

Figure 32. Location of surface-water and water-quality stations in the Snohomish and Stillaguamish River Basins.

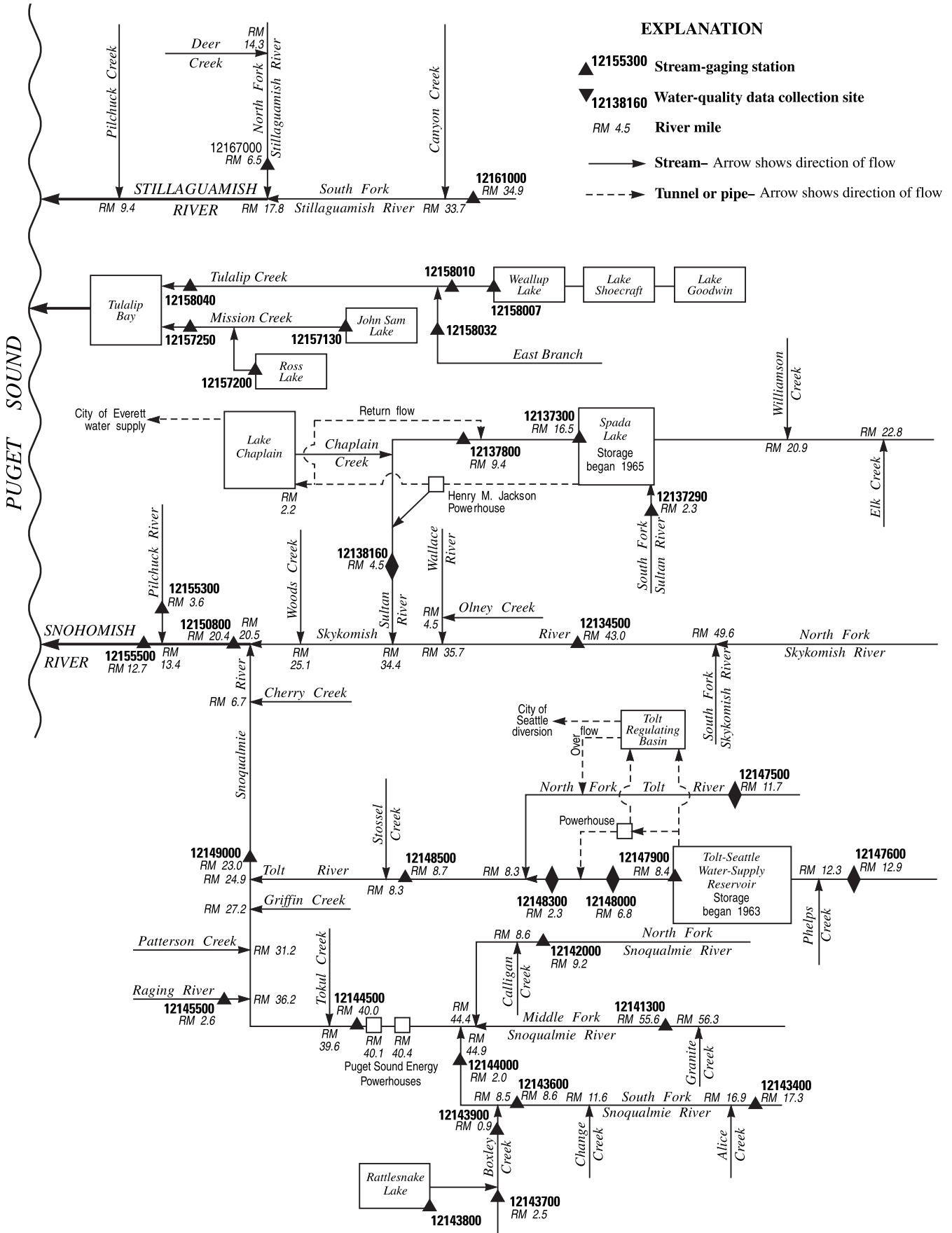


Figure 33. Schematic diagram showing surface-water and water-quality stations in the Snohomish and Stillaguamish River Basins.

12134500 SKYKOMISH RIVER NEAR GOLD BAR, WA

LOCATION.--Lat 47°50'15", long 121°39'56", in SW ¼ SW ¼ sec.9, T.27 N., R.9 E., Snohomish County, Hydrologic Unit 17110009, on right bank 2.0 mi southeast of Gold Bar, 7.3 mi upstream from Wallace River, and at mile 43.0.

DRAINAGE AREA.--535 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1928 to current year.

REVISED RECORDS.--WSP 1316: 1932-35(M), 1944(M).

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 209.26 ft above NGVD of 1929. Prior to Oct. 1, 1996 at site 275 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records good. No regulation. Several small diversions upstream from station. Chemical analyses July 1959 to September 1970, October 1977 to June 1980. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--75 years (water years 1929-2003), 3,954 ft<sup>3</sup>/s, 100.42 in/yr, 2,865,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 102,000 ft<sup>3</sup>/s Nov. 24, 1990, gage height, 22.49 ft, from rating curve extended above 53,000 ft<sup>3</sup>/s; minimum discharge, 298 ft<sup>3</sup>/s Oct. 30, 1987; minimum gage height, 2.73 ft Dec. 1, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 19,000 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)
Nov 19	1500	27,000	12.94	Jan 31	0615	36,500	14.59
Jan 26	1215	*48,700	*16.38	Mar 13	0300	30,600	13.59

Minimum discharge, 371 ft<sup>3</sup>/s, Sept. 6, 7, gage height, 3.15 ft.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	866	423	1,360	1,750	16,700	2,060	8,750	3,830	6,590	2,690	769	391
2	710	415	1,270	3,830	10,000	1,950	6,290	4,280	5,790	2,250	739	387
3	794	409	1,190	6,910	7,750	1,860	5,250	4,560	5,470	2,050	709	381
4	1,140	403	1,110	6,300	6,080	1,750	4,450	4,200	5,700	1,930	681	383
5	954	400	1,060	8,350	5,020	2,000	3,960	4,360	6,680	1,900	655	383
6	930	416	1,010	5,290	4,290	2,610	3,690	3,790	7,780	1,850	662	377
7	841	453	966	4,050	3,780	2,470	3,520	3,350	8,350	1,810	644	373
8	774	667	918	3,410	3,380	2,240	3,720	3,060	8,070	1,720	609	385
9	731	1,420	879	3,090	3,060	2,900	4,550	3,020	7,090	1,600	592	418
10	708	1,630	983	2,740	2,810	4,560	4,220	3,150	5,810	1,540	581	407
11	693	2,170	1,500	2,460	2,590	9,900	4,280	3,710	4,820	1,560	574	889
12	649	3,620	3,660	3,210	2,430	15,800	4,450	4,490	4,710	1,550	560	1,620
13	616	6,290	4,500	3,510	2,290	24,300	4,830	4,420	4,640	1,610	537	956
14	589	4,090	4,980	3,180	2,170	15,700	4,970	4,910	4,320	1,570	522	725
15	566	2,820	8,570	2,810	2,090	10,700	4,380	5,480	3,720	1,400	510	617
16	546	2,360	6,620	2,490	2,150	8,430	4,070	4,530	3,660	1,310	510	667
17	530	3,980	5,190	2,250	2,400	6,680	4,060	3,940	3,910	1,230	523	999
18	516	3,750	3,930	2,110	2,200	5,390	3,910	3,420	4,300	1,150	510	835
19	505	21,100	3,130	2,060	2,070	4,560	3,500	3,090	3,710	1,130	498	1,050
20	501	11,600	2,660	1,970	2,850	4,390	3,300	3,010	3,260	1,080	492	1,240
21	495	6,510	2,320	2,080	6,880	5,460	3,570	3,420	3,290	1,060	478	916
22	487	4,560	2,050	2,990	7,940	11,400	3,650	4,130	2,980	1,040	465	757
23	477	3,440	1,850	7,570	5,050	8,770	3,580	5,440	2,660	1,010	456	666
24	466	2,750	1,700	6,610	3,720	6,200	4,170	9,010	2,510	966	442	612
25	455	2,290	1,620	7,580	3,100	5,140	4,090	9,560	2,530	915	426	569
26	446	1,990	1,660	34,500	2,740	4,570	3,710	7,130	2,810	869	419	539
27	442	1,770	1,640	17,800	2,450	4,530	3,420	6,430	3,130	845	421	518
28	481	1,620	1,730	10,600	2,240	4,130	3,330	8,330	3,140	829	416	504
29	508	1,540	1,610	7,920	---	3,740	3,550	8,370	2,980	799	407	492
30	471	1,450	1,610	12,700	---	4,290	3,760	7,980	2,980	783	399	477
31	442	---	1,650	31,400	---	11,600	---	7,540	---	771	394	---
TOTAL	19,329	96,336	74,926	213,520	120,230	200,080	126,980	155,940	137,390	42,817	16,600	19,533
MEAN	624	3,211	2,417	6,888	4,294	6,454	4,233	5,030	4,580	1,381	535	651
MAX	1,140	21,100	8,570	34,500	16,700	24,300	8,750	9,560	8,350	2,690	769	1,620
MIN	442	400	879	1,750	2,070	1,750	3,300	3,010	2,510	771	394	373
AC-FT	38,340	191,100	148,600	423,500	238,500	396,900	251,900	309,300	272,500	84,930	32,930	38,740
CFSM	1.17	6.00	4.52	12.9	8.03	12.1	7.91	9.40	8.56	2.58	1.00	1.22
IN.	1.34	6.70	5.21	14.85	8.36	13.91	8.83	10.84	9.55	2.98	1.15	1.36

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2003, BY WATER YEAR (WY)

MEAN	2,716	4,790	4,789	4,132	3,662	3,269	4,463	6,723	6,717	3,526	1,360	1,324
MAX	6,658	16,370	14,490	11,030	8,940	9,565	7,553	10,860	13,610	8,413	3,606	4,942
(WY)	(1934)	(1991)	(1934)	(1953)	(1996)	(1972)	(1959)	(1974)	(1974)	(1964)	(1959)	(1959)
MIN	346	534	1,231	945	791	1,469	1,908	3,425	1,955	971	535	465
(WY)	(1988)	(1937)	(1986)	(1937)	(1929)	(1955)	(1975)	(1941)	(1992)	(1941)	(2003)	(1998)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1929 - 2003

ANNUAL TOTAL	1,622,213	1,223,681	
ANNUAL MEAN	4,444	3,353	3,954
HIGHEST ANNUAL MEAN			5,884
LOWEST ANNUAL MEAN			2,210
HIGHEST DAILY MEAN	34,400	Jan 8	34,500
LOWEST DAILY MEAN	400	Nov 5	373
ANNUAL SEVEN-DAY MINIMUM	415	Oct 31	381
ANNUAL RUNOFF (AC-FT)	3,218,000		2,427,000
ANNUAL RUNOFF (CFSM)	8.31		6.27
ANNUAL RUNOFF (INCHES)	112.80		85.09
10 PERCENT EXCEEDS	10,400	7,110	8,200
50 PERCENT EXCEEDS	2,750	2,430	2,810
90 PERCENT EXCEEDS	642	480	852

12137290 SOUTH FORK SULTAN RIVER NEAR SULTAN, WA

LOCATION.--Lat 47°56'51", long 121°37'32", in NE ¼ NE ¼ sec.3, T.28 N., R.9 E., Snohomish County, Hydrologic Unit 17110009, on left bank, 0.3 mi downstream from bridge, 14 mi northeast of Sultan, and 2 mi upstream from mouth.

DRAINAGE AREA.--11.6 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1991 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,450.53 ft above NGVD of 1929.

REMARKS.--Records fair except flows below 15 ft<sup>3</sup>/s and above 2,500 ft<sup>3</sup>/s, which are poor. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--12 years (water years 1992-2003), 121 ft<sup>3</sup>/s, 141.51 in/yr, 87,520 acre-ft/yr.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 24, 1990, reached a stage of 13.6 ft, from floodmark, discharge, 7,000 ft<sup>3</sup>/s (revised), from slope-area measurement of peak flow.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,750 ft<sup>3</sup>/s Dec. 29, 1998, gage height, 12.55 ft; minimum discharge, 4.6 ft<sup>3</sup>/s Oct. 9, 1991.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 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)
Nov 18	2145	1,430	10.72	Mar 12	2130	1,340	10.64
Jan 26	0200	*1,710	*10.96				

Minimum discharge, 4.7 ft<sup>3</sup>/s, Sept. 5, 6, gage height, 7.10 ft.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	12	32	59	238	42	216	96	93	36	7.9	5.2
2	29	12	29	226	163	41	134	108	82	27	7.7	5.2
3	76	11	26	289	136	37	107	107	83	24	7.5	5.1
4	50	11	25	267	103	36	90	113	102	23	7.4	5.0
5	43	11	24	235	84	70	80	121	123	23	7.4	5.0
6	38	16	23	137	72	55	76	90	138	22	7.5	5.0
7	31	19	e21	113	63	43	158	75	132	21	7.3	5.3
8	26	179	e20	95	56	38	177	67	113	20	7.1	6.9
9	25	205	19	87	50	118	255	70	90	18	7.0	8.2
10	25	191	41	69	45	182	155	74	72	18	7.0	15
11	23	371	155	61	42	431	188	93	65	18	6.9	86
12	21	363	337	217	39	670	164	105	66	17	7.3	45
13	19	259	218	136	37	834	176	102	100	21	7.0	20
14	17	221	338	122	36	450	151	125	69	17	6.6	14
15	16	110	452	85	36	310	126	126	55	15	6.3	11
16	15	157	272	70	51	221	122	96	60	14	6.5	20
17	15	283	165	61	67	153	135	87	77	13	6.5	38
18	14	511	109	64	50	117	125	81	64	12	6.3	22
19	14	1,040	82	59	50	95	101	81	48	12	6.2	92
20	14	349	67	52	187	139	94	90	51	11	6.1	39
21	14	196	57	88	399	218	100	152	57	11	6.0	23
22	14	119	50	217	227	520	98	164	52	11	5.9	18
23	13	87	44	356	122	213	93	192	44	10	5.8	15
24	13	68	40	236	84	133	132	233	40	9.7	5.7	13
25	12	55	43	297	68	122	103	179	43	9.4	5.5	11
26	12	47	52	930	60	107	87	120	49	9.1	5.5	10
27	12	42	59	293	52	101	86	133	52	8.9	5.7	9.6
28	20	39	56	183	47	87	85	178	44	8.7	5.5	9.1
29	18	37	47	191	---	86	93	136	42	8.5	5.4	8.7
30	14	37	43	361	---	152	97	140	49	8.3	5.3	8.5
31	13	---	42	476	---	546	---	113	---	8.1	5.2	---
TOTAL	705	5,058	2,988	6,132	2,664	6,367	3,804	3,647	2,155	484.7	201.0	578.8
MEAN	22.7	169	96.4	198	95.1	205	127	118	71.8	15.6	6.48	19.3
MAX	76	1,040	452	930	399	834	255	233	138	36	7.9	92
MIN	12	11	19	52	36	36	76	67	40	8.1	5.2	5.0
AC-FT	1,400	10,030	5,930	12,160	5,280	12,630	7,550	7,230	4,270	961	399	1,150
CFSM	1.96	14.5	8.31	17.1	8.20	17.7	10.9	10.1	6.19	1.35	0.56	1.66
IN.	2.26	16.22	9.58	19.66	8.54	20.42	12.20	11.70	6.91	1.55	0.64	1.86

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 2003, BY WATER YEAR (WY)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MEAN	113	181	152	170	121	122	145	169	140	67.5	27.2	43.3
MAX	245	394	274	254	255	224	226	274	285	157	65.3	114
(WY)	(1996)	(1996)	(2000)	(1997)	(1996)	(1997)	(2002)	(1997)	(2002)	(1999)	(1995)	(1997)
MIN	17.1	60.1	64.6	65.5	41.2	43.8	82.2	90.4	34.6	15.6	6.48	7.83
(WY)	(1992)	(1994)	(1993)	(2000)	(2001)	(1992)	(1995)	(1992)	(1992)	(2003)	(2003)	(1998)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1992 - 2003

ANNUAL TOTAL	48,412	34,784.5	
ANNUAL MEAN	133	95.3	121
HIGHEST ANNUAL MEAN			176
LOWEST ANNUAL MEAN			81.2
HIGHEST DAILY MEAN	1,750	Feb 22	2,190
LOWEST DAILY MEAN	11	Nov 3	5.0
ANNUAL SEVEN-DAY MINIMUM	12	Oct 30	5.1
ANNUAL RUNOFF (AC-FT)	96,030	69,000	87,520
ANNUAL RUNOFF (CFSM)	11.4	8.22	10.4
ANNUAL RUNOFF (INCHES)	155.25	111.55	141.51
10 PERCENT EXCEEDS	302	219	261
50 PERCENT EXCEEDS	64	55	76
90 PERCENT EXCEEDS	16	7.5	16

e Estimated



## SNOHOMISH RIVER BASIN

## 12137300 SPADA LAKE NEAR STARTUP, WA

LOCATION.--Lat 47°58'28", long 121°41'10", in NW  $\frac{1}{4}$  sec.29, T.29 N., R.9 E., Snohomish County, Hydrologic Unit 17110009, on right bank at Culmback Dam on Sultan River, 1.7 mi downstream from South Fork, 7.8 mi north of Startup, and at mile 16.5.

DRAINAGE AREA.--68.3 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1965 to current year.

REVISED RECORDS.--WDR WA-79-1: 1975-76(M). WA-95-1: 1994.

GAGE.--Nonrecording gage. Datum of gage is NGVD of 1929 (levels by Snohomish County P.U.D. No. 1).

REMARKS.--Reservoir is formed by earthfill dam originally completed to elevation 1,408 ft in 1965. Storage began April 5, 1965 for water supply for the City of Everett. During 1983 the dam was raised to elevation 1,470 ft with storage beginning November 1983. Capacity was increased to 153,260 acre-feet at elevation 1,450 ft, crest of spillway. Normal operating pool is between elevations 1,420 ft and 1,450 ft. Figures given herein represent total contents. Spada Lake is used to provide water for the City of Everett, and since June 1, 1984, power generation for Snohomish County Public Utility District No. 1.

COOPERATION.--Elevation at 1200 and 2400 hours and capacity table furnished by Snohomish County Public Utility District No. 1.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 164,599 acre-ft Nov. 23, 1990, elevation, 1,455.8 ft; minimum contents observed since reservoir was first filled, 4,250 acre-ft Sept. 30, 1967, elevation, 1,301.28 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 143,051 acre-ft May 31 elevation, 1,444.4 ft; minimum contents observed, 76,755 acre-ft Nov. 7, elevation, 1,401.7 ft.

MONTH-END ELEVATION AND CONTENTS AT 2400  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

Date	Elevation (feet)	Contents (acre- feet)	Change in contents (acre- feet)
September 30	1,415.8	96,152	-18,706
October 31	1,405.0	81,132	-15,020
November 30	1,429.1	116,594	+35,462
December 31	1,421.5	104,594	-12,000
Calender Year 2002	--	--	+3,315
January 31	1,439.9	134,861	+30,267
February 28	1,428.4	115,489	-19,372
March 31	1,438.0	131,628	+16,139
April 30	1,438.8	132,989	+1,361
May 31	1,444.4	143,051	+10,062
June 30	1,438.6	132,649	-10,402
July 31	1,428.3	115,331	-17,318
August 31	1,415.8	96,152	-19,179
September 30	1,405.7	82,061	-14,091
Water Year 2003	--	--	-14,091

12137800 SULTAN RIVER BELOW DIVERSION DAM, NEAR SULTAN, WA

LOCATION.--Lat 47°57'34", long 121°47'46", in SE ¼ NE ¼ sec.32, T.29 N., R.8 E., Snohomish County, Hydrologic Unit 17110009, on right bank 50 ft upstream from City of Everett diversion dam on Sultan River, 6.8 mi north of Sultan, and at mile 9.4.

DRAINAGE AREA.--77.1 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1983 to current year.

GAGE.--Water-stage recorder and square notch sharp-crested weir in gate of dam. Datum of gage is 600.00 ft above NGVD of 1929 (City of Everett). Prior to Oct. 1, 1989, recording gage at site 350 ft downstream at different datum, Mar. 16 to Sept. 21, 1993, Jan. 7-10, 1994, Feb. 18 to Sept. 21, 1995, Dec. 3-7, 1995, Mar. 14 to Sept. 3, 1996, Mar. 13 to June 24, 1997, recording gage at site 1,200 ft downstream, at different datum.

REMARKS.--No estimated daily discharges. Records fair. Flow regulated at Spada Lake (station 12137300) since Apr. 5, 1965, unadjusted for storage. Since May 1984, water is diverted at Spada Lake through a 10-ft diameter pipeline for power generation at the Jackson Project, and for municipal water supply at Lake Chaplain. Since July 1984, undetermined flows are returned to river at diversion dam by pipeline from Lake Chaplain for maintenance of instream flow requirements. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--20 years (water years 1984-2003), 208 ft<sup>3</sup>/s, 150,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,000 ft<sup>3</sup>/s Nov. 24, 1990, gage height, 63.79 ft, from rating curve extended above 3,200 ft<sup>3</sup>/s; minimum recorded discharge, 23 ft<sup>3</sup>/s Oct. 30, 1988, result of regulation, but may have been lower Dec. 13, 14, 2001; minimum daily, 35 ft<sup>3</sup>/s Aug. 23-25, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 718 ft<sup>3</sup>/s Mar. 12, gage height, 55.92 ft; minimum discharge, 88 ft<sup>3</sup>/s June 19, 23.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	162	107	105	105	154	180	180	180	182	96	96	96
2	162	105	105	117	154	180	180	180	182	96	96	96
3	162	105	105	111	154	180	180	180	181	96	96	96
4	162	105	105	116	153	180	180	180	182	109	96	96
5	162	105	104	163	153	180	180	179	181	281	96	96
6	162	105	105	105	153	179	180	180	181	225	96	96
7	162	105	105	105	154	180	180	180	181	225	97	96
8	162	105	105	105	154	180	179	180	181	204	96	96
9	162	105	105	101	153	180	179	180	181	200	97	96
10	162	106	105	96	154	180	179	180	181	261	99	96
11	162	131	111	96	154	180	180	180	181	305	99	96
12	162	112	117	102	155	281	180	180	181	266	96	96
13	162	105	128	96	154	354	180	180	181	224	96	96
14	162	106	112	96	154	189	179	180	181	217	96	108
15	162	104	173	120	154	179	180	180	180	212	111	148
16	162	121	183	153	155	180	179	180	129	209	96	148
17	162	168	174	153	154	180	180	180	97	207	96	148
18	162	123	124	154	154	180	179	179	97	208	96	148
19	162	339	104	153	154	180	180	180	98	104	96	147
20	162	177	105	154	160	180	180	180	97	96	96	148
21	162	113	105	155	162	180	180	181	97	99	96	150
22	162	105	105	154	174	207	180	181	97	99	97	158
23	162	104	105	154	154	179	180	181	97	96	96	158
24	162	105	105	154	154	179	180	181	96	96	96	158
25	162	105	105	154	154	180	179	181	96	96	96	158
26	162	104	105	314	154	180	180	181	95	96	96	158
27	163	105	105	155	154	180	180	181	99	96	96	158
28	163	105	105	154	154	179	180	182	96	96	96	158
29	162	105	106	154	---	180	180	182	96	96	96	158
30	162	105	110	155	---	181	180	182	96	96	96	158
31	162	---	105	161	---	180	---	181	---	96	96	---
TOTAL	5,024	3,595	3,541	4,265	4,344	5,887	5,393	5,592	4,200	4,903	3,000	3,815
MEAN	162	120	114	138	155	190	180	180	140	158	96.8	127
MAX	163	339	183	314	174	354	180	182	182	305	111	158
MIN	162	104	104	96	153	179	179	179	95	96	96	96
AC-FT	9,970	7,130	7,020	8,460	8,620	11,680	10,700	11,090	8,330	9,730	5,950	7,570

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2003, BY WATER YEAR (WY)

MEAN	226	397	176	219	230	237	224	244	185	166	119	167
MAX	726	1,606	306	898	715	610	484	675	652	983	162	448
(WY)	(1986)	(1996)	(1996)	(1984)	(1984)	(1984)	(1984)	(1984)	(1983)	(1983)	(1985)	(1983)
MIN	159	91.9	93.8	117	155	176	179	175	118	104	60.6	127
(WY)	(1988)	(1988)	(1988)	(1988)	(2003)	(2002)	(1987)	(2002)	(1996)	(2001)	(1983)	(2003)

SUMMARY STATISTICS

	FOR 2002 CALENDAR YEAR	FOR 2003 WATER YEAR	WATER YEARS 1983 - 2003
ANNUAL TOTAL	54,123	53,559	
ANNUAL MEAN	148	147	208
HIGHEST ANNUAL MEAN			433
LOWEST ANNUAL MEAN			144
HIGHEST DAILY MEAN	822	354	16,600
LOWEST DAILY MEAN	97	95	35
ANNUAL SEVEN-DAY MINIMUM	98	96	42
ANNUAL RUNOFF (AC-FT)	107,400	106,200	150,300
10 PERCENT EXCEEDS	175	181	247
50 PERCENT EXCEEDS	155	154	174
90 PERCENT EXCEEDS	98	96	110

12138160 SULTAN RIVER BELOW POWERPLANT NEAR SULTAN, WA

LOCATION.--Lat 47°54'27", long 121°48'51", in SW ¼ SW ¼ sec.17, T.28 N., R.8 E., Snohomish County, Hydrologic Unit 17110009, on left bank, just downstream from Henry M. Jackson powerplant, 3.2 mi north of Sultan, and at mile 4.5.

DRAINAGE AREA.--94.2 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1983 to current year.

GAGE.--Water-stage recorder. Datum of gage is 267.0 ft above NGVD of 1929 (levels by Snohomish County Public Utility District). Prior to Oct. 1, 1991, at site on right bank, 100 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated at Spada Lake (station 12137300) since April 5, 1965; unadjusted for storage. Since May 1984, water is diverted from Spada Lake through a 14 ft diameter, 4 mile long tunnel and a 10 ft diameter, 4 mi long pipeline for power production and returned to the river upstream from the station, at the powerplant. Since July 1984, an undetermined flow was returned to river at upstream diversion dam by pipeline from Lake Chaplain for instream flow requirement. Some flows diverted into Lake Chaplain from municipal use by City of Everett. U.S. Geological survey satellite telemeter at station.

