14240525 NORTH FORK TOUTLE RIVER BELOW SEDIMENT RETENTION STRUCTURE NEAR KID VALLEY, WA

Lower Columbia Basin
Lower Cowlitz Subbasin

LOCATION.--Lat 46°22′19″, long 122°34′40″ referenced to North American Datum of 1927, Cowlitz County, WA, Hydrologic Unit 17080005, 1.3 mi downstream from Sediment Retention Structure, on left bank, 0.7 mi upstream from the mouth of the Green River, 1.8 mieast of Kid Valley, and at mile 12.0.

DRAINAGE AREA.--175 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1989 to September 1998, October 2000 to September 2002, October 2006 to September 2007.

GAGE.--Water-stage recorder. Datum of gage is 700.00 ft above sea level (levels by U.S. Army Corps of Engineers).

REMARKS.--Records poor. No regulation or diversion upstream from station.

AVERAGE DISCHARGE FOR PERIOD OF RECORD.--12 years (water years 1990-98, 2001-2002, 2007), 753 ft^3/s, 58.48 in/yr, 545,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,100 ft^3/s, Feb. 8, 1996, gage height, 62.13 ft; minimum discharge, 141 ft^3/s, Sept. 24, 25, 2001.

EXTREMES OUTSIDE PERIOD OF RECORD.--An outstanding flood occurred on May 18, 1980, from a mudflow caused by the eruption ofMount St. Helens.

CORRECTIONS.--Average annual runoff values published in Water-Data Reports WA-01-1 and WA-02-1 are incorrect. Correct values are:

WATER YEARS 1990-2001		WATER YEARS 1990-2002	
ANNUAL MEAN	745	ANNUAL MEAN	753
ANNUAL RUNOFF (AC-FT)	539800	ANNUAL RUNOFF (AC-FT)	545600
ANNUAL RUNOFF (CFSM)	4.26	ANNUAL RUNOFF (CFSM)	4.30
ANNUAL RUNOFF (INCHES)	57.86	ANNUAL RUNOFF (INCHES)	58.48
10 PERCENT EXCEEDS	1380	10 PERCENT EXCEEDS	1400
50 PERCENT EXCEEDS	623	50 PERCENT EXCEEDS	634
90 PERCENT EXCEEDS	221	90 PERCENT EXCEEDS	222

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft^3/s (revised) and (or) maximum (*):

Date	Time	Discharge (ft^3/s)	Gage height (ft)
Nov 6	1830	*9,910	*61.22
Dec 14	2200	4,160	58.47
Jan 7	1930	3,070	57.63
Mar 24	2245	3,850	58.24

Minimum daily discharge, 180 ft^3/s, Oct. 14.

