

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

The **FEBRUARY** 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: 2024 Water Management Plan, page 15 - <https://pweb.crohms.org/tmt/documents/wmp/2024/>

5-February-2024

Hungry Horse Dam – Official Water Supply Forecast FEBRUARY 2024

Below are the volumes for the February 2024 final forecast for Hungry Horse:

Feb-Jul: 1,600 kaf (74%)

Apr-Aug: 1,440 kaf (70%)

May-Jul: 1,084 kaf (65%)

May-Sep: 1,176 kaf (66%)

The minimum flows downstream of Hungry Horse based on the Apr-Aug Volume forecast are as follows:

Columbia Falls: 3,330 cfs

Hungry Horse: 610 cfs

End of April forecasted forebay elevation at Hungry Horse is projected to be 3,545 ft.

Chris Runyan

U.S. Bureau of Reclamation | Columbia-Pacific Northwest Interior - Region 9
Water Management | Operations Group
Boise, ID 83706



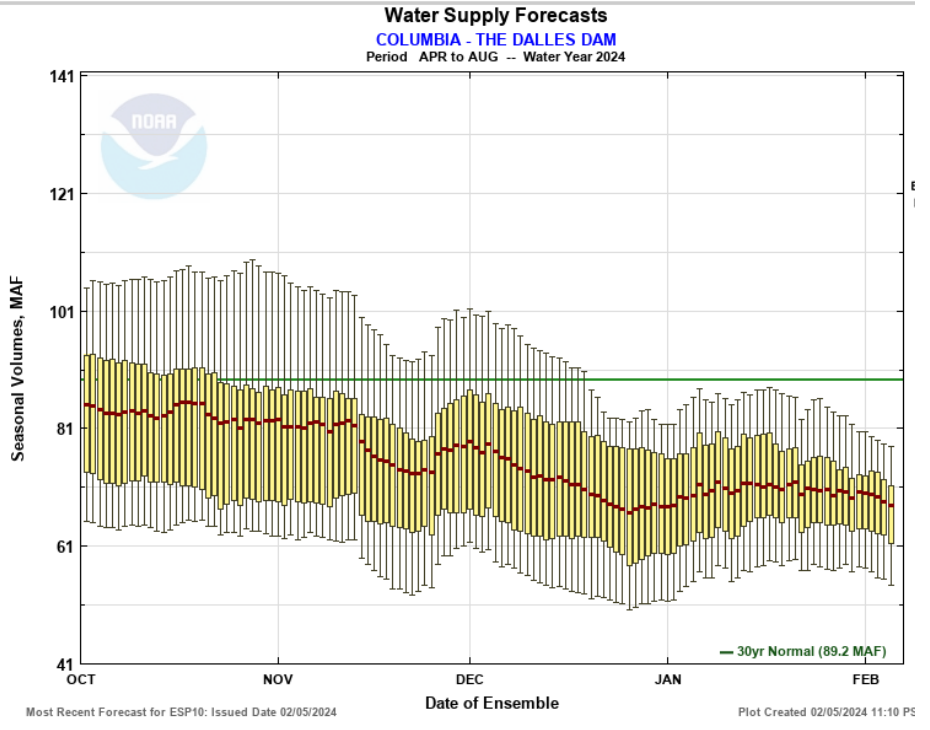
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COLUMBIA - THE DALLES DAM (TDAO3) Forecasts for Water Year 2024					
Official Water Supply					
<i>ESP with 10 Days QPF Ensemble: 2024-02-05 Issued: 2024-02-05</i>					
Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	58523	72645	77	83018	94166
APR-JUL	49085	61732	75	71634	81933
APR-AUG	54217	67766	76	77889	89196
JAN-SEP	78594	91370	79	106030	115946
JAN-JUL	69581	80624	78	93988	103714
OCT-SEP	91848	104624	79	119285	132314
Experimental Water Supply					
<i>HEFS with 15 days EQPF Ensemble: 2024-02-05 Issued: 2024-02-05</i>					
APR-SEP	59488	72609	77	84892	94166
APR-JUL	49943	61138	75	72652	81933
APR-AUG	55231	67608	76	79560	89196
JAN-SEP	81840	92117	79	107816	115946
JAN-JUL	72117	80916	78	95550	103714
OCT-SEP	95094	105372	80	121071	132314
Reference					
<i>ESP with 0 Days QPF Ensemble: 2024-02-05 Issued: 2024-02-05</i>					
APR-SEP	61021	74338	79	89558	94166
APR-JUL	51369	64842	79	77058	81933
APR-AUG	56731	70337	79	84206	89196
JAN-SEP	84073	95504	82	115331	115946
JAN-JUL	74147	84241	81	101881	103714
OCT-SEP	97327	108758	82	128586	132314

