



Northwest River Forecast Center Water Supply Forecasts

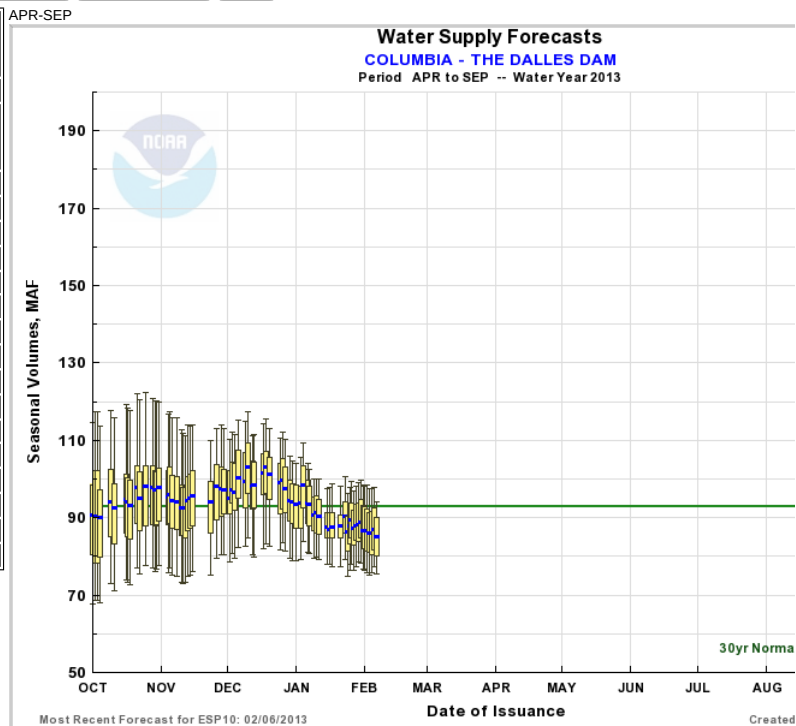
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(TDAO3) THE DALLES Forecasts for Water Year 2013 Ensemble Date: 2013-02-06 Issue Date: 2013-02-07					
Official Forecast with 10 days of QPF					
Forecast Period	Forecast Are in KAF				30 Year Average
	90 %	50 %	% Average	10 %	
APR-SEP	75537	85170	92	94215	92704
APR-JUL	62646	71532	90	80518	79855
APR-AUG	70435	79604	91	89018	87532
JAN-JUL	79376	88234	87	101424	101368
with 3 days of QPF					
APR-SEP	77633	88382	95	99019	92704
APR-JUL	63997	73439	92	85234	79855
APR-AUG	71923	81863	94	93903	87532
JAN-JUL	82120	92006	91	107708	101368
with 0 days of QPF					
APR-SEP	78235	89037	96	98937	92704
APR-JUL	64083	74722	94	85146	79855
APR-AUG	72252	83198	95	93821	87532
JAN-JUL	84205	92832	92	107307	101368

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

Overlay
☐ ESP10 ☐ ESP3 ☐ ESP0

Data Files





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(LGDW1) LOWER GRANITE DAM Forecasts for Water Year 2013

Ensemble Date: 2013-02-06 Issue Date: 2013-02-07

Official Forecast with 10 days of QPF

Forecast Period	Forecast Are in KAF				30 Year Average
	90 %	50 %	% Average	10 %	
APR-SEP	16265	20231	91	23373	22279
APR-JUL	14132	17517	88	20697	19848
APR-AUG	15245	19033	90	22099	21091
JAN-JUL	19785	23330	85	27056	27440

with 3 days of QPF

APR-SEP	16657	20655	93	24373	22279
APR-JUL	14424	18279	92	21669	19848
APR-AUG	15615	19555	93	23099	21091
JAN-JUL	20335	24077	88	28817	27440

with 0 days of QPF

APR-SEP	16990	20942	94	24282	22279
APR-JUL	14486	18403	93	21615	19848
APR-AUG	15704	19766	94	23040	21091
JAN-JUL	20548	24242	88	28845	27440

