

# FISH PASSAGE CENTER

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## MEMORANDUM

TO: FPAC

*Michele Seibert*

FROM: FPC Staff

DATE: July 18, 2007

RE: Juvenile passage timing at McNary Dam for in-river and transported Snake River subyearling Chinook that survived to adulthood

On July 3, 2007, FPAC requested that the FPC staff update a portion of a 2004 memo entitled, "Transportation of fall Chinook smolts and related fall Chinook migration and tag data concerning summer spill for fish passage". Specifically, FPAC requested that FPC staff update the figures in the memo that presented juvenile passage timing at McNary Dam for in-river and transported Snake River subyearling Chinook that survived to adulthood. Our conclusions are summarized below:

- For most migration years analyzed (6 out of 8), the majority of the returning adults that were transported as juveniles from McNary Dam were transported after August 1<sup>st</sup> (Table 1, Figure 1).
- 7 of the 10 years analyzed showed that the majority of the returning adults that migrated in-river as juveniles and were detected at McNary Dam, were detected at McNary Dam after August 1<sup>st</sup>. Only in 1998 and 2003 did the earlier detected in-river juveniles (June-July) exhibit higher returns than those that were detected later in the season (August-Dec) (Table 1, Figure 2).

### Methods

This analysis relied on PIT-tag data for subyearling fall Chinook originating in the Snake River basin above Lower Granite Dam for migration years 1995 through 2004. These PIT-tagged fish consist of wild fall Chinook PIT-tagged in the mainstem Snake and Clearwater rivers above Lewiston and hatchery fall Chinook PIT-tagged for supplementation releases. These supplementation releases of subyearling fall Chinook included: 1) releases made at or near the Pittsburg Landing, Captain Johns Rapids, and Big Canyon Creek acclimation ponds, 2) surrogate releases along the Snake and Clearwater rivers, 3) releases at Hells Canyon Dam and along the

Snake River, and 4) releases from the Nez Perce Tribal Hatchery. Only juveniles who were detected at McNary Dam in the year of their release were considered in this analysis. Juveniles detected at McNary Dam were placed into two categories; those detected prior to August 1<sup>st</sup> and those detected on or after August 1<sup>st</sup> (through December 31). To determine “survival to adulthood”, adult detections at Bonneville Dam, McNary Dam, and/or Lower Granite Dam were used in this analysis. However, adult returns for migration years 2002, 2003, and 2004 are not yet complete and results for these migration years should be interpreted with caution.

Prior to the implementation of the NMFS transportation study in 2001, the goal of these PIT-tag studies required that PIT-tagged fish were kept in-river. Thus, sample sizes for transported subyearling Chinook during these earlier years are low and results should be interpreted with caution. Finally, prior to 2003, transportation at McNary Dam typically extended into November and even December. However, in migration years 2003 and 2004, transportation at McNary Dam ended on or before October 1. This further complicates comparisons between years.

