FISH PASSAGE CENTER

1827 NE 44th Ave., Suite 240, Portland, OR 97213
Phone: (503) 230-4099 Fax: (503) 230-7559
http://www.fpc.org/
e-mail us at fpcstaff@fpc.org

MEMORANDUM

TO: The Files

FROM: Margaret Filardo and Jerry McCann

DATE: June 8, 2007

RE: Steelhead and GBT at Little Goose and Lower Monumental dams

Data from GBT exams has shown a high incidence of GBT in late migrating steelhead at both Little Goose and Lower Monumental dams. Sample sizes at Little Goose Dam have met the sample protocol while at Lower Monumental Dam they have been below sample size criteria. Although only 66 fish were examined on June 4, there were 12 steelhead with fin signs; a total of 18% fin signs. No severe signs were observed, but several fish had bubbles in more than one fin. There was also a relatively high incidence of signs recorded the following day, June 5 at Little Goose Dam.

Table 1. Summary of GBT signs at Little Goose and Lower Monumental in the past two days sampling.

Site and Date	Number Examined	Number with GBT	Number with Fin GBT	% Fin GBT	Fin Rank 1	Fin Rank 2
Little Goose						
05/29/07 Ch1 + St	100	8	8	**8.0%**	8	0
06/05/07 Ch1 + St	100	14	14	**14.0%**	13	1
06/08/07 Ch1 + St	101	37	37	**36.6%**	29	8
Lower Monumental						
05/28/07 Ch1+ St	100	5	5	**5.0%**	5	0
06/04/07 Ch1+ St	66	13	12	**18.2%**	11	1
06/07/07 Ch1+St	22	5	5	**22.7%**	5	0

All the signs were in steelhead, and with only a few Chinook examined. It should be noted that we typically see an increase in signs in steelhead as the season progresses, typically increasing to 10% incidence or less by this time of the season. And also, steelhead numbers are declining while subyearling Chinook indices are increasing.

Because of our concern for the steelhead migrants, and for the subyearling migrants, who are beginning to increase in their numbers, SMP crews were requested to conduct additional GBT monitoring this week at both sites. The result of that monitoring is incorporated into the table above. The high number of Lyons Ferry fish and the dwindling numbers of steelhead at the Lower Monumental site resulted in a sample of only 22 fish. The levels of GBT have increased in the observed fish. Few subyearling migrants were sampled; however, those that were observed showed no signs of GBT.

TDG has not exceeded waiver criteria, and for the most part has been well below criteria at these projects. It is unlikely that under normal migration conditions we would be observing these levels of GBT at these levels of TDG.

Date	LWG	LGNW	LGSA	LGSW	LMNA	LMNW
6/1/2007	105	111.3	113	111.2	114.5	118.7
6/2/2007	105.1	114.1	114	113.4	**115.2**	114.9
6/3/2007	105.1	112.7	113.8	113.6	**115.2**	114.8
6/4/2007	105	114	113	113.8	114.3	114.7
6/5/2007	104.6	112.9	112.8	113.6	113.8	114
6/6/2007	103.9	114.7	111.4	112.7	111.9	114.3
6/7/2007	101.5	113.7	108.7	112.2	109	117

Maule et al. (1997) observed that incidence and severity is a function of TDG level and exposure time. It seems likely that what we are observing is the result of the longer travel times observed for the late migrating steelhead. The present flows are in the mid 50s at these projects and the travel time estimates observed between Lower Granite to Little Goose Dam are about 4.9 days, which is a longer travel time than was observed in 2001 during the same time period. The average travel time between Little Goose and Lower Monumental is 6.5 to 7.5 days. It is likely that the long travel time is causing an increased exposure time and causing the fish to show the signs of GBT. There are also other factors that may be contributing to these long travel times. In addition to flow, there could be a delay in the forebays of the projects that might be a function of the present spill patterns, or spill amounts that are being provided at both Little Goose and Lower Monumental dams. Neither of these projects have RSWs in place.

There is a dilemma as to what to do regarding spill at these two Snake River projects. The late migrating steelhead are the last to arrive and represent a small portion of the run. The criteria established in the COE's waiver have not been exceeded. Decreasing spill would decrease the TDG in-river. However, if spill is decreased it would increase the residence time and take even more time for the steelhead to get through the river. In addition, the subyearling

migration is picking up and given that there is little data regarding the effects of transportation on these fish, it would not be appropriate to increase collection of these fish for transportation and to a have a migration corridor with decreased spill for those fish that remain in-river. Based on 10-year average 98% of steelhead have passed Lower Granite by June 5. In contrast, 10% of subyearling Chinook have passed by June 8, and an additional 20% will have passed in the next two weeks; consistent with historic peak passage timing for subyearlings in the Snake River occurring over the next 6 to 8 weeks. The potential for project passage delay in the forebay may be exacerbated by the existing spill volumes and the remedy for the long travel times may be to actually increase spill to promote project passage.