

EXECUTIVE SUMMARY

Water Budget Flow Augmentation

The 1990 Water Budget Coordinated Plan of Operation (CPO) was essentially the same as the 1989 plan. The only change made to the document was the incorporation of language pertaining to Dworshak Dam releases. Specifically, flows above 10 kcfs could be allowed at Dworshak Dam on a case-by-case basis. Experience has proven that many of the actions believed by the state and federal fishery agencies and Indian tribes to be essential to protect the juvenile fish outmigration cannot be achieved through the annual process of developing the CPO. The inherent weakness in meeting juvenile fish outmigration needs is in the NPPC's Fish and Wildlife Program. The Program does not provide sufficient allocation of water for fish, contains unsuitable implementation constraints, and does not enforce execution of some components essential for fish protection. For example, the Program calls for experimentation with the Water Budget in the interest of fish survival; however, nearly all recommendations made by the Fish Passage Center on behalf of the fishery agencies and tribes, that represent any departure from the language of the Program, have been rejected. The position is exemplified by the Corps of Engineers' statement that issues involved in CPO additions and recommendations by the Fish Passage Center "...would best be resolved at a different policy-level forum." The 1990 season provided further documentation that with the inherent weaknesses of the NPPC's Fish and Wildlife Program, suitable juvenile fish passage conditions cannot be achieved with the present Water Budget concept.

The January through July runoff volume was 98% of the 50-year average (1928-1978) at The Dalles Dam, 109% at Rock Island Dam, and only 72% at Lower Granite Dam. Nine days of Snake River flow augmentation were possible in 1990, with the 449,000 acre-feet of Water Budget (305,000 acre-feet from Dworshak and 144,000 acre-feet from Brownlee). Also, the BPA 30,000 acre-feet equivalent of exchange energy stored in Brownlee was viewed by Idaho Power Company as part of the water it provided, rather than as an additional amount to be provided, as viewed by BPA. Flows in the Snake River did not reach the level requested on any of the nine Water Budget use days, and averaged 8 kcfs less than requested over that period.

Flow level requests for the lower Columbia River were again denied in 1990, on the basis of the 140 kcfs flow request limitation imposed at Priest Rapids Dam. Because of the very low Snake River flow, additional mid-Columbia River flow was needed to provide higher flows in the lower river at the time of greatest smolt passage. The Water Budget requests were denied because of the 140 kcfs limitation. Yet, when runoff and precipitation had increased, flows were averaging 182 kcfs at Priest Rapids as the result of operations for flood control and power. Because of the rejection of the

Water Budget requests, approximately 23% of the Columbia Water Budget (0.79 MAF) went unused. This amount of water would have been adequate to provide the requested flows in the lower river and increased juvenile protection.

Spill Implementation

All Parties to the Fish Spill Memorandum of Agreement supported and implemented the Agreement as written. The amount of flow spilled for fish was similar to the amount of flow spilled during 1989. However, as a result of overgeneration spill that occurred primarily during the beginning of June, 1990 was generally characterized by higher spill levels. Spill implementation could be facilitated by BPA providing projected flows rather than relying on "after-the-fact" flow scenarios to develop instantaneous spill percentages.

Smolt Monitoring Program

Annual passage indices of spring migrants were higher at Lower Granite Dam and lower at Rock Island, McNary, and Bonneville dams compared to the historical average, in spite of the fact that hatchery releases above Lower Granite, Rock Island, and McNary dams was near, or above, the average for the past five or six years. Reduced survival from lower flows during mid-May in the Snake River, and the lower contribution of mid-Columbia River yearling chinook, steelhead and sockeye may have contributed to the reduced cumulative passage indices of these spring migrants in the lower Columbia River this year.

High flows throughout June and early July in the lower Columbia River contributed to the highest cumulative passage indices for summer migrants being recorded at McNary and Bonneville dams since monitoring began at these sites. The data collected through the smolt monitoring program once again documented the close relation that exists between changes in flow and corresponding changes in the passage indices. Increases and decreases in streamflow were reflected by increases and decreases in the passage index.

With the exception of summer migrating upriver bright fall chinook, migration timing was similar to historic timing. The large number of upriver bright fall chinook passing Bonneville Dam during the period of high flow during June and early July resulted in an early 90% passage date for 1990.

Smolt monitoring of marked juvenile fish for travel time in 1990 further documented the close relation between increases in flow and corresponding decrease in travel time. Smolts migrating during the spring of 1990 in the Snake River drainage were subjected to low flows (between 40 and 80 kcfs) during most of the migration season. However, when flows in the Snake increased to over 100 kcfs, the travel time estimates obtained were reduced by one-half. In the lower Columbia River, the higher flows, which began at the end of May and continued through mid July, had a profound effect on smolt migration rates. Subyearling chinook migrated between McNary and Bonneville dams faster during 1990 than in recent years characterized by lower summer flows.

Hatchery Releases

Approximately 81 million juvenile salmonids from state, federal, and tribal fish hatcheries were released into the Columbia River Basin above Bonneville Dam. This was approximately 2.7 million more hatchery fish than were released in 1989. By major river reaches, the hatchery releases totaled 27.2 million in the Snake, 19.6 million in the mid-Columbia , and 34.2 million in the lower Columbia.

Adult Fish Passage

During 1990, most adult fish passage facilities were operated at, or near, criteria throughout the adult fish passage season. Several passage problems were observed in 1990 including: the powerhouse failure at John Day Dam and the high flow levels in the Columbia River from May 30 through the middle of June, which resulted in high spill levels and high dissolved gas levels; short term equipment failures resulting in minor fish passage delays; and, the warmer than normal water temperatures and low flows from late July through September in the Snake River, which delayed migrations and likely caused additional mortalities from stress and disease. Overall, based on counts at individual dams, the loss of fish between projects was higher than normal.

