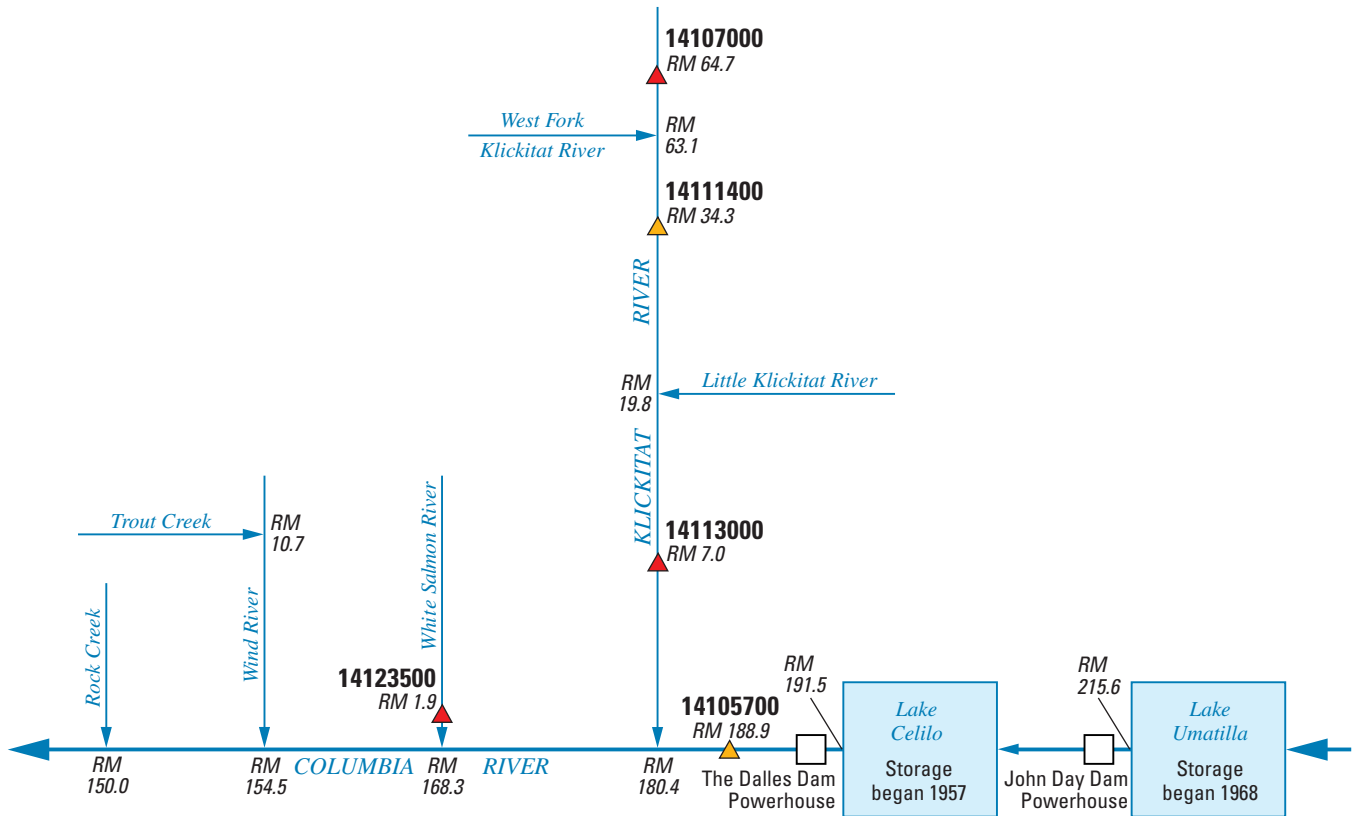


**Figure 66.** Location of surface-water stations in the Klickitat and White Salmon River Basins and on the Columbia River from John Day Dam to Bonneville Dam.

**EXPLANATION**

- ▲ Real-time surface-water station
- ▲ Non-real-time surface-water station
- 14107000** Station number
- RM 64.7* River mile
- ← Stream—Arrow shows direction of flow



**Figure 67.** Schematic diagram showing surface-water stations in the Klickitat and White Salmon River Basins and on the Columbia River from John Day Dam to Bonneville Dam.

## 14105700 COLUMBIA RIVER AT THE DALLES, OR

LOCATION.--Lat 45°36'27", long 121°10'20", in SW¼SW¼ sec.34, T.2 N., R.13 E., Wasco County, Hydrologic Unit 17070105, Corps of Engineers land, on left bank 0.3 mi downstream from Mill Creek, 2.6 mi downstream from The Dalles Dam, and at mile 188.9.

DRAINAGE AREA.--237,000 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--October 1857 to September 1877 (annual maximum only, at Lower Cascades Landing, published in WSP 1318), June 1878 to current year. Published as "near The Dalles" 1936-56.

