

Libby : March Runoff Forecast & Flood Risk Management Calculation

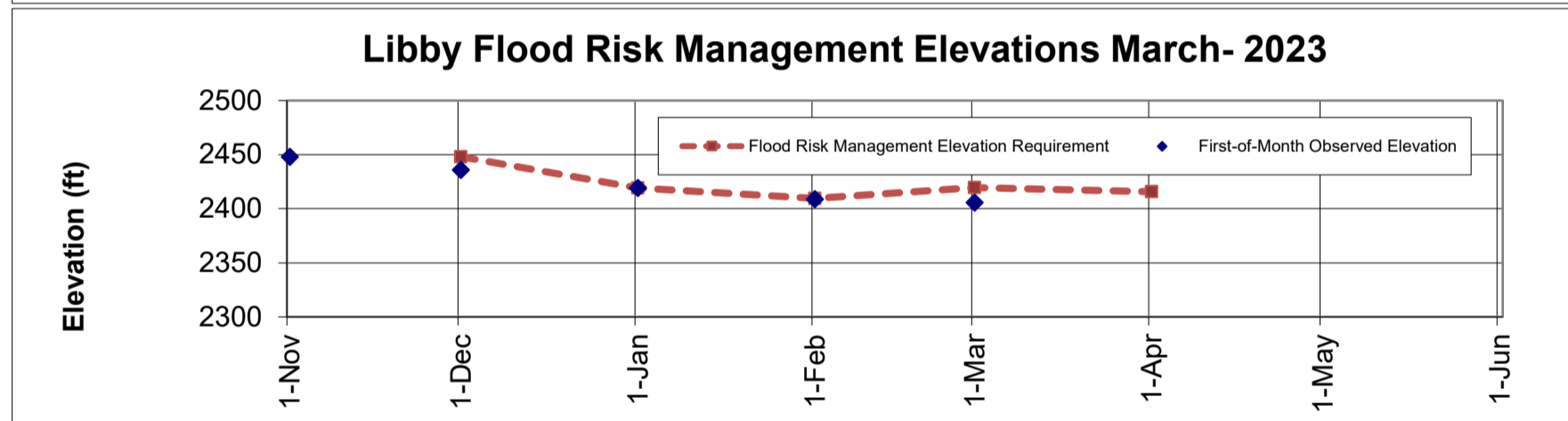
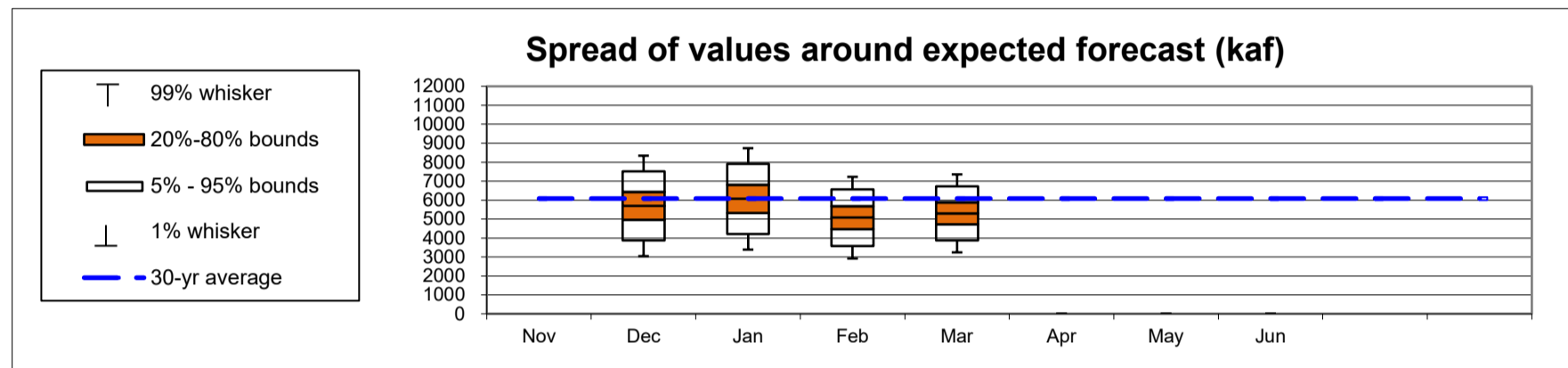
WY 2023

Runoff Forecast	March	1991-2020 Average	1991 - 2020 Percent of Average	1929-2020 Average	1929 - 2020 Percent of Average
Most Probable Runoff Volume: Apr-Aug (kaf)	5298	6080	87%	6259	85%
Most Probable Runoff Volume: Apr-Jul (kaf)	4854	5570	87%	5708	85%
Most Probable Runoff Volume: May-Jul (kaf)	4369	5014	87%	5183	84%

