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To: Chris Carlson, Grant County PUD
From: Chris Peery
Regarding: 2001 Hanford reach Fall Chinook Salmon estimate
Date: 12 December 2002

The following is our best estimate of the number of adult fall chinook salmon last heard in the Hanford Reach of the Columbia River. This represents the maximum number that could have spawned in this section of river. The actual number of fish that spawned in the Hanford Reach may be, and is probably, less than indicated here because some fish may have lost their transmitters in the Hanford Reach while en route to other locations, died before spawning, been caught in a fishery but not reported to us, or may have left the Hanford Reach without being detected.

In 2001 we determined that 952 radio-tagged adult fall chinook salmon successfully passed Bonneville Dam. Of these 952 fish, 482 successfully passed McNary Dam. Of those 482 fish, 17 (3.5%) fell back at McNary Dam and ended up at a downstream location, and 24 (5%) were last detected in the Columbia River between McNary Dam and our Hanford Reach sites, located upstream from the confluence with the Snake River in the Tri-Cities area. Of the remaining 441 fish, 53 (11%) passed Priest Rapids Dam, 48 (10%) ended up in the Yakima River, 81 (17%) ended up in the Snake River, and the remaining 258 (53% 59% of 441, 53% of 482) fish were last detected in the Hanford Reach. Of those 258 fish, 1 returned to Ringold Hatchery, 63 returned to Priest Rapids Dam Hatchery, 45 were recaptured in fisheries within the Reach, leaving 149 (31% 34% of 441, 31% of 482) fish that could have potentially spawned in the Reach.

The numbers of radio-tagged fish entering the Yakima and Snake rivers is probably an overestimate, and the numbers that passed Priest Rapids Dam is possibly an underestimate, since we were emphasizing radio-tagging known-source (PIT tagged) fish in 2001. For example, based on counts, about 11% of the fall chinook salmon that passed McNary Dam were later counted passing Ice Harbor Dam, versus 17% conversion rate for the radio-tagged fish. If the under- and overestimates cancelled each other, then our best estimate for escapement of fall chinook salmon to the Hanford Reach would remain in about the 30 to 35% range for fish that passed McNary Dam in 2001.