



# FISH PASSAGE CENTER

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## MEMORANDUM

TO: FPAC

FROM: FPC Staff

DATE: August 13<sup>th</sup>, 2008

RE: 1998-2008 Average Daily Temperature, Average 12-hr TDG, and Spill at Dworshak Dam, the Clearwater at Peck, and the Clearwater at Lewiston

In response to your oral request during the August 12, 2008 FPAC conference call, the FPC has summarized the following data over July and August from 1998-2008:

1. Dworshak Dam: Daily Average Spill, Average of highest 12-hr TDG, and Daily Average Temperature of total outflows.
2. Clearwater River (as measured at the Peck and Lewiston gauges): Average of highest 12-hr TDG, and Daily Average Temperature.

Based on the data presented below:

1. Average 12-hr TDG below DWR has been higher over August of 2008 than most other years in August. However, 1998 and 1999 had higher TDG levels below Dworshak than 2008 (Figure 1). Furthermore, 2000 had similar TDG levels compared to 2008, particularly from July 21<sup>st</sup> on. Despite higher TDG levels below Dworshak in August 2008 (compared to more recent years), the 12-hr average TDG has not exceeded the 110% water quality standard during this time (July 17 – Aug 11 range 104.3-109.3%).
2. Spill at Dworshak Dam has been greater in August of 2008 relative to most other years in August (Figure 2). However, August spill in 1999 was greater than that seen in 2008. Furthermore, August spill in 1998 and 2002 were comparable to what has been seen in 2008.
3. Temperatures at Dworshak Dam in July and August 2008 were comparable to other years (Figure 3).
4. TDG levels in the Clearwater River (as measured at the Peck and Lewiston gauges) showed similar trends to those seen in the Dworshak tailwater (Figures 4 and 5).

5. Temperature in the Clearwater River (as measured at the Peck and Lewiston gauges) showed similar trends to those seen in the Dworshak tailwater (Figures 6 and 7).
6. Based on regression analysis, gas production in 2008 is similar to what was seen in other recent years at similar spill levels (Figure 8).

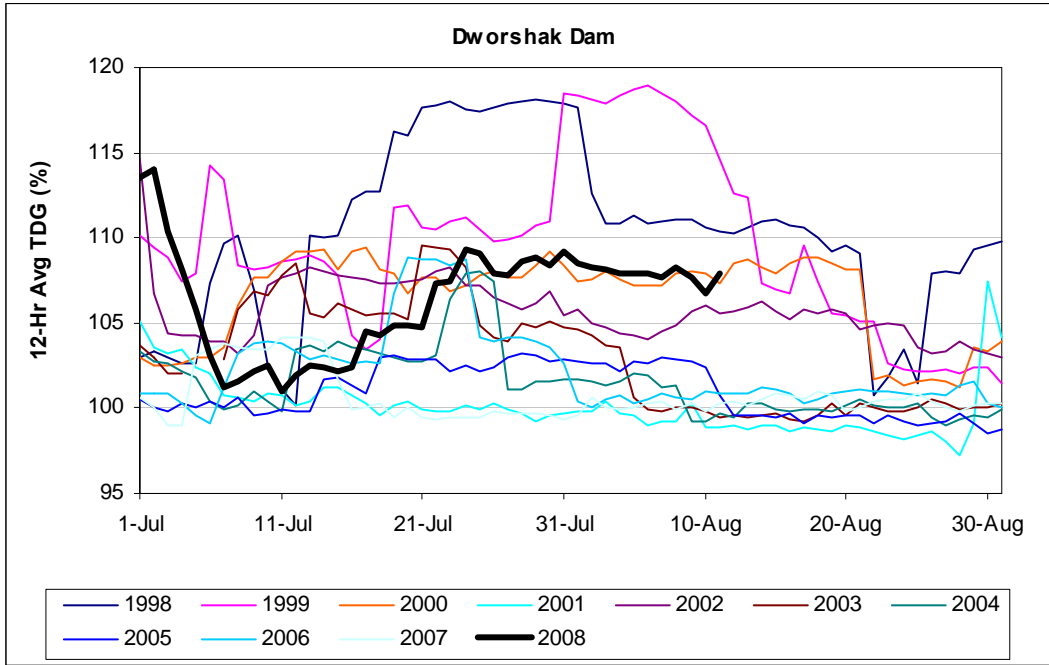


Figure 1. Average 12-hr TDG below Dworshak Dam over July and August, 1998-2008.

