

The Official Water Supply Forecast for January through July is 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 **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 Final	Sets min. flows at Hungry Horse and Columbia Falls
	May – September Provided by Reclamation	January, February, March Final	Sets VARQ FRM targets
		April Final	Sets VARQ FRM targets and VARQ refill flows
		May, June Final	Sets VARQ refill flows
The Dalles	April – September Provided by NWRFC	March Final	Sets CRWMP adjustments at Grand Coulee
	April – August Provided by NWRFC	April Final	Sets spring flow objective at McNary Dam
		May Final	Sets end of September draft limits at Hungry Horse and Libby
		July Final	Sets end of August draft limit at Grand Coulee
Lower Granite	April – July Provided by NWRFC	April Final	Sets spring flow objective at Lower Granite
		June Final	Sets summer flow objective at Lower Granite
Libby	April – August Provided by Corps Seattle District	December Final	Sets end of December variable draft target
		January, February, March Final	Sets VARQ FRM targets
		April Final	Sets VARQ FRM targets and VARQ refill flows
		May Final	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
		June Final	VARQ refill flows
Dworshak	April – July Provided by Corps Walla Walla District	January to June Final	Manage for reservoir FRM and refill

Source: 2020 Water Management Plan, page 13:
<http://pweb.crohms.org/tmt/documents/wmp/2020/>

1-May-2020

Hungry Horse Dam – Official Water Supply Forecast

MAY 2020

Below are the volumes for the May 2020 final forecast for Hungry Horse:

- May-Jul: 1850 kaf (117%)
- Apr-Aug: 2,200 kaf (114%)
- May-Sep: 1,970 kaf (116%)

The minimum flows downstream of Hungry Horse are as follows:

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

Joel Fenolio, P.E.

Water Management - Operations Team Supervisor
U.S. Bureau of Reclamation
Columbia - Pacific Northwest Region
Boise, ID 83706



Northwest River Forecast Center Water Supply Forecasts

Home Data/Normals Rankings ENSO / Runoff Adjustments Verification Verify All Years Archive Monthly Water Supply Forecasts

COLUMBIA - THE DALLES DAM (TDAO3) Forecasts for Water Year 2020

Official Water Supply

ESP with 10 Days QPF Ensemble: 2020-05-05 Issued: 2020-05-05

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	88413	92849	100	100257	92704
APR-JUL	74843	78973	99	85851	79855
APR-AUG	82783	87323	100	94915	87532
JAN-SEP	105401	109837	96	117245	114216
JAN-JUL	91831	95961	95	102839	101368
OCT-SEP	117725	122162	94	129569	130518

Experimental Water Supply

HEFS with 15 days EQPF Ensemble: 2020-05-05 Issued: 2020-05-05

APR-SEP	88878	93543	101	102132	92704
APR-JUL	75552	80465	101	87371	79855
APR-AUG	83417	88274	101	96465	87532
JAN-SEP	105865	110531	97	119120	114216
JAN-JUL	92539	97452	96	104359	101368
OCT-SEP	118190	122855	94	131444	130518

