

# Gibson Dam Water Supply and Projected Operation *June 2023*

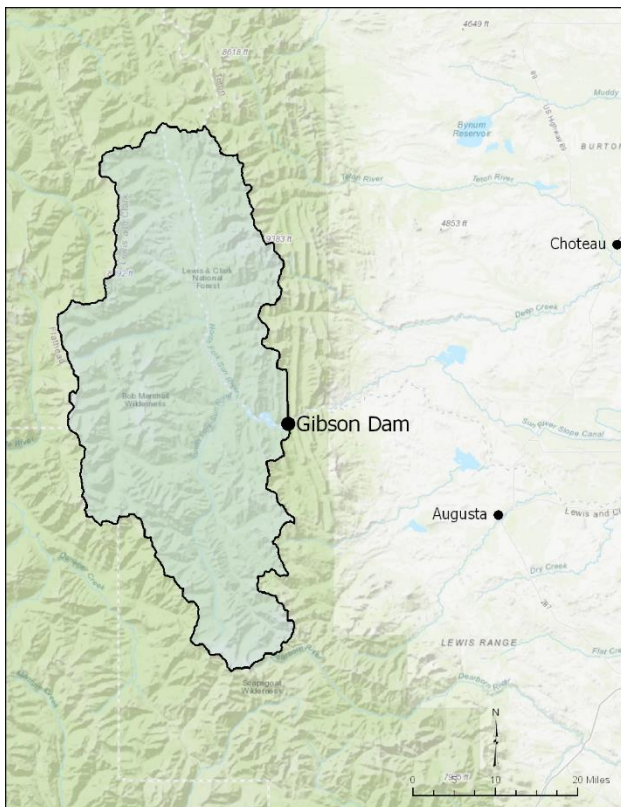


— BUREAU OF —  
**RECLAMATION**



*Gibson Dam*

<b>June Operating Range</b>			
<b>Forecast</b>	<i>Minimum</i>	<i>Median</i>	<i>Maximum</i>
Monthly Inflow (kaf)	100.0	120.0	230.0
Monthly Average Release (cfs)	1,680	2,000	3,860
Monthly Average Release Over Diversion Dam (cfs)	510	3,805	2,600
End of Month Content (kaf)	98.7	98.7	98.7



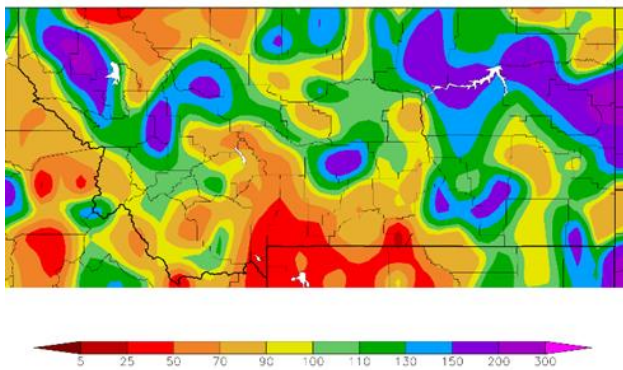
*Watershed above Gibson Dam*

<b>June through July Inflow Forecast</b>	
June – July Volume (kaf)	163.0
Percent of Average (%)	78
Water Year	Historic Inflow (kaf)
2022	233.8
2021	201.0
2020	222.5
2019	155.8
30 Year Average	208.9

# CLIMATE SUMMARY

## Western Regional Climate Center May 1- 30 Climate

### Percent of Normal Precipitation

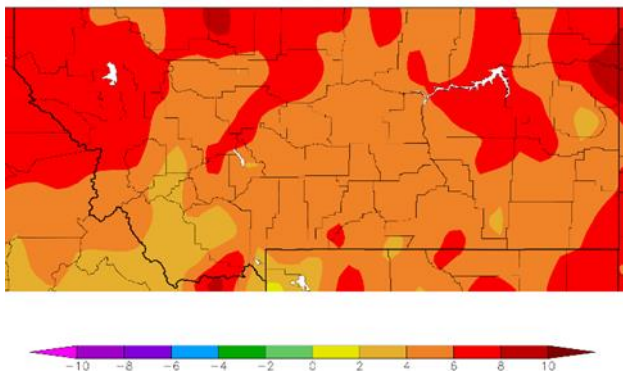


May temperatures were much warmer across all of Montana while the basin above Gibson Reservoir had mixed precipitation patterns.

