



## FISH PASSAGE CENTER

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### MEMORANDUM

TO: FPAC

FROM: Michele DeHart

DATE: June 16, 2009

RE: 2009 Update of Proportion of hatchery Snake River subyearling Chinook (released above Lower Granite Dam) that are released unclipped and/or unmarked.

In response to your request at today's FPAC conference call, the FPC staff have looked into the proportion of the hatchery subyearling Chinook released above LGR in 2009 that were unclipped and/or unmarked. We have added these data to the July 29, 2008 memo entitled: Proportion of hatchery Snake River subyearling Chinook (released above Lower Granite Dam) that are released unclipped and/or unmarked, which summarized data from 2004 through 2008.

For these analyses an unclipped fish is any hatchery subyearling Chinook that was released without a fin clip (e.g., adipose, left ventral, right ventral, etc.). Secondly, an unmarked fish is any hatchery subyearling Chinook that was released without a fin clip or a mark that is visible with the naked eye (e.g., Elastomer, etc.) or detected with a coded wire detector (e.g., CWT). Therefore, for these analyses, an unclipped fish with a PIT-tag is considered "unmarked".

Over the past six years, approximately 62.4% (on average) of the subyearling Chinook released above LGR are unclipped (Table 1). In migration year 2009, approximately 54.7% of subyearling Chinook were released unclipped.

Over the past five years, approximately 41.2% (on average) of the subyearling Chinook released above LGR are unmarked (i.e., no fin clip or CWT). In migration year 2009, approximately 39.4% of hatchery subyearling Chinook released above LGR were unmarked (Table 2).

**Table 1.** Estimated percent of hatchery subyearling Chinook released unclipped and unmarked.

<b>Migration Year</b>	<b>Total Released</b>	<b>Percent Unclipped</b>	<b>Percent Unmarked</b>
2004	1,517,006	88.4	50.9
2005	3,964,117	54.9	39.6
2006	3,615,216	52.1	37.0
2007	2,251,450	70.5	46.3
2008	3,796,492	53.6	34.0
2009	5,249,685	54.7	39.4
Average	3,398,994	62.4	41.2

There is only one release group of subyearling Chinook that has consistently had ~100% of its fish clipped and/or marked. These are the subyearlings that are reared at Oxbow and/or Umatilla Hatchery and released just below Hells Canyon Dam. These releases typically occur earlier in the season (usually early May) and these juveniles tend to out-migrate quickly. The contribution of these releases to the total release above LGR is highly variable. For example, in 2008 these releases represent approximately 25% of the total subyearling release above LGR, where as in 2007 this contribution was only 6%. The 2009 releases of subyearling Chinook to this site accounted for about 19% of all the subyearling fall Chinook that were released above LGR. We re-estimated the proportion of the hatchery subyearling population released unclipped and/or unmarked with the Hells Canyon releases removed. Over the six years analyzed, the average percent of the hatchery population that is released unclipped and/or unmarked increased to approximately 71.4% and 47.4%, respectively (Table 2).

**Table 2.** Estimated percent of hatchery subyearling Chinook released unclipped and unmarked (Hells Canyon releases removed).

<b>Migration Year</b>	<b>Total Released</b>	<b>Percent Unclipped</b>	<b>Percent Unmarked</b>
2004	1,507,049	89.0	51.2
2005	3,374,998	64.4	46.5
2006	3,091,915	60.9	43.2
2007	2,126,911	74.6	49.0
2008	2,833,671	71.8	45.5
2009	4,242,925	67.7	48.8
Average	2,862,912	71.4	47.4

In conclusion, with such a large portion of the hatchery population being released unclipped and/or unmarked, determining whether the subyearling Chinook passing LGR are of natural or hatchery origin is still difficult.