

Libby : April Runoff Forecast & Flood Risk Management Calculation

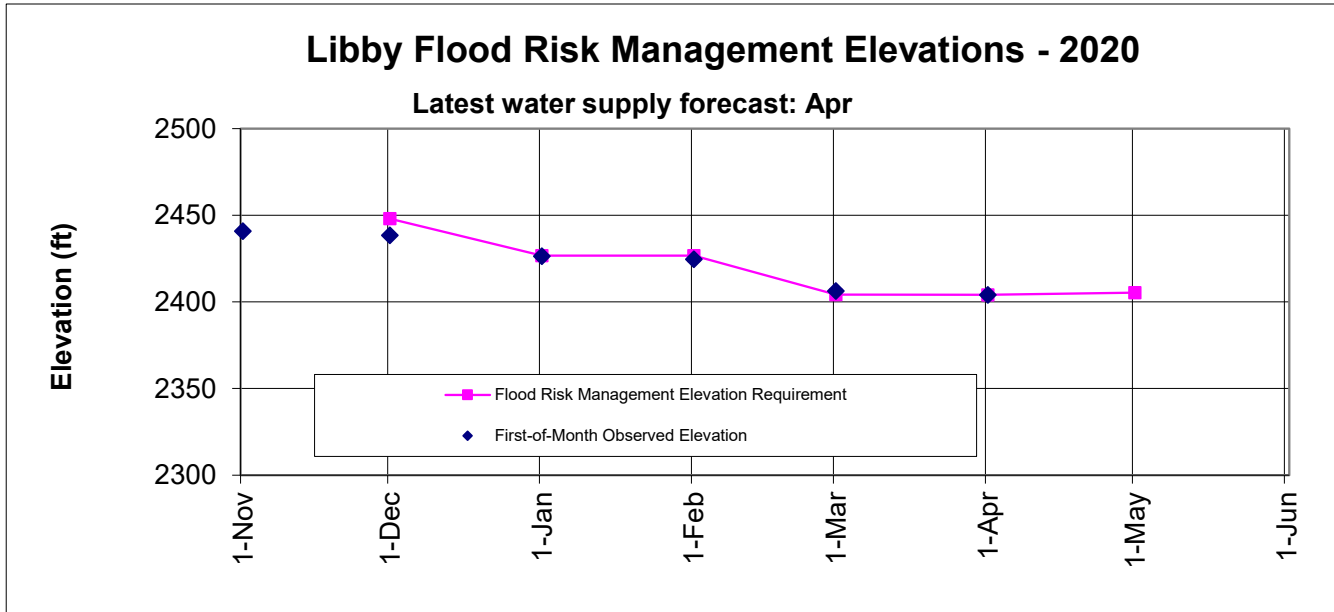
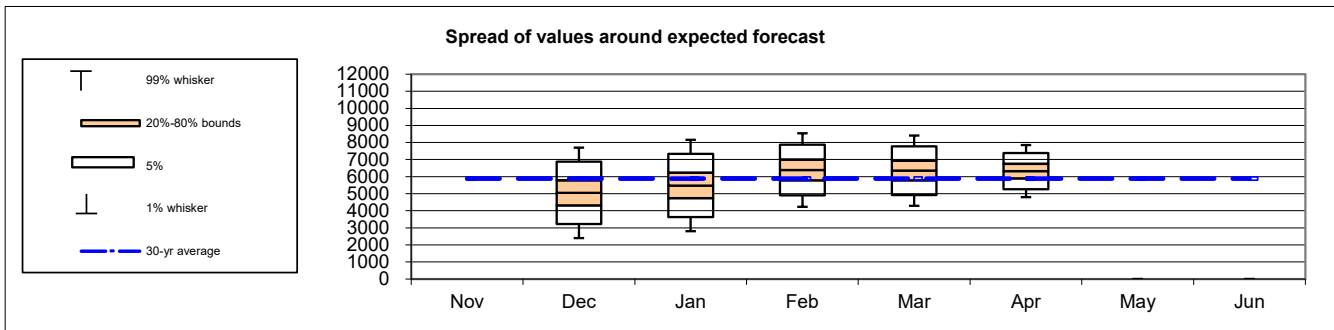
WY 2020

