

14242580 TOUTLE RIVER AT TOWER ROAD, NEAR SILVER LAKE, WA

Lower Columbia Basin
Lower Cowlitz Subbasin

LOCATION.--Lat 46°20'02", long 122°50'20" referenced to North American Datum of 1927, in NW ¼ SW ¼ sec.20, T.10 N., R.1 W., Cowlitz County, WA, Hydrologic Unit 17080005, on right bank 10.7 mi downstream from confluence of North and South Forks, 2.9 mi northwest of Silver Lake, and at mile 6.5.

DRAINAGE AREA.--496 mi². A large debris avalanche generated by the eruption of Mount St. Helens on May 18, 1980 blocked tributaries in the upper North Fork Toutle River valley. As a result, from May 19, 1980 to July 7, 1981, approximately 40 mi² was noncontributing. From July 7, 1981 to October 1981, the Coldwater Lake release, approximately 21 mi², was noncontributing. From October 1981 to November 1982, the Castle Lake release, approximately 19.7 mi², was noncontributing. Since November 1982, all areas, including the Spirit Lake release, are effectively contributing.

SURFACE-WATER RECORDS

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

REVISED RECORDS.--WDR WA-86-1: 1982 (M)(P), 1983 (M)(P), 1984 (M)(P), 1985 (M).

GAGE.--Water-stage recorder. Elevation of gage is 160 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except estimated daily discharges, which are fair. No regulation or diversion upstream from station. Some water-quality data available from USGS Washington Water Science Center for this station.

AVERAGE DISCHARGE FOR PERIOD OF RECORD.--30 years (water years 1982-2011), 2,095 ft³/s, 57.38 in/yr, 1,518,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 61,800 ft³/s, Feb. 8, 1996, gage height, 24.91 ft; maximum gage height, 28.03 ft Dec. 3, 1982; minimum daily, 243 ft³/s Oct. 14, 1987.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods occurred on May 18, 1980, from mudflows caused by the eruption of Mount St. Helens. A flood about 1200 hours was due to mudflow from South Fork Toutle River and a larger flood about 2100 hours was due to mudflow from North Fork Toutle River.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 10,000 ft³/s and (or) maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec 13	0030	12,000	9.96
Jan 16	1645	*19,300	*12.27
Mar 10	1045	10,500	9.34

Minimum discharge, 405 ft³/s, Sept. 25, 30, gage height, 3.25 ft.