14240525 NORTH FORK TOUTLE RIVER BELOW SEDIMENT RETENTION STRUCTURE NEAR KID VALLEY, WA—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	e185	212	632	1,010	490	e868	e688	e590	585	407	e299	251
2	e185	289	545	1,410	503	e851	e653	e740	592	403	288	247
3	e185	661	435	2,350	440	e1,130	e630	e800	587	391	283	249
4	e185	922	437	1,480	503	e1,190	e613	e760	598	381	285	265
5	e187	952	464	e1,130	458	e1,240	e570	e680	622	373	281	256
6	e186	5,620	414	e1,380	415	e1,220	e545	e600	614	362	283	249
7	e191	6,990	392	1,450	379	e1,420	e642	e580	601	371	287	243
8	e192	3,970	406	1,920	e418	e1,630	e787	e620	591	359	306	239
9	e195	e2,390	433	e1,700	446	e1,470	e928	e760	594	359	296	236
10	e189	e1,910	409	e1,510	395	e1,370	e906	e740	624	359	281	237
11	e185	e1,930	791	e1,370	e432	e1,890	e812	e700	574	357	280	242
12	e183	e1,520	1,100	e1,110	e491	e2,580	e785	e680	529	361	281	250
13	e181	e2,050	1,560	e955	e475	e2,190	e738	e660	513	373	282	249
14	e180	1,500	2,160	e837	e464	e1,710	e763	651	478	369	283	259
15	e198	1,630	e2,300	e742	e766	e1,390	e732	646	492	371	276	268
16	e380	e1,700	e1,960	e725	e1,630	1,200	e702	617	504	370	279	282
17	e312	1,250	e1,440	e710	e1,130	1,120	e771	630	508	388	278	296
18	e247	987	e1,120	e663	e1,120	1,100	e815	e640	487	414	284	285
19	e308	1,270	e928	e657	e1,080	1,060	e811	656	467	433	e324	272
20	e354	1,070	e805	e762	e2,580	1,160	e760	681	475	420	319	258
21	e269	1,480	1,150	e713	e1,700	992	e746	744	448	432	316	271
22	e260	1,560	916	e697	e1,380	897	e780	667	442	422	297	281
23	e250	2,020	1,300	e687	e1,190	898	e720	604	422	410	294	278
24	e230	1,710	1,160	e676	e1,110	1,300	e680	549	452	383	290	279
25	e259	1,360	1,680	e658	e1,140	e2,810	e690	595	471	346	286	276
26	e232	1,360	1,680	e641	e1,080	e2,060	e640	623	422	321	286	281
27	e231	1,240	1,720	e601	e992	e1,660	e610	626	419	315	272	280
28	213	1,120	1,340	e569	e967	e1,400	e600	627	440	311	266	350
29	236	702	e1,400	e547	---	e1,100	e600	603	458	312	266	304
30	220	667	e1,200	e533	---	e900	e580	591	448	307	265	366
31	208	---	1,060	e508	---	e750	---	572	---	300	255	---
Total	7,016	52,042	33,337	30,701	24,174	42,556	21,297	20,232	15,457	11,480	8,868	8,099
Mean	226	1,735	1,075	990	863	1,373	710	653	515	370	286	270
Max	380	6,990	2,300	2,350	2,580	2,810	928	800	624	433	324	366
Min	180	212	392	508	379	750	545	549	419	300	255	236
Ac-ft	13,920	103,200	66,120	60,900	47,950	84,410	42,240	40,130	30,660	22,770	17,590	16,060
Cfsm	1.29	9.91	6.15	5.66	4.93	7.84	4.06	3.73	2.94	2.12	1.63	1.54

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 2007, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	397	941	1,147	1,086	1,126	1,038	1,004	809	615	393	272	238
Max	929	1,735	1,810	1,582	2,323	1,767	1,461	1,206	913	581	408	369
(WY)	(1998)	(2007)	(1996)	(1997)	(1996)	(1997)	(1991)	(1996)	(1990)	(1997)	(1997)	(1997)
Min	206	211	497	448	402	539	658	515	278	225	182	173
(WY)	(1994)	(1994)	(2001)	(2001)	(1993)	(1992)	(1992)	(1992)	(1992)	(1992)	(1990)	(1990)

