

Libby : March Runoff Forecast & Flood Risk Management Calculation

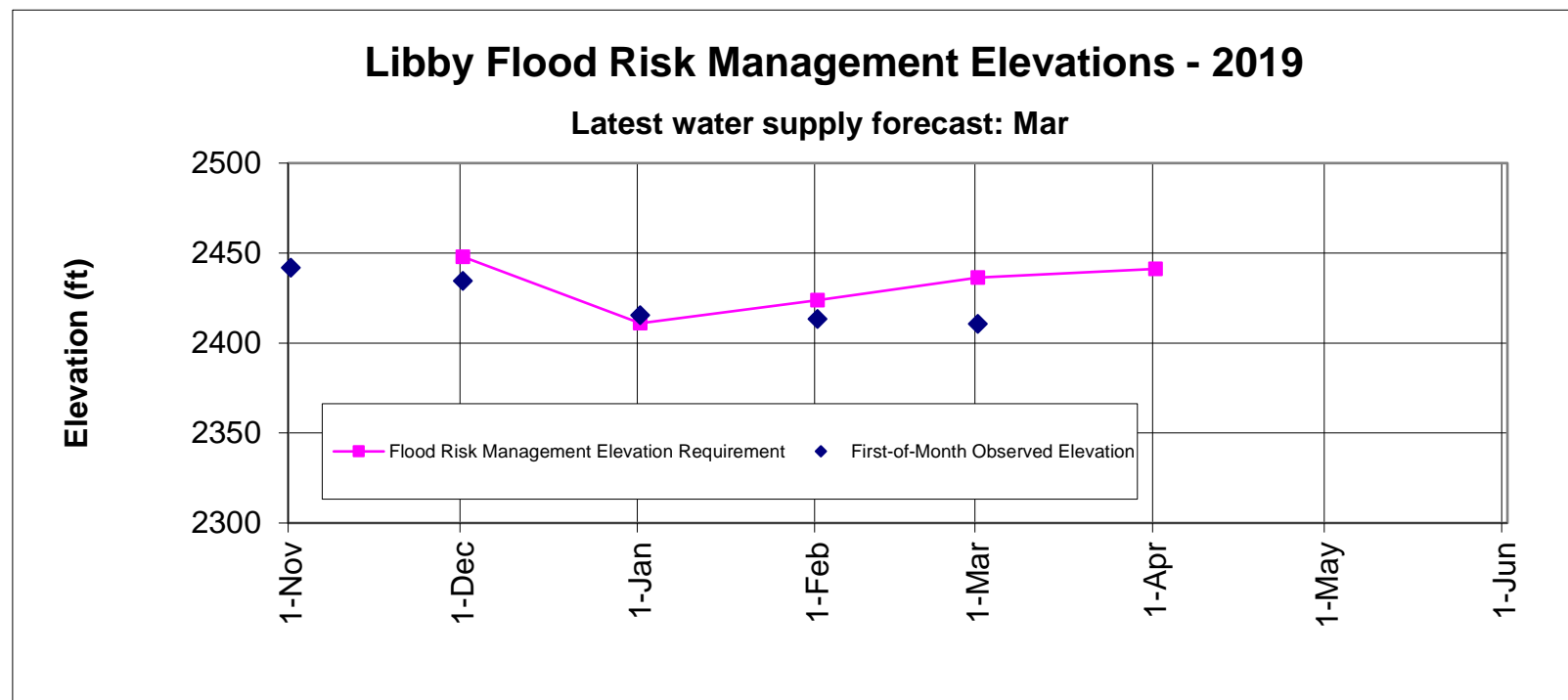
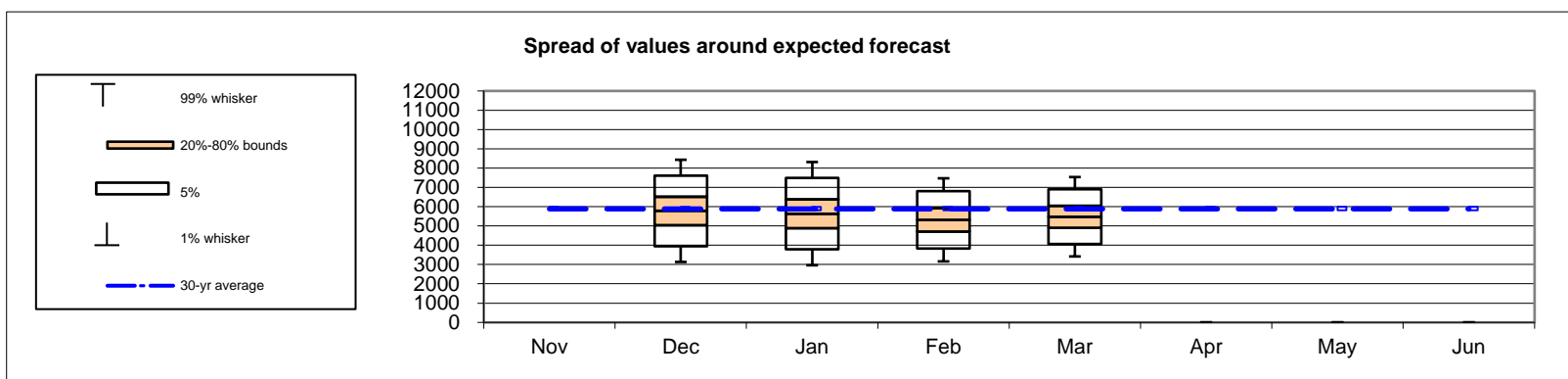
WY 2019

