

The Official Water Supply Forecasts for January through July are computed on the 3rd workday of the month. Flood Risk Management (FRM) is computed at standard intervals and posted at: [www.nwd.usace.army.mil/Missions/Water/Columbia/FloodControl](http://www.nwd.usace.army.mil/Missions/Water/Columbia/FloodControl)

The **MAY** Water Supply Forecast sets BiOp actions as highlighted in the table below:

Forecast Point	Forecast period	Forecast	BiOp Actions to be Determined
Hungry Horse	April – August Provided by Reclamation	January, February, March	Sets min. flows at Hungry Horse and Columbia Falls
		January, February, March	Sets VARQ FRM targets
	May – September Provided by Reclamation	April	Sets VARQ FRM targets and VARQ refill flows
		May	Sets VARQ refill flows Sets end of September draft target
		June	Sets VARQ refill flows
The Dalles	April – September Provided by NWRFC	March	Sets CRWMP adjustments at Grand Coulee
	April – August Provided by NWRFC	April	Sets spring flow objective at McNary Dam
		July	Sets end of August draft limit at Grand Coulee
Lower Granite	April – July Provided by NWRFC	April	Sets spring flow objective at Lower Granite
		June	Sets summer flow objective at Lower Granite
Libby	April – August Provided by Corps Seattle District	December	Sets end of December variable draft target
		January, February, March	Sets VARQ FRM targets
		April	Sets VARQ FRM targets and VARQ refill flows
		May	Sets Libby min. sturgeon flow volume and min. bull trout flows for after sturgeon pulse through Sept. Sets VARQ FRM targets and VARQ refill flows Sets end of September draft limit.
		June	VARQ refill flows
Dworshak	April – July Provided by NWRFC	January to March	Manage for reservoir FRM, VDL, and Flood Control Refill Curve (FCRC)
		April to June	Manage for reservoir FRM and FCRC

Source: 2023 Water Management Plan, page 15 - <https://pweb.crohms.org/tmt/documents/wmp/2023/>

## **Hungry Horse Dam – Official Water Supply Forecast MAY 2023**

Below are the volumes for the May 2023 final forecast for Hungry Horse:

- May-Jul: 1,460 kaf (88%)
- Apr-Aug: 1,720 kaf (84%)
- May-Sep: 1550 kaf (88%)

The May-September forecast sets the end of September target to 3,548 ft for 2023.

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# Northwest River Forecast Center Water Supply Forecasts

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### COLUMBIA - THE DALLES DAM (TDAO3) Forecasts for Water Year 2023

**Official Water Supply**  
ESP with 10 Days QPF Ensemble: 2023-05-03 Issued: 2023-05-03

Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	83356	87988	93	96385	94166
APR-JUL	72190	76309	93	83897	81933
<b>APR-AUG</b>	<b>78646</b>	<b>83148</b>	<b>93</b>	<b>91526</b>	<b>89196</b>
JAN-SEP	94970	99601	86	107998	115946
JAN-JUL	83804	87923	85	95511	103714
OCT-SEP	105354	109985	83	118382	132314

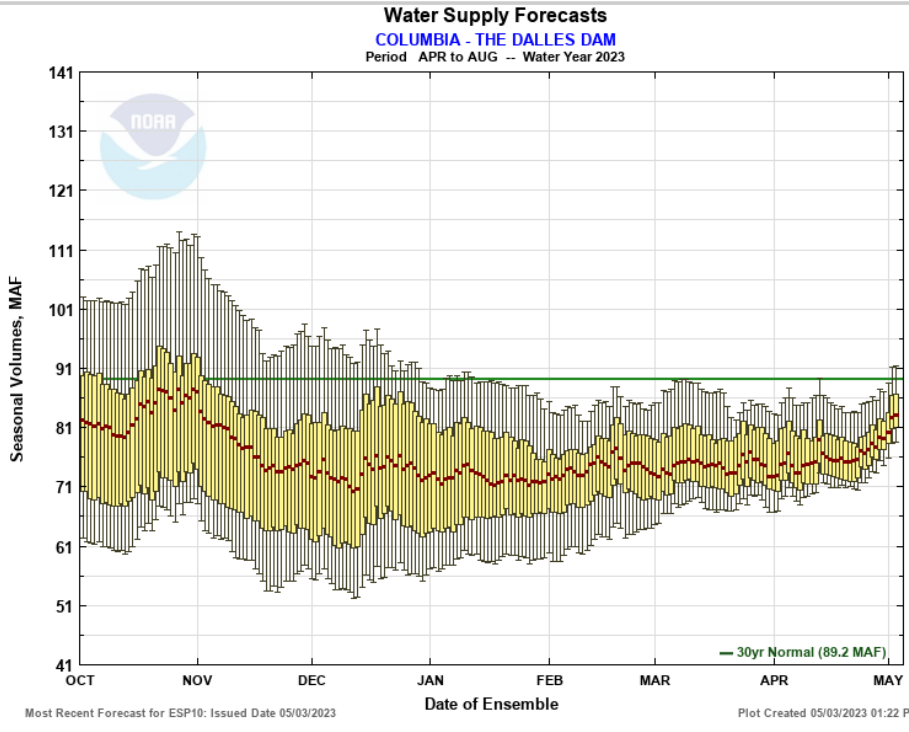
**Experimental Water Supply**  
HEFS with 15 days EQPF Ensemble: 2023-05-03 Issued: 2023-05-03

