

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

**WY 2022**

**Issue Date: 07-Mar-2022**

**Project Limits**

| Project >>            | MCDB    | ARDB   | LIB    | DCDB   | HGH    | GCL    | BRN    | DWR    |
|-----------------------|---------|--------|--------|--------|--------|--------|--------|--------|
| 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 | 5349.6 | 975.3  | 2015.7 |
| Usable Storage, ksfd  | 6076.9  | 3579.6 | 2510.5 | 705.1  | 1502.9 | 2697.1 | 491.7  | 1016.3 |

**Feb. 28/29 Project Conditions**

| Project >>                   | MCDB   | ARDB   | LIB    | DCDB   | HGH    | GCL    | BRN    | DWR    |
|------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Elevation, ft (MSL)          | 2391.1 | 1400.2 | 2363.5 | 1812.4 | 3538.1 | 1260.6 | 2038.3 | 1516.7 |
| Draft, kaf                   | 7725.2 | 5072.8 | 3426.8 | 1216.0 | 497.6  | 2223.8 | 463.9  | 1272.6 |
| Usable Stor. less Draft, kaf | 4328.2 | 2027.1 | 1552.8 | 182.6  | 2483.4 | 3125.8 | 511.4  | 743.1  |

**Draft Required to meet Mar. 31 Flood Risk Management**

| Project >>              | MCDB | ARDB | LIB | DCDB | HGH | GCL | BRN | DWR | TDA |
|-------------------------|------|------|-----|------|-----|-----|-----|-----|-----|
| Elevation Reduction, ft | -    | -    | -   | 4.7  | -   | -   | -   | -   | -   |
| Storage Reduction, kaf  | -    | -    | -   | 54.0 | -   | -   | -   | -   | -   |

**1-Mar Water Supply Forecast**

| Project >>              | MCDB  | ARDB  | LIB  | DCDB | HGH  | GCL   | BRN  | DWR  | TDA   |
|-------------------------|-------|-------|------|------|------|-------|------|------|-------|
| Apr-Jul, kaf            | -     | -     | -    | -    | -    | -     | 3672 | 2669 | -     |
| Apr-Jul %-Normal (2)    | -     | -     | -    | -    | -    | -     | 72%  | 108% | -     |
| Apr-Jul Change, kaf (1) | -     | -     | -    | -    | -    | -     | -323 | -136 | -     |
| Apr-Aug, kaf            | 12846 | 24959 | 6972 | 2339 | -    | 61433 | -    | -    | 86386 |
| Apr-Aug %-Normal (2)    | 115%  | 113%  | 115% | 115% | -    | 106%  | -    | -    | 97%   |
| Apr-Aug Change, kaf (1) | -204  | -554  | -277 | -59  | -    | -142  | -    | -    | -2431 |
| May-Sep, kaf            | -     | -     | -    | -    | 1700 | -     | -    | -    | -     |
| May-Sep %-Normal (2)    | -     | -     | -    | -    | 96%  | -     | -    | -    | -     |
| May-Sep Change, kaf (1) | -     | -     | -    | -    | -110 | -     | -    | -    | -     |

**System Draft Requirements**

| Project >>      | MCDB | ARDB | LIB VarQ | DCDB | HGH VarQ | GCL  | BRN | DWR Sys | DWR Loc |
|-----------------|------|------|----------|------|----------|------|-----|---------|---------|
| Jan. 31, kaf    | 1609 | 1749 | 2851     | 857  | 407      | 0    | 0   | 1122    | 1127    |
| Feb. 28/29, kaf | 2810 | 2603 | 3417     | 1215 | 471      | 0    | 299 | 1248    | 1248    |
| Mar. 15, kaf    | -    | -    | -        | 1270 | -        | -    | -   | -       | -       |
| Mar. 31, kaf    | 4080 | 3600 | 3209     | 1270 | 470      | 1442 | 237 | 1116    | 1116    |
| Apr. 15, kaf    | -    | -    | -        | -    | 506      | 2590 | 191 | 999     | 999     |
| Apr. 30, kaf    | 4080 | 3600 | 3209     | 1270 | 543      | 2958 | 175 | 1258    | -       |

**System Elevation Requirements**

| Project >>     | MCDB | ARDB   | LIB VarQ | DCDB   | HGH VarQ | GCL    | BRN    | DWR Sys | DWR Loc |
|----------------|------|--------|----------|--------|----------|--------|--------|---------|---------|
| Jan. 31, ft    | -    | 1430.1 | 2384.6   | 1839.3 | 3542.2   | 1290.0 | 2077.0 | 1528.2  | 1527.8  |
| Feb. 28/29, ft | -    | 1422.9 | 2363.9   | 1812.5 | 3539.3   | 1290.0 | 2053.7 | 1518.6  | 1518.6  |
| Mar. 15, ft    | -    | -      | -        | 1807.7 | -        | -      | -      | -       | -       |
| Mar. 31, ft    | -    | 1414.1 | 2371.8   | 1807.7 | 3539.3   | 1271.5 | 2059.1 | 1528.6  | 1528.6  |
| Apr. 15, ft    | -    | -      | -        | -      | 3537.7   | 1255.4 | 2062.8 | 1537.2  | 1537.2  |
| Apr. 30, ft    | -    | 1414.1 | 2371.8   | 1807.7 | 3536.0   | 1249.9 | 2064.1 | 1517.8  | -       |