AVERAGE DISCHARGE.--20 years (water years 1984-2003), 741 ft<sup>3</sup>/s, 537,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,300 ft<sup>3</sup>/s Nov. 24, 1990, gage height, 15.03 ft, from rating curve extended above 4,500 ft<sup>3</sup>/s; minimum discharge, 124 ft<sup>3</sup>/s July 14, 15, 1995.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,200 ft<sup>3</sup>/s Mar. 13, gage height, 7.81 ft; minimum discharge, 170 ft<sup>3</sup>/s Nov. 1.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	345	234	298	463	1,630	408	1,210	362	591	415	188	188
2	342	231	298	522	1,630	409	1,210	336	575	244	188	189
3	371	230	286	536	1,650	409	1,220	333	489	227	187	189
4	358	231	284	534	1,640	407	1,220	375	390	223	188	189
5	345	233	283	649	1,540	420	1,220	535	386	271	187	189
6	345	236	273	618	1,490	461	1,250	480	388	233	188	189
7	343	237	268	624	1,480	462	1,070	394	387	223	189	188
8	343	238	267	606	1,480	463	923	337	384	209	189	188
9	343	241	299	593	1,480	486	923	335	382	204	189	188
10	343	248	492	580	1,480	527	762	332	377	249	192	190
11	324	287	602	577	1,480	665	596	332	379	297	192	191
12	303	275	661	610	1,050	1,140	586	330	380	266	188	190
13	304	263	881	618	781	2,010	591	328	382	225	188	188
14	303	256	992	620	686	1,810	593	326	381	221	188	194
15	303	246	1,200	610	624	1,540	587	328	380	215	199	244
16	260	260	1,600	628	634	1,500	584	339	330	211	188	231
17	240	392	1,730	569	657	1,600	580	351	262	211	190	234
18	238	295	1,620	534	596	1,640	593	345	276	281	188	237
19	239	639	1,560	530	505	1,590	583	338	344	218	188	239
20	239	476	1,480	529	463	1,570	575	336	389	227	188	237
21	239	337	1,430	540	487	1,580	689	347	404	222	188	239
22	238	331	1,420	763	563	1,660	651	340	404	205	189	244
23	238	319	1,420	1,380	512	1,620	532	337	554	187	188	238
24	237	311	1,130	1,610	1,100	1,600	622	332	619	187	189	238
25	236	307	922	1,590	1,250	1,610	622	334	618	188	189	239
26	236	312	807	1,810	640	1,610	551	333	619	187	188	239
27	236	406	741	1,670	431	1,600	546	330	624	188	189	239
28	241	439	742	1,650	398	1,600	453	490	621	188	189	239
29	238	437	738	1,640	---	1,400	389	802	620	188	189	237
30	236	346	596	1,640	---	1,210	380	602	613	189	189	239
31	235	---	464	1,670	---	1,220	---	595	---	188	188	---
TOTAL	8,841	9,293	25,784	27,513	28,357	36,227	22,311	12,014	13,548	6,987	5,857	6,463
MEAN	285	310	832	888	1,013	1,169	744	388	452	225	189	215
MAX	371	639	1,730	1,810	1,650	2,010	1,250	802	624	415	199	244
MIN	235	230	267	463	398	407	380	326	262	187	187	188
AC-FT	17,540	18,430	51,140	54,570	56,250	71,860	44,250	23,830	26,870	13,860	11,620	12,820

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 2003, BY WATER YEAR (WY)

MEAN	616	1,304	1,051	1,028	888	767	749	780	709	423	264	335
MAX	1,630	3,080	1,787	1,766	1,586	1,223	1,284	1,257	1,314	925	833	635
(WY)	(1998)	(1991)	(1996)	(1999)	(1996)	(1997)	(1988)	(1984)	(1999)	(1997)	(1999)	(1995)
MIN	227	246	261	396	310	335	276	305	256	198	167	203
(WY)	(1984)	(1988)	(1986)	(2001)	(1985)	(2001)	(1992)	(1995)	(1992)	(1987)	(1985)	(1985)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1984 - 2003

ANNUAL TOTAL	291,965	203,195		
ANNUAL MEAN	800	557		
HIGHEST ANNUAL MEAN			741	
LOWEST ANNUAL MEAN			1,065	1997
HIGHEST DAILY MEAN	2,100	Feb 22	464	2001
LOWEST DAILY MEAN	216	Jul 25	20,100	Nov 24, 1990
ANNUAL SEVEN-DAY MINIMUM	229	Jul 20	157	Aug 24, 1985
ANNUAL RUNOFF (AC-FT)	579,100		157	Aug 23, 1985
10 PERCENT EXCEEDS	1,550		403,000	
50 PERCENT EXCEEDS	627		1,480	
90 PERCENT EXCEEDS	262		375	
			189	

12138160 SULTAN RIVER BELOW POWERPLANT, NEAR SULTAN, WA—Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: June 1984 to current year.

INSTRUMENTATION.--Temperature recorder since June 1984.

REMARKS.--Record poor.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 17.5°C (rounded) Sept. 5-7, 1986; minimum, 1.0°C (rounded) Feb. 2-5, 1989.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 16.1°C Aug. 20; minimum, 4.0°C Feb. 24, 25, Mar. 8.

TEMPERATURE, WATER, DEGREES CELSIUS  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	13.2	12.3	12.8	9.8	9.1	9.4	7.0	6.7	6.8	5.4	5.2	5.3
2	13.2	12.5	12.9	9.3	8.8	9.0	7.2	6.8	7.0	5.8	5.3	5.5
3	13.2	12.3	12.9	9.0	8.6	8.8	7.1	6.6	6.8	5.9	5.7	5.8
4	13.2	12.3	12.8	9.0	8.5	8.8	7.0	6.7	6.9	6.3	5.7	5.9
5	13.2	12.7	13.0	9.6	8.9	9.3	7.0	6.8	6.9	6.3	5.6	6.0
6	13.4	12.7	13.0	9.8	9.4	9.6	7.0	6.6	6.8	5.7	5.1	5.3
7	13.2	12.8	13.0	9.8	9.6	9.7	6.7	6.4	6.5	5.2	4.9	5.0
8	13.3	12.7	13.0	9.7	9.4	9.6	6.6	6.3	6.5	5.0	4.8	4.9
9	13.1	12.6	12.9	9.4	8.8	9.1	6.8	6.4	6.6	4.8	4.6	4.7
10	13.1	12.3	12.7	8.9	8.5	8.7	7.1	6.8	7.0	4.8	4.4	4.5
11	12.7	12.1	12.3	8.6	8.3	8.5	7.1	7.0	7.0	4.6	4.4	4.5
12	12.4	11.6	12.0	8.8	8.4	8.6	7.2	7.0	7.1	4.9	4.6	4.7
13	12.4	11.5	11.9	8.7	8.2	8.5	7.3	7.2	7.3	4.9	4.7	4.8
14	12.2	11.4	11.9	8.6	8.3	8.5	7.6	7.2	7.3	5.0	4.8	4.9
15	12.3	11.6	12.0	8.5	8.2	8.3	7.8	7.3	7.6	4.9	4.7	4.8
16	12.3	11.6	12.0	8.5	8.1	8.3	7.4	7.0	7.2	4.8	4.6	4.7
17	12.3	11.6	12.0	8.2	7.7	7.9	7.1	6.8	7.0	4.7	4.5	4.6
18	12.0	11.7	11.9	8.1	7.9	8.0	6.9	6.7	6.8	4.6	4.4	4.5
19	12.5	11.6	12.1	8.6	7.9	8.3	6.7	6.5	6.6	4.7	4.3	4.5
20	12.6	12.2	12.4	8.7	8.4	8.6	6.5	6.2	6.4	4.7	4.5	4.6
21	12.4	12.1	12.2	8.6	8.2	8.4	6.4	6.2	6.3	4.7	4.5	4.6
22	12.7	12.1	12.3	8.4	8.1	8.3	6.4	6.1	6.3	4.8	4.6	4.7
23	12.3	11.8	12.0	8.2	7.8	8.1	6.3	6.0	6.2	5.0	4.7	4.8
24	11.9	11.3	11.6	7.8	7.3	7.5	6.1	5.8	5.9	5.0	4.8	4.9
25	11.4	10.9	11.2	7.3	6.9	7.0	5.9	5.8	5.8	5.1	4.8	4.9
26	11.3	10.9	11.1	7.0	6.6	6.8	5.9	5.7	5.8	6.2	5.0	5.7
27	11.3	10.5	11.0	7.1	6.6	6.9	5.8	5.6	5.7	5.6	5.1	5.3
28	11.4	11.1	11.2	7.1	6.9	7.0	5.7	5.5	5.6	5.2	5.0	5.0
29	11.4	10.7	11.1	7.2	7.0	7.1	5.6	5.4	5.5	5.2	4.8	5.0
30	10.7	9.9	10.2	7.1	6.7	6.9	5.5	5.3	5.4	5.4	5.1	5.2
31	9.9	9.4	9.7	---	---	---	5.4	5.2	5.3	5.5	5.4	5.4
MONTH	13.4	9.4	12.0	9.8	6.6	8.3	7.8	5.2	6.5	6.3	4.3	5.0
	FEBRUARY			MARCH			APRIL			MAY		
1	5.4	5.1	5.2	4.9	4.4	4.6	5.6	5.2	5.4	7.6	6.7	7.1
2	5.3	5.0	5.2	5.0	4.4	4.7	5.4	5.0	5.2	7.9	6.6	7.2
3	5.3	5.1	5.2	5.2	4.6	4.8	5.3	5.1	5.2	7.6	6.8	7.1
4	5.2	5.0	5.0	5.1	4.5	4.8	5.4	4.9	5.2	7.3	6.7	7.0
5	5.0	4.8	4.9	5.1	4.8	4.9	5.3	5.0	5.1	7.6	6.3	6.9
6	4.8	4.6	4.7	4.9	4.5	4.6	5.4	5.0	5.2	7.0	6.3	6.6
7	4.9	4.7	4.8	4.6	4.1	4.3	5.7	5.2	5.5	7.7	6.1	6.9
8	4.9	4.7	4.8	4.5	4.0	4.2	5.9	5.3	5.6	7.2	6.5	6.9
9	4.8	4.6	4.8	4.8	4.2	4.5	5.9	5.6	5.7	7.6	6.6	7.1
10	4.8	4.7	4.7	5.3	4.7	5.0	6.1	5.3	5.7	7.6	6.6	7.1
11	4.8	4.6	4.7	5.2	4.7	5.0	6.9	6.0	6.4	8.2	6.8	7.6
12	4.9	4.5	4.7	5.9	4.7	5.0	6.6	6.0	6.2	8.0	6.9	7.5
13	4.9	4.6	4.8	5.9	5.2	5.4	6.2	5.8	6.0	8.5	6.9	7.7
14	5.1	4.7	4.9	5.4	5.1	5.2	6.5	6.0	6.2	7.8	7.2	7.4
15	5.1	4.6	5.0	5.4	5.1	5.3	6.5	6.0	6.2	7.8	6.9	7.3
16	5.2	4.9	5.0	5.2	5.0	5.1	6.7	6.0	6.3	7.5	6.6	7.0
17	5.1	4.8	5.0	5.3	4.9	5.1	6.4	6.0	6.1	7.0	6.3	6.7
18	5.3	4.8	5.1	5.3	5.1	5.2	6.3	5.6	6.0	7.7	6.5	7.0
19	5.4	5.0	5.2	5.2	5.0	5.1	6.3	5.7	6.0	8.2	6.7	7.5
20	5.4	4.9	5.3	5.2	4.8	5.0	6.5	5.7	6.1	7.8	7.2	7.5
21	5.5	5.2	5.4	5.2	4.9	5.0	6.2	5.5	5.8	8.4	7.3	7.8
22	5.6	5.2	5.5	5.6	5.1	5.4	6.3	5.5	5.9	8.2	7.7	7.9
23	5.3	4.5	5.0	5.3	4.8	5.1	6.5	6.1	6.3	8.9	7.6	8.3
24	4.6	4.0	4.4	5.0	4.7	4.9	6.2	5.8	6.0	9.0	8.1	8.5
25	4.6	4.0	4.4	5.2	4.8	5.0	7.2	5.8	6.6	8.8	8.0	8.4
26	4.6	4.1	4.4	5.2	4.9	5.1	6.7	5.9	6.2	9.5	7.8	8.5
27	4.7	4.1	4.4	5.1	4.8	5.0	7.4	5.7	6.4	9.5	7.9	8.6
28	5.0	4.4	4.7	5.2	4.9	5.1	7.9	6.4	7.2	8.8	7.4	8.0
29	---	---	---	5.7	5.0	5.4	7.3	6.5	6.9	8.4	7.4	7.9
30	---	---	---	5.8	5.5	5.6	7.4	6.7	7.1	8.1	7.5	7.8
31	---	---	---	5.8	4.1	5.5	---	---	---	8.7	7.4	7.9
MONTH	5.6	4.0	4.9	5.9	4.0	5.0	7.9	4.9	6.0	9.5	6.1	7.5



12141300 MIDDLE FORK SNOQUALMIE RIVER NEAR TANNER, WA

LOCATION.--Lat 47°29'10", long 121°38'48", in SW 1/4 SE 1/4 sec.10, T.23 N., R.9 E., King County, Hydrologic Unit 17110010, on left bank 0.7 mi downstream from Granite Creek, 6.4 mi east of North Bend, and at mile 55.6.

DRAINAGE AREA.--154 mi<sup>2</sup>.

PERIOD OF RECORD.--February 1961 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 780 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good. No regulation or diversion upstream from station. Water temperatures June 1979 to September 1980. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--42 years (water years 1962-2003), 1,229 ft<sup>3</sup>/s, 108.47 in/yr, 890,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,200 ft<sup>3</sup>/s Dec. 2, 1977, gage height, 14.93 ft; maximum gage height, 14.97 ft Nov. 24, 1990; minimum discharge, 91 ft<sup>3</sup>/s Oct. 29-31, 1987, gage height, 0.61 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 23, 1959, reached a stage of 18.7 ft from floodmarks, discharge, 49,000 ft<sup>3</sup>/s by slope-area measurement at site 6 mi downstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 8,000 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)
Nov 19	1545	12,800	10.29	Jan 31	0500	*14,200	*10.76
Jan 26	1215	12,900	10.32	Mar 12	2200	9,460	9.10

Minimum discharge, 111 ft<sup>3</sup>/s, Sept. 7, gage height, 0.72 ft.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	236	136	350	658	4,680	507	2,100	973	1,470	615	205	120
2	196	130	328	1,740	2,590	506	1,430	1,110	1,260	516	198	117
3	403	126	305	2,090	2,010	512	1,200	1,130	1,210	474	190	117
4	483	124	288	2,500	1,450	466	1,020	1,060	1,220	450	182	118
5	353	124	275	2,710	1,150	537	943	1,360	1,440	462	174	118
6	319	128	258	1,520	958	619	927	1,140	1,690	455	174	116
7	272	134	244	1,170	827	599	909	924	1,800	436	171	117
8	245	176	232	1,030	736	564	1,090	801	1,700	412	166	157
9	226	368	224	957	660	1,300	1,340	766	1,490	387	162	163
10	227	516	275	804	605	2,560	1,140	771	1,180	366	160	169
11	221	623	567	701	556	4,130	1,180	918	972	388	159	656
12	201	1,060	1,530	1,540	519	5,520	1,180	1,110	979	395	156	752
13	185	1,750	1,580	1,320	491	6,130	1,460	1,080	941	428	150	360
14	174	1,150	1,960	1,100	471	3,660	1,400	1,200	908	415	146	244
15	167	798	2,590	891	457	2,470	1,150	1,280	757	357	145	200
16	160	691	2,090	742	494	1,900	1,040	1,070	755	332	149	321
17	154	965	1,530	656	566	1,480	1,090	1,020	824	312	158	385
18	151	951	1,110	643	511	1,180	1,090	888	957	291	150	287
19	149	9,590	887	647	476	980	927	815	808	288	146	484
20	152	4,070	731	588	939	1,080	852	814	806	276	146	523
21	152	2,010	624	678	2,600	1,560	932	1,040	1,270	276	142	345
22	148	1,330	551	1,480	2,330	4,240	947	1,180	901	267	138	265
23	144	985	495	2,460	1,340	2,350	901	1,540	838	258	136	228
24	139	776	449	1,870	926	1,560	1,250	2,670	712	251	131	207
25	134	636	425	2,140	753	1,340	1,120	2,450	677	236	126	190
26	131	546	453	9,020	662	1,330	980	1,650	726	222	126	181
27	132	483	465	4,890	584	1,390	887	1,520	832	216	127	171
28	169	436	482	3,040	552	1,160	852	2,210	811	212	126	167
29	199	401	438	2,310	---	1,020	893	1,990	732	205	124	161
30	164	371	498	4,960	---	1,300	964	1,800	729	201	121	155
31	e147	---	630	11,500	---	3,130	---	1,730	---	202	120	---
TOTAL	6,333	31,584	22,864	68,355	30,893	57,080	33,194	40,010	31,395	10,601	4,704	7,594
MEAN	204	1,053	738	2,205	1,103	1,841	1,106	1,291	1,046	342	152	253
MAX	483	9,590	2,590	11,500	4,680	6,130	2,100	2,670	1,800	615	205	752
MIN	131	124	224	588	457	466	852	766	677	201	120	116
AC-FT	12,560	62,650	45,350	135,600	61,280	113,200	65,840	79,360	62,270	21,030	9,330	15,060
CFSM	1.33	6.84	4.79	14.3	7.16	12.0	7.18	8.38	6.80	2.22	0.99	1.64
IN.	1.53	7.63	5.52	16.51	7.46	13.79	8.02	9.66	7.58	2.56	1.14	1.83

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 2003, BY WATER YEAR (WY)

MEAN	848	1,629	1,595	1,550	1,310	1,057	1,335	1,800	1,815	965	411	478
MAX	1,978	4,534	3,997	3,070	2,941	2,836	2,231	3,060	4,012	2,370	1,218	1,241
(WY)	(1991)	(1996)	(1976)	(1984)	(1982)	(1972)	(1989)	(1974)	(1974)	(1964)	(1968)	(1968)
MIN	105	298	441	427	387	549	601	996	553	342	152	135
(WY)	(1988)	(1980)	(1986)	(1979)	(1969)	(1962)	(1967)	(1992)	(1992)	(2003)	(2003)	(1998)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1961 - 2003

ANNUAL TOTAL	461,557	344,607		
ANNUAL MEAN	1,265	944		
HIGHEST ANNUAL MEAN			1,229	
LOWEST ANNUAL MEAN			1,832	1972
HIGHEST DAILY MEAN	10,100	Apr 14	774	2001
LOWEST DAILY MEAN	124	Nov 4	23,100	Nov 24, 1990
ANNUAL SEVEN-DAY MINIMUM	129	Nov 1	91	Oct 29, 1987
ANNUAL RUNOFF (AC-FT)	915,500		92	Oct 24, 1987
ANNUAL RUNOFF (CFSM)	8.21		890,700	
ANNUAL RUNOFF (INCHES)	111.49		6.13	7.98
10 PERCENT EXCEEDS	2,790		83.24	108.47
50 PERCENT EXCEEDS	812		1,920	2,440
90 PERCENT EXCEEDS	187		647	870
			149	270

e Estimated

SNOHOMISH RIVER BASIN

12142000 NORTH FORK SNOQUALMIE RIVER NEAR SNOQUALMIE FALLS, WA

LOCATION.--Lat 47°36'54", long 121°42'44", in NW ¼ NW ¼ sec.31, T.25 N., R.9 E., King County, Hydrologic Unit 17110010, on left bank 0.6 mi upstream from Calligan Creek, 7.0 mi northeast of town of Snoqualmie Falls, and at mile 9.2.

DRAINAGE AREA.--64.0 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1929 to October 1949, water years 1950-60 (annual maximum), February 1961 to current year.

REVISED RECORDS.--WSP 1346: 1930-31(M), 1932, 1935, 1936-37(M), 1938, 1939-42(M), 1944, 1945-46(P), 1947, 1948(P), 1949(M). WSP 1736: 1932-34(M), 1935, 1938(M), 1943-45(M), 1947(M), drainage area. WSP 1932: 1950-54(M), 1956-57(M), 1959(M).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,130 ft above NGVD of 1929, from topographic map. Prior to Oct. 19, 1949, water-stage recorder, and October 1949 to February 1961, crest-stage gage, at site 1,500 ft downstream at different datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station. Daily water temperatures June 1979 to August 1980. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--62 years (water years 1930-49, 1962-2003), 501 ft<sup>3</sup>/s, 106.33 in/yr, 362,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,800 ft<sup>3</sup>/s Feb. 26, 1932, gage height, 17.5 ft, site and datum then in use, from rating curve extended above 2,200 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 16.47 ft; minimum discharge observed, 30 ft<sup>3</sup>/s Sept. 17-19, 1929.

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)
Nov 19	1445	*6,730	*9.11	Jan 31	0430	6,180	8.80
Jan 26	1215	6,030	8.71	Mar 13	0000	5,010	8.08

Minimum discharge, 33 ft<sup>3</sup>/s, Sept. 5, 6, 7, gage height, 1.46 ft.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109	57	147	262	1,650	236	1,060	440	464	198	48	36
2	87	54	138	922	1,010	232	696	474	400	162	47	35
3	263	51	130	1,090	875	228	569	473	378	147	47	35
4	303	49	123	1,150	653	215	483	451	404	137	47	35
5	209	48	117	1,160	522	234	436	661	490	132	46	34
6	189	50	111	601	442	262	425	510	549	126	45	34
7	153	54	105	483	383	238	431	403	554	119	45	35
8	134	102	100	427	341	221	602	352	508	113	44	43
9	122	288	95	391	305	591	806	334	428	113	42	42
10	115	357	117	319	279	1,410	606	339	347	103	42	51
11	108	478	261	275	255	1,890	653	397	309	99	44	397
12	99	729	1,000	630	237	2,500	627	466	301	94	48	530
13	92	909	842	591	223	3,050	719	434	305	107	45	193
14	86	591	1,120	475	216	1,630	681	475	324	119	44	128
15	81	374	1,410	363	211	1,130	554	527	252	95	e42	100
16	77	331	1,080	296	246	891	525	399	248	87	e40	176
17	73	495	725	261	304	705	538	368	275	82	e41	224
18	70	490	500	262	267	552	558	341	286	77	e40	167
19	67	5,150	385	266	245	461	478	315	237	74	e40	e400
20	65	1,670	316	235	422	539	434	312	263	70	e39	341
21	64	767	270	256	1,150	872	477	498	487	66	e39	199
22	61	508	241	800	1,140	2,150	478	545	347	63	38	150
23	58	383	217	1,290	632	1,090	442	634	300	61	38	121
24	56	308	197	837	440	708	577	891	261	59	38	104
25	53	257	186	950	356	598	512	771	231	57	37	93
26	52	225	217	4,400	312	562	445	542	235	55	37	85
27	52	202	221	2,000	275	564	410	529	239	54	37	80
28	65	185	237	1,310	256	502	401	697	220	53	37	75
29	81	170	207	936	---	457	416	608	203	52	37	71
30	66	158	212	1,810	---	e650	445	601	203	51	37	67
31	61	---	261	4,440	---	2,080	---	572	---	49	36	---
TOTAL	3,171	15,490	11,288	29,488	13,647	27,448	16,484	15,359	10,048	2,874	1,287	4,081
MEAN	102	516	364	951	487	885	549	495	335	92.7	41.5	136
MAX	303	5,150	1,410	4,440	1,650	3,050	1,060	891	554	198	48	530
MIN	52	48	95	235	211	215	401	312	203	49	36	34
AC-FT	6,290	30,720	22,390	58,490	27,070	54,440	32,700	30,460	19,930	5,700	2,550	8,090
CFSM	1.60	8.07	5.69	14.9	7.62	13.8	8.59	7.74	5.23	1.45	0.65	2.13
IN.	1.84	9.00	6.56	17.14	7.93	15.95	9.58	8.93	5.84	1.67	0.75	2.37

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2003, BY WATER YEAR (WY)

MEAN	389	678	707	651	526	479	591	715	636	303	130	205
MAX	906	1,894	1,856	1,310	1,295	1,250	968	1,248	1,338	733	439	574
(WY)	(1935)	(1991)	(1934)	(1934)	(1982)	(1972)	(2002)	(1936)	(1974)	(1972)	(1964)	(1941)
MIN	38.3	85.4	209	124	201	225	279	327	145	70.3	41.5	44.2
(WY)	(1988)	(1937)	(1986)	(1937)	(1938)	(1992)	(1975)	(1992)	(1934)	(1940)	(2003)	(1938)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1930 - 2003

ANNUAL TOTAL	196,221	150,665	
ANNUAL MEAN	538	413	501
HIGHEST ANNUAL MEAN			736
LOWEST ANNUAL MEAN			335
HIGHEST DAILY MEAN			9,580
LOWEST DAILY MEAN	5,150	Nov 19	31
ANNUAL SEVEN-DAY MINIMUM	48	Nov 5	32
ANNUAL RUNOFF (AC-FT)	52	Nov 1	32
ANNUAL RUNOFF (CFSM)	389,200		362,900
ANNUAL RUNOFF (INCHES)	8.40		7.83
10 PERCENT EXCEEDS	114.05		106.33
50 PERCENT EXCEEDS	1,110		1,000
90 PERCENT EXCEEDS	342		355
	68		92

e Estimated

SNOHOMISH RIVER BASIN

12143400 SOUTH FORK SNOQUALMIE RIVER ABOVE ALICE CREEK, NEAR GARCIA, WA

LOCATION.--Lat 47°24'55", long 121°35'10", in SW ¼ SW ¼ sec.6, T.22 N., R.10 E. King County, Hydrologic Unit 17110010, Snoqualmie National Forest, on left bank, 50 ft downstream from bridge, 0.4 mi upstream from Alice Creek, 1.5 mi southeast of Garcia, 11 mi southeast of North Bend, and at mile 17.3.

DRAINAGE AREA.--41.6 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1960 to current year.

REVISED RECORDS.--WDR WA-80-1: 1978.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,437.67 ft above Washington Highway Department datum. Oct. 1, 1960 to Sept. 30, 1987, recording gage at same site at datum 10.00 ft higher.

REMARKS.--Records good. No regulation or diversion upstream from station. Chemical analyses October to November 1971. Water temperatures May 1979 to September 1980. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--43 years (water years 1961-2003), 300 ft<sup>3</sup>/s, 98.05 in/yr, 217,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,450 ft<sup>3</sup>/s Nov. 23, 1986, gage height, 8.33 ft, datum then in use; minimum discharge, 18 ft<sup>3</sup>/s Sept. 3-7, 2003.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in November and December 1959 reached stages of 14.7 ft and 13.4 ft respectively, from floodmarks, discharges not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 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)
Nov 19	1145	2,020	13.72	Mar 11	2045	1,790	13.48
Jan 26	1200	3,390	15.00	Mar 12	2230	2,040	13.75
Jan 31	0700	*4,070	*15.55				

Minimum discharge, 18 ft<sup>3</sup>/s, Sept. 3-7, gage height, 10.10 ft.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	25	66	99	1,380	148	599	347	396	95	35	21
2	34	23	62	222	783	144	423	415	347	85	35	21
3	56	23	59	320	614	139	353	401	336	82	34	20
4	64	23	56	548	462	127	300	368	356	76	33	19
5	48	24	54	606	369	137	270	397	409	74	33	19
6	44	24	54	346	306	135	259	328	446	69	33	18
7	40	25	52	256	263	133	246	276	439	68	32	20
8	37	35	49	208	231	126	262	247	397	68	31	45
9	35	57	47	179	207	262	314	246	331	64	30	38
10	36	72	53	156	189	492	294	269	269	61	30	37
11	37	82	86	141	172	1,060	306	343	232	61	30	123
12	34	181	172	181	160	1,430	334	376	232	60	30	119
13	32	272	210	173	151	1,400	450	375	214	71	29	55
14	31	181	282	167	142	864	424	407	192	65	28	42
15	29	121	393	146	135	663	358	411	167	58	27	36
16	28	117	377	131	145	553	330	321	170	54	27	67
17	27	165	279	120	159	449	333	294	184	51	28	70
18	26	152	202	113	142	369	311	251	179	50	27	52
19	26	1,540	162	107	131	310	271	229	155	49	26	e70
20	28	662	138	103	249	324	266	230	162	47	25	78
21	28	322	120	114	651	433	306	284	232	46	25	55
22	26	210	107	146	585	953	323	353	180	45	24	45
23	25	157	97	290	368	640	306	498	167	44	24	40
24	24	123	89	314	268	460	423	750	148	42	23	37
25	24	102	85	496	223	423	351	620	144	41	23	34
26	23	89	85	2,330	197	401	311	453	146	40	23	33
27	24	81	90	1,290	174	360	291	471	144	39	23	31
28	36	76	90	791	162	309	290	619	128	38	22	30
29	39	72	83	698	---	289	314	533	119	37	22	29
30	32	68	82	1,500	---	e395	330	511	111	35	21	28
31	27	---	85	3,210	---	878	---	473	---	35	21	---
TOTAL	1,040	5,104	3,866	15,501	9,018	14,806	9,948	12,096	7,132	1,750	854	1,332
MEAN	33.5	170	125	500	322	478	332	390	238	56.5	27.5	44.4
MAX	64	1,540	393	3,210	1,380	1,430	599	750	446	95	35	123
MIN	23	23	47	99	131	126	246	229	111	35	21	18
AC-FT	2,060	10,120	7,670	30,750	17,890	29,370	19,730	23,990	14,150	3,470	1,690	2,640
CFSM	0.81	4.09	3.00	12.0	7.74	11.5	7.97	9.38	5.71	1.36	0.66	1.07
IN.	0.93	4.56	3.46	13.86	8.06	13.24	8.90	10.82	6.38	1.56	0.76	1.19

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 2003, BY WATER YEAR (WY)

MEAN	176	383	372	355	320	277	389	537	453	190	70.4	85.6
MAX	420	1,271	1,115	743	764	715	660	858	1,208	615	212	234
(WY)	(1998)	(1991)	(1976)	(1984)	(1982)	(1972)	(1990)	(1997)	(1974)	(1974)	(1964)	(1968)
MIN	21.2	61.3	77.7	87.7	77.0	125	171	259	95.6	56.5	27.5	26.0
(WY)	(1988)	(1988)	(1986)	(1979)	(1969)	(1962)	(1967)	(1992)	(1992)	(2003)	(2003)	(1998)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1961 - 2003

ANNUAL TOTAL	113,543	82,447	
ANNUAL MEAN	311	226	300
HIGHEST ANNUAL MEAN			430
LOWEST ANNUAL MEAN			189
HIGHEST DAILY MEAN	2,300	3,210	6,950
LOWEST DAILY MEAN	23	18	18
ANNUAL SEVEN-DAY MINIMUM	24	20	20
ANNUAL RUNOFF (AC-FT)	225,200	163,500	217,500
ANNUAL RUNOFF (CFSM)	7.48	5.43	7.22
ANNUAL RUNOFF (INCHES)	101.53	73.73	98.05
10 PERCENT EXCEEDS	816	461	648
50 PERCENT EXCEEDS	168	138	205
90 PERCENT EXCEEDS	36	27	50

e Estimated



SNOHOMISH RIVER BASIN

12143600 SOUTH FORK SNOQUALMIE RIVER AT EDGEWICK, WA

LOCATION.--Lat 47°27'10", long 121°43'00", in NE ¼ NE ¼ sec.25, T.23 N., R.8 E., King County, Hydrologic Unit 17110010, on left bank at upstream side of highway bridge in Edgewick, 3 mi downstream from Change Creek, and at mile 8.6.

