

**Priest Rapids Coordinating Committee
Statement of Agreement on the Schedule
For Conducting Sub-Yearling Summer Chinook Survival Evaluations**

**Submitted to the Priest Rapids Coordinating Committee: August 28, 2019
Approved by the Priest Rapids Coordinating Committee: September 25, 2019**

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 Project-wide sub-yearling survival evaluations.

- (1) The PRCC agrees that Project-wide survival and behavior evaluations for sub-yearling Chinook, which per Section 15.5 of the Agreement is 'based upon active migrants and does not include natural mortality for sub-yearlings rearing within the Project', are not possible at this time due to the complex life history strategy they exhibit and the current technology limitations. Therefore, the PRCC agrees to defer Project-wide survival and behavior evaluations for sub-yearling Chinook until the next scheduled Project-wide survival studies for yearling Chinook, steelhead, and sockeye in 2025/2026. During the planning for the 2025/2026 survival studies the PRCC will assess the feasibility of conducting performance standard evaluations on sub-yearlings. In the interim, the PRCC will continue to evaluate and/or monitor study designs, tag technology, and life history information to better understand future Project-wide survival study feasibility in 2025, and possible before.
 - a. The PRCC further agrees that the estimate of subyearling survival through the Project will be based on the average of three annual estimates. If performance 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. If juvenile sub-yearling Chinook standards are slightly less than required standards, the PRCC will evaluate future study needs.
 - b. The PRCC also agrees that this SOA 2019-01 supersedes all previous SOA's related to sub-yearling Chinook (SOA 2016-05, SOA 2015-03, SOA 2011-06 and SOA 2009-04).
- (2) 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 (NOAA-Fisheries, USFWS, WDFW, YN, CCT and Grant PUD). The Agreement constitutes a comprehensive and long-term adaptive management program for the protection,

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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), complex life history strategies and technology limitations to measure survival (sub-yearling 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."

Sub-yearling: In 2008, 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 sub-yearling survival study (Sullivan et al. 2008). Although it was determined that there were several limiting factors related to the evaluation (complex life history strategies and battery-life) Grant PUD was able to glean valuable information of the survival of sub-yearling Chinook that were detected in the forebay of Priest Rapids Dam.

In the 2009 pilot study evaluation, (McMichael et al. 2010), with a virtual release of tagged fish detected in the Priest Rapids Dam forebay, the dam passage survival estimate was 94%.

On June 21, 2016 a "sub-yearling Chinook workshop" was conducted for the PRCC and HCP committees. Key information regarding sub-yearling summer Chinook included statistical survival models, applicable advancements in active-tag technology, and sub-yearling life histories since 2013. Based on the information presented at the workshop, the consensus was that conducting a valid Project survival study for sub-yearling summer Chinook is not possible at this time.

In the summer of 2019, the feasibility of conducting Project-wide survival studies on sub-yearlings was revisited. Key topics from the 2016 workshop were reviewed including life-history, tag technology, and statistical models. From these discussions the committee concluded that conducting a valid Project survival study on actively migrating sub-yearling Chinook remains unfeasible at this time. The challenges associated with conducting a Project-wide Performance Standard study include (1) the size of sub-yearlings and the associated tag burden, (2) the duration of tag batteries, (3) the inability to limit the study to active migrants, and (4) the limitations of mark-recapture survival models to isolate the mortality of active migrants. The committee agreed to revisit the issue in the lead up to planning for the next scheduled survival studies in 2025/2026 and agreed that at any time committee members may reinitiate discussion on sub-yearling survival studies.

Citations:

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McMichael, G.A., R.A. Buchanan, B.J. Bellgraph, K.A. Deters, J.A. Carter, J.R. Skalski, E.V. Arntzen, J.P. Duncan, A. Solcz, K.D. Ham. 2009. Subyearling Chinook Salmon Fate Determination Pilot Study in Priest Rapids Pool, 2009. Draft report by Battelle-Pacific Northwest Division and Skalski Statistical Services for Public Utility District No. 2 of Grant County, Ephrata, WA.

Sullivan, L.S., C.D. Wright, S.E. Rizor, M.A. Timko, C.A. Fitzgerald, M.L. Meagher, J.R. Skalski and R.L. Townsend. 2008. Analysis of juvenile Chinook, steelhead and sockeye salmon behavior using acoustic tags at Wanapum and Priest Rapids dams, 2008. Draft report by Hydroacoustic Technology, Inc., Seattle, WA for Public Utility District No. 2 of Grant County, Ephrata, WA.

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