

# Libby : April Runoff Forecast & Flood Risk Management Calculation

WY 2019

## Runoff Forecast and Flood Risk Management

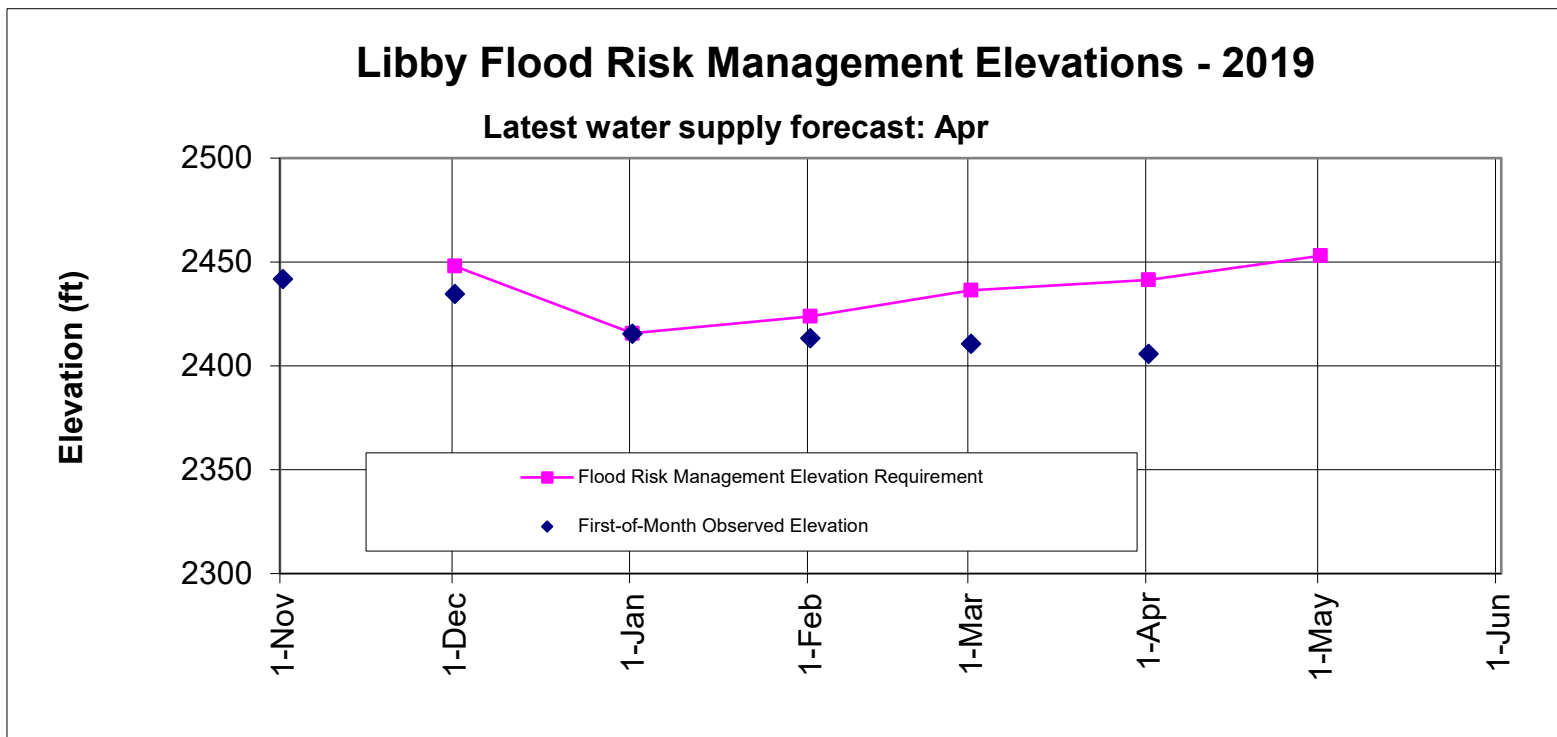
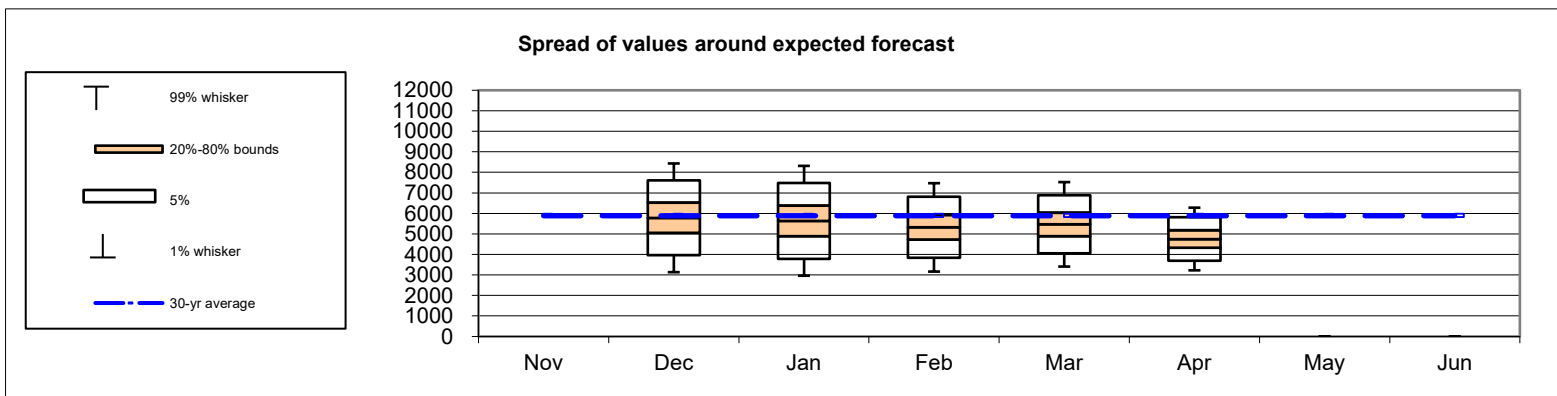
<b>Most Probable Runoff Volume:</b>	<b>Apr-Aug</b>	<b>4752</b>	<b>KAF</b>
	<b>Apr-Jul</b>	<b>4314</b>	<b>KAF</b>
	<b>May-Jul</b>	<b>3893</b>	<b>KAF</b>
<b>30-Apr Flood Risk Management Space</b>		<b>276</b>	<b>KAF</b>
<b>30-Apr Flood Risk Management Elevation</b>		<b>2453.0</b>	<b>ft</b>

