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

Puget Sound Basin
Snoqualmie Subbasin

LOCATION.--Lat 47°41′49″, long 121°47′10″ referenced to North American Datum of 1927, in SW ¼ NE ¼ sec.33, T.26 N., R.8 E., King County, WA, Hydrologic Unit 17110010, on right bank 2.3 mi upstream from mouth and 6.5 mi northeast of Carnation.

DRAINAGE AREA.--29.6 mi^2.

SURFACE-WATER 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.--Records good except estimated daily discharges, which are fair. Flow regulated by South Fork Tolt Reservoir 6.1 mi upstream since September 1963. Gage is located below City of Seattle Powerhouse discharge return. During the current water year the Seattle Water Department diverted an average daily discharge of 72 ft^3/s. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE FOR PERIOD OF RECORD.--26 years (water years 1983-2008), 142 ft^3/s, 103,100 acre-ft/yr, unadjusted.

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

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 785 ft^3/s, May 21, gage height, 5.53 ft; minimum discharge, 60 ft^3/s, Nov. 5-8, gage height, 3.25 ft.

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	77	69	64	85	82	116	103	131	272	246	84	82
2	84	63	70	90	80	104	102	124	251	228	82	80
3	97	62	313	96	e77	106	100	121	263	227	81	79
4	89	62	253	102	e76	118	106	119	458	212	80	79
5	80	61	166	101	81	191	113	120	445	200	82	78
6	73	61	128	96	81	284	117	120	475	201	84	78
7	87	60	107	92	84	282	124	121	551	188	83	78
8	92	61	95	89	101	288	121	117	537	143	83	77
9	81	63	88	89	205	283	117	113	462	107	84	77
10	77	69	84	104	229	202	113	112	516	89	83	77
11	75	66	80	123	240	220	110	117	535	89	83	76
12	76	67	77	117	203	209	109	111	481	88	82	76
13	77	68	78	112	193	116	113	112	403	87	82	76
14	75	66	82	119	161	118	115	163	348	86	82	76
15	74	73	80	116	143	119	117	224	302	85	82	76
16	74	89	77	105	135	117	114	459	271	85	81	76
17	75	89	78	99	122	119	109	386	254	85	81	75
18	76	86	83	94	115	115	112	264	241	85	81	75
19	83	82	96	97	111	110	110	485	217	84	81	75
20	96	80	118	94	107	109	109	661	174	84	90	77
21	96	74	102	88	105	106	109	714	154	83	90	81
22	96	70	106	84	103	101	106	616	156	83	88	83
23	91	68	146	82	100	110	108	484	161	83	86	79
24	96	67	169	80	98	109	111	402	154	82	84	77
25	90	65	134	77	96	104	107	416	145	82	85	85
26	83	65	122	76	93	105	104	447	140	81	83	84
27	80	68	108	76	93	102	103	452	138	82	99	80
28	78	67	103	75	105	102	120	438	138	81	87	79
29	76	66	100	74	107	107	135	436	141	82	86	78
30	74	64	94	73	---	106	134	389	208	82	85	78
31	73	---	89	79	---	104	---	305	---	81	85	---
Total	2,551	2,071	3,490	2,884	3,526	4,482	3,371	9,279	8,991	3,601	2,609	2,347
Mean	82.3	69.0	113	93.0	122	145	112	299	300	116	84.2	78.2
Max	97	89	313	123	240	288	135	714	551	246	99	85
Min	73	60	64	73	76	101	100	111	138	81	80	75
Ac-ft	5,060	4,110	6,920	5,720	6,990	8,890	6,690	18,400	17,830	7,140	5,170	4,660

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 2008, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	84.9	190	209	251	172	156	141	157	129	81.3	65.0	70.0
Max	147	597	598	579	389	408	380	307	300	187	84.2	115
(WY)	(1986)	(1991)	(2000)	(1984)	(1996)	(2007)	(1989)	(1984)	(2008)	(1997)	(2008)	(2004)
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)

