

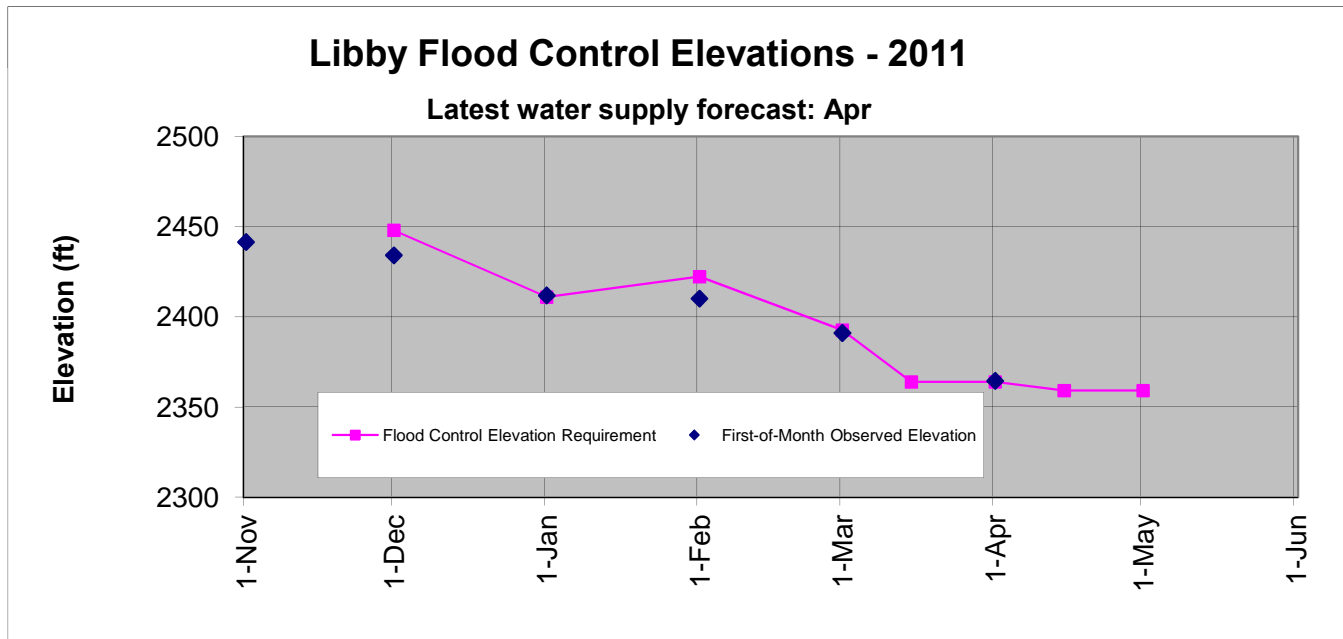
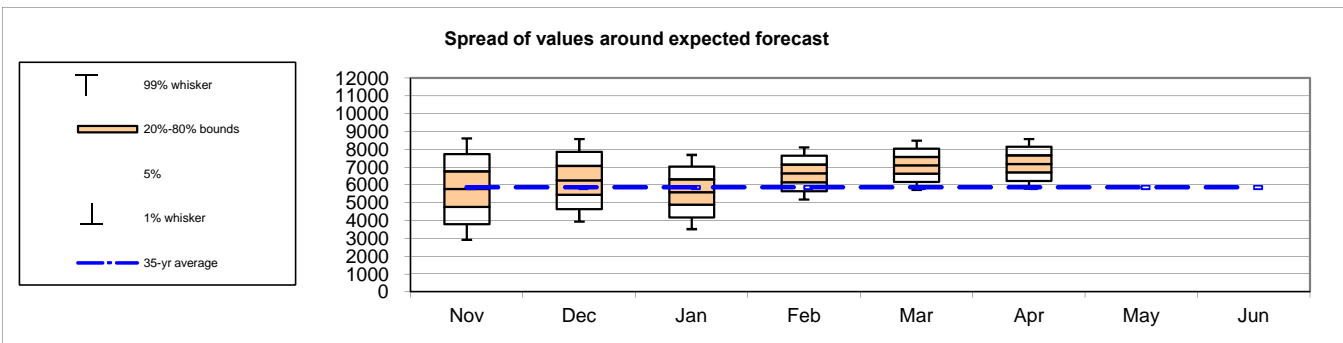
# Libby : April Runoff Forecast & Flood Control Calculation