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



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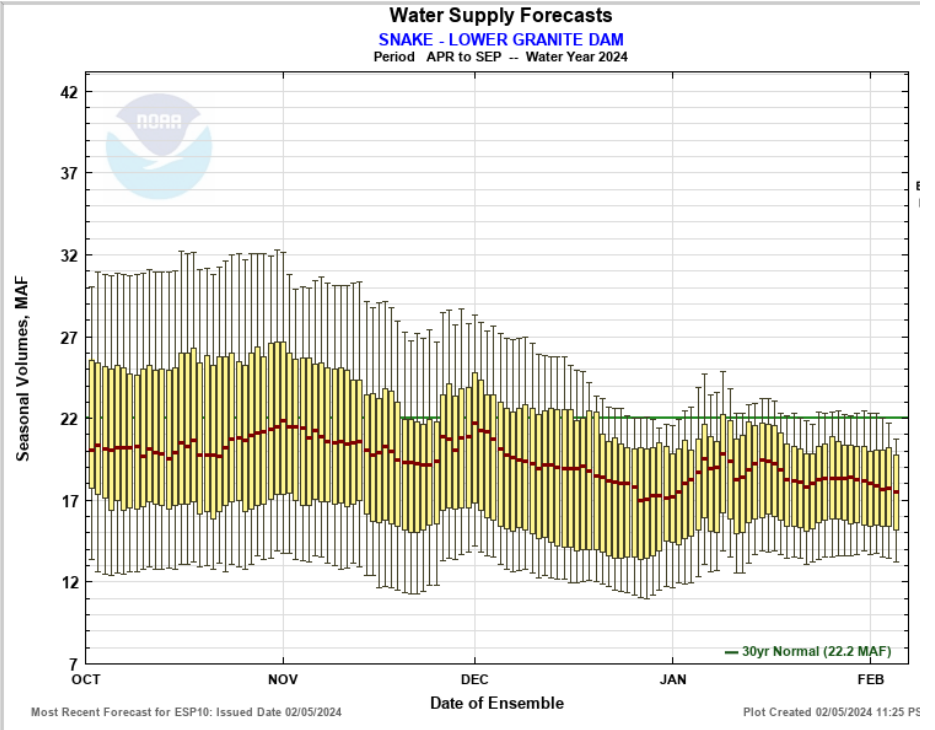
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SNAKE - LOWER GRANITE DAM (LGDW1) Forecasts for Water Year 2024					
Official Water Supply					
ESP with 10 Days QPF Ensemble: 2024-02-05 Issued: 2024-02-05					
Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	13383	17725	80	20928	22232
APR-JUL	11362	15430	77	18278	19946
APR-AUG	12346	16609	79	19644	21121
JAN-SEP	19849	24403	82	29698	29736
JAN-JUL	17820	22237	81	27394	27450
OCT-SEP	23694	28247	82	33543	34287
Experimental Water Supply					
HEFS with 15 days EQPF Ensemble: 2024-02-05 Issued: 2024-02-05					
APR-SEP	13081	17301	78	21174	22232
APR-JUL	11058	15133	76	18644	19946
APR-AUG	12039	16217	77	19915	21121
JAN-SEP	19376	23898	80	29159	29736
JAN-JUL	17397	21649	79	26857	27450
OCT-SEP	23221	27743	81	33004	34287
Reference					
ESP with 0 Days QPF Ensemble: 2024-02-05 Issued: 2024-02-05					
APR-SEP	13539	18276	82	22380	22232
APR-JUL	11500	15998	80	20047	19946
APR-AUG	12491	17186	81	21245	21121
JAN-SEP	19752	25051	84	30691	29736
JAN-JUL	17797	22858	83	28270	27450
OCT-SEP	23597	28895	84	34536	34287