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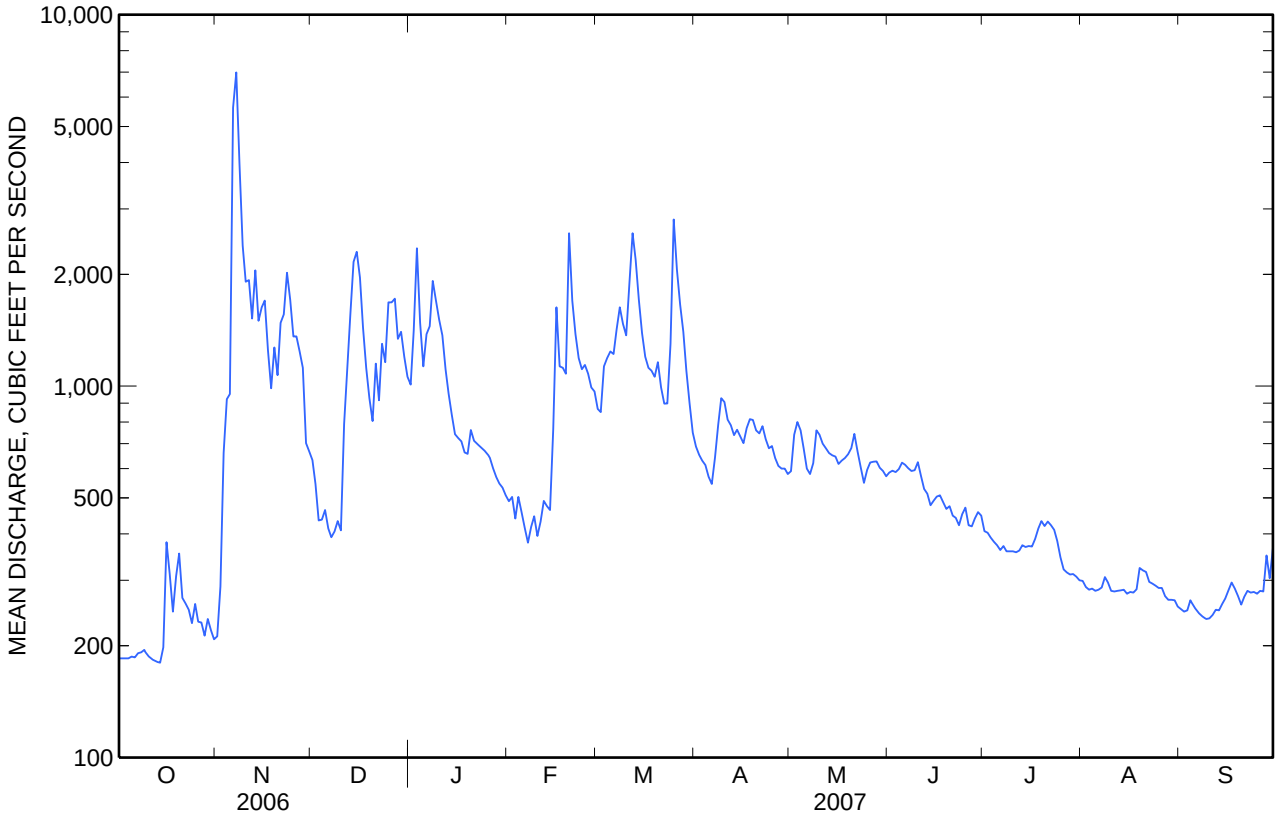
SUMMARY STATISTICS

	Water Year 2007		Water Years 1990 - 2007	
Annual total	275,259			
Annual mean	754		753	
Highest annual mean			1,074	1996
Lowest annual mean			465	2001
Highest daily mean	6,990	Nov 7	11,000	Feb 8, 1996
Lowest daily mean	180	Oct 14	140	Oct 1, 1989
Annual seven-day minimum	186	Oct 1	156	Aug 12, 1990
Annual runoff (ac-ft)	546,000		545,700	
Annual runoff (cfsm)	4.31		4.30	
10 percent exceeds	1,490		1,400	
50 percent exceeds	591		627	
90 percent exceeds	253		224	



WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: May to September 1990-91 (discontinued).
WATER TEMPERATURE: May to September 1990, May to September 1991, May 2001 to September 2002 discontinued).
SUSPENDED SEDIMENT: February 2001 to September 2002, October 2006 to September 2007.

INSTRUMENTATION.--Automatic pumping sampler. D-74 suspended sediment sampler located near the bank operated cableway.

EXTREMES FOR PERIOD OF RECORD.--
SPECIFIC CONDUCTANCE: Maximum recorded, 999 microsiemens Sept. 26, 1991; minimum recorded, 322 microsiemens May 26, 1991.
WATER TEMPERATURE: Maximum recorded (more than 20 percent missing record), 29.7°C, July 22, 2002; minimum recorded 1.0°C Jan. 29, 2002.
SEDIMENT CONCENTRATION: Maximum daily, 79,800 mg/L Nov. 7, 2006; minimum daily, 82 mg/L Feb. 12, 2001.
SEDIMENT DISCHARGE: Maximum daily, 1,510,000 tons Nov. 7, 2006; minimum daily, 45 tons Sept. 22, 2001, Oct. 1-2, 2006.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATION: Maximum daily, 79,800 mg/L Nov. 7; minimum daily, 90 mg/L Oct. 1.
SEDIMENT DISCHARGE: Maximum daily, 1,510,000 tons Nov. 7; minimum daily, 45 tons Oct. 1-2.