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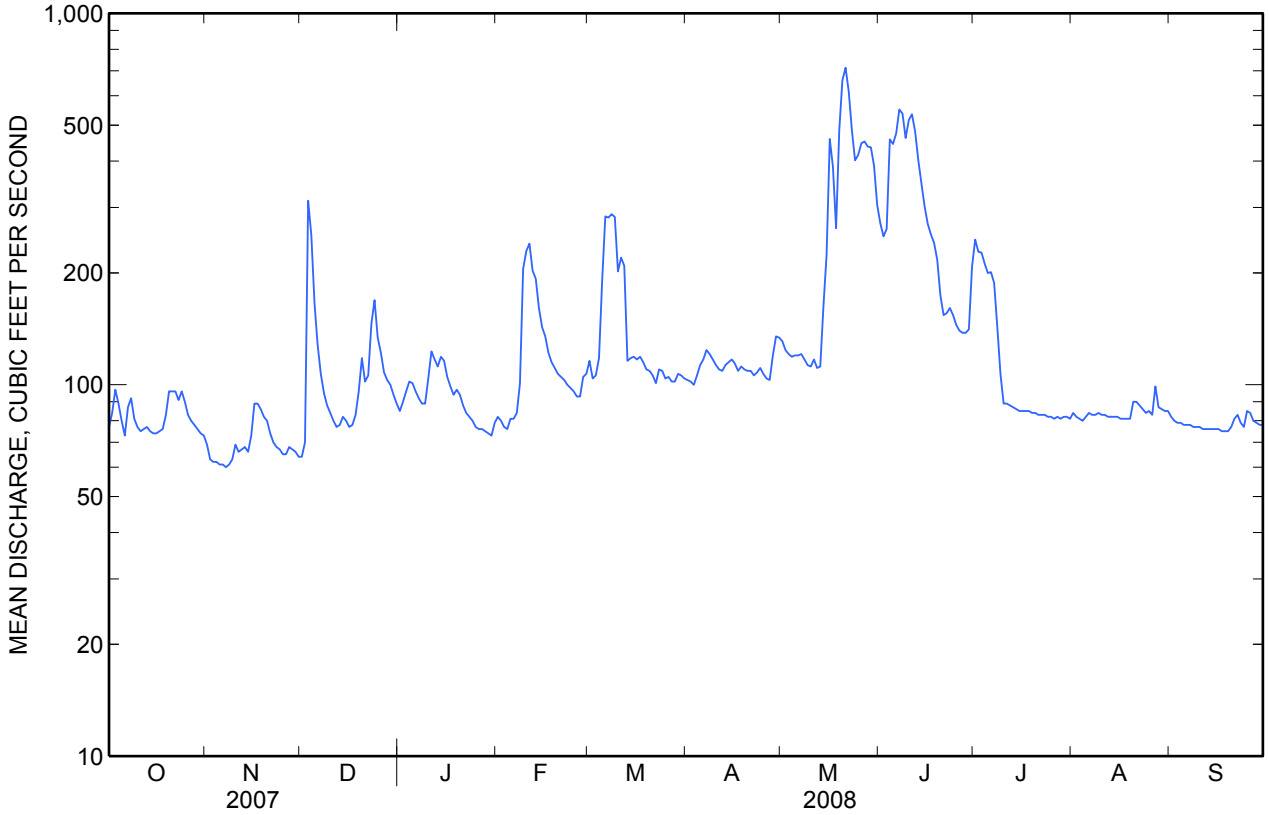
SUMMARY STATISTICS

	Calendar Year 2007		Water Year 2008		Water Years 1982 - 2008	
Annual total	49,099		49,202			
Annual mean	135		134		142	
Highest annual mean					225	1997
Lowest annual mean					84.7	1994
Highest daily mean	1,760	Mar 24	714	May 21	3,700	Nov 24, 1990
Lowest daily mean	60	Nov 7	60	Nov 7	36	Jul 27, 1982
Annual seven-day minimum	61	Nov 2	61	Nov 2	36	Aug 6, 1982
Annual runoff (ac-ft)	97,390		97,590		103,100	
10 percent exceeds	281		257		306	
50 percent exceeds	83		96		89	
90 percent exceeds	67		75		64	



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

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1994 to current year.