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Libby : February Runoff Forecast & Flood Risk Management Calculation

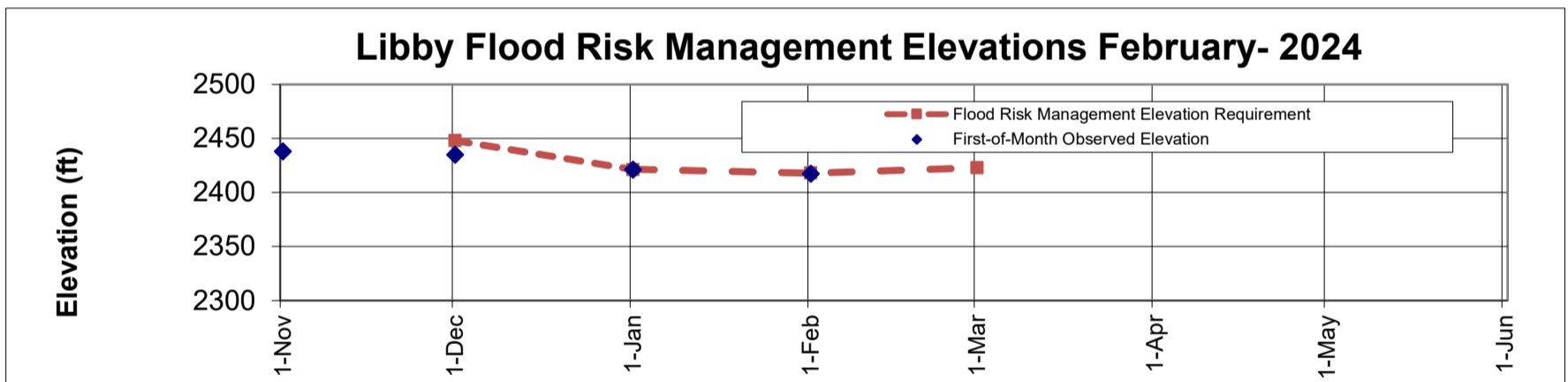
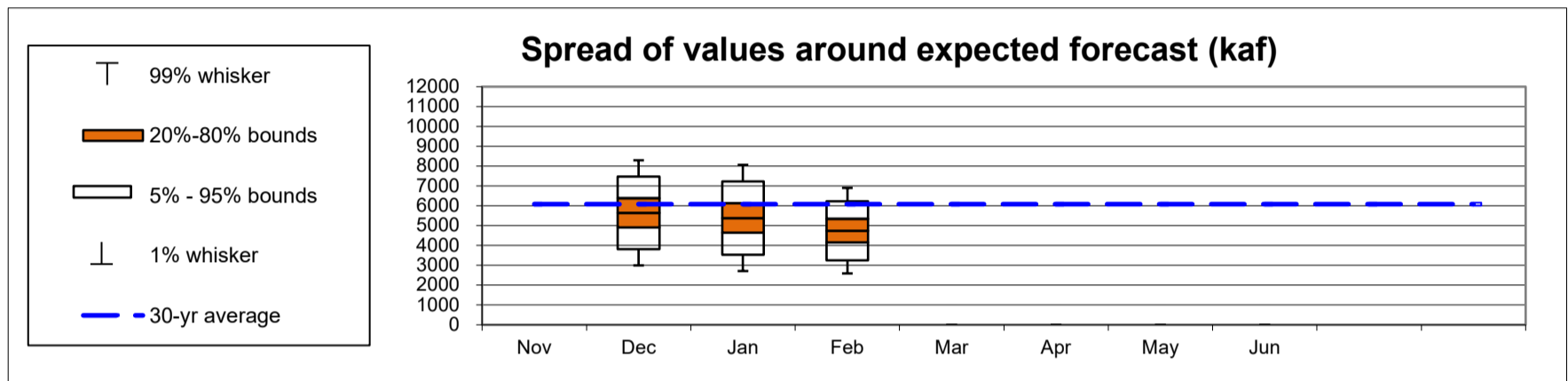
WY 2024

