

SYSTEM OPERATIONAL REQUEST: #99-15

- *The following State and Federal Salmon Managers have participated in the preparation of this SOR: Oregon Department of Fish & Wildlife, U.S. Fish & Wildlife Service, Washington Department of Fish and Wildlife, Idaho Department of Fish & Game, National Marine Fisheries Service and Columbia River Inter-Tribal Fish Commission.*

TO: **Brigadier General Griffin** **COE-NPD**
 William Branch **COE-Water Management**
 Cindy Henriksen **COE-RCC**
 Bolyvong Tanovan **COE-RCC**
 Doug Arndt **COE-P**
 Col. R. Slusar **COE-Portland District**
 Lieut. Col. W.E. Bulen, Jr. **COE-Walla Walla District**
 Steve Clark **USBR-Boise Acting Regional Director**
 Judith Johansen **BPA-Administrator**
 Greg Delwiche **BPA-PG-5**

Marvin S. Yoshinaka

FROM: **Marv Yoshinaka, Chairperson, Salmon Managers**

DATE: **June 29, 1999**

SUBJECT: **John Day Dam Spill**

SPECIFICATIONS:

Implement the following spill test beginning June 30, 1999.

Increase spill to 120 kcfs with a corresponding tailwater reduction to, or below, 163' MSL for a normal 12-hour spill period. This can be accomplished by lowering The Dalles Dam forebay to 155' (but not below) as previously discussed in TMT and the Water Quality Team. Implement this operation if TDG levels remain at or below 120% at the tailwater monitor. The John Day Dam tailwater monitoring station should be calibrated immediately prior to the test.

JUSTIFICATION:

Subyearling chinook passage is currently increasing rapidly at the John Day project. The daily smolt monitoring subyearling chinook passage index has increased significantly and is currently near 300,000. Using standard survival and fish passage parameters the difference in project survival between spill volumes of the current 70 and the proposed 120 kcfs (at a 300 kcfs total flow) is estimated at about 0.9%. The higher survival at 120 kcfs spill is due entirely to a higher percentage of fish passing through the turbine units. The smolt-monitoring index is not a population estimate (it is not expanded for FGE). However, if used as such, the difference in spill volumes would result in well over two thousand additional juvenile chinook surviving

passage at this project each day if spill were increased to 120 kcfs. Given the low FGE (32%) and the reluctance for fish to pass through low volumes of spill, the actual number may be twice as high. A 25% minimum spill was established to minimize tailrace predation, a mortality factor that is usually at its peak in the late June - early July time period.

The 1995 Opinion Reasonable and Prudent Alternative #2 establishes an 80% FPE goal for all eight Corps projects. The 1998 Supplemental Opinion increases spill up to the dissolved gas caps. This additional spill was intended to aid system wide juvenile fish passage by increasing spill at projects where the 80% FPE goal could be exceeded without exceeding the gas cap to compensate for projects where spill was constrained below the 80% FPE goal by the gas cap. Even with the requested 120 kcfs night spill, subyearling FPE at John Day Dam is calculated at about 54% (24 hour spill would increase this, but it is not currently a management action).

In addition, based on the Corps' performance curves and 1998 near-field TDG tests for the John Day deflectors, the 1998 Supplemental Opinion estimated that John Day spill would be approximately 180 kcfs. The request for 120 kcfs is well within the levels of John Day spill agreed to by the action agencies in the 1998 consultation.

Based on the Corps' tailwater curve for John Day Dam, at a total river flow of 400 kcfs, a drop of the forebay at The Dalles from el. 159 to el. 155 ft would result in a drop in the John Day tailrace from el. 166.5 to el. 164.5. As total river flow decreases, the magnitude of JDA tailrace drop increases for a given TDA forebay drop. Given this, dropping the TDA forebay to el. 155' should bring the John Day tailrace down at least two feet, to the requested elevation of el. 163'. The discharge flow for which there would be no tailwater influence for a change in the forebay elevation at TDA would be over 700 kcfs, according to the same curve.

This operation is feasible from both biological and physical standpoints, is within existing Biological Opinion measures, and its implementation meets all regional requirements.