14240525 NORTH FORK TOUTLE RIVER BELOW SEDIMENT RETENTION STRUCTURE NEAR KID VALLEY, WA—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
[e, estimated]

Day	Mean discharge (ft^3/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft^3/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft^3/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)
		October			November			December	
1	e185	e90	e45	212	915	524	632	6,820	11,600
2	e185	e91	e45	289	664	518	545	5,860	8,620
3	e185	e92	e46	661	11,400	20,300	435	5,510	6,470
4	e185	e93	e46	922	12,200	30,400	437	5,860	6,910
5	e187	e97	e49	952	27,900	71,700	464	5,480	6,870
6	e186	e91	e46	5,620	59,200	898,000	414	4,760	5,320
7	e191	e98	e51	6,990	79,800	1,510,000	392	4,230	4,480
8	e192	e102	e53	3,970	53,800	577,000	406	4,340	4,760
9	e195	e105	e55	e2,390	e28,800	e186,000	433	4,830	5,650
10	e189	e102	e52	e1,910	e28,700	e148,000	409	5,180	5,720
11	e185	e98	e49	e1,930	e21,200	e110,000	791	9,190	19,600
12	e183	e96	e47	e1,520	e15,400	e63,200	1,100	11,200	33,300
13	e181	e100	e49	e2,050	e16,900	e93,500	1,560	13,400	56,400
14	e180	e120	e58	1,500	15,200	61,600	2,160	14,200	82,800
15	e198	e196	e105	1,630	12,800	56,300	e2,300	e21,100	e131,000
16	e380	e413	e424	e1,700	e15,100	e69,300	e1,960	e16,100	e85,200
17	e312	e239	e201	1,250	13,000	43,900	e1,440	e11,900	e46,300
18	e247	e160	e107	987	9,610	25,600	e1,120	e9,110	e27,500
19	e308	e201	e167	1,270	10,700	36,700	e928	e7,540	e18,900
20	e354	e411	e393	1,070	9,740	28,100	e805	e6,720	e14,600
21	e269	e232	e169	1,480	16,600	66,300	1,150	8,090	25,100
22	e260	e195	e137	1,560	12,300	51,800	916	7,620	18,800
23	e250	e168	e113	2,020	12,700	69,300	1,300	8,100	28,400
24	e230	e309	e192	1,710	9,970	46,000	1,160	7,220	22,600
25	e259	e219	e153	1,360	9,270	34,000	1,680	10,900	49,400
26	e232	e127	e80	1,360	9,660	35,500	1,680	9,320	42,300
27	e231	e135	e84	1,240	10,400	34,800	1,720	10,300	47,800
28	213	184	106	1,120	9,620	29,100	1,340	8,360	30,200
29	236	148	94	702	8,150	15,500	e1,400	e8,380	e31,700
30	220	201	119	667	7,520	13,500	e1,200	e7,820	e25,300
31	208	287	161	---	---	---	1,060	7,280	20,800
Total	7,016	---	3,496	52,042	---	4,426,442	33,337	---	924,400

14240525 NORTH FORK TOUTLE RIVER BELOW SEDIMENT RETENTION STRUCTURE NEAR KID VALLEY, WA—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
[e, estimated]

