

Movement, distribution, and passage behavior of radio-tagged yearling Chinook salmon, steelhead, and subyearling Chinook salmon at Bonneville Dam associated with FPE and survival tests, 2004

Table 1. Preliminary USGS data of radio-tagged yearling Chinook salmon, steelhead, and subyearling Chinook salmon that passed Bonneville Dam, Powerhouse 2 (PH2), 2004. Data are from radio-tagged fish released from John Day and The Dalles dams. Release periods were from 27 April through 29 May for yearling Chinook salmon and steelhead and from 19 June through 29 July for subyearling Chinook salmon. Data includes the number of fish that passed PH2 and went through the corner collector (corner collector efficiency) as well as PH2 Fish Passage Efficiency (FPE).

Species	Corner Collector Efficiency	PH2 FPE
Yearling Chinook	36% (1282/3511)	57% (2012/3511)
Steelhead	74% (1939/2624)	84% (2212/2624)
Subyearling Chinook	37% (1928/5240)	50% (2642/5240)

Table 2. Preliminary USGS data of radio-tagged yearling Chinook salmon, steelhead, and subyearling Chinook salmon that passed Bonneville Dam during 2004. Project Fish Passage Efficiency (FPE) is defined as the number of fish that pass through non-turbine routes (Spillway, PH2 DSM, PH2 Corner Collector, PH1 Sluiceway and PH1 navigation lock) divided by the total number of fish passing through the project. Spillway Efficiency is calculated by dividing the number of fish that pass through the spillway by the number of fish that pass through the project.

Species	Passage Route	N	Project FPE	Spillway Efficiency
Yearling Chinook	Spillway	1965		
	PH2 DSM	730		
	PH2 Corner Collector	1282		
	PH1 Sluiceway	256		
	PH1 Navigation Lock	5		
	Overall			71% (4238/5960)
Steelhead	Spillway	1016		
	PH2 DSM	273		
	PH2 Corner Collector	1939		
	PH1 Sluiceway	187		
	PH1 Navigation Lock	11		
	Overall			86% (3426/3981)
Subyearling Chinook	Spillway	3083		
	PH2 DSM	714		
	PH2 Corner Collector	1928		
	PH1 Sluiceway	196		
	PH1 Navigation Lock	20		
	Overall			68% (5941/8739)

Table 3. Summary of passage performance metrics for yearling Chinook salmon, steelhead, and subyearling Chinook salmon, as determined by USGS from radio-telemetry studies at Bonneville Dam during 2000, 2001, 2002 and 2004 (preliminary). No data were gathered during 2003.

Metric	Year	Yearling Chinook	Yearling Steelhead	Subyearling Chinook
Spillway Efficiency	2000	44%	33%	65%
	2001	16%	No Data	2%
	2002	57%	55%	No Data
	2004	33%	26%	35%
Project FPE	2000	73%	78%	91%
	2001	56%	No Data	40%
	2002	76%	84%	No Data
	2004	71%	86%	68%

Table 4. Preliminary USGS data of radio-tagged yearling Chinook salmon, steelhead, and subyearling Chinook salmon that passed Bonneville Dam during 2004. Data are from radio-tagged fish released from John Day and The Dalles dams. Release periods were from 27 April through 29 May for yearling Chinook salmon and steelhead and from 19 June through 29 July for subyearling Chinook salmon. Median travel time (h) from time of passage at Bonneville Dam (rkm 235) to first detection at the third survival gate (rkm 181).

Passage Route	Yearling Chinook	Yearling Steelhead	Subyearling Chinook
Spillway	14.23	13.30	17.14
PH2 DSM	15.27	15.21	18.14
PH2 Corner Collector	13.64	12.97	17.04
PH1 Sluiceway	13.86	13.09	16.38
PH1 Navigation Lock	19.64	14.27	15.47
Turbine (PH1 and PH2)	14.25	14.10	16.85