FISH PASSAGE CENTER

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Mr. Todd Garlie
Idaho Department of Fish and Game
Pahsimeroi Hatchery
71 Fish Hatchery Lane
May, ID 83253

Dear Todd-

The Fish Passage Center has been marking summer Chinook from Pahsimeroi Hatchery over the last several years as part of the Comparative Survival Study (CSS). For purposes of these studies data are collected on either the juvenile life stage, or both the juvenile and adult life stages. The CSS is a multi-year program that estimates survival rates over different life stages for spring and summer Chinook and steelhead produced in major hatcheries. We would like to share with you some of the information we developed under these studies for the fish used from Pahsimeroi Hatchery in 2012 and past years.

With the marking efforts over the past several years, information on the timing and migration speed from the hatchery to Lower Granite Dam is available. In addition, as part of the CSS study, juvenile survival estimates are developed for the hydrosystem between Lower Granite and Bonneville Dams, as well as survival to adulthood of different passage histories.

Table 1 provides estimates of minimum, median, and maximum travel times for each year's release to Lower Granite Dam. Also provided are estimates of the 95% confidence limits around the estimated median travel time. In addition, we are providing you with the estimated 10%, 50%, and 90% passage dates of yearling summer Chinook (Table 2) juveniles at Lower Granite Dam for each of the years of tagging. Figure 1 provides an illustration of the arrival timing at Lower Granite Dam for each migration year (2008-2012).

Table 1. Travel times (release to LGR) of Pahsimeroi Hatchery yearling summer Chinook.

Migration Year	Release Date	Travel Time (Days)			95% Confidence Limits	
		Min	Med	Max	Lower	Upper
2008	3/31	18.6	38.2	153.4	37.9	38.3
2009	3/30	13.3	24.8	52.3	24.6	24.9
2010	3/30	21.4	30.5	66.6	30.5	30.6
2011	4/1	7.3	26.8	62.4	26.6	27.0
2012	4/1	6.3	18.3	48.9	18.2	18.4

Table 2. Estimated 10%, 50%, and 90% passage dates of PIT-tagged Pahsimeroi Hatchery yearling summer Chinook at Lower Granite Dam.

Migration Year	Release Date(s)	10% Passage Date	50% Passage Date	90% Passage Date
2008	3/31	1-May	8-May	18-May
2009	3/30	19-Apr	24-Apr	4-May
2010	3/30	25-Apr	29-Apr	5-May
2011	4/1	18-Apr	27-Apr	7-May
2012	4/1	13-Apr	20-Apr	25-Apr