Day	Mean discharge (ft³/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft³/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft³/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)
		January			February			March	
1	1,010	7,260	19,800	490	2,380	3,150	e868	e2,060	e4,830
2	1,410	7,690	29,300	503	3,030	4,120	e851	e1,990	e4,570
3	2,350	10,400	66,000	440	2,640	3,140	e1,130	e2,360	e7,200
4	1,480	8,760	35,000	503	2,460	3,340	e1,190	e2,640	e8,480
5	e1,130	e7,870	e24,000	458	2,680	3,310	e1,240	e2,920	e9,780
6	e1,380	e7,090	e26,400	415	2,800	3,140	e1,220	e2,800	e9,220
7	1,450	9,690	37,900	379	2,650	2,710	e1,420	e3,060	e11,700
8	1,920	8,090	41,900	e418	e3,130	e3,530	e1,630	e3,180	e14,000
9	e1,700	e6,740	e30,900	446	3,040	3,660	e1,470	e2,620	e10,400
10	e1,510	e5,470	e22,300	395	2,770	2,950	e1,370	e3,410	e12,600
11	e1,370	e4,940	e18,300	e432	e3,120	e3,640	e1,890	e2,620	e13,400
12	e1,110	e4,710	e14,100	e491	e2,720	e3,610	e2,580	e6,540	e45,600
13	e955	e4,520	e11,700	e475	e2,810	e3,600	e2,190	e5,490	e32,500
14	e837	e4,340	e9,810	e464	e2,350	e2,940	e1,710	e5,220	e24,100
15	e742	e4,200	e8,410	e766	e2,880	e5,960	e1,390	e4,450	e16,700
16	e725	e4,130	e8,080	e1,630	e5,420	e23,900	1,200	3,380	11,000
17	e710	e3,650	e7,000	e1,130	e5,460	e16,700	1,120	3,130	9,470
18	e663	e3,820	e6,840	e1,120	e5,340	e16,100	1,100	3,360	9,980
19	e657	e3,750	e6,650	e1,080	e5,360	e15,600	1,060	2,860	8,190
20	e762	e3,600	e7,410	e2,580	e5,090	e35,500	1,160	4,370	13,700
21	e713	e2,930	e5,640	e1,700	e4,530	e20,800	992	3,820	10,200
22	e697	e2,700	e5,080	e1,380	e3,590	e13,400	897	3,530	8,550
23	e687	e2,650	e4,920	e1,190	e3,080	e9,900	898	3,220	7,810
24	e676	e2,620	e4,780	e1,110	e3,250	e9,740	1,300	4,560	16,000
25	e658	e2,580	e4,580	e1,140	e3,760	e11,600	e2,810	e8,820	e66,900
26	e641	e2,550	e4,410	e1,080	e3,320	e9,680	e2,060	e6,650	e37,000
27	e601	e2,520	e4,090	e992	e2,320	e6,210	e1,660	e6,040	e27,100
28	e569	e2,490	e3,830	e967	e2,320	e6,060	e1,400	e5,060	e19,100
29	e547	e2,450	e3,620	---	---	---	e1,100	e4,350	e12,900
30	e533	e2,420	e3,480	---	---	---	e900	e3,370	e8,190
31	e508	e2,440	e3,350	---	---	---	e750	e4,140	e8,380
Total	30,701	---	479,580	24,174	---	247,990	42,556	---	499,550

14240525 NORTH FORK TOUTLE RIVER BELOW SEDIMENT RETENTION STRUCTURE NEAR KID VALLEY, WA—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
[e, estimated]

Day	Mean discharge (ft^3/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft^3/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft^3/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)
		April			May			June	
1	e688	e4,030	e7,490	e590	e1,660	e2,640	585	1,130	1,780
2	e653	e3,630	e6,400	e740	e1,690	e3,380	592	1,190	1,900
3	e630	e3,680	e6,260	e800	e2,880	e6,220	587	1,290	2,040
4	e613	e3,210	e5,310	e760	e2,440	e5,010	598	1,310	2,120
5	e570	e2,810	e4,320	e680	e1,980	e3,640	622	1,440	2,420
6	e545	e2,490	e3,600	e600	e1,530	e2,480	614	1,540	2,550
7	e642	e2,730	e4,730	e580	e1,470	e2,300	601	1,600	2,600
8	e787	e3,270	e6,950	e620	e1,270	e2,130	591	1,640	2,620
9	e928	e3,910	e9,800	e760	e1,220	e2,500	594	1,450	2,330
10	e906	e3,620	e8,860	e740	e1,080	e2,160	624	1,140	1,920
11	e812	e3,210	e7,040	e700	e891	e1,680	574	1,490	2,310
12	e785	e2,880	e6,100	e680	e1,170	e2,150	529	1,400	2,000
13	e738	e2,410	e4,800	e660	e1,230	e2,190	513	815	1,130
14	e763	e2,020	e4,160	651	1,100	1,930	478	843	1,090
15	e732	e1,920	e3,790	646	1,120	1,950	492	768	1,020
16	e702	e1,850	e3,510	617	1,260	2,100	504	733	997
17	e771	e2,030	e4,230	630	1,280	2,180	508	850	1,170
18	e815	e2,230	e4,910	e640	e943	e1,630	487	915	1,200
19	e811	e2,210	e4,840	656	1,070	1,900	467	1,860	2,350
20	e760	e1,950	e4,000	681	1,030	1,890	475	1,190	1,530
21	e746	e1,710	e3,440	744	1,120	2,250	448	1,710	2,070
22	e780	e2,310	e4,860	667	966	1,740	442	1,910	2,280
23	e720	e1,890	e3,670	604	1,010	1,650	422	1,960	2,230
24	e680	e1,990	e3,650	549	1,050	1,560	452	1,900	2,320
25	e690	e1,640	e3,060	595	1,630	2,620	471	2,320	2,950
26	e640	e2,020	e3,490	623	1,810	3,040	422	2,030	2,310
27	e610	e1,590	e2,620	626	1,500	2,540	419	2,340	2,650
28	e600	e1,310	e2,120	627	1,270	2,150	440	2,160	2,570
29	e600	e1,170	e1,900	603	1,300	2,120	458	1,490	1,840
30	e580	e1,260	e1,970	591	1,160	1,850	448	1,490	1,800
31	---	---	---	572	1,080	1,670	---	---	---
Total	21,297	---	141,880	20,232	---	75,250	15,457	---	60,097

