

SOA 2010-01

**Priest Rapids Coordinating Committee Hatchery Subcommittee  
Statement of Agreement on Rearing Density Assumptions for Facility Design Purposes for the  
Nason Creek Facility for Wenatchee Spring Chinook.**

**Submitted to PRCC Hatchery Subcommittee:** February 4, 2010

**Approved by PRCC Hatchery Subcommittee:** February 18, 2010

**Approved by PRCC:** The PRCC was consulted and determined that they do not need to approve this SOA

**Statement**

For the purposes of facility planning and design the HSC agrees that Grant County PUD will use a Bacterial Kidney Disease (BKD) management strategy similar to the strategy outlined in *Appendix 1—BKD Management of the Final Draft HCP Hatchery Committee Wenatchee spring Chinook HGMP*, dated August 2009. This strategy calls for provisions to rear up to 20 percent of natural origin fish at a lower density (0.06 density index) and higher flow (0.60 flow index) if ELISA OD values are between 0.12 and 0.19 (see table below).

The natural origin portion of the Nason Creek program is 125,000; 20 percent of this part of the program is 25,000. The HSC agrees that these numbers will be used by Grant County PUD in design assumptions for the Nason Creek facilities, including assumptions about facility capacity, the number of vessels needed, and vessel size. The HSC further agrees that an additional 10% of rearing space will be provided in the design for each high and low density group.

These criteria are for facility planning and design. Program implementation will yield additional data, which may result in adaptive management and changes to this BKD management strategy.

**Background**

*Appendix 1—BKD Management of the Final Draft HCP Hatchery Committee Wenatchee spring Chinook HGMP*, dated August 2009 establishes a three-part BKD management strategy relying on prevention, treatment, and replacement based on the Hatchery Scientific Review Group (HSRG) recommendations and program data from the Chiwawa spring Chinook program. This document makes some changes to the Chiwawa spring Chinook BKD management strategy to provide additional flexibility for fish health professionals to take appropriate actions in response to conditions in any give year.

The prevention aspects of the BKC management program include but are not limited to the following. The prevention aspects of the program assume culling may take place; however final decision on management or disposition (e.g. culling, marked sub-yearling releases, etc.) of progeny of higher ELISA adults will be determined by the HSC on an annual basis as needed.

- Prophylaxis: Female (hatchery- and natural-origin) spring Chinook broodstock will be injected, prespawning with an appropriate antibiotic (e.g., azithromycin at 40 mg/kg fish) and the resulting eggs will be surface disinfected with an iodophor.

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- Screening (present): Female broodstock will be assayed (ELISA) to determine titer score [e.g., optical density (OD)].
- Culling titer progeny of  $OD \geq 0.12$ : Hatchery-origin eggs/progeny with ELISA titers of  $OD \geq 0.12$  will be culled from the program.
- Rearing titer progeny of  $OD \geq 0.12$ : Natural-origin eggs/progeny with ELISA titers of  $OD \geq 0.12$  will be raised at lower density of 0.06.
- Culling titer progeny of  $OD > 0.19$ : All hatchery- and natural-origin eggs/progeny with ELISA titers of  $OD > 0.19$  should be culled from the program.
- Screening (future): Evaluation of emerging technology to provide non-lethal BKD screening (e.g., near infrared spectroscopy and genetic tests) as these tools become commercially available.

The treatment aspects of the program include but are not limited to the following.

- Prophylactic Treatment: Prophylactic treatment for BKD management in juveniles will be prescribed by the fish health specialist for any lot or population aggregate as deemed necessary based upon a risk assessment performed by fish health. Subsequent prophylactic treatments should be repeated if the probability for continued risk for BKD persists.
- Therapeutic Treatment: Therapeutic treatment for BKD management in juveniles will be prescribed by the fish health specialist for any lot or population aggregate as deemed necessary based upon a risk assessment performed by fish health. Subsequent therapeutic treatments should be repeated if the probability for continued or elevated mortality persists or as deemed necessary by fish health.
- Rearing Density: Adequate facilities to rear up to 20 percent of the program at a lower density (0.06 density index). The low density rearing environment would be designated for natural origin fish with titers of  $0.12 \leq OD \leq 0.19$ . When less than 5 percent of the program production is in the  $0.12 \leq OD \leq 0.19$  titer range, pending HSC approval, other release/rearing options may be implemented (i.e. marked subyearling releases, etc.). Discretionary utilization of rearing space made available by this action may be repurposed, in the short term, for other programs and/or projects.

The replacement aspect of the program involves collecting up to 20 percent extra hatchery-origin spring Chinook females to meet any production shortfalls related to culling titer fish of  $OD > 0.19$ .

The total Nason Creek program is 250,000, of which half are hatchery-origin safety net program. The following table describes flow and space targets for different life-stages that will be part of the Nason Creek hatchery production based on assumed egg incubation of 339,500 eggs (~81.0% unfertilized egg-to-release survival) from 86 females (~90% transfer-to-spawning survival and 4,400 eggs/female) and 91 males (~85% transfer-to-spawning survival and 1-to-1 spawn ratio) held in 8 cf/fish with a flow of 1 gpm/fish, transfer of 289,475 fish (~95% transfer-to-release survival) from rearing at 25 fpp (~5.13 in), and acclimation release of up to 275,000 fish at 15 fpp (6.08 in).

	<i>Peak Minimum Flow (cfs)</i>	<i>Water Type</i>	<i>Peak Minimum Space (cf)</i>
Nason Creek portion of broodholding/incubation	0.39	Ground / Treated Surface	1,416
Rearing, low BKD (FI=0.75, DI=0.125)	6.7	Ground / Treated Surface	18,057
Rearing, high BKD (FI=0.60, DI=0.060)	8.4	Ground / Treated Surface	37,619
Final acclimation/release (FI=0.60, DI=0.060)	11.2	Surface	50,256