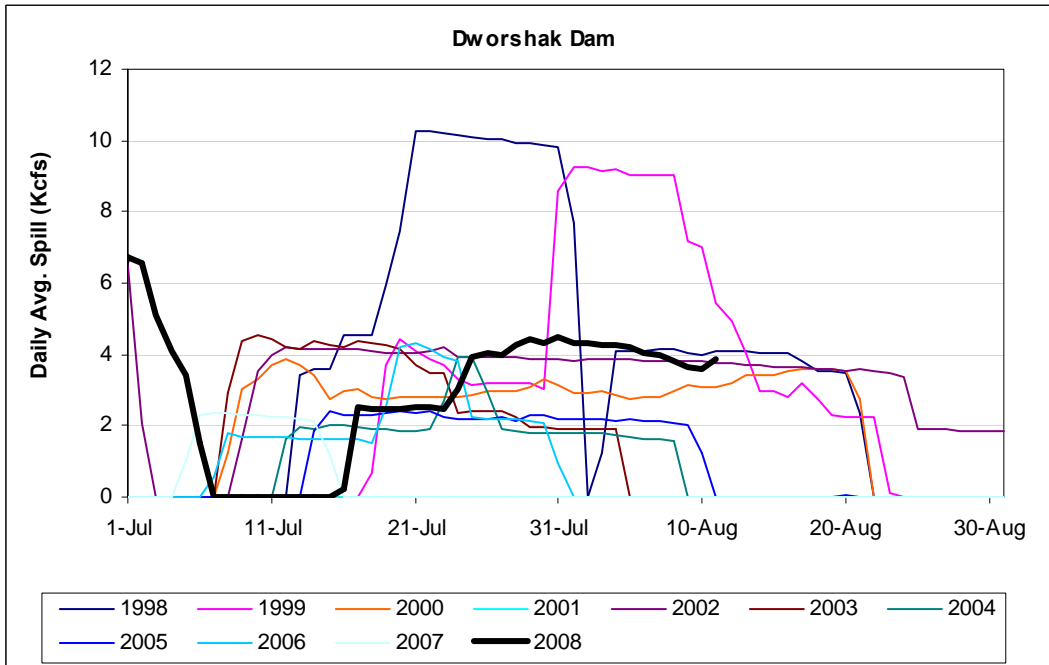


Figure 2. Daily average spill at Dworshak Dam over July and August, 1998-2008.

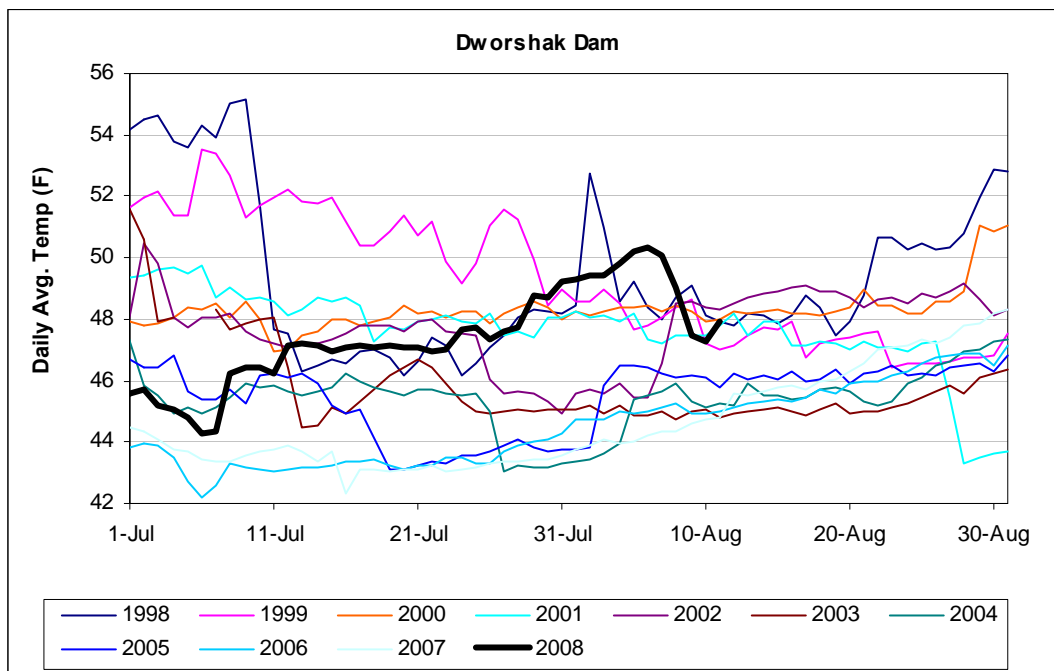


Figure 3. Daily average temperature of Dworshak Dam outflows over July and August, 1998-2008.

