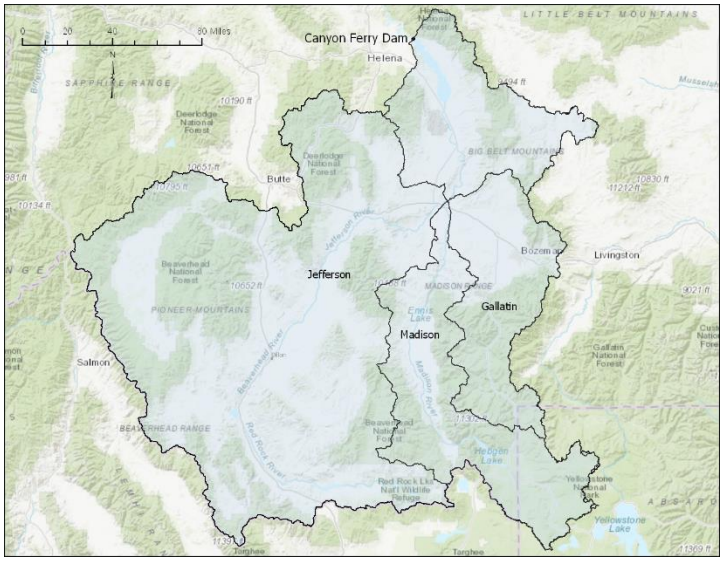
Canyon Ferry Dam
Water Supply and Projected Operations
May 2023

BUREAU OF RECLAMATION



Watershed above Canyon Ferry Dam

May Operating Range			
Forecast	Minimum	Median	Maximum
Monthly Inflow (kaf)	457	648	763
End of Month Elevation (ft)	3784.4	3787.9	3788.0
Missouri River below Holter Dam Average River Release (cfs)	5,000	6,500	8,000

Canyon Ferry Dam

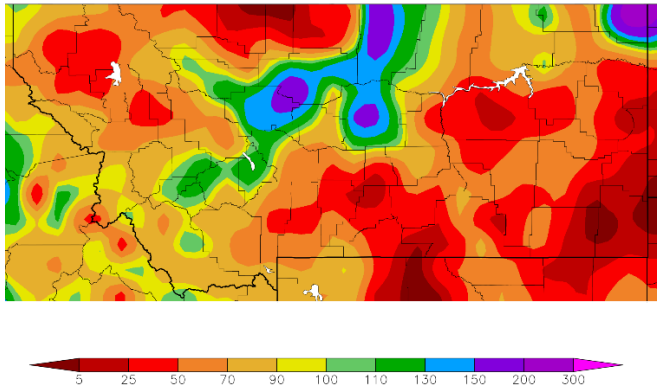
May through July Inflow Forecast	
May - July Volume (kaf) Percent of Average (%)	1,772.0 117

Water Year	Historic Inflow (kaf)
2022	1,312
2021	709
2020	1,543
2019	1,556
30 Year Average	1,518

Western Regional Climate Center

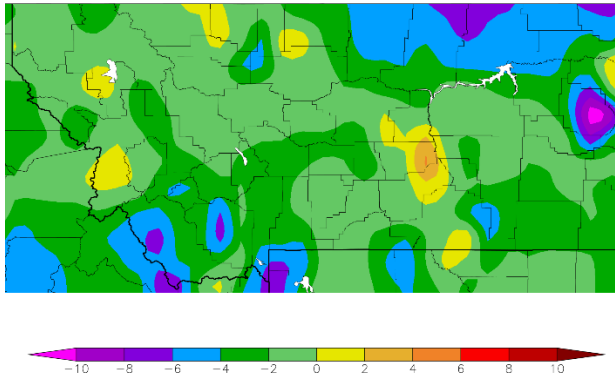
April 1-30 Climate

Percent of Normal Precipitation



Departure from Normal Temperature

(F)