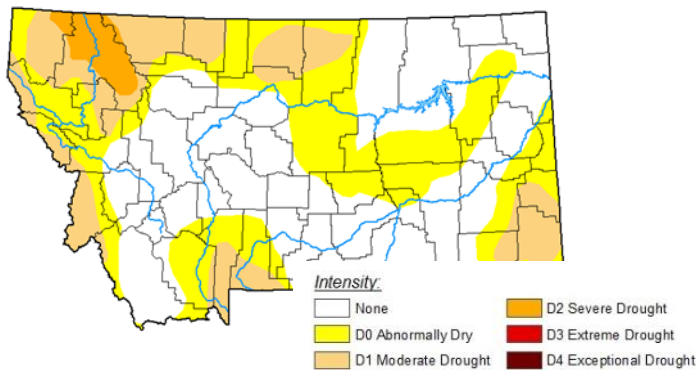
The one-month outlook forecast, dated May 31, is for 40-50% chance of above normal precipitation and a 40-50% chance of above normal temperatures during June.

Drought conditions are still present in the Sun River basin.

### Departure from Normal Temperature (F)



## MT Drought Monitor Map June 1, 2023

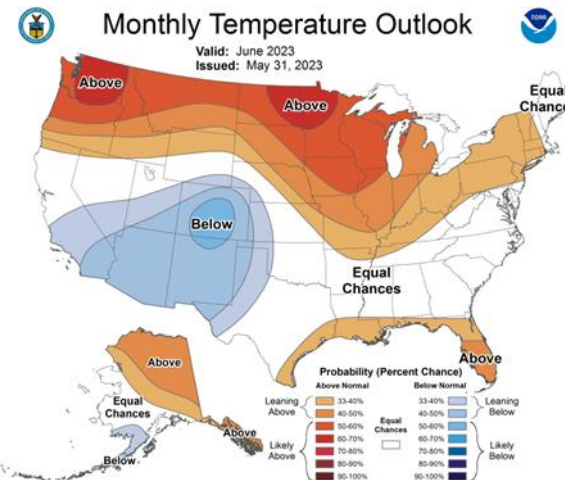
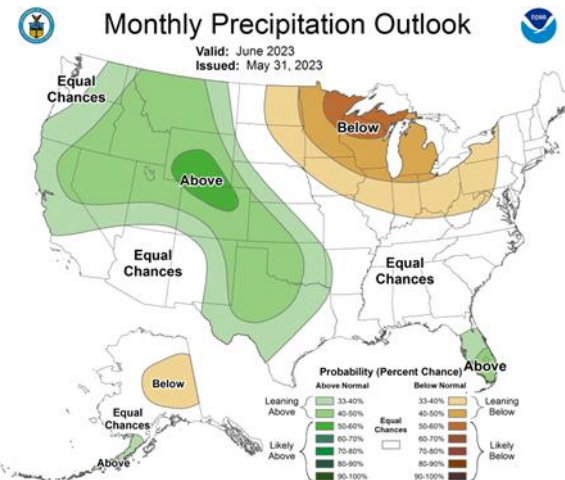


**Intensity**

- 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>

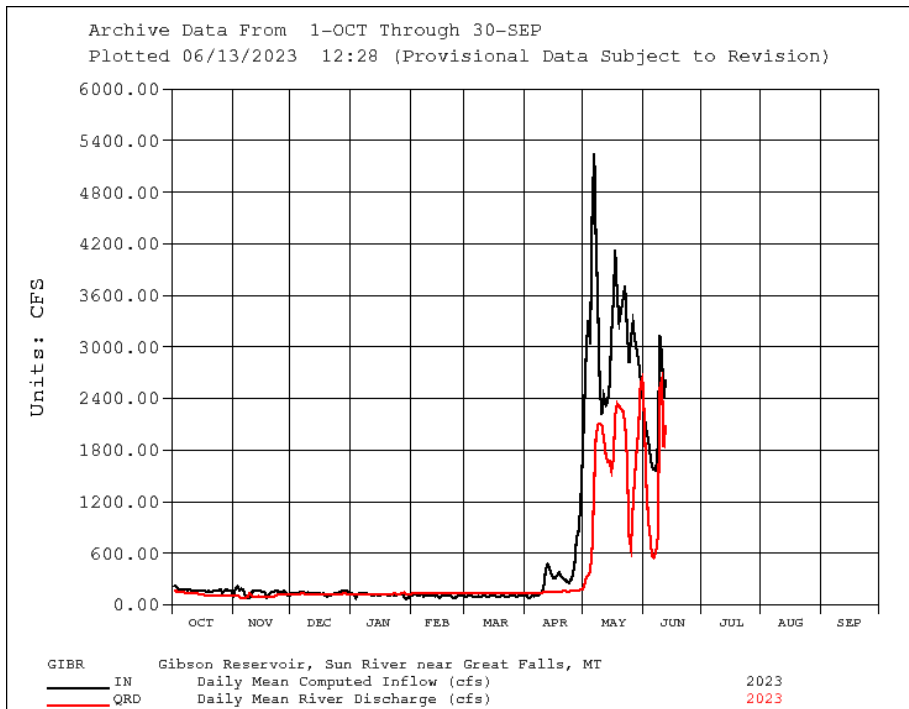
## National Weather Service June Weather Outlook



