

The Official Water Supply Forecasts for January through July are computed on the 3rd work day 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
	May – September Provided by Reclamation	January, February, March	Sets VARQ FRM targets
		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 Corps Walla Walla District	January to March	Manage for reservoir FRM, VDL, and Flood Control Refill Curve (FCRC)
		April to June	Manage for reservoir FRM and FCRC

February 2, 2022

Hungry Horse Dam – Official Water Supply Forecast FEBRUARY 2022

Below are the volumes for the February 2022 final forecast for Hungry Horse:

- Feb-Jul: 2,170 kaf (103%)
- Apr-Aug: 2,060 kaf (101%)
- May-Sep: 1,810 kaf (102%)
- May-Jul: 1,700 kaf (102%)

The minimum flows downstream of Hungry Horse are as follows:

- Columbia Falls: 3,500 cfs
- Hungry Horse: 900 cfs

Joel Fenolio, P.E.

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Northwest River Forecast Center

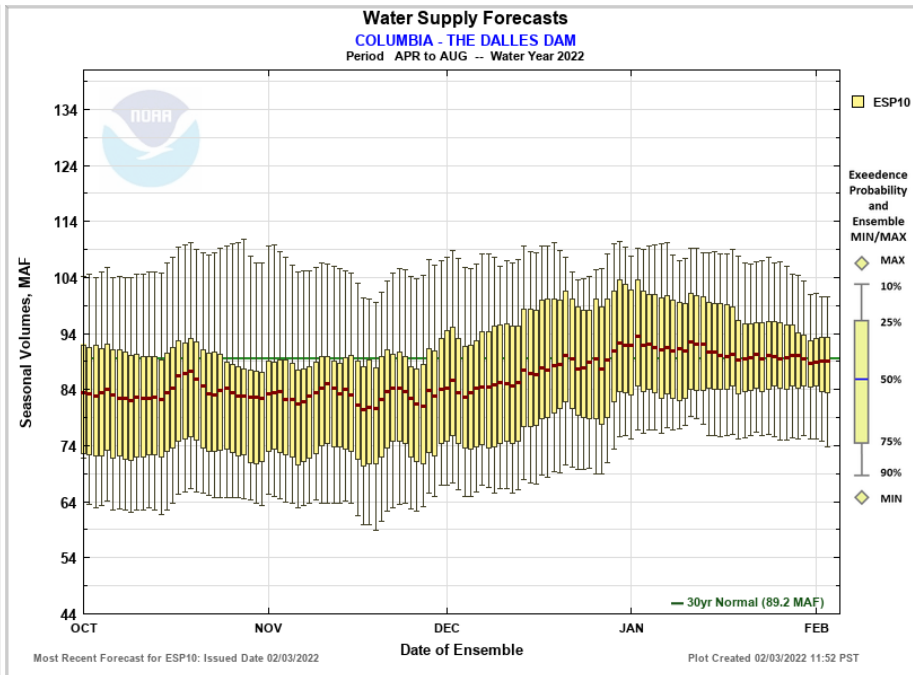
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Choose Date: 02/03/2022 Archive: Water Year

COLUMBIA - THE DALLES DAM (TDAO3) Forecasts for Water Year 2022					
Official Water Supply					
ESP with 10 Days QPF Ensemble: 2022-02-03 Issued: 2022-02-03					
Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	78974	94545	100	107179	94166
APR-JUL	67023	80167	98	92418	81933
APR-AUG	73586	88817	100	100384	89196
JAN-SEP	98643	112124	97	131165	115946
JAN-JUL	85936	99372	96	115548	103714
OCT-SEP	116708	130189	98	149230	132314
Experimental Water Supply					
HEFS with 15 days EQPF Ensemble: 2022-02-03 Issued: 2022-02-03					
APR-SEP	80212	95191	101	109698	94166
APR-JUL	67635	80216	98	93931	81933
APR-AUG	74592	89239	100	103317	89196
JAN-SEP	100900	112950	97	130287	115946
JAN-JUL	88614	98373	95	114198	103714
OCT-SEP	118965	131016	99	148352	132314
Reference					
ESP with 0 Days QPF Ensemble: 2022-02-03 Issued: 2022-02-03					
APR-SEP	83361	97324	103	115934	94166
APR-JUL	71010	81834	100	99386	81933
APR-AUG	77588	91537	103	108983	89196
JAN-SEP	105090	116466	100	137691	115946
JAN-JUL	92367	102630	99	121170	103714
OCT-SEP	123155	134532	102	155756	132314

