



## COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION

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### COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION SYSTEM OPERATIONAL REQUEST: 99-C5

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FROM: Bob Heinith, CRITFC Hydro Program Manager

DATE: August 3, 1999

SUBJECT: **August 4, 1999 through September 30, 1999 Snake River Operations for the Federal Columbia River Power System**

The following recommendations are specified to meet essential life history and other biological requirements for Snake River adult and juvenile steelhead and fall chinook for the 1999 migration season. They are also consistent with the federal government trust responsibility to the CRITFC treaty tribes as noted in the tribes' salmon restoration plan, *Wy-Kan-Ush-Mi Wa-Kish-Wit*.

- **Request # 1. Operate releases from Dworshak Reservoir as follows and as illustrated in Attachment 1:**

August 4 @ 6 PM to August 8 @ 11:00 PM ramp down outflows from 19 kcfs to 12.5 kcfs at an approximate rate of 1.6 kcfs per day. Reduce and maintain release temperatures from 48.5 degrees F to 46 degrees F during this period.

August 9 – 14 maintain releases of 12.5 kcfs at 46 degrees F. On August 15 gradually ramp down flows to 12 kcfs.

August 16-20 maintain releases of 12 kcfs. From August 21-22 gradually reduce outflows to 10 kcfs at a rate of 1 kcfs per day. Maintain release temperatures at 46 degree F.

August 23-28 maintain releases if 10 kcfs. On August 29 gradually reduce outflows to 8.5 kcfs. Maintain release temperatures at 46 degrees F.

August 30-September 3 maintain releases of 8.5 kcfs. On September 4-5 reduce outflows to 5.5. kcfs at a rate of 1.5 kcfs per day. Increase release temperatures to 47 degrees F.

September 6-10. Maintain releases of 5.5 kcfs. On September 11-12 reduce outflows to 3.8 kcfs at a rate of 1 kcfs per day. Increase release temperatures to 48 degrees.

September 13-17. Maintain releases of 3.8 kcfs per day. Increase release temperatures to 49-50 degrees F. On September 18 reduce outflows to minimum releases (1.3 kcfs) at a rate of 1.25 kcfs per day.

*Justification:* CRITFC's objective is to maintain tailrace conditions of the Lower Snake dams at or below the Clean Water Act temperature standard of 68 degrees F and create a smooth, reclining, normative hydrograph for the Clearwater River. This objective applies to the remaining fall chinook migrants (about 20% of the run) that originate primarily from the Clearwater River and for the entire emigrating Snake River fall chinook and steelhead adult migrations. We note that the current situation of depleted volumes in Dworshak and a loss of the ability to control in the Lower Snake River for the remainder of August and September was caused by 1) rigid flood control management by the Corps which prevented Dworshak from filling and 2) release of 19 kcfs from Dworshak over the last two weeks as requested by NMFS, USFWS, ODFW and WDFW. Attachment 1 compares and contrasts Dworshak operations recommended in this SOR to SOR #99-20 submitted by NMFS, USFWS, WDFW and ODFW.

The following recommendations include actions to ramp flows up and down at biologically acceptable rates recommended by the Nez Perce Tribe, and actions to control mainstem temperatures and dissolved gas to meet water quality standards and provide good in-river conditions for migrating, rearing, fall chinook. The recommendations acknowledge the fact that fall chinook and steelhead production is sensitive to the proper time and size of juvenile migrants as they enter saltwater, which is best realized by in-river migration (Lichatowich and Cramer 1979; ISG 1996, ISAB 1998, ISAB 1999).

These recommendations also recognize that chinook and steelhead production is highly sensitive to reduction of adult migration delays in warm water. Expediting adult migration timing through the hydrosystem increases spawner distribution to upstream areas and helps to ensure that adult gametes and adult energy are sufficient to for spawner success (McGie 1992; Lichatowich and Cramer 1979; ISG 1996, ISAB 1998, ISAB 1999; Karr et al. 1998). McGie (1992) noted significant increases in adult fall chinook pre-spawning mortality at temperatures above 19 degrees C. The ISAB (1999) has noted that one fall chinook spawner is equivalent to 1500 smolts that survive passage through eight mainstem dams.

- **Request # 2. Spill and operate sluiceways at the Lower Snake River dams to protect migrating juvenile chinook and adult steelhead.** Effective August 4, 1999 @ 6 PM initiate spill at each dam at a rate of 50 % daily average flows on a 24 hour basis. When 95% of the juvenile fall chinook have passed any particular lower Snake Dam as indicated by screen bypass indices and other monitoring methods, reduce spill to gates adjacent to adult fishways and sluiceways. Spill 1.5 to 2 kcfs at these gates and sluiceways to increase adult attraction to the fishways and to allow for a less injurious fallback route that powerhouse passage.