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

Overlay

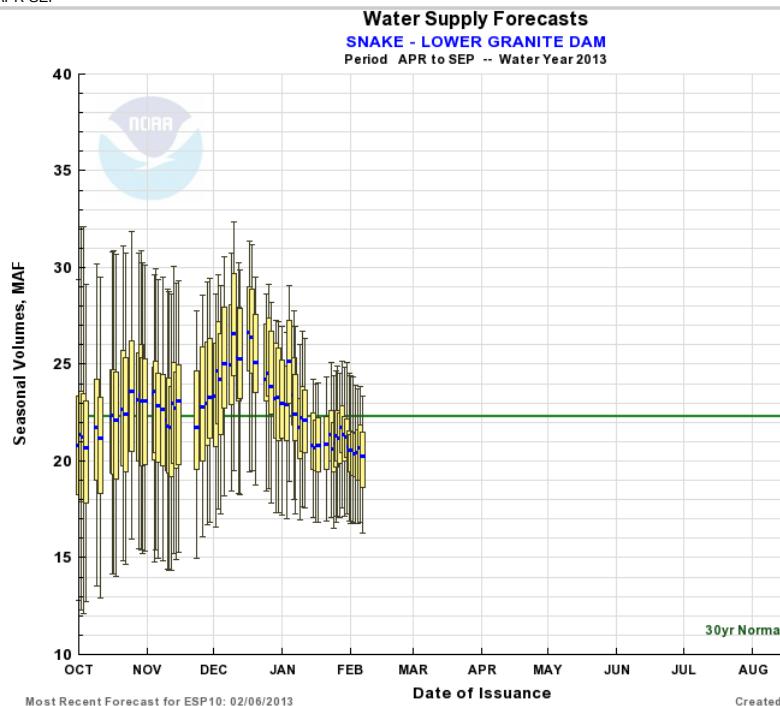
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Data Files

CSV (ESP10 / APR-SEP)

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APR-SEP

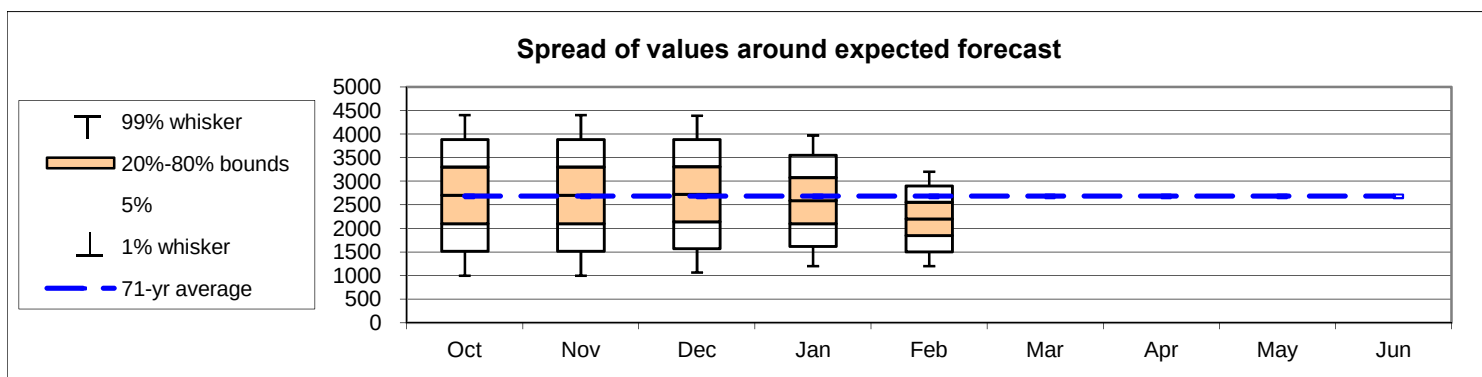


The official Dworshak Dam water supply forecast is computed by the Corps Walla Walla District on the 5th working day of the month from October-June, and used to manage reservoir refill. See the 2013 Water Management Plan (Table 4) for more info. FEB 07, 2013.

