Fall Creek: Juvenile Monitoring and Adult Return Data

Greg Taylor, Douglas Garletts, Chad Helms, Todd Pierce, and Nathaniel Erickson

US Army Corps of Engineers
40386 West Boundary Road
Lowell, OR, 97424

gregory.a.taylor@usace.army.mil

The U. S. Army Corps of Engineers (USACE) completed construction of Fall Creek Dam in the fall of 1965. Water impoundment began in January 1966, after the Oregon Game Commission chemically treated the reservoir area and tributaries to eradicate rough fish. Fall Creek Dam included upstream and downstream fish passage facilities. An evaluation of the fish passage facilities conducted by the Fish Commission of Oregon (1966-70) determined the emigrant passage facilities were ineffective, but noted large numbers of juvenile salmonids migrated from the reservoir using the regulating outlet (Smith and Korn 1970). From 1968-77 the reservoir elevation was lowered to streambed to facilitate fish passage and survival. This resulted in annual returns of spring Chinook from 1,000 - 4,500 fish. Following the change to current operations, annual returns ranged from 90-500 fish with an average of around 200. Changes in reservoir evacuation schedule beginning in 1977 are implicated with the smolt mortality and adult return problems observed at Fall Creek since 1980 (Downey 1992). Downey (1992) showed a 30% improvement in survival for juvenile outmigrants under low flow and low head conditions. In 2007, the USACE lowered Fall Creek Reservoir from elevation 728 ft. (minimum conservation pool) to elevation 714 ft. to complete required maintenance on the intake structure. This operation was repeated in 2008-09. In 2010, the reservoir was lowered to 690 ft. to improve passage survival for outmigrating fish. In 2011-14, the USACE lowered Fall Creek Reservoir to elevation 680 ft. which resulted in a complete drawdown to streambed. Lowering Fall Creek Reservoir to 714 ft. has resulted in returns of 332- 540 Chinook. This presentation summarizes data collected during the 2014 season on adult returns and juvenile downstream passage associated with reservoir operation and drawdown.