Reference

ESP with 0 Days QPF Ensemble: 2020-05-04 Issued: 2020-05-04

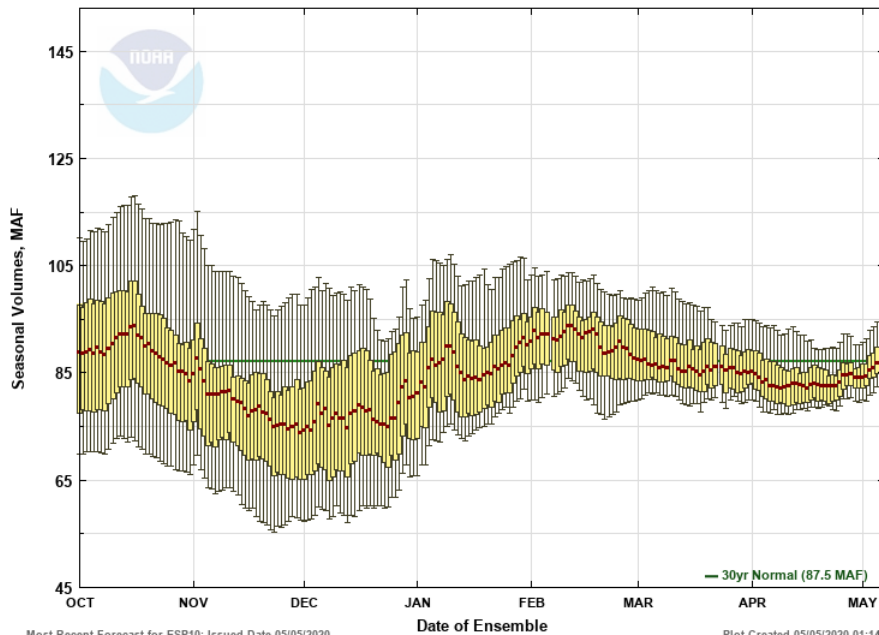
APR-SEP	88115	92921	100	100657	92704
APR-JUL	75467	79834	100	86644	79855
APR-AUG	82543	87592	100	94928	87532
JAN-SEP	105103	109909	96	117645	114216
JAN-JUL	92455	96821	96	103631	101368
OCT-SEP	117427	122233	94	129969	130518

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

Water Supply Forecasts

COLUMBIA - THE DALLES DAM

Period APR to AUG -- Water Year 2020



Most Recent Forecast for ESP10: Issued Date 05/05/2020

Plot Created 05/05/2020 01:14

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

Overlay

ESP10

HEFS

ESP0

Data Files

CSV (ESP10 / APR-AUG)

Forecast Ensemble



Commerce Home | NOAA | NWS Organization | NWRFC Site Map | Search

Freedom of Information Act | Privacy Policy | Information Quality | USA.gov | Career Opportunities



Northwest River Forecast Center Water Supply Forecasts

Home Data/Normals Rankings ENSO / Runoff Adjustments Verification Verify All Years Archive Monthly Water Supply Forecasts

SNAKE - LOWER GRANITE DAM (LGDW1) Forecasts for Water Year 2020

Official Water Supply

ESP with 10 Days QPF Ensemble: 2020-05-05 Issued: 2020-05-05

Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	18456	19558	88	22426	22279
APR-JUL	16183	17002	86	19778	19848
APR-AUG	17337	18317	87	21076	21091
JAN-SEP	23940	25042	84	27910	29872
JAN-JUL	21668	22486	82	25262	27440
OCT-SEP	27855	28957	84	31825	34667

Experimental Water Supply

HEFS with 15 days EQPF Ensemble: 2020-05-05 Issued: 2020-05-05

APR-SEP	18721	20039	90	23163	22279
APR-JUL	16414	17514	88	20457	19848
APR-AUG	17624	18698	89	21791	21091
JAN-SEP	24205	25523	85	28647	29872
JAN-JUL	21898	22998	84	25942	27440
OCT-SEP	28120	29438	85	32562	34667

Reference

ESP with 0 Days QPF Ensemble: 2020-05-05 Issued: 2020-05-05

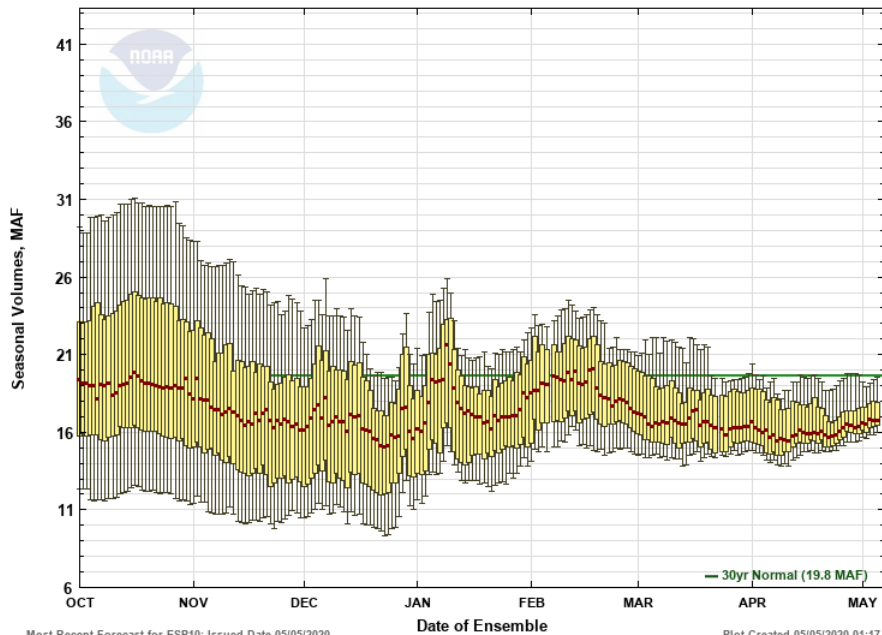
APR-SEP	18547	19900	89	23400	22279
APR-JUL	16276	17365	87	20670	19848
APR-AUG	17411	18586	88	22017	21091
JAN-SEP	24031	25384	85	28884	29872
JAN-JUL	21760	22849	83	26154	27440
OCT-SEP	27945	29299	85	32799	34667