INSTRUMENTATION.--Temperature recorder with 15-min. recording interval since October 1994.

REMARKS.--Temperature record is excellent, except for Aug. 2 to Sept. 10 which is rated 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, 14.7°C, Aug. 14; minimum, 1.9°C, Jan. 25.

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		October			November			December			January	
1	10.5	9.8	10.1	8.2	6.8	7.7	4.8	3.6	4.5	4.4	3.9	4.0
2	10.3	9.7	10.0	7.4	5.8	6.6	5.1	3.4	4.1	4.7	3.9	4.3
3	9.7	8.9	9.3	8.8	7.3	8.0	6.8	5.1	5.8	4.8	4.6	4.7
4	9.6	8.6	9.0	9.2	8.0	8.8	7.3	6.8	7.1	5.3	4.6	5.0
5	9.2	7.8	8.5	8.0	6.6	7.2	6.8	5.5	6.5	5.1	4.3	4.8
6	9.2	8.5	8.8	8.5	6.6	7.5	5.9	5.2	5.5	4.3	3.9	4.2
7	10.1	9.2	9.7	8.9	8.2	8.5	5.8	5.0	5.5	4.3	3.7	4.0
8	9.6	8.5	9.2	9.5	8.6	9.0	5.0	4.0	4.4	4.1	3.5	3.9
9	11.3	9.4	10.3	9.2	8.5	8.8	4.7	3.8	4.2	4.4	3.8	4.1
10	10.8	9.8	10.2	8.8	7.4	8.4	5.0	4.3	4.7	5.0	4.0	4.6
11	10.1	8.9	9.5	8.1	7.3	7.7	4.9	4.3	4.6	5.2	4.8	5.0
12	10.4	9.2	9.7	8.1	7.4	7.7	5.2	4.7	4.9	5.4	4.8	5.1
13	10.1	8.5	9.3	7.7	6.5	7.4	5.1	4.8	4.9	5.3	4.3	4.9
14	10.5	8.5	9.5	7.2	6.0	6.6	5.8	4.9	5.3	4.9	3.2	4.2
15	10.3	9.6	10	8.2	7.2	7.8	5.5	5.2	5.3	3.7	3.0	3.4
16	10.1	9.1	9.6	8.2	7.7	8.0	5.6	5.1	5.4	4.1	3.5	3.8
17	9.3	8.4	8.8	8.0	7.6	7.7	5.3	4.7	5.1	4.2	3.8	4.0
18	9.5	8.7	9.0	7.6	6.8	7.0	5.4	4.7	5.0	4.0	3.7	3.9
19	9.5	8.8	9.3	6.9	6.3	6.7	5.6	5.2	5.4	4.0	2.7	3.6
20	8.8	8.3	8.6	6.7	5.9	6.3	5.4	3.8	4.4	4.3	3.2	3.7
21	9.2	8.7	8.9	5.9	5.2	5.6	4.6	3.9	4.3	3.2	2.1	2.6
22	9.8	8.9	9.3	5.2	4.5	4.9	5.0	4.5	4.7	3.1	2.1	2.5
23	10.5	9.1	9.7	5.3	4.3	4.8	5.5	4.8	5.1	3.2	2.2	2.7
24	10.0	8.6	9.5	5.8	4.6	5.2	5.2	4.8	5.0	3.3	2.5	2.9
25	8.6	7.4	8.2	5.7	4.7	5.2	4.8	4.2	4.6	3.0	1.9	2.5
26	8.0	6.5	7.2	5.4	4.4	4.9	4.3	3.4	3.9	3.6	2.3	3.0
27	8.5	6.6	7.4	6.0	5.3	5.5	4.4	3.9	4.2	3.9	3.4	3.7
28	8.9	6.9	7.8	5.9	5.2	5.5	4.7	3.9	4.4	3.6	2.2	2.9
29	8.7	7.7	8.2	5.6	4.9	5.2	4.6	3.7	4.2	3.7	2.8	3.2
30	8.2	6.7	7.3	5.5	4.8	5.0	4.5	3.8	4.2	3.8	2.8	3.4
31	8.2	6.3	7.2	---	---	---	4.5	3.9	4.1	4.0	3.4	3.8
Month	11.3	6.3	9.0	9.5	4.3	6.8	7.3	3.4	4.9	5.4	1.9	3.8