APR-SEP	82139	88069	94	96761	94166
APR-JUL	71716	76733	94	84714	81933
APR-AUG	77641	83320	93	91615	89196
JAN-SEP	93752	99682	86	108375	115946
JAN-JUL	83330	88346	85	96328	103714
OCT-SEP	104136	110066	83	118759	132314

**Reference**  
ESP with 0 Days QPF Ensemble: 2023-05-03 Issued: 2023-05-03

APR-SEP	79828	84822	90	94162	94166
APR-JUL	68494	73237	89	82377	81933
APR-AUG	75227	80207	90	89193	89196
JAN-SEP	91442	96436	83	105775	115946
JAN-JUL	80107	84851	82	93991	103714
OCT-SEP	101825	106819	81	116159	132314

Move the mouse over the desired "Forecast Period" to display a graph.



- Max Scale
- Scale To Data
- Scale To Last 45 Days
- Show Min/Max Ensemble Volume
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# Northwest River Forecast Center

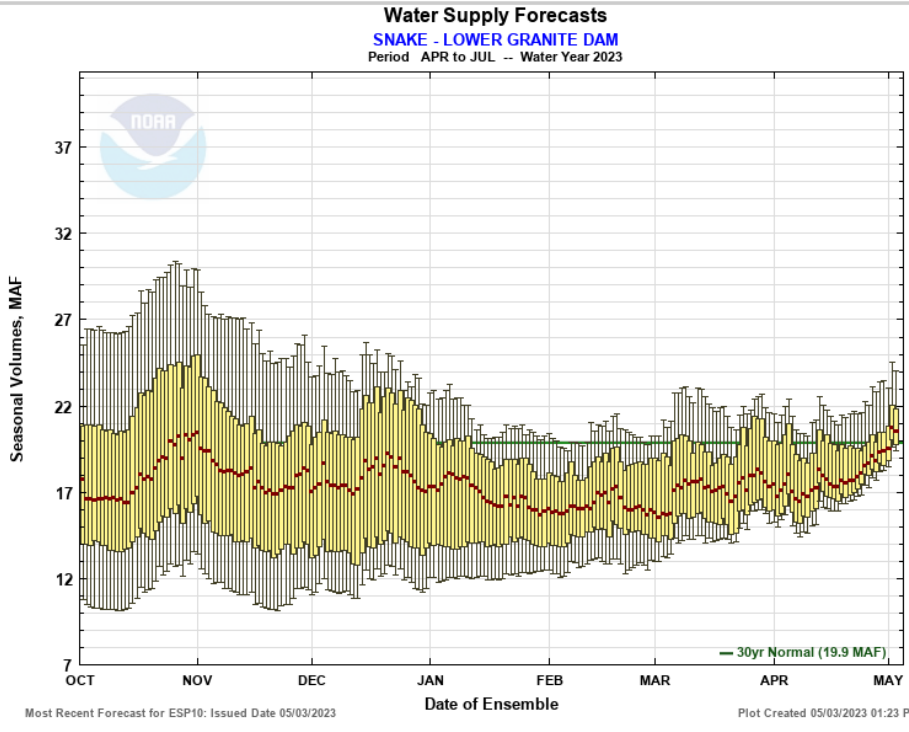
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SNAKE - LOWER GRANITE DAM (LGDW1) Forecasts for Water Year 2023					
Official Water Supply					
ESP with 10 Days QPF Ensemble: 2023-05-03 Issued: 2023-05-03					
Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	22041	23180	104	26947	22232
APR-JUL	19503	20654	104	24184	19946
APR-AUG	20807	21969	104	25596	21121
JAN-SEP	26167	27307	92	31074	29736
JAN-JUL	23630	24781	90	28310	27450
OCT-SEP	29636	30776	90	34543	34287
Experimental Water Supply					
HEFS with 15 days EQPF Ensemble: 2023-05-03 Issued: 2023-05-03					
APR-SEP	21516	23075	104	26832	22232
APR-JUL	18924	20462	103	24142	19946
APR-AUG	20248	21785	103	25522	21121
JAN-SEP	25642	27202	91	30959	29736
JAN-JUL	23051	24589	90	28268	27450
OCT-SEP	29111	30671	89	34428	34287
Reference					
ESP with 0 Days QPF Ensemble: 2023-05-03 Issued: 2023-05-03					
APR-SEP	20721	22257	100	26133	22232
APR-JUL	18254	19728	99	23382	19946
APR-AUG	19531	21016	100	24785	21121
JAN-SEP	24848	26384	89	30260	29736
JAN-JUL	22381	23855	87	27509	27450
OCT-SEP	28317	29853	87	33729	34287