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



Most Recent Forecast for ESP10: Issued Date 02/03/2022

Max Scale
 Scale To Data
 Scale To Last 45 Days
 Show Min/Max Ensemble Volume
 Show Tooltips Help

Overlay

ESP10 HEFS ESPO

Data Files

CSV (ESP10 / APR-AUG)

Forecast Ensemble



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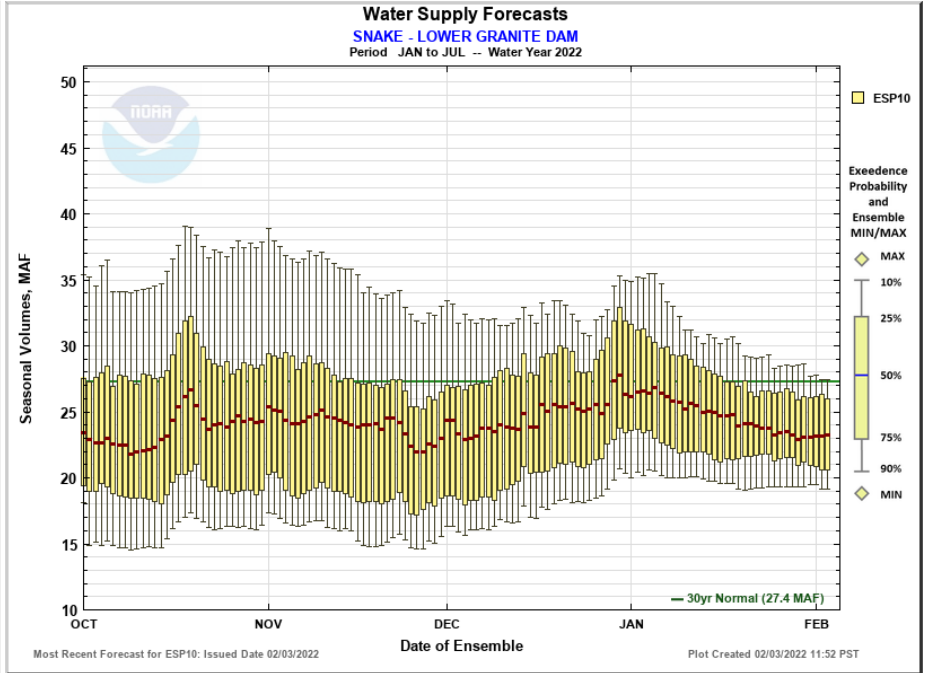
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Choose Date: 02/03/2022 Archive: Water Year

SNAKE - LOWER GRANITE DAM (LGDW1) Forecasts for Water Year 2022					
Official Water Supply					
ESP with 10 Days QPF Ensemble: 2022-02-03 Issued: 2022-02-03					
Forecast Period	Forecasts Are in KAF				30 Year Average (1991-2020)
	90 %	50 %	% Average	10 %	
APR-SEP	15461	19774	89	23708	22232
APR-JUL	13464	17429	87	20927	19946
APR-AUG	14441	18656	88	22301	21121
JAN-SEP	21696	25791	87	30208	29736
JAN-JUL	19333	23414	85	27685	27450
OCT-SEP	25601	29696	87	34114	34287
Experimental Water Supply					
HEFS with 15 days EQPF Ensemble: 2022-02-03 Issued: 2022-02-03					
APR-SEP	15120	19839	89	23233	22232
APR-JUL	13140	17511	88	20412	19946
APR-AUG	14104	18695	89	21883	21121
JAN-SEP	21396	25081	84	29725	29736
JAN-JUL	19362	22731	83	27056	27450
OCT-SEP	25301	28986	85	33630	34287
Reference					
ESP with 0 Days QPF Ensemble: 2022-02-03 Issued: 2022-02-03					
APR-SEP	15956	20560	92	24789	22232
APR-JUL	13903	18190	91	22279	19946
APR-AUG	14925	19416	92	23593	21121
JAN-SEP	21728	26863	90	32082	29736
JAN-JUL	19701	24485	89	29535	27450
OCT-SEP	25633	30768	90	35987	34287