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

Water Supply Forecasts

SNAKE - LOWER GRANITE DAM

Period APR to JUL -- Water Year 2020



Most Recent Forecast for ESP10: Issued Date 05/05/2020

Plot Created 05/05/2020 01:17

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

Overlay

ESP10

HEFS

ESP0

Data Files

CSV (ESP10 / APR-JUL)

Forecast Ensemble



Commerce Home | NOAA | NWS Organization | NWRFC Site Map | Search

Freedom of Information Act | Privacy Policy | Information Quality | USA.gov | Career Opportunities

Libby: May Runoff Forecast & Flood Risk Management Calculation

WY 2020

Runoff Forecast and Flood Risk Management

Most Probable Runoff Volume:

Apr-Aug 5759 KAF
Apr-Jul 5211 KAF
May-Jul 4867 KAF

1981-2010 Average	Percent of Average	1929-2008 Average	Percent of Average
5885	98%	6282	92%
5342	98%	5720	91%
4821	101%	5199	94%

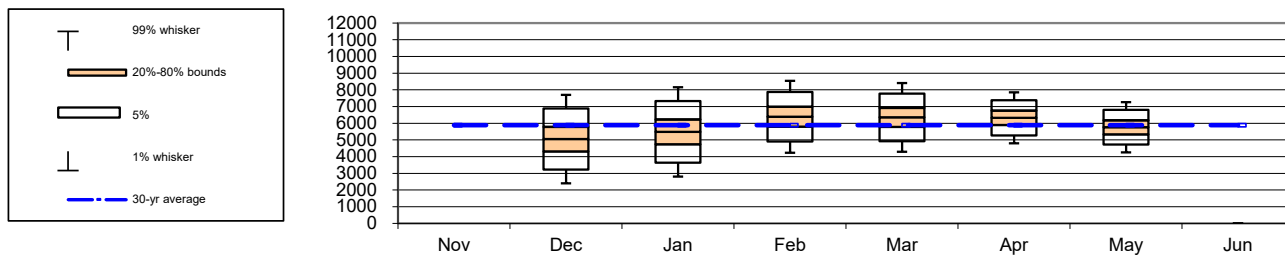
Seasonal Flood Risk Management

VARQ Flood Risk Management Implemented

Forecast Date >>	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Apr-Aug Runoff Forecast		5050	5481	6386	6349	6324	5759	
First-of-Month Elev	2440.8	2438.4	2426.4	2424.6	2406.2	2404.0	2405.5	

