

Peak Flow timing

14225500 Lake Creek near Packv WY

6/8/1912	324	1912
6/3/1913	465	1913
1/7/1914	229	1914
11/14/1914	247	1915
6/18/1916	582	1916
6/17/1917	506	1917
1/23/1919	419	1919
7/5/1920	272	1920
6/8/1921	452	1921
12/12/1921	631	1922
1/9/1923	521	1923
5/14/1924	278	1924
3/14/1931	241	1931
6/15/1932	366	1932
11/17/1932	815	1933
12/22/1933	1400	1934
11/5/1934	517	1935
6/8/1936	512	1936
6/21/1937	529	1937
4/19/1938	423	1938
5/29/1939	365	1939
12/17/1939	234	1940
5/25/1941	157	1941
12/20/1941	308	1942
11/27/1949	548	1950
2/11/1951	548	1951
5/20/1952	276	1952
2/1/1953	448	1953
12/20/1953	379	1954

Peak Annual Instantaneous Flow

Peak flow data

11/23/1959	1000	1960	
6/18/1961	468	1961	
1/8/1962	464	1962	
11/20/1962	1040	1963	
6/5/1964	440	1964	Highest mean daily
1/30/1965	850	1965	665
5/9/1966	48	1966	47
6/22/1967	204	1967	188
11/2/1967	407	1968	407
6/5/1969	225	1969	162
6/7/1970	35	1970	37
8/2/1971	198	1971	204
5/30/1972	50	1972	300
7/10/1973	14	1973	20
6/15/1974	315	1974	302
7/9/1975	216	1975	208
12/3/1975	888	1976	777
11/7/1976	35	1977	34
12/2/1977	1690	1978	1220
2/15/1979	30	1979	14
4/23/1980	46	1980	10
2/20/1981	684	1981	685
6/20/1982	159	1982	160
5/31/1983	61	1983	61
		1984	
6/8/1985	330	1985	330
6/2/1986	154	1986	154
		1987	
		1988	
		1989	
		1990	
11/25/1990	388	1991	388
		1992	
5/20/1993	154	1993	155
4/24/1994	124	1994	124
2/20/1995	521	1995	521
11/29/1995	673	1996	673
4/2/1997	405	1997	170
10/31/1997	453	1998	453
6/16/1999	161	1999	161
11/27/1999	49	2000	49
12/26/2000	45	2001	45
11/16/2001	246	2002	275
2/1/2003	260	2003	260
		2004	
		2005	
11/1/2006	1000	2006	1000
14226000			
3/15/1908	1440		
6/2/1909	428		
11/24/1909	905		

Highest Mean Daily Flow

Peak flow data

11/11/1910	393
11/19/1911	464
6/3/1913	502
1/7/1914	358
11/14/1914	358
11/20/1962	1280
6/5/1964	472
1/30/1965	1350
1/14/1966	86
6/22/1967	242
2/19/1968	177
1/5/1969	292
1/19/1970	203
1/19/1971	300
1/20/1972	514
12/21/1972	253
1/15/1974	435
1/18/1975	253
12/4/1975	1470
3/27/1977	57

Peak flow data

USGS	14225500	7/10/1973	36	USGS	14226000
USGS	14225500	6/15/1974	315	USGS	14226000
USGS	14225500	7/9/1975	216	USGS	14226000
USGS	14225500	12/3/1975	888	USGS	14226000
USGS	14225500	11/7/1976	35	USGS	14226000
USGS	14225500	12/2/1977	1690		
USGS	14225500	2/15/1979	30		
USGS	14225500	4/23/1980	46		

Peak flow data

Peak flow data

LAKE CREEK AT MOUTH NEAR PACKWOOD, WA

peak_dt 10d	peak_tm 6s	peak_va 8s		
3/15/1908		1440		
6/2/1909		428		
11/24/1909		905		
11/11/1910		393		
11/19/1911		464	Inflow	
6/3/1913		502		37
1/7/1914		358		129
11/14/1914		358		111

11/20/1962		1280		240
6/5/1964		472		32
1/30/1965		1350		500
1/14/1966		86		
6/22/1967		242		38
2/19/1968		177		
1/5/1969		292		
1/19/1970		203		
1/19/1971		300		
1/20/1972		514		