Dworshak : February Runoff Forecast & Flood Control Calculation

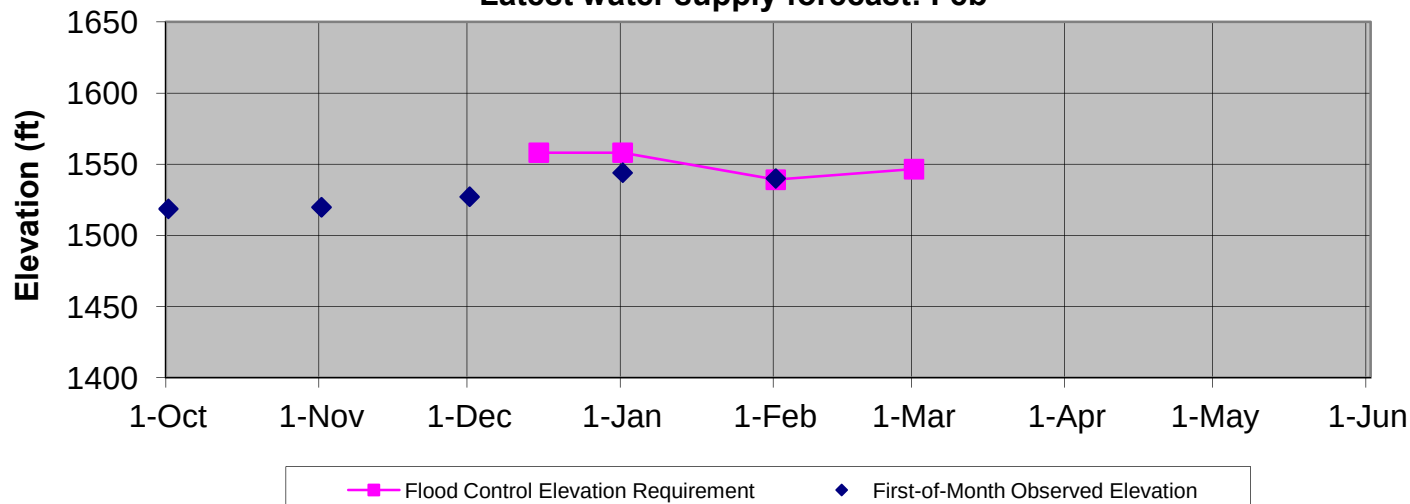
WY 2013

Runoff Forecast and Flood Control						1981-2010 Average	Percent of Average	1929-1999 Average	Percent of Average
Most Probable Runoff Volume		Apr-Jul	2202	KAF		2438	90%	2683	82%
		May-Jul	1625	KAF		1784	91%	1980	82%
28/29 Feb Flood Control Space				867	KAF				
28/29 Feb Flood Control Elevation				1546.7	ft				
Seasonal Flood Control (assumes no shift of flood control space to Grand Coulee)									
Forecast Date>>	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Apr-Jul Runoff Forecast	2701	2701	2727	2587	2202				
First-of-Month Elev	1518.8	1519.9	1527.3	1544.2	1540.2				
Date >>	15-Dec	31-Dec	31-Jan	28-Feb	31-Mar	15-Apr	30-Apr		
Flood Control Space	--	700	700	970	867				
Flood Control Elevation	--	1558.2	1558.2	1539.2	1546.7				



Dworshak Flood Control Elevations - 2013

Latest water supply forecast: Feb



Notes:

1. The given forecast is the official Corps of Engineers forecast for Dworshak. If you have any questions please contact Jeremy Giovando (509 527 7053), or Steve Hall (509 527 7550).
2. Due to updated values for precipitation, snow or streamflow, subsequent forecasts may be different from the forecast published herein.
3. 15-Dec and 31-Dec flood control space is fixed at 700 KAF.

