

# Libby : April Runoff Forecast & Flood Control Calculation

WY 2013

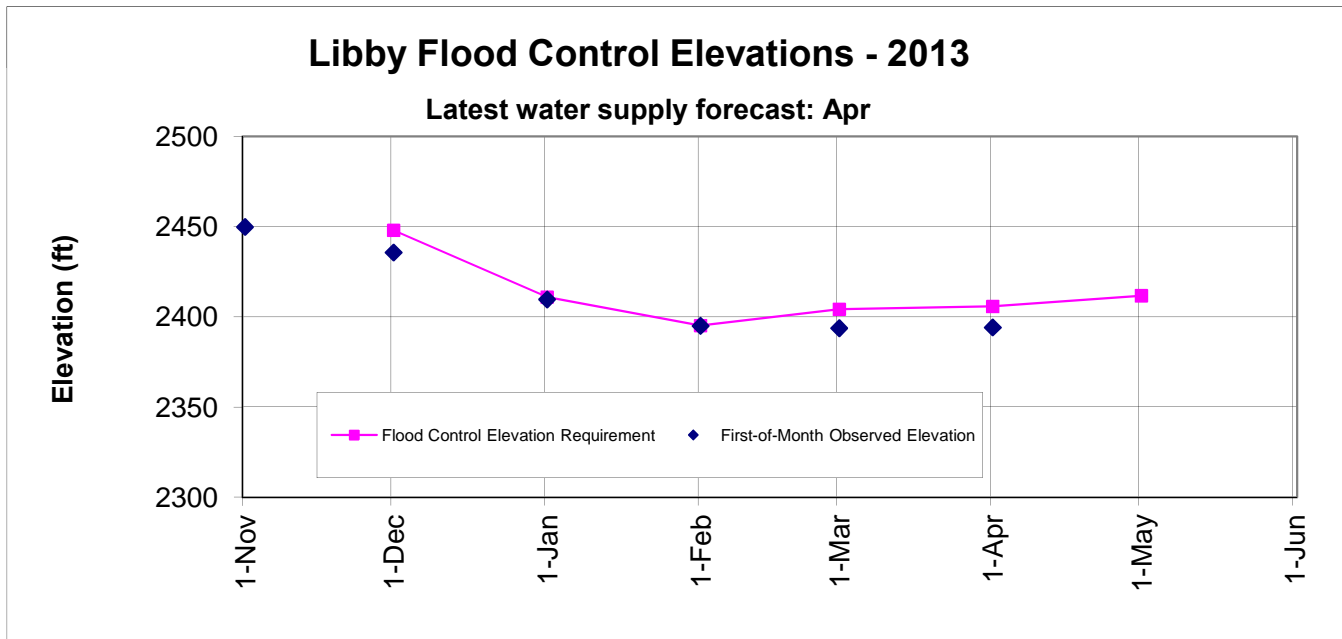
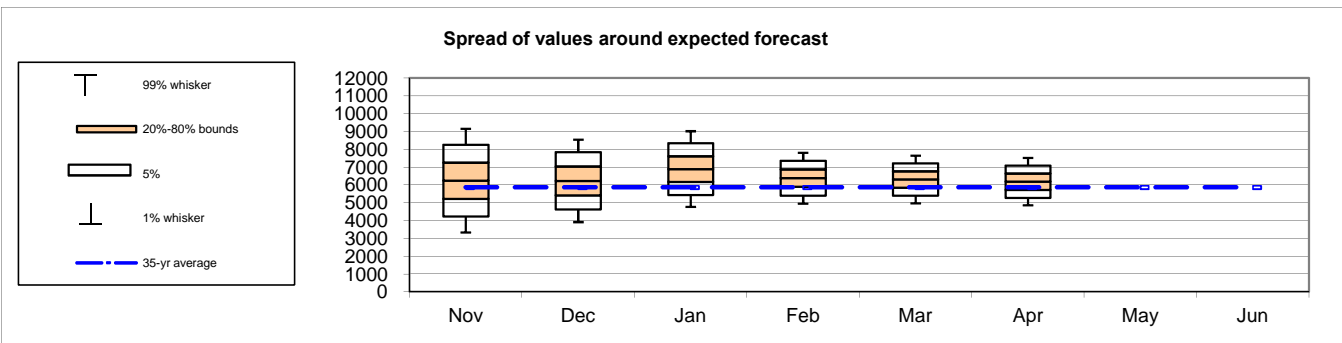
Runoff Forecast and Flood Control			
<b>Most Probable Runoff Volume:</b>	<b>Apr-Aug</b>	<b>6189</b>	<b>KAF</b>
	<b>Apr-Jul</b>	<b>5596</b>	<b>KAF</b>
	<b>May-Jul</b>	<b>5064</b>	<b>KAF</b>
<b>30-Apr Flood Control Space</b>		<b>1972</b>	<b>KAF</b>
<b>30-Apr Flood Control Elevation</b>		<b>2411.8</b>	<b>ft</b>

1981-2010 Average	Percent of Average	1929-1999 Average	Percent of Average
5885	105%	6337	98%
5342	105%	5771	97%
4821	105%	5247	97%

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		
<b>First-of-Month Elev</b>	2449.9	2435.7	2409.7	2395.1	2393.8	2394.2		

Date >>	30-Nov	31-Dec	31-Jan	28/29-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.
  - Precipitation data was missing for Fernie for March 4-7 and March 28-31. Nearby Sites (Cranbrook and Sparwood) showed very little precipitation over that period, (respectively 6.9 mm and 8.0 mm) so the Fernie monthly total was used with the average of the 2 sites (7.5 mm) inserted for that data gap.

# Libby : April 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	∑Jan:Mar		-48.06		-1.8	88.1
PNA	∑Oct:Jan		-3.45		-83.9	289.6
West Glacier, MT	∑Dec:Mar Prcp	inches	11.18	110%	51.3	574.1
Fernie, BC	∑Dec:Mar Prcp	inches	16.90	96%	41.4	699.8
Sunshine Village, AB	1-Apr SWE	inches	21.89	99%	52.4	1148.0
East Creek, BC	1-Apr SWE	inches	32.32	96%	25.8	835.1
Stahl Peak, MT	1-Apr SWE	inches	34.50	99%	27.3	941.2
Gardiner Creek, AB	1-Apr SWE	inches	26.26	113%	18.1	476.0
Three Isle Lake, AB	1-Apr SWE	inches	17.36	91%	51.2	889.5
Intercept			1		247.9	247.9
1-Apr Forecast (KAF)					∑	6189.3

## 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	-1.31	0.05	
Precipitation Data	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			inch	
Fernie, BC	136.60	153.20	186.00	54.00	45.50	143.70			mm	
Snow Water Equiv				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			mm
East Creek, BC				459	533	635	821			mm
Stahl Peak, MT				14	20	25	35			inch
Gardiner Creek, AB				365	479	540	667			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
Streamflow				Jan	Feb	Mar	Apr	May	Jun	Units
Libby Inflow Volume				213.0	179.9	260.0				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	2393.8	2394.2			feet	