

# FISH PASSAGE CENTER

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## MEMORANDUM

TO: Paul Wagner

FROM: Michele DeHart

DATE: July 9, 2009

RE: Data Request on adult return timing of PIT-tagged spring and summer Chinook

At the June 16<sup>th</sup> Fish Passage Advisory Committee meeting, a request was made of the Fish Passage Center to summarize the available PIT-tagged spring and summer Chinook adult returns detected at Bonneville Dam for purpose of comparing the passage timing of the two runs. This memorandum provides the requested data analysis.

### PIT-tag spring/summer Chinook adult returns (with jacks) at Bonneville Dam

To address the FPAC request for a summarization of the PIT-tagged adult run timing data of spring Chinook versus summer Chinook at Bonneville Dam, FPC staff has compiled all available detections at the Bonneville Dam fish ladders for hatchery and wild Chinook with spring and summer run designations. Wild Chinook PIT-tagged at the Clearwater River trap, which are denoted in PTAGIS as “unknown” run, were added to the Snake River wild spring Chinook group since tagging at that site only targets yearling spring Chinook and steelhead. Fish tagged at hatcheries and released at dams for research purposes were not used except in the case of hatchery summer Chinook in the upper Columbia River (discussed below). All PIT-tagged yearling Chinook released into the Imnaha River in the Snake River basin were considered as summer stock. Yearling

Chinook PIT-tagged in the Imnaha River are considered summer Chinook when tagged by Nez Perce Tribe researchers, whereas they are considered spring Chinook when tagged by ODFW researchers. The CSS considers the Imnaha River Chinook as summer Chinook since the adult return timing matches closely that of McCall Hatchery summer stock and the higher jack rate of Imnaha hatchery Chinook is more like that of McCall Hatchery summer Chinook than any other CSS spring Chinook hatchery group (see page 21 of CSS 2002 Annual Report).

The Chinook return data are stratified into the following three geographic regions, (i) middle Columbia (Bonneville Dam to confluence with Snake River), (ii) Snake River, and (iii) upper Columbia (confluence with Snake to below Chief Joseph Dam). Table 1 shows that in the middle Columbia River most returning adults of hatchery origin were from Carson NFH and of wild origin were from the John Day River. Sizeable PIT-tagging programs occurred at both those locations in the years covered in this analysis.

**Table 1.** Number PIT-tagged hatchery and wild spring Chinook adults (with jacks) detected at Bonneville Dam ladders by return year for fish release sites in middle Columbia River drainage.

srft	river	rel. site	2002	2003	2004	2005	2006	2007	2008	Grand Total
11H	Wind	CARS	305	334	167	39	82	54	83	1064
	Hood	HOODMF & HOODWF							41	41
	Klickitat	KLIH							3	3
	Warm Spr	WSPH & WARMSR			38	2	1		12	53
	Umatilla	IMQP & UMAR & TMFFBY	31	19	15	13	16	13	11	118
	WallaWalla	WALLAR & WALLSF						4	1	5
11H Total			336	353	220	54	99	71	151	1284
11W	Hood	HOODR					1			1
	John Day	JDAR1	110	113	103	125	59	50	34	594
	John Day	JDAR2	1				16	14	8	39
	John Day	JDARMF		3			11	16	19	49
	John Day	JDARNF & JDARSF	8	10	3		3	1	4	29
	Umatilla	IMQP & UMAR & TMFFBY	1	4	5	4				14
	WallaWalla	WALLAR			6	6	5			17
11W Total			120	130	117	135	95	81	65	743
Middle Columbia Basin Total			456	483	337	189	194	152	216	2027

Table 2 shows that in the upper Columbia River most returning spring Chinook adults of hatchery origin were from Leavenworth NFH or Cle Elm Hatchery's releases at Clark Flat, Easton, and Jack Creek acclimation ponds and of wild origin were from the Yakima River. Sizeable PIT-tagging programs occurred at both those locations in the years covered in this analysis. For summer Chinook, the large scale releases of PIT-tagged Wells Hatchery summer Chinook yearlings in the forebays and tailraces of Priest Rapids, Wannapum, Rock Island, Rocky Reach, and Wells dams between 2000 and 2008 provided ample numbers of returning adults (with jacks) in each of return years 2002 to 2008 for determining run timing for upper Columbia River summer Chinook (Table 2). Without these fish, the total available adults (with jacks) across all seven return years would have been only 29 fish from Wells Hatchery on-site PIT-tag releases and 23 fish from its Okanogan River releases.

**Table 2.** Number PIT-tagged hatchery and wild spring Chinook adults (with jacks) and hatchery Wells stock summer Chinook adults (with jacks) detected at Bonneville Dam ladders by return year for fish release sites in upper Columbia River drainage.

srrt	river	rel_site	2002	2003	2004	2005	2006	2007	2008	Grand Total
11H	Yakima	YAKIMR & YAKIM1	128	5	2	2		6	16	159
	Yakima	CHANDL	19	3				3	6	31
	Yakima	CLARFP	211	39	55	25	48	26	82	486
	Yakima	EASTOP	163	41	51	25	30	21	56	387
	Yakima	JACKCP	105	35	86	48	48	31	49	402
	Yakima	ROSAD	28	2	1	6	4	6	11	58
	Wenatchee	LEAV	44	73	650	601	395	68	74	1905
	Wenatchee	CHIP							20	20
	Entiat	ENTH		5	128	134	136	21	6	430
	Methow	METH			46	60	6			112
	Methow	CHEWUP			7	16	33	1		57
	Methow	TWISPP & TWISPR				44	62	2	4	112
	Methow	WINT	38	24	82	11	17	6	9	187
11H Total			736	227	1108	972	779	191	333	4346
11W	Yakima	YAKIMR & YAKIM1	93	93	49	66	50	21	26	398
	Yakima	ROSAD	66	13	56	52	47	11	9	254
	Yakima	CHANDL	22	43	12	15	39	18	9	158
	Wenatchee	WENATT & PESHAR					1	1	9	11
	Wenatchee	CHIWAT & CHIWAR				5	2	2	14	23
	Entiat	ENTIAR				2	4	7	8	21
	Methow	METHR & METTRP & TWISPR						2	3	5
11W Total			181	149	117	140	143	62	78	870
12H	Mainstem	COLR & COLR7	95	235	391	103	6			830
	Mainstem	PRDTAL			38	174	291	303	73	879
	Mainstem	WAN & WANTAL			38	173	326	255	32	824
	Mainstem	RIS & RI2BYP & RISTAL	379	687	545	570	771	365	145	3462
	Mainstem	RRE & RRETAL	335	729	443	394	491	129	23	2544
	Mainstem	WELTAL				18	43	71	21	153
	Mainstem	WELH		3	7	6	2	4	7	29
	Okanogan	OKANR	7	15	1					23
12H Total			816	1669	1463	1438	1930	1127	301	8744
Upper Columbia Basin Total			1733	2045	2688	2550	2852	1380	712	13960

Table 3 shows that in the Snake River most returning spring Chinook adults of hatchery origin were from Rapid River and Dworshak hatcheries. Sizeable PIT-tagging programs occurred at both those locations in the years covered in this analysis due to tagging specifically for the CSS plus additional research programs in some years. The spring Chinook wild stocks are mostly spread across numerous tributaries within the Clearwater, Grande Ronde, and Salmon River drainages.