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 Show Tooltips Help

Overlay

ESP10 HEFS ESPO

Data Files

[CSV \(ESP10 / APR-JUL\)](#)

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Libby : February Runoff Forecast & Flood Risk Management Calculation

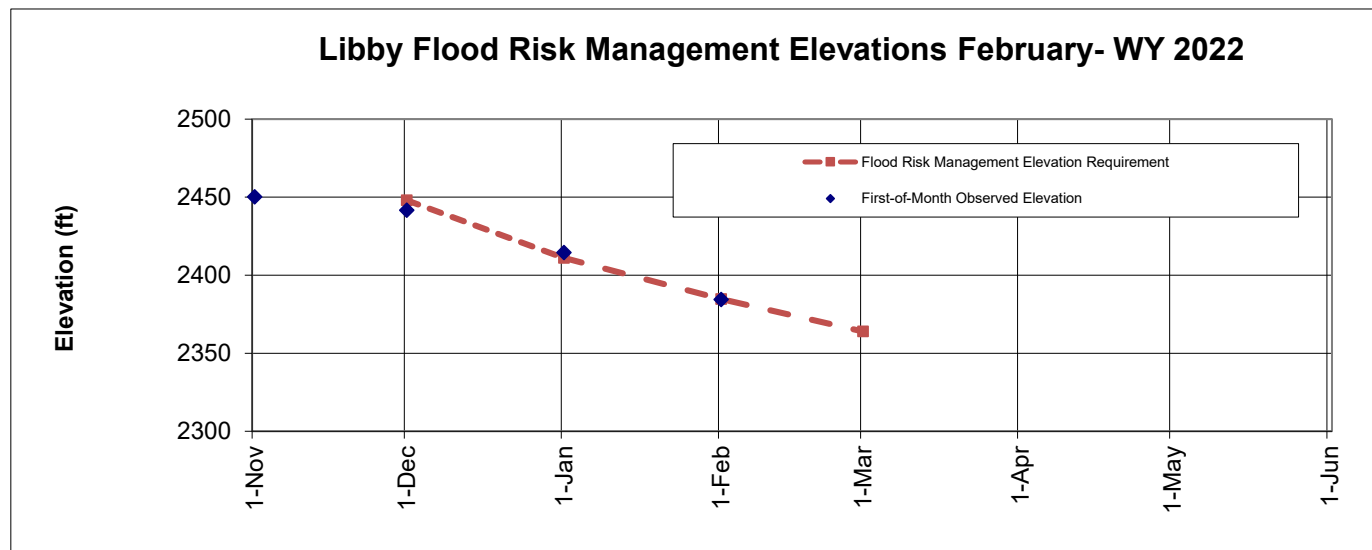
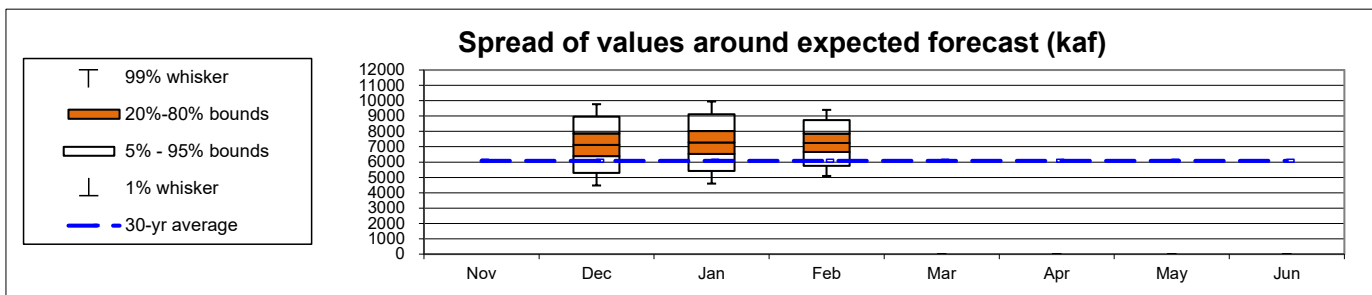
WY 2022

