

Summary of Columbia River Basin Flood Risk Management Requirements, 1-Feb

WY 2013

Project >>	MCDB	ARDB	LIB	DCDB	HGH	GCL	BRN	DWR
<b>Project Limits</b>								
Maximum Elevation, ft	2475.0	1444.0	2459.0	1892.0	3560.0	1290.0	2077.0	1600.0
Minimum Elevation, ft	2320.0	1378.0	2287.0	1794.2	3336.0	1208.0	1976.0	1445.0
Usable Storage, kaf	12053.3	7100.0	4979.5	1398.6	2981.0	5185.3	975.3	2015.7
Usable Storage, ksfd	6076.9	3579.6	2510.5	705.1	1502.9	2614.3	491.7	1016.3

<b>Jan. 31 Project Conditions</b>								
Elevation, ft (MSL)	2413.5	1408.4	2395.1	1836.0	3540.0	1275.1	2062.6	1540.2
Draft, kaf	5965.3	4223.9	2538.0	905.6	455.6	1158.3	194.0	957.9
Usable Stor. less Draft, kaf	6088.0	2876.1	2441.6	492.9	2525.4	4027.0	781.3	1057.8

<b>To Meet Feb. 28/29 Flood Risk Management Requirements</b>								
Elevation <b>Change</b> , ft	-	-	-	-23.5	-2.9	-	-7.5	-
Draft <b>Change</b> , kaf	-	-	-	309.4	62.5	-	89.7	-

<b>1-Feb Water Supply Forecast</b>									
Project >>	MCDB	ARDB	LIB	DCDB	HGH	GCL	BRN	DWR	TDA
Apr-Jul, kaf	-	-	-	-	-	-	4229	2202	-
Apr-Jul %-Normal <b>2</b>	-	-	-	-	-	-	77.3%	82.1%	-
Apr-Jul <b>Change</b> , kaf <b>1</b>	-	-	-	-	-	-	-421	-385	-
Apr-Aug, kaf	11444	22842	6384	2079	-	54536	-	-	81863
Apr-Aug %-Normal <b>2</b>	98.8%	100.9%	100.7%	101.8%	-	96.1%	-	-	93.5%
Apr-Aug <b>Change</b> , kaf <b>1</b>	-130	-767	-514	-204	-	-3694	-	-	-10167
May-Sep, kaf	-	-	-	-	1877	-	-	-	-
May-Sep %-Normal <b>2</b>	-	-	-	-	110.9%	-	-	-	-
May-Sep <b>Change</b> , kaf <b>1</b>	-	-	-	-	-91	-	-	-	-

<b>System Draft Requirements</b>									
Project >>	MCDB	ARDB	LIB VarQ	DCDB	HGH VarQ	GCL	BRN	DWR Sys	DWR Loc
Jan. 31, kaf	1662	1703	2534	857	424	0	0	947	970
Feb. 28/29, kaf	2810	2603	2238	1215	518	0	284	862	867
Mar. 15, kaf	-	-	2304	1270	-	-	-	-	-
Mar. 31, kaf	4080	3600	2304	1270	659	537	260	753	677
Apr. 15, kaf	4080	3600	2304	1270	727	998	218	754	505
Apr. 30, kaf	4080	3600	2304	1270	795	2180	199	754	-

<b>System Elevation Requirements</b>									
Jan. 31, ft	-	1430.5	2395.2	1839.3	3541.4	1290.0	2077.0	1541.0	1539.3
Feb. 28/29, ft	-	1422.9	2404.3	1812.5	3537.1	1290.0	2055.1	1547.0	1546.7
Mar. 15, ft	-	-	2402.3	1807.7	-	-	-	-	-
Mar. 31, ft	-	1414.1	2402.3	1807.7	3530.4	1283.3	2057.1	1554.6	1559.8
Apr. 15, ft	-	1414.1	2402.3	1807.7	3527.1	1277.3	2060.6	1554.5	1571.0
Apr. 30, ft	-	1414.1	2402.3	1807.7	3523.8	1260.8	2062.2	1554.5	-

