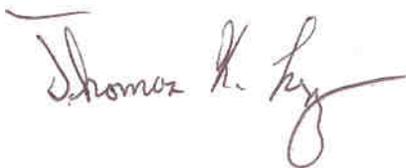


SYSTEM OPERATIONAL REQUEST: #2005-21

The following Federal and Tribal Salmon Managers have participated in the preparation and support this SOR: U.S. Fish & Wildlife Service, Nez Perce Tribe, Shoshone-Bannock Tribes, and the Columbia River Inter-Tribal Fish Commission.

TO:	Colonel Gregg F. Martin	COE-NWD
	James D. Barton	COE-Water Management
	Cathy Hlebechuk	COE-RCC
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	LTC Randy L. Glaeser	COE-Walla Walla District
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	Stephen J. Wright	BPA-Administrator
	Steve Oliver	BPA-VP Operation Supply



FROM: Tom Lorz, Vice Chair, Salmon Managers

DATE: December 6, 2005

SUBJECT: To provide the best spawning and incubation conditions possible below Bonneville Dam to:

- protect the natural spawning chum and fall Chinook salmon at the Ives/Pierce Island Complex, Multnomah Falls, and to partly influence the condition at the I-205 seeps;
- and to better assure meeting the April 10 upper rule curve for the spring out-migration of listed fish.

SPECIFICATIONS:

1. If the Salmon Managers determine that significant superimposition is occurring and that the population size of spawning chum at the Ives Island complex warrants additional spawning habitat based on the ongoing field monitoring programs, and consideration of other salmon flow needs, beginning on or about December 1, 2005 (dependent on in-season field monitoring) increase instantaneous tailwater elevation up to 13.5 feet (range from 13.3-13.7) at Bonneville Dam.
2. If the tailwater is increased to the 13.2-13.7 range in December, then beginning on or about January 1, 2006 (dependent on the cessation of spawning), provide a minimum

- instantaneous tailrace elevation of 13.0 feet (range 12.8-13.2) at Bonneville Dam through incubation and emergence.
3. Maintain Grand Coulee Dam at upper rule curve elevations throughout the winter and spring, except as needed to achieve the Bonneville tailwater elevation, as described above, subject to the regular check-ins shown under number 4 below.
 4. Check in regularly to review the present operations, the difference between observed flows and those needed to achieve the tailwater elevations determined above, and the probability of being on upper rule curve on April 10, 2006. It is the intention to maximize the probability of achieving spring flow targets by being at upper rule curve on April 10.

JUSTIFICATION:

The Ives/Pierce Islands Complex below Bonneville Dam represents a limited and critical natural spawning area for ESA listed Columbia River chum and unlisted Lower Columbia River bright fall Chinook. Mainstem chum salmon spawning numbers have been trending downwards the past three years, especially in the Ives Island area (TMT 10-19-05). The NMFS 2004 Biological Opinion (BiOp) recognizes that access to spawning habitat in the Ives/Pierce area and Hardy and Hamilton creeks is primarily a function of the water surface elevation. More so, the BiOp and experience over the last 5 years recognizes that managing water levels to a tailwater gage height rather than a flow level is preferable.

The provision of a minimum 11.5-foot tailwater elevation at Bonneville Dam will provide access to a limited area of mainstem spawning habitat for chum salmon and allow unrestricted access to Hardy and Hamilton creeks. However, the issue of superimposition of redds has been a concern over the last few years of restricting chum spawning to the 11.5 foot tailwater elevation. The Salmon Managers may use the weekly counts coupled with a GIS analysis to determine when, and if, redds start to superimpose (the time of most concern is expected to begin approximately December 1). If superimposition is an issue the Salmon Managers will request to operate based on our past modeling efforts and on site knowledge of the area and impacts to other salmon flow needs, to a tailwater operation of 13.5 feet. Past habitat and flow modeling efforts conducted by the USGS and USFWS showed that at a tailwater of 13.5 ft water begins to flow through a second channel adjacent to the north shore of Ives Island. This was confirmed during USGS flows tests in 2004. This channel is dry at 11.5 ft, but at 13.5 ft provides chum salmon spawning habitat as evidenced by its use in 1998 and 1999 under higher flows in those years. Based on USGS's work at 13.5 ft in 2004, water velocities in much of the primary spawning area below the mouth of Hamilton Creek are near, or exceed, the suitability criterion for chum salmon. Therefore, an elevation of 13.5 ft should discourage additional spawning in this area and promote spawning in the channel on the north side of Ives Island as intended by this operation. Even if the some of the redds associated with the 13.5 operation are subsequently dewatered, the net effect should be increased overall production.

A review of the past ten years' of flow information has indicated that in 7 of ten years the operation could proceed without incident if Grand Coulee is operated to upper rule curve, except to draft to meet the chum elevations, and still meet the April 10 elevation. In 2002, the 13.5-foot tailwater had to be reduced to 13.0 feet on December 12th, however the 13.0-foot tailwater could

be maintained until April 10th. In 2005 some redds would have been dewatered, but it was not necessary to drop all the way down to the 11.5 foot elevation (had to reduce the tailwater down to 12.0 feet in mid February). In 2001, the tailwater at Bonneville would have had to drop to 11.5 feet in approximately mid December, however the 11.5-foot elevation could have been met all the way through emergence and the reservoir would have reached to the April 10 elevation.

Managers should consider a balance between flood control, power drafts, and the ability to achieve spring flow objectives and reservoir refill. With unstable water years and water supply forecasts, the April 10 objective may not be met if operators use all of their flexibility for power operations early in the season. Based on the past several years, chum operations by themselves; do not appear to impact refill.