14242580 TOUTLE RIVER AT TOWER ROAD, NEAR SILVER LAKE, WA—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	697	3,410	4,740	3,000	2,610	3,690	6,380	3,100	2,820	e2,100	897	547
2	684	6,160	3,980	2,680	2,410	4,010	6,360	2,970	3,090	e1,900	865	535
3	675	4,140	3,380	2,410	2,270	3,600	5,300	2,920	3,180	e1,900	848	526
4	672	3,240	2,970	2,210	2,300	3,170	5,020	2,750	3,010	e1,850	828	513
5	661	2,720	2,660	2,230	2,590	3,360	6,190	2,730	3,070	e1,800	811	506
6	650	2,410	2,470	2,630	2,580	3,030	5,980	2,750	3,160	e1,800	808	501
7	642	3,470	2,370	2,820	3,090	2,710	5,110	3,140	3,180	e1,900	803	498
8	636	3,330	3,450	2,960	3,150	2,490	4,270	3,410	3,020	e1,700	777	493
9	699	3,150	5,510	2,690	2,820	3,520	3,700	3,430	2,760	e1,600	763	488
10	1,330	3,000	6,890	2,460	2,590	8,590	3,360	3,210	2,670	e1,550	749	487
11	1,260	2,640	5,770	2,250	2,420	6,830	3,960	3,320	2,610	e1,300	729	484
12	965	2,520	9,090	3,260	2,340	5,330	3,530	3,620	2,490	e1,350	715	479
13	856	2,290	10,600	8,130	3,080	5,000	3,260	3,190	2,410	1,440	699	481
14	793	2,910	10,400	7,810	2,970	6,290	3,310	3,050	2,370	1,340	695	483
15	778	3,250	8,140	7,240	3,690	5,800	3,790	4,850	2,340	1,260	682	482
16	744	4,460	6,420	15,400	3,460	5,900	4,260	5,400	2,320	1,290	665	494
17	718	5,220	5,120	16,600	3,130	5,060	4,010	4,460	2,190	1,330	647	506
18	699	7,110	4,380	11,300	2,850	4,350	3,580	3,780	2,410	1,370	635	587
19	683	5,400	3,780	7,670	2,590	3,840	3,200	3,420	2,860	1,230	631	700
20	670	4,560	3,360	e6,000	2,360	3,370	2,870	3,230	2,610	1,170	625	572
21	656	3,860	3,020	e7,000	2,190	3,180	2,670	3,230	2,360	1,130	615	522
22	653	3,440	2,740	6,280	2,160	2,950	2,490	3,280	2,350	1,140	606	460
23	663	3,020	2,480	5,120	2,110	2,660	2,300	3,140	2,400	1,090	630	427
24	1,210	2,600	2,330	4,500	2,020	2,560	2,290	3,000	2,260	1,050	621	415
25	2,710	2,400	2,450	3,960	1,860	2,600	2,880	2,910	2,180	1,060	600	421
26	3,160	2,620	2,640	3,510	1,730	2,420	3,350	2,940	e2,000	1,060	587	479
27	3,900	2,850	2,860	3,170	1,750	2,540	3,480	3,140	e1,900	1,020	578	518
28	2,780	2,650	5,780	2,940	3,540	2,660	4,000	3,710	e1,950	977	570	495
29	2,490	2,410	5,440	3,040	---	2,810	3,870	3,160	e2,000	956	568	443
30	2,150	3,250	4,200	2,870	---	4,410	3,470	2,970	e2,200	944	560	413
31	2,520	---	3,470	2,860	---	6,660	---	2,860	---	918	552	---
Total	38,404	104,490	142,890	157,000	72,660	125,390	118,240	103,070	76,170	42,525	21,359	14,955
Mean	1,239	3,483	4,609	5,065	2,595	4,045	3,941	3,325	2,539	1,372	689	498
Max	3,900	7,110	10,600	16,600	3,690	8,590	6,380	5,400	3,180	2,100	897	700
Min	636	2,290	2,330	2,210	1,730	2,420	2,290	2,730	1,900	918	552	413
Ac-ft	76,170	207,300	283,400	311,400	144,100	248,700	234,500	204,400	151,100	84,350	42,370	29,660
Cfsm	2.50	7.02	9.29	10.2	5.23	8.15	7.95	6.70	5.12	2.77	1.39	1.01
In.	2.88	7.84	10.72	11.78	5.45	9.40	8.87	7.73	5.71	3.19	1.60	1.12