DRAINAGE AREA.--65.9 mi<sup>2</sup>.

PERIOD OF RECORD.--July to October 1962, March 1963 to September 1965, October 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 571.24 ft above NGVD of 1929. Prior to August 3, 1983, gage at site 45 ft downstream at datum 5.90 ft higher.

REMARKS.--No estimated daily discharges. Records good. Minor regulation at Twin Falls and Weeks hydroelectric project, upstream from station. No diversions.

AVERAGE DISCHARGE.--22 years (water years 1964-65, 1984-2003), 437 ft<sup>3</sup>/s, 90.02 in/yr, 316,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft<sup>3</sup>/s Nov. 24, 1990, gage height, 13.85 ft; minimum discharge, 23 ft<sup>3</sup>/s Sept. 28, 2001, result of regulation.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,150 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)
Nov 19	1245	2,540	10.18	Mar 11	2300	2,670	10.28
Jan 26	1300	5,110	11.65	Mar 13	0130	3,050	10.53
Jan 31	0915	*5,930	*12.02				

Minimum discharge, 42 ft<sup>3</sup>/s, Sept. 6, 7, gage height, 6.56 ft.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	71	60	107	191	2,080	227	873	440	485	140	62	45
2	65	59	105	389	1,190	223	615	518	419	126	62	45
3	82	59	100	542	921	223	517	515	403	120	61	45
4	105	59	97	767	690	204	445	464	411	115	60	44
5	83	59	93	942	555	208	408	528	465	113	59	44
6	78	61	91	536	462	213	397	446	506	109	59	43
7	74	62	89	398	402	212	382	382	509	107	58	44
8	70	68	87	327	354	201	420	338	468	105	57	74
9	69	98	85	287	318	421	483	328	406	101	56	71
10	70	110	94	253	292	813	450	342	335	97	55	61
11	70	124	148	235	268	1,500	450	421	282	93	56	140
12	67	221	297	346	248	2,170	479	474	285	91	56	196
13	64	392	393	334	234	2,220	617	466	269	99	54	103
14	64	270	414	308	221	1,330	604	496	244	100	53	79
15	63	200	560	267	214	972	508	517	214	90	52	68
16	62	176	547	237	221	796	468	421	213	86	52	91
17	61	236	436	218	240	648	478	399	221	83	52	113
18	60	210	321	205	221	537	462	342	228	80	51	89
19	60	1,910	261	195	207	456	407	312	201	78	52	104
20	63	965	224	186	316	462	384	310	207	76	51	123
21	62	466	198	202	862	621	425	359	290	76	51	95
22	61	314	178	285	946	1,490	441	434	246	74	50	83
23	60	241	163	496	582	1,040	424	566	223	80	49	74
24	59	198	151	508	419	714	550	887	201	71	49	69
25	59	168	145	665	343	631	492	803	190	69	48	65
26	59	150	146	3,150	304	613	437	565	189	67	48	62
27	59	135	153	1,810	269	553	403	541	188	66	49	60
28	69	128	151	1,150	250	484	396	731	173	65	48	57
29	75	119	141	968	---	436	419	648	160	63	47	56
30	67	112	149	1,940	---	528	431	605	154	62	46	55
31	63	---	159	4,880	---	1,150	---	567	---	62	45	---
TOTAL	2,094	7,430	6,283	23,217	13,629	22,296	14,265	15,165	8,785	2,764	1,648	2,298
MEAN	67.5	248	203	749	487	719	476	489	293	89.2	53.2	76.6
MAX	105	1,910	560	4,880	2,080	2,220	873	887	509	140	62	196
MIN	59	59	85	186	207	201	382	310	154	62	45	43
AC-FT	4,150	14,740	12,460	46,050	27,030	44,220	28,290	30,080	17,430	5,480	3,270	4,560
CFSM	1.03	3.76	3.08	11.4	7.39	10.9	7.22	7.42	4.44	1.35	0.81	1.16
IN.	1.18	4.19	3.55	13.11	7.69	12.59	8.05	8.56	4.96	1.56	0.93	1.30

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 2003, BY WATER YEAR (WY)

	269	667	487	555	490	442	605	701	555	230	102	108
MEAN	269	667	487	555	490	442	605	701	555	230	102	108
MAX	610	1,792	986	1,137	1,149	829	921	1,196	1,254	653	282	283
(WY)	(1986)	(1991)	(2000)	(1984)	(1996)	(1997)	(1989)	(1997)	(1964)	(1964)	(1964)	(1964)
MIN	44.1	99.2	138	180	179	255	357	321	132	89.2	53.2	50.9
(WY)	(1988)	(1988)	(1986)	(1985)	(2001)	(1985)	(1986)	(1992)	(1992)	(2003)	(2003)	(1998)

SUMMARY STATISTICS

	FOR 2002 CALENDAR YEAR	FOR 2003 WATER YEAR	WATER YEARS 1962 - 2003
ANNUAL TOTAL	155,526	119,874	
ANNUAL MEAN	426	328	
HIGHEST ANNUAL MEAN			437
LOWEST ANNUAL MEAN			614
HIGHEST DAILY MEAN	3,680	4,880	9,520
LOWEST DAILY MEAN	59	43	42
ANNUAL SEVEN-DAY MINIMUM	60	44	42
ANNUAL RUNOFF (AC-FT)	308,500	237,800	316,300
ANNUAL RUNOFF (CFSM)	6.47	4.98	6.63
ANNUAL RUNOFF (INCHES)	87.79	67.67	90.02
10 PERCENT EXCEEDS	1,040	619	903
50 PERCENT EXCEEDS	259	208	306
90 PERCENT EXCEEDS	67	59	75

## 12143700 BOXLEY CREEK NEAR CEDAR FALLS, WA

LOCATION.--Lat 47°25'58", long 121°45'04", in NE ¼ SW ¼ sec.35, T.23 N., R.8 E., King County, Hydrologic Unit 17110012, on left bank 1.7 mi northeast of town of Cedar Falls, and 2.5 mi upstream from mouth.

DRAINAGE AREA.--1.57 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1945 to current year. Prior to October 1960 published in WSP 1932.

GAGE.--Water-stage recorder. Elevation of gage is 1,220 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station. Flow is mostly seepage from Chester Morse Lake.

AVERAGE DISCHARGE.--58 years (water years 1946-2003), 23.8 ft<sup>3</sup>/s, 17,230 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 189 ft<sup>3</sup>/s Dec. 19, 1977, gage height, 2.88 ft, maximum gage height, 3.47 ft Nov. 30, Dec. 1, 1990; no flow at times during water years 1967, 1968, and 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 76 ft<sup>3</sup>/s Mar. 31, gage height, 3.36 ft; minimum discharge, 0.12 ft<sup>3</sup>/s Jan. 20.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	e4.4	e0.92	e0.31	e0.44	43	73	29	40	38	19	6.3
2	15	e4.0	e0.89	e0.33	e0.49	45	72	29	40	37	19	6.1
3	15	e3.7	e0.81	e0.30	e0.53	46	69	29	41	36	18	5.8
4	e15	e3.5	0.81	e0.35	e0.56	46	68	29	42	35	18	5.3
5	e14	e3.4	0.76	e0.32	e0.58	47	68	29	42	34	18	4.9
6	e14	e3.4	0.73	e0.30	e0.58	46	66	29	43	34	17	4.8
7	e13	e3.4	0.73	e0.28	e0.58	46	64	29	44	34	17	4.5
8	e13	e2.6	0.70	e0.25	e0.58	45	62	29	44	33	16	4.9
9	e12	e2.6	0.65	e0.23	e0.54	46	59	29	45	32	16	4.3
10	e12	e2.6	0.65	e0.21	e0.50	45	57	29	45	31	15	4.1
11	e11	e2.4	0.72	e0.21	e0.45	44	54	29	45	30	16	4.1
12	e11	e2.3	0.71	e0.23	0.45	44	52	29	45	30	15	3.8
13	e10	e2.3	0.59	e0.20	0.51	43	50	29	45	29	15	3.6
14	e9.6	e2.1	0.58	e0.19	0.62	41	48	29	45	29	14	3.3
15	e9.2	e2.1	0.54	e0.17	0.92	41	46	30	44	28	13	3.1
16	e8.6	e2.1	0.56	e0.17	2.3	41	44	30	44	27	13	3.0
17	e8.2	e1.9	0.51	e0.17	4.7	42	43	31	44	27	12	2.7
18	e7.9	e1.8	0.51	e0.14	7.6	45	41	31	44	26	12	2.6
19	e7.6	e1.8	0.51	e0.14	12	47	39	32	43	25	12	2.5
20	e7.2	e1.6	0.46	e0.13	16	50	38	33	42	24	11	2.4
21	e7.0	e1.6	0.42	e0.16	20	53	38	33	42	24	11	2.3
22	e6.5	e1.5	0.39	e0.20	24	57	36	34	42	23	10	2.1
23	e6.3	e1.3	0.36	e0.19	28	58	35	34	41	23	9.7	1.9
24	e6.0	e1.3	0.31	e0.22	30	59	34	34	41	22	9.4	1.8
25	e5.8	e1.2	0.29	e0.25	33	62	33	35	40	22	8.9	1.7
26	e5.6	e1.2	0.30	e0.36	36	63	32	36	40	22	8.4	1.7
27	e5.4	e1.1	0.27	e0.32	38	64	31	37	39	21	8.2	1.6
28	e5.0	e1.0	0.25	e0.30	41	67	30	38	39	21	7.8	1.5
29	e4.5	e0.95	0.25	e0.30	---	68	30	38	38	21	7.3	1.4
30	e4.5	e0.93	e0.27	e0.35	---	71	29	38	38	20	7.1	1.3
31	e4.4	---	e0.29	e0.51	---	74	---	39	---	20	6.7	---
TOTAL	290.3	66.08	16.74	7.79	300.93	1,589	1,441	989	1,267	858	400.5	99.4
MEAN	9.36	2.20	0.54	0.25	10.7	51.3	48.0	31.9	42.2	27.7	12.9	3.31
MAX	16	4.4	0.92	0.51	41	74	73	39	45	38	19	6.3
MIN	4.4	0.93	0.25	0.13	0.44	41	29	29	38	20	6.7	1.3
AC-FT	576	131	33	15	597	3,150	2,860	1,960	2,510	1,700	794	197

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2003, BY WATER YEAR (WY)

MEAN	4.22	7.85	23.0	25.3	25.8	21.5	18.6	31.5	49.3	42.8	25.1	10.2
MAX	34.5	78.4	94.5	79.1	103	79.5	68.3	82.2	129	93.0	74.8	40.3
(WY)	(1960)	(1948)	(1991)	(1950)	(1953)	(1950)	(1950)	(1993)	(1946)	(1993)	(1955)	(1955)
MIN	0.088	0.008	0.11	0.25	0.34	0.16	1.21	3.37	7.58	11.0	2.18	0.29
(WY)	(1988)	(1988)	(1988)	(2003)	(2001)	(2001)	(1962)	(1999)	(1963)	(1978)	(1992)	(1987)

## SUMMARY STATISTICS

## FOR 2002 CALENDAR YEAR

## FOR 2003 WATER YEAR

## WATER YEARS 1945 - 2003

ANNUAL TOTAL	6,871.42	7,325.74		
ANNUAL MEAN	18.8	20.1	23.8	
HIGHEST ANNUAL MEAN			51.9	1950
LOWEST ANNUAL MEAN			6.75	1977
HIGHEST DAILY MEAN	68	74	177	Dec 1, 1990
LOWEST DAILY MEAN	0.25	0.13	0.00	Oct 31, 1966
ANNUAL SEVEN-DAY MINIMUM	0.27	0.15	0.00	Oct 31, 1966
ANNUAL RUNOFF (AC-FT)	13,630	14,530	17,230	
10 PERCENT EXCEEDS	53	45	59	
50 PERCENT EXCEEDS	11	13	16	
90 PERCENT EXCEEDS	1.2	0.35	1.2	

e Estimated



12143900 BOXLEY CREEK NEAR EDGEWICK, WA

LOCATION.--Lat 47°26'56", long 121°43'50", in SW ¼ SE ¼ NW ¼ sec.25, T.23 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank 4.0 mi southeast of North Bend, and at mile 0.9.

DRAINAGE AREA.--3.64 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1981 to current year.

REVISED RECORDS.--WDR WA-90-1: 1982 (M), 1988 (M).

GAGE.--Water-stage recorder. Elevation of gage is 650 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records fair. Many small diversions for domestic use upstream from station. No regulation; flow is mostly seepage from Chester Morse Lake. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--22 years (water years 1982-2003), 41.3 ft<sup>3</sup>/s, 29,890 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 256 ft<sup>3</sup>/s Dec. 3, 1995, gage height, 5.20 ft; minimum discharge, 8.3 ft<sup>3</sup>/s Nov. 10, 1986.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 113 ft<sup>3</sup>/s Mar. 31, Apr. 9; maximum gage height, 4.64 ft Mar. 31; minimum discharge, 11 ft<sup>3</sup>/s Jan. 20, 21.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	29	25	15	19	26	64	94	49	67	49	31	27
2	29	24	14	21	23	67	98	49	69	49	31	27
3	29	24	15	19	23	67	93	49	69	48	31	27
4	29	24	15	23	22	67	92	49	70	47	31	27
5	29	23	14	21	20	68	94	49	71	46	31	26
6	29	23	14	20	19	67	95	49	71	45	31	25
7	29	23	14	18	18	69	95	48	71	44	31	25
8	29	23	14	16	17	68	93	47	71	44	31	27
9	29	24	14	15	16	72	97	48	71	44	31	25
10	29	23	15	16	15	71	96	47	72	44	32	24
11	28	22	20	16	14	75	94	47	72	45	32	26
12	28	24	21	20	14	80	93	48	72	46	32	25
13	27	23	21	16	15	78	94	49	71	46	32	24
14	26	22	20	16	15	74	95	49	71	48	32	23
15	26	21	20	15	15	71	97	50	71	49	31	22
16	26	21	25	14	20	71	94	50	70	49	30	24
17	25	20	20	14	23	71	92	53	70	48	30	22
18	25	22	19	12	23	72	87	50	70	48	29	22
19	25	25	17	12	25	75	83	50	70	46	28	24
20	25	22	16	11	28	79	79	50	70	45	27	21
21	24	19	15	14	35	85	76	51	70	42	28	20
22	24	19	14	18	43	82	73	51	68	40	27	19
23	25	18	14	16	43	81	71	51	67	37	27	19
24	25	17	14	17	43	81	72	51	64	36	26	18
25	26	17	13	18	46	91	69	51	60	33	26	17
26	26	16	14	25	50	94	67	51	57	32	26	17
27	26	16	14	24	52	94	65	52	54	31	26	16
28	26	16	13	23	60	96	58	53	53	31	26	16
29	26	15	13	23	---	95	52	55	51	31	27	16
30	25	15	17	25	---	96	50	57	50	31	27	15
31	25	---	17	29	---	98	---	64	---	31	27	---
TOTAL	829	626	501	566	763	2,419	2,508	1,567	2,003	1,305	907	666
MEAN	26.7	20.9	16.2	18.3	27.2	78.0	83.6	50.5	66.8	42.1	29.3	22.2
MAX	29	25	25	29	60	98	98	64	72	49	32	27
MIN	24	15	13	11	14	64	50	47	50	31	26	15
AC-FT	1,640	1,240	994	1,120	1,510	4,800	4,970	3,110	3,970	2,590	1,800	1,320

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 2003, BY WATER YEAR (WY)

	20.7	24.3	35.9	37.3	43.5	44.0	43.8	53.7	65.9	58.5	40.4	27.1
MEAN	20.7	24.3	35.9	37.3	43.5	44.0	43.8	53.7	65.9	58.5	40.4	27.1
MAX	33.9	62.4	121	65.0	93.1	114	85.7	113	106	108	76.9	42.0
(WY)	(1991)	(1991)	(1991)	(1991)	(1996)	(1982)	(1988)	(1988)	(1993)	(1993)	(1993)	(1997)
MIN	11.0	11.9	12.9	11.4	15.0	13.0	13.6	20.9	29.8	22.9	16.4	12.2
(WY)	(1988)	(1988)	(1988)	(1988)	(1988)	(2001)	(2001)	(1999)	(1992)	(1992)	(1992)	(1987)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1982 - 2003

ANNUAL TOTAL	13,573	14,660	
ANNUAL MEAN	37.2	40.2	41.3
HIGHEST ANNUAL MEAN			66.6
LOWEST ANNUAL MEAN			28.1
HIGHEST DAILY MEAN	80	98	247
LOWEST DAILY MEAN	13	11	8.6
ANNUAL SEVEN-DAY MINIMUM	14	13	10
ANNUAL RUNOFF (AC-FT)	26,920	29,080	29,890
10 PERCENT EXCEEDS	65	75	74
50 PERCENT EXCEEDS	32	29	35
90 PERCENT EXCEEDS	20	16	17

SNOHOMISH RIVER BASIN

12144000 SOUTH FORK SNOQUALMIE RIVER AT NORTH BEND, WA

LOCATION.--Lat 47°29'35", long 121°47'20", in SW ¼ NE ¼ sec.9, T.23 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank on upstream side of Bendigo Street crossing at North Bend, and at mile 2.0.

DRAINAGE AREA.--81.7 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1907 to September 1926, February 1929 to September 1938, June 1945 to April 1950, October 1960 to August 1974, February 1984 to current year. Monthly and yearly discharge only for water years 1908, 1910 and 1913, published in WSP 1316.

REVISED RECORDS.--WSP 1316: 1918-19(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 423.01 ft above NGVD of 1929 (February 1984 through September 1996 incorrectly published as 439.33 ft). Prior to April 11, 1950, nonrecording gage or water-stage recorder at several sites within 0.5 mi upstream from present site at various datums. October 1, 1960 to March 10, 1965, at site 0.46 mi upstream at datum 1.86 ft lower. March 10, 1965 to August 31, 1974, at site 0.46 mi upstream at datum 6.86 ft lower.

REMARKS.--No estimated daily discharges. Records good. City of North Bend diverts about 0.8 ft<sup>3</sup>/s daily from Clough Creek for municipal use. Minor regulation at Twin Falls and Weeks Falls projects upstream from station.

AVERAGE DISCHARGE.--64 years (water years 1908-26, 1930-38, 1946-49, 1961-73, 1985-2003), 549 ft<sup>3</sup>/s, 91.26 in/yr, 397,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge recorded, 10,900 ft<sup>3</sup>/s Nov. 24, 1990, gage height, 19.09 ft, from rating curve extended above 3,900 ft<sup>3</sup>/s; minimum discharge, 63 ft<sup>3</sup>/s Oct. 22, 1925.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 22, 1959, reached a stage of 14.49 ft, site and datum then in use, from floodmarks, discharge, 13,000 ft<sup>3</sup>/s, slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,200 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)
Nov 19	1430	2,640	11.15	Jan 31	1000	*6,530	*15.07
Jan 26	1430	5,330	13.91	Mar 13	0100	3,520	12.14

Minimum discharge, 82 ft<sup>3</sup>/s, Sept. 3-7, gage height, 7.62 ft.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	135	112	154	266	2,650	377	1,140	552	600	217	106	84
2	130	111	149	476	1,560	374	851	632	526	199	106	84
3	145	110	142	678	1,240	377	741	632	505	192	107	83
4	171	110	138	852	949	352	650	582	510	185	106	83
5	148	109	134	1,160	768	355	606	658	567	181	106	82
6	140	110	129	697	645	359	588	563	612	175	107	82
7	136	110	126	531	560	367	571	488	617	172	104	82
8	132	118	122	446	495	352	610	441	575	167	104	111
9	131	146	120	396	445	607	686	427	509	161	102	109
10	131	162	134	353	410	1,080	643	438	434	155	102	99
11	130	170	192	326	381	1,840	631	512	380	153	104	176
12	128	249	366	445	356	2,550	661	575	380	153	102	239
13	125	463	511	444	338	2,540	816	568	367	159	99	144
14	123	338	506	415	321	1,590	806	600	343	160	97	117
15	122	267	689	365	308	1,220	697	628	310	149	96	106
16	120	233	691	328	321	1,030	648	526	307	144	96	126
17	118	296	584	302	342	857	657	517	311	139	95	151
18	118	272	450	284	323	727	635	447	319	136	93	125
19	116	1,910	370	271	311	632	563	412	293	133	93	139
20	118	1,180	321	260	441	648	529	406	300	130	92	160
21	117	600	288	279	1,080	847	567	453	376	127	91	134
22	116	421	261	375	1,220	1,790	581	531	339	124	90	123
23	115	331	238	604	807	1,350	559	667	314	128	89	113
24	114	275	224	635	603	988	703	1,010	289	121	88	107
25	113	238	211	791	511	887	639	951	277	119	89	104
26	112	214	215	3,410	459	874	571	691	274	117	90	101
27	112	192	220	2,160	419	800	527	651	270	115	90	98
28	121	181	219	1,450	402	715	514	861	256	113	89	95
29	127	170	209	1,200	---	652	533	780	242	110	88	92
30	120	161	219	2,140	---	733	548	730	234	109	87	91
31	115	---	242	5,600	---	1,390	---	689	---	107	85	---
TOTAL	3,899	9,359	8,574	27,939	18,665	29,260	19,471	18,618	11,636	4,550	2,993	3,440
MEAN	126	312	277	901	667	944	649	601	388	147	96.5	115
MAX	171	1,910	691	5,600	2,650	2,550	1,140	1,010	617	217	107	239
MIN	112	109	120	260	308	352	514	406	234	107	85	82
AC-FT	7,730	18,560	17,010	55,420	37,020	58,040	38,620	36,930	23,080	9,020	5,940	6,820
CFSM	1.54	3.82	3.39	11.0	8.16	11.6	7.94	7.35	4.75	1.80	1.18	1.40
IN.	1.78	4.26	3.90	12.72	8.50	13.32	8.87	8.48	5.30	2.07	1.36	1.57

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1907 - 2003, BY WATER YEAR (WY)

MEAN	330	644	695	714	628	601	702	853	743	356	171	171
MAX	843	2,164	2,267	1,579	1,398	1,516	1,171	1,313	1,763	940	405	421
(WY)	(1934)	(1991)	(1934)	(1934)	(1996)	(1972)	(1932)	(1997)	(1974)	(1974)	(1964)	(1933)
MIN	76.5	92.4	213	218	178	190	352	354	210	100	84.8	76.8
(WY)	(1988)	(1930)	(1931)	(1937)	(1922)	(1922)	(1967)	(1915)	(1992)	(1926)	(1910)	(1910)

SUMMARY STATISTICS

	FOR 2002 CALENDAR YEAR	FOR 2003 WATER YEAR	WATER YEARS 1907 - 2003
ANNUAL TOTAL	206,010	158,404	
ANNUAL MEAN	564	434	549
HIGHEST ANNUAL MEAN			809
LOWEST ANNUAL MEAN			334
HIGHEST DAILY MEAN	4,320	5,600	10,100
LOWEST DAILY MEAN	109	82	65
ANNUAL SEVEN-DAY MINIMUM	110	83	66
ANNUAL RUNOFF (AC-FT)	408,600	314,200	397,500
ANNUAL RUNOFF (CFSM)	6.91	5.31	6.72
ANNUAL RUNOFF (INCHES)	93.80	72.13	91.26
10 PERCENT EXCEEDS	1,240	828	1,050
50 PERCENT EXCEEDS	415	302	435
90 PERCENT EXCEEDS	130	104	131

12144500 SNOQUALMIE RIVER NEAR SNOQUALMIE, WA

LOCATION.--Lat 47°32'43", long 121°50'26", in SW 1/4 SW 1/4 sec.19, T.24 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank 0.3 mi downstream from Snoqualmie Falls, 0.4 mi upstream from Tokul Creek, 1.5 mi northwest of Snoqualmie, and at mile 40.0.

DRAINAGE AREA.--375 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1898 to July 1899; August to September 1899 (monthly discharge only); January to July 1900, September 1902 to July 1904; August to September 1904 (monthly discharge only); October 1904 to September 1905 and November to December 1906 (gage heights only); August 1907 to May 1926 (monthly discharge only); June 1926 to September 1927; October 1927 to September 1932 (monthly discharge only); August 1958 to current year. Published as "near Snoqualmie Falls" 1904-06.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 120 ft above NGVD of 1929, from river-profile map. Prior to Nov. 3, 1902, and Nov. 1 to Dec. 31, 1906, nonrecording gages upstream and downstream from Snoqualmie Falls at different datum. Nov. 3, 1902, to Sept. 30, 1905, nonrecording gage at site 4 mi upstream and 300 ft downstream from South Fork, at different datum. Prior to Sept. 9, 1999, at site on opposite bank, at same datum.