REVISED RECORDS.--WSP 534: 1920(m). SP 1094: 1894. WSP 1248: 1866, 1888, 1899, 1909. WSP 1518: 1876(M).

GAGE.--Ultrasonic velocity meter (UVM) with water-stage and velocity-index recorder. Datum of gage is NGVD of 1929. See WSP 1738 for history of changes prior to Mar. 16, 1957. Mar. 16, 1957, to Sept 30, 1968, water-stage recorder at site 0.4 mi upstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Considerable regulation by many large reservoirs. Diurnal fluctuations caused by powerplant and gates at The Dalles Dam. Many diversions for irrigation upstream from station. Continuous water-quality records for the period October 1957 to February 1985 have been collected at this location.

AVERAGE DISCHARGE.--127 years (water years 1879-2005), 190,300 ft<sup>3</sup>/s, 137,800,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (since 1858), 1,240,000 ft<sup>3</sup>/s, June 6, 1894, elevation, 106.5 ft; minimum discharge (since 1878), 12,100 ft<sup>3</sup>/s, Apr. 16, 1968 (due to closure of John Day Dam, recorded by UVM).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 291,000 ft<sup>3</sup>/s, May 18; maximum elevation, 80.18 ft, May 18; minimum daily discharge, 75,400 ft<sup>3</sup>/s, Sept. 19.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97,000	120,000	150,000	131,000	144,000	124,000	152,000	166,000	218,000	212,000	171,000	119,000
2	89,700	123,000	149,000	127,000	155,000	137,000	149,000	185,000	232,000	197,000	173,000	101,000
3	104,000	114,000	140,000	165,000	152,000	126,000	125,000	184,000	218,000	181,000	140,000	98,100
4	121,000	128,000	143,000	163,000	152,000	146,000	129,000	177,000	233,000	143,000	141,000	85,500
5	114,000	126,000	145,000	165,000	161,000	146,000	155,000	192,000	170,000	190,000	136,000	93,400
6	109,000	132,000	157,000	177,000	156,000	108,000	176,000	195,000	209,000	154,000	145,000	94,800
7	124,000	108,000	146,000	171,000	167,000	132,000	140,000	197,000	183,000	170,000	134,000	87,800
8	155,000	116,000	166,000	166,000	156,000	127,000	124,000	213,000	183,000	179,000	156,000	94,900
9	107,000	131,000	151,000	113,000	154,000	124,000	113,000	241,000	212,000	194,000	131,000	99,600
10	81,000	116,000	126,000	152,000	169,000	142,000	128,000	228,000	187,000	172,000	148,000	85,600
11	103,000	115,000	128,000	148,000	166,000	135,000	133,000	259,000	204,000	175,000	146,000	76,500
12	100,000	124,000	135,000	125,000	154,000	128,000	145,000	270,000	164,000	170,000	133,000	92,000
13	103,000	119,000	141,000	178,000	112,000	128,000	152,000	246,000	169,000	178,000	139,000	94,700
14	91,700	124,000	150,000	205,000	132,000	119,000	136,000	242,000	182,000	197,000	110,000	84,200
15	128,000	125,000	139,000	165,000	157,000	118,000	155,000	231,000	190,000	208,000	125,000	85,100
16	86,300	123,000	171,000	133,000	166,000	138,000	121,000	228,000	177,000	194,000	125,000	90,100
17	86,700	130,000	196,000	153,000	166,000	115,000	124,000	261,000	182,000	198,000	148,000	95,800
18	103,000	133,000	175,000	122,000	168,000	159,000	123,000	291,000	194,000	169,000	146,000	88,700
19	118,000	124,000	149,000	152,000	146,000	140,000	133,000	267,000	143,000	163,000	149,000	75,400
20	136,000	132,000	170,000	131,000	122,000	116,000	131,000	259,000	188,000	150,000	130,000	88,500
21	136,000	133,000	179,000	139,000	125,000	141,000	125,000	277,000	181,000	180,000	116,000	115,000
22	137,000	132,000	184,000	137,000	145,000	143,000	173,000	262,000	200,000	180,000	130,000	97,400
23	126,000	131,000	214,000	133,000	136,000	149,000	146,000	267,000	231,000	159,000	140,000	103,000
24	107,000	118,000	165,000	135,000	120,000	136,000	131,000	253,000	202,000	143,000	134,000	96,400
25	121,000	105,000	140,000	150,000	112,000	138,000	134,000	237,000	212,000	171,000	122,000	82,300
26	124,000	137,000	137,000	164,000	113,000	118,000	184,000	256,000	192,000	179,000	118,000	93,700
27	118,000	122,000	147,000	163,000	133,000	96,800	185,000	263,000	206,000	156,000	129,000	115,000
28	98,900	106,000	142,000	152,000	136,000	124,000	198,000	275,000	187,000	164,000	125,000	85,200
29	112,000	146,000	151,000	151,000	---	151,000	166,000	226,000	201,000	167,000	115,000	103,000
30	100,000	132,000	147,000	123,000	---	143,000	171,000	178,000	206,000	169,000	137,000	115,000
31	113,000	---	146,000	134,000	---	167,000	---	187,000	---	190,000	124,000	---
TOTAL	3,450,300	3,725,000	4,779,000	4,623,000	4,075,000	4,114,800	4,357,000	7,213,000	5,856,000	5,452,000	4,216,000	2,836,700
MEAN	111,300	124,200	154,200	149,100	145,500	132,700	145,200	232,700	195,200	175,900	136,000	94,560
MAX	155,000	146,000	214,000	205,000	169,000	167,000	198,000	291,000	233,000	212,000	173,000	119,000
MIN	81,000	105,000	126,000	113,000	112,000	96,800	113,000	166,000	143,000	143,000	110,000	75,400
AC-FT	6,844,000	7,389,000	9,479,000	9,170,000	8,083,000	8,162,000	8,642,000	14,310,000	11,620,000	10,810,000	8,362,000	5,627,000