Runoff Forecast	February	1991-2020 Average	1991 - 2020 Percent of Average	1929-2020 Average	1929 - 2020 Percent of Average
Most Probable Runoff Volume: Apr-Aug (kaf)	4743	6080	78%	6259	76%
Most Probable Runoff Volume: Apr-Jul (kaf)	4270	5570	77%	5708	75%
Most Probable Runoff Volume: May-Jul (kaf)	3836	5014	77%	5183	74%

Flood Risk Management	February
28-Feb Flood Risk Management Space (kaf)	1547
28-Feb Flood Risk Management Elevation (ft)	2423.0

Forecast/Reservoir Data	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Apr-Aug Runoff Forecast (kaf)		5642	5385	4743				
First-of-Month Elev (ft)	2437.9	2434.8	2421.2	2417.5				

Seasonal FRM Requirements	30-Nov	31-Dec	31-Jan	28-Feb	31-Mar	30-Apr		
Flood Risk Management Space (kaf)	500	1613	1745	1547				
Flood Risk Management Elevation (ft)	2448.0	2421.3	2417.9	2423.0				



Notes:

1. The given forecast is the official Corps of Engineers forecast for Libby. If you have any questions please contact Leon Basdekas (208) 353-2564, Courtney Moore (206) 316-3005, or David Varner (206) 316-3155.
2. 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 : February Runoff Forecast & Flood Risk Management Calculation
Apr-Aug Runoff Forecast Calculation:

<i>Variable</i>	<i>Month(s)</i>	<i>Units</i>	<i>Observed Value A</i>	<i>Percent of Average (1991-2020)</i>	<i>Regression Coefficient B</i>	<i>Marginal Runoff (KAF) =A*B</i>
SOI	Σ Jun:Jul					
Eureka RS, MT	Σ Oct:Jan Prcp	inches	4.28	93%	78.47	335.9
West Glacier, MT	Σ Oct:Jan Prcp	inches	11.77	90%	30.95	364.3
Cranbrook A, BC	Σ Oct:Jan Prcp	millimeters	78.50	63%	2.84	222.9
Fernie, BC	Σ Oct:Jan Prcp	millimeters	559.05	112%	0.72	402.5
Hawkins Lake, MT	1-Feb SWE	inches	8.7	53%	30.60	266.2
Stahl Peak, MT	1-Feb SWE	inches	21.40	89%	22.99	492.0
East Creek, BC	1-Feb SWE	millimeters	433.01	70%	0.75	324.8
Moyie Mountain, BC	1-Feb SWE	millimeters	138.39	47%	1.48	204.8
Sunshine Village, AB	1-Feb SWE	millimeters	233.93	61%	1.47	343.9
Akamina Pass, AB	1-Feb SWE	millimeters	211.56	67%	1.27	268.7
South Racehorse Creek, AB	1-Feb SWE	millimeters	147.60	57%	1.53	225.8
Intercept			1		1291.47	1291.5
January Forecast	April - August	kaf				4743.2

Data used in Libby Water Supply Forecast

<i>Climate Data</i>	<i>Jun-23</i>	<i>Jul-23</i>
SOI	0.30	-0.30

<i>Precipitation Data</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>
Eureka RS, MT (inch)	0.58	1.88	0.70	1.12				
West Glacier, MT (inch)	1.52	4.12	2.74	3.39				
Cranbrook A, BC (mm)	4.80	22.20	27.40	24.10				
Fernie, BC (mm)	98.30	129.79	243.33	87.63				