CLIMATE SUMMARY

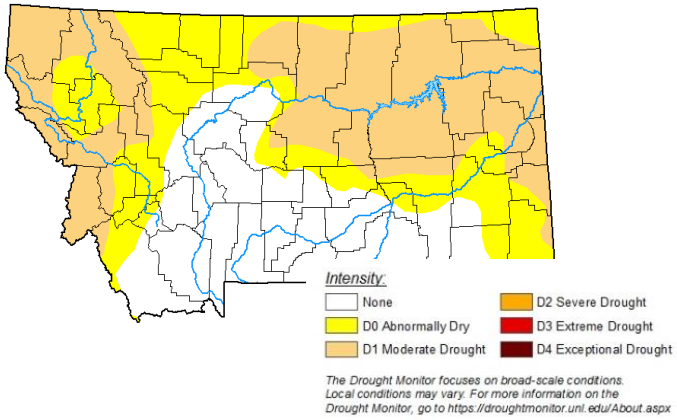
April temperatures were much colder across all of Montana while most of the Upper Missouri Basin above Canyon Ferry Reservoir was drier than normal.

The one-month outlook forecast, dated April 30, is for equal chance of above, below, or normal precipitation and a 50-60% chance of above normal temperatures during May.

A small area of drought remains near the Big Hole basin above Canyon Ferry Reservoir.

