12147600 SOUTH FORK TOLT RIVER NEAR INDEX, WA

Puget Sound Basin
Snoqualmie Subbasin

LOCATION.--Lat 47°42′25″, long 121°35′56″ referenced to North American Datum of 1927, in NE ¼ SW ¼ sec.25, T.26 N., R.9 E., King County, WA, 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^2.

SURFACE-WATER 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.--Records fair except for estimated daily discharges and those above 900 ft^3/s and below 15 ft^3/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 FOR PERIOD OF RECORD.--43 years (water years 1961-63, 1969-2008), 55.1 ft^3/s, 140.14 in/yr, 39,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,240 ft^3/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^3/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^3/s and (or) maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Oct 2	1345	629	3.13
Dec 3	1315	*991	*3.59

Minimum discharge, 7.2 ft^3/s, Sept. 19, 20, gage height, 0.57 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	168	9.3	10	19	21	e70	e14	e60	e125	e190	63	28
2	410	8.5	25	19	17	e46	e13	e50	e95	e160	38	22
3	212	8.0	607	22	15	e37	e13	e52	e140	e190	27	18
4	91	9.4	505	25	15	e32	e14	e60	e190	e130	23	16
5	56	12	167	26	17	e28	e14	e92	e135	e120	23	14
6	34	11	79	22	e18	e26	e16	e115	e150	e125	23	14
7	359	9.7	51	20	e20	e25	e17	e100	e132	e100	21	13
8	177	9.2	38	19	e24	e33	e17	e90	e122	e105	20	12
9	73	13	31	18	e34	e34	e14	e76	e130	e115	19	11
10	69	66	28	45	e55	e38	e15	e70	e170	e93	23	10
11	55	40	24	122	e44	e72	e16	e130	e130	e75	17	9.6
12	38	52	23	82	e38	e55	e28	e90	e115	e80	15	9.1
13	31	48	21	83	e42	e43	e55	e76	e128	e83	14	8.8
14	26	24	23	79	e35	e38	e52	e160	e128	e75	14	8.4
15	24	89	28	83	e31	e36	e38	e220	e123	e65	15	8.0
16	23	e190	28	46	e30	e32	e28	e345	e140	e55	14	7.8
17	25	e80	23	35	e29	e30	e26	e480	e138	49	14	7.6
18	33	e64	28	29	e27	e30	e26	e340	e105	44	14	7.6
19	136	e42	58	26	e30	e27	e24	e265	e95	38	13	7.3
20	106	30	48	24	e32	e25	e22	e460	e135	38	109	8.0
21	123	23	29	21	e31	e23	e21	e260	e175	39	122	24
22	130	19	26	19	e32	e21	e20	e178	e173	37	60	37
23	68	17	114	19	e33	e28	e20	e138	e130	30	30	20
24	49	15	122	18	e32	e32	e26	e160	e110	25	22	13
25	40	14	50	18	e32	e24	e25	e238	e111	30	27	57
26	25	12	38	18	e31	e21	e23	e230	e112	29	23	64
27	18	13	31	17	e33	e19	e32	e228	e113	33	108	29
28	15	12	27	17	e54	e18	e86	e220	e180	30	67	19
29	13	11	25	16	e80	e17	e120	e180	e220	28	58	14
30	11	10	22	17	---	e16	e70	e140	e215	47	48	12
31	9.7	---	21	17	---	e15	---	e130	---	25	34	---
Total	2,647.7	961.1	2,350	1,041	932	991	905	5,433	4,165	2,283	1,118	529.2
Mean	85.4	32.0	75.8	33.6	32.1	32.0	30.2	175	139	73.6	36.1	17.6
Max	410	190	607	122	80	72	120	480	220	190	122	64
Min	9.7	8.0	10	16	15	15	13	50	95	25	13	7.3
Ac-ft	5,250	1,910	4,660	2,060	1,850	1,970	1,800	10,780	8,260	4,530	2,220	1,050
Cfsm	16.0	6.00	14.2	6.29	6.02	5.99	5.65	32.8	26.0	13.8	6.75	3.30
In.	18.44	6.70	16.37	7.25	6.49	6.90	6.30	37.85	29.01	15.90	7.79	3.69

