# SYSTEM OPERATIONAL REQUEST: #2007-3

***The following State, Federal, and Tribal Salmon Managers have participated in the preparation and support this SOR: U.S. Fish & Wildlife Service, Oregon Department of Fish and Wildlife, the Washington Department of Fish and Wildlife, NOAA Fisheries, Shoshone-Bannock Tribes, and the Columbia River Inter-Tribal Fish Commission (Due to the 2007 Operations Agreement between BPA and the CRITFC Tribes, we cannot support the SOR but will not oppose the SOR).***

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| **TO:** | **Brigadier General Gregg F. Martin** | **COE-NWD** |
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**FROM:** **Tom Lorz, Vice Chairperson, Salmon Managers**

**DATE:** **March 9, 2007**

**SUBJECT**: Bonneville Dam Operations

**SPECIFICATIONS**:

Beginning immediately, spill at Bonneville Dam to provide an alternate route of passage from the bypass system in order to spread-the risk at the project. Continue the spill operation until the Bonneville Dam bypass system has been eliminated as a source of the recent increased mortality rates for listed Spring Creek National Fish Hatchery subyearling fall chinook. Spill a minimum of 85 Kcfs at Bonneville Dam, using a minimum 2-foot spill gate opening at each spillbay. Continue until 95% of the Spring Creek hatchery releases have passed, likely this will occur by Wednesday morning March 14, 2007.

**JUSTIFICATION:**

The Spring Creek National Fish Hatchery released 6.6 million subyearling fall chinook smolts on March 5, 2007 and 1.2 million on March 9, 2007. Smolt Monitoring Program personnel at the site reported unusually high mortality in the Spring Creek smolts collected at Bonneville Dam (see Table 1). They reported 4.5% mortality on March 8, and 8% mortality on the 9$^{th}$. Typically the mortality rate is 1 to 1.5%. No immediate cause of the mortality was apparent. The COE inspected gatewells and orifices on March 8 and 9 and found no blocked orifices, or dead fish in gatewells, or other likely cause for mortality. The COE also reported no visible dead fish in forebay of Powerhouse 2. The COE are continuing inspections on March 9 to determine other possible causes of mortality.

Dead fish obtained from the sample on March 8, were examined at the USFWS health lab at Spring Creek NFH and were found to show no obvious signs of disease or injury. Therefore, the cause of the mortality is unknown at this point. SMP personnel report that most mortalities were neutrally buoyant when they entered the sample tank, possibly indicating mortality had occurred within a relatively short time period prior to arriving in the tank. A few fish were seen to have eyes missing or other trauma in the March 9 sample.

Table 1. Summary of SMP data related to mortalities in Sample

| Sample Date | Passage Index | Sample Count | Descaling Exams | Number Descaled | Sample Morts | Facility Morts | Percent Facility Morts |
|---|---|---|---|---|---|---|---|
| 03/03/07 | 9 | 1 | 1 | 0 | 0 | 0 | 0% |
| 03/04/07 | 26 | 3 | 3 | 0 | 0 | 0 | 0% |
| 03/05/07 | 8 | 1 | 1 | 0 | 0 | 0 | 0% |
| 03/07/07 | 106,076 | 318 | 313 | 0 | 0 | 5 | 2% |
| 03/08/07 | 429,248 | 1,292 | 1,236 | 0 | 1 | 55 | 4% |
| 03/09/07 | 298,932 | 878 | 804 | 0 | 2 | 72 | 8% |

Facility Morts are those fish that were dead prior to entering the sample tank, while sample morts died while in sample tank or during sampling.

It would be prudent, given the significant numbers of juvenile fall chinook that are passing the project, to provide an alternate route of passage, that is not associated with the bypass. Current projections for flows at Bonneville Dam over the next four days range from 160 to 214 Kcfs (3/06/07 STP run). Flows of 160 kcfs would translate to a 14.5 ft. tailwater elevation. This would provide 1.5 ft. of depth compensation for chum redds located at the current management level of a 13 ft. Bonneville Dam tailwater elevation. Based on the SYSTDG modeling provided by the COE, a 75 kcfs level of spill under a total discharge of 150 kcfs would result in dissolved gas levels of 106.4-108.3%. The COE modeling suggests that flows of 160 kcfs would provide sufficient depth compensation for the chum redds below Bonneville Dam. Flows of 160 kcfs or greater would additionally lower gas levels and provide more protection against gas supersaturation than the COE model runs using 150 kcfs. Consequently a minimum of 85 Kcfs appears possible under current conditions.