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1879 - 2005, BY WATER YEAR (WY)

	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890
MEAN	104,600	108,600	116,600	119,600	129,300	146,900	203,500	335,700	430,800	294,500	171,200	119,400
MAX	174,800	200,800	258,300	275,000	340,400	345,000	386,400	624,400	1,002,000	793,300	385,700	198,200
(WY)	(1960)	(1928)	(1996)	(1997)	(1996)	(1883)	(1881)	(1897)	(1894)	(1880)	(1880)	(1880)
MIN	69,430	57,830	52,380	42,430	51,420	69,820	98,350	136,100	123,700	86,780	91,970	75,760
(WY)	(1930)	(1937)	(1937)	(1937)	(1937)	(1937)	(1944)	(1977)	(1977)	(2001)	(1994)	(1994)

## COLUMBIA RIVER MAIN STEM

14105700 COLUMBIA RIVER AT THE DALLES, OR—Continued

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1879 - 2005	
ANNUAL TOTAL	55,008,600		54,697,800			
ANNUAL MEAN	150,300		149,900		190,300	
HIGHEST ANNUAL MEAN					313,600	
LOWEST ANNUAL MEAN					117,600	
HIGHEST DAILY MEAN	291,000	May 29	291,000	May 18	1,230,000	Jun 6, 1894
LOWEST DAILY MEAN	81,000	Oct 10	75,400	Sep 19	36,000	Jan 12, 1937
ANNUAL SEVEN-DAY MINIMUM	99,000	Oct 10	86,800	Sep 14	38,200	Jan 7, 1937
ANNUAL RUNOFF (AC-FT)	109,100,000		108,500,000		137,800,000	
10 PERCENT EXCEEDS	216,000		204,000		376,000	
50 PERCENT EXCEEDS	140,000		143,000		142,000	
90 PERCENT EXCEEDS	107,000		103,000		81,100	

14107000 KLICKITAT RIVER ABOVE WEST FORK, NEAR GLENWOOD, WA

LOCATION.--Lat 46°15'54", long 121°14'38", in NW¼SW¼ sec.18, T.9 N., R.13 E., Yakima County, Hydrologic Unit 17070106, Yakama Nation Reservation, on right bank 0.8 mi upstream from Swamp Creek, 1.9 mi upstream from West Fork, 17.0 mi north of Glenwood, and at mile 64.7.

DRAINAGE AREA.--151 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1944 to September 1977, July 1991 to current year. Monthly discharge only for October 1944, published in WSP 1318.

GAGE.--Water-stage recorder. Elevation of gage is 2,720 ft above NGVD of 1929, from river-profile map.

REMARKS.--Records fair. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--47 years (water years 1945-77, 1992-2005), 321 ft<sup>3</sup>/s, 28.87 in/yr, 232,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,500 ft<sup>3</sup>/s, Feb. 8, 1996, gage height, 5.70 ft, from high-water mark, from rating curve extended above 2,600 ft<sup>3</sup>/s; minimum discharge, 4.4 ft<sup>3</sup>/s, Feb. 1, 1957 (result of freezeup, discharge measurement).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 4,850 ft<sup>3</sup>/s, Dec. 2, 1977, from high-water mark.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 900 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 19	1730	*743	*2.08				

