

Priest Rapids Coordinating Committee’s Hatchery Subcommittee
Statement of Agreement

Priest Rapids Hatchery Fall Chinook Fry-to-Smolt Conversion

Submitted to PRCC Hatchery Subcommittee: 6/20/2013 (10 day review period was waived by committee)

Approved by PRCC HSC: 6/25/2013

Submitted to PRCC: June 26, 2013

Approved by PRCC: June 26, 2013

Statement

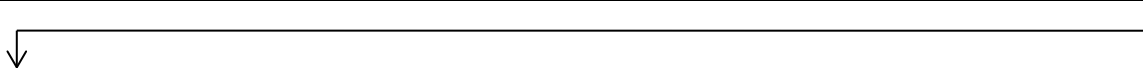
The Priest Rapids Coordinating Committee (PRCC) and PRCC Hatchery Subcommittee (PRCC HSC) agree that Grant PUD’s requirement to produce 1 million hatchery fry at the Priest Rapids Hatchery is converted to 273,961 sub-yearling smolts for annual release into the Columbia River from the Priest Rapids Hatchery. This conversion fully meets the 1 million hatchery fry requirement under the Priest Rapids Salmon and Steelhead Settlement Agreement for the duration of Grant PUD’s license to operate the Priest Rapids Project (P-2114) through 2052.

Background

As part of its obligation under the 2006 Priest Rapids Salmon and Steelhead Settlement Agreement (Part IX), Grant PUD is obligated to produce and release up to 1 million fall Chinook fry annually into the Wanapum and Priest Rapids reservoirs. This requirement is part of Grant PUD’s overall Fall Chinook Protection Program. The fall Chinook Protection Program also includes artificial propagation of 5,325,543 fall Chinook smolts (PRCC HSC SOA 2012-01), implementation of a project passage program and operational measures to protect the run that passes the Project, and implementation of the Hanford Reach Fall Chinook Protection Program Agreement.

The PRCC HSC desires to convert the 1 million fry program to a smolt program due to the potential for low fry survival and resultant reduction in smolt-to-adult returns. Additionally, both the JFP and Grant PUD expressed their desire that a fry-to-smolt conversion be biologically based and use the best available data. During subsequent discussions and analyses at the March, April, May, and June 2013 PRCC HSC meetings, the following conversion methodology was developed:

Hatchery Fry Release	Egg-to-fry Survival (wild)	Eggs needed to produce 1M fry (wild)	Egg-to- presmolt survival (wild)	Presmolts produced from 1.4M eggs	Survival of natural-origin presmolts to McNary Dam (2003-2012)	Number of natural-origin subyearling smolts to McNary Dam
1,000,000	71.2%	1,404,494	40.2%	564,607	32.3%	182,431



Number of natural-origin subyearling smolts to McNary Dam	Survival of Priest Rapids Hatchery-origin subyearling smolts to McNary Dam (2003-2012)	Number of subyearling smolts released from Priest Rapids Hatchery to equal the number of natural-origin subyearling smolts at McNary Dam produced from 1 million Hanford Reach natural-origin fry
182,431	66.6%	273,961

This conversion rate uses egg-to-fry (Oldenburg et al. 2012) and egg-to-presmolt (Harnish et al. 2012) survival estimates for natural-origin fish reared in the Hanford Reach. To complete the conversion from presmolt-to-smolt, survival estimates for both natural-origin (DeHart 2013) and Priest Rapids Hatchery-origin (DeHart 2012) smolts were applied. From these studies, conducted by the Fish Passage Center, the last 10 years of overlapping data (natural- and hatchery-origin) were used. Using the natural-origin survival estimate, an estimated 182,431 smolts would survive to McNary Dam. Given the hatchery-origin survival of 66.6%, an estimated 273,961 hatchery-origin smolts would need to be released to match the number of natural-origin fry surviving to McNary Dam.

References

Dehart, M. 2013. Memo Updating 2007 Analysis of Historical Passage Timing, Travel Times, and Juvenile Survival of Wild Hanford Reach Sub-yearling Chinook to McNary Dam (1993-2012). Fish Passage Center.

Dehart, M. 2012. Memo to Mr. Glen Pearson regarding results from the Priest Rapids Hatchery Smolt Monitoring Program. Dated December 28, 2012. Fish Passage Center.

Harnish, R.A., R. Sharma, G. A. McMichael, R.B. Langshaw, T.N. Pearsons, and D.A. Bernard. 2012. Effects of Priest Rapids Dam Operations on Hanford Reach Fall Chinook Salmon Productivity and Estimation of Maximum Sustainable Yield, 1975-2004. Prepared for: Public Utility District No. 2 of Grant County, Ephrata, WA. Contract Number 430-2464.

Oldenburg, E.W., B.J. Goodman, G.A. McMichael, and R.B. Langshaw. 2012. Forms of Production Loss During the Early Life History of Fall Chinook Salmon in the Hanford Reach of the Columbia River. *Prepared for:* Public Utility District No. 2 of Grant County, Ephrata, WA. Contract Number 430-2464.

Priest Rapids Coordinating Committee Hatchery Subcommittee. 2012. Statement of Agreement 2012-01: Grant PUD Hatchery Production Objectives Release Years 2014-2023.