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TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		February			March			April			May	
1	3.7	2.8	3.3	5.8	4.9	5.3	6.0	3.5	4.5	7.9	5.5	6.6
2	4.2	3.4	3.7	5.7	4.4	5.0	6.3	3.4	4.7	8.6	5.4	7.0
3	3.9	---	---	4.9	4.1	4.7	6.6	3.7	5.0	7.4	6.3	6.9
4	3.9	---	---	5.2	3.8	4.4	5.3	4.5	4.9	10.3	6.6	8.1
5	4.1	3.5	3.7	4.3	3.1	3.6	5.9	4.3	5.0	9.5	6.8	8.2
6	4.0	3.5	3.7	3.8	2.9	3.3	6.0	4.9	5.4	8.1	7.2	7.4
7	4.1	3.6	4.0	3.8	3.4	3.6	6.0	4.8	5.3	7.2	6.7	7.0
8	4.0	3.0	3.7	4.0	3.4	3.7	5.7	4.8	5.2	7.5	6.1	6.7
9	3.8	3.4	3.6	4.1	3.2	3.6	6.4	4.4	5.3	8.8	6.3	7.4
10	4.4	3.7	4.1	5.8	3.8	4.6	6.7	5.2	5.9	8.2	7.1	7.6
11	4.5	3.7	4.1	4.6	4.1	4.3	7.9	5.1	6.4	7.8	6.5	7.1
12	5.2	4.3	4.7	4.4	3.5	4.0	9.3	5.2	7.1	7.8	6.2	6.9
13	4.3	3.8	4.1	5.2	4.1	4.9	8.1	5.9	7.0	7.6	6.8	7.2
14	4.9	3.5	4.1	5.6	4.8	5.1	6.8	5.2	6.0	8.4	7.3	7.8
15	5.0	3.8	4.4	5.5	4.7	5.1	5.7	4.5	5.1	11.1	6.8	8.3
16	5.4	4.1	4.8	5.5	4.5	5.0	6.9	5.1	5.8	9.2	6.4	7.6
17	4.8	3.5	4.1	5.5	4.3	4.8	7.5	5.7	6.4	10.1	7.1	8.4
18	5.1	3.5	4.2	5.8	5.0	5.3	6.4	4.0	5.3	11.7	7.6	9.3
19	5.2	3.8	4.4	6.3	4.4	5.3	5.8	3.9	4.7	10.8	9.1	9.8
20	5.6	4.5	5.0	6.0	4.9	5.3	6.1	4.5	5.0	10.3	7.2	9.2
21	5.5	3.8	4.6	5.6	4.6	5.0	6.8	4.2	5.3	8.0	7.1	7.6
22	5.9	4.6	5.2	6.4	4.0	5.1	7.6	4.5	5.9	8.0	7.7	7.9
23	5.6	4.6	5.0	5.7	4.7	5.4	7.2	5.6	6.4	8.5	7.9	8.2
24	6.2	4.6	5.3	6.1	4.3	5.0	6.8	5.9	6.3	10.2	8.3	9.2
25	5.9	5.0	5.3	5.5	3.7	4.6	7.7	5.5	6.4	10.0	9.3	9.6
26	6.2	4.1	5.1	5.8	4.3	4.9	9.3	4.7	6.8	10.9	9.2	10
27	6.0	4.7	5.3	5.3	3.9	4.5	9.3	6.9	7.9	10.8	9.6	10.2
28	6.4	5.4	5.8	4.4	3.6	4.1	8.4	7.2	7.7	10.8	9.9	10.3
29	6.7	5.1	5.8	4.8	3.0	3.7	7.6	6.0	6.7	10.0	8.8	9.2
30	---	---	---	4.7	3.1	3.9	6.8	4.2	5.6	9.6	8.6	9.1
31	---	---	---	5.6	3.6	4.4	---	---	---	9.9	8.1	9.0
Month	6.7	---	---	6.4	2.9	4.6	9.3	3.4	5.8	11.7	5.4	8.2