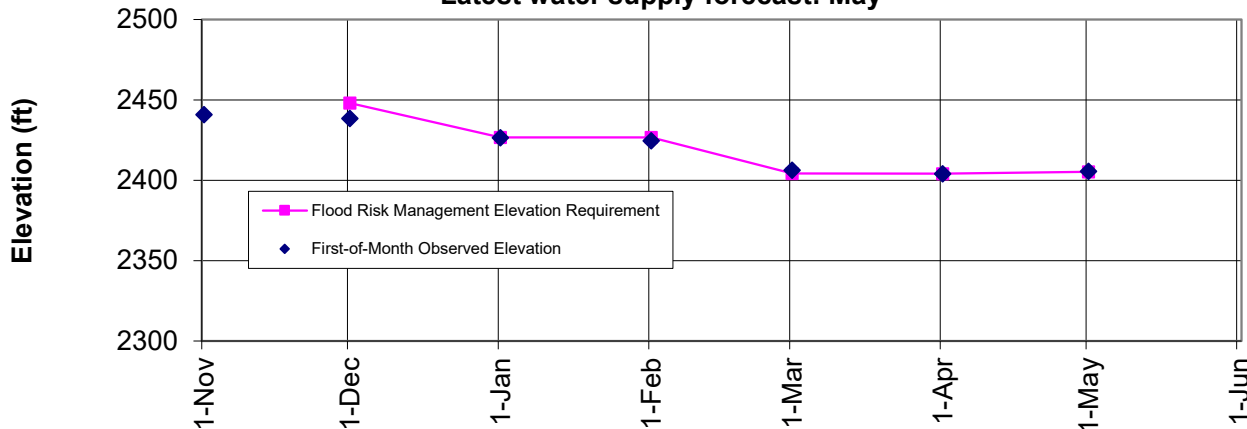
Date >>	30-Nov	31-Dec	31-Jan	29-Feb	31-Mar	30-Apr	
FRM Space	500	1400	1400	2240	2243	2202	
FRM Elevation	2448.0	2426.7	2426.7	2404.2	2404.1	2405.3	

Spread of values around expected forecast



Libby Flood Risk Management Elevations - 2020

Latest water supply forecast: May



Notes:

1. The given forecast is the official Corps of Engineers forecast for Libby. If you have any questions please contact Jon Moen (206) 764-3561, Alex Nathan (206) 316-3155, Logan Osgood-Zimmerman (206) 764-6928, 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. The Akamina Pass snow station was destroyed in a fire in Sept. 2017. Akamina Pass SWE was estimated based on a regression equation and observed values at nearby sites Grave Creek, Poorman Creek, Hand Creek, and Mount Odium.

Libby: May Runoff Forecast & Flood Risk Management Calculation

Apr-Aug Runoff Forecast Calculation:

Variable	Month(s)	Units	Observed Value	Percent of Average	Regression Coefficient	Marginal Runoff (KAF)
			A		B	=A*B
SOI	ΣJun:Jul					
Eureka RS, MT	ΣOct:Apr Prcp	inches	5.32	78%	57.5	305.6
West Glacier, MT	ΣOct:Apr Prcp	inches	16.70	90%	28.0	468.3
Cranbrook A, BC	ΣOct:Apr Prcp	millimeters	122.50	66%	2.8	343.0
Fernie, BC	ΣOct:Apr Prcp	millimeters	763.40	101%	0.6	465.7
Hawkins Lake, MT	1-May SWE	inches	25.10	95%	17.3	434.2
Stahl Peak, MT	1-May SWE	inches	39.90	106%	16.7	667.9
East Creek, BC	1-May SWE	millimeters	1057.00	115%	0.6	602.5
Moyie Mountain, BC	1-May SWE	millimeters	500.00	138%	0.9	455.0
Sunshine Village, AB	1-May SWE	millimeters	623.70	101%	1.3	785.9
Akamina Pass, AB	1-May SWE	millimeters	328.00	97%	0.6	180.4
South Racehorse Creek, AB	1-May SWE	millimeters	359.50	98%	0.8	298.4
Intercept			1		408.0	408.0
Forecast May-August Inflow (KAF)						Σ 5414.9
Observed April Inflow (KAF)						343.8
1-May Forecast, April-August Inflow (KAF)						Σ 5758.6