Dworshak : February Runoff Forecast & Flood Control Calculation

Apr-Jul Runoff Forecast Calculation:

Variable	Month	Observed Value	% of Average	Regression Coefficient	Marginal Runoff (KAF)
		A		B	=A*B
SOI	Sep	0.20		116.44	23.3
Elk Butte SWE	1-Feb	21.00	78%	21.02	441.4
Hemlock Butte SWE	1-Feb	25.60	80%	18.15	464.6
Hoodoo Basin SWE	1-Feb	23.80	79%	19.24	457.9
Pierce SWE	1-Feb	5.60	72%	50.18	281.0
DWR January Inflow	Jan	158.08	78%	0.790	124.9
Intercept		1		409.32	409.3
1-Feb Forecast (KAF)				Σ	2202.5

Data Station	Sept	Nov	Dec	1-Jan	1-Feb	1-Mar	1-Apr	1-May	1-Jun
Climate (Stdzd SOI)									
September SOI	0.20								
Precipitation (monthly depth, inches)									
Headquarters, ID		5.30	6.30						
Snow Water Equiv (first of month SWE depth, inches)									
Elk Butte, ID				12.6	21.0	21.0	21.0	21.0	21.0
Hemlock Butte, ID				15.1	25.6	25.6	25.6	25.6	25.6
Hoodoo Basin, MT				17.2	23.8	23.8	23.8	23.8	23.8
Pierce RS, ID				1.9	5.6	5.6			
Shanghi Summit, ID							10.0	10.0	
Lost Lake, ID								20.0	20.0
Streamflow (monthly volume, KAF)				Jan	Feb	Mar	Apr	May	Jun
Dworshak Inflow				158	158	158	158	158	--

Approval:

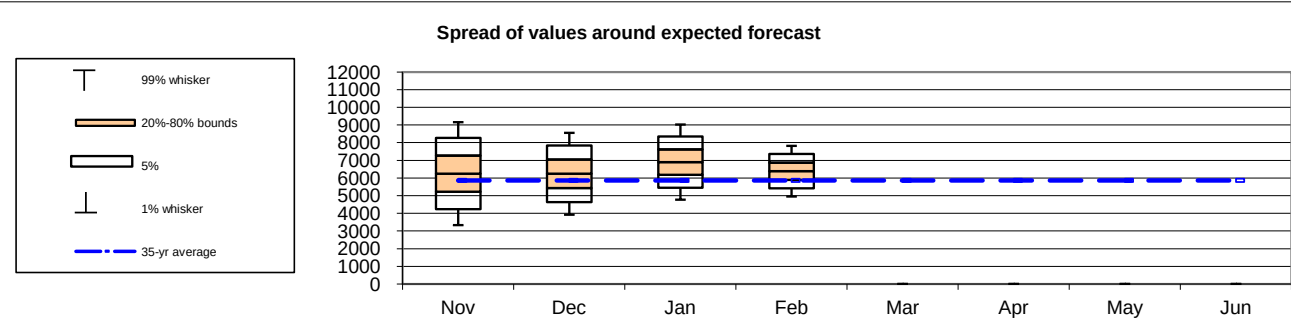
John J. Heitstuman P.E.
Chief Hydrology Section
Walla Walla District USACE

Peter Brooks, P.E., D. WRE
Ch., Hydrologic Engineering and Power Branch
Columbia Basin Water Management Division