REMARKS.--Records good. Medium and low flows affected by powerplant 0.1 mi upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--73 years (water years 1899, 1903-04, 1908-32, 1959-2003), 2,594 ft<sup>3</sup>/s, 93.94 in/yr, 1,879,000 acre-ft/yr, includes monthly discharge figures, see PERIOD OF RECORD. 45 years (water years (1959-2003), 2,686 ft<sup>3</sup>/s, 97.31 in/yr, 1,946,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,800 ft<sup>3</sup>/s Nov. 24, 1990, gage height, 21.55 ft, from inside high-water mark; minimum discharge, 9.7 ft<sup>3</sup>/s Aug. 14, 27, 1958, gage height, -0.53 ft; minimum daily discharge, 88 ft<sup>3</sup>/s Aug. 8, 1960.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 24,400 ft<sup>3</sup>/s Jan. 31, gage height, 14.63 ft; minimum discharge, 129 ft<sup>3</sup>/s Aug. 7.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	544	350	789	1,410	11,100	1,370	5,210	2,260	2,840	1,210	485	317
2	479	336	744	3,200	6,080	1,330	3,740	2,460	2,420	1,060	479	315
3	658	327	697	4,440	4,960	1,380	3,130	2,540	2,280	982	469	310
4	1,170	320	675	4,380	3,810	1,280	2,700	2,360	2,260	936	457	309
5	868	316	648	5,980	3,040	1,300	2,440	3,080	2,590	926	446	306
6	760	324	620	3,460	2,540	1,450	2,380	2,710	2,970	921	442	304
7	661	333	594	2,670	2,190	1,420	2,300	2,210	3,180	887	438	305
8	601	373	570	2,300	1,940	1,380	2,720	1,930	3,040	851	425	400
9	565	796	550	2,110	1,730	2,290	3,350	1,810	2,680	826	417	430
10	551	1,100	617	1,830	1,600	5,230	2,940	1,800	2,170	777	415	403
11	543	1,300	919	1,610	1,480	7,580	2,930	2,010	1,840	782	407	1,040
12	505	1,870	2,850	2,700	1,370	10,500	2,970	2,400	1,780	789	425	1,920
13	472	3,410	3,400	2,890	1,320	13,700	3,460	2,330	1,730	813	405	942
14	447	2,320	3,450	2,390	1,270	8,280	3,530	2,480	1,730	860	392	684
15	426	1,700	5,130	2,000	1,230	5,730	2,930	2,720	1,500	760	385	576
16	412	1,330	4,310	1,710	1,280	4,650	2,690	2,330	1,440	713	384	666
17	395	1,930	3,470	1,520	1,460	3,810	2,690	2,210	1,480	684	396	956
18	385	1,650	2,530	1,450	1,360	3,090	2,740	1,970	1,660	653	386	748
19	377	14,100	2,030	1,440	1,270	2,610	2,410	1,790	1,490	638	381	e849
20	382	8,650	1,700	1,340	1,740	2,620	2,180	1,750	1,490	622	370	1,280
21	382	3,970	1,470	1,370	4,560	3,670	2,310	2,210	2,280	613	366	873
22	371	2,690	1,310	2,670	5,340	8,840	2,370	2,540	1,880	598	358	703
23	357	2,030	1,180	4,710	3,400	6,060	2,260	3,050	1,660	590	354	620
24	345	1,640	1,090	3,710	2,380	4,220	2,880	4,640	1,490	573	348	569
25	335	1,370	1,020	4,190	1,930	3,550	1,800	4,770	1,370	556	339	530
26	328	1,200	1,080	15,100	1,700	3,400	2,420	3,430	1,380	534	334	502
27	327	1,070	1,100	10,500	1,540	3,380	2,200	2,960	1,450	519	337	480
28	386	976	1,150	6,880	1,450	2,990	2,110	3,950	1,440	506	336	463
29	480	903	1,080	4,810	---	2,610	2,140	3,780	1,320	508	325	446
30	424	841	1,130	8,650	---	3,020	2,240	3,410	1,310	488	325	436
31	377	---	1,410	20,500	---	6,860	---	3,360	---	485	320	---
TOTAL	15,313	59,525	49,313	133,920	75,070	129,600	83,170	83,250	58,150	22,660	12,146	18,682
MEAN	494	1,984	1,591	4,320	2,681	4,181	2,772	2,685	1,938	731	392	623
MAX	1,170	14,100	5,130	20,500	11,100	13,700	5,210	4,770	3,180	1,210	485	1,920
MIN	327	316	550	1,340	1,230	1,280	2,110	1,750	1,310	485	320	304
AC-FT	30,370	118,100	97,810	265,600	148,900	257,100	165,000	165,100	115,300	44,950	24,090	37,060
CFSM	1.32	5.29	4.24	11.5	7.15	11.1	7.39	7.16	5.17	1.95	1.04	1.66
IN.	1.52	5.90	4.89	13.28	7.45	12.86	8.25	8.26	5.77	2.25	1.20	1.85

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2003, BY WATER YEAR (WY)

MEAN	1,816	3,598	3,646	3,564	3,044	2,548	3,054	3,755	3,502	1,830	849	1,069
MAX	3,931	10,100	8,886	6,414	6,676	6,735	4,696	6,055	7,568	4,393	2,263	3,937
(WY)	(1960)	(1991)	(1976)	(1984)	(1982)	(1972)	(1989)	(1972)	(1974)	(1974)	(1964)	(1959)
MIN	348	716	1,211	1,162	1,215	1,367	1,478	1,895	1,077	731	392	342
(WY)	(1988)	(1980)	(2001)	(1979)	(1969)	(1962)	(1967)	(1992)	(1992)	(2003)	(2003)	(1998)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1959 - 2003

ANNUAL TOTAL	960,294	740,799	
ANNUAL MEAN	2,631	2,030	2,686
HIGHEST ANNUAL MEAN			3,939
LOWEST ANNUAL MEAN			1,739
HIGHEST DAILY MEAN	19,400	Apr 14	20,500
LOWEST DAILY MEAN	316	Nov 5	304
ANNUAL SEVEN-DAY MINIMUM	329	Nov 1	309
ANNUAL RUNOFF (AC-FT)	1,905,000		1,469,000
ANNUAL RUNOFF (CFSM)	7.02		5.41
ANNUAL RUNOFF (INCHES)	95.26		73.49
10 PERCENT EXCEEDS	5,410		3,870
50 PERCENT EXCEEDS	1,960		1,440
90 PERCENT EXCEEDS	451		382
			54,700
			88
			274
			1,946,000
			7.16
			97.31
			5,040
			2,080
			622

e Estimated

SNOHOMISH RIVER BASIN

12145500 RAGING RIVER NEAR FALL CITY, WA

LOCATION.--Lat 47°32'24", long 121°54'28", on west line sec.27, T.24 N., R.7 E., King County, Hydrologic Unit 17110010, on right bank at highway bridge 2.0 mi southwest of Fall City, and 2.6 mi upstream from mouth.

DRAINAGE AREA.--30.6 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1945 to September 1950, water years 1951, and 1953-63 (annual maximum), December 1963 to June 1973, October 1973 to April 1974, October 1974 to current year.

REVISED RECORDS.--WSP 1316: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 250 ft above NGVD of 1929, from topographic map. Prior to Oct. 1, 1950, water-stage recorder on left bank at present site and datum. August 1951 and January 1953 to February 1963, crest-stage gage only on left bank at present site and datum.

REMARKS.--No estimated daily discharges. Records good. Some small diversions for irrigation and domestic use upstream from station. No regulation. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--42 years (water years 1946-50, 1965-72, 1975-2003), 131 ft<sup>3</sup>/s, 58.23 in/yr, 95,010 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,220 ft<sup>3</sup>/s Nov. 24, 1990, gage height, 6.56 ft; maximum gage height, 6.75 ft Feb. 9, 1951; minimum daily discharge, 4.4 ft<sup>3</sup>/s Aug. 21, 1967.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 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 31	0800	*1,410	*4.63	No other peak greater than base discharge.			

Minimum discharge, 7.6 ft<sup>3</sup>/s, Aug. 30-31 and Sept. 1-7, gage height, 0.70 ft.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	13	20	206	569	83	196	67	30	16	9.5	7.6
2	13	13	19	299	354	85	167	62	29	15	9.5	7.6
3	30	13	19	279	332	122	175	59	27	15	9.5	7.6
4	26	13	19	292	241	95	158	67	26	14	9.2	7.6
5	16	13	18	278	186	99	152	110	25	14	9.2	7.6
6	14	14	18	182	150	90	206	78	24	14	9.3	7.6
7	13	16	17	134	125	97	221	69	22	13	9.2	7.7
8	12	19	17	107	108	100	236	63	21	13	9.2	60
9	12	26	17	90	96	331	235	58	21	13	9.2	18
10	15	36	25	77	86	370	182	54	22	12	9.7	14
11	17	21	67	70	79	447	160	52	22	12	9.8	58
12	13	32	142	126	72	641	144	48	21	12	9.3	52
13	12	40	220	108	66	654	249	45	21	12	9.2	22
14	12	37	161	133	60	355	222	43	22	13	9.1	17
15	11	25	186	103	58	242	175	45	20	12	8.8	14
16	11	24	339	89	79	192	150	52	19	12	8.9	26
17	11	26	240	79	101	159	145	90	18	11	9.2	26
18	11	22	171	71	86	138	126	76	17	11	8.9	18
19	11	99	123	64	82	123	110	63	19	11	8.8	58
20	12	90	94	59	146	164	97	55	29	11	8.7	39
21	12	51	76	84	199	257	92	62	43	11	8.5	25
22	12	37	64	180	282	789	87	57	34	11	8.5	20
23	12	32	56	242	208	485	84	51	33	10	8.1	17
24	12	28	51	234	152	319	164	46	27	10	8.0	16
25	11	25	48	213	122	261	135	46	22	10	7.9	14
26	12	23	66	703	105	249	113	42	20	10	8.0	13
27	12	23	73	597	92	251	100	40	18	10	8.7	13
28	14	21	69	468	89	208	88	36	17	9.9	8.5	13
29	16	21	69	345	---	169	79	34	16	9.8	8.2	12
30	14	20	108	427	---	141	72	33	16	9.5	8.1	12
31	13	---	181	1,120	---	231	---	33	---	9.5	7.8	---
TOTAL	425	873	2,793	7,459	4,325	7,947	4,520	1,736	701	366.7	274.5	630.3
MEAN	13.7	29.1	90.1	241	154	256	151	56.0	23.4	11.8	8.85	21.0
MAX	30	99	339	1,120	569	789	249	110	43	16	9.8	60
MIN	11	13	17	59	58	83	72	33	16	9.5	7.8	7.6
AC-FT	843	1,730	5,540	14,790	8,580	15,760	8,970	3,440	1,390	727	544	1,250
CFSM	0.45	0.95	2.94	7.86	5.05	8.38	4.92	1.83	0.76	0.39	0.29	0.69
IN.	0.52	1.06	3.40	9.07	5.26	9.66	5.49	2.11	0.85	0.45	0.33	0.77

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2003, BY WATER YEAR (WY)

	70.3	214	255	264	225	184	149	87.2	64.3	32.0	18.9	31.2
MEAN	70.3	214	255	264	225	184	149	87.2	64.3	32.0	18.9	31.2
MAX	266	602	472	458	476	389	255	168	158	106	51.2	96.7
(WY)	(1948)	(1991)	(1976)	(1971)	(1972)	(1950)	(1950)	(1997)	(1964)	(1997)	(1976)	(1964)
MIN	7.77	23.7	90.1	94.7	53.7	58.4	60.8	38.0	19.0	11.8	7.04	9.71
(WY)	(1988)	(1988)	(2003)	(1985)	(1977)	(1992)	(1998)	(1947)	(1992)	(2003)	(1967)	(1987)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1945 - 2003

ANNUAL TOTAL	36,425		32,050.5	
ANNUAL MEAN	99.8		87.8	
HIGHEST ANNUAL MEAN				131
LOWEST ANNUAL MEAN				206
HIGHEST DAILY MEAN	1,200	Jan 25	1,120	Jan 31
LOWEST DAILY MEAN	11	Oct 15	7.6	Sep 1
ANNUAL SEVEN-DAY MINIMUM	11	Oct 13	7.6	Sep 1
ANNUAL RUNOFF (AC-FT)	72,250		63,570	95,010
ANNUAL RUNOFF (CFSM)	3.26		2.87	4.29
ANNUAL RUNOFF (INCHES)	44.28		38.96	58.23
10 PERCENT EXCEEDS	239		232	296
50 PERCENT EXCEEDS	56		34	76
90 PERCENT EXCEEDS	13		9.5	14

12147500 NORTH FORK TOLT RIVER NEAR CARNATION, WA

LOCATION.--Lat 47°42'45", long 121°47'15", in SW 1/4 NE 1/4 sec.28, T.26 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank 2.9 mi upstream from confluence with South Fork, 7.4 mi northeast of Carnation, and at mile 11.7.

DRAINAGE AREA.--39.9 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1952 to December 1963, November 1967 to current year.

REVISED RECORDS.--WSP 1566: 1957. WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 600 ft above NGVD of 1929, from river-profile map.

REMARKS.--Records good except for estimated daily discharges which are fair. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--46 years (water years 1953-63, 1969-2003), 354 ft<sup>3</sup>/s, 120.57 in/yr, 256,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,560 ft<sup>3</sup>/s Dec. 15, 1959, gage height, 13.15 ft, from rating curve extended above 2,800 ft<sup>3</sup>/s; minimum discharge, 31 ft<sup>3</sup>/s Sept. 22, 23, 1986.

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)
Nov 19	0700	3,490	9.11	Mar 12	2145	3,480	9.10
Jan 26	1030	*3,660	*9.26				

Minimum discharge, 33 ft<sup>3</sup>/s, Sept. 3-7, gage height, 3.24 ft.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	46	122	224	757	227	592	266	190	98	50	35
2	57	44	118	665	551	222	455	270	174	91	50	35
3	213	43	115	709	523	216	406	277	167	86	50	34
4	185	42	112	665	423	208	370	301	170	83	48	33
5	120	42	111	576	365	254	357	406	180	82	47	33
6	116	44	107	358	331	281	360	301	185	81	46	33
7	96	48	104	305	303	239	399	257	179	79	46	36
8	86	109	101	270	282	219	501	234	168	77	44	39
9	80	256	99	247	265	592	604	224	152	76	44	37
10	77	315	123	219	249	932	426	220	141	74	45	49
11	73	369	286	203	236	1,440	484	230	134	71	45	385
12	69	512	682	430	225	1,700	430	245	130	72	59	232
13	65	535	576	363	216	1,690	467	235	140	73	48	99
14	62	366	587	342	e212	897	436	256	139	72	45	70
15	59	222	786	268	e204	673	387	274	122	70	44	59
16	58	199	570	230	e250	559	375	223	117	67	44	138
17	56	253	417	210	e340	464	403	220	119	65	44	136
18	54	423	316	201	e280	398	387	213	121	63	44	96
19	54	2,570	263	194	e270	358	339	202	113	62	44	238
20	54	754	230	182	530	412	316	199	117	61	42	158
21	53	371	208	216	921	619	322	339	144	60	41	101
22	51	268	193	533	793	1,360	314	297	135	59	40	80
23	49	220	181	759	450	649	297	301	118	56	39	70
24	48	190	171	543	344	488	393	337	111	56	38	63
25	47	170	166	512	299	456	339	313	107	55	37	59
26	46	157	185	2,000	274	441	306	245	106	55	37	55
27	46	147	190	945	253	499	290	237	106	54	37	52
28	57	139	188	694	240	464	288	261	101	52	37	50
29	60	132	170	546	---	426	291	234	97	52	37	48
30	52	127	203	1,010	---	512	285	226	98	51	36	46
31	48	---	224	1,600	---	1,140	---	216	---	50	35	---
TOTAL	2,255	9,113	7,904	16,219	10,386	19,035	11,619	8,059	4,081	2,103	1,343	2,599
MEAN	72.7	304	255	523	371	614	387	260	136	67.8	43.3	86.6
MAX	213	2,570	786	2,000	921	1,700	604	406	190	98	59	385
MIN	46	42	99	182	204	208	285	199	97	50	35	33
AC-FT	4,470	18,080	15,680	32,170	20,600	37,760	23,050	15,990	8,090	4,170	2,660	5,160
CFSM	1.82	7.61	6.39	13.1	9.30	15.4	9.71	6.52	3.41	1.70	1.09	2.17
IN.	2.10	8.50	7.37	15.12	9.68	17.75	10.83	7.51	3.80	1.96	1.25	2.42

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 2003, BY WATER YEAR (WY)

MEAN	254	486	528	526	447	375	431	420	342	195	113	151
MAX	536	1,145	1,065	1,160	1,008	898	709	646	731	496	222	563
(WY)	(1960)	(1991)	(1976)	(1953)	(1982)	(1972)	(1959)	(1972)	(1955)	(1955)	(1955)	(1959)
MIN	38.5	69.0	192	222	166	172	249	214	136	67.8	43.3	49.6
(WY)	(1988)	(1953)	(1986)	(1957)	(1969)	(1992)	(1992)	(1992)	(1992)	(2003)	(2003)	(1998)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1953 - 2003

ANNUAL TOTAL	125,191	94,716	354	1959
ANNUAL MEAN	343	259	526	2001
HIGHEST ANNUAL MEAN			247	
LOWEST ANNUAL MEAN			5,560	Dec 15, 1959
HIGHEST DAILY MEAN	2,950	Feb 22	33	Sep 4
LOWEST DAILY MEAN	42	Nov 4	34	Sep 22, 1986
ANNUAL SEVEN-DAY MINIMUM	44	Oct 31	34	Sep 16, 1986
ANNUAL RUNOFF (AC-FT)	248,300	187,900	256,500	
ANNUAL RUNOFF (CFSM)	8.60	6.50	8.87	
ANNUAL RUNOFF (INCHES)	116.72	88.31	120.57	
10 PERCENT EXCEEDS	617	544	656	
50 PERCENT EXCEEDS	273	193	276	
90 PERCENT EXCEEDS	60	46	84	

e Estimated



SNOHOMISH RIVER BASIN  
12147500 NORTH FORK TOLT RIVER NEAR CARNATION, WA—Continued  
WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: February 1995 to current year.

INSTRUMENTATION.--Temperature recorder since February 1995.

REMARKS.--Record rated excellent, except Oct. 1 to Dec. 15 and Aug. 18 to Sept. 30, which are good.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 16.0°C (rounded) July 18, 19, 1995, July 26-28, 1998; minimum, 2.0°C (rounded) Dec. 29, 1996.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 14.7°C July 30, minimum, 3.3°C Mar. 7.

TEMPERATURE, WATER, DEGREES CELSIUS  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	9.2	7.5	8.4	5.5	4.4	5.0	6.7	5.5	6.0	5.7	5.1	5.4
2	9.3	7.6	8.4	5.4	4.4	4.9	7.2	6.5	6.8	5.7	5.2	5.5
3	10.0	8.9	9.3	5.6	4.6	5.1	6.9	5.5	5.9	5.9	5.2	5.6
4	10.5	9.4	9.8	6.0	4.8	5.4	7.0	5.6	6.4	6.5	5.6	6.1
5	10.0	9.2	9.5	7.8	5.9	6.7	7.2	6.0	6.6	5.9	5.3	5.6
6	10.8	9.2	9.9	8.0	7.4	7.6	6.4	5.5	5.9	5.8	4.8	5.2
7	10.5	9.4	9.9	8.2	7.7	8.0	5.9	5.1	5.5	5.6	4.9	5.2
8	10.1	8.5	9.3	8.0	7.1	7.6	5.9	5.0	5.4	5.4	4.6	4.9
9	10.0	9.2	9.4	7.4	6.9	7.1	6.4	5.2	5.7	5.5	4.5	4.9
10	9.2	8.5	8.8	7.3	6.6	6.9	6.5	6.2	6.4	5.4	4.5	4.9
11	8.6	7.7	8.1	7.6	6.9	7.2	6.3	5.8	6.1	6.1	4.5	5.2
12	8.2	6.6	7.5	7.8	7.2	7.5	6.8	5.9	6.4	6.1	5.2	5.7
13	8.2	6.8	7.6	7.9	7.3	7.5	6.7	5.9	6.3	6.2	5.2	5.8
14	8.2	6.6	7.4	7.8	7.1	7.5	7.0	6.5	6.8	6.1	5.0	5.8
15	8.5	7.0	7.8	7.7	6.6	7.1	6.8	6.3	6.6	5.6	4.6	5.0
16	8.7	7.4	8.1	7.5	6.8	7.2	6.6	5.9	6.2	5.9	4.7	5.2
17	8.7	7.6	8.2	7.6	7.1	7.3	6.1	5.7	5.9	5.7	4.7	5.1
18	8.6	7.4	8.0	7.4	7.0	7.2	5.9	5.1	5.6	5.6	4.6	5.0
19	9.1	8.2	8.5	8.1	7.2	7.7	5.8	5.1	5.4	6.0	4.8	5.4
20	9.5	8.8	9.1	8.3	7.8	8.0	5.8	5.2	5.5	5.9	4.9	5.4
21	9.4	8.9	9.1	8.6	7.7	8.1	5.9	5.3	5.6	6.0	5.2	5.6
22	9.3	8.9	9.1	8.4	8.0	8.2	6.2	5.2	5.8	6.0	5.4	5.7
23	9.0	7.9	8.4	8.3	7.3	8.0	5.2	4.6	4.9	6.2	5.7	5.9
24	8.4	6.9	7.6	7.3	5.9	6.6	5.5	4.5	5.0	6.4	5.7	6.1
25	7.5	6.2	6.8	6.1	5.3	5.7	6.0	5.4	5.7	6.9	6.1	6.5
26	7.2	6.4	6.7	6.0	5.1	5.6	6.0	5.2	5.7	7.5	6.6	7.1
27	7.7	6.2	6.9	6.3	5.3	5.7	6.0	5.2	5.7	6.8	6.1	6.4
28	8.2	7.6	7.8	6.6	5.6	6.0	5.8	5.2	5.6	6.8	5.6	6.2
29	7.6	6.8	7.3	6.5	5.7	6.0	5.4	4.8	5.0	6.4	5.5	6.0
30	6.8	5.1	5.6	6.6	5.7	6.1	5.6	5.1	5.3	6.8	6.2	6.4
31	5.6	4.6	5.1	---	---	---	5.6	5.1	5.3	6.9	6.2	6.6
MONTH	10.8	4.6	8.2	8.6	4.4	6.8	7.2	4.5	5.8	7.5	4.5	5.7
DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	6.4	6.0	6.2	6.2	4.6	5.3	6.3	5.2	5.7	8.9	6.9	7.6
2	6.4	5.9	6.1	5.7	4.8	5.2	6.3	4.8	5.5	9.8	6.7	7.9
3	6.0	5.3	5.7	6.4	5.1	5.6	5.8	4.4	5.2	8.0	6.9	7.4
4	5.8	5.0	5.3	6.3	5.1	5.6	6.7	4.9	5.7	7.7	6.1	7.1
5	5.7	4.7	5.1	5.9	4.8	5.5	5.8	4.6	5.3	7.7	5.6	6.5
6	5.7	4.5	5.0	5.1	4.4	4.7	6.6	4.9	5.6	7.9	5.7	6.6
7	5.6	4.5	4.9	5.1	3.3	4.1	6.3	5.3	5.7	7.8	5.7	6.7
8	5.4	4.4	4.8	5.2	3.8	4.6	7.3	5.2	6.0	8.3	6.0	7.0
9	5.5	4.2	4.8	5.0	3.4	4.2	6.8	5.0	5.8	8.1	6.6	7.5
10	5.7	4.9	5.2	4.7	3.6	4.2	6.7	5.3	6.0	9.1	6.9	7.8
11	5.8	4.3	4.9	4.6	4.1	4.4	7.5	5.8	6.5	9.8	7.2	8.3
12	6.0	4.4	5.1	5.2	4.3	4.7	7.5	5.6	6.4	10.0	7.2	8.2
13	6.3	4.9	5.5	5.4	4.4	5.0	6.9	6.0	6.3	10.9	7.0	8.7
14	---	---	---	6.2	5.2	5.6	7.1	5.7	6.3	8.7	7.4	7.9
15	---	---	---	6.8	5.6	6.1	7.3	6.0	6.5	7.8	6.6	7.2
16	---	---	---	6.6	5.5	5.9	7.6	6.0	6.6	8.1	6.3	7.0
17	---	---	---	6.6	5.2	5.9	7.2	6.0	6.4	7.8	5.6	6.6
18	---	---	---	6.5	5.4	5.8	7.3	5.4	6.2	8.3	6.0	7.0
19	6.2	---	---	6.7	5.2	5.9	7.6	5.5	6.4	9.6	5.8	7.5
20	5.8	5.0	5.4	6.4	5.6	6.1	8.8	6.1	7.2	8.4	6.9	7.7
21	5.4	4.3	5.0	5.8	5.5	5.7	7.3	6.7	6.9	8.6	7.1	7.8
22	5.2	4.2	4.8	5.6	5.1	5.3	6.9	6.5	6.7	8.5	7.3	7.8
23	5.3	4.1	4.7	5.3	4.7	5.1	7.5	6.0	6.7	11.4	7.5	9.1
24	5.0	3.4	4.1	6.4	4.4	5.2	6.9	5.6	6.1	10.8	8.2	9.3
25	5.3	3.4	4.2	6.7	5.3	5.9	8.4	5.4	6.6	9.2	8.2	8.7
26	5.7	4.1	4.7	5.9	3.7	5.5	7.3	5.9	6.5	11.1	7.3	8.9
27	5.9	4.1	4.8	6.4	3.8	5.1	9.1	6.3	7.3	12.1	8.1	9.8
28	5.7	4.8	5.2	6.9	4.8	5.7	9.3	6.0	7.5	11.2	8.7	9.8
29	---	---	---	7.4	5.6	6.4	8.6	6.8	7.7	12.9	8.4	10.2
30	---	---	---	7.3	6.0	6.5	7.7	7.0	7.3	11.0	9.0	9.9
31	---	---	---	6.4	5.0	5.7	---	---	---	11.1	8.8	9.7
MONTH	6.4	3.4	5.1	7.4	3.3	5.4	9.3	4.4	6.4	12.9	5.6	8.0



SNOHOMISH RIVER BASIN  
12147600 SOUTH FORK TOLT RIVER NEAR INDEX, WA

LOCATION.--Lat 47°42'25", long 121°35'56", in NE ¼ SW ¼ sec.25, T.26 N., R.9 E., King County, Hydrologic Unit 17110010, on left bank 0.6 mi upstream from Phelps Creek, 8.1 mi south of Index, and at mile 12.9.

DRAINAGE AREA.--5.34 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1959 to December 1963, November 1967 to current year.

REVISED RECORDS.--WDR WA-02-1: 1999-2000(P).

GAGE.--Water-stage recorder. Elevation of gage is 1,850 ft above NGVD of 1929, from topographic map. Prior to Oct. 1, 1961, at datum 0.85 ft higher. Oct. 1, 1961 to Sept. 30, 1992, at datum 1.00 ft higher.

