State, Federal and Tribal Fishery Agencies Joint Technical Staff

Columbia River Inter-tribal Fish Commission
Idaho Department of Fish and Game
Nez Perce Tribe
Oregon Department of Fish and Wildlife
Shoshone Bannock Tribe
US Fish and Wildlife Service
Washington Department of Fish and Wildlife
NOAA Fisheries

April 6, 2004

Cindy Henriksen
USACOE
PO Box 2870
Portland, OR 97208-2870

Tony Norris
USBOR
PN Regional Office
825 NE Multnomah St., Suite 1110
Portland, OR 97232

Dear Ms. Henriksen and Mr. Norris:

We are concerned regarding the statements made at TMT on March 31, 2004 that many of the reservoirs likely will not reach their April 10th Flood Control elevation as specified in the Biological Opinion.

Section 9.6.1.2.1, Action 14, of the 2000 Biological Opinion addresses flow management objectives on the Snake and Columbia Rivers. Specifically, this section outlines three strategies for flow management, the first of which is to "Limit the winter/spring drawdown of storage reservoirs to increase spring flows and the probability of reservoir refill." Expanding on this strategy, the BIOP states:

> "Under the first strategy, the FCRPS storage reservoirs are operated to ensure a high probability of water surface elevations within 0.5 foot of the flood control rule curve by April 10 and to refill by June 30, except as specifically provided by the Technical Management Team. Before the 1995 Biological Opinion, FCRPS storage reservoirs were routinely drafted well below these levels to maximize hydropower generation during the fall and winter. Meeting the spring flow objectives occasionally requires reservoir drafting, but the spring flow objectives are primarily met by limiting winter drafting and reservoir refill rates."

The following sections outline operations at Grand Coulee and Dworshak over the winter of 2004. The Salmon Managers believe that neither of these projects was operated conservatively enough during the winter to provide enough water to achieve the spring flow objectives, as outlined in the BIOP.

Grand Coulee

Operators have over drafted Grand Coulee during the winter months of WY 2004. Grand Coulee ended March 29th at an elevation of 1263.1 feet, 12.7 feet below its standard BIOP required April 10th elevation (1275.8 feet) and 9.1 feet below the April 10th elevation (1272.2 feet) if a flood control swap occurs between Grand Coulee and Dworshak (Figure 1). At this point in time, to achieve the April 10th elevation under standard flood control (no swap), Grand Coulee will have to refill approximately 0.9 million acre-feet of water in approximately ten days. For scale, 0.9 Maf is approximately 15 Kcfs for 30 days or 7.5 Kcfs for 60 days. Again, reaching the April 10 flood control elevations ensures a high probability of both meeting spring flow objectives and refill by June 30. Although some winter draft from Grand Coulee was needed for 2003/2004 fisheries operations, it appears that the majority of the drafts were for power generation.

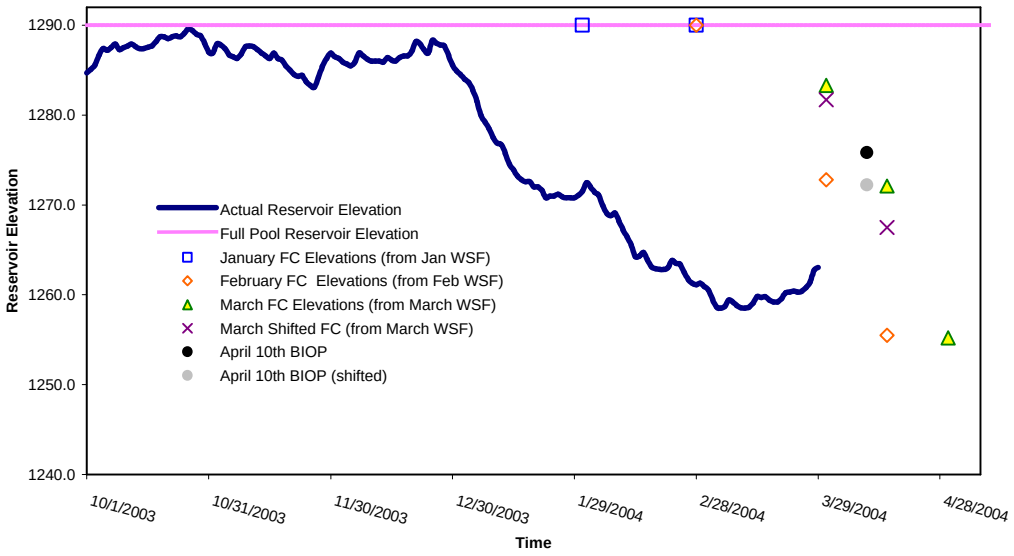


Figure 1. Operations at Grand Coulee over WY 2004.