**Table 3.** Number PIT-tagged hatchery and wild spring Chinook adults (with jacks) detected at Bonneville Dam ladders by return year for fish release sites in Snake River drainage.

srt	river	rel_site	2002	2003	2004	2005	2006	2007	2008	Grand Total
11H	Tucannon	CURP			1	1			5	7
	Clearwater	DWORNF & DWORMS & (*note)	289	413	282	100	163	192	477	1916
	Clearwater	KOOS & CLEARC	11	3	6	1	2	2	7	32
	Clearwater	LOLOC	1	4	4					9
	Clearwater	PAPOOC & PETEKC & SQUAWC			2	1				3
	Clearwater	POWPP	5	2	2			15	97	121
	Clearwater	MEADOC & NEWSOC		1	10	1	3	2	5	22
	Clearwater	CROOKR & CROOKP		1	1			11	94	107
	Clearwater	REDP & REDR		2		1		6	95	104
	Grande Ronde	GRNTRP & GRANDR	11	4	9	3	1	4	10	42
	Grande Ronde	LOOKGC & LOOH	6	5	1	1	6		5	24
	Grande Ronde	LOSTIP	52	58	98	42	16	27	42	335
	Grande Ronde	CATHEP	12	34	57	27	24	29	85	268
	Grande Ronde	GRANDP	2		3	4		2	8	19
	Salmon	RAPH	520	770	1147	456	124	180	527	3724
	Salmon	YANKFK						1	2	3
	Salmon	SAWTRP & SAWT	5	1	2				41	49
11H Total			914	1298	1625	638	339	471	1500	6785
11W	Tucannon	TUCR			1	2			2	5
	Clearwater	CLWTRP & CLWR			5	2	2	3	2	14
	Clearwater	LOLOC	4	6		1	3	2	10	26
	Clearwater	CLEARC	2	3	2		1			8
	Clearwater	CFCTR	3	4	1	1	1	3	6	19
	Clearwater	COLTKC & WHITSC	1	1	3		1		1	7
	Clearwater	PAPOOC & SQUAWC & FISTRP		1	1	1		1	4	8
	Clearwater	MEADOC	5	3	7	1	2	3	34	55
	Clearwater	NEWSOC	2	6	1	1		1	5	16
	Clearwater	CROTRP & AMERR		4	2	1	1	3		11
	Clearwater	REDTRP	3	7	2		2		4	18
	Grande Ronde	GRNTRP & GRANDR	19	23	13	7	12	11	36	121
	Grande Ronde	MINAMR	1	6	5	2	2	2	4	22
	Grande Ronde	LOOKGC		1	11	4		1	1	18
	Grande Ronde	LOSTIR	14	15	10	4	5	5	9	62
	Grande Ronde	CATHEC	3	7	4	2	3	2	6	27
	Grande Ronde	GRAND2	3	5		4	6	2	6	26
	Salmon	CHAMWF & RPDTRP			1			2		3
	Salmon	BIG2C	1	3	3	2			1	10
	Salmon	CAMASC & LOONC & SULFUC	6	4					2	12
	Salmon	MARTRP & MARSHC	7	12	9	3		1	1	33
	Salmon	ELKC & CAPEHC & BEARVC	1	7	2	2				12
	Salmon	LEMHIW & LEMHIR	8	11	7	2	3	3	6	40
	Salmon	SALEFT & SALREF & HERDC	2	2					4	8
	Salmon	YANKWF & VALEYC	1	7	1	1		1	2	13
	Salmon	SAWTRP	5	9	13	9	10	10	21	77
11W Total			91	147	104	52	54	56	167	671
Snake River Basin Spring Chinook Total			1005	1445	1729	690	393	527	1667	7456
*note -- Dworshak NFH on-site releases include rel_site DWOR and CLWR in addition to DWORNF and DWORMS										

Table 4 shows that in the Snake River most returning summer Chinook adults of hatchery origin were from Imnaha and McCall hatcheries. Sizeable PIT-tagging programs occurred at both those locations in the years covered in this analysis due to tagging specifically for the CSS plus additional research programs using fish from McCall Hatchery in some years. The Snake River summer Chinook wild stock adults were mostly from the Imnaha River Trap located 6 km above the Imnaha River mouth, and from several locations in the South Fork Salmon River, plus a few also from Pahsimeroi River in the upper portion of the Salmon River drainage.

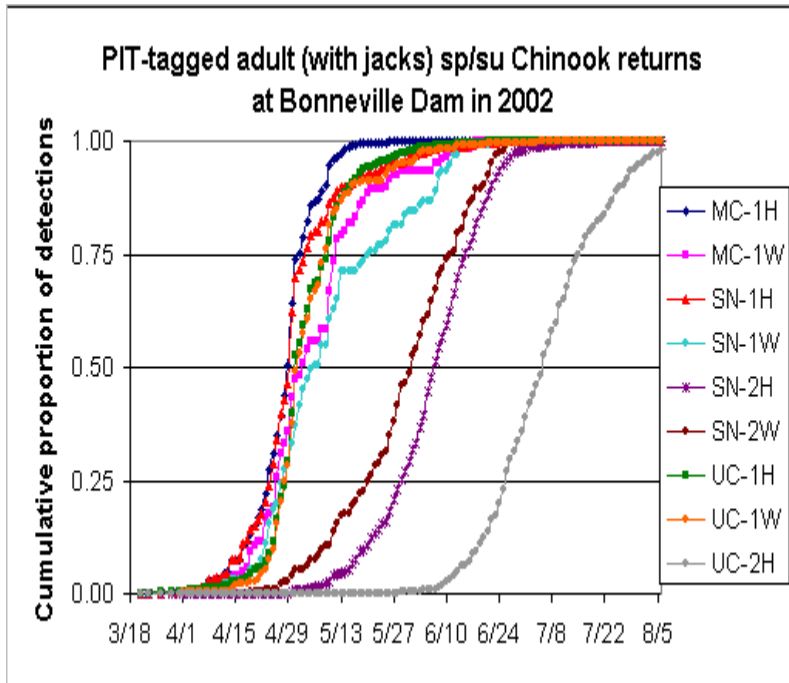
**Table 4.** Number PIT-tagged hatchery and wild summer Chinook adults (with jacks) detected at Bonneville Dam ladders by return year for fish release sites in Snake River drainage.

srt	river	rel_site	2002	2003	2004	2005	2006	2007	2008	Grand Total
12H	Imnaha	IMNAHW	359	205	181	102	58	86	212	1203
	Imnaha	IMNTRP & IMNAHR	46	24	10	1				81
	SF Salmon	JOHNSC	17	16	17	15	7	28	53	153
	SF Salmon	KNOXB	760	634	579	292	187	299	555	3306
	SF Salmon	SALRSF & SFSTRP & STOLP		2			1			3
	Pahsimeroi	PAHP	7		3	1	1			12
12H Total			1189	881	790	411	254	413	820	4758
12W	Imnaha	IMNAHR & IMNAHW	21	23	4	2			3	53
	Imnaha	IMNTRP	82	81	47	28	38	26	25	327
	SF Salmon	JOHTRP & JOHNSC	27	41	31	6	8	11	39	163
	SF Salmon	LSFTRP & SALRSF	14	33	4					51
	SF Salmon	SECESR & SECTRP & LAKEC	21	33	13	3	2	4	15	91
	SF Salmon	SFSTRP & KNOXB	10	24	2	2	4	3	7	52
	Pahsimeroi	PAHTRP	6	3	1		4	3	5	22
12W Total			181	238	102	41	56	47	94	759
Snake River Basin Summer Chinook Total			1370	1119	892	452	310	460	914	5517