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2008, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	45.9	81.4	73.7	74.6	58.7	49.3	62.8	80.7	68.3	30.9	14.0	24.4
Max	107	181	165	154	150	158	116	175	160	81.3	37.4	73.0
(WY)	(1986)	(1991)	(1976)	(1990)	(1982)	(2007)	(1988)	(2008)	(1974)	(1974)	(1975)	(2004)
Min	6.24	14.0	20.0	19.8	9.41	18.6	28.6	26.0	13.1	7.32	3.81	3.56
(WY)	(1988)	(1980)	(1986)	(1981)	(1969)	(1962)	(1975)	(1992)	(1992)	(2003)	(2006)	(1998)

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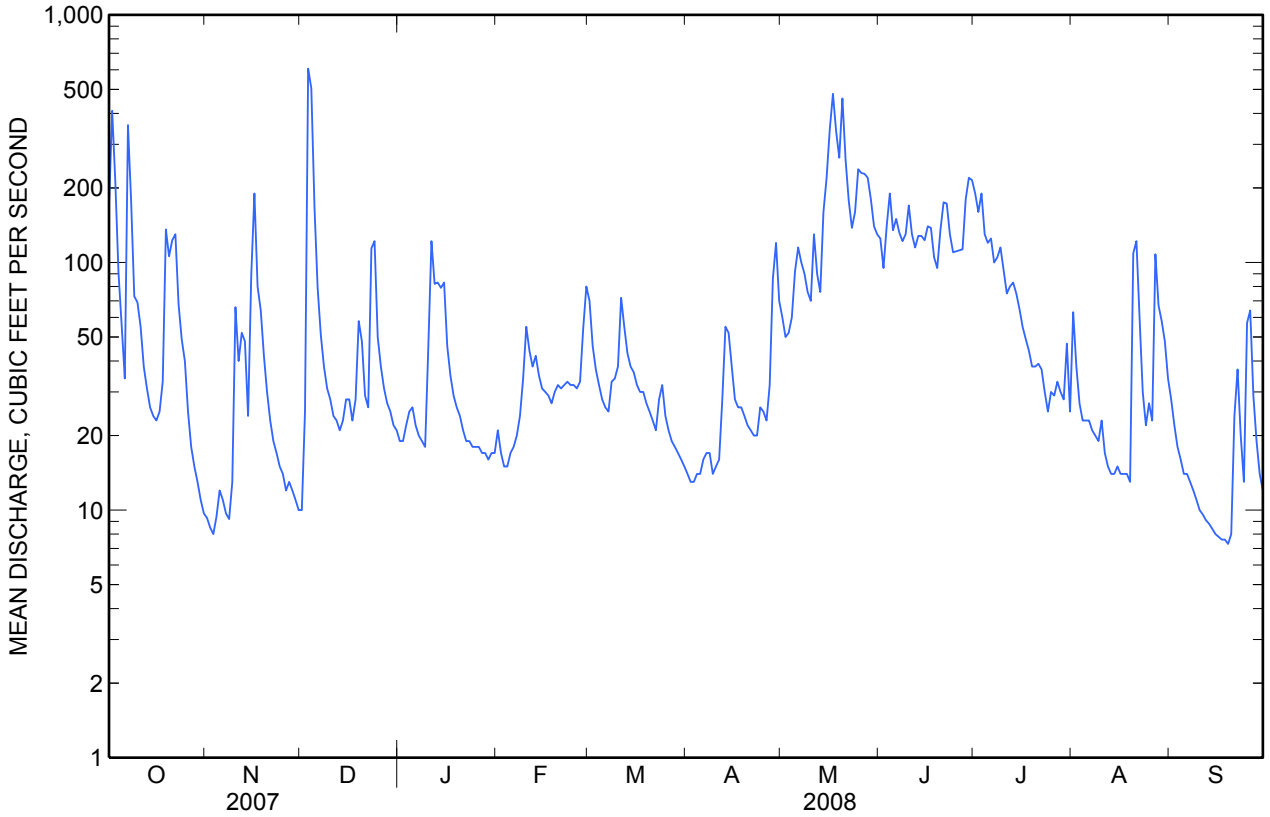
SUMMARY STATISTICS

	Calendar Year 2007		Water Year 2008		Water Years 1960 - 2008	
Annual total	21,761.6		23,356.0			
Annual mean	59.6		63.8		55.1	
Highest annual mean					77.8	1972
Lowest annual mean					34.3	2001
Highest daily mean	1,020	Mar 24	607	Dec 3	1,500	Jan 18, 2005
Lowest daily mean	6.3	Sep 13	7.3	Sep 19	2.2	Sep 9, 1997
Annual seven-day minimum	6.5	Sep 10	7.8	Sep 14	2.2	Sep 11, 1998
Annual runoff (ac-ft)	43,160		46,330		39,900	
Annual runoff (cfsm)	11.2		12.0		10.3	
Annual runoff (inches)	151.60		162.70		140.14	
10 percent exceeds	105		140		115	
50 percent exceeds	37		31		33	
90 percent exceeds	9.0		13		7.7	



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WATER-QUALITY RECORDS

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

INSTRUMENTATION.--Temperature recorder since October 1994, with a 15-minute logging interval.