*Justification:* The NWPPC and NMFS' Independent Scientific Advisory Board (1998) recommended against subjecting and entire migration, especially of rearing fall chinook, to the uncertainties of Snake River transportation. About 80% of the entire 1999 fall chinook migration has already been transported, against the recommendations of the CRITFC treaty tribes (Nez Perce et al. 1995). Data from Lower Granite Dam (WDFW 1999) indicates that water temperatures in the screened bypass facility and holding raceways significantly exceed water quality standards by 2-5 degrees F, despite Dworshak cool water releases.

Because no studies have been accomplished examining the differential survival of truck transported subyearling chinook and those allowed in-river passage via spill, there is great uncertainty with respect with truck transportation of these salmon, especially from the Lower Snake dams that are hundreds of miles from saltwater. The ISAB review of transportation noted that spreading the risk between transportation an in-river passage was "... *advisable in the face of uncertainties associated with potential negative effects of transportation on genetic and life history diversity.*" (ISAB 1998).

Further, the ISAB noted that juvenile fall chinook should not be trucked transported at all, "...*because historical indications on truck transport are negative*" (ISAB 1998). Further, they recommended that because of the uncertainties of transportation, it should not be the sole management regime for an entire stock (ISAB 1998).

Without spill, the low guidance efficiencies for subyearling fall chinook at the Lower Snake dams force about 50% of migrants to turbine passage. NMFS pit-tag studies indicate that very few if any of the migrants that are subjected to turbine passage survive through the Snake River (Smith et al 1997). Reimers (1973), Lichatowich and Cramer (1979) and Williams et al. (1996) note the critical importance of a rearing life history for subyearling fall chinook suggesting that this parameter is very important for survival and overall stock production.

Spill to attract adults to fishways has been recommended by FPAC (SOR 94-61; DFOP 1993). Spill to provide a more benign downstream passage route is supported by existing scientific literature and reports. Studies indicate that adult fallback of fall chinook and steelhead back over dams is a significant problem (Wagner and Hilson 1993). Rates of 8,000-10,000 adults falling back through the screened bypass facilities at the Lower Snake Dams have been documented (WDFW and ODFW Weekly Dam Reports 1993-1998). Since juvenile screen facilities were not constructed for adult passage, high rates of visible injuries (40-50%) to adults have been documented (Wagner and Hilson 1993). NMFS reports a direct mortality rate of adults that fallback through turbines at 41% (NMFS 1995).

BPA has amassed nearly \$200 million in reserves from river operations funds not used under the 1996 MOA. Thus, there are funds available to accommodate this recommended, limited spill regime to increase Snake River fall chinook survival and production in 1999.

Implementation of the above recommendations is vital to the treaty tribes as part of the federal government's trust responsibility to shift the conservation burden away from tribal harvest. Increasing stock production and treaty harvest opportunities are critical to assist tribal members in increasing their standard of living and health to levels enjoyed by non-tribal peoples (Nez Perce et al. 1995; CRITFC 1999).

If this SOR cannot be implemented, CRITFC requests in a detailed written response from the federal operators as to the reason why it cannot be implemented.

Attachment 1

## **References**

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Karr, M., J.K. Fryer and P. Mundy. 1998. Snake River Water Temperature Control Project. Phase II. To the Environmental Protection Agency and National Marine Fisheries Service. Columbia River Inter-Tribal Fish Commission. Portland, Oregon.

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Wagner, P. and T. Hillson. 1993. 1991 Evaluation of adult fallback through the McNary Dam juvenile bypass system. Contract DACW68-82-C-0077. To the Walla Walla District, Corps of Engineers. By Washington Department of Fish and Wildlife. Olympia, Washington.

**Attachment 1**

N.F Clearwater River @ Dworshak

	DWR Outflow		Storage	DWR Pool	
			Change	Elevation	
<b>WY 1999</b>	CRITFC	Inflow	Change	CRITFC	FPAC
		8-2	KaF	(feet) end-of-period	
		ssarr			

Starting 8-4, 1800:				1570.0	
Aug 4-7	17.3	1.90	-91.6	1564.0	1562.6
Aug 8-14	12.5	1.92	-146.9	1554.1	1544.4
Aug 15-21	12.0	1.76	-142.2	1544.1	1525.1
Aug 22-28	10.0	1.64	-116.1	1535.8	1520.0
Aug 29- Sep 4	8.5	1.50	-97.2	1528.7	1520.0
Sep 5-11	5.5	1.50	-55.5	1524.4	1520.0
Sep 12-18	3.8	1.50	-31.9	1522.0	1520.0
Total	6350	659			
(KaF):					
FPAC	6286				
(KaF):					