Peak flow data

12/21/1972	253
1/15/1974	435
1/18/1975	253
12/4/1975	1470
3/27/1977	57

drop-mouth comparison

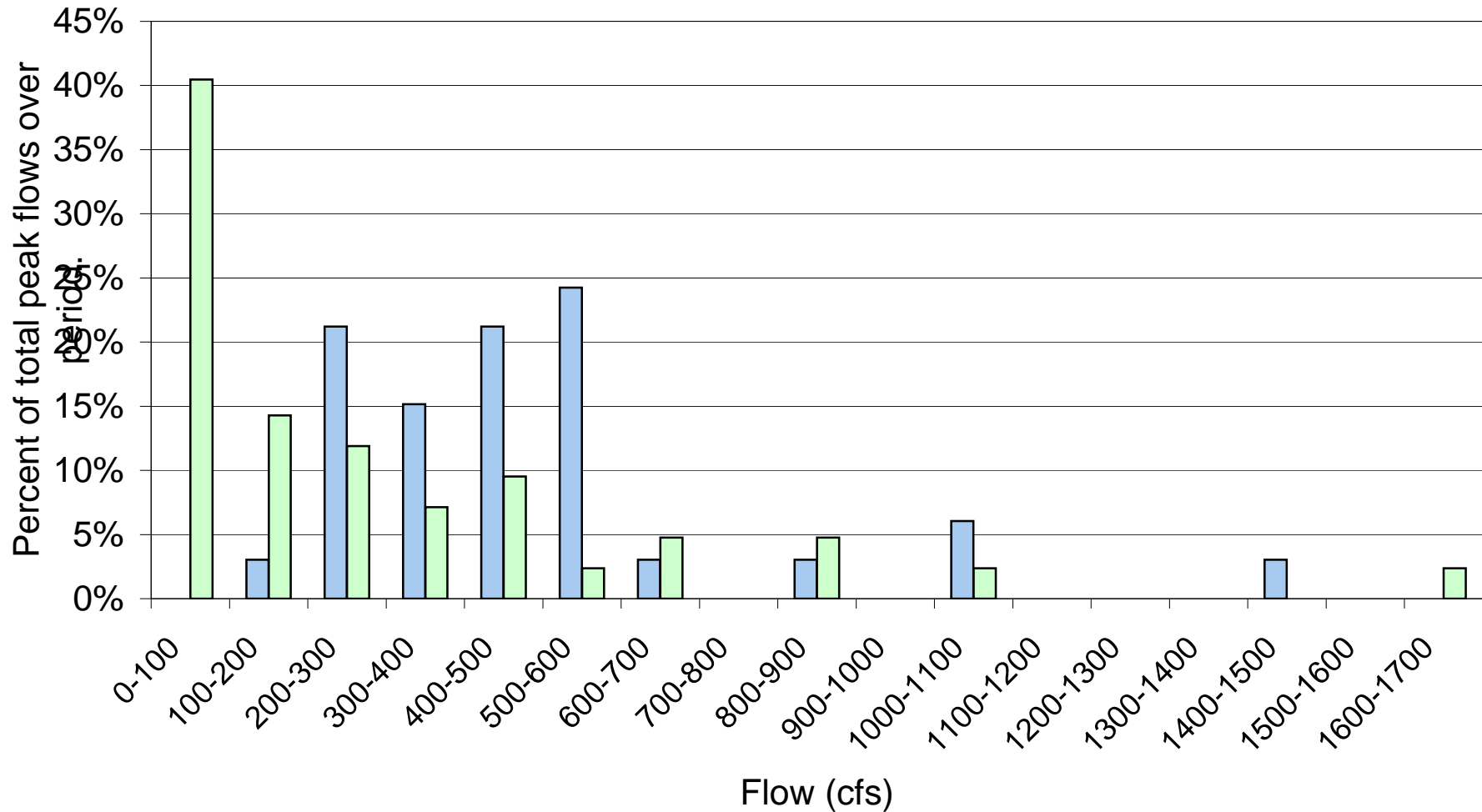
Comparison of Highest Annual Flow (peak instantaneous)