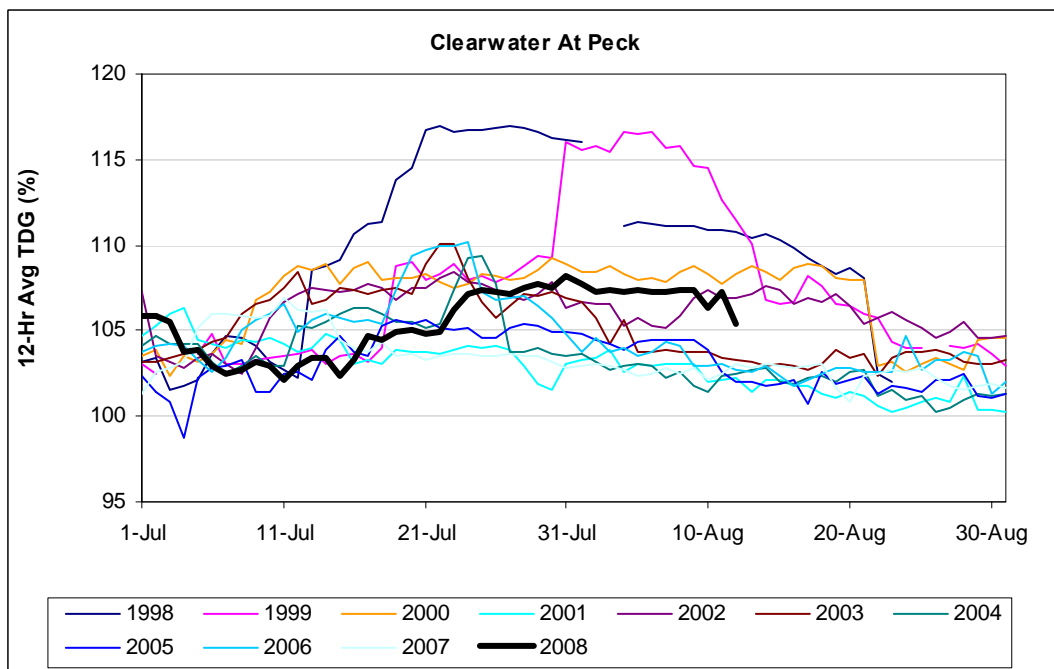


Figure 4. Average 12-hr TDG at the Clearwater River at Peck over July and August, 1998-2008.

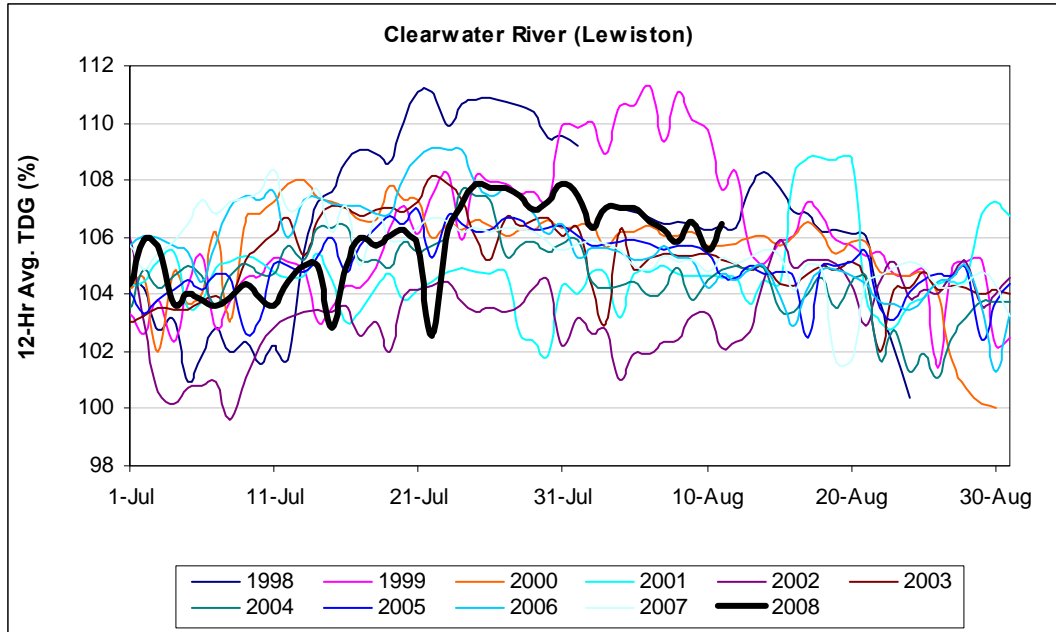


Figure 5. Average 12-hr TDG at the Clearwater River at Lewiston over July and August, 1998-2008.