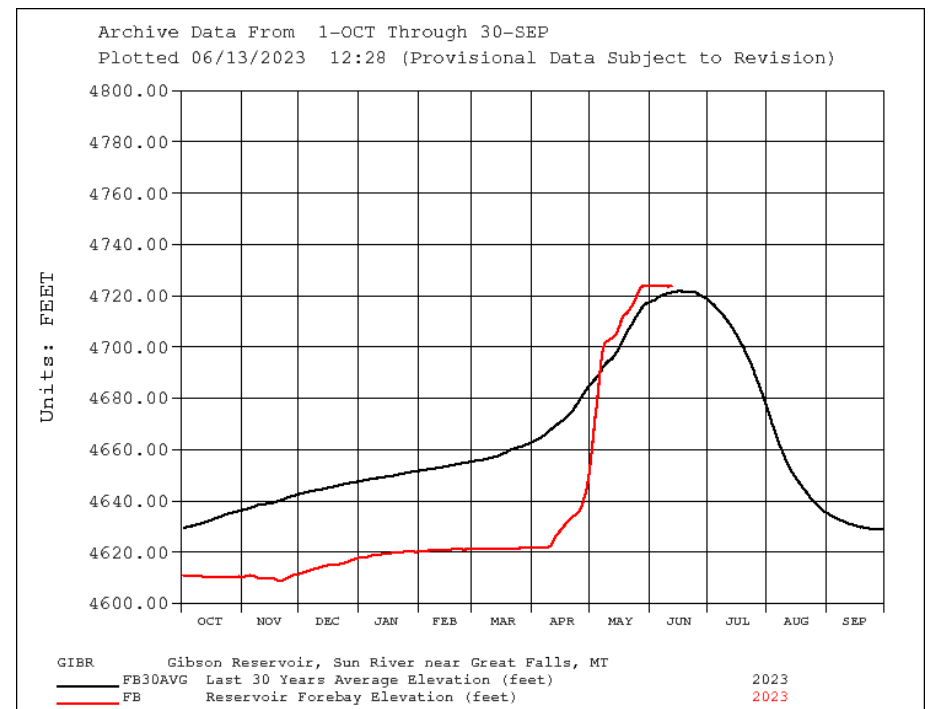
# Operations Review

May inflows totaled 195.5 kaf or 128 percent of average, while river release below the Sun River below Diversion Dam averaged near 1,620 cfs. On June 1, 2023 Gibson Dam elevation was 4,723.9 feet or 28,600 acre-feet. Hot temperatures started the snowmelt runoff early in May causing Gibson Reservoir to fill quickly. The below graphs summarize the inflows, releases, and storage content throughout water year 2023.