14225500 Below Drop Structure			14226000 Mouth		
Date	Flow	Water Year	Flow	Inflow (est)	
			3/15/1908	1440	
			6/2/1909	428	
			11/24/1909	905	
			11/11/1910	393	
			11/19/1911	464	
6/8/1912	324	1912	6/3/1913	502	37
6/3/1913	465	1913	1/7/1914	358	129
1/7/1914	229	1914	11/14/1914	358	111
11/14/1914	247	1915			
6/18/1916	582	1916			
6/17/1917	506	1917			
1/23/1919	419	1919			
7/5/1920	272	1920			
6/8/1921	452	1921			
12/12/1921	631	1922			
1/9/1923	521	1923			
5/14/1924	278	1924			
3/14/1931	241	1931			
6/15/1932	366	1932			
11/17/1932	815	1933			
12/22/1933	1400	1934			
11/5/1934	517	1935			
6/8/1936	512	1936			
6/21/1937	529	1937			
4/19/1938	423	1938			
5/29/1939	365	1939			
12/17/1939	234	1940			
5/25/1941	157	1941			
12/20/1941	308	1942			
11/27/1949	548	1950			
2/11/1951	548	1951			
5/20/1952	276	1952			
2/1/1953	448	1953			
12/20/1953	379	1954			

drop-mouth comparison

11/23/1959	1000	1960				
6/18/1961	468	1961				
1/8/1962	464	1962				
11/20/1962	1040	1963	1040	11/20/1962	1280	240
6/5/1964	440	1964	440	6/5/1964	472	32
1/30/1965	850	1965	850	1/30/1965	1350	500
5/9/1966	48	1966		1/14/1966	86	
6/22/1967	204	1967		6/22/1967	242	38
11/2/1967	407	1968	407	2/19/1968	177	
6/5/1969	225	1969		1/5/1969	292	
6/7/1970	35	1970		1/19/1970	203	
8/2/1971	198	1971		1/19/1971	300	
5/30/1972	50	1972		1/20/1972	514	
7/10/1973	14	1973		12/21/1972	253	
6/15/1974	315	1974	315	1/15/1974	435	
7/9/1975	216	1975		1/18/1975	253	
12/3/1975	888	1976	888	12/4/1975	1470	
11/7/1976	35	1977		3/27/1977	57	
12/2/1977	624	1978	624			
2/15/1979	30	1979				
4/23/1980	46	1980	Highest Mean Daily from here down (End USGS Records)			
2/20/1981	684	1981	684			
6/20/1982	159	1982				
5/31/1983	61	1983				
		1984				
6/8/1985	330	1985	330			
6/2/1986	154	1986				
		1987				
		1988				
		1989				
		1990				
11/25/1990	388	1991	388			
		1992				
5/20/1993	154	1993				
4/24/1994	124	1994				
2/20/1995	521	1995	521			
11/29/1995	673	1996	673			
4/2/1997	405	1997	405			
10/31/1997	453	1998	453			
6/16/1999	161	1999				
11/27/1999	49	2000				
12/26/2000	45	2001				
11/16/2001	246	2002				
2/1/2003	260	2003				
		2004				
		2005				