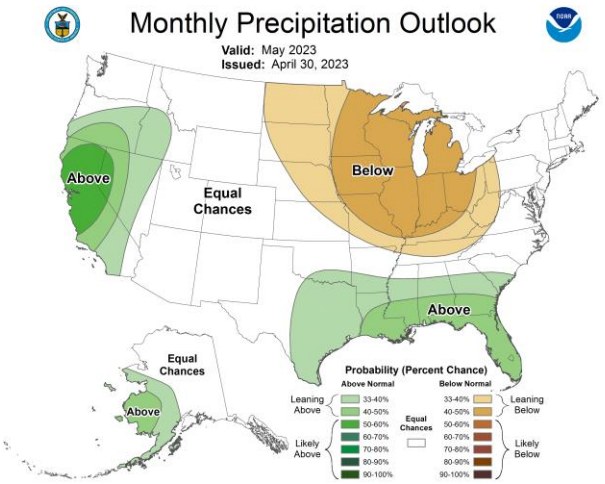
MT Drought Monitor Map

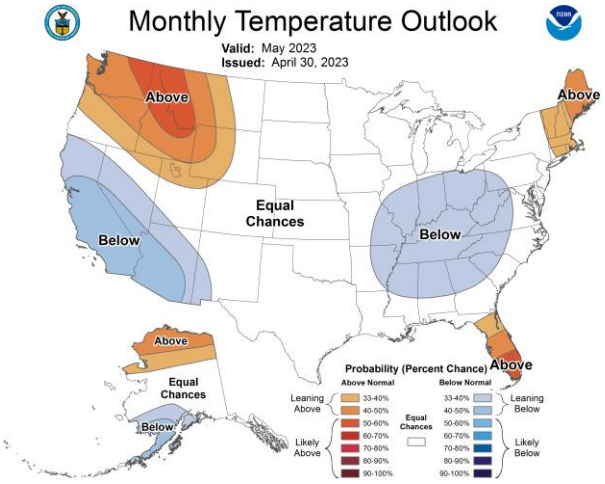
April 25, 2023



National Weather Service

May Weather Outlook

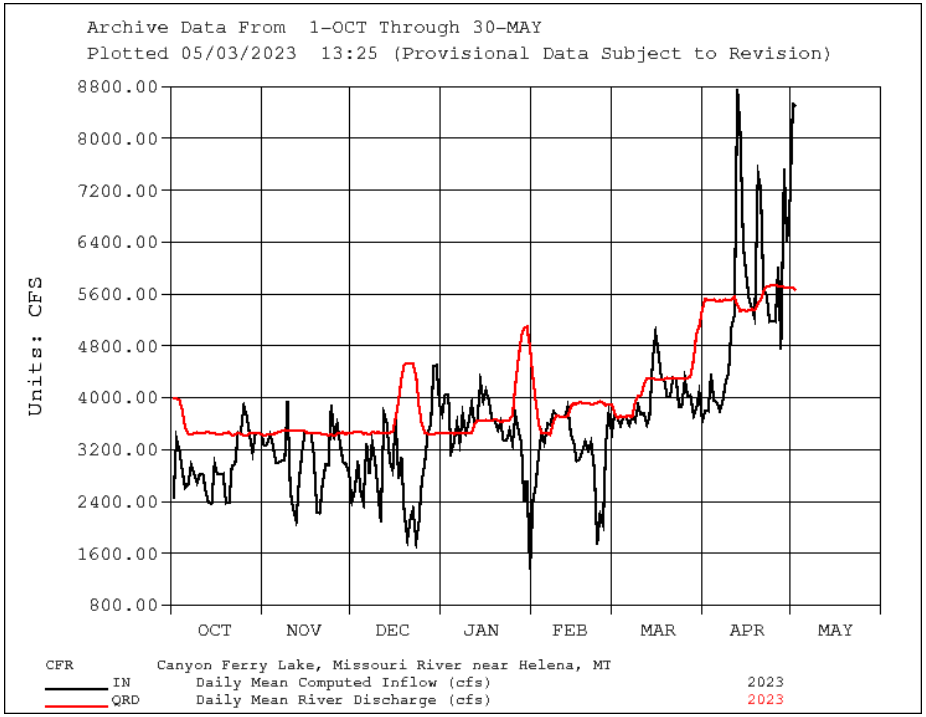




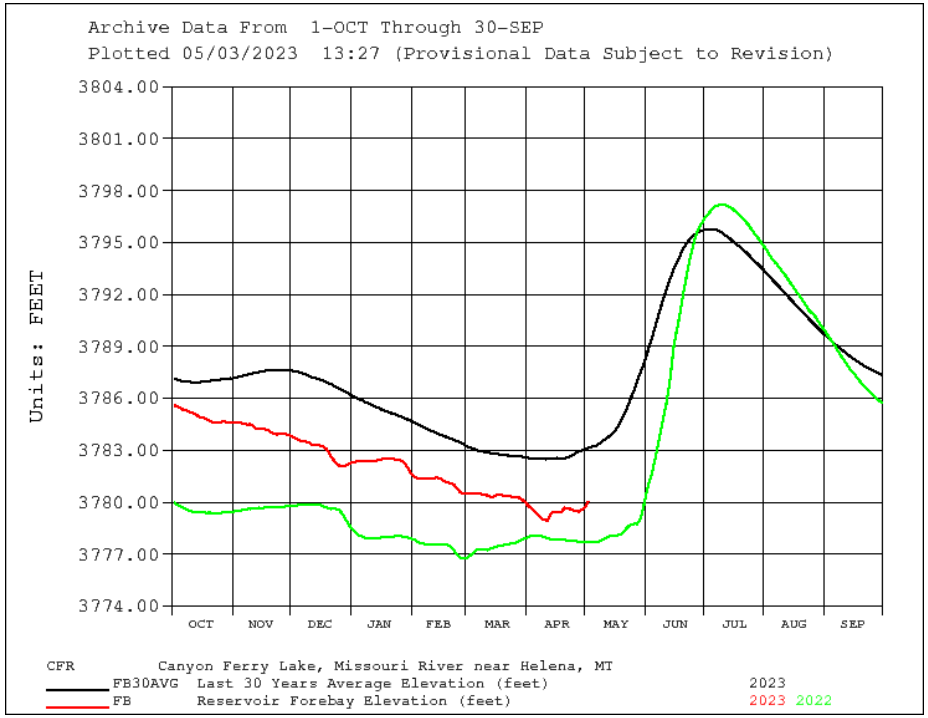
Operations Review

April inflows totaled 327,600 acre-feet or 104 percent of average. Releases from Canyon Ferry were increased to maintain a low reservoir elevation to capture the anticipated snowmelt runoff volume. The reservoir elevation was 3779.87 feet by the end of the month.