The majority of drafts from Grand Coulee over the winter of WY 2004 were not a result of meeting chum flows below Bonneville Dam (approximately 125 Kcfs). The daily differences between the actual flow at Bonneville Dam and 125 Kcfs were calculated as well as the daily volume of water released above 125 Kcfs over the period of time between 12-25-03 and 3-29-04. The total summed volume of water released above 125 Kcfs from 12-25-03 to 3-11-04 was over **3.5 Maf**. If this volume of water were added to Grand Coulee, its forebay water surface elevation would easily achieve its flood control elevations for March and have to actually draft water to meet the April 10th elevation, resulting in much more water in the river during early April. (Figure 1). It is also important to note that this volume is likely an underestimate of water

released beyond that needed to meet chum flows as the 11.5 ft tailwater is often met at flows less than 125 Kcfs.

Extra water released beyond that needed for chum flows also was not necessary to meet minimum flows at Priest Rapids. Figure 2 displays discharges in the Columbia River below Priest Rapids Dam over the same time period from 12-25-03 to 3-29-04. Figure 1 shows that Grand Coulee drafted heavily in January and February; Figure 2 shows that during January and February flows below Priest Rapids were well above the 70 Kcfs minimum; data analyses show that flows at Bonneville Dam were significantly above that needed for the chum operation; drafts from Grand Coulee in January and February appear to be predominantly for power generation.

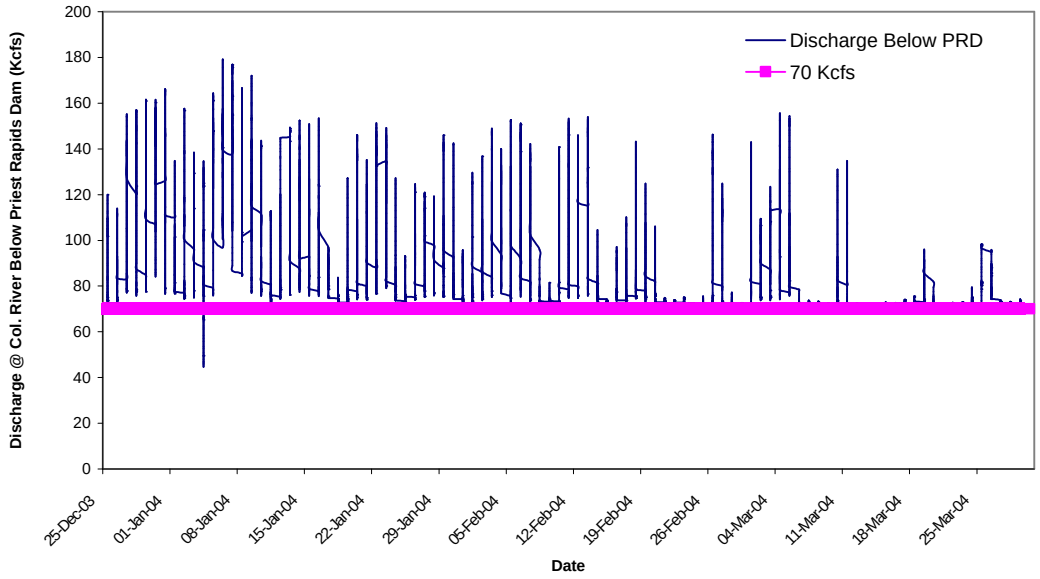


Figure 2. Discharge in the Columbia River below Priest Rapids Dam from 12-25-03 to 3-29-04.

The 2004 Spring Creek Hatchery release operation is another example of extra water releases beyond that needed for fisheries operations. At the March 3, 2004 TMT meeting, representatives from BPA stated that flows during the Spring Creek spill operations, with an agreement for minimum tailwater elevations of 12.7', were too high and there was a risk of running out of water. Because of this claim, TMT members agreed to lower the tailwater minimum to 12.4'. However, later that same day and despite the claim that water was scarce; flows increased such that the tailwater rose to 14.6'. During the four-day Spring Creek spill operation; tailwater elevations averaged 13.7', inconsistent with the BPA claim that there was a shortage of water. To examine this apparent over release of water, an analysis was conducted to estimate how much extra water was used during the Spring Creek spill operation beyond that necessary to achieve a 12.7' tailwater elevation. Project information was downloaded from the day spill started until the day after it ended and the tailwater elevation vs. total discharge were regressed, which resulted in a prediction of requiring 136 Kcfs to attain a 12.7' tailwater elevation (Figure 3). Due to other factors (e.g., tidal influences and Willamette River discharge) it appears that, at times, greater and lower discharges were necessary to achieve 12.7'. Based on the empirical