Runoff Forecast	February	1991-2020 Average	1991 - 2020 Percent of Average	1929-2008 Average	1929 - 2008 Percent of Average
Most Probable Runoff Volume: Apr-Aug (kaf)	7249	6080	119%	6259	116%
Most Probable Runoff Volume: Apr-Jul (kaf)	6641	5570	119%	5708	116%
Most Probable Runoff Volume: May-Jul (kaf)	5978	5014	119%	5183	115%

Flood Risk Management	February
28-Feb Flood Risk Management Space (kaf)	3416
28-Feb Flood Risk Management Elevation (ft)	2363.9

Forecast/Reservoir Data	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Apr-Aug Runoff Forecast (kaf)		7123	7273	7249				
First-of-Month Elev (ft)	2450.2	2441.6	2414.4	2384.5				

Seasonal FRM Requirements	30-Nov	31-Dec	31-Jan	28-Feb	31-Mar	30-Apr
Flood Risk Management Space (kaf)	500	2000	2851	3416		
Flood Risk Management Elevation (ft)	2448.0	2411.0	2384.6	2363.9		



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, Jason Chang (206) 764-3528, or Kevin Shaffer (206) 764-3660.
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.
3. Cranbrook A gage data was intermittent during December and January. Nearby Cranbrook Airport Auto gage data was used instead.

Libby : February Runoff Forecast & Flood Risk Management Calculation

Apr-Aug Runoff Forecast Calculation:

Variable	Month(s)	Units	Observed Value A	Percent of Average	Regression Coefficient	Marginal Runoff (kaf) =A*B
SOI	ΣJun:Jul					
Eureka RS, MT	ΣOct:Jan Prcp	inches	3.93	85%	78.5	308.4
West Glacier, MT	ΣOct:Jan Prcp	inches	15.71	121%	31.0	486.2
Cranbrook A, BC	ΣOct:Jan Prcp	millimeters	147.30	119%	2.8	418.3
Fernie, BC	ΣOct:Jan Prcp	millimeters	818.84	164%	0.7	589.6
Hawkins Lake, MT	1-Feb SWE	inches	16.90	104%	30.6	517.1
Stahl Peak, MT	1-Feb SWE	inches	28.10	117%	23.0	646.0
East Creek, BC	1-Feb SWE	millimeters	935.00	151%	0.8	701.3
Moyie Mountain, BC	1-Feb SWE	millimeters	235.00	80%	1.5	347.8
Sunshine Village, AB	1-Feb SWE	millimeters	596.89	155%	1.5	877.4
Akamina Pass, AB	1-Feb SWE	millimeters	420.33	134%	1.3	533.8
South Racehorse Creek, AB	1-Feb SWE	millimeters	347.18	133%	1.5	531.2
Intercept			1.00		1291.5	1291.5
February Forecast	April - August	kaf				7248.6

Data used in Libby Water Supply Forecast

WY 2022

Climate Data	Jun-21	Jul-21
SOI	0.40	1.40

Precipitation Data	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Eureka RS, MT (inch)	1.52	1.12	0.63	0.66				
West Glacier, MT (inch)	3.51	4.63	4.54	3.03				
Cranbrook A, BC (mm)	34.20	34.10	45.80	33.20				
Fernie, BC (mm)	180.85	337.00	194.82	106.17				
Snow Water Equiv	1-Nov	1-Dec	1-Jan	1-Feb	1-Mar	1-Apr	1-May	1-Jun
Hawkins Lake, MT (inch)				17				
Stahl Peak, MT (inch)			19	28				
East Creek, BC (mm)				935				
Moyie Mountain, BC (mm)			127	235				
Sunshine Village, AB (mm)			432	597				
Akamina Pass, AB (mm)				420				
South Racehorse Creek, AB (mm)				347				
Streamflow	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Libby Inflow Volume (kaf)			299.2					
Reservoir Elevation	1-Nov	1-Dec	1-Jan	1-Feb	1-Mar	1-Apr	1-May	1-Jun
Libby FOM Elev (feet)	2450.2	2441.6	2414.4	2384.5				