**Flood Risk Management Summary at The Dalles, Oregon**

| Parameter                             | Chart (3) | kaf   | kcfs |
|---------------------------------------|-----------|-------|------|
| The Dalles Apr-Aug Forecast           | -         | 86386 | -    |
| The Dalles May-Aug Forecast           | -         | 72226 | -    |
| Upstream Storage Correction           | #2        | 24621 | -    |
| Corrected The Dalles May-Aug Forecast | -         | 47606 | -    |
| Initial Controlled Flow, ICF          | #1        | -     | 297  |
| Estimated Unregulated Peak Discharge  | #1-A      | -     | 529  |

**Notes:**

- 1 Change in official forecast from the previous month.
- 2 All %-Normal values are based on 30-year (1991-2020) Runoff Volume averages as determined by the Northwest River Forecast Center.
- 3 Columbia River Treaty Flood Control Operating Plan, Corps of Engineers, Northwestern Division, Corps of Engineers, 2003.

**Questions?** Contact Kasi Whorley 503-808-3950, Christina Urbanczyk 503-808-3979, or Tom Chisholm 503-808-3958.

| Maximum Flood Risk Storage Shift from DWR and/or BRN to GCL |                                |                               |                                   |                             |                            |                              |                                      |                            |                               |  |   |   |                              |                                      |                            |                               |  |   |
|---|--------------------------------|-------------------------------|-----------------------------------|-----------------------------|----------------------------|------------------------------|--------------------------------------|----------------------------|-------------------------------|--|---|---|------------------------------|--------------------------------------|----------------------------|-------------------------------|--|---|
| Date  | GCL Non-Shifted FC Draft (kaf) | GCL Maximum Draft Limit (kaf) | GCL Maximum Shift Potential (kaf) | DWR FC Draft - System (kaf) | DWR FC Draft - Local (kaf) | DWR FC Shift - Granted (kaf) | DWR / GCL FC Shift - Allowable (kaf) | DWR Shifted FC Draft (kaf) | DWR Shifted FC Elevation (ft) | GCL Shifted FC Draft (w/DWR Shift) (kaf) | GCL Shifted FC Elevation (w/DWR Shift) (ft) | GCL Maximum Shift Potential remaining (kaf) | BRN FC Shift - Granted (kaf) | BRN / GCL FC Shift - Allowable (kaf) | BRN Shifted FC Draft (kaf) | BRN Shifted FC Elevation (ft) | GCL Shifted FC Draft (w/DWR+BRN Shift) (kaf) | GCL Shifted FC Elevation (w/DWR+BRN Shift) (ft) |
| Jan. 31   | 0                              | 2798                          | 2798                              | 1122                        | 1127                       | 0                            | 0                                    | 1127                       | 1527.8                        | 0  | 1290.0                                      | 2798  | 0                            | 0                                    | 0                          | 2077.0                        | 0  | 1290.0  |
| Feb. 28/29  | 0                              | 2798                          | 2798                              | 1243                        | 1248                       | 0                            | 0                                    | 1248                       | 1518.6                        | 0  | 1290.0                                      | 2798  | 0                            | 0                                    | 299                        | 2053.7                        | 0  | 1290.0  |
| Mar. 31   | 1262                           | 4476                          | 3214                              | 1297                        | 1116                       | 180                          | 180                                  | 1116                       | 1528.6                        | 1442                                     | 1271.5                                      | 3033  | 0                            | 0                                    | 237                        | 2059.1                        | 1442   | 1271.5  |
| Apr. 15   | 2135                           | 2922                          | 787                               | 1454                        | 999                        | 455                          | 455                                  | 999                        | 1537.2                        | 2590                                     | 1255.4                                      | 332   | 0                            | 0                                    | 191                        | 2062.8                        | 2590   | 1255.4  |
| Apr. 30 b   | 2958                           | 2958                          | 0                                 | 1258                        | -                          | 0                            | 0                                    | 1258                       | 1517.8                        | 2958                                     | 1249.9                                      | 0   | 0                            | 0                                    | 175                        | 2064.1                        | 2958   | 1249.9  |
| Column Number   | 1                              | 2                             | 3                                 | 4                           | 5                          | 6                            | 7                                    | 8                          | 9                             | 10                                       | 11  | 12  | 13                           | 14                                   | 15                         | 16                            | 17   | 18  |
| Notes   | -                              | a                             | 2-1                               | -                           | -                          | 4-5                          | Min 3,6                              | 4-7                        | -                             | 1+7                                      | -   | 2-10  | -                            | Min 12,13                            | -                          | -                             | 10+14  | -   |

**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 Kasi Whorley 503-808-3950, Christina Urbanczyk 503-808-3979, or Tom Chisholm 503-808-3958.

William Proctor, P.E.  
Ch., Hydrologic Engineering and Power Branch