observations, the maximum and minimum discharges that were required to get 12.7' or 12.8' during the time period (during the worst and best tide and Willamette conditions) was 157.6 and 128.1 Kcfs, respectively. The average of these two flows is 142.9 Kcfs, which represents an average discharge necessary to achieve 12.7' given the periodic fluctuations in tides and the variability in Willamette River flows. The difference between actual discharges and 142.9 Kcfs were summed and converted to a volume; the result was 184 KAF. This amount is an estimate of the volume of water that was used beyond that necessary to maintain a 12.7' tailwater.

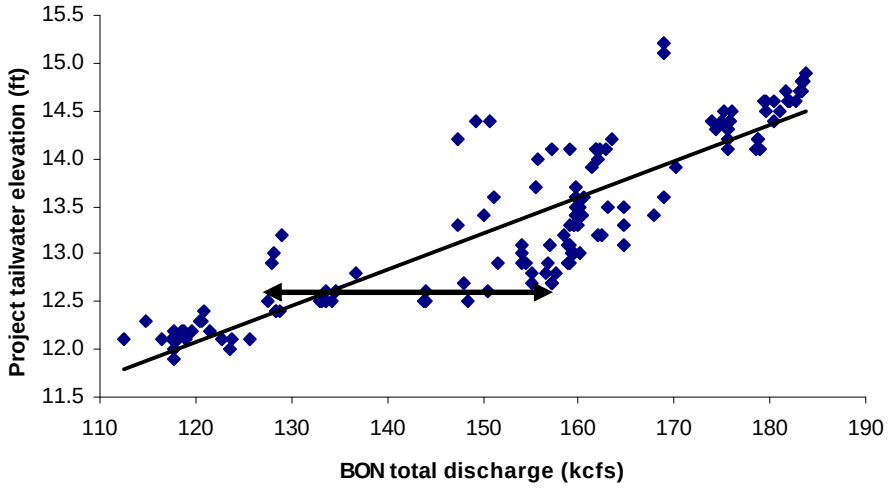


Figure 3. Bonneville Dam hourly total discharge (Kcfs) versus project tailwater elevations (ft.) during the 2004 Spring Creek spill operation. The solid line denotes the regression fit to the data and the horizontal arrowed line represents the range of discharges required to achieve a 12.7' tailwater elevation (128.1 to 157.6 Kcfs).

Dworshak

Throughout most of the winter, Dworshak was operated at its minimum outflow of 1.6 and therefore was not drafted any more than was needed to maintain its project minimum outflow. However, throughout most of the winter Dworshak remained well below its flood control elevations (Figure 4). At the February 18th TMT Meeting the COE decided to increase outflows from Dworshak to 8 Kcfs because "… assuming average inflow, we will have to release greater than minimum outflow to avoid overfilling the project. We're using some of the available operational flexibility now to avoid larger releases later in March" (2-18-04 TMT Minutes). At the time, members of the Salmon Managers asked if they could use possible operational flexibility in March, given that Dworshak was well below its flood control elevations. The decision was made by the COE to release extra water in late February/early March despite being nearly 20 feet below its flood control elevations with water supply forecasts on the downward trend. Overall, more than 101 Kaf was released between 2-18-04 and 3-2-04.

Currently, Dworshak is at an elevation of 1527.8 feet (3-29-04) and has refilled nearly 15 feet in the last two weeks due to some early snowmelt. The estimated April 10th Flood Control

elevation at Dworshak under system flood control is 1535.5 feet and under a shifted scenario is 1554.1 feet. If the high inflows to Dworshak continue, it is possible that Dworshak will reach its April 10th BIOP system FC elevation; however, it will have to refill during the first several days of the spring flow objective period. If the 101 Kaf taken out of Dworshak were inserted back into the reservoir, Dworshak would be near an elevation of 1535.3 feet, only 0.2 feet below its April 10th elevation, and could be passing inflow during the beginning of the spring flow period.

It is important to note that this 101 Kaf of water could prove very important if the water supply forecasts and flow projections decrease down to the spill/no spill level. The COE essentially took this water out of the spring flow period and placed it into the power generation period.