Canyon Ferry Dam Inflow & Releases (cfs)

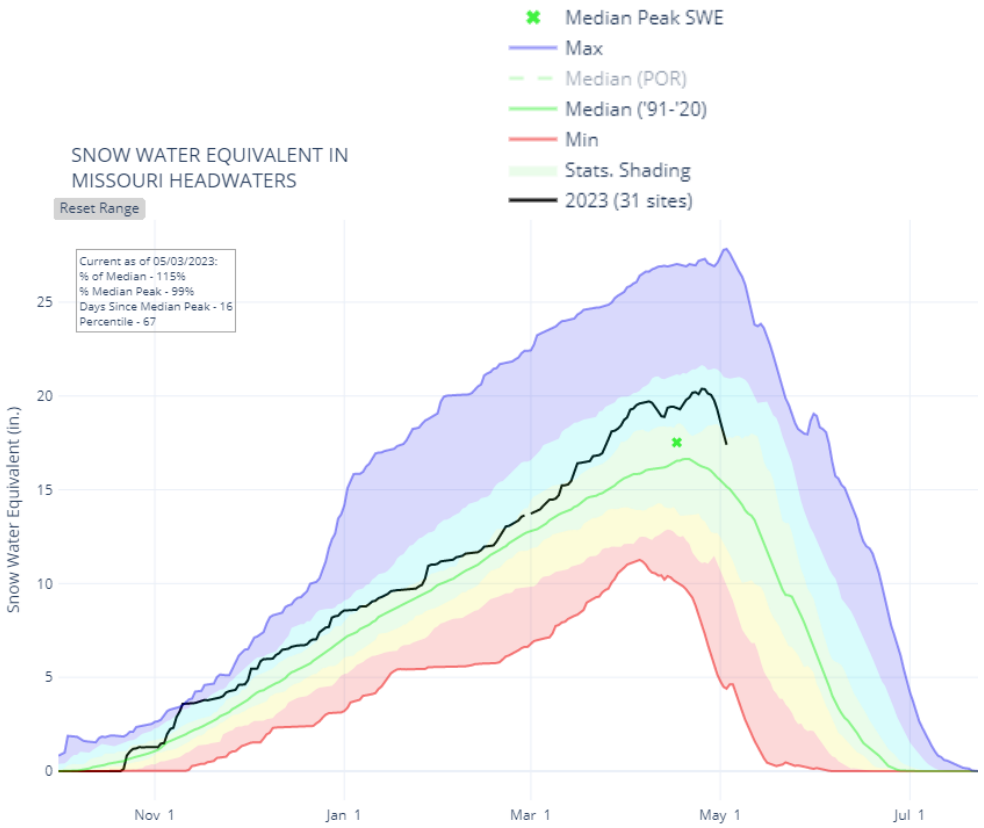


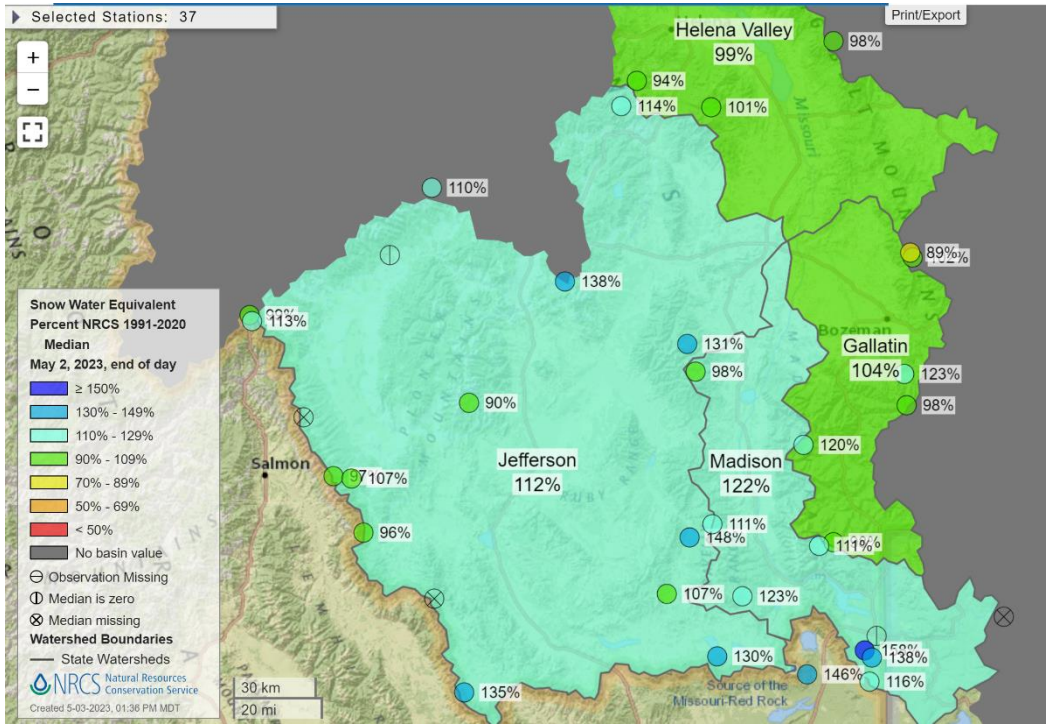
Canyon Ferry Dam Elevation (ft)



