

**Priest Rapids Coordinating Committee
Statement of Agreement on the Schedule
For Conducting Survival Evaluations**

Submitted to the Priest Rapids Coordinating Committee: September 28, 2011
Approved by the Priest Rapids Coordinating Committee: December 5, 2011

Statement: Per Section 15.6 of the Priest Rapids Salmon and Steelhead Settlement Agreement (Agreement), the Priest Rapids Coordinating Committee agrees to the modified schedule for conducting survival evaluations as identified in Table 1 of this Statement of Agreement (SOA).

- (1) The Priest Rapids Coordinating Committee (PRCC) agrees that the scheduled survival evaluation check-in for juvenile spring Chinook will occur during the spring outmigration of 2014. However, if it is apparent that that the Priest Rapids Top-Spill **will not** be completed and operational by February 2014 the PRCC will modify the attached schedule by September 2013. Grant PUD would then conduct the necessary survival evaluation check-in for spring Chinook during the spring outmigration in 2015.
- (2) The PRCC agrees that survival evaluations for juvenile steelhead will occur over 3 consecutive years (2014, 2015 and 2016) with the first year initiated during the spring outmigration of 2014. If juvenile steelhead standards are met based on a 2 year consecutive average, the PRCC may consider deferring the third year of study. In addition, if juvenile steelhead standards are slightly less than required standards, the PRCC will evaluate future study needs. If it is apparent that that the Priest Rapids Top-Spill **will not** be completed and operational by February 2014 the PRCC will modify the attached schedule by September 2013. Grant PUD would then initiate the first year survival evaluation juvenile steelhead during the spring outmigration in 2015.
- (3) The PRCC agrees that the scheduled survival evaluation check-in for sockeye will occur during the spring outmigration of 2016. This is consistent and does not change the intent or language incorporated into SOA 2011-01 approved by the PRCC on February 16, 2011 (“*Modified Schedule and Funding Agreement for Juvenile Sockeye and Steelhead Survival Studies at the Priest Rapids Project*”).
- (4) The PRCC agrees that survival evaluations for subyearling Chinook in the Priest Rapids Project will not be conducted until after the Priest Rapids Top-Spill is completed and operational and will occur over a three year consecutive timeframe of 2016-2018. If subyearling Chinook standards are met based on a 2 year consecutive average, the PRCC may consider deferring the third year of study, with

a 5 year check-in occurring in 2023. If juvenile subyearling Chinook standards are slightly less than required standards, the PRCC will evaluate future study needs. The PRCC will determine the feasibility (does methodology exist) for conducting subyearling Chinook by September of 2015. The PRCC also agrees that this SOA (SOA 2011-06) supersedes SOA 2009-4 (*2009 Subyearling Chinook Survival Study*), which required Grant PUD to conduct a subyearling evaluation in 2010 if a valid methodology was determined.

- (5) The PRCC agrees that the scheduled check-ins for each species will occur at an interval of 5 years from the conclusion of a survival evaluation. For example, if sockeye survival evaluations are conducted in 2016, the first check-in would be 2021 and every 5 years thereafter for each species.
- (6) The PRCC agrees that an additional year of testing, after the 5 year check-in may be needed based on the results from the first 5 year check-in. Per bullet item #7 below, the PRCC can modify (by consensus) the approved survival evaluation schedule.
- (7) The PRCC, per Section 15.6 of the Agreement, agrees that the survival evaluation schedule can be modified (by consensus) and that all future modifications to the schedule will be documented by a Statement of Agreement.

Background: In 2006, Grant PUD entered into the Priest Rapids Salmon and Steelhead Settlement Agreement (Agreement) with state, federal, and tribal entities. The Agreement constitutes a comprehensive and long-term adaptive management program for the protection, mitigation, and enhancement of both ESA listed (UCR spring Chinook and UCR summer steelhead) and non-listed species (summer and fall Chinook, sockeye and coho), which pass or may be affected by the Priest Rapids Project.