Runoff Forecast and Flood Risk Management			
Most Probable Runoff Volume:	Apr-Aug	6324	KAF
	Apr-Jul	5741	KAF
	May-Jul	5181	KAF
30-Apr Flood Risk Management Space		2202	KAF
30-Apr Flood Risk Management Elevation		2405.3	ft

1981-2010 Average	Percent of Average	1929-2008 Average	Percent of Average
5885	107%	6282	101%
5342	107%	5720	100%
4821	107%	5199	100%

Seasonal Flood Risk Management VARQ Flood Risk Management Implemented								
Forecast Date >>	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Apr-Aug Runoff Forecast		5050	5481	6386	6349	6324		
First-of-Month Elev	2440.8	2438.4	2426.4	2424.6	2406.2	2404.0		

Date >>	30-Nov	31-Dec	31-Jan	29-Feb	31-Mar	30-Apr
FRM Space	500	1400	1400	2240	2243	2202
FRM Elevation	2448.0	2426.7	2426.7	2404.2	2404.1	2405.3



- Notes:
1. The given forecast is the official Corps of Engineers forecast for Libby. If you have any questions please contact Jon Moen (206) 764-3561, Alex Nathan (206) 316-3155, Kevin Shaffer (206) 764-3660, or Sonja Michelsen (206) 316-3947.
 2. 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.
 3. The Akamina Pass snow station was destroyed in a fire in Sept. 2017. Akamina Pass SWE was estimated based on a regression equation and observed values at nearby sites Grave Creek, Poorman Creek, Three Isle Lake, and Mount Odium.

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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	ΣJun:Jul					
Eureka RS, MT	ΣOct:Mar Prcp	inches	4.39	75%	68.5	300.8
West Glacier, MT	ΣOct:Mar Prcp	inches	15.48	94%	29.5	456.2
Cranbrook A, BC	ΣOct:Mar Prcp	millimeters	108.60	68%	3.0	324.7
Fernie, BC	ΣOct:Mar Prcp	millimeters	718.00	107%	0.7	509.8
Hawkins Lake, MT	1-Apr SWE	inches	26.20	104%	22.4	587.7
Stahl Peak, MT	1-Apr SWE	inches	39.70	114%	19.7	782.1
East Creek, BC	1-Apr SWE	millimeters	1050.00	122%	0.7	766.5
Moyie Mountain, BC	1-Apr SWE	millimeters	526.00	123%	1.2	636.5
Sunshine Village, AB	1-Apr SWE	millimeters	614.25	109%	1.4	878.4
Akamina Pass, AB	1-Apr SWE	millimeters	526.63	114%	0.7	379.2
South Racehorse Creek, AB	1-Apr SWE	millimeters	468.27	109%	1.4	632.2
Intercept			1		70.5	70.5
	1-Apr Forecast (KAF)				Σ	6324.5

Data used in Libby Water Supply Forecast

WY 2020

Climate Data				Jun-19	Jul-19				Units
SOI				-0.50	-0.40				
Precipitation Data	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Units
Eureka RS, MT	0.75	1.23	0.46	1.01	0.47	0.47			inch
West Glacier, MT	2.08	1.65	2.69	5.81	1.99	1.26			inch
Cranbrook A, BC	16.60	14.30	28.60	22.90	8.20	18.00			mm
Fernie, BC	103.00	35.00	216.00	185.00	97.00	82.00			mm
Snow Water Equiv	1-Jan			1-Feb	1-Mar	1-Apr	1-May	1-Jun	Units
Hawkins Lake, MT				19	22	26			inch
Stahl Peak, MT	15			29	34	40			inch
East Creek, BC				778	893	1050			mm
Moyie Mountain, BC	193			320	404	526			mm
Sunshine Village, AB	273			408	512	614			mm
Akamina Pass, AB				363	444	527			mm
South Racehorse Creek, AB				289	358	468			mm
Streamflow	Jan			Feb	Mar	Apr	May	Jun	Units
Libby Inflow Volume	172.2			209.1	171.0				KAF
Reservoir Elevation	1-Nov	1-Dec	1-Jan	1-Feb	1-Mar	1-Apr	1-May	1-Jun	Units
Libby FOM Elev	2440.8	2438.4	2426.4	2424.6	2406.2	2404.0			feet

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