The counting of returning Chinook adults and jacks as spring run ends at Bonneville Dam on May 31, and it switches to summer run on the following day. The seven-year average cumulative proportion for return years 2002 to 2008 at Bonneville Dam through May 31 was between 94% and 98% for middle Columbia River, Snake River, and upper Columbia River PIT-tagged hatchery spring Chinook (Table 5). For middle and upper Columbia PIT-tagged wild spring Chinook it was near 93%, while Snake River PIT-tagged wild spring Chinook dropped to approximately 86%. The PIT-tagged Wells Hatchery summer Chinook averaged only 2% detections at Bonneville Dam before the start of counting of run-at-large Chinook as summer run. The Snake River PIT-tagged summer Chinook had a seven-year average cumulative proportion detected through May 31 of approximately 37% for hatchery fish and 49% for wild fish. Therefore, a large proportion of the returning PIT-tagged summer Chinook adults and jacks from the Snake River basin are passing the Bonneville Dam adult counting windows before the official start of the summer run counting season. The full distribution of the cumulative proportion of PIT-tagged wild and hatchery spring and summer Chinook adults (with jacks) detected at Bonneville Dam are graphed for each return year separately in Figures 1 to 7.

**Table 5.** Cumulative proportion of PIT-tagged wild and hatchery spring and summer Chinook detected at Bonneville Dam by May 31 of 2002 through 2008, which is the last day of designating returning adults and jacks as spring Chinook at the Bonneville Dam fishway counting window.

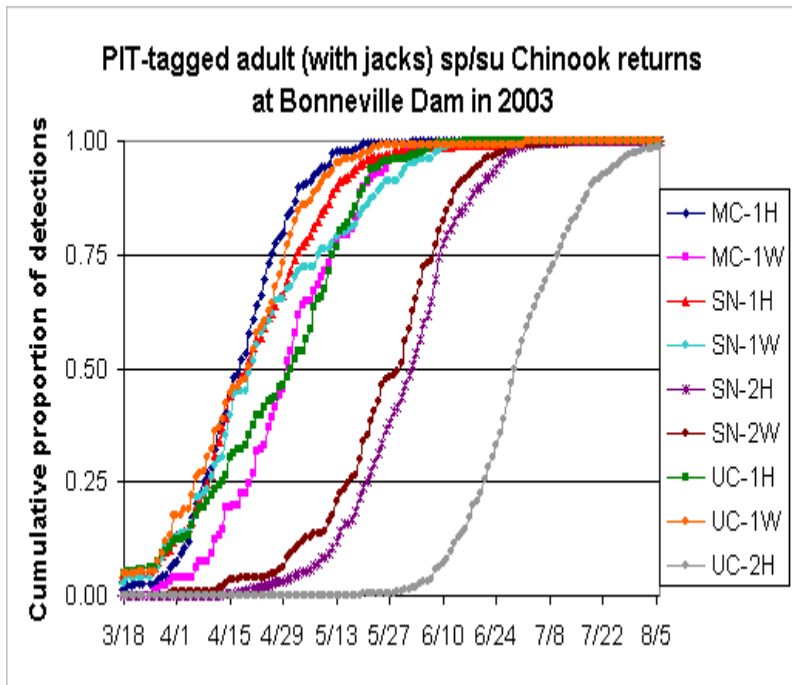
	MC-1H	MC-1W	SN-1H	SN-1W	SN-2H	SN-2W	UC-1H	UC-1W	UC-2H
5/31/02	1.000	0.933	0.963	0.846	0.293	0.486	0.977	0.950	0.004
5/31/03	0.997	0.969	0.979	0.939	0.462	0.559	0.960	0.993	0.013
5/31/04	0.995	0.983	0.971	0.846	0.601	0.696	0.988	0.957	0.024
5/31/05	1.000	0.956	0.964	0.808	0.436	0.561	0.989	0.943	0.061
5/31/06	1.000	0.895	0.962	0.889	0.185	0.357	0.985	0.930	0.004
5/31/07	1.000	0.889	0.945	0.875	0.278	0.447	0.890	0.919	0.025
5/31/08	0.834	0.862	0.956	0.808	0.307	0.351	0.835	0.782	0.010
<b>Average</b>	<b>0.975</b>	<b>0.927</b>	<b>0.963</b>	<b>0.859</b>	<b>0.366</b>	<b>0.494</b>	<b>0.946</b>	<b>0.925</b>	<b>0.020</b>



**Figure 1.** Return year 2002 timing at Bonneville Dam of hatchery and wild spring and summer Chinook adults (with jacks) from Snake and Columbia rivers. (Legend: MC is middle Columbia from Bonneville Dam to confluence of Snake River, SN is Snake River, and UC is upper Columbia from confluence with Snake River to Chief Joseph Dam; 1 is spring run and 2 is summer run; H is hatchery fish and W is wild fish.)

*Table at right shows the breakdown by river of origin and release site for the PIT-tagged returning adults (including jacks) that compose each cumulative curve in above figure.*