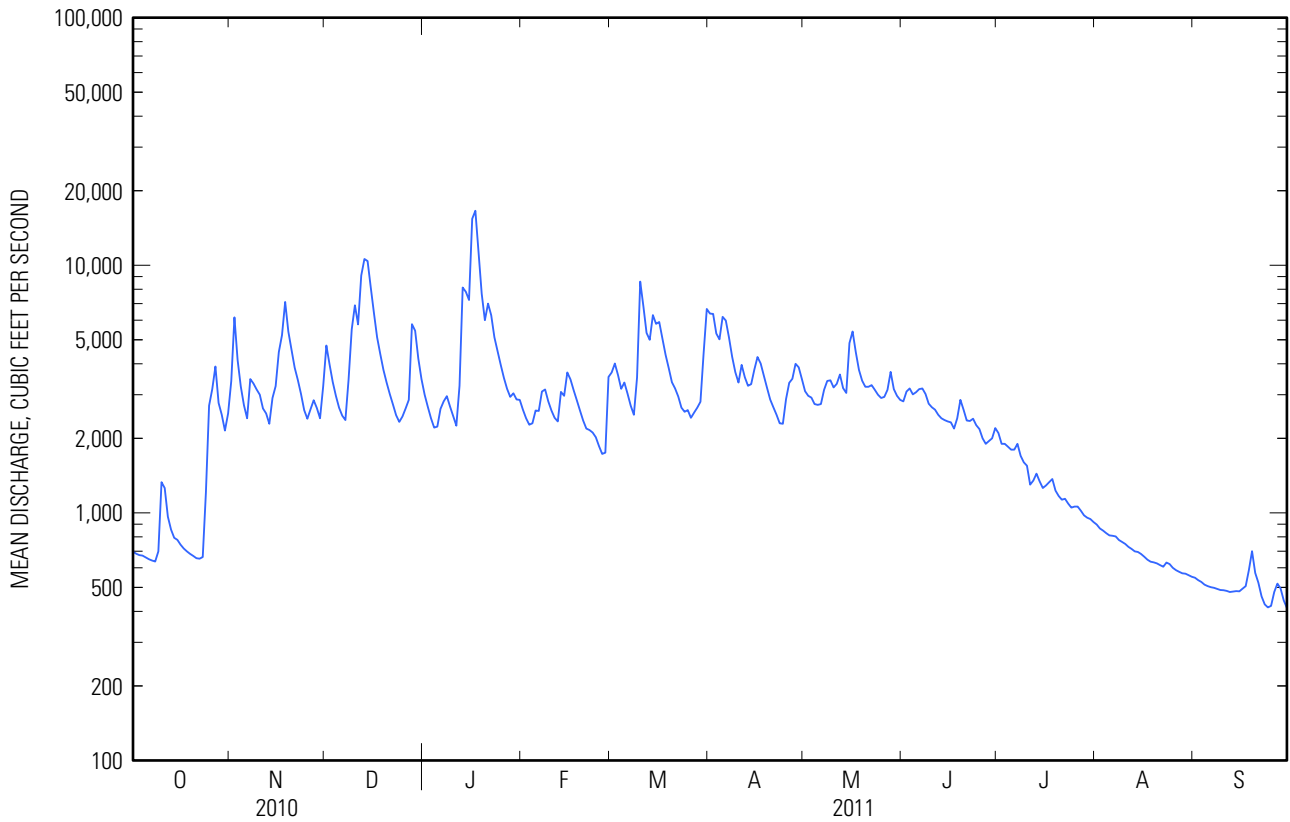
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 2011, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	905	2,829	3,361	3,658	3,149	2,912	2,678	2,218	1,674	828	509	476
Max	2,931	6,196	6,954	7,389	7,754	5,500	4,697	3,648	3,672	1,653	891	1,159
(WY)	(1998)	(2007)	(1997)	(2006)	(1996)	(1997)	(1991)	(2008)	(2010)	(1983)	(2004)	(2004)
Min	310	418	1,350	1,167	1,053	1,315	1,521	1,226	539	412	306	277
(WY)	(1988)	(1994)	(2001)	(2001)	(2005)	(1992)	(2004)	(1992)	(1992)	(1992)	(1992)	(1989)

14242580 TOUTLE RIVER AT TOWER ROAD, NEAR SILVER LAKE, WA—Continued

SUMMARY STATISTICS

	Calendar Year 2010		Water Year 2011		Water Years 1981 - 2011	
Annual total	893,954		1,017,153			
Annual mean	2,449		2,787		2,095	
Highest annual mean					3,118	1997
Lowest annual mean					1,168	2001
Highest daily mean	10,600	Dec 13	16,600	Jan 17	48,300	Feb 8, 1996
Lowest daily mean	511	Sep 15	413	Sep 30	243	Oct 14, 1987
Annual seven-day minimum	552	Sep 10	455	Sep 24	248	Oct 10, 1987
Annual runoff (ac-ft)	1,773,000		2,018,000		1,518,000	
Annual runoff (cfsm)	4.94		5.62		4.22	
Annual runoff (inches)	67.05		76.29		57.38	
10 percent exceeds	4,460		5,250		4,110	
50 percent exceeds	2,370		2,640		1,640	
90 percent exceeds	652		604		414	



14242580 TOUTLE RIVER AT TOWER ROAD, NEAR SILVER LAKE, WA—Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: May to October 1990, May to September 1991.