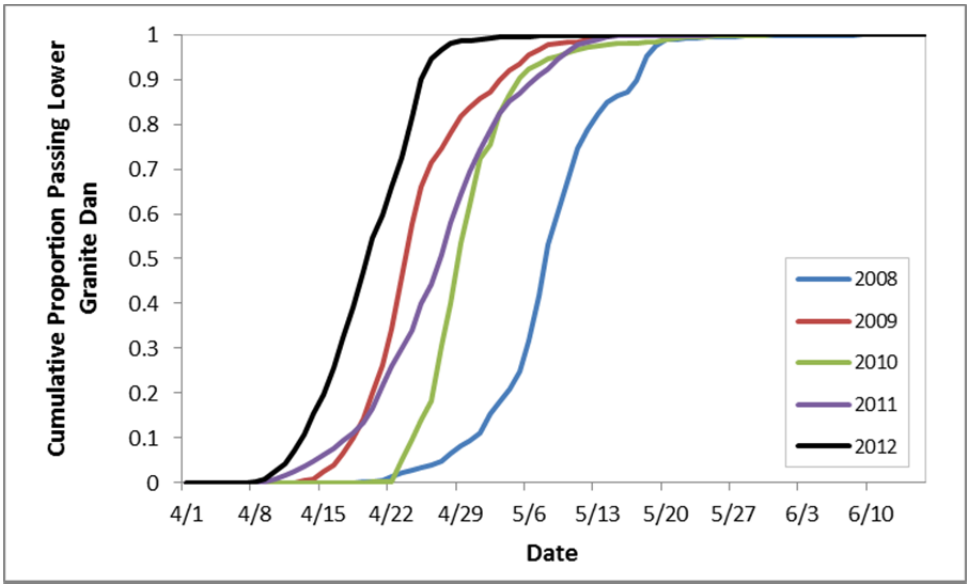

Figure 1. Cumulative passage timing of Pahsimeroi Hatchery yearling summer Chinook to Lower Granite Dam.

Figures 2 and 3 are provided below to illustrate the out-migration conditions that these spring migrants may have experienced in the Snake and Lower Columbia rivers. Figure 2 provides the total spring flow volume (Apr. 3-June 20) for the Snake River (as measured at Ice Harbor), along with the average spring spill proportions at each of Lower Granite, Little Goose, Lower Monumental, and Ice Harbor dams, for each migration year. Figure 3 provides the total spring flow volume (Apr. 10-June 30) for the Lower Columbia (as measured at Bonneville),

along with the average spring spill proportions at each of McNary, John Day, The Dalles, and Bonneville dams, for each migration year.

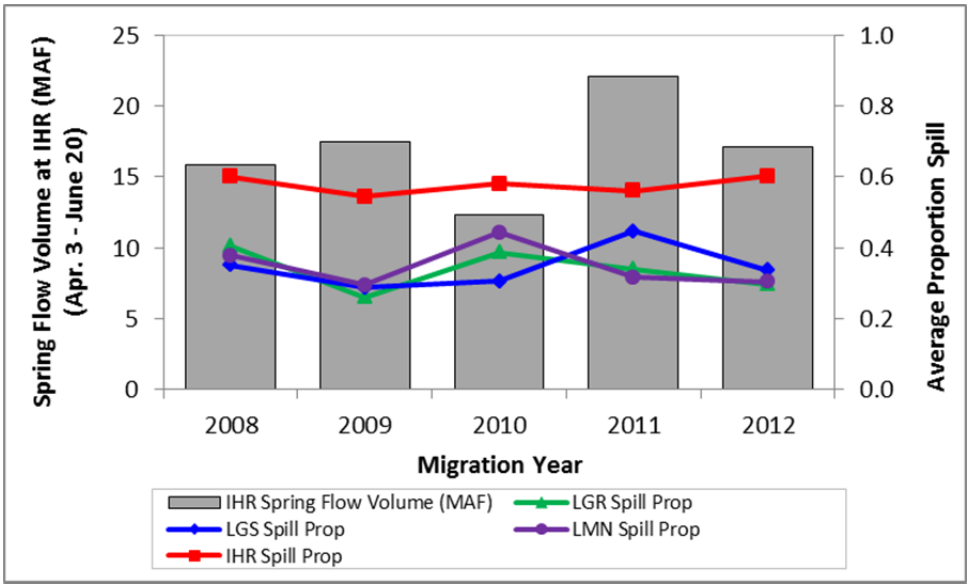

Figure 2. Total spring flow volume in the Snake River (at Ice Harbor Dam) and average spill proportion at Lower Granite, Little Goose, Lower Monumental, and Ice Harbor dams. Spring period in the Snake River is April 3-June 20.