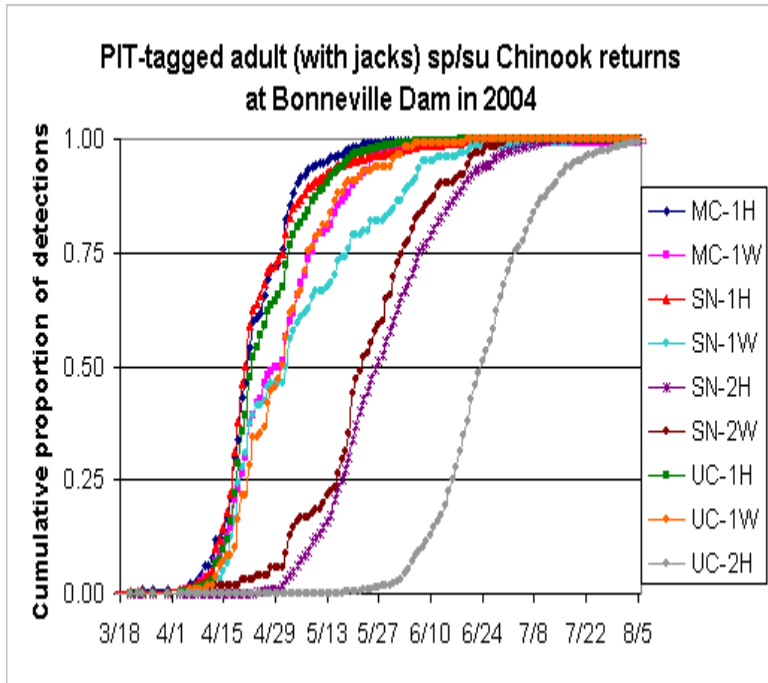
basin	srtr	river	rel site	2002	
MC	11H	Wind	CARS	305	
		Umatilla	IMQP & UMAR & TMFFBY	31	
	11H Total			336	
	11W	John Day	JDAR1	110	
		John Day	JDAR2	1	
		John Day	JDARNF & JDARSF	8	
		Umatilla	IMQP & UMAR & TMFFBY	1	
	11W Total			120	
	SN	11H	Clearwater	DWORNF & DWORMS	289
			Clearwater	KOOS & CLEARC	11
Clearwater		LOLOC	1		
Clearwater		POWP	5		
Grande Ronde		GRNTRP & GRANDR	11		
Grande Ronde		LOOKGC & LOOH	6		
Grande Ronde		LOSTIP	52		
Grande Ronde		CATHEP	12		
Grande Ronde		GRANDP	2		
Salmon		RAPH	520		
Salmon		SAWTRP & SAWT	5		
11H Total			914		
11W		Clearwater	LOLOC	4	
		Clearwater	CLEARC	2	
		Clearwater	CFCTRP	3	
		Clearwater	COLTKC & WHITSC	1	
		Clearwater	MEADOC	5	
		Clearwater	NEWSOC	2	
		Clearwater	REDTRP	3	
		Grande Ronde	GRNTRP & GRANDR	19	
		Grande Ronde	MINAMR	1	
		Grande Ronde	LOSTIR	14	
		Grande Ronde	CATHEC	3	
		Grande Ronde	GRAND2	3	
		Salmon	BIG2C	1	
		Salmon	CAMASC & LOONC & SULFUC	6	
		Salmon	MARTRP & MARSHC	7	
		Salmon	ELKC & CAPEHC & BEARVC	1	
		Salmon	LEMHW & LEMHIR	8	
		Salmon	SALEFT & SALREF & HERDC	2	
	Salmon	YANKWF & VALEYC	1		
	Salmon	SAWTRP	5		
11W Total			91		
12H	Imnaha	IMNAHW	359		
	Imnaha	IMNTRP & IMNAHR	46		
	SF Salmon	JOHNSC	17		
	SF Salmon	KNOXB	760		
	Pahsimeroi	PAHP	7		
	12H Total			1189	
12W	Imnaha	IMNAHR & IMNAHW	21		
	Imnaha	IMNTRP	82		
	SF Salmon	JOHTRP & JOHNSC	27		
	SF Salmon	LSFTRP & SALRSF	14		
	SF Salmon	SECESR & SECTRP & LAKEC	21		
	SF Salmon	SFSTRP & KNOXB	10		
	Pahsimeroi	PAHTRP	6		
	12W Total			181	
UC	11H	Yakima	YAKIMR & YAKIM1	128	
		Yakima	CHANDL	19	
		Yakima	CLARFP	211	
		Yakima	EASTOP	163	
		Yakima	JACKCP	105	
		Yakima	ROSAD	28	
		Wenatchee	LEAV	44	
	Methow	WINT	38		
11H Total			736		
11W	Yakima	YAKIMR & YAKIM1	93		
	Yakima	ROSAD	66		
	Yakima	CHANDL	22		
11W Total			181		
12H	Mainstem	COLR & COLR7	95		
	Mainstem	RIS & RI2BYP & RISTAL	379		
	Mainstem	RRE & RRETAL	335		
	Okanogan	OKANR	7		
12H Total			816		



**Figure 2.** Return year 2003 timing at Bonneville Dam of hatchery and wild spring and summer Chinook adults (with jacks) from Snake and Columbia rivers. (Legend: MC is middle Columbia from Bonneville Dam to confluence of Snake River, SN is Snake River, and UC is upper Columbia from confluence with Snake River to Chief Joseph Dam; 1 is spring run and 2 is summer run; H is hatchery fish and W is wild fish.)

Table at right shows the breakdown by river of origin and release site for the PIT-tagged returning adults (including jacks) that compose each cumulative curve in above figure.

basin	srrt	river	rel_site	2003	
MC	11H	Wind	CARS	334	
		Umatilla	IMQP & UMAR & TMFFBY	19	
	11H Total			353	
	11W	John Day	JDAR1	113	
		John Day	JDARMF	3	
John Day		JDARNF & JDARSF	10		
Umatilla		IMQP & UMAR & TMFFBY	4		
11W Total			130		
SN	11H	Clearwater	DWORNF & DWORMS & CLWR	413	
		Clearwater	KOOS & CLEARC	3	
		Clearwater	LOLOC	4	
		Clearwater	POWP	2	
		Clearwater	MEADOC & NEWSOC	1	
		Clearwater	CROOKR & CROOKP	1	
		Clearwater	REDP & REDR	2	
		Grande Ronde	GRNTRP & GRANDR	4	
		Grande Ronde	LOOKGC & LOOH	5	
		Grande Ronde	LOSTIP	58	
		Grande Ronde	CATHEP	34	
		Salmon	RAPH	770	
		Salmon	SAWTRP & SAWT	1	
		11H Total			1298
		11W	Clearwater	LOLOC	6
				CLEARC	3
				CFCTRP	4
COLTKC & WHITSC	1				
PAPOOC & SQUAWC & FISTRP	1				
MEADOC	3				
NEWSOC	6				
CROTRP & AMERR	4				
REDTRP	7				
GRNTRP & GRANDR	23				
MINAMR	6				
LOOKGC	1				
LOSTIR	15				
CATHEC	7				
GRAND2	5				
12H	Imnaha	IMNAHW	205		
		IMNTRP & IMNAHR	24		
		SF Salmon	JOHNSC	16	
		SF Salmon	KNOXB	634	
		SF Salmon	SALRSF & SFSTRP & STOLP	2	
		12H Total			881
		12W	Imnaha	IMNAHR & IMNAHW	23
				IMNTRP	81
				SF Salmon	JOHTRP & JOHNSC
SF Salmon	LSFTRP & SALRSF			33	
SF Salmon	SECESR & SECTRP & LAKEC			33	
SF Salmon	SFSTRP & KNOXB			24	
Pahsimeroi	PAHTRP			3	
12W Total				238	
UC	11H	Yakima	YAKIMR & YAKIM1	5	
		Yakima	CHANDL	3	
		Yakima	CLARFP	39	
		Yakima	EASTOP	41	
		Yakima	JACKCP	35	
		Yakima	ROSAD	2	
		Wenatchee	LEAV	73	
		Entiat	ENTH	5	
		Methow	WINT	24	
		11H Total			227
11W	Yakima	YAKIMR & YAKIM1	93		
		ROSAD	13		
		CHANDL	43		
11W Total			149		
12H	Mainstem	COLR & COLR7	235		
		RIS & RI2BYP & RISTAL	687		
		RRE & RRETAL	729		
		WELH	3		
		Okanogan	OKANR	15	
12H Total			1669		