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 Approving Official
 Ch., Hydrologic Engineering and Power Branch
 Northwestern Division

Leon Basdekas, P.E.
 Upper Columbia Senior Water Manager
 Seattle District

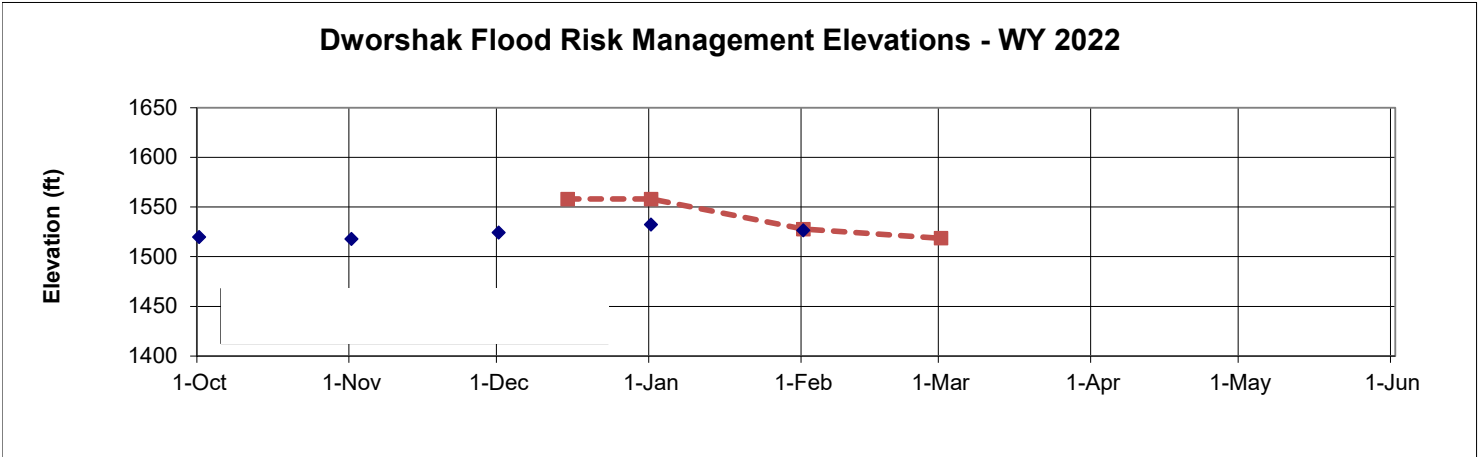
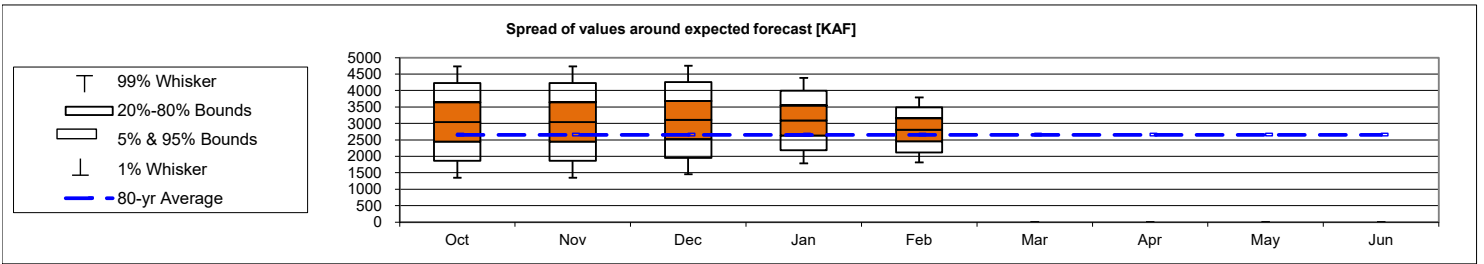
Runoff Forecast	February	1991-2020 Average	1991 - 2020 Percent of Average	1929-2008 Average	1929 - 2008 Percent of Average
Most Probable Runoff Volume: Apr-Jul (KAF)	2805	2474	113%	2655	106%
Most Probable Runoff Volume: May-Jul (KAF)	2027	1788	113%	1959	103%

