

# Libby: May Runoff Forecast & Flood Control Calculation

WY 2013

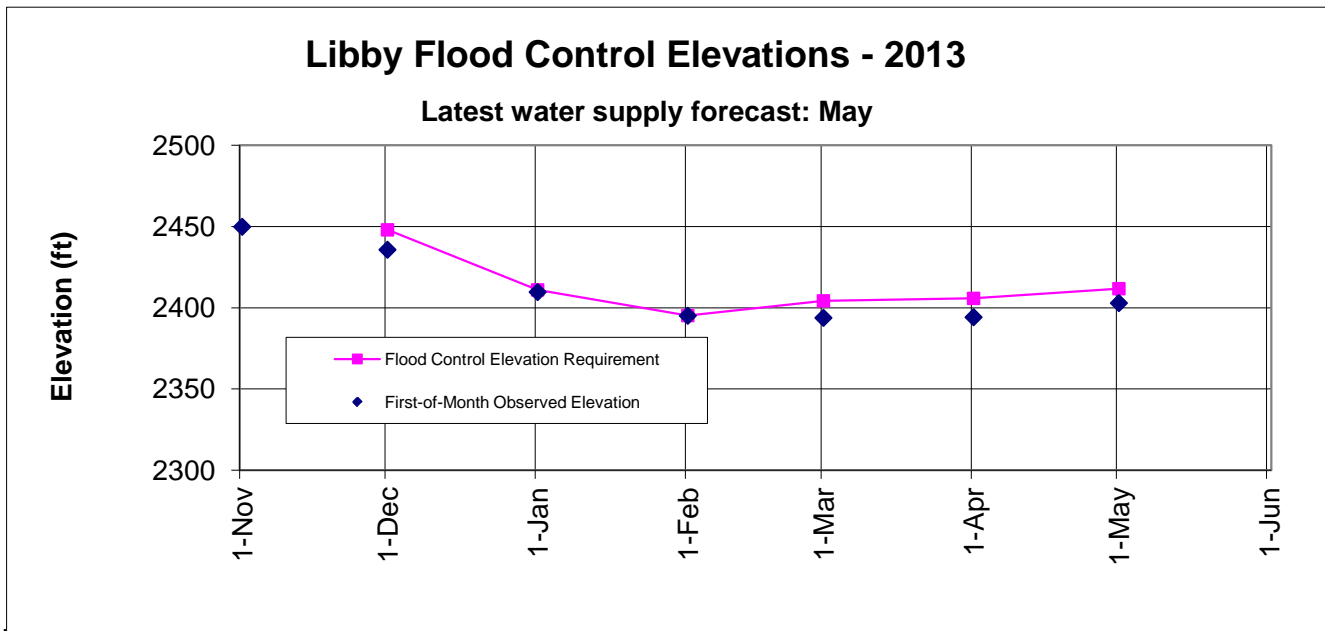
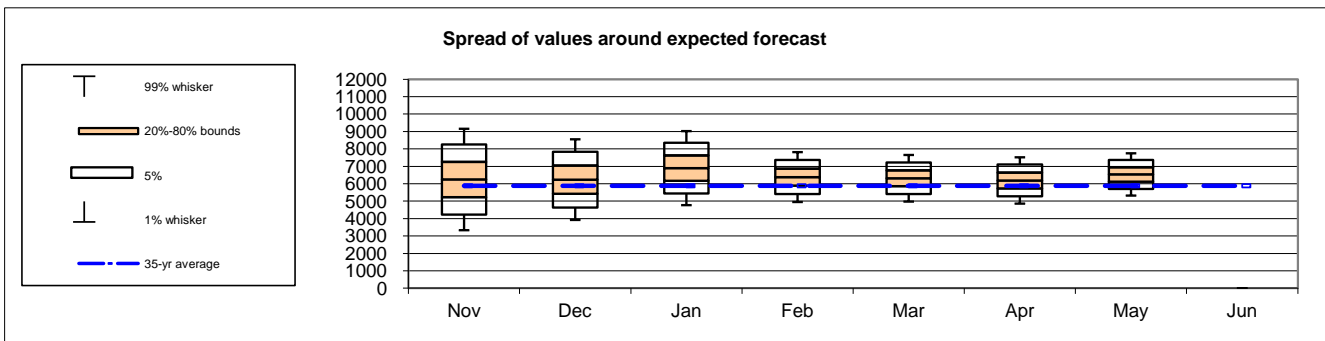
Runoff Forecast and Flood Control			
<b>Most Probable Runoff Volume:</b>	<b>Apr-Aug</b>	<b>6535</b>	<b>KAF</b>
	<b>Apr-Jul</b>	<b>5928</b>	<b>KAF</b>
	<b>May-Jul</b>	<b>5393</b>	<b>KAF</b>