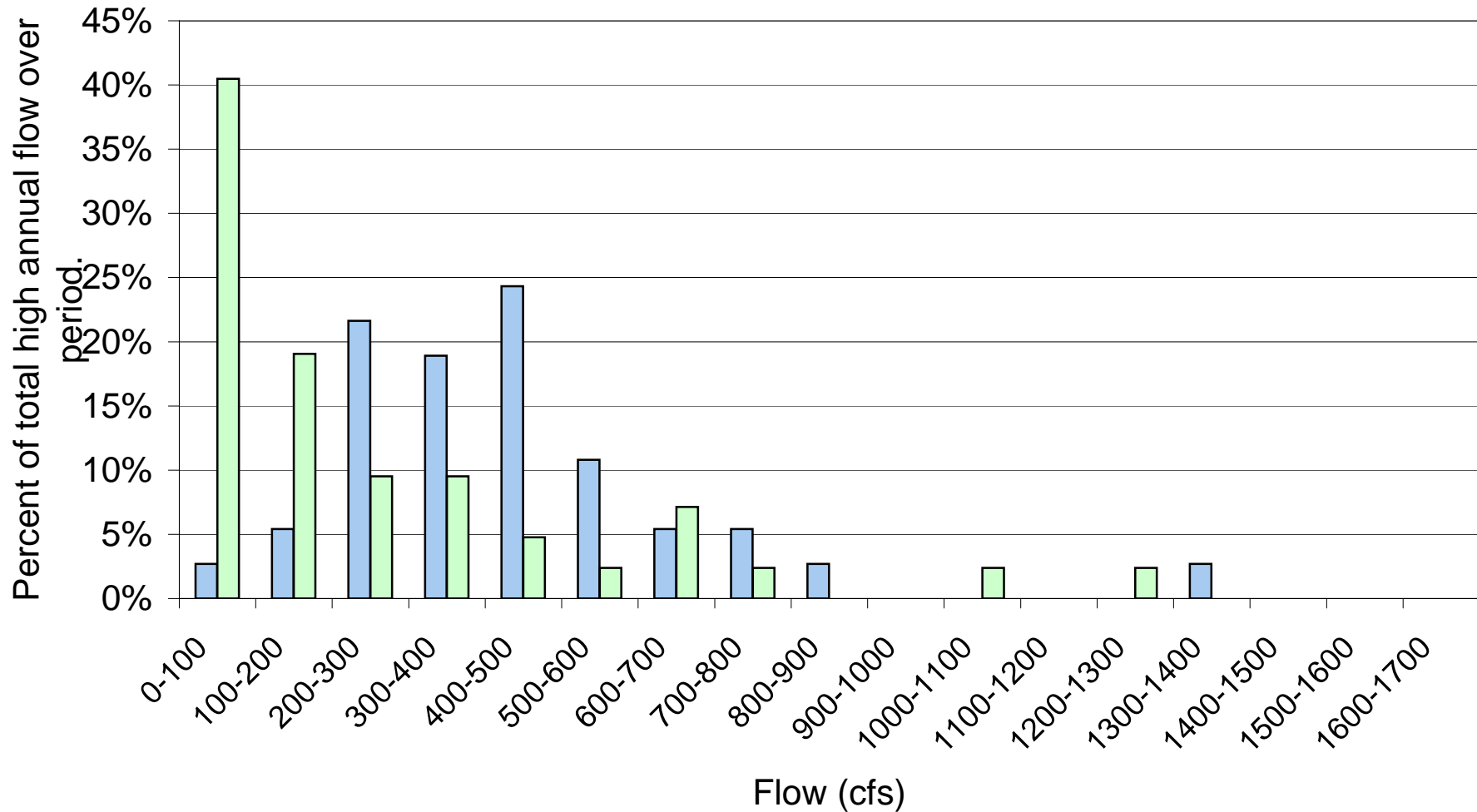
Peak Instantaneous Flows (cfs)
Note: mean daily after 1980 WY



■ 1912-1963* ■ 1964-2006**

* 1912-1963 includes 1912-1917, 1919-1924, 1931-1942, 1950-1954, 1960-1963
 ** 1964-2006 does not include the 299 cfs spill performed as part of licensing studies

Highest Annual Mean Daily Flow



■ 1912-1963*
 ■ 1965-2006**

* 1912-1963 includes 1912-1917, 1919-1924, 1931-1942, 1950-1954, 1960-1963

** 1965-2006 does not include the 299 cfs spill performed as part of licensing studies

packwood peak comparison

Comparison of peak flows past drop structure

Peak Instantaneous (see note for data past 1980 WY)

			Flows	before	before	with
14225500 Lake Creek near Packwood	WY		0-100	0	0%	17
6/8/1912	324	1912	100-200	1	3%	6
6/3/1913	465	1913	200-300	7	21%	82% 5
1/7/1914	229	1914	300-400	5	15%	3
11/14/1914	247	1915	400-500	7	21%	4
6/18/1916	582	1916	500-600	8	24%	1
6/17/1917	506	1917	600-700	1	3%	2
			700-800	0	0%	0
1/23/1919	419	1919	800-900	1	3%	2
7/5/1920	272	1920	900-1000	0	0%	0
6/8/1921	452	1921	1000-1100	2	6%	1
12/12/1921	631	1922	1100-1200	0	0%	0
1/9/1923	521	1923	1200-1300	0	0%	0
5/14/1924	278	1924	1300-1400	0	0%	0
			1400-1500	1	3%	0
			1500-1600	0	0%	0
			1600-1700	0	0%	1
				33		42
3/14/1931	241	1931				
6/15/1932	366	1932				
11/17/1932	815	1933				
12/22/1933	1400	1934				
11/5/1934	517	1935				
6/8/1936	512	1936				
6/21/1937	529	1937				
4/19/1938	423	1938				
5/29/1939	365	1939				
12/17/1939	234	1940				
5/25/1941	157	1941				
12/20/1941	308	1942				
11/27/1949	548	1950				
2/11/1951	548	1951				
5/20/1952	276	1952				
2/1/1953	448	1953				
12/20/1953	379	1954				

