

Libby : April Runoff Forecast & Flood Risk Management Calculation

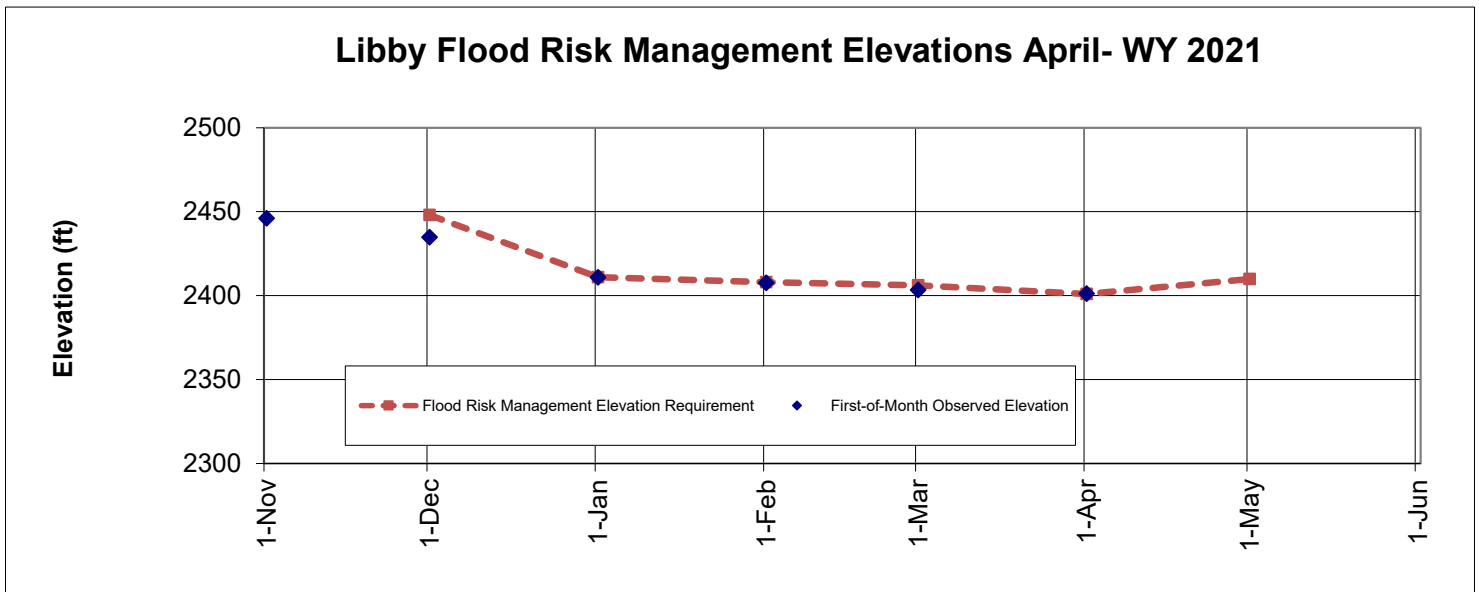
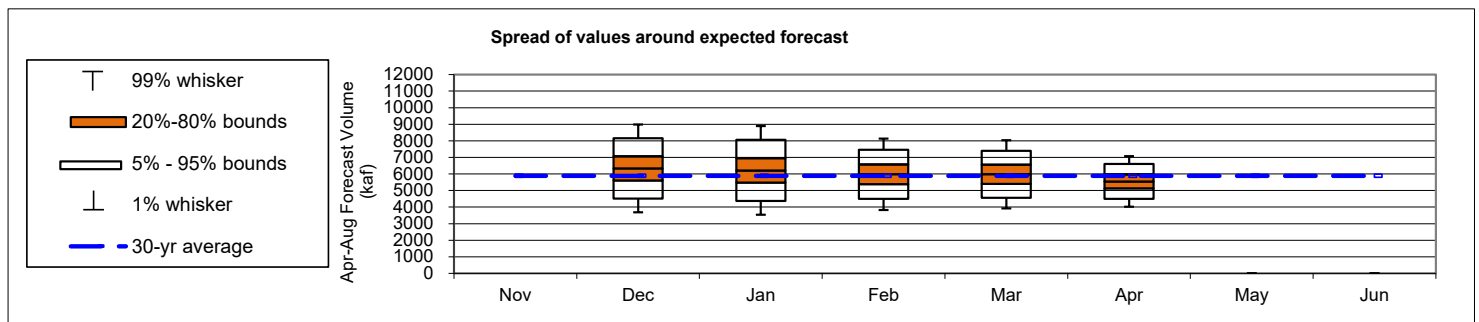
WY 2021