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

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		June			July			August			September	
1	8.9	8.3	8.6	11.8	10.4	11.2	12.5	11.3	11.7	11.6	10.2	10.8
2	8.8	8.2	8.6	11.2	10.1	10.7	11.9	11.3	11.6	12.1	9.9	10.9
3	8.7	7.9	8.4	11.5	10.3	10.7	13.2	11.3	12.0	12.2	10.3	11.2
4	8.8	7.7	8.2	10.9	10.0	10.3	14.4	11.0	12.4	12.4	10.6	11.4
5	9.0	8.5	8.8	10.2	9.5	9.7	14.3	11.3	12.6	12.2	10.5	11.2
6	8.6	7.4	8.1	10.2	9.8	9.9	13.8	11.6	12.6	12.0	10.5	11.1
7	8.6	8.2	8.3	11.0	9.3	10.0	14.1	11.7	12.7	11.7	9.9	10.8
8	8.7	8.2	8.5	11.8	9.6	10.7	13.0	12.0	12.4	11.8	9.9	10.8
9	8.7	7.8	8.4	13.2	9.9	11.4	12.6	11.6	12.0	11.8	10.1	10.8
10	8.3	7.0	7.7	11.9	10.5	11.1	12.3	11.3	11.8	11.3	9.5	10.3
11	8.3	8.0	8.1	12.8	9.3	10.9	13.8	11.1	12.3	11.6	9.7	10.5
12	9.0	8.1	8.5	13.3	10.2	11.5	13.8	11.2	12.4	11.6	9.9	10.6
13	8.9	8.6	8.7	13.4	10.5	11.7	14.0	11.8	12.8	11.4	9.7	10.5
14	8.9	8.1	8.5	13.2	10.5	11.7	14.7	11.7	13.0	11.7	10.0	10.7
15	9.8	8.2	8.9	13.4	10.5	11.6	14.6	12.3	13.3	11.8	9.9	10.8
16	10.2	7.9	9.0	13.3	10.4	11.7	14.5	12.1	13.2	11.9	10.1	10.9
17	8.9	8.2	8.5	13.0	10.6	11.5	14.2	12.7	13.3	12.0	10.5	11.2
18	8.9	8.3	8.6	11.6	10.6	11.0	13.3	12.1	12.5	11.3	10.6	10.8
19	9.8	8.3	9.1	12.7	10.6	11.4	13.0	11.8	12.3	10.9	10.5	10.7
20	11.1	8.4	9.6	13.5	10.4	11.7	12.5	12.0	12.2	10.8	10.2	10.6
21	10.3	9.3	9.9	13.6	10.7	11.9	12.1	11.4	11.6	10.6	10.2	10.4
22	9.9	8.9	9.4	12.0	10.8	11.1	13.1	11.1	12.0	10.6	9.9	10.3
23	9.9	9.0	9.5	11.0	10.5	10.7	13.6	11.3	12.3	10.9	8.9	9.9
24	10.7	9.1	9.7	13.4	10.4	11.6	12.8	11.9	12.3	12.2	10.0	11.1
25	10.6	8.7	9.6	13.0	10.8	11.8	12.3	11.5	11.9	10.9	10.3	10.5
26	9.9	8.9	9.4	12.8	10.7	11.7	12.5	10.9	11.6	10.9	9.9	10.4
27	11.0	8.8	9.8	12.1	11.3	11.6	11.8	11.3	11.5	11.2	10.2	10.6
28	11.9	9.4	10.4	13.6	10.9	12.0	11.8	11.3	11.5	10.9	9.3	10.1
29	12.0	9.8	10.8	12.2	11.0	11.5	12.8	11.7	12.1	12.0	9.9	10.8
30	11.6	11.0	11.3	12.0	10.8	11.4	12.0	10.8	11.3	11.5	10.6	11.0
31	---	---	---	12.4	10.0	11.2	11.2	10.2	10.7	---	---	---
Month	12.0	7.0	9.0	13.6	9.3	11.2	14.7	10.2	12.2	12.4	8.9	10.7