WY 2011

Runoff Forecast and Flood Control			
<b>Most Probable Runoff Volume:</b>	<b>Apr-Aug</b>	<b>7191</b>	<b>KAF</b>
	<b>Apr-Jul</b>	<b>6502</b>	<b>KAF</b>
	<b>May-Jul</b>	<b>5881</b>	<b>KAF</b>
<b>30-Apr Flood Control Space</b>		<b>3536</b>	<b>KAF</b>
<b>30-Apr Flood Control Elevation</b>		<b>2359.2</b>	<b>ft</b>

1975-2009 Average	Percent of Average	1929-1999 Average	Percent of Average
5865	123%	6337	113%
5303	123%	5771	113%
4797	123%	5247	112%

Seasonal Flood Control								
VARQ Flood Control Implemented								
Forecast Date >>	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
<b>Apr-Aug Runoff Forecast</b>	5775	6262	5610	6656	7111	7191		
<b>First-of-Month Elev</b>	2441.5	2434.2	2411.9	2410.2	2391.1	2364.6		
Date >>	30-Nov	31-Dec	31-Jan	28-Feb	15-Mar	31-Mar	15-Apr	30-Apr
<b>Flood Control Space</b>	500	2000	1488	2612	3416	3416	3536	3536
<b>Flood Control Elevation</b>	2448.0	2411.0	2422.3	2392.7	2364.0	2364.0	2359.2	2359.2



**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), Amy Reese (206 764-3660), or Kristian Mickelson (206 )-764-6927.
2. Subsequent forecasts may differ from the originally published forecast due to updated values for precipitation, snow or streamflow.
3. March forecast has changes due to adjustments in precipitation and SWE data.

# 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		-52.68		-1.0	51.5
PNA	∑Oct:Jan		-0.12		-84.9	10.2
West Glacier, MT	∑Dec:Mar Prcp	inches	17.21	169%	48.6	837.0
Fernie, BC	∑Dec:Mar Prcp	inches	20.03	114%	42.3	846.9
Sunshine Village, AB	1-Apr SWE	inches	24.22	109%	53.8	1302.3
East Creek, BC	1-Apr SWE	inches	37.06	110%	26.0	963.1
Stahl Peak, MT	1-Apr SWE	inches	47.90	138%	27.5	1317.3
Gardiner Creek, AB	1-Apr SWE	inches	31.96	138%	18.4	586.9
Three Isle Lake, AB	1-Apr SWE	inches	19.74	104%	53.3	1052.2
Intercept			1		223.6	223.6
1-Apr Forecast (KAF)					∑	7190.9

## Data used in Libby Water Supply Forecast

	WY 2011									
Climate Data	Jan-10	Feb-10	Mar-10	Jun-10	Jul-10	Oct-10	Nov-10	Dec-10	Jan-11	
SOI				0.10	2.00					
QBO	-16.02	-16.98	-19.68							
PNA						1.80	-0.84	-2.08	1.00	
Precipitation Data	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Units	
Eureka, MT	0.52	2.11	0.84	1.13	1.14				inch	
Libby 1 NE RS, MT	1.27	2.65	2.71	2.21	1.76				inch	
West Glacier, MT	2.36	3.65	4.53	6.32	2.35	4.01			inch	
Fernie, BC	73.50	174.70	97.89	217.30	126.00	67.60			mm	
Snow Water Equiv				1-Jan	1-Feb	1-Mar	1-Apr	1-May	1-Jun	Units
Floe Lake, BC				251	458	623				mm
Sunshine Village, AB				167	335	461	615			mm
East Creek, BC				296	574	758	941			mm
Stahl Peak, MT				20	30	37	48			inch
Gardiner Creek, AB				334	521	647	812			mm
Three Isle Lake, AB				165	301	366	501			mm
Lost Creek South, AB				162	341	459				mm
Morrissey Ridge, BC				233	521	578				mm
Hawkins Lake, MT				11	17	26				inch
Streamflow				Jan	Feb	Mar	Apr	May	Jun	Units
Libby Inflow Volume				217.0	173.6	217.4				KAF
Reservoir Elevation	1-Nov	1-Dec	1-Jan	1-Feb	1-Mar	1-Apr	1-May	1-Jun	Units	
Libby FOM Elev	2441.5	2434.2	2411.9	2410.2	2391.1	2364.6			feet	