REMARKS.--Records are excellent except Dec. 1-2, 29, Jan. 2, 19, 21-26, 28-30, Feb. 2, 5-9, which are good; and Jan. 31, Feb. 1, which are fair.

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, 14.6°C, Aug. 16; minimum, 0.0°C, Dec. 1, 2, 26, 29, Jan. 2, 19, 21-26, 28 to Feb. 3, Feb. 5-9, and Apr. 19.

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	7.7	7.3	7.5	5.3	4.0	4.7	1.9	0.0	1.2	0.9	0.4	0.7
2	7.5	7.0	7.4	4.2	3.3	3.8	0.3	0.0	0.0	1.2	0.0	0.5
3	7.0	6.5	6.7	5.5	4.2	4.8	3.9	0.3	2.3	1.6	1.2	1.4
4	6.8	5.9	6.4	6.1	5.0	5.7	4.2	3.9	4.1	2.2	1.6	1.9
5	6.6	5.8	6.2	5.0	4.5	4.7	4.0	3.3	3.8	2.0	1.4	1.8
6	6.6	6.1	6.4	5.5	4.6	5.0	3.6	3.2	3.4	1.9	1.5	1.7
7	7.2	6.4	6.8	6.1	5.4	5.7	3.4	2.9	3.2	1.8	1.0	1.5
8	6.8	6.2	6.5	7.1	6.0	6.5	2.9	2.0	2.5	1.4	0.1	0.7
9	7.8	6.7	7.2	6.7	6.2	6.4	2.4	1.9	2.2	1.5	0.3	1.0
10	7.4	7.0	7.2	6.4	5.1	5.8	2.4	1.7	2.1	1.4	0.1	0.8
11	7.3	6.6	6.9	5.3	5.0	5.1	2.3	1.7	2.0	2.1	1.4	1.8
12	7.5	6.7	7.0	5.5	4.7	5.0	2.4	1.7	2.2	2.4	2.1	2.2
13	7.2	6.1	6.6	4.9	4.1	4.6	2.4	1.3	2.0	2.3	2.1	2.2
14	7.8	6.6	7.1	4.3	3.8	4.0	2.4	1.4	2.0	2.6	0.6	2.0
15	7.8	7.3	7.6	5.0	4.1	4.7	2.2	1.3	1.7	2.0	0.9	1.6
16	7.5	6.5	7.0	5.3	5.0	5.2	2.8	2.2	2.5	2.0	1.6	1.8
17	6.5	6.1	6.2	5.3	4.8	5.1	2.4	1.3	1.9	1.9	1.3	1.7
18	6.4	5.9	6.1	4.8	4.3	4.5	2.0	1.0	1.5	1.8	1.4	1.6
19	6.3	5.7	6.1	4.4	3.7	4.2	2.6	1.9	2.3	1.8	0.0	1.0
20	5.8	5.3	5.6	4.1	3.5	3.8	2.4	1.2	2.0	1.5	0.5	1.1
21	5.9	5.6	5.7	3.5	2.7	3.2	2.4	1.9	2.2	0.5	0.0	0.1
22	6.4	5.7	6.0	2.9	2.5	2.7	2.2	0.6	1.6	0.3	0.0	0.1
23	7.5	6.4	6.9	3.1	2.5	2.8	2.2	1.4	2.0	0.2	0.0	0.0
24	7.1	6.0	6.7	3.5	2.7	3.1	2.5	1.9	2.3	0.0	0.0	0.0
25	6.0	5.0	5.6	3.4	2.3	2.8	2.4	0.5	1.9	0.1	0.0	0.0
26	5.3	4.6	4.9	2.6	1.2	2.2	1.6	0.0	1.0	0.6	0.0	0.2
27	5.7	4.8	5.2	2.0	1.3	1.7	1.6	0.6	1.2	0.9	0.2	0.6
28	5.8	4.7	5.2	2.6	2.0	2.4	0.7	0.2	0.5	0.6	0.0	0.2
29	5.7	5.0	5.3	2.5	2.0	2.2	1.4	0.0	0.9	0.1	0.0	0.0
30	5.2	4.0	4.5	2.4	1.9	2.1	1.3	0.2	0.7	0.0	0.0	0.0
31	5.1	3.7	4.4	---	---	---	1.5	0.7	1.1	0.1	0.0	0.0
Month	7.8	3.7	6.3	7.1	1.2	4.2	4.2	0.0	1.9	2.6	0.0	1.0