Minimum discharge, 62 ft<sup>3</sup>/s, Sept. 8, 9.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92	118	137	139	245	162	262	383	260	119	83	66
2	92	179	128	132	239	159	254	366	234	118	83	65
3	90	207	126	e120	237	157	247	354	220	114	81	65
4	88	172	124	e120	238	154	239	365	212	111	80	65
5	88	163	121	e115	234	153	228	375	205	108	78	65
6	92	154	119	e120	227	154	226	366	200	107	78	65
7	91	147	120	e130	219	160	245	367	195	107	77	65
8	92	141	138	e140	204	168	243	355	183	104	76	64
9	125	137	124	e130	205	171	235	455	177	115	75	65
10	109	134	217	e130	203	178	230	518	173	108	74	78
11	102	130	406	e130	204	181	241	459	171	105	74	e80
12	99	128	309	e130	197	186	232	405	169	102	74	e74
13	95	126	252	e120	193	182	223	373	164	99	73	e70
14	95	123	236	e115	186	177	217	362	161	96	72	e68
15	92	122	222	e115	191	176	214	394	159	95	71	e66
16	95	120	200	e115	229	175	245	399	155	92	71	e66
17	114	116	188	e120	225	173	260	344	164	92	71	e66
18	129	121	182	e200	209	170	245	367	155	88	74	e66
19	148	116	182	e650	202	177	239	373	151	88	73	e66
20	142	107	178	610	175	196	245	336	146	85	71	e66
21	141	109	170	553	185	193	254	311	145	85	69	e66
22	135	111	168	469	178	178	274	316	145	96	68	e66
23	132	108	162	439	175	172	330	288	142	101	68	65
24	128	134	159	393	167	167	515	272	137	95	68	65
25	124	193	160	353	157	163	524	255	133	92	67	65
26	125	186	161	329	155	173	554	250	131	92	65	65
27	121	168	152	310	154	376	557	254	137	89	65	65
28	120	151	143	295	161	333	533	262	133	88	65	65
29	118	166	149	282	---	291	463	265	126	85	66	65
30	122	138	144	267	---	271	423	270	124	85	68	80
31	121	---	138	259	---	259	---	263	---	84	68	---
TOTAL	3,457	4,225	5,415	7,530	5,594	5,985	9,197	10,722	5,007	3,045	2,246	2,018
MEAN	112	141	175	243	200	193	307	346	167	98.2	72.5	67.3
MAX	148	207	406	650	245	376	557	518	260	119	83	80
MIN	88	107	119	115	154	153	214	250	124	84	65	64
AC-FT	6,860	8,380	10,740	14,940	11,100	11,870	18,240	21,270	9,930	6,040	4,450	4,000
CFSM	0.74	0.93	1.16	1.61	1.32	1.28	2.03	2.29	1.11	0.65	0.48	0.45
IN.	0.85	1.04	1.33	1.86	1.38	1.47	2.27	2.64	1.23	0.75	0.55	0.50

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2005, BY WATER YEAR (WY)

	125	187	233	219	259	239	459	897	707	285	137	103
MEAN	291	464	983	615	1,470	713	990	1,714	1,730	637	257	174
(WY)	(1998)	(1996)	(1996)	(1974)	(1996)	(1972)	(1997)	(1956)	(1974)	(1974)	(1974)	(1997)
MIN	58.1	61.3	71.1	69.3	78.3	98.1	170	224	167	89.8	61.7	56.8
(WY)	(1994)	(1994)	(1993)	(1993)	(1994)	(1977)	(1955)	(1977)	(2005)	(1977)	(1994)	(2001)

## Klickitat River Basin

14107000 Klickitat River Above West Fork, Near Glenwood, WA—Continued

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1945 - 2005	
ANNUAL TOTAL	89,621		64,441			
ANNUAL MEAN	245		177		321	
HIGHEST ANNUAL MEAN					539	1996
LOWEST ANNUAL MEAN					126	1977
HIGHEST DAILY MEAN	898	May 4	650	Jan 19	5,000	Feb 8, 1996
LOWEST DAILY MEAN	86	Sep 10	64	Sep 8	4.5	Feb 1, 1957
ANNUAL SEVEN-DAY MINIMUM	90	Sep 4	65	Sep 2	5.6	Jan 30, 1957
ANNUAL RUNOFF (AC-FT)	177,800		127,800		232,500	
ANNUAL RUNOFF (CFSM)	1.62		1.17		2.13	
ANNUAL RUNOFF (INCHES)	22.08		15.88		28.87	
10 PERCENT EXCEEDS	535		334		758	
50 PERCENT EXCEEDS	152		148		186	
90 PERCENT EXCEEDS	107		70		90	

e Estimated

14111400 KLICKITAT RIVER BELOW SUMMIT CREEK, NEAR GLENWOOD, WA

LOCATION.--Lat 45°57'45", long 121°06'04", in NW¼SE¼ sec.31, T.6 N., R.14 E., Klickitat County, Bureau of Land Management lands, Hydrologic Unit 17070106, on right bank, 3 mi downstream from Summit Creek, 10 miles southeast of Glenwood, and at mile 34.3.