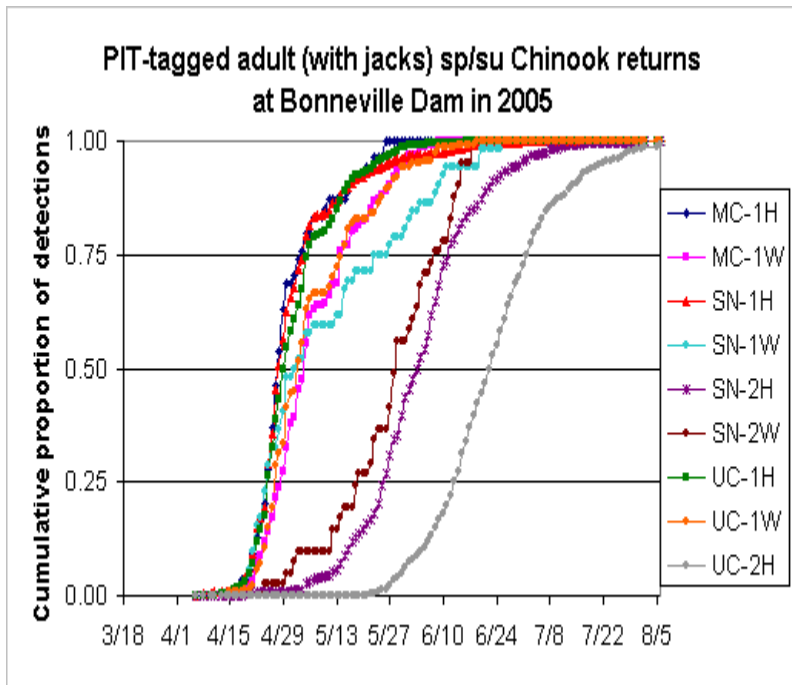


**Figure 3.** Return year 2004 timing at Bonneville Dam of hatchery and wild spring and summer Chinook adults (with jacks) from Snake and Columbia rivers. (Legend: MC is middle Columbia from Bonneville Dam to confluence of Snake River, SN is Snake River, and UC is upper Columbia from confluence with Snake River to Chief Joseph Dam; 1 is spring run and 2 is summer run; H is hatchery fish and W is wild fish.)

Table at right shows the breakdown by river of origin and release site for the PIT-tagged returning adults (including jacks) that compose each cumulative curve in above figure.

basin	srrt	river	rel_site	2004		
MC	11H	Wind	CARS	167		
		Warm Spr	WSPH & WARMSP	38		
		Umatilla	IMQP & UMAR & TMFFBY	15		
11H Total				220		
11W		John Day	JDAR1	103		
		John Day	JDARNF & JDARSF	3		
		Umatilla	IMQP & UMAR & TMFFBY	5		
		WallaWalla	WALLAR	6		
11W Total				117		
SN	11H	Tucannon	CURP	1		
		Clearwater	DWORNF & DWORMS	282		
		Clearwater	KOOS & CLEARC	6		
		Clearwater	LOLOC	4		
		Clearwater	PAPDOC & PETEKC & SQUAWC	2		
		Clearwater	POVWP	2		
		Clearwater	MEADOC & NEWSOC	10		
		Clearwater	CROOKR & CROOKP	1		
		Grande Ronde	GRNTRP & GRANDR	9		
		Grande Ronde	LOOKGC & LOOH	1		
		Grande Ronde	LOSTIP	98		
		Grande Ronde	CATHEP	57		
		Grande Ronde	GRANDP	3		
		Salmon	RAPH	1147		
		Salmon	SAWTRP & SAWT	2		
		11H Total				1625
		11W		Tucannon	TUCR	1
Clearwater	CLWTRP & CLWR			5		
Clearwater	CLEARC			2		
Clearwater	CFCTRP			1		
Clearwater	COLTKC & WHITSC			3		
Clearwater	PAPDOC & SQUAWC & FISTRP			1		
Clearwater	MEADOC			7		
Clearwater	NEWSOC			1		
Clearwater	CROTTRP & AMERR			2		
Clearwater	REDTRP			2		
Grande Ronde	GRNTRP & GRANDR			13		
Grande Ronde	MINAMR			5		
Grande Ronde	LOOKGC			11		
Grande Ronde	LOSTIR	10				
Grande Ronde	CATHEC	4				
Salmon	CHAMWF & RPDTRP	1				
Salmon	BIG2C	3				
Salmon	MARTRP & MARSHC	9				
Salmon	ELKC & CAPEHC & BEARVC	2				
Salmon	LEMHIW & LEMHIR	7				
Salmon	YANKWF & VALEYC	1				
Salmon	SAWTRP	13				
11W Total				104		
12H		Imnaha	IMNAHW	181		
		Imnaha	IMNTRP & IMNAHR	10		
		SF Salmon	JOHNSC	17		
		SF Salmon	KNOXB	579		
		Pahsimeroi	PAHP	3		
12H Total				790		
12W		Imnaha	IMNAHR & IMNAHW	4		
		Imnaha	IMNTRP	47		
		SF Salmon	JOHTRP & JOHNSC	31		
		SF Salmon	LSFTRP & SALRSF	4		
		SF Salmon	SECESR & SECTRP & LAKEC	13		
		SF Salmon	SFSTRP & KNOXB	2		
		Pahsimeroi	PAHTRP	1		
12W Total				102		
UC	11H	Yakima	YAKIMR & YAKIM1	2		
		Yakima	CLARFP	55		
		Yakima	EASTOP	51		
		Yakima	JACKCP	86		
		Yakima	ROSAD	1		
		Wenatchee	LEAV	650		
		Entiat	ENTH	128		
Methow	METH	46				
Methow	CHEWUP	7				
Methow	WINT	82				
11H Total				1108		
11W		Yakima	YAKIMR & YAKIM1	49		
		Yakima	ROSAD	56		
		Yakima	CHANDL	12		
11W Total				117		
12H		Mainstem	COLR & COLR7	391		
		Mainstem	PRDTAL	38		
		Mainstem	WAN & WANTAL	38		
		Mainstem	RIS & RIBYP & RISTAL	545		
		Mainstem	RRE & RRETAL	443		
		Mainstem	WELH	7		
Okanogan	OKANR	1				
12H Total				1463		