WATER TEMPERATURE: May to October 1990, May to September 1991.

SUSPENDED SEDIMENT DISCHARGE: February 1981 to current year. Records prior to October 1985 are published in U.S. Geological Survey Open-File Report 85-632; records for 1984-87 are published in U.S. Geological Survey Open-File Report 91-219.

TURBIDITY: April 2010 to current year.

INSTRUMENTATION.--Water-quality monitor May 1990 to September 1991. Automatic pumping sediment sampler since February 1981. Turbidity sensor with a 15-minute logging interval since April 2010.

REMARKS.--Turbidity records are good.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 917 microsiemens May 8, 1991; minimum recorded, 138 microsiemens, Oct. 24, 1990.

WATER TEMPERATURE: Maximum recorded, 27.0°C, July 23, 1991; minimum recorded, 3.0°C, Oct. 8, 1990.

SEDIMENT CONCENTRATION: Maximum daily, 232,000 mg/L, Mar. 20, 1982; minimum daily, 1 mg/L, Oct. 3, 1989.

SEDIMENT DISCHARGE: Maximum daily, 5,930,000 tons, Feb. 20, 1982; minimum daily, 0.71 tons, Oct. 3, 1989.

TURBIDITY: Maximum recorded, >1,590 FNU, Jan. 16, 2011; minimum recorded 3.1 FNU, Sept. 14, 2010, but may have been lower during periods of missing record.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily, 5,180 mg/L, Jan. 17; minimum daily, 7 mg/L, Oct. 18, 22, 23.

SEDIMENT DISCHARGE: Maximum daily, 233,000 tons, Jan. 17; minimum daily 12 tons, Oct. 23.

TURBIDITY: Maximum recorded, >1,590 FNU, Jan. 16; minimum recorded 4.7 FNU, Oct. 21, 23.

14242580 TOUTLE RIVER AT TOWER ROAD, NEAR SILVER LAKE, WA—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

[e, estimated]

Day	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)
	October			November			December		
1	697	15	29	3,410	373	5,690	4,740	856	11,000
2	684	13	24	6,160	1,250	22,300	3,980	514	5,550
3	675	12	22	4,140	335	3,810	3,380	338	3,100
4	672	11	20	3,240	206	1,810	2,970	206	1,660
5	661	10	17	2,720	146	1,080	2,660	148	1,070
6	650	9	15	2,410	137	893	2,470	96	639
7	642	8	14	3,470	423	4,120	2,370	78	500
8	636	8	14	3,330	188	1,700	3,450	443	4,440
9	699	13	25	3,150	146	1,240	5,510	1,410	22,800
10	1,330	138	589	3,000	136	1,110	6,890	1,720	33,900
11	1,260	203	744	2,640	97	695	5,770	835	13,300
12	965	40	106	2,520	118	803	9,090	2,470	65,200
13	856	25	58	2,290	103	639	10,600	4,540	131,000
14	793	20	42	2,910	253	2,090	10,400	3,430	96,900
15	778	17	36	3,250	192	1,700	8,140	2,220	49,500
16	744	14	28	4,460	562	6,810	6,420	1,390	24,400
17	718	9	18	5,220	601	9,570	5,120	949	13,200
18	699	7	13	7,110	1,080	21,200	4,380	664	7,870
19	683	8	14	5,400	626	9,210	3,780	507	5,200
20	670	9	16	4,560	414	5,140	3,360	380	3,450
21	656	9	16	3,860	270	2,820	3,020	341	2,780
22	653	7	13	3,440	200	1,860	2,740	277	2,060
23	663	7	12	3,020	149	1,220	2,480	262	1,760
24	1,210	116	465	2,600	120	846	2,330	222	1,390
25	2,710	568	4,520	2,400	101	658	2,450	263	1,730
26	3,160	405	4,040	2,620	181	1,330	2,640	279	1,990
27	3,900	394	4,390	2,850	217	1,680	2,860	340	2,780
28	2,780	125	945	2,650	134	961	5,780	1,430	22,200
29	2,490	92	620	2,410	103	672	5,440	624	9,340
30	2,150	50	292	3,250	543	5,850	4,200	338	3,870
31	2,520	99	681	---	---	---	3,470	e250	e2,340
Total	38,404	---	17,838	104,490	---	119,507	142,890	---	546,919

