



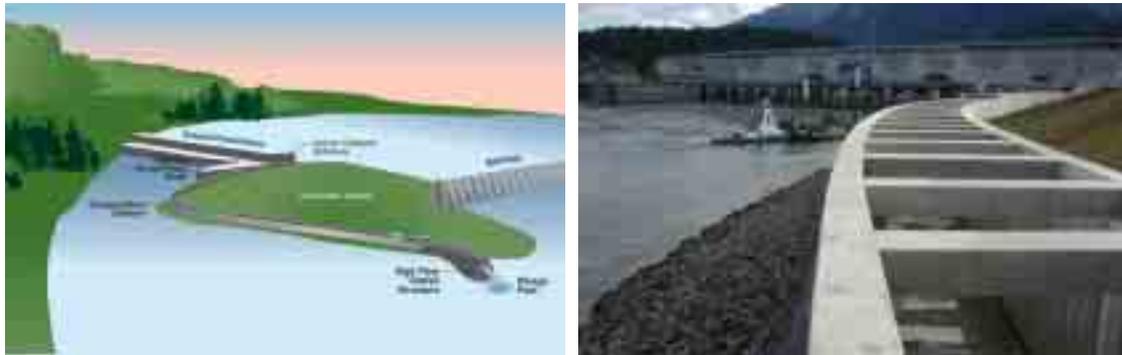
US Army Corps
of Engineers
Portland District

Information Paper

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Juvenile Fish Passage Improvements, Bonneville Lock and Dam

Second Powerhouse Corner Collector/Bypass



When the new high flow bypass facility for young salmon begins operating in April 2004, the beginning of the spring juvenile salmon passage season, Federal biologists expect to see a 1 to 3 percent increase in juvenile fish survival past the Bonneville Second Powerhouse.

Earlier field testing indicated about 40 percent of juvenile fish in the forebay (area directly upstream) of the Second Powerhouse were passing through the existing ice and trash chute when that facility was operated during downstream migration. By modifying the ice and trash chute into a surface flow bypass system (corner collector) at that location, the number of juveniles guided into the corner collector can be increased to 50 to 60 percent, passed without injury, and returned safely to the river at a location further downstream.

The corner collector facility includes a 2,800-foot long transportation channel, a 500-foot long outfall channel, a plunge pool, and modification of the ice and trash chute to ensure safe passage. The bypass flume begins at the southeastern corner of the powerhouse, where a gate will be removed to allow approximately 5,000 cubic feet per second of water to spill into the chute carrying fish downstream. The fish will re-enter the river just beyond the westernmost tip of Cascades Island, over one-half mile downstream. A plunge pool excavated into the river bottom will permit fish to re-enter the river and avoid injuries that might occur at lower river levels.

The corner collector will work in conjunction with the existing Second Powerhouse screened juvenile bypass system, which had survival improvements completed in 1999. Together, these non-turbine routes will pass about 90 percent of all juvenile fish at the Second Powerhouse with an estimated survival rate of greater than 95 percent.

Oregon and Washington fisheries agencies, the National Marine Fisheries Service, the Bonneville Power Administration, the Tribes and the Corps have all endorsed the value of this construction project to increase juvenile fish survival through Bonneville.

Costs: The cost estimate, including past costs, post construction monitoring and contingencies, is about \$48 million. In July 2002, a \$32 million contract was awarded to Kiewit-Mason of Vancouver, Wash., to construct the bypass facility.

The Future:

Bonneville Dam first powerhouse juvenile fish passage system improvements also are on the regional agenda. Potential improvements could include a transportation flume to carry juvenile fish across the river to the monitoring building on the Washington side of the project, and from there to the outfall relocated as part of the screened bypass improvements in the late 1990s. Corps engineers put preliminary estimates for the first powerhouse improvements at about \$85 million. A regional decision regarding construction of first powerhouse passage system improvements or continued development of a surface bypass system at the first powerhouse is pending.