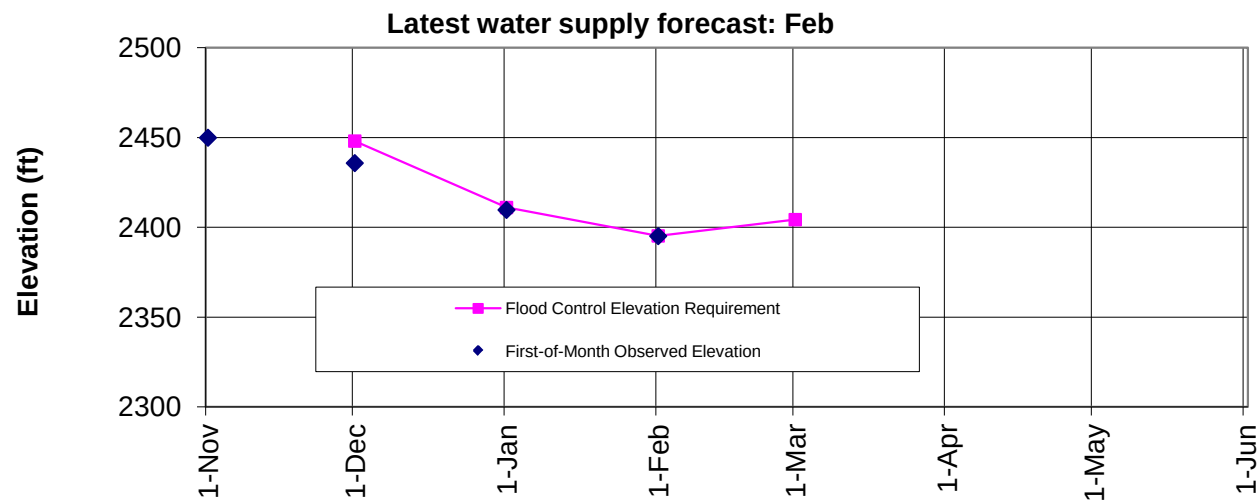
The official Libby Dam water supply forecast is computed by the Corps Seattle District. The February forecast for the April-August period is used to set VARQ flood control targets. See the 2013 Water Management Plan (Table 4) for more info. FEB 04, 2013.

Libby : February Runoff Forecast & Flood Control Calculation WY 2013

Runoff Forecast and Flood Control				1975-2009 Average	Percent of Average	1929-1999 Average	Percent of Average	
Most Probable Runoff Volume:	Apr-Aug	6384	KAF	5865	109%	6337	101%	
	Apr-Jul	5773	KAF	5303	109%	5771	101%	
	May-Jul	5222	KAF	4797	109%	5247	101%	
28 Feb Flood Control Space		2238	KAF					
28 Feb Flood Control Elevation		2404.3	ft					
Seasonal Flood Control				VARQ Flood Control Implemented				
Forecast Date >>	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Apr-Aug Runoff Forecast	6245	6238	6898	6384				
First-of-Month Elev	2449.9	2435.7	2409.7	2395.1				
Date >>	30-Nov	31-Dec	31-Jan	28-Feb	15-Mar	31-Mar	15-Apr	30-Apr
Flood Control Space	500	2000	2534	2238				
Flood Control Elevation	2448.0	2411.0	2395.2	2404.3				



Libby Flood Control Elevations - 2013



Notes:

1. The given forecast is the official Corps of Engineers forecast for Libby. If you have any questions please contact Joel Fenolio (206) 764-6683, Kevin Shaffer (206) 764-3660, Adam Price (206) 764-3604, or Kristian Mickelson (206) 764-6927.
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. Extreme observed precipitation in October was reduced so that the forecast would reflect realistic physical conditions. Observed values for October were replaced with average values + 1/2 standard deviation from the forecast training period (1975-2010).

Libby : February Runoff Forecast & Flood Control Calculation

Apr-Aug Runoff Forecast Calculation:

Variable	Month(s)	Units	Observed Value	Percent of Average	Regression Coefficient	Marginal Runoff (KAF)
			A		B	=A*B
QBO	ΣJan:Mar		-48.06		-7.9	378.0
Eureka, MT	ΣOct:Jan Prcp	inches	3.52	80%	62.2	218.8
Libby 1 NE RS, MT	ΣOct:Jan Prcp	inches	9.76	124%	54.7	533.6
West Glacier, MT	ΣOct:Jan Prcp	inches	14.08	113%	32.3	455.0
Fernie, BC	ΣOct:Jan Prcp	inches	20.86	94%	13.9	289.4
Floe Lake, BC	1-Feb SWE	inches	20.94	107%	10.9	228.3
Sunshine Village, AB	1-Feb SWE	inches	14.57	94%	22.4	325.6
East Creek, BC	1-Feb SWE	inches	20.98	86%	7.0	147.0
Stahl Peak, MT	1-Feb SWE	inches	20.00	83%	19.7	393.2
Gardiner Creek, AB	1-Feb SWE	inches	18.86	126%	16.6	312.6
Three Isle Lake, AB	1-Feb SWE	inches	11.57	90%	29.7	343.6
Lost Creek South, AB	1-Feb SWE	inches	17.80	112%	16.9	301.1
Morrissey Ridge, BC	1-Feb SWE	inches	16.85	92%	23.9	403.1
Hawkins Lake, MT	1-Feb SWE	inches	19.20	117%	32.9	632.0
Intercept			1		1423.0	1423.0
1-Feb Forecast (KAF)					Σ	6384.4

