

# Libby: May Runoff Forecast & Flood Risk Management Calculation

WY 2019

## Runoff Forecast and Flood Risk Management

<b>Most Probable Runoff Volume:</b>	<b>Apr-Aug</b>	<b>4983</b>	<b>KAF</b>
	<b>Apr-Jul</b>	<b>4522</b>	<b>KAF</b>
	<b>May-Jul</b>	<b>4092</b>	<b>KAF</b>

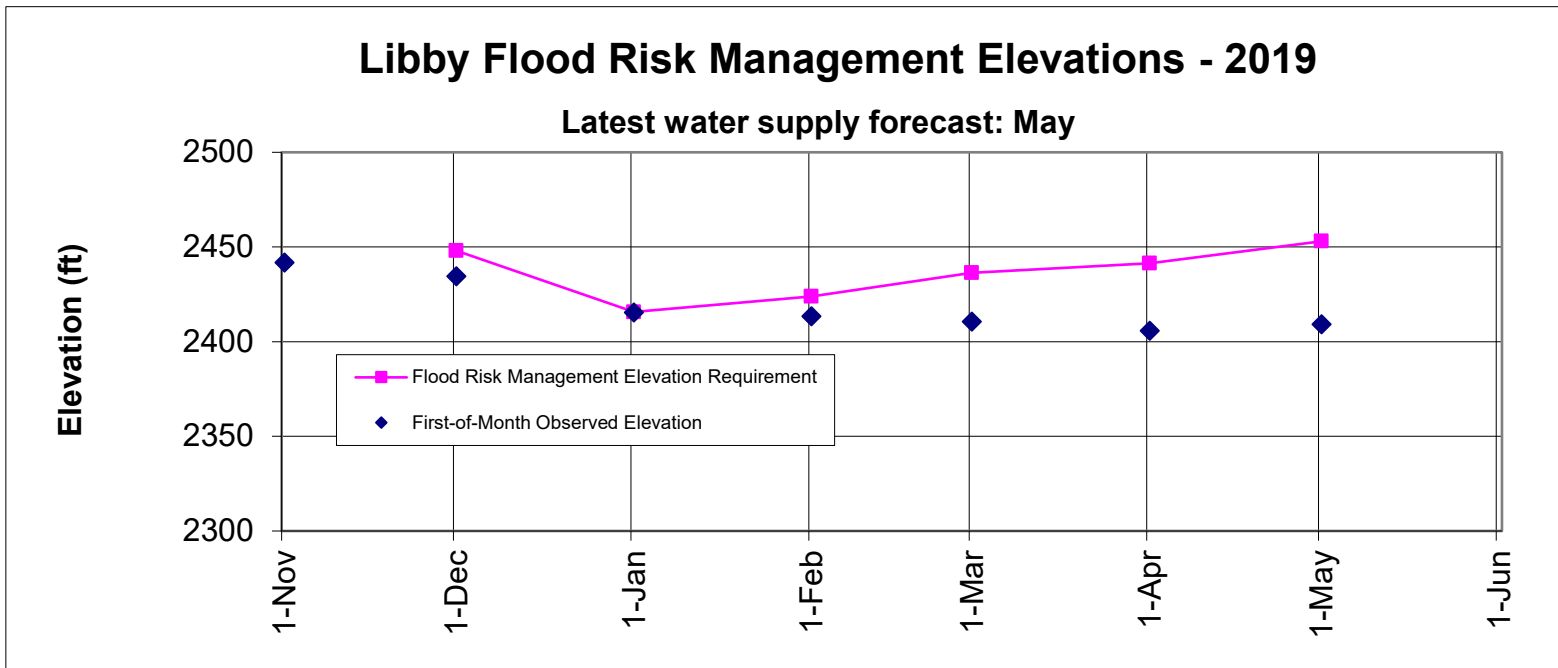
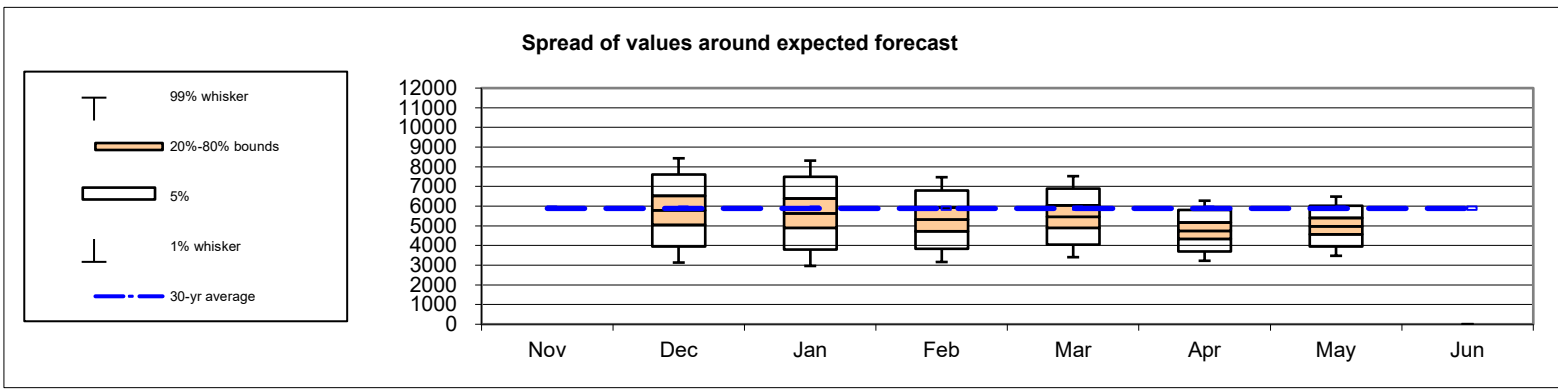
1981-2010 Average	Percent of Average	1929-2008 Average	Percent of Average
5885	85%	6282	79%
5342	85%	5720	79%
4821	85%	5199	79%

