

SUMMARY

The Columbia River Basin reservoir system, including the Columbia River Treaty projects, was not operated for flood control during the 2000 – 2001 winter period, since the weekly agreed-to-operations were adequate to accomplish spring flood evacuation control goals. The weekly operation was guided to a large extent by the daily streamflow and reservoir simulations, and to a lesser degree by the charts in the Flood Control Operating Plan. There was never any real potential for flooding. Due to a near record low runoff flood control was really never an issue. The unregulated peak flow at The Dalles is estimated at 326,800 cfs on 30 May and a regulated flow of 169,400 cfs on 17 May. The unregulated stage at Vancouver, WA was 10.5 feet on 31 May and the high-observed stage was 5.5 feet on 1 June.

The Pacific Northwest experienced a major drought during WY-2001. The water year began in October with near average to above average precipitation, but in November the precipitation in the region changed dramatically when only weak fronts moved into the basin. November also brought some record low temperature in the southern basins. A pattern of split-flow continued in December 2000, and high pressure aloft dominated the Basin. Only a few weak storms broke through and offered little contributory precipitation. Precipitation averaged 63 percent of normal at Columbia above Grand Coulee; 55 percent of normal at the Snake River above Ice Harbor; and 57 percent of normal at Columbia above The Dalles. Temperatures averaged below normal for the month, which was punctuated with an arctic cold snap December 11 and 12. With little change in the upper air pattern from November and December, precipitation continued below normal in January 2001. Weak disturbances managed to either drift into B.C. or cut across the far southern U.S. districts en route toward the Desert Southwest. In February, temperatures were below normal as was precipitation. The February snowpack for the Columbia River Basin was about 35 percent of normal.

By March 2001 the pattern continued with a split flow, but some stronger storms managed to stay together through the northern branch of the split. Some frequent precipitation came into Canada and the northern U.S. The March snowpack for the Columbia River Basin was about 45 percent of normal. Finally by April 2001 more storms were able to penetrate the basin as the split flow pattern consolidated. The April snowpack for the Columbia River Basin grew to about 50 percent of normal. The wet pattern of April continued into early May 2001 as a few storms managed to keep active along the northern branch of the split flow. Consequently, they brought precipitation to the northern basins. This storm track dissolved mid to late in the month, and the May snowpack grew to about 55 percent of normal. Below normal temperatures and above normal precipitation covered most of the Basin in early June 2001. A westerly flow aloft brought the most frequent storms across the northern basins, while the southern basins remained dry.

Composite operating year unregulated streamflows in the basin above The Dalles were below normal, and about 31 percent below last year's average streamflows. May was the high month during the spring runoff, being in the 68-percent-of-normal range. The August 2000 through July 2001 runoff for The Dalles was 82.6 Maf, 78 percent of the 1961-90 average, and the lowest on record for the period 1928 through 2001.

For Water Year 2001, the annual observed streamflow for all index streamflows stations were uniformly much below. This contrasts to Water Year (WY) 2000 where streamflow conditions were near normal except for low streamflow conditions in the Snake River Basin, and the previous five years from WY 1995 to 1999 where conditions were above normal for all index streamflow stations. The annual observed streamflow for Columbia River at Grand Coulee and The Dalles were respectively 69% and 63% of normal, while the Snake River was even lower at 51% of normal. The annual observed streamflow for Willamette River at Salem was the lowest at 47% of normal.

The 2000 NMFS Biological Opinion recommends that Federal projects be as full as their 10 April flood control point, and full on 30 June. Then the projects may draft in July and August for summer flow augmentation. Because of the extreme low water conditions in the spring of 2001 and the use of water earlier in the season for power and chum operations, the Federal projects were well below 10 April flood control points. None of the Federal projects were able to fill on 30 June, but all projects evacuated to their draft limits in 2001.