Data used in Libby Water Supply Forecast

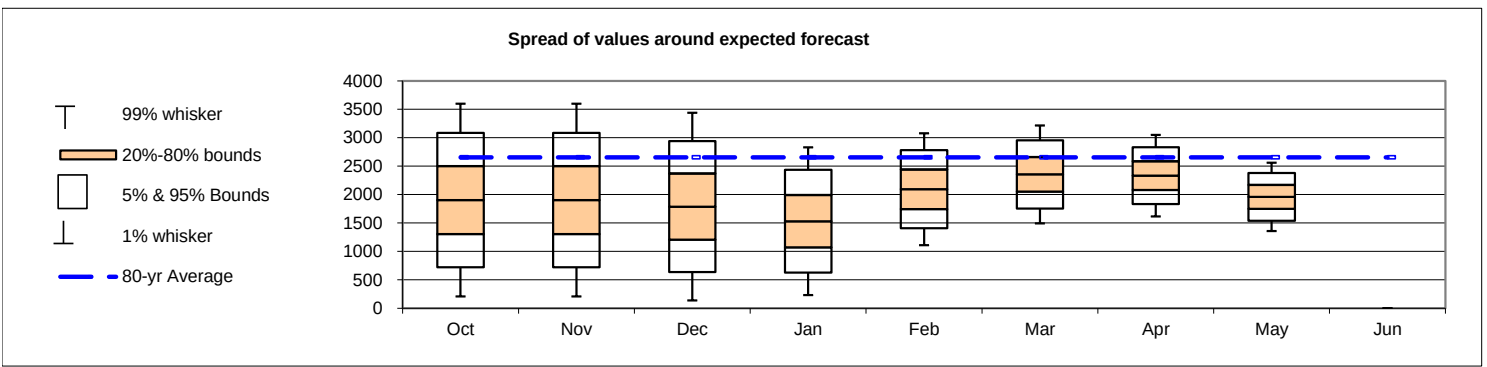
WY 2020

Climate Data					Jun-19	Jul-19					
SOI					-0.50	-0.40					
Precipitation Data		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Units	
Eureka RS, MT		0.75	1.23	0.46	1.01	0.47	0.47	0.93		inch	
West Glacier, MT		2.08	1.65	2.69	5.81	1.99	1.26	1.22		inch	
Cranbrook A, BC		16.60	14.30	28.60	22.90	8.20	18.00	13.90		mm	
Fernie, BC		103.00	35.00	216.00	185.00	97.00	82.00	45.40		mm	
Snow Water Equiv		1-Jan			1-Feb	1-Mar	1-Apr	1-May	1-Jun	Units	
Hawkins Lake, MT					19	22	26	25		inch	
Stahl Peak, MT					15	29	34	40	40		inch
East Creek, BC					778	893	1050	1057		mm	
Moyie Mountain, BC					193	320	404	526	500		mm
Sunshine Village, AB					273	408	512	614	624		mm
Akamina Pass, AB					363	444	527	328		mm	
South Racehorse Creek, AB					289	358	468	360		mm	
Streamflow		Jan			Feb	Mar	Apr	May	Jun	Units	
Libby Inflow Volume		172.2			209.1	171.0	343.8			KAF	
Reservoir Elevation		1-Nov	1-Dec	1-Jan	1-Feb	1-Mar	1-Apr	1-May	1-Jun	Units	
Libby FOM Elev		2440.8	2438.4	2426.4	2424.6	2406.2	2404.0	2405.5		feet	

William D. Proctor, P.E.
 Approving Official
 Ch., Hydrologic Engineering and Power Branch
 Northwestern Division

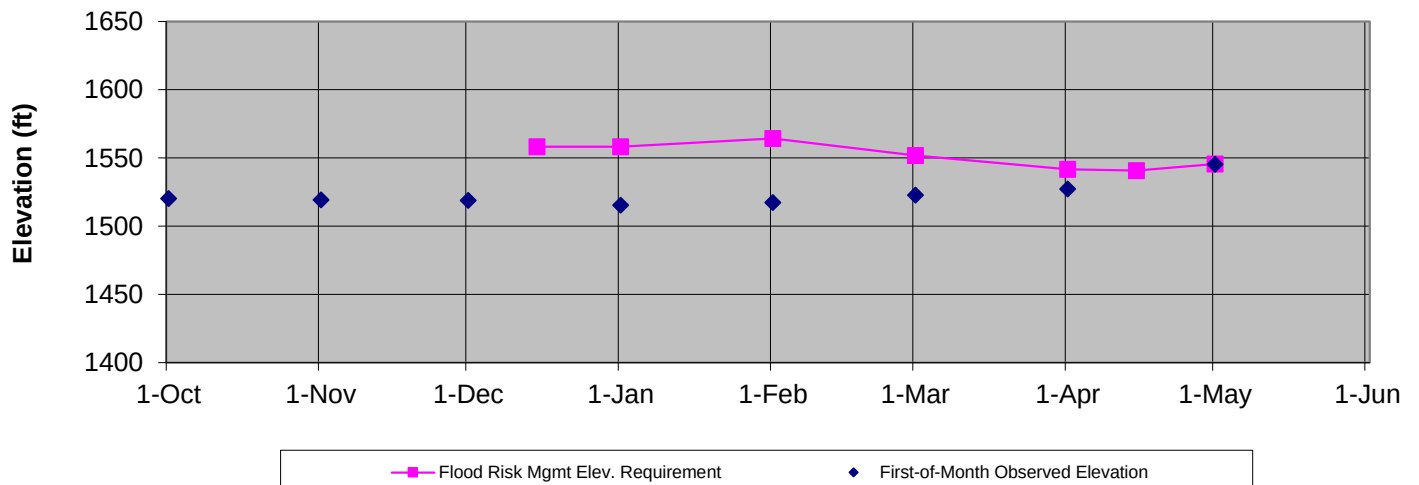
Jon Moen
 Upper Columbia Senior Water Manager
 Seattle District