## Seasonal Flood Risk Management VARQ Flood Risk Management Implemented

Forecast Date >>	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
<b>Apr-Aug Runoff Forecast</b>		5784	5639	5318	5467	4752	4983	
<b>First-of-Month Elev</b>	2441.9	2434.6	2415.5	2413.3	2410.6	2405.8	2409.2	

Date >>	30-Nov	31-Dec	31-Jan	28-Feb	31-Mar	30-Apr
<b>FRM Space</b>	500	1826	1511	1002	790	276
<b>FRM Elevation</b>	2448.0	2415.7	2423.9	2436.4	2441.4	2453.0



Notes:

1. The given forecast is the official Corps of Engineers forecast for Libby. If you have any questions please contact Logan Osgood-Zimmerman (206) 764-6928, Kevin Shaffer (206) 764-3660, Sonja Michelsen (206) 316-3947, or Jon Moen (206) 764-3561.
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, Hand Creek, and Mount Odlum.

# Libby: May Runoff Forecast & Flood Risk Management Calculation

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:Apr Prcp	inches	7.03	103%	57.5	403.9
West Glacier, MT	ΣOct:Apr Prcp	inches	17.20	93%	28.0	482.3
Cranbrook A, BC	ΣOct:Apr Prcp	millimeters	152.50	83%	2.8	427.0
Fernie, BC	ΣOct:Apr Prcp	millimeters	597.00	79%	0.6	364.2
Hawkins Lake, MT	1-May SWE	inches	19.80	75%	17.3	342.5
Stahl Peak, MT	1-May SWE	inches	31.30	84%	16.7	524.0
East Creek, BC	1-May SWE	millimeters	961.00	105%	0.6	547.8
Moyie Mountain, BC	1-May SWE	millimeters	233.00	64%	0.9	212.0
Sunshine Village, AB	1-May SWE	millimeters	443.20	72%	1.3	558.4
Akamina Pass, AB	1-May SWE	millimeters	260.20	77%	0.6	143.1
South Racehorse Creek, AB	1-May SWE	millimeters	168.70	46%	0.8	140.0
Intercept			1		408.0	408.0
Forecast May-August Inflow (KAF)					Σ	4553.2
Observed April Inflow (KAF)						429.5
1-May Forecast, April-August Inflow (KAF)					Σ	4982.6

## Data used in Libby Water Supply Forecast

WY 2019

Climate Data	SOI	Jun-18	Jul-18						Units
		-0.10	0.20						
Precipitation Data	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Units
Eureka RS, MT	1.64	0.55	0.40	0.94	1.74	0.80	0.96		inch
West Glacier, MT	2.55	3.19	2.24	2.29	2.29	1.09	3.55		inch
Cranbrook A, BC	34.50	14.60	26.60	19.00	33.60	4.00	20.20		mm
Fernie, BC	87.00	139.00	117.00	83.00	68.00	13.00	90.00		mm
Snow Water Equiv	1-Jan			1-Feb	1-Mar	1-Apr	1-May	1-Jun	Units
Hawkins Lake, MT				13	17	18	20		inch
Stahl Peak, MT	14			20	25	28	31		inch
East Creek, BC				709	806	842	961		mm
Moyie Mountain, BC	153			223	299	284	233		mm
Sunshine Village, AB	272			373	379	433	443		mm
Akamina Pass, AB				259	316	348	260		mm
South Racehorse Creek, AB				180	252	241	169		mm
Streamflow	Jan			Feb	Mar	Apr	May	Jun	Units
Libby Inflow Volume	162.5			120.6	175.8	429.5			KAF
Reservoir Elevation	1-Nov	1-Dec	1-Jan	1-Feb	1-Mar	1-Apr	1-May	1-Jun	Units
Libby FOM Elev	2441.9	2434.6	2415.5	2413.3	2410.6	2405.8	2409.2		feet

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