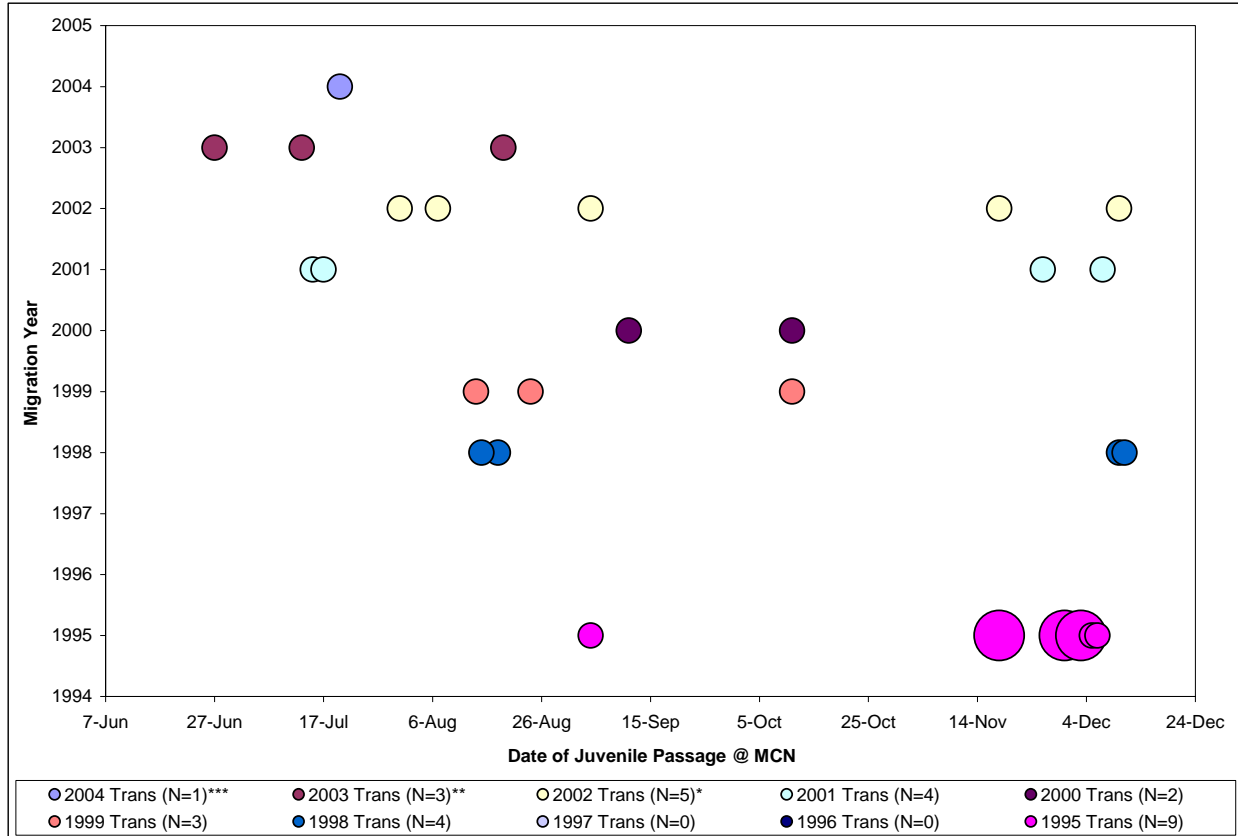
**Table 1.** Proportion of adult returns for in-river and transported subyearling fall Chinook for early (June-July) and late (Aug.-Dec.) detections at McNary Dam.

<b>Migration Year (Dates)</b>	<b>Juvenile Detection at McNary Dam</b>	<b>Proportion of In- River Adult Returns</b>	<b>Proportion of Transported Ault Returns</b>
1995 (Jun. 22 – Dec. 8)	June-July Aug.-Dec.	0.11 0.89	0.00 1.00
1996 (Jun. 6 – Nov. 22)	June-July Aug.-Dec.	0.00 1.00	N/A N/A
1997 (May 30 – Dec. 14)	June-July Aug.-Dec.	0.38 0.62	N/A N/A
1998 (Jun. 2 – Dec. 15)	June-July Aug.-Dec.	0.60 0.40	0.00 1.00
1999 (Jun. 24 – Dec. 14)	June-July Aug.-Dec.	0.19 0.81	0.00 1.00
2000 (Jun. 22 – Nov. 28)	June-July Aug.-Dec.	0.43 0.57	0.00 1.00
2001 (May 1 – Dec. 9)	June-July Aug.-Dec.	0.14 0.86	0.50 0.50
2002* (Jun. 25 – Dec. 11)	June-July Aug.-Dec.	0.26 0.74	0.20 0.80
2003** (Jun. 28 – Oct. 1)	June-July Aug.-Dec.	0.88 0.13	0.67 0.33
2004*** (Jun. 24 – Sep. 19)	June-July Aug.-Dec.	0.50 0.50	1.00 0.00