Runoff Forecast and Flood Risk Management (FRM)				1981-2010 Average	Percent of 30yr Average	1929-2008 Average	Percent of Average			
Most Probable Runoff Volume				Apr-Jul	1960	KAF	2438	80%	2655	74%
				May-Jul	1442	KAF	1784	81%	1959	74%
Seasonal Flood Risk Management (assumes no shift of flood risk management space to Grand Coulee)										
Forecast Date>>	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	
Apr-Jul Runoff Forecast	1904	1904	1789	1532	2095	2355	2333	1960		
First-of-Month Elev	1520.3	1519.3	1519.0	1515.4	1517.4	1522.7	1527.2	1545.4		
Date >>	15-Dec		31-Dec	31-Jan	29-Feb	31-Mar	15-Apr	30-Apr		
FRM Space	--	700	700	610	793	936	950	883		
FRM Elevation	--	1558.2	1558.2	1564.3	1551.9	1541.7	1540.8	1545.6		



Dworshak Flood Risk Management Elevations - WY 2020

Latest water supply forecast: May



Dworshak : May Runoff Forecast & Flood Risk Management Calculation

Apr-Jul Runoff Forecast Calculation					
Variable	Month	Observed Value	% of Average	Regression Coefficient	Marginal Runoff (KAF)
		A		B	=A*B
SOI	Sep	-1.20		122.04	-146.4
Hoodoo Basin SWE	1-May	41.0	102%	11.71	480.1
Shanghi Summit SWE	1-May	6.8	49%	14.41	97.8
Lost Lake SWE	1-May	50.4	99%	9.67	486.9
Hemlock SWE	1-May	37.9	95%	11.58	439.1
Intercept		1		84.24	84.2
1-May Forecast (KAF)				Σ	1441.7

Data Station	Sept	Nov	Dec	1-Jan	1-Feb	1-Mar	1-Apr	1-May	1-Jun
Climate (Stdzd SOI)									
September SOI	-1.20								
Precipitation (in)	Oct								
Headquarters, ID	3.30	1.90	3.50	7.60	4.10	2.30	1.90		
Cumulative HQSI Data	3.30	5.20	8.70	16.30	20.40	22.70	24.60		
Snow Water Equiv (First of Month values) (in)									
Elk Butte, ID				8.8	26.2	35.2	40.0		
Cool Creek, ID				10.2	28.5				
Hoodoo Basin, MT				9.4	25.1	33.1	36.9	41.0	--
Sherwin, ID				2.3	7.9	10.5	6.4		
Shanghi Summit, ID								6.8	--
Lost Lake, ID				10.9	33.3	46.1	52.5	50.4	--
Hemlock, ID								37.9	--
Crater Meadows Mar						43.5	49.7		
Streamflow (End of Month) (kaf)				Jan	Feb	Mar	Apr	May	Jun
Dworshak Inflow				138	160	209	518	--	--

Notes:

1. The given forecast is the official Corps of Engineers forecast for Dworshak. If you have any questions please contact Alfredo Rodriguez (509-527-7532), 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.

Approval:

John J. Heitstuman P.E., D.WRE
Chief Hydrology Section
Walla Walla District USACE

William D. Proctor, P.E.
Ch., Hydrologic Engineering and Power Branch
Columbia Basin Water Management Division