14242580 TOUTLE RIVER AT TOWER ROAD, NEAR SILVER LAKE, WA—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

[e, estimated]

Day	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)
	January			February			March		
1	3,000	e215	e1,750	2,610	548	3,880	3,690	e371	e3,720
2	2,680	e189	e1,370	2,410	482	3,140	4,010	e414	e4,500
3	2,410	e167	e1,090	2,270	514	3,150	3,600	e334	e3,270
4	2,210	e155	e923	2,300	636	4,010	3,170	e210	e1,800
5	2,230	e184	e1,120	2,590	880	6,180	3,360	e333	e3,040
6	2,630	248	1,800	2,580	e766	e5,340	3,030	e217	e1,780
7	2,820	212	1,620	3,090	e1,170	e9,810	2,710	e179	e1,310
8	2,960	275	2,230	3,150	e938	e8,000	2,490	e138	e930
9	2,690	144	1,050	2,820	e606	e4,630	3,520	e764	e8,200
10	2,460	114	756	2,590	e470	e3,290	8,590	e3,180	e78,700
11	2,250	102	617	2,420	391	2,550	6,830	e1,150	e21,800
12	3,260	e241	e2,780	2,340	447	2,860	5,330	e592	e8,560
13	8,130	e1,160	e26,300	3,080	1,150	9,990	5,000	e573	e8,050
14	7,810	1,060	22,400	2,970	556	4,530	6,290	e1,270	e21,600
15	7,240	890	17,400	3,690	1,520	15,400	5,800	e907	e14,200
16	15,400	4,690	213,000	3,460	842	7,880	5,900	e857	e13,700
17	16,600	5,180	233,000	3,130	601	5,090	5,060	e583	e8,040
18	11,300	3,540	110,000	2,850	485	3,730	4,350	e392	e4,620
19	7,670	2,070	43,400	2,590	463	3,240	3,840	e298	e3,100
20	e6,000	e1,560	e24,600	2,360	404	2,580	3,370	e244	e2,230
21	e7,000	e2,240	e41,500	2,190	317	1,880	3,180	e198	e1,700
22	6,280	1,570	26,700	2,160	279	1,630	2,950	e174	e1,380
23	5,120	1,270	17,500	2,110	296	1,690	2,660	e153	e1,100
24	4,500	1,040	12,700	2,020	239	1,310	2,560	e137	e948
25	3,960	881	9,430	1,860	215	1,080	2,600	e167	e1,170
26	3,510	755	7,160	1,730	223	1,040	2,420	e124	e807
27	3,170	639	5,470	1,750	281	1,340	2,540	e129	e887
28	2,940	582	4,630	3,540	e819	e8,090	2,660	e175	e1,260
29	3,040	696	5,720	---	---	---	2,810	e432	e3,340
30	2,870	627	4,860	---	---	---	4,410	e1,930	e25,800
31	2,860	611	4,710	---	---	---	6,660	2,420	44,100
Total	157,000	---	847,586	72,660	---	127,340	125,390	---	295,642

14242580 TOUTLE RIVER AT TOWER ROAD, NEAR SILVER LAKE, WA—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

[e, estimated]