Data used in Libby Water Supply Forecast

WY 2013

Climate Data	Jan-12	Feb-12	Mar-12	Jun-12	Jul-12	Oct-12	Nov-12	Dec-12	Jan-13
SOI				-0.40	0.00				
QBO	-16.07	-15.25	-16.74						
PNA						-1.13	-1.06		
Precipitation Data	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Units
Eureka, MT	1.24	0.76	1.21	0.31					inch
Libby 1 NE RS, MT	1.94	2.52	4.39	0.91					inch
West Glacier, MT	3.06	4.59	4.51	1.92					inch
Fernie, BC	136.60	153.20	186.00	54.00					mm
Snow Water Equiv	1-Jan			1-Feb	1-Mar	1-Apr	1-May	1-Jun	Units
Floe Lake, BC			429	532					mm
Sunshine Village, AB			319	370					mm
East Creek, BC			459	533					mm
Stahl Peak, MT			14	20					inch
Gardiner Creek, AB			365	479					mm
Three Isle Lake, AB			249	294					mm
Lost Creek South, AB			355	452					mm
Morrissey Ridge, BC			331	428					mm
Hawkins Lake, MT			14	19					inch
Streamflow	Jan			Feb	Mar	Apr	May	Jun	Units
Libby Inflow Volume			213.0						KAF
Reservoir Elevation	1-Nov	1-Dec	1-Jan	1-Feb	1-Mar	1-Apr	1-May	1-Jun	Units
Libby FOM Elev	2449.9	2435.7	2409.7	2395.1					feet

FEB 07, 2013

The official Hungry Horse Dam water supply forecast is computed by the Bureau of Reclamation on the 5th working day of the month from January-June. The February final forecast for the April-August runoff volume is used to set minimum flows at Hungry Horse and Columbia Falls, and the forecast for May-Sept runoff volume is used to set VARQ flood control targets. See the 2013 Water Management Plan (Table 4) for more info.

Here are the volumes for the February final forecast for Hungry Horse Inflow.

Feb – Jul: 2253 kaf (111%)

Apr – Aug: 2147 kaf (111%)

May – Sep: 1877 kaf (111%)

Jan - Jul: 2327 kaf (111%)

The minimum flows for Columbia Falls and below Hungry Horse are as follows:

Columbia Falls: 3500 cfs

Hungry Horse: 900 cfs

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John Roache, Civil Engineer
River and Reservoir Operations
U.S. Bureau of Reclamation
PN Regional Office, Boise, ID
(208) 378-5271



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(GCDW1) GRAND COULEE DAM Forecasts for Water Year 2013

Ensemble Date: 2013-02-06 Issue Date: 2013-02-07

Official Forecast with 10 days of QPF

Forecast Period	Forecast Are in KAF				30 Year Average
	90 %	50 %	% Average	10 %	
APR-SEP	50109	56772	94	61576	60110
APR-JUL	40635	46599	91	51811	51015
APR-AUG	46685	53166	94	57673	56763
JAN-JUL	48024	53655	90	60821	59599

with 3 days of QPF

APR-SEP	51940	58308	97	66332	60110
APR-JUL	42536	48267	95	54908	51015
APR-AUG	48447	54536	96	62189	56763
JAN-JUL	50374	55919	94	64750	59599

with 0 days of QPF

APR-SEP	51927	59272	99	66696	60110
APR-JUL	42630	48277	95	55894	51015
APR-AUG	48676	54840	97	62834	56763
JAN-JUL	50896	56161	94	64813	59599

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

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CSV (ESP10 / APR-SEP)

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APR-SEP

