



## FISH PASSAGE CENTER

1827 NE 44<sup>th</sup> Ave., Suite 240, Portland, OR 97213

Phone: (503) 230-4099 Fax: (503) 230-7559

<http://www.fpc.org>

e-mail us at [fpcstaff@fpc.org](mailto:fpcstaff@fpc.org)

September 2, 2009

David Carie  
Mid-Columbia River Fisheries Resource Office  
7501 Icicle Road  
Leavenworth, WA 98826

Dear David-

The Fish Passage Center has been marking fish from the Leavenworth National Fish Hatchery facility over the last several years as part of the Smolt Monitoring Program (SMP). For purposes of SMP, passage data are collected on both the juvenile and adult life stages. The SMP provides information for in-season management of the hydrosystem and post-season analyses to the federal, state, and tribal fishery agencies. We would like to provide an update of some of the information we developed under this study for the fish used from the Leavenworth National Fish Hatchery facility in 2009 and past years.

Under the Smolt Monitoring Program, information is collected on the timing, migration speed, and survival of juveniles from the hatchery to McNary Dam. Table 1 below provides estimates of minimum, median, and maximum travel times from each year's release to McNary Dam. Also provided are estimates of the 95% confidence limits around the estimated median travel time.

In past years, we have provided you with figures to illustrate passage timing of Leavenworth NFH spring Chinook to McNary Dam since tagging began in 1997. However, given that Leavenworth NFH has been releasing tagged fish for so many years now, these figures have become cumbersome. This year, we have decided to provide a table that presents the estimated 10%, 50%, and 90% passage dates of Leavenworth NFH spring Chinook juveniles at McNary Dam for each of the years of tagging (Table 2). Also, Figure 1 is provided as an illustration of how the arrival timing of the 2009 smolt release relates to last year's release, as well as the 10-year average arrival timing (1999-2008).

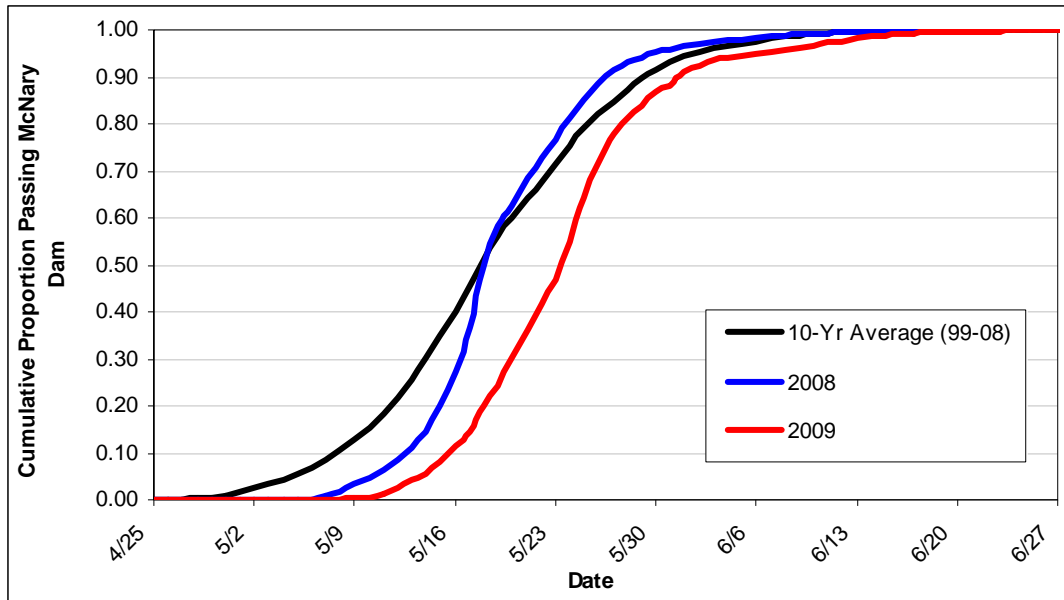
Finally, table 3 below provides estimates of survival from release at the hatchery to McNary Dam, along with the upper and lower confidence limits on these estimates.

