



FISH PASSAGE CENTER

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MEMORANDUM

TO: Charlie Morrill (WDFW)

FROM: Michele DeHart

DATE: January 2, 2019

SUBJECT: Cumulative proportion passage of subyearling Chinook at Lower Granite Dam in late June through July.

At the December 18, 2018 FPAC meeting, you requested additional information regarding subyearling Chinook passage at Lower Granite Dam (LGR), in order to inform a future discussion about possibly initiating truck transportation in mid-July. In response to your request, the Fish Passage Center (FPC) staff has summarized subyearling Chinook passage data from the Smolt Monitoring Program (SMP) at LGR over the last ten years (2009-2018). Specific to your request, we have estimated the cumulative proportion of subyearling Chinook that have passed LGR by the end of June and into July. Below is a brief summary of our findings, followed by more detailed information.

- Over the last ten years, the average proportion of subyearling Chinook that pass LGR by June 30th was approximately 0.824.
- The average proportion of subyearling Chinook that pass LGR increased to 0.867, 0.912, 0.936, and 0.959 by July 7, July 15, July 21, and July 31, respectively.

Methods:

As mentioned above, FPC staff reviewed subyearling Chinook passage data from the SMP at LGR over the last ten years (2009-2018). For each year, we estimated the cumulative proportion of subyearling Chinook that passed LGR by June 30th, July 7th, July 15th, July 21st, and July 31st. Based on these ten years, we also estimated the average cumulative proportion of subyearling Chinook that passed LGR by each of these notable dates.

Results:

Over the last ten years, the proportion of subyearling Chinook that have passed LGR by June 30th has ranged from 0.760 in 2013 to 0.890 in 2009 (Table 1). On average, approximately 0.824 (95% CI: 0.797-0.851) of subyearling Chinook have passed LGR by June 30th (Table 1, Figure 1). The ranges of subyearling Chinook cumulative passage proportions for other notable dates (July 7th, July 15th, July 21st, and July 31st) are provided below (Table 1). In addition, Table 1 and Figure 1 provide estimates of the average proportion passage for each of these other notable dates.

Table 1. Cumulative proportion of subyearling Chinook passing Lower Granite Dam by June 30th, July 7th, July 15th, July 21st, and July 31st for each of the last ten years (2009-2018).

Migration Year	June 30	July 7	July 15	July 21	July 31
2009	0.890	0.936	0.966	0.975	0.984
2010	0.831	0.875	0.913	0.936	0.961
2011	0.838	0.867	0.909	0.937	0.965
2012	0.844	0.880	0.914	0.948	0.967
2013	0.760	0.806	0.859	0.885	0.912
2014	0.806	0.855	0.890	0.917	0.942
2015	0.763	0.800	0.891	0.916	0.943
2016	0.846	0.904	0.947	0.951	0.959
2017	0.791	0.851	0.910	0.957	0.998
2018	0.870	0.893	0.926	0.939	0.962
Average (95% CI)	0.824 (0.797-0.851)	0.867 (0.841-0.893)	0.912 (0.894-0.931)	0.936 (0.920-0.952)	0.959 (0.945-0.974)

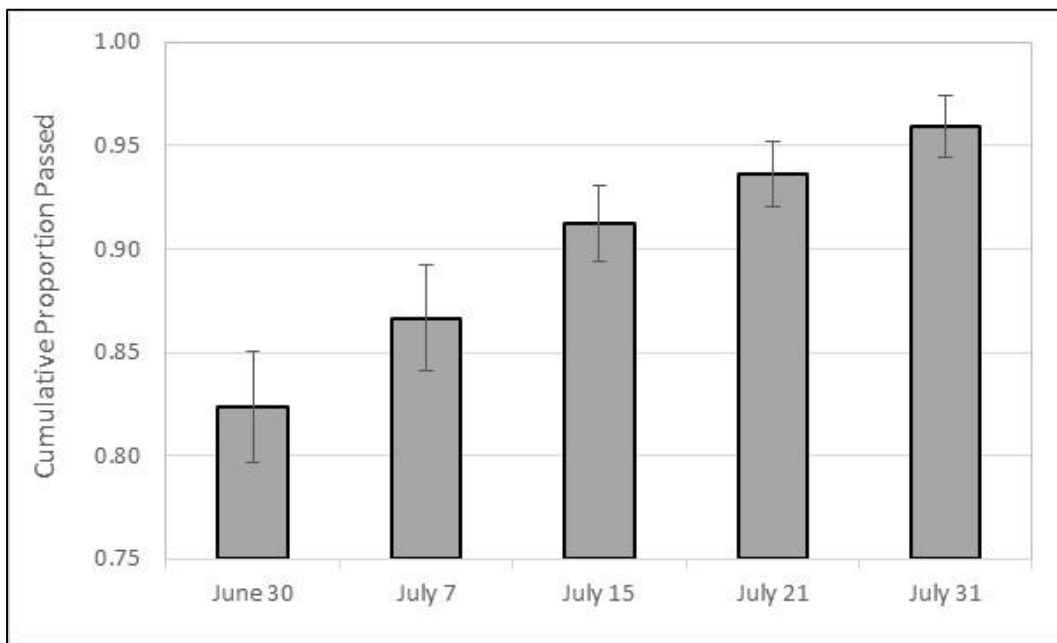


Figure 1. Average proportion (and 95% confidence interval) of subyearling Chinook passing Lower Granite Dam by June 30, July 7th, July 15th, July 21st, and July 31st over the last ten years (2009-2018).