SYSTEM OPERATIONAL REQUEST: #98-26

TO:	**Brigadier General Griffin**	**COE-NPD**
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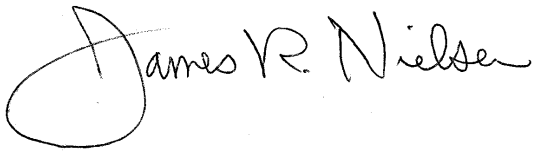

FROM: **Jim Nielsen, Chairperson, Salmon Managers**

DATE: **July 7, 1998**

SUBJECT: **Operations at Brownlee through August 31**
Operations at Dworshak through August 31
Operations at Grand Coulee, Hungry Horse, and Libby through August 31

SPECIFICATIONS:

All Projects

- All of the requested operations are based upon flow and operations projections provided by the federal operators and regulators. If projected conditions change significantly, Jim Nielsen, WDFW, or the Fish Passage Center should be contacted. Questions regarding the request should be referred to Jim Nielsen or the Fish Passage Center.

Dworshak

- Operate Dworshak at 10 kcfs through July 12. Regulate outflow to the present temperature of about 53°F.
- Operate Dworshak at 14 kcfs July 13 through August 31 to reach elevation 1520 feet by August 31. Beginning on July 13, decrease temperature from Dworshak to 50°F at a rate of no more than 1°F per day, until notified otherwise.

Brownlee

- Once flows recede, maintain Hells Canyon at 25 kcfs to draft 237 KAF from Brownlee, plus shape an estimated 132 KAF of the USBR's 427 KAF delivery by July 31. Pass inflow August 1 through 31.

Libby

- Operate Libby to release 15 kcfs for the week ending July 12. Beginning July 13, draft Libby at a steady rate (approximately 18-19 kcfs) to elevation 2439 feet by that date in August that allows the full amount of water to reach McNary Dam by August 31 (i.e. allow

for water routing time between Libby and McNary). Elevation at Libby should be at 2439 feet no later than August 31.

Kootenai Lake

- Kootenai Lake elevations between June and August 31 should be managed to assure the ability to draft the Libby Project the full 20 feet and pass through that volume to augment flows in the Lower Columbia River for summer migrating salmon.
- The planned draft of Kootenai Lake from its present elevation to elevation 1743 on August 31 should be implemented in a manner that provides benefit for summer migrant salmon.

Hungry Horse

- Draft Hungry Horse at steady rate between July 6 and August 31 to reach elevation 3540 feet by August 31. As with Libby Reservoir, draft at a rate that accounts for water routing time between Hungry Horse and McNary Dam in order to assure that the full volume is drafted and delivered to the lower Columbia.

Grand Coulee

- Operate Grand Coulee as described on the COE spreadsheet dated 6/30/98 based on the 6/29/98 SSARR. The operation shows the reservoir filling by July 5, and then drafting to elevation 1280 feet by August 31. The shaping described in the spreadsheet appears appropriate.

  NOTE: Additional proposals are being considered and are part of on-going discussions. These include: 1) providing additional water (100 KAF) by not pumping into Banks Lake and 2) drafting Grand Coulee to elevation 1277 feet by August 31.

McNary

- Weekend flows should not decrease to less than 80% of the previous five-day average flow.
- Biological Opinion seasonal flow targets will not be met at McNary Dam for the summer migration. Efforts should be made to discuss and consider all proposals to provide additional water at McNary.

JUSTIFICATION:

This request is based upon review of the present and projected reservoir operations and flows. Present and past summer migrant passage and survival data were also taken into consideration. The Brownlee operations are designed to provide the 237 KAF contribution from Brownlee Reservoir, and to shape the Bureau of Reclamation water from the Payette and Upper Snake.

All of the fall chinook passage and life history data together support the emphasis on providing July and August flows for improved juvenile survival. In the 1995 fall chinook studies, NMFS researchers noted that PIT tagged hatchery fall chinook subyearling migrating between Lower Granite and Lower Monumental dams had a significant correlation between survival and flow, with survival decreasing as flow decreased (p. 61 in 1995 Annual Report Fall Chinook Salmon Survival and Supplementation Studies in the Snake River and Lower Snake River Reservoirs). Also, travel time of PIT tagged subyearling chinook increased as the flows decreased. Connor and Burge (1998, In Press) demonstrated that subyearling chinook salmon mean detection rate at Lower Granite Dam (1992 – 1995) was positively related to mean summer flow and negatively related to maximum summer water temperature.

Figure 1 illustrates that historically nearly 90% of juvenile fall chinook migrants pass Lower Granite Dam by August 31. In 1996 the peak passage of Clearwater marked fall chinook occurred from July 24 through August 8. In 1998, the USFWS estimates that most of the

subyearling chinook will migrate in July. Figure 2 shows that the 1998 migration past Lower Granite Dam of wild subyearling chinook has been rapidly increasing in magnitude since the last week of June. To date, the cumulative passage index has exceeded 20,000 fish, well above our initial expectation using pre-season projections of NMFS for ESA permitting purposes. Provision of higher flows will help maintain a strong outmigration. In 1998 83,000 fall chinook from Lyons Ferry Hatchery were released over time at two locations, Canyon Creek in the Clearwater River drainage and Pittsburgh Landing on the Snake River. These planned releases are used to estimate survival and travel time under 1998 river conditions.

Research conducted by USFWS and the Nez Perce tribe indicates that rearing juvenile fall chinook in the Clearwater River move away from near shore areas and begin to move downstream in mid-July. This operation should facilitate rearing by delaying the increases in flow and reductions in temperature until later in July.

Water temperatures in the Snake are approaching the upper limits of the state and federal water quality standards. Forebay temperatures at both Lower Granite and Little Goose projects were slightly above 68°F Tuesday morning (7/07/98).Delaying the release of cold water from Dworshak any further will only exacerbate the problem and make it more difficult to control elevated water temperatures in the Snake.

The above information strongly suggests that the best use of reservoir releases for flow augmentation and temperature control to achieve the maximum fishery benefit for all components of the juvenile migration will be achieved by the implementation of this operation as recommended. This SOR recommends operations through August 31, 1998. Additional operational proposals for adult migrants are being evaluated.

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The Salmon Managers are state, federal and tribal entities who have legally recognized mandates and jurisdictions to manage salmon resources in the Columbia River Basin. The following have participated in the preparation of this SOR: Oregon Department of Fish & Wildlife, National Marine Fisheries Service, U.S. Fish & Wildlife Service, Washington Department of Fish and Wildlife.