REMARKS.--No estimated daily discharges. Records fair except for those above 900 ft<sup>3</sup>/s and below 15 ft<sup>3</sup>/s, which are poor. No regulation or diversion upstream from station. A portion of flow is within the gravel streambed and is unmeasurable. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--38 years (water years 1961-63, 1969-2003), 54.6 ft<sup>3</sup>/s, 138.89 in/yr, 39,550 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,240 ft<sup>3</sup>/s Dec. 15, 1999; gage height 4.54 ft Possible result from debris dam break up; maximum gage height, 8.13 ft, present datum, Dec. 14, 1959; minimum discharge, 2.2 ft<sup>3</sup>/s Oct. 9, 10, 1989, Sept. 9, 10, 1997, Sept. 14-17, 1998.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 550 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)
Nov 19	0500	1,090	3.74	Mar 12	2030	860	3.50
Jan 26	0930	1,220	3.85	Mar 31	0500	602	3.17
Jan 31	0030	*1,400	*4.00				

Minimum discharge, 3.1 ft<sup>3</sup>/s, Sep. 3-7, gage height, 0.53 ft.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	4.7	11	24	163	15	93	42	40	14	4.3	3.2
2	8.2	4.5	10	106	78	15	54	49	34	12	4.3	3.2
3	40	4.3	9.4	116	60	15	41	49	33	11	4.2	3.2
4	38	4.2	9.1	142	43	15	34	51	38	10	4.2	3.1
5	26	4.2	8.8	129	34	29	30	66	48	9.7	4.1	3.1
6	24	4.9	8.4	57	29	25	30	48	53	9.4	4.2	3.1
7	17	5.7	8.0	39	26	19	58	36	51	9.0	4.1	3.2
8	14	36	7.5	33	23	16	77	31	44	8.7	4.1	4.2
9	13	67	7.4	31	21	87	96	29	34	8.5	4.0	4.2
10	12	64	13	25	19	214	59	31	29	8.0	3.8	6.5
11	11	82	52	23	17	436	68	37	25	7.6	4.2	88
12	9.2	117	130	92	16	456	64	44	23	7.4	4.5	45
13	8.2	108	88	62	16	392	76	44	27	8.3	4.1	15
14	7.5	80	137	50	16	158	68	52	25	8.5	3.8	9.3
15	7.0	39	174	34	17	101	52	57	20	7.5	3.7	7.5
16	6.6	42	110	26	23	76	49	36	19	7.0	4.0	29
17	6.3	51	59	23	29	56	52	32	22	6.6	4.0	23
18	6.1	163	36	22	22	41	50	29	23	6.4	3.7	14
19	5.8	740	27	22	22	33	40	27	19	6.1	3.7	50
20	6.2	152	22	20	93	52	37	29	21	5.8	3.6	30
21	5.9	60	19	29	221	117	43	65	37	5.7	3.6	17
22	5.6	37	17	86	101	291	46	63	27	5.6	3.6	12
23	5.3	28	15	194	47	85	40	74	21	5.4	3.5	9.9
24	5.0	23	14	138	31	49	57	97	18	5.3	3.5	8.6
25	4.9	19	13	146	25	46	45	80	16	5.0	3.5	7.7
26	4.7	16	14	806	21	41	39	53	17	5.0	3.5	7.1
27	4.9	15	16	203	18	42	37	54	18	4.9	3.5	6.6
28	8.6	13	16	112	17	36	39	73	16	4.8	3.5	6.3
29	7.8	12	14	98	---	35	40	60	15	4.7	3.4	5.9
30	5.8	11	14	344	---	71	43	60	16	4.6	3.2	5.7
31	5.0	---	17	714	---	329	---	52	---	4.4	3.2	---
TOTAL	340.6	2,007.5	1,096.6	3,946	1,248	3,393	1,557	1,550	829	226.9	118.6	434.6
MEAN	11.0	66.9	35.4	127	44.6	109	51.9	50.0	27.6	7.32	3.83	14.5
MAX	40	740	174	806	221	456	96	97	53	14	4.5	88
MIN	4.7	4.2	7.4	20	16	15	30	27	15	4.4	3.2	3.1
AC-FT	676	3,980	2,180	7,830	2,480	6,730	3,090	3,070	1,640	450	235	862
CFSM	2.06	12.5	6.62	23.8	8.35	20.5	9.72	9.36	5.17	1.37	0.72	2.71
IN.	2.37	13.98	7.64	27.49	8.69	23.64	10.85	10.80	5.78	1.58	0.83	3.03

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2003, BY WATER YEAR (WY)

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003										
MEAN	43.6	78.9	74.2	73.1	61.8	47.9	64.2	79.7	67.7	31.2	13.5	24.0																																										
MAX	107	181	165	154	150	109	116	140	160	81.3	37.4	56.9																																										
(WY)	(1986)	(1991)	(1976)	(1990)	(1982)	(2003)	(1988)	(1972)	(1974)	(1975)	(1975)	(1969)																																										
MIN	6.24	14.0	20.0	19.8	9.41	18.6	28.6	26.0	13.1	7.32	3.83	3.56																																										
(WY)	(1988)	(1980)	(1986)	(1981)	(1969)	(1962)	(1975)	(1992)	(1992)	(2003)	(2003)	(1998)																																										

SUMMARY STATISTICS

	FOR 2002 CALENDAR YEAR		FOR 2003 WATER YEAR		WATER YEARS 1960 - 2003	
ANNUAL TOTAL	21,252.9		16,747.8			
ANNUAL MEAN	58.2		45.9			
HIGHEST ANNUAL MEAN					54.6	
LOWEST ANNUAL MEAN					77.8	
HIGHEST DAILY MEAN	806		806		1,160	
LOWEST DAILY MEAN	4.2		3.1		2.2	
ANNUAL SEVEN-DAY MINIMUM	4.5		3.2		2.2	
ANNUAL RUNOFF (AC-FT)	42,160		33,220		39,550	
ANNUAL RUNOFF (CFSM)	10.9		8.59		10.2	
ANNUAL RUNOFF (INCHES)	148.05		116.67		138.89	
10 PERCENT EXCEEDS	118		94		115	
50 PERCENT EXCEEDS	25		23		33	
90 PERCENT EXCEEDS	6.3		4.2		7.7	

12147600 SOUTH FORK TOLT RIVER NEAR INDEX, WA—Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1994 to current year.

INSTRUMENTATION.--Temperature recorder since October 1994.

REMARKS.--Records excellent.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum, 18.0°C (rounded) July 27-29, 1998; minimum recorded, 0.0°C at times during most winter periods.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 17.8°C July 30; minimum, 0.5°C Dec. 30.

TEMPERATURE, WATER, DEGREES CELSIUS  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	8.4	6.5	7.4	2.6	1.9	2.3	5.4	4.5	4.9	2.8	2.3	2.5
2	8.1	6.4	7.3	2.6	1.9	2.3	5.6	4.6	5.1	3.3	2.8	3.1
3	8.4	7.7	8.0	2.5	1.9	2.2	4.6	3.8	4.3	3.4	3.0	3.2
4	8.5	7.9	8.2	3.0	1.8	2.4	4.3	3.8	4.1	3.8	3.1	3.4
5	8.2	7.7	8.0	4.9	2.8	3.9	4.6	3.7	4.1	3.5	3.0	3.3
6	9.0	7.8	8.4	5.8	4.9	5.4	4.2	3.5	3.7	3.2	3.0	3.1
7	9.2	8.2	8.6	5.9	5.7	5.7	3.7	3.3	3.6	3.3	3.0	3.1
8	8.9	7.5	8.2	5.7	5.2	5.5	3.6	2.9	3.2	3.7	3.2	3.5
9	8.7	7.9	8.3	5.5	5.0	5.2	3.2	2.6	2.9	3.5	2.3	2.9
10	8.0	6.7	7.6	5.6	5.0	5.3	3.7	3.1	3.4	2.3	1.7	2.0
11	7.5	6.2	6.8	5.7	5.4	5.5	4.3	3.4	3.7	2.8	1.7	2.2
12	6.9	5.8	6.3	5.9	5.5	5.7	4.4	3.9	4.2	3.1	2.4	2.9
13	7.0	6.0	6.4	6.0	5.6	5.8	4.4	3.9	4.2	3.7	3.0	3.4
14	7.2	5.9	6.5	5.8	5.1	5.6	4.5	4.3	4.4	3.7	2.7	3.3
15	7.7	6.6	7.0	5.7	5.1	5.3	4.5	4.2	4.4	3.0	2.6	2.8
16	8.2	7.2	7.6	5.6	5.0	5.3	4.3	3.7	4.0	3.3	2.5	2.9
17	7.8	6.9	7.3	5.5	5.2	5.3	4.1	3.5	3.9	3.5	2.8	3.2
18	7.1	6.1	6.7	6.0	5.1	5.3	3.5	2.9	3.2	3.6	3.0	3.4
19	7.9	6.7	7.3	6.5	6.0	6.3	3.0	2.8	2.9	3.5	2.7	3.0
20	8.6	7.7	8.1	7.1	6.2	6.7	3.0	2.5	2.8	3.3	2.5	2.9
21	8.4	8.0	8.2	7.0	6.6	6.8	3.4	2.7	3.1	3.5	2.7	3.2
22	8.2	7.2	7.7	7.0	6.5	6.6	3.5	2.5	3.0	3.4	1.9	2.7
23	7.4	6.7	7.1	6.8	5.5	6.3	2.5	1.8	2.2	3.6	3.3	3.5
24	6.7	5.5	6.1	5.5	4.2	4.9	2.0	1.7	1.8	3.8	3.4	3.6
25	5.5	4.5	4.9	4.2	3.7	3.9	2.3	1.7	1.9	4.3	3.5	3.9
26	5.0	4.3	4.6	4.0	3.5	3.8	2.5	1.4	2.0	4.6	4.0	4.3
27	5.5	4.1	4.8	5.2	4.0	4.7	2.6	0.9	2.0	4.2	3.8	4.0
28	6.3	5.4	5.9	5.4	4.8	5.1	3.0	2.0	2.7	4.2	3.6	3.9
29	5.7	4.3	5.3	5.8	4.6	5.1	2.5	1.9	2.2	4.1	3.6	3.8
30	4.3	2.9	3.4	5.9	5.4	5.8	2.1	0.5	1.4	4.8	3.9	4.2
31	2.9	2.3	2.6	---	---	---	2.7	1.8	2.3	4.6	4.1	4.3
MONTH	9.2	2.3	6.8	7.1	1.8	5.0	5.6	0.5	3.3	4.8	1.7	3.3
DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	4.1	3.9	4.0	2.8	1.5	2.1	3.6	2.8	3.1	6.2	4.4	5.2
2	4.0	2.8	3.7	2.1	1.7	2.0	3.7	2.4	2.9	7.3	4.4	5.5
3	3.6	2.7	3.2	3.5	1.9	2.6	2.7	1.2	2.1	5.6	4.6	5.0
4	3.3	2.7	3.0	3.0	2.1	2.5	4.1	2.2	2.9	5.3	3.6	4.6
5	2.9	2.5	2.7	2.6	1.7	2.2	3.0	2.2	2.6	5.7	3.1	4.2
6	2.9	2.5	2.6	2.3	1.5	2.0	3.7	1.8	2.7	5.7	3.4	4.4
7	2.8	2.3	2.5	1.9	0.7	1.1	3.7	2.7	3.0	5.1	3.5	4.3
8	2.8	2.2	2.5	1.9	0.8	1.5	4.7	2.8	3.6	6.5	3.8	4.9
9	2.7	2.0	2.3	2.1	1.5	1.9	4.3	2.9	3.5	5.7	4.5	5.2
10	3.0	2.3	2.6	2.4	2.0	2.2	4.3	3.2	3.7	7.2	4.7	5.8
11	3.1	1.9	2.5	2.6	2.3	2.4	4.8	3.6	4.0	8.5	5.3	6.6
12	3.4	2.6	3.0	3.3	2.6	2.9	5.2	3.5	4.1	7.9	5.5	6.3
13	4.1	2.9	3.4	3.3	2.8	3.1	4.5	3.5	4.0	8.6	5.1	6.6
14	4.1	3.5	3.7	3.7	3.1	3.3	4.6	3.3	3.8	6.4	5.3	6.0
15	4.0	3.4	3.6	4.2	3.3	3.6	4.8	3.6	4.1	5.3	4.2	4.8
16	3.8	2.8	3.5	3.9	3.0	3.4	5.1	3.6	4.2	5.4	3.7	4.4
17	3.7	2.9	3.3	3.8	2.8	3.3	4.5	3.5	3.9	5.4	3.1	4.1
18	3.8	2.8	3.3	3.8	2.8	3.2	4.8	2.7	3.7	6.3	3.7	4.6
19	3.8	3.0	3.4	3.8	2.7	3.3	5.2	3.1	4.1	7.3	3.7	5.4
20	3.5	2.6	3.2	3.8	3.1	3.5	6.4	4.0	4.9	6.3	5.0	5.6
21	3.4	1.9	2.9	3.5	3.0	3.2	4.7	4.3	4.6	6.3	5.2	5.7
22	3.0	2.2	2.7	3.3	2.7	3.2	4.4	4.0	4.2	6.5	5.5	6.0
23	2.8	1.4	2.4	2.8	2.1	2.4	5.1	3.6	4.3	9.4	5.8	7.4
24	1.7	0.8	1.3	3.6	2.1	2.8	4.4	3.1	3.6	9.2	6.7	7.6
25	2.1	0.9	1.4	4.3	2.7	3.3	5.5	3.0	4.1	6.9	5.9	6.6
26	2.9	1.4	2.0	3.3	2.1	2.8	5.0	3.5	4.1	8.5	5.3	6.7
27	2.6	1.4	1.9	3.8	2.0	2.9	6.4	4.0	4.7	10.1	6.5	8.1
28	2.7	1.8	2.2	4.5	2.6	3.5	7.3	3.8	5.2	9.6	7.6	8.4
29	---	---	---	5.3	3.4	4.2	6.6	4.5	5.4	10.7	6.8	8.6
30	---	---	---	5.2	3.7	4.3	5.1	4.7	4.9	9.4	8.0	8.5
31	---	---	---	4.3	3.0	3.4	---	---	---	9.5	7.5	8.2
MONTH	4.1	0.8	2.8	5.3	0.7	2.8	7.3	1.2	3.9	10.7	3.1	6.0



12147900 SOUTH FORK TOLT RESERVOIR NEAR CARNATION, WA

LOCATION.--Lat 47°41'38", long 121°47'10", in NW ¼ SW ¼ sec.32, T.26 N., R.9 E., King County, Hydrologic Unit 17110010, on top and near the center of the dam, 11.4 mi northeast of Carnation, and at mile 8.4.

DRAINAGE AREA.--18.8 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1991 to current year.

REVISED RECORDS.--WA-98-1: 1997.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (Seattle Water Department benchmark).

REMARKS.--Reservoir is formed by earthfill dam, with a concrete glory hole spillway, completed in 1962. Water used for municipal water supply by Seattle Water Department. Usable capacity, 15,600 acre-ft between elevations 1,749 ft (minimum pool) and 1,765 ft (maximum normal pool). Top of dam is at 1,775 ft with top of spillway at 1,757 ft. Flood control between elevations 1,749 and 1,757 ft. U.S. Geological Survey satellite telemeter at station.

COOPERATION.--Capacity table furnished by Seattle Water Department.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 59,500 acre-ft July 9, 1997, elevation, 1,766.53 ft; minimum contents observed, 18,150 acre-ft Sept. 30, 2003, elevation, 1,715.5 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 54,810 acre-ft April 1, elevation, 1,761.91 ft; minimum contents observed, 18,150 acre-ft Sept. 30, elevation, 1,715.5.

CAPACITY TABLE

Elevation (feet)	Contents (acre-feet)	Elevation (feet)	Contents (acre-feet)	Elevation (feet)	Contents (acre-feet)
1,690	8,100	1,730	26,800	1,760	52,900
1,700	11,300	1,740	34,400	1,765	57,900
1,710	15,400	1,750	43,200	1,780	73,600
1,720	20,400				

ELEVATION OF RESERVOIR WATER SURFACE ABOVE DATUM, FEET  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,741.54	1,733.46	1,735.87	1,734.02	1,749.51	1,751.66	1,761.82	1,759.99	1,757.79	1,750.81	1,738.42	1,724.45
2	1,741.22	1,733.14	1,735.63	1,734.59	1,749.90	1,751.64	1,761.57	1,759.93	1,757.58	1,750.50	1,737.98	1,723.90
3	1,741.30	1,732.86	1,735.35	1,735.12	1,750.12	1,751.48	1,761.29	1,759.88	1,757.43	1,750.19	1,737.54	1,723.38
4	1,741.23	1,732.49	1,735.09	1,735.67	1,750.19	1,751.43	1,761.02	1,760.07	1,757.22	1,749.87	1,737.11	1,722.83
5	1,741.02	1,732.29	1,734.82	1,736.18	1,750.17	1,751.38	1,760.78	1,760.14	1,757.02	1,749.52	1,736.63	1,722.29
6	1,740.87	1,731.93	1,734.51	1,736.27	1,750.23	1,751.36	1,760.52	1,760.15	1,756.85	1,749.13	1,736.21	1,721.84
7	1,740.57	1,731.67	1,734.22	1,736.23	1,750.26	1,751.34	1,760.36	1,760.05	1,756.66	1,748.80	1,735.77	1,721.48
8	1,740.38	1,731.53	1,733.94	1,736.20	1,750.21	1,751.27	1,760.20	1,759.96	1,756.39	1,748.45	1,735.31	1,721.02
9	1,740.20	1,731.64	1,733.59	1,736.14	1,750.18	1,751.87	1,760.15	1,759.83	1,756.17	1,748.09	1,734.83	1,720.56
10	1,739.98	1,731.79	1,733.40	1,736.01	1,750.11	1,752.78	1,759.92	1,759.74	1,756.00	1,747.66	1,734.41	1,720.25
11	1,739.79	1,731.91	1,733.54	1,735.94	1,750.07	1,754.36	1,759.78	1,759.57	1,755.71	1,747.31	1,734.06	1,720.85
12	1,739.48	1,732.34	1,734.09	1,736.22	1,749.98	1,756.09	1,759.68	1,759.44	1,755.49	1,746.91	1,733.61	1,720.80
13	1,739.24	1,732.65	1,734.38	1,736.29	1,749.89	1,757.42	1,759.69	1,759.29	1,755.29	1,746.58	1,733.15	1,720.47
14	1,739.02	1,732.72	1,734.91	1,736.54	1,749.83	1,757.95	1,759.60	1,759.27	1,755.09	1,746.21	1,732.70	1,720.14
15	1,738.73	1,732.63	1,735.58	1,736.69	1,749.69	1,758.23	1,759.66	1,759.20	1,754.85	1,745.81	1,732.25	1,719.77
16	1,738.43	1,732.59	1,736.09	1,736.79	1,749.78	1,758.44	1,759.73	1,759.08	1,754.58	1,745.43	1,731.87	1,719.73
17	1,738.11	1,732.55	1,736.23	1,736.87	1,749.82	1,758.43	1,759.80	1,758.99	1,754.30	1,744.99	1,731.47	1,719.51
18	1,737.81	1,732.20	1,736.24	1,736.95	1,749.75	1,758.46	1,759.88	1,758.86	1,754.01	1,744.58	1,731.02	1,719.20
19	1,737.53	1,736.96	1,736.09	1,737.02	1,749.77	1,758.39	1,759.94	1,758.68	1,753.71	1,744.16	1,730.55	1,719.35
20	1,737.24	1,737.53	1,735.95	1,737.08	1,750.22	1,758.50	1,759.91	1,758.56	1,753.50	1,743.71	1,730.09	1,719.21
21	1,736.90	1,737.60	1,735.73	1,737.29	1,751.14	1,759.08	1,759.94	1,758.52	1,753.48	1,743.28	1,729.61	1,718.96
22	1,736.62	1,737.59	1,735.56	1,737.80	1,751.72	1,760.26	1,759.98	1,758.49	1,753.34	1,742.86	1,729.16	1,718.58
23	1,736.35	1,737.49	1,735.34	1,738.72	1,751.94	1,760.58	1,759.96	1,758.48	1,753.14	1,742.43	1,728.76	1,718.22
24	1,736.02	1,737.31	1,735.09	1,739.34	1,751.89	1,760.63	1,760.11	1,758.48	1,752.87	1,741.99	1,728.31	1,717.91
25	1,735.63	1,737.17	1,734.87	1,739.91	1,751.88	1,760.61	1,760.16	1,758.51	1,752.59	1,741.54	1,727.83	1,717.36
26	1,735.29	1,736.94	1,734.67	1,742.92	1,751.83	1,760.65	1,760.17	1,758.40	1,752.29	1,741.13	1,727.36	1,717.00
27	1,735.02	1,736.75	1,734.53	1,744.01	1,751.76	1,760.65	1,760.14	1,758.28	1,751.98	1,740.70	1,726.85	1,716.55
28	1,734.76	1,736.57	1,734.29	1,744.52	1,751.74	1,760.64	1,760.10	1,758.22	1,751.69	1,740.26	1,726.36	1,716.30
29	1,734.47	1,736.31	1,734.15	1,745.00	---	1,760.68	1,760.01	1,758.12	1,751.40	1,739.81	1,725.91	1,715.90
30	1,734.15	1,736.08	1,733.98	1,746.48	---	1,760.85	1,759.99	1,758.02	1,751.15	1,739.34	1,725.44	1,715.50
31	1,733.83	---	1,733.87	1,748.91	---	1,761.69	---	1,757.93	---	1,738.87	1,724.95	---
MEAN	1,738.15	1,734.26	1,734.89	1,738.31	1,750.48	1,756.73	1,760.19	1,759.10	1,754.65	1,745.19	1,731.79	1,719.78
MAX	1,741.54	1,737.60	1,736.24	1,748.91	1,751.94	1,761.69	1,761.82	1,760.15	1,757.79	1,750.81	1,738.42	1,724.45
MIN	1,733.83	1,731.53	1,733.40	1,734.02	1,749.51	1,751.27	1,759.60	1,757.93	1,751.15	1,738.87	1,724.95	1,715.50
†	29,710	31,420	29,740	42,240	44,890	54,590	52,890	50,890	44,320	33,540	23,570	18,150
‡	-6,290	+1,710	-1,680	+12,500	+2,650	+9,700	-1,700	-2,000	-6,570	-10,780	-9,970	-5,420
CAL YR	2002	MEAN	1,751.57	MAX	1,765.48	MIN	1,731.53	AC-FT‡	-20,720			
WTR YR	2003	MEAN	1,743.59	MAX	1,761.82	MIN	1,715.50	AC-FT‡	-17,850			

† Contents, in acre-feet, at 2400, on last day of month.  
‡ Change in contents, in acre-feet.

12148000 SOUTH FORK TOLT RIVER NEAR CARNATION, WA

LOCATION.--Lat 47°41'22", long 121°42'44", in SW ¼ SW ¼ sec.31, T.26 N., R.9 E., King County, Hydrologic Unit 17110010, on left bank 0.1 mi upstream from private road bridge, 1.6 mi downstream from South Fork Tolt Reservoir, 9.8 mi northeast of Carnation, and at mile 6.8.

DRAINAGE AREA.--19.7 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1952 to December 1963, June 1969 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,300 ft above NGVD of 1929, from river-profile map.

REMARKS.--No estimated daily discharges. Records good. Regulation by South Fork Tolt Reservoir since September 1963. During the current water year the Seattle Water Department diverted an average daily discharge of about 93 ft<sup>3</sup>/s upstream from the station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--11 years (water years 1953-63), 198 ft<sup>3</sup>/s, 143,300 acre-ft/yr (unregulated). 34 years (water years 1970-2003), 103 ft<sup>3</sup>/s, 74,760 acre-ft/yr (regulated).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,500 ft<sup>3</sup>/s Dec. 15, 1959, gage height, 7.45 ft, from rating curve extended above 2,700 ft<sup>3</sup>/s; maximum gage height, 7.62 ft Nov. 20, 1958, backwater from debris; minimum discharge, 8.4 ft<sup>3</sup>/s Sept. 12, 1963, minimum gage height, 0.81 ft Aug. 23-27, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 232 ft<sup>3</sup>/s April 1-3, gage height, 2.94 ft; minimum discharge, 47 ft<sup>3</sup>/s Nov. 26, 27 to Dec. 3, Dec. 5-9, Jan. 17-21.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	53	47	57	69	64	129	72	73	64	64	64
2	62	48	47	61	71	64	230	71	69	64	64	64
3	70	48	48	60	71	64	229	70	65	64	64	59
4	66	48	49	59	66	64	145	74	64	64	63	60
5	64	48	48	58	64	64	71	76	64	64	63	61
6	64	48	48	56	62	63	72	72	63	64	64	62
7	64	48	48	55	61	63	72	72	64	64	64	62
8	64	48	48	55	60	63	72	71	65	64	64	61
9	62	51	48	55	60	75	73	72	65	64	63	60
10	60	53	49	54	59	74	72	72	65	64	64	60
11	60	52	54	54	58	77	72	72	65	64	64	65
12	60	56	58	58	58	87	72	74	64	63	64	60
13	59	55	59	56	58	88	74	74	65	64	64	60
14	58	52	58	54	57	78	73	75	64	64	64	60
15	62	50	61	51	57	74	73	76	64	70	64	59
16	65	51	63	50	60	73	73	76	64	70	64	61
17	64	51	58	49	59	71	73	77	68	70	63	60
18	64	54	57	47	58	69	75	76	72	69	64	60
19	64	79	55	47	58	69	72	75	69	69	63	62
20	64	61	54	47	62	70	72	75	67	69	63	60
21	64	56	53	49	66	77	72	76	70	69	63	60
22	64	54	53	52	71	87	70	75	68	67	63	60
23	64	52	53	53	63	77	70	75	67	66	64	60
24	64	48	52	53	60	75	77	74	67	64	64	60
25	64	48	52	52	60	73	74	76	66	63	64	60
26	64	48	53	73	59	73	72	74	64	63	64	60
27	63	48	53	66	58	74	72	74	64	63	64	60
28	64	47	52	62	61	72	71	74	64	63	64	60
29	62	47	51	60	---	72	70	74	64	63	64	60
30	60	47	54	67	---	72	71	74	64	64	64	59
31	57	---	54	78	---	79	---	74	---	64	64	---
TOTAL	1,949	1,549	1,637	1,748	1,726	2,245	2,613	2,292	1,977	2,021	1,976	1,819
MEAN	62.9	51.6	52.8	56.4	61.6	72.4	87.1	73.9	65.9	65.2	63.7	60.6
MAX	70	79	63	78	71	88	230	77	73	70	64	65
MIN	57	47	47	47	57	63	70	70	63	63	63	59
AC-FT	3,870	3,070	3,250	3,470	3,420	4,450	5,180	4,550	3,920	4,010	3,920	3,610

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 2003, BY WATER YEAR (WY)

	69.0	139	160	175	133	97.0	95.2	107	94.5	63.5	50.8	61.8
MEAN	69.0	139	160	175	133	97.0	95.2	107	94.5	63.5	50.8	61.8
MAX	161	499	481	436	468	326	247	235	282	176	150	196
(WY)	(1972)	(1991)	(1976)	(1984)	(1982)	(1972)	(1989)	(1974)	(1974)	(1969)	(1969)	(1972)
MIN	32.9	35.1	43.7	42.3	34.9	33.5	31.1	47.3	37.8	29.7	29.5	33.0
(WY)	(1988)	(1988)	(1988)	(1988)	(1977)	(1978)	(1978)	(1978)	(1973)	(1982)	(1977)	(1987)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1969 - 2003

ANNUAL TOTAL	26,673		23,552		
ANNUAL MEAN	73.1		64.5		103
HIGHEST ANNUAL MEAN					195
LOWEST ANNUAL MEAN					52.3
HIGHEST DAILY MEAN	226	Jan 15	230	Apr 2	3,500
LOWEST DAILY MEAN	47	Nov 28	47	Nov 28	21
ANNUAL SEVEN-DAY MINIMUM	47	Nov 26	47	Nov 26	25
ANNUAL RUNOFF (AC-FT)	52,910		46,720		74,760
10 PERCENT EXCEEDS	87		74		188
50 PERCENT EXCEEDS	66		64		64
90 PERCENT EXCEEDS	53		52		40

## 12148000 SOUTH FORK TOLT RIVER NEAR CARNATION, WA—Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1994 to current year.

## INSTRUMENTATION.--Temperature recorder since October 1994.

REMARKS.--Record rated excellent, except Nov. 24 to Feb. 2 and Feb. 14 to April 29, which are good, and Feb. 3 to 12, which is poor.

## EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum recorded, 18.1°C Sept. 5, 2003; minimum, 1.0°C (rounded) Feb. 3, 1996, Dec. 29, 1996, Jan. 27, 1997.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 18.1°C Sept. 5; minimum, 3.6°C Feb. 24 and Mar. 7.