**Table 1.** Leavenworth Hatchery Spring Chinook Travel Times to McNary Dam

Release Date	Migration Year	Travel Time (Days)			Confidence Limits 95%		Priest Rapids	
		Min	Med	Max	Lower	Upper	Flow (kcfs)	Temp (F)
17-Apr	1997	8.6	28.7	52.2	22.7	41.8	92	44
20-Apr	1998	10.3	21.7	55.1	21.2	22.2	141.7	50.1
19-Apr	1999	6.8	27.8	55.7	27.3	28.1	171.1	47.1
18-Apr	2000	11.9	36.1	79.2	34.6	36.9	184.7	
17-Apr	2001	11.3	37	72	36.9	37.2	63.8	50.5
22-Apr, 24-Apr	2002	3.6	35.9	64.4	25.9	26	100.3	
21-Apr	2003	5.8	27.6	110.1	27.4	27.7	83.9	
19-Apr	2004	0.1	25.2	107.2	25.1	25.1	104.3	
15-Apr	2005	11.9	29.8	116.7	29.4	30.1		
17-Apr	2006	22.8	28.5	48.2	28.3	28.8	108.2	
18-Apr	2007	7.7	30.8	65.1	30.4	31.2	171.4	
28-Apr	2008	3.9	19.9	55.9	19.8	20.1	128.2	
28-Apr	2009	8.8	25.4	69.8	24.9	25.7	112.9	

**Table 2.** Estimated 10%, 50%, and 90% passage dates of Leavenworth NFH spring Chinook at McNary Dam.

Migration Year	10% Passage Date	50% Passage Date	90% Passage Date
1997	1-May	14-May	22-May
1998	3-May	12-May	23-May
1999	7-May	17-May	25-May
2000	12-May	23-May	3-Jun
2001	15-May	24-May	31-May
2002	11-May	20-May	28-May
2003	7-May	19-May	31-May
2004	3-May	14-May	27-May
2005	5-May	15-May	3-Jun
2006	11-May	16-May	21-May
2007	7-May	19-May	31-May
2008	13-May	19-May	27-May
2009	16-May	24-May	1-Jun



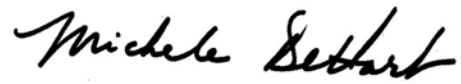
**Figure 1.** Cumulative passage timing of Leavenworth National Fish Hatchery spring Chinook to McNary Dam.

**Table 3.** Leavenworth Hatchery Spring Chinook survivals (Release to McNary Dam)

Release Date	Migration Year	Survival	Confidence Limits (95%)	
			Lower	Upper
17-Apr	1997	N/A	N/A	N/A
20-Apr	1998	0.546	0.491	0.602
19-Apr	1999	0.586	0.550	0.622
18-Apr	2000	0.593	0.520	0.667
17-Apr	2001	0.501	0.484	0.517
22-Apr, 24-Apr	2002	0.560	0.553	0.567
21-Apr	2003	0.662	0.655	0.669
19-Apr	2004	0.483	0.473	0.494
15-Apr	2005	0.526	0.500	0.553
17-Apr	2006	0.558	0.531	0.586
18-Apr	2007	0.592	0.569	0.615
28-Apr	2008	0.578	0.533	0.622
28-Apr	2009	0.481	0.442	0.521

We hope that the information we have provided regarding the use and application of information from the marked groups over the last several years is of some use to you. If you would like any additional information regarding these releases please feel free to contact us.

Sincerely,

A handwritten signature in black ink that reads "Michele DeHart". The signature is written in a cursive, flowing style.

Michele DeHart  
Fish Passage Center Manager

Cc: Pete Hassemer, IDF&G  
Doug DeHart, USFWS  
Brian Lipscomb, CBFWA  
Tony Nigro, ODFW  
Ron Boyce, ODFW  
FPAC