**Gibson Dam Inflow & Releases over Diversion Dam (cfs)**

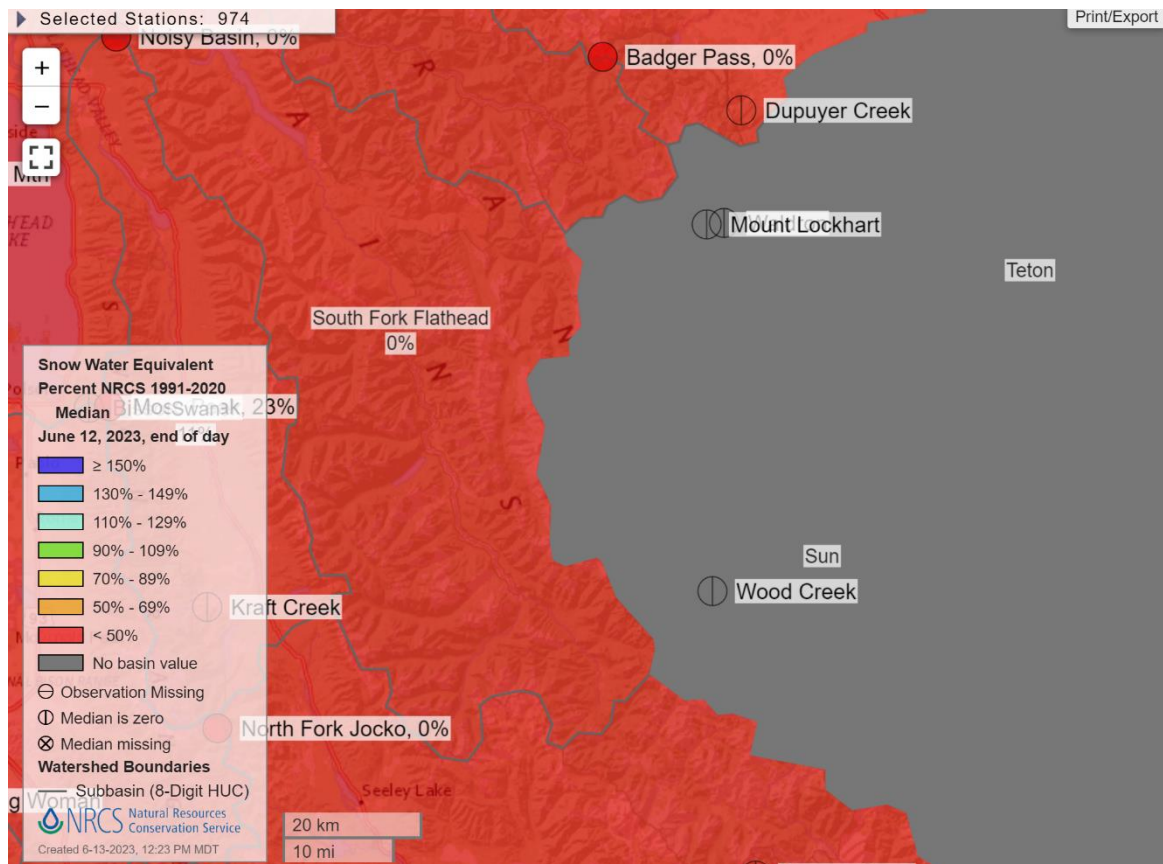


**Gibson Dam Storage (af)**



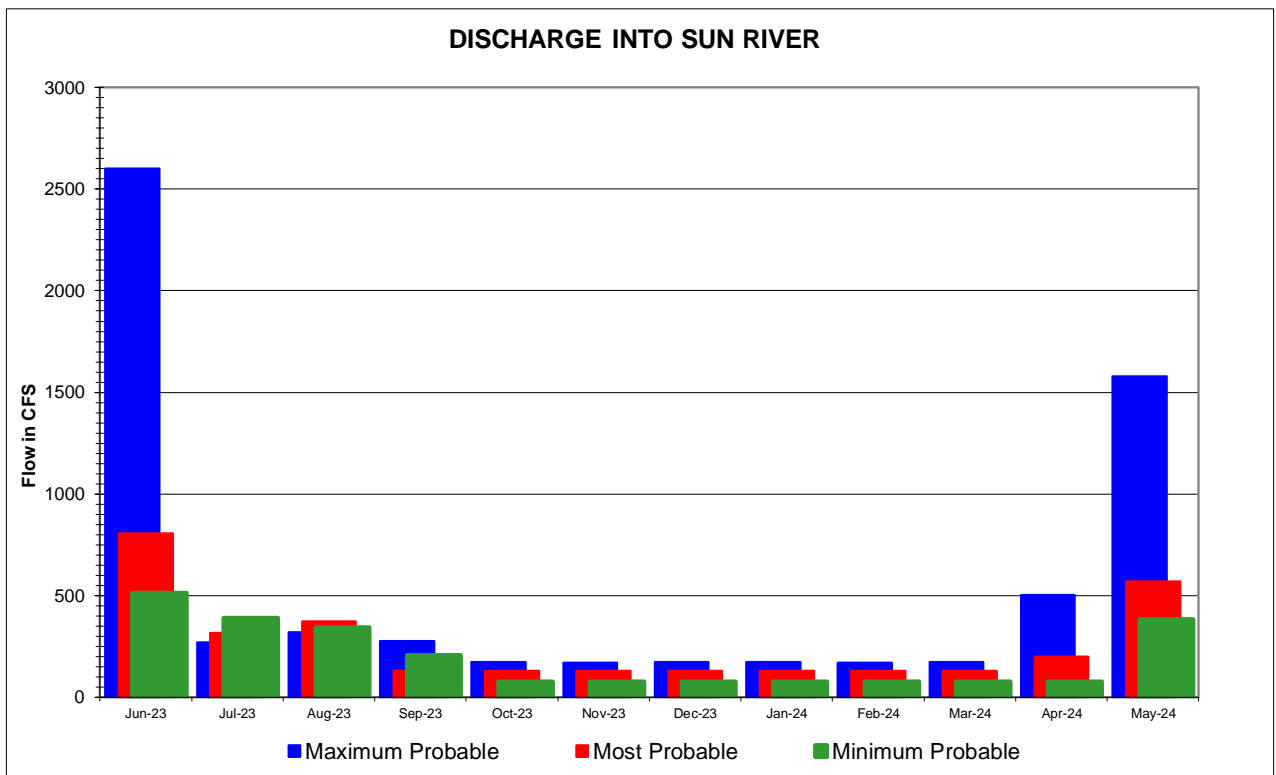
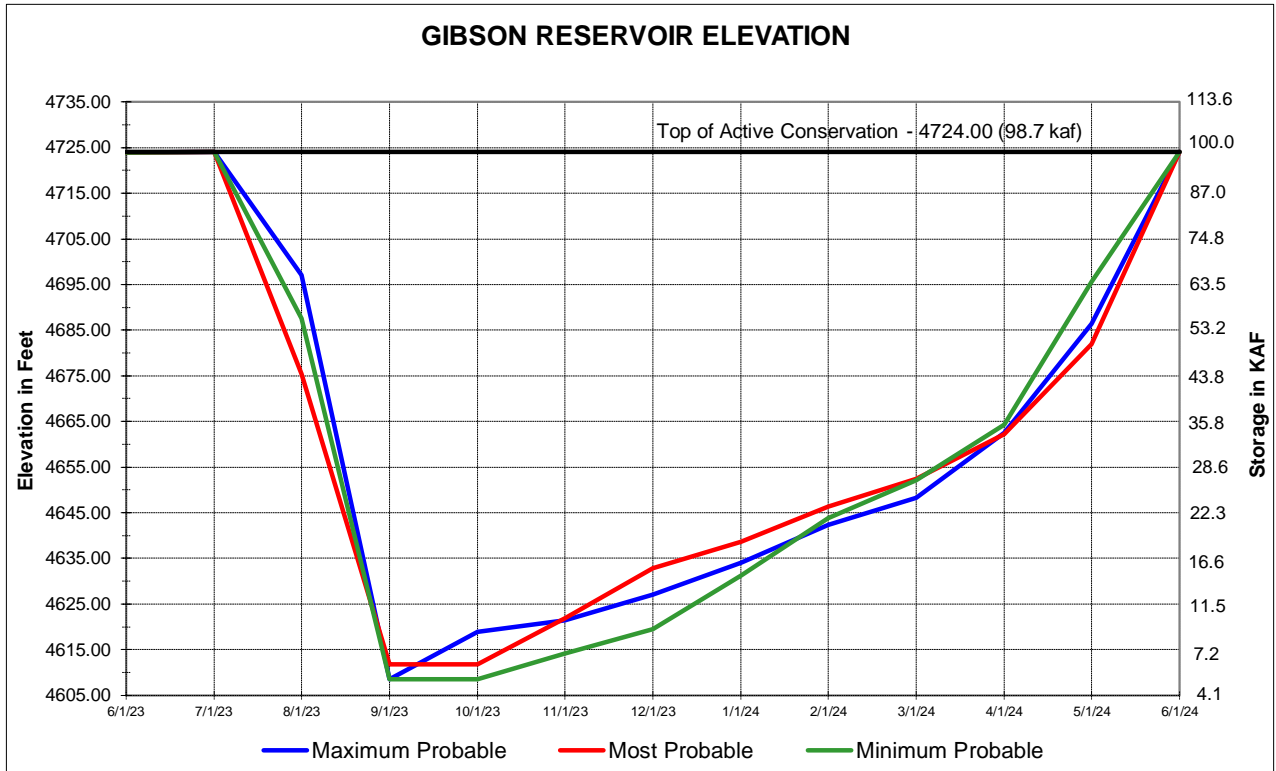
# Snowpack & Spring Runoff Forecast