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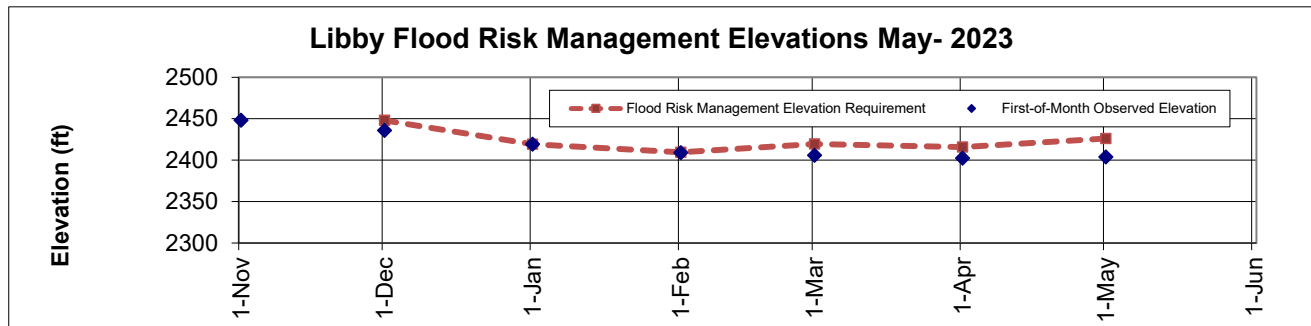
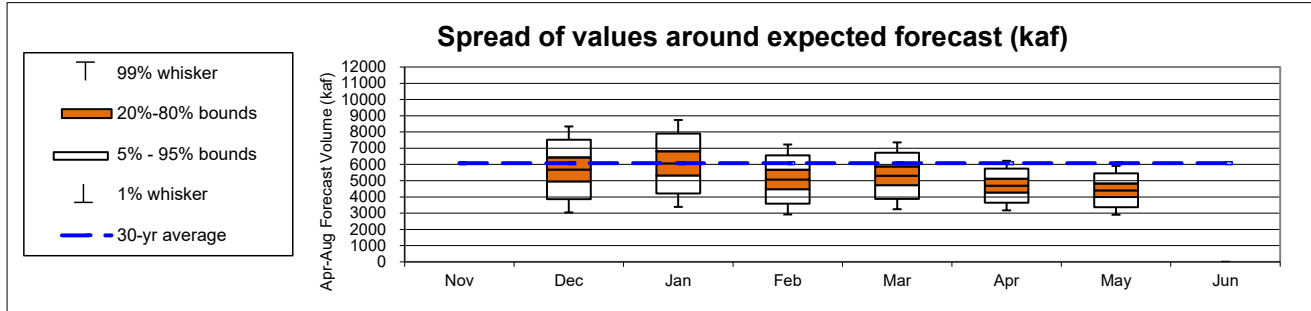
Libby : May Runoff Forecast & Flood Risk Management Calculation