Runoff Forecast	April	1981-2010 Average	1981 - 2010 Percent of Average	1929-2008 Average	1929 - 2008 Percent of Average
Most Probable Runoff Volume: Apr-Aug (kaf)	5549	5885	94%	6282	88%
Most Probable Runoff Volume: Apr-Jul (kaf)	5037	5342	94%	5720	88%
Most Probable Runoff Volume: May-Jul (kaf)	4545	4821	94%	5199	87%

Flood Risk Management	April
30-April Flood Risk Management Space (kaf)	2039
30-April Flood Risk Management Elevation (ft)	2409.9

Forecast/Reservoir Data	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Apr-Aug Runoff Forecast (kaf)		6336	6215	5979	5980	5549		
First-of-Month Elev (ft)	2446.1	2434.8	2410.9	2407.6	2403.4	2401.2		

Seasonal FRM Requirements	30-Nov	31-Dec	31-Jan	28-Feb	31-Mar	30-Apr
Flood Risk Management Space (kaf)	500	2000	2105	2173	2349	2039
Flood Risk Management Elevation (ft)	2448.0	2411.0	2408.1	2406.2	2401.0	2409.9



Notes:

1. The given forecast is the official Corps of Engineers forecast for Libby. If you have any questions please contact David Bogema (615) 736-5631, Justin Lawrence (206) 764-3699, Logan Osgood-Zimmerman (206) 764-6928, or Kevin Shaffer (206) 764-3660.
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. Cranbrook A gage data contained some missing values in the month of March (March 25, 28, 29, 31). Nearby Cranbrook Airport Auto gage data was used to fill in missing values for these dates.

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Apr-Aug Runoff Forecast Calculation:

Variable	Month(s)	Units	Observed Value A	Percent of Average	Regression Coefficient	Marginal Runoff (kaf) =A*B
SOI	ΣJun:Jul					
Eureka RS, MT	ΣOct:Mar Prcp	inches	4.50	77%	68.5	308.3
West Glacier, MT	ΣOct:Mar Prcp	inches	17.18	104%	29.5	506.3
Cranbrook A, BC	ΣOct:Mar Prcp	millimeters	114.30	72%	3.0	341.8
Fernie, BC	ΣOct:Mar Prcp	millimeters	621.99	92%	0.7	441.6
Hawkins Lake, MT	1-Apr SWE	inches	20.70	83%	22.4	464.3
Stahl Peak, MT	1-Apr SWE	inches	27.80	79%	19.7	547.7
East Creek, BC	1-Apr SWE	millimeters	991.00	115%	0.7	723.4
Moyie Mountain, BC	1-Apr SWE	millimeters	354.00	83%	1.2	428.3
Sunshine Village, AB	1-Apr SWE	millimeters	608.58	108%	1.4	870.3
Akamina Pass, AB	1-Apr SWE	millimeters	428.46	92%	0.7	308.5
South Racehorse Creek, AB	1-Apr SWE	millimeters	398.27	93%	1.4	537.7
Intercept			1		70.5	70.5
April Forecast	April - August	kaf				5548.7

Data used in Libby Water Supply Forecast

WY 2021

Climate Data	Jun-20	Jul-20
SOI	-0.40	0.40

Precipitation Data	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Eureka RS, MT (inch)	1.77	0.92	0.98	0.37	0.29	0.17		
West Glacier, MT (inch)	4.52	4.32	2.34	2.92	2.36	0.72		
Cranbrook A, BC (mm)	27.60	21.90	26.30	34.20	3.40	0.90		
Fernie, BC (mm)	118.80	158.00	106.68	109.73	55.63	73.15		
Snow Water Equiv	1-Nov	1-Dec	1-Jan	1-Feb	1-Mar	1-Apr	1-May	1-Jun
Hawkins Lake, MT (inch)				16	19	21		
Stahl Peak, MT (inch)			16	21	24	28		
East Creek, BC (mm)				715	848	991		
Moyie Mountain, BC (mm)			166	235	323	354		
Sunshine Village, AB (mm)			322	422	522	609		
Akamina Pass, AB (mm)				316	384	428		
South Racehorse Creek, AB (mm)				263	345	398		
Streamflow	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Libby Inflow Volume (kaf)			182.3	128.4	169.4			
Reservoir Elevation	1-Nov	1-Dec	1-Jan	1-Feb	1-Mar	1-Apr	1-May	1-Jun
Libby FOM Elev (feet)	2446.1	2434.8	2410.9	2407.6	2403.4	2401.2		

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