The below Snow Water Equivalent graph is a composite of SNOTEL sites within the Sun River Basin that is managed by the Department of Natural Resource and Conservation Service (NRCS). The snowpack has all melted out in the Sun River The June through July runoff inflow forecast volume into Gibson Reservoir of 163,000 acre-feet, or 78 percent of average.



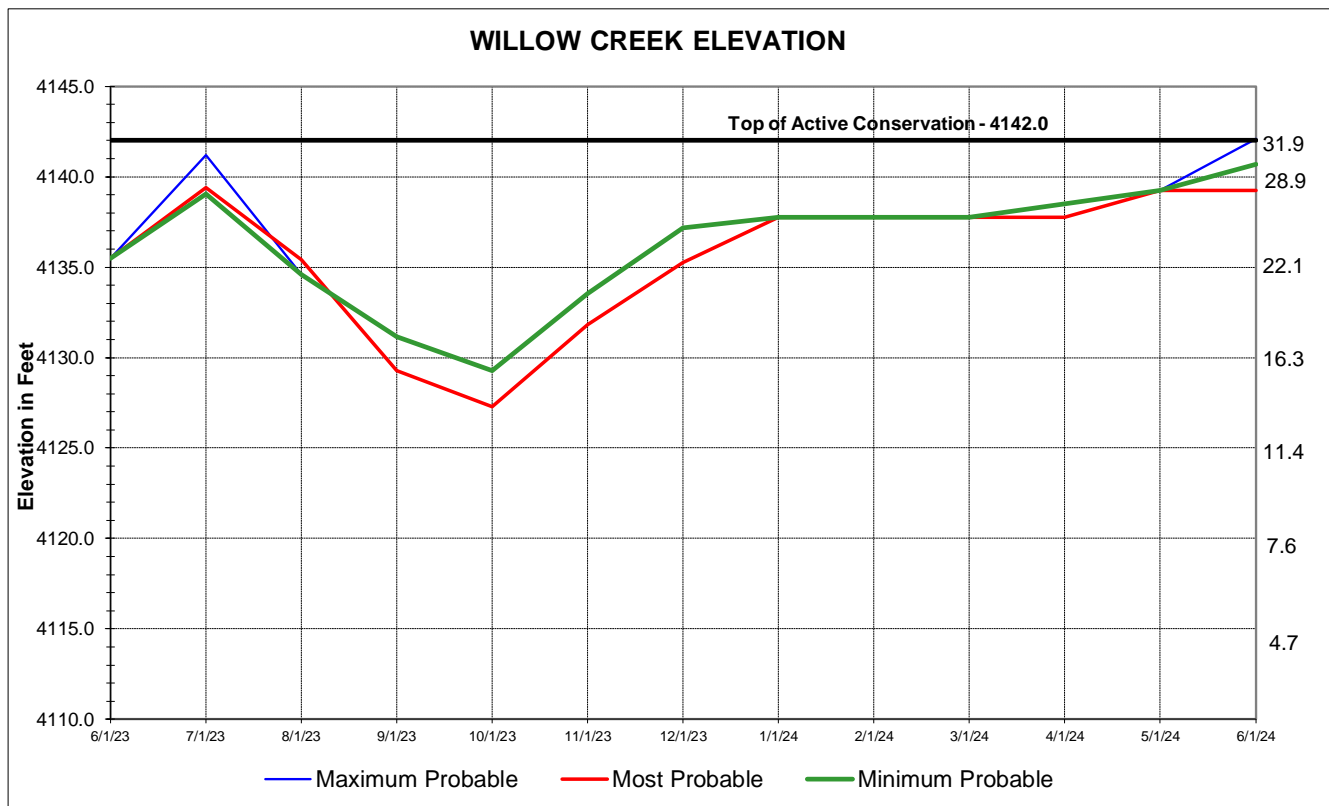
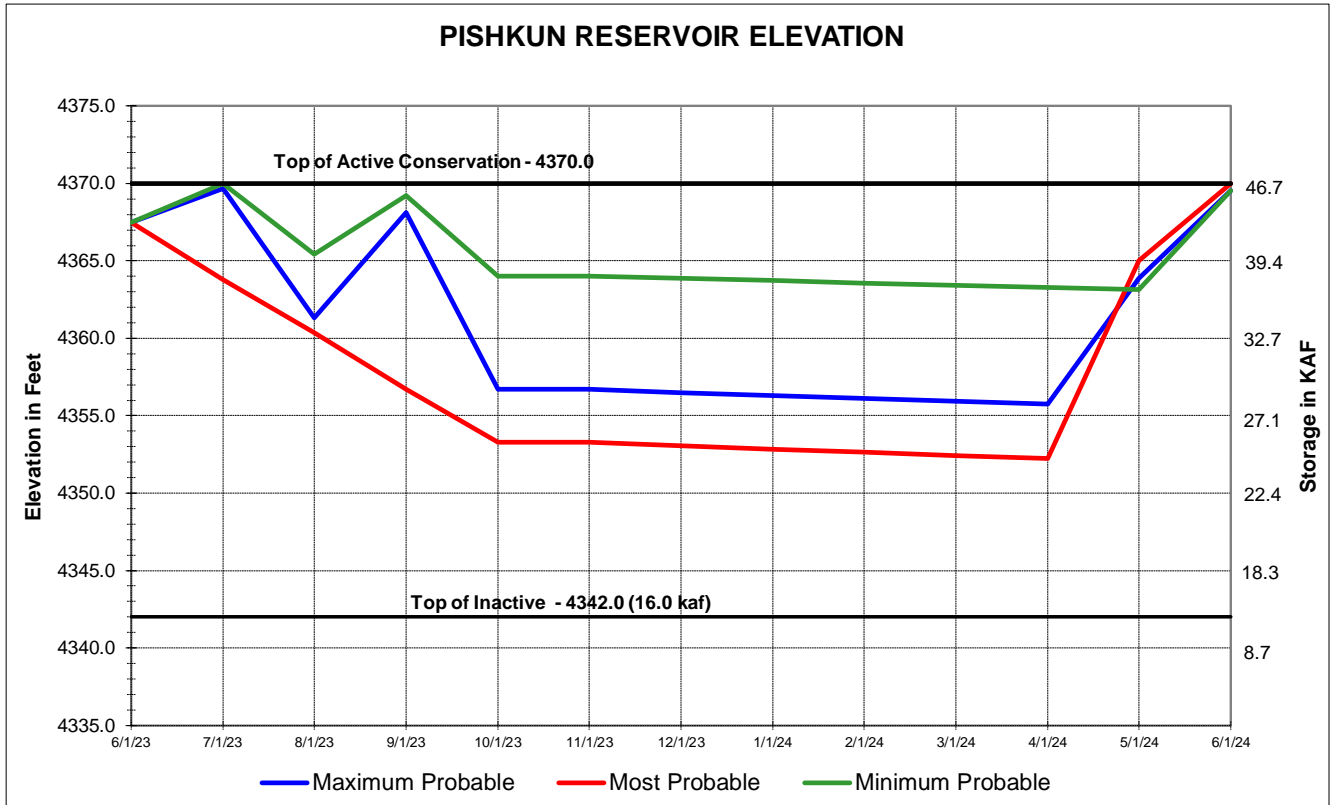
# Gibson Dam Operating Outlook

The graphs below depict a range of possible reservoir elevations at Gibson Dam and monthly average river releases below Diversion Dam over time. The most probable plan is based upon the June through July forecast volume. The maximum and minimum plans are based upon ranges of possible inflow volumes due to basin variabilities and forecast uncertainties.



# Pishkun Dam & Willow Creek Dam Operating Outlook

The graphs below depict a range of possible reservoir elevations at Pishkun Dam and Willow Creek Dam. The elevations are determined by the available water supply and irrigation demands in the Sun River Basin.





