Fall Chinook and Steelhead Fallback via B1 and B2 Turbines; 2002-2004

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As part of our adult passage monitoring program, we monitored radio-tagged adult fall Chinook and steelhead behaviors in the forebay of Bonneville Dam in 2002-2004. During these migration years, dipole antennas were attached to the bottom of the traveling screens of both powerhouses at Bonneville Dam. Detection on these antennas did not presuppose fish had passed a screen and entered a turbine, fish were detected by these antennas that did not fall back at the dam. However, fish that were last detected on a traveling screen antenna and subsequently detected in the tailrace of Bonneville Dam were determined to have fallen back via a turbine.

Powerhouse priority during 2002-2004 has been primarily to B2. For example, between 1 Septmber and 30 November of 2002, about 85% of powerhouse discharge was through B2. Migrating adult salmonids are positively rheotactic, subsequently we detected many more adult salmon in the vicinity of B2 than B1 during these years. If powerhouse discharges change to favor B1, we would expect a proportional change in the number of adult salmon detected in the vicinity of and falling back via B1 turbines.

Table 1. Total number of unique radio-tagged fall Chinook and steelhead to pass Bonneville Dam in 2002-2004 with total annual fallback and total turbine fallback percentages. Included are numbers of unique fish detected by antennas mounted to traveling screens of B1 and B2 turbines, numbers of fish to fall back via turbine and the number of these fallback fish whose final fates were unknown.

	Fall Chinook			Steelhead		
	2002	2003	2004	2002	2003	2004
Unique fish past dam	673	583	531	909	564	284
Total annual fallback %	2.8	4.0	3.2	3.8	5.6	3.5
Total turbine fallback %	0.4	0.3	0.4	0.6	0.7	0
Unique detections B1	4	0	0	5	0	0
Fallbacks via B1	0	0	0	1	0	0
Unique detections B2	22	5	2	19	4	1
Fallbacks via B2	3	2	2	4	4	0
Number unaccounted for after turbine fallback	2	2	1	0	3	0