<i>Snow Water Equiv</i>	<i>Nov</i>	<i>Dec</i>	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>
Hawkins Lake, MT (inch)				9				
Stahl Peak, MT (inch)			12	21				
East Creek, BC (mm)				433				
Moyie Mountain, BC (mm)			85	138				
Sunshine Village, AB (mm)			169	234				
Akamina Pass, AB (mm)				212				
South Racehorse Creek, AB (mm)				148				

<i>Streamflow</i>	<i>Nov</i>	<i>Dec</i>	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>
Libby Inflow Volume (kaf)			161.5					

<i>Reservoir Elevation</i>	<i>Nov</i>	<i>Dec</i>	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>
Libby FOM Elev (feet)	2437.9	2434.8	2421.2	2417.5				

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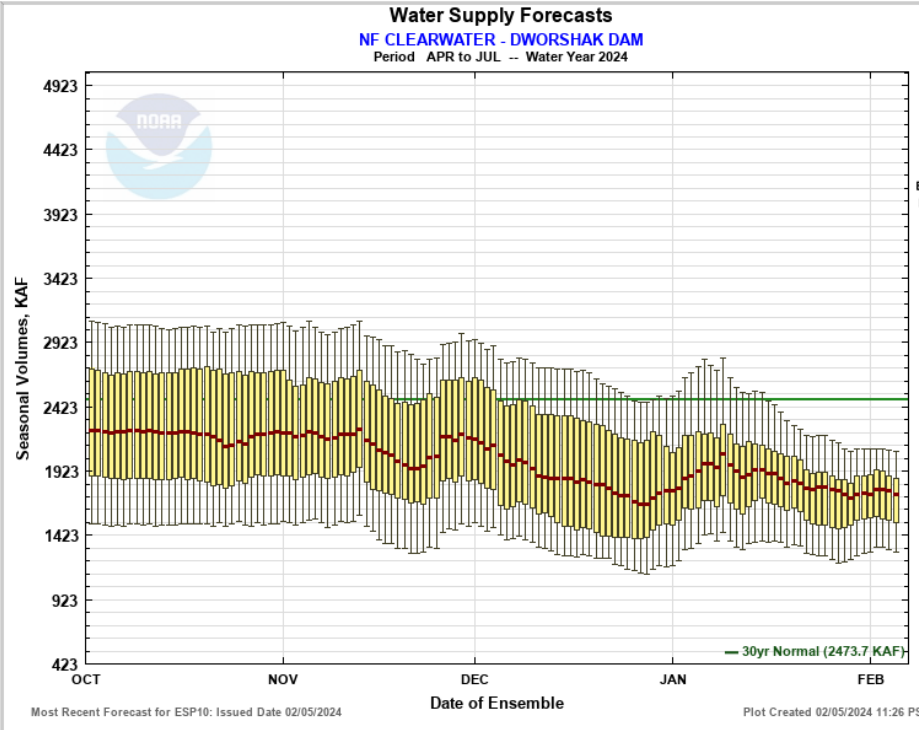
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NF CLEARWATER - DWORSHAK DAM (DWR11) Forecasts for Water Year 2024					
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Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	1395	1878	72	2197	2620
APR-JUL	1297	1740	70	2072	2474
JAN-SEP	2203	2623	74	3258	3543
JAN-JUL	2098	2506	74	3122	3397
OCT-SEP	2502	2923	73	3557	3998
Experimental Water Supply					
HEFS with 15 days EQPF Ensemble: 2024-02-05 Issued: 2024-02-05					
APR-SEP	1342	1858	71	2246	2620
APR-JUL	1244	1744	71	2118	2474
JAN-SEP	2194	2605	74	3362	3543
JAN-JUL	2094	2489	73	3217	3397
OCT-SEP	2493	2904	73	3661	3998
Reference					
ESP with 0 Days QPF Ensemble: 2024-02-05 Issued: 2024-02-05					
APR-SEP	1381	1973	75	2357	2620
APR-JUL	1281	1859	75	2228	2474
JAN-SEP	2266	2776	78	3528	3543
JAN-JUL	2164	2652	78	3386	3397
OCT-SEP	2565	3075	77	3828	3998

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