

Libby : January Runoff Forecast & Flood Risk Management Calculation

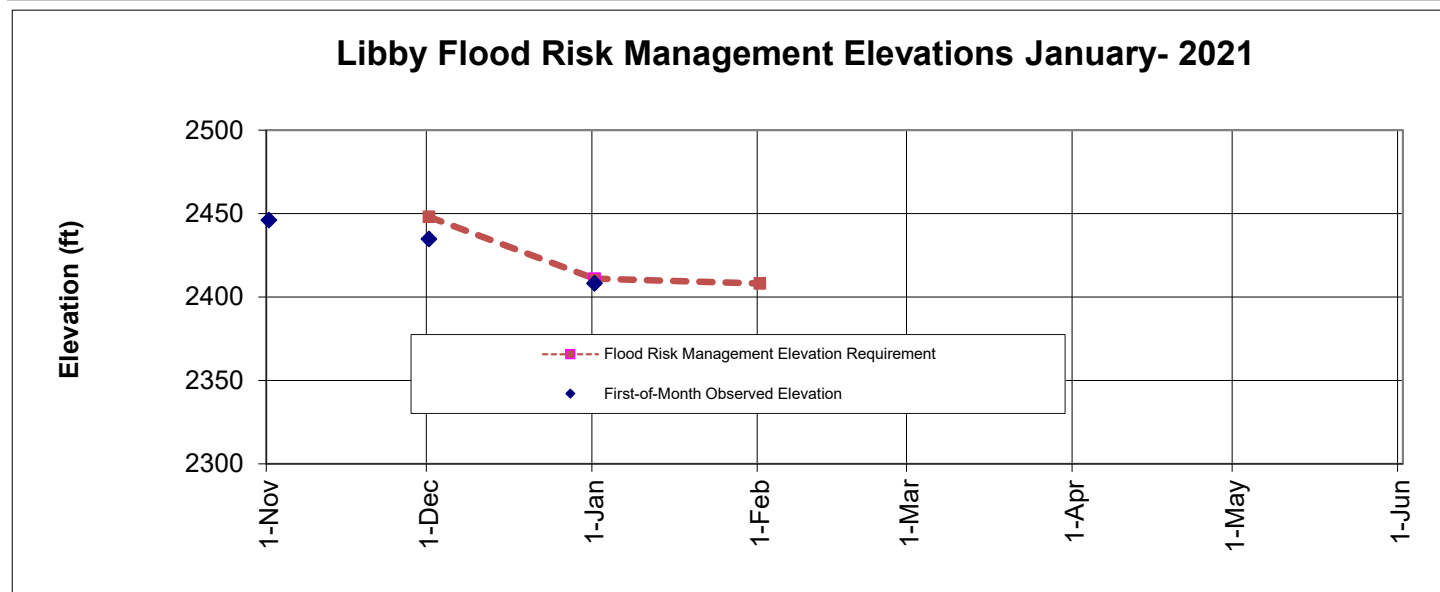
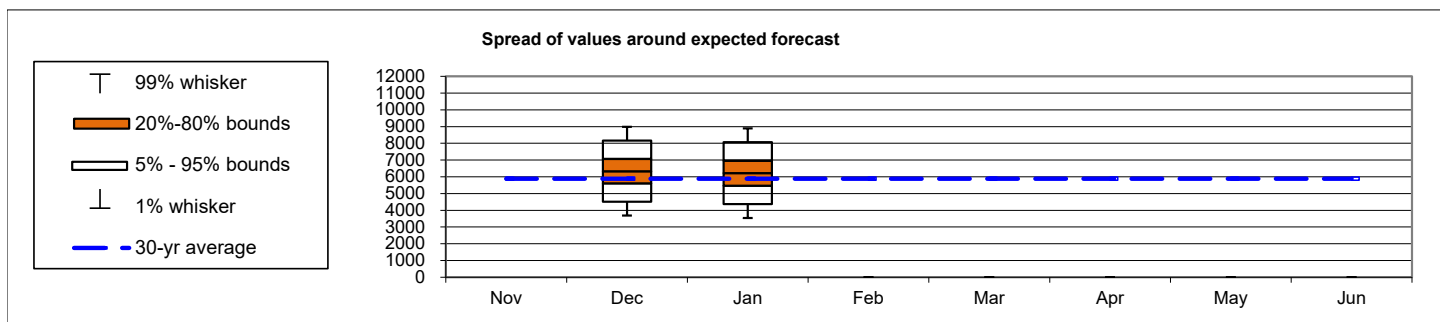
WY 2021