DRAINAGE AREA.--Not determined.

PERIOD OF RECORD.--October 1996 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 900 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. No regulation. Some upstream diversions for irrigation.

AVERAGE DISCHARGE.--9 years (water years 1997-2005), 1,354 ft<sup>3</sup>/s, 980,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,200 ft<sup>3</sup>/s, Jan. 31, 2003, gage height, 10.09 ft; minimum discharge, 475 ft<sup>3</sup>/s, Sept. 26, 28, 29, 2005.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, about 21,000 ft<sup>3</sup>/s, Feb. 8, 1996, gage height, 14.4 ft, from high-water mark, from rating extended above 4,500 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 18	1615	*2,240	*5.36				

Minimum discharge, 475 ft<sup>3</sup>/s, Sept. 26, 28, 29.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	600	650	669	739	997	754	1,270	1,230	988	661	572	500
2	596	756	645	720	968	745	1,220	1,180	955	648	546	503
3	594	856	639	683	945	741	1,180	1,160	918	635	541	497
4	592	779	635	674	937	733	1,150	1,170	881	632	539	495
5	590	749	630	605	939	731	1,090	1,190	861	640	549	494
6	618	726	633	653	925	730	1,060	1,180	843	677	549	495
7	607	708	643	747	907	741	1,070	1,170	829	658	547	497
8	607	693	707	703	875	761	1,060	1,150	806	635	567	500
9	680	683	694	698	865	764	1,020	1,290	791	661	562	505
10	622	674	908	690	847	779	995	1,450	776	620	544	518
11	604	668	1,320	681	837	786	1,020	1,370	759	614	531	525
12	598	660	1,190	674	840	793	1,000	1,290	753	618	532	509
13	597	655	1,050	677	833	784	973	1,250	744	613	535	500
14	591	649	991	646	812	770	955	1,250	738	606	532	497
15	587	647	960	624	761	765	937	1,350	730	616	533	495
16	585	644	905	637	761	759	1,030	1,400	721	633	528	495
17	618	639	869	718	761	756	1,070	1,290	742	602	528	494
18	653	643	844	1,750	765	750	1,020	1,350	728	608	524	493
19	703	640	829	1,930	778	780	976	1,400	714	613	517	492
20	720	622	821	1,730	779	847	971	1,310	702	604	526	490
21	685	617	800	1,620	749	872	977	1,260	701	591	536	489
22	685	622	795	1,470	741	816	1,010	1,260	699	629	531	488
23	672	622	778	1,410	737	798	1,080	1,190	684	627	515	487
24	660	651	764	1,330	735	778	1,330	1,140	677	598	503	492
25	652	747	768	1,240	731	765	1,380	1,090	671	583	502	488
26	657	785	782	1,190	732	809	1,440	1,050	665	574	505	486
27	668	744	762	1,150	727	1,620	1,440	1,040	673	576	511	486
28	668	701	742	1,120	745	1,680	1,430	1,040	676	596	511	484
29	658	695	752	1,100	---	1,520	1,340	1,030	664	630	510	488
30	658	686	746	1,060	---	1,400	1,290	1,020	661	601	498	712
31	662	---	732	1,030	---	1,310	---	1,000	---	586	500	---
TOTAL	19,687	20,611	25,003	30,699	23,029	27,637	33,784	37,550	22,750	19,185	16,424	15,094
MEAN	635	687	807	990	822	892	1,126	1,211	758	619	530	503
MAX	720	856	1,320	1,930	997	1,680	1,440	1,450	988	677	572	712
MIN	585	617	630	605	727	730	937	1,000	661	574	498	484
AC-FT	39,050	40,880	49,590	60,890	45,680	54,820	67,010	74,480	45,120	38,050	32,580	29,940

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2005, BY WATER YEAR (WY)

MEAN	787	926	1,048	1,398	1,489	1,767	2,044	2,273	1,822	1,132	837	739
MAX	1,274	1,521	1,711	2,343	2,189	2,800	3,374	3,843	3,177	1,952	1,274	1,043
(WY)	(1998)	(2000)	(1999)	(1997)	(2003)	(1997)	(1997)	(1997)	(1999)	(1999)	(1999)	(1997)
MIN	539	643	642	619	615	701	840	1,211	758	618	530	503
(WY)	(2002)	(2003)	(2001)	(2001)	(2001)	(2001)	(2001)	(2005)	(2005)	(2001)	(2005)	(2005)