Snowpack & Spring Runoff Forecast

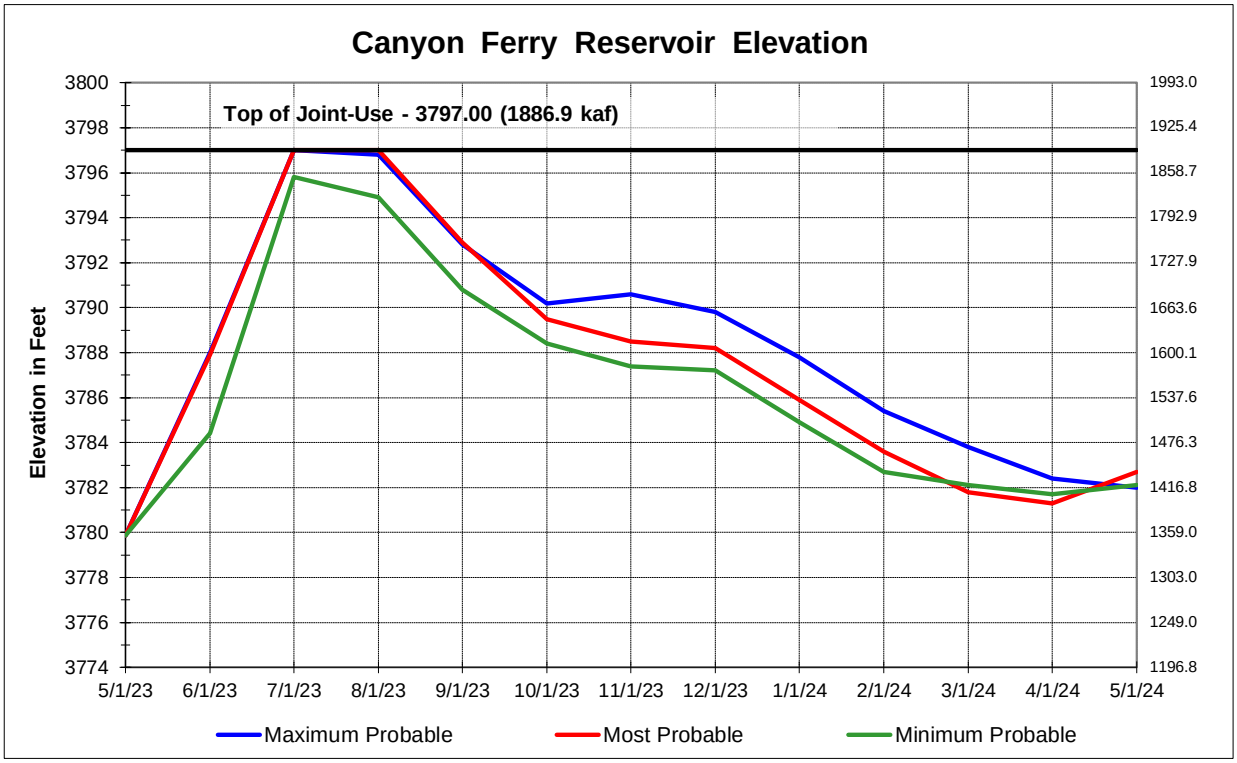
The below Snow Water Equivalent map is a composite of SNOTEL sites within the Missouri Headwaters that is managed by the Department of Natural Resource and Conservation Service (NRCS). As of May 3, 2023, the snowpack in the Missouri Headwaters is 115% of median. The May 1st SNOTEL data along with streamflow and climate data was used to compute a May through July runoff inflow forecast volume into Canyon Ferry Reservoir of 1,772,000 acre-feet, or 117 percent of average.