packwood peak comparison

11/23/1959	1000	1960	
6/18/1961	468	1961	
1/8/1962	464	1962	
11/20/1962	1040	1963	33
6/5/1964	440	1964	Project Operational
1/30/1965	850	1965	43
5/9/1966	48	1966	
6/22/1967	204	1967	
11/2/1967	407	1968	
6/5/1969	225	1969	
6/7/1970	35	1970	
8/2/1971	198	1971	
5/30/1972	50	1972	
7/10/1973	14	1973	
6/15/1974	315	1974	
7/9/1975	216	1975	
12/3/1975	888	1976	
11/7/1976	35	1977	
12/2/1977	1690	1978	
2/15/1979	30	1979	
4/23/1980	46	1980	Highest Mean Daily from here down (end USGS r
2/20/1981	684	1981	
6/20/1982	159	1982	
5/31/1983	61	1983	
		1984	
6/8/1985	330	1985	
6/2/1986	154	1986	
		1987	
		1988	
		1989	
		1990	
11/25/1990	388	1991	
		1992	
5/20/1993	154	1993	
4/24/1994	124	1994	
2/20/1995	521	1995	
11/29/1995	673	1996	
4/2/1997	405	1997	
10/31/1997	453	1998	
6/16/1999	161	1999	
11/27/1999	49	2000	
12/26/2000	45	2001	
11/16/2001	246	2002	
2/1/2003	260	2003	
		2004	
		2005	Not included -spill induced
	1000	2006	

packwood peak comparison

Max Mean Daily flow by water year

Date	MAX (cfs)		Flows before	before	with
			0-100	1 3%	8% 17
1912	324		100-200	2 5%	8
1913	452		200-300	8 22%	4
1914	229		300-400	7 19%	4
1915	247		400-500	9 24%	65% 2
1916	562		500-600	4 11%	1
1917	482		600-700	2 5%	3
1918	600		700-800	2 5%	1
1919	389		800-900	1 3%	
1920	248		900-1000	0%	
1921	430		1000-1100	0%	1
1922	609		1100-1200	0%	
1923	521		1200-1300	0%	1
1924	278		1300-1400	1 3%	
1930	44		1400-1500	0%	
1931	238		1500-1600	0%	
1932	354		1600-1700	0%	
1933	770			37	42
1934	1300				
1935	450				
1936	493				
1937	511				
1938	379				
1939	352				
1940	226				
1941	153				
1942	300				
1943	120				
1950	495				
1951	530				
1952	271				
1953	436				
1954	355				
1959	267				
1960	855				
1961	461				
1962	447				
1963	758				
1964	400	Operational			USGS peaks reported
1965	665	850			440 1964
1966	47	48			850 1965
1967	188	212			48 1966
1968	407	407	daily from	overtopping record	204 1967
					407 1968

packwood peak comparison

1969	162	225	225	1969
1970	37	35	35	1970
1971	204	198	198	1971
1972	300	349	50	1972
1973	20	14	14	1973
1974	302	311	315	1974
1975	208	191	216	1975
1976	777	825	888	1976
1977	34	10	35	1977
1978	1220	624	1690	1978
1979	14	10	30	1979
1980	10	10 end USGS record	46	1980
1981	685		684	
1982	160		159	
1983	61		61	
1984	10			
1985	330		330	
1986	154		154	
1987	10			
1988	10			
1989	10			
1990	10			
1991	388		388	
1992	10			
1993	155		154	
1994	124		124	
1995	521		521	
1996	673		673	
1997	170		405	
1998	453		453	
1999	161		161	
2000	49		49	
2001	45		45	
2002	275		246	
2003	260		260	
2004	10			
2005	10			
2006	1000		1000	

packwood peak comparison

with	
40%	67%
14%	
12%	31%
7%	
10%	
2%	
5%	
0%	
5%	
0%	
2%	
0%	
0%	
0%	
0%	
0%	
2%	

records)

packwood peak comparison

with		over 200 cfs		
40%	60%			
19%		without	with	
10%		92%	40%	
10%				
5%	24%	over 300 cfs		
2%				
7%		without	with	
2%		70%	31%	
0%				
0%				
2%				
0%				
2%				
0%				
0%				
0%				
0%				