WY 2023

Runoff Forecast	May	1991-2020 Average	1991 - 2020 Percent of Average	1929-2020 Average	1929 - 2020 Percent of Average
Most Probable Runoff Volume: Apr-Aug (kaf)	4408	6080	72%	6259	70%
Most Probable Runoff Volume: Apr-Jul (kaf)	4028	5570	72%	5708	71%
Most Probable Runoff Volume: May-Jul (kaf)	3732	5014	74%	5183	72%

Forecast/Reservoir Data	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Apr-Aug Runoff Forecast (kaf)		5692	6063	5075	5302	4698	4408	
First-of-Month Elev (ft)	2448.0	2435.9	2419.3	2409.0	2405.7	2402.4	2403.8	

Seasonal FRM Requirements	30-Nov	31-Dec	31-Jan	28-Feb	31-Mar	30-Apr		
Flood Risk Management Space (kaf)	500	1689	2054	1680	1823	1422		
Flood Risk Management Elevation (ft)	2448.0	2419.3	2409.5	2419.6	2415.8	2426.1		



Notes:

- The given forecast is the official Corps of Engineers forecast for Libby. If you have any questions please contact Leon Basdekas (208) 353-2564, Jason Chang (206) 764-3528, Lumas Helaire (206) 316-3875, Ethan Cheng (206) 316-3875, or Kevin Shaffer (206) 764-3660.
- If a prior month's forecast as published in this document is different than what was originally published in the issue month, then the earlier forecast has been adjusted to reflect updated values for precipitation or streamflow.

**Libby : May Runoff Forecast & Flood Risk Management Calculation**  
**Apr-Aug Runoff Forecast Calculation:**

Variable	Month(s)	Units	Observed Value A	Percent of Average (1991-2020)	Regression Coefficient B	Marginal Runoff (KAF) =A*B
SOI	∑ Jun:Jul					
Eureka RS, MT	∑ Oct:Apr Prcp	inches	4.1	56%	57.5	235.0
West Glacier, MT	∑ Oct:Apr Prcp	inches	13.2	66%	28.0	371.2
Cranbrook A, BC	∑ Oct:Apr Prcp	millimeters	143.2	73%	2.8	401.0
Fernie, BC	∑ Oct:Apr Prcp	millimeters	571.1	75%	0.6	348.4
Hawkins Lake, MT	1-May SWE	inches	21.3	80%	17.3	368.5
Stahl Peak, MT	1-May SWE	inches	28.0	74%	16.7	468.7
East Creek, BC	1-May SWE	millimeters	669.5	70%	0.6	381.6
Moyie Mountain, BC	1-May SWE	millimeters	261.0	69%	0.9	237.5
Sunshine Village, AB	1-May SWE	millimeters	423.5	69%	1.3	533.6
Akamina Pass, AB	1-May SWE	millimeters	229.3	63%	0.6	126.1
South Racehorse Creek, AB	1-May SWE	millimeters	279.1	79%	0.8	231.7
Intercept			1		408.0	408.0
Forecast Inflow	May-August	kaf				4111.3
Observed Inflow	April	kaf	296.2			296.2
May Forecast	April - August	kaf				4407.5

**Data used in Libby Water Supply Forecast**

Climate Data				Jun-22	Jul-22
SOI				1.7	0.8

Precipitation Data	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Eureka RS, MT (inch)	0.4	1.1	1.6	0.2	0.5	0.1	0.2	
West Glacier, MT (inch)	2.0	2.8	4.5	0.8	1.8	0.4	1.0	
Cranbrook A, BC (mm)	13.0	24.5	36.6	32.8	6.0	4.1	26.2	
Fernie, BC (mm)	98.8	118.0	112.3	36.1	52.1	35.1	118.9	