Runoff Forecast and Flood Risk Management

Most Probable Runoff Volume:	Apr-Aug	5478	KAF
	Apr-Jul	4973	KAF
	May-Jul	4488	KAF
31-Mar Flood Risk Management Space		793	KAF
31-Mar Flood Risk Management Elevation		2441.3	ft

1981-2010 Average	Percent of Average	1929-2008 Average	Percent of Average
5885	93%	6282	87%
5342	93%	5720	87%
4821	93%	5199	86%

Seasonal Flood Risk Management		VARQ Flood Risk Management Implemented						
Forecast Date >>	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Apr-Aug Runoff Forecast		5784	5639	5318	5478			
First-of-Month Elev	2441.9	2434.6	2415.5	2413.3	2410.6			
Date >>	30-Nov	31-Dec	31-Jan	28-Feb	31-Mar	30-Apr		
Flood Risk Management Space	500	2000	1511	1002	793			
Flood Risk Management Elevation	2448.0	2411.0	2423.9	2436.4	2441.3			



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, Lost Creek South, and Mount Odlum.

Libby : March 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:Feb Prcp	inches	5.27	106%	65.9	347.1
West Glacier, MT	ΣOct:Feb Prcp	inches	12.56	89%	28.5	358.1
Cranbrook A, BC	ΣOct:Feb Prcp	millimeters	128.30	95%	2.7	350.3
Fernie, BC	ΣOct:Feb Prcp	millimeters	494.00	86%	0.6	311.2
Hawkins Lake, MT	1-Mar SWE	inches	16.90	84%	24.3	411.2
Stahl Peak, MT	1-Mar SWE	inches	25.40	89%	19.1	485.4
East Creek, BC	1-Mar SWE	millimeters	806.00	114%	0.7	523.9
Moyie Mountain, BC	1-Mar SWE	millimeters	299.00	85%	1.3	379.7
Sunshine Village, AB	1-Mar SWE	millimeters	388.40	83%	1.3	489.4
Akamina Pass, AB	1-Mar SWE	millimeters	315.30	81%	1.0	327.9
South Racehorse Creek, AB	1-Mar SWE	millimeters	251.60	73%	1.4	352.2
Intercept			1		1142.0	1142.0
1-Mar Forecast (KAF)					Σ	5478.4

Data used in Libby Water Supply Forecast

WY 2019

Climate Data				Jun-18	Jul-18				
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				inch
West Glacier, MT	2.55	3.19	2.24	2.29	2.29				inch
Cranbrook A, BC	34.50	14.60	26.60	19.00	33.60				mm
Fernie, BC	87.00	139.00	117.00	83.00	68.00				mm
Snow Water Equiv			1-Jan	1-Feb	1-Mar	1-Apr	1-May	1-Jun	Units
Hawkins Lake, MT				13	17				inch
Stahl Peak, MT			14	20	25				inch
East Creek, BC				709	806				mm
Moyie Mountain, BC			153	223	299				mm
Sunshine Village, AB			272	373	388				mm
Akamina Pass, AB				259	315				mm
South Racehorse Creek, AB				180	252				mm
Streamflow			Jan	Feb	Mar	Apr	May	Jun	Units
Libby Inflow Volume			162.5	120.6					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	2385.9				feet

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

Logan Osgood-Zimmerman, P.E.
 Water Management Section
 Seattle District