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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	0.1	0.0	0.0	2.3	1.4	2.0	2.5	0.6	1.4	4.1	2.1	2.8
2	0.1	0.0	0.0	3.0	2.1	2.4	3.3	0.8	1.8	3.9	2.3	3.0
3	0.9	0.0	0.5	2.2	0.7	1.8	3.6	1.1	2.1	3.1	2.3	2.7
4	1.0	0.3	0.7	2.3	0.4	1.4	2.2	1.3	1.7	5.5	2.4	3.4
5	0.7	0.0	0.2	2.4	1.5	1.8	3.0	1.1	2.1	4.5	2.5	3.1
6	0.8	0.0	0.4	2.9	1.7	2.3	3.0	1.6	2.2	2.9	2.6	2.7
7	0.5	0.0	0.1	2.9	2.2	2.5	2.6	1.1	1.9	2.8	2.5	2.7
8	0.6	0.0	0.2	2.9	2.1	2.5	2.6	1.8	2.1	3.2	2.4	2.7
9	0.9	0.0	0.2	3.3	2.0	2.6	3.5	1.7	2.5	5.0	2.4	3.3
10	1.2	0.1	0.7	3.5	2.6	2.9	3.6	2.0	2.6	3.5	2.7	3.0
11	1.8	1.1	1.6	2.6	2.2	2.4	4.1	2.0	2.9	3.0	2.4	2.6
12	2.3	1.4	1.9	3.1	2.0	2.5	4.5	2.1	2.9	3.4	2.4	2.8
13	1.8	1.2	1.6	2.7	1.7	2.3	3.4	2.0	2.5	3.3	2.6	2.8
14	2.2	1.3	1.7	2.5	1.8	2.2	2.6	1.4	2.1	2.7	2.1	2.4
15	2.2	1.6	1.9	2.5	2.0	2.2	1.9	1.7	1.8	4.2	2.1	3.0
16	2.6	1.6	2.0	2.9	1.4	2.2	3.1	1.8	2.4	4.3	2.5	3.1
17	2.2	1.5	1.8	2.4	1.2	1.9	3.5	2.2	2.6	4.2	2.5	3.2
18	2.5	1.8	2.1	2.6	2.2	2.3	2.4	0.0	1.5	4.6	2.8	3.4
19	2.5	2.0	2.2	3.3	1.6	2.4	1.9	0.0	1.2	4.4	3.0	3.5
20	2.6	2.2	2.3	3.0	1.6	2.2	2.4	0.9	1.6	3.3	2.9	3.1
21	3.0	1.9	2.4	2.4	1.6	2.0	3.1	1.1	1.9	3.3	2.9	3.0
22	2.9	2.3	2.5	3.3	1.5	2.3	3.9	1.4	2.5	3.3	2.8	3.0
23	2.6	2.2	2.3	2.4	1.8	2.2	3.6	1.8	2.6	4.7	3.0	3.5
24	3.2	2.2	2.6	2.8	1.8	2.2	2.8	2.1	2.3	5.6	3.2	4.0
25	3.0	2.2	2.5	2.8	1.4	2.0	4.4	1.9	2.8	5.5	3.2	3.9
26	3.2	2.0	2.5	2.8	1.0	1.9	5.5	1.8	3.2	5.0	3.2	3.9
27	3.0	2.3	2.6	2.3	0.8	1.4	4.3	2.7	3.2	5.0	3.3	3.9
28	2.8	2.3	2.5	1.6	0.2	1.1	2.8	2.1	2.5	5.2	3.4	4.0
29	3.1	2.0	2.6	1.7	0.1	0.8	2.8	1.9	2.3	4.2	3.4	3.7
30	---	---	---	1.8	0.2	1.1	2.8	0.9	2.0	5.9	3.3	4.3
31	---	---	---	2.1	0.2	1.3	---	---	---	5.6	3.2	4.3
Month	3.2	0.0	1.5	3.5	0.1	2.0	5.5	0.0	2.2	5.9	2.1	3.3

