

Title:

2004-05 Yakima River Fall Chinook Redd Surveys and Juvenile Migration Survival

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There are two stocks of Fall Chinook (FCK) in the Yakima Basin, the Yakima River mainstem and the Marion Drain stock. The goal for the Yakima FCK salmon program is to supplement and enhance these stocks. Three major projects were conducted in 2004-05 to better understand the behavior of these stocks and to guide decisions on *how* to rear and *when* to release FCK in the Yakima Basin.

Fall Chinook redd surveys above Prosser Dam were conducted September-November 2004. A total of 550 redds were found in the Yakima River mainstem, 90.2% between RM 70 and RM 93. The Marion Drain yielded 100 redds, 71% were below Hwy 97. The peak counts were observed the second week of November.

To try and better understand survival and migration timing, two rearing treatments were compared using 329,000 FCK collected from local broodstock in 2003 at Prosser Hatchery. These fish were split into two groups and reared at the hatchery. One group was treated using an “accelerated” treatment, the use of warmer well water to accelerate growth. The other group experienced “conventional” methods, ambient river temperature incubation and rearing profiles. A portion of fish were marked with PIT tags for detection at McNary Dam during the out-migration period following release. The accelerated group released on 5/4/04 had a higher survival index (SI) = 0.08 vs. the conventional group SI= 0.02 released on 5/19/03. A portion of fall Chinook from the Marion Drain were also marked. These fish released on 4/20/05, had a SI=0.06. The Marion Drain temperature is naturally warmer than the Yakima mainstem. The accelerated FCK group are reared on water temperature similar to Marion Drain. Since 1998 when the study was implemented, the Accelerated treatment and the Marion Drain smolt releases have out-performed the Conventional rearing treatment.

In the spring 2005, a beach seine effort was made to capture and PIT tag wild FCK to better understand survival rates and movement of wild FCK smolts leaving the system. This study also gives the opportunity to compare our hatchery release “timing and survival,” versus the out-migrating wild FCK. Various sites were sampled below Van Giessen, Granger and Union Gap during April and May. The number of FCK PIT-tagged at each site were 108, 293 and 29, respectively. Preliminary Survival rates to McNary are 4.6% for Van Giessen, 1.0% at Granger and no fish have been detected for Union Gap. If we are to reach the supplementation goals for the Yakima River Fall Chinook salmon program, understanding smolt-smolt timing and survival are key elements.