TEMPERATURE, WATER, DEGREES CELSIUS  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	12.9	11.5	12.1	10.3	9.4	9.8	8.6	7.8	8.1	6.0	5.2	5.6
2	13.1	11.8	12.4	9.8	8.9	9.3	8.9	7.9	8.5	6.9	6.0	6.5
3	12.9	12.5	12.7	9.5	8.7	9.0	8.2	7.5	7.8	6.6	5.4	6.2
4	13.3	12.8	13.0	9.9	8.9	9.3	8.2	7.2	7.6	6.1	5.3	5.8
5	13.3	12.6	12.9	10.5	9.5	9.9	7.7	6.8	7.2	6.1	5.1	5.7
6	13.9	12.9	13.3	10.1	9.7	9.9	7.1	6.6	6.9	5.1	4.7	4.8
7	13.7	12.8	13.4	9.9	9.6	9.8	7.2	6.6	6.9	5.0	4.6	4.8
8	13.9	12.7	13.2	9.8	9.5	9.7	6.9	6.1	6.5	5.1	4.4	4.7
9	13.4	12.9	13.1	9.9	9.1	9.5	6.6	6.0	6.2	4.9	4.2	4.6
10	13.1	12.3	12.8	9.7	9.0	9.4	6.6	6.2	6.4	4.3	4.0	4.1
11	13.2	12.3	12.6	9.7	9.1	9.4	7.2	6.2	6.5	4.7	4.0	4.4
12	13.4	12.1	12.6	9.7	9.2	9.3	7.4	6.7	7.2	4.9	4.5	4.7
13	13.1	12.2	12.6	9.6	9.1	9.3	7.3	6.6	7.0	5.2	4.7	4.9
14	13.2	12.0	12.4	---	---	---	7.6	7.1	7.4	5.2	4.4	4.8
15	12.6	9.6	11.2	---	---	---	7.4	6.9	7.2	5.3	4.2	4.6
16	10.8	9.6	10.2	---	---	---	7.0	6.5	6.8	4.9	4.1	4.5
17	11.5	10.3	10.8	---	---	---	7.0	6.7	6.8	5.2	4.4	4.7
18	12.1	11.1	11.7	---	---	---	7.0	6.3	6.7	5.3	4.6	4.9
19	13.1	12.0	12.7	---	---	---	6.5	5.4	6.0	5.9	4.8	5.2
20	13.3	12.8	13.0	---	---	---	5.6	5.2	5.4	5.8	4.8	5.2
21	13.0	12.8	12.9	---	---	---	5.7	5.3	5.4	5.8	5.1	5.5
22	13.2	12.4	12.8	---	---	---	6.1	5.1	5.6	6.0	5.0	5.4
23	13.1	12.3	12.5	---	---	---	5.3	4.6	5.1	6.3	5.5	6.0
24	12.6	11.8	12.1	---	---	---	4.9	4.5	4.7	6.3	5.7	6.0
25	12.3	11.5	11.8	---	---	---	5.2	4.8	5.0	6.9	6.0	6.4
26	12.0	11.3	11.7	---	---	---	5.4	4.9	5.1	8.1	6.5	7.4
27	12.3	11.3	11.8	8.4	7.6	8.0	5.7	4.9	5.2	6.5	6.1	6.4
28	12.1	11.3	11.8	9.1	8.2	8.6	5.5	4.6	5.2	6.7	5.6	6.2
29	11.7	10.6	11.3	8.7	8.1	8.4	5.2	4.6	4.9	6.6	5.6	6.1
30	10.8	10.1	10.4	9.0	7.8	8.5	5.6	4.8	5.3	7.6	6.6	6.9
31	10.6	9.8	10.1	---	---	---	5.8	5.2	5.5	7.7	6.5	7.1
MONTH	13.9	9.6	12.2	10.5	7.6	9.2	8.9	4.5	6.3	8.1	4.0	5.5
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	6.8	6.3	6.4	5.3	4.1	4.5	5.9	4.6	5.2	7.7	6.6	7.0
2	6.5	5.8	6.2	4.8	4.3	4.6	5.2	4.6	4.9	8.2	6.5	7.0
3	6.0	4.6	5.5	5.3	4.3	4.7	5.3	4.6	4.9	7.4	6.5	6.8
4	4.8	4.1	4.5	5.2	4.4	4.8	5.6	4.7	5.1	7.1	6.2	6.6
5	4.8	4.1	4.4	5.0	4.5	4.8	5.6	4.4	5.2	8.2	6.0	6.7
6	5.0	4.2	4.5	4.9	4.4	4.6	6.3	4.9	5.5	7.6	6.0	6.6
7	5.0	4.2	4.5	4.6	3.6	4.1	6.2	5.3	5.8	7.5	6.2	6.7
8	4.9	4.1	4.3	4.8	4.2	4.6	7.4	5.7	6.3	7.3	6.2	6.8
9	4.9	4.0	4.4	5.0	4.5	4.8	6.5	5.4	5.9	7.5	6.4	7.0
10	4.8	4.1	4.4	5.7	5.0	5.3	6.6	5.5	6.0	7.6	6.7	7.1
11	5.0	3.9	4.3	5.6	5.2	5.3	7.4	5.9	6.3	8.1	6.8	7.3
12	5.5	4.1	4.7	6.1	5.1	5.6	7.1	5.7	6.2	8.0	6.7	7.2
13	5.7	5.0	5.3	6.0	5.6	5.8	6.8	5.7	6.1	8.8	6.7	7.5
14	5.7	5.0	5.4	6.5	5.5	5.8	6.9	5.7	6.1	7.4	6.9	7.2
15	5.7	5.1	5.3	6.1	5.0	5.5	6.9	5.8	6.1	7.7	6.7	7.0
16	5.6	5.1	5.3	5.9	5.0	5.3	7.4	5.7	6.1	7.5	6.6	6.9
17	5.7	5.1	5.3	5.7	4.7	5.2	6.6	5.7	6.0	7.7	6.3	6.8
18	5.7	4.8	5.2	6.0	4.8	5.2	6.8	5.1	5.9	7.9	6.6	7.1
19	5.7	5.0	5.3	5.6	4.8	5.3	7.0	5.6	6.2	8.4	6.6	7.4
20	5.7	5.0	5.4	5.7	5.2	5.4	7.8	5.9	6.5	7.8	7.0	7.4
21	5.8	4.7	5.4	5.7	5.1	5.4	6.3	6.1	6.2	8.4	7.3	7.7
22	5.6	4.7	5.1	5.9	5.0	5.5	6.3	6.1	6.2	8.0	7.4	7.6
23	5.0	3.9	4.7	5.1	4.7	5.0	6.8	5.9	6.2	9.6	7.4	8.1
24	4.5	3.6	4.0	5.9	4.6	5.1	6.2	5.7	5.9	9.2	7.6	8.0
25	4.8	3.7	4.2	6.3	5.0	5.5	7.6	5.6	6.3	8.0	7.4	7.7
26	5.1	4.1	4.4	5.5	5.1	5.2	7.0	5.7	6.1	9.0	7.1	7.9
27	5.0	4.0	4.4	6.1	5.0	5.5	7.5	6.0	6.5	9.7	7.5	8.3
28	5.0	4.3	4.6	6.6	5.0	5.6	8.1	6.0	6.8	9.1	7.8	8.3
29	---	---	---	6.7	5.3	5.9	7.6	6.3	6.8	9.8	7.5	8.4
30	---	---	---	6.7	5.6	6.0	7.1	6.5	6.8	9.2	7.9	8.2
31	---	---	---	6.3	5.4	5.8	---	---	---	9.2	7.7	8.2
MONTH	6.8	3.6	4.9	6.7	3.6	5.2	8.1	4.4	6.0	9.8	6.0	7.4





12148300 SOUTH FORK TOLT RIVER BELOW REGULATING BASIN, NEAR CARNATION, WA

LOCATION.--Lat 47°41'49", long 121°47'10", in SW ¼ NE ¼ sec.33, T.26 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank 2.3 mi upstream from mouth and 6.5 mi northeast of Carnation.

DRAINAGE AREA.--29.6 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1982 to current year. Published as "South Fork Tolt River below regulating pond, near Carnation" March 1982 through September 1983.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 670 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by South Fork Tolt Reservoir 6.1 mi upstream since September 1963. During the current water year the Seattle Water Department diverted an average daily discharge of 93 ft<sup>3</sup>/s. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--21 years (water years 1983-2003), 146 ft<sup>3</sup>/s, 105,600 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge not determined, Nov. 24, 1990; maximum daily discharge, 3,700 ft<sup>3</sup>/s Nov. 24, 1990; minimum discharge, 36 ft<sup>3</sup>/s on many days during July and August, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge 341 ft<sup>3</sup>/s April 1, gage height 4.55 ft; minimum discharge, 57 ft<sup>3</sup>/s Dec. 7-9.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	68	60	75	158	92	187	100	90	74	69	70
2	69	62	60	95	156	93	320	98	86	74	69	69
3	82	62	59	99	166	92	322	96	81	73	69	66
4	76	62	60	98	138	89	248	104	79	73	69	67
5	72	62	59	94	124	89	283	114	78	73	69	67
6	71	63	59	87	114	88	317	104	77	73	70	67
7	70	63	58	81	107	89	317	100	78	73	70	69
8	70	64	58	78	101	89	317	99	78	73	70	68
9	69	68	58	75	96	116	319	97	79	72	70	67
10	67	71	60	73	92	124	311	96	80	72	70	68
11	67	70	68	72	89	141	308	95	79	72	70	77
12	67	80	79	82	87	188	210	97	78	72	70	72
13	66	88	90	77	84	250	217	95	80	72	69	68
14	66	79	86	76	82	182	213	96	78	71	69	67
15	70	75	108	70	81	152	121	98	77	73	69	67
16	72	75	122	68	86	138	119	97	78	73	70	72
17	73	75	109	66	90	125	124	101	80	73	70	69
18	73	78	99	64	86	117	128	97	84	73	70	68
19	73	162	89	63	85	112	120	95	81	73	69	72
20	73	124	82	62	96	113	115	95	80	73	70	70
21	73	98	78	66	108	127	112	99	86	73	69	68
22	73	87	75	78	146	194	109	97	83	71	69	67
23	73	79	72	83	121	163	107	95	81	69	70	67
24	73	72	70	82	109	143	125	94	80	68	70	66
25	74	68	68	82	101	132	115	97	77	68	70	66
26	73	66	70	164	96	126	111	94	75	68	70	66
27	74	65	70	158	91	128	109	93	74	68	70	66
28	76	63	67	147	91	119	106	92	75	68	70	66
29	75	62	67	130	---	114	103	91	74	68	70	66
30	73	61	70	167	---	112	101	91	75	68	70	66
31	71	---	72	202	---	143	---	91	---	69	70	---
TOTAL	2,223	2,272	2,302	2,914	2,981	3,980	5,714	3,008	2,381	2,213	2,159	2,044
MEAN	71.7	75.7	74.3	94.0	106	128	190	97.0	79.4	71.4	69.6	68.1
MAX	82	162	122	202	166	250	322	114	90	74	70	77
MIN	66	61	58	62	81	88	101	91	74	68	69	66
AC-FT	4,410	4,510	4,570	5,780	5,910	7,890	11,330	5,970	4,720	4,390	4,280	4,050

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 2003, BY WATER YEAR (WY)

	84.9	206	217	261	172	153	148	163	128	80.7	62.8	67.7
MEAN	84.9	206	217	261	172	153	148	163	128	80.7	62.8	67.7
MAX	147	597	598	579	389	320	380	307	241	187	77.6	112
(WY)	(1986)	(1991)	(2000)	(1984)	(1996)	(2002)	(1989)	(1984)	(1990)	(1997)	(1993)	(1983)
MIN	41.2	43.5	70.2	66.3	83.8	73.2	73.1	68.0	53.7	41.9	38.5	42.4
(WY)	(1988)	(1988)	(1988)	(1988)	(2001)	(1992)	(1992)	(1992)	(1992)	(1982)	(1982)	(1987)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1982 - 2003

ANNUAL TOTAL	57,661	34,191	146
ANNUAL MEAN	158	93.7	225
HIGHEST ANNUAL MEAN			1997
LOWEST ANNUAL MEAN			1994
HIGHEST DAILY MEAN	469	Jan 15	322
LOWEST DAILY MEAN	58	Dec 7	58
ANNUAL SEVEN-DAY MINIMUM	59	Dec 3	59
ANNUAL RUNOFF (AC-FT)	114,400	67,820	105,600
10 PERCENT EXCEEDS	307	131	316
50 PERCENT EXCEEDS	113	77	89
90 PERCENT EXCEEDS	68	66	63

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1994 to current year.

INSTRUMENTATION.--Temperature recorder since October 1994.

REMARKS.--Records rated excellent, except Oct. 1-15, and July 15 to Sept. 30, which are good.

## EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum recorded, 17.9°C Sept. 4, 2003; minimum, 0.5°C, (rounded) Feb. 3, 1996, Dec. 29, 1996.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 17.9°C Sept. 4; minimum, 3.2°C Feb. 25.

TEMPERATURE, WATER, DEGREES CELSIUS  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	11.7	9.4	10.5	8.8	7.2	7.8	7.3	5.9	6.5	5.2	4.7	5.0
2	12.1	9.7	10.9	8.0	6.5	7.2	7.9	7.1	7.5	6.5	5.2	6.0
3	12.3	11.6	11.9	7.9	6.3	7.0	7.1	5.6	6.1	6.3	5.9	6.1
4	12.9	11.9	12.3	8.4	6.5	7.3	7.3	5.8	6.8	6.6	6.1	6.4
5	12.4	11.6	12.1	10.1	7.8	8.9	7.7	6.4	6.9	6.3	5.3	5.9
6	13.4	12.0	12.6	9.9	9.1	9.5	6.7	5.9	6.2	5.7	5.0	5.4
7	13.2	12.2	12.7	9.7	9.3	9.5	6.3	5.3	5.7	5.6	4.8	5.2
8	13.1	11.1	12.1	9.3	9.0	9.2	6.3	5.2	5.7	4.9	4.2	4.6
9	12.6	11.8	12.3	9.4	8.7	9.0	6.6	5.6	6.1	5.2	4.3	4.7
10	11.9	10.6	11.5	9.3	8.4	8.8	6.6	6.3	6.4	4.7	4.2	4.4
11	11.7	10.3	10.9	9.4	8.7	9.0	6.6	6.2	6.3	5.5	4.1	4.8
12	11.8	9.4	10.4	9.4	8.8	9.0	7.3	6.6	7.0	5.7	5.3	5.5
13	11.9	9.9	10.8	9.3	8.6	8.9	6.9	6.3	6.6	6.1	5.2	5.7
14	11.8	9.4	10.5	9.1	8.1	8.8	7.3	6.8	7.1	5.8	4.6	5.5
15	12.1	9.5	10.6	8.9	7.4	8.1	7.2	6.6	7.0	5.3	4.1	4.6
16	10.6	8.5	9.5	8.6	7.7	8.2	6.7	6.1	6.5	5.6	4.3	4.8
17	10.9	9.0	9.9	8.8	8.2	8.5	6.2	5.8	6.1	5.2	4.1	4.5
18	10.9	9.4	10.1	8.6	8.1	8.3	6.1	5.3	5.8	4.9	3.9	4.4
19	12.3	10.6	11.5	9.1	8.6	8.8	5.7	5.3	5.5	5.6	4.2	4.8
20	12.8	12.0	12.3	9.1	8.5	8.8	5.7	5.2	5.4	5.3	4.3	4.8
21	12.4	12.0	12.2	9.4	8.8	9.1	5.8	5.2	5.5	5.6	4.6	5.2
22	12.5	11.4	12.1	9.1	8.8	9.0	6.1	4.8	5.6	5.7	5.2	5.4
23	12.0	10.4	11.1	9.0	7.5	8.6	4.8	4.1	4.5	6.4	5.6	6.0
24	11.2	9.7	10.4	7.5	6.3	6.8	4.9	4.2	4.6	6.4	5.6	6.0
25	10.6	9.1	9.7	6.5	5.6	6.0	5.6	4.9	5.3	6.8	6.0	6.4
26	10.4	9.3	9.7	6.5	5.6	6.0	5.5	4.7	5.2	8.1	6.8	7.5
27	10.8	8.9	9.9	7.0	5.8	6.3	5.8	4.8	5.3	7.0	6.4	6.6
28	11.0	9.9	10.6	7.4	6.2	6.7	5.6	4.9	5.2	6.7	5.5	6.3
29	10.5	8.7	9.9	7.1	6.1	6.5	4.9	4.3	4.5	6.4	5.3	5.9
30	8.7	7.6	8.2	7.7	6.3	6.8	5.2	4.4	4.9	7.2	6.4	6.8
31	8.7	7.4	7.9	---	---	---	5.4	4.7	5.1	7.5	6.7	7.2
MONTH	13.4	7.4	10.9	10.1	5.6	8.1	7.9	4.1	5.9	8.1	3.9	5.6
DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	6.8	6.3	6.5	6.0	4.3	5.0	7.3	5.4	6.4	9.4	7.5	8.2
2	6.4	5.9	6.3	5.4	4.4	4.9	6.0	5.0	5.5	9.9	7.0	8.3
3	6.2	5.7	5.9	6.1	4.7	5.2	6.0	5.0	5.4	8.4	7.3	7.8
4	5.7	4.9	5.3	6.0	4.6	5.3	6.5	5.1	5.6	8.1	6.9	7.5
5	5.4	4.6	4.9	5.6	5.2	5.5	5.5	4.9	5.2	9.1	6.3	7.4
6	5.4	4.3	4.8	5.5	4.9	5.1	5.9	5.1	5.4	8.4	6.2	7.2
7	5.3	4.2	4.7	5.1	3.6	4.1	6.1	5.3	5.7	8.5	6.0	7.2
8	5.1	4.0	4.6	5.1	3.6	4.5	6.7	5.8	6.1	8.3	6.5	7.4
9	5.2	3.8	4.5	5.3	4.7	5.0	6.5	5.6	6.0	8.6	6.9	7.8
10	5.4	4.7	5.0	6.3	5.2	5.7	6.6	5.6	6.0	8.9	7.3	8.0
11	5.3	4.0	4.7	6.1	5.7	5.9	6.9	6.1	6.5	9.7	7.5	8.4
12	6.0	4.4	5.1	6.7	5.6	6.1	7.2	6.0	6.5	9.3	7.2	8.1
13	6.4	5.0	5.7	6.6	6.1	6.3	7.0	6.2	6.5	10.8	6.9	8.6
14	6.6	5.4	6.0	7.3	6.2	6.6	7.1	6.1	6.5	8.4	7.6	8.0
15	6.6	5.3	6.0	7.6	6.5	6.9	8.2	6.6	7.2	8.4	6.9	7.5
16	6.5	5.9	6.1	7.2	6.0	6.5	8.6	6.6	7.4	7.8	6.7	7.2
17	6.5	5.6	6.0	6.7	5.2	6.0	7.8	6.6	7.1	8.2	6.1	7.0
18	6.5	5.2	5.9	6.7	5.4	5.9	7.7	5.7	6.7	8.7	6.5	7.4
19	6.3	5.4	5.9	6.8	5.2	6.1	8.3	5.8	7.0	9.7	6.1	7.8
20	6.3	5.6	6.0	6.9	6.2	6.4	9.5	6.6	7.8	8.8	7.3	8.0
21	6.4	5.5	6.1	6.7	6.0	6.3	7.8	7.2	7.4	9.4	7.8	8.5
22	5.9	5.0	5.5	7.1	6.0	6.6	7.4	6.9	7.1	9.1	8.1	8.5
23	5.3	4.2	4.9	6.0	5.2	5.7	8.0	6.3	7.1	11.7	8.1	9.5
24	4.7	3.3	4.0	6.7	4.7	5.6	7.2	6.3	6.7	10.8	8.5	9.3
25	5.1	3.2	4.1	7.3	5.7	6.4	8.8	5.9	7.1	9.1	8.3	8.7
26	5.8	3.9	4.7	6.6	5.8	6.1	7.9	6.3	7.0	10.8	7.3	8.9
27	5.5	3.9	4.6	7.0	5.6	6.3	9.5	6.7	7.8	11.7	8.1	9.6
28	5.7	4.6	5.0	7.7	5.4	6.5	9.7	6.3	7.9	10.8	8.7	9.6
29	---	---	---	8.3	6.3	7.2	9.1	7.2	8.1	12.1	8.1	9.8
30	---	---	---	8.5	6.8	7.5	8.2	7.5	7.8	10.2	8.6	9.3
31	---	---	---	8.0	6.8	7.4	---	---	---	10.3	8.4	9.2
MONTH	6.8	3.2	5.3	8.5	3.6	6.0	9.7	4.9	6.7	12.1	6.0	8.2



SNOHOMISH RIVER BASIN

12148500 TOLT RIVER NEAR CARNATION, WA

LOCATION.--Lat 47°41'45", long 121°49'22", in SE ¼ NE ¼ sec.31, T.26 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank 500 ft downstream from the forks, 0.4 mi upstream from Stossel Creek, 5.5 mi northeast of Carnation, and at mile 8.7.

DRAINAGE AREA.--81.4 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1928 to January 1932, September 1937 to current year. Prior to October 1951, published as "near Tolt."

REVISED RECORDS.--WSP 1286: 1929(M), 1930, 1938(M), 1939, 1943(M), 1945(M), 1951(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 348 ft above NGVD of 1929 (river-profile survey). Prior to Oct. 31, 1928, nonrecording gage, and Oct. 31, 1928, to Jan. 3, 1932, water-stage recorder at site 350 ft upstream at datum 7.1 ft higher (river-profile survey). Sept. 1 to Oct. 6, 1937, nonrecording gage at present site at datum 1.64 ft higher.

REMARKS.--No estimated daily discharges. Records good. Some regulation by South Fork Reservoir, capacity, 57,830 acre-ft, and by Seattle City Light hydroelectric project, upstream from station. During the current water year City of Seattle Water Department diverted an average daily discharge of about 93 ft<sup>3</sup>/s upstream from station for municipal use. Chemical analyses July 1960 to September 1970. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--69 years (water years 1929-31, 1938-2003), 575 ft<sup>3</sup>/s, 416,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,400 ft<sup>3</sup>/s Dec. 15, 1959, gage height, 13.04 ft; minimum discharge, 53 ft<sup>3</sup>/s Sept. 22, 23, 1951, gage height, 3.84 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,400 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)
Nov 19	0715	3,540	8.38	Mar 12	2145	4,040	8.64
Jan 26	1045	*4,130	*8.69				

Minimum discharge, 97 ft<sup>3</sup>/s, Sept. 3, 4, gage height, 4.20 ft.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	144	114	184	322	1,050	345	841	416	299	175	119	105
2	136	107	179	826	817	338	805	414	277	167	118	105
3	296	105	175	912	816	330	752	421	263	163	118	101
4	266	104	174	839	658	314	651	448	262	159	116	101
5	189	104	171	761	572	351	665	614	271	157	116	101
6	183	108	167	522	519	386	707	475	275	157	116	100
7	165	111	163	445	467	348	745	417	270	155	116	108
8	154	157	159	391	430	330	865	388	261	153	116	110
9	148	312	158	354	398	743	993	371	244	151	114	103
10	142	380	182	317	372	1,140	811	360	232	148	115	110
11	139	431	344	295	349	1,600	865	366	225	147	114	436
12	134	598	801	544	331	1,980	723	383	219	146	124	300
13	131	679	739	492	317	2,140	776	368	227	147	116	157
14	128	458	710	480	306	1,240	744	387	229	146	114	130
15	129	300	1,000	396	296	947	596	416	209	145	112	120
16	130	269	817	346	350	787	579	357	203	142	112	195
17	129	328	634	314	456	650	617	359	206	140	112	191
18	128	447	507	294	378	567	611	346	213	139	111	153
19	127	2,670	418	281	370	515	556	326	201	137	110	282
20	128	958	362	265	657	562	514	320	203	136	109	213
21	126	504	322	306	1,090	786	514	479	237	134	109	157
22	126	373	297	675	1,090	1,640	492	434	227	131	109	139
23	125	310	276	947	682	927	464	430	206	129	109	129
24	123	269	261	703	545	716	607	473	196	125	108	124
25	122	244	252	664	470	652	551	452	189	124	107	119
26	122	227	270	2,230	421	621	504	374	185	124	107	116
27	121	215	273	1,260	383	697	476	357	184	122	108	115
28	134	205	270	996	363	649	463	382	180	121	108	114
29	135	197	253	788	---	589	456	352	175	120	107	112
30	125	189	283	1,270	---	664	443	341	176	120	107	111
31	119	---	321	1,910	---	1,340	---	332	---	120	105	---
TOTAL	4,504	11,473	11,122	21,145	14,953	24,894	19,386	12,358	6,744	4,380	3,482	4,457
MEAN	145	382	359	682	534	803	646	399	225	141	112	149
MAX	296	2,670	1,000	2,230	1,090	2,140	993	614	299	175	124	436
MIN	119	104	158	265	296	314	443	320	175	120	105	100
AC-FT	8,930	22,760	22,060	41,940	29,660	49,380	38,450	24,510	13,380	8,690	6,910	8,840

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 2003, BY WATER YEAR (WY)

MEAN	437	779	879	850	734	607	669	678	550	296	180	242
MAX	933	1,965	1,897	2,058	1,634	1,472	1,275	1,208	1,204	802	485	954
(WY)	(1960)	(1996)	(1976)	(1953)	(1982)	(1972)	(1959)	(1948)	(1964)	(1955)	(1964)	(1959)
MIN	79.5	123	305	246	163	267	289	310	205	120	74.9	72.9
(WY)	(1988)	(1953)	(1986)	(1929)	(1929)	(1992)	(1941)	(1992)	(1992)	(1958)	(1958)	(1940)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1928 - 2003

ANNUAL TOTAL	198,179	138,898	
ANNUAL MEAN	543	381	575
HIGHEST ANNUAL MEAN			922
LOWEST ANNUAL MEAN			365
HIGHEST DAILY MEAN			11,400
LOWEST DAILY MEAN	104	100	53
ANNUAL SEVEN-DAY MINIMUM	108	103	56
ANNUAL RUNOFF (AC-FT)	393,100	275,500	416,300
10 PERCENT EXCEEDS	929	786	1,110
50 PERCENT EXCEEDS	563	281	444
90 PERCENT EXCEEDS	136	114	140

12149000 SNOQUALMIE RIVER NEAR CARNATION, WA

LOCATION.--Lat 47°39'58", long 121°55'27", in NW 1/4 SW 1/4 sec.9, T.25 N., R.7 E., King County, Hydrologic Unit 17110010, on left bank 40 ft downstream from highway bridge, 1.3 mi northwest of Carnation, 1.9 mi downstream from Tolt River, and at mile 23.0.

DRAINAGE AREA.--603 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for October 1928 to February 1929, published in WSP 870. Prior to October 1951, published as "near Tolt."

REVISED RECORDS.--WSP 1316: 1932-33(M). WSP 1446: 1934(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Prior to Dec. 20, 1933, nonrecording gage on old bridge, 100 ft upstream and Dec. 20, 1933, to Sept. 30, 1939, water-stage recorder at present site, at datum 42.96 ft higher.