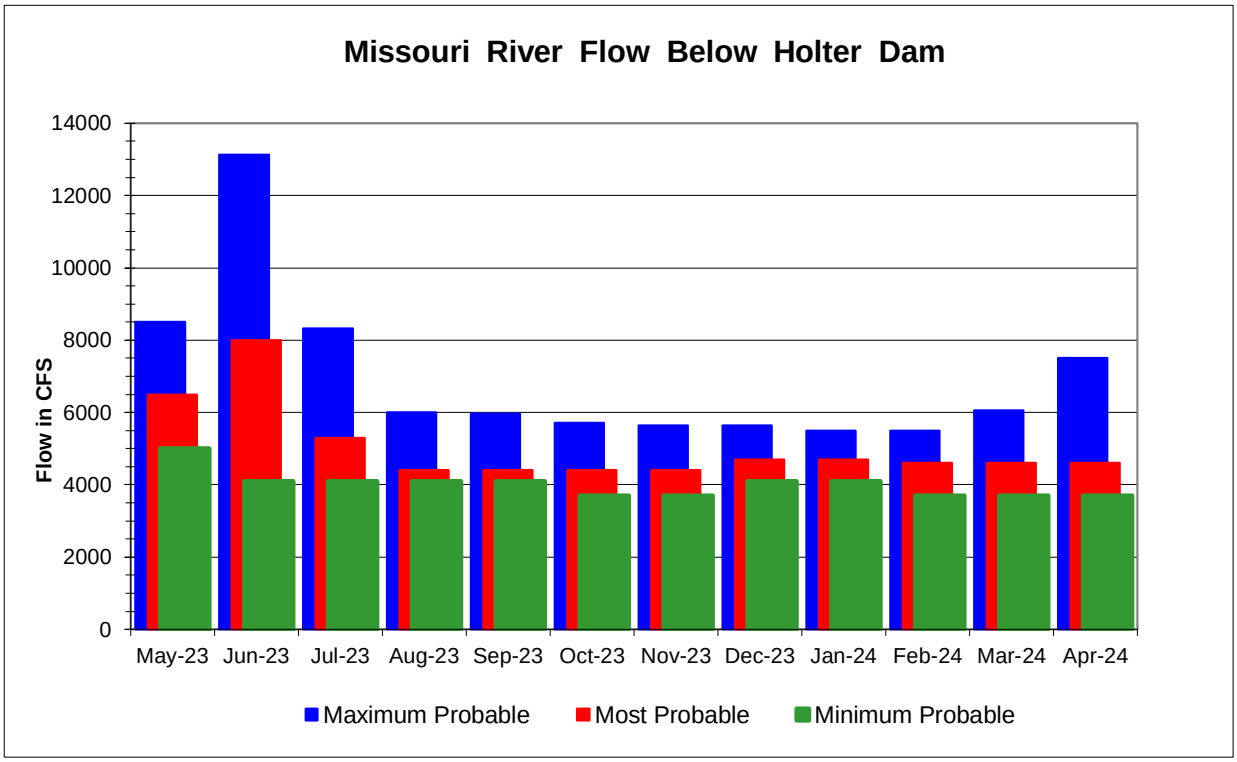




Operating Outlook

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





Most Probable Inflow Conditions

Canyon Ferry Reservoir Initial Elev. 3779.87 ft

2023		May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Reservoir Inflow	kaf	648.0	784.0	340.0	138.0	158.0	230.0	245.0	210.0	213.0	203.0	257.0	313.0	3739.0
HV Canal Diversions	kaf	16.0	17.9	18.0	18.0	11.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0	88.9
HV Pump Turbines	kaf	20.5	19.3	17.9	18.6	12.2	0.0	0.0	0.0	0.0	0.0	0.0	10.7	99.2
Turbine Release	cfs	3254	3017	2922	2959	3039	3094	3112	3148	3219	3280	3280	3280	
Generation	gwh	24.478	23.688	24.478	24.478	23.688	24.478	23.688	24.478	24.478	22.829	24.180	23.472	288.413
Spill	kaf	170.4	263.3	124.4	63.0	61.3	72.7	70.6	88.4	83.5	68.7	69.8	56.5	1192.6
River Release	kaf	391.0	462.1	322.0	263.5	254.3	262.9	255.8	282.0	281.4	257.4	271.5	262.4	3566.3
End-Month Content	kaf	1584.0	1888.0	1888.0	1744.5	1637.2	1604.3	1593.5	1521.5	1453.1	1398.7	1384.2	1426.8	
End-Month Elevation	ft	3787.9	3797.0	3797.0	3792.9	3789.5	3788.5	3788.2	3785.9	3783.6	3781.8	3781.3	3782.7	
Holter Dam Release	cfs	6500	7993	5302	4399	4400	4399	4400	4700	4700	4600	4599	4600	

Minimum Probable Inflow Conditions

2023		May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Reservoir Inflow	kaf	457.0	618.0	235.0	127.0	175.0	192.0	208.0	175.0	180.0	190.0	203.0	233.0	2993.0
HV Canal Diversions	kaf	16.0	17.9	18.0	18.0	11.0	0.0	0.0	0.0	0.0	0.0	0.0	7.0	87.9
HV Pump Turbines	kaf	21.4	20.1	18.4	19.3	12.5	0.0	0.0	0.0	0.0	0.0	0.0	9.4	101.1
Turbine Release	cfs	3280	3058	2950	2999	3076	3121	3137	3174	3249	3280	3280	3280	
