

Session II: Mainstem

Mainstem

A. Mainstem passage survival: Direct Survival of Migrating Salmonid Smolts in the Snake and Lower Columbia Rivers: Update with 2007 Results

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Beginning in 1993, NOAA Fisheries has annually conducted research using PIT-tagged individuals to estimate direct survival of migrating salmonid smolts from the Snake River Basin. We recently released our annual “summer memo” summarizing Snake River conditions and operations and preliminary survival estimates for 2007. Except for a short period at the beginning of May, Snake River flow volume in 2007 was at the low end of the range observed since 1993, while water temperature was above average essentially for the entire season. Spill was provided at Snake River dams throughout the 2007 season, which combined with the low flow volume resulted in spill percentages in the high end of the observed range. For the entire hydropower system from the Snake River trap to the tailrace of Bonneville Dam, mean estimated survival in 2007 was 56.0% for Chinook salmon and 39.2% for steelhead. These estimates are only slightly lower than those from the high-flow year of 2006 and considerably higher than those from the similarly low-flow, high-temperature year of 2004.

Direct survival estimates from PIT-tagged smolts apply only to that portion of the population that migrated downstream in the river. Large portions of the Chinook and steelhead populations are transported downstream on barges and trucks. Historically, estimates of smolt-to-adult return percentages (SARs) for the populations at large have had little statistical correlation with our estimates of direct survival for in-stream migrating smolts.

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