REMARKS.--No estimated daily discharges. Records good. During the current water year, Seattle Water Department diverted an average daily discharge of 93 ft<sup>3</sup>/s upstream from station from South Fork Tolt River for municipal use. Several small diversions for irrigation and domestic use upstream from station. Low flow diverted for operation of powerplant at Snoqualmie Falls but returned to river upstream from station. Some pondage at Snoqualmie Falls and some diurnal fluctuation caused by powerplant. Chemical analyses October 1966 to June 1969. Water temperatures October 1966 to June 1969. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--74 years (water years 1930-2003), 3,724 ft<sup>3</sup>/s, 83.91 in/yr, 2,698,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,200 ft<sup>3</sup>/s Nov. 24, 1990, gage height, 60.70 ft, from inside high-water mark; minimum discharge, 239 ft<sup>3</sup>/s Aug. 21, 1945, but may have been less sometime during period of faulty intake action Sept. 13 or 14, 1949; minimum daily discharge, 341 ft<sup>3</sup>/s Sept. 15, 1973.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 16,000 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)
Nov 20	0130	17,900	53.43	Feb 1	0230	*25,800	*56.01
Jan 27	0300	19,700	54.16	Mar 13	1230	18,600	53.71

Minimum discharge, 469 ft<sup>3</sup>/s, Sept. 6, 7, gage height, 44.97 ft.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	814	607	1,180	2,070	20,600	2,180	7,070	2,960	3,300	1,670	727	516
2	764	577	1,130	4,010	9,150	2,080	5,150	3,060	2,890	1,520	721	507
3	877	559	1,060	6,080	7,070	2,220	4,410	3,170	2,730	1,390	715	499
4	1,610	547	1,020	5,120	5,500	2,060	3,920	3,010	2,660	1,330	699	483
5	1,290	543	990	7,980	4,450	2,010	3,600	3,890	2,900	1,290	688	480
6	1,150	550	949	4,720	3,790	2,230	3,630	3,560	3,210	1,290	682	478
7	1,010	573	910	3,600	3,310	2,170	3,530	3,010	3,440	1,250	675	476
8	916	608	878	3,060	2,970	2,180	4,050	2,690	3,360	1,210	667	582
9	856	1,070	845	2,780	2,720	2,940	4,660	2,520	3,050	1,180	657	653
10	824	1,570	903	2,460	2,550	6,700	4,260	2,470	2,620	1,130	659	595
11	815	1,720	1,220	2,220	2,390	8,890	4,110	2,580	2,350	1,110	652	1,090
12	771	2,130	3,210	3,080	2,260	12,400	4,060	2,910	2,240	1,120	661	2,480
13	730	4,150	4,460	3,900	2,140	17,400	4,500	2,900	2,180	1,120	646	1,460
14	698	2,930	3,930	3,270	2,060	12,300	4,860	2,980	2,210	1,200	628	1,020
15	680	2,220	6,540	2,820	1,980	8,060	4,070	3,230	2,020	1,110	622	841
16	665	1,770	5,710	2,480	2,020	6,350	3,730	2,980	1,910	1,040	617	893
17	654	2,190	4,970	2,250	2,390	5,170	3,720	2,840	1,930	1,000	623	1,370
18	638	2,060	3,560	2,160	2,230	4,270	3,800	2,660	2,090	962	624	1,110
19	633	11,600	2,830	2,120	2,090	3,690	3,450	2,440	1,960	936	600	1,180
20	631	13,000	2,380	1,980	2,510	3,530	3,130	2,350	1,920	924	592	1,810
21	631	5,130	2,080	2,010	5,150	4,640	3,140	2,710	2,470	899	576	1,320
22	631	3,360	1,880	3,280	7,390	10,500	3,190	3,040	2,450	886	574	1,040
23	608	2,530	1,740	6,020	4,980	9,100	3,090	3,330	2,110	862	574	914
24	602	2,100	1,630	5,040	3,670	6,110	3,710	4,700	1,990	854	557	842
25	587	1,830	1,570	5,350	3,040	4,950	3,940	5,310	1,830	832	546	786
26	575	1,650	1,610	13,200	2,700	4,610	3,400	3,950	1,810	808	545	745
27	573	1,520	1,630	16,500	2,440	4,650	3,110	3,380	1,860	779	545	713
28	610	1,420	1,680	10,400	2,280	4,280	2,970	4,070	1,880	761	545	692
29	722	1,340	1,640	6,830	---	3,730	2,920	4,240	1,750	754	543	669
30	706	1,240	1,660	10,100	---	3,880	2,950	3,750	1,730	743	535	655
31	640	---	2,050	18,200	---	7,880	---	3,750	---	729	518	---
TOTAL	23,911	73,094	67,845	165,090	115,830	173,160	116,130	100,440	70,850	32,689	19,213	26,899
MEAN	771	2,436	2,189	5,325	4,137	5,586	3,871	3,240	2,362	1,054	620	897
MAX	1,610	13,000	6,540	18,200	20,600	17,400	7,070	5,310	3,440	1,670	727	2,480
MIN	573	543	845	1,980	1,980	2,010	2,920	2,350	1,730	729	518	476
AC-FT	47,430	145,000	134,600	327,500	229,700	343,500	230,300	199,200	140,500	64,840	38,110	53,350
CFSM	1.28	4.04	3.63	8.83	6.86	9.26	6.42	5.37	3.92	1.75	1.03	1.49
IN.	1.48	4.51	4.19	10.18	7.15	10.68	7.16	6.20	4.37	2.02	1.19	1.66

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2003, BY WATER YEAR (WY)

	2,540	4,863	5,474	5,092	4,407	3,827	4,329	4,983	4,477	2,318	1,097	1,352
MEAN	2,540	4,863	5,474	5,092	4,407	3,827	4,329	4,983	4,477	2,318	1,097	1,352
MAX	5,811	12,850	14,530	11,140	9,743	9,979	6,797	7,847	8,983	5,629	2,992	5,128
(WY)	(1948)	(1991)	(1934)	(1953)	(1982)	(1932)	(1932)	(1974)	(1955)	(1964)	(1959)	(1959)
MIN	407	619	1,694	1,291	1,860	1,933	2,230	2,434	1,362	840	492	484
(WY)	(1988)	(1953)	(1986)	(1937)	(1973)	(1941)	(1941)	(1992)	(1992)	(1940)	(1930)	(1998)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1929 - 2003

ANNUAL TOTAL	1,275,214	985,151	
ANNUAL MEAN	3,494	2,699	3,724
HIGHEST ANNUAL MEAN			5,439
LOWEST ANNUAL MEAN			2,314
HIGHEST DAILY MEAN	21,800	Jan 8	20,600
LOWEST DAILY MEAN	543	Nov 5	476
ANNUAL SEVEN-DAY MINIMUM	565	Nov 1	491
ANNUAL RUNOFF (AC-FT)	2,529,000		1,954,000
ANNUAL RUNOFF (CFSM)	5.79		4.48
ANNUAL RUNOFF (INCHES)	78.67		60.78
10 PERCENT EXCEEDS	6,630		5,120
50 PERCENT EXCEEDS	3,100		2,080
90 PERCENT EXCEEDS	712		614
			2,698,000
			6.18
			83.91
			6,970
			2,960
			830

SNOHOMISH RIVER BASIN

12150800 SNOHOMISH RIVER NEAR MONROE, WA

LOCATION.--Lat 47°49'52", long 122°02'50", in NE 1/4 NW 1/4 sec.16, T.27 N., R.6 E., Snohomish County, Hydrologic Unit 17110011, on left bank 150 ft upstream from State Highway 522 bridge, 0.1 mi downstream from confluence of Snoqualmie and Skykomish Rivers, 3.6 mi southwest of Monroe, and 6.0 mi south of Snohomish.

DRAINAGE AREA.--1,537 mi<sup>2</sup>.

PERIOD OF RECORD.--February 1963 to current year. Water years 1932, 1934, 1951, 1960, 1962-63 (annual maximum stage only) published in WSP 1932. Approximate annual maximum stages for water years 1921, 1949-50, 1952-59, and 1961 are on file in Washington office.

GAGE.--Water-stage recorder. Datum of gage is 13.25 ft above NGVD of 1929. Prior to February 1963, crest-stage gage only at site about 800 ft downstream and Feb. 8, 1963, to May 27, 1964, water-stage recorder at site 100 ft upstream, at NGVD of 1929.

REMARKS.--No estimated daily discharges. Records good. Some regulation by powerplant at Snoqualmie Falls, 40 mi upstream, and by Spada Lake, 30 mi upstream. Minor diversions for irrigation returned to river upstream from gage. During the current water year, City of Seattle Water Department diverted an average daily discharge of about 93 ft<sup>3</sup>/s upstream from station from South Fork Tolt River for municipal use and the City of Everett diverted an undetermined amount of discharge upstream from the station from Sultan River for municipal use. Chemical analyses December 1974 to January 1976, July 1979 to September 1986. Unpublished records of water temperature and suspended-sediment concentration are available in the Tacoma office of the U.S. Geological Survey. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--40 years (water years 1964-2003), 9,563 ft<sup>3</sup>/s, 84.54 in/yr, 6,928,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 35.8 ft Feb. 10, 1951, datum then in use (discharge not determined); maximum discharge since February 1963, 150,000 ft<sup>3</sup>/s Nov. 25, 1990, gage height, 25.30 ft, from rating curve extended above 80,000 ft<sup>3</sup>/s; minimum discharge, 763 ft<sup>3</sup>/s Oct. 30, 31, 1987, gage height, 0.51 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of December 1921 reached a discharge of approximately 180,000 ft<sup>3</sup>/s. Floods in November or December 1897 and November 1906 are believed to be higher.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 33,000 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)
Nov 19	2200	37,600	10.78	Jan 31	1830	48,200	13.04
Jan 26	2000	*53,100	*14.07	Mar 13	0930	46,500	12.70

Minimum discharge, 1,010 ft<sup>3</sup>/s, Sept. 7, gage height, 0.60 ft.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2,300	1,300	3,290	4,840	39,600	5,550	20,300	8,070	11,200	5,010	1,790	1,090
2	2,100	1,240	3,160	8,290	28,000	5,190	15,100	8,350	9,950	4,180	1,760	1,080
3	2,120	1,200	3,020	15,400	21,100	5,220	12,800	8,820	9,220	3,830	1,720	1,060
4	3,170	1,180	2,890	13,400	17,000	4,910	11,400	8,530	9,000	3,650	1,680	1,040
5	2,990	1,160	2,800	19,400	13,800	4,810	10,300	9,850	9,820	3,590	1,630	1,030
6	2,710	1,200	2,690	14,000	11,600	6,260	10,100	9,310	11,100	3,540	1,600	1,030
7	2,510	1,280	2,590	10,400	10,200	6,210	9,760	8,110	12,100	3,460	1,590	1,010
8	2,290	1,430	2,500	8,750	9,290	6,110	10,400	7,190	12,100	3,350	1,550	1,070
9	2,160	2,810	2,430	7,830	8,510	6,990	11,600	6,750	11,100	3,240	1,500	1,250
10	2,080	3,720	2,630	7,000	7,920	12,300	11,300	6,650	9,490	3,140	1,500	1,240
11	2,030	4,690	3,320	6,220	7,410	18,000	10,500	7,070	8,130	3,140	1,490	1,560
12	1,920	5,600	7,160	7,270	6,690	27,800	10,600	8,090	7,600	3,140	1,460	4,180
13	1,830	11,900	11,300	9,730	5,880	43,600	11,000	8,300	7,470	3,090	1,450	3,310
14	1,740	9,140	10,400	8,720	5,530	37,100	12,300	8,560	7,350	3,190	1,400	2,350
15	1,670	6,690	17,800	7,850	5,200	26,000	11,000	9,560	6,550	3,020	1,360	1,960
16	1,600	4,920	16,800	6,830	5,220	20,400	10,000	8,930	6,070	2,840	1,330	1,860
17	1,500	7,320	15,500	6,080	6,360	16,600	9,840	8,160	6,030	2,700	1,340	2,570
18	1,450	6,800	11,800	5,530	6,060	13,900	10,000	7,530	6,690	2,620	1,340	2,590
19	1,420	25,100	9,640	5,280	5,450	11,900	9,270	6,780	6,310	2,530	1,310	2,430
20	1,410	30,100	8,190	5,060	5,990	10,900	8,450	6,400	5,760	2,470	1,290	3,470
21	1,410	16,500	7,160	4,960	12,300	12,400	8,440	6,970	6,080	2,390	1,270	3,010
22	1,380	10,500	6,430	7,530	18,800	22,200	8,710	8,110	6,460	2,340	1,240	2,460
23	1,360	7,840	5,880	15,200	14,100	23,800	8,380	9,260	5,610	2,260	1,230	2,140
24	1,330	6,260	5,260	15,900	10,700	17,300	9,320	12,900	5,370	2,210	1,210	1,930
25	1,300	5,180	4,630	16,000	9,160	14,100	10,600	16,100	5,040	2,130	1,190	1,790
26	1,270	4,490	4,680	36,800	7,690	12,700	9,310	12,800	5,120	2,040	1,150	1,680
27	1,250	4,120	4,600	40,200	6,580	12,500	8,540	10,800	5,480	1,980	1,140	1,610
28	1,300	3,900	4,830	28,000	5,930	11,900	8,050	12,400	5,660	1,930	1,140	1,540
29	1,480	3,710	4,670	20,200	---	10,600	7,880	14,000	5,360	1,890	1,140	1,490
30	1,520	3,510	4,480	23,400	---	10,300	8,010	12,800	5,240	1,840	1,120	1,460
31	1,390	---	4,710	41,200	---	18,900	---	12,400	---	1,800	1,100	---
TOTAL	55,990	194,790	197,240	427,270	312,070	456,450	313,260	289,550	228,460	88,540	43,020	56,290
MEAN	1,806	6,493	6,363	13,780	11,150	14,720	10,440	9,340	7,615	2,856	1,388	1,876
MAX	3,170	30,100	17,800	41,200	39,600	43,600	20,300	16,100	12,100	5,010	1,790	4,180
MIN	1,250	1,160	2,430	4,840	5,200	4,810	7,880	6,400	5,040	1,800	1,100	1,010
AC-FT	111,100	386,400	391,200	847,500	619,000	905,400	621,400	574,300	453,200	175,600	85,330	111,700
CFSM	1.18	4.22	4.14	8.97	7.25	9.58	6.79	6.08	4.95	1.86	0.90	1.22
IN.	1.36	4.71	4.77	10.34	7.55	11.05	7.58	7.01	5.53	2.14	1.04	1.36

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 2003, BY WATER YEAR (WY)

	5,989	12,350	13,280	12,990	11,120	9,421	10,430	13,100	12,630	6,905	3,033	3,349
MEAN	5,989	12,350	13,280	12,990	11,120	9,421	10,430	13,100	12,630	6,905	3,033	3,349
MAX	13,340	34,800	29,580	22,000	24,300	25,700	16,050	20,450	24,730	15,290	7,885	7,646
(WY)	(1996)	(1991)	(1976)	(1984)	(1982)	(1972)	(1989)	(1972)	(1974)	(1964)	(1964)	(1978)
MIN	894	2,624	3,966	4,401	4,606	4,859	5,340	7,743	4,070	2,683	1,388	1,133
(WY)	(1988)	(1988)	(1986)	(1979)	(1973)	(1985)	(1975)	(1992)	(1992)	(1987)	(2003)	(1987)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1963 - 2003

ANNUAL TOTAL		3,552,720		2,662,930								
ANNUAL MEAN		9,733		7,296						9,563		
HIGHEST ANNUAL MEAN										13,670		1972
LOWEST ANNUAL MEAN										6,308		2001
HIGHEST DAILY MEAN			55,900		Jan 8		43,600		Mar 13	132,000		Nov 25, 1990
LOWEST DAILY MEAN			1,160		Nov 5		1,010		Sep 7	777		Oct 30, 1987
ANNUAL SEVEN-DAY MINIMUM			1,220		Nov 1		1,050		Sep 2	796		Oct 25, 1987
ANNUAL RUNOFF (AC-FT)			7,047,000				5,282,000			6,928,000		
ANNUAL RUNOFF (CFSM)			6.33				4.75			6.22		
ANNUAL RUNOFF (INCHES)			85.99				64.45			84.54		
10 PERCENT EXCEEDS			19,500				14,500			18,300		
50 PERCENT EXCEEDS			8,390				5,660			7,610		
90 PERCENT EXCEEDS			1,820				1,340			2,270		

12155300 PILCHUCK RIVER NEAR SNOHOMISH, WA

LOCATION.--Lat 47°56'06", long 122°04'19", in NW ¼ NW ¼ sec.8, T.28 N., R.6 E., Snohomish County, Hydrologic Unit 17110011, on right bank, 1.8 mi northeast of Snohomish, and at mile 3.6.

DRAINAGE AREA.--127 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1992 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 30.00 ft above NGVD of 1929.

REMARKS.--No estimated daily discharges. Records good. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--11 years (water years 1993-2003), 475 ft<sup>3</sup>/s, 50.83 in/yr, 344,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,480 Dec. 16, 1999, gage height, 19.16 ft; minimum discharge, 35 ft<sup>3</sup>/s Sept. 6, 2003.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 24, 1990, reached a stage of 18.75 ft, from high-water mark at former bridge, discharge, 7,100 ft<sup>3</sup>/s (from slope-area measurement of peak flow).

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,600 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 13	0500	*3,810	*14.83	No other peak greater than base discharge.			

Minimum discharge, 35 ft<sup>3</sup>/s, Sept. 6, gage height, 8.09 ft.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	60	103	330	748	297	556	297	198	102	53	37
2	69	58	99	779	613	280	474	273	178	92	52	37
3	99	57	94	1,010	768	283	473	263	165	85	53	37
4	186	59	92	864	710	256	493	256	160	82	51	36
5	118	58	91	1,700	568	304	456	393	158	80	51	36
6	138	63	88	1,070	482	558	600	320	155	78	54	36
7	108	72	85	720	421	471	629	283	151	76	52	38
8	88	83	83	552	376	433	774	259	145	75	50	41
9	80	251	82	456	340	631	886	239	142	74	51	44
10	76	346	96	387	313	785	666	220	134	74	52	43
11	73	481	214	337	289	710	581	212	129	73	57	137
12	70	403	624	554	268	1,200	531	206	123	73	53	130
13	68	516	819	739	254	2,930	583	198	122	73	49	79
14	66	400	580	778	241	1,870	706	198	155	72	44	66
15	62	261	1,360	694	229	1,210	590	201	124	70	42	57
16	60	206	1,240	534	256	864	553	239	116	69	42	57
17	58	799	1,280	443	632	693	523	435	112	67	45	72
18	62	405	891	390	526	572	577	530	110	66	45	90
19	61	1,400	660	349	415	497	501	420	106	65	42	75
20	58	1,050	494	313	458	475	428	366	106	64	42	91
21	57	438	389	333	773	575	391	435	113	63	41	68
22	55	288	326	655	1,050	1,300	365	419	153	61	40	57
23	54	225	285	1,050	849	932	342	368	140	60	40	52
24	54	191	254	749	590	753	545	342	124	61	40	49
25	53	170	252	674	469	668	659	357	109	61	39	47
26	53	148	447	1,770	400	633	525	327	104	59	39	46
27	53	137	428	1,130	348	645	466	267	102	58	40	45
28	61	126	499	855	319	599	406	247	97	56	39	43
29	80	118	411	661	---	500	360	225	93	55	38	43
30	69	111	366	873	---	458	336	210	92	54	38	43
31	62	---	363	1,040	---	586	---	217	---	53	37	---
TOTAL	2,333	8,980	13,095	22,789	13,705	22,968	15,975	9,222	3,916	2,151	1,411	1,732
MEAN	75.3	299	422	735	489	741	532	297	131	69.4	45.5	57.7
MAX	186	1,400	1,360	1,770	1,050	2,930	886	530	198	102	57	137
MIN	53	57	82	313	229	256	336	198	92	53	37	36
AC-FT	4,630	17,810	25,970	45,200	27,180	45,560	31,690	18,290	7,770	4,270	2,800	3,440
CFSM	0.59	2.36	3.33	5.79	3.85	5.83	4.19	2.34	1.03	0.55	0.36	0.45
IN.	0.68	2.63	3.84	6.68	4.01	6.73	4.68	2.70	1.15	0.63	0.41	0.51

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 2003, BY WATER YEAR (WY)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
MEAN	320	644	896	843	698	688	540	415	270	176	96.1	109
MAX	697	1,140	1,467	1,532	1,110	1,084	738	597	543	378	209	244
(WY)	(1996)	(1996)	(2000)	(1997)	(1996)	(1997)	(2002)	(1999)	(1999)	(1997)	(1995)	(1997)
MIN	75.3	179	379	434	264	418	375	208	118	69.4	45.5	52.8
(WY)	(2003)	(1994)	(2001)	(2001)	(1993)	(1993)	(1995)	(1994)	(1992)	(2003)	(2003)	(1998)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1992 - 2003

ANNUAL TOTAL	161,688	118,277	
ANNUAL MEAN	443	324	475
HIGHEST ANNUAL MEAN			721
LOWEST ANNUAL MEAN			314
HIGHEST DAILY MEAN	3,270	2,930	5,050
LOWEST DAILY MEAN	49	36	36
ANNUAL SEVEN-DAY MINIMUM	53	37	37
ANNUAL RUNOFF (AC-FT)	320,700	234,600	344,200
ANNUAL RUNOFF (CFSM)	3.49	2.55	3.74
ANNUAL RUNOFF (INCHES)	47.36	34.64	50.83
10 PERCENT EXCEEDS	999	748	1,010
50 PERCENT EXCEEDS	338	206	334
90 PERCENT EXCEEDS	58	50	70









TULALIP AND MISSION CREEK BASINS  
12157250 MISSION CREEK NEAR TULALIP, WA

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LOCATION.--Lat 48°03'31", long 122°15'58", in SW ¼ NW ¼ sec.26, T.30 N., R.4 E., Snohomish County, Hydrologic Unit 17110019, on left bank 100 ft upstream from highway crossing, 0.25 mi above mouth, and 0.9 mi east of Tulalip.

DRAINAGE AREA.--7.92 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1974 to September 1977, November 2000 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 20.3 ft below NGVD of 1929, from precision Global Positioning System (GPS). Oct. 1974 to Sept. 1977, water-stage recorder, at site downstream from highway crossing, at different datum.

REMARKS.--Records fair, except estimated daily discharges, which are poor. Some natural regulation in lakes and beaver ponds. Chemical analysis Nov. 1974 to March 1977, water temperatures Oct. 1974 to March 1977.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 85 ft<sup>3</sup>/s Jan. 19, 1977, gage height, 4.11 ft, from rating curve extended above 20 ft<sup>3</sup>/s datum then in use, probably result of release of water from beaver ponds; minimum, 0.12 ft<sup>3</sup>/s June 29, 1977, probably result of beaver activity upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 36 ft<sup>3</sup>/s Mar. 13; gage height 56.90 ft; minimum discharge, 0.20 ft<sup>3</sup>/s, Aug. 19.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	1.8	2.6	4.5	6.7	4.2	5.5	3.6	1.8	0.92	0.33	0.41
2	1.7	1.8	2.5	7.4	5.8	4.3	5.4	3.4	1.6	0.89	0.53	0.43
3	3.2	1.8	2.4	11	6.2	5.3	5.7	3.0	1.6	0.83	0.32	0.42
4	4.2	1.9	2.5	14	6.2	5.3	5.3	3.1	1.4	0.79	0.38	0.44
5	3.3	2.0	2.4	26	5.6	4.8	5.5	3.3	1.4	0.78	0.45	0.42
6	2.7	2.5	2.3	14	4.9	4.6	7.1	3.0	1.4	0.80	0.98	0.42
7	2.3	3.5	2.3	8.6	4.6	4.7	7.6	2.8	1.3	0.83	0.86	0.49
8	2.2	3.8	2.3	6.5	4.4	4.9	6.4	2.8	1.2	0.73	0.55	0.58
9	2.4	3.3	2.3	5.4	4.2	5.4	7.5	2.6	1.1	0.77	0.37	0.74
10	e2.1	3.0	2.9	4.6	4.1	5.7	7.4	2.5	1.2	0.81	0.84	0.63
11	e1.9	2.9	3.7	4.4	4.0	5.2	6.2	2.3	1.3	0.93	0.42	1.0
12	e1.6	3.1	4.8	8.5	3.9	6.8	5.5	2.3	1.4	0.54	0.54	1.3
13	e1.7	3.6	4.8	11	3.9	24	7.8	2.3	1.3	0.58	0.54	1.1
14	e1.6	3.2	6.5	10	3.8	22	8.7	2.1	1.8	0.64	0.49	0.86
15	e1.6	2.8	10	8.3	4.0	14	7.1	2.5	1.4	0.63	0.45	0.61
16	1.7	2.9	14	6.6	6.6	9.6	5.9	3.1	1.1	0.59	0.45	1.3
17	1.7	3.5	12	5.6	8.2	7.6	6.1	4.0	1.1	0.62	0.76	1.6
18	1.8	3.1	8.4	4.9	6.8	6.6	6.2	3.5	0.95	0.57	0.34	1.4
19	1.8	3.1	6.2	4.6	5.7	6.0	5.5	2.9	1.1	0.58	0.27	1.3
20	1.8	3.3	4.8	4.4	5.2	6.7	4.9	2.6	1.4	0.56	0.41	1.3
21	1.8	3.2	4.0	5.9	5.1	7.0	4.6	2.5	1.8	0.56	0.39	1.2
22	1.8	3.1	3.6	12	5.3	7.2	4.6	2.4	1.6	0.57	0.43	1.1
23	1.8	2.8	3.2	12	5.0	7.1	4.5	2.4	1.5	0.52	0.42	1.0
24	1.8	2.6	3.1	9.0	4.5	6.6	7.5	2.4	1.4	0.49	0.37	1.0
25	1.8	2.4	3.4	7.3	4.2	5.9	8.5	2.8	1.1	0.48	0.34	1.1
26	1.8	2.4	5.2	7.7	4.1	5.6	6.5	2.7	1.0	0.44	0.34	1.1
27	1.8	2.4	6.2	7.7	3.9	6.3	5.3	2.3	1.0	0.44	0.37	1.1
28	2.1	2.4	5.9	6.6	4.0	5.9	4.5	1.9	1.0	0.48	0.40	1.1
29	2.2	2.4	5.3	6.1	---	5.1	4.1	2.3	0.85	0.44	0.42	1.1
30	1.9	2.5	4.8	7.0	---	4.8	3.8	1.7	1.0	0.42	0.52	1.0
31	1.9	---	4.7	7.9	---	4.9	---	1.7	---	0.35	0.37	---
TOTAL	64.2	83.1	149.1	259.5	140.9	224.1	181.2	82.8	39.10	19.58	14.65	27.55
MEAN	2.07	2.77	4.81	8.37	5.03	7.23	6.04	2.67	1.30	0.63	0.47	0.92
MAX	4.2	3.8	14	26	8.2	24	8.7	4.0	1.8	0.93	0.98	1.6
MIN	1.6	1.8	2.3	4.4	3.8	4.2	3.8	1.7	0.85	0.35	0.27	0.41
AC-FT	127	165	296	515	279	445	359	164	78	39	29	55
CFSM	0.26	0.35	0.61	1.06	0.64	0.91	0.76	0.34	0.16	0.08	0.06	0.12
IN.	0.30	0.39	0.70	1.22	0.66	1.05	0.85	0.39	0.18	0.09	0.07	0.13

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 2003, BY WATER YEAR (WY)

	3.31	5.68	8.39	9.00	7.86	9.10	7.34	4.74	2.98	1.48	2.19	1.84
MEAN	3.31	5.68	8.39	9.00	7.86	9.10	7.34	4.74	2.98	1.48	2.19	1.84
MAX	5.73	9.52	14.6	12.7	14.0	13.5	12.2	7.01	5.44	2.04	3.99	2.71
(WY)	(1976)	(1976)	(2002)	(1976)	(1975)	(1975)	(1976)	(1977)	(2001)	(2001)	(1976)	(1977)
MIN	2.06	2.77	4.28	4.43	3.58	6.85	4.00	2.67	1.30	0.63	0.47	0.92
(WY)	(1975)	(2003)	(2001)	(1977)	(1977)	(2001)	(1977)	(2003)	(2003)	(2003)	(2003)	(2003)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1975 - 2003

ANNUAL TOTAL	1,871.65	1,285.78	
ANNUAL MEAN	5.13	3.52	
HIGHEST ANNUAL MEAN			5.48
LOWEST ANNUAL MEAN			7.22
HIGHEST DAILY MEAN	31	Mar 20	26
LOWEST DAILY MEAN	0.89	Aug 16	0.27
ANNUAL SEVEN-DAY MINIMUM	0.96	Aug 13	0.38
ANNUAL RUNOFF (AC-FT)	3,710		2,550
ANNUAL RUNOFF (CFSM)	0.65		0.44
ANNUAL RUNOFF (INCHES)	8.79		6.04
10 PERCENT EXCEEDS	12		7.1
50 PERCENT EXCEEDS	3.3		2.5
90 PERCENT EXCEEDS	1.3		0.49

e Estimated



12158010 TULALIP CREEK ABOVE EAST BRANCH NEAR TULALIP, WA

LOCATION.--Lat 48°05'52", long 122°17'13", in SE 1/4 SW 1/4 sec.10, T.30 N., R.4 E., Snohomish County Hydrologic Unit 17110019, Tulalip Indian Reservation, on left bank wing wall upstream side of diversion dam, 1.9 mi north of Tulalip and 2.0 mi above mouth.