Day	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)
	April			May			June		
1	6,380	2,190	38,200	3,100	e135	e1,120	2,820	e238	e1,810
2	6,360	2,320	40,000	2,970	e394	e3,160	3,090	e380	e3,190
3	5,300	1,540	22,300	2,920	256	2,020	3,180	e391	e3,370
4	5,020	1,490	20,600	2,750	215	1,590	3,010	e282	e2,290
5	6,190	2,090	35,600	2,730	207	1,530	3,070	e283	e2,350
6	5,980	1,590	25,800	2,750	279	2,070	3,160	e296	e2,530
7	5,110	1,140	15,800	3,140	489	4,170	3,180	e307	e2,630
8	4,270	872	10,100	3,410	595	5,470	3,020	e261	e2,140
9	3,700	e706	e7,090	3,430	e575	e5,330	2,760	e210	e1,560
10	3,360	e475	e4,310	3,210	e490	e4,250	2,670	e207	e1,490
11	3,960	e1,040	e11,400	3,320	e471	e4,240	2,610	e168	e1,190
12	3,530	e720	e6,920	3,620	e500	e4,940	2,490	e146	e984
13	3,260	e412	e3,630	3,190	310	2,670	2,410	e127	e827
14	3,310	e391	e3,500	3,050	252	2,070	2,370	e111	e711
15	3,790	e814	e8,370	4,850	913	13,500	2,340	e108	e682
16	4,260	e1,200	e13,800	5,400	e1,050	e15,400	2,320	e103	e648
17	4,010	e878	e9,540	4,460	e777	e9,390	2,190	86	510
18	3,580	e599	e5,810	3,780	e600	e6,140	2,410	207	1,390
19	3,200	e421	e3,650	3,420	e460	e4,260	2,860	428	3,310
20	2,870	e412	e3,200	3,230	389	3,390	2,610	193	1,370
21	2,670	e275	e1,980	3,230	300	2,620	2,360	137	874
22	2,490	e186	e1,260	3,280	e227	e2,010	2,350	175	1,110
23	2,300	e129	e805	3,140	e189	e1,600	2,400	148	954
24	2,290	e142	e877	3,000	e207	e1,680	2,260	132	804
25	2,880	517	4,280	2,910	e163	e1,280	2,180	138	809
26	3,350	580	5,250	2,940	e145	e1,150	e2,000	e115	e621
27	3,480	477	4,510	3,140	e217	e1,910	e1,900	e85	e436
28	4,000	925	10,000	3,710	e653	e6,640	e1,950	e98	e516
29	3,870	489	5,190	3,160	e381	e3,260	e2,000	e110	e594
30	3,470	e149	e1,410	2,970	299	2,400	e2,200	e150	e891
31	---	---	---	2,860	262	2,020	---	---	---
Total	118,240	---	325,182	103,070	---	123,280	76,170	---	42,591

14242580 TOUTLE RIVER AT TOWER ROAD, NEAR SILVER LAKE, WA—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

[e, estimated]

Day	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)
1	e2,100	e102	e580	897	72	174	547	21	30
2	e1,900	e86	e447	865	102	239	535	18	26
3	e1,900	e92	e472	848	120	275	526	16	22
4	e1,850	e96	e480	828	106	236	513	15	20
5	e1,800	e100	e484	811	88	193	506	14	19
6	e1,800	e106	e515	808	68	148	501	13	18
7	e1,900	e108	e554	803	59	129	498	19	26
8	e1,700	e135	e620	777	53	112	493	14	19
9	e1,600	e138	e596	763	50	103	488	19	25
10	e1,550	e127	e531	749	54	109	487	32	42
11	e1,300	e122	e428	729	39	77	484	41	54
12	e1,350	e123	e438	715	27	52	479	51	66
13	1,440	139	542	699	27	51	481	36	47
14	1,340	119	429	695	28	52	483	32	41
15	1,260	92	313	682	23	42	482	26	34
16	1,290	87	305	665	21	38	494	25	33
17	1,330	95	341	647	23	40	506	28	38
18	1,370	102	380	635	22	38	587	62	99
19	1,230	68	227	631	21	36	700	168	320
20	1,170	57	182	625	20	33	572	101	157
21	1,130	51	155	615	20	32	522	46	65
22	1,140	50	156	606	22	35	460	30	38
23	1,090	45	133	630	32	54	427	27	32
24	1,050	44	125	621	28	47	415	119	133
25	1,060	47	133	600	26	42	421	202	229
26	1,060	50	144	587	27	43	479	241	312
27	1,020	45	125	578	27	41	518	296	413
28	977	42	111	570	22	33	495	674	904
29	956	38	97	568	28	43	443	310	373
30	944	50	128	560	32	48	413	144	161
31	918	56	138	552	26	39	---	---	---
Total	42,525	---	10,309	21,359	---	2,634	14,955	---	3,796