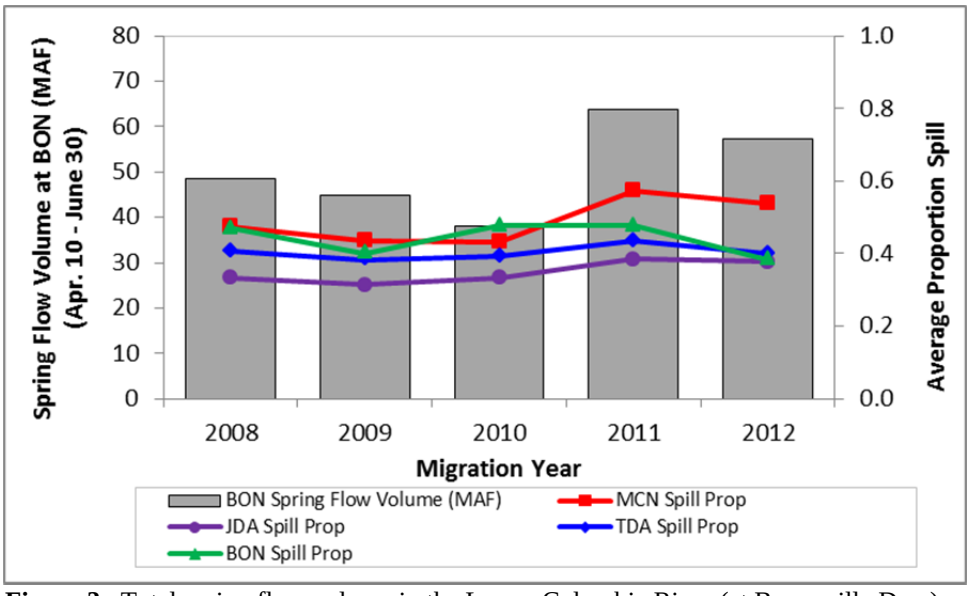

Figure 3. Total spring flow volume in the Lower Columbia River (at Bonneville Dam) and average spill proportion at McNary, John Day, The Dalles, and Bonnevile dams. Spring period in the Lower Columbia River is April 10-June 30.

Finally, the table below contains estimates calculated in the CSS study of juvenile survival in the hydrosystem between Lower Granite and Bonneville Dams and the survival to

adulthood of summer Chinook (Table 3) in several categories. Those categories are SAR(T), SAR(C_0), and Overall $SAR_{LGR\text{-}to\text{-}LGR}$, where SAR(T) represents smolts transported from Lower Granite, Little Goose, or Lower Monumental Dam, SAR(C_0) represents smolts migrating in river (undetected at Snake River transportation collector sites), and the Overall $SAR_{LGR\text{-}to\text{-}LGR}$ is an estimate that is obtained by taking the proportion of the total population of smolts (tagged and untagged) at Lower Granite Dam in each study category and multiplying by the respective study category's $SAR_{LGR\text{-}to\text{-}LGR}$. The Overall $SAR_{LGR\text{-}to\text{-}LGR}$ includes fish that were bypassed during non-transport operations (C_1) and is, in effect, the estimated SAR for the overall hatchery release (without jacks). The data presented in Table 3 were taken from various chapters and appendices of the 2012 CSS Annual Report, which can be downloaded from the FPC webpage http://www.fpc.org/documents/CSS.html.

Table 3. Pahsimeroi Hatchery summer Chinook survivals from CSS, as presented in the 2011 CSS Annual Report.

Release Date(s)	Migration Year [A]	Juvenile Survival (LGR-BON)	Proportion Transported	T/C Ratio	Adult Survival SAR(T) %	Adult Survival SAR(C_0) %	Adult Survival Overall $SAR_{LGR\text{-}to\text{-}LGR}$
3/31	2008	0.51	0.54	1.23	1.53	1.24	1.27
3/30	2009	0.71	0.08	1.62	0.87	0.54	0.55
3/30	2010 [B]	0.52	0.21	N/A	0.33	0.02	0.09
4/1	2011 [C]	0.44	0.21	N/A	N/A	N/A	N/A

[A] Smolt migration year 2008 through 2011 use combined TWS and BWS data
[B] Adult returns for migration year 2010 are incomplete with Age 2-salt adult returns through 9/10/2012
[C] No adult returns to date, only juvenile metrics available for estimation.

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,

Michele DeHart
Fish Passage Center Manager

Cc: Pete Hassemer, IDFG
Brian Leth, IDFG
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