## SUN RIVER MONTHLY OPERATIONS – Maximum Probable Plan

Gibson Reservoir		Initial Cont Elev 4723.93 ft				Maximum Cont Elev 4724.01 ft				Minimum Cont Elev 4608.47 ft				
		98.6 kaf				98.7 kaf				5.0 kaf				
2023	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Total	
Monthly Inflow	kaf	230.0	65.0	27.0	19.0	15.0	16.0	13.0	13.5	12.0	18.0	59.0	200.0	687.5
Total Release	kaf	229.9	97.9	87.8	15.2	13.9	13.4	9.4	8.9	8.4	8.4	38.3	155.9	687.4
Total Release	cfs	3864	1592	1428	255	226	225	153	145	146	137	644	2535	
End-Month Content	kaf	98.7	65.8	5.0	8.8	9.9	12.5	16.1	20.7	24.3	33.9	54.6	98.7	
End-Month Elevation	ft	4724.01	4697.08	4608.47	4618.84	4621.39	4626.98	4634.03	4642.27	4648.27	4662.48	4686.39	4724.01	
Sun River Div Dam		Initial Cont Elev 4135.35 ft				Maximum Cont Elev 4143.40 ft				Minimum Cont Elev 4092.69 ft				
		22.9 kaf				33.9 kaf				0.1 kaf				
2023	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Total	
Gain Below Gibson	cfs	215	78	29	22	20	20	24	26	24	34	57	184	
Rels to WFC	cfs	76	0	0	0	75	76	7	0	0	0	0	20	
Rels to PSC	cfs	1400	1400	1138	0	0	0	0	0	0	0	200	1122	
Total Diversion	kaf	87.8	86.1	70.0	0.0	4.6	4.5	0.4	0.0	0.0	0.0	11.9	70.2	335.5
Total Diversion	cfs	1476	1400	1138	0	75	76	7	0	0	0	200	1142	
Flow Over Div Dam	kaf	154.9	16.6	19.6	16.5	10.5	10.1	10.5	10.5	9.8	10.5	29.8	97.0	396.3
Flow Over Div Dam	cfs	2603	270	319	277	171	170	171	171	170	171	501	1578	
Willow Crk Operations		Initial Cont Elev 4135.35 ft				Maximum Cont Elev 4143.40 ft				Minimum Cont Elev 4092.69 ft				
		22.9 kaf				33.9 kaf				0.1 kaf				
2023	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Total	
Native Inflow	kaf	4.0	2.0	1.0	0.8	0.8	0.7	0.5	0.5	0.5	1.0	1.4	3.0	16.2
Total Inflow	kaf	7.8	2.0	1.0	0.8	4.7	4.5	0.8	0.5	0.5	1.0	1.4	4.0	29.0
WCR Dam Rels	kaf	0.0	10.7	5.0	2.8	0.0	0.0	0.0	0.5	0.5	0.0	0.4	0.0	19.9
End-Month Content	kaf	30.7	22.0	18.0	16.0	20.7	25.2	26.0	26.0	26.0	27.0	28.0	32.0	
End-Month Elevation	ft	4141.19	4134.61	4131.17	4129.29	4133.53	4137.16	4137.77	4137.77	4137.77	4138.52	4139.26	4142.10	
Pishkun Operations		Initial Cont Elev 4367.45 ft				Maximum Cont Elev 4370.07 ft				Minimum Cont Elev 4341.99 ft				
		42.9 kaf				46.8 kaf				16.0 kaf				
2023	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Total	
Rels to PSC	kaf	83.3	86.1	70.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.9	69.0	320.3
Total Inflow	kaf	68.3	73.2	59.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1	55.2	266.3
PSH Dam Rels	kaf	65.0	85.0	50.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	47.0	262.0
End-Month Content	kaf	46.2	34.4	43.9	28.9	28.9	28.7	28.5	28.3	28.1	27.9	37.8	46.0	
End-Month Elevation	ft	4369.67	4361.32	4368.14	4356.69	4356.69	4356.50	4356.32	4356.13	4355.94	4355.75	4363.86	4369.54	
Greenfields Irrig		Initial Cont Elev 4367.45 ft				Maximum Cont Elev 4370.07 ft				Minimum Cont Elev 4341.99 ft				
		42.9 kaf				46.8 kaf				16.0 kaf				
2023	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Total	
GID Demand	kaf	65.0	85.0	50.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	47.0	262.00

### Contact Us

Stephanie Micek  
smicek@usbr.gov  
406-247-7320

Clayton Jordan  
cjordan@usbr.gov  
406-247-7332

Chris Gomer  
cgomer@usbr.gov  
406-247-7307

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