	Total discharge (ft ³ /s)	Total suspended sediment discharge (tons)
Year	1,017,153	2,462,624

14242580 TOUTLE RIVER AT TOWER ROAD, NEAR SILVER LAKE, WA—Continued

TURBIDITY, WATER, UNFILT, NEAR IR LED LIGHT, 780-900 NM, DETECT ANG. 90 DEG, FORMAZIN NEPHELOMETRIC UNITS
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

[>, greater than]

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
	October			November			December			January		
1	20	14	18	330	---	---	68	27	42	44	31	36
2	17	13	15	---	100	---	28	17	21	47	32	34
3	14	11	12	100	55	64	20	13	16	38	27	32
4	13	8.9	11	63	49	54	14	9.1	11	34	25	28
5	10	6.6	9.1	52	40	45	9.9	7.7	8.8	48	25	35
6	7.8	5.9	7.0	51	40	44	8.7	6.7	7.5	78	35	40
7	7.3	5.9	6.3	180	42	85	7.6	6.0	6.8	73	28	34
8	7.3	5.9	6.3	63	43	53	70	7.0	29	65	25	38
9	12	6.0	7.2	46	38	41	170	32	68	27	21	24
10	140	12	38	45	32	37	200	59	91	24	17	20
11	160	30	77	38	29	31	84	52	60	18	14	16
12	31	14	20	34	25	29	840	82	200	400	15	24
13	16	11	14	27	22	24	940	380	550	640	260	330
14	13	9.1	11	64	22	43	760	380	450	260	180	190
15	12	8.3	9.7	49	26	33	390	260	310	220	150	160
16	9.1	6.5	8.4	110	49	86	260	190	220	>1,590	220	1,010
17	7.2	5.7	6.5	310	49	60	210	140	180	1,420	1,080	1,220
18	6.4	5.4	5.8	330	---	---	160	130	140	1,130	600	830
19	6.1	5.1	5.5	140	80	97	150	110	120	610	390	500
20	6.3	4.9	5.3	97	40	---	110	94	100	390	330	350
21	5.5	4.7	5.1	42	25	31	110	85	94	470	350	390
22	5.9	4.8	5.1	27	19	22	95	72	80	390	290	310
23	5.5	4.7	5.1	21	16	18	120	68	76	350	280	310
24	96	5.3	26	16	12	14	71	58	64	310	220	260
25	---	---	---	13	10	11	71	56	66	250	190	220
26	150	34	52	26	10	18	100	55	61	250	190	210
27	150	31	54	19	12	15	140	50	63	200	170	180
28	31	18	22	13	9.0	11	250	130	190	170	140	160
29	20	14	17	9.8	7.6	8.6	130	78	91	190	160	170
30	16	10	12	71	7.6	11	82	52	62	210	160	180
31	25	12	21	---	---	---	52	40	43	190	140	160
Max	---	---	---	---	---	---	940	380	550	1,590	1,080	1,220
Min	---	---	---	---	---	---	7.6	6.0	6.8	18	14	16

14242580 TOUTLE RIVER AT TOWER ROAD, NEAR SILVER LAKE, WA—Continued

TURBIDITY, WATER, UNFILT, NEAR IR LED LIGHT, 780-900 NM, DETECT ANG. 90 DEG, FORMAZIN NEPHELOMETRIC UNITS
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

[>, greater than]