Flood Risk Management	March
31-Mar Flood Risk Management Space (kaf)	1821
31-Mar Flood Risk Management Elevation (ft)	2415.9

Forecast/Reservoir Data	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Apr-Aug Runoff Forecast (kaf)		5692	6061	5071	5298			
First-of-Month Elev (ft)	2448.0	2435.9	2419.3	2409.0	2405.7			

Seasonal FRM Requirements	30-Nov	31-Dec	31-Jan	28-Feb	31-Mar	30-Apr		
Flood Risk Management Space (kaf)	500	1689	2054	1678	1821			
Flood Risk Management Elevation (ft)	2448.0	2419.3	2409.5	2419.6	2415.9			



Notes:

1. The given forecast is the official Corps of Engineers forecast for Libby. If you have any questions please contact Leon Basdekas (208) 353-2564, Jason Chang (206) 764-3528, Lumas Helaire (206) 316-3875, Ethan Cheng (206) 316-3909, 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.

Libby : March Runoff Forecast & Flood Risk Management Calculation
Apr-Aug Runoff Forecast Calculation:

<i>Variable</i>	<i>Month(s)</i>	<i>Units</i>	<i>Observed Value A</i>	<i>Percent of Average (1991-2020)</i>	<i>Regression Coefficient B</i>	<i>Marginal Runoff (KAF) =A*B</i>
SOI	∑Jun:Jul					0.0
Eureka RS, MT	∑Oct:Feb Prcp	inches	3.77	71%	65.87	248.3
West Glacier, MT	∑Oct:Feb Prcp	inches	11.85	78%	28.51	337.8
Cranbrook A, BC	∑Oct:Feb Prcp	millimeters	111.50	77%	2.73	304.4
Fernie, BC	∑Oct:Feb Prcp	millimeters	417.47	72%	0.63	263.0
Hawkins Lake, MT	1-Mar SWE	inches	18.50	90%	24.33	450.1
Stahl Peak, MT	1-Mar SWE	inches	25.50	86%	19.11	487.3
East Creek, BC	1-Mar SWE	millimeters	604.00	82%	0.65	392.6
Moyie Mountain, BC	1-Mar SWE	millimeters	325.00	89%	1.27	412.8
Sunshine Village, AB	1-Mar SWE	millimeters	356.40	80%	1.26	449.1
Akamina Pass, AB	1-Mar SWE	millimeters	339.90	85%	1.04	353.5
South Racehorse Creek, AB	1-Mar SWE	millimeters	326.40	97%	1.40	457.0
Intercept			1		1142.00	1142.0
March Forecast	April - August	kaf				5297.9

Data used in Libby Water Supply Forecast

<i>Climate Data</i>	<i>Jun-22</i>	<i>Jul-22</i>
SOI	1.70	0.80

<i>Precipitation Data</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>
Eureka RS, MT (inch)	0.40	1.08	1.57	0.19	0.53			
West Glacier, MT (inch)	2.02	2.76	4.48	0.76	1.83			
Cranbrook A, BC (mm)	13.00	24.50	36.20	31.80	6.00			
Fernie, BC (mm)	98.81	118.00	112.27	36.07	52.32			

<i>Snow Water Equiv</i>	<i>1-Nov</i>	<i>1-Dec</i>	<i>1-Jan</i>	<i>1-Feb</i>	<i>1-Mar</i>	<i>1-Apr</i>	<i>1-May</i>	<i>1-Jun</i>
Hawkins Lake, MT (inch)				14	19			
Stahl Peak, MT (inch)			16	19	26			
East Creek, BC (mm)				437	604			
Moyie Mountain, BC (mm)			219	256	325			
Sunshine Village, AB (mm)			236	261	356			
Akamina Pass, AB (mm)				254	340			
South Racehorse Creek, AB (mm)				242	326			

<i>Streamflow</i>	<i>Nov</i>	<i>Dec</i>	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>
Libby Inflow Volume (kaf)			170	123				

<i>Reservoir Elevation</i>	<i>1-Nov</i>	<i>1-Dec</i>	<i>1-Jan</i>	<i>1-Feb</i>	<i>1-Mar</i>	<i>1-Apr</i>	<i>1-May</i>	<i>1-Jun</i>
Libby FOM Elev (feet)	2448.0	2435.9	2419.3	2409.0	2405.7			

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

Leon Basdekas, P.E.
 Upper Columbia Senior Water Manager
 Seattle District