

RSW POST-CONSTRUCTION EVALUATION OF PASSAGE AND SURVIVAL FOR RADIO-TAGGED SUBYEARLING CHINOOK SALMON AT LOWER MONUMENTAL DAM, 2008

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ABSTRACT

In 2008, we evaluated behavior and survival for river-run radio-tagged subyearling Chinook salmon at Lower Monumental Dam from 8 June through 4 July. This included evaluation of the removable spillway weir (RSW) installed prior to the juvenile outmigration. During the study, total river flow averaged 92 kcfs and spill averaged 25 kcfs, which was 28% of total river flow. Discharge through the RSW averaged 6.7 kcfs. Average tailwater elevation was 440 ft msl and water temperature averaged 14.2°C.

We released 2,362 radio-tagged treatment fish 42 km upstream from Lower Monumental Dam and 2,071 radio-tagged control fish into the tailrace of Lower Monumental Dam, with releases made twice per day throughout the study period. Twenty percent of the treatment fish were not detected after release, which was lower than what has been observed in previous years.

Relative spillway passage survival was estimated at 93% and relative dam survival at 89%, both point estimates falling between those observed in 2006 and 2007. Relative concrete survival was 94%, which matched the higher value of the estimates from 2006 and 2007. Relative survival through the RSW was 97%. Spillway passage was estimated at 40%, juvenile bypass passage at 46%, and turbine passage at 13%. This indicates a distinct shift toward the powerhouse over the observed passage routes in 2006 and 2007. Spill efficiency was estimated at 40%, fish guidance efficiency at 78%, and fish passage efficiency at 87%. Median overall forebay residence time was 2.3 h and median tailrace egress time was 8.2 min.