## KLUCKITAT RIVER BASIN

14111400 KLUCKITAT RIVER BELOW SUMMIT CREEK, NEAR GLENWOOD, WA—Continued

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1997 - 2005	
ANNUAL TOTAL	361,779		291,453			
ANNUAL MEAN	988		799		1,354	
HIGHEST ANNUAL MEAN					1,988	
LOWEST ANNUAL MEAN					731	
HIGHEST DAILY MEAN	2,350	May 4	1,930	Jan 19	7,310	Feb 1, 2003
LOWEST DAILY MEAN	537	Jan 5	484	Sep 28	484	Sep 28, 2005
ANNUAL SEVEN-DAY MINIMUM	597	Oct 11	487	Sep 22	487	Sep 22, 2005
ANNUAL RUNOFF (AC-FT)	717,600		578,100		980,800	
10 PERCENT EXCEEDS	1,700		1,230		2,420	
50 PERCENT EXCEEDS	772		726		1,080	
90 PERCENT EXCEEDS	633		516		617	



14113000 KLICKITAT RIVER NEAR PITT, WA

LOCATION.--Lat 45°45'24", long 121°12'32", in SW¼, sec.8, T.3 N., R.13 E., Klickitat County, Hydrologic Unit 17070106, on left bank 2.8 mi south of Pitt, 4.8 mi southwest of Klickitat, 5.3 mi upstream from Silvias Creek, and at mile 7.0.

DRAINAGE AREA.--1,297 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1909 to January 1912, October 1928 to current year. Published as "at Klickitat" 1909-12 and as "at Pitt" 1928-35.

REVISED RECORDS.--WSP 1348: 1910(M), 1929-33(M), 1934, 1935-38(M), 1940(M), 1942-43(M), 1946(M), 1948(M). WSP 1935: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 288.9 ft above NGVD of 1929 (river-profile survey). July 3, 1909, to Jan. 31, 1912, nonrecording gage at site 7 mi upstream at different datum. Oct. 1, 1928, to Sept. 30, 1935, nonrecording gage at site 3.5 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Records good. Several small diversions upstream from station for irrigation of about 7,500 acres, mostly in vicinity of Glenwood. The largest of these is Hellroaring Irrigation Canal, which at times diverts the entire flow of Hellroaring Creek (tributary to Big Muddy Creek). No regulation. Water temperatures October 1950 to September 1970. Chemical analyses October 1950 to September 1970, October 1975 to September 1986. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--79 years (water years 1909-11, 1929-2005), 1,572 ft<sup>3</sup>/s, 1,139,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 51,000 ft<sup>3</sup>/s, Feb. 8, 1996, gage height, 17.90 ft from high-water mark in well, from rating curve extended above 16,000 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 14.34 ft; minimum discharge, 412 ft<sup>3</sup>/s, Jan. 16, 1979, gage height, 3.81 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar. 27	2130	*2,550	*5.70				

Minimum discharge, 480 ft<sup>3</sup>/s, Aug. 30, Sept. 3-5, 26, 28, 29, gage height, 3.50 ft.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	601	696	728	745	1,080	763	1,460	1,300	1,090	644	584	491
2	595	759	703	725	1,050	747	1,410	1,250	1,070	634	545	494
3	594	965	687	687	1,020	738	1,350	1,220	1,030	619	537	490
4	590	879	685	652	1,000	729	1,320	1,220	985	612	533	487
5	588	830	682	591	1,010	725	1,240	1,250	956	617	542	486
6	605	797	684	605	992	722	1,190	1,240	933	643	546	488
7	619	772	699	752	987	730	1,180	1,220	909	668	544	490
8	591	752	795	704	938	752	1,180	1,200	878	621	555	493
9	686	738	804	694	910	759	1,140	1,270	851	653	563	500
10	641	726	1,030	684	891	775	1,100	1,520	828	621	542	510
11	612	718	1,320	668	875	785	1,120	1,430	795	605	531	526
12	600	709	1,300	660	874	789	1,120	1,350	783	607	524	512
13	601	702	1,120	665	870	788	1,080	1,300	772	604	528	501
14	593	694	1,040	640	841	769	1,050	1,280	759	595	527	496
15	589	691	1,010	604	786	758	1,030	1,360	748	599	526	495
16	587	690	957	602	765	755	1,080	1,480	734	621	525	494
17	613	681	904	672	765	753	1,170	1,350	752	593	520	493
18	689	684	869	1,470	768	747	1,110	1,370	750	590	521	492
19	726	688	847	2,190	786	769	1,070	1,480	725	598	508	492
20	819	669	839	1,940	796	878	1,050	1,410	708	592	513	491
21	744	654	814	1,800	758	922	1,050	1,350	700	580	526	487
22	751	660	802	1,650	742	857	1,070	1,360	698	596	529	486
23	732	661	782	1,560	735	825	1,130	1,300	684	636	511	486
24	715	677	761	1,470	737	799	1,350	1,240	670	598	498	490
25	705	769	764	1,370	731	779	1,440	1,190	664	581	494	490
26	706	875	784	1,290	727	806	1,500	1,160	657	570	492	486
27	718	826	765	1,250	723	1,680	1,510	1,140	662	568	502	486
28	722	775	743	1,210	738	2,140	1,500	1,150	672	577	498	485
29	709	726	753	1,190	---	1,830	1,420	1,130	654	625	505	486
30	704	767	747	1,150	---	1,680	1,380	1,130	648	605	489	616
31	714	---	733	1,110	---	1,540	---	1,110	---	587	492	---
TOTAL	20,459	22,230	26,151	32,000	23,895	29,089	36,800	39,760	23,765	18,859	16,250	14,919
MEAN	660	741	844	1,032	853	938	1,227	1,283	792	608	524	497
MAX	819	965	1,320	2,190	1,080	2,140	1,510	1,520	1,090	668	584	616
MIN	587	654	682	591	723	722	1,030	1,110	648	568	489	485
AC-FT	40,580	44,090	51,870	63,470	47,400	57,700	72,990	78,860	47,140	37,410	32,230	29,590