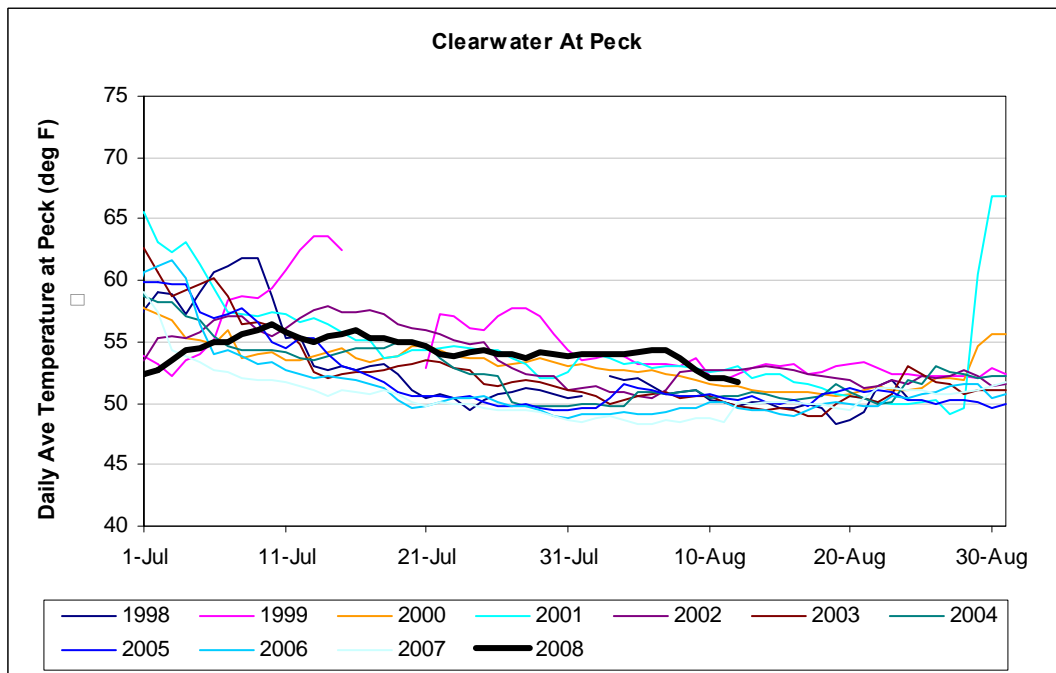


Figure 6. Daily average temperature at the Clearwater River at Peck over July and August, 1998-2008.