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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
		June			July			August			September	
1	4.0	3.5	3.8	9.0	6.0	7.1	9.5	8.7	9.0	9.7	7.7	8.5
2	4.5	3.4	3.9	9.2	5.9	7.3	8.7	8.3	8.5	9.7	7.4	8.4
3	4.1	3.1	3.7	7.6	6.6	7.2	10.9	8.0	9.2	10.0	7.6	8.7
4	3.8	2.9	3.3	7.5	6.5	6.8	12.0	8.2	9.8	10.2	7.9	8.9
5	3.7	3.2	3.4	7.1	6.4	6.8	12.8	9.1	10.6	9.6	8.0	8.9
6	3.6	2.8	3.3	7.0	6.2	6.6	12.4	9.9	10.9	10.1	8.9	9.4
7	3.9	3.1	3.4	9.4	5.8	7.4	13.0	9.9	11.2	10.8	8.7	9.6
8	4.4	3.2	3.8	10.0	6.5	8.0	11.8	10.3	11.0	11.1	8.9	9.8
9	4.0	2.6	3.6	10.4	7.1	8.5	11.5	10.1	10.6	10.9	8.7	9.7
10	3.6	2.5	3.1	9.6	7.3	8.2	10.5	9.7	10	10.5	8.3	9.3
11	3.6	3.2	3.4	10.1	6.4	8.1	12.7	9.3	10.6	10.8	8.4	9.5
12	5.5	3.4	4.0	10.9	7.4	8.9	12.4	9.4	10.8	11.0	8.7	9.7
13	4.4	3.8	4.0	11.0	7.7	9.1	13.4	10.2	11.4	10.7	8.5	9.5
14	5.5	3.6	4.4	11.1	8.0	9.3	13.9	10.2	11.8	11.0	8.8	9.7
15	6.8	3.8	5.0	11.3	8.1	9.5	14.2	11.2	12.5	11.4	9.3	10.2
16	7.1	3.7	5.1	11.4	8.2	9.7	14.6	11.4	12.8	11.4	9.3	10.3
17	4.6	4.1	4.3	11.5	8.4	9.8	13.9	12.2	13.0	11.5	9.6	10.5
18	5.5	4.0	4.6	9.5	8.9	9.2	13.0	11.7	12.3	10.7	10.0	10.3
19	6.1	3.9	4.9	11.5	8.6	9.7	12.4	11.2	11.7	10.5	9.5	10
20	7.6	4.3	5.6	12.2	8.6	10.1	11.5	9.8	10.7	9.9	9.1	9.5
21	5.3	4.4	4.9	12.4	8.9	10.4	9.8	8.9	9.3	9.3	8.9	9.1
22	5.1	4.2	4.6	10.0	9.0	9.4	10.6	8.7	9.5	9.0	8.2	8.6
23	6.2	4.0	4.9	9.0	8.5	8.8	11.6	9.1	10.2	8.8	7.4	8.1
24	7.1	4.2	5.4	11.9	8.0	9.7	10.8	9.8	10.3	9.0	7.8	8.4
25	7.5	4.2	5.7	11.3	8.9	10	10.4	9.4	10	8.7	8.3	8.5
26	6.9	4.7	5.5	11.2	8.9	9.9	10.3	9.1	9.6	8.9	7.9	8.4
27	8.2	4.5	6.1	10.0	9.3	9.6	9.5	8.9	9.2	9.2	8.3	8.6
28	8.4	5.3	6.5	12.0	9.0	10.1	9.3	8.7	9.0	9.3	7.6	8.4
29	8.6	5.2	6.6	9.9	9.0	9.5	9.9	9.1	9.5	10.1	8.6	9.3
30	8.7	5.6	6.9	9.6	8.4	9.0	9.3	8.3	8.8	10.5	9.3	9.8
31	---	---	---	10.2	7.6	8.8	8.6	7.8	8.2	---	---	---
Month	8.7	2.5	4.6	12.4	5.8	8.8	14.6	7.8	10.4	11.5	7.4	9.3

	Max	Min	Mean
Year	14.6	0.0	4.6