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 2005, BY WATER YEAR (WY)

MEAN	761	973	1,452	1,834	2,225	2,258	2,316	2,452	1,921	1,149	826	740
MAX	1,299	2,763	6,160	7,325	8,225	6,111	4,942	5,235	4,161	2,250	1,387	1,082
(WY)	(1998)	(1910)	(1934)	(1974)	(1996)	(1910)	(1943)	(1956)	(1974)	(1974)	(1999)	(1997)
MIN	501	501	521	524	610	742	866	900	784	603	473	448
(WY)	(1945)	(1994)	(1931)	(1979)	(1994)	(1977)	(1977)	(1977)	(1992)	(1994)	(1994)	(1994)

## KLiCKITAT RiVER BASIN

14113000 KLiCKITAT RiVER NEAR PiTT, WA—Continued

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1909 - 2005	
ANNUAL TOTAL	405,382		304,177			
ANNUAL MEAN	1,108		833		1,572	
HIGHEST ANNUAL MEAN					2,876	
LOWEST ANNUAL MEAN					751	
HIGHEST DAILY MEAN	3,190	Jan 30	2,190	Jan 19	40,000	Feb 8, 1996
LOWEST DAILY MEAN	587	Oct 16	485	Sep 28	360	Dec 29, 1993
ANNUAL SEVEN-DAY MINIMUM	597	Sep 30	487	Sep 22	395	Dec 24, 1993
ANNUAL RUNOFF (AC-FT)	804,100		603,300		1,139,000	
10 PERCENT EXCEEDS	1,800		1,310		3,000	
50 PERCENT EXCEEDS	878		738		1,140	
90 PERCENT EXCEEDS	637		511		638	

14123500 WHITE SALMON RIVER NEAR UNDERWOOD, WA

LOCATION.--Lat 45°45'08", long 121°31'33", in NW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> sec.14, T.3 N., R.10 E., Skamania County, Hydrologic Unit 17070105, on right bank 300 ft downstream from bridge, 1,000 ft downstream from Pacific Power & Light Co.'s Condit powerplant, 1.7 mi north of Underwood, and at mile 1.9.

DRAINAGE AREA.--386 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1912 to February 1913 (published as "at Condit Dam, near Underwood"), March 1915 to September 1930, September 1935 to current year.

REVISED RECORDS.--WSP 484: 1915-17. WSP: 1348 1936-41(M). WSP 1638: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 112.96 ft above NGVD of 1929. Prior to March 1913, reference point at dam 1 mi upstream at different datum. March 1915 to July 16, 1918, water-stage recorder at site 200 ft upstream at datum 3.24 ft higher, and July 17, 1918, to Sept. 30, 1930, at datum 2.24 ft higher than present datum.

