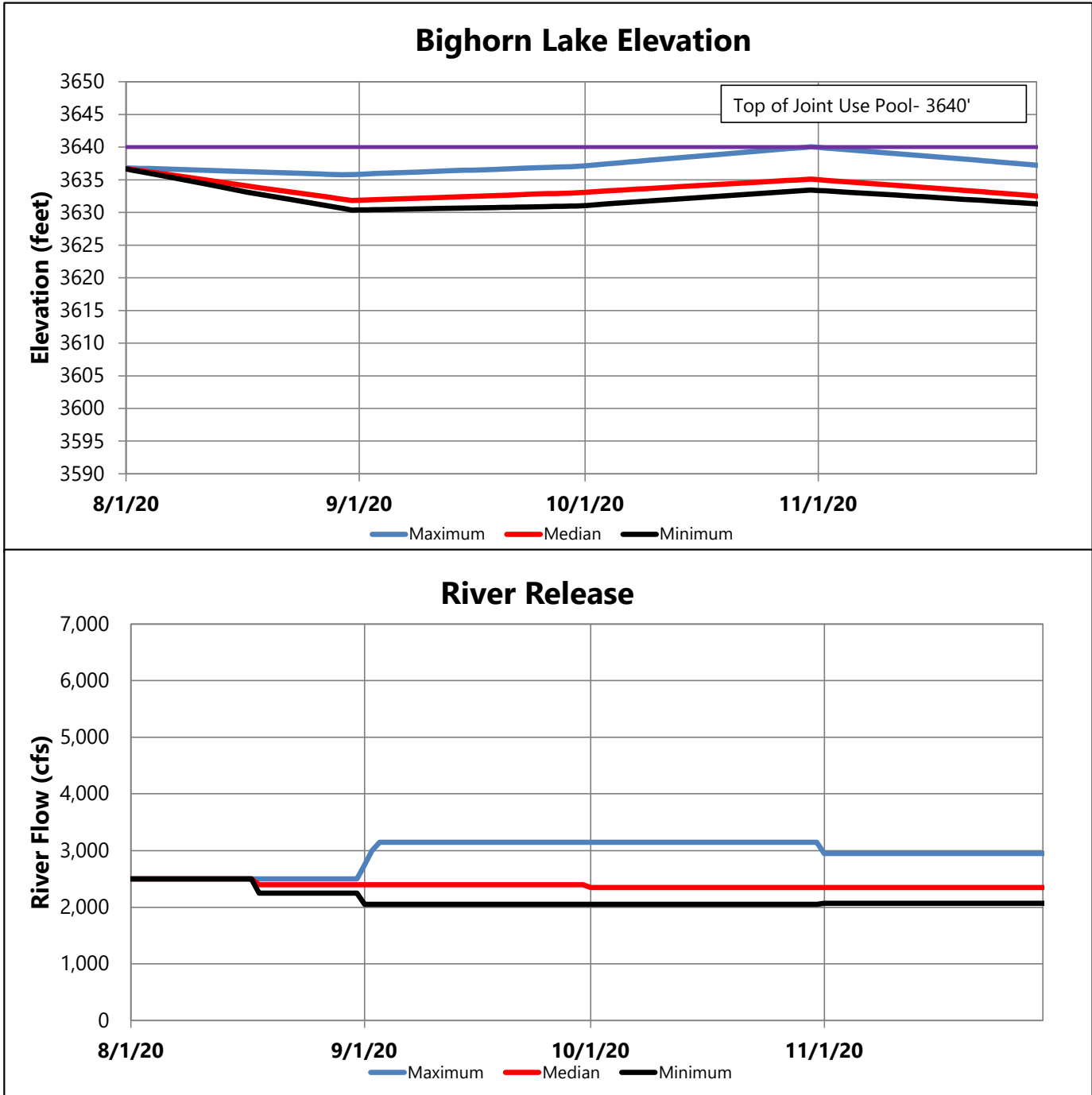


## Release Outlook by Outlet

All releases are currently going through the powerplant and are expected to go through the powerplant through the end of November.

# OPERATIONS OUTLOOK (August 1 through November 30)

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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