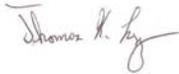


## **SYSTEM OPERATIONAL REQUEST: #2012-2**

*The following State, Federal, and Tribal Salmon Managers have participated in the preparation and support this SOR: US Fish and Wildlife Service, Oregon Department of Fish and Wildlife, Washington Department of Fish and Wildlife, the Idaho Department of Fish and Game, the Colville Tribes, and the Columbia River Inter-Tribal Fish Commission.*

|            |                                  |                                     |
|------------|----------------------------------|-------------------------------------|
| <b>TO:</b> | <b>Brigadier General McMahon</b> | <b>COE-NWD</b>                      |
|            | <b>James D. Barton</b>           | <b>COE-Water Management</b>         |
|            | <b>Doug Baus</b>                 | <b>COE-RCC</b>                      |
|            | <b>David Poganis</b>             | <b>COE-PDD</b>                      |
|            | <b>Karl Kanbergs</b>             | <b>COE-NWD-NP-WM-RCC</b>            |
|            | <b>Col. Bruce A. Estok</b>       | <b>COE-Seattle District</b>         |
|            | <b>Lorri Lee</b>                 | <b>USBR-Boise Regional Director</b> |
|            | <b>Steven Wright</b>             | <b>BPA-Administrator</b>            |
|            | <b>Tony Norris</b>               | <b>BPA-PGPO-5</b>                   |
|            | <b>Scott Bettin</b>              | <b>BPA- KEWR-4</b>                  |
|            | <b>Steve Oliver</b>              | <b>BPA-PG-5</b>                     |
|            | <b>Lori Bodi</b>                 | <b>BPA-KE-4</b>                     |



**FROM:** Tom Lorz, FPAC Vice-Chair

**DATE:** May 29, 2012

**SUBJECT:** Bonneville Operations

**OBJECTIVE:** To Reduce Descaling of Sockeye at Bonneville Dam

**SPECIFICATIONS:** In accordance with the 2012 Fish Passage Plan, Section 5.2.1, the Salmon Managers are requesting that Bonneville Powerhouse Two be operated to the lower end (25%) of the 1% range in an effort to minimize sockeye descaling and potential future mortality associated with that descaling. Operate Bonneville Dam Powerhouse Two at the lower 1% range (25% of the 1% range) while operating Powerhouse One within the 1% Efficiency Range, and spilling the balance of water up to Bonneville Tailrace Total Dissolved Gas Cap. This operation should be implemented immediately and remain in place until the Salmon Managers have reviewed the available Smolt Monitoring Data to determine the juvenile sockeye run has passed Bonneville Dam.

## JUSTIFICATION:

Previously, the Salmon Managers requested Bonneville to limit the operation of PH2 to 25% and not more than 50% of the 1% efficiency range in conjunction with trying to operate PH1 within the 1% efficiency range to protect Sockeye at Bonneville Dam. Given prior flows and TDG constraints, the Action Agencies were unable to fully implement the Managers request, but the steps taken did help reduce mortality and descaling. However, at this point in time the Salmon Managers believe that present flows and TDG should not be a significant constraint to meeting the proposed objectives to protect Sockeye.

The operations begun last week at Bonneville following the TMT discussion reduced mortality at Bonneville Dam; however descaling rates remained elevated. Mortality rates for juvenile Sockeye sampled at Bonneville Dam have been lower over the past 5 days of sampling (Table 1). However, descaling percentages have remained elevated with descaling rates at or above 14% in the sample on May 28 and May 29. Descaling does impact subsequent juvenile survival as research studies have shown decreased survival in migrating juvenile salmon (Hostetter et al. 2011). In addition, descaling has been associated with delayed mortality of fish sampled at juvenile bypass systems (Hawkes et al. 1992).

**Table 1. Sockeye Mortality and Descaling in Bonneville Powerhouse Two samples for the dates May 20 to May 29, 2012.**

| Sampledate | Sample count | Morts | Pct. Morts | Exams Descaling | Descaled | Pct. Descaled |
|------------|--------------|-------|------------|-----------------|----------|---------------|
| 5/20/2012  | 44           | 0     | 0.00%      | 44              | 10       | 22.7%         |
| 5/21/2012  | 29           | 0     | 0.00%      | 29              | 7        | 24.1%         |
| 5/22/2012  | 58           | 4     | 6.90%      | 54              | 9        | 16.7%         |
| 5/23/2012  | 65           | 6     | 9.23%      | 59              | 14       | 23.7%         |
| 5/24/2012  | 64           | 5     | 7.81%      | 59              | 12       | 20.3%         |
| 5/25/2012  | 28           | 0     | 0.00%      | 28              | 2        | 7.1%          |
| 5/26/2012  | 53           | 0     | 0.00%      | 53              | 6        | 11.3%         |
| 5/27/2012  | 81           | 2     | 2.47%      | 79              | 6        | 7.6%          |
| 5/28/2012  | 58           | 1     | 1.72%      | 57              | 9        | 15.8%         |
| 5/29/2012  | 34           | 0     | 0.00%      | 34              | 5        | 14.7%         |

The 2012 Fish Passage Plan stipulates in Bonneville section 5.2.1 that “Turbine units at PH2 will operate at the mid to lower 1% range (unless total dissolved gas waivers are exceeded in the tailrace) of best efficiency and within cavitation limits at various head ranges as shown in **Table BON-16.**” Therefore, this requested operation is in accordance with the 2012 Fish Passage Plan.

## Literature Cited

Hawkes, L.A., R.D. Martinson, and W.W. Smith. 1992. Monitoring of downstream salmon and steelhead at federal hydroelectric facilities – 1991. Annual Report to Bonneville Power Administration, Contract No. DE-AI79-85BP20733.

Hostetter, N.J, A. F. Evans, D. D. Roby, K. Collis, M. Hawbecker, B. P. Sandford, D. E. Thompson & F. J. Loge (2011): Relationship of External Fish Condition to Pathogen Prevalence and Out-Migration Survival in Juvenile Steelhead, Transactions of the American Fisheries Society, 140:5, 1158-1171