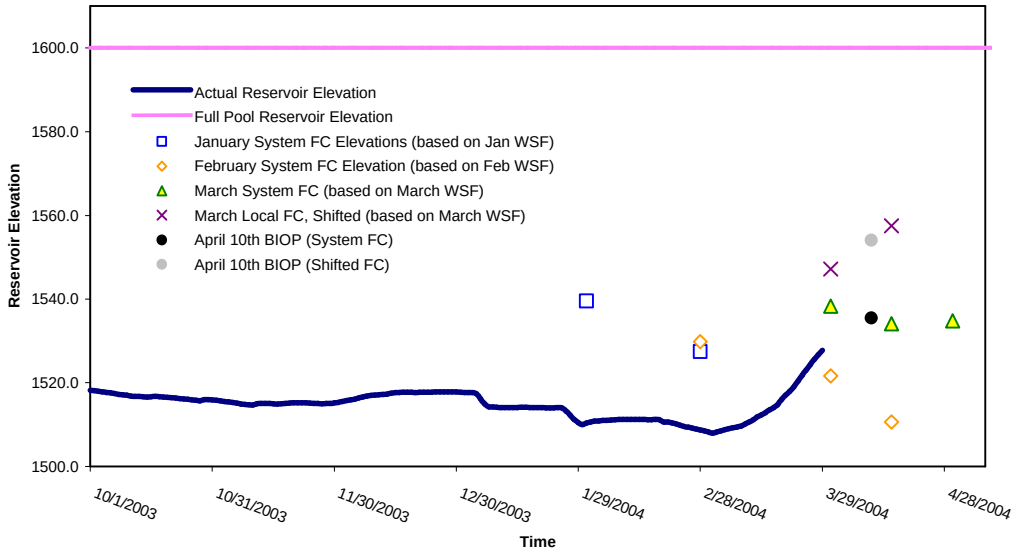


Figure 4. Operations at Dworshak over WY 2004.

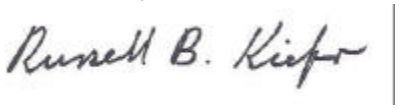
The impact of winter operations at Grand Coulee and Dworshak on spring flows is difficult to estimate at this time. We will have to monitor where Grand Coulee and Dworshak end up on April 10th with respect to their flood control elevations. Based on the current trend in water supply forecasts, flood control elevations likely will go up several feet. For example, if Grand Coulee ends up 1 Maf below its Flood Control elevation, it will have to refill 1 Maf more than if it were at the flood control elevation, ultimately taking 1 Maf of water out of the spring flow period. Using this example, flow during the 82 days of the spring flow period in the mid and lower Columbia River is estimated to be 6.2 Kcfs less on average, relative to flows had the reservoir reached its April 10th elevation. The impact of winter operations at Dworshak is currently influencing flows in the Lower Snake River. If reservoir water had not been prematurely evacuated from Dworshak it would not be refilling aggressively to meet its April 10th elevation and releasing minimum flows. Instead, Dworshak would be passing much of its inflow, and Lower Snake River flows would be increased by as much as 10 Kcfs. The increase in Snake flows would benefit the current juvenile fish migration.

We believe that operations at Grand Coulee and Dworshak during the winter of 2004 were not in the best interest of achieving spring flow objectives. Section 9.6.1.2.1, Action 14 of the BIOP directly addresses the impact of winter reservoir operations on spring flow objectives. In future years, we would like the operators to provide a weekly summary of reservoir elevations, flood control elevations, and an accounting of drafts below flood control for Vernita Bar/Chum or power generation. This can be incorporated into the weekly or biweekly TMT meetings under "Operations Update."

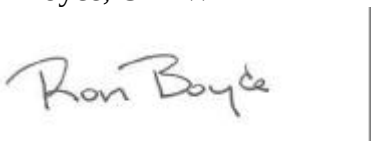
We encourage you to respond to our suggestions to assure that the water management operations of this past winter are not repeated in future years. The Biological Opinion attempts to assure fish needs, taking into account power needs; we hope this balance can be realized.

Sincerely,

Russ Kiefer, IDFG



Ron Boyce, ODFW



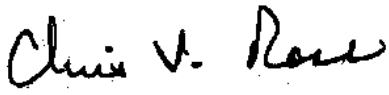
Bob Heinith, CRITFC

Dave Statler, Nez Perce Tribe

Cindy LeFleur, WDFW

Keith Kutchins, SBT

Dave Wills, USFWS



Chris Ross, NOAA Fisheries