

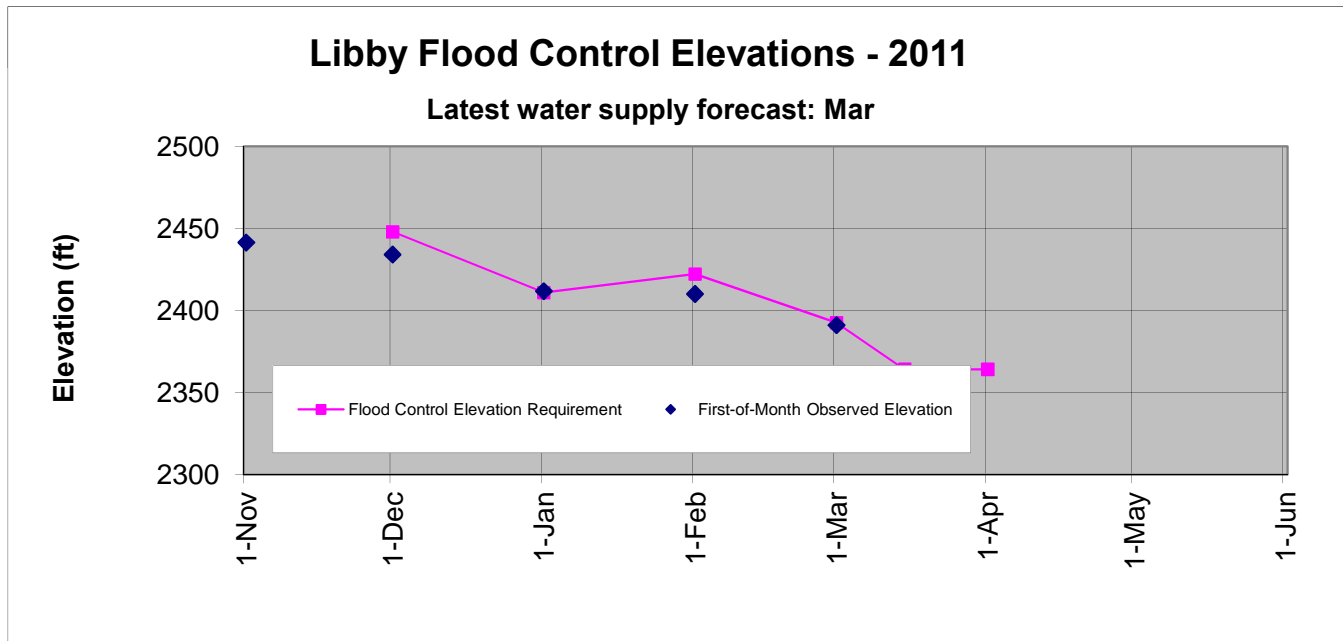
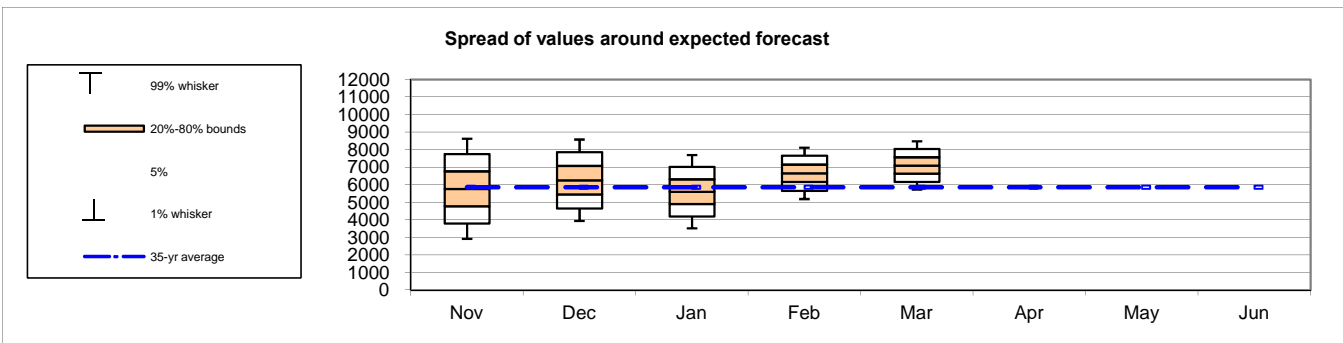
Libby : March Runoff Forecast & Flood Control Calculation

WY 2011

Runoff Forecast and Flood Control			
Most Probable Runoff Volume:	Apr-Aug	7105	KAF
	Apr-Jul	6424	KAF
	May-Jul	5811	KAF
31-Mar Flood Control Space		3407	KAF
31-Mar Flood Control Elevation		2364.3	ft

1975-2009 Average	Percent of Average	1929-1999 Average	Percent of Average
5865	121%	6337	112%
5303	121%	5771	111%
4797	121%	5247	111%

Seasonal Flood Control								
VARQ Flood Control Implemented								
Forecast Date >>	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Apr-Aug Runoff Forecast	5775	6262	5610	6656	7105			
First-of-Month Elev	2441.5	2434.2	2411.9	2410.2	2391.2			
Date >>	30-Nov	31-Dec	31-Jan	28-Feb	15-Mar	31-Mar	15-Apr	30-Apr
Flood Control Space	500	2000	1488	2612	3407	3407		
Flood Control Elevation	2448.0	2411.0	2422.3	2392.7	2364.3	2364.3		



- 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.

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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		-52.68		-10.2	539.4
Eureka, MT	∑Oct:Feb Prcp	inches	5.70	114%	70.2	400.2
Libby 1 NE RS, MT	∑Oct:Feb Prcp	inches	10.60	117%	52.0	550.8
West Glacier, MT	∑Oct:Feb Prcp	inches	19.21	133%	33.6	644.9
Fernie, BC	∑Oct:Feb Prcp	inches	27.14	107%	10.8	294.1
Floe Lake, BC	1-Mar SWE	inches	24.51	106%	5.8	141.3
Sunshine Village, AB	1-Mar SWE	inches	18.16	98%	15.9	288.3
East Creek, BC	1-Mar SWE	inches	29.69	103%	5.0	149.8
Stahl Peak, MT	1-Mar SWE	inches	37.10	128%	15.9	588.9
Gardiner Creek, AB	1-Mar SWE	inches	25.48	140%	14.7	374.1
Three Isle Lake, AB	1-Mar SWE	inches	14.41	94%	24.6	354.2
Lost Creek South, AB	1-Mar SWE	inches	18.06	94%	15.39	277.9
Morrissey Ridge, BC	1-Mar SWE	inches	22.72	100%	18.5	419.7
Hawkins Lake, MT	1-Mar SWE	inches	26.00	129%	23.3	604.9
Intercept			1		1476.2	1476.2
1-Mar Forecast (KAF)					∑	7104.8

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	1.10				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				inch	
Fernie, BC	73.50	174.70	97.89	217.30	126.00				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				mm
East Creek, BC				296	574	754				mm
Stahl Peak, MT				20	30	37				inch
Gardiner Creek, AB				334	521	647				mm
Three Isle Lake, AB				165	301	366				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					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	2391.2				feet	