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
	February			March			April			May		
1	180	130	140	65	42	50	360	240	270	32	25	28
2	140	120	130	92	47	60	400	250	330	88	27	31
3	170	110	130	77	36	43	280	180	230	31	25	27
4	180	120	140	42	28	34	290	160	180	29	22	25
5	190	110	130	82	35	43	490	180	270	27	21	24
6	140	100	110	40	27	33	290	160	210	39	23	27
7	190	110	160	32	22	27	180	120	150	47	28	---
8	160	94	110	26	20	23	130	88	110	---	---	---
9	99	75	85	310	21	59	150	82	96	---	---	---
10	86	65	72	1,100	290	650	91	72	82	36	26	30
11	73	57	63	510	300	330	280	70	150	86	28	32
12	95	53	61	320	200	220	150	77	87	---	31	---
13	250	71	130	350	170	200	84	61	71	---	---	---
14	130	59	70	910	240	340	74	57	63	---	---	---
15	400	130	180	550	250	270	100	65	86	250	31	---
16	160	100	120	410	190	250	120	79	95	190	120	150
17	120	85	92	200	160	180	110	66	73	120	88	100
18	89	69	76	170	140	150	74	50	57	99	63	77
19	74	59	66	160	110	130	---	---	---	---	---	---
20	61	53	58	120	100	110	110	34	41	---	---	---
21	55	48	52	110	87	93	38	31	33	50	36	42
22	52	40	48	97	78	87	36	28	33	48	30	38
23	45	36	41	120	70	80	32	27	30	36	30	32
24	43	34	38	72	65	69	33	24	28	38	27	30
25	41	32	37	83	57	68	93	25	41	34	22	27
26	44	31	36	62	47	54	93	43	58	36	20	24
27	42	31	34	71	47	53	65	41	51	81	22	26
28	240	42	92	80	42	62	110	52	72	100	29	42
29	---	---	---	74	41	55	82	37	48	34	21	25
30	---	---	---	360	71	140	40	29	35	26	21	22
31	---	---	---	390	210	280	---	---	---	26	20	22
Max	400	130	180	1,100	300	650	---	---	---	---	---	---
Min	41	31	34	26	20	23	---	---	---	---	---	---

14242580 TOUTLE RIVER AT TOWER ROAD, NEAR SILVER LAKE, WA—Continued

TURBIDITY, WATER, UNFILT, NEAR IR LED LIGHT, 780-900 NM, DETECT ANG. 90 DEG, FORMAZIN NEPHELOMETRIC UNITS
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011

[>, greater than]

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
	June			July			August			September		
1	26	19	22	23	15	18	55	24	28	15	9.5	13
2	40	21	31	19	15	17	64	34	46	---	---	---
3	39	24	30	26	16	20	58	46	52	---	---	---
4	30	20	24	24	18	21	48	41	44	---	---	---
5	29	22	25	25	20	22	---	36	---	---	---	---
6	32	23	27	34	22	27	---	---	---	---	---	---
7	32	24	29	36	23	31	---	---	---	9.8	6.9	8.3
8	32	24	27	66	32	54	---	---	---	11	7.0	8.5
9	29	20	24	56	42	50	---	---	---	18	11	13
10	28	18	21	44	37	42	25	19	21	---	18	---
11	22	17	19	42	36	39	21	16	18	---	---	---
12	21	16	18	43	36	39	18	16	17	---	---	---
13	20	15	17	57	34	42	18	14	15	---	---	---
14	20	14	16	42	34	36	16	13	14	27	---	---
15	18	14	15	36	27	32	15	12	14	---	---	---
16	18	13	15	36	28	30	14	11	12	---	---	---
17	16	11	13	40	27	30	12	9.8	11	---	---	---
18	31	12	17	44	23	29	11	9.2	10	---	19	---
19	40	23	32	26	20	23	12	8.7	9.7	120	32	69
20	27	19	22	22	17	19	10	8.5	9.5	110	34	61
21	23	16	18	20	15	17	11	8.9	9.7	34	18	26
22	25	16	20	18	14	16	23	8.5	11	---	---	---
23	26	18	21	16	12	14	24	14	18	---	---	---
24	24	17	19	16	13	14	20	12	16	230	---	---
25	20	14	17	25	14	16	22	13	17	160	---	---
26	18	14	16	23	16	19	22	12	16	---	---	---
27	18	14	16	19	16	18	19	12	15	320	100	140
28	21	15	18	19	16	17	19	11	14	520	220	360
29	24	17	19	19	16	17	25	14	18	250	99	190
30	28	18	23	26	15	17	---	---	---	99	66	79
31	---	---	---	30	18	22	---	10	---	---	---	---
Max	40	24	32	66	42	54	---	---	---	---	---	---
Min	16	11	13	16	12	14	---	---	---	---	---	---