<b>Flood Risk Management Summary at The Dalles, Oregon</b>			
Apr-Aug, kaf	81863		
Apr-Aug %-Normal	93.5%		Upstream Storage Adjustment, kaf, Chart #2 <b>(3)</b> = 21089
Apr-Aug <b>Change</b> , kaf <b>(1)</b>	-10167		Initial Controlled Flow, ICF, kcfs, Chart #1 <b>(3)</b> = 296.5
May-Aug, kaf	68949		Estimated Unregulated Peak Discharge, kcfs, Chart #1-A <b>(3)</b> = 497

- Notes:**
- 1 Change in official forecast from the previous month.
  - 2 Normal Runoff Volumes based on 71-Year, 1929-1999, averages for MCDB, ARDB, LIB, DCDB, DWR as reported in the 2000 Level Modified Streamflow Report, 2004. Normal Runoff Volumes based on 30-Year, 1981-2010, averages for HGH, GCL, BRN, and TDA as determined by the Northwest River Forecast Center.
  - 3 See Charts 1 and 2 of Columbia River Treaty Flood Control Operating Plan, Corps of Engineers, Northwestern Division, Corps of Engineers.

**Questions?** Contact Maler Annamalai, 503-808-3994, or Jason Ward, 503-808-3952.

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Maximum Flood Risk Storage Shift from DWR to GCL												Maximum Flood Risk Storage Shift from BRN to GCL						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	GCL	GCL	GCL	DWR	DWR	DWR	DWR / GCL	DWR	DWR	GCL	GCL	GCL	BRN	BRN / GCL	BRN	BRN	GCL	GCL
	Non-Shifted FC Draft	Maximum Draft Limit	Maximum Shift Potential	FC Draft		FC Shift		Shifted FC		Shifted FC		Maximum Shift Potential remaining	FC Shift		Shifted FC Draft		Shifted FC	
				System	Local	Potential	Allowable	Draft	Elevation	Draft (w/DWR Shift)	Elevation (w/DWR Shift)		Potential	Allowable FC Shift	Draft	Elevation	Draft (w/DWR+BRN Shift)	Elevation (w/DWR+BRN Shift)
<i>Notes</i>	-	<b>a</b>	2-1	-	-	4-5	Min 3,6	4-7	-	1+7	-	2-10	-	Min 12,13	-	-	10+14	-
<i>Units</i>	kaf	kaf	kaf	kaf	kaf	kaf	kaf	kaf	ft	kaf	ft	kaf	ft	kaf	kaf	ft	kaf	ft
Jan. 31	0	2745	2745	947	970	0	0	970	1539.3	0	1290.0	2745	0	0	0	2077.0	0	1290.0
Feb. 28/29	0	2745	2745	862	867	0	0	867	1546.7	0	1290.0	2745	0	0	284	2055.1	0	1290.0
Mar. 31	537	3164	2627	753	677	76	76	677	1559.8	613	1282.3	2552	0	0	260	2057.1	613	1282.3
Apr. 15	998	2242	1244	754	505	249	249	505	1571.0	1247	1273.9	995	0	0	218	2060.6	1247	1273.9
Apr. 30 <b>b</b>	2180	2180	0	754	-	0	0	754	1554.5	2180	1260.8	0	0	0	199	2062.2	2180	1260.8

**Notes:** Under certain conditions the required flood risk draft at DWR and BRN may be shifted to GCL prior to 30-April. The shifted rule curve shown above represents the maximum allowable flood risk storage shift(s) for the current water year based on the current month's flood risk management requirements for each project and evacuation limitations at GCL; however, the actual volume shifted to GCL on any date is ultimately determined by the Bureau of Reclamation. The shift of volume for DWR to GCL has priority over the shift of volume from BRN to GCL in cases when GCL cannot accept the total combined volume.

- a** The potential flood risk storage shift to GCL is limited to the operation at GCL above elevation 1252.3 ft (2744 kaf draft) at the end of February and elevation 1225.0 ft (4355 kaf draft) at end of March and 15-Apr, and also limited by the GCL maximum draft rate limit. All projects are to be at their non-shifted flood risk management draft requirements at the end of Apr.
- b** No shift is allowed, all projects to be back to their non-shifted flood risk draft requirement by 30-April.

**Questions?** Contact Maler Annamalai, 503-808-3994, or Jason Ward, 503-808-3952.