

SOA 2021 - 05

Priest Rapids Coordinating Committee Hatchery Subcommittee Statement of Agreement on Methods for 2023 NNI Hatchery Recalculation

Statement

The Priest Rapids Coordinating Committee Hatchery Subcommittee approves the following methodology for the population dynamics “adjustment of hatchery compensation” scheduled to occur in 2023 as described by the Priest Rapids Settlement Agreement.

Under this methodology, total hatchery compensation will reflect unavoidable project mortality to (1) hatchery-origin smolts and (2) natural-origin smolts where:

Compensation for hatchery-origin smolts will be based upon the 2024-2033 projected annual release targets for those hatchery programs subject to NNI. Compensation will be determined by multiplying the annual release targets of the subject hatcheries by the unavoidable project mortality for each hydro project. Presently, there is no consensus on which hatchery programs are subject to NNI. However, a sensitivity analysis or some other method that is agreed upon by members will be used to calculate final mitigation numbers to address the lack of consensus on which hatchery programs are subject to NNI.

Compensation for natural-origin smolts at each Project will be determined using the Biological Assessment and Management Plan (BAMP) methodology, where average returns of natural-origin adults to each project will be divided by the respective juvenile project survival rates to represent the number of adults that would have returned to each project absent unavoidable mortality. The difference between this result and the average observed returns will represent the number of adult equivalents required to meet NNI. As the final step, adult equivalents will be converted to hatchery smolt production numbers required to meet NNI by dividing the number of adult equivalents by the average hatchery-specific smolt-to-adult returns (SARs).

Background

The Priest Rapids Settlement Agreement requires periodic adjustment of NNI hatchery compensation rates to account for population dynamics, unavoidable project losses, and hatchery performance. Current hatchery production levels calculated in 2013 expire in 2023, with the recalculated production levels applying to smolt release years 2024 - 2033.

This SOA covers only the overarching methodology of calculating NNI hatchery compensation levels as a necessary prerequisite to a subsequent SOA documenting the selection of data to be used for recalculation, which populations and hatchery programs are subject to NNI, and ultimately what levels of NNI hatchery compensation are required to meet NNI during smolt release years 2024 - 2033. Under the methods proposed herein, natural-origin and hatchery-origin fish contribute to the “populations” that are subject to NNI and receive hatchery compensation.

For hatchery-origin smolts, the population size is not derived but instead relies simply on the projected annual program hatchery release numbers for 2024-2033, for those hatchery programs subject to NNI. The use of projected hatchery release numbers as the hatchery population reflects the contemporary management/conservation objectives and production levels for the subject hatcheries.

For natural-origin fish the “population” is the average number of natural-origin adults passing the Priest Rapids Projects during the past recalculation period. Achieving hatchery compensation for the natural-origin population is based on the original BAMP calculation but uses a more robust approach:

$$\text{Adult Equivalents/Average SAR} = \text{NNI Smolts}$$

where Adult Equivalents will be the number of additional natural-origin adult returns expected in the absence of a Project, and SAR is the average SAR of the hatchery facility that will provide the mitigation.