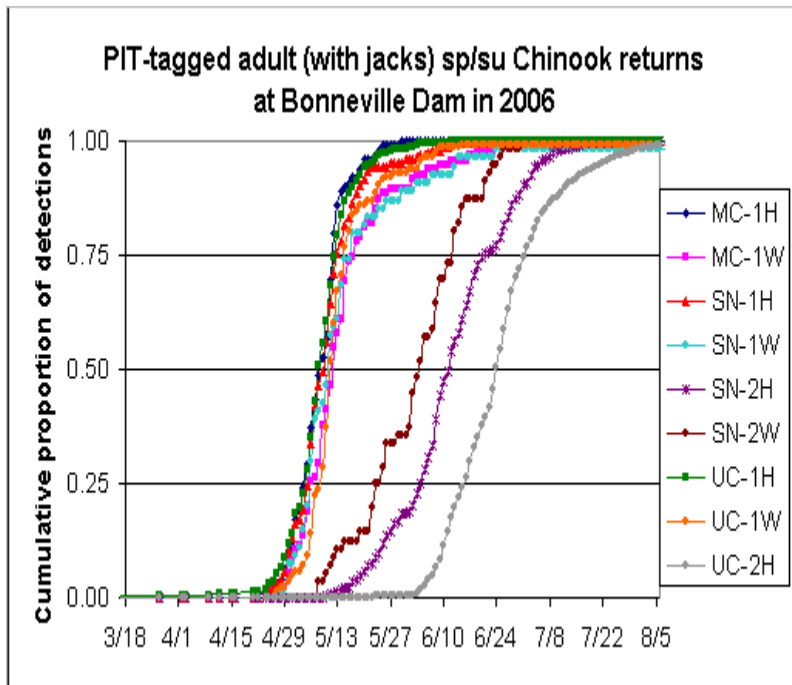




**Figure 4.** Return year 2005 timing at Bonneville Dam of hatchery and wild spring and summer Chinook adults (with jacks) from Snake and Columbia rivers. (Legend: MC is middle Columbia from Bonneville Dam to confluence of Snake River, SN is Snake River, and UC is upper Columbia from confluence with Snake River to Chief Joseph Dam; 1 is spring run and 2 is summer run; H is hatchery fish and W is wild fish.)

*Table at right shows the breakdown by river of origin and release site for the PIT-tagged returning adults (including jacks) that compose each cumulative curve in above figure.*

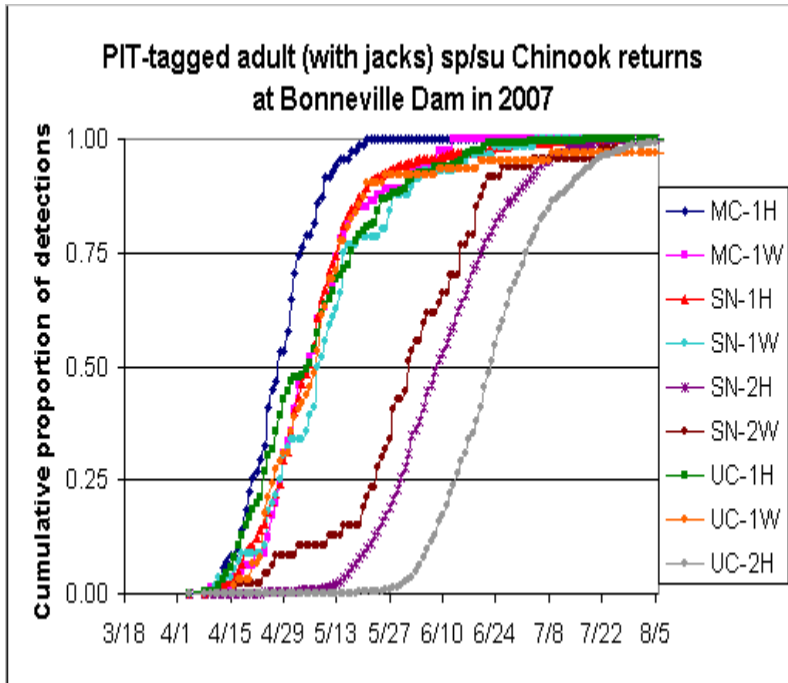
basin	srrt	river	rel_site	2005
MC	11H	Wind	CARS	39
		Warm Spr	WSPH & WARMSR	2
		Umatilla	IMQP & UMAR & TMFFBY	13
				54
	11H Total			54
	11W	John Day	JDAR1	125
		Umatilla	IMQP & UMAR & TMFFBY	4
		WallaWalla	WALLAR	6
				135
	11W Total			135
SN	11H	Tucannon	CURP	1
		Clearwater	DWORNF & DWOR	100
		Clearwater	KOOS & CLEARC	1
		Clearwater	PAPOOC & PETEKC & SQUAWC	1
		Clearwater	MEADOC & NEWSOC	1
		Clearwater	REDP & REDR	1
		Grande Ronde	GRNTRP & GRANDR	3
		Grande Ronde	LOOKGC & LOOH	1
		Grande Ronde	LOSTIP	42
		Grande Ronde	CATHEP	27
		Grande Ronde	GRANDP	4
		Salmon	RAPH	456
				638
	11H Total			638
	11W	Tucannon	TUCR	2
		Clearwater	CLWTRP & CLWR	2
		Clearwater	LOLOC	1
		Clearwater	CFCTRP	1
		Clearwater	PAPOOC & SQUAWC & FISTRP	1
		Clearwater	MEADOC	1
		Clearwater	NEWSOC	1
		Clearwater	CROTRP & AMERR	1
		Grande Ronde	GRNTRP & GRANDR	7
		Grande Ronde	MINAMR	2
		Grande Ronde	LOOKGC	4
		Grande Ronde	LOSTIR	4
		Grande Ronde	CATHEC	2
		Grande Ronde	GRAND2	4
		Salmon	BIG2C	2
		Salmon	MARTRP & MARSHC	3
		Salmon	ELKC & CAPEHC & BEARVC	2
		Salmon	LEMHIW & LEMHIR	2
		Salmon	YANKWF & VALEYC	1
		Salmon	SAWTRP	9
				52
	11W Total			52
	12H	Imnaha	IMNAHW	102
		Imnaha	IMNTRP & IMNAHR	1
		SF Salmon	JOHNSC	15
		SF Salmon	KNOXB	292
		Pahsimeroi	PAHP	1
				411
	12H Total			411
	12W	Imnaha	IMNAHR & IMNAHW	2
		Imnaha	IMNTRP	28
		SF Salmon	JOHTRP & JOHNSC	6
		SF Salmon	SECESR & SECTRP & LAKEC	3
		SF Salmon	SFSTRP & KNOXB	2
				41
	12W Total			41
UC	11H	Yakima	YAKIMR & YAKIM1	2
		Yakima	CLARFP	25
		Yakima	EASTOP	25
		Yakima	JACKCP	48
		Yakima	ROSAD	6
		Wenatchee	LEAV	601
		Entiat	ENTH	134
		Methow	METH	60
		Methow	CHEWUP	16
		Methow	TWISPP & TWISPR	44
		Methow	WINT	11
				972
	11H Total			972
	11W	Yakima	YAKIMR & YAKIM1	66
		Yakima	ROSAD	52
		Yakima	CHANDL	15
		Wenatchee	CHIWAT & CHIWAR	5
		Entiat	ENTIAR	2
				140
	11W Total			140
	12H	Mainstem	COLR & COLR7	103
		Mainstem	PRDTAL	174
		Mainstem	WAN & WANTAL	173
		Mainstem	RIS & RI2BYP & RISTAL	570
		Mainstem	RRE & RRETAL	394
		Mainstem	WELTAL	18
		Mainstem	WELH	6
				1438
	12H Total			1438



**Figure 5.** Return year 2006 timing at Bonneville Dam of hatchery and wild spring and summer Chinook adults (with jacks) from Snake and Columbia rivers. (Legend: MC is middle Columbia from Bonneville Dam to confluence of Snake River, SN is Snake River, and UC is upper Columbia from confluence with Snake River to Chief Joseph Dam; 1 is spring run and 2 is summer run; H is hatchery fish and W is wild fish.)