Snow Water Equiv	1-Nov	1-Dec	1-Jan	1-Feb	1-Mar	1-Apr	1-May	1-Jun
Hawkins Lake, MT (inch)				14.1	18.5	21.8	21.3	
Stahl Peak, MT (inch)			15.6	19.0	25.5	28.0	28.0	
East Creek, BC (mm)				437.0	604.0	670.0	669.5	
Moyie Mountain, BC (mm)			219.0	256.0	325.0	379.0	261.0	
Sunshine Village, AB (mm)			236.1	261.3	356.4	392.7	423.5	
Akamina Pass, AB (mm)				254.4	339.9	381.0	229.3	
South Racehorse Creek, AB (mm)				242.2	326.4	371.8	279.1	

Streamflow	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Libby Inflow Volume (kaf)			170.3	122.5	131.7	296.2		

Reservoir Elevation	1-Nov	1-Dec	1-Jan	1-Feb	1-Mar	1-Apr	1-May	1-Jun
Libby FOM Elev (feet)	2448.0	2435.9	2419.3	2409.0	2405.7	2402.4	2403.8	

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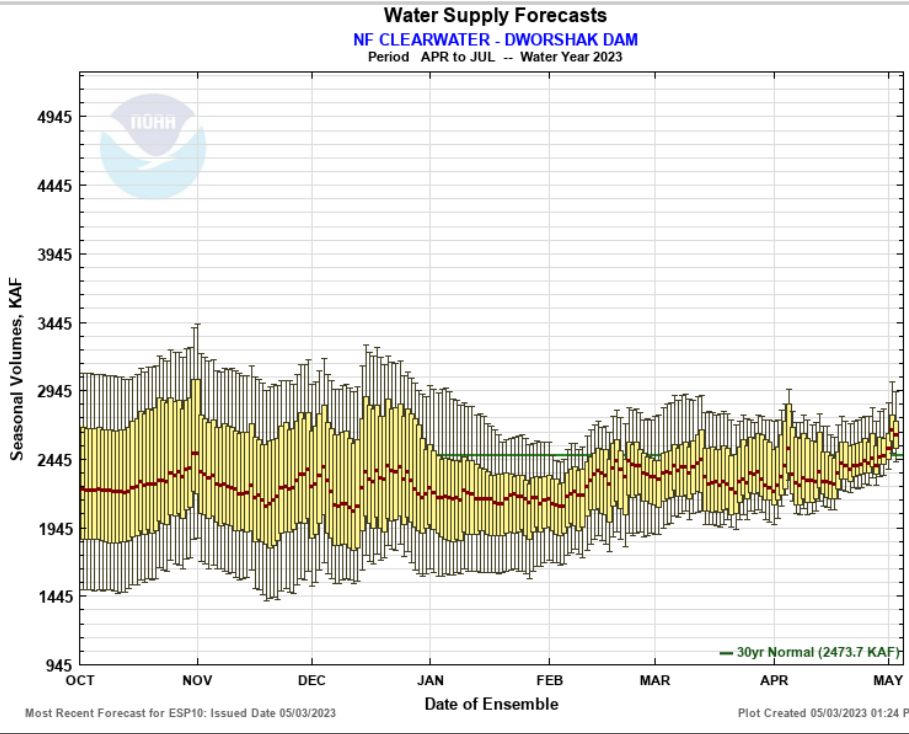
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NF CLEARWATER - DWORSHAK DAM (DWRI1) Forecasts for Water Year 2023					
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Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
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APR-SEP	2560	2756	105	3098	2620
APR-JUL	2430	2620	106	2943	2474
JAN-SEP	2944	3140	89	3481	3543
JAN-JUL	2814	3004	88	3326	3397
OCT-SEP	3236	3432	86	3774	3998
Experimental Water Supply					
HEFS with 15 days EQPF Ensemble: 2023-05-03 Issued: 2023-05-03					
APR-SEP	2512	2732	104	3074	2620
APR-JUL	2367	2587	105	2917	2474
JAN-SEP	2896	3115	88	3458	3543
JAN-JUL	2751	2971	87	3301	3397
OCT-SEP	3188	3408	85	3750	3998
Reference					
ESP with 0 Days QPF Ensemble: 2023-05-03 Issued: 2023-05-03					
APR-SEP	2411	2603	99	2955	2620
APR-JUL	2280	2458	99	2800	2474
JAN-SEP	2795	2987	84	3338	3543
JAN-JUL	2664	2842	84	3184	3397
OCT-SEP	3087	3279	82	3630	3998
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