

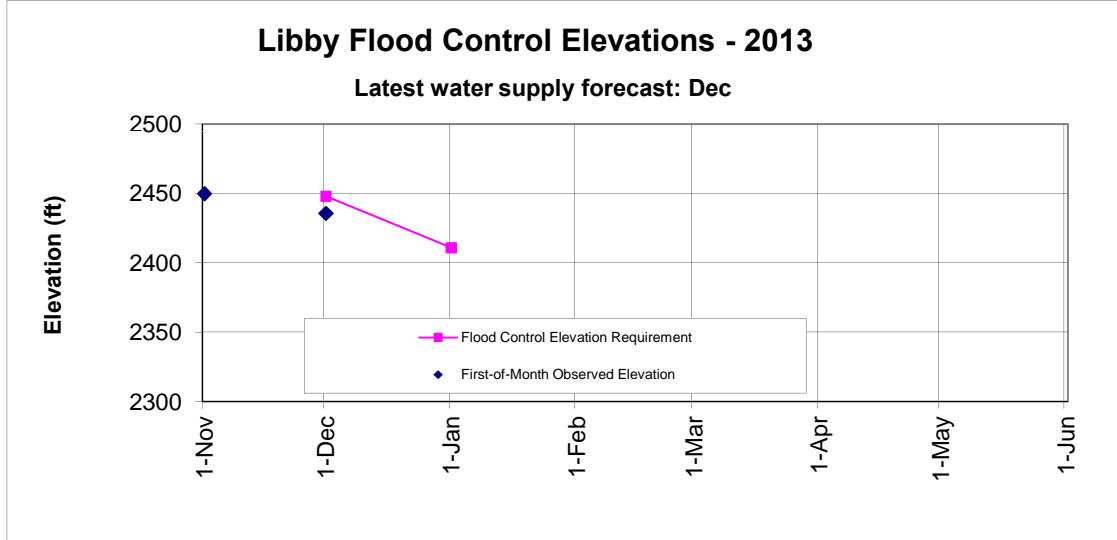
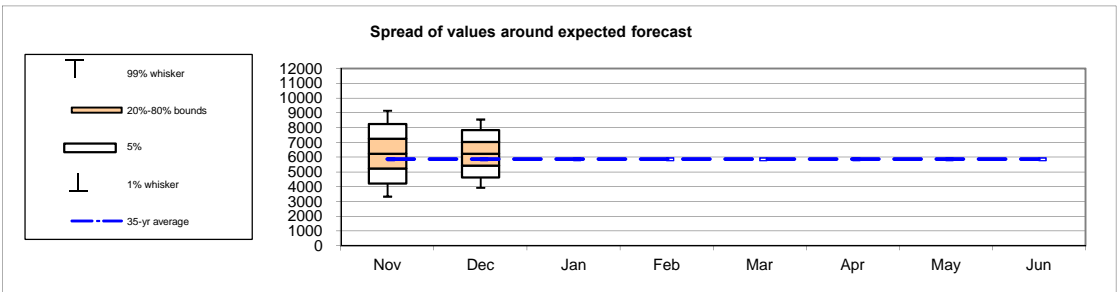
Libby : December Runoff Forecast & Flood Control Calculation

WY 2013

Runoff Forecast and Flood Control			
Most Probable Runoff Volume:	Apr-Aug	6238	KAF
	Apr-Jul	5640	KAF
	May-Jul	5102	KAF
31-Dec Flood Control Space		2000	KAF
31-Dec Flood Control Elevation		2411.0	ft

1975-2009 Average	Percent of Average	1929-1999 Average	Percent of Average
5865	106%	6337	98%
5303	106%	5771	98%
4797	106%	5247	97%

Seasonal Flood Control		Variable End-of-Dec Flood Control Implemented						
Forecast Date >>	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Apr-Aug Runoff Forecast	6245	6238						
First-of-Month Elev	2449.9	2435.7						
Date >>	30-Nov	31-Dec	31-Jan	28-Feb	15-Mar	31-Mar	15-Apr	30-Apr
Flood Control Space	500	2000						
Flood Control Elevation	2448.0	2411.0						



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, Kevin Shaffer (206) 764-3660, Adam Price (206) 764-3604, or Kristian Mickelson (206) 764-6927.
2. If you notice that 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."
3. 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
SOI	∑Jun:Jul		-0.40		62.3	-24.9
QBO	∑Jan:Mar		-48.06		-1.7	81.6
Eureka, MT	∑Oct,Nov Precip	inches	2.00	93%	233.4	466.9
Libby 1 NE RS, MT	∑Oct,Nov Precip	inches	4.46	120%	148.2	661.1
West Glacier, MT	∑Oct,Nov Precip	inches	7.65	142%	99.8	763.1
Fernie, BC	∑Oct,Nov Precip	inches	11.41	111%	44.5	507.5
Intercept			1		3782.4	3782.4
	1-Dec Forecast (KAF)				∑	6237.7

Data used in Libby Water Supply Forecast

	WY							Jul-05	
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									
Precipitation Data	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Units
Eureka, MT	1.24	0.76							inch
Libby 1 NE RS, MT	1.94	2.52							inch
West Glacier, MT	3.06	4.59							inch
Fernie, BC	136.60	153.20							mm
Snow Water Equiv			1-Jan	1-Feb	1-Mar	1-Apr	1-May	1-Jun	Units
Floe Lake, BC									mm
Sunshine Village, AB									mm
East Creek, BC									mm
Stahl Peak, MT									inch
Gardiner Creek, AB									mm
Three Isle Lake, AB									mm
Lost Creek South, AB									mm
Morrissey Ridge, BC									mm
Hawkins Lake, MT									inch
Streamflow			Jan	Feb	Mar	Apr	May	Jun	Units
Libby Inflow Volume									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							feet

Peter F. Brooks, P.E., D. WRE
 Ch., Hydrologic Engineering and Power Branch