14240525 NORTH FORK TOUTLE RIVER BELOW SEDIMENT RETENTION STRUCTURE NEAR KID VALLEY, WA—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
[e, estimated]

Day	Mean discharge (ft³/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft³/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft³/s)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)
		July			August			September	
1	407	1,810	1,990	e299	e2,300	e1,860	251	1,130	766
2	403	1,590	1,730	288	1,300	1,010	247	1,060	707
3	391	1,300	1,370	283	1,620	1,240	249	1,240	834
4	381	1,050	1,080	285	2,050	1,580	265	1,420	1,020
5	373	1,180	1,190	281	1,960	1,490	256	1,160	802
6	362	882	862	283	1,810	1,380	249	1,040	699
7	371	4,710	4,720	287	1,800	1,390	243	949	623
8	359	3,060	2,970	306	1,250	1,030	239	871	562
9	359	2,650	2,570	296	1,210	967	236	794	506
10	359	2,470	2,390	281	1,990	1,510	237	893	571
11	357	2,700	2,600	280	1,580	1,190	242	1,020	666
12	361	2,790	2,720	281	1,540	1,170	250	1,120	756
13	373	2,920	2,940	282	2,130	1,620	249	1,080	726
14	369	3,290	3,280	283	2,450	1,870	259	1,180	825
15	371	3,600	3,610	276	2,230	1,660	268	1,400	1,010
16	370	3,400	3,400	279	1,950	1,470	282	1,650	1,260
17	388	2,520	2,640	278	1,890	1,420	296	2,410	1,930
18	414	2,960	3,310	284	1,980	1,520	285	1,830	1,410
19	433	3,000	3,510	e324	e2,840	e2,480	272	1,580	1,160
20	420	2,660	3,020	319	2,810	2,420	258	1,410	982
21	432	3,140	3,660	316	2,550	2,180	271	1,650	1,210
22	422	3,260	3,710	297	2,290	1,840	281	1,940	1,470
23	410	3,810	4,220	294	2,180	1,730	278	2,010	1,510
24	383	3,770	3,900	290	2,120	1,660	279	1,990	1,500
25	346	3,870	3,620	286	2,070	1,600	276	1,950	1,450
26	321	3,600	3,120	286	1,960	1,510	281	2,040	1,550
27	315	3,260	2,770	272	1,720	1,260	280	2,050	1,550
28	311	2,990	2,510	266	1,480	1,060	350	3,050	2,880
29	312	2,640	2,220	266	1,370	984	304	4,200	3,450
30	307	2,380	1,970	265	1,290	923	366	4,300	4,250
31	300	2,330	1,890	255	1,200	826	---	---	---
Total	11,480	---	85,492	8,868	---	45,850	8,099	---	38,635

	Mean discharge (ft³/s)	Sediment discharge (tons/day)
Year	275,259	7,028,662