Flood Risk Management (FRM)	February Value
28-February Flood Risk Management Space (KAF)	1248
28-February Flood Risk Management Elevation (ft)	1518.6

Seasonal Flood Risk Management (assumes no shift of Flood Risk Management space to Grand Coulee, nor refill on the Flood Control Refill Curve)

Seasonal FRM Forecast	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Apr-Jul Runoff Forecast (KAF)	3043	3043	3104	3090	2805				
First-of-Month Elevation (ft)	1519.7	1517.7	1524.3	1532.3	1526.5				

Seasonal FRM Space	15-Dec	31-Dec	31-Jan	28-Feb	31-Mar	15-Apr	30-Apr	31-May
Flood Risk Management Space (KAF)	700	700	1127	1248				
Flood Risk Management Elevation (ft)	1558.2	1558.2	1527.8	1518.6				



Dworshak : February Runoff Forecast and Flood Risk Management Calculation

Apr-Jul Runoff Forecast Calculation:

Variable	Month(s)	Units	Observed Value A	Percent of Average (1991-2020)	Regression Coefficient B	Marginal Runoff (KAF) = A*B
SOI	Sept		0.80		264.27	211.4
HQSI Cumulative Precipitation	Oct-Date	Inch	22.60	126%	27.04	611.1
Elk Butte SWE	1-Feb	Inch	21.4	89%	12.06	258.1
Cool Creek SWE	1-Feb	Inch	31.2	104%	11.35	354.1
Hoodoo Basin SWE	1-Feb	Inch	26.0	99%	10.97	285.2
Sherwin SWE	1-Feb	Inch	9.1	118%	29.17	265.4
Lost Lake SWE	1-Feb	Inch	32.5	96%	7.60	247.0
Intercept			1		572.93	572.9
1-Feb Forecast	Apr-Jul	KAF				2805.3

Data used in Dworshak Water Supply Forecast:

Climate Data	Sept									
SOI	0.80									
Precipitation Data	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	
Headquarters, ID (inch)		2.30	7.10	7.50	5.70	--	--	--	--	
Cumulative HQSI Data (inch)		2.30	9.40	16.90	22.60	--	--	--	--	
Snow Water Equivalent, 1st of Month	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	
Elk Butte, ID (inch)				13.0	21.4	--	--	--	--	
Cool Creek, ID (inch)				20.7	31.2	--	--	--	--	
Hoodoo Basin, MT (inch)				18.1	26.0	--	--	--	--	
Sherwin, ID (inch)				6.1	9.1	--	--	--	--	
Shanghi Summit, ID (inch)						--	--	--	--	
Lost Lake, ID (inch)				21.3	32.5	--	--	--	--	
Hemlock, ID (inch)						--	--	--	--	
Crater Meadows Mar (inch)						--	--	--	--	
Streamflow	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	
Dworshak Inflow Volume (KAF)				205	145	--	--	--	--	

- Notes:
1. The given forecast is the official Corps of Engineers forecast for Dworshak. If you have any questions please contact Willow Walker (509-527-7073), or Jon Roberts (509-527-7518)
 2. Due to updated values for precipitation, snow or streamflow, subsequent forecasts may be different from the forecast published herein.
 3. There is a snow flight scheduled in mid-Feb. to verify snow density in the basin.

Approval:

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Walla Walla District USACE

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Ch., Hydrologic Engineering and Power Branch
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