*Table at right shows the breakdown by river of origin and release site for the PIT-tagged returning adults (including jacks) that compose each cumulative curve in above figure.*

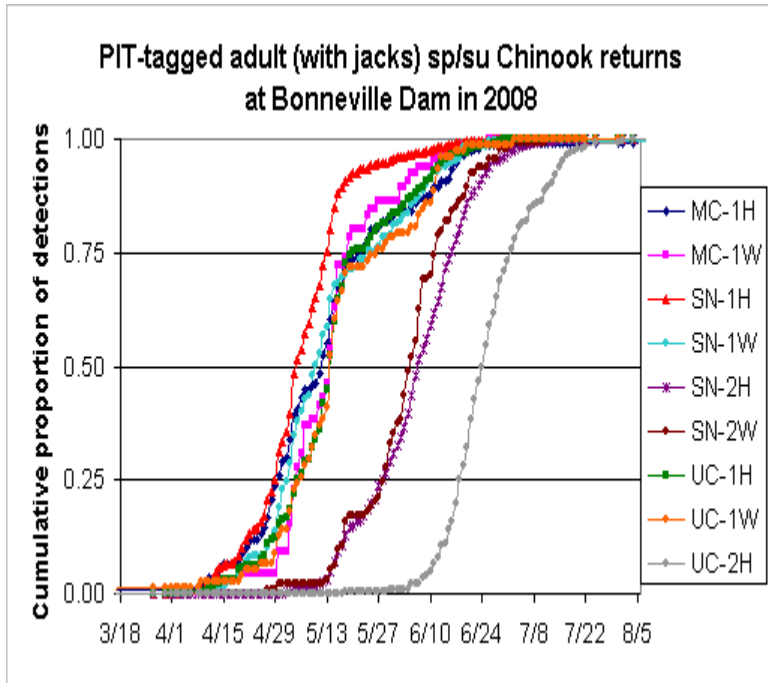
basin	srtr	river	rel_site	2006		
MC	11H	Wind	CARS	82		
		Warm Spr	WSPH & WARMSR	1		
		Umatilla	IMQP & UMAR & TMFFBY	16		
11H Total				99		
11W		Hood	HOODR	1		
		John Day	JDAR1	59		
		John Day	JDAR2	16		
		John Day	JDARMF	11		
		John Day	JDARNF & JDARSF	3		
		WallaWalla	WALLAR	5		
11W Total				95		
SN	11H	Clearwater	DWORNF & DWOR	163		
		Clearwater	KOOS & CLEARC	2		
		Clearwater	MEADOC & NEWSOC	3		
		Grande Ronde	GRNTRP & GRANDR	1		
		Grande Ronde	LOOKGC & LOOH	6		
		Grande Ronde	LOSTIP	16		
		Grande Ronde	CATHEP	24		
		Salmon	RAPH	124		
		11H Total				339
		11W		Clearwater	CLWTRP & CLWR	2
Clearwater	LOLOC			3		
Clearwater	CLEARC			1		
Clearwater	CFCTRP			1		
Clearwater	COLTKC & WHITSC			1		
Clearwater	MEADOC			2		
Clearwater	CROTRP & AMERR			1		
Clearwater	REDTRP			2		
Grande Ronde	GRNTRP & GRANDR			12		
Grande Ronde	MINAMR			2		
Grande Ronde	LOSTIR			5		
Grande Ronde	CATHEC			3		
Grande Ronde	GRAND2			6		
Salmon	LEMHIW & LEMHIR			3		
Salmon	SAWTRP	10				
11W Total				54		
12H		Imnaha	IMNAHW	58		
		SF Salmon	JOHNSC	7		
		SF Salmon	KNOXB	187		
		SF Salmon	SALRSF & SFSTRP & STOLP	1		
		Pahsimeroi	PAHP	1		
12H Total				254		
12W		Imnaha	IMNTRP	38		
		SF Salmon	JOHTRP & JOHNSC	8		
		SF Salmon	SECESR & SECTRP & LAKEC	2		
		SF Salmon	SFSTRP & KNOXB	4		
		Pahsimeroi	PAHTRP	4		
		12W Total				56
UC	11H	Yakima	CLARFP	48		
		Yakima	EASTOP	30		
		Yakima	JACKCP	48		
		Yakima	ROSAD	4		
		Wenatchee	LEAV	395		
		Entiat	ENTH	136		
		Methow	METH	6		
		Methow	CHEWUP	33		
		Methow	TWISPP & TWISPR	62		
		Methow	WINT	17		
11H Total				779		
11W		Yakima	YAKIMR & YAKIM1	50		
		Yakima	ROSAD	47		
		Yakima	CHANDL	39		
		Wenatchee	WENATT & PESHAR	1		
		Wenatchee	CHIWAT & CHIWAR	2		
		Entiat	ENTIAR	4		
11W Total				143		
12H		Mainstem	COLR & COLR7	6		
		Mainstem	PRDTAL	291		
		Mainstem	WAN & WANTAL	326		
		Mainstem	RIS & RIZBYP & RISTAL	771		
		Mainstem	RRE & RRETAL	491		
		Mainstem	WELTAL	43		
Mainstem	WELH	2				
12H Total				1930		



**Figure 6.** Return year 2007 timing at Bonneville Dam of hatchery and wild spring and summer Chinook adults (with jacks) from Snake and Columbia rivers. (Legend: MC is middle Columbia from Bonneville Dam to confluence of Snake River, SN is Snake River, and UC is upper Columbia from confluence with Snake River to Chief Joseph Dam; 1 is spring run and 2 is summer run; H is hatchery fish and W is wild fish.)

Table at right shows the breakdown by river of origin and release site for the PIT-tagged returning adults (including jacks) that compose each cumulative curve in above figure.