1981-2010 Average	Percent of Average	1929-2008 Average	Percent of Average
5885	81%	6282	76%
5342	81%	5720	75%
4821	81%	5199	75%

## 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		
<b>First-of-Month Elev</b>	2441.8	2434.6	2415.5	2413.3	2410.6	2405.8		

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, Three Isle Lake, and Mount Odlum.

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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	6.07	104%	68.5	415.9
West Glacier, MT	ΣOct:Mar Prcp	inches	13.65	83%	29.5	402.3
Cranbrook A, BC	ΣOct:Mar Prcp	millimeters	132.30	83%	3.0	395.6
Fernie, BC	ΣOct:Mar Prcp	millimeters	507.00	75%	0.7	360.0
Hawkins Lake, MT	1-Apr SWE	inches	18.30	73%	22.4	410.5
Stahl Peak, MT	1-Apr SWE	inches	27.60	79%	19.7	543.7
East Creek, BC	1-Apr SWE	millimeters	842.00	98%	0.7	614.7
Moyie Mountain, BC	1-Apr SWE	millimeters	284.00	66%	1.2	343.6
Sunshine Village, AB	1-Apr SWE	millimeters	432.80	77%	1.4	618.9
Akamina Pass, AB	1-Apr SWE	millimeters	348.20	75%	0.7	250.7
South Racehorse Creek, AB	1-Apr SWE	millimeters	241.10	56%	1.4	325.5
Intercept			1		70.5	70.5
1-Apr Forecast (KAF)					Σ	4751.9

## Data used in Libby Water Supply Forecast

WY 2019

Climate Data		Jun-18	Jul-18					Units		
SOI		-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			inch
West Glacier, MT		2.55	3.19	2.24	2.29	2.29	1.09			inch
Cranbrook A, BC		34.50	14.60	26.60	19.00	33.60	4.00			mm
Fernie, BC		87.00	139.00	117.00	83.00	68.00	13.00			mm
Snow Water Equiv		1-Jan	1-Feb	1-Mar	1-Apr	1-May	1-Jun	Units		
Hawkins Lake, MT			13	17	18				inch	
Stahl Peak, MT			14	20	25	28			inch	
East Creek, BC				709	806	842			mm	
Moyie Mountain, BC			153	223	299	284			mm	
Sunshine Village, AB			272	373	379	433			mm	
Akamina Pass, AB				259	316	348			mm	
South Racehorse Creek, AB				180	252	241			mm	
Streamflow		Jan	Feb	Mar	Apr	May	Jun	Units		
Libby Inflow Volume		162.5	120.6	177.6					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			feet

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