A key element of the Agreement is to achieve steady progress toward meeting performance standards for both ESA listed and non-listed species. Accordingly, an initial survival evaluation schedule was presented in Table 2 of Section 15.6 (New Survival Estimates) of the Agreement. Due to a myriad of factors, including invalidation of study results (juvenile steelhead), lack of technology to measure survival (subyearling Chinook), modifications to the initial schedule (sockeye and yearling Chinook) and the fact that the initial schedule only covers years 2003 through 2011, the PRCC finds it necessary to modify the initial survival evaluation schedule. Language in Section 15.6 of the Agreement allows *“the schedule to be modified (by consensus) and in consultation with the PRCC as needed.”*

Yearling Chinook: Grant PUD conducted PIT tag and 3-D acoustic tag survival evaluations for yearling Chinook salmon in 2003, 2004 and 2005. Survival standards were achieved for yearling Chinook based on the arithmetic 3-year average of the annual estimates (86.59%). A five-year check-in for yearling Chinook survival was scheduled to occur in 2010, however the PRCC deferred the check-in to after the Priest

Rapids Top-Spill was complete, so the committee could focus on juvenile steelhead performance.

Steelhead: In 2006, Grant PUD initiated year 1 of a three consecutive year 3-D acoustic tag juvenile steelhead survival evaluation. Results from the 2006 juvenile steelhead evaluation were invalidated by the PRCC because the evaluation did not achieve the statistical accuracy stated in the Priest Rapids Salmon and Steelhead Agreement, and was not used in NNI Fund recalculations. Results from 2006 were potentially affected by issues such as fish source and quality (Wanapum gatewells), tagger effects, and high total dissolved gas.

In 2007, Grant PUD released three separate groups of acoustic-tagged steelhead below Rock Island Dam to compare survival and migration dynamics of alternative fish sources (Rocky Reach and Wanapum Gatewell) and handling methods. This evaluation was not designed to be a true survival evaluation (only single point release), and served as a test year to correct issues that led to invalidating the 2006 study.

In 2008, using a paired release-recapture methodology, juvenile steelhead survival was estimated through the Wanapum and Priest Rapids developments (dam and reservoir) to be 0.9584 (SE=0.0242) and 0.8635(SE=0.0232), respectively, or 0.8276 (SE=0.0305) through the combined Priest Rapids Project (both developments and reservoirs; Skalski et al. 2009a).

In 2009, using a paired release-recapture methodology, juvenile steelhead survival was estimated through the Wanapum and Priest Rapids developments (dam and reservoir) to be 0.9436 (SE=0.0189) and 0.8806(SE=0.0206), respectively, or 0.8309(SE=0.0256) through the combined Priest Rapids Project (both developments and reservoirs; Skalski et al. 2009b).

In 2010, using a paired release-recapture methodology, juvenile steelhead survival was estimated through the Wanapum and Priest Rapids developments (dam and reservoir) to be 0.8553(SE=0.0186) and 0.9037(SE=0.017), respectively, or 0.7729(SE=0.0223) through the combined Priest Rapids Project (both developments and reservoirs; Skalski et al. 2010).

In the three years of evaluations (2008-2010), the arithmetic mean for juvenile steelhead survival was calculated at 81.05% (for the combined project). Priest Rapids Dam passage survival was estimated at 91.8% (2008), 95.4% (2009) and 96.7% (2010), while Wanapum Dam passage survival was estimated to be 96.4%, 97.3%, and 97.2% for 2008, 2009 and 2010 respectively. Priest Rapids Reservoir passage survival was estimated to range from 89.1% to 91.3% (2008-2010), while Wanapum Dam Reservoir passage survival was estimated to be 85.3%, 91.7%, and 86.7% for 2008, 2009 and 2010 respectively.

Sockeye: Using a paired release-recapture methodology, juvenile sockeye survival through the Wanapum and Priest Rapids developments (dam and reservoir) during 2009 was estimated to be 0.9726 (SE=0.0093) and 0.9460 (SE=0.0114), respectively. During 2009, the juvenile sockeye passage survival estimate through the Priest Rapids Project (both developments and reservoirs) was 0.9201 (SE=0.0142) (Skalski et al. 2009b).