basin	srrt	river	rel_site	2007		
MC	11H	Wind	CARS	54		
		Umatilla	IMGP & UMAR & TMFFBY	13		
		WallaWalla	WALLAR & WALLSF	4		
	11H Total				71	
11W	John Day		JDAR1	50		
			JDAR2	14		
			JDARMF	16		
			JDARNF & JDARSF	1		
11W Total				81		
SN	11H	Clearwater	DWORNF & DWOR	192		
		Clearwater	KOOS & CLEARC	2		
		Clearwater	POWP	15		
		Clearwater	MEADOC & NEWSOC	2		
		Clearwater	CROOKR & CROOKP	11		
		Clearwater	REDP & REDR	6		
		Grande Ronde	GRNTRP & GRANDR	4		
		Grande Ronde	LOSTIP	27		
		Grande Ronde	CATHEP	29		
		Grande Ronde	GRANDP	2		
		Salmon	RAPH	180		
		Salmon	YANKFK	1		
		11H Total				471
		11W	Clearwater		CLWTRP & CLWR	3
	LOLOC			2		
	CFCTRP			3		
	PAPOOC & SQUAWC & FISTRP			1		
	MEADOC			3		
	NEWSOC			1		
	CROTRP & AMERR			3		
Grande Ronde	GRNTRP & GRANDR			11		
Grande Ronde	MINAMR			2		
Grande Ronde	LOOKGC			1		
Grande Ronde	LOSTIR			5		
Grande Ronde	CATHEC			2		
Grande Ronde	GRAND2			2		
Salmon	CHAMWVF & RPDTRP			2		
Salmon	MARTRP & MARSHC	1				
Salmon	LEMHIW & LEMHIR	3				
Salmon	YANKWF & VALEYC	1				
Salmon	SAWTRP	10				
11W Total				56		
12H	Imnaha		IMNAHW	86		
		SF Salmon	JOHNSC	28		
		SF Salmon	KNOXB	299		
12H Total				413		
12W	Imnaha		IMNTRP	26		
		SF Salmon	JOHTRP & JOHNSC	11		
		SF Salmon	SECESR & SECTRP & LAKEC	4		
		SF Salmon	SFSTRP & KNOXB	3		
		Pahsimeroi	PAHTRP	3		
		12W Total				47
11H	Yakima		YAKIMR & YAKIM1	6		
			CHANDL	3		
			CLARFP	26		
			EASTOP	21		
			JACKCP	31		
			ROSAD	6		
		Wenatchee	LEAV	68		
		Entiat	ENTH	21		
		Methow	CHEWUP	1		
11W	Yakima		YAKIMR & YAKIM1	21		
			ROSAD	11		
			CHANDL	18		
Wenatchee	WENATT & PESHAR	1				
Wenatchee	CHIWAT & CHIWAR	2				
Entiat	ENTIAR	7				
Methow	METHR & METTRP & TWISPR	2				
11W Total				62		
12H	Mainstem		PRDTAL	303		
			WAN & WANTAL	255		
			RIS & RIZBYP & RISTAL	365		
			RRE & RRETAL	129		
			WELTAL	71		
			WELH	4		
12H Total				1127		



**Figure 7.** Return year 2008 timing at Bonneville Dam of hatchery and wild spring and summer Chinook adults (with jacks) from Snake and Columbia rivers. (Legend: MC is middle Columbia from Bonneville Dam to confluence of Snake River, SN is Snake River, and UC is upper Columbia from confluence with Snake River to Chief Joseph Dam; 1 is spring run and 2 is summer run; H is hatchery fish and W is wild fish.)

*Table at right shows the breakdown by river of origin and release site for the PIT-tagged returning adults (including jacks) that compose each cumulative curve in above figure.*

basin	srtr	river	rel_site	2008
MC	11H	Wind	CARS	83
		Hood	HOODMF & HOODWF	41
		Klickitat	KLIH	3
		Warm Spr	WSPH & WARMSR	12
		Umatilla	IMQP & UMAT & TMFFBY	11
		WallaWalla	WALLAR & WALLSF	1
		11H Total		151
	11W	John Day	JDAR1	34
		John Day	JDAR2	8
		John Day	JDARMF	19
		John Day	JDARNF & JDARSF	4
		11W Total		65
SN	11H	Tucannon	CURP	5
		Clearwater	DWORNF & DWOR	477
		Clearwater	KOOS & CLEARC	7
		Clearwater	POWP	97
		Clearwater	MEADOC & NEWSOC	5
		Clearwater	CROOKR & CROOKP	94
		Clearwater	REDP & REDR	95
		Grande Ronde	GRNTRP & GRANDR	10
		Grande Ronde	LOOKGC & LOOH	5
		Grande Ronde	LOSTIP	42
		Grande Ronde	CATHEP	85
		Grande Ronde	GRANDP	8
		Salmon	RAPH	527
		Salmon	YANKFK	2
		Salmon	SAWTRP & SAWT	41
		11H Total		1500
	11W	Tucannon	TUCR	2
		Clearwater	CLWTRP & CLWR	2
		Clearwater	LOLOC	10
		Clearwater	CFCTRP	6
		Clearwater	COLTKC & WHITSC	1
		Clearwater	PAPOOC & SQUAWC & FISTRP	4
		Clearwater	MEADOC	34
		Clearwater	NEWSOC	5
		Clearwater	REDTRP	4
		Grande Ronde	GRNTRP & GRANDR	36
		Grande Ronde	MINAMR	4
		Grande Ronde	LOOKGC	1
		Grande Ronde	LOSTIR	9
		Grande Ronde	CATHEC	6
		Grande Ronde	GRAND2	6
		Salmon	BIG2C	1
		Salmon	CAMASC & LOONC & SULFUC	2
		Salmon	MARTRP & MARSHC	1
		Salmon	LEMHIR & LEMHIR	6
		Salmon	SALEFT & SALREF & HERDC	4
		Salmon	YANKWF & VALEYC	2
		Salmon	SAWTRP	21
		11W Total		167
	12H	Imnaha	IMNAHW	212
		SF Salmon	JOHNSC	53
		SF Salmon	KNOXB	555
		12H Total		820
	12W	Imnaha	IMNAHR & IMNAHW	3
		Imnaha	IMNTRP	25
		SF Salmon	JOHTRP & JOHNSC	39
		SF Salmon	SECESR & SECTRP & LAKEC	15
		SF Salmon	SFSTRP & KNOXB	7
		Pahsimeroi	PAHTRP	5
		12W Total		94
UC	11H	Yakima	YAKIMR & YAKIM1	16
		Yakima	CHANDL	6
		Yakima	CLARFP	82
		Yakima	EASTOP	56
		Yakima	JACKCP	49
		Yakima	ROSAD	11
		Wenatchee	LEAV	74
		Wenatchee	CHIP	20
		Entiat	ENTH	6
		Methow	TWISPP & TWISPR	4
		Methow	WINT	9
		11H Total		333
	11W	Yakima	YAKIMR & YAKIM1	26
		Yakima	ROSAD	9
		Yakima	CHANDL	9
		Wenatchee	WENATT & PESHAR	9
		Wenatchee	CHIWAT & CHIWAR	14
		Entiat	ENTIAR	8
		Methow	METHR & METTRP & TWISPR	3
		11W Total		78
	12H	Mainstem	PRDTAL	73
		Mainstem	WAN & WANTAL	32
		Mainstem	RIS & RI2BYP & RISTAL	145
		Mainstem	RRE & RRETAL	23
		Mainstem	WELTAL	21
		Mainstem	WELH	7
		12H Total		301



**FISH PASSAGE CENTER**  
1827 NE 44<sup>th</sup> Ave, Suite 240, Portland, OR 97213  
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<http://www.fpc.org>  
e-mail us at [fpcstaff@fpc.org](mailto:fpcstaff@fpc.org)

### DATA REQUEST FORM

Request Taken By: Michele Deltart/Margaret Filardo Date: June 16, 2009

Data Requested By:  
Name: Paul Wagner FPA Phone: \_\_\_\_\_  
Address: \_\_\_\_\_ Fax: \_\_\_\_\_  
\_\_\_\_\_  
Email: \_\_\_\_\_  
\_\_\_\_\_

#### Data Requested:

Adult timing of spring chinook and summer chinook at Bonneville Dam showing differences in timing between the two run types.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Data Format: Hardcopy  Text  Excel   
Delivery: Mail  Email  Fax  Phone

#### Comments:

Word document summarizes (attached here) showing timing plots for middle Columbia, Snake and Upper Columbia wild and hatchery spring and summer runs was sent via email to Paul Wagner and all other FPAC members.  
\_\_\_\_\_

Data Compiled By: Tom Berggren Date: 7/2/09

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