\* 5-year ocean fish from MY 2002 have not yet returned

\*\* 4 and 5-year ocean fish from MY 2003 and not yet returned

\*\*\* 3, 4, and 5-year ocean fish from MY 2004 have not yet returned

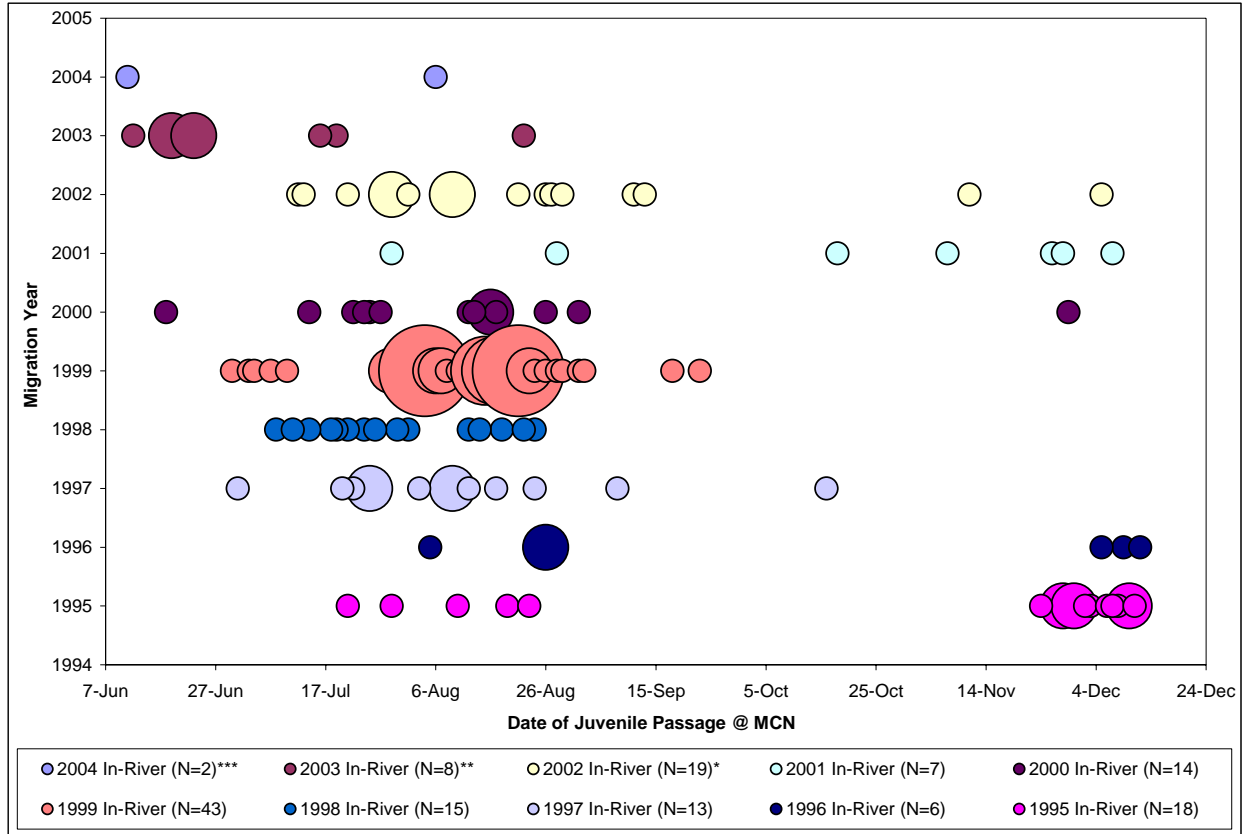


**Figure 1.** Juvenile passage timing at McNary Dam for transported subyearling fall Chinook that survived to adulthood (MY 1995-2004). Numbers of PIT-tagged adults returning for each migration year are shown in the figure legend in parentheses. Larger circles reflect larger number of PIT-tags passing on a particular date.

\* 5-year ocean fish from MY 2002 have not yet returned

\*\* 4 and 5-year ocean fish from MY 2003 and not yet returned

\*\*\* 3, 4, and 5-year ocean fish from MY 2004 have not yet returned



**Figure 2.** Juvenile passage timing at McNary Dam for in-river subyearling fall Chinook that survived to adulthood (MY 1995-2004). Numbers of PIT-tagged adults returning for each migration year are shown in the figure legend in parentheses. Larger circles reflect larger number of PIT-tags passing on a particular date.

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