

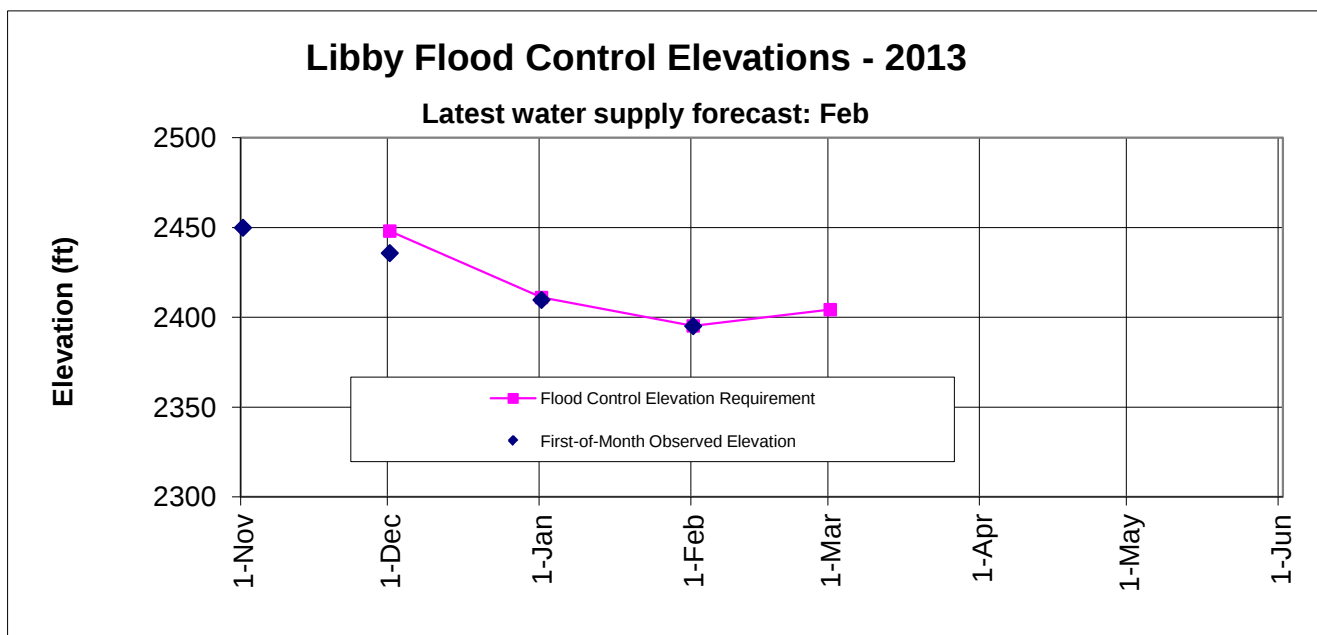
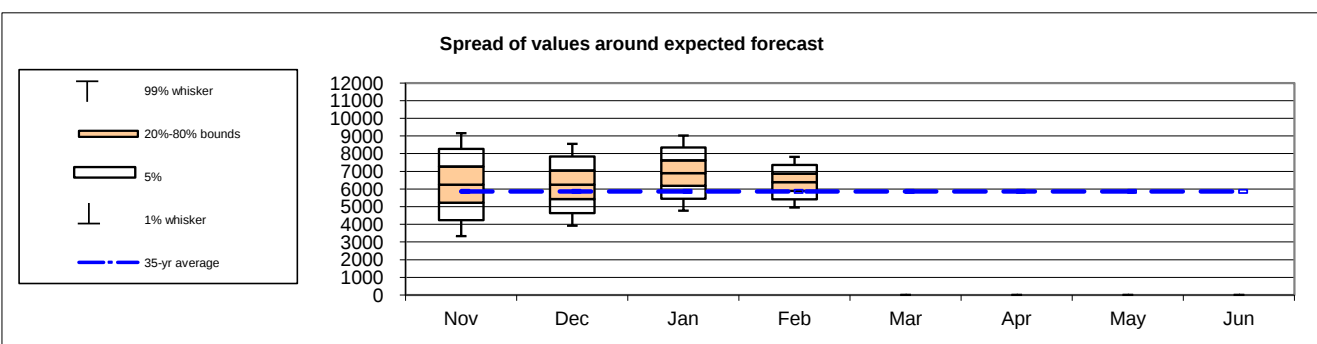
Libby : February Runoff Forecast & Flood Control Calculation

WY 2013

Runoff Forecast and Flood Control			
Most Probable Runoff Volume:	Apr-Aug	6384	KAF
	Apr-Jul	5773	KAF
	May-Jul	5222	KAF
28 Feb Flood Control Space		2238	KAF
28 Feb Flood Control Elevation		2404.3	ft

1975-2009 Average	Percent of Average	1929-1999 Average	Percent of Average
5865	109%	6337	101%
5303	109%	5771	101%
4797	109%	5247	101%

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				



- Notes:
- 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.
 - 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.
 - 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).

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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