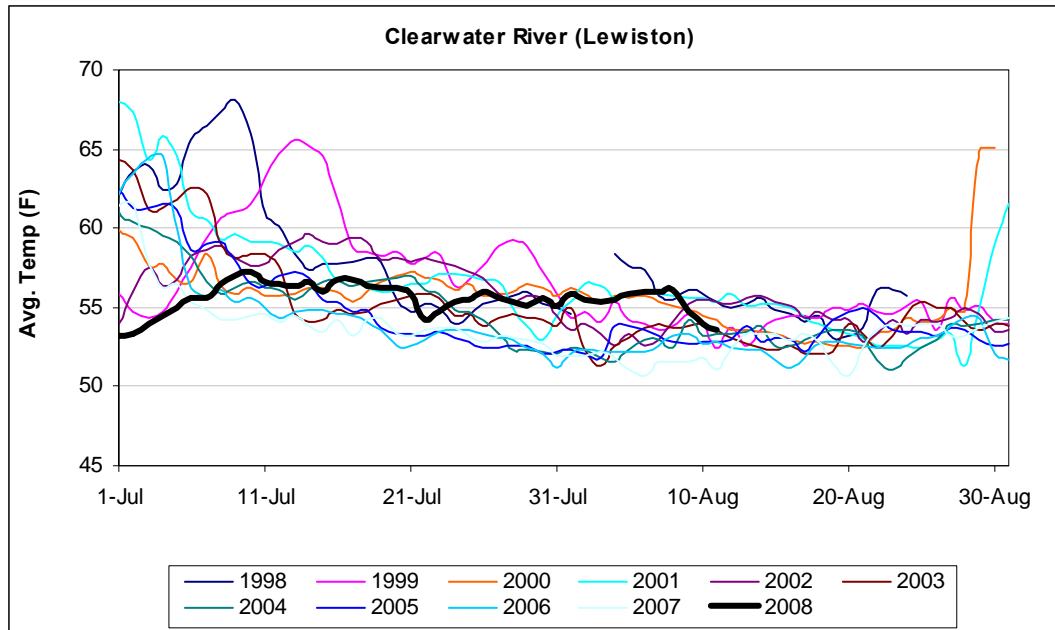


Figure 7. Daily average temperature at the Clearwater River at Lewiston over July and August, 1998-2008.

In addition to summarizing the data, we did a regression analysis of daily average spill at Dworshak Dam and the 12-hr average TDG in the Dworshak tailrace (Figure 8). For this analysis, we used data from July to August (1998-2008) where spill was greater than 0 Kcfs and less than 7 Kcfs. The 7 Kcfs spill cut off was based on the spill levels seen in 2008, in order to compare TDG levels under the operational range experienced in 2008.

Based on our analysis, the TDG levels in the Dworshak tailrace seen in 2008 are not substantially different from those seen in other years. Based on this analysis, we estimate that spill of 4 Kcfs would result in a 12-hr average TDG of approximately 108.5%, whereas a reduction in spill to 2 Kcfs would result in a 12-hr average TDG of approximately 104.1%.

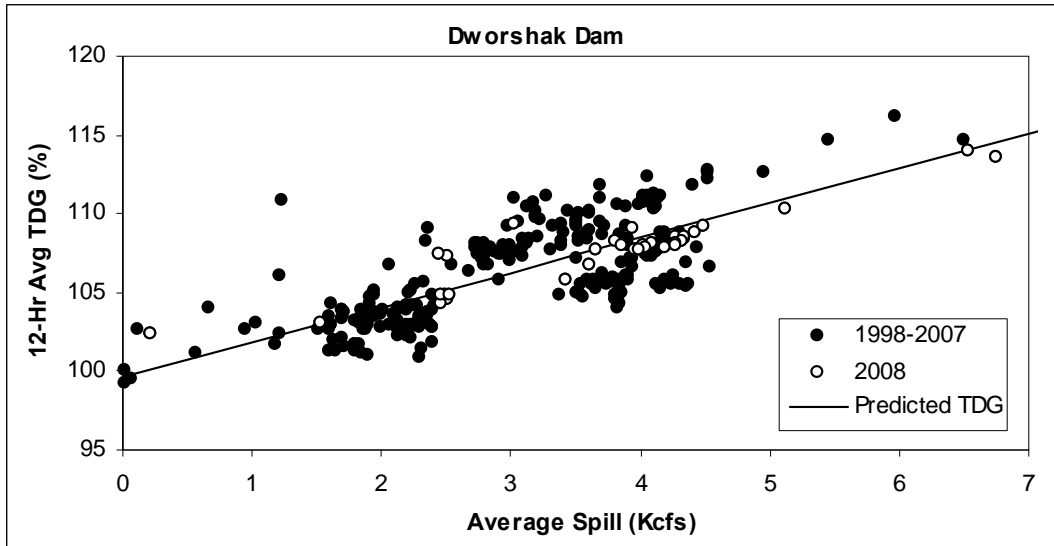


Figure 8. Linear regression analysis of daily average spill (Kcfs) at Dworshak Dam and the 12-hr average TDG (%) for 1998-2008.



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### DATA REQUEST FORM

Request Taken By: Brandon Chockley & Dave Berner Date: 12-Aug-08

**Data Requested By:**

Name: FPAAC - Conference Call Phone: \_\_\_\_\_  
Address: \_\_\_\_\_ Fax: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ Email: \_\_\_\_\_

**Data Requested:**

During the FPAAC Conference call, FPAAC requested the FPC to summarize TDG, Spill, & Temp at Dworshak Dam and in the Clearwater River (as monitored at Peck and Lewiston gauge). Also requested an analysis of spill @ DWOR and 12-hr avg. TDG in tailrace.