Runoff Forecast	January	1981-2010 Average	1981 - 2010 Percent of Average	1929-2008 Average	1929 - 2008 Percent of Average
Most Probable Runoff Volume: Apr-Aug (kaf)	6215	5885	106%	6282	99%
Most Probable Runoff Volume: Apr-Jul (kaf)	5642	5342	106%	5720	99%
Most Probable Runoff Volume: May-Jul (kaf)	5092	4821	106%	5199	98%

Flood Risk Management	January
31-Jan Flood Risk Management Space (kaf)	2105
31-Jan Flood Risk Management Elevation (ft)	2408.1

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

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



Notes:

- The given forecast is the official Corps of Engineers forecast for Libby. If you have any questions please contact Jon Moen (206) 764-3561, Justin Lawrence (206) 764-3699, Logan Osgood-Zimmerman (206) 764-6928, or Kevin Shaffer (206) 764-3660.
- Fernie forecast data is supplemented with alternate gage data provided by Government of Canada's Historical Climate Database found on their website: <https://climate.weather.gc.ca/>. This alternate gage data is used for 01 October - 13 November.
- Cranbrook A gage data was intermittent in the month of December. Nearby Cranbrook Airport Auto gage data was used instead.

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Apr-Aug Runoff Forecast Calculation:

Variable	Month(s)	Units	Observed Value A	Percent of Average	Regression Coefficient B	Marginal Runoff (KAF) =A*B
SOI	∑Jun:Jul		0.00		95.28	0.0
Eureka RS, MT	∑Oct:Dec Prcp	inches	3.67	108%	141.74	520.2
West Glacier, MT	∑Oct:Dec Prcp	inches	11.18	124%	58.42	653.1
Cranbrook A, BC	∑Oct:Dec Prcp	millimeters	75.80	83%	4.58	347.2
Fernie, BC	∑Oct:Dec Prcp	millimeters	383.48	105%	1.20	460.2
Hawkins Lake, MT	1-Jan SWE	inches				
Stahl Peak, MT	1-Jan SWE	inches	16.10	99%	34.63	557.5
East Creek, BC	1-Jan SWE	millimeters				
Moyie Mountain, BC	1-Jan SWE	millimeters	166.00	93%	1.59	263.1
Sunshine Village, AB	1-Jan SWE	millimeters	322.24	118%	2.14	689.6
Akamina Pass, AB	1-Jan SWE	millimeters				
South Racehorse Creek, AB	1-Jan SWE	millimeters				
Intercept			1		2724.44	2724.4
January Forecast	April - August	kaf				6215.3

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					
West Glacier, MT (inch)	4.52	4.32	2.34					
Cranbrook A, BC (mm)	27.60	21.90	26.30					
Fernie, BC (mm)	118.80	158.00	106.68					
Snow Water Equiv	1-Nov	1-Dec	1-Jan	1-Feb	1-Mar	1-Apr	1-May	1-Jun
Hawkins Lake, MT (inch)								
Stahl Peak, MT (inch)			16					
East Creek, BC (mm)								
Moyie Mountain, BC (mm)			166					
Sunshine Village, AB (mm)			322					
Akamina Pass, AB (mm)								
South Racehorse Creek, AB (mm)								
Streamflow	1-Nov	1-Dec	Jan	Feb	Mar	Apr	May	Jun
Libby Inflow Volume (kaf)								
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					

William D. Proctor, P.E.
 Approving Official
 Ch., Hydrologic Engineering and Power Branch
 Northwestern Division

Jonathan Moen
 Upper Columbia Senior Water Manager
 Seattle District