DRAINAGE AREA.--9.74 mi<sup>2</sup>.

PERIOD OF RECORD.--November 2000 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2.8 ft below NGVD of 1929, from precision Global Positioning System (GPS).

REMARKS.--Records poor. Some natural regulation in lakes and beaver ponds and unknown regulation from fish hatchery in basin.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 61 ft<sup>3</sup>/s Dec. 16, 2001, gage height 123.91; minimum daily discharge, 2.2 ft<sup>3</sup>/s, July 23, 2003.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18 ft<sup>3</sup>/s Mar. 20, gage height 123.64 ft; minimum daily discharge, 2.2 ft<sup>3</sup>/s, July 23.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e5.0	6.6	e4.3	e5.2	7.2	5.1	11	6.6	e5.1	e3.6	e3.0	e3.4
2	e5.0	7.2	e4.8	e5.4	6.8	5.6	12	6.6	e4.9	e3.6	e3.1	e3.4
3	e8.4	7.0	e4.4	e6.9	7.5	5.7	11	6.5	e4.8	e3.3	e3.0	e3.3
4	e6.0	6.7	3.2	e8.4	6.7	5.4	9.7	6.6	e4.7	e3.1	e3.0	e3.4
5	e5.4	7.1	3.3	e11	6.6	5.4	9.3	6.9	e4.4	e3.3	e3.1	e3.1
6	e5.1	8.4	3.3	e7.4	6.5	5.3	10	6.3	e4.5	e3.3	e3.2	e3.3
7	e4.7	7.4	3.3	e7.2	6.2	5.5	9.4	6.4	e4.6	e3.1	e3.2	e3.9
8	e4.6	5.6	3.3	e6.8	6.2	5.6	9.4	6.4	e4.5	e3.2	e3.7	e4.1
9	e4.4	5.0	3.3	e6.4	6.5	6.0	12	6.2	e4.4	e3.2	e4.0	e4.0
10	e4.2	e4.8	3.9	e5.9	6.6	5.8	11	6.0	e4.3	e3.1	e4.0	e4.1
11	e4.3	e4.7	e5.9	e7.2	6.4	5.6	10	5.9	e4.2	e3.0	e3.5	e4.5
12	e4.1	e6.8	e7.0	e7.0	6.3	6.3	11	5.6	e4.1	e2.8	e3.4	e4.3
13	e4.2	e5.7	e5.8	e6.3	6.2	9.4	12	5.0	e4.0	e2.7	e3.3	e4.0
14	e4.3	e4.9	5.4	e5.6	6.1	9.1	10	5.0	e3.9	e2.6	e3.1	e3.9
15	e4.4	e4.4	4.5	5.4	7.0	8.4	8.6	5.8	e4.0	e2.7	e3.4	e3.9
16	e4.6	e5.4	7.9	5.3	7.3	7.9	8.3	6.1	e3.9	e2.8	e3.7	e5.0
17	4.6	e6.8	5.4	5.2	6.7	8.6	e9.2	8.8	e3.8	e2.7	e3.3	e4.5
18	4.9	e5.4	e5.0	5.2	6.4	8.6	e8.5	7.7	e3.6	e2.6	e3.2	e4.0
19	5.1	e4.7	e4.9	5.2	6.3	12	e8.0	e7.3	e3.9	e2.6	e3.3	e3.8
20	5.1	e4.5	e4.7	5.2	6.4	15	e7.5	e7.2	e4.3	e2.4	e3.2	e3.0
21	5.1	e4.7	e4.6	7.0	6.6	15	e7.3	e6.9	e4.0	e2.4	e3.3	e2.4
22	4.9	e4.0	e4.4	7.7	6.7	15	e7.0	e6.5	e3.9	e2.5	e3.4	e2.4
23	5.2	e4.0	e4.4	7.2	6.7	15	e7.0	e6.3	e3.6	e2.2	e3.3	e2.5
24	5.4	e4.7	e4.2	6.7	6.4	15	e8.0	e6.0	e3.5	e2.3	e3.2	e2.5
25	5.5	e4.7	e4.7	6.6	6.0	14	e8.5	e5.8	e3.4	e2.6	e3.2	e2.4
26	5.7	e4.8	e5.2	8.9	6.2	13	8.2	e5.6	e3.4	e2.5	e3.2	e2.4
27	5.6	e5.0	e5.7	8.3	5.6	12	7.7	e5.5	e3.3	e2.6	e3.6	e2.5
28	5.5	e4.6	e5.7	7.6	5.4	12	7.7	e5.4	e3.3	e2.5	e3.5	e2.3
29	4.4	e4.2	e5.2	7.9	---	11	7.2	e5.3	e3.5	e3.0	e3.3	e2.5
30	5.1	e4.1	e5.0	8.0	---	11	7.1	e5.2	e3.5	e2.9	e3.4	e2.6
31	5.8	---	e4.7	7.9	---	11	---	e5.2	---	e3.0	e3.3	---
TOTAL	156.6	163.9	147.4	212.0	181.5	290.3	273.6	192.6	121.3	88.2	103.4	101.4
MEAN	5.05	5.46	4.75	6.84	6.48	9.36	9.12	6.21	4.04	2.85	3.34	3.38
MAX	8.4	8.4	7.9	11	7.5	15	12	8.8	5.1	3.6	4.0	5.0
MIN	4.1	4.0	3.2	5.2	5.4	5.1	7.0	5.0	3.3	2.2	3.0	2.3
AC-FT	311	325	292	421	360	576	543	382	241	175	205	201
CFSM	0.52	0.56	0.49	0.70	0.67	0.96	0.94	0.64	0.42	0.29	0.34	0.35
IN.	0.60	0.63	0.56	0.81	0.69	1.11	1.04	0.74	0.46	0.34	0.39	0.39

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2003, BY WATER YEAR (WY)

	2001	2002	2003	2001	2002	2003	2001	2002	2003	2001	2002	2003
MEAN	5.48	6.23	10.2	9.04	9.67	10.3	10.1	6.58	4.96	3.76	3.87	3.91
MAX	5.90	7.00	21.5	14.3	15.8	13.8	11.5	7.78	5.91	4.58	4.63	4.50
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(2001)	(2001)	(2001)	(2001)
MIN	5.05	5.46	4.43	5.97	6.48	7.83	9.12	5.75	4.04	2.85	3.34	3.38
(WY)	(2003)	(2003)	(2001)	(2001)	(2003)	(2001)	(2003)	(2001)	(2003)	(2003)	(2003)	(2003)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 2001 - 2003

ANNUAL TOTAL	2,862.1	2,032.2	
ANNUAL MEAN	7.84	5.57	7.51
HIGHEST ANNUAL MEAN			9.46
LOWEST ANNUAL MEAN			5.57
HIGHEST DAILY MEAN	24	15	43
LOWEST DAILY MEAN	3.1	2.2	2.2
ANNUAL SEVEN-DAY MINIMUM	3.3	2.4	2.4
ANNUAL RUNOFF (AC-FT)	5,680	4,030	5,440
ANNUAL RUNOFF (CFSM)	0.81	0.57	0.77
ANNUAL RUNOFF (INCHES)	10.93	7.76	10.48
10 PERCENT EXCEEDS	15	8.5	15
50 PERCENT EXCEEDS	5.5	5.1	5.6
90 PERCENT EXCEEDS	3.5	3.1	3.3

e Estimated

## TULALIP AND MISSION CREEK BASINS

## 12158032 EAST BRANCH TULALIP CREEK NEAR MOUTH NEAR TULALIP, WA

LOCATION.--Lat 48°05'35", long 122°16'44", in NW ¼ NE ¼ sec.15, T.30 N., R.4 E., Snohomish County, Hydrologic Unit 17110019, Tulalip Indian Reservation, on left wing wall at diversion dam headworks pool, 200 ft upstream from culvert for one lane road, 1.9 miles north of Tulalip and 0.6 mi above mouth.

DRAINAGE AREA.--1.75 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1960, October 1974 to August 1977 and November 2000 to May 2002 (discharge measurements). May 2002 to current year.

GAGE.--Water-stage recorder. Datum of gage 9.74 ft below NGVD of 1929, from precision Global Positioning System (GPS).

REMARKS.--Records poor. Some natural regulation from beaver ponds and unknown regulation from fish hatchery in basin. Minor diversions for domestic use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8.1 ft<sup>3</sup>/s Jan. 4, gage height 139.96 ft; minimum daily discharge, 1.4 ft<sup>3</sup>/s July 23 and Sept. 28.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	e2.5	2.3	2.8	2.4	2.7	3.2	2.8	e1.7	e2.0	e1.6	e2.1
2	3.1	e2.5	2.3	3.9	2.4	2.9	2.7	2.8	e1.7	e2.0	e1.7	e2.1
3	3.8	2.0	2.3	3.1	2.8	2.9	2.7	2.8	e1.8	e1.9	e1.6	e2.1
4	3.0	2.2	2.7	4.1	2.5	2.8	2.8	2.9	e1.7	e1.8	e1.6	e2.2
5	3.0	2.3	2.7	3.0	2.5	2.7	2.8	2.5	e1.6	e1.9	e1.7	e2.0
6	2.7	2.4	2.6	2.5	2.6	2.8	3.3	2.4	e1.6	e1.9	e1.8	e2.1
7	2.4	2.7	2.6	2.1	2.5	3.0	2.9	2.6	e1.7	e1.8	e1.8	e2.2
8	2.5	2.6	2.7	2.0	2.5	3.0	2.8	2.5	e1.7	e1.9	e2.0	e2.5
9	2.3	2.4	2.7	1.9	2.5	3.2	3.5	2.3	e1.6	e1.9	e2.2	e2.5
10	2.0	2.5	2.8	e2.1	2.5	3.0	3.1	2.3	e1.6	e1.9	e2.2	e2.6
11	e2.1	e2.4	3.0	1.9	e2.5	2.8	2.9	2.2	e1.5	e1.9	e2.1	e2.8
12	e2.1	3.2	2.8	2.9	2.5	3.2	3.0	2.3	e1.5	e1.8	e2.0	e2.7
13	e2.1	e3.0	2.7	2.4	2.7	4.4	3.6	2.2	e1.5	e1.7	e1.9	e2.5
14	e2.0	e2.7	3.4	2.4	2.7	3.5	3.2	2.4	e1.6	e1.6	e1.8	e2.4
15	1.8	e2.6	2.8	2.0	2.7	2.9	3.0	2.6	e1.8	e1.7	e2.0	e2.4
16	1.9	4.0	3.9	2.0	2.6	2.7	2.9	2.8	e1.7	e1.8	e2.1	e2.9
17	1.9	e3.1	2.8	2.0	2.3	2.8	3.1	3.3	e1.7	e1.7	e2.0	e2.5
18	1.9	2.4	2.4	1.9	2.3	2.6	3.0	2.3	e1.7	e1.6	e1.9	e2.2
19	2.0	2.4	2.1	2.0	2.4	e2.9	2.9	2.3	e1.8	e1.6	e2.0	e1.9
20	2.2	2.2	2.0	2.0	2.6	e3.3	2.8	2.2	e2.0	e1.6	e2.0	e1.7
21	2.3	2.0	2.1	2.7	2.9	e3.3	2.9	2.1	e1.9	e1.6	e2.1	e1.6
22	2.0	2.1	2.2	2.7	2.9	e3.2	2.8	2.1	e1.9	e1.6	e2.1	e1.6
23	2.0	2.2	2.2	2.4	2.8	e3.1	2.9	e2.1	e1.8	e1.4	e2.0	e1.6
24	2.3	2.2	2.1	2.1	e2.8	e3.0	3.4	e2.1	e1.7	e1.5	e1.9	e1.6
25	2.4	2.3	2.6	2.1	e2.8	2.9	3.0	e2.0	e1.7	e1.6	e1.9	e1.5
26	2.1	2.3	2.8	2.6	2.9	2.9	2.8	e1.9	e1.7	e1.5	e1.9	e1.5
27	2.2	2.2	2.8	2.4	2.7	3.1	2.7	e1.9	e1.7	e1.5	e2.1	e1.5
28	2.5	2.3	2.7	2.3	2.8	3.0	2.8	e1.8	e1.7	e1.5	e2.1	e1.4
29	e2.2	2.3	2.7	2.7	---	2.9	2.8	e1.8	e1.9	e1.6	e2.0	e1.5
30	e2.3	2.3	2.9	2.7	---	3.0	2.9	e1.8	e1.9	e1.5	e2.1	e1.6
31	e2.4	---	2.8	2.6	---	3.1	---	e1.8	---	e1.6	e2.0	---
TOTAL	72.5	74.3	81.5	76.3	73.1	93.6	89.2	71.9	51.4	52.9	60.2	61.8
MEAN	2.34	2.48	2.63	2.46	2.61	3.02	2.97	2.32	1.71	1.71	1.94	2.06
MAX	3.8	4.0	3.9	4.1	2.9	4.4	3.6	3.3	2.0	2.0	2.2	2.9
MIN	1.8	2.0	2.0	1.9	2.3	2.6	2.7	1.8	1.5	1.4	1.6	1.4
AC-FT	144	147	162	151	145	186	177	143	102	105	119	123

WTR YR 2003 TOTAL 858.7 MEAN 2.35 MAX 4.4 MIN 1.4 AC-FT 1,700

e Estimated

12158040 TULALIP CREEK NEAR TULALIP, WA

LOCATION.--Lat 48°04'07", long 122°17'10", in NW 1/4 SW 1/4 sec.22, T.30 N., R.4 E., Snohomish County, Hydrologic Unit 17110019, Tulalip Indian Reservation, on left bank 200 ft upstream from highway crossing, 0.15 mi east of Tulalip and 0.30 mi above mouth.

DRAINAGE AREA.--15.4 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1974 to September 1977, November 2000 to current year. Published as "at Tulalip" 1974-77.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 43.6 ft above NGVD of 1929, from precision Global Positioning System (GPS). October 1974 to September 1977, water-stage recorder, at site 600 ft upstream from highway crossing, at different datum.

REMARKS.--Records good except for estimated daily discharges, and discharges below 15 ft<sup>3</sup>/s, and above 80 ft<sup>3</sup>/s, which are fair. Some regulation at outlet of Lake Shocraft, drainage area 6.12 mi<sup>2</sup>, and natural regulation in lakes and ponds in basin. Minor diversions above station for domestic use from East Branch Tulalip Creek. Tulalip Fish Hatchery diverts entire flow at times from East Branch Tulalip Creek, and Tulalip Creek above East Branch for use in hatchery. Water is returned to creek above station. Chemical Analysis November 1974 to March 1977, water temperature October 1974 to March 1977.

AVERAGE DISCHARGE.--5 years (water years 1975-77, 2002-2003), 12.3 ft<sup>3</sup>/s, 10.87 in/yr, 8,920 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 136 ft<sup>3</sup>/s Dec. 17, 2001, gage height, 97.81 ft; minimum discharge, 2.0 ft<sup>3</sup>/s Aug. 12, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 47 ft<sup>3</sup>/s Jan. 5, gage height 97.04 ft; minimum discharge, 2.4 ft<sup>3</sup>/s July 23, 24, 29, and 30.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.2	8.6	8.4	13	14	11	17	e10	7.6	4.1	3.9	4.4
2	6.2	8.2	8.9	18	13	12	16	e9.9	7.2	4.1	4.0	4.4
3	11	8.2	8.3	20	15	13	16	e9.7	7.3	4.2	3.9	4.3
4	8.5	8.2	8.2	23	13	11	15	e9.6	6.6	4.0	3.9	4.4
5	7.8	8.5	8.2	27	12	11	14	e10	6.4	4.2	4.0	4.1
6	7.2	10	8.1	14	12	11	17	e11	6.0	4.2	4.3	4.3
7	6.6	11	7.8	13	11	11	15	e10	5.9	4.0	4.2	4.9
8	6.3	10	7.9	12	11	11	14	e9.6	5.8	4.1	4.2	5.1
9	6.7	7.6	8.1	11	11	13	18	e9.0	6.0	4.1	4.7	5.0
10	6.4	7.2	11	11	11	12	16	e8.7	6.2	3.8	4.8	5.1
11	6.5	6.9	12	11	10	12	15	e8.5	6.3	3.7	4.7	6.1
12	6.2	9.5	13	17	10	14	e15	e8.3	6.2	3.7	4.5	5.9
13	6.4	8.5	11	17	10	25	e16	e8.0	5.6	3.6	4.4	5.3
14	6.5	7.9	16	16	10	23	e17	e8.2	4.6	3.5	4.3	5.1
15	6.7	7.1	13	13	11	19	e16	e9.4	4.4	3.6	4.1	5.2
16	6.6	8.2	26	12	15	16	e15	e11	4.4	3.7	4.4	8.0
17	6.7	9.6	20	11	15	16	e14	e13	4.4	3.6	4.7	6.3
18	6.8	8.6	16	11	13	15	e15	e12	4.3	3.5	4.3	5.9
19	7.0	9.2	14	10	12	16	e14	e11	4.5	3.5	4.2	5.7
20	6.6	10	13	10	12	19	e13	e11	4.8	3.3	4.3	5.6
21	6.8	9.6	12	14	12	19	e13	e10	5.2	3.3	4.2	5.3
22	6.8	8.9	11	21	12	19	e13	e9.5	4.9	3.4	4.3	5.3
23	6.8	8.7	11	19	11	18	e13	e9.3	4.8	3.1	4.4	5.4
24	7.0	8.1	12	15	11	18	e15	8.9	4.5	3.2	4.3	5.4
25	7.2	8.2	13	14	11	18	e16	9.3	4.4	3.5	4.2	5.3
26	7.0	8.3	18	16	10	17	e15	8.7	4.3	3.4	4.2	5.3
27	7.0	8.6	16	17	10	17	e14	8.1	4.3	3.4	4.6	5.0
28	8.2	8.4	15	14	11	16	e12	8.0	4.2	3.3	4.5	4.6
29	8.1	8.3	14	15	---	16	e11	7.8	4.2	3.1	4.3	4.8
30	8.2	8.2	14	16	---	16	e10	7.8	4.4	3.4	4.4	5.1
31	8.4	---	13	16	---	16	---	7.9	---	3.8	4.3	---
TOTAL	220.4	258.3	387.9	467	329	481	440	293.2	159.7	113.4	133.5	156.6
MEAN	7.11	8.61	12.5	15.1	11.8	15.5	14.7	9.46	5.32	3.66	4.31	5.22
MAX	11	11	26	27	15	25	18	13	7.6	4.2	4.8	8.0
MIN	6.2	6.9	7.8	10	10	11	10	7.8	4.2	3.1	3.9	4.1
AC-FT	437	512	769	926	653	954	873	582	317	225	265	311
CFSM	0.46	0.56	0.81	0.98	0.76	1.01	0.95	0.61	0.35	0.24	0.28	0.34
IN.	0.53	0.62	0.94	1.13	0.79	1.16	1.06	0.71	0.39	0.27	0.32	0.38

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 2003, BY WATER YEAR (WY)

	8.43	11.3	18.0	18.0	16.9	17.9	16.6	10.6	7.83	5.93	6.59	6.33
MEAN	8.43	11.3	18.0	18.0	16.9	17.9	16.6	10.6	7.83	5.93	6.59	6.33
MAX	10.8	16.1	32.6	26.8	26.4	23.3	27.0	12.8	10.5	7.18	9.18	7.27
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(1975)	(1976)	(2002)	(2001)	(2002)	(1976)	(1977)
MIN	5.69	8.60	9.05	8.06	7.63	12.7	10.5	8.84	5.32	3.66	4.31	5.22
(WY)	(1975)	(1977)	(1977)	(1977)	(1977)	(1977)	(1977)	(1976)	(2003)	(2003)	(2003)	(2003)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1975 - 2003

ANNUAL TOTAL	4,900.4	3,440.0	
ANNUAL MEAN	13.4	9.42	12.3
HIGHEST ANNUAL MEAN			16.1
LOWEST ANNUAL MEAN			8.75
HIGHEST DAILY MEAN	48	Mar 20	27
LOWEST DAILY MEAN	5.2	Aug 14	3.1
ANNUAL SEVEN-DAY MINIMUM	5.4	Sep 5	3.3
ANNUAL RUNOFF (AC-FT)	9,720	6,820	8,920
ANNUAL RUNOFF (CFSM)	0.87	0.61	0.80
ANNUAL RUNOFF (INCHES)	11.84	8.31	10.87
10 PERCENT EXCEEDS	27	16	24
50 PERCENT EXCEEDS	9.6	8.5	9.1
90 PERCENT EXCEEDS	5.8	4.2	5.5

e Estimated





12167000 NORTH FORK STILLAGUAMISH RIVER NEAR ARLINGTON, WA

LOCATION.--Lat 48°15'42", long 122°02'47", in SW ¼ NW ¼ sec.16, T.32 N., R.6 E., Snohomish County, Hydrologic Unit 17110008, on right bank 5.7 mi northeast of Arlington, 7.8 mi downstream from Deer Creek, and at mile 6.5.

DRAINAGE AREA.--262 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1928 to current year.

REVISED RECORDS.--WSP 1286: 1938-39. WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 89.34 ft above NGVD of 1929.

REMARKS.--Records good below 2,500 ft<sup>3</sup>/s and fair to poor above 2,500 ft<sup>3</sup>/s. Estimated discharges are fair. No regulation. Small diversions for domestic use. National Weather Service radio telemeter and U.S. Geological Survey satellite telemeter at station. Chemical analyses November 1961 to September 1971, October 1973 to September 1974.

AVERAGE DISCHARGE.--75 years (water years 1929-2003), 1,891 ft<sup>3</sup>/s, 98.09 in/yr, 1,370,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,700 ft<sup>3</sup>/s Nov. 24, 1990, gage height, 15.20 ft; minimum discharge, 117 ft<sup>3</sup>/s Sept. 23, 1938.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 13,000 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 26	1545	24,300	12.45	Mar 13	1000	*25,000	*12.62

Minimum discharge, 152 ft<sup>3</sup>/s, Sept. 3, 6, 7, gage height, 1.88 ft.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2002 TO SEPTEMBER 2003  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	580	192	665	1,590	4,240	996	2,820	1,320	1,200	727	259	164
2	380	188	625	4,630	2,960	966	2,110	1,320	1,130	567	253	157
3	630	183	593	4,770	2,650	946	1,910	1,320	1,050	501	246	156
4	597	180	565	4,810	2,190	908	1,760	1,310	1,030	469	247	159
5	442	179	584	5,860	1,880	1,060	1,640	1,640	1,070	456	236	158
6	446	205	537	3,030	1,670	1,480	1,750	1,300	1,120	448	244	154
7	403	364	502	2,420	1,510	1,360	2,080	1,180	1,140	438	238	174
8	364	938	480	2,060	1,390	1,170	3,150	1,110	1,120	433	227	215
9	349	1,670	463	1,830	1,280	2,240	4,790	1,070	1,040	426	223	200
10	342	1,830	816	1,600	1,200	3,350	2,830	1,080	956	413	235	187
11	331	3,230	1,760	1,420	1,130	5,110	2,480	1,100	890	412	270	714
12	303	2,620	3,680	3,040	1,070	6,670	2,260	1,130	834	413	244	549
13	284	2,260	3,890	2,580	1,020	19,400	2,210	1,110	896	430	220	329
14	269	2,080	4,000	3,330	977	9,510	2,160	1,160	969	413	205	254
15	256	1,440	8,730	2,230	947	5,060	1,840	1,250	809	385	198	224
16	245	1,560	5,060	1,770	1,220	3,540	1,690	1,400	737	369	199	249
17	237	2,790	4,010	1,530	1,980	2,820	1,820	1,890	728	350	203	472
18	227	2,300	2,780	1,420	1,510	2,310	1,900	1,660	767	334	201	379
19	222	10,300	2,110	1,350	1,290	1,980	1,650	1,500	703	328	193	455
20	218	4,730	1,730	1,260	2,340	2,160	1,510	1,510	661	323	187	461
21	215	2,460	1,480	1,260	2,730	2,770	1,520	1,730	703	325	183	334
22	211	1,790	1,310	2,190	2,400	7,320	1,470	1,710	777	319	179	276
23	206	1,450	1,190	3,960	1,780	4,250	1,420	1,720	707	309	180	244
24	200	1,230	1,090	2,900	1,470	2,950	1,810	1,890	615	297	175	225
25	195	1,080	1,260	3,420	1,310	2,390	1,750	e1,900	570	286	169	205
26	192	968	2,030	16,100	1,210	2,420	1,480	e1,700	570	277	167	194
27	193	885	1,900	8,160	1,110	2,330	1,350	e1,400	595	273	175	187
28	239	817	2,340	4,110	1,050	2,040	1,310	1,400	590	270	171	183
29	255	757	1,670	3,230	---	1,820	1,300	1,390	582	266	165	181
30	222	706	1,570	3,820	---	1,920	1,390	1,320	648	265	163	176
31	203	---	1,520	7,180	---	3,340	---	1,320	---	262	161	---
TOTAL	9,456	51,382	60,940	108,860	47,514	106,586	59,160	43,840	25,207	11,784	6,416	8,015
MEAN	305	1,713	1,966	3,512	1,697	3,438	1,972	1,414	840	380	207	267
MAX	630	10,300	8,730	16,100	4,240	19,400	4,790	1,900	1,200	727	270	714
MIN	192	179	463	1,260	947	908	1,300	1,070	570	262	161	154
AC-FT	18,760	101,900	120,900	215,900	94,240	211,400	117,300	86,960	50,000	23,370	12,730	15,900
CFSM	1.16	6.54	7.50	13.4	6.48	13.1	7.53	5.40	3.21	1.45	0.79	1.02
IN.	1.34	7.30	8.65	15.46	6.75	15.13	8.40	6.22	3.58	1.67	0.91	1.14

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 2003, BY WATER YEAR (WY)

	1,502	2,748	3,045	2,799	2,452	2,147	2,214	2,167	1,660	871	459	668
MEAN	1,502	2,748	3,045	2,799	2,452	2,147	2,214	2,167	1,660	871	459	668
MAX	3,832	8,008	6,177	5,852	5,632	5,814	4,040	4,371	3,348	2,165	1,049	2,418
(WY)	(1968)	(1991)	(1980)	(1953)	(1982)	(1972)	(1959)	(1997)	(1974)	(1972)	(1964)	(1959)
MIN	171	223	871	484	467	898	812	1,091	510	290	166	140
(WY)	(1988)	(1937)	(1986)	(1937)	(1929)	(1992)	(1941)	(1992)	(1992)	(1940)	(1938)	(1938)

SUMMARY STATISTICS

FOR 2002 CALENDAR YEAR

FOR 2003 WATER YEAR

WATER YEARS 1928 - 2003

ANNUAL TOTAL	686,534	539,160	
ANNUAL MEAN	1,881	1,477	1,891
HIGHEST ANNUAL MEAN			2,883
LOWEST ANNUAL MEAN			1,123
HIGHEST DAILY MEAN	30,100	Feb 22	19,400
LOWEST DAILY MEAN	179	Nov 5	154
ANNUAL SEVEN-DAY MINIMUM	190	Oct 31	158
ANNUAL RUNOFF (AC-FT)	1,362,000		1,069,000
ANNUAL RUNOFF (CFSM)	7.18		5.64
ANNUAL RUNOFF (INCHES)	97.48		76.55
10 PERCENT EXCEEDS	3,200		3,030
50 PERCENT EXCEEDS	1,590		1,080
90 PERCENT EXCEEDS	266		200

e Estimated