Generation	gwh	24.329	23.688	24.478	24.478	23.688	24.478	23.688	24.478	24.478	22.759	24.254	23.472	288.268
Spill	kaf	82.7	32.2	45.7	44.4	44.3	30.1	27.4	52.3	48.2	17.0	15.3	6.7	446.3
River Release	cfs	4973	3938	3993	4035	4030	3610	3598	4025	4033	3576	3529	3551	
End-Month Content	kaf	1478.2	1844.0	1815.5	1676.4	1600.6	1570.6	1564.5	1492.0	1424.0	1408.3	1394.3	1409.0	
End-Month Elevation	ft	3784.4	3795.8	3794.9	3790.8	3788.4	3787.4	3787.2	3784.9	3782.7	3782.1	3781.7	3782.1	
Holter Dam Release	cfs	4999	4101	4100	4100	4101	3700	3701	4100	4100	3700	3700	3701	

Maximum Probable Inflow Conditions

2023		May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Total
Reservoir Inflow	kaf	763.0	1049.0	500.0	233.0	265.0	348.0	300.0	273.0	250.0	254.0	312.0	432.0	4979.0
HV Canal Diversions	kaf	18.4	17.0	18.4	18.4	12.0	0.0	0.0	0.0	0.0	0.0	0.0	11.0	95.2
HV Pump Turbines	kaf	23.6	18.3	18.3	19.0	13.2	0.0	0.0	0.0	0.0	0.0	0.0	14.7	107.1
Turbine Release	cfs	3261	3034	2930	2964	3036	3062	3066	3100	3163	3228	3280	3280	
Generation	gwh	24.478	23.688	24.478	24.478	23.688	24.478	23.688	24.478	24.478	22.898	24.478	23.472	288.780
Spill	kaf	274.6	534.1	291.1	149.8	145.7	146.8	141.9	144.5	132.3	115.9	153.4	221.5	2451.6
River Release	cfs	8111	12317	7963	5708	5707	5450	5450	5450	5315	5243	5775	7250	
End-Month Content	kaf	1588.9	1888.0	1880.0	1743.6	1657.0	1669.9	1645.6	1583.5	1506.7	1459.1	1416.0	1405.6	
End-Month Elevation	ft	3788.0	3797.0	3796.8	3792.8	3790.2	3790.6	3789.8	3787.8	3785.4	3783.8	3782.4	3782.0	
Holter Dam Release	cfs	8499	13134	8332	6001	5969	5721	5640	5635	5500	5501	6050	7500	

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