In 2010, juvenile sockeye survival through the Wanapum and Priest Rapids developments (dam and reservoir) was estimated at 0.9408 (SE=0.0138) and 0.9688 (SE=0.0139), respectively. The juvenile sockeye passage survival estimate through the Priest Rapids Project (both developments and reservoirs) in 2010 was 0.9114 (SE=0.0187; Skalski et al. 2010). For the combined Priest Rapids Project, the two year arithmetic mean for juvenile sockeye survival for 2009 and 2010 is 91.4%. This is 4.65% above the required performance standard identified in the Priest Rapids Salmon and Steelhead Settlement Agreement (86.49%).

Subyearling: In 2009, Grant PUD conducted a pilot sub-yearling Chinook in the Priest Rapids development (one dam and reservoir) using the Juvenile Salmon Acoustic Telemetry System (JSATS) acoustic tag, to evaluate the JSATS tag technology and its suitability for conducting a Project-wide sub-yearling survival study. Analyses of the 2009 study indicated similar findings as were seen in the 2008 pilot sub-yearling acoustic tag evaluation. That tag battery-life issue related to the use of an active tag is a limiting factor, due to a variety of life-history strategies seen within a population of sub-yearling Chinook. On November 24, 2009 a sub-yearling Chinook workshop was held to discuss the feasibility of conducting a valid sub-yearling Chinook survival study. Grant PUD and PRCC representatives attended this workshop. Based on information presented at this workshop, the PRCC remains engaged in discussions with Grant PUD on the possibility of conducting a meaningful sub-yearling Chinook survival study in the Project once technology is confirmed. The PRCC was presented with a draft white paper regarding the possibility of conducting a Project wide sub-yearling survival study on September 29, 2010 (<http://www.gcpud.org/prcc/PRCC.htm>).

Table 1. Survival evaluation check-in schedule.

	2003–05	2006	2007	2008	2009	2010	2011	2012	2013	2014 ^A	2015	2016	2017	2018	2019	2020	2021
Spring Chinook	86.6% ¹	.	.	.	.	N/A ²	.	.	.	X ³	.	.	.	.	X ⁴	.	.
Steelhead	.	N/A ⁵	N/A ⁶	81.05% ⁷			.	.	.	X ⁸	X	X ⁹	.	.	.	.	X ¹⁰
Sockeye	.	.	.	91.14% ¹¹			.	.	.	.	.	X ¹²	.	.	.	.	.
Summer Chinook	.	.	.	.	.	.	.	.	.	.	.	X ¹³			.	.	.

^APRCC may need to modify the survival evaluation check-in schedule for spring Chinook and steelhead survival evaluations, if the Priest Rapids Top-spill is **NOT** completed prior to the outmigration in spring of 2014.

¹The arithmetic 3-year average of the annual estimates for yearling Chinook (2003-2005).

²The 5 year check-in for yearling Chinook was not conducted per discussions with PRCC.

³2014 would serve as the 5 year check-in for yearling Chinook and would occur after completion of the Priest Rapids Top-spill.

⁴Yearling Chinook check-in.

⁵Year 1 of the juvenile steelhead was invalidated due to handling and tagging effects.

⁶The 2007 juvenile steelhead evaluation focused on improved handling and tagging methodologies.

⁷The arithmetic 3-year average of the annual estimates for juvenile steelhead (2008-2010).

⁸2014 would serve as the first year of a 3 year consecutive evaluation for summer steelhead and would occur after completion of the Priest Rapids Top-spill.

⁹PRCC may defer the third consecutive year of the juvenile steelhead evaluation if survival standards are achieved over 2 consecutive years.

¹⁰2021 would serve as the 5 year check-in for juvenile steelhead.

¹¹ The arithmetic 2-year average of the annual estimates for sockeye (2009-2010). Year 3 of sockeye survival was deferred to 2016 and would occur after completion of the Priest Rapids Top-Spill.

¹²2016 would serve as the 5 year check-in for sockeye and would occur after completion of the Priest Rapids Top-spill

¹³ During 2016-2018, Grant PUD would conduct three consecutive years of survival evaluations for subyearling Chinook (if feasible).