REMARKS.--No estimated daily discharges. Records good. Diversions for irrigation of about 4,000 acres in Trout Lake area. Low and medium flows regulated by powerplant of Pacific Power & Light Co. Chemical analyses August 1960 to August 1961, water years 1964-68 (miscellaneous), October 1967 to September 1970 (monthly), November 1975 to June 1980. Water temperatures July 1968 to August 1970. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--85 years (water years 1916-30, 1936-2005), 1,115 ft<sup>3</sup>/s, 807,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,200 ft<sup>3</sup>/s, Feb. 8, 1996, result of flashboard failure on Condit Dam, gage height, 19.16 ft, from rating curve extended above 8,030 ft<sup>3</sup>/s, on basis of theoretical weir computation of peak flow; minimum discharge, practically no flow at times when powerplant is shut down; minimum daily discharge, 158 ft<sup>3</sup>/s, Jan. 17, 1950.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,340 ft<sup>3</sup>/s, Mar. 27, gage height, 6.75 ft; minimum discharge, 179 ft<sup>3</sup>/s, July 12, gage height, 2.74 ft.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	568	662	600	683	933	745	1,380	1,030	909	646	539	495
2	562	748	596	655	918	719	1,330	981	906	653	537	495
3	575	939	580	648	885	723	1,260	992	866	631	521	495
4	542	766	584	640	867	723	1,210	974	859	638	536	495
5	573	714	589	574	907	699	1,120	995	840	614	518	480
6	560	689	596	637	870	716	1,110	948	840	605	528	500
7	564	670	613	664	890	711	1,120	934	811	610	537	488
8	559	658	712	630	848	729	1,140	911	810	605	531	481
9	633	635	731	622	821	738	1,070	983	782	617	530	491
10	656	634	930	628	821	746	1,020	1,060	750	618	524	500
11	579	616	1,360	610	809	747	1,080	988	756	613	519	501
12	569	600	1,280	610	806	747	1,060	932	743	608	528	492
13	580	599	1,070	610	803	735	1,020	913	719	606	524	481
14	563	573	967	610	781	722	995	919	745	601	511	481
15	562	593	984	582	765	718	951	970	717	610	520	473
16	549	606	886	580	758	719	1,070	1,030	717	597	517	479
17	591	572	846	619	757	737	1,260	975	749	598	514	484
18	755	603	799	1,260	743	733	1,130	1,040	754	597	515	479
19	839	623	781	1,890	730	734	1,070	1,230	710	600	515	478
20	923	579	765	1,620	746	873	1,050	1,190	710	591	510	478
21	778	575	772	1,510	734	939	1,040	1,120	682	584	507	478
22	772	582	735	1,390	718	855	1,030	1,160	694	582	517	477
23	702	571	723	1,290	707	807	1,090	1,130	681	601	509	476
24	688	571	677	1,190	699	782	1,150	1,060	660	594	500	484
25	670	713	699	1,130	714	761	1,180	1,030	664	573	510	470
26	677	771	733	1,100	703	822	1,140	984	642	576	505	473
27	658	656	700	1,050	700	2,220	1,120	976	665	569	497	476
28	672	632	687	1,030	705	2,430	1,110	956	649	557	505	469
29	618	609	693	1,020	---	1,910	1,090	932	650	568	512	468
30	658	604	673	974	---	1,640	1,090	917	630	551	497	560
31	679	---	675	971	---	1,430	---	895	---	550	496	---
TOTAL	19,874	19,363	24,036	28,027	22,138	29,310	33,486	31,155	22,310	18,563	16,029	14,577
MEAN	641	645	775	904	791	945	1,116	1,005	744	599	517	486
MAX	923	939	1,360	1,890	933	2,430	1,380	1,230	909	653	539	560
MIN	542	571	580	574	699	699	951	895	630	550	496	468
AC-FT	39,420	38,410	47,680	55,590	43,910	58,140	66,420	61,800	44,250	36,820	31,790	28,910

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1916 - 2005, BY WATER YEAR (WY)

	632	804	1,140	1,324	1,521	1,508	1,508	1,508	1,256	884	697	629
MEAN	632	804	1,140	1,324	1,521	1,508	1,508	1,508	1,256	884	697	629
MAX	1,210	1,607	2,984	3,362	4,110	3,417	2,518	2,631	2,506	1,911	1,225	1,026
(WY)	(1998)	(1956)	(1918)	(1974)	(1996)	(1972)	(1943)	(1997)	(1956)	(1916)	(1916)	(1997)
MIN	429	396	452	430	508	558	651	659	587	456	424	391
(WY)	(1993)	(1930)	(1945)	(1979)	(1929)	(1977)	(1977)	(1977)	(1992)	(1977)	(1994)	(1994)

## WHITE SALMON RIVER BASIN

14123500 WHITE SALMON RIVER NEAR UNDERWOOD, WA—Continued

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1916 - 2005	
ANNUAL TOTAL	329,010		278,868			
ANNUAL MEAN	899		764		1,115	
HIGHEST ANNUAL MEAN					1,765	
LOWEST ANNUAL MEAN					554	
HIGHEST DAILY MEAN	2,520	Jan 30	2,430	Mar 28	15,400	Feb 9, 1996
LOWEST DAILY MEAN	501	Jan 5	468	Sep 29	158	Jan 17, 1950
ANNUAL SEVEN-DAY MINIMUM	544	Jan 3	474	Sep 23	372	Sep 21, 1994
ANNUAL RUNOFF (AC-FT)	652,600		553,100		807,900	
10 PERCENT EXCEEDS	1,350		1,090		1,900	
50 PERCENT EXCEEDS	775		699		928	
90 PERCENT EXCEEDS	584		508		526	