1981-2010 Average	Percent of Average	1929-1999 Average	Percent of Average
5885	111%	6337	103%
5342	111%	5771	103%
4821	112%	5247	103%

Seasonal Flood Control VARQ Flood Control Implemented								
Forecast Date >>	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
<b>Apr-Aug Runoff Forecast</b>	6245	6238	6898	6384	6315	6189	6535	
<b>First-of-Month Elev</b>	2449.9	2435.7	2409.7	2395.1	2393.8	2394.2	2402.9	

Date >>	30-Nov	31-Dec	31-Jan	28-Feb	31-Mar	30-Apr
<b>Flood Control Space</b>	500	2000	2534	2238	2186	1972
<b>Flood Control Elevation</b>	2448.0	2411.0	2395.2	2404.3	2405.8	2411.8



- 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.
  - The Fernie gage reported on 24 of 30 days in April. Other gages in the region had erratic data or showed little correlation with the Fernie station. The observed total at Fernie (65.9 mm) was scaled up by a factor of 30/24 for input into the forecast model.

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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	∑Jan:Mar		-48.06		-3.0	144.6
PNA	∑Oct:Jan		-3.45		-87.2	300.9
West Glacier, MT	∑Jan:Apr Prcp	inches	8.54	94%	83.4	712.4
Fernie, BC	∑Jan:Apr Prcp	inches	12.82	79%	39.2	501.9
Sunshine Village, AB	1-May SWE	inches	24.92	104%	57.8	1440.0
East Creek, BC	1-May SWE	inches	43.03	121%	27.7	1189.8
Stahl Peak, MT	1-May SWE	inches	38.10	104%	30.2	1148.7
Gardiner Creek, AB	1-May SWE	inches	30.83	128%	17.6	543.1
Intercept			1		18.5	18.5
1-May May-Aug Forecast (KAF)					∑	5999.8
Libby Inflow	April	KAF	536	103%		
1-May Apr-Aug Forecast (KAF)						6535.5

## Data used in Libby Water Supply Forecast

	WY 2013								
<b>Climate Data</b>	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	-1.31	0.05
<b>Precipitation Data</b>	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Units
Eureka, MT	1.24	0.76	1.21	0.31	0.21				inch
Libby 1 NE RS, MT	1.94	2.52	4.39	0.91	0.27				inch
West Glacier, MT	3.06	4.59	4.51	1.92	2.04	2.71	1.87		inch
Fernie, BC	136.60	153.20	186.00	54.00	45.50	143.70	82.38		mm
<b>Snow Water Equiv</b>			1-Jan	1-Feb	1-Mar	1-Apr	1-May	1-Jun	Units
Floe Lake, BC			429	532	604				mm
Sunshine Village, AB			319	370	416	556	633		mm
East Creek, BC			459	533	635	821	1093		mm
Stahl Peak, MT			14	20	25	35	38		inch
Gardiner Creek, AB			365	479	540	667	783		mm
Three Isle Lake, AB			249	294	339	441			mm
Lost Creek South, AB			355	452	547				mm
Morrissey Ridge, BC			331	428	514				mm
Hawkins Lake, MT			14	19	22				inch
<b>Streamflow</b>			Jan	Feb	Mar	Apr	May	Jun	Units
Libby Inflow Volume			213.0	179.9	260.0	535.7